Getting to Zero: The Long and Winding Road

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Center for AIDS Prevention Studies,

University of California, San Francisco

SBSRN Meeting

October 26, 2017

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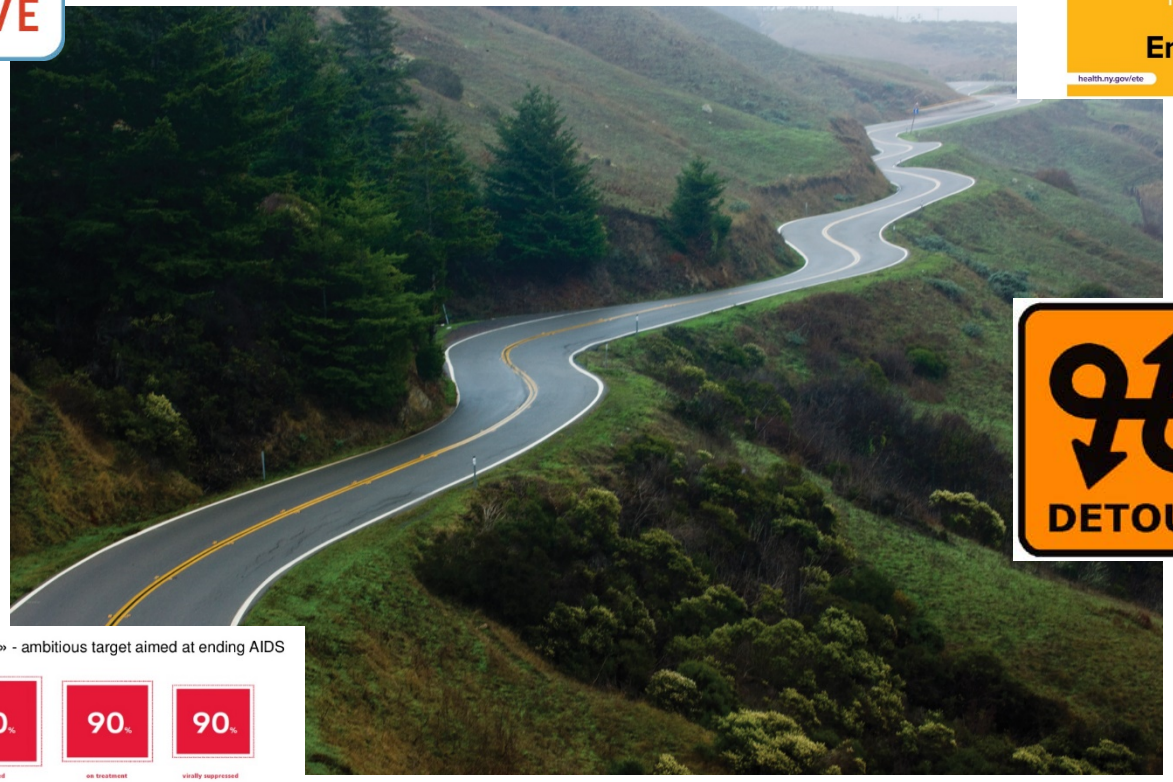
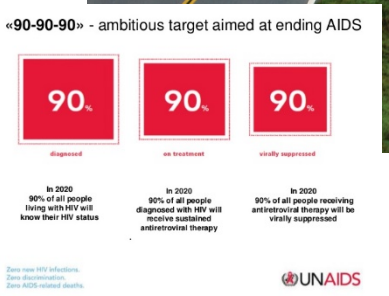
The Road to Getting to Zero Begins with Getting to Ten: It is Scenic and Has Many Detours





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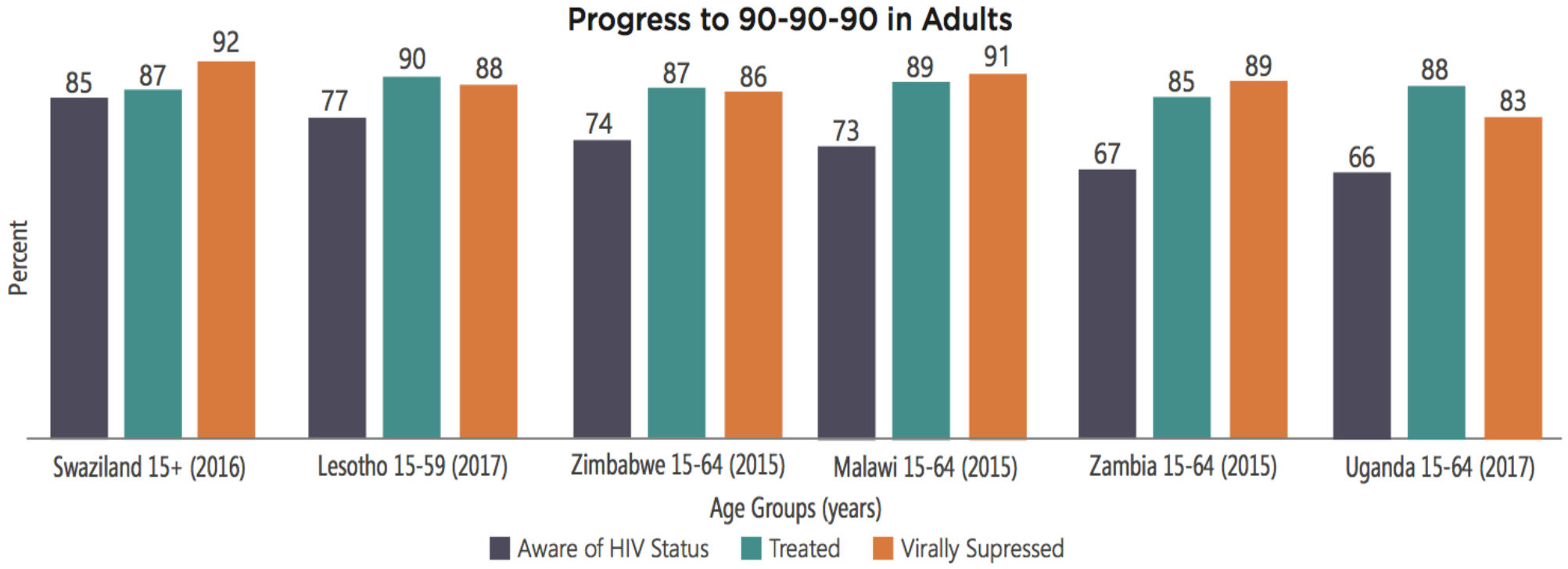
Progress Toward 90-90-90: PEPFAR

Figure 1. Achieving Epidemic Control - Astounding Results from Swaziland, Zimbabwe, Malawi, Zambia, Uganda, and Lesotho Source: PHIA 2015-17



[1] Botswana, Côte d'Ivoire, Haiti, Kenya, Lesotho, Malawi, Namibia, Rwanda, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

Progress is Variable

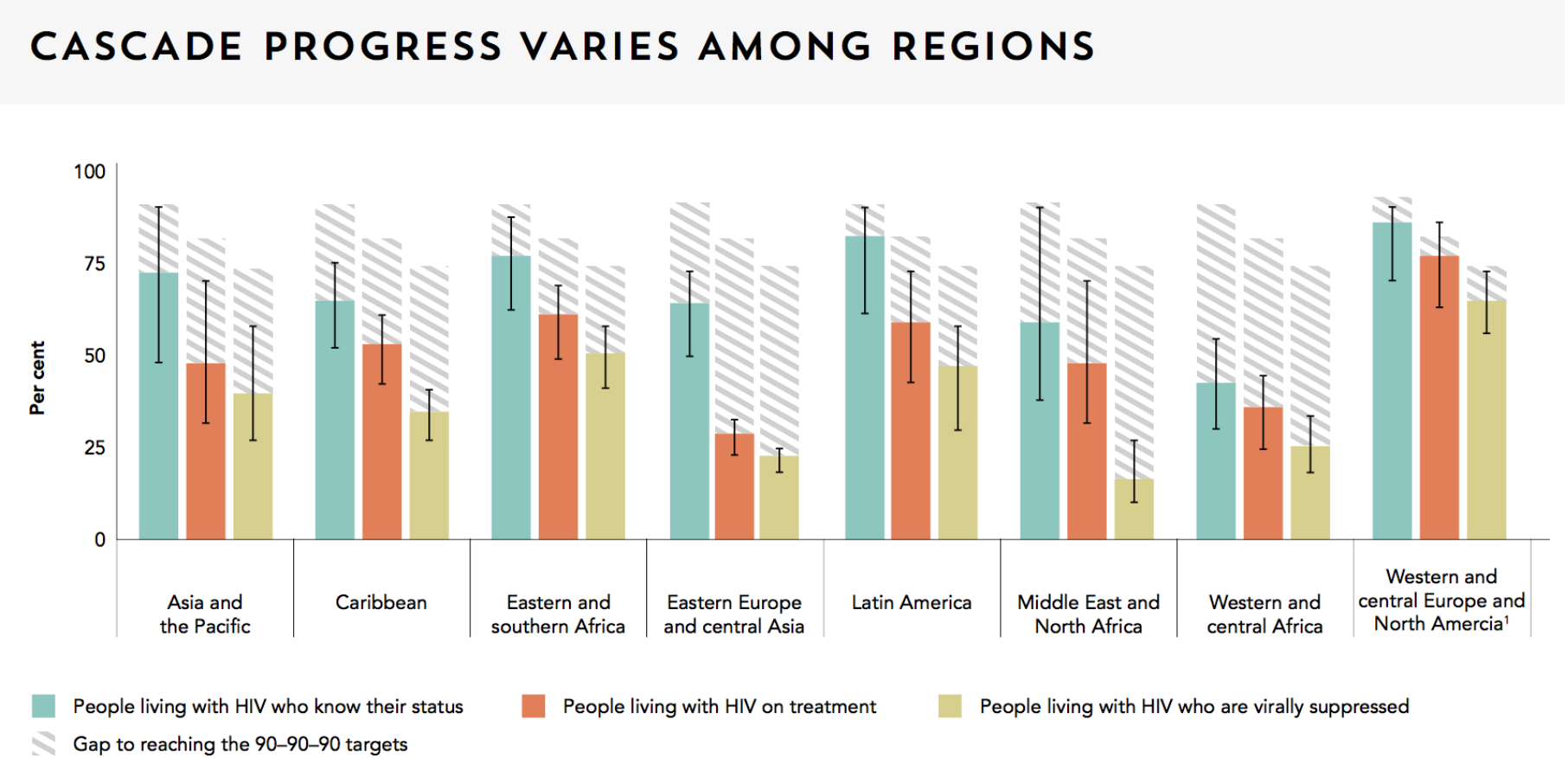


FIGURE 3.3. KNOWLEDGE OF HIV STATUS, TREATMENT COVERAGE AND VIRAL LOAD SUPPRESSION, BY REGION, 2016

UNAIDS 2017. *Ending AIDS: Progress Toward the 90-90-90*: UNAIDS special analysis, 2017

1. Measuring the Targets is Challenging and Inconsistent, as is the Presentation of Them

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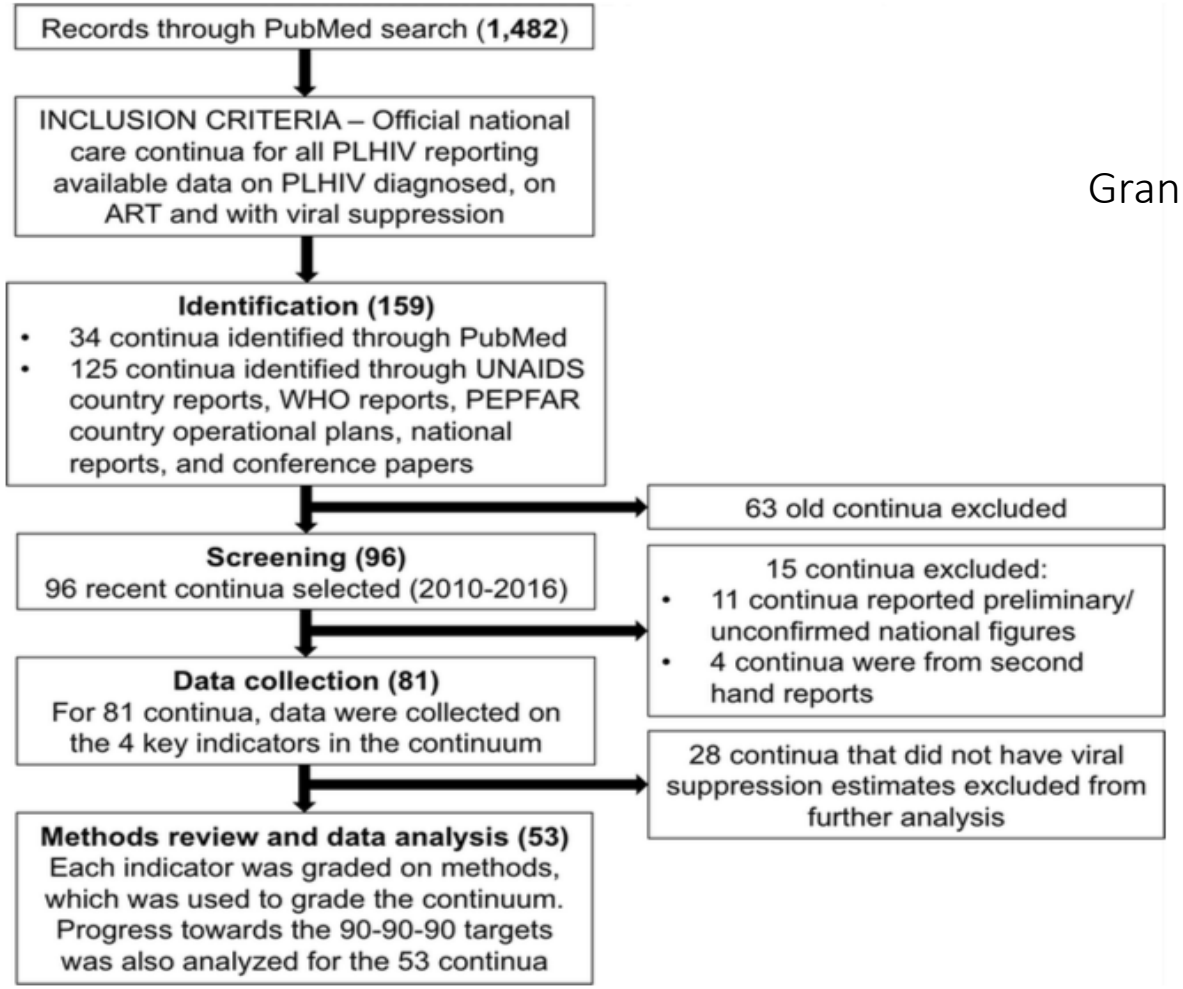

Fig 1. Search flow diagram. WHO, World Health Organization; UNAIDS, Joint UN Programme on HIV/AIDS; PEPFAR, the US President's Emergency Plan for AIDS Relief. For 2010–2016, we searched PubMed, UNAIDS and WHO reports, national surveillance and program reports, PEPFAR 2016 Country Operational Plans, and conference presentations and/or abstracts for national HIV continua of care. The search strategy included the keywords (HIV OR AIDS) AND (treatment) AND (cascade OR continuum of care OR care continuum OR continua OR spectrum of care OR 90-90-90 OR viral suppression) for data published in the public domain. The search was designed to identify the most recent officially reported or sanctioned national continua of care available in the public domain. Search inclusive of results as of November 30, 2016.

doi:10.1371/journal.pmed.1002253.g001

Granich, et al. 2017. *PLoS Medicine* 14(4)

Documenting and Grading Continua Methods

COUNTRY	SOURCE	ESTIMATED PEOPLE LIVING WITH HIV	PEOPLE LIVNG WITH DIAGNOSED HIV	PEOPLE RECEIVING ART	PEOPLE ON ART WITH SUPPRESSED VIRAL LOAD	QUALITY
Antigua and Barbuda[1]	Newspaper article	Data not available	National program data	National program data	Data not available	Incomplete
			Estimated using data on of new HIV infections	Register of AIDS Direction (Ministry of Health), registrations in semiprivate and private health subsystems	VL <50 copies/mL Data from AIDS Direction. Calculated using a sample of people on ART receiving VL	Medium
				National Center for AIDS Prevention (NCAP), Ministry of Health	VL <250 copies/mL Based on data from NCAP laboratory	Medium
			V Registry and f deaths	ART coverage is estimated as average of 4 approaches: ARV prescription count (Australian HIV Observational Database or AHOD); self-reported	VL <400 copies/mL Calculated as proportion of	
			sing cumulative nu gnosed with HIV			
			sed on estimate & mmunications with isease Hospital in			
Belgium[7,8]	National cohort data	UNAIDS estimate	National registration of new diagnosis			
Bhutan[9]	UNAIDS country progress report	UNAIDS estimate	National program PLHIV data			
Brazil[10]	National program report	Sistema de Informacao de Agravos de Notificacao or System for notifiable diseases information (SINAN) and Sistema de Informacao de Mortalidade System on	SINAN and SIM			

Granich, et al. AIDS 2016

IAPAC

2. 90-90-90 is Really 90-81-73

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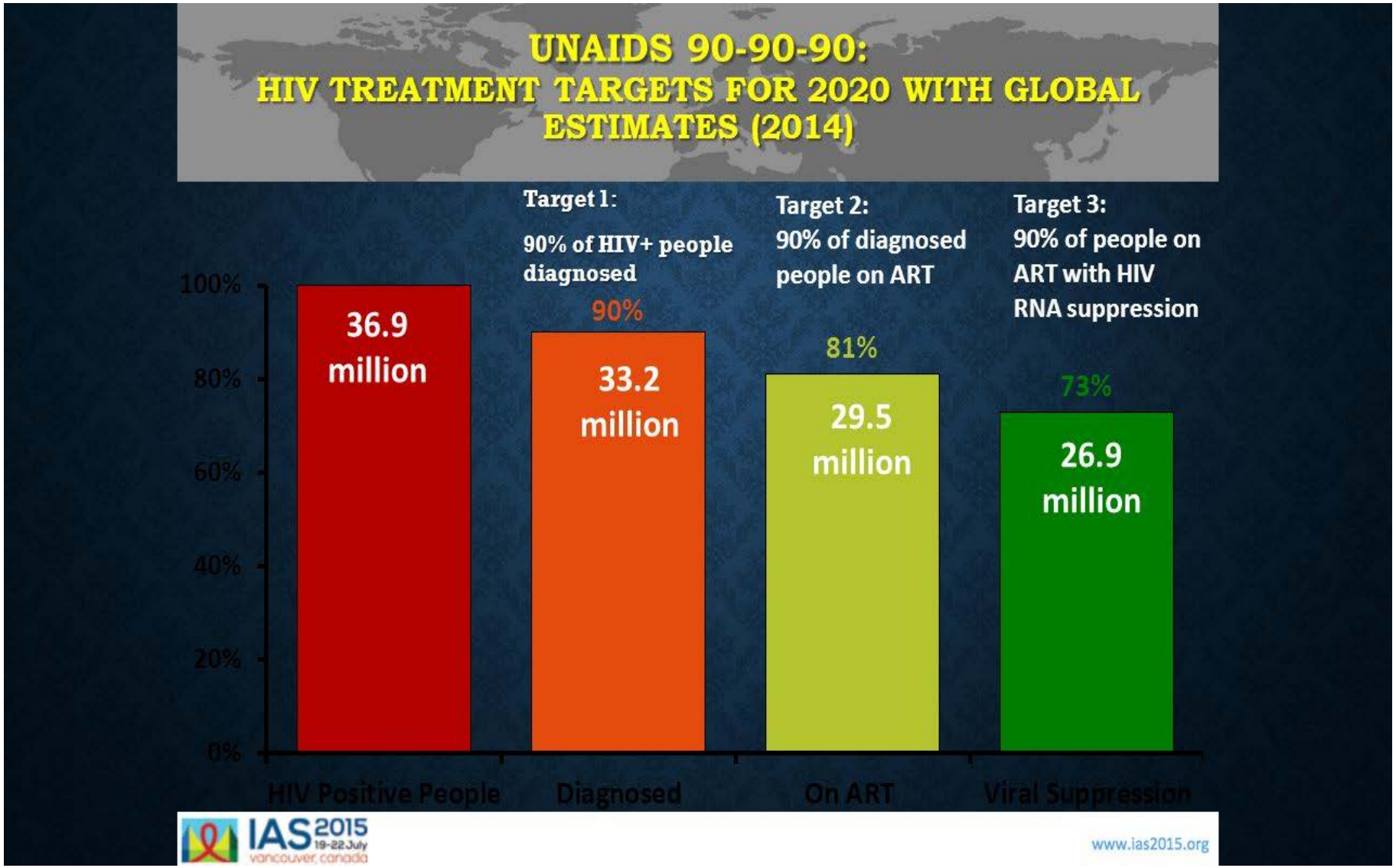

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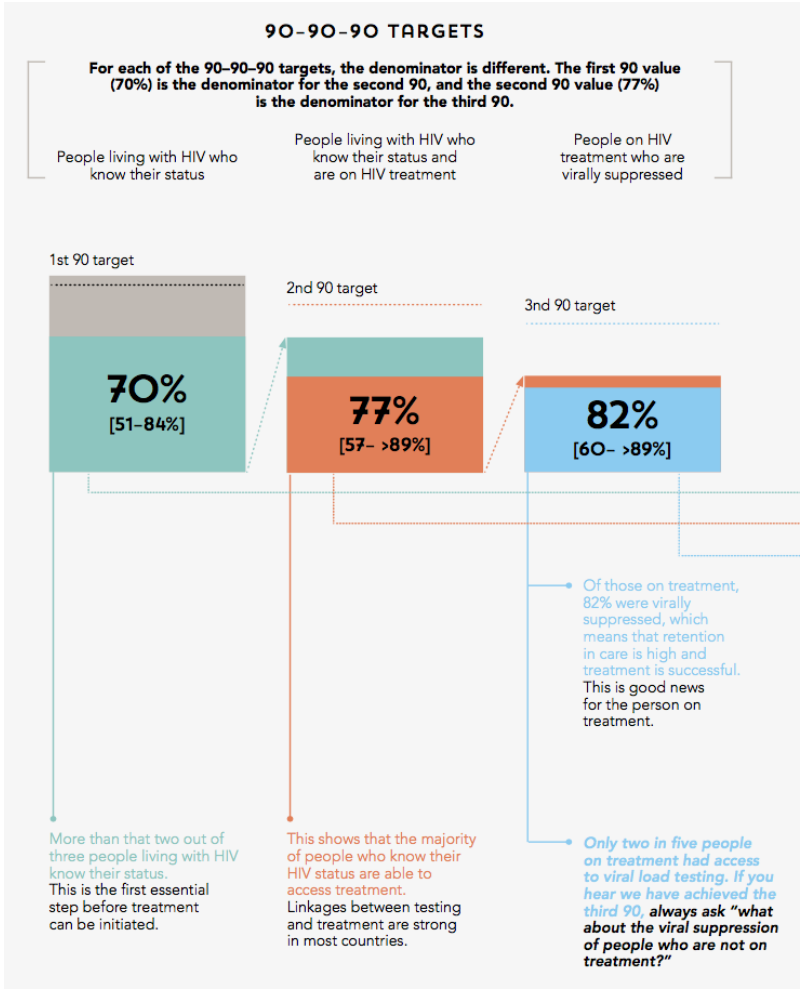
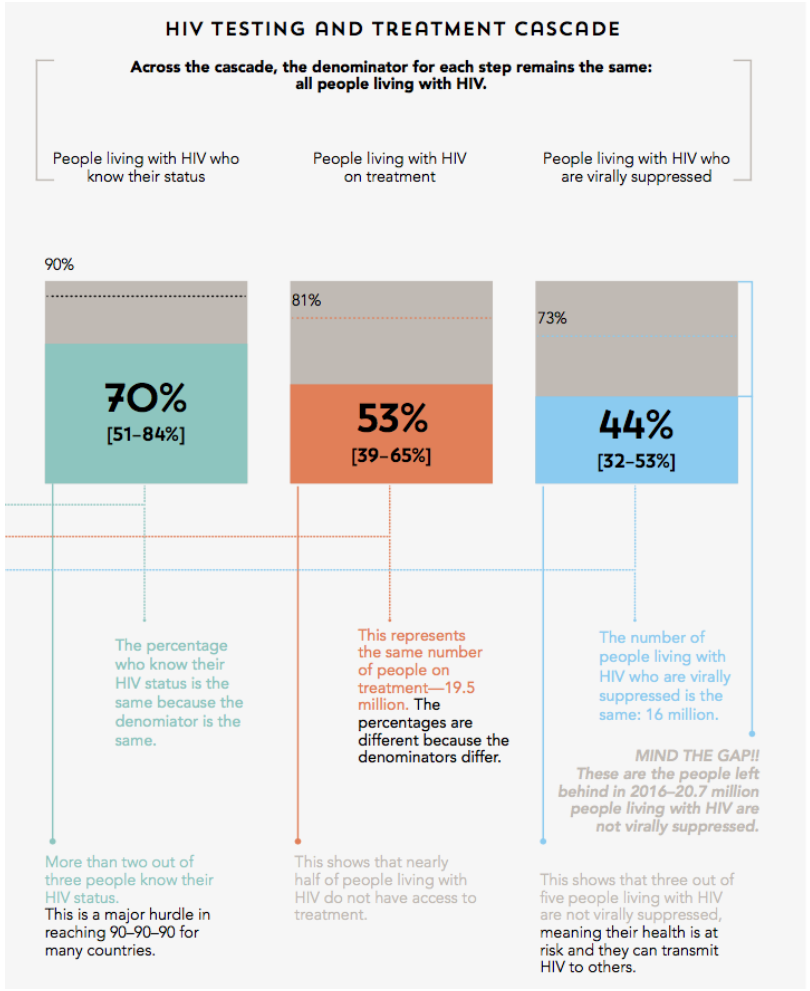
Targets and Cascades Are Not the Same Things





UNAIDS 2017. *Ending AIDS: Progress Toward the 90-90-90*.

3. The First Goal is the Hardest to Achieve; and Everything Else Depends on It

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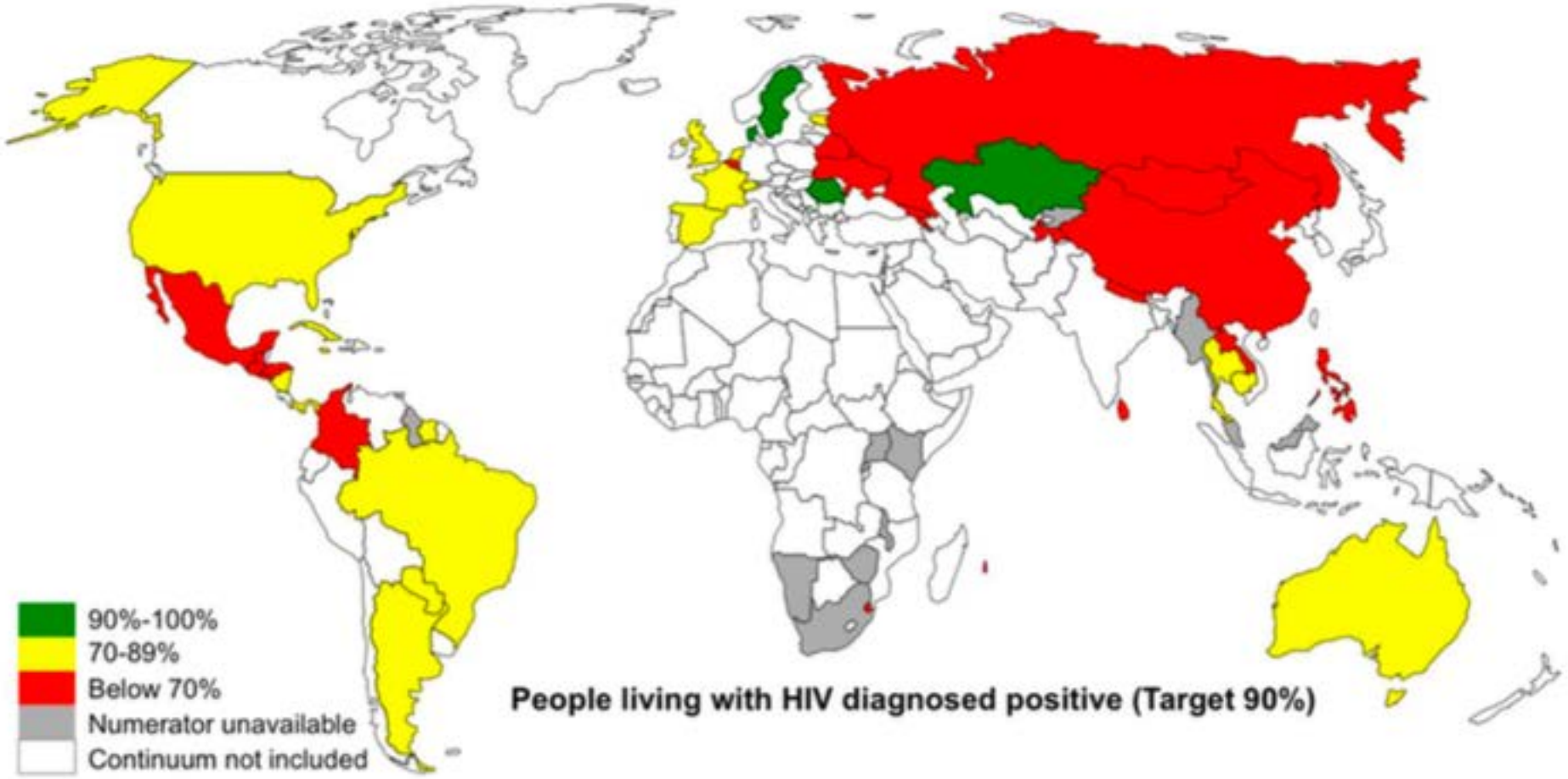
90 % Of People Living With HIV Will Know Their HIV Status



Granich, et al. 2017. Status and methodology of publicly available national HIV care continua and 90-90-90 targets: A systematic review. PLoS Med 14(4).

CDC Estimates of Undiagnosed in the U.S.

Estimated HIV prevalence among persons aged ≥13 years and percentages of persons living with undiagnosed HIV infection, by transmission category[a], United States, 2014

	HIV prevalence		Persons living with undiagnosed HIV infection	
Transmission category	No.	95% CI	%	95% CI
Total	1,107,700	(1,088,500, 1,127,000)	15.0	(14.3, 15.7)
Male-to-male sexual contact	615,400	(600,900, 629,900)	17.3	(16.3, 18.4)
Injection drug use	139,700	(133,300, 146,100)	6.4	(4.4, 8.4)
Male-to-male sexual contact and injection drug use	56,600	(52,900, 60,200)	7.4	(4.5, 10.3)
Heterosexual contact	296,100	(286,300, 306,000)	15.6	(14.2, 17.0)

Abbreviation: CI, confidence interval.
Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis.
[a]Adjusted for missing risk factor information. Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

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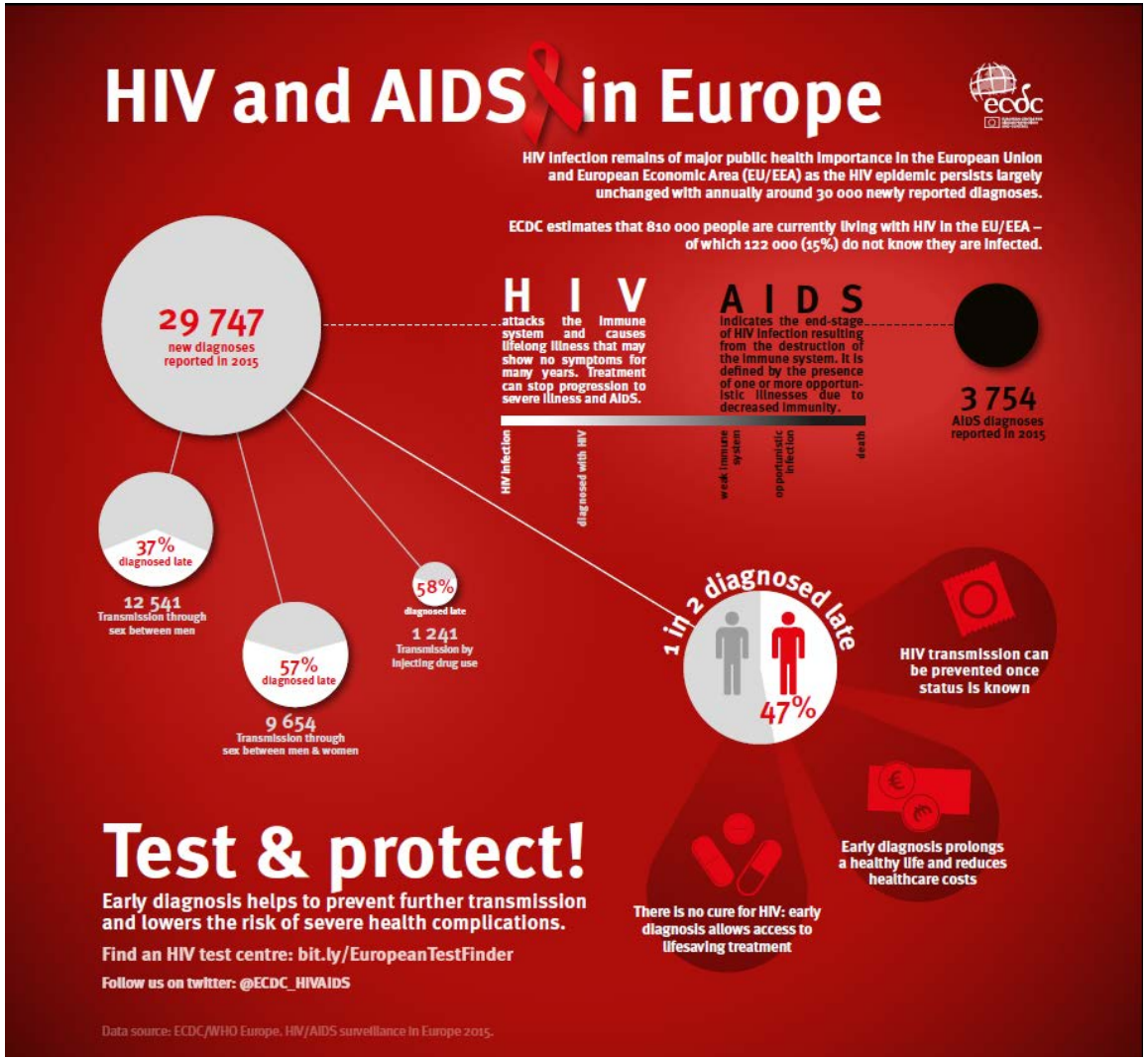
Not Just Undiagnosed: Late Diagnosis, Too



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4. The Targets Leave Behind 10/10/10 or 10/20/30

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Who Are the Missing 10/10/10 (0r 10/20/30)?

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Mental & Sexual Health Risk among Transgender Women in Lebanon

- 10% HIV prevalence
- 57% CRAI in past 3 months (40% unknown status)
- 68% current sex work
- 40% no prior HIV testing
- 68% physical violence
- 32% police arrest because of gender presentation
- 98% gender presentation-related discrimination
- 46% attempted suicide

Kaplan RL, McGowan J, Wagner GJ. HIV prevalence and demographic determinants of condomless receptive anal intercourse among trans feminine individuals in Beirut, Lebanon. Journal of the International AIDS Society. 2016;19(3 Suppl 2):20787.
Kaplan RL, Nehme S, Aunon F, de Vries D, Wagner G. Suicide risk factors among trans feminine individuals in Lebanon. The international journal of transgenderism. 2016;17(1):23-30.

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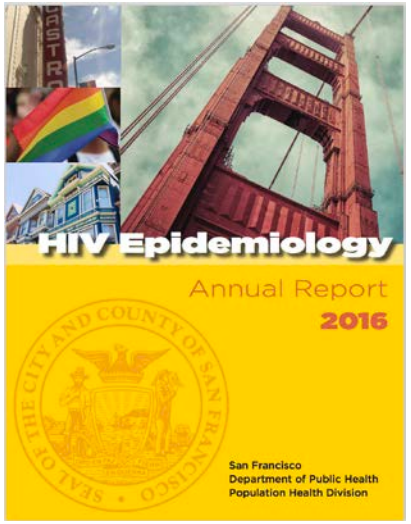
Disparities in the 10/10/10



- Even in the most HIV-focused, resource-rich settings, making significant progress in their epidemics, there are notable disparities. In San Francisco, e.g.:
  - African-Americans are disproportionately diagnosed late and have poorer treatment and care outcomes, including poorer survival rates than other racial/ethnic groups
  - Latinos are most likely to be uninsured at diagnosis and less likely to be engaged in care and virally suppressed than whites
  - Asians & Pacific Islanders are most likely to be diagnosed late
  - Younger people less engaged in care and virally suppressed
  - Women and transwomen are less likely to achieve viral suppression than males
  - Women and people who inject drugs have poorer survival rates than others
  - Persons experiencing homelessness are less engaged in care and virally suppressed than those stably housed

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5. 90/90/90 Targets & Care Continua are Focused on Treatment; Treatment is Necessary, but Not Sufficient, to Get to Zero

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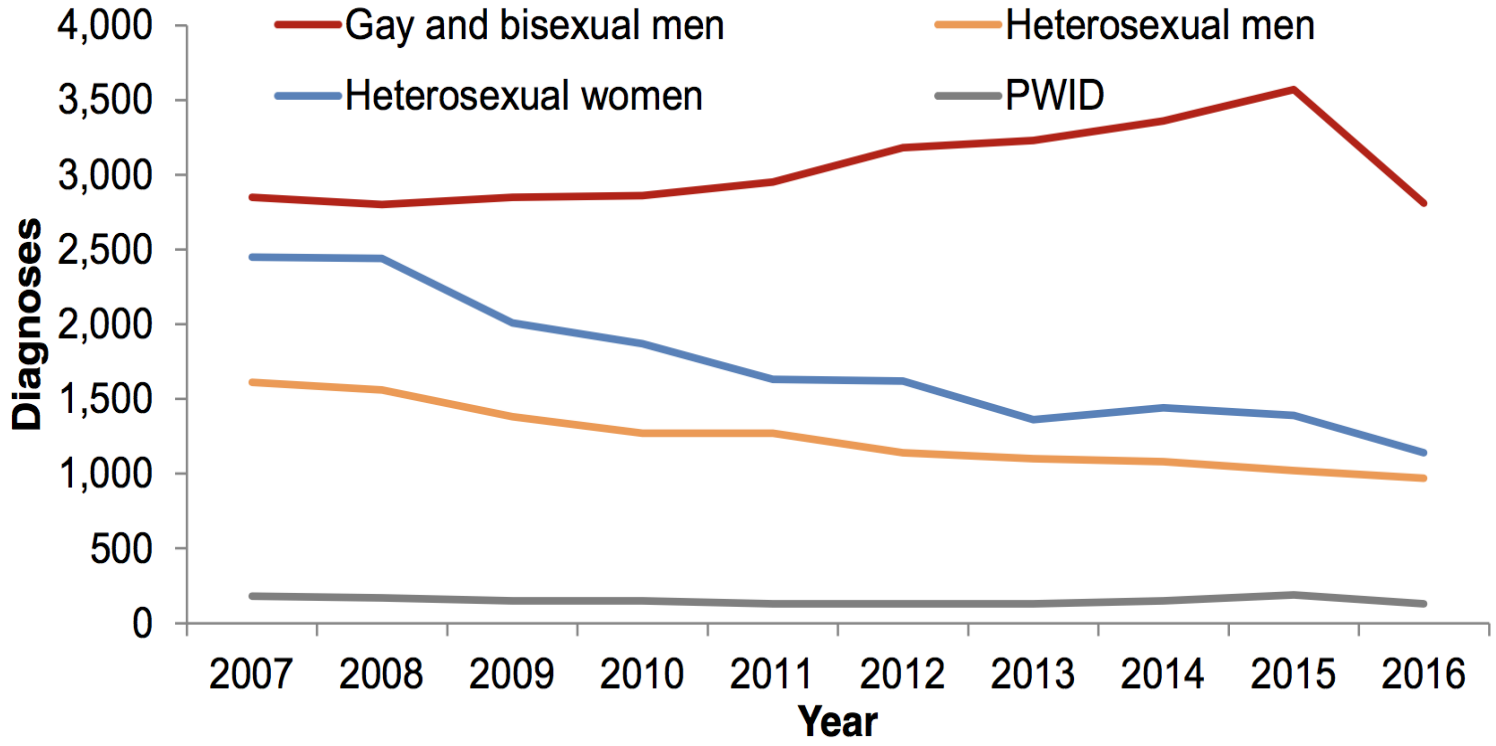
Beyond Viral Suppression

Source: Jeffrey Lazarus, PhD, ISGlobal, Hospital Clinic, University of Barcelona; reproduced by Emily Newman, For people with HIV, what's next after viral suppression? *BETA* October 3, 2017.

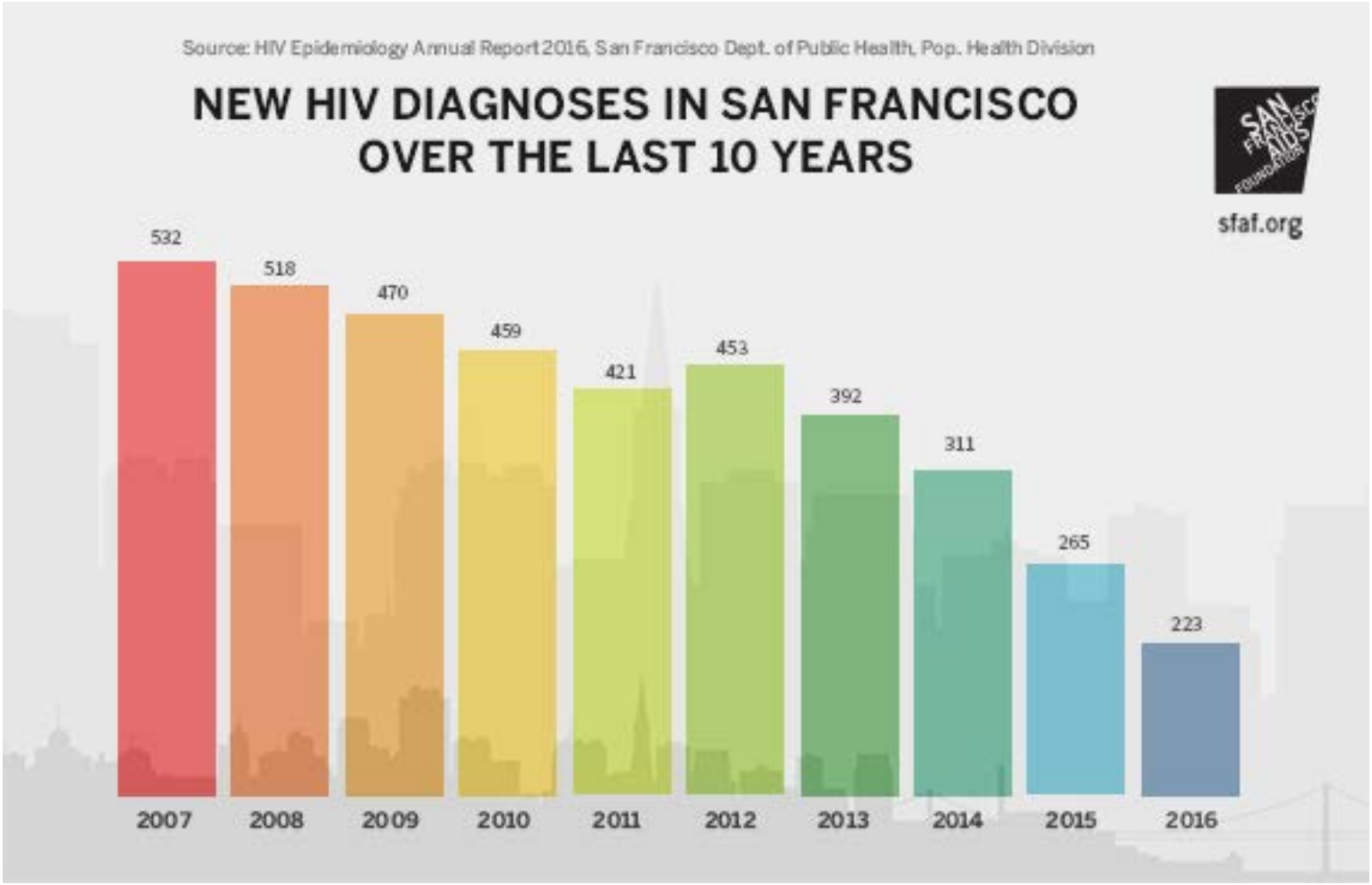
Declining HIV Diagnoses in Gay Men in UK

Figure 1. New HIV diagnoses in the UK, by risk group, 2007-2016, United Kingdom



Public Health England. *Health Protection Report Advanced Access Report* Volume 11 Number 35
3 October 2017

Declining HIV Incidence in San Francisco



Treatment Scale-up Does Not Necessarily = Reduced Incidence

- 30% increase in ART coverage in East and Southern Africa from about 24% in 2010 to about 54% in 2015
  - Resulted in 36% decrease in annual HIV-related deaths
  - But no significant decline in estimated adult new HIV infections. *(UNAIDS 2016)*
- UTT study in rural South Africa (ANRS 12249 TasP trial) found no reduction in HIV incidence following intervention *(Iwuji et al. AIDS 2016)*
- In cities, such as Amsterdam, London, and Paris, where 90-90-90 targets have been reached, a reduction in HIV incidence has not been shown across the board *(Baggely et al. JIAS 2016)*
- Population-level declines in incidence mask sub-group increases

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Reductions in HIV Incidence: Off Target

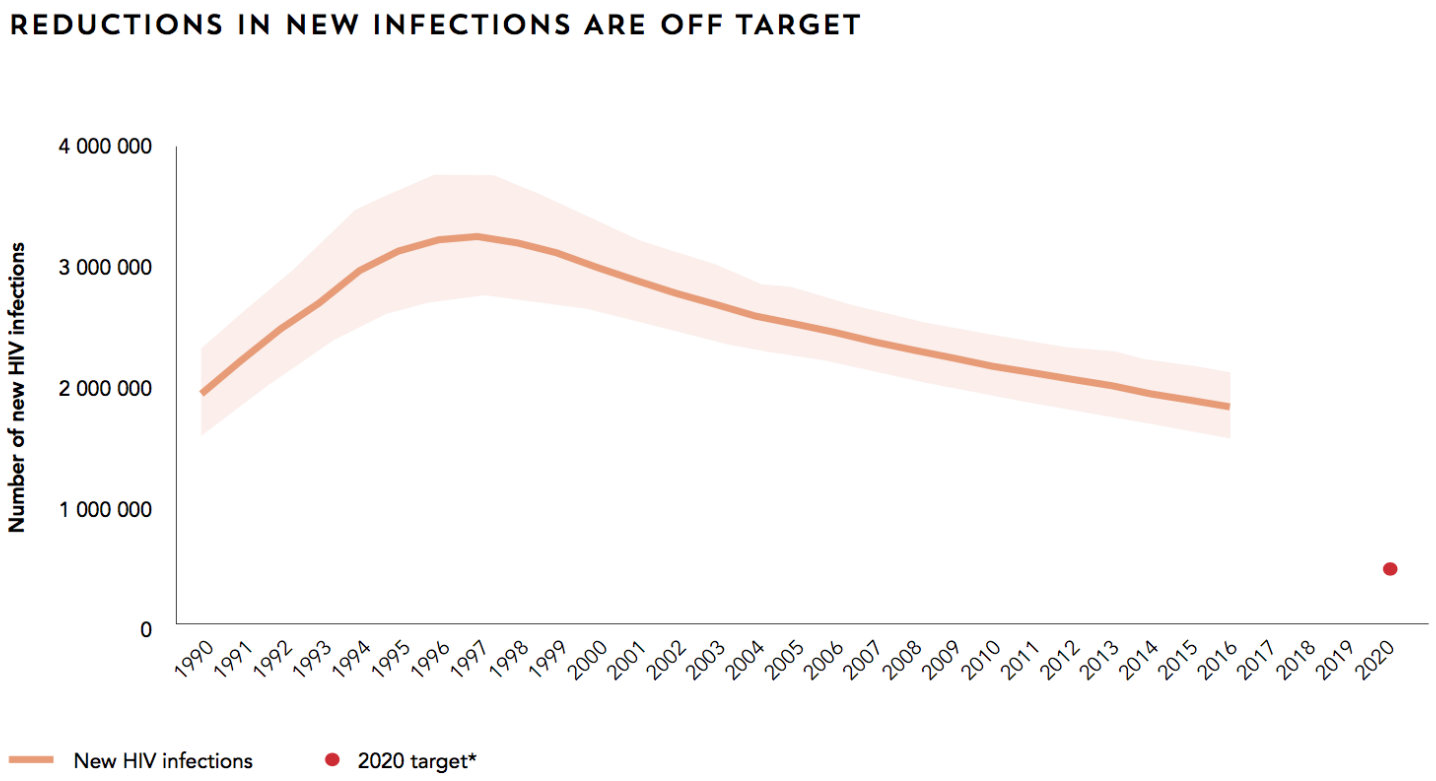


FIGURE 2.4. NEW HIV INFECTIONS, ALL AGES, GLOBAL, 1990–2016 AND 2020 TARGET

Source: UNAIDS 2017 estimates.

*The 2020 target is fewer than 500 000 new HIV infections, equivalent to a 75% reduction since 2010.

UNAIDS *Ending AIDS: Progress Toward the 90-90-90* report (2017)

Regional Differences in HIV Incidence Reductions

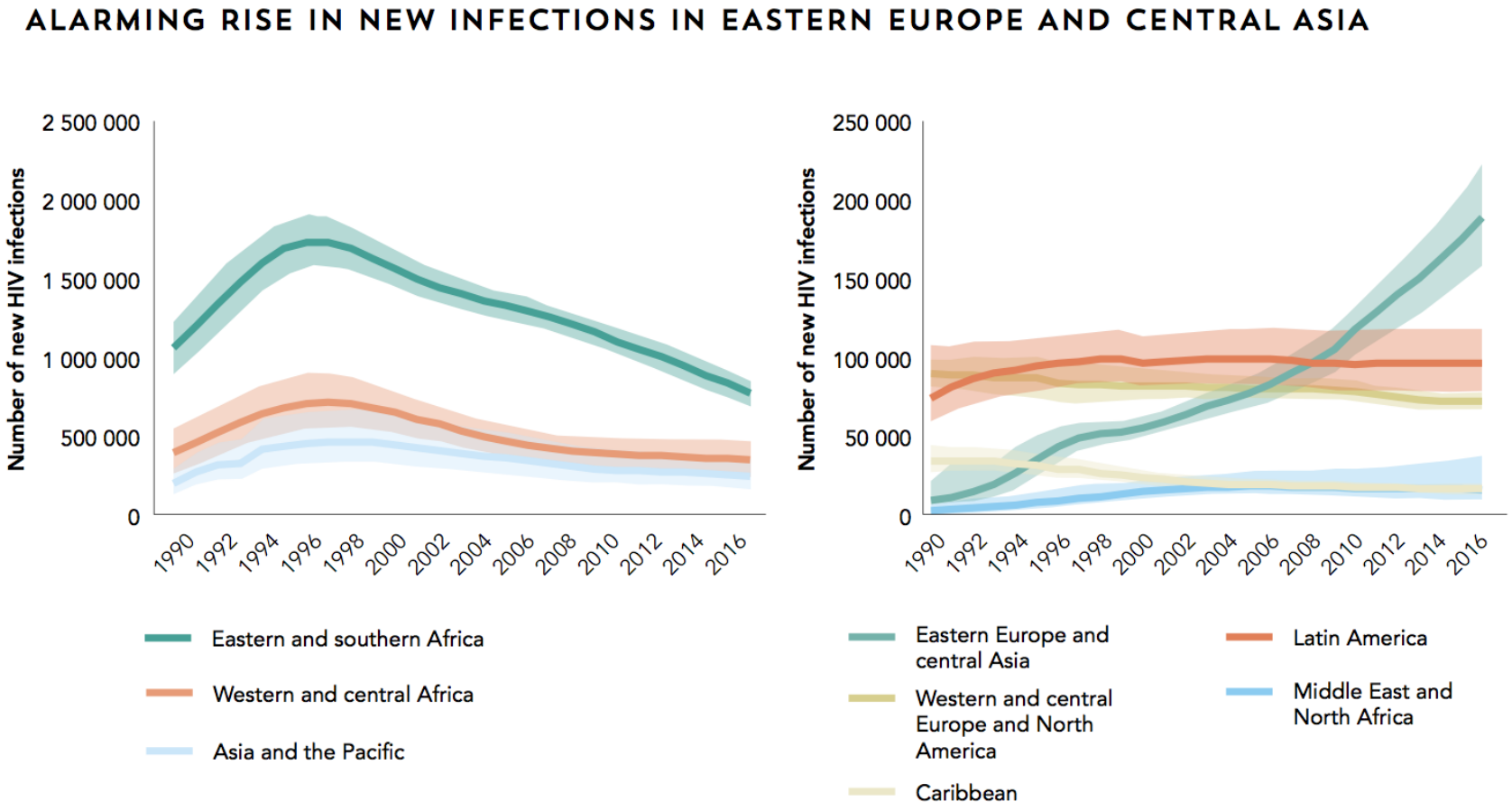
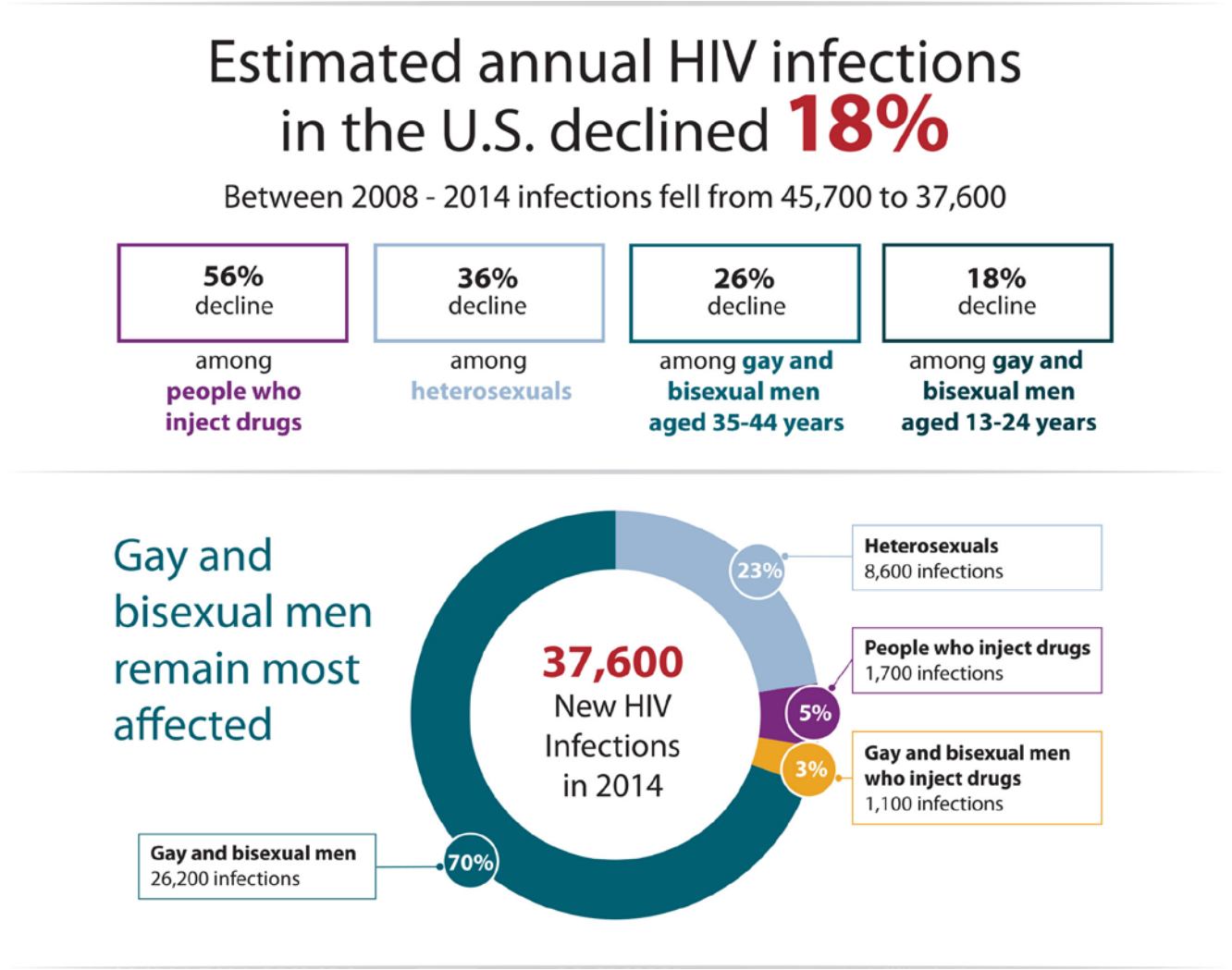


FIGURE 2.7. NEW HIV INFECTIONS, ALL AGES, BY REGION, 1990–2016

Source: UNAIDS 2017 estimates.

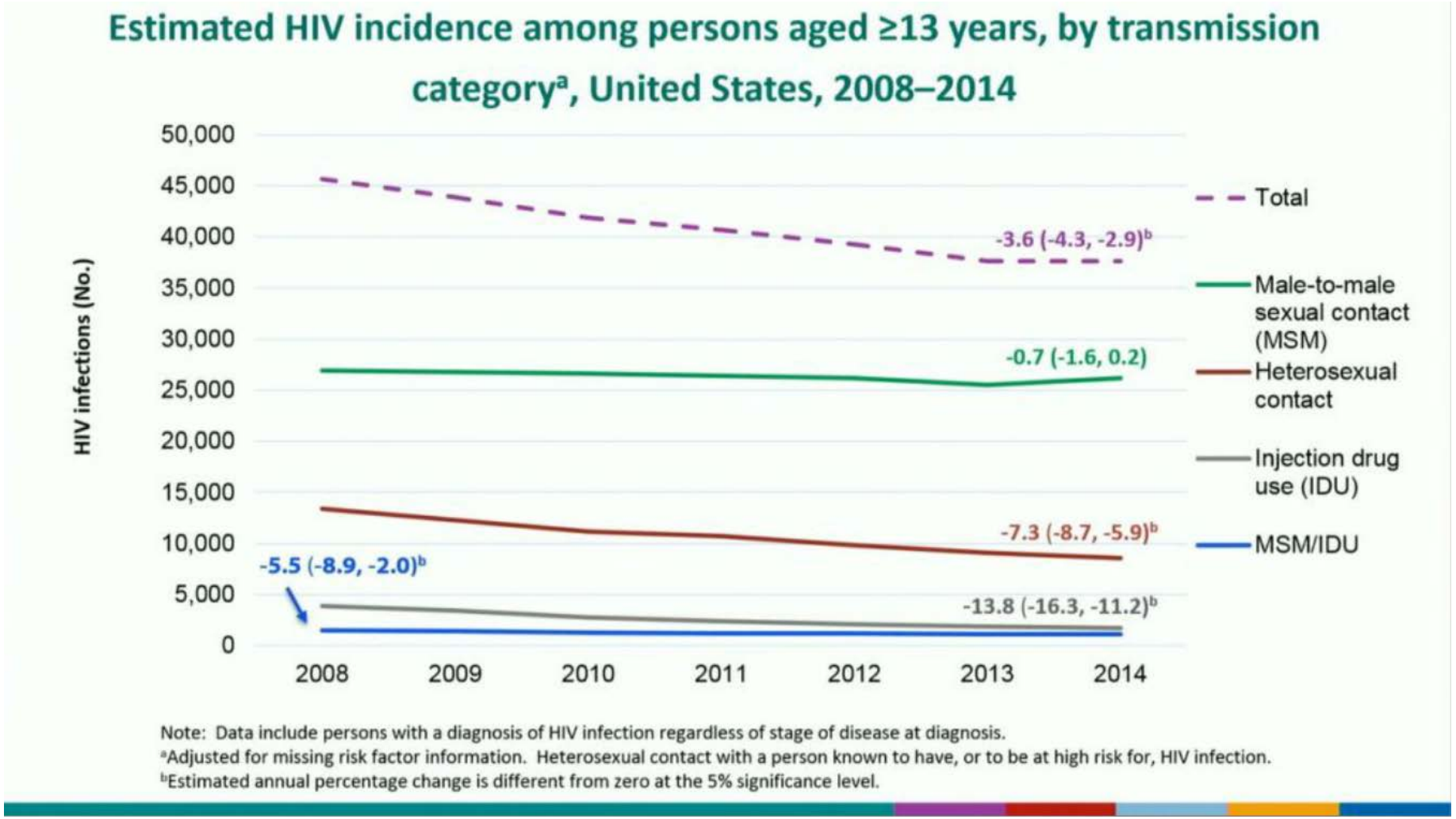
UNAIDS *Ending AIDS: Progress Toward the 90-90-90* report (2017).

The U.S. Example



https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics

HIV Incidence Disparities: Transmission Category



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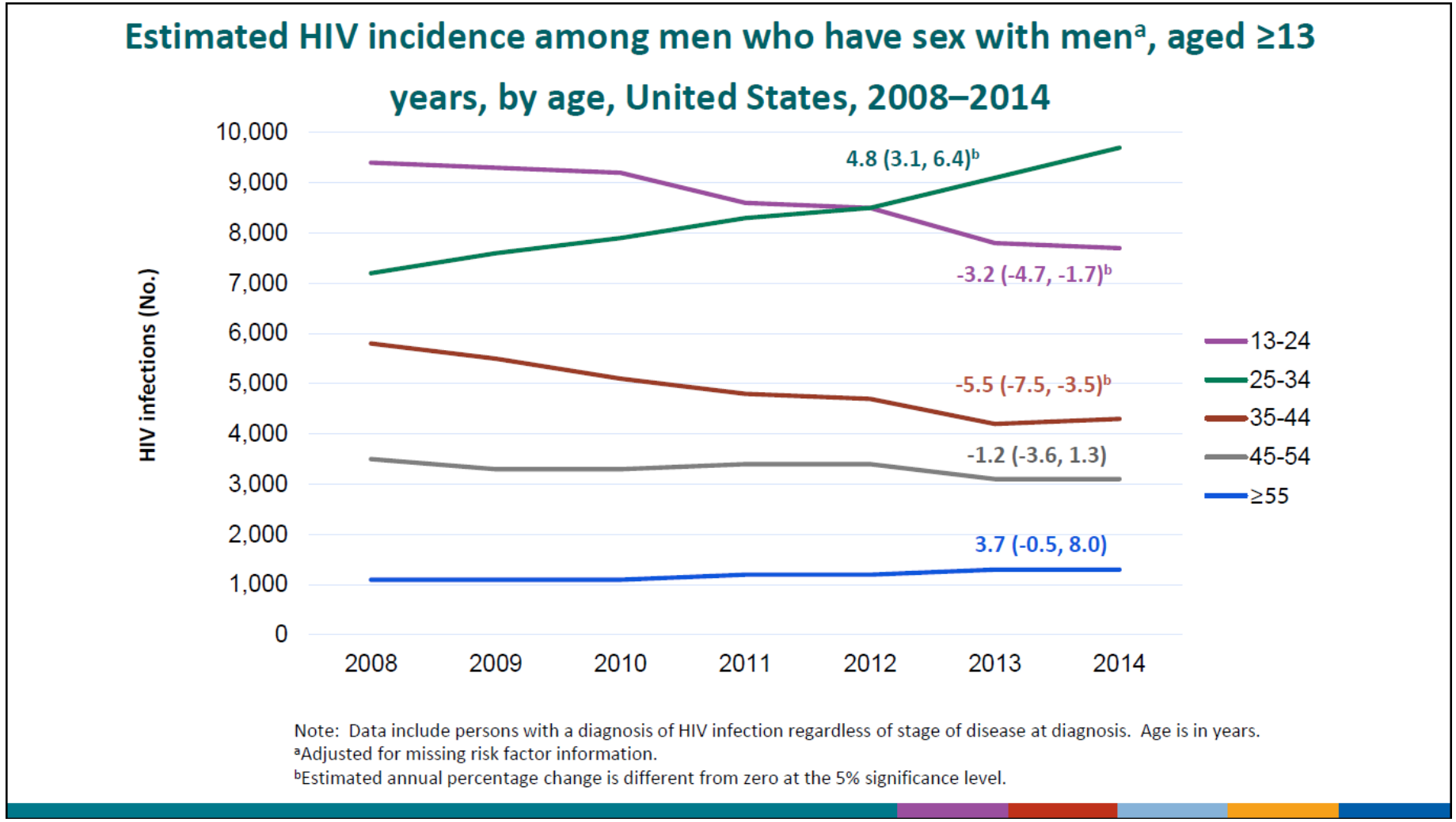
HIV Incidence Disparities Within G/MSM by Age



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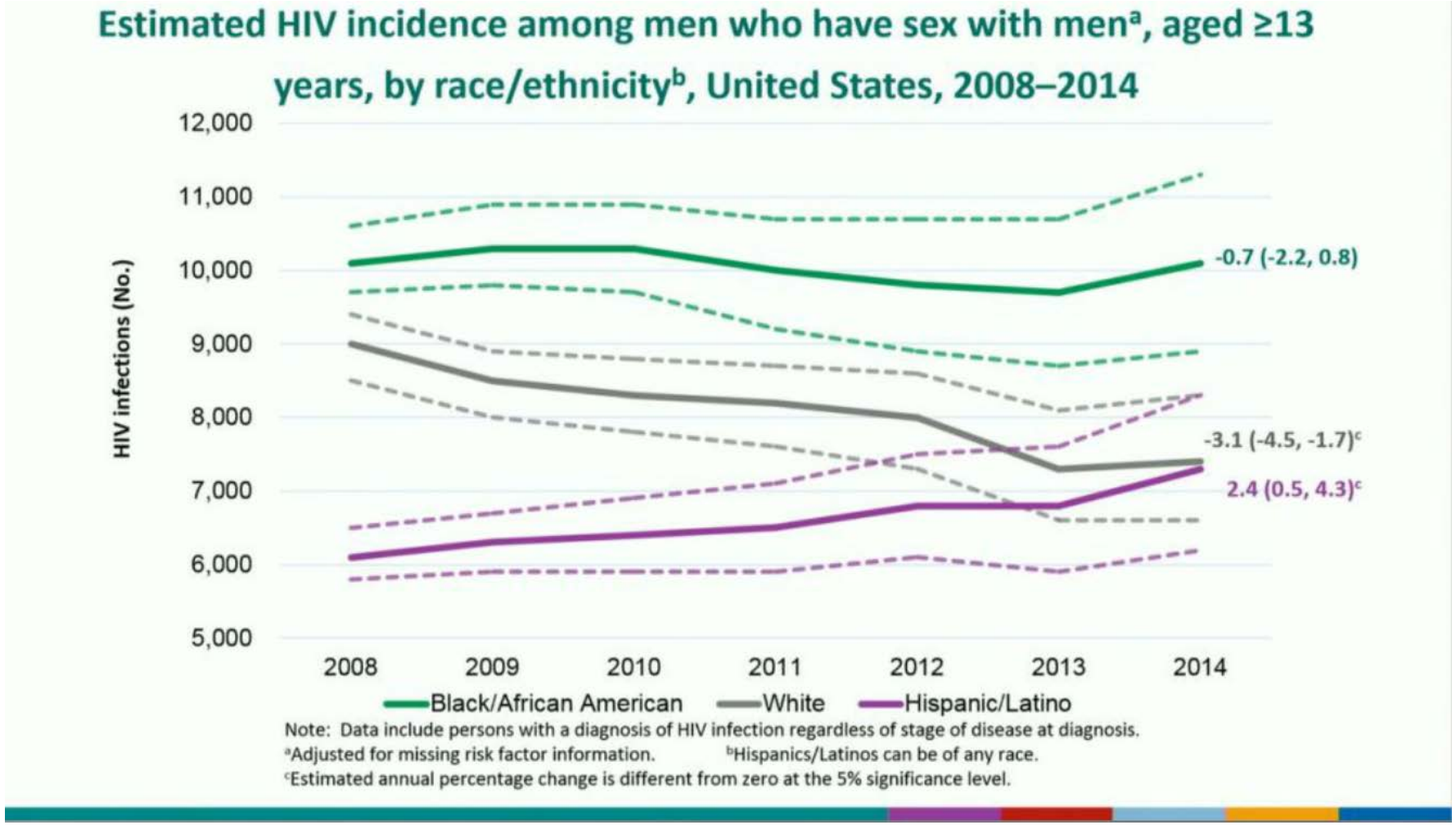
HIV Incidence Disparities Within G/MSM By Race



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6. 90-90-90 Targets Focus on HIV-infected People; But HIV-uninfected People Also Matter; and PrEP is not the only Prevention Strategy for Them

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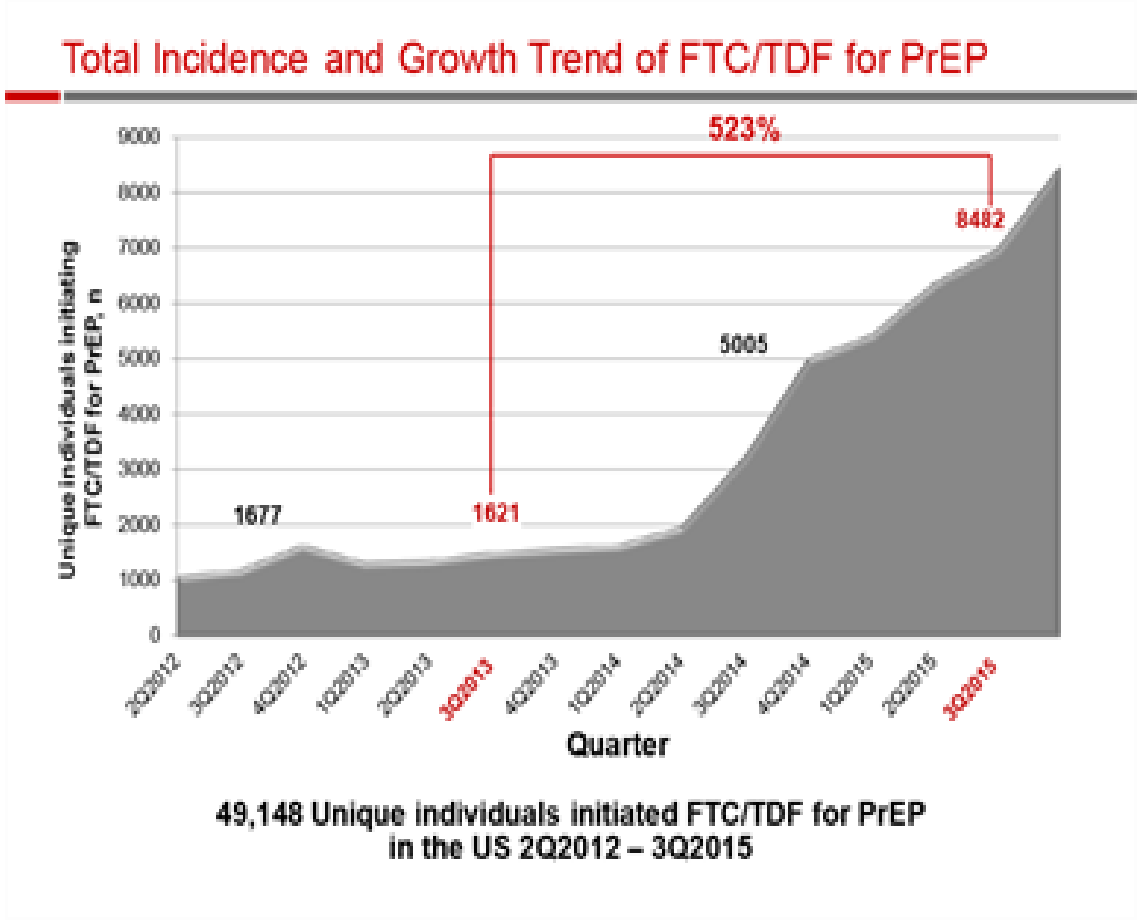
Race & Gender Disparities in PrEP Use in the U.S.



Total = 49,158 between 2012 & 2015

523% increase between 2013 & 2015

Of 44% with race/ethnicity data:

- Whites = 74%
- Hispanics = 12%
- African Americans = 10%
- Asians = 4%
- % African American dropped from 12% to 10%
- % Women declined from 49% to 11%
- Black women 4x less likely than white women

8% < 25 years old.

Bush S, Magnuson D, Rawlings MK, et al. Racial characteristics of FTC/TDF for pre-exposure prophylaxis users in the U.S. Paper presented at: 2016 ASM Microbe; June 16-20, 2016; Boston. Session 371.

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Lack of Awareness is Barrier to PrEP Uptake Among Women

AIDS PATIENT CARE and STDs
Volume 29, Number 2, 2015
© Mary Ann Liebert, Inc.
DOI: 10.1089/apc.2014.0142

Knowledge, Attitudes, and Likelihood of Pre-Exposure Prophylaxis (PrEP) Use Among US Women at Risk of Acquiring HIV

Judith D. Auerbach, PhD,[1] Suzanne Kinsky, MPH,[2] Gina Brown, MSW,[3] and Vignetta Charles, PhD[4]

AIDS PATIENT CARE and STDs
Volume 28, Number 12, 2014
© Mary Ann Liebert, Inc.
DOI: 10.1089/apc.2014.0003

Perspectives on HIV Prevention Among Urban Black Women: A Potential Role for HIV Pre-Exposure Prophylaxis

Charlene A. Flash, MD, MPH,[1] Valerie E. Stone, MD, MPH,[2] Jennifer A. Mitty, MD, MPH,[3,4]
Matthew J. Mimiaga, ScD, MPH,[4,5] Kathryn T. Hall, PhD,[6] Douglas Krakower, MD,[3] and Kenneth H. Mayer, MD[3,4]

Original research article

INTERNATIONAL JOURNAL OF STD & AIDS

International Journal of STD & AIDS
2016, Vol. 27(10) 873–881

DOI: 10.1177/0956462415601304
std.sagepub.com
SAGE

HIV risk and awareness and interest in pre-exposure and post-exposure prophylaxis among sheltered women in Miami

Susanne Doblecki-Lewis[1], Larissa Lester[2], Bryanna Schwartz[2], Constance Collins[3], Rai Johnson[3] and Erin Kobetz[4]

Journal of AIDS & Clinical Research
ISSN: 2155-6113

Goparaju et al., J AIDS Clin Res 2017, 8:9
DOI: 10.4172/2155-6113.1000730

Research Article OMICS International

Stigma, Partners, Providers and Costs: Potential Barriers to PrEP Uptake among US Women

Lakshmi Goparaju*#, Nathan C Praschan#, Lari Warren-Jeanpiere, Laure S Experton, Mary A Young and Seble Kassaye

Georgetown University, Washington, D.C., USA
#Both share first authorship

Walters et al. Harm Reduction Journal (2017) 14:40
DOI 10.1186/s12954-017-0166-x

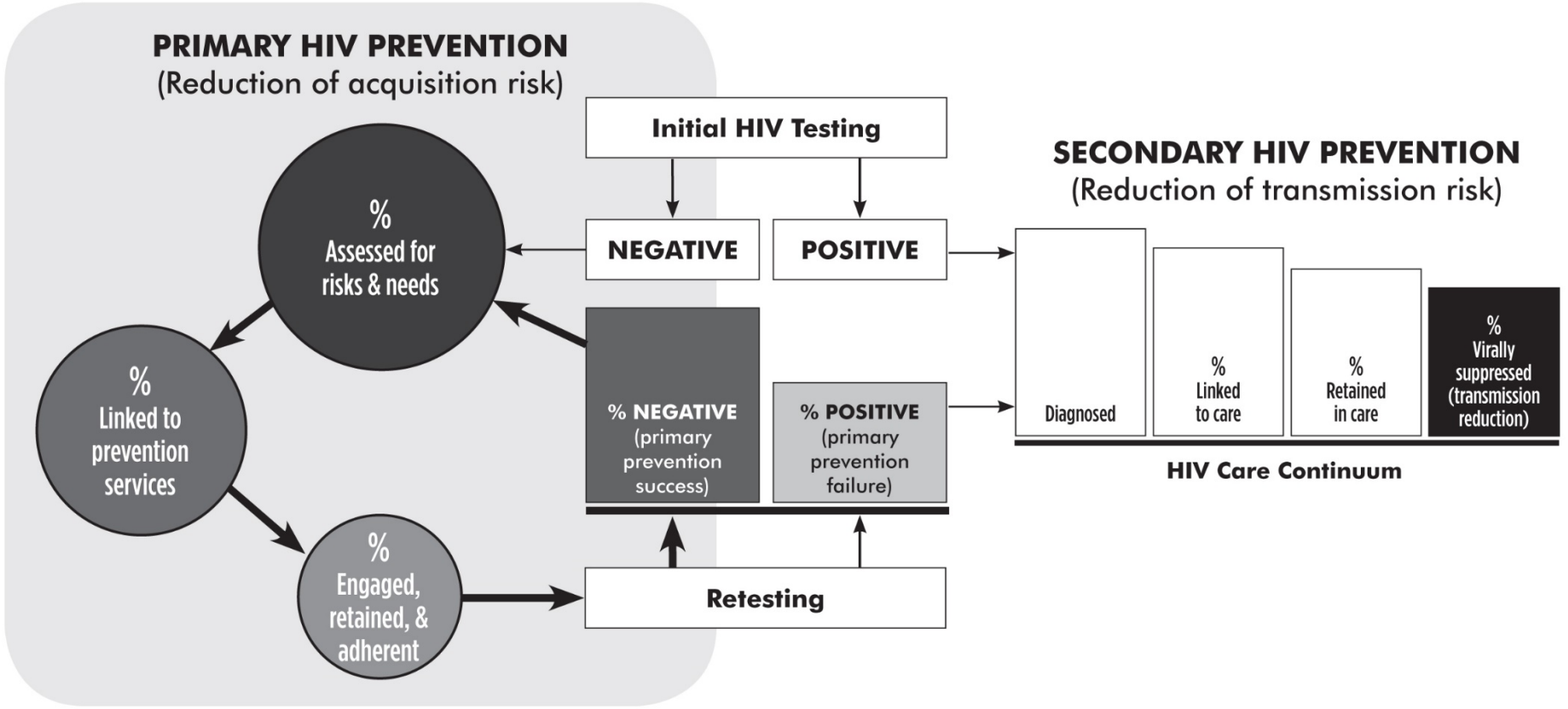
Harm Reduction Journal

RESEARCH Open Access

Awareness of pre-exposure prophylaxis (PrEP) among women who inject drugs in NYC: the importance of networks and syringe exchange programs for HIV prevention

Suzan M. Walters[1,4*], Kathleen H. Reilly[2], Alan Neaigus[3] and Sarah Braunstein[2]

Comprehensive HIV Prevention Process Model



Horn T, Sherwood J, Remien RH, Nash D, Auerbach JD, et al. Towards an integrated primary and secondary HIV prevention continuum for the United States: a cyclical process model. J Int AIDS Soc. 2016 Nov 17;19(1):21263. doi: 10.7448/IAS.19.1.21263.

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7. Getting to Zero Requires More than Scale-up and Implementation Science

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Need to Understand and Address Co-occurring Conditions, Stigma & Discrimination, and Policy Shifts

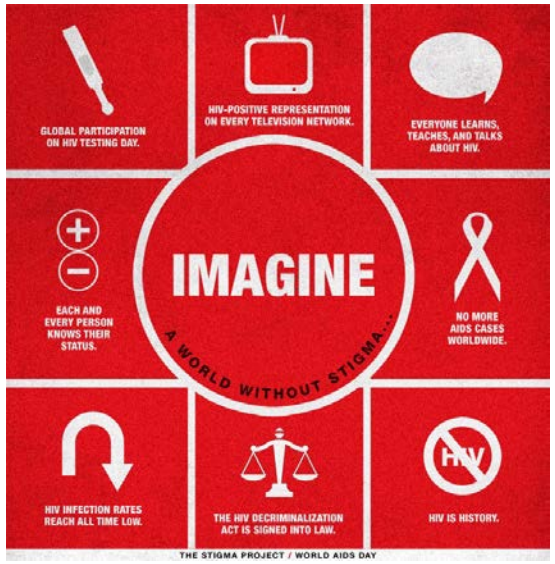
Addressing Structural Barriers to HIV Care among Triply Diagnosed Adults: Project Bridge Oakland

Christina Powers, Megan Comfort, Andrea M. Lopez, Alex H. Kral, Owen Murdoch, and Jennifer Lorvick

People who are "triply diagnosed" with HIV, mental health issues, and substance-related disorders face tremendous barriers connecting to and remaining in HIV care. Authors of this article implemented Project Bridge Oakland (PBO), an intervention based on harm reduction and trauma-informed care, to help maintain continuity of care for triply diagnosed adults through cycles of criminal justice involvement. From August 2011 to December 2014, a clinical social worker and an HIV physician provided intensive case management for 19 clients living in Oakland, California. By working with clients across a multitude of community, clinic, and correctional spaces while maintaining a low threshold for services, the social worker was able to engage a severely marginalized population in HIV care. This article details the PBO strategies for assisting with a wide range of services needed for community stabilization, navigating criminal justice involvement, and establishing a therapeutic relationship through mundane practices such as eating and waiting for appointments. This article illustrates how programs aimed at stabilizing triply diagnosed clients in the community and connecting them to HIV care require coordination among providers, outreach to engage clients, ample time to work with them, and flexibility to account for the complexities of their day-to-day lives and experiences.

KEY WORDS: *case management; HIV; homelessness; incarceration; mental health*

Health Soc Work 2017 Mar 14:1-9. doi: 10.1093/hsw/hlx013. [Epub ahead of print]



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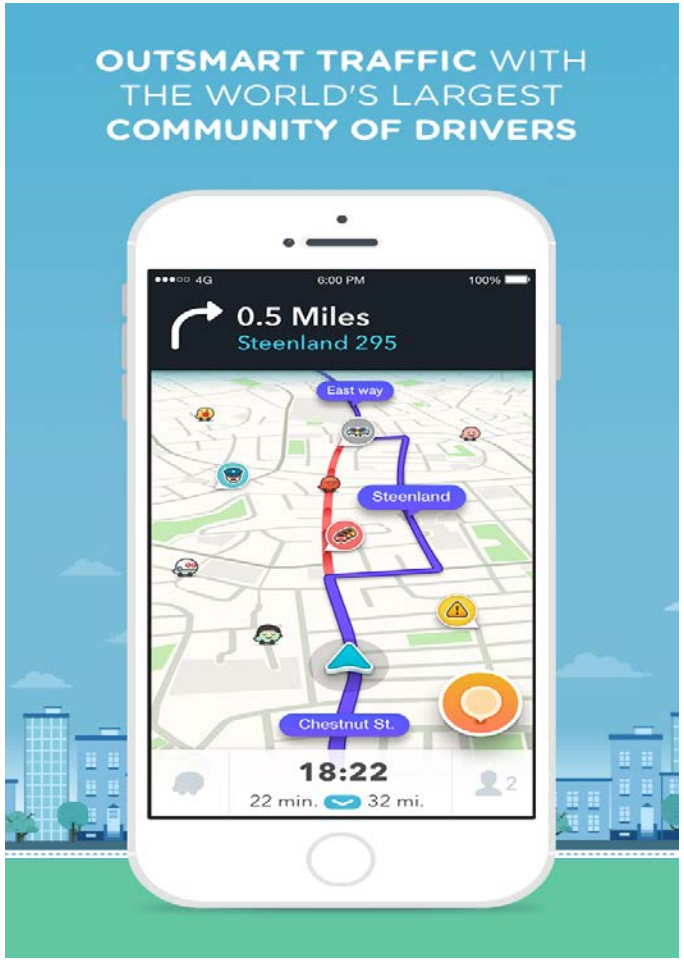
Need to Navigate Complex Environments



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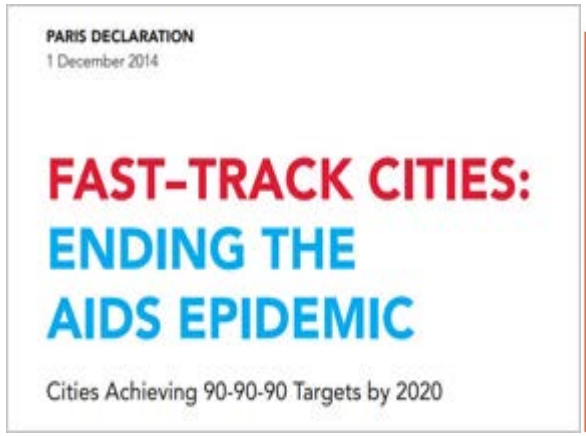
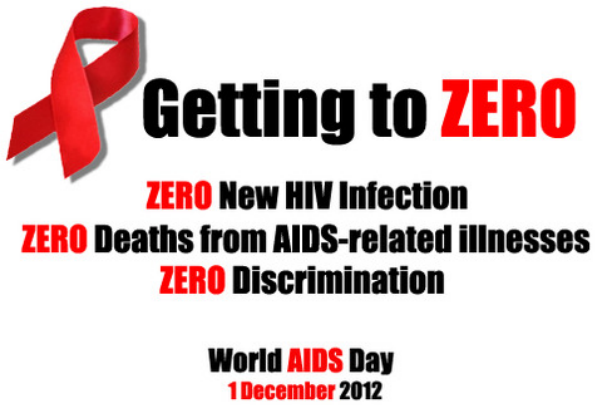
From 10/20/30 to Zero in . . . .





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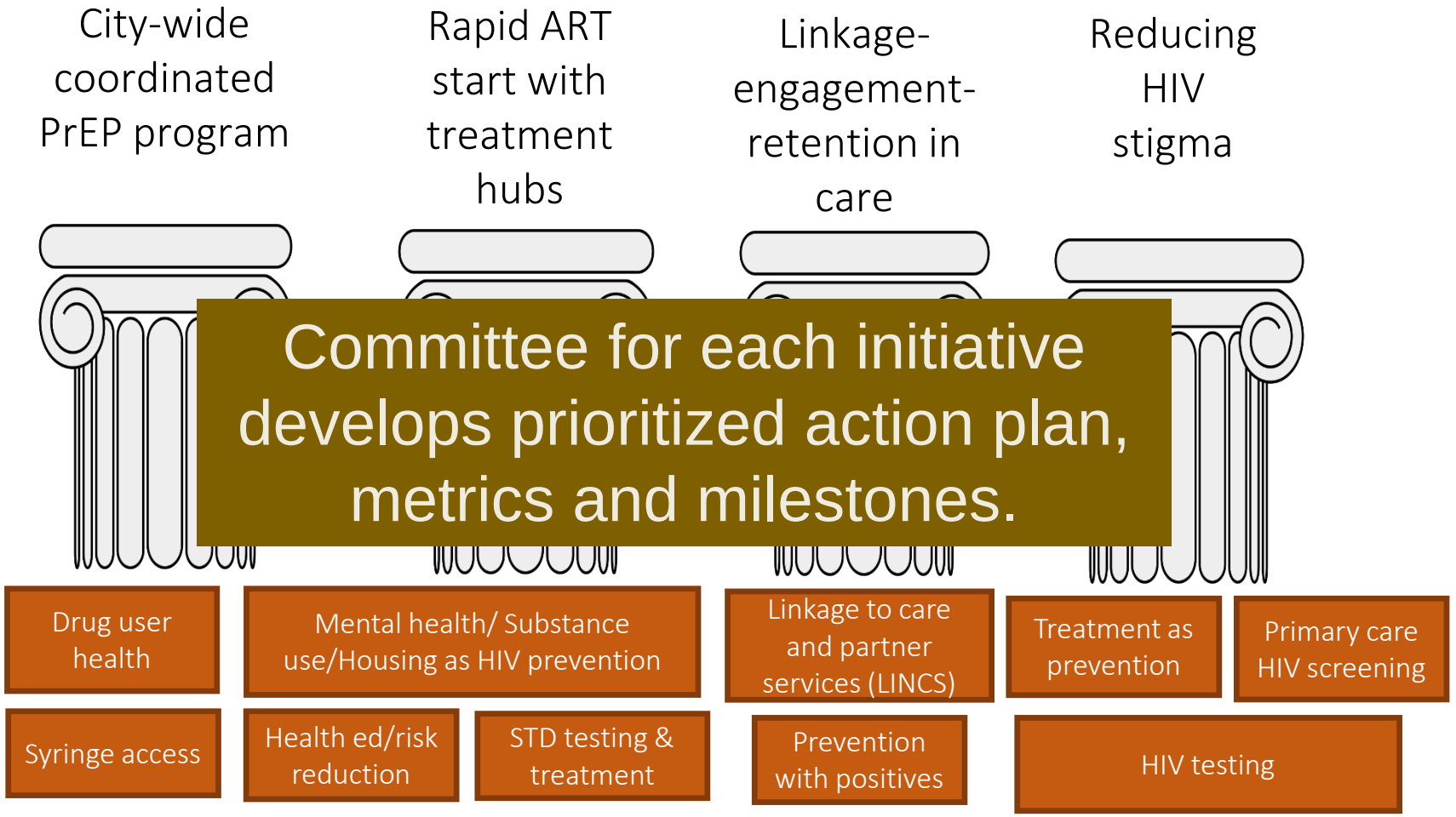
Strategic Priorities for San Francisco Getting to Zero Consortium



Susan Buchbinder, IAS 2017

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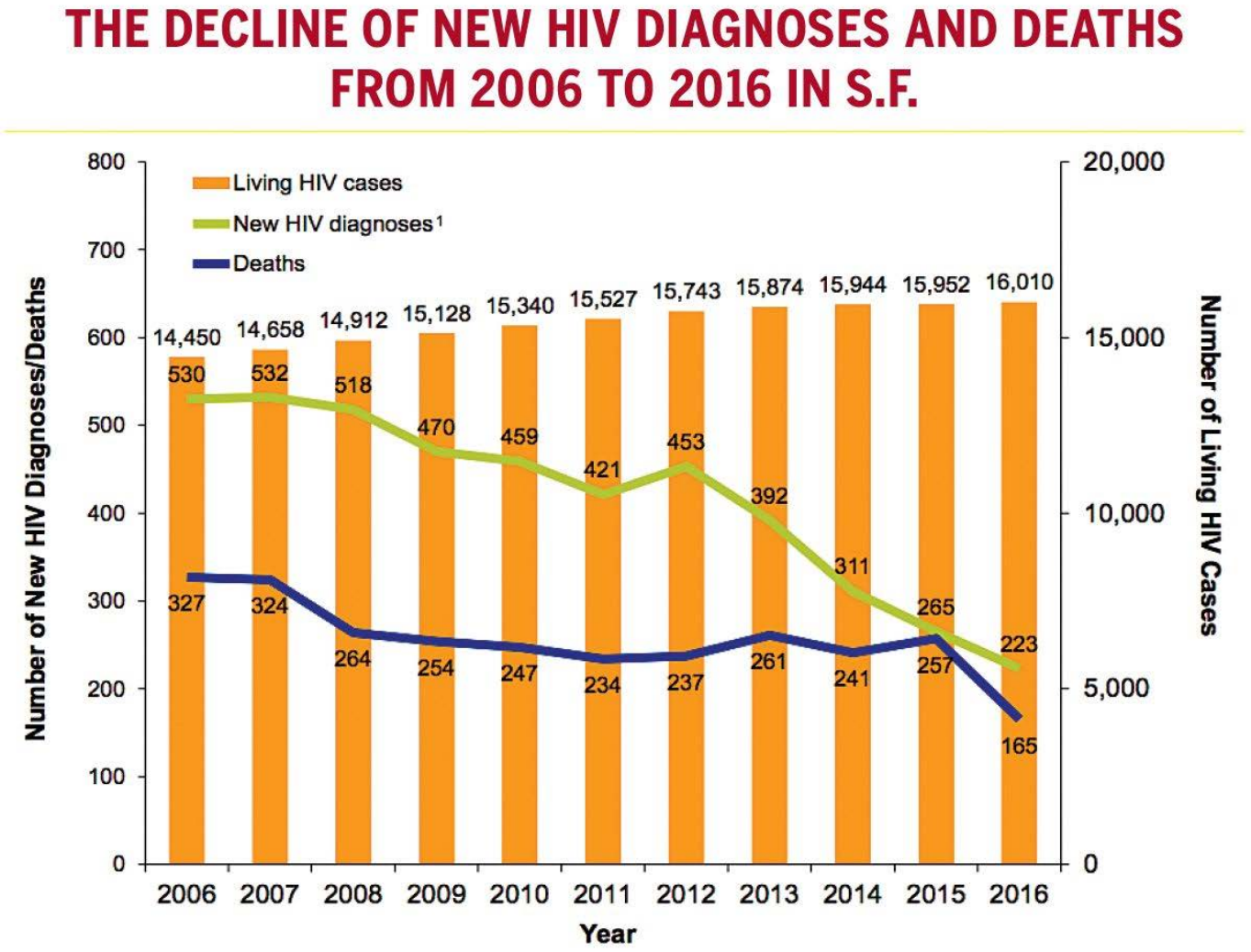
New HIV Diagnoses and Deaths Declining in S.F.



HIV Epidemiology Annual Report 2016, SFDPH

The Centers for Disease Control and Prevention reported an 18 percent reduction nationally in new HIV infections over six years (from 2008 to 2014), while San Francisco reports a 16 percent reduction last year alone, and a 49 percent reduction in the past four years (from 2012 to 2016).

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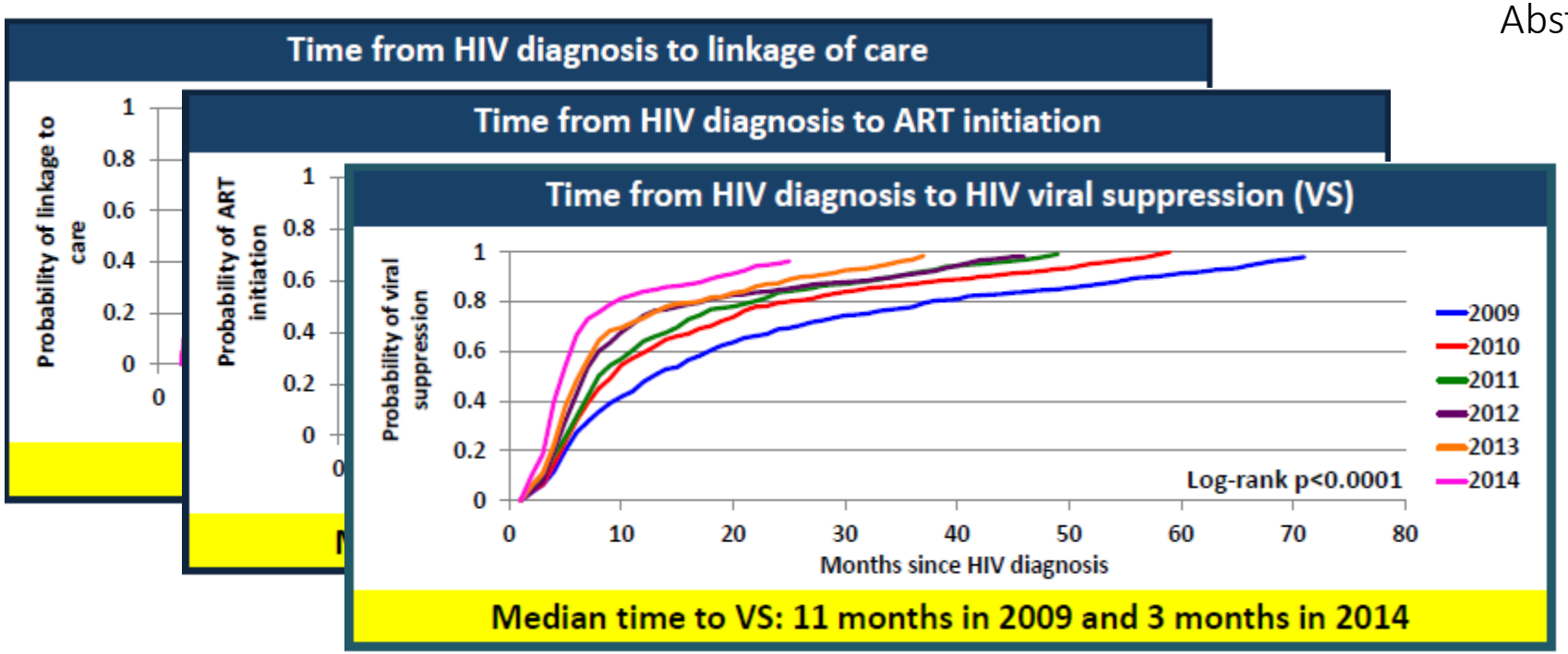
Progress in the HIV Continuum: S.F.

Hessol, CROI 2017
Abstract #910



Indicator	2009 to 2014	P-value
Linked to care within 3 months of diagnosis	86% to 92%	0.02
Retained in care within 6-12 months of linkage	70% to 73%	0.31
Initiated ART within 12 months of diagnosis	63% to 91%	<0.0001
Virally suppressed within 12 months of diagnosis	49% to 82%	<0.0001
Developed AIDS within 3 months of diagnosis	27% to 16%	0.0006
Died within 12 months of diagnosis	3% to 1%	0.06

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If all goes well, when we get to zero, we can say . . .

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8. $90-$90-$90: Success Requires Sustained Funding

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Cost and Funding

- Unaffordable drug prices are a major barrier to achieving the 90-90-90 goals Gotham TUAD0104
- Large increases in treatment coverage will require medicine prices to be cut
- Countries and donors should aim for a new $90-$90-$90 target on HIV, viral hepatitis and TB drug prices – Andrew Hill, University of Liverpool
- Analysis of prices paid for the raw materials and manufacturing costs of drugs
- This shows that each disease can be treated for $90 per year, as long as generics are used and prices are effectively negotiated
- Patents have expired on TDF, 3TC, and EFV worldwide – this combination should be available in *all* countries for less than $90 per year
- Generic drugs, government commitment, price negotiation, civil society mobilisation and advocacy are important tools to reduce treatment costs

DRUG	CALCULATED TARGET (ESTIMATED ANNUAL PRICE)
Atazanavir	$126
TDF/FTC/EFV	$78
TDF/3TC/EFV	$82
Sofosbuvir	$42
TB: RHZE	$38

Adapted from IAS 2017 Toolkit Track D

Hill WESY0402

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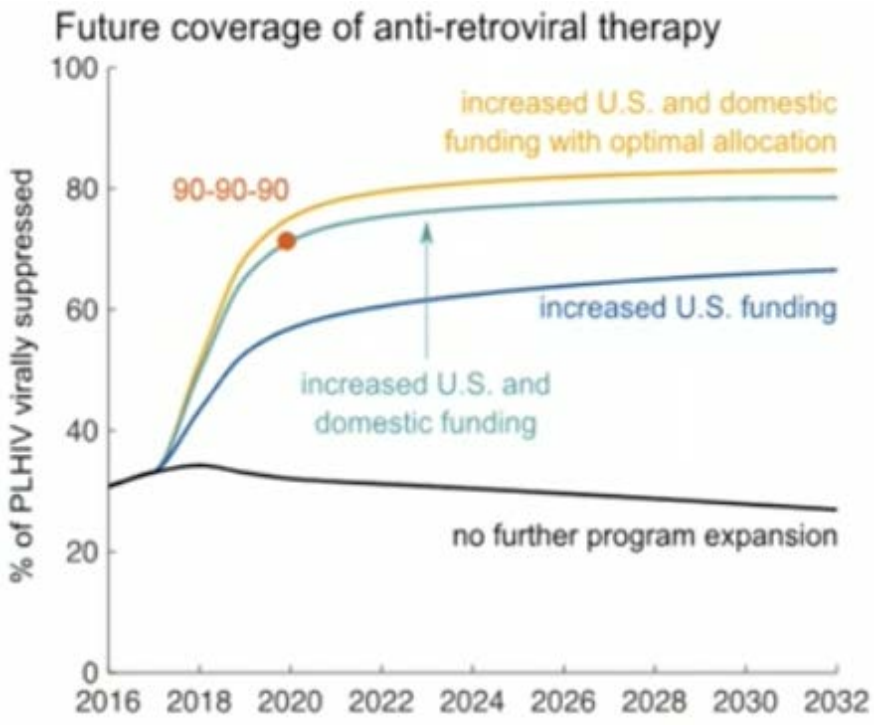
US Funding Decisions

- US government funding underpins the global AIDS response: PEPFAR and Global Fund
- President Trump's 2018 budget proposals would cut the US foreign aid budget by one-third
- Modelling study of impact of US funding decisions on epidemic in sub-Saharan Africa
- If US funding doesn't increase, no further progress to second 90 and third 90
- Worst-case scenario: a withdrawal of US funding from Global Fund and PEPFAR – up to 7.9 million more HIV infections and around 300,000 AIDS deaths by 2030
- However, modelling shows that 90-90-90 can be achieved by 2020 with a combination of increased US funding, increased domestic funding and more efficient allocation of funding



McGillen WEAD0202

Adapted from IAS 2017 Toolkit Track D

Conclusion: How to Reduce Our Travel Time

- Be clear and consistent about what we are measuring in our care continua to be sure our claims about progress towards the targets are substantiated.
- Focus much more energy on HIV testing, including repeat testing to optimizing prevention and treatment outcomes.
- Conduct more basic social research to understand the basis and persistence of HIV-associated disparities and to inform effective mitigation/elimination strategies.
- Acknowledge that ART for treatment and prevention is necessary, but not sufficient.
- Don’t forget primary prevention, including, but not limited to PrEP, for HIV-uninfected persons.
- Remember that environments are not static—witness the current political and budgetary climate in the U.S.—so our responses can’t be either.
- Develop and support local efforts that are bold, comprehensive, multi-sectoral, and adaptive to change.

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