

HIV and Homelessness: Risks and Survival Behaviors in an Ecology of Desperation

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Objectives:

- Discuss a theoretical framework for understanding shared risks of HIV and homelessness.
- Review demographics of HIV and homeless populations.
- Examine impact of chronic homelessness on HIV care delivery and outcomes.

VCCC Case Study

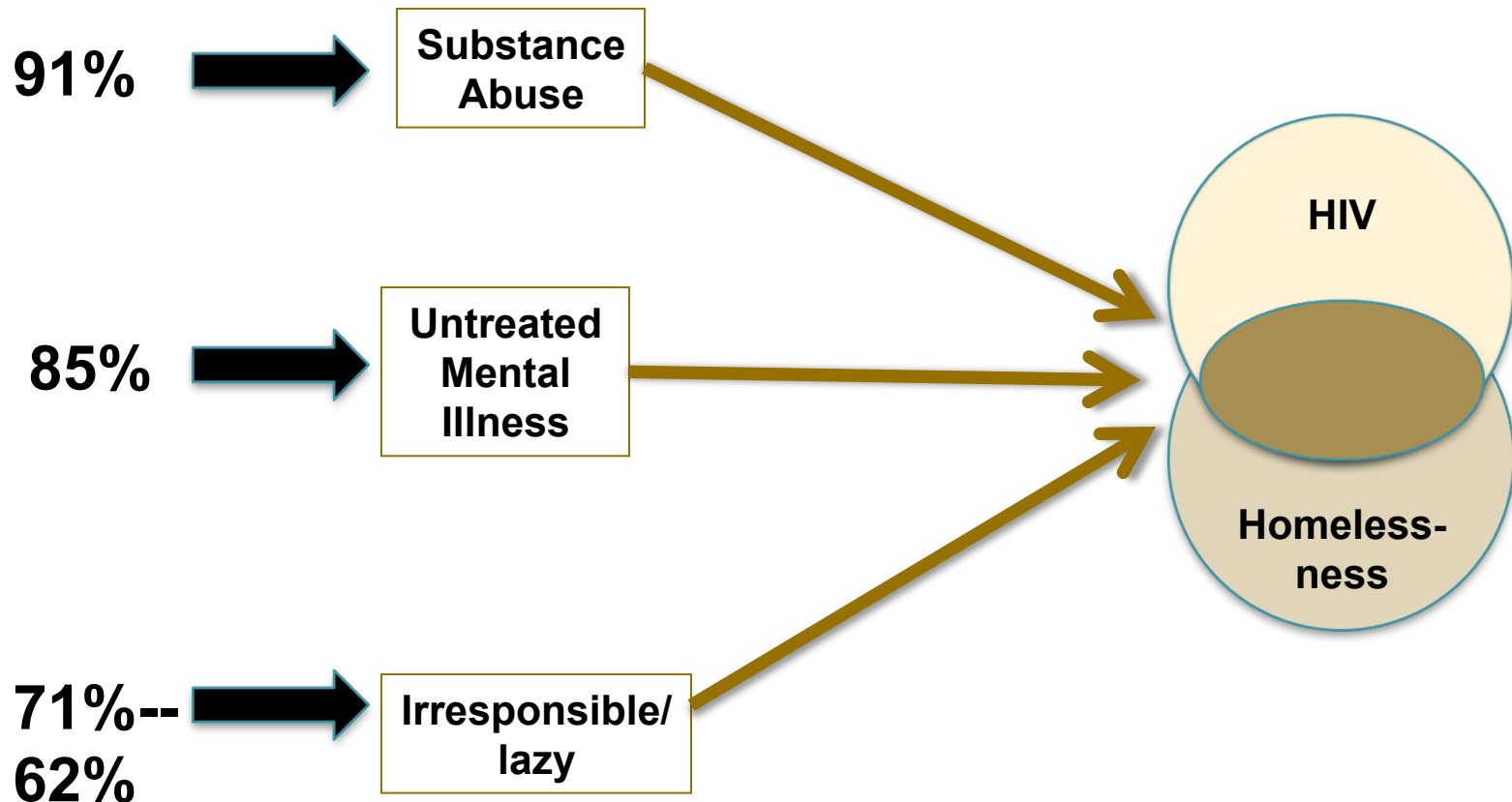
- JR, 44 YO Black Male, homeless
 - Substance abuse: Cocaine, ETOH, TOB
 - Antisocial Personality Disorder, bipolar
 - HTN, DMII
 - Chronic homelessness, social isolation
 - GAF 40
- CD4 24 (3%), VL 384,000 – diagnosed in 2004, multiple incarcerations, brief ART exposure 2006-2007. Does not remember the names of his meds or name of clinic where diagnosed.

What is Health?

- Watson: Philosophy of Science and Caring: “health refers to the unity and harmony within the mind, body, and soul”.
- Neuman: Systems Model: “Optimal wellness or stability indicates that total system needs are being met.”
- King: Interacting Systems Framework: “the dynamic life experiences of a human being ... continuous adjustment to stressors in the internal and external environment ... to achieve maximum potential for daily living.”

Tomey, A. & Alligood, M.R. (2002). *Nursing Theorists and Their Work* (5th Ed.) St. Louis, MO: Mosby.

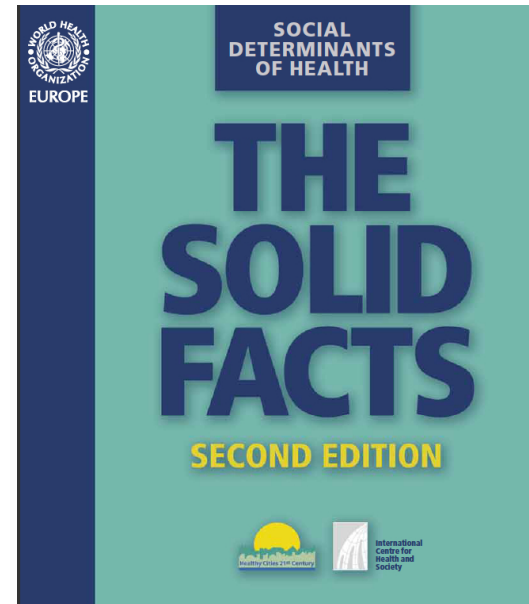
Why?: The Newtonian View



Public Attitudes Toward the Homeless (2011). American Association for Public Opinion Research, p. 5934 – 5945.

Social Determinants of Health

- The Social Gradient
- Stress
- Early Life
- Social Exclusion
- Work
- Unemployment
- Social Support
- Addiction
- Food
- 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.

Structural Violence



FOR USE BY WHITE PERSONS
THESE PUBLIC PREMISES AND THE AMENITIES THEREOF HAVE BEEN RESERVED FOR THE EXCLUSIVE USE OF WHITE PERSONS.
By Order Provincial Secretary
VIR GEBRUIK DEUR BLANKES

Homeostasis

Focus on the fish as individual actors



Healthy fish are the result of fish making healthy choices

Allotstasis

Shift focus from the fish to the aquarium



How does the aquarium affect the health of the fish?

Allostatic Load

Fish are completely dependent upon healthy aquariums - without them, they will die



Toxic Environment -> toxic responses as individuals seek to cope with their surroundings



Social Marginalization



- Access to social power determines access to social goods
- Social marginalization – people outside social paradigm are invisible to insiders
- Distinct from:
 - Social isolation – choice
 - Social stigma– based on defining characteristic
 - Social exclusion - aggressive

Social Marginalization and Health

- Everyone suffers, but ...
 - We can tolerate that suffering if we can see what caused it.
 - Social support ameliorates stress.
- People at the margins of society suffer differently
 - No identifiable cause for their suffering.
 - No relief from their suffering.
 - No social support.

Isn't Everybody Stressed?



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

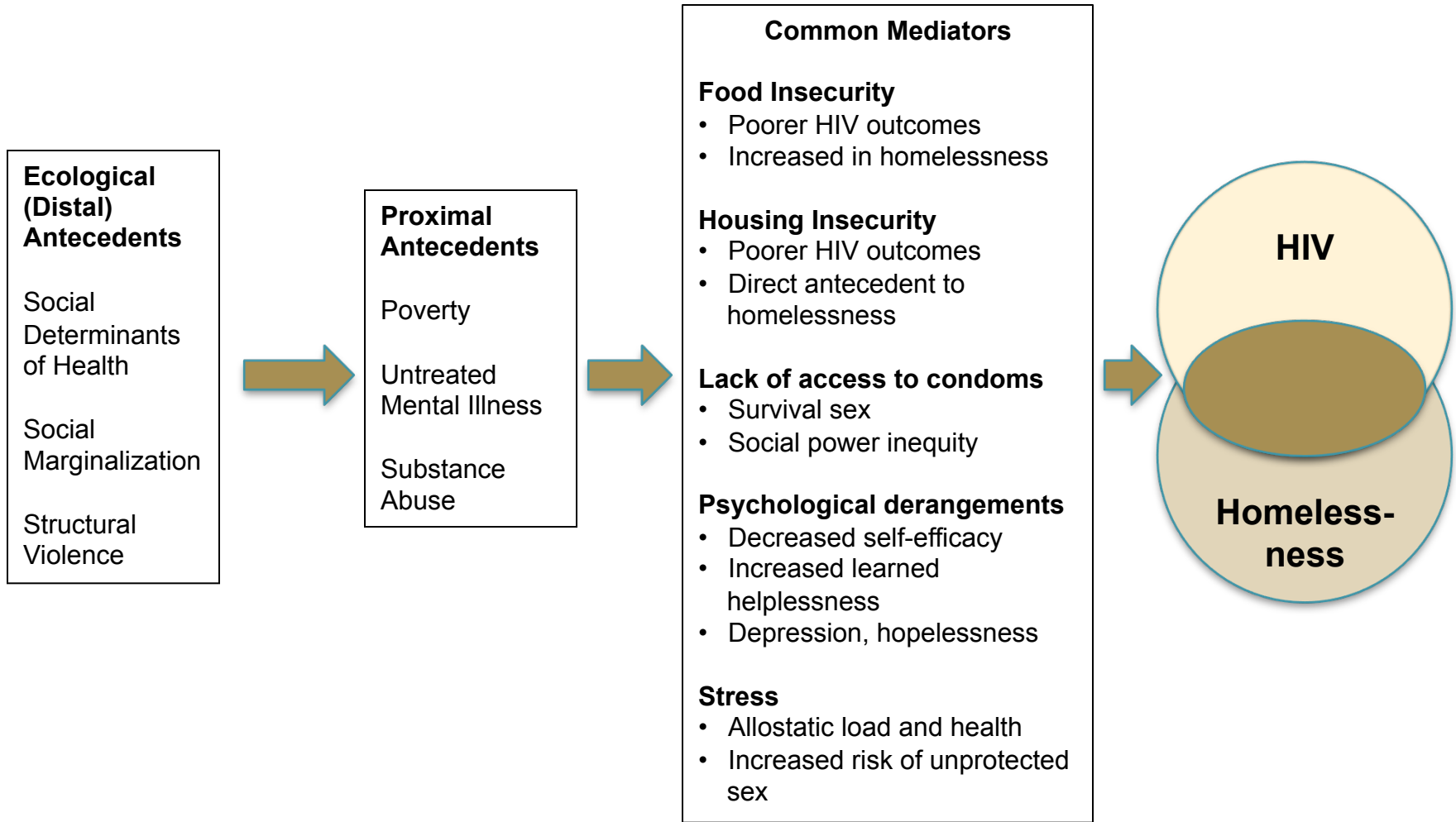
- Adrenaline release
- Hyper-coagulation to minimize blood loss
- Release of blood sugar and fats for emergency fuel
- Increased anxiety and aggression to respond to threat

“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



Why?: Ecological Framework



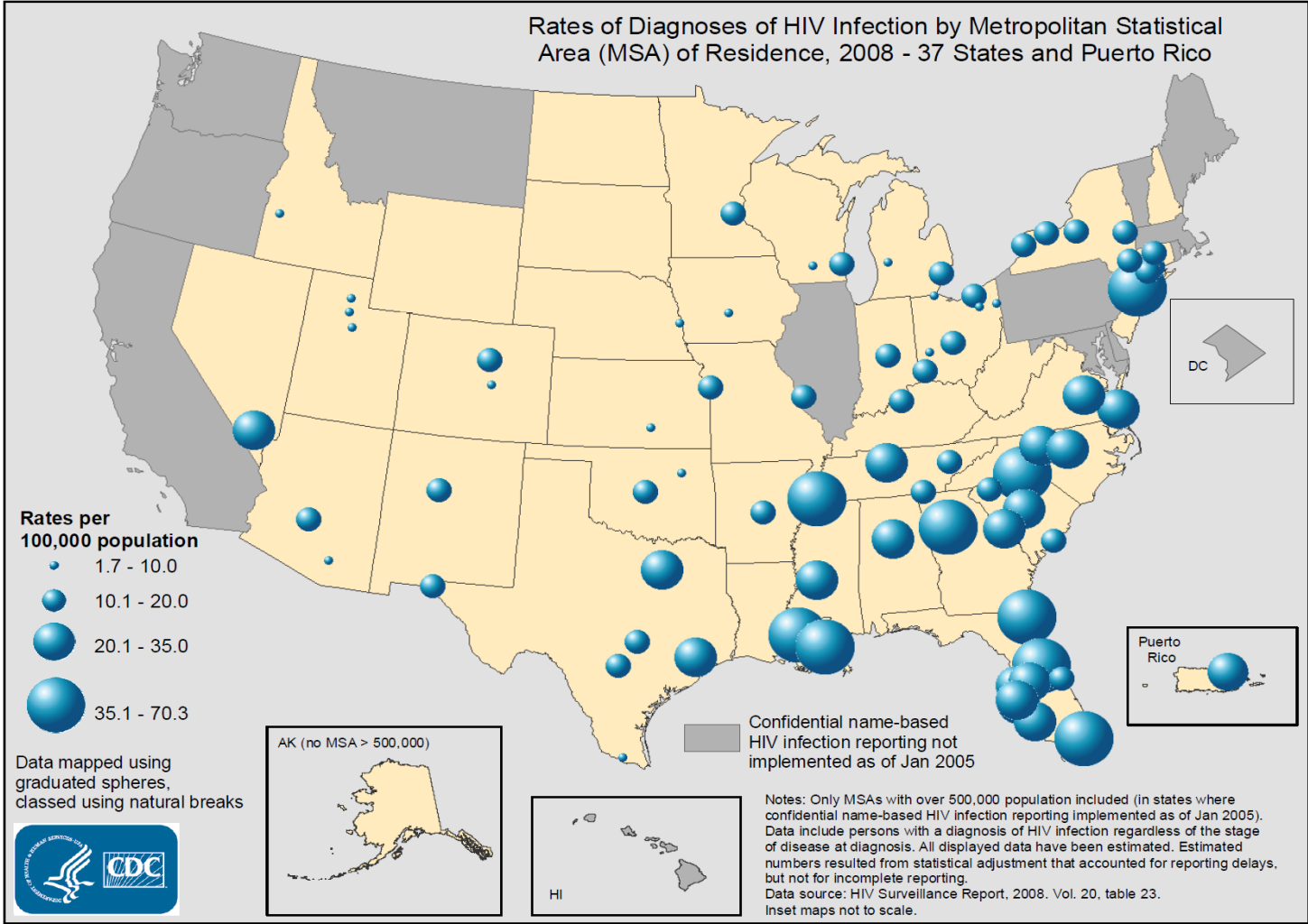
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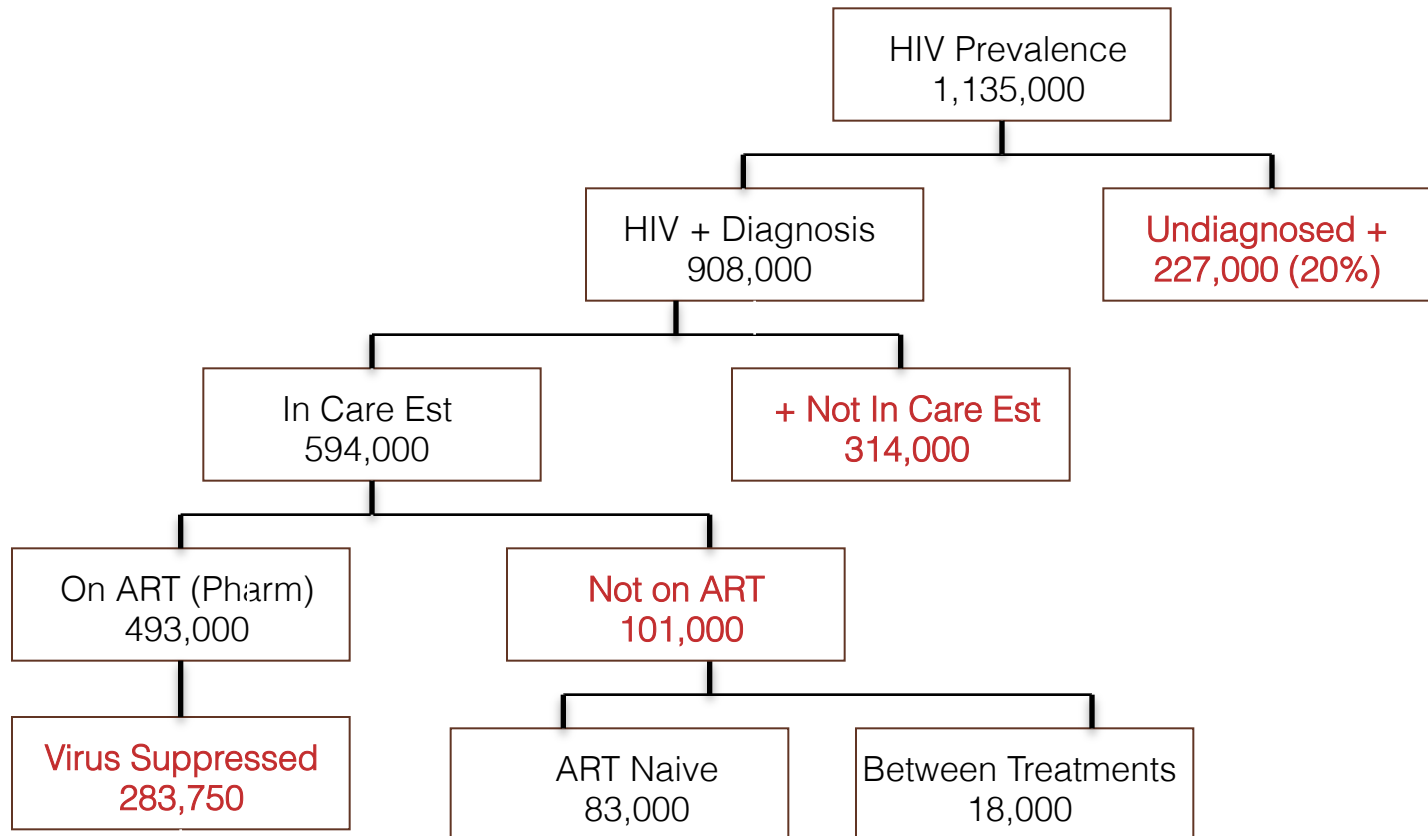
State of HIV Epidemic in the US

- 1,360,000 HIV/AIDS patients in the US, end of 2010
 - 50,000 new infections annually
 - ~ 20% unaware of HIV status
- Average annual meds cost: \$20,000 per pt.
- Average lifetime cost of care: \$360,000 per pt.

HIV Demographics



HIV Exposure and Care Cascade



Seekins D., et al. IDSA 2010. Abstract 1064.

Homelessness Demographics

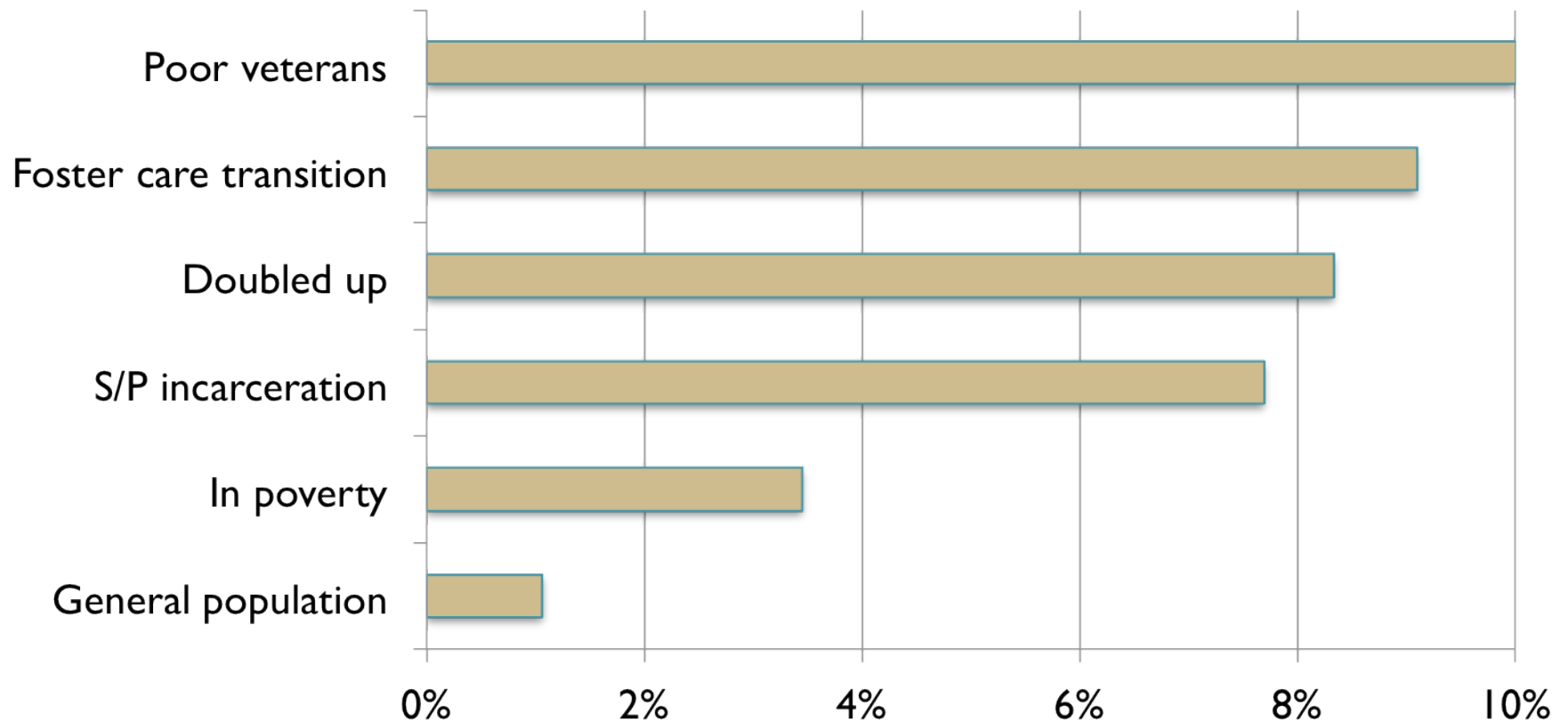
Data from Jan, 2010 point-in-time homeless count

	Total Homeless Population	Chronically Homeless
Point in time count	407,966	109,812
% Black/White	37 / 42	57 / 15
% male/female	62 / 38	67-80 / 20-33
Average age	37% 31-50 YO	60% 35-44 YO
% mental illness	26%	30% - 60%
% substance abuse	35%	50% - 80%

For the period Oct, 2009 – Sept, 2010, 1,593,150 people in the United States experienced homelessness.

Current Statistics on the Prevalence and Characteristics of People Experiencing Homelessness in the United States, SAMHSA, July, 2011.

Odds of experiencing homelessness in the United States



The State of Homelessness in America: 2012, National Alliance to End Homelessness

Homelessness in TN

Demographic	2009	2011	% Change
Homeless people in families	2484	2638	+ 6.2%
Homeless Veterans	1142	965	- 15.5%
Chronically Homeless	2626	1661	-36.75%
Unsheltered Homeless	3399	3198	- 5.91%
Total TN Homeless	10532	9113	-13.47%

Demographic	2008	2009	2010
Persons living “Doubled up”	130,296	161,924	162,886
Prisoners Released	15,482	15,702	14,672
Uninsured	872,942	914,470	936,699
Children aging out of foster care	678	587	547

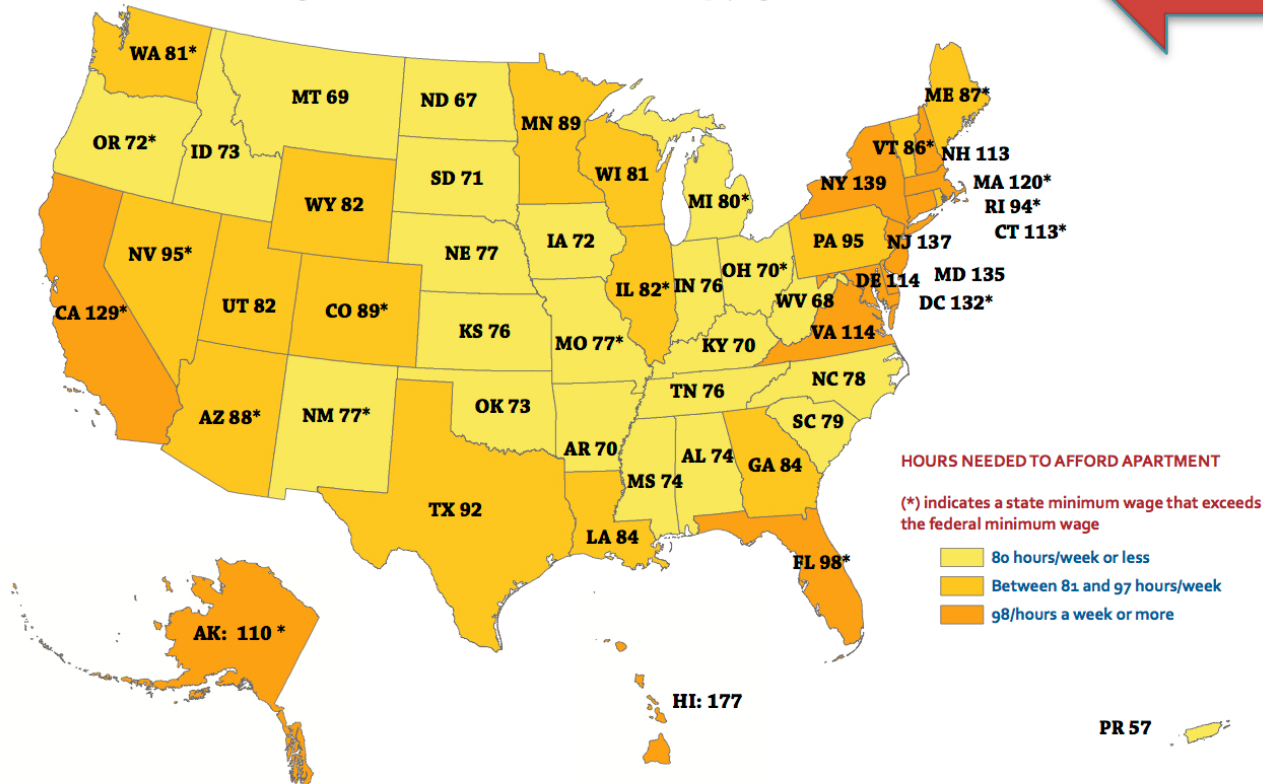
The State of Homelessness in America, 2012. National Alliance to End Homelessness/Homelessness Research Institute

Minimum Wage as Structural Violence

2013 HOURS AT MINIMUM WAGE NEEDED TO AFFORD RENT

NATIONAL LOW INCOME HOUSING COALITION // OUT OF REACH 2013

In no state can a minimum wage worker afford a two-bedroom unit at Fair Market Rent, working a standard 40-hour work week, without paying more than 30% of their income.



NATIONAL LOW INCOME HOUSING COALITION // OUT OF REACH 2013

http://nlihc.org/sites/default/files/oor/2013_OOR_Minimum_Wage_Map.pdf National Low Income Housing Coalition.

Minimum Wage as Structural Violence

Metric	USA	TN
Fair Market Rent (2 BDRM, 2013)	\$ 977	\$ 720
Fair Market Wage (where rent = 30%)	\$ 18.79	\$ 13.84
Average Renter Wage	\$ 14.32	\$ 12.20
Federal Minimum Wage, 2013	\$ 7.25	\$ 7.25
Rent at 30% of Federal Minimum Wage	\$ 377	\$ 377
Hours/wk x 52 wks/yr required to make FMW equivalent at minimum wage	104	76

Out of Reach 2012: America's Forgotten Housing Crisis. National Low Income Housing Coalition.

HIV in Homeless Populations: Data From Selected USA Studies

US Populations	Est HIV Prev. (95% C.I.)
US Gen POP (NHANES 1999-2006)	0.5% (0.3 – 0.6)
22 Study meta-analysis (Beijer)	4.7% (3.6-5.8)
San Francisco Study (Bucher)	9.4% (7.2-11.5)

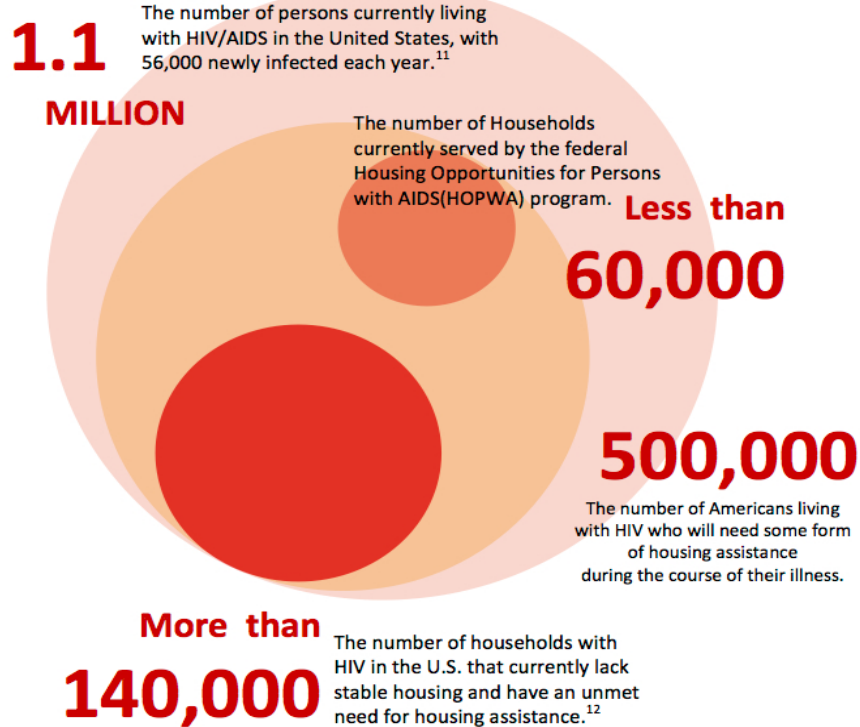
<http://www.nationalaidshousing.org/PDF/FactsheetHomelessness.pdf>

International HIV Prevalence

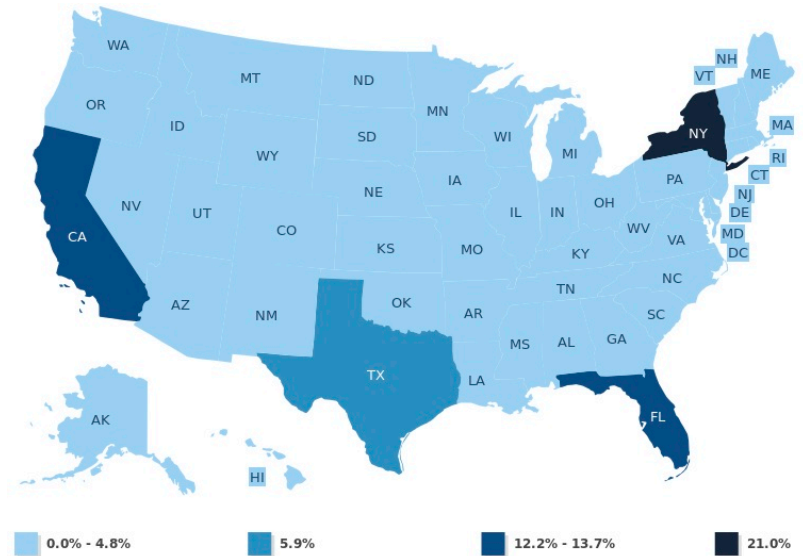
Global Populations	Est HIV Prev. (Kaiser)
Overall Global HIV Prevalence	0.8%
Swaziland (1)	26%
Equatorial Guinea (14)	4.7%
USA Homeless Population (est)	4.7%
Cameroon (15)	4.6%
Central African Republic (16)	4.6%
USA Gen Pop (36)	0.5%

<http://www.globalhealthfacts.org/data/topic/map.aspx?ind=3>

Housing and HIV



HOPWA Funding by state, fy 2011



State	% total
New York	21.0
Florida	13.7
California	12.2
Texas	5.9
Total	52.8
Tennessee	1.1

<http://www.nationalaidshousing.org/PDF/FactsheetHomelessness.pdf>

The Effects of Housing Status on Health-Related Outcomes in People living with HIV: A Systematic Review of the Literature

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

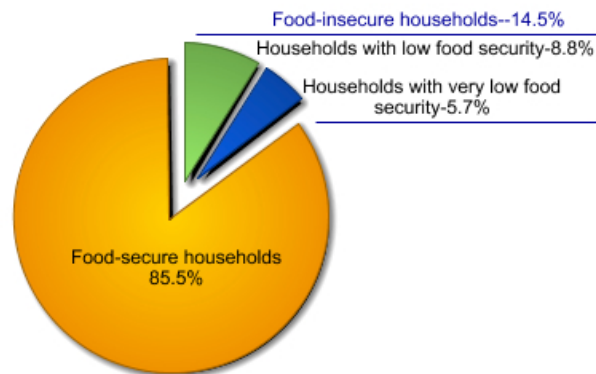
Likelihood of sex exchange behaviors in participants with worsening housing situation vs stable housed:

OR 5.11, 95% CI 1.05 – 24.8

Food insecurity as structural violence

- “uncertain or limited availability of nutritionally adequate or safe food OR the inability to procure food in socially acceptable ways.”

U.S. households by food security status, 2012



Source: Calculated by ERS using data from the December 2012 Current Population Survey Food Security Supplement.

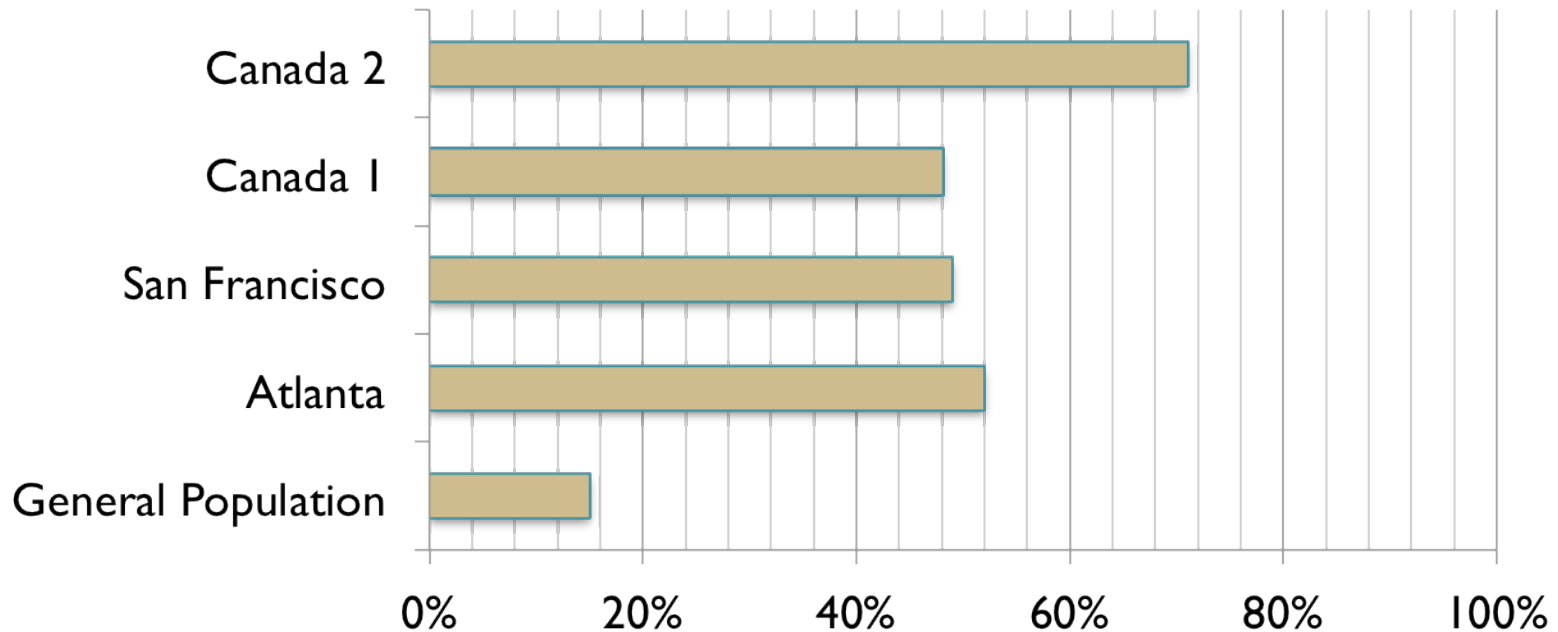
SNAP Overview, 2012

- 46 million people in 22 million households received benefits
- Average benefit: **\$133.41** individual and **\$278.48** household
- Program costs: \$74.6 Billion

<http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx>; <http://www.fns.usda.gov/pd/34snapmonthly.htm>

Food Insecurity and HIV

**Percentage of HIV (+) Study Populations
Affirming Food Insecurity**



Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS¹⁻⁴

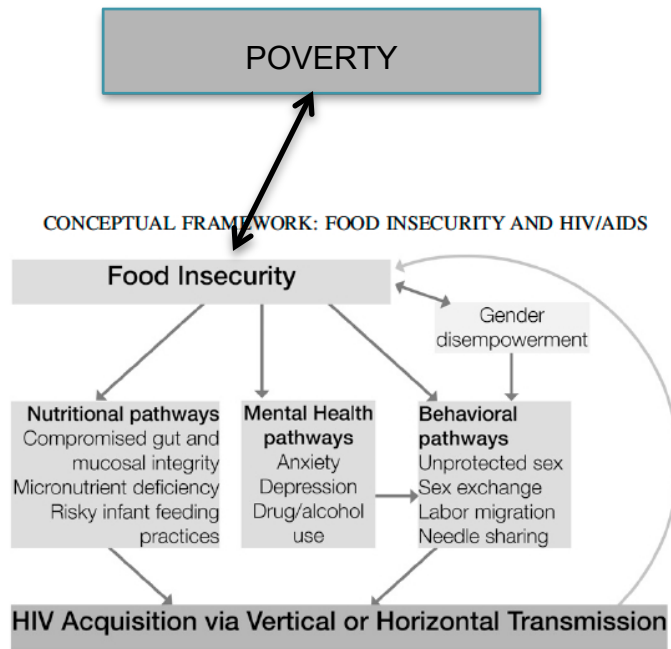
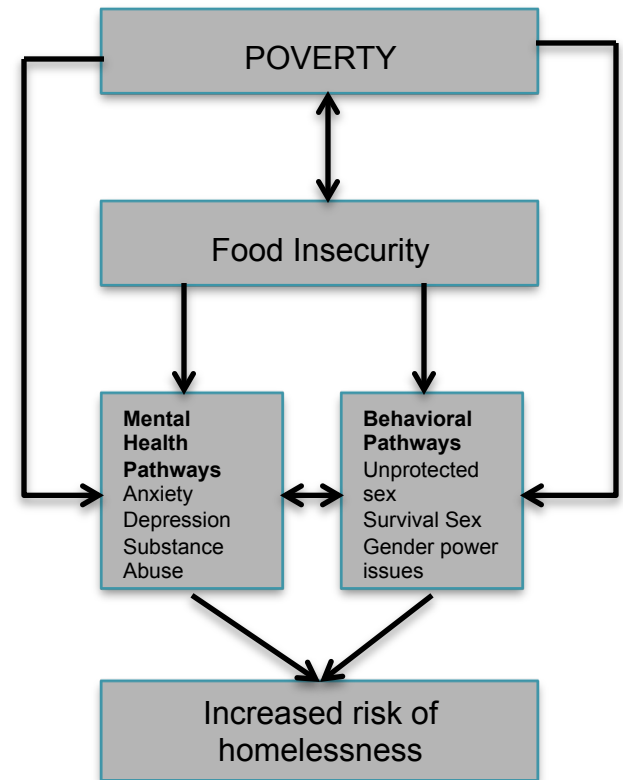


FIGURE 2. Food insecurity and HIV acquisition.



Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS¹⁻⁴

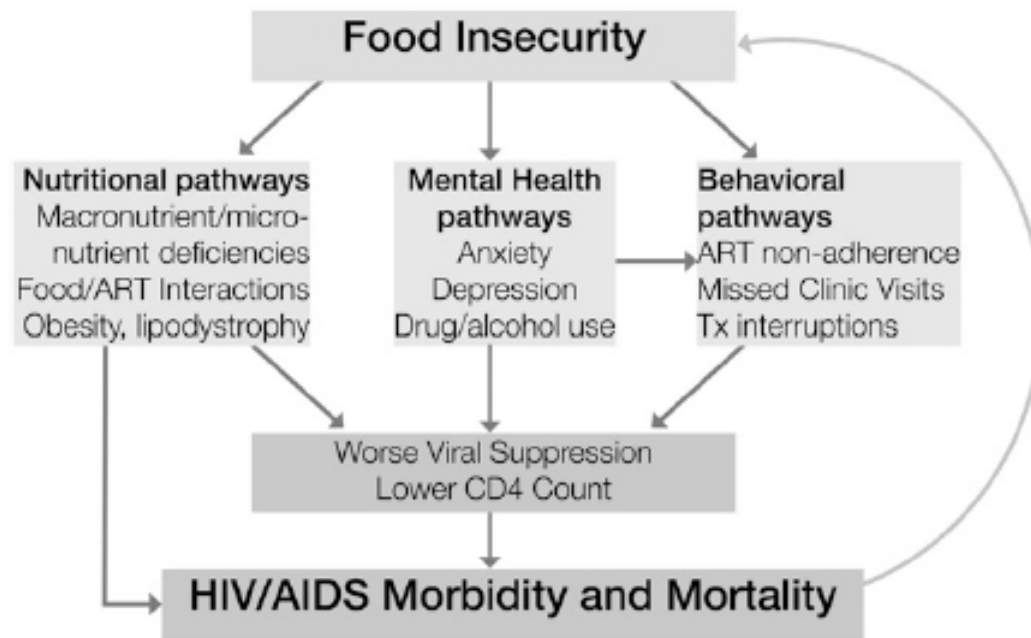


FIGURE 3. Food insecurity and HIV/AIDS morbidity and mortality. ART, antiretroviral therapy; Tx, treatment.

Food insufficiency among HIV-infected crack-cocaine users in Atlanta and Miami

Table 2 Bivariate associations between food insufficiency and selected sociodemographic factors in the study population: HIV-infected crack-cocaine users in Atlanta and Miami, USA, August 2006–January 2009

Characteristic	Food insufficiency (%)	<i>P</i> value
Gender		0.50
Female	32.0	
Male	35.8	
Race/ethnicity		0.36
Black, non-Hispanic	33.7	
White, non-Hispanic	41.2	
Hispanic	12.5	
City		0.003
Atlanta	40.7	
Miami	24.2	
Monthly income		0.039
≤US \$100	40.5	
\$US 100–599	34.9	
≥\$US 600	22.1	
Marital status		0.21
Single, never married	36.4	
Other	29.0	
Current homelessness		<0.001
Yes	48.4	
No	22.1	

Table 3 Bivariate associations between food insufficiency and selected clinical characteristics in the study population: HIV-infected crack-cocaine users in Atlanta and Miami, USA, August 2006–January 2009

Characteristic	Food insufficiency (%)	<i>P</i> value
Current ART, if CD4 count <200 cells/ μ l		0.035
Yes	15.6	
No	35.9	
Current ART, if CD4 count <350 cells/ μ l		0.011
Yes	15.6	
No	36.4	

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

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

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

Severe food insecurity is associated with elevated unprotected sex among HIV-seropositive injection drug users independent of HAART use

Table 1. Baseline individual and structural characteristics of 470 HIV-positive people who inject drugs in the AIDS Care Cohort to evaluate Exposure to Survival Services, stratified by severe food insecurity.

	Severe food insecurity		P
	Yes (n = 335)	No (n = 135)	
Median age (IQR)	41.6 years (35.6–47.5)	42.4 years (37.0–48.2)	0.061
Female sex (vs. male)	131 (39%)	51 (38%)	0.789
Aboriginal ethnicity (vs. nonaboriginal)	136 (41%)	55 (41%)	0.977
Married/cohabitating	90 (27%)	37 (27%)	0.905
Homeless	118 (35%)	26 (19%)	<0.001
Inner city residency	245 (73%)	75 (56%)	<0.001
Frequent crack smoking	161 (48%)	35 (26%)	<0.001
Frequent heroin injection	82 (24%)	15 (11%)	0.001
Frequent cocaine injection	41 (12%)	8 (6%)	0.043
HAART use	50 (51%)	67 (55%)	0.412
CD4 cell count			
<200 copies/ μ l	87 (27%)	38 (28%)	0.737
200–350 copies/ μ l	107 (33%)	42 (31%)	0.707
>350 copies/ μ l	132 (40%)	55 (41%)	Reference
HIV-1 RNA viral load (log ₁₀) <500 copies/ml	102 (31%)	53 (39%)	0.099

IQR, interquartile range.

Anecdotal Evidence

- Poverty > poor dentition > poor diet
 - Reliance on soft foods – inability to eat fresh foods
- Chronic alcohol abuse destroys taste buds
 - Heavy use of table salt at every meal
- Charity model issues
 - People donate food they wouldn't serve at home

Dentition and Nutrition



Local Hospital Discharge Instructions

- Diet: Eating a well-balanced diet with many fruits and vegetables is good for your health. If you have questions about what makes for a healthy diet then please contact your primary care provider.



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Patient Characteristics Related to co-morbid HIV and Homelessness in a Southeastern US HIV Clinic

- IRB # 130214
- Retrospective Chart Review:
 - 01/01/11 – 12/31/2012
- Inclusion Criteria:
 - VCCC clinic patient with housing field in SW Intake form = “homeless”
- Exclusion Criteria: None
- Limitations: accuracy of identifier, small N, inconsistency in EMR around many variables

Clinic and Cohort Demographics

Cohort Demographics, Counts and Percentages, 2011-2012, N=34.

	Race		
Gender	Black	Caucasian	Total
Male	16 (67)	8 (33)	24 (71)
Female	7 (70)	3 (30)	10 (29)
Total (%)	23 (68)	11 (32)	34 (100)

Clinic Demographics, Counts and Percentages, 2011-2012, N=5369.

	Race		
Gender	Black	Caucasian	Total
Male	1450 (35)	2676 (65)	4126 (77)
Female	754 (61)	489 (39)	1243 (23)
Total (%)	2204 (41)	3165 (59)	5369(100)

Healthcare Visits by Type (N=34).

Healthcare Point of Contact	Total Visits
Emergency Dept/Discharge	30
Hospital Admission	19
VCCC Clinic Visits	139

Mental Illness in Cohort

Illness	Count and Percentage
Substance Abuse	11 (32)
Bipolar	8 (24)
Depression	8 (24)
Schizophrenia	3 (9)
PTSD	3 (9)
Anxiety	3 (9)
Schizoaffective	1 (3)

Summary Findings: Virologic Suppression

- At start of study, 41% of cohort on ART (14/34), with 57% of those having VL < 48 (9/14). At end of study, 65% of cohort on ART (22/34), with 86% of those having VL < 48 (19/22). During study period, 9 people started ART and 1 person stopped ART.

ART Regimen Summary (N=34)

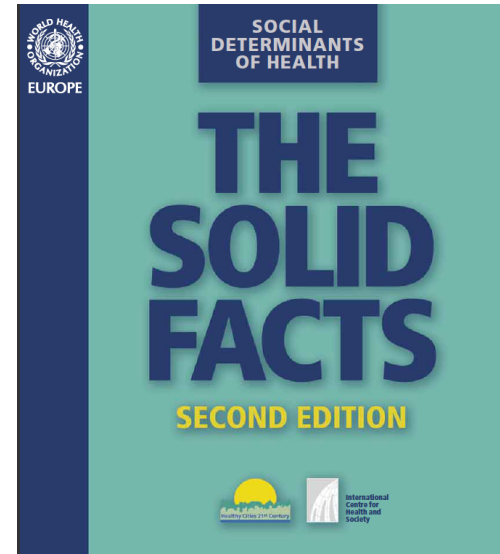
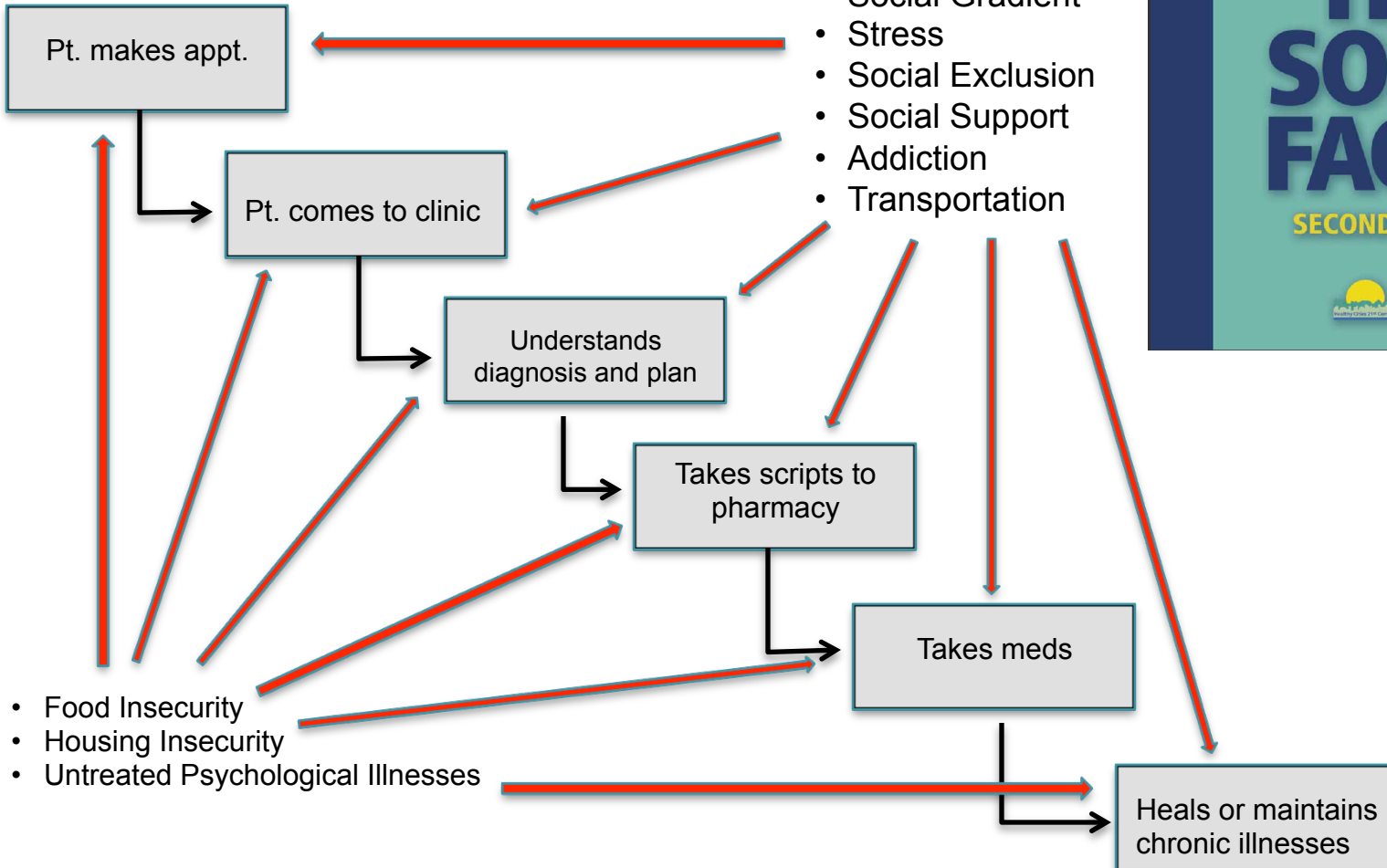
ART regimen	Count at Study Start	Count at Study Finish
Atripla	4	7
TRU/ATVr	5	4
TRU/LPVr	2	2
TRU/DRVr	1	2
TRU/ATVr/AZT	1	1
CMB/RAL/DRVr	1	0
EPZ/ATVr	0	2
TRU/RAL	0	1
EPV/ABC/DRVr	0	1
TRU/RAL/ETV	0	1
MVC/RAL/DRVr	0	1
Total Pts on ART	14 (41%)	22 (65%)

Study Key Findings: Barriers to Care

- Mann-Whitney tests revealed no statistically significant differences between those with VL < 48 copies and those without, based on gender, race, alcohol use, tobacco use, illicit substance use.
- In this sample, proximal barriers do not define the likelihood of a person's having VL < 48 copies.

A tale of two visits

- Social Gradient
- Stress
- Social Exclusion
- Social Support
- Addiction
- Transportation



- Food Insecurity
- Housing Insecurity
- Untreated Psychological Illnesses

What We Must Do

See – understand and acknowledge social forces in our patient's lives

Respond – act to improve both individual lives and community living

Change – empower others so that they can be successful improving their health and the health of their communities

Embodying SRC

- **Know Yourself** - Authentic empathy is key to clinical success just as losing oneself in the suffering of others is a pathway to failure.
- **Do not infantilize or enable patients** - Each person's diseases belong to that person, and each person is free to make both tragic and heroic decisions in life, and each must face the consequences of those decisions.
- **Empower** patients with **small goals** as they are able to meet them. Accept that your goals for patients and their goals for themselves will often be out of sync with each other.

Embodying SRC

- **Move Slowly and Intentionally Toward Goals** – don't over-promise and under-deliver with this population, as your failure reinforces their pathology – Say what you will do, then do it.
- Clearly **accept blame** for mistakes – doing so deflates cynicism
- **Model with intention** the kinds of socially normative behaviors that you wish your patients to utilize in their own lives
- Just because you can write the prescription doesn't mean the patient can **afford** it, **acquire** it, **keep** it, and **understand** why to take it and key side effects to watch for.

Case Study Revisited: 9 mons later -

- VCCC Interventions (in addition to ART):
 - Social Work referral to Room In The Inn
 - CPS Team meets every 2 weeks with pt for medication reconciliation; DMII consult
 - Clinical care – pt sees provider q30D
 - Nutrition – DMII, obesity consult
 - Mental health – referral to VCCC psych services; pt participates in daily AA meetings at Room In The Inn
- CD4 79 (10), VL 56, doubled up

Closing thoughts

“Comprehensive Care” isn’t just a slogan

Social problems require social solutions

There is no group of professionals in our society better positioned than are we to provide both the bedside care and the strategic energy and vision to

CHANGE THE WORLD!!!