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

IAPAC
June 10, 2014

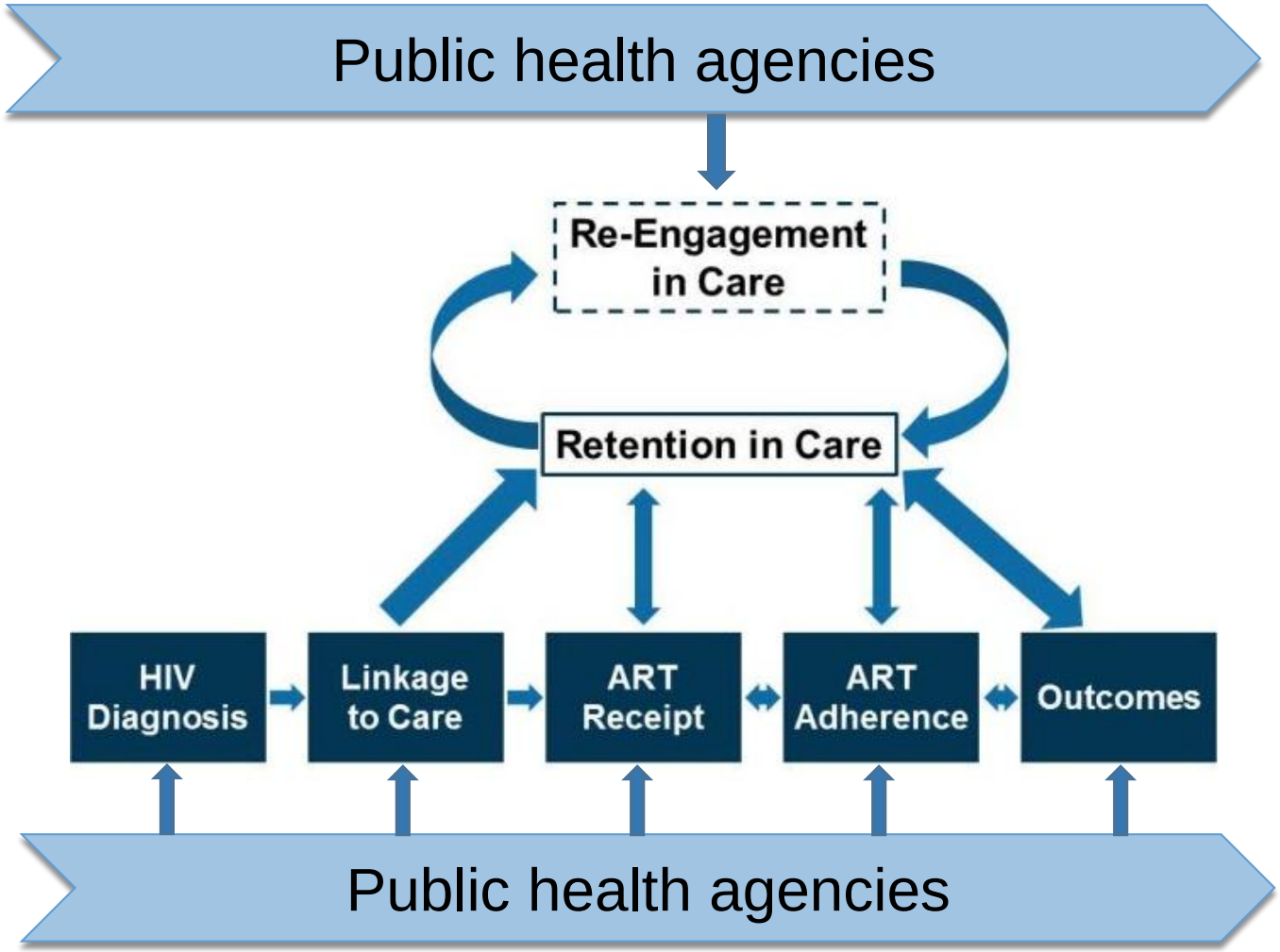
Today's Talk

- Defining the Care Continuum
- Public Health Approaches
- Areas of Current and Future Exploration

NYC Health

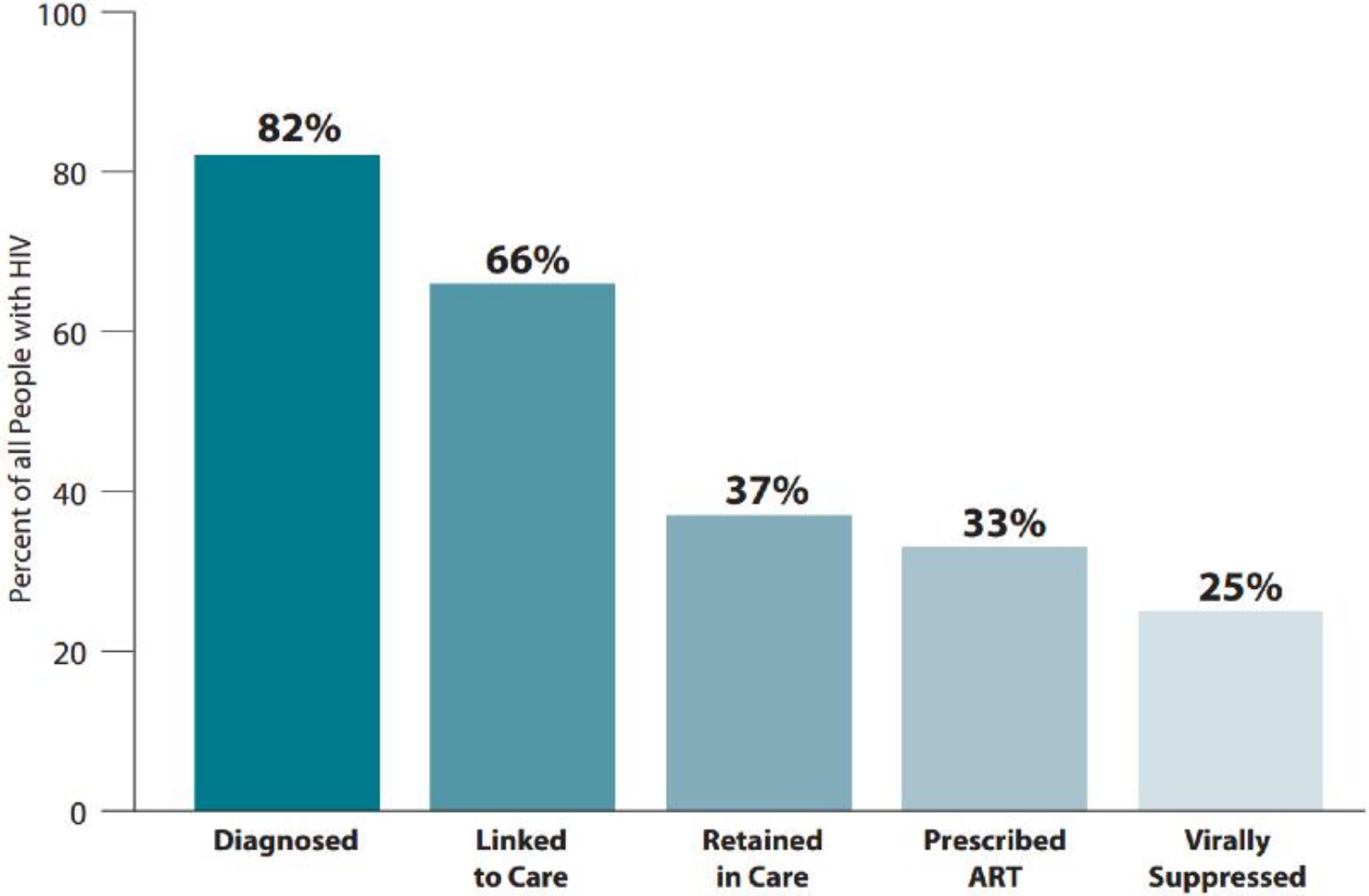
Defining the Care Continuum

The HIV Continuum of Care: Public Health's Role



Mugavero et al. *CID*. 2011;52:S238-S246

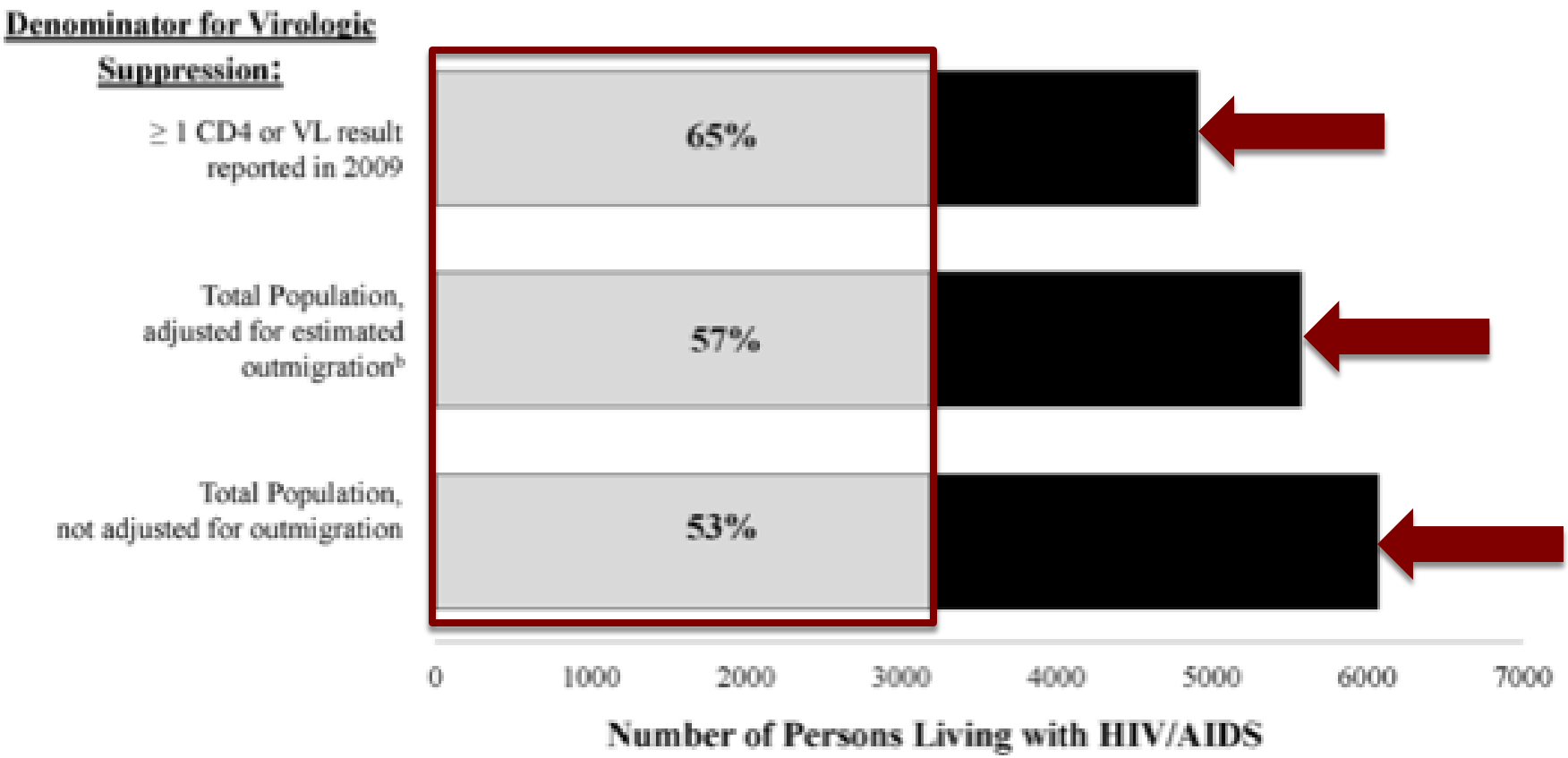
The HIV Continuum of Care: United States, 2010



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



Dombrowski, *AIDS* 2012.

Public Health Approaches

2005

The NEW ENGLAND JOURNAL of MEDICINE

SOUNDING BOARD

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 epidem- 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

Intervention
1. Case finding and surveillance
2. Interruption of transmission
3. Systematic treatment and case management
4. Population-based monitoring

Frieden et al., *NEJM* 2005.

NYC Health

Public Health Approach to HIV Control: 2005

Intervention	Other Infectious Diseases (e.g., TB)
1. Case finding and surveillance	Standard
2. Interruption of transmission	Standard
3. Systematic treatment and case management	Standard
4. Population-based monitoring	Standard

Frieden et al., *NEJM* 2005.

NYC Health

Public Health Approach to HIV Control: 2005

Intervention	Other Infectious Diseases (e.g., TB)	HIV Infection
1. Case finding and surveillance	Standard	Not universal
2. Interruption of transmission	Standard	Not universal
3. Systematic treatment and case management	Standard	Not universal
4. Population-based monitoring	Standard	Not universal

Frieden et al., *NEJM* 2005.

NYC Health

Public Health Approach to HIV Control: 2005

Intervention
1. Case finding and surveillance
2. Interruption of transmission
3. Systematic treatment and case management
4. Population-based monitoring

Frieden et al., *NEJM* 2005.

NYC Health

Public Health Approach to HIV Control: 2005-2014

1. Case finding and surveillance
2. Interruption of transmission
3. Systematic treatment and case management
4. Population-based monitoring

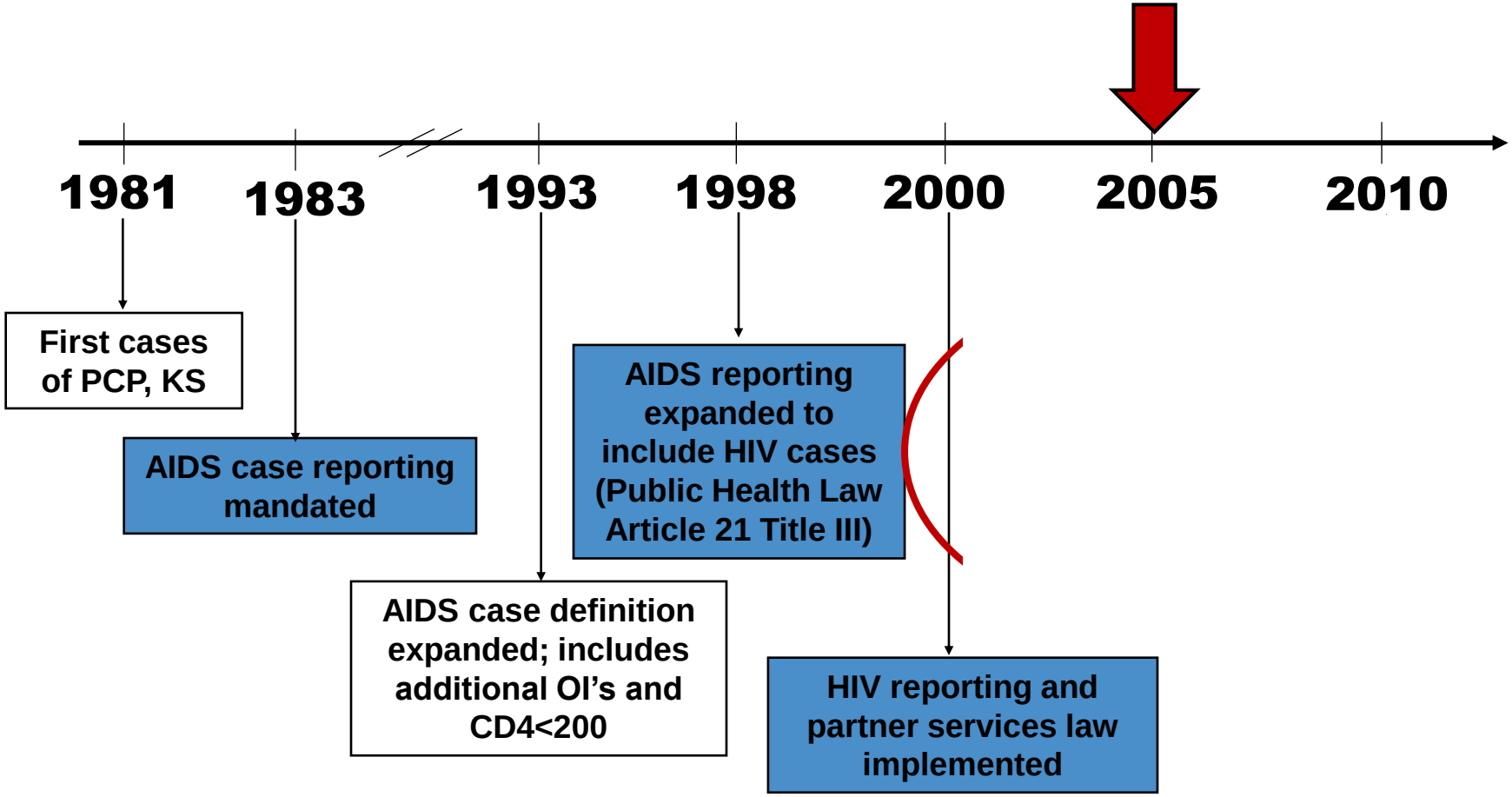
NYC Health

Public Health Approach to HIV Control: 2005-2014

1. **Case finding and surveillance**
2. Interruption of transmission
3. Systematic treatment and case management
4. Population-based monitoring

NYC Health

The Evolution of HIV/AIDS Surveillance in New York State



Change in National HIV Testing Recommendations, 2006

Morbidity and Mortality Weekly Report

Recommendations and Reports **September 22, 2006 / Vol. 55 / No. RR-14**

Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings

- 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

Branson et al., *MMWR,* 2006.

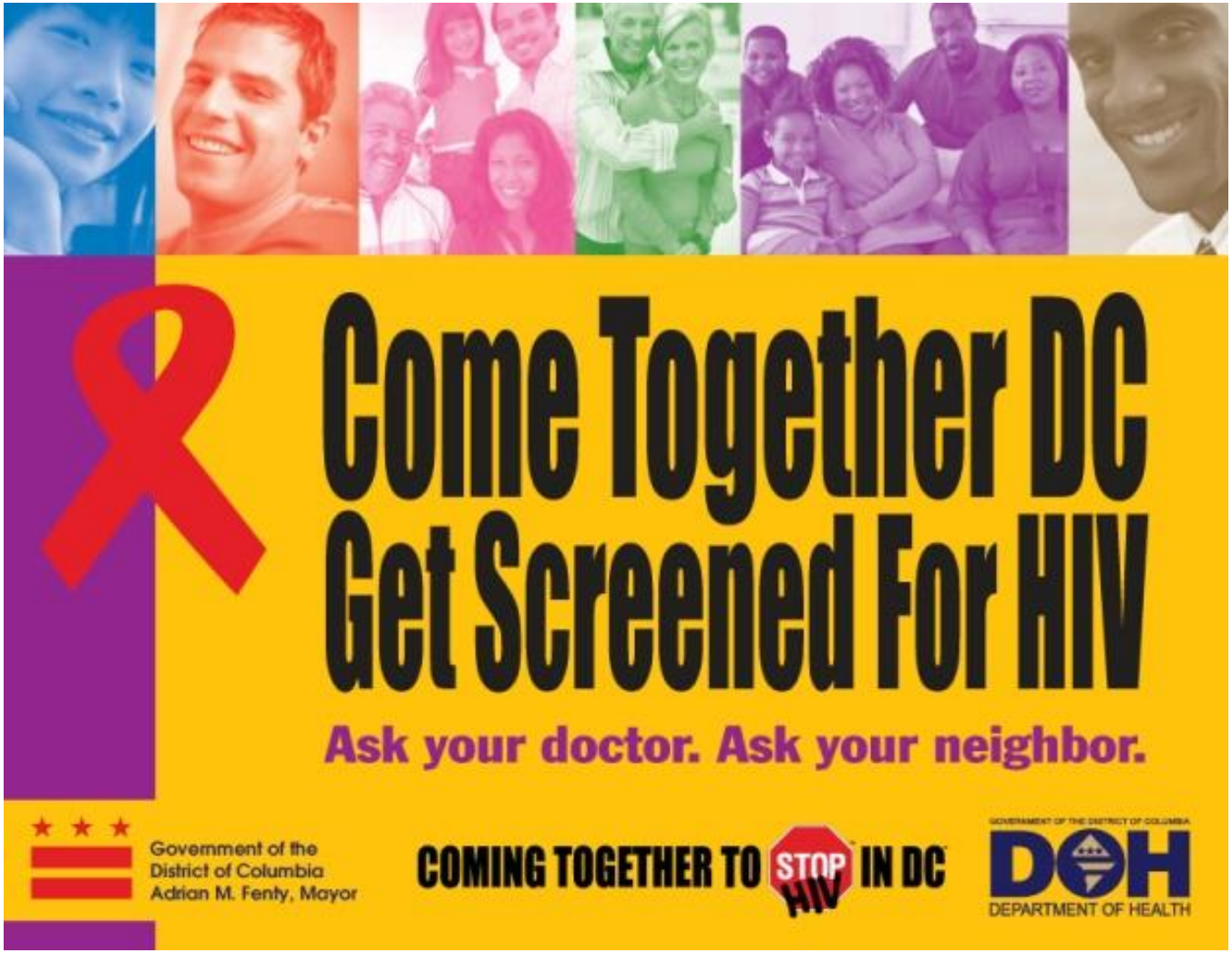
The Impact of Community-Wide HIV Testing in NYC

TABLE 4. Concordance of Comparisons in Concurrent HIV/AIDS Diagnoses and HIV Testing Among Bronx Adults Aged 18–64 years, 2005 Versus 2009

Characteristic	Concurrent HIV/AIDS Diagnoses, 2005 Vs. 2009	HIV Testing, 2005 Vs. 2009	Concordance of Comparisons*
All	↓	↑	Yes
Age, yrs			
18–24	↓	↓†	No
25–44	↓	↑	Yes
45–64	↓	↑	Yes
Sex			
Male	↓	↑	Yes
Female	↓	↑	Yes
Race/ethnicity			
White, non-Hispanic	↓	↓	No
Black, non-Hispanic	↓	↑	Yes
Hispanic	↓	↑	Yes
Asian/Pacific Islander, Other	↑	↑†	No
Transmission risk			
MSM	↓	↑	Yes
Heterosexual	↓	↑	Yes

Myers et al. *JAIDS* 2012.

Jurisdictional Testing in Washington DC: "Come Together DC – Get Screened for HIV"



Greenberg et al., *Health Affairs* 2009.

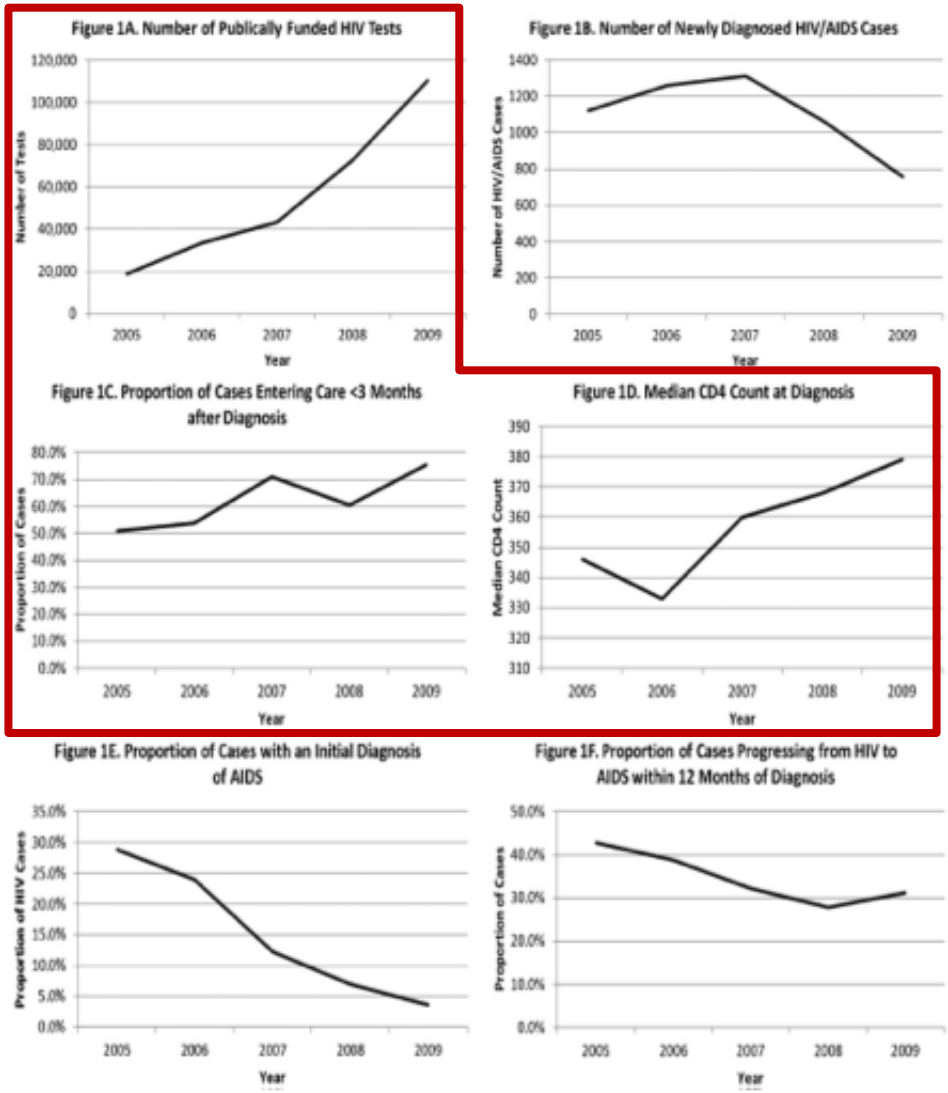
Impact of Major Jurisdictional HIV Testing Campaign: Washington, DC, 2005-2009

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.

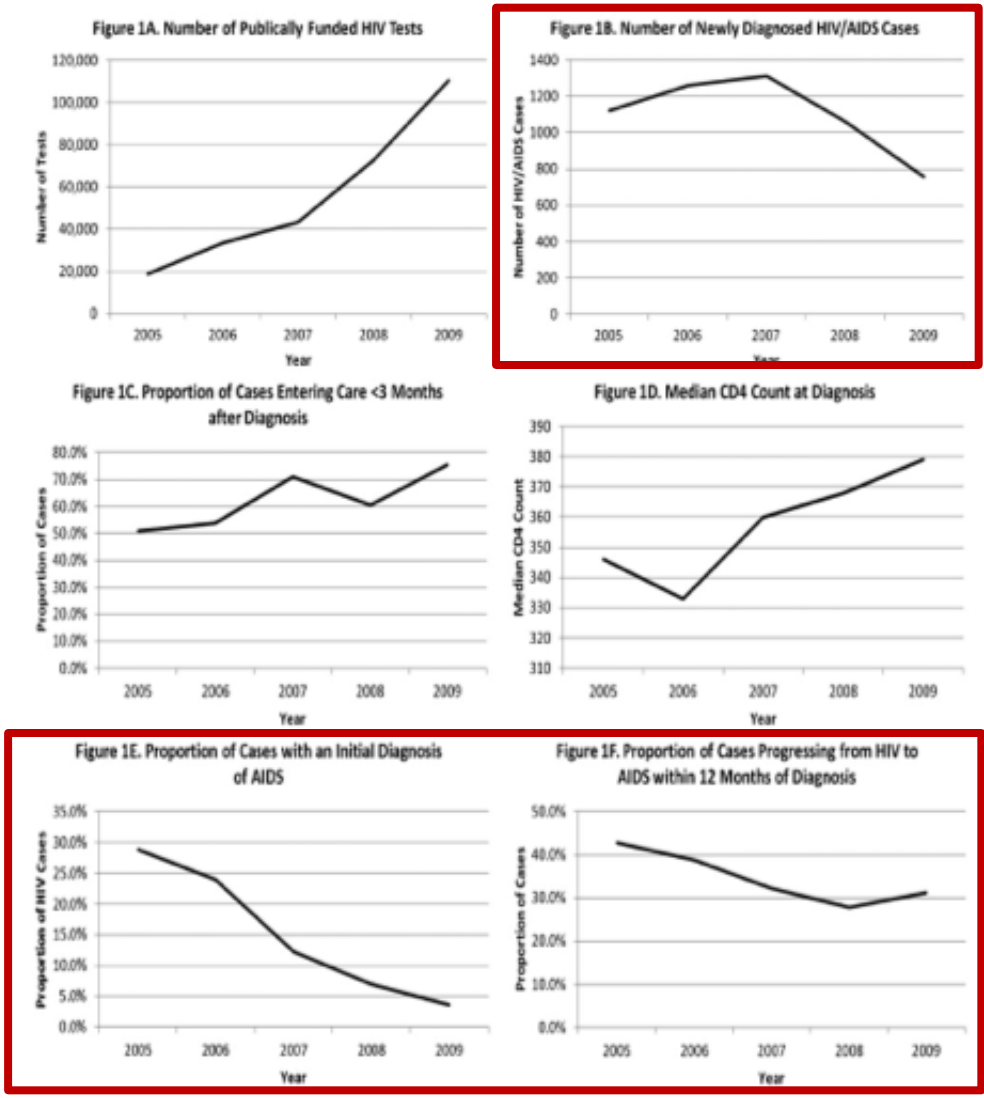
Impact of Major Jurisdictional HIV Testing Campaign: Washington, DC, 2005-2009

Increase in:

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

Decrease in:

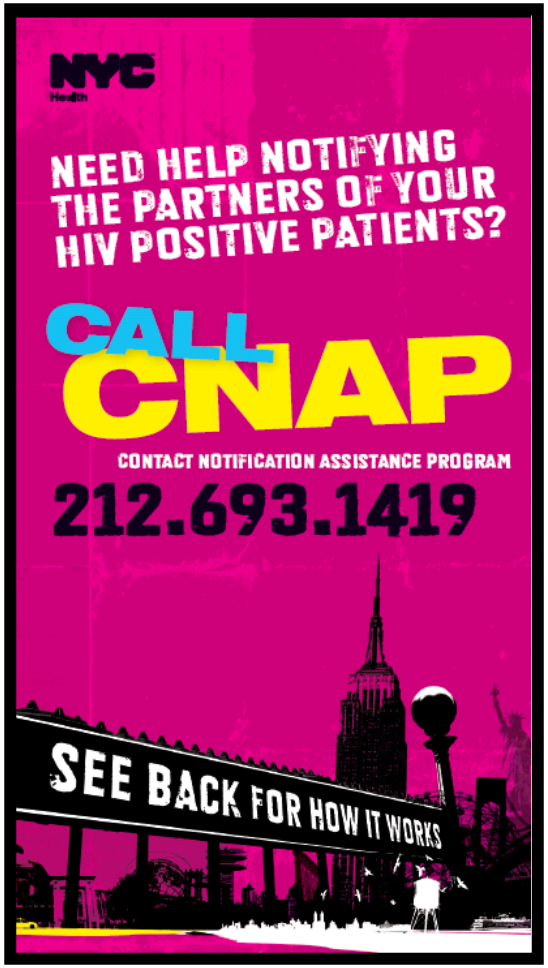
- # newly diagnosed HIV/AIDS cases
- proportion of cases with an initial diagnosis of AIDS
- proportion of cases progressing from HIV to AIDS within 12 months of diagnosis



Castel et al., *AIDS Care* 2014.

Partner Services

1939



2012

Partner Services: Public Health Does It Better

Sexually Transmitted Diseases, December 2008, Vol. 35, No. 12, p.000–000
DOI: 10.1097/OLQ.0b013e31817d2f82

Human Immunodeficiency Virus Partner Elicitation and Notification in New York City: Public Health Does It Better

MAUREEN C. MALAVE, MPH,* DIPAL SHAH, MPH,* JUDITH E. SACKOFF, PHD,* STEVE RUBIN, BBA,†‡ AND ELIZABETH M. BEGIER, MD*

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**
2. **Interruption of transmission**
3. Systematic treatment and case management
4. Population-based monitoring

NYC Health

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

Opportunity/Activity	Challenge
Public awareness campaigns	Difficulty of messaging about: - Partial efficacy - Condom use - Eligibility ("talk to your doctor")
Training the public health workforce	- Earlier prevention messages deeply entrenched
Training prescribers	- "Provider paradox"
Provision of medications (e.g., STD Clinic-based programs)	- Lack of primary care context (e.g., side effect and toxicity management) - Cost (ongoing; ~1/3 patients uninsured *and* ineligible for assistance programs)

Pre-Exposure Prophylaxis: Public Health's Role

Opportunity/Activity	Challenge
Public awareness campaigns	Difficulty of messaging about: - Partial efficacy - Condom use - Eligibility ("talk to your doctor")
Training the public health workforce	- Earlier prevention messages deeply entrenched
Training prescribers	- "Purview paradox"
Provision of medications (e.g., STD Clinic-based programs)	- Lack of primary care context (e.g., side effect and toxicity management) - Cost (ongoing; ~1/3 patients uninsured *and* ineligible for assistance programs)

Pre-Exposure Prophylaxis: Public Health's Role

Opportunity/Activity	Challenge
Public awareness campaigns	Difficulty of messaging about: - Partial efficacy - Condom use - Eligibility ("talk to your doctor")
Training the public health workforce	- Earlier prevention messages deeply entrenched
Training prescribers	- "Provider paradox"
Provision of medications (e.g., STD Clinic-based programs)	- Lack of primary care context (e.g., side effect and toxicity management) - Cost (ongoing; ~1/3 patients uninsured *and* ineligible for assistance programs)

Pre-Exposure Prophylaxis: Public Health's Role

Opportunity/Activity	Challenge
Public awareness campaigns	Difficulty of messaging about: - Partial efficacy - Condom use - Eligibility ("talk to your doctor")
Training the public health workforce	- Earlier prevention messages deeply entrenched
Training prescribers	- "Purview paradox"
Provision of medications (e.g., STD Clinic-based programs)	- Lack of primary care context (e.g., side effect and toxicity management) - Cost (~1 of 3 MSM in NYC STD clinic patients are uninsured *and* ineligible for assistance programs[1])

Edelstein et al., *IAPAC* 2014, abstract #494.

Public Health Approach to HIV Control: 2005-2014

1. Case finding and surveillance
2. Interruption of transmission
3. **Systematic treatment and case management**
4. Population-based monitoring

NYC Health

Treatment as Prevention

The NEW ENGLAND JOURNAL of MEDICINE

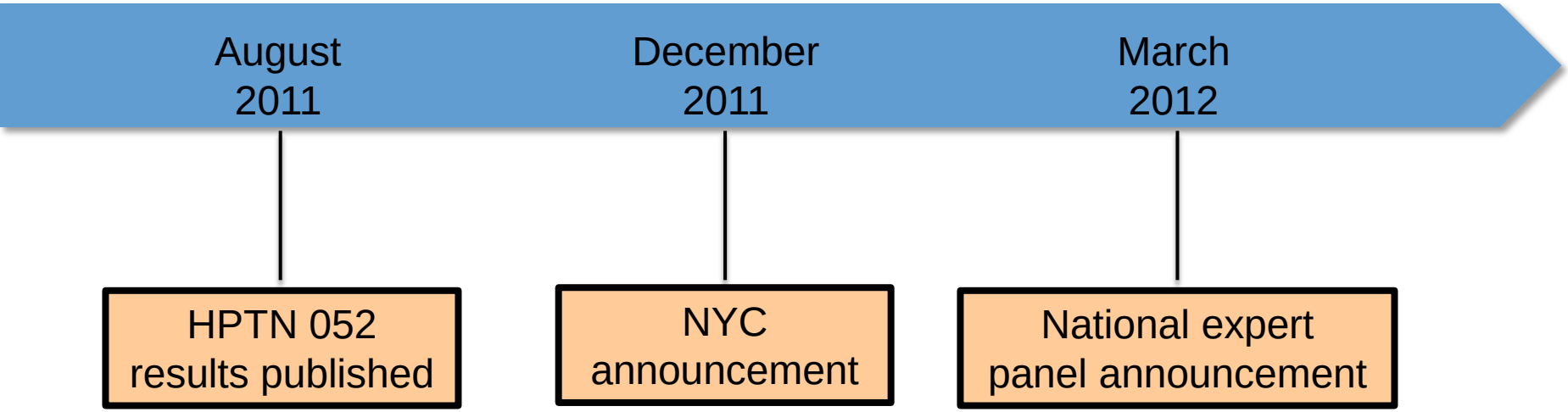
ESTABLISHED IN 1812 AUGUST 11, 2011 VOL. 365 NO. 6

Prevention of HIV-1 Infection with Early Antiretroviral Therapy

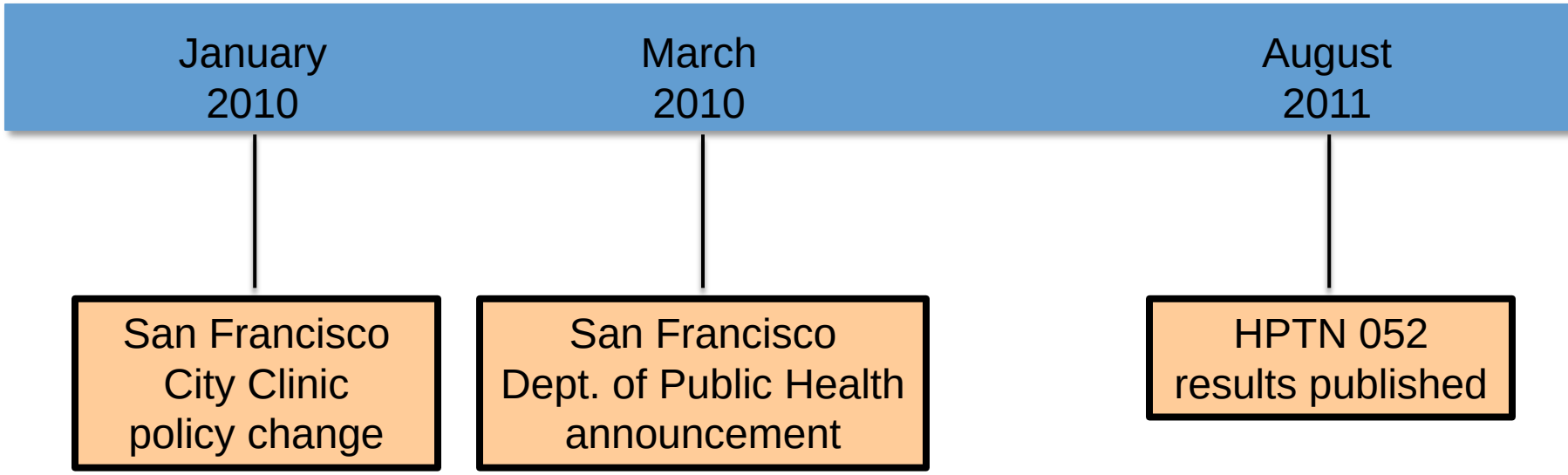
Myron S. Cohen, M.D., Ying Q. Chen, Ph.D., Marybeth McCauley, M.P.H., Theresa Gamble, Ph.D., Mina C. Hosseinipour, M.D., Nagalingeswaran Kumarasamy, M.B., B.S., James G. Hakim, M.D., Johnstone Kumwenda, F.R.C.P., Beatriz Grinsztejn, M.D., Jose H.S. Pilotto, M.D., Sheela V. Godbole, M.D., Sanjay Mehendale, M.D., Suwat Chariyalertsak, M.D., Breno R. Santos, M.D., Kenneth H. Mayer, M.D., Irving F. Hoffman, P.A., Susan H. Eshleman, M.D., Estelle Piwowar-Manning, M.T., Lei Wang, Ph.D., Joseph Makhema, F.R.C.P., Lisa A. Mills, M.D., Guy de Bruyn, M.B., B.Ch., Ian Sanne, M.B., B.Ch., Joseph Eron, M.D., Joel Gallant, M.D., Diane Havlir, M.D., Susan Swindells, M.B., B.S., Heather Ribaudo, Ph.D., Vanessa Elharrar, M.D., David Burns, M.D., Taha E. Taha, M.B., B.S., Karin Nielsen-Saines, M.D., David Celentano, Sc.D., Max Essex, D.V.M., and Thomas R. Fleming, Ph.D., for the HPTN 052 Study Team*

ABSTRACT

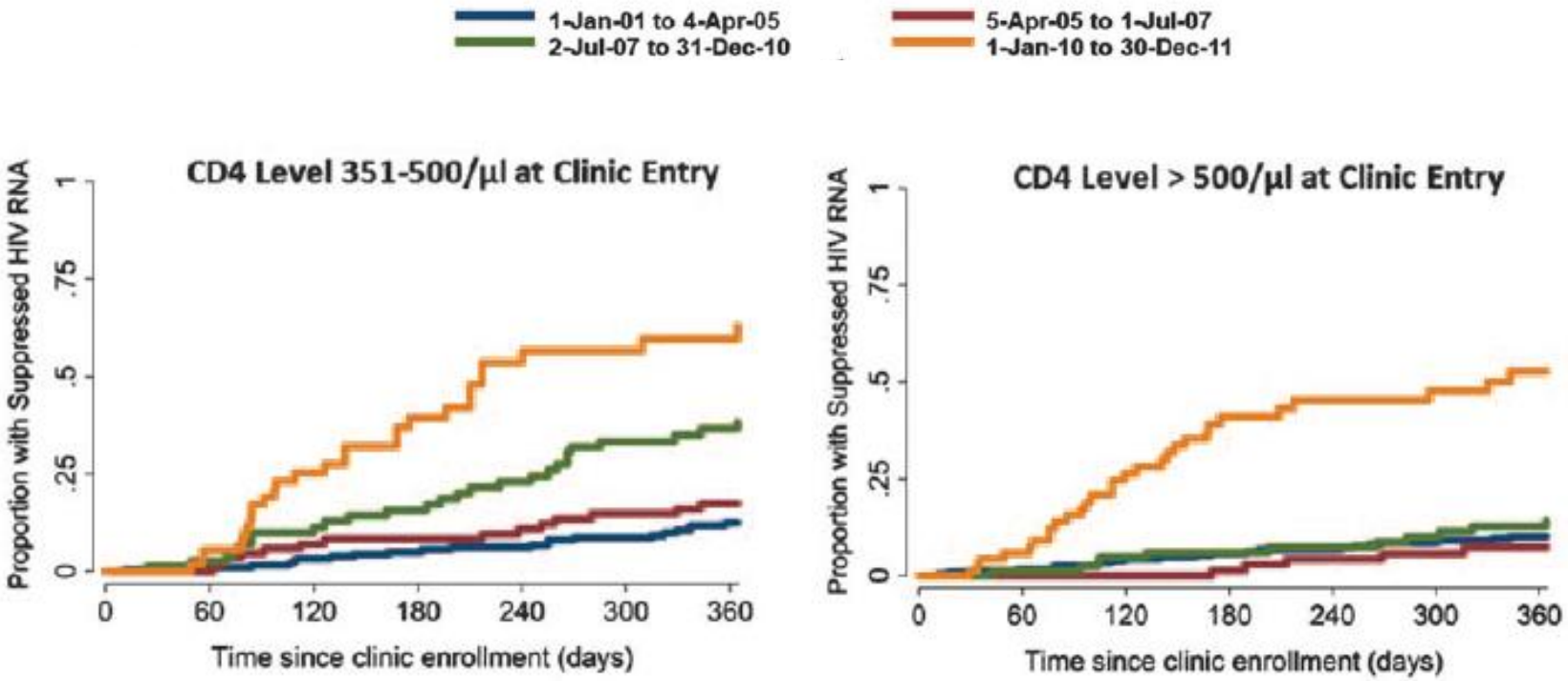
Early Antiretroviral Therapy: Timeline



Early Antiretroviral Therapy: Timeline

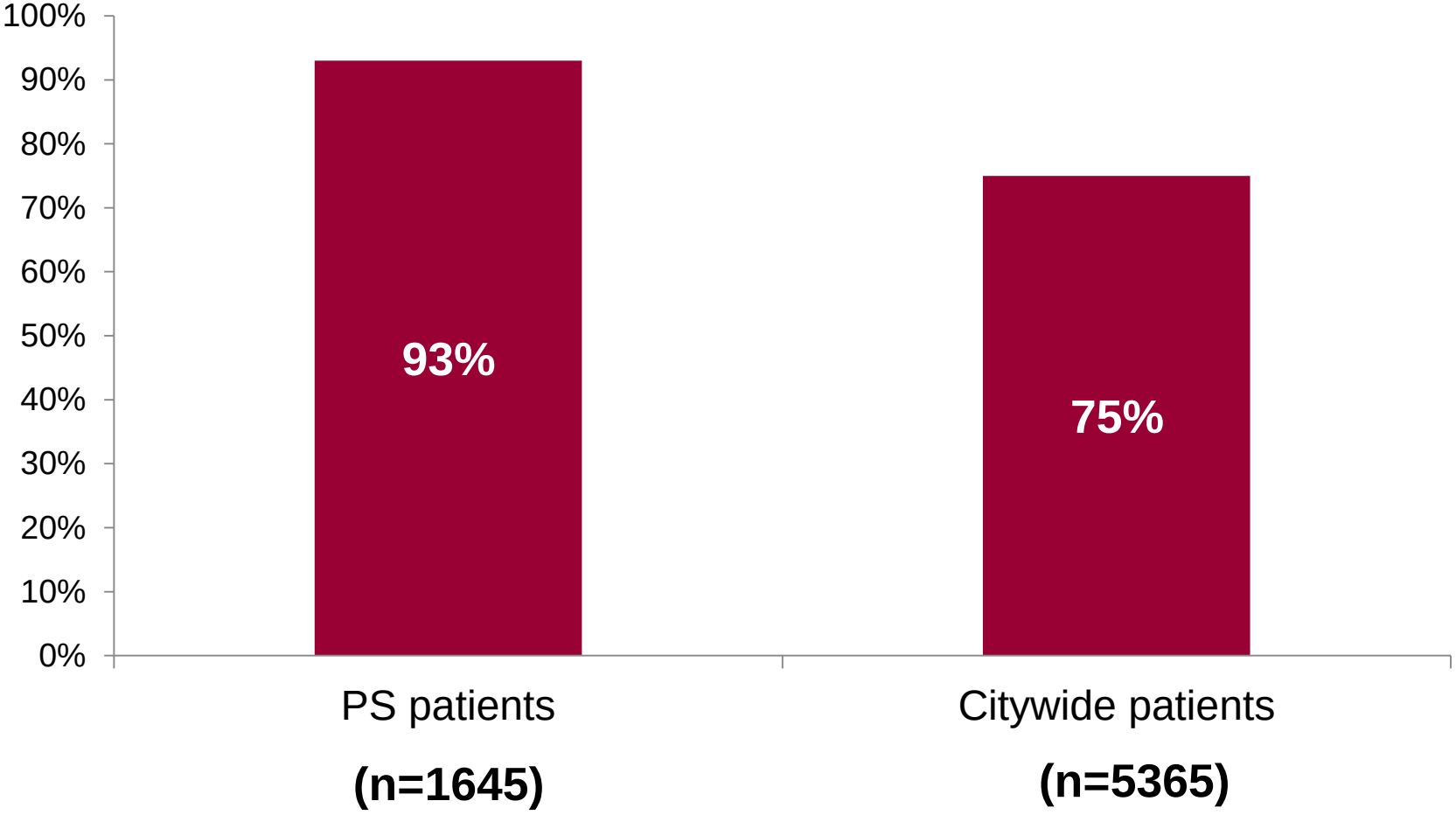


Impact of Local Recommendation for Early Antiretroviral Therapy: San Francisco



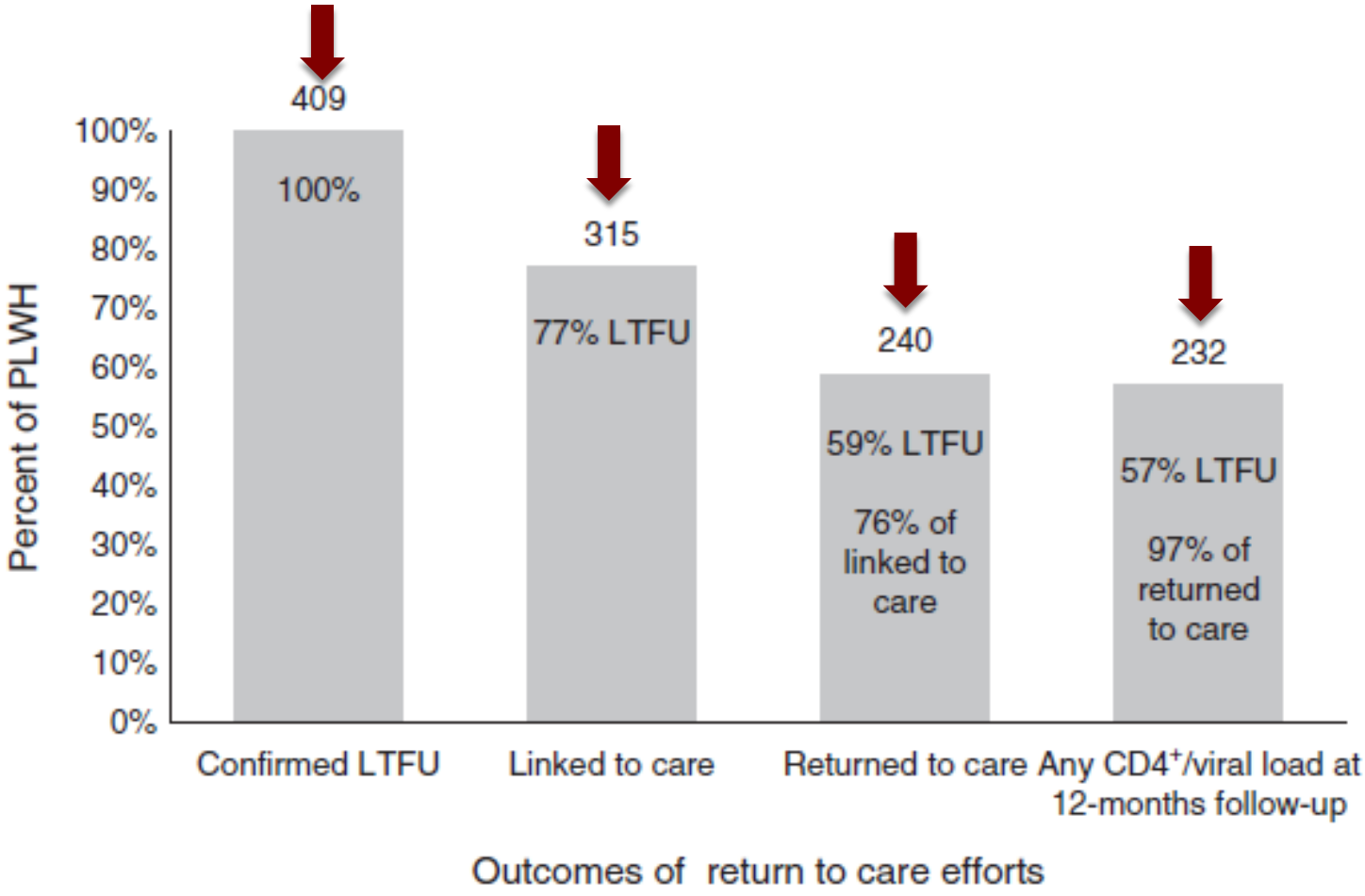
Geng et al., *CID* 2012;55:1690–7.

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



Bocour et al., IAS 2012.

Public Health Helps Re-Engage HIV-Infected Persons Lost to Follow-Up (LTFU)



Udeagu et al., *AIDS* 2013;27:2271-9..

LaPHIE: A Novel Program for Linkage and Re-Engagement

CLIQ v1.0.22 - 3.14

CLIQ Clinical Inquiry

Patient Name: Ted ZzzTest MRN: HIV8001 (MCLNO)
Age: 39 Years Gender: Male

Patient may require follow up

Details: Intervention Needs for HIV

The Louisiana Office of Public Health has received and confirmed test results that indicate that the patient has HIV infection and possibly has not been informed of the results.

Please proceed with the Recommended Actions for intervention.

Recommended Actions | Actions Taken

Mouse over recommended and action taken for more details

Assess need for intervention
Offer education
Assess patient and need for treatment
Initiate treatment and monitoring plan

Please check the actions that you are completing with the patient. Some actions may already contain a check indicating completion by another provider. Other actions may not apply and can be left blank. **Please hit SAVE once you have completed your actions.**

- [ ] Discussed OPH message and need for treatment with the patient
- [ ] Re-ordered confirmatory Western Blot
- [ ] Assessed stage of illness
- [ ] Scheduled follow up appointment
- [ ] Documented patient report of receiving treatment at another site
- [ ] Confirmed patient is not interested in treatment at this time

Comments:

The Delta AIDS Education & Training Center is available for training regarding HIV/AIDS at 504-903-0788; any questions about HIV/AIDS can also be addressed by calling 504-903-0623

CDC Website... Save

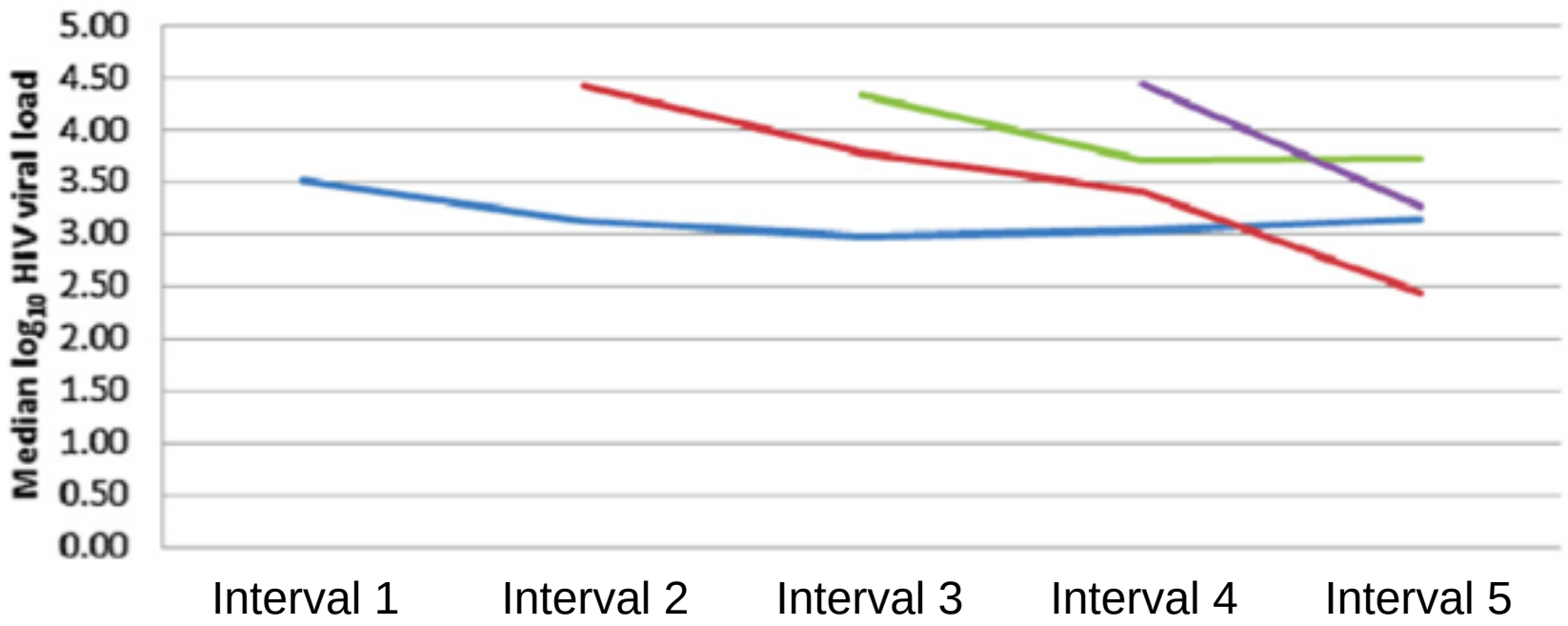
Message from OPH

Suggested actions for LSU clinicians

NYC Health

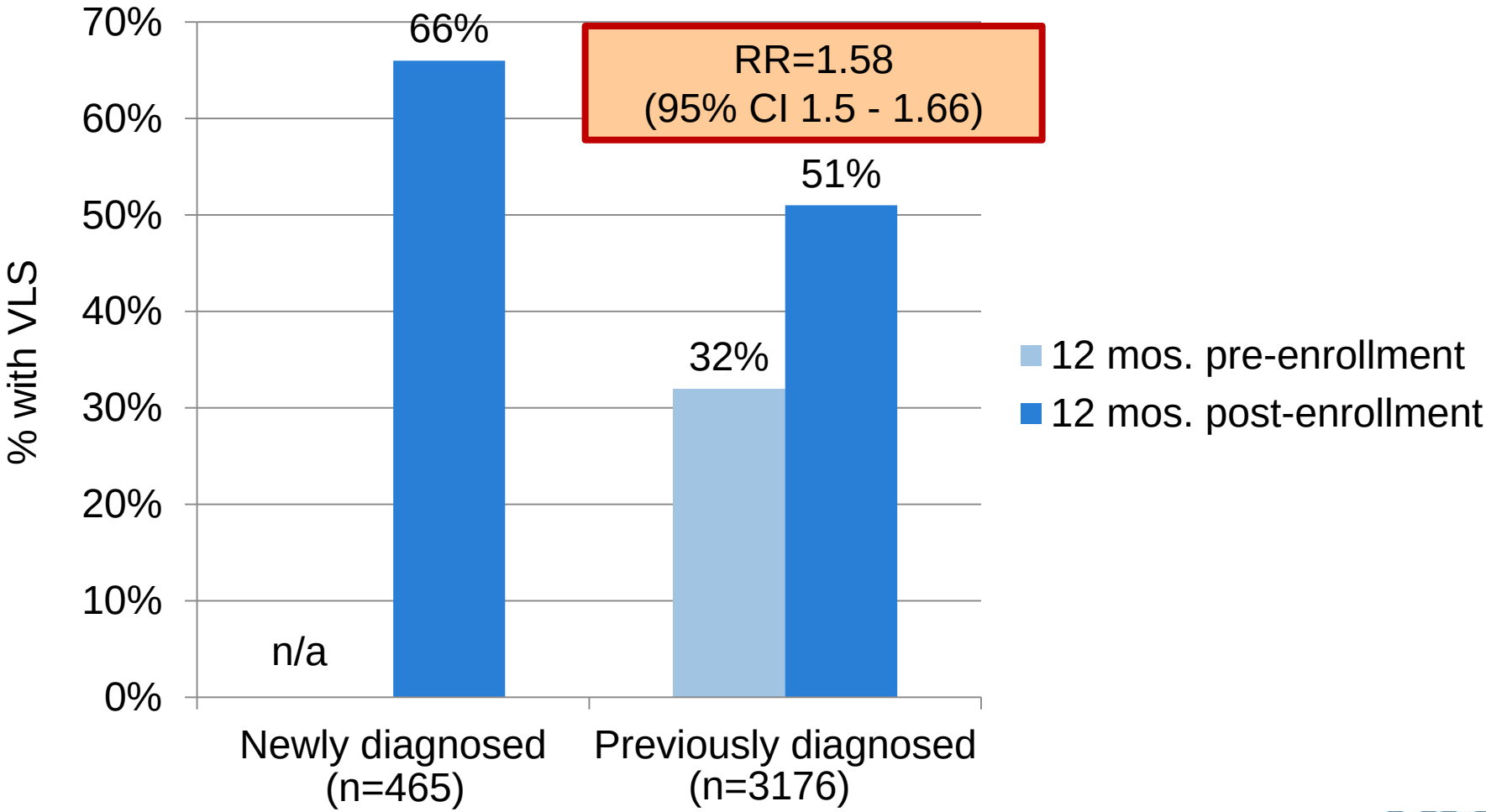
Reduction in Median HIV VL Among Patients Previously Out-of-Care

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



Magnus et al., *Int. J. Med Inform.* 2012..

Care Coordination Impact: Improving Adherence, VL Suppression (VLS)



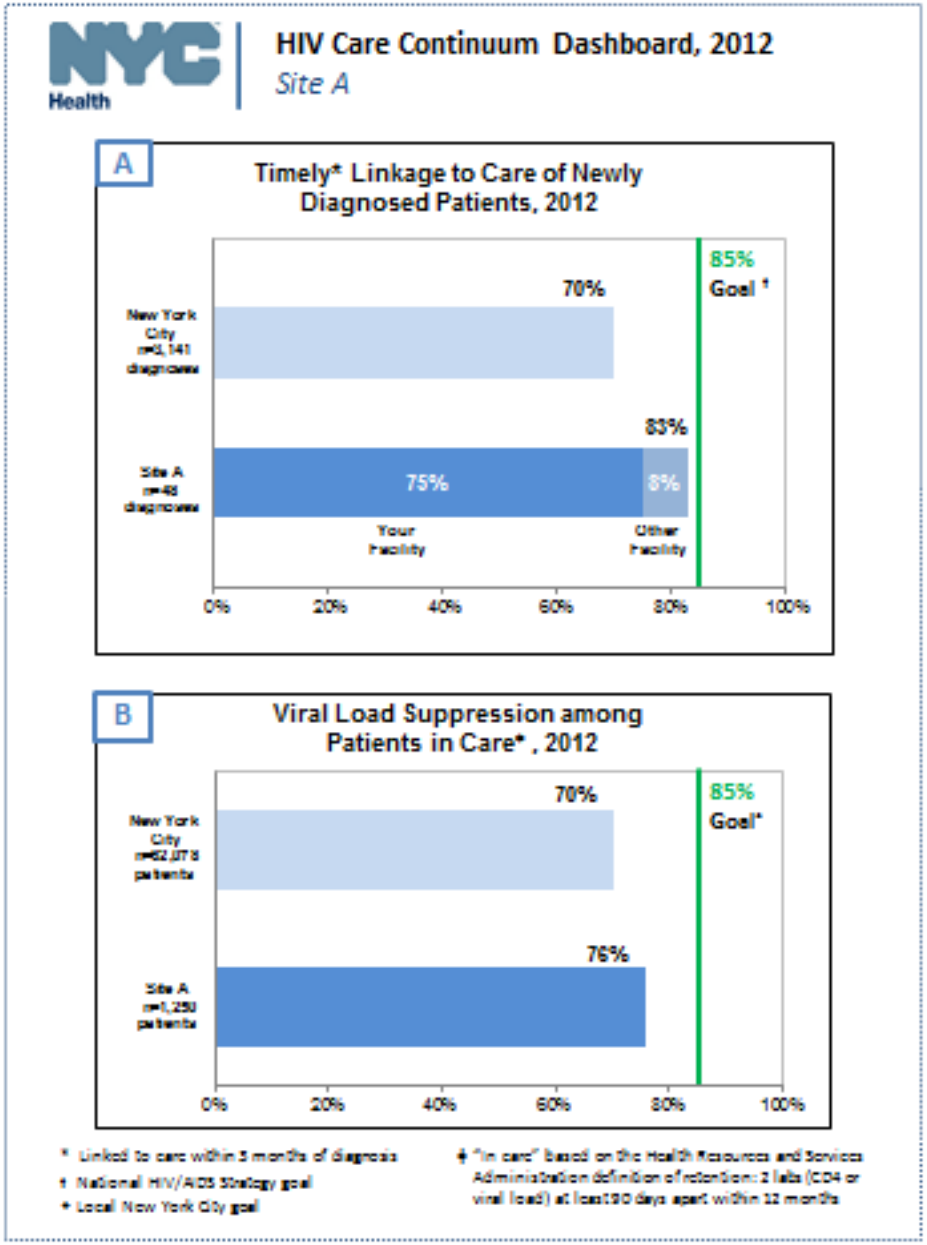
Irvine, Chamberlin, et al., *IAPAC* 2014, abstract #363.

Public Health Approach to HIV Control: 2005-2014

1. **Case finding and surveillance**
2. Interruption of transmission
3. Systematic treatment and case management
4. **Population-based monitoring**

NYC Health

Care Continuum Dashboards



NYC Health

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 high[1]
- Use a "cohort approach" to monitor initial progression through the continuum[2]
- Use visits to STD Clinics by PLWH to support progression through the continuum by accessing HIV surveillance data[3]

1. Buchacz et al., *IAS* 2012.
2. De Cock, *CID* 2014.
3. Dombrowski et al., *JAIDS* 2010.

NYC Health

Other Uses of Surveillance Data to Improve Care Along the Continuum (2)

- 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

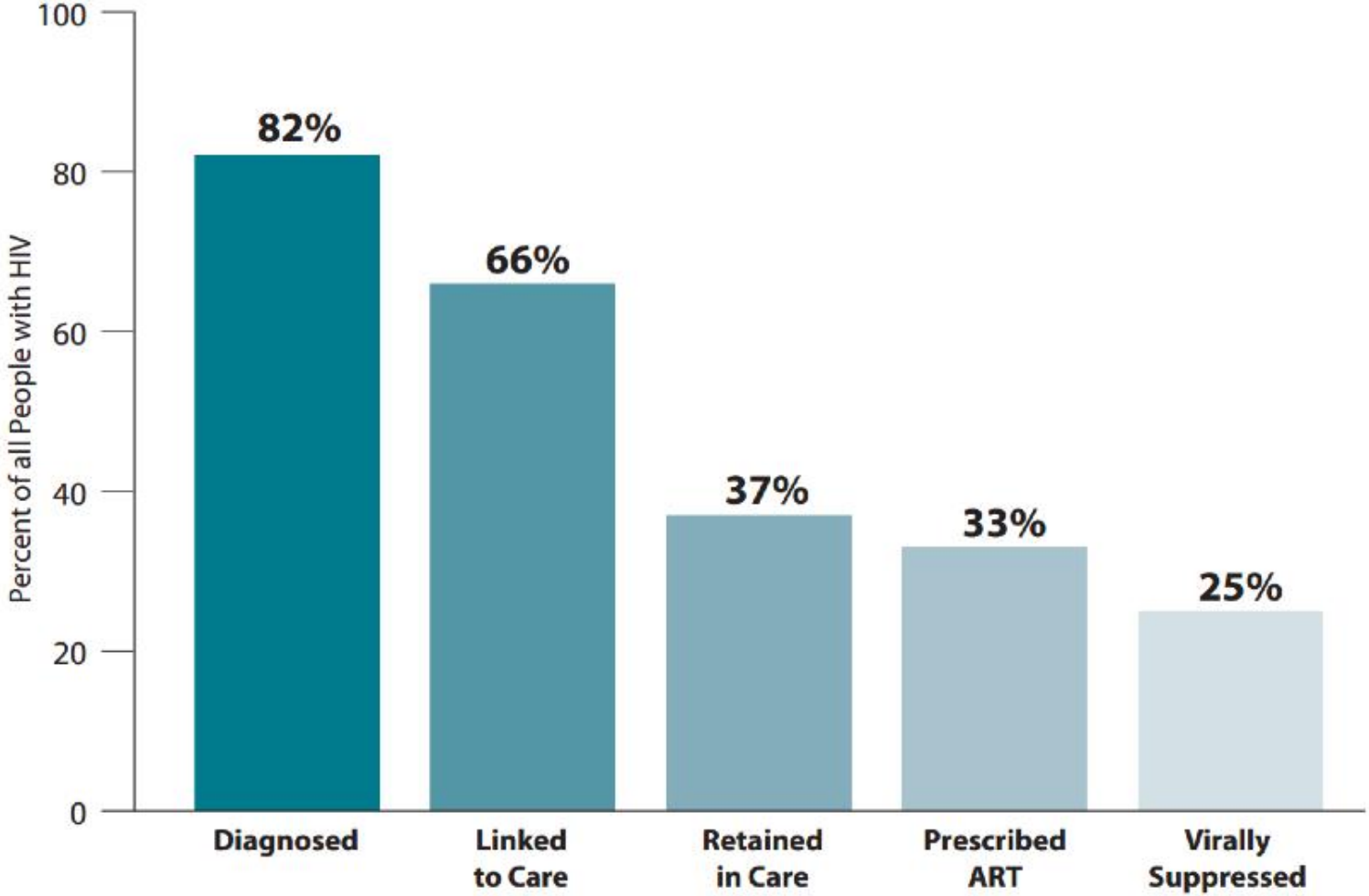
1. Castel, *IAPAC* 2014.
2. Irvine, Chamberlin et al., *IAPAC* 2014.

NYC Health

Employing Technology for Population Health: HIV Care Campaign in NYC, 2013

NYC Health

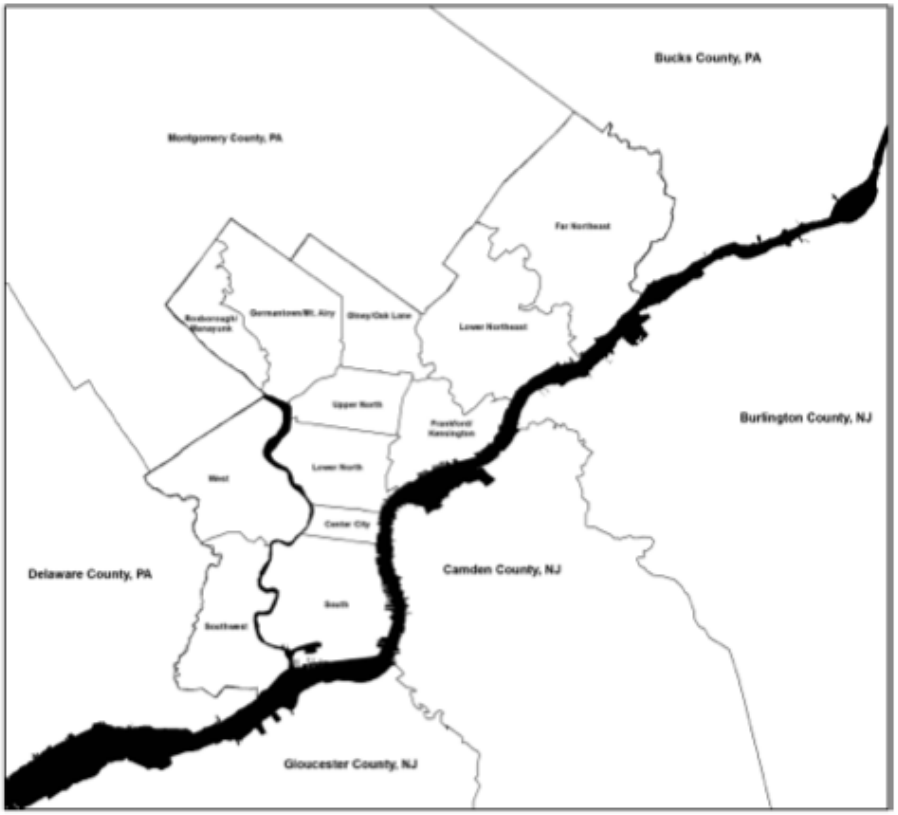
The HIV Continuum of Care: United States, 2010

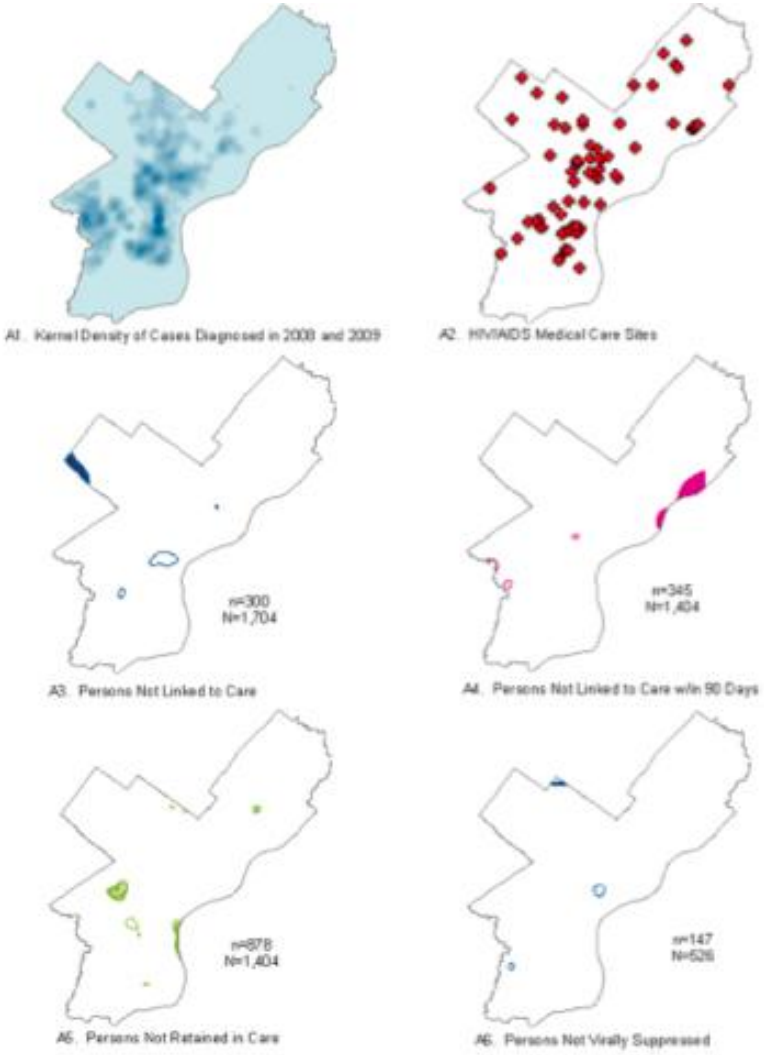


Source: CDC. XIX International AIDS Conference, July 2012
Note: 2010 diagnosed estimate is 84.2%

Hall et al., IAS 2012.

Intersection of Care Continuum and Spatial Analysis



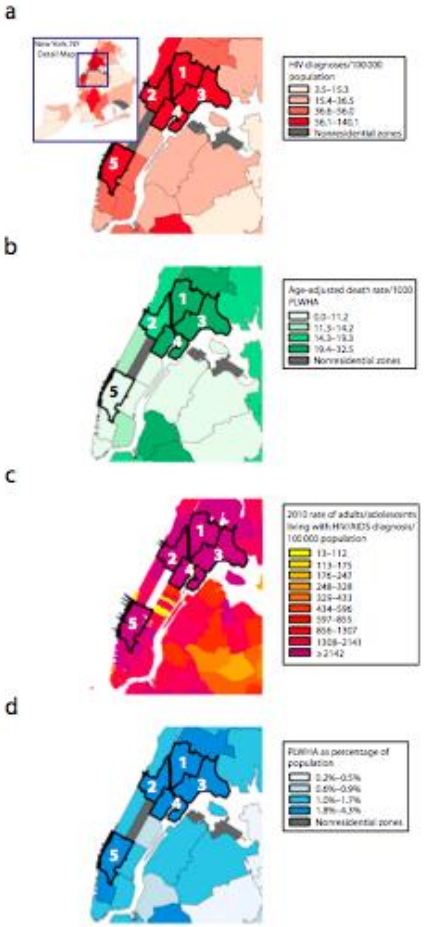


Eberhart et al., *JAIDS* 2013.
See also: Brady et al., *IAPAC* 2014, abstract #483.

COMMENTARIES

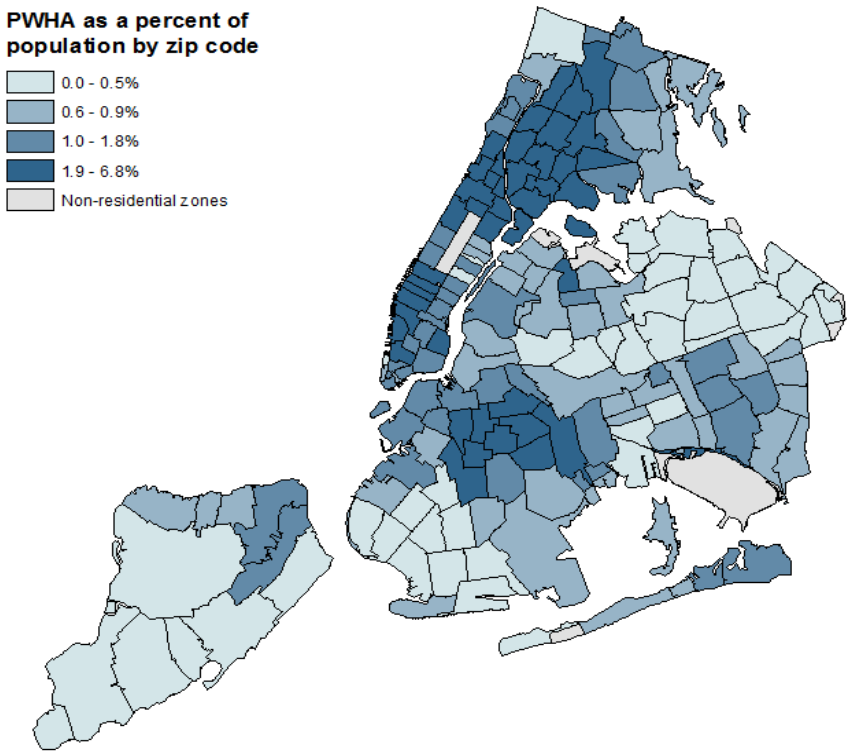
Geography Should Not Be Destiny: Focusing HIV/AIDS Implementation Research and Programs on Microepidemics in US Neighborhoods

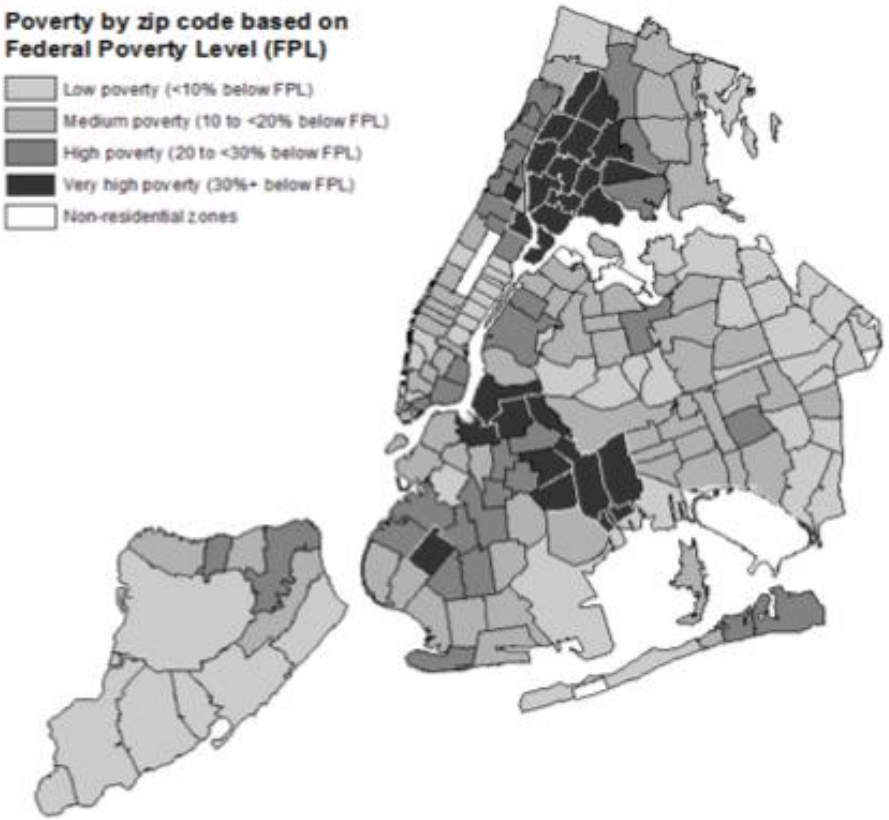
Amy Nunn, MS, ScD, Annajane Yolken, Blayne Cutler, MD, PhD, Stacey Trooskin, MD, PhD, Phill Wilson, Susan Little, MD, and Kenneth Mayer, MD



Nunn et al., *AJPH* 2014.

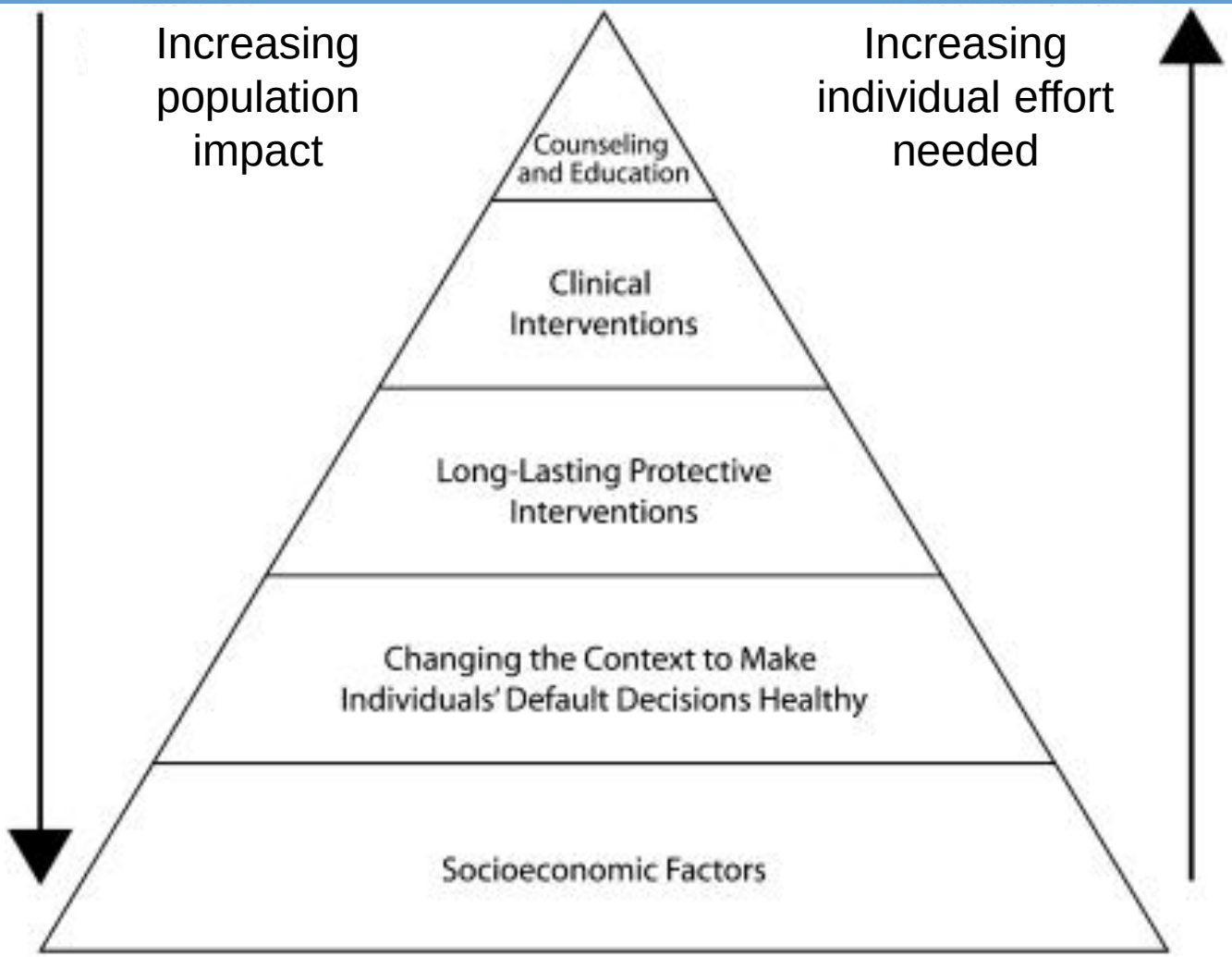
Mapping HIV Prevalence and Poverty in NYC





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

The Health Impact Pyramid



Frieden, *AJPH* 2010

Acknowledgements

NYC DOHMH

- Adriana Andaluz
- Sarah Braunstein
- Stephanie Chamberlin
- Zoe Edelstein
- Graham Harriman
- John Rojas
- Rebekkah Robbins
- Charulata Sabharwal
- Benjamin Tsoi
- Chi-Chi Udeagu
- Many other colleagues

OTHER COLLEAGUES:

- Scott Hammer (CUMC)
- Denis Nash (CUNY)
- Kent Sepkowitz (MSKCC)

NYC Health

THANK YOU!

Julie Myers

jmyers@health.nyc.gov