Barriers Reaching Carriers

Robertson Nash, PhD(c), ACNP, BC
Vanderbilt Comprehensive Care Clinic

Southeast AIDS Education and Training Center
Balancing Needs to Improve Outcomes

Patient Needs
- Focus on Strengths
- Emphasize Belonging

Provider Needs
- Engage with the evidence without blaming the victim

Compassion, Empathy, Understanding
Why 45,000 new infections/year?

- We have the pharmacological agents to fully suppress the virus
  - SE burden, pill burden have significantly decreased

- We have the barrier protection necessary to minimize transmission of the virus

- For a majority of our patients, HIV is no longer primarily a bio-medical challenge
Complicating Factors/Possible Clues

- Relative to the general population,
  - **Increased** rates of depression,
  - **Increased** levels of impulsivity,
  - **Significantly higher** prevalence of childhood sexual abuse,
  - **Significantly higher** prevalence of shame and stigma,
  - **Lower** levels of self-efficacy

- All of which are correlated with increased risk of risky sexual behaviors
Organizing Framework

Social/Psychogenic Factors

Life History Factors

HIV Disease Factors

Psychological Adjustment Pathologies

↑ Depression
↑ Social Withdrawal
↑ Impulsivity
↓ Self-efficacy

↓ Safe-sex Behavioral Intention

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Psychological Adjustment in Southeastern US HIV Clinic (N=239)

**Hypothesis:** The Psychological Adjustment Screener (PAS) will be a clinically efficient and useful screening tool in a busy Southeastern USA HIV clinic.

**Findings:** Statistically significant inverse relationships between General Self-efficacy and 8 of the 10 domains of the PAS. Significant burden of concerns relative to community and clinical samples upon which the instrument is based.

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Pervasive Structural Violence

• Structural Violence:
  • institutional barriers that impair the equal pursuit of human health within and across societies (Farmer).
  • Racial, sexual, socioeconomic biases that are embedded in the common institutions of our daily lives.
Homeostasis

HOMEOSTASIS:
Stable internal environment of an organism

Organisms are identified as healthy whenever they have stable vital signs
ALLOSTASIS:
Stability of organism in a changing environment

How does the environment affect the health of the individual?
Allostatic Load

Allostatic Load: Cost to an organism over time, in terms of wear and tear, of maintaining allostasis

Toxic Environment -> toxic responses as individuals seek to cope with their surroundings
Social/Psychogenic Factors
Human social organization is the result of human choices, and those choices have direct impact on every member of a society, especially the least powerful members.
Impact of SDH on HIV and HIV Care

- Structural Factors
- Individual Disease Symptoms

↓ Perceived Behavioral Control

↑ Likelihood of Risky Sexual Behaviors
### Adherence
Unstable housing as a predictor of poor adherence:
OR: 2.76, 95% CI 1.30 – 5.85

Poor housing as a predictor of poor adherence:
OR: 1.88, 95% CI 1.15 – 3.08

Residence in long-term vs short term housing/shelter linked to better ART adherence:
75% vs 42%, p = 0.03

Increased likelihood of poor adherence associated with history of homelessness:
OR 1.38, 95% CI 1.02 – 1.85, p < .035

### Health Outcomes
Homeless > 1-yr at baseline vs never homeless associated with HCV co-infection:
62% vs 38%, p < 0.020

Stable housing link to lower risk of HCV co-infection:
OR: 0.16, 95% CI 0.04 – 0.59

### Risk Behaviors
Likelihood of hard drug use in homeless vs stably housed groups:
OR 3.58, 95% CI 2.31 – 5.53

Likelihood of sex exchange behaviors in participants with worsening housing situation vs stable housed:
OR 5.11, 95% CI 1.05 – 24.8

Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS\textsuperscript{1–4}

![Diagram showing the relationship between food insecurity and HIV/AIDS]

**Food Insecurity**
- Nutritional pathways
  - Macronutrient/micronutrient deficiencies
  - Food/ART Interactions
  - Obesity, lipodystrophy
- Mental Health pathways
  - Anxiety
  - Depression
  - Drug/alcohol use
- Behavioral pathways
  - ART non-adherence
  - Missed Clinic Visits
  - Tx interruptions

**Worse Viral Suppression**
- Lower CD4 Count

**HIV/AIDS Morbidity and Mortality**

**FIGURE 3.** Food insecurity and HIV/AIDS morbidity and mortality. ART, antiretroviral therapy; Tx, treatment.

### Food Insecurity is Associated with Incomplete HIV RNA Suppression Among Homeless and Marginally Housed HIV-infected Individuals in San Francisco

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All Participants N=104</th>
<th>Food Secure Category 1-3 N=78 (75%)</th>
<th>Severely Food Insecure N=26 (25%)</th>
</tr>
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<tbody>
<tr>
<td>Pill Adherence &gt; 80%</td>
<td>58 (56%)</td>
<td>48 (62%)*</td>
<td>10 (38%)*</td>
</tr>
<tr>
<td>VL &lt; 50 copies/ml</td>
<td>58 (56%)</td>
<td>49 (63%)**</td>
<td>9 (35%)**</td>
</tr>
<tr>
<td>History of Drug use, last 30 days</td>
<td>35 (34%)</td>
<td>21 (27%)**</td>
<td>14 (54%)**</td>
</tr>
<tr>
<td>BDI Score (mean, SD)</td>
<td>11.7 (10.1)</td>
<td>10.1 (9.2)**</td>
<td>16.6 (11.3)**</td>
</tr>
</tbody>
</table>

Note: *p*-values compare severely food insecure vs all others per characteristic. * *p*<=.05, ** *p*<=.01.

Sexual Behavior Patterns

- Condom less likely to be used with regular/primary sexual partner
- More likely to be used with casual sexual partners

- Serosorting and seropositioning
  - Community behavioral norms
Race/ethnicity and Viral Suppression

BY RACE/ETHNICITY: African Americans are least likely to be in ongoing care or to have their virus under control.

- Black/African American: 81% Diagnosed, 62% Linked to care, 34% Retained in care, 29% Prescribed ART, 21% Virally suppressed
- Hispanic/Latino: 80% Diagnosed, 67% Linked to care, 37% Retained in care, 33% Prescribed ART, 26% Virally suppressed
- White: 85% Diagnosed, 71% Linked to care, 38% Retained in care, 35% Prescribed ART, 30% Virally suppressed

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Age and Viral Suppression

BY AGE: Younger Americans are least likely to be retained in care or have their virus in check; HIV care and viral suppression improve with age, except among those aged 65 and older.

Note: Although national data were not available to provide estimates of viral suppression for those under the age of 25, the data show that 13-24 year-olds are substantially less likely to have been diagnosed with HIV than other age groups (only 41 percent versus more than 70% for all other age groups).
The Power of Sexual Networks

- What percentage of sexual encounters occur with no preferences save for gender? Is intercourse random or selective?
- What can we learn from analyzing patterns of sexual partnering within subpopulations?

- Laumann study (1999)
  - “Peripheral” Blacks (one partner last 12 mons) are five times more likely to choose “Core” Black (≥ 4 partners in the past year) partners than “peripheral” Whites are to choose “core” whites
  - Segregation by skin color limits pool of partners – 30% increased likelihood of STD based on this factor


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Sexual Behavior Patterns

Proportion of four samples in a new relationship in the past 12 months

Sexual Behavior Patterns

Proportion of four samples whose current relationship began ≥ 5 years ago.


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Sexual Behavior Patterns
Proportion of four samples whose most recent partner is <= 5 years of respondent.

Sexual Behavior Patterns

Proportion of four samples in a concurrent relationships.


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Life History Factors
Stigmatization and Shame

- Stigmatization: Social construction, based on power structures, resistant to change (Persons, et al, 2010)
  - Tightly linked to structural violence

- Shame: Internalized, painful, response to self-perceived social miscues, may be amenable to change (Persons, 2010)

Childhood Sexual Abuse in Adults Living with HIV/AIDS

- CHASE Study (2001-02) N = 611
  - 8 clinics, 3 MSAs, 5 Deep Southern states
  - ~ 25% sexually abused by 13 YO
  - 30% men and 38% women (+) lifetime sexual abuse
  - > 50% reported sexual or severe physical abuse

- Demographics consistently failed to achieve statistical significance.


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Childhood Sexual Abuse in Adults Living with HIV/AIDS

- Kalichman Study (2000-2001) N = 357
  - 45% reported at least one sexual assault since 15 YO
  - 68% of women, 35% of men reported sexual assault in their lifetime.
  - Among the abused, mean number of events was 9.7 (SD = 2.7)
  - 80% abused more than one time.

CSA Screening: Guidelines and Results

Screening for Childhood Trauma in Adult Primary Care Patients: A Cross-Sectional Survey (N=313)

- 79% believe that rate of CSA in women is > 10%, usually/always screen 33% of the time

- 41% believe that rate of CSA in men is > 10%, usually/always screen 32% of the time

Factors Associated with Adult Screening for CSA in Primary Care

- **Knowledge of Prevalence** (correct vs incorrect):
  - Usually/always screen $2.297 (0.993 – 5.312)

- **Confidence in Screening** (mod/very vs not/somewhat)
  - Usually/always screen $2.548 (1.385 – 4.688)

- **Perceived Role to Screen** (mod/great vs not/somewhat)
  - Usually/always screen $11.800 (2.701 – 51.555)


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Research on Shame and HIV Outcomes

- Cole, Kemeny, Taylor (1997)
  - 9-year longitudinal study, more rapid CD4 cell decline in men who are more sensitive to rejection due to their sexuality (all participants healthy at baseline).
    

- Segerstrom et al (1996)
  - HIV-positive men with self-blaming attributional style had swifter CD4 cell declines than controls over 18 mons followup
    
Impact of Shame on HRQoL Among HIV-Positive Adults with a History of CSA

<table>
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<tr>
<th>Predictor Variable</th>
<th>Pearson Correlation with HRQoL</th>
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<tr>
<td>HIV-related Stress</td>
<td>-0.40</td>
</tr>
<tr>
<td>HIV Symptoms</td>
<td>-0.44</td>
</tr>
<tr>
<td>Impact of Trauma</td>
<td>-0.47</td>
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<tr>
<td>Perceived Availability of Support</td>
<td>0.36</td>
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<tr>
<td>Perceived Stress</td>
<td>-0.64</td>
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<tr>
<td>Sexual Abuse-related Shame</td>
<td>-0.45</td>
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<td>HIV-related Shame</td>
<td>-0.57</td>
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Relationship between HIV Stigma and Self-Isolation Among People Living with HIV in Tennessee

• Qualitative Study, N = 32
• Three main HIV stigma themes uncovered:
  • Negative attitudes, fear of contagion, misperceptions re: transmission
  • Discrimination by family, friends, co-workers, and healthcare providers
  • Use of self-isolation as a coping mechanism


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HIV Disease Factors
Traditional Cortisol-centrism (SDH)

“Fight or Flight” response: helpful in 10,000 BC:

- Adrenaline release
- Hyper-coagulation to minimize blood loss
- Release of blood sugar and fats for emergency fuel
- Increased anxiety and aggression to respond to threat

“Fight or Flight” response: turned upside down in 2013: (don’t leave the alarm on)

- Chronic adrenaline release weakens immune system
- Chronic hyper-coagulation increases clotting risks
- Chronic release of blood sugar and fats fuels inflammation, diabetes, high cholesterol, obesity
- Chronic anxiety and aggression may drive substance abuse, eating disorders, depression
A Newer View of Social Biology

Poly-Vagal Theory
The way it works...

V.V.C Brake
Engaged at rest and Socially Engaged.

V.V.C. Brake
Disengages
Sympathetic Nervous
system Engages

DMNX
Engages
Shutting Down
Consciousness

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Social Engagement System

• Importance of facial recognition in negotiation of social situations

• Deficits in sensitivity to facial cues in HIV (+) samples
## Impact of Amygdala Abnormalities in HIV

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<th>Significant Findings</th>
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<td>Facial Emotion Recognition Impairments associated with brain volume abnormalities in HIV (2015)</td>
<td>Incr amygdala volume and atrophy in the ACC correlated with recognition of fear (ACC) and neutral facial emotions (amygdala).</td>
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<td><em>Neuropsychologia</em>, 70, 263-271.</td>
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<tr>
<td>Facial Emotional Processing in HIV: Relation to Neurocognitive and Neuropsychiatric Status (2012)</td>
<td>HIV (+) subjects without HAND slower recognition of sadness, happiness, fear. Those with HAND had slower facial recognition, slower recognition of both happy and sad faces. HIV biomarkers/affect not significant.</td>
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<td><em>Neuropsychology</em>, 26(6), 713-722.</td>
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<td>Effects of HIV and early life stress (ELS) on amygdala morphometry and neurocognitive function (2012)</td>
<td>HIV(+)/high ELS group had significantly larger amygdala by volume. Larger amygdala associated with higher ELS, lower nadir CD4, reduced psychomotor/processing speed</td>
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<td><em>Journal of the International Neuropsychological Society</em>, 18, 657-668.</td>
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Psychological Risk Factors for HIV Pathogenesis: Mediation by the ANS


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Pearls

• Stress engagement with mental health providers for all of our patients

• Recognize the corrosive power of structural violence on marginalized communities

• Advocate for open community and patient/provider discussions re: childhood sexual abuse

• Leverage new knowledge from other fields to help deepen our understanding of daily social challenges possibly driven by biology
Questions?

**Contact Information:**

Robertson Nash  
Vanderbilt Comprehensive Care Clinic  
615-438-7199  
Robertson.nash@vanderbilt.edu