A Public Health Approach to HIV and the Care Continuum

Julie Myers, MD MPH
New York City Department of Health and Mental Hygiene
Columbia University Medical Center
Today’s Talk

- Defining the Care Continuum
- Public Health Approaches
- Areas of Current and Future Exploration
Defining the Care Continuum
The HIV Continuum of Care: Public Health’s Role

Public health agencies

Re-Engagement in Care

Retention in Care

HIV Diagnosis \(\rightarrow\) Linkage to Care \(\rightarrow\) ART Receipt \(\leftrightarrow\) ART Adherence \(\leftrightarrow\) Outcomes

Public health agencies

Mugavero et al. *CID*. 2011;52:S238-S246
The HIV Continuum of Care: United States, 2010

- **Diagnosed**: 82%
- **Linked to Care**: 66%
- **Retained in Care**: 37%
- **Prescribed ART**: 33%
- **Virally Suppressed**: 25%

Source: CDC. XIX International AIDS Conference, July 2012
Note: 2010 diagnosed estimate is 84.2%

Hall et al., IAS 2012.
The Denominator Problem:
Data from King County

Denominator for Virologic Suppression:

- $\geq 1$ CD4 or VL result reported in 2009: 65%
- Total Population, adjusted for estimated outmigration: 57%
- Total Population, not adjusted for outmigration: 53%

Number of Persons Living with HIV/AIDS

Public Health Approaches
Applying Public Health Principles to the HIV Epidemic

Thomas R. Frieden, M.D., M.P.H., Moupali Das-Douglas, M.D.,
Scott E. Kellerman, M.D., M.P.H., and Kelly J. Henning, M.D.

Although human immunodeficiency virus (HIV) infection has killed more than half a million people in the United States, a comprehensive public health approach that has stopped other epidemics—notification of partners, would be substantial. But the human and economic costs of failing to adopt a comprehensive public health approach are much higher.
Public Health Approach to HIV Control: 2005

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Frieden et al., *NEJM* 2005.
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The Evolution of HIV/AIDS Surveillance in New York State

- **1981**: First cases of PCP, KS
- **1983**: AIDS case reporting mandated
- **1993**: AIDS case definition expanded; includes additional OI’s and CD4<200
- **1998**: AIDS reporting expanded to include HIV cases (Public Health Law Article 21 Title III)
- **2000**: HIV reporting and partner services law implemented
- **2005**: Reporting of all HIV-related labs; Surveillance expanded to include incidence and resistance testing
- **2010**: Amended HIV Testing law integrated routine offer of HIV test and streamlined consenting
HIV screening recommended in all health care settings as part of routine care for persons 13-64 years (opt-out model)

Separate written consent should not be required
The Impact of Community-Wide HIV Testing in NYC

Case finding and surveillance

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<td>Race/ethnicity</td>
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<td>White, non-Hispanic</td>
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<td>Asian/Pacific Islander, Other</td>
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<td>Transmission risk</td>
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Myers et al. JAIDS 2012.

Table 1. Independent Factors Associated with HIV Testing in the Past 12 Months Among Bronx Residents Aged 18-64 Years, 2009

HIV Testing Increased from 2005 to 2009 Among Bronx Residents Aged 18-64 Years

Greenberg et al., Health Affairs 2009.

**Increase in:**
- # publicly funded HIV tests
- proportion of cases entering care <3 months after diagnosis
- median CD4 count at diagnosis

**Decrease in:**
- # newly diagnosed HIV/AIDS cases
- proportion of cases with an initial diagnosis of AIDS
- proportion of cases progressing from HIV to AIDS within 12 months of diagnosis

Castel et al., *AIDS Care* 2014.

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Castel et al., *AIDS Care* 2014.
Case finding and surveillance

Partner Services

1939

WHOM HAVE YOU EXPOSED TO SYphilis

TELL YOUR PHYSICIAN
THEY SHOULD BE EXAMINED
THEY MAY NEED TREATMENT
N.Y. STATE DEPT. OF HEALTH

2012

NEED HELP NOTIFYING THE PARTNERS OF YOUR HIV POSITIVE PATIENTS?

CALL CNAP
CONTACT NOTIFICATION ASSISTANCE PROGRAM
212.693.1419

SEE BACK FOR HOW IT WORKS
Partner Services: Public Health Does It Better

2005 Assessment of NYC Partner Services System:

- DOHMH staff elicited 4 times as many partners as community providers
- 70% of DOHMH-elicited partners were notified (vs. 48% of community-elicited partners)
Public Health Approach to HIV Control: 2005-2014

1. Case finding and surveillance

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4. Population-based monitoring
Primary Prevention

- Condom availability, promotion
  - Includes large-scale distribution programs, branded condoms, social marketing
- Syringe provision, other harm reduction for drug users
  - Although not with federal $
- Behavioral interventions
- Biomedical prevention
  - PEP
  - PrEP
## Pre-Exposure Prophylaxis: Public Health’s Role

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Edelstein et al., *IAPAC* 2014, abstract #494.
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Prevention of HIV-1 Infection with Early Antiretroviral Therapy


ABSTRACT
Early Antiretroviral Therapy: Timeline

- August 2011: HPTN 052 results published
- December 2011: NYC announcement
- March 2012: National expert panel announcement
Early Antiretroviral Therapy: Timeline

- **January 2010**: San Francisco City Clinic policy change
- **March 2010**: San Francisco Dept. of Public Health announcement
- **August 2011**: HPTN 052 results published
Impact of Local Recommendation for Early Antiretroviral Therapy: San Francisco

Partner Services Improves Linkage to Care within 3 Months of Diagnosis, NYC, 2007-09

Systematic treatment and case management

93% of Partner Services (PS) patients (n=1645) were linked to care within 3 months of diagnosis, compared to 75% of citywide patients (n=5365).

Bocour et al., IAS 2012.
Public Health Helps Re-Engage HIV-Infected Persons Lost to Follow-Up (LTFU)

Systematic treatment and case management

Outcomes of return to care efforts

Udeagu et al., *AIDS* 2013;27:2271-9..
LaPHIE: A Novel Program for Linkage and Re-Engagement

Systematic treatment and case management
Reduction in Median HIV VL Among Patients Previously Out-of-Care

- 2/1/09-7/31/11: 549 alerts on 419 patients
- 85% had at least 1 CD4/VL after being identified

Systematic treatment and case management

Magnus et al., *Int. J. Med Inform. 2012..*
Care Coordination Impact: Improving Adherence, VL Suppression (VLS)

Systematic treatment and case management

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Care Continuum Dashboards

HIV Care Continuum Dashboard, 2012

Site A

A

Timely* Linkage to Care of Newly Diagnosed Patients, 2012

- New York City: 70%
- Site A: 75%
- 83% Goal

B

Viral Load Suppression among Patients in Care*, 2012

- New York City: 70%
- Site A: 76%
- 85% Goal

* Linked to care within 3 months of diagnosis
† National HIV/AIDS Strategy goal
‡ Local New York City goal
§ Definition of retention in care: 2 labs (CD4 or viral load) at least 180 days apart within 12 months
Areas of Current and Future Exploration
Other Uses of Surveillance Data to Improve Care Along the Continuum

- Use HIV surveillance to prioritize re-engagement of persons living with HIV (PLWH) whose last viral load was very high¹

- Use a “cohort approach” to monitor initial progression through the continuum²

- Use visits to STD Clinics by PLWH to support progression through the continuum by accessing HIV surveillance data³

2. De Cock, CID 2014.
3. Dombrowski et al., JAIDS 2010.
Create an electronic interface for providers to query the care status of individual patients who have fallen out of care

- Facilitates continuous “recapture blitz” model$^1$

Use surveillance data for program evaluation$^2$

- Especially important for long-term impact analysis

2. Irvine, Chamberlin et al., *IAPAC* 2014.
Employing Technology for Population Health: HIV Care Campaign in NYC, 2013

Hearing “HIV+” was hard.
Taking care of it doesn’t have to be.

Get affordable, confidential treatment.
Text CARE to 877877 or search HIV on nyc.gov
Start now and stay healthy.
The HIV Continuum of Care: United States, 2010

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Source: CDC. XIX International AIDS Conference, July 2012
Note: 2010 diagnosed estimate is 84.2%
Intersection of Care Continuum and Spatial Analysis

Eberhart et al., JAIDS 2013. See also: Brady et al., IAPAC 2014, abstract #483.
Geography Should Not Be Destiny: Focusing HIV/AIDS Implementation Research and Programs on Microepidemics in US Neighborhoods

Amy Nunn, MS, ScD, Annajane Yolken, Blayne Cutler, MD, PhD, Stacey Trooskin, MD, PhD, Phill Wilson, Susan Little, MD, and Kenneth Mayer, MD

Nunn et al., AJPH 2014.
Mapping HIV Prevalence and Poverty in NYC

Data as reported to NYC DOHMH by June 30, 2013.
Poverty levels, NYC 2007-2011.
HIV prevalence, NYC 2012.
The Health Impact Pyramid

- Increasing population impact
- Increasing individual effort needed

Frieden, AJPH 2010
Acknowledgements

NYC DOHMH
- Adriana Andaluz
- Sarah Braunstein
- Stephanie Chamberlin
- Zoe Edelstein
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- John Rojas
- Rebekkah Robbins
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- Benjamin Tsoi
- Chi-Chi Udeagu
- Many other colleagues

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Julie Myers

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