Overview

• Recent study results & some context
  o Epidemiology
  o Modeling the impact of PrEP
  o PrEP in the real world

• Uptake and utilization in US
  o Is PrEP reaching those at risk?

• Advancing a PrEP agenda for NC
What is pre-exposure prophylaxis?

Use of antiretroviral medications before an exposure, to reduce the risk of becoming infected.

Tenofovir (TDF) is the most studied agent for PrEP:
- Properties of drug allow infrequent dosing
- Few drug-drug interactions
- Safe and well tolerated

FDA approved in 2012
(emtricitabine / tenofovir DF = Truvada)
When taken consistently, oral PrEP reduces risk of HIV infection by 90-100% among cisgender MSM, heterosexual men & women, and transgender women. (84% among PWID)

PrEP 2.0 is coming…

**PrEP 2.0 Ingredients:**

- **FTC / TAF**
- **cabotegravir-LA**
- **dapivirine**
- **broadly neutralizing monoclonal antibodies (bnAbs)**

**PrEP 2.0 Mechanisms:**

- NNRTI
- INI
Lifetime risk of acquiring HIV

Map from CDC website: http://www.cdc.gov/hiv/statistics/overview/geographicdistribution.html

Hess K et al. CROI 2016, abstract #52
Lifetime risk of acquiring HIV

1 in 93 North Carolinians

Map from CDC website: http://www.cdc.gov/hiv/statistics/overview/geographicdistribution.html

Hess K et al. CROI 2016, abstract #52
Lifetime risk of acquiring HIV

If current diagnosis rates persist...

2 out of 100
Black women will become HIV+

Hess K et al. CROI 2016, abstract #52
Lifetime risk of acquiring HIV

If current diagnosis rates persist...

9 out of 100 White MSM will become HIV+
Lifetime risk of acquiring HIV

If current diagnosis rates persist...

25 out of 100 Hispanic MSM will become HIV+

Hess K et al. CROI 2016, abstract #52
Lifetime risk of acquiring HIV

50 out of 100 Black MSM will become HIV+

If current diagnosis rates persist...

Hess K et al. CROI 2016, abstract #52
Potential impact of interventions, 2015-2020

Scenario 1: Projected new infections by 2020 at current testing and treatment rates
265,330

Scenario 2: If PrEP use increases among high-risk populations at current testing and treatment rates
217,109

Scenario 3: If 85% of people diagnosed are linked to care, 60% achieve viral suppression, plus PrEP use
144,434

Scenario 4: Achieving NHAS goals – if 85% of people diagnosed are linked to care, 80% achieve viral suppression, plus PrEP use
80,270

New infections
HIV infections prevented due to expanded testing and treatment
HIV infections prevented due to PrEP (assumes PrEP use among high-risk populations = 40% MSM; 10% PWID; 10% HET)

Yaylali E et al. CROI 2016, abstract #1051
Graphic from CDC
Modeling the 10-year impact for MSM

If 40% are covered and 62% take PrEP consistently...

33% of expected infections in next 10 years will be averted

Increasing coverage has a greater impact

PrEP really does work in the real world

PROUD – Nov 2012 - Apr 2014

544
MSM & trans women

1/2
started immediately

1/2
delayed initiation

86%
protective effectiveness (95% CI: 58, 96)

13
at-risk MSM need to be treated for 1 year to prevent 1 infection (95% CI: 9, 23)

For primary prevention:  aspirin 1667 x 1Y  statin 104 x 5Y

PrEP really does work in the real world

Kaiser SF, July 2012 - Feb 2015

- 1045 referrals for PrEP
- 80% evaluated in person
- 82% started PrEP (62% of those referred)
- 388 person-years of follow-up

- 187 new STIs among PrEP users
- 0 new HIV infections among PrEP users

PrEP really does work in the real world

Review of 32 PrEP demonstration projects

- 17 projects had no new infections
- 2,467 participants → 1,315 P-Y of PrEP exposure

<table>
<thead>
<tr>
<th></th>
<th>Men n=7002</th>
<th>Women n=1388</th>
<th>Transgender Women n=76</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total exposure, P-Y</td>
<td>6214</td>
<td>788</td>
<td>48</td>
<td>7061</td>
</tr>
<tr>
<td>Number of infections</td>
<td>64</td>
<td>2</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>Rate per 100 P-Y (95%CI)</td>
<td>1.03 (0.80, 1.32)</td>
<td>0.25 (0.03, 0.92)</td>
<td>2.07 (0.05, 11.5)</td>
<td>0.95 (0.74, 1.2)</td>
</tr>
</tbody>
</table>

McAllister S et al. ASM Microbe 2016, Abstract #371LB
http://natap.org/2016/HIV/062216_01.htm
PrEP is taking off in the US...

738% increase

USPHS / CDC guidelines issued

Individuals starting FTC/TDF for PrEP

[Graph showing an increase in the number of individuals starting FTC/TDF for PrEP from 2012 to 2015 with a significant increase in 2015.]

Rawlings K et al (McAllister presenting). IAC Durban 2016, abstract #TUAX0105LB
http://www.natap.org/2016/IAC/IAC_17.htm
PrEP is taking off in the US...

Rawlings K et al (McAllister presenting). IAC Durban 2016, abstract #TUAX0105LB
http://www.natap.org/2016/IAC/IAC_17.htm

79,684 individuals

- 2012: 1250
- 2013: 2500
- 2014: 5000
- 2015: 12500

Individuals starting FTC/TDF for PrEP
...but its distribution is uneven...
...but its distribution is uneven... n=21,463 (44% of all started)

Bush S et al. ASM / ICAAC 2016, abstract #2651
...and it’s not reaching those most at-risk

22% of all new infections in 2014 among 13-24 yo

18,812 women

28% < 25 yo

60,872 men

11% < 25 yo

Rawlings K et al (McAllister presenting). IAC Durban 2016, abstract #TUAX0105LB
http://www.natap.org/2016/IAC/IAC_17.htm
...and it’s not reaching those most at-risk

**US Population 2014**
- White: 62%
- Black: 12%
- Hispanic: 18%

**PrEP Utilization Sept 2015**
- New Infections 2014 (estimated)
- Black: 27%
- Hispanic: 44%
- White: 23%

- Asian: 10%
- Multi/Other: 12%

**New Infections 2014 (estimated)**
- White: 44%
- Black: 27%
- Hispanic: 44%
- Asian: 10%
- Multi/Other: 12%

Bush S et al. ASM / ICAAC 2016, abstract #2651
Addressing barriers head-on

Nat’l HIV Behavioral Surveillance System (CDC)

- Blacks & Whites equally willing to take PrEP
- Educated & high income: more White users
- YBMSM less likely to have an indication
  - ≥ 2 sex partners + (bacterial STI or UAI) in past 12m
  - 1 main HIV+ partner in past 12m
- Behavior alone doesn’t explain differential risk…
  - Fewer missteps needed for YBMSM to acquire HIV

Service gaps reflect structural barriers

Data from NC-DHHS Office of Rural Health

- Rural counties designated Health Professional Shortage Areas
  (specifically in need of primary care services)
Adherence
Communities of color

Structural barriers
PrEP is now a matter of social justice

We need statewide partnerships to:
• get the word out in innovative ways
• ensure access in people's own communities
• help cis- and trans men and women enter care
• alleviate barriers to retention and adherence
• identify best practices in delivering PrEP
• collect the data we need to demonstrate impact

We need the voices of advocates...
PrEP is now a matter of social justice

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We need the voices of advocates…
 Questions?  Feel free to email me churt@med.unc.edu