Pre-exposure prophylaxis amongst men who have sex with men in the Netherlands

Ard van Sighem, Rob van den Hengel, Daniela Bezemer, Frank de Wolf

Amsterdam, 27 November 2012
## Effective HIV prevention technologies

<table>
<thead>
<tr>
<th>Study</th>
<th>Effect size (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiretroviral treatment for prevention HPTN 052 Africa, Asia, Americas</td>
<td>96% (73–99)</td>
</tr>
<tr>
<td>PrEP for discordant couples Partners PrEP Uganda, Kenya</td>
<td>73% (49–85)</td>
</tr>
<tr>
<td>PrEP for heterosexual men and women TDF2 Botswana</td>
<td>63% (21–84)</td>
</tr>
<tr>
<td>Medical male circumcision Orange Farm, Rakai, Kisumu</td>
<td>54% (38–66)</td>
</tr>
<tr>
<td>PrEP for MSMs iPrEX Americas, Thailand, South Africa</td>
<td>44% (15–63)</td>
</tr>
<tr>
<td>Sexually transmitted diseases treatment Mwanza Tanzania</td>
<td>42% (21–58)</td>
</tr>
<tr>
<td>Microbicide CAPRISA 004 South Africa</td>
<td>39% (6–60)</td>
</tr>
<tr>
<td>HIV vaccine RV144 Thailand</td>
<td>31% (1–51)</td>
</tr>
</tbody>
</table>

Abdool Karim et al, Lancet 2011
What is the impact of PrEP on the HIV epidemic amongst MSM?
MSM and PrEP

200,000 MSM → Sexually active → HIV infection

~30 years

Bezemer et al, AIDS 2008; Epidemics 2010 (updated)
MSM and PrEP

200,000 MSM

Sexually active

HIV infection

PrEP used from start of sexual career onwards

PrEP started in 5% of MSM each year

~30 years

Bezemer et al, AIDS 2008; Epidemics 2010 (updated)
Unprotected sex partners

% of MSM

Low risk

High risk

Partners per year

Xiridou et al, Epi Infect 2009
Sexual mixing

High risk

Low risk
Assortative mixing

High risk

Low risk
Proportionate mixing

<table>
<thead>
<tr>
<th></th>
<th>Size</th>
<th>Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>7%</td>
<td></td>
<td></td>
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<tr>
<td>38%</td>
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</tbody>
</table>
Diagnoses over time

- Homogeneous sexual risk
- Heterogeneous sexual risk

Number of diagnoses

Calendar year

Projection
MSM on PrEP

- All risk
- Low risk only
- High risk only
- Start sexual career

Calendar year

MSM on PrEP

80000

40000

2009

2014

2019
Infections averted 2010-2019

No PrEP: 7287 infections

<table>
<thead>
<tr>
<th>Category</th>
<th>Infections Averted</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start sex</td>
<td>2723</td>
<td>37%</td>
</tr>
<tr>
<td>All risk</td>
<td>2910</td>
<td>39%</td>
</tr>
<tr>
<td>Low risk</td>
<td>1354</td>
<td>18%</td>
</tr>
<tr>
<td>High risk</td>
<td>2050</td>
<td>28%</td>
</tr>
</tbody>
</table>
Effectiveness

Infections prevented per 1000 person-years PrEP

- Start sex: 8.1
- All risk: 7.2
- Low risk: 3.6
- High risk: 86.1
Conclusion & Discussion

• PrEP may be a useful prevention measure.

• Target men with highest sexual risk behaviour.

• Danger of risk compensation.

• Implementation.
Acknowledgements

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