The Spectrum of Engagement in HIV Prevention: Proposal for a PrEP cascade

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Overview

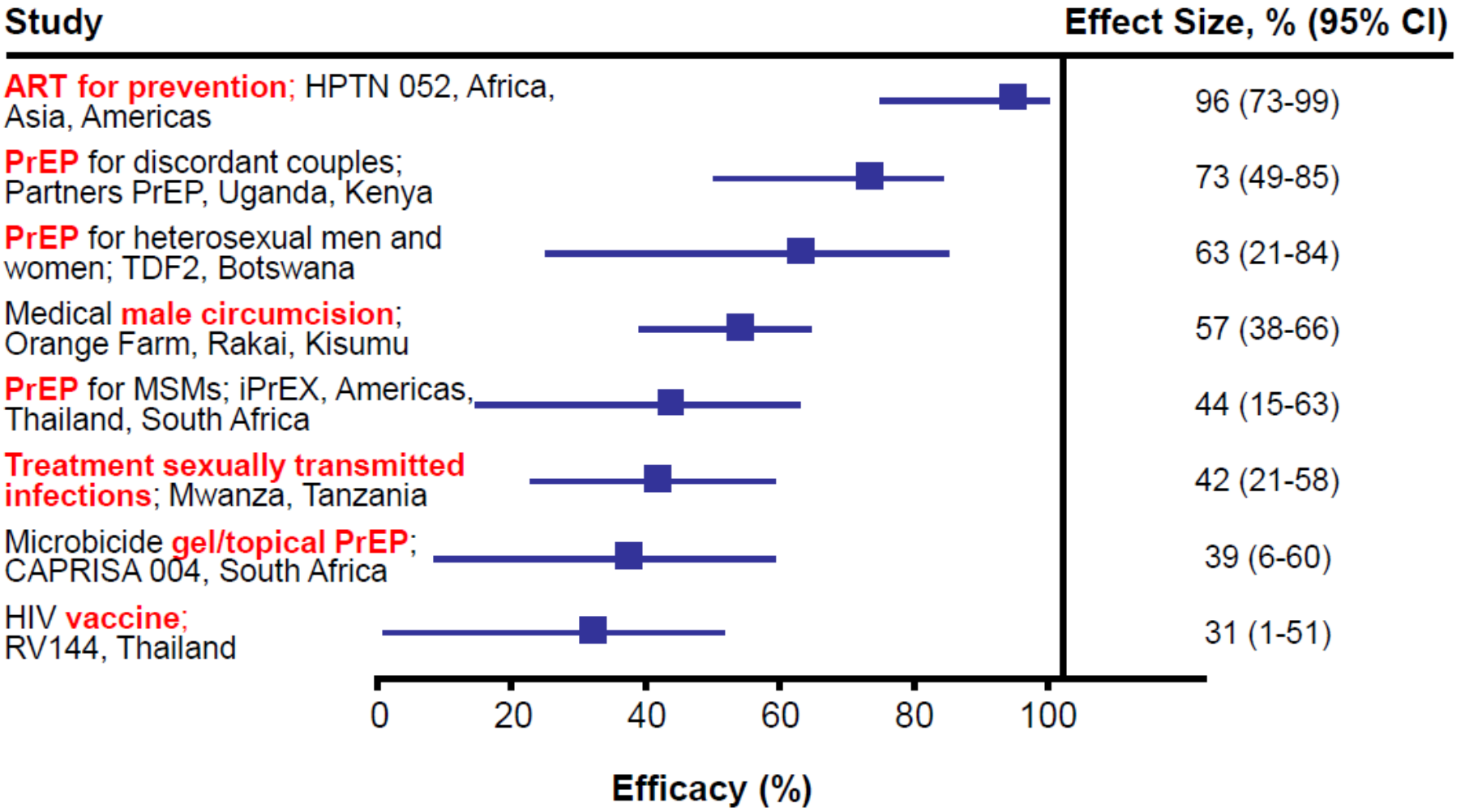
1. Why is the spectrum of engagement in HIV prevention important?

2. Define 7 steps of the PrEP cascade
   - Metrics for each stage
   - Key considerations/questions
   - Potential facilitators/interventions

3. Case study: Applying the PrEP cascade to MSM in San Francisco PrEP Demonstration Project

Recent Breakthroughs in HIV Prevention

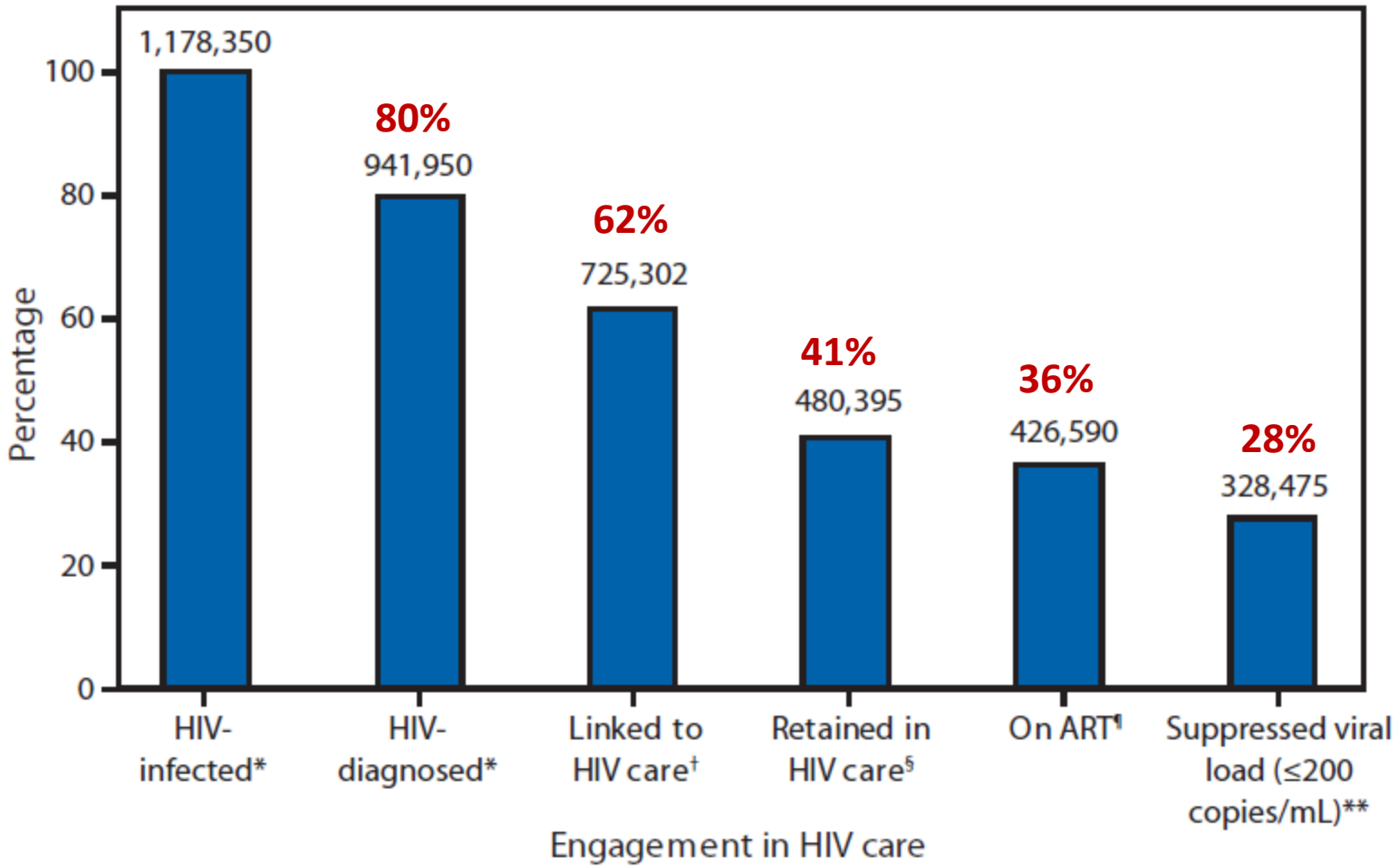
Abdool Karim SS, et al. Lancet. 2011



PrEP Demonstration Projects in the US

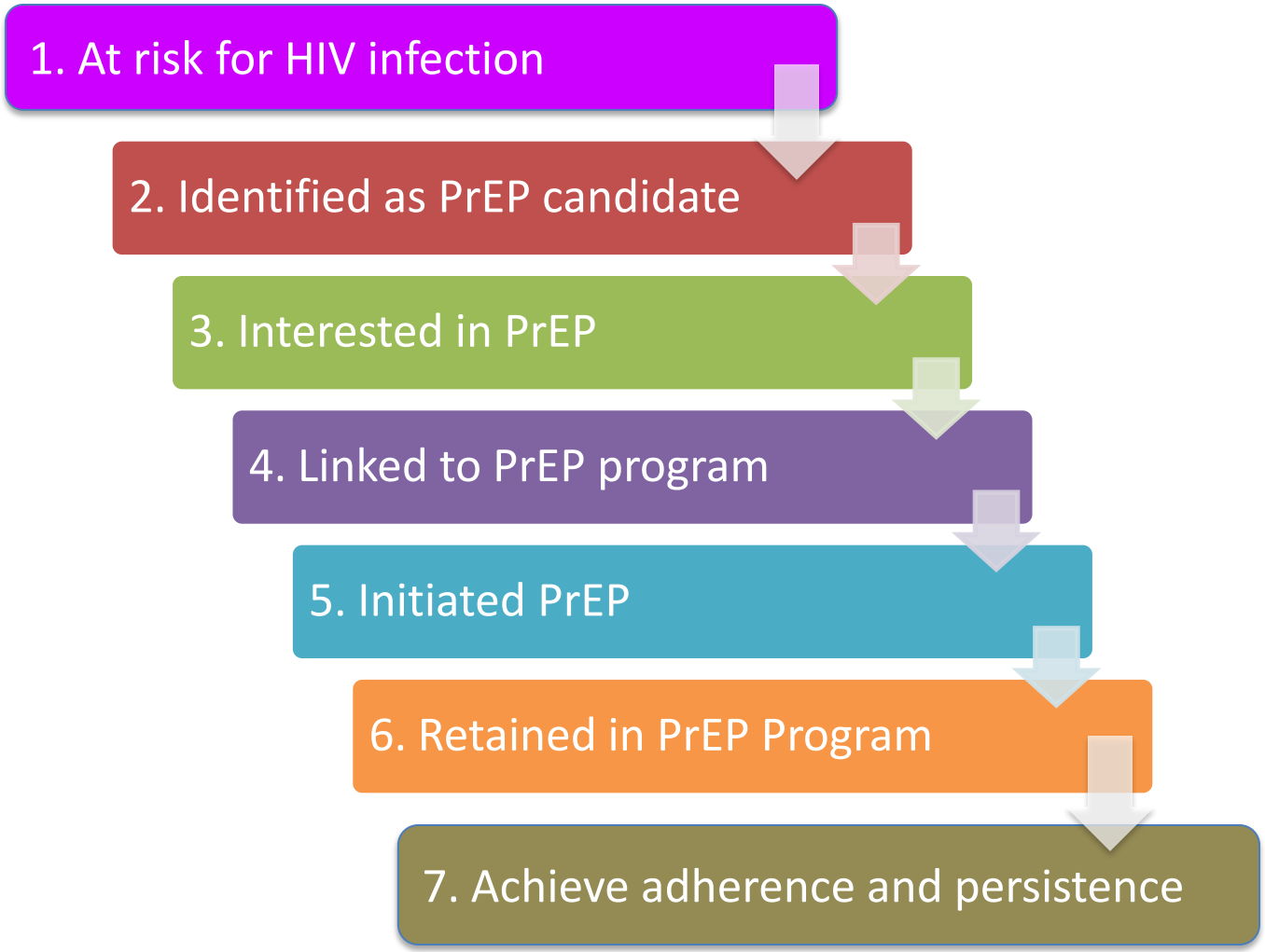
Study [sponsor]	Population (N)	Sites	Timeline
iPrEx OLE (Open Label Extension) [NIAID]	MSM previously enrolled in iPrEx RCT (N=~300)	San Francisco Boston Chicago	Enrollment in US completed; Results 2014
US PrEP Demonstration Project [NIAID]	MSM and transgender women in STD clinics (N=500)	San Francisco Miami	Enrollment to begin in Q3 2012; Results 2014
California HIV Research Program [CHRP]	MSM and transgender women (N=~700)	Los Angeles Long Beach San Diego	TBD
Adolescents Trials Network [NICHD]	Young MSM : 18-22 yo in ATN 110 (N=200) 15-17 yo in ATN 113 (N=100)	TBD	Enrollment to begin late summer 2012

HIV Treatment Cascade in US



CDC MMWR Dec 2011

The *Proposed* PrEP cascade



1. Individuals at risk for HIV infection

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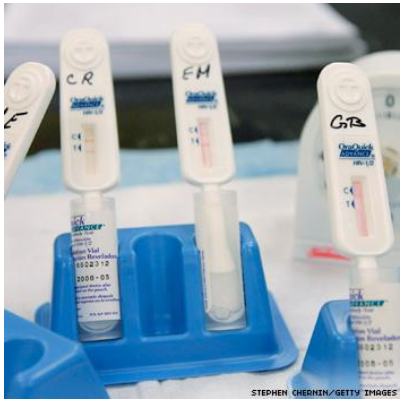
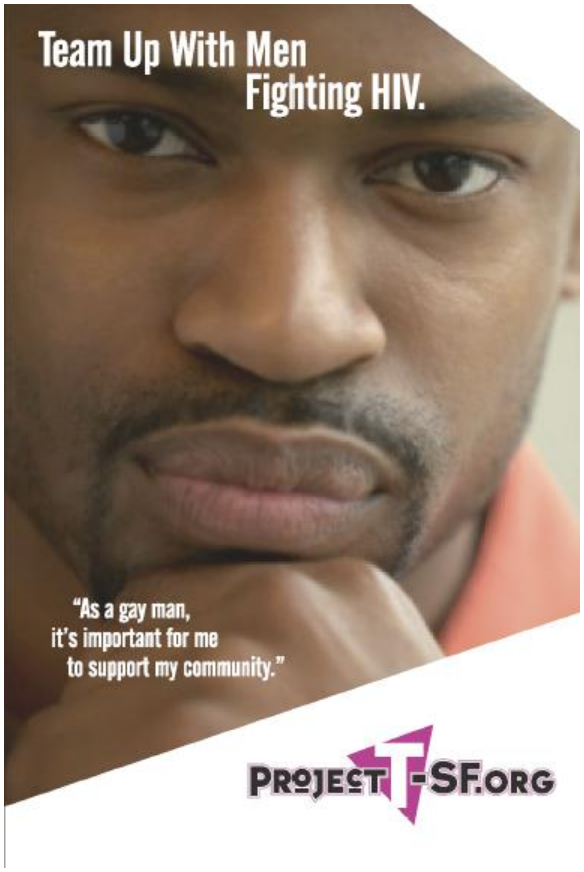
Metrics	Important considerations	Potential Interventions
• # HIV-uninfected, at risk for HIV (e.g. sexually active MSM or other populations at risk)	• Can choose level/scope of target population (e.g. clinic, city, region, national) • Data sources may include clinic data, local or national surveillance data • HIV testing is an entry point (HIV-negative status required for PrEP)	• Initiatives to increase HIV testing • Strategies to improve clinic, surveillance data



2. Identifying PrEP candidates



2. Identifying PrEP candidates

Metrics	Important considerations	Potential interventions
• # identified as PrEP candidate (based on local criteria)	• Geographic setting and social/sexual networks should be considered in addition to individual risk behaviors • PrEP candidates could be identified at a range of sites: HIV testing sites, STD clinics, HIV primary care settings • Optimal prioritization strategies for PrEP still need evaluation	• Screening tools/ algorithms to identify individuals at highest risk (e.g. online, computer-based)

3. Individual interested in PrEP

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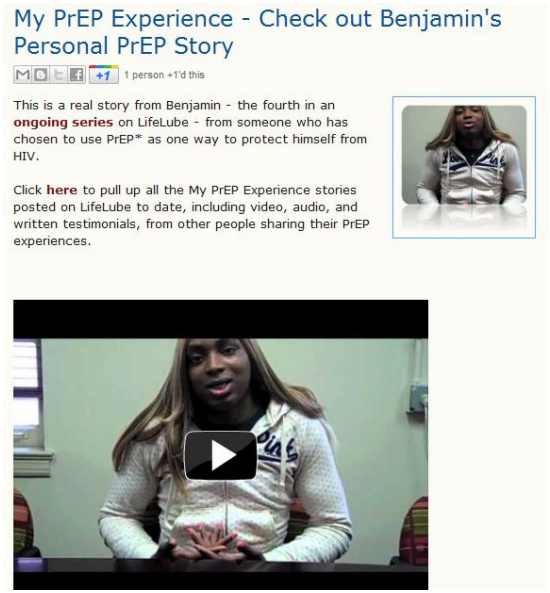
Metrics	Important considerations	Potential interventions
• # who express interest in pursuing PrEP • Reasons for refusal	• PrEP knowledge limited among MSM and providers • May be influenced by perception of risk, stigma • How information is framed may affect uptake of PrEP	• Community campaigns to raise PrEP awareness and interest • Informational videos/ testimonials of PrEP users

My PrEP experience



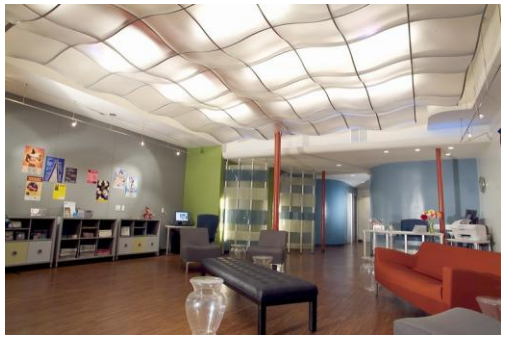
4. Referral and linkage to PrEP program

PrEP Program

CBOs, clinical providers, HIV testing sites

4. Referral and Linkage to PrEP Program

Metrics	Important considerations	Potential interventions
• # successful PrEP referrals • Total referred from community sources	• Novel mechanisms may be needed to collect data on referrals from CBOs, community providers/clinics	• Co-location of PrEP services in HIV testing sites/STD clinics or in community locations • Active phone follow-up/linkage using staff or peer navigators



Magnet Health Center, SF

5. PrEP initiation

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Metrics	Important considerations	Potential interventions
• PrEP initiation rates • Reasons for ineligibility, refusal, or inability to access PrEP	• Eligibility criteria include clinical history, laboratory results (Cr, Hepatitis B status, negative HIV test) • Individuals' decision to adopt PrEP	• Guidelines to assist providers in assessing eligibility • Tools to help participants to decide whether PrEP is a good fit • Reduced cost / patient assistance programs

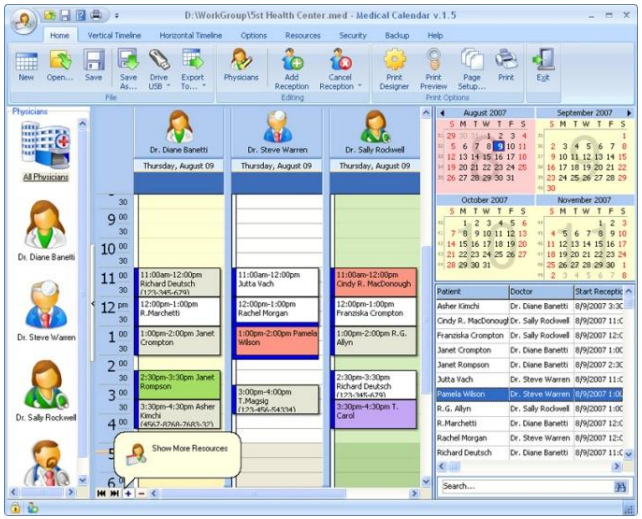
6. Retention/Clinical Engagement

San Francisco City Clinic

Miami Downtown STD Clinic

6. Retention

Metrics	Important considerations	Potential interventions
• Missed visits • Appointment adherence • Visit constancy • Gaps in care	• Need to consider appointment scheduling and data collection systems in clinic	• Appointment reminders • Consistent contact with clinic through staff / peers • Interactive messaging (SMS / email)



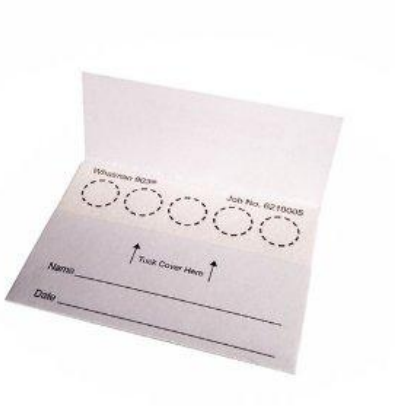
Mugavero AIDS Pt Care and STDs 2010; Giordano Topics in HIV Medicine 2011

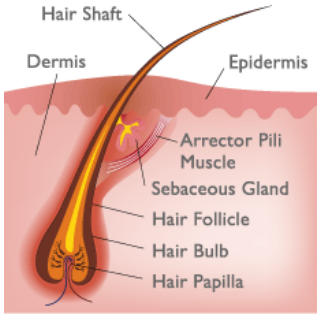
7. Maintaining adherence and persistence to PrEP

"The top doesn't come off. It's preventative medicine."

7. Adherence and Persistence

Metrics	Important considerations	Potential interventions
• Self-report • Pharmacy refill • Drug level testing <u>*Less practical:*</u> • Pill counts • Electronic drug monitoring	• Require measures that are easy to collect / minimal burden for staff and pt • Low cost • Accuracy – less influenced by white coat effects or social desirability	• PrEP Education • Adherence counseling • Interactive messaging (SMS /phone support) • Drug level monitoring/ feedback • Substance use, mental health interventions





Berg JAIDS 2005; Tolley AIDS Behav 2009; Amico AIDS Behav 2012; Lester Lancet 2010

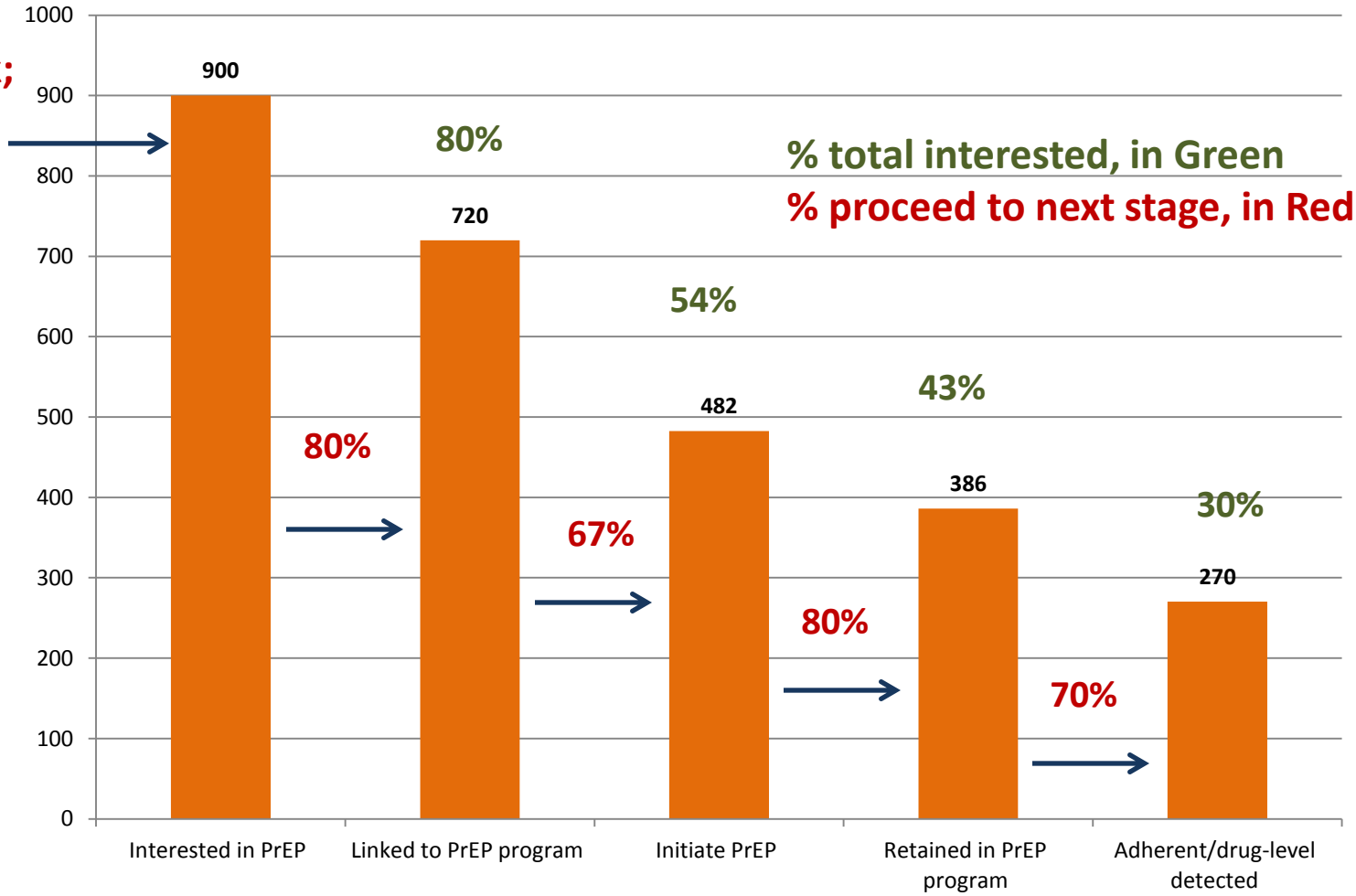
Case study of the PrEP cascade: SF PrEP Demonstration Project

Stage	San Francisco City Clinic Estimates
At risk for HIV	**4,341** HIV-uninfected MSM visited SFCC in 2009
Potential PrEP candidates	**~3000** HIV-uninfected MSM behaviorally eligible for PrEP Demo Project
Interested in PrEP	**Unknown**; range of hypothetical acceptability of PrEP: ~30-75%[1-3]
Linked to PrEP program	**Unknown**; HIV+ linkage rates: ~75%[4]
Initiate PrEP	**Unknown**; Screen to enroll ratio: 1.5/1 in iPrEx (SF)
Retained in PrEP program	**Unknown**; Retention in iPrEx: 88-92%[5]
Adherent/drug-level detected	**Unknown**; Drug detection ~44% overall in iPrEx, higher in US[6]

[1]Krakower PLoS One 2012, [2]Liu JAIDS 2008, [3]Mimiaga JAIDS 2009;
[4]Gardner CID 2011; [5]Grant NEJM 2010; [6]Anderson CROI, IAS 2011

SFCC: Hypothetical PrEP Cascade

4341 at risk; ~3000 PrEP candidates



Conclusions

- PrEP cascade provides a framework for understanding individual and structural factors which may determine public health impact of PrEP
  - Metrics of success
  - Evaluate relative magnitude of gaps at each stage (and by key populations, e.g men of color, young MSM)
  - Identify areas requiring potential intervention
- Use of common metrics may facilitate meaningful comparisons across PrEP programs
- Once populated with data from projects, can model impact of potential interventions on overall PrEP cascade

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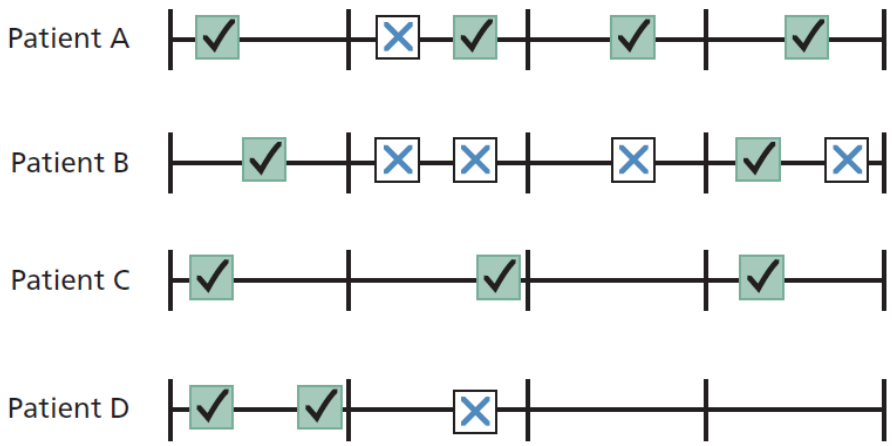
NIMH National Institute of Mental Health

GLOBAL iPrEx

Calculating retention in care



✓= attended visits
X = no shows

Patient	Number of Missed Visits	Appointment Adherence	Visit Constancy	Gap in Care?
A	1 of 5	80%	100%	No
B	4 of 6	33%	50%	Yes
C	0 of 3	100%	75%	No
D	1 of 3	67%	25%	Yes

Mugavero AIDS Pt Care and STDs 2010

PrEP adherence critical for efficacy

Trial	Population	Overall efficacy (miTT)	Estimated risk reduction with drug detection
iPrEx	2,499 MSM	42%	**92% risk reduction** with detectable drug
Partners PrEP	4758 heterosexual discordant couples	TDF: 67% FTC/TDF: 75%	**90% risk reduction** with detectable drug
TDF2	1200 heterosexual men and women	62%	**78% risk reduction** excluding participants with no refills for >30 days
Fem-PrEP	2120 high-risk women	**Study stopped due to futility**	**<26% women** in FTC/TDF group had consistently detectable drug; "adherence too low to assess efficacy"

Grant IAS 2011; Baeten CROI 2012; Thigpen IAS 2011; van Damme CROI 2012; MTN Press release

Drug detection windows: Informative of non-persistence