

Current Status of HIV Continuum of Care Research

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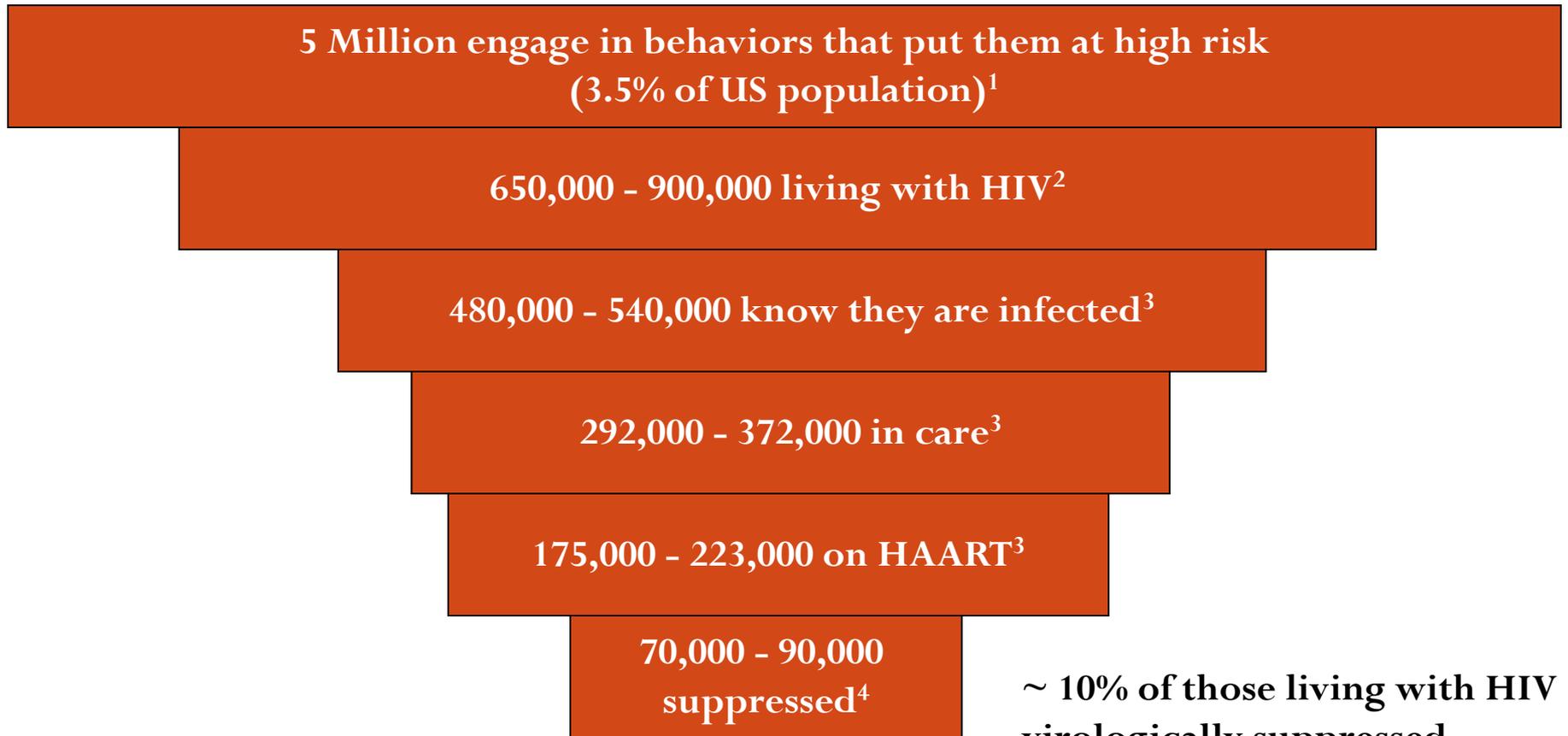
Atlanta, USA



del Rio C, Green S, Abrams C, Lennox JL, **From Diagnosis to Undetectable: The Reality of HIV/AIDS Care in the Inner City.** 8th CROI; 2001 (Abstract #S21)

- 
- **HIV-infected unaware of status**
 - **HIV-infected not in care**
 - Not ready for care or do not want care
 - **HIV-infected in sporadic care**
 - They come and go from care/ some have been on ARV's
 - **HIV-infected in care and long term treatment**
 - In clinic regularly/ virologically suppressed

“Pyramid” of HIV / AIDS in the US



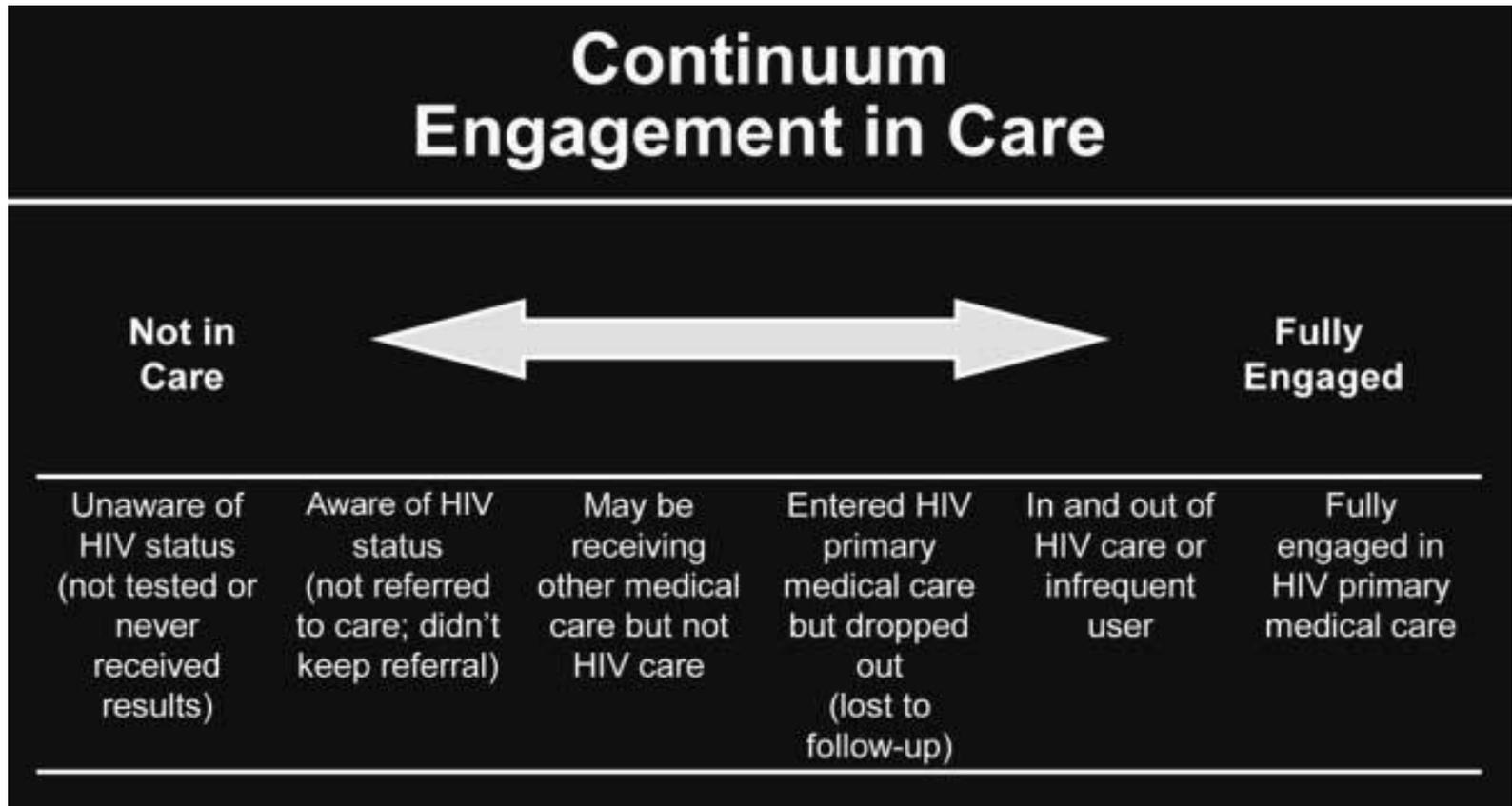
1. JAIDS 1999; 21:148-156

2. JAMA 1996; 276; 126-31

3. NEJM 1998; 339:1897-904

4. Ann Intern Med 1999; 131: 81-87

HRSA Continuum of Engagement in HIV Care



The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection

Edward M. Gardner, Margaret P. McLees, John F. Steiner, Carlos del Rio, and William J. Burman

Clinical Infectious Diseases. 2011;52:793-800

Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report

Early Release / Vol. 60

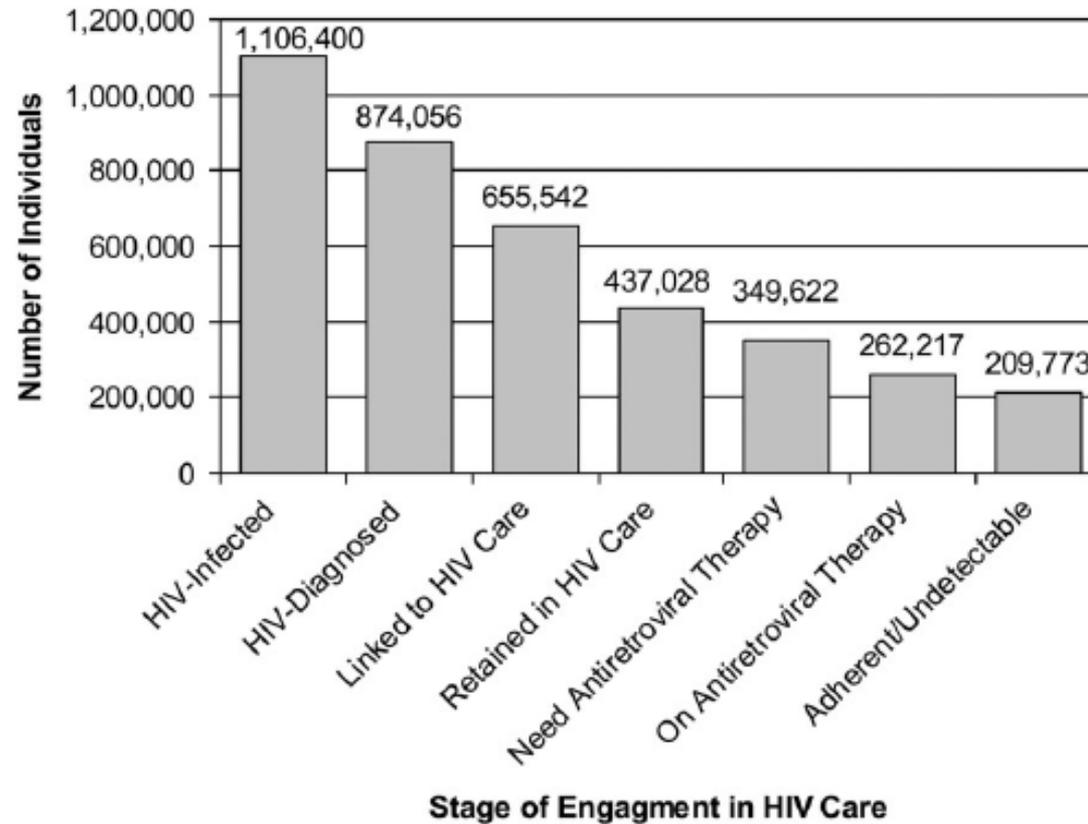
November 29, 2011

Vital Signs: HIV Prevention Through Care and Treatment — United States

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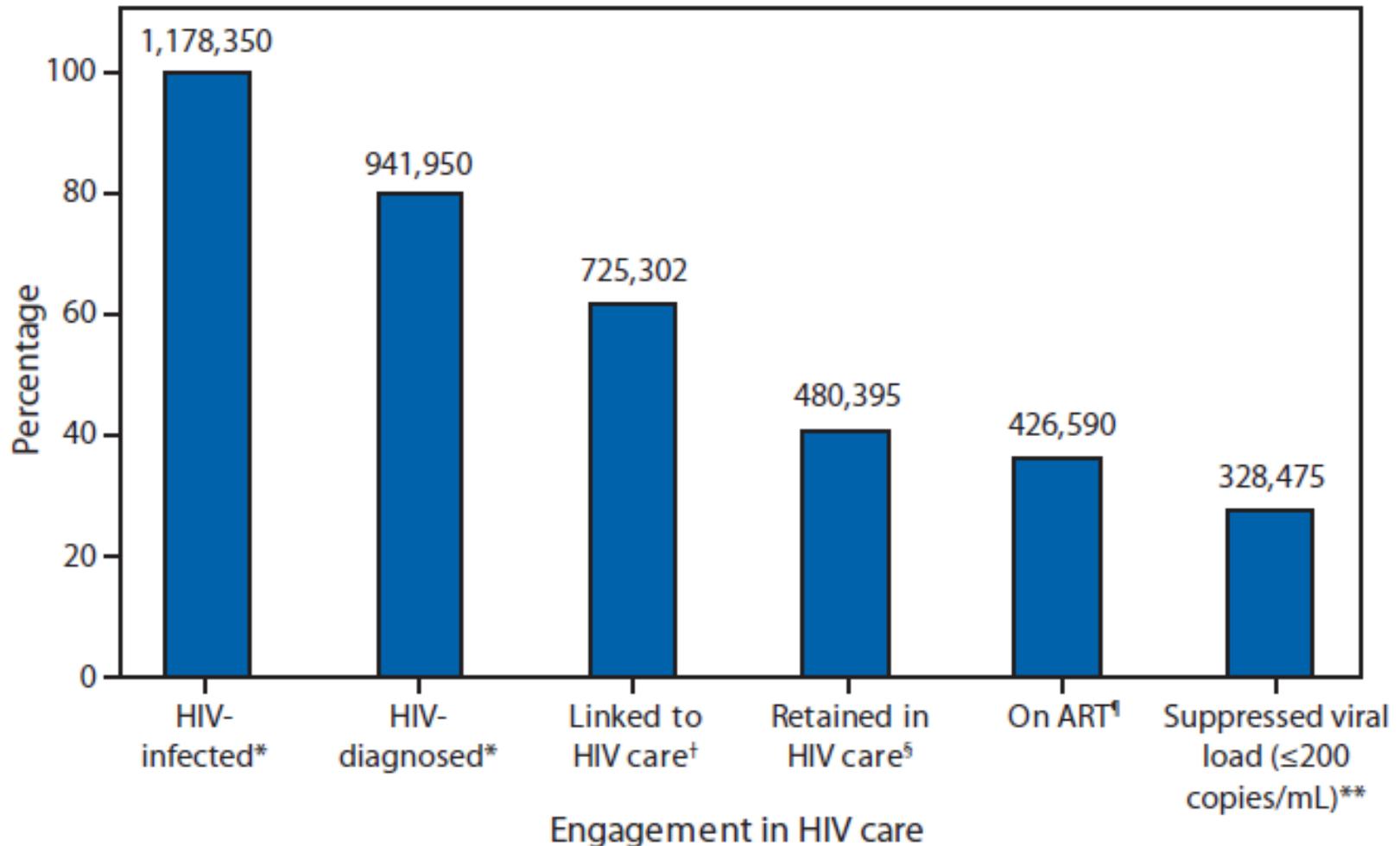
Clinical Infectious Diseases. 2011;52:793-800



~ 19% of HIV-infected are virologically suppressed

Engagement in HIV care and Treatment US

~ 28% of HIV-infected are virologically suppressed

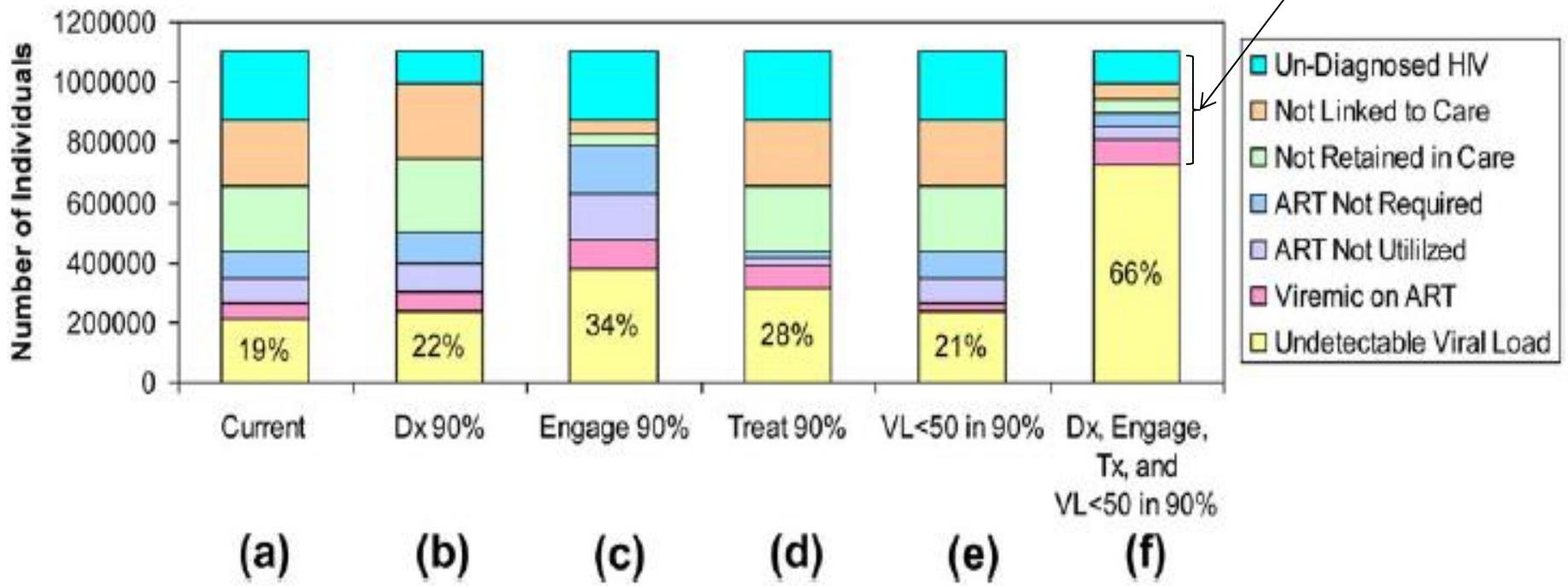


The Spectrum of Engagement in HIV Care and its Relevance to Test-and-Treat Strategies for Prevention of HIV Infection

Edward M. Gardner,^{1,3} Margaret P. McLees,^{1,3} John F. Steiner,² Carlos del Rio,^{4,5} and William J. Burman^{1,3}

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Clinical Infectious Diseases 2011;52(6):793–800



Cascade presentations at 20th CROI

- Alhoff K, et al. *Application of Indicators to Monitor US Department of Health and Human Services-Funded HIV Services in the North American AIDS Cohort Collaboration on Research and Design* (Abst 1026)
- Dombrowski J, et al. *An Encouraging HIV Care Cascade: Anomaly, Progress, or Just More Accurate Data?* (Abst 1027)
- Quinn K & Skarbinski J. *Health Insurance Coverage and Type Predict Durable Viral Suppression among HIV+ Adults in Care: US, Medical Monitoring Project, 2009.* (Abst 1028)
- Montaner J, et al. *The Evolution of the Cascade of HIV Care: British Columbia, Canada, 1996 – 2010.* (Abst 1029)
- Supervie V & Costagliola D. *The Spectrum of Engagement in HIV Care in France: Strengths and Gaps.* (Abst 1030)
- Horberg M, et al. *HIV Spectrum of Engagement Cascade in a Large Integrated Care System by Gender, Age and Methodologies* (Abst 1033)

Articles on PubMed

- HIV Cascade – 442 articles (113 since 2011)
- HIV Care continuum – 453 articles (150 since 2011)
- However many of these “hits” don’t really have anything to do with the Continuum of Care or the Cascade of Care but rather with other topics such as:
 - The CASCADE Collaboration (122 papers)
 - Toll-like receptor/interlukin-1R or phospholipase C/protein kinase C signaling cascades

HIV Continuum of Care Research

- **Descriptive/epidemiological studies:**

- Mangal JP, et al. *The Continuum of HIV Care in a Veterans' Affairs Clinic*. AIDS Res Hum Retroviruses 2014 Jan 8.
- Bauman LJ, et al. *Barriers and facilitators of linkage to HIV primary care in New York City*. JAIDS 2013; Nov 1; 64: Suppl 1:S20-6.
- Gray KM, et al. *Jurisdiction level differences in HIV diagnosis, retention in care and viral suppression in the United States*. JAIDS 2014; 65(2): 129-32.
- Hall HI, et al. *Differences in human immunodeficiency virus care and treatment among subpopulations in the United States*. JAMA Intern Med 2013; 173(14): 1337 – 44.

- **Assessing and modeling the impact of interventions:**

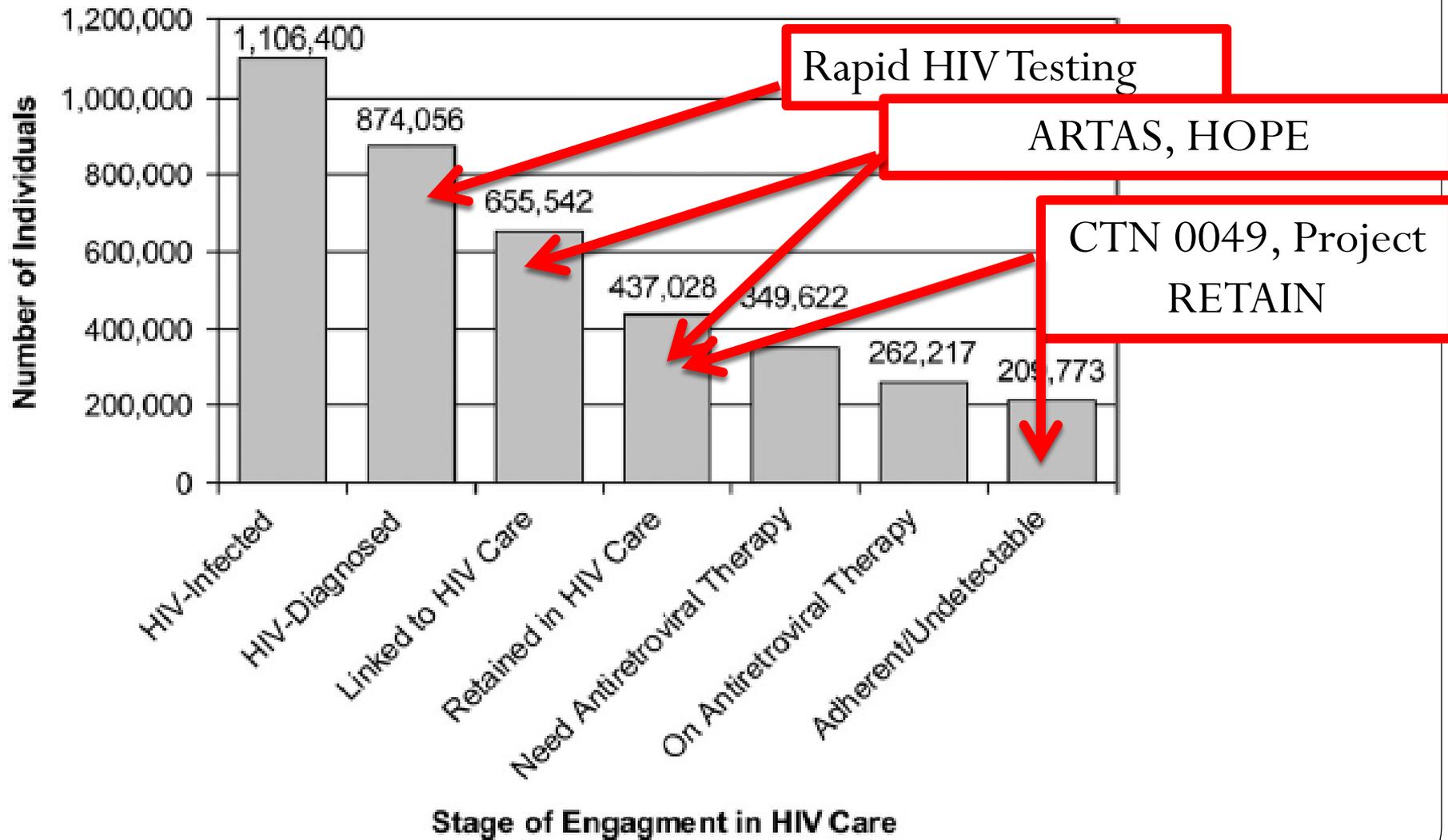
- Meyer JP, et al. *Optimizing care for HIV-infected people who use drugs: evidence-based approaches to overcoming healthcare disparities*. Clin Infect Dis 2013; 57(9): 1309-17
- Birger RB, et al. *Modeling the Impact of Interventions Along the HIV Continuum of Care in Newark, New Jersey*. Clin Infect Dis 2014; 58(2):274 – 84.

HIV Continuum of Care Research

- **Monitoring quality of care:**

- Mugavero MJ, et al. *The state of engagement in HIV care in the United States: from cascade to continuum to control.* Clin Infect Dis 2013; 57(8) 1164 – 71.
- Axelrad JE, et al. *Trends in the spectrum of engagement in HIV care and subsequent clinical outcomes among men who have sex with men at a Boston community health clinic.* AIDS Patient Care 2013; 27(5) 287 – 96.
- Onyeajam DJ, et al. *Time to linkage to care and viro-immunologic parameters of individuals diagnosed before and after the 2006 HIV testing recommendations.* South Med J 2013; 106(4): 257 – 66.
- Gardner EM, et al. *Initial Linkage and Subsequent Retention in HIV Care for a Newly Diagnosed HIV-infected Cohort in Denver, Colorado.* J Int Assoc Provid AIDS Care 2013; 12(6): 384 – 90.

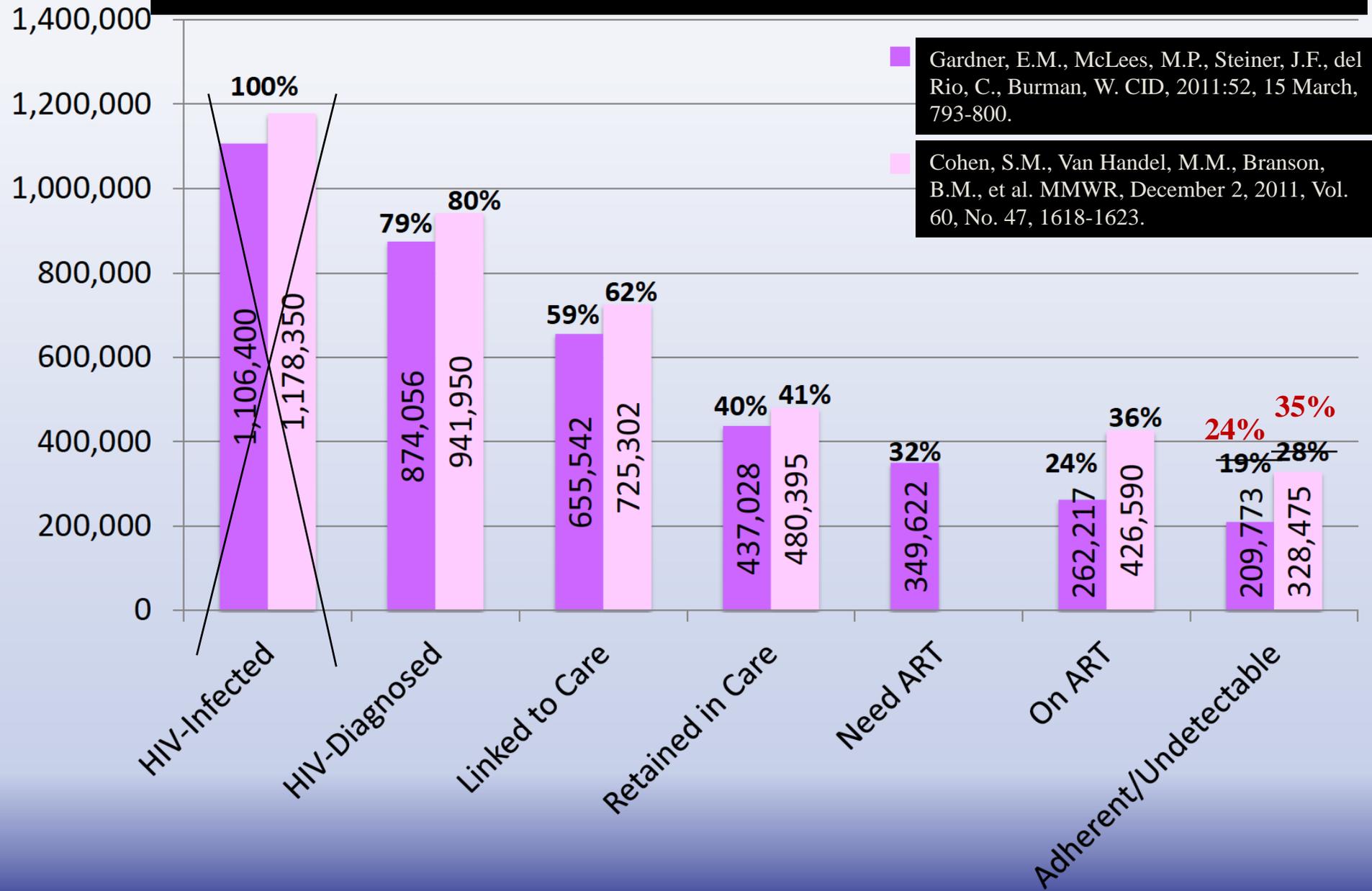
Research Program to improve the Continuum of Care



Challenges to Interpreting Cascade-Related Data

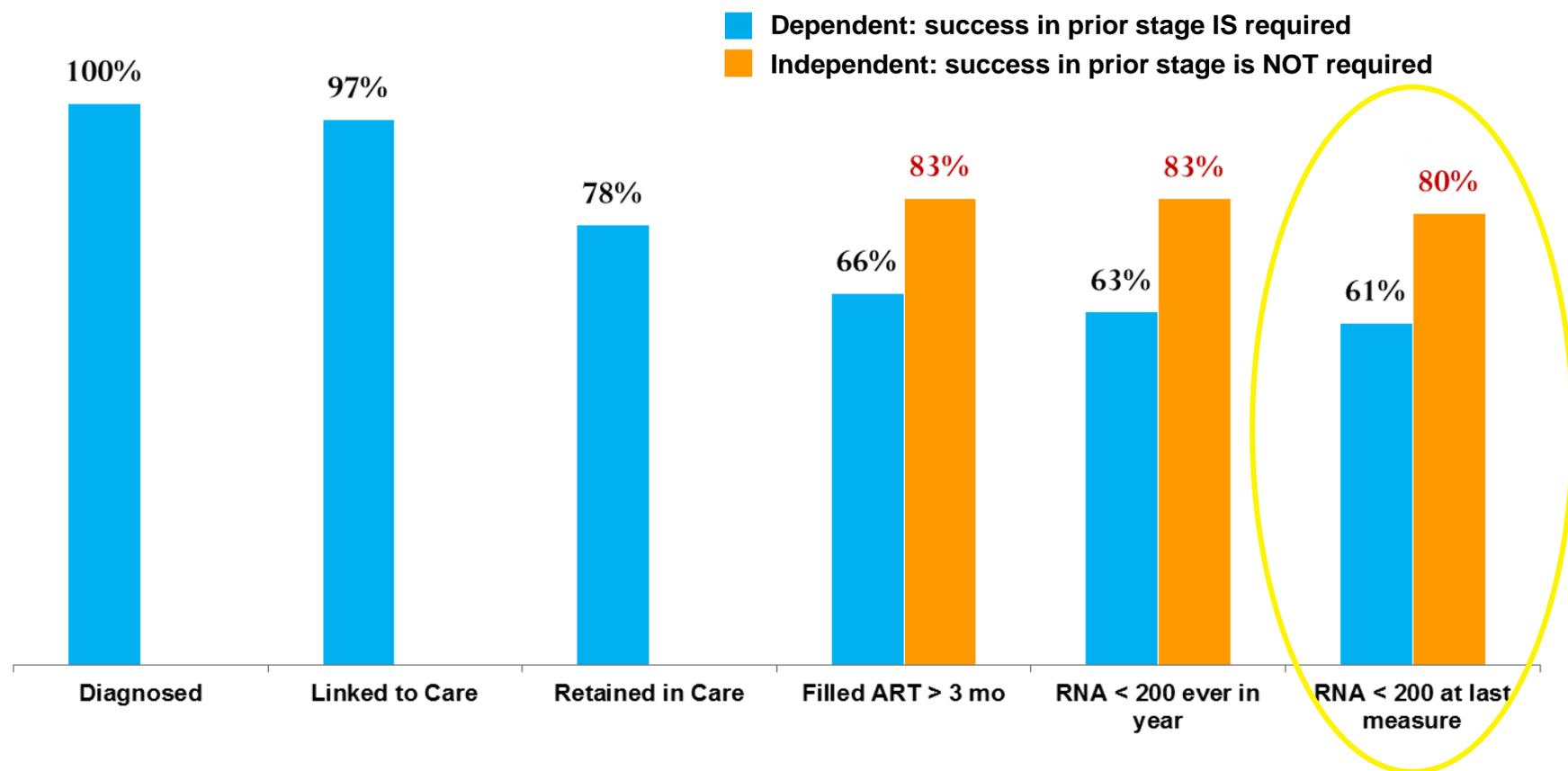
- Different types of data bases are being used to calculate cascades that are not directly comparable
- Different measures used to calculate cascade steps
 - **Denominators** – infected, diagnosed or living with HIV
 - **Linked to Care** – CD4/VL or visit within 3, 3-4, 6 or 12 months
 - **Retained in Care** - CD4/VL vs. visits, 12 vs. 24 months, frequency
 - **Viral suppression** – undetectable, <200, <400
- Calculation of cascade steps likely under-estimates
 - **Diagnosed** but not reported
 - **Linked or retained** but moved to different jurisdictions or clinical sites
 - **Virally suppressed** with no recent viral load data available

The HIV Care Cascade



Kaiser Permanente Cascade

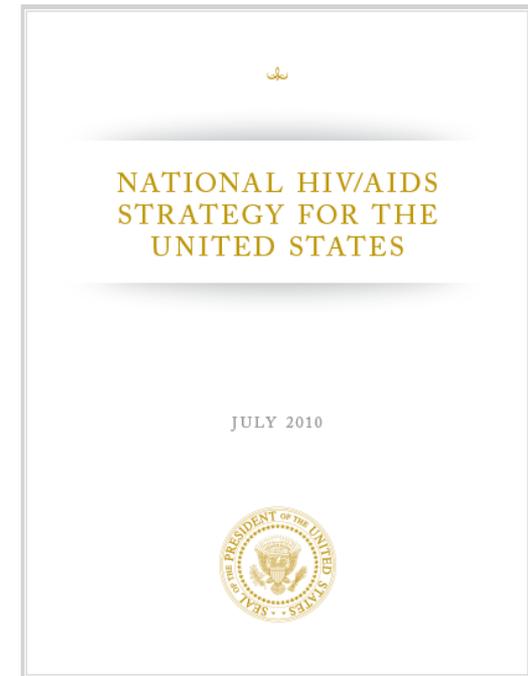
HIV Spectrum of Engagement Cascade in a Large Integrated Care System by Gender, Age, and Methodologies



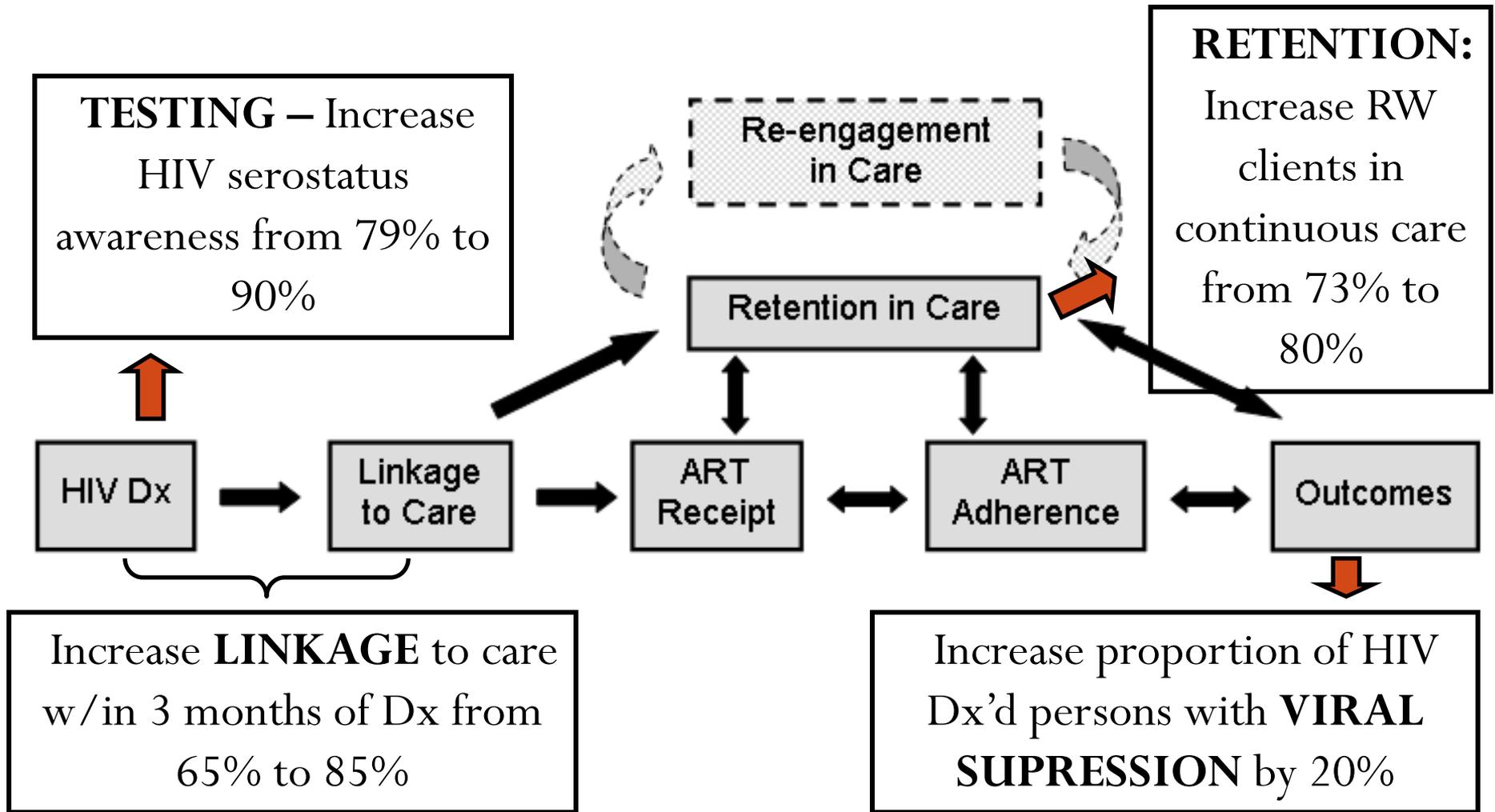
Horberg M et al. Conference on Retroviruses and Opportunistic Infections. 2013 Poster 1033.

US National HIV/AIDS Strategy Continuum of Care Related Goals

- **Testing** – ↑ percentage of people living with HIV who know their status from **79% to 90%**
- **Linkage** – ↑ proportion of newly diagnosed patients linked to clinical care within 3 mos from **65% to 85%**
- **Retention** – ↑ proportion of Ryan White clients in continuous care from **73% to 80%**
- **Viral Suppression** – ↑ proportion of HIV-diagnosed gay and bisexual men, Blacks and Latinos with undetectable viral load by **20%**



National HIV/AIDS Strategy – by 2015



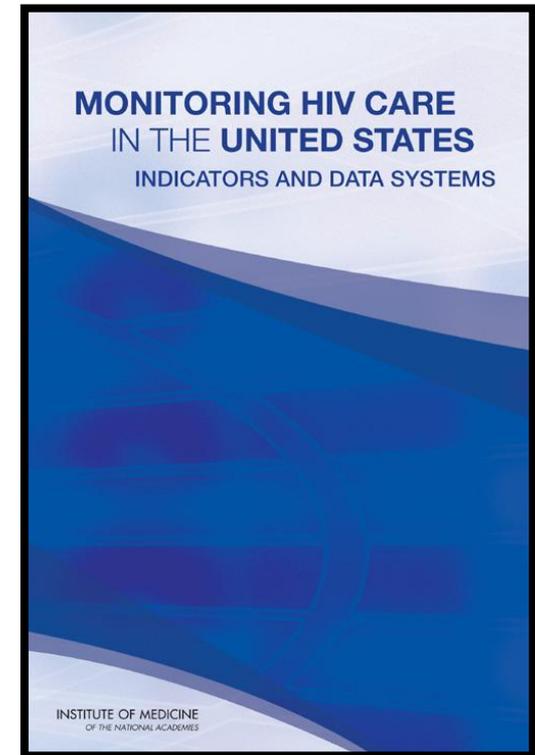
IOM Committee on Data Systems to Monitor HIV Care (2011 – 2012)

White House Office of National AIDS Policy (ONAP) commissioned the Institute of Medicine (IOM) to convene a committee to:

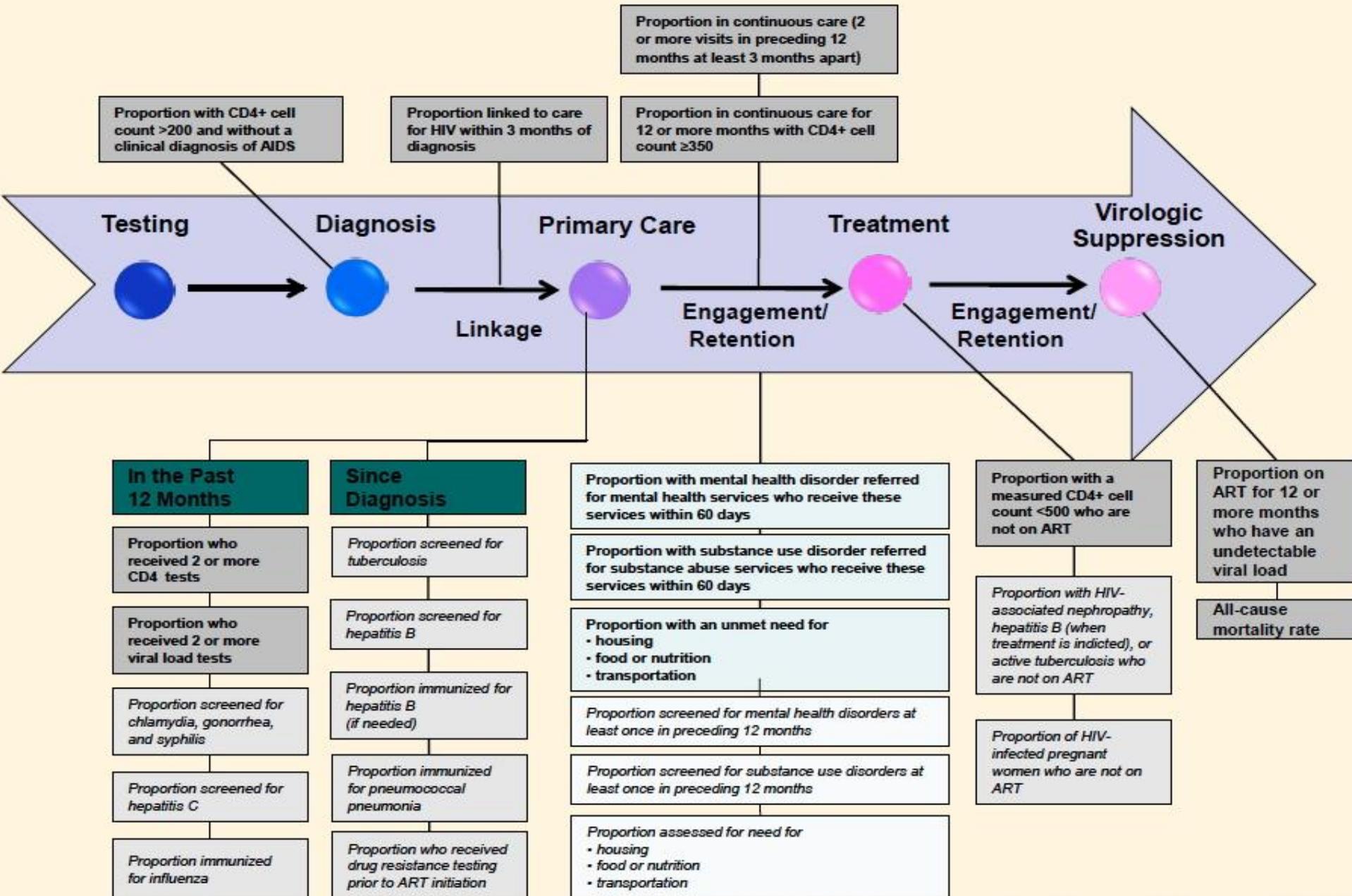
- ✓ recommend data and indicators to assess the impact of the National HIV/AIDS Strategy (NHAS) and the Patient Protection and Affordable Care Act (ACA) on HIV care
- ✓ assess available public and private data systems that capture HIV care information
- ✓ recommend ways to supplement and to maximize the usefulness of existing data systems

Standardized Cascade-Related Measures

- IOM expert committee recommended standardized cascade-related measures:
 - **Linkage** - Proportion of people newly diagnosed with HIV who are linked to care for HIV within 3 mos. of diagnosis
 - **Retention in care** – Proportion of people with diagnosed HIV infection who are in continuous care (2 or more visits for routine HIV care in the preceding 12 mos. at least 3 mos. apart)
 - **Viral Suppression** – Proportion of people with diagnosed HIV infection who have been on ART for 12 or more mos. and have a viral load below the level of detection



IOM Metrics



Monitoring HIV Care in the United States

Indicators and Data Systems

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Table 1: Core Indicators for Clinical HIV Care

Proportion of people newly diagnosed with HIV who are linked to clinical care for HIV within three months of diagnosis

Rationale: Timely linkage to care improves individual health outcomes and reduces transmission of the virus to others.

Proportion of people with diagnosed HIV infection who are in continuous care (two or more visits for routine HIV medical care in the preceding 12 months at least three months apart)

Rationale: Continuous HIV care results in better outcomes, including decreased mortality, and reduced transmission of the virus to others.

Proportion of people with diagnosed HIV infection who received two or more CD4 tests in the preceding 12 months

Rationale: Regular CD4 testing permits providers to monitor individuals' immune function, determine when to start antiretroviral therapy (ART), and assess the need for prophylaxis for opportunistic infections.

Proportion of people with diagnosed HIV infection who received two or more viral load tests in the preceding 12 months

Rationale: Regular viral load (plasma HIV RNA) testing is important for monitoring clinical progression of the disease and therapeutic response in individuals on ART.

7 Core HHS Indicator Measures

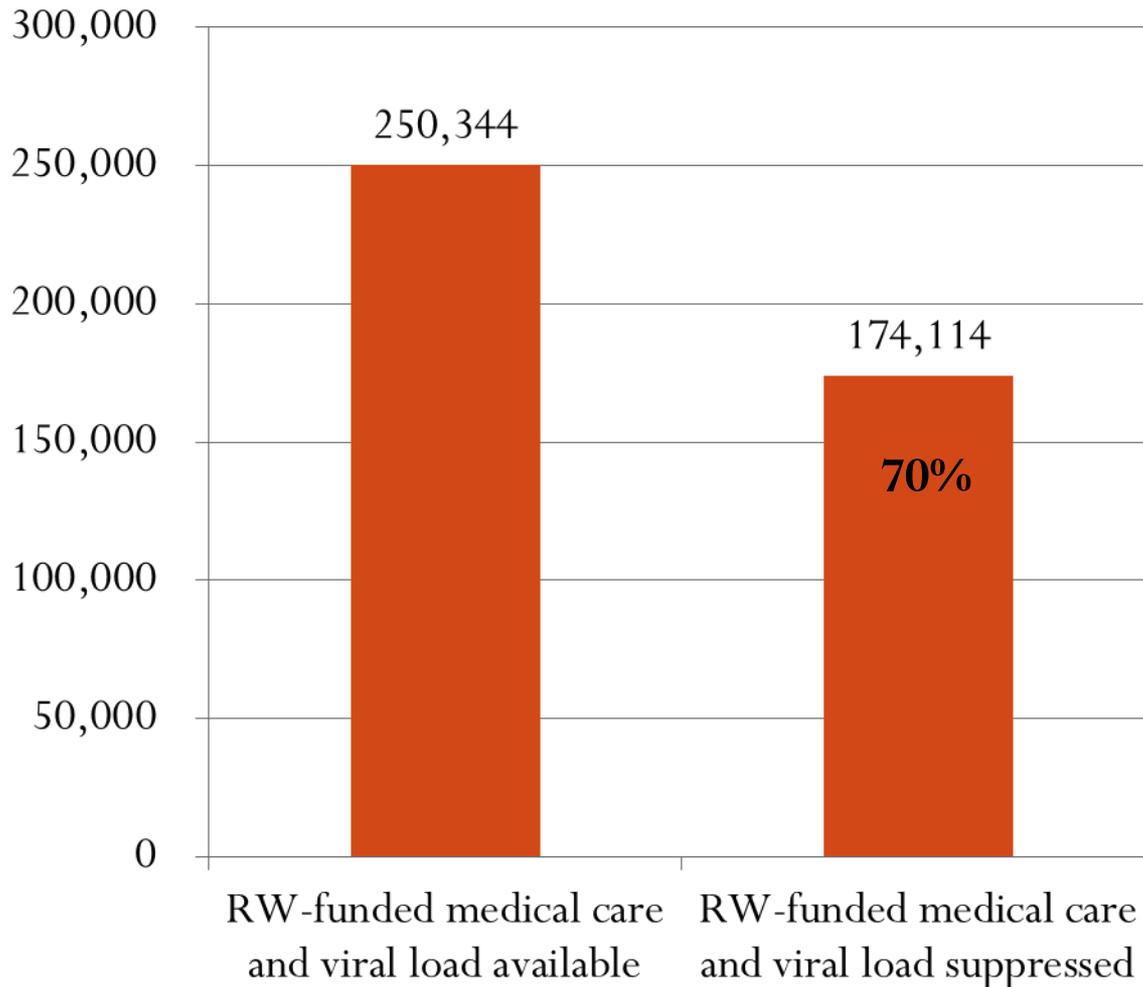
Measure	Numerator	Denominator
HIV Positivity	# HIV positive tests in 12-month period	# HIV tests conducted in 12-mo
Late HIV Diagnosis	# persons with a dx of Stage 3 HIV (AIDS) within 3 mo of dx of HIV infection in 12-mos	# persons with an HIV diagnosis in the 12-mos
Linkage to HIV Medical Care	# who attended a routine HIV medical care visit within 3 months of HIV dx	# who attended a routine HIV medical care visit within 3 mo of HIV dx
Retention in HIV Medical Care	# with an HIV dx and at least 1 HIV medical care visit in each 6 mo period of the 24 mo measurement period, with a minimum of 60 days between the 1 st medical visit in the prior 6 mo period and the last medical visit in the subsequent 6 mo period	# with an HIV diagnosis with at least 1 HIV medical care visit in the first 6 mo of the 24-mo measurement period
Antiretroviral Therapy (ART)	# with an HIV dx who are prescribed ART in 12 months	# with an HIV diagnosis with ≥ 1 HIV medical care visit in 12 mo
Viral Load Suppression	# with HIV diagnosis with a viral load <200 copies/mL at last test in the 12-month period	# with HIV diagnosis who had at least one HIV medical care visit in the 12-months
Housing Status	# with HIV diagnosis who were homeless or unstably housed in the 12-month period	# with HIV diagnosis receiving HIV services in the last 12 months

Ryan White HIV Care Continuum Definitions

	Numerator	Denominator (for proportion)
RW client	Client received at least 1 RW-funded service in calendar year	Not applicable
Received RW-funded medical care or case management and HIV+	Client received RW-funded medical care or case management services and was documented to be HIV+	RW client
RW-funded medical care	Received RW-funded medical care	RW client
Retained in care	Attended at least 2 RW-funded medical care visits that were at least 90 days apart	RW-funded medical care and had visit date available
ART	Received ART prescription at any time in the year	RW-funded medical care and had ART data and visit date available
Viral load suppressed	HIV-1 viral load <200 copies/ml for the most recent value reported	RW-funded medical care and had viral load available

Viral Load Suppression

Ryan White Services Report 2010 (preliminary)



Viral load suppressed:
HIV-1 RNA <200 copies/ml
at the most recent check

Viral load suppression, Retained vs. not retained

Retention status	Viral load suppressed (<200 copies/ml at most recent test)
Retained in medical care	75%
Not retained in medical care*	50%

*Received at least 1 RW-funded medical visit but not retained in medical care

Impact of Social Determinants of Health on the Continuum of Care

- Every step is affected by
 - Stigma and discrimination
 - Racism, homophobia
 - Poverty
 - Risk of criminalization
 - High incarceration rates and difficulty with transition
 - Housing instability
 - Employment instability
 - Co-existing conditions: substance use, mental health disorders
 - Cost of medications and co-pays

MEETING REPORT ON
FRAMEWORK FOR METRICS TO SUPPORT
EFFECTIVE TREATMENT AS PREVENTION

2–3 APRIL 2012 GENEVA, SWITZERLAND



Programme component	Data sources	Key measures
People with HIV	Estimates and projections (EPP/Spectrum)	Estimated number of PLHIV
Aware of status	Surveillance data	HIV prevalence estimates (for specific populations and geographical areas)
	Probability surveys	% tested among different groups within past year (men and women aged 15–49 years, young men and women aged 15–24 years, sex workers, MSM and PWID)
	HIV testing and counselling routine monitoring	# of diagnosed HIV cases (new and cumulative) % positive among those tested from routine HIV testing and counselling data % of persons tested for HIV whose regular partner has also been tested
	HIV case reporting formats PMTCT routine monitoring	Mean CD4 count at time of diagnosis % of pregnant women whose regular partner has been tested
Linked to care	HIV testing and counselling routine monitoring / Care and treatment registry	% of newly diagnosed cases who have been enrolled in HIV care and treatment services
	PMTCT routine monitoring	% of pregnant women receiving ARV prophylaxis (if not offered Option B/Option B+)
Retained in care	Care and treatment registry	Number currently receiving care (e.g. receiving co-trimoxazole prophylaxis, regular clinical monitoring/assessment for ART eligibility)
On ART	ART register	# who initiated ART # currently receiving ART % died, lost to follow up, stopped or switched regimens % retained after 12, 24, 36, 60 months
	EWI for HIV-DR	% of patients with on-time drug pick-up % of clinics with drug supply continuity % of clinics with suboptimal prescribing practices
	Pharmacovigilance monitoring	# of patients on ART experiencing adverse drug events
Virological suppression	EWI for HIV-DR	% virologically suppressed at 12 months
	Routine viral load measures	% virologically suppressed at last viral load measurement in the reporting period
	HIV-DR surveillance survey	% of transmitted DR detected among treatment-naive patients initiating ART % of patients with raised viral load at 12–15 months of ART and 24–26 months of ART. % detected with DR among those with raised viral load

Strengths of Cascade as a Public Health Metric

- Powerful visual tool to monitor engagement in care at the national, state, local and health care system levels
- Provides valuable insights into steps in HIV care continuum where drop-off in engagement occurs that can help target programmatic and research activities
- Can be used to monitor progress of jurisdictions over time, and between jurisdictions if similar definitions and methodologies used

Surveillance Data Used to Track Progress Towards NHAS Goals

Using the HIV Surveillance System to Monitor the National HIV/AIDS Strategy

- 13 jurisdictions with CD4/VL in surveillance system
- **Linkage:** 82% of 4,899 persons diagnosed in 2009 had at least 1 CD4 or VL within 3 mos.
- **Viral Suppression:** 69% of 53,642 PLWH in 2009 had VL < 200
- System will become increasingly representative

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For Immediate Release

July 15, 2013

Executive Order -- HIV Care Continuum Initiative

EXECUTIVE ORDER

ACCELERATING IMPROVEMENTS IN HIV PREVENTION AND CARE IN THE UNITED STATES THROUGH THE HIV CARE CONTINUUM INITIATIVE

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in order to further strengthen the capacity of the Federal Government to effectively respond to the ongoing domestic HIV epidemic, it is hereby ordered as follows:

Section 1. Policy. Addressing the domestic HIV epidemic is a priority of my Administration. In 2010, the White House released the first comprehensive National HIV/AIDS Strategy (Strategy), setting quantitative goals for reducing new HIV infections, improving health outcomes for people living with HIV, and reducing HIV-related health disparities. The Strategy will continue to serve as the blueprint for our national response to the domestic epidemic. It has increased coordination, collaboration, and accountability across executive departments and

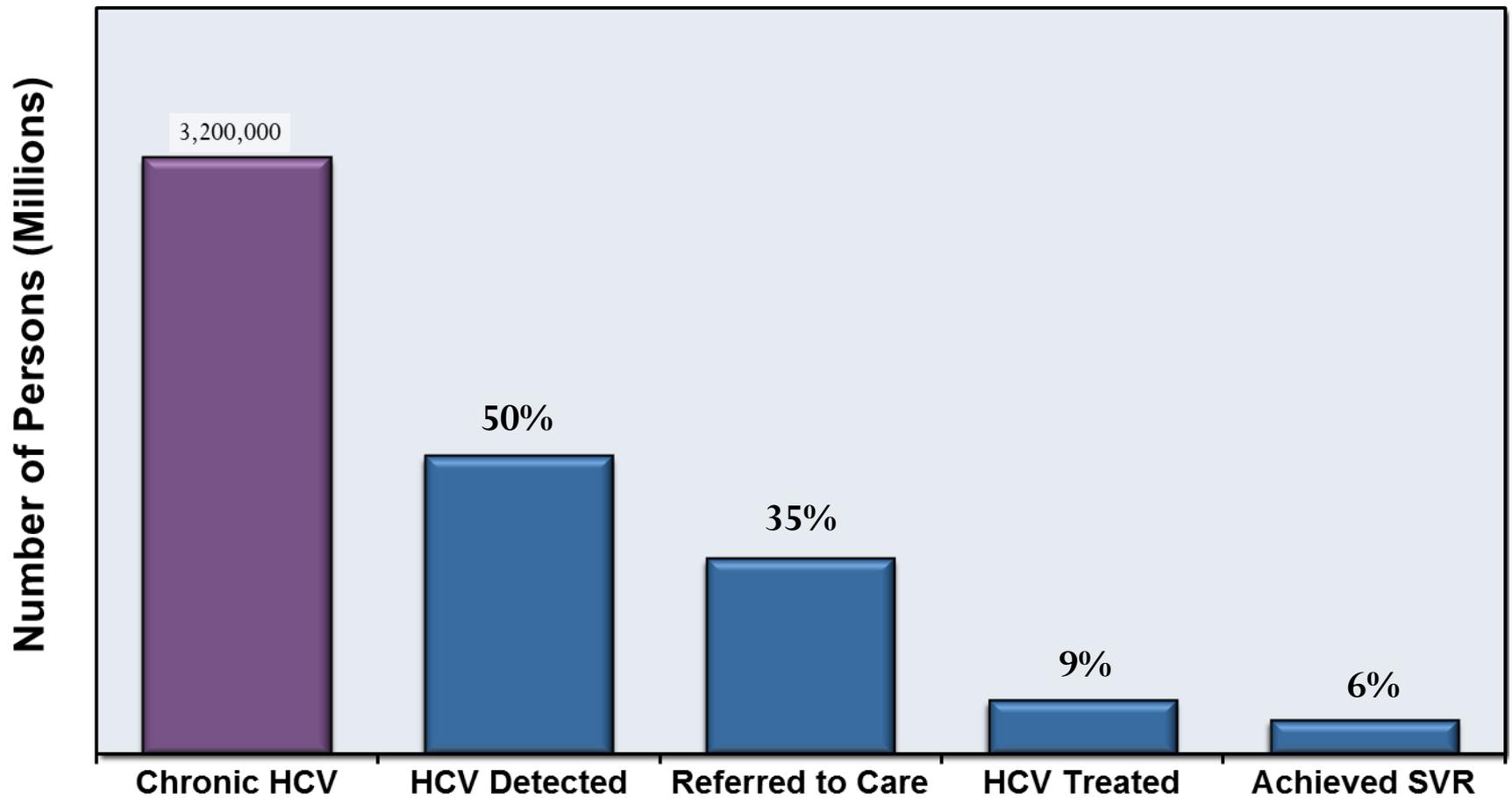


BLOG POSTS ON THIS ISSUE

September 16, 2013 6:01 PM EDT
[President Obama Speaks on the Washington Navy Yard Shooting](#)
Before delivering remarks on the economy, President Obama gives a brief statement about the tragic events at the Washington Navy Yard.

September 15, 2013 9:41 PM EDT

Hepatitis C Cascade of Care in United States



Holmberg SD, et al. N Engl J Med. 2013;368:1859-61.

RESEARCH RECOMMENDATIONS

- Randomized controlled trials evaluating interventions to improve retention and virologic suppression such as case management, peer-health navigators, contingency management, etc.
- Implementation science research to evaluate scaling up interventions that prove to be effective
- Operational research to optimize / standardize measurements
- Comparative evaluation of monitoring strategies in conjunction with intervention studies
- Comparative evaluation of case management in community settings
- Comparative evaluation and cost effectiveness for best practices for implementation of effective interventions
- Prospective evaluation of pay for performance interventions
- Evaluation of the impact of the ACA on the HIV Care Continuum

Affordable Care Act and HIV

- “Affordable” premiums are not the whole story
- High deductible plans are unaffordable for many
- High co-pays are often unaffordable and may lead to inconsistent drug access
- SU/MH benefits often minimal, if present
- Transportation not covered
- Case management not covered
- Most ART’s are tier 4 drugs with high co-pays
- Many states have refused to expand Medicaid

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-
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