

Contextualizing PrEP's Role in Controlling HIV

**Controlling the HIV Epidemic with ARVs
1-2 October 2015**

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Contextualizing PrEP – Controlling the Epidemic

- **Who needs PrEP?**
- **How do we optimize the impact of PrEP?**

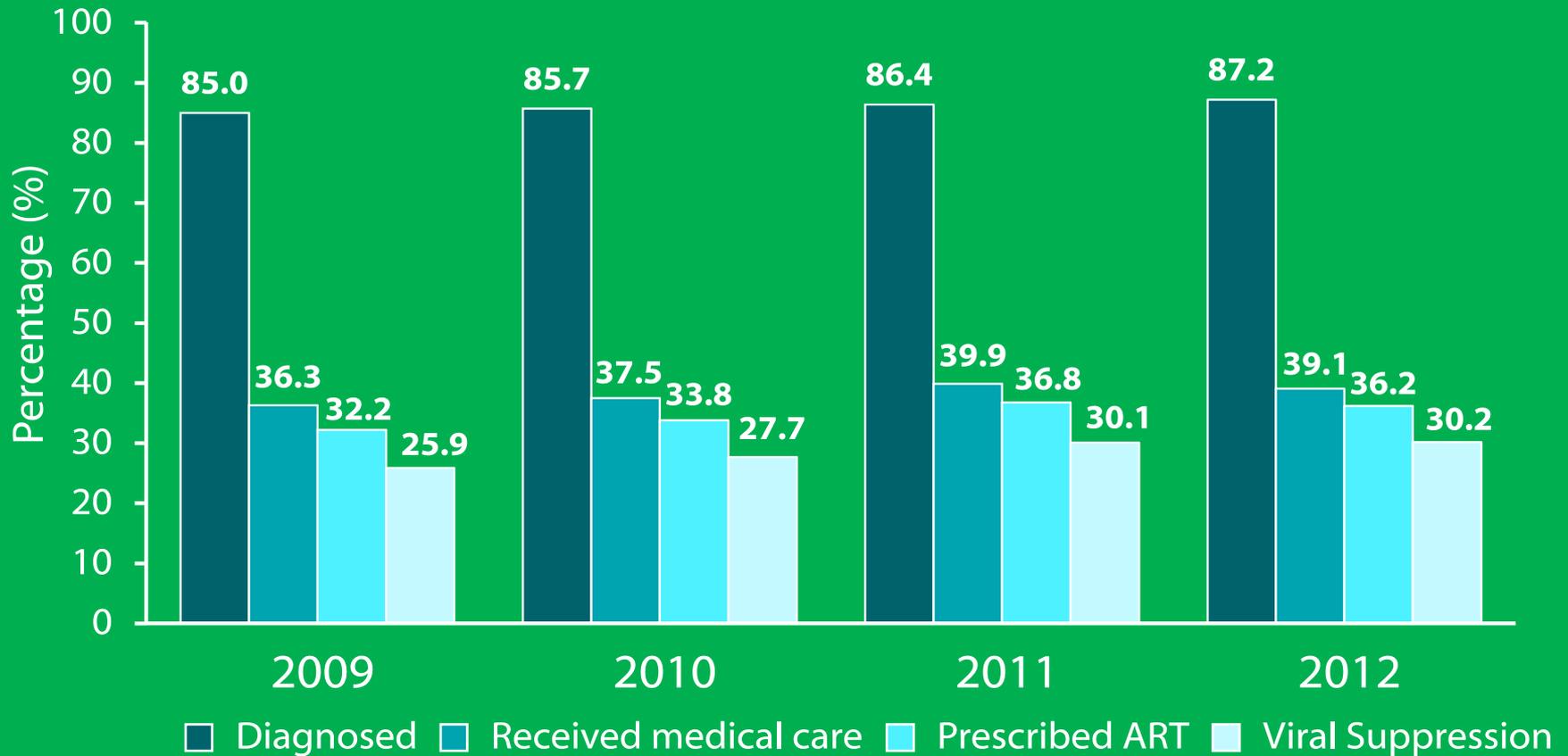
TasP: Necessary but not Sufficient

- Treatment is our first and most important intervention, but in most settings it is not enough—we need a combination prevention strategy to bring the epidemic under control
- Even in countries that are very close to achieving the UNAIDS targets (90-90-90), there is ongoing transmission, chiefly due to members of key populations who are unaware of their infection
- In most if not all countries, some form of PrEP is needed to protect people who are HIV negative but at increased risk of HIV infection

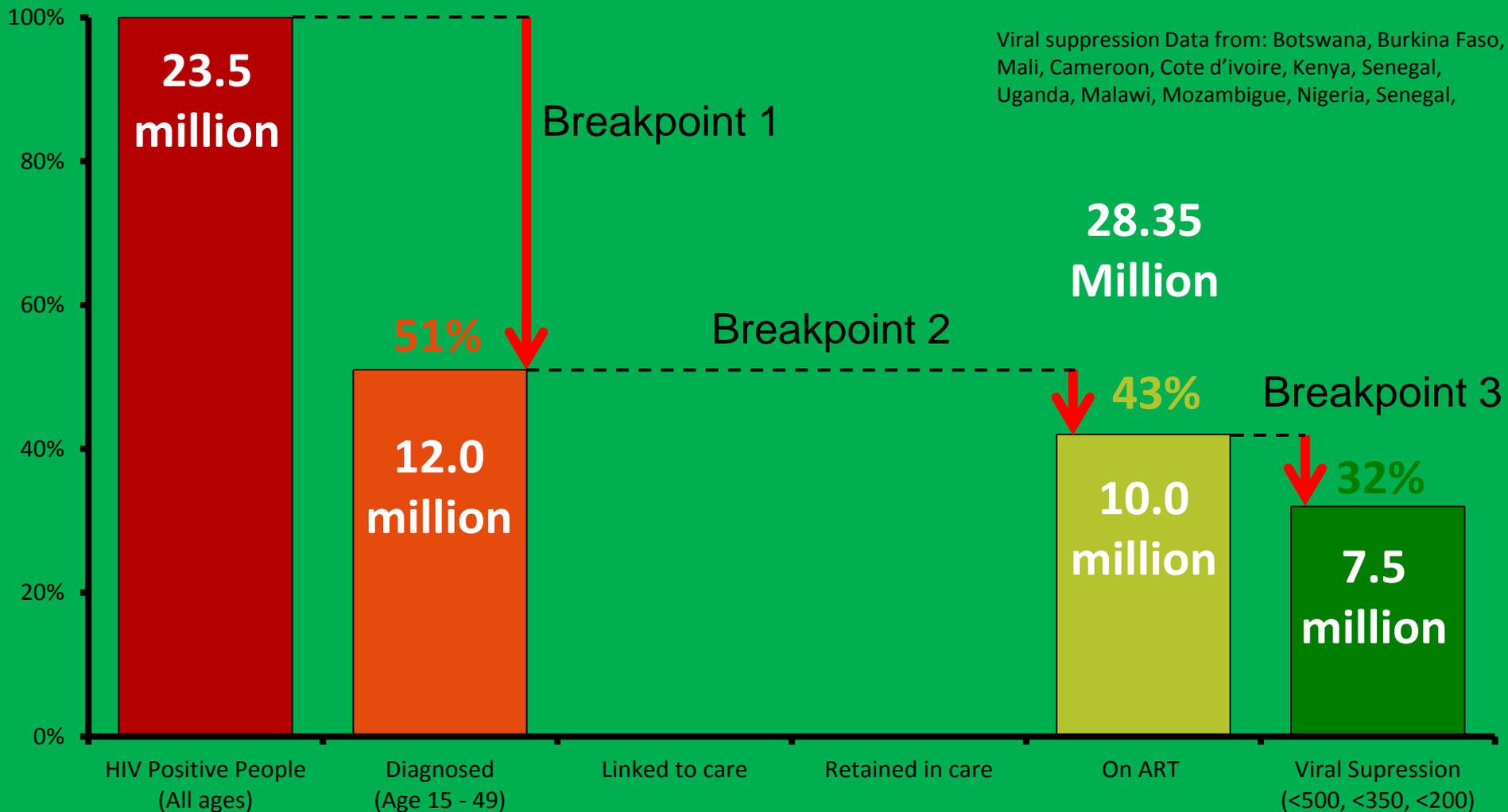
Persons Living with Diagnosed or Undiagnosed HIV Infection

HIV Care Continuum Outcomes, 2009, 2010, 2011 and 2012

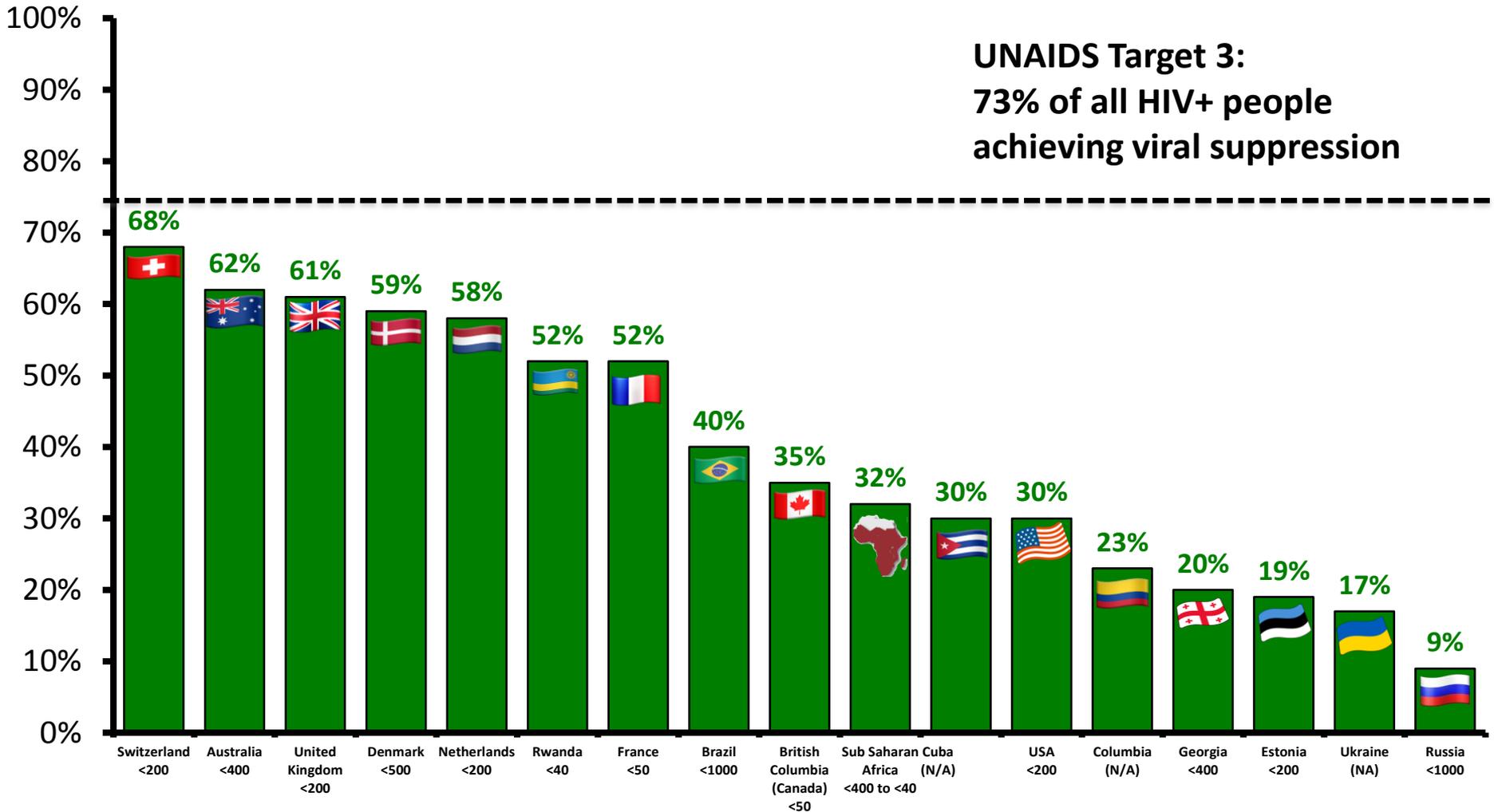
United States and Puerto Rico



Cascade of HIV care – Sub-Saharan Africa 2013 (15 – 45 years old)



90-90-90: Target 3 – Percentage of HIV+ People with HIV RNA suppression



(*SSA = Regional average)

Role of PrEP in Controlling the Epidemic

- **Who needs PrEP?**
- **How do we optimize the impact of PrEP?**

Contextualizing PrEP: Who needs it?

- There is now broad agreement that PrEP is warranted for persons at substantial risk of HIV infection but no specific definition for “substantial” has been established
- Various criteria have been used for recommending PrEP – they vary for different populations and settings
- Chief factors: the prevalence of HIV in an individual’s sexual or injection network and their level of risk taking

Contextualizing PrEP: Who needs it?

UNAIDS: Some groups to consider include:

- “gay men, sex workers, [and] young women and girls ...in very high-incidence settings...such as 2–3%.”
- Serodiscordant couples “as a bridge until viral suppression is achieved through the antiretroviral therapy of the partner living with HIV or for safer conception.”
- People who “lack the negotiating skills and power to insist on condom use”

Contextualizing PrEP: Who needs it?

UNAIDS (cont):

- People with repeated sexually transmitted infections or repeated use of post-exposure prophylaxis
- People who “periodically have a higher risk of HIV exposure, such as migrant workers and their partners, prisoners, or sex workers... [during] these periods” of increased risk

Contextualizing PrEP: Who needs it?

- **“PrEP is not for everyone...**In deciding on who should be offered PrEP, needs and benefits (HIV prevention) should be balanced with harm (possible adverse events), costs and feasibility.”
- This decision also “depends on national epidemic priorities.”

Contextualizing PrEP: Who needs it?

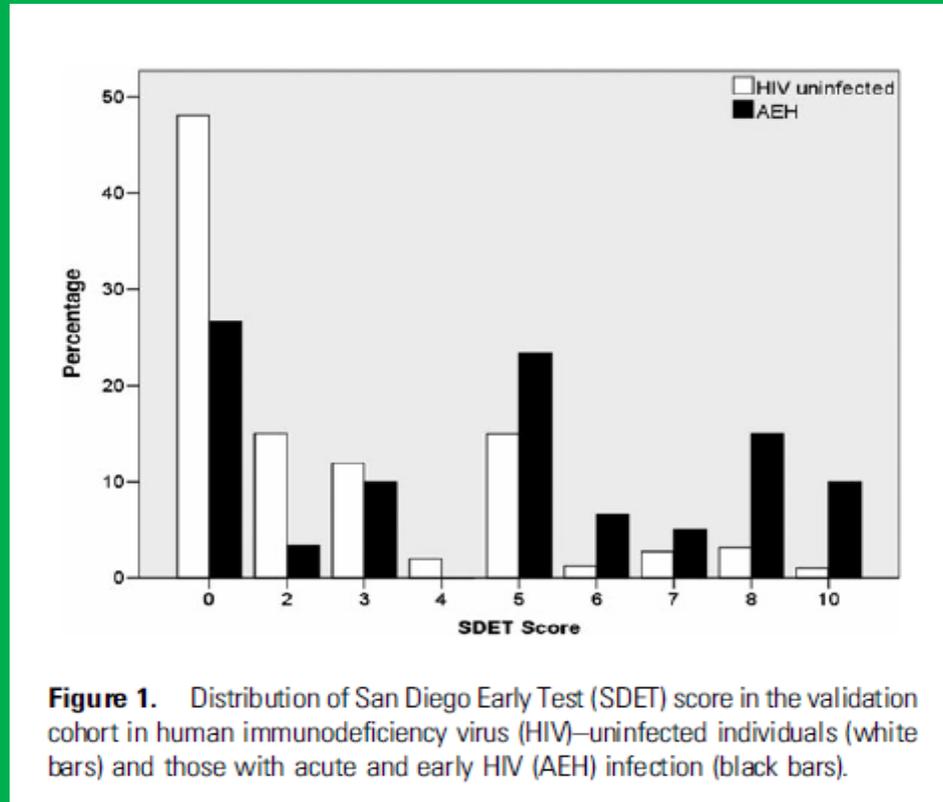
- In the US, several HIV acquisition risk scores have been developed for MSM that could potentially be used in PrEP decision-making, including:
 - Menza et al (Seattle) Score (STD 2009)
 - Smith et al (CDC) Score (JAIDS 2012)
 - SDET (San Diego) Score (CID 2015)
 - SexPro (EXPLORE-HPTN) Score (CROI 2015)
- The earlier scores are somewhat more difficult to apply
- The two newer scores have been packaged for self-assessment and reassessment over time

Contextualizing PrEP: Who needs it?

SDET (San Diego) (CID 2015)

- The San Diego acute and early HIV test score (SDET) has recently been validated for MSM in San Diego
- With 4 items, SDET is simpler than earlier scores:
 - Condomless receptive anal intercourse (CRAI) with an HIV-infected partner (3 points)
 - Combination of CRAI plus ≥ 5 male partners (3)
 - ≥ 10 male partners (2)
 - Bacterial STI (2)

San Diego Early Test (SDET) Score: Distribution in Validation Cohort



San Diego Early Test (SDET) Score: (Online) “Risk Meter”

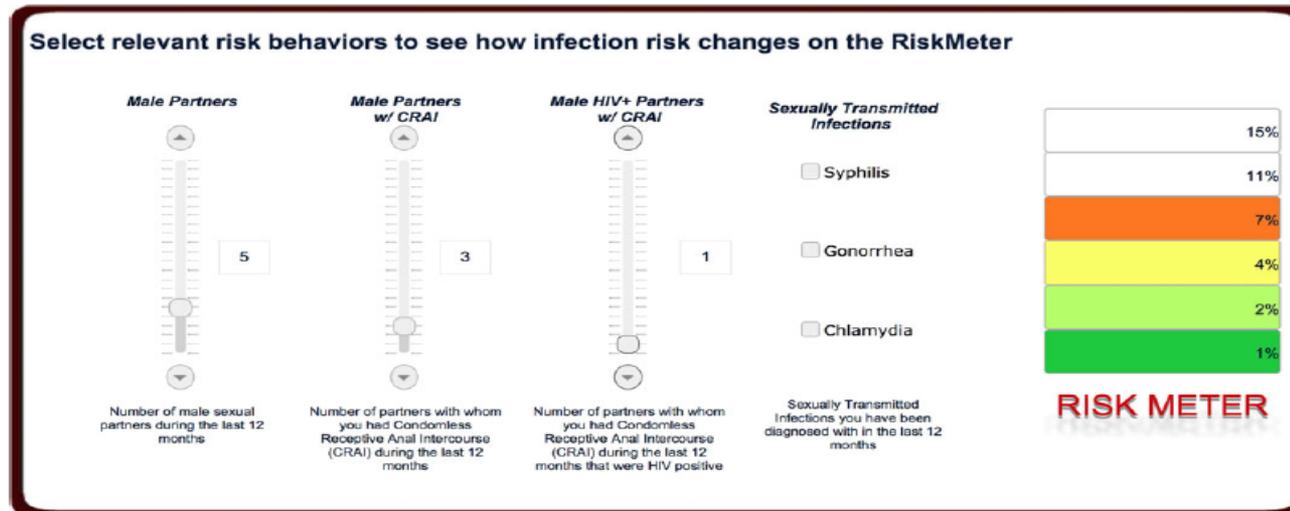
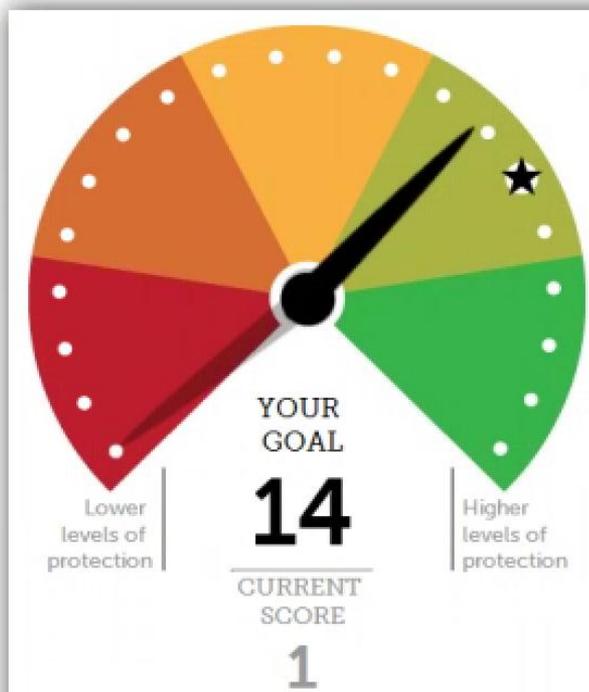


Figure 2. The San Diego Early Test (SDET) score online tool with intuitive sliders (track bars) that allow users to easily select relevant risk behaviors across the 4 dimensions central to the SDET score. After answering some basic demographic questions (used to anonymously map reported risk behavior to population-level data), users will select their risk behaviors. Once this is set, they will receive immediate feedback in terms of their current human immunodeficiency virus (HIV) risk, as indicated by the colored bars on the “risk meter.” After users receive their risk score, the online SDET tool invites them to explore how their risk changes when they change behavior. By moving the scroll bars, users see the direct impact of behavior change on their HIV risk score. If users agree, the tool automatically sends each user a reminder to participate again 12 months later, which will allow exploration of linkage between increased risk awareness and effective behavior change. Available at <http://sdet.ucsd.edu>.

SexPro (EXPLORE-HPTN) Score

Sexual Health Promotion (Sex Pro) Score



? Number of times I've had anal sex as a bottom with HIV positive men or men of unknown HIV status:

Last 3 months: 4

Next 3 months:

1

Condom Use:

Never

1/2 the time

Always

60%

? Used Meth:

Last 3 months:

Yes

Next 3 months:

NO

YES

NO

? Used cocaine:

Last 3 months:

Yes

Next 3 months:

NO

YES

NO

? Used poppers:

Last 3 months:

No

Next 3 months:

NO

YES

NO

? Have you been diagnosed with a sexually transmitted infection?

Last 3 months: Yes

Next 3 months:

YES

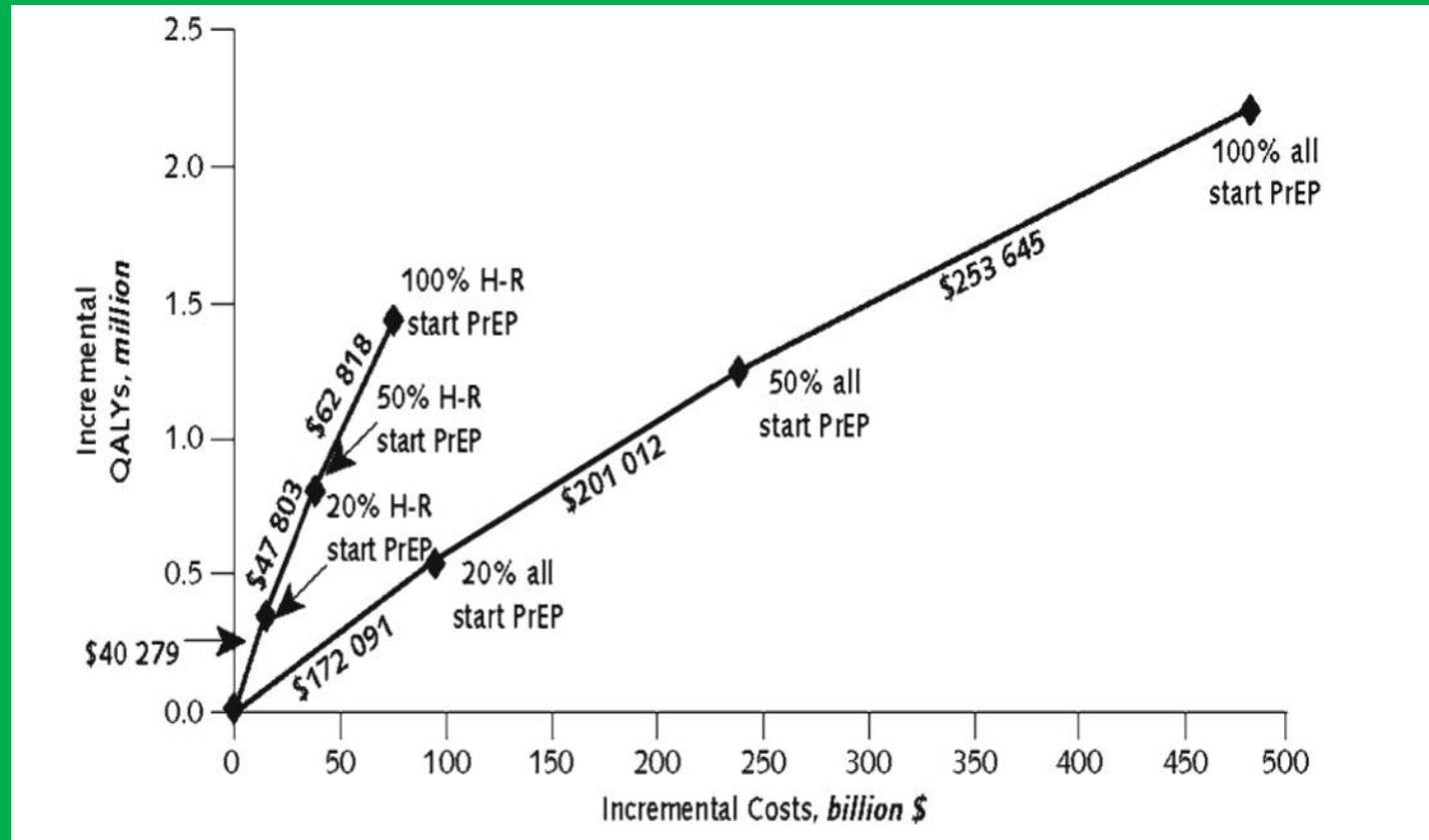
NO

How often I drink alcohol:

Contextualizing PrEP: Costs

- **The costs of PrEP must also be weighed by program planners:** PrEP will have the most impact among people at highest risk of infection, and PrEP dollars will have the greatest effect if these persons are targeted
- **Drug costs vary widely:** *From* US\$ 78 per person per year for **generic fixed-dose TDF + FTC** and US\$ 43 per person per year for **generic TDF** *to* US\$ 10 200 per person per year for **branded TDF + FTC** in high-income countries (Source: UNAIDS, 2015)
- The costs of HIV testing, adherence monitoring, and other clinical care must also be considered

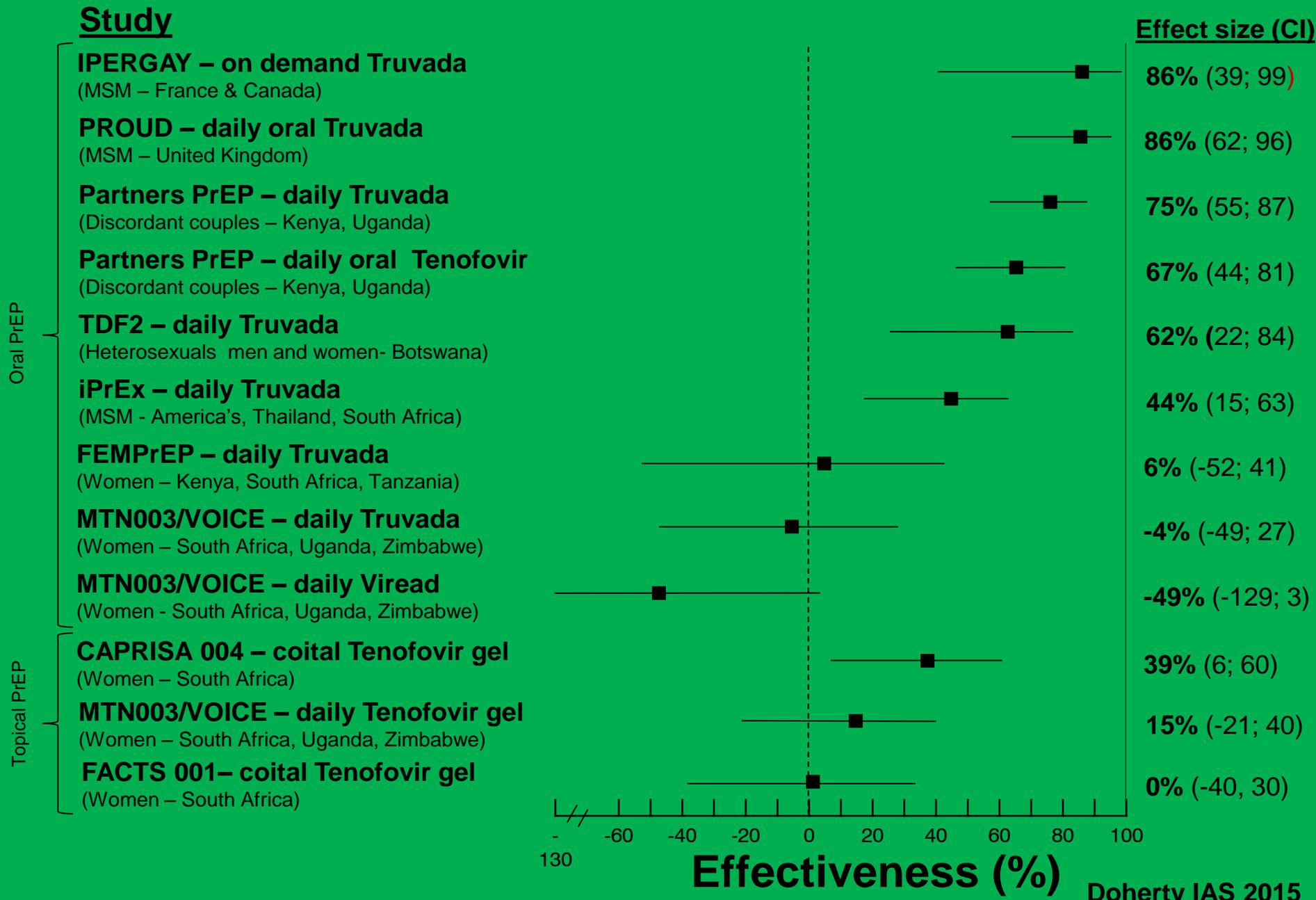
Contextualizing PrEP: Who needs it?



Contextualizing PrEP: Optimize Impact

- **Target persons at highest risk**
 - [Ideally] Assess the risk of everyone who tests HIV negative → discuss PrEP with those at higher risk
 - Perform combined epidemiologic-phylogenetic-geospatial surveillance of new cases to characterize acute transmission clusters → target districts, hotspots, and key populations at greatest risk
- **Maximize Adherence**
- **Longer Acting Agents and Delivery Systems**

Overall evidence for PrEP: July 2015



Contextualizing PrEP: Adherence Support

- SMS texting and other electronic reminders
- Peer navigators, Multi-session Adherence Counseling, Case Managers
- POC adherence measures with feedback, utilizing fingerstick, urine, or hair
- “Real time” monitoring using taggants and a skin patch sensor with wireless transmission to a phone app

Contextualizing PrEP: Longer acting agents and delivery systems

- Slow-release vaginal rings
- Long-acting injectable agents
- Subcutaneous implants and transdermal patches
- Other potential strategies such as vectored immunoprophylaxis

Contextualizing PrEP: Slow-release vaginal rings

- MTN 020 ASPIRE, a Phase 3 study of a monthly dapivirine ring developed by IPM at sites in SSA, has completed follow-up – Results will be reported in early 2016
- MTN 025 HOPE, an open label extension of ASPIRE, is prepared for launch if effectiveness is demonstrated

Contextualizing PrEP: Long-acting Injectable Agents

- Phase 2A studies to assess the safety, tolerability, and pharmacokinetics of two LA injectable agents in HIV-negative people are in progress:
 - **HPTN 076:** TMC 278 LA (Ralpivirine) in women 18-45 years old in the US and SSA
(with Janssen, PATH and BMGF)
 - **HPTN 077:** GSK 744 (Cabotegravir) in women and men in SSA, Brazil, and the US
(with GSK and ViiV)

PrEP is needed to bring HIV epidemic under control

HIV eliminated
cure \nearrow vaccine

HIV epidemic under control

Advancement & evolution of PrEP

Oral PrEP

Injectable PrEP

IVR / Film

MPT

Transdermal?

Implant?

Vectored PrEP?

Oral PrEP

Injectable PrEP

Rectal Gel-Lube

microRNA PrEP?

Transdermal?

Implant?

Vectored PrEP?

women

men

Early Diagnosis and ART for ALL/TasP

(necessary but not sufficient)

