HIV IN JAILS AND PRISONS

Ank Nijhawan, MD, MPH
November 8, 2016
Outline

- Case presentation
- Incarceration in the US
- HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
DL is a 54 yo African American man who presents to clinic as an ‘out of care’ patient

Released from jail 4 months prior

HIV positive, has been off meds for several months

Homeless off and on

Since release from jail, admitted for GSW to legs bilaterally, now in wheelchair; asking for hydrocodone for neuropathy and GSW pain
Case- PMHx

HIV

- Diagnosed 1999
- Previously on AZT/ddI/3TC; ABC/3TC/EFV;
- Genotype in 7/09 showed K103N mutation.
- OIs: thrush;
- Most recent regimen Truvada, Darunavir, Ritonavir, Raltegravir

PMHx

HTN, Hepatitis C, neuropathy, GSW to leg, syphilis, Depression
Additional history

- All- nkda

- Meds: (just restarted)
  - Truvada, Raltegravir, Ritonavir, Darunavir,
  - Bactrim, Fluconazole,
  - gabapentin, hydrocodone, wellbutrin

- Sochx. Homeless until 1 month ago, now with own apartment. Lives far away with no transportation. Prior cocaine use, alcohol, tobacco; +MSM, no current partner
Case—Physical exam

- Afebrile, P 100 R 16 BP 140/100
- Gen in NAD, sitting in wheelchair
- HEENT+ thrush
- Chest CTA bilaterally
- CV tachycardic, no m/r/g
- Abd soft nt nd nabs, no ascites
- Ext trace edema bilaterally,
- Neuro decreased strength in left lower leg 4/5, difficult to elicit reflexes; difficulty ambulating
Case- labs

Na 135
K 3.6
Cl 97
HCO3 23
BUN 29
Creat 2.3
Glu 86

WBC 3.4
HCT 41.3
Plt 104

RPR 1:16

CD4 17→31
VL 41K→12K

AST/ALT 88/51
GGT 162 Alkp 58
Where to begin?

<table>
<thead>
<tr>
<th>Medical issues:</th>
<th>Social/ Behavioral issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>Housing: paying for his apartment</td>
</tr>
<tr>
<td>Thrush</td>
<td>Transportation</td>
</tr>
<tr>
<td>ARF</td>
<td>Drug addiction</td>
</tr>
<tr>
<td>Pain management</td>
<td>Keeping out of jail</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Social support</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td></td>
</tr>
</tbody>
</table>
Outline

- Case presentation
- Incarceration in the US
- HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
Epidemic of Incarceration

U.S. State and Federal Prison Population, 1925-2013

Source: Bureau of Justice Statistics Prisoners Series.
Definitions

- **Jail**: where people go after they are arrested; stay there while awaiting trial or awaiting placement for drug treatment; short sentences (usually <1 year)
- **State jail**: unique to Texas, created to manage overburdened jail system
- **Prison**: can be state or federally run, longer sentences (years)
Dallas County Jail

- 7th largest county jail
- Average daily intake of 275 new arrestees
- Average daily census of 6200 inmates
- 77% Male, 23% Female
- Health care delivery is by Parkland Health & Hospital System
- On average 125 (2%) known HIV+ inmates
Who is incarcerated?

**MEN**
- White men ages 18 or older: 1 in 106
- All men ages 18 or older: 1 in 54
- Hispanic men ages 18 or older: 1 in 36
- Black men ages 18 or older: 1 in 15
- Black men ages 20-34: 1 in 9

**WOMEN**
- White women ages 35-39: 1 in 355
- Hispanic women ages 35-39: 1 in 297
- All women ages 35-39: 1 in 265
- Black women ages 35-39: 1 in 100

Pew Charitable trusts, “1 in 100”, 2008
1.5 Million Missing Black Men

By JUSTIN WOLFERS, DAVID LEONHARDT and KEVIN QUEALY  APRIL 20, 2015

For every 100 black women not in jail, there are only 83 black men. The remaining men – 1.5 million of them – are, in a sense, missing.

Among cities with sizable black populations, the largest single gap is in Ferguson, Mo.

North Charleston, S.C., has a gap larger than 75 percent of cities.

This gap – driven mostly by incarceration and early deaths – barely exists among whites.

Figures are for non-incarcerated adults who are 25 to 54.

Of all Black adults in Dallas, only 44..8% are black men, 13,000 “missing”
Substance Abuse, Mental Health Disorders and Hepatitis C in Correctional Populations

- **% with Sub Abuse Problems**: 80% in Corrections, 7.9% in U.S. Population
- **% with Mental Health Problems**: 55% in Corrections, 9.9% in U.S. Population
- **% with Hepatitis C (chronic)**: 30% in Corrections, 1.3% in U.S. Population

Sources:

a) Substance Abuse: SAMHSA. Results from the 2004 National Household Survey on Drug Use and Health (available at: www.oas.samhsa.gov/nsduh/2k4nsduh/2k4results/2k4results.pdf).


**Note:** This study estimates a Hepatitis C prevalence of 12-35% among persons in corrections.
Incarcerated population

- Large
- Minorities
- Co-morbidities (mental health, substance abuse, hepatitis C, HIV)
- No routine medical care
- Poor: > 30% grew up on public assistance; many homeless
- Vulnerable: history of physical, sexual abuse; 15-25% had drug-abusing parent
Outline

- Case presentation
- Incarceration in the US
- HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
U.S. National HIV/AIDS Strategy

1. Reducing the number of new infections
2. Increasing access to care and optimizing health outcomes for people living with HIV
3. Reducing HIV-related health disparities
Cascade of Care in HIV-Infected Patients

- Linkage to care improves virologic suppression
- Virologic suppression decreases mortality and transmission to others
- HIV viremia, missed visits associated with increased mortality

HIV Continuum of Care

Mugavero, 2012

Increase HIV serostatus awareness from 79% to 90%

Increase linkage to care w/in 3 months of Dx from 65% to 85%

Retention in Care

Re-engagement in Care

Increase RW clients in continuous care from 73% to 80%

Increase proportion of HIV Dx’ed persons with undetectable VL by 20%

Adapted from Carlos Del Rio
Figure 2: HIV Care Cascade – Prior to, During, and After Release from Incarceration

- HIV diagnosed: National average 80, Upon Entry to Jail/Prison 78, During Incarceration 79, After Release 79
- Linkage to care: National average 62, Upon Entry to Jail/Prison 56
- Retention in care: National average 41, During Incarceration 36, After Release 41
- ART Rx: National average 51, During Incarceration 29
- Undetectable VL: National average 40, During Incarceration 21
Case presentation

Incarceration in the US

HIV Care Cascade in the Incarcerated and Recently Released

- HIV epidemiology in corrections
- HIV testing in jails/prisons
- HIV care in jails/prisons
- Continuity of care after release
# Infectious diseases among inmates

<table>
<thead>
<tr>
<th>Condition</th>
<th>Est. Prevalence Among Inmates, %</th>
<th>Est. # of Inmates w/ Condition, 1997</th>
<th>Est. # of Releasees w/ Condition, 1996</th>
<th>Total # in U.S. Population w/ Condition, 1996</th>
<th>Releasees w/ Condition as % of Total in U.S. Population w/Condition, 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>0.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>8,900</td>
<td>39,000</td>
<td>229,000&lt;sup&gt;b&lt;/sup&gt;</td>
<td>17.0</td>
</tr>
<tr>
<td>HIV Infection</td>
<td>2.3–2.98&lt;sup&gt;c&lt;/sup&gt;</td>
<td>35,000–47,000</td>
<td>98,000–145,000</td>
<td>750,000&lt;sup&gt;e&lt;/sup&gt;</td>
<td>13.1–19.3</td>
</tr>
<tr>
<td>Positive RPR Serology (Syphilis)</td>
<td>2.6–4.3</td>
<td>46,000–76,000</td>
<td>202,000–332,000</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>Chlamydia Infection</td>
<td>2.4</td>
<td>43,000</td>
<td>186,000</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>GC Infection</td>
<td>1.0</td>
<td>18,000</td>
<td>77,000</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>HBV (HBsAg+)</td>
<td>2.0</td>
<td>36,000</td>
<td>155,000</td>
<td>1,000,000–1,250,000&lt;sup&gt;f&lt;/sup&gt;</td>
<td>12.4–15.5</td>
</tr>
<tr>
<td>HCV (anti-HCV+)</td>
<td>17–18.6&lt;sup&gt;g&lt;/sup&gt;</td>
<td>303,000–332,000</td>
<td>1,300,000–1,400,000</td>
<td>4,500,000&lt;sup&gt;h&lt;/sup&gt;</td>
<td>28.9–32.0</td>
</tr>
<tr>
<td>TB Disease</td>
<td>0.04&lt;sup&gt;i&lt;/sup&gt;</td>
<td>1,400</td>
<td>12,000</td>
<td>34,000&lt;sup&gt;k&lt;/sup&gt;</td>
<td>35.3</td>
</tr>
<tr>
<td>TB Infection (PPD+)</td>
<td>7.4</td>
<td>131,000</td>
<td>566,000</td>
<td>N/A</td>
<td>—</td>
</tr>
</tbody>
</table>

Hammett, Am J Pub Health, 2002
Prevalence of HIV/AIDS in Corrections
and in the US Population

Sources:

amfAR, HIV/AIDS in Correctional Settings, Congressional Briefing 2008
HIV in jails and prisons

- **Prevalence by population:**
  - Women in prison: 2.5% (v 1.7% in men)
  - African Americans in Prison: 2.0%
  - Hispanics in Prison: 1.8%
  - Whites in Prison: 1.0%
  - Jails Inmates: 2.5%

- Approximately 30-50% of inmates are unaware of their status
HIV prevention behind bars

- Sex, drug use, tattooing occurs in jail/prison
- Condoms, bleach, clean needles-
  - Not available in vast majority of facilities
  - 2 state/federal and 3 city/county make condoms available to select populations
- Transmission of HIV during incarceration is relatively low: 0-2 seroconversions/690 person years (MA, RI)*
- Investigation in Georgia prison of 88 seroconversions from 1988-2005 (mandatory testing on admission, voluntary thereafter)

*Horsburgh, 1990; Macalino, 2004
Outline

- Case presentation
- Incarceration in the US
- HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
CDC Demonstration project: Rapid HIV Testing in Jails

- 2003-2006
- Florida, Louisiana, New York, Wisconsin
- 33,211 inmates tested (99.9 received test results)
- 440 (1.3%) reactive tests
- 409 (1.2%) confirmed positive
- 269 (0.8%) newly diagnosed
  - 40% for those reporting heterosexual risk only

MacGowan, STD, 2009
Percentage of male inmates screened for HIV infection during prison intake medical evaluation, by type of screening --- Washington, 2006-2010
**Why Routine, Opt-out Testing may be best method**

<table>
<thead>
<tr>
<th>Voluntary Test</th>
<th>Opt-out</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Usually &lt;20% inmates test</td>
<td>□ 90% inmates are tested (RI)</td>
</tr>
<tr>
<td>□ Estimates of prevalence usually lower than blinded surveillance, suggests that high-risk individuals not tested</td>
<td>□ From 1990-2000, approximately 1/3 of all HIV diagnoses in RI state occurred in correctional setting</td>
</tr>
<tr>
<td>□ In MA, changing from voluntary to opt-out, testing changed from 18% to 73%</td>
<td>□ Rapid tests feasible, acceptable, may lead to higher testing rates</td>
</tr>
</tbody>
</table>

➢ 19% of prisons, 35% of jails perform opt-out HIV testing

Liddicoat, J Urban Health 2006; Desai, AIDS Educ Prev 2002; Solomon, Health Affairs, 2014
Gilead’s FOCUS Program: Increasing Routine HIV and HCV Screening and Linkage to Care

Source: AIDSVu.org
Outline

- Case presentation
- Incarceration in the US
- HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
Medical care in corrections

- Inmates have a “Right” to health care
  - Inmate was injured while incarcerated and on work duty, sued health care provider for improper care
- Violation of the 8th Amendment, “cruel and unusual punishment”, to deny, delay or interfere with a prisoner’s health care
HIV Care at Dallas County Jail

Identified as HIV infected:
- Positive on blood test or oral swab
- Inmates reports HIV positive at intake
- Flagged as positive from previous incarceration

Seen by general medical provider
- HAART may be prescribed at this time if confirmed

Seen by HIV provider
- Within 1-3 days, labs/CXR/PPD are done,
- EPIC reviewed, outside records obtained,
- HAART and prophylaxis started, other medical issues treated
- F/U within 2 weeks.
Gains in HIV markers during incarceration

- 1866 HIV-infected inmates in CT with >6 month stay
  - 59% achieved HIV VL <400

<table>
<thead>
<tr>
<th>Laboratory value</th>
<th>Baseline value</th>
<th>Last value</th>
<th>Change in value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 lymphocyte count, mean lymphocytes/μL</td>
<td>330</td>
<td>404</td>
<td>+74</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>HIV-1 RNA level, mean copies/mL (log₁₀ copies/mL)</td>
<td>59,820 (3.76)</td>
<td>14,200 (2.83)</td>
<td>-45,620 (-0.93)</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Springer et al., CID 2004
HIV markers at reincarceration

292 (27% of those undetectable during incarceration), were re-incarcerated after >3mos post-release

- **Initial incarceration:**
  - Mean increase in CD4 was 67
  - Mean log drop -1.06

- **At time of reincarceration**
  - Mean loss in CD4 was 80
  - Mean gain in viral load +1.6
  - Only 2 individuals were undetectable at reincarceration

Springer et al., CID 2004
Incarceration predicts virologic failure for IDUs receiving HAART

- 437 IDUs in Baltimore
- 40% incarcerated during 10 years of f/u
- Brief incarceration was assoc with virologic failure,
- Not if longer than 30 days

Westergaard, CID, 2011
Case presentation

Incarceration in the US

HIV Care Cascade in the Incarcerated and Recently Released
  - HIV epidemiology in corrections
  - HIV testing in jails/prisons
  - HIV care in jails/prisons
  - Continuity of care after release
Mortality Rates Among Former Inmates After Release

Binswanger, NEJM, 2007
Risk behavior after release

- Compared with visits when no incarceration had occurred in interim, those with recent incarceration:
  - 2x as likely to report sharing needles and syringes
  - 9x more likely to have attended a shooting gallery

- Sexual risk:
  - 106 prisoners interviewed 1 week, 6 mo after release
  - 36% reported unprotected intercourse with 2 or more female partners

MacGowan, Int J STD, 2003; Westergaard, CID, 2011
Linkage to medical care after release

- 1750 inmates released from TDCJ
- Returned to Harris County bet 2004-2007
- 20% enrolled in an HIV clinic within 30 days
- 28% within 90 days
- Predictors of engagement:
  - Age >30
  - Schizophrenia
  - On ARVs during incarceration
  - Enhanced discharge planning

Baillergeon, Pub Health Rep, 2010
Linkage to care

- HRSA SPNS: Special Project of National Significance
- 10 Demonstration projects in US
- 1270 inmates enrolled
  - 58% with HIV follow-up on first quarter
  - 47% with HIV follow-up in second quarter
  - 26% with undetectable viral load at 6 mo follow-up
- Predictors of linkage:
  - Assessment of medical care, case management in jail
  - Jail based education
  - Known release date
  - Stable housing

Althoff, AIDS and Behavior, 2012;
Spaulding et al, 4th Academic and Health Policy Conference on Correctional Health; Altanta, 2012
Intensive case management

- RCT in North Carolina
- 104 patients
- Randomized to Strengths-based case management vs SOC (prison-administered program)
- Outcome: medical appt after release

<table>
<thead>
<tr>
<th></th>
<th>Bridging CM</th>
<th>SOC</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 week</td>
<td>65%</td>
<td>54%</td>
<td>0.3</td>
</tr>
<tr>
<td>12 week</td>
<td>88.4%</td>
<td>78%</td>
<td>0.2</td>
</tr>
<tr>
<td>48 week Mean # visits</td>
<td>5.23</td>
<td>4.07</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Wohl, AIDS Behavior 2011
Accessing Antiretroviral Therapy Following Release From Prison

- Studied inmates released from TX prisons 2004-2007 receiving ART before release
- N=2115 inmates
  - 115 (5%) filled ART within 10d
  - 375 (17%) filled ART within 30d
  - 634 (30%) filled ART within 60d
- Predictors of filling ART: having undetectable VL before release, non-minority, received assistance with Texas ADAP

Baillargeon, JAMA 2009
New, ongoing efforts to improve linkage to HIV care after release from jail/prison

- Combined treatment programs with ART, Buprenorphine
- Mobile health technology
- Peer navigation
- HIV testing in probation/parole setting
- Seek, Test, Treat, Retain models
- START together- START+ adherence counseling + Peer navigators
LINCS project

- Multicenter study - MA, RI, NC, CA, PR, TX
- Linking client level data from Ryan White with jail release data
- Goals:
  - To develop a measure of linkage to HIV care for jail and prison releasees
  - To validate this measure using the electronic medical record and to define health care utilization and clinical outcomes after release from incarceration
eUCIs Protect Health Information by Removing Individually Identifiable Components

Name: John Doe, DOB: February 2, 1964, Male

UCI: JHDE0202641U

eUCI: 8417D5706B0B40E52BA8FE4F95460CB9DC2223AAU
### eUCI versus HIV status by EMR 2011-2013 datasets

<table>
<thead>
<tr>
<th></th>
<th>eUCI match</th>
<th>No eUCI match</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confirmed HIV+ inmate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP</td>
<td>1160</td>
<td>FN</td>
<td>1329</td>
</tr>
<tr>
<td>FN</td>
<td>169*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Not HIV+ inmate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP</td>
<td>77</td>
<td>TN HIV-</td>
<td>56318</td>
</tr>
<tr>
<td>TN HIV+</td>
<td>303*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1237</td>
<td>56410</td>
<td>57647</td>
</tr>
</tbody>
</table>

Sensitivity (TP/TP + FN) = 87%*
Specificity (TN/FP+TN) = 99.9%*
HIV/AIDS Re-entry Coalition (HARC)

Group of local stakeholders
- Jail HIV medical providers
- Community HIV medical providers
- HIV prevention services
- Case management
- Substance abuse treatment providers
- Mental health providers
- HIV transportation
- HIV housing
- Re-entry services
- Researchers

Meetings
- Meet every 2 months
- Discuss ways to improve cascade of care in incarcerated and recently released
- Working on increasing HIV testing and prevention in jail
- Increasing “in-reach” into jail
- Streamlining referral process
Summary

- There is an epidemic of incarceration in this country
- HIV is at the center of it
- Rates of HIV are 5 times higher in inmates compared to the general population
- HIV testing is feasible in jails and prisons and is an important component of HIV prevention
- Incarceration is a unique opportunity to diagnose, link and re-engage HIV patients in care
HIV infected inmates generally have improvement in CD4 and viral loads while incarcerated
These gains are frequently lost after release
The period of time immediately following release from jail is extremely high risk for HIV/STI transmission, death
Challenges to linkage to care are enormous, but have major impact on patients and their communities
Patient follow-up

- Renal failure resolved after stopping diuretic
- Changed tenofovir to abacavir
- Back in jail several times since
- Engaged in care, Viral load near undetectable
Questions?
Figure 2. Percentage of persons with HIV engaged in selected stages of the continuum of care, by race/ethnicity -- United States

Also lower numbers in youth