Forebyggelse og behandling af HIV: lægevidenskab og folkesundhedspolitik

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160,000 people were diagnosed with HIV in 2017

Estimated new HIV infections are decreasing globally

Source: UNAIDS 2019
Estimated new HIV infections are decreasing globally and in the Western sub-region

Source: UNAIDS 2019
Estimated new HIV infections are decreasing globally and in the Western sub-region

Source: UNAIDS 2019
Estimated new HIV infections are decreasing globally and in the Western sub-region but increasing in the European region.

Source: UNAIDS 2019
Distribution of new HIV diagnoses by transmission category and region of birth in 2017

1. Men who have sex with men in Centre and East

2. Heterosexual **men and women** in East in older age groups

Distribution of new HIV diagnoses by transmission category and region of birth in 2017

HIV genome flow from Eastern to Western Ukraine due to relocation of 1.7 million people: mixing untreated sexually active PWID

Vasylyeva et al, PNAS 2018
The profile of solutions targeting uninfected and/or infected persons

Uninfected:
- Test population
- Pre/post-exposure Prophylaxis (PEP/PrEP)
- Voluntary medical male circumcision

Infected:
- Treat HIVpos

Both:
- Condom use
- Harm reduction
Successful implementation of “test and treatment” requires policies that affect different sections of health infrastructure.

Non-diagnosed

- Reform testing strategy
- Intensity proportional to size of undiagnosed; accessible to key risk groups (if PR < 0.1% think again)

Diagnosed, not on suppressive ART

- Restructure health system
- Expertise (trust); proximity (shared care); “un-stigmatised” & safe; comprehensive (life-style)
How close are we to reaching the 90-90-90 targets?

“the shallow line”

90% of all PLHIV who know their status (n=43 countries)

Source: Dublin Declaration data 2019, unpublished.
Rate of undiagnosed PLHIV varies across the region

Source: Dublin Declaration data 2019, unpublished.
Is the number of people living with undiagnosed HIV in the WHO European region declining?

Source: UNAIDS Estimates and Global Monitoring, 2019
90% of those diagnosed on ART (n=45 countries)

Source: Dublin Declaration data 2019, unpublished.
Progress toward achieving the 3\textsuperscript{rd} 90: 90% of those on ART virally suppressed (n=38 countries)

Target reached
Above regional average
Below regional average

Global target 90%
Overall percentage 86%

Source: Dublin Declaration data 2019, unpublished.
Distribution of people with transmissible levels of virus by sub-region, reported in 2019

N ≈ 1,200,000
People living with unsuppressed virus

Undiagnosed

Diagnosed but not on treatment

Treated but not virally suppressed

WEST
N ≈ 195,000

CENTRE
N ≈ 20,000

EAST
N ≈ 990,000

Source: ECDC Dublin Declaration data 2019, unpublished.
What proportion of men would need to be virally suppressed on ART to achieve incidence < 1/1000 (600 new infections per year)? 90%
Improvements in proportion of men living with HIV who were on ART with viral load "undetectable"

- Substantial progress due to: high levels of HIV testing, more rapid ART initiation after diagnosis, high quality clinical care

![Bar chart showing percentage of men in care from 2011 to 2017.]

- 2011 data: 48%
- 2015 data: 60%
- 2017 data: 87%

97% of those in care

2011 data PHE report 2013, for all people living with HIV
2015 estimated from HIV synthesis model
2017 PHE report 2018

Courtesy: A Phillips
Confirmation of model

Estimated number of new infections in 2017


Phillips et al, AIDS 2015

95% CI given for two lines to illustrate uncertainty over mean effect
Central argument for additional preventive tools:
Patients just infected are shortly thereafter at substantially larger risk of being source for onwards transmission

Pilcher et al, JID 2004
Time from HIV infection to diagnosis in the EU/EEA

EMIS-2017: Percentage currently taking PrEP daily or on demand (N=112,939)

Of HIV negative men:
- 7.0% had ever tried to get PrEP
- 3.3% indicated ever having taken PrEP
- 3.0% were currently taking PrEP
- 2 out of 3 opting for daily dosing

3% currently taking PrEP (but 21% would be very likely to; The PrEP gap!)

Status of formal PrEP implementation in Europe as of 4 November, 2019

PrEP implementation in Europe
- Nationally available (reimbursed)
- Ongoing pilot or research project
- Generics available (not fully reimbursed)
- Not formally implemented

Source: ECDC (thanks Teymur Noori)
PrEP

- It works very effectively for the individual
- Indication: benefit best for persons at high risk of HIV acquisition
  - current data support used on this indication
  - opportunity to diagnose also for other STD’s
  - 54% ”informal access” – 34% not told their primary SH physician
- Impact on transmission depends on
  - Individual factors
    - aware, willingness to take pills and be tested
  - Health system
    - technical capacity; cost of medicine and service delivery
    - Medicine cost differs markedly across Europe: €3 to €850/month
  - Embracement of target community
    - Ownership & engagement; know about U=U and high risk; accept surveillance

Thanks to Valerie Delpech, Teymur Noori

Source:
ECDC communication with experts on PrEP in European countries, April 2019;
Contrafactual effects ("had we not introduced") from various HIV preventive interventions among MSM in Switzerland: additional impact

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Years</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in condom use</td>
<td>2009 – 2015</td>
<td>12</td>
</tr>
<tr>
<td>Early initiation of ART</td>
<td>2009 – 2015</td>
<td>63</td>
</tr>
<tr>
<td>Test and Treat, 50%</td>
<td>2001 – 2015</td>
<td>271</td>
</tr>
<tr>
<td>Test and Treat, 100%</td>
<td>2001 – 2015</td>
<td>459</td>
</tr>
<tr>
<td>PrEP 25%</td>
<td>2012 – 2015</td>
<td>115</td>
</tr>
<tr>
<td>PrEP 50%</td>
<td>2012 – 2015</td>
<td>226</td>
</tr>
<tr>
<td>PrEP 25% + Test and Treat, 50%</td>
<td>2012 – 2015</td>
<td>180</td>
</tr>
</tbody>
</table>

Kusejko et al, HIV Med 2018

Also: Mera-Giler et al, IDWeek 2019
Decline in diagnosis of **domestic French MSM**
(target group for PrEP since 2016)

Source: Déclaration obligatoire du VIH, données au 31/03/2019 corrigées.
Modelled number of new infections and undiagnosed over time in the Netherlands

ATHENA cohort: Van Sighem, Op de Coul and Reiss, 2019

By end of 2018:
23,300 HIV+
1900 undiagnosed
82% virally suppressed
PWID HIV outbreak in Switzerland

Marzel et al, OFID 2018
Contrafactual effects ("had we not introduced") from various harm reduction interventions among PWID in CH

Marzel et al, OFID 2018

* harm reduction (NEP, supervised fixing rooms, low threshold methadone)
HIV diagnoses among PWID in Greece: breakdown and reinstating HR program

Once the genie is out of the bottle damn hard (but possible) to put it back

Sypsa et al, ARISTOTLE, IVHEM 2018
Opioid substitution therapy (OST) provision in Europe and Central Asia


Coverage <40% is not sufficient to reduce drug-related harm
Needle and Syringe Programme (NSP) provision for PWID in Europe and Central Asia

So ......

- Major routes of HIV transmission
  - MSM
  - PWID
  - heterosexual
- Five (+ ½) proven effective preventive interventions
- To be used in combination
  - only focusing on one or two is insufficient
What does it take to implement sound public health policies*

*: Harm reduction (OST, NE), HIV testing of KAP, effective ART offering to all infected, PEP & PrEP to ”high risk takers”
Factors causing introduction of sound public health policy

- Political will changes if emerging transmission outside KAP
  - recruits and armed forces
  - social instability & economical decline due to deteriorating health of the population
- Advocacy
  - political leaders (aka. the “Mandela-effect” anno 2000)
  - civil society – NGO’s
  - health care professionals
- Post-graduate training – capacity building
- Sound clinical & implementation research – understand what it takes and how best to get there
Cost conscious: argument for “public health approach” if fixed low health budget

Use expensive individualised care / medicines

Equally effective but cheaper care / medicines
ОНЛАЙН-КУРС EACS ПО КЛИНИЧЕСКОМУ ВЕДЕНИЮ ПАЦИЕНТОВ С ВИЧ ИНФЕКЦИЕЙ
WHO Collaborative Centre - Medical Exchange Training Program in Ukraine

- 34 centers visited (September 2019)
Research on HIV, TB and/or HCV in patients with mono-, co-infections and/or comorbidities + fostering collaboration with the Russian Federation

**Common Action against HIV/TB/HCV across the Regions of Europe**

Analyzing HIV, TB and HCV epidemics across Europe and Russia, by investigating:
- drug resistance of TB and HIV,
- role of host genome in disease progression

12 partners

EU Coordinator: EURESIST (IT)
RUS Lead Partner: Gamaleya Centre of MOH of Russia

**Accurate, Rapid, Robust and Economical diagnostic technologies for Tuberculosis**

Delivering low-cost, portable and reliable point-of-care molecular TB diagnostic tests for both TB presence and drug-resistance.

9 partners

EU Coordinator: Edinburgh University (UK)
RUS Lead Partner: Central TB research institute of Russian Academy of Medical Science
WEEPI is a foundation with the overall goal to improve the quality of care for people with HIV, viral hepatitis and tuberculosis in the Eastern European Region through support of clinical or implementation research projects.
Summary

• HIV remains a major public health priority for Europe
• Five (and a half) effective and proven solutions
• Challenge: more extensive implementation + political/financial will to do so
• Methods: advocacy, leadership, cross-disciplinarity, networking, training and joined research efforts
Thank you

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