
Leveraging Behavioral Health to Improve HIV Outcomes: New Directions

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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

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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

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Lifetime Risk of HIV (1 in 99 for all)

Figure 1. Lifetime Risk of HIV Diagnosis by Transmission Group



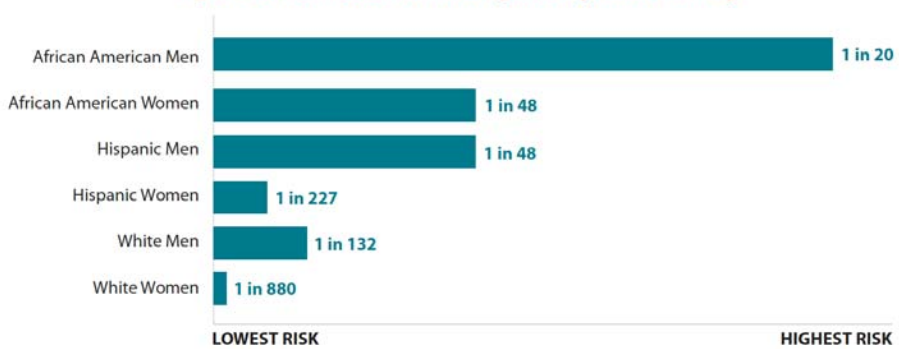
Figure 2. Lifetime Risk of HIV Diagnosis among MSM by Race/Ethnicity



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Lifetime Risk of HIV Diagnosis

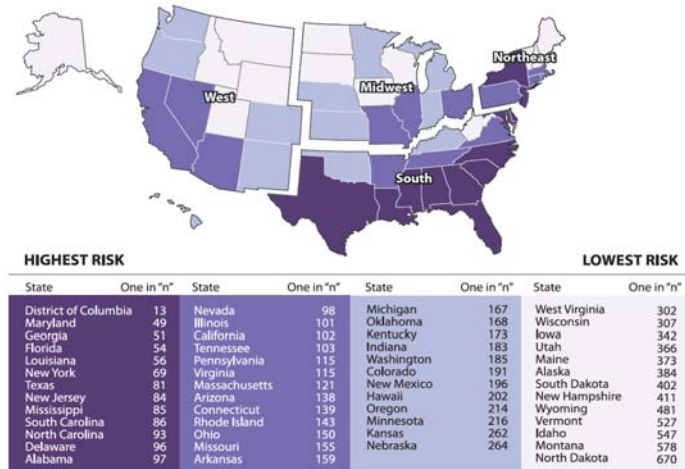
Figure 3. Lifetime Risk of HIV Diagnosis by Race/Ethnicity



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Lifetime Risk Is Higher for People in the Southern United States: People living in the South are more likely to be diagnosed with HIV over the course of their life than people in other parts of the country. States where risk is greatest include Maryland (1 in 49), Georgia (1 in 51), Florida (1 in 54), and Louisiana (1 in 56).

Figure 4. Lifetime Risk of HIV Diagnosis by State



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State of HIV in TN: Cases and Deaths

	Total	Black	Caucasian	Hispanic	Asian
All Cases to Date	27,742	15,641 (56)	10,774 (39)	831 (3)	59 (.2)
2015 Cases	712	421 (59)	237 (33)	41 (6)	8 (1)
All Deaths to Date	10,065	5,495 (55)	4,356 (43)	126 (1)	1 (0)
2015 Deaths	103	60 (58)	36 (35)	2 (2)	0 (0)

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

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State of HIV in TN: Age at Death

Age at Death	2015 Cases	Cum. %	All Cases	Cum. %
< 13	0	0	34	0
13-14	0	0	2	0
15-24	4	4	216	3
25-34	17	20	2,392	26
35-44	12	32	3,465	59
45-54	35	66	2,440	85
55-64	25	90	1,097	96
≥ 65	10	100	419	100
TOTAL	103		10,065	

<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.

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

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Social/Psychogenic Factors

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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
 Illicits

Food

Lack of access to
 healthy diet

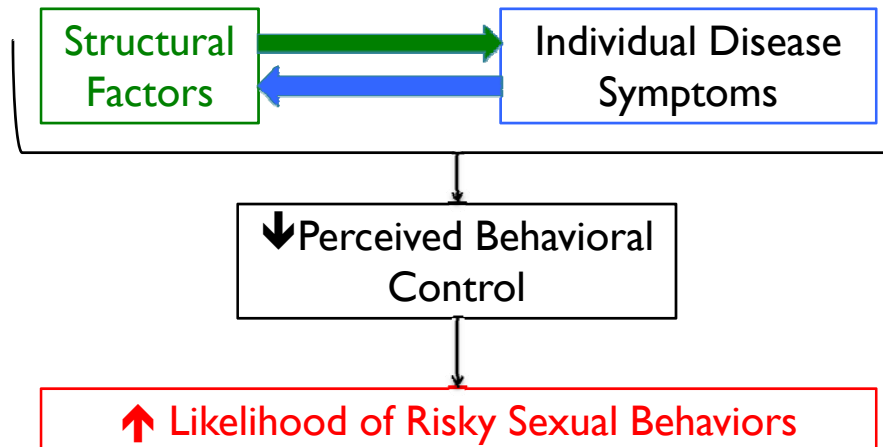
Transportation

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.

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Impact of SDH on HIV and HIV Care



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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

Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.

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Life History Factors

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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)

Persons, E, Kershaw, T, Sikkema, KJ, Hansen, NB (2010). Impact of Shame on HRQoL Among HIV-Positive Adults with a History of CSA. AIDS Patient Care and STDS, 24(9).

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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).

Cole, SW, Kemeny, ME, Taylor, SE. Journal of Personality and Social Psychology, Feb 72(2), 320-35.

- Segerstrom et al (1996)
 - HIV-positive men with self-blaming attributional style had swifter CD4 cell declines than controls over 18 mons followup

Segerstrom, SC, Taylor, SE, Kemeny, ME, Reed, SM, Visscher, BR. Health Psychology, Nov 15(6), 485-493.

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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.

Whetten, K, Leserman, J, Lowe, K, Stangl, D, Thielman, N, Swartz, M, et. al. (2006). Prevalence of Childhood Sexual Abuse and Physical Trauma in an HIV-Positive Sample from the Deep South. *American Journal of Public Health*, 96(6), 1028-1030.

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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.

Kalichman, SC, Sikkema, KJ, DiFonzo, K, Luke, W, Austin, J. (2002). Emotional Adjustment in Survivors of Sexual Assault Living with HIV/AIDS. *Journal of Traumatic Stress, 15*(4), 289-296.

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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

Weinreb, L, MD, Savageau, JA, MPH, Candib, L, MD, Reed, GW, PhD, Fletches, KE, PhD, Hargraves, JL, PhD. (2010). *The Primary Care Companion to the Journal of Clinical Psychiatry, 12*(6), 1-23.

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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)

Weinreb, L, MD, Savageau, JA, MPH, Candib, L, MD, Reed, GW, PhD, Fletches, KE, PhD, Hargraves, JL, PhD. (2010). *The Primary Care Companion to the Journal of Clinical Psychiatry*, 12(6), 1-23.

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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)

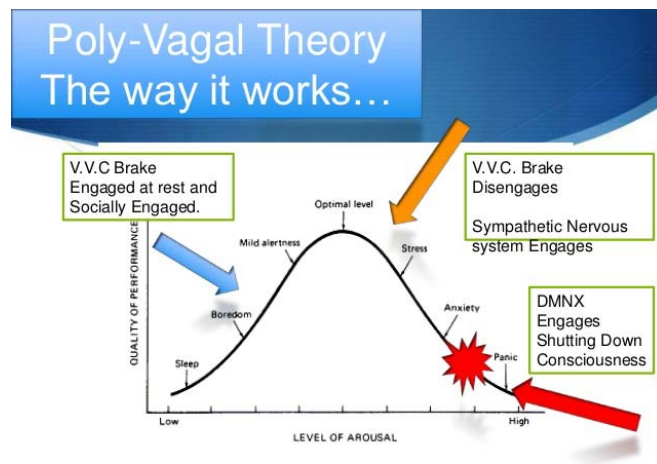
- Chronic adrenaline release weakens immune system
- Chronic hyper-coagulation increases clotting risks
- Chronic release of blood sugar and fats fuels inflammation, diabetes, high cholesterol, obesity
- Chronic anxiety and aggression may drive substance abuse, eating disorders, depression



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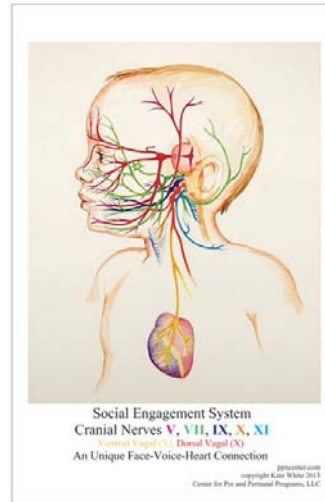
A Newer View of Social Biology



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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



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Impact of Amygdala Abnormalities in HIV

Study Name	Significant Findings
Facial Emotion Recognition Impairments associated with brain volume abnormalities in HIV (2015) <i>Neuropsychologia</i> , 70, 263-271.	Incr amygdala volume and atrophy in the ACC correlated with recognition of fear (ACC) and neutral facial emotions (amygdala).
Facial Emotional Processing in HIV: Relation to Neurocognitive and Neuropsychiatric Status (2012) <i>Neuropsychology</i> , 26(6), 713-722.	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.
Effects of HIV and early life stress (ELS) on amygdala morphometry and neurocognitive function (2012) <i>Journal of the International Neuropsychological Society</i> , 18, 657-668.	HIV(+)/high ELS group had significantly larger amygdala by volume. Larger amygdala associated with higher ELS, lower nadir CD4, reduced psychomotor/processing speed

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Working Together to Improve Outcomes for Our Patients

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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

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Strengths Make the Difference

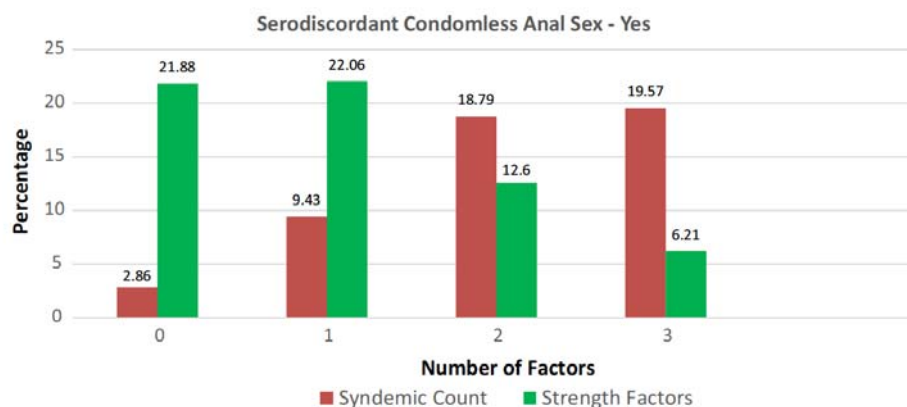
Number of Psychosocial Strengths Predicts Reduced HIV Sexual Risk Behaviors Above and Beyond Syndemic Problems Among Gay and Bisexual Men (N=470)

Hart, T.A., et. al. (2017), *AIDS and Behavior*, published online 03 January 2017.

- 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

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Strengths Make the Difference



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Working Together

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

Moskovitz, et. al. (2012). *Journal of Health Psychology*, 17(5), 676-92.

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

DES = Differential Emotions Scale

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

* $p < .05$; ** $p < .01$ 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

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

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PATH Phenotype

PATHways Phenotype Report Page 1 of 2

DOB: M/N/A:
 Race: HIV Dx Date:
 Gender:

Domain	Factor	Measure	Range	Pt Score and Interpretation
Mental Health	Locus of Control	PCNMMS-HIV	8-48	18
	Coping Styles Negative (Brief COPE)	Denial	0-8	1
		Substance Use	0-8	4
		Disengagement	0-8	4
		Self-blame	0-8	5
	Coping Styles Positive (Brief COPE)	Self-distraction	0-8	4
		Venting	0-8	4
		Active Coping	0-8	4
		Emotional Support	0-8	7
	Instrumental Support	Instrumental Support	0-8	5
Positive Re-framing		0-8	6	
Planning		0-8	5	
Humor		0-8	2	
Acceptance		0-8	8	
Religion		0-8	7	
Depression/Anxiety	PHQ-4	0-12	6	
	ISAT	10-50	19	
Stigma (Stigma Scale, Revised)	Personalized	3-15	10	
	Discourse	2-10	8	
Trauma	Self Image	3-15	8	
	Public Attributes	2-10	6	
Social Support	PTSD (SSRS)	0-7	7	
	ACE	0-10	8	
Substance Abuse	HIV SSS	12-60	42	
	AUDIT-C/TOH	0-12	10	
	Stigma	9-45	18	

PATHways Phenotype Report Page 2 of 2

Domain	Factor	Measure	Range	Pt Score and Interpretation
Clinical Care	VL at last visit			< 50
	CD4 # last visit			288 (330)
	Medication Adherence			100 (100)
	Tobacco Use			0 (0)
	Health Insurance	N/A		ACA/SP
	Dental Insurance	N/A		0
	Vision Care	N/A		0
	Condom Use Self-efficacy and Risk Reduction	Buying/Using	0-16	13
	Relationship Risks	0-12	2	
	Partner Reaction	0-12	6	
Sexual Risks Scale	0-28	20		
Physical Environment	Housing Stability			Stable
	Utilities			Basic
Social Environment	Food Security	Food Access	0-27	8
	Transportation			0
Education	Domestic Violence	HITS	4-20	8
	Employment			Unemployed
Education	Poverty	FPL		\$784/month
	Incarceration			no jail
Education	Highest Grade Completed			12
	Health Literacy - General Health Literacy - HIV			

Scoring Key:
 RED: Risk: Results from screening indicate that deficits in this area should be further assessed and addressed, as they may impair successful management of HIV.
 YELLOW: Baseline: Patient has minimal level of functionality in this area, further assessment recommended.
 GREEN: Goal: Patient at goal in this area; these may represent opportunities to build on patient strengths.

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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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