Leveraging Behavioral Health to Improve HIV Outcomes: New Directions

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Vanderbilt Comprehensive Care Clinic

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
Case Study: RN

- 49 YO Caucasian male, HIV dx 2005
  - Adherent with meds for HIV and mental health
  - Labs from 12/2016: CD4 655 (36), VL 377

- HIV Clinician notes that patient appears well when seen in clinic, raises no concerns

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Case Study: RN

- What’s not discussed in 15 min every 6 mons:
  - 11/2010 – present, 107 appointments, kept 60 (56%)
  - Bipolar I
  - Narcolepsy
  - Severe Neuropathy
  - Polysubstance abuse (exposed to THC at 9 YO by father)
  - CSA (started at age 10)
  - Incarcerated
  - Received care at Centerstone, StreetWorks, Nashville Cares
  - Uses multiple local pharmacies, resulting in concerning doses
**Lifetime Risk of HIV (1 in 99 for all)**

**Figure 1. Lifetime Risk of HIV Diagnosis by Transmission Group**

- MSM: 1 in 6
- Women Who Inject Drugs: 1 in 23
- Men Who Inject Drugs: 1 in 36
- Heterosexual Women: 1 in 241
- Heterosexual Men: 1 in 473

**Figure 2. Lifetime Risk of HIV Diagnosis among MSM by Race/Ethnicity**

- African American MSM: 1 in 2
- Hispanic MSM: 1 in 4
- White MSM: 1 in 11

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**Lifetime Risk of HIV Diagnosis**

**Figure 3. Lifetime Risk of HIV Diagnosis by Race/Ethnicity**

- African American Men: 1 in 20
- African American Women: 1 in 48
- Hispanic Men: 1 in 48
- Hispanic Women: 1 in 227
- White Men: 1 in 132
- White Women: 1 in 880

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State of HIV in TN: Cases and Deaths

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Black (56)</th>
<th>Caucasian (39)</th>
<th>Hispanic (3)</th>
<th>Asian (.2)</th>
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</thead>
<tbody>
<tr>
<td>All Cases to Date</td>
<td>27,742</td>
<td>15,641</td>
<td>10,774</td>
<td>831</td>
<td>59</td>
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<tr>
<td>2015 Cases</td>
<td>712</td>
<td>421</td>
<td>237</td>
<td>41</td>
<td>8</td>
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<td></td>
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<tr>
<td>All Deaths to Date</td>
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<td>5,495</td>
<td>4,356</td>
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<td>1</td>
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<td>2015 Deaths</td>
<td>103</td>
<td>60</td>
<td>36</td>
<td>2</td>
<td>0</td>
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</tbody>
</table>

https://tn.gov.health/article/hiv-data

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# State of HIV in TN: Age at Death

<table>
<thead>
<tr>
<th>Age at Death</th>
<th>2015 Cases</th>
<th>Cum. %</th>
<th>All Cases</th>
<th>Cum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 13</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>13-14</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
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<tr>
<td>15-24</td>
<td>4</td>
<td>4</td>
<td>216</td>
<td>3</td>
</tr>
<tr>
<td>25-34</td>
<td>17</td>
<td>20</td>
<td>2,392</td>
<td>26</td>
</tr>
<tr>
<td>35-44</td>
<td>12</td>
<td>32</td>
<td>3,465</td>
<td>59</td>
</tr>
<tr>
<td>45-54</td>
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<td>66</td>
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</tr>
<tr>
<td>55-64</td>
<td>25</td>
<td>90</td>
<td>1,097</td>
<td>96</td>
</tr>
<tr>
<td>≥ 65</td>
<td>10</td>
<td>100</td>
<td>419</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL</td>
<td>103</td>
<td>100</td>
<td>10,065</td>
<td>100</td>
</tr>
</tbody>
</table>

https://tn.gov.health/article/hiv-data

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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.

<table>
<thead>
<tr>
<th>PAS Element</th>
<th>Spearman rho correlation</th>
<th>p-value</th>
<th>% of sample at mod/marked risk for diagnosis</th>
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</thead>
<tbody>
<tr>
<td>Alienation</td>
<td>-.47</td>
<td>&lt; .001</td>
<td>38%</td>
</tr>
<tr>
<td>Health Problems</td>
<td>-.47</td>
<td>&lt; .001</td>
<td>60%</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>-.44</td>
<td>&lt; .001</td>
<td>48%</td>
</tr>
<tr>
<td>Social Withdraw</td>
<td>-.44</td>
<td>&lt; .001</td>
<td>74%</td>
</tr>
<tr>
<td>Anger Control</td>
<td>-.32</td>
<td>&lt; .001</td>
<td>40%</td>
</tr>
<tr>
<td>Suicidal Thinking</td>
<td>-.20</td>
<td>.001</td>
<td>34%</td>
</tr>
<tr>
<td>Psychotic Features</td>
<td>-.19</td>
<td>.003</td>
<td>49%</td>
</tr>
<tr>
<td>Hostile Control</td>
<td>.16</td>
<td>.014</td>
<td>64%</td>
</tr>
<tr>
<td>Acing Out</td>
<td>-.11</td>
<td>.080</td>
<td>62%</td>
</tr>
<tr>
<td>Alcohol Problems</td>
<td>-.03</td>
<td>.636</td>
<td>25%</td>
</tr>
<tr>
<td>Total PAS Score</td>
<td>-.47</td>
<td>&lt; .001</td>
<td></td>
</tr>
</tbody>
</table>

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Social/Psychogenic Factors

Social Determinants of Health

Uncontrollable Stress
- The Social Gradient
- Chronic Stress
- Social Exclusion
- Work Stress
- Unemployment
- Social Support

Early Life Health
- Long-term impact of LBW/ELBW

Addiction
- Alcohol
- Tobacco
- Illicit

Food
- Lack of access to healthy diet

Transportation
- Focus on walking, cycling and better public transportation

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

![Diagram showing the relationship between structural factors, individual disease symptoms, perceived behavioral control, and likelihood of risky sexual behaviors.]

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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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)


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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

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.
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.


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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


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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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HIV Disease Factors

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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...

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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

<table>
<thead>
<tr>
<th>Study Name</th>
<th>Significant Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects of HIV and early life stress (ELS) on amygdala morphometry and neurocognitive function (2012) Journal of the International Neuropsychological Society, 18, 657-668.</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>
</tr>
</tbody>
</table>
Working Together to Improve Outcomes for Our Patients

Integration of BH into HIV Clinical Care

- Structural barriers impede participation in multi-session interventions
- We need solutions that can be dosed and delivered in the context of the 15-minute clinical encounter
- Focus on patient STRENGTHS, not weaknesses
Strengths Make the Difference

Number of Psychosocial Strengths Predicts Reduced HIV Sexual Risk Behaviors Above and Beyond Syndemic Problems Among Gay and Bisexual Men (N=470)

- Four negative factors (depression, CSA, polysubstance use, homophobic victimization), three positive factors (social capital, friend support, family support) associated with likelihood of condomless anal intercourse in HIV (-) MSM
Working Together

A Positive Affect Intervention for People Experiencing Health-Related Stress: Development and Non-randomized Pilot Test (N=9)

- 8 Behavioral Activation skills delivered over 5 one-hour sessions to 9 people recently diagnosed with HIV.

DES = Differential Emotions Scale

<table>
<thead>
<tr>
<th>Measure (N=9)</th>
<th>Pre-Inter. Mean</th>
<th>1-week Post-Int.</th>
<th>5-week Post-Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DES (+) per item mean, 9 items total</td>
<td>1.95</td>
<td>2.38**</td>
<td>2.53</td>
</tr>
<tr>
<td>DES (-) per item mean, 7 items total</td>
<td>1.68</td>
<td>0.95**</td>
<td>0.78</td>
</tr>
<tr>
<td>Mindfulness (non-reactivity)</td>
<td>14.1</td>
<td>19.3*</td>
<td>19.7**</td>
</tr>
</tbody>
</table>

* p < .05; **p < .01 compared to pre-intervention based on paired t-test

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PATHways Clinic

- Interdisciplinary team
  - Community Case Manager (MSN)
  - Behavioral Health Specialist (LCSW)
  - Registered Nurse
  - Psych Mental Health NP
  - Program Coordinator
- Team-based care
- Integrated into our HIV clinic

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### PATHways Instrumentation

<table>
<thead>
<tr>
<th>Domains</th>
<th>Factors (sample)</th>
<th>Measure</th>
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<tbody>
<tr>
<td>Mental Health</td>
<td>Trauma</td>
<td>Quad-S (PTSD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACE (Trauma)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Locus of Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACE- Form C</td>
</tr>
<tr>
<td>Clinical Care</td>
<td>HIV status</td>
<td>HIV RNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic Illness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standard of Care Measures</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>Transportation</td>
<td>How do you get to clinic, grocery, work?</td>
</tr>
<tr>
<td></td>
<td>Housing</td>
<td>Own/rent (apt, room, trailer)</td>
</tr>
<tr>
<td>Social Environment</td>
<td>Poverty</td>
<td>FPL criteria</td>
</tr>
<tr>
<td></td>
<td>Incarceration</td>
<td>Felony convictions?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On probation?</td>
</tr>
<tr>
<td>Education</td>
<td>Highest Grade Completed</td>
<td>Grade #</td>
</tr>
</tbody>
</table>

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### PATH Phenotype

![PATH Phenotype Report](image)

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Case Study: RN PATHways Consult

- Individualized POC, developed with input from the entire clinic (providers, nursing, psych, BH)
  - Increase frequency of psychiatric visits
  - Secure Release of Information from ASOs
  - Contact Midtown Pharmacy to list prescriber names
  - Complete PATH Phenotype at next clinic visit
  - Schedule later afternoon appointments
  - Identify sobriety support (sponsor/peer)
  - Engage in talk therapy (improve coping skills)

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Pearls

- Behavioral health and clinical care providers must find new ways to more effectively collaborate to improve outcomes for our struggling 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

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Questions?

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