90-90-90 Targets Workshop
July 22-23, 2017 • Paris

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Harvard Medical School
Beth Israel Deaconess Medical Center

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GNP+ GLOBAL NETWORK OF PEOPLE LIVING WITH HIV
IAS
Why PrEP in a 90-90-90 world?

- Substantial N of undiagnosed infection
- “Churn”: rates of virologic suppression and stability in care are suboptimal
- PrEP can add to the incentives for getting tested, i.e. there is something for those who are infected and for those who are not
- PrEP plus Test and Treat (T&T) could be cost effective, decreasing the number needed to treat more rapidly than T&T alone
New HIV infections among people aged 15 years and over, by region, 2010–2015

Source: UNAIDS 2016 estimates.
HIV Cascade of Care: Missed Opportunities in the US

HIV-Infected: >25 Years of Age (n=896,800)

- Diagnosed: ~88%
- Linked To Care: ~73%
- Retained in Care: ~40%
- Viral Suppression: ~28%

HIV-Infected: 13-29 Years of Age (n=78,949)

- Diagnosed: 40%
- Linked To Care: 25%
- Retained in Care: 11%
- Viral Suppression: 6%

PrEP Demonstration: High Adherence in STD/Community-Based Clinics

- Prospective, open-label study of 48 wks of daily oral TDF/FTC PrEP for MSM/TGW (N = 557)
  - 3 US STD or community-based clinics in San Francisco, Miami, and Washington, DC
- Of pts with at least 2 DBS tested (n = 272), 62.5% had protective TFV levels (consistent with ≥ 4 doses/wk) at all visits
  - 3% had TFV levels consistent with < 2 doses/wk
- PrEP dispensation interrupted in 15%: most commonly due to AE concerns or low perceived risk
- STI incidence remained stable during follow-up (90/100 PY)

Can PrEP be cost effective?

- Depends…..
- Need to understand local epidemiology to identify populations with 3% (CDC) to 5% annualized HIV incidence (Brian Williams, 2012) https://arxiv.org/pdf/1209.0364
- Can generic TDF/FTC be used? On demand PrEP?
- Are major HIV testing centers equipped to counsel, triage and manage PrEP?
- PrEP Centers of Excellence to disseminate best practices?
- PrEP@home: self-monitoring?
Potential Clinical and Economic Value of Long-Acting Preexposure Prophylaxis for South African Women at High-Risk for HIV Infection

Rochelle P. Walensky,1,2,3,5,6 Margo M. Jacobsen,1,3 Linda-Gail Bekker,11 Robert A. Parker,1,3,4,6 Robin Wood,11 Stephen C. Resch,7 N. Kaye Horstman,1,3 Kenneth A. Freedberg,1,2,3,6,8,9 and A. David Paltiel10
### Belgian TasP+/- PrEP Model

<table>
<thead>
<tr>
<th>Scenario</th>
<th>N new infections/yr</th>
<th>Annual Cost (million Euros)</th>
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<tbody>
<tr>
<td>Current Situation</td>
<td>1350</td>
<td>260,5</td>
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<tr>
<td>Outreach+TasP</td>
<td>865</td>
<td>239,9</td>
</tr>
<tr>
<td>Outreach+TasP+PrEP</td>
<td>663</td>
<td>226,8</td>
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</tbody>
</table>

S. Vermeesch et al, Acta Clinica Belgica Jul 7, 2017
US Scenarios

• At 40% coverage of indicated MSM over the next decade per CDC PrEP guidelines could avert 1162 infections per 100,000 person-years, 33.0% of expected infections. The predicted NNT for the guidelines would be 25.

S. Jennesse et al, JID, 2016

• For PrEP to be cost saving at base-case adherence/efficacy levels and at a background prevalence of 20%, drug cost would need to be reduced to $8,021 per year with no disinhibition, and to $2,548 with disinhibition.

J. McKenney et al, PLoS ONE, 2017
PrEP and 90-90-90: Work in Progress

- Some PrEP access reported in 60 countries
- Kenya, South Africa, Zimbabwe rolling PrEP out, and in national plans of other African countries
- National PrEP programs in Europe, Australia, Asia, Latin America, Canada
- About 250,000 have initiated PrEP, most in the US (Betty Chang, Gilead, 6/17)
Using EHR data to identify PrEP candidates: patients with incident HIV (cases) and patients without HIV (controls)
8,414 (1.1%) of patients in the HMO population had HIV prediction scores above an inflection point in the distribution of scores
(D Krakower, ID Week, 2016)

Atrius Health
~800,000 patients
885 HIV-infected patients
249 currently receiving PrEP

8,414 Potential New Candidates for PrEP
<table>
<thead>
<tr>
<th>Setting</th>
<th>Barriers</th>
<th>Facilitators</th>
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<tbody>
<tr>
<td><strong>STD Clinics</strong></td>
<td>Don’t provide 1° care</td>
<td>See high risk populations</td>
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<td></td>
<td>High patient volume</td>
<td>Sexual health focus</td>
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<td></td>
<td>Limited counseling time</td>
<td>Partner notification services</td>
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<tr>
<td><strong>Community Health Centers</strong></td>
<td>Clinicians not trained in sexual health care</td>
<td>Opportunity to integrate care</td>
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<td></td>
<td>Busy clinical practices</td>
<td>Ongoing relationship</td>
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<tr>
<td></td>
<td>Need to address 1° care issues</td>
<td>Safety net insurance programs</td>
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<td></td>
<td>Limited counseling staff</td>
<td>May be medical home for at risk, underserved patients</td>
</tr>
<tr>
<td><strong>Community-Based Organizations</strong></td>
<td>Lack of clinical support</td>
<td>Work with at-risk populations</td>
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<td>Often limited resources</td>
<td>Able to do community outreach</td>
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<td></td>
<td>Need to link to clinicians, who may or may not be responsive</td>
<td>May have peer navigators</td>
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<tr>
<td><strong>Pharmacies</strong></td>
<td>Prescriber often not on site</td>
<td>Experience with medications and adherence counseling</td>
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<td>May not be able to address other health concerns</td>
<td>Collaborative drug therapy agreements</td>
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<td>Lack of private physical space for counseling</td>
<td>Extended operating hours</td>
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<td><strong>Primary Care Providers</strong></td>
<td>Generalist</td>
<td>Able to integrate other primary care issues</td>
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<td>Busy schedule</td>
<td>Long-term patient relationship common</td>
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<td>Discomfort discussing sexual behaviors</td>
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</table>
How to improve chemoprophylaxis effectiveness?

New oral PrEP drugs and dosing strategies

Vaginal & Rectal Microbicides (MTN 017)

Intravaginal rings (Dapivirine, Tenofovir) +/- Contraception

Injectables: ARVs and mAbs (Cabotegravir, VRC01)

Alternative delivery systems and formulations

Novel adherence strategies
Bio-Prevention is always “Bio-Behavioral” (pills, rings, and injections require adherence)

Disease prevention

Pleasure reduction

Social Models

Self efficacy

Safer Sex Adherence

Depression, anxiety, other behavioral health issues, alcohol and other substance use

Wulfert, Safren, et al., 1999; Journal of Applied Social Psychology
PrEP Utilization by Gender and Race in the US (2013 to Q1 2016)

In 2014, 44% and 23% of new HIV infections were black and Hispanic persons compared with 27% for whites.

MSM in states with higher levels of structural stigma were more likely to report condomless anal sex, were less likely to have used PEP or PrEP, and less likely to disclose same sex behavior with their providers.
Conclusions

• There is a role for PrEP in more rapid achievement of 90-90-90+ goals

• Challenges remain, including:
  - Identification of highest risk populations
  - Determination of who is best equipped to provide PrEP, and ensuring adequate training
  - Managing costs (e.g. generics, staffing)
  - Demand creation
  - Addressing structural impediments, stigma
Thank you

Participants

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