World AIDS Day 2017: End the Epidemic

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North Shore University Hospital
Center for AIDS Research & Treatment
CME ACCREDITED UPDATES IN MEDICINE ELEARNING SERIES

COURSE NAME:
Medicine RSS eLearning Modules

CME eLEARNING ACTIVITY NAME:
World AIDS Day 2017: End the Epidemic

PROGRAM DESCRIPTION, EDUCATIONAL GOAL AND RATIONALE:
Evidence based guidelines are constantly changing and being updated for several core areas of Internal Medicine throughout the year. It is important for physicians to practice the most up-to-date standard of care in all specialties to promote patient health and well-being. Our series of lectures at the medicine regularly scheduled series promotes continuing education for the practicing internist and highlights important updates in medical practice in these core areas. Physicians in general practice often and do not have the time to keep themselves up-to-date with medical advances as they are busy seeing patients in the clinical setting. The Medicine Regularly Scheduled Series gives these physicians the opportunity to learn these advances in an academic setting.
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TARGET AUDIENCE:
Physician Partners and Premium Network community-based providers

LEARNING OBJECTIVES:
Upon successful completion of this activity, participants should:
Identify current HIV regional epidemiology
Summarize the New York State Plan to End the HIV/AIDS Epidemic in New York by 2020
Recognize health disparities regarding HIV transmission
Identify viral suppression and strategies to address in clinical practice
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ACCREDITATION:
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To receive credit the participants must:
Read/view the entire educational activity.
Input name and credentials to gain CME credit.
Answer at least 80% of the Post-Test questions correctly.
Complete and return Post-Test.
Complete and return Program Evaluation.
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COURSE HOST:
Department of Medicine
Northwell Health

ESTIMATED TIME TO COMPLETE ACTIVITY:
90 minutes

ACKNOWLEDGEMENT OF COMMERCIAL SUPPORT:
An announcement of program support will be made to all attendees at the beginning of each educational activity.
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FACULTY DISCLOSURES:
Drs. Thomas McGinn, George Boutis, John Raimo and Sean LaVine have nothing to disclose. Joseph P. McGowan, MD receives honorarium from Gilead, Viiv and Merck for his role on the advisory committee.

RELEASE DATE: 4/16/18
REVIEW DATE: 4/16/18
PROGRAM EXPIRATION: 7/30/18
Objectives

1. Identify current HIV regional epidemiology
2. Identify the New York State Plan to End the HIV/AIDS Epidemic in New York by 2020
3. Recognize health disparities regarding HIV transmission and viral suppression and strategies to identify and address them
Agenda

1. HIV Epidemiology Overview, NYS
2. End the Epidemic (ETE) Initiative
3. Disparities: barriers to ETE
HIV Statistics

USA-
- ~1.2 million infected
- ~40,000 new cases/year

NY State
- 130,753 infected (Living with HIV or AIDS)
- 122,945 in NYC
- 6,530 in Nassau and Suffolk

Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2015—United States and 6 Dependent Areas

N = 39,920

- Male-to-male sexual contact: 67%
- Heterosexual contact—Female: 16%
- Heterosexual contact—Male: 8%
- Injection drug use (IDU)—Female: 2%
- Injection drug use—Male: 4%
- Male-to-male sexual contact and IDU: 3%

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data for the year 2015 are preliminary and based on 6 months reporting delay. Data have been statistically adjusted to account for missing transmission category. “Other” transmission category not displayed as it comprises less than 1% of cases.

*Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
Rates of Adults and Adolescents Living with Diagnosed HIV Infection
Year-end 2014—United States and 6 Dependent Areas

N = 970,319  Total Rate = 360.0

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data are based on address of residence as of December 31, 2014 (i.e., most recent known address).
Question

The incidence of new HIV diagnoses in New York State has:
1. Declined over the past 2 years
2. Remain stable for the past decade
3. Has increased among African American Women
4. Has sharply increased due to the opiate epidemic in the past 12 months
Question

The incidence of new HIV diagnoses in New York State has:

1. **Declined over the past 2 years**
2. Remain stable for the past decade
3. Has increased among African American Women
4. Has sharply increased due to the opiate epidemic in the past 12 months
HIV/AIDS in New York

- Between 2006 and 2015, estimated new HIV infections decreased 43% in New York State.
- <1 per 100,000 births with MTCT of HIV since 2013
- 2,493 new HIV diagnoses in NYC in 2015 – 8.3% decrease from 2014, first year of the epidemic with fewer that 2,500 new cases
- 205 new HIV diagnoses in Nassau/Suffolk in 2015 – 14% decrease from the average of the previous 2 years, highest region outside of NYC
- 38% of PLWH/A in New York State are not virally suppressed (8% are undiagnosed)

How do we “Get Ahead” of the Epidemic?

- Prevention - A, B, Cs
  - **Abstain, Be faithful, Condoms, Circumcision**, 
- Counseling & testing + Needle Exchange 
- Treat our way out- active (TasP) 
  - Universal Testing and Linkage to Treatment 
  - PEP 
  - PrEP 
  - U = U 
  - Female Controlled Microbicides and Vaginal Gels 
- Vaccinate- passive
**PEP**

- **Event Driven**
  - Emergency medication started within a few hours of possible exposure to HIV, and continued for 28 days.
  - Typically start medication in the ED and then follow-up with Primary Care.
  - Examples of exposures that require PEP:
    - Employee needlestick
    - Sexual assault
    - Unprotected sex

- **Risk Driven**
  - Daily medication to prevent HIV infection in people who are HIV negative and may be at ongoing risk. Seen every 3 months for ongoing evaluation while they are taking PrEP.
  - Examples of ongoing risk that may require PrEP:
    - Partner is known HIV+
    - Injection drug user
    - Unprotected sex

**PrEP**

- **Risk Driven**
  - Daily medication to prevent HIV infection in people who are HIV negative and may be at ongoing risk. Seen every 3 months for ongoing evaluation while they are taking PrEP.
  - Examples of ongoing risk that may require PrEP:
    - Partner is known HIV+
    - Injection drug user
    - Unprotected sex
Exposure to HIV at mucosal surface (sex)

Virus collected by dendritic cells, carried to lymph node

HIV replicates in CD4 cells, released into blood

Virus spreads to other organs

The Importance of Adherence with PrEP: It works—if you take it

<table>
<thead>
<tr>
<th>Study</th>
<th>Medication</th>
<th>Population</th>
<th>Overall Reduction in HIV Incidence (mITT)</th>
<th>TDF detected in blood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangkok- TDF</td>
<td>TDF</td>
<td>IDU</td>
<td>49%</td>
<td>70%</td>
</tr>
<tr>
<td>Partners PrEP-</td>
<td>TDF</td>
<td>HIV discordant couples</td>
<td>67%</td>
<td>86%</td>
</tr>
<tr>
<td>TDF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partners PrEP-</td>
<td>TDF/FTC</td>
<td>&quot;</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>TDF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDF2</td>
<td>TDF/FTC</td>
<td>Heterosexual M/W</td>
<td>62%</td>
<td>84%</td>
</tr>
<tr>
<td>iPREX</td>
<td>TDF/FTC</td>
<td>MSM</td>
<td>42%</td>
<td>92%</td>
</tr>
<tr>
<td>Fem-PrEP</td>
<td>TDF/FTC</td>
<td>Heterosexual Women</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>VOICE</td>
<td>TDF/FTC &amp; TDF</td>
<td>Heterosexual Women</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

Modified from: MMWR June 14, 2013/62(23);463-465
STDs Will Occur for Persons Using PrEP

Analysis of HIV/STD incidence in PrEP users in large healthcare system (Kaiser Permanente San Francisco) from 2012 to 2015[1]

PROUD: similar rates of any STD in 12 mos before starting PrEP (63%) vs during 12 mos of PrEP (57%)[2]

Among 220 MSM initiating PrEP at STD clinic in Seattle, WA, from Sept 2014 to June 2016[3]: Decreased rate of condom use during receptive anal intercourse with HIV+ partners and increased rates of CT and GC diagnosis following PrEP initiation (vs pre-PrEP baseline)

Should STD Screening With PrEP Be More Often Than CDC Suggestion of Every 6 Mos?

Analysis of STD in a PrEP demonstration project at a NY health care center[1]

• Pts screened for STDs every 3 mos while receiving PrEP; also visited clinic if experienced symptoms

<table>
<thead>
<tr>
<th>Time Point</th>
<th>N</th>
<th>STD Diagnosis, n (%)</th>
<th>Diagnosed by Routine Screening, n (% STDs)</th>
<th>Repeat STDs, n (% STDs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mos before PrEP</td>
<td>280</td>
<td>35 (13)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PrEP prescription</td>
<td>280</td>
<td>31 (11)</td>
<td>31 (100)</td>
<td>8 (26)</td>
</tr>
<tr>
<td>3-mo follow-up</td>
<td>225</td>
<td>30 (13)</td>
<td>23 (77)</td>
<td>10 (33)</td>
</tr>
<tr>
<td>6-mo follow-up</td>
<td>196</td>
<td>41 (21)</td>
<td>34 (83)</td>
<td>20 (48)</td>
</tr>
<tr>
<td>9-mo follow-up</td>
<td>169</td>
<td>25 (15)</td>
<td>17 (68)</td>
<td>21 (84)</td>
</tr>
<tr>
<td>12-mo follow-up</td>
<td>128</td>
<td>17 (13)</td>
<td>13 (77)</td>
<td>13 (77)</td>
</tr>
</tbody>
</table>

- STDs were common at each time point, supporting screening every 3 mos in high-risk population

PARTNER Study: HIV Transmission According to Sexual Behavior Reported by HIV-Negative Partner

- No HIV transmission through condomless sex with a partner on ART and HIV RNA <200 copies/mL, despite a significant number of sex acts.
- Median follow-up: 1.3 years.
- Upper 95% CI: 0.3 per 100 person-years of follow-up.
- Approximately 40,000 condomless sex acts.
- Self-reported adherence to ART: 93% to 97%.
- Additional follow-up is needed to provide more precise estimates for transmission risk (MSM will be followed through 2018).

Overall Rate of Couple Transmission (per 100 Couple-Years Follow-Up)

- Any sex: 0.3
- Vaginal sex: 0.5
- Anal sex: 0.7
- Insertive anal sex: 1
- Receptive anal sex with ejaculation: 0.8
- Overall: 2.2

**Undetectable = Untransmittable**

People living with HIV can feel confident that if they have an undetectable viral load and take their medications properly, they **will not pass on HIV** to sexual partners \((U = U)\).

"People who take ART daily as prescribed and achieve and maintain an undetectable viral load have effectively no risk of sexually transmitting the virus to an HIV-negative partner."

(CDC, September 2017)

\(U=U\) is an unprecedented opportunity to transform the lives of people with HIV and the field:

- Reduces the shame and fear of sexual transmission and opens up possibilities for conceiving children without alternative means of insemination.
- Dismantles HIV stigma on the community, clinical, and personal level.
- Encourages people living with HIV to start and stay on treatment to keep them and their partners healthy.
- Strengthens advocacy for universal access to diagnostics, treatment, and care to save lives and bring us closer to ending the epidemic.
First-Yr Results After Implementation of HIV Test and Treat Rapid Response Program

Pilot program initiated 2016 in Miami
TTRR team of disease interventions specialist, pt navigator, case manager, and HIV provider tasked with ensuring that for each new HIV diagnosis:
• Pt visits HIV provider within 48 hrs
• ART prescribed 1-7 days after dx
• Initial visit includes ART provision and appropriate follow-up
BL laboratory values and confirmatory test results available within 24-48 hrs

*N*orthy pt foreign born (Cuba: 32%; Haiti: 24%; other Hispanic country: 18%). †Prescribed in 91% of pts. ‡20% of pts with CD4+ cell count < 200 cells/mm³.

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<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pts Enrolled in First Yr (N = 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male sex, %</td>
<td>73</td>
</tr>
<tr>
<td>Black/Haitian/Hispanic/white race, %*</td>
<td>18/22/53/7</td>
</tr>
<tr>
<td>Age range, n</td>
<td></td>
</tr>
<tr>
<td>21-40 yrs</td>
<td>31</td>
</tr>
<tr>
<td>41-60 yrs</td>
<td>13</td>
</tr>
<tr>
<td>&gt; 61 yrs</td>
<td>1</td>
</tr>
<tr>
<td>Evaluated by HIV provider same day/within 48 hrs of dx, %</td>
<td>48/88</td>
</tr>
<tr>
<td>Mean time to starting ART, days</td>
<td>6</td>
</tr>
<tr>
<td>Started same day of dx, %</td>
<td>37</td>
</tr>
<tr>
<td>Started within 7 days of dx, %</td>
<td>69</td>
</tr>
<tr>
<td>Most common ART regimen</td>
<td>EVG/COBI/FTC/TAF†</td>
</tr>
<tr>
<td>Mean initial VL, log₁₀ (SD)</td>
<td>4.32 (1.1)</td>
</tr>
<tr>
<td>Mean initial CD4+ cell count,‡ cells/mm³ (SD)</td>
<td>463 (263)</td>
</tr>
</tbody>
</table>
Defining the End of AIDS

Goal
Reduce from 3,000 to 750 new HIV infections per year by the end of 2020.

Three Point Plan

1. Identify all persons with HIV who remain undiagnosed and link them to health care.
2. Link and retain those with HIV in health care, to treat them with anti-HIV therapy to maximize virus suppression so they remain healthy and prevent further transmission.
3. Provide Pre-Exposure Prophylaxis for persons who engage in high risk behaviors to keep them HIV negative.

Credit: Michael Appleton for The New York Times
Pillars of Strategy to End the Epidemic

- Expand HIV Testing
- Link and Retain in HIV Care
- Prevention in High Risk Negatives
# ETE Targets and Progress to Date

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV Incidence</td>
<td>750</td>
<td>2,436</td>
</tr>
<tr>
<td>HIV Diagnoses</td>
<td>1515</td>
<td>3,155</td>
</tr>
<tr>
<td>Linkage to Care (30d)</td>
<td>90%</td>
<td>73%</td>
</tr>
<tr>
<td>Receiving any care</td>
<td>90%</td>
<td>81%</td>
</tr>
<tr>
<td>Viral Suppression (all Infected)</td>
<td>85%</td>
<td>67%</td>
</tr>
<tr>
<td>Viral Suppression (Received any Care)</td>
<td>95%</td>
<td>83%</td>
</tr>
<tr>
<td>HIV Status Aware</td>
<td>98%</td>
<td>92%</td>
</tr>
<tr>
<td>Concurrent AIDS Diagnosis</td>
<td>15%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Time to AIDS (2 years)</td>
<td>5.1%</td>
<td>6.8%</td>
</tr>
</tbody>
</table>
New York State Cascade of HIV Care, 2015

Persons Residing in NYS† at End of 2015

- Estimated HIV-Infected Persons‡: 121,900
  - 92% of infected
- Persons Living w/Diagnosed HIV Infection: 111,900
  - 74% of infected
  - 81% of PLWDHI
- Cases w/any HIV care during the year*: 90,300
  - 61% of infected
  - 66% of PLWDHI
- Cases w/continuous care during the year**: 73,900
  - 62% of infected
  - 67% of PLWDHI
- Virally suppressed (n.d. or <200 copies/ml) at test closest to end-of-year: 75,400
  - 83% of cases w/any care

†Based on most recent address, regardless of where diagnosed. Excludes persons with AIDS with no evidence of care for 5 years and persons with diagnosed HIV (non-AIDS) with no evidence of care for 8 years.
‡ Estimated unknown 6.7% for NYC and 13% Rest of State
*Any VL, CD4, genotype test during the year; ** At least 2 tests, at least 91 days apart
Cascade of HIV Care: Nassau-Suffolk Ryan White Region

Persons Residing in the Nassau-Suffolk Ryan White Region\textsuperscript{*} at End of 2015 (excludes prisoner cases)

- Estimated HIV-Infected Persons\textsuperscript{†}: 6,530
- Persons Living w/Diagnosed HIV Infection: 5,690 (87% of infected)
- Cases w/any HIV care during the year*: 4,450 (68% of infected 78% of PLWDHI)
- Cases w/continuous care during the year**: 3,500 (54% of infected 62% of PLWDHI)
- Virally suppressed (n.d. or <200 copies/ml) at test closest to end-of-year: 3,910 (60% of infected 69% of PLWDHI 88% of cases w/any care)

\textsuperscript{†} Based on most recent address, regardless of where diagnosed. Excludes persons with AIDS with no evidence of care for 5 years and persons with diagnosed HIV (non-AIDS) with no evidence of care for 8 years.
\textsuperscript{‡} 13% were infected and unaware (CDC estimate)
* Any VL, CD4, genotype test during the year; ** At least 2 tests, at least 91 days apart
Pillar 1: Changes to NYS HIV testing law

Latest revision signed by Governor Cuomo in 2016

**NYS only requires opt-out consent:** Simply notify patient that test will be performed so that they have opportunity to decline. No verbal or written consent is required.

**Order test for all patients ages 13 and over.** Upper age limit removed. Routine HIV testing must be offered to all patients age 13 and over in any primary care, urgent care, or emergency care settings.
Pillar 1: HIV Testing: Missed Opportunities

- 1 in 2 people with HIV have had the virus at least 3 years before diagnosis.
- About 40% of new HIV infections come from people who don’t know they have HIV.
- 7 in 10 people at high risk for HIV who weren’t tested last year saw a healthcare provider during that year.

https://www.cdc.gov/vitalsigns/hiv-testing/index.html
Annual HIV Testing of High Risk Persons

Many people at high risk* for HIV aren’t getting tested every year

- 59% of heterosexuals at increased risk for HIV,
- 42% of people who inject drugs
- 29% of gay and bisexual men

were not tested last year for HIV.

*People at high risk for HIV include: 1) sexually active gay and bisexual men, 2) people who inject drugs, and 3) heterosexuals who have sex with someone who is at risk for or has HIV.
Pillar 1: HIV Testing

- 48% Ever been tested for HIV in New York State
- 39.5% ever tested for HIV on Long Island
- 62% of NYC residents have ever been tested for HIV and 33% were tested within the past 12 months

http://etedashboardny.org/data/testing/
Over the last three years, only 1.6% of all patients ages 13-64yo received HIV testing when seen at Northwell Health EDs.

Data based on SEC reports for CCMC, HUNT, LHGV, LHH, LIJFH, LIJMC, LIJVS, NSUH, PLV, and SS
Testing rates for individual EDs range from 0.6% to 2.9% of all patients ages 13-64yo.
## 2015-2017
New HIV Diagnoses, ED patients 13-64yo

<table>
<thead>
<tr>
<th>Year</th>
<th># patients tested</th>
<th># confirmed new HIV+</th>
<th>% confirmed new HIV+</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>4205</td>
<td>15</td>
<td>0.4%</td>
</tr>
<tr>
<td>2016</td>
<td>5048</td>
<td>34</td>
<td>0.7%</td>
</tr>
<tr>
<td>Jan-Oct 2017</td>
<td>3844</td>
<td>34</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13097</strong></td>
<td><strong>83</strong></td>
<td><strong>0.6%</strong></td>
</tr>
</tbody>
</table>

Data based on SEC reports for CCMC, HUNT, LHGV, LHH, LIJFH, LIJMC, LIJVS, NSUH, PLV, and SS
Disparities
Rates of Diagnoses of HIV Infection among Adults and Adolescents by Sex and Race/Ethnicity, 2015—United States

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data for the year 2015 are preliminary and based on 6 months reporting delay.

* Hispanics/Latinos can be of any race.
Community Viral Load Mirrors Reduced Rate of New HIV Cases in San Francisco

Retrospective analysis of relationship between community viral load (CVL; mean of summed individual HIV-1 RNA results per yr) and new HIV diagnoses

"Risk" depends on your geographic or behavioral Community


*Data insufficient to prove significant association with reduced HIV incidence.
Community Viral Load New York City

New York City
Mean community viral load, 2008
by United Hospital Fund neighborhood
- 7968–16 642 copies/ml
- 16 643–18 960 copies/ml
- 18 961–21 894 copies/ml
- 21 895–29 107 copies/ml
- Non-residential zones
- DPHOs

Map of New York City neighborhoods with viral load data.
Mapping TPP by Community Districts of Most Frequent Sex among MSM

TPP = Transmission Potential Prevalence

Legend

- TPP
- 0% - 25% (n=28)
- 26% - 50% (n=34)
- 51% - 75% (n=98)
- 76% - 100% (n=29)
- non-residential area
Pillar 2: Engagement and Retention in Care
Pillar 3: Prevention in High Risk Negatives: PEP

Figure 1. Proportion of PEP-related ED visits per 100,000 ED visits, by sex, NYC, 2002 - 2013

Pillar 3: Prevention in High Risk Negatives: PrEP

5815 Medicaid recipients filled a PrEP prescription in 2016

Figure 1. PrEP prescription rate at 542 ambulatory care practices, by neighborhood, New York City, 2012-2014

CART Overview

Over 2100 active patients with HIV/AIDS

238 new patients with HIV initiated care in the past year (12% growth)

NCQA recognized Level 3 HIV Patient Centered Medical Home

Outpatient program located at 400 Community Drive in Nassau

Satellite office at the Dolan Family Health Center in Suffolk

Currently awarded 10 Competitive HIV Service grants

On-site 340B HIV Specialty Pharmacy

HIV Clinical Trials Program

Health Home Downstream Provider

HIV Testing in Emergency Rooms Pilot Project

CDC Community based HIV Prevention Collaborative
Pillars of Care at CART

Expert HIV Care
Case Management
Health Education
HIV Testing
Prevention with High Risk Negatives
Co-Located Services

Comprehensive Medical Case Management Model
- Medical Care provider
- RN Case Manager
- Social Work Case Manager

Specialty Pharmacy (Pharm D has Collaborative Practice Agreement with all Clinicians)
Behavioral Health (2 P/T Psychiatrists, 9 SW therapists, SBIRT Behavioral Health Educator)

GYN Services
Nutritionist (Full time Dietician)
Health Education
Health Home
Hepatitis C Co-infection Treatment
Peer Support
Outreach/Retention in Care
Substance use (Buprenorphine prescribers)
Dental in adjoining suite
Legal Aid (Through Nassau Suffolk Law Services)
Client Advisory Board
CQI Program
vDOT, Daily Adherence Support

HIV Viral Suppression Rate over 90%

Regional Impact to End the Epidemic
Breaking Down Walls

MOBILE HEALTH VAN SERVICES

CENTER FOR AIDS RESEARCH & TREATMENT
NORTH SHORE UNIVERSITY HOSPITAL, MANHASSET, NY

Pride for Youth
Creating Success Through Pride
A Project of Long Island Crisis Center

Dolan Family Health Center

 Planned Parenthood
Care. No matter what.

long island gay and lesbian youth
Did you know there is a new way to prevent HIV infection?

Find out if Pre-Exposure Prophylaxis (PrEP) is right for you.

Speak to a health educator today for more information. 1-844-321-PREP (7737)
Opportunities/Challenges

- Leverage Expertise and Community Relationships/Collaboration to impact HIV Epidemic Regionally
- Enhance use of Social Media
- Identify Health Care Disparities
- Use **Data** to assess program effectiveness and target areas of resource need
REDCap Initiative
REDCap Initiative

**REDCap** - a browser-based, metadata-driven electronic data collection software solution and workflow methodology for designing clinical and translational research databases.

Social work case managers provide a Comprehensive Psycho-Social Assessment with a Care Plan every six months to the total patient population.

Assessments contain over 300 questions ranging from demographics and mental health status to substance abuse.

The REDCap initiative, which involved building a user friendly, electronic version of the assessment, took 11 months to complete from conception to implementation.
REDCap Initiative

Allows for mining of data from the database in real time
- Create custom reports and extract data to find disparities based on age, mode of transmission, housing status, mental health history, etc.

Assessment is categorized into the following sections:
- Demographics
- Financials
- Housing/Transportation/Food
- Case Management Information
- Mental Health Assessment (mood/affect, anxiety screening, PTSD screening, Depression/PHQ-9, Suicide/Homicide screening)
- Substance Use History
- Legal Assessment (Domestic Violence, Child Protective Services, Adult Protective Services, Criminal Activity)
- Treatment Adherence Assessment
- Service Plan & Referrals
- Short term & Long term Goals
Patient Insurance

- **Private Managed**: 38.03%  
- **ADAP**: 17.25%  
- **Medicaid**: 22.95%  
- **Medicaid and Medicare**: 11.11%  
- **Medicare**: 7.83%  
- **APIC**: 1.98%  
- **No Insurance**: 0.84%
CART Patient Demographics

- **White, Non Hispanic**: 39%
- **Hispanic**: 14%
- **Asian**: 2%
- **Black, Non Hispanic**: 13%

*Nassau & Suffolk Data based on U.S. Census Bureau, 2015*

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**Suffolk**

- **White, Non Hispanic**: 68.60%
- **Hispanic**: 18.60%
- **Black, Non Hispanic**: 8.40%
- **Asian**: 4.40%

**Nassau**

- **White, Non Hispanic**: 61%
- **Hispanic**: 16%
- **Black, Non Hispanic**: 13%
- **Asian**: 10%

*Nassau & Suffolk Data based on U.S. Census Bureau, 2015*
REDCap Data & Disparities in Care
Race & Viral Load Suppression

- Hispanic: 4.80% Unsuppressed, 95.20% Suppressed
- American Indian or Alaska Native: 11.11% Unsuppressed, 88.89% Suppressed
- Asian: 2.63% Unsuppressed, 97.37% Suppressed
- Other/Unknown: 11.11% Unsuppressed, 88.89% Suppressed
- White, Non Hispanic: 4.00% Unsuppressed, 96.00% Suppressed
- Black or African American, Non Hispanic: 8.87% Unsuppressed, 91.13% Suppressed
CART Patient Demographics

- Young Adults (19-24): 73.91% Male, 26.09% Female
- Adults (25-34): 71.89% Male, 28.11% Female
- Adults (35-44): 63.00% Male, 37.00% Female
- Adults (45 and over): 60.86% Male, 39.14% Female
Gender & Viral Load Suppression

Proportion of Suppressed/Unsuppressed patients by gender

Male
- Suppressed: 93.95%
- Unsuppressed: 6.05%

Female
- Suppressed: 91.79%
- Unsuppressed: 8.21%
Mode of Transmission and Gender

- IVDU & MSM: 100.00% Male, 0.00% Female
- Perinatal: 33.33% Male, 64.71% Female
- Blood Transfusion: 61.70% Male, 38.30% Female
- Bisexual: 97.44% Male, 0.00% Female
- Other: 72.15% Male, 27.85% Female
- IVDU: 66.43% Male, 32.86% Female
- MSM: 98.74% Male, 0.00% Female
- Heterosexual: 38.04% Male, 59.93% Female

Northwell Health
Viral Load Suppression & Risk Factor

- Heterosexual: 92.25% Suppressed, 7.75% Unsuppressed (n=1110)
- MSM: 94.74% Suppressed, 5.26% Unsuppressed (n=627)
- IVDU: 95.68% Suppressed, 4.32% Unsuppressed (n=139)
- Other: 91.14% Suppressed, 8.86% Unsuppressed (n=79)
- Bisexual: 93.42% Suppressed, 6.58% Unsuppressed (n=76)
- Blood Transfusion: 93.62% Suppressed, 6.38% Unsuppressed (n=47)
- Perinatal: 82.00% Suppressed, 18.00% Unsuppressed (n=50)
- IVDU & MSM: 100.00% Suppressed, 0.00% Unsuppressed (n=5)
Virally Unsuppressed at Last Visit

Percentage of patients with current or past history of each subgroup that had a VL >200 at their last visit.
16.9 % of Patients with a PHQ-9 Score $\geq 10$ have a VL $>200$
6.3 % of Patients with a PHQ-9 Score $<10$ have a VL $>200$
Substance Use and Viral Load Suppression

<table>
<thead>
<tr>
<th>Past history of Substance Use</th>
<th>Current Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppressed</td>
<td>93.74%</td>
</tr>
<tr>
<td>Unsuppressed</td>
<td>6.26%</td>
</tr>
<tr>
<td>Suppressed</td>
<td>90.94%</td>
</tr>
<tr>
<td>Unsuppressed</td>
<td>9.06%</td>
</tr>
</tbody>
</table>
Viral Load Suppression and Housing

- Permanent: 93.49% Suppressed, 6.51% Unsuppressed
- Non-Permanent: 80.43% Suppressed, 19.57% Unsuppressed
- Unknown: 94.67% Suppressed, 5.33% Unsuppressed
Disclosure

- Household Disclosure: 59.37% Yes, 40.63% No
- Emergency Contact Disclosure: 89.55% Yes, 10.45% No
- Household & Emergency Disclosure: 85.99% Yes, 14.01% No
Viral Load Suppression & Disclosure

- Household Disclosure: 94.46%
- Emergency Contact Disclosure: 94.52%
- Household & Emergency Disclosure: 94.96%
Appointment Compliance and Viral Load Suppression

Proportion of Suppressed vs Unsuppressed patients who are Appointment Compliant or Non Compliant
Appointment Compliance & Housing

- Permanent: 7.77% Non-Compliant, 92.23% Compliant
- Non-Permanent: 15.56% Non-Compliant, 84.44% Compliant
- Unknown: 4.23% Non-Compliant, 95.77% Compliant
Appointment Compliance & Substance Use

Proportion of patients with current/past/no history of substance use by appointment compliance/non-compliance
Heat Maps and Testing
CART develops “Heat Maps” indicating by zip code the location of
1. All PLWHA in care at CART
2. All PLWHA in care at CART with an unsuppressed HIV viral load
3. All newly diagnosed persons referred for care at CART
Heat Maps & Mobile Testing

Reported cases of Chlamydia, Gonorrhea, and Syphilis in Nassau County in 2015

Source: NYSDOH Bureau of STD Prevention and Epidemiology
Heat Maps & Mobile Testing

Reported cases of Chlamydia, Gonorrhea, and Syphilis in Suffolk County in 2015

# of Cases
- Less than 6
- 6 to 115
- Greater than 115

Source: NYSDOH Bureau of STD Prevention and Epidemiology
Health System Unsuppressed Viral Load

Areas highlighted are Hempstead, Far Rockaway, St. Albans, Jamaica, Corona and Brooklyn.
CART Unsuppressed Viral Load

Areas highlighted are Hempstead, St. Albans, Springfield Gardens, Rosedale and surrounding areas.

N= 149
CART Newly Diagnosed

50% (41/82) Patients live within this zone
Unsuppressed Patients & “Hot Zones”

- Black or African American, Non Hispanic: 74%
- Hispanic: 6%
- Other/Unknown: 18%
- White, Non Hispanic: 2%

N= 50
Viral Load Suppression – CART and “Hot Zone” By Age

CART Clinic-Wide Viral Load Suppression Rate: 93%

Proportion of Suppressed CART Patients vs Hot Zone Patients
Unsuppressed Patients & “Hot Zones”

Proportion of Patients who live in “Hot Zones” that have Current or Past history of each subgroup

- Below Poverty Level: 82.00%
- Anxiety: 38.00%
- PHQ 9 ≥ 10: 14.00%
- PTSD: 10.00%
- Suicide: 6.00%
- Domestic Violence: 4.00%

N = 50
Unsuppressed Patients in “Hot Zones” & Housing

Proportion of Unsuppressed Patients who live in 10 “hot zone” zip codes with Permanent/Non-Permanent Housing.
Predictive Modeling – Retention in HIV Primary Care

1. Generate a list of screenable characteristics such as age, residence, housing status, PHQ-9, PTSD score that are associated with poor viral suppression and/or appointment adherence
2. Calculate a “weight” for each characteristic as it relates to the outcome
3. Generate a “risk” score for each patient in real time during initial assessment
4. Proactively identify patients with high adherence risk potential and initiate engagement/linkage support before they leave the office
Initiatives to Target Outcomes

- Expand retention efforts.
- Conduct outreach and testing in high incidence locations.
- Recruit POL in affected areas as an education and referral source.

- Scale up behavioral, biomedical, and organizational HIV intervention strategies to significantly impact the HIV epidemic and reduce health disparities identified with:
  - Young HIV-infected Adults
  - Patients with history of PTSD/Domestic Violence/Suicide-Homicide
  - Patients below the poverty level and those with unstable housing
  - Reduce stigma, increase disclosure and acceptance of diagnosis
Further Next Steps

• Hospitalization rates

• Determine validity of REDCap data: develop QI project using ACASI survey for subset of patients versus data from REDCap comp

• Link REDCap Comp to Health Information Exchange: query data for BMI, smoking, and other variables of interest.

• Health Literacy Screen
Thank You