



European  
AIDS Treatment  
Group

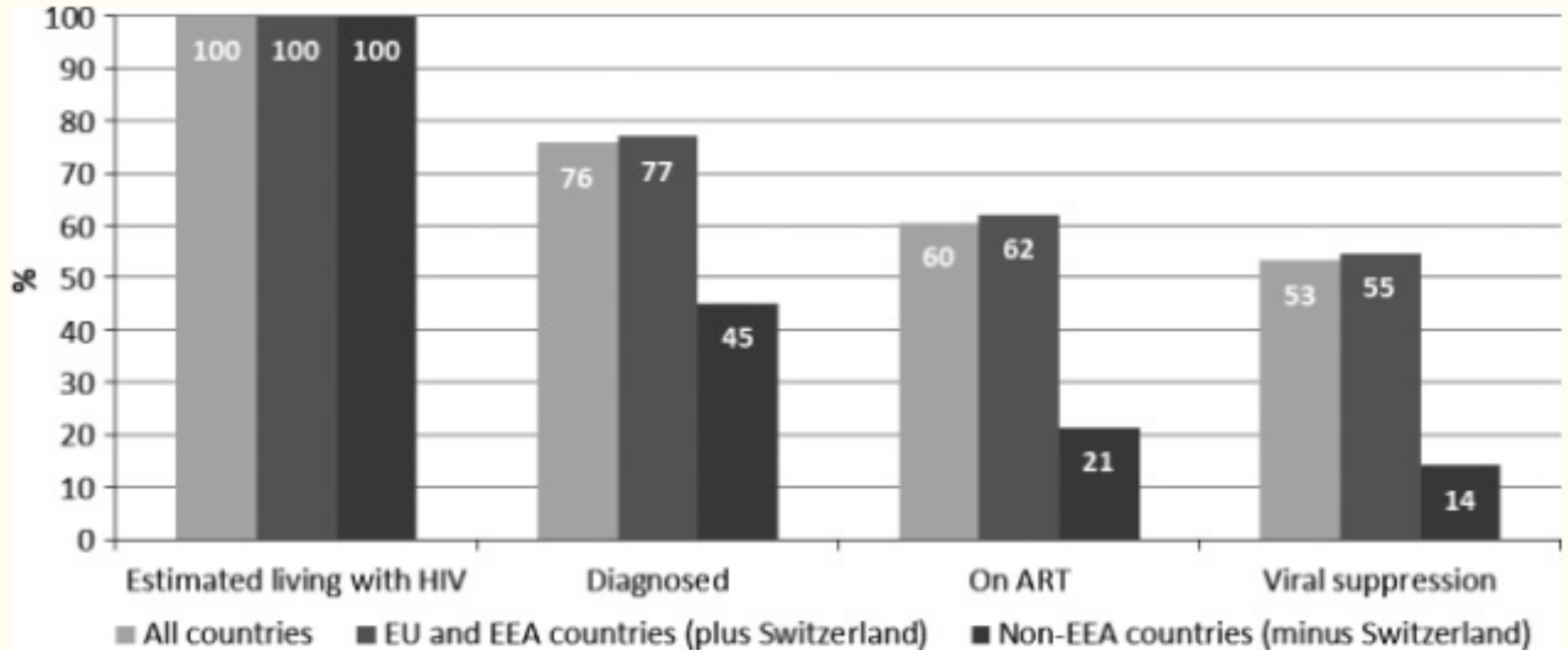


# The role of technology in HIV management DIAGNOSTICS

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# HIV continuum of care in Europe and Central Asia



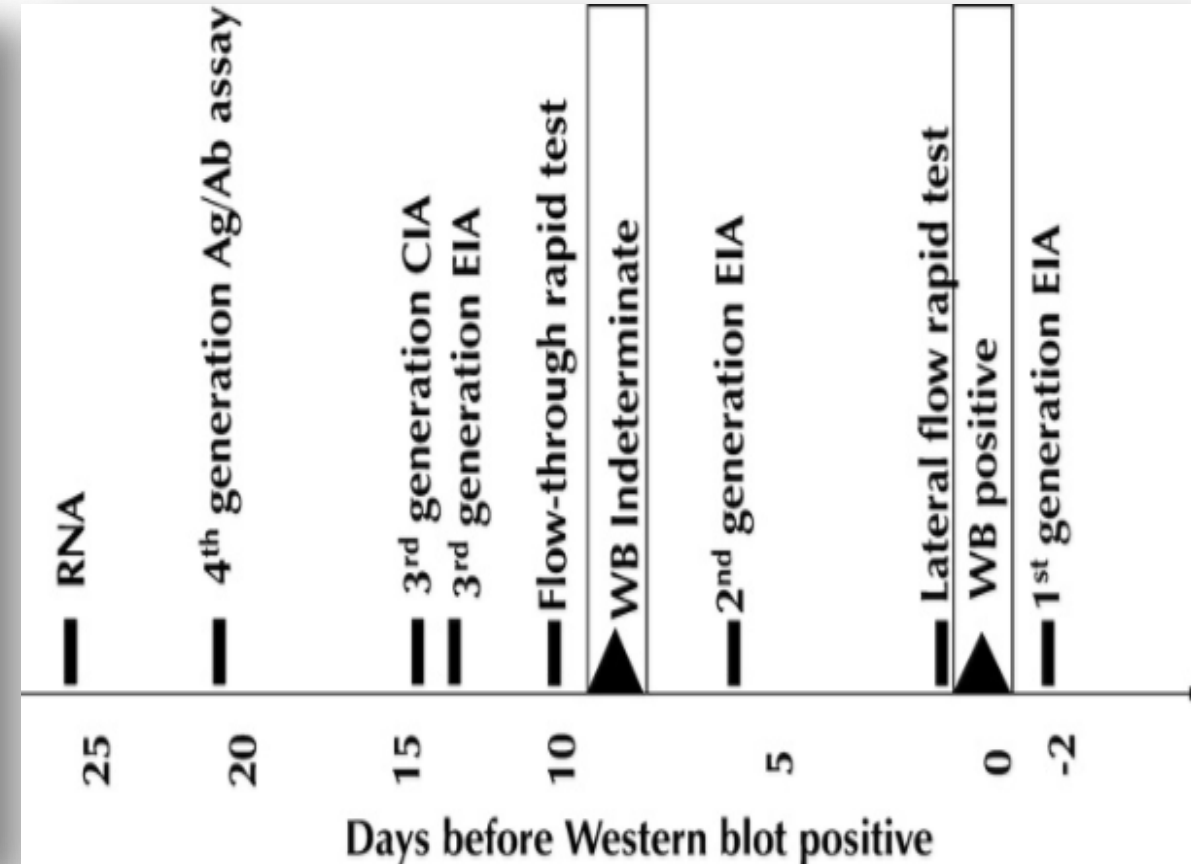
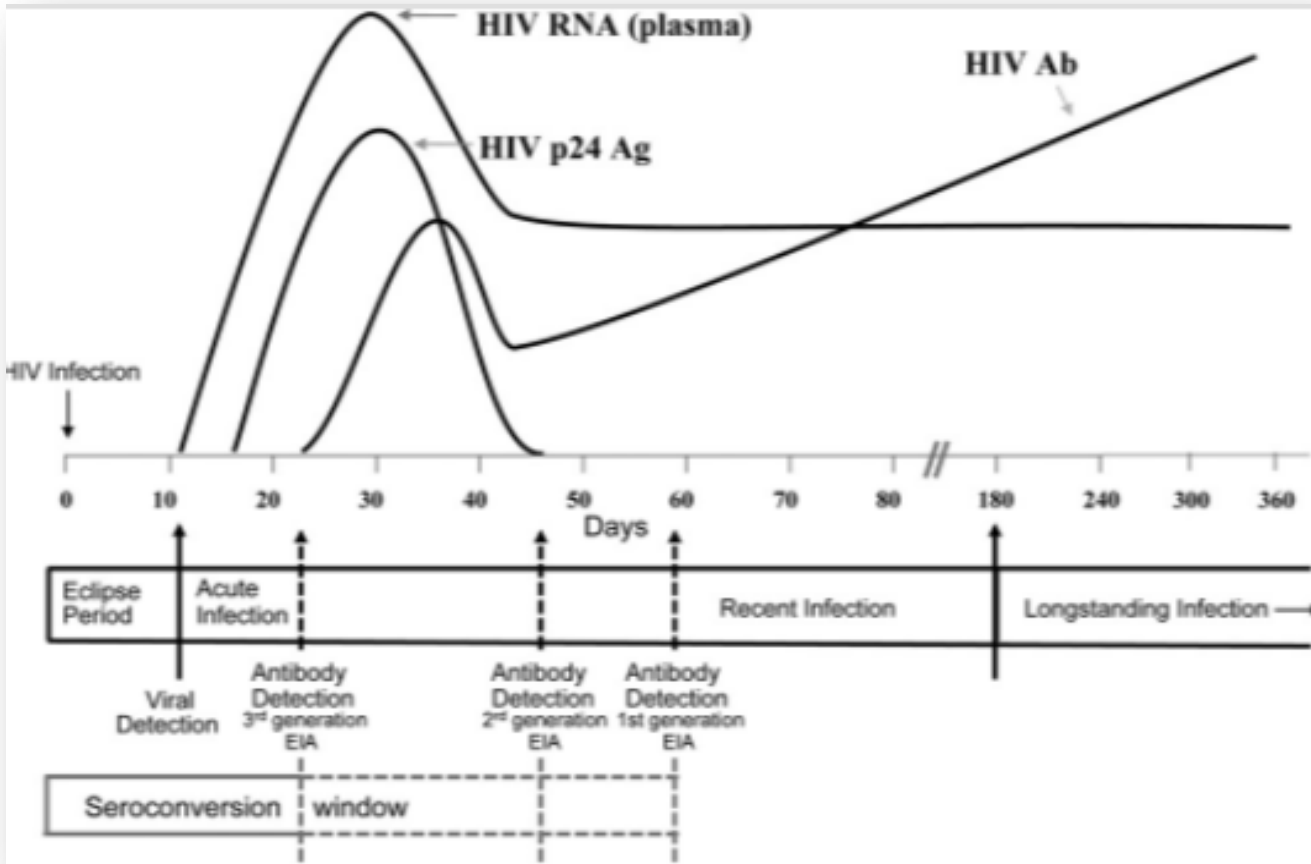
# Diagnosis of HIV

- After the inception of HIV in the 1980s, its diagnostic tests have come into the way.
- HIV is diagnosed by many ways:

Type of test
PCR or viral load
P24 test
4th generation antigen/antibody (Ag/Ab) tests (p24+ ELISA, ELI, MEIA/ELFA/ECLIA): includes Architect, Duo, Combo/Combi, etc.
1st/2nd/3rd generation antigen only tests (ELISA, ELI, MEIA/ELFA/ECLIA)
Rapid tests: finger prick and oral swab test are antibody only
Western blot tests look for antibodies to specific HIV proteins

- Many approaches are commercially available nowadays for HIV diagnosis and most are based on the same principle of antigen-antibody complexes

# Sequence of appearance of laboratory markers in HIV infection



# Laboratory tests

- 4<sup>th</sup> generation : antibody/antigen tests
- Extremely accurate
- Quality control can be assured
- Simultaneous screening for other STIs
- Most infections detected within 4 weeks

Cases (%)	Time period (in weeks)
60–65	After 4
80	After 6
90	After 8
95	After 12

## **BUT**

- Can be performed only in medical settings
- Getting the result requires coming back on another day

# Barriers to HIV testing and characteristics associated with never testing among gay and bisexual men attending sexual health clinics in Sydney

Barriers to more frequent HIV testing by testing history

Barrier	Ever testers <i>N</i> <sup>a</sup> (%)	Never testers <i>N</i> <sup>a</sup> (%)	Total <i>N</i> <sup>a</sup> (%)	Test & <i>p</i> -value
It's annoying to have to return for results	307 (31.3)	23 (20.5)	330 (30.2)	$\chi^2=5.5, p=0.02$
I haven't done anything risky	292 (29.8)	32 (28.6)	324 (29.6)	$\chi^2=0.1, p=0.79$
It's stressful waiting for the test result	284 (29.0)	26 (23.2)	310 (28.4)	$\chi^2=1.6, p=0.20$
I'm scared of a positive result	255 (26.0)	45 (40.2)	300 (27.5)	$\chi^2=10.2, p<0.01$
I have been tested recently	254 (25.9)	0 (0.0)	254 (23.2)	NA
It's difficult to find the time to be tested	206 (21.0)	19 (17.0)	225 (20.6)	$\chi^2=1.0, p=0.32$
I don't like needles/syringes	88 (9.0)	16 (14.3)	104 (9.5)	$\chi^2=3.3, p=0.07$
I don't like having blood taken for the test	52 (5.3)	12 (10.7)	64 (5.9)	$\chi^2=5.3, p=0.02$
It's difficult to get an appointment	47 (4.8)	2 (1.8)	49 (4.5)	$\chi^2=2.1, p=0.22^b$
I don't like to show my Medicare card	34 (3.5)	3 (2.7)	37 (3.4)	$\chi^2=0.2, p=1.00^b$
I don't like having a discussion about testing	25 (2.6)	2 (1.8)	27 (2.5)	$\chi^2=0.2, p=1.00^b$
It costs too much to get tested	20 (2.0)	3 (2.7)	23 (2.1)	$\chi^2=0.2, p=0.72^b$
I don't know where to go for a HIV test	14 (1.4)	6 (5.4)	20 (1.8)	$\chi^2=8.6, p<0.01$

<sup>a</sup>Missing data included;

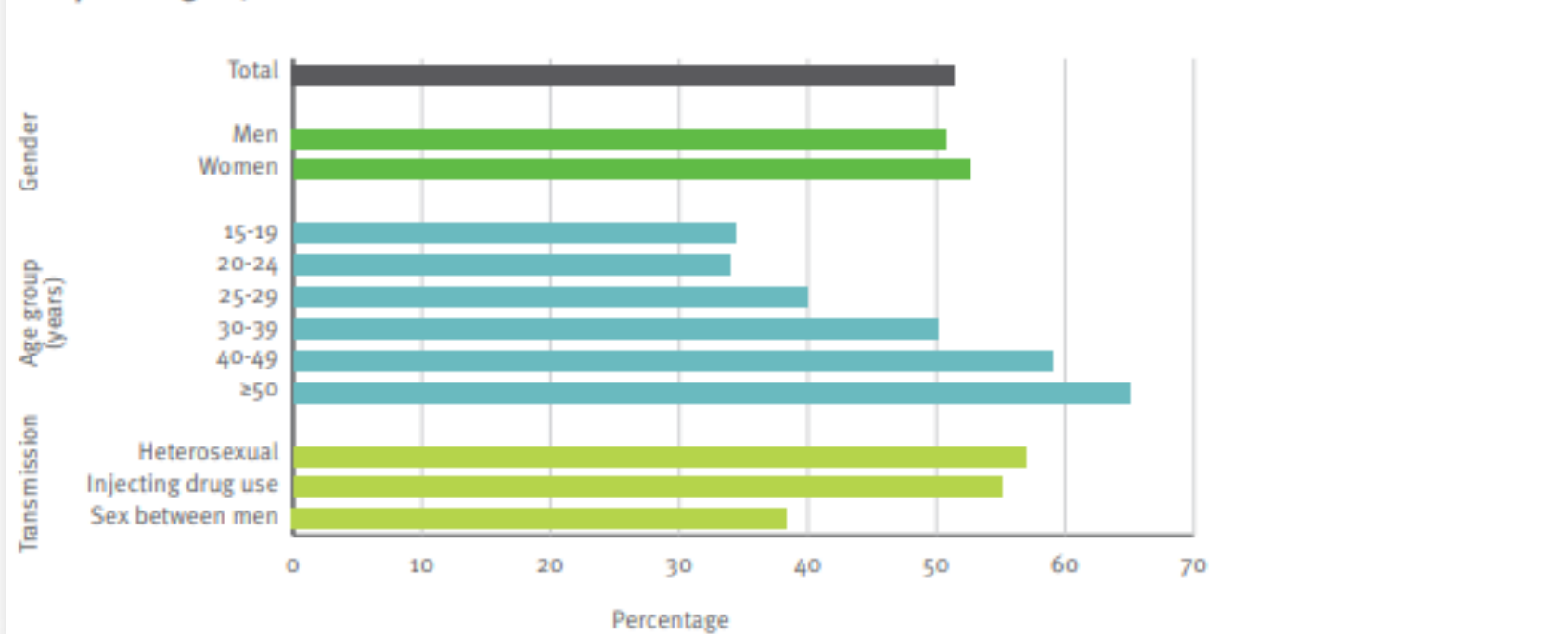
<sup>b</sup>fisher's exact test. NA=not applicable.

D. Conway et al, J Int AIDS Soc. 2015; 18(1): 20221.

# Late Presenters

- About half (51%) of those diagnosed with HIV in 2016 in the European Region were diagnosed at a late stage of infection (CD4 cell count <350 cells/mm at diagnosis). This was slightly lower in the EU/EEA (48%) and higher in the Eastern part of the region (56%)

Figure C: Proportion of persons diagnosed late (CD4 cell count < 350 per mm<sup>3</sup>) by gender, age and transmission, WHO European Region, 2016



# Rapid (POC) test

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- **Definition of POC test**: a diagnostic test that is performed near the patient or treatment facility, has a fast turnaround time and may lead to a change in patient management.
- **Rapid test** :
  - Can be used in community settings
  - “Rapid”: the result can be given within 30 min
  - No specialized laboratory equipment needed
  - Tiny sample of blood or oral fluid required



# Ath & Thess Checkpoints

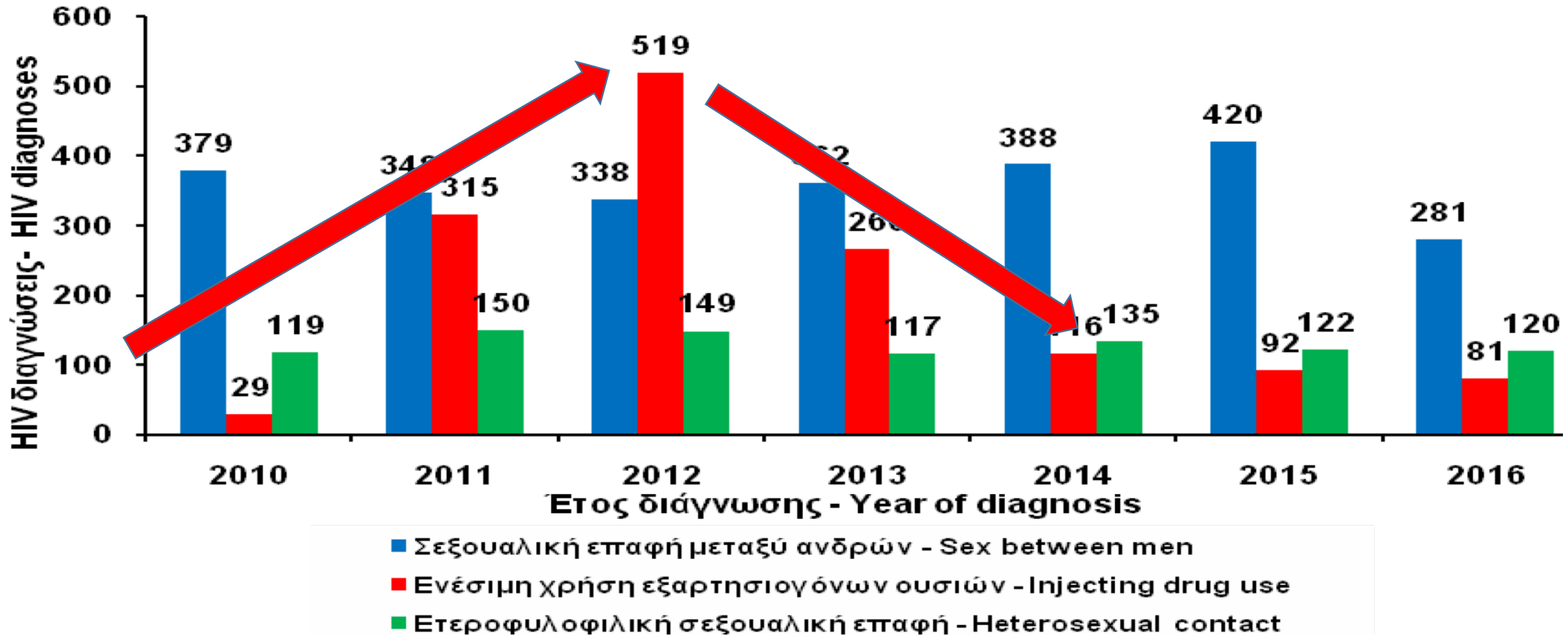
- Success story
- Community based testing
- Excellent linkage to care

	KEELPNO total numbers	CHECKPOINT	%
2014	802	152	19
2015	691	244	35
2016	616	176	29
2017 (oct)	492	152	<b>31</b>

**Reduction of new cases**

**31% of the total HIV cases** reported to the Greek CDC for the first 10 months of **2017** was recorded at the Checkpoints

# HIV diagnoses by year and mode of transmission



EDITOR'S CHOICE

# Rapid Decline in HIV Incidence Among Persons Who Inject Drugs During a Fast-Track Combination Prevention Program After an HIV Outbreak in Athens

Vana Sypsa, Mina Psychogiou, Dimitrios Paraskevis, Georgios Nikolopoulos, Chrissa Tsiara, Dimitra Paraskeva, Katerina Micha, Meni Malliori, Anastasia Pharris, Lucas Wiessing Martin Donoghoe, Samuel Friedman, Don Des Jarlais, Georgios Daikos, Angelos Hatzakis

*The Journal of Infectious Diseases*, Volume 215, Issue 10, 15 May 2017, Pages 1496–1505



# Rapid (POC) test

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- **Rapid tests** :

Detect HIV antibodies not p24 → primary HIV infection faces deficiencies in this regard (1/3 of acute viral infections: false neg results)

Most infections detected within 6-8 weeks

Results need to be confirmed with the standard HIV lab tests

# BCN Checkpoint: same-day confirmation of reactive HIV rapid test with Point Of Care HIV-RNA accelerates linkage to care and reduces anxiety

## Conclusion

The POC PCR assay is easy to use and feasible in a community-based center. Reducing time for confirmation to 90 min has been possible in 91.2% (197/216) of cases with positive PCR result. In cases of a negative PCR result an additional test (WB, Elisa or PCR quantitative) was needed to distinguish false positive results (6.5%) from viral load results below level of detection (2.3%). Clients expressed satisfaction with same-day confirmation and less anxiety.

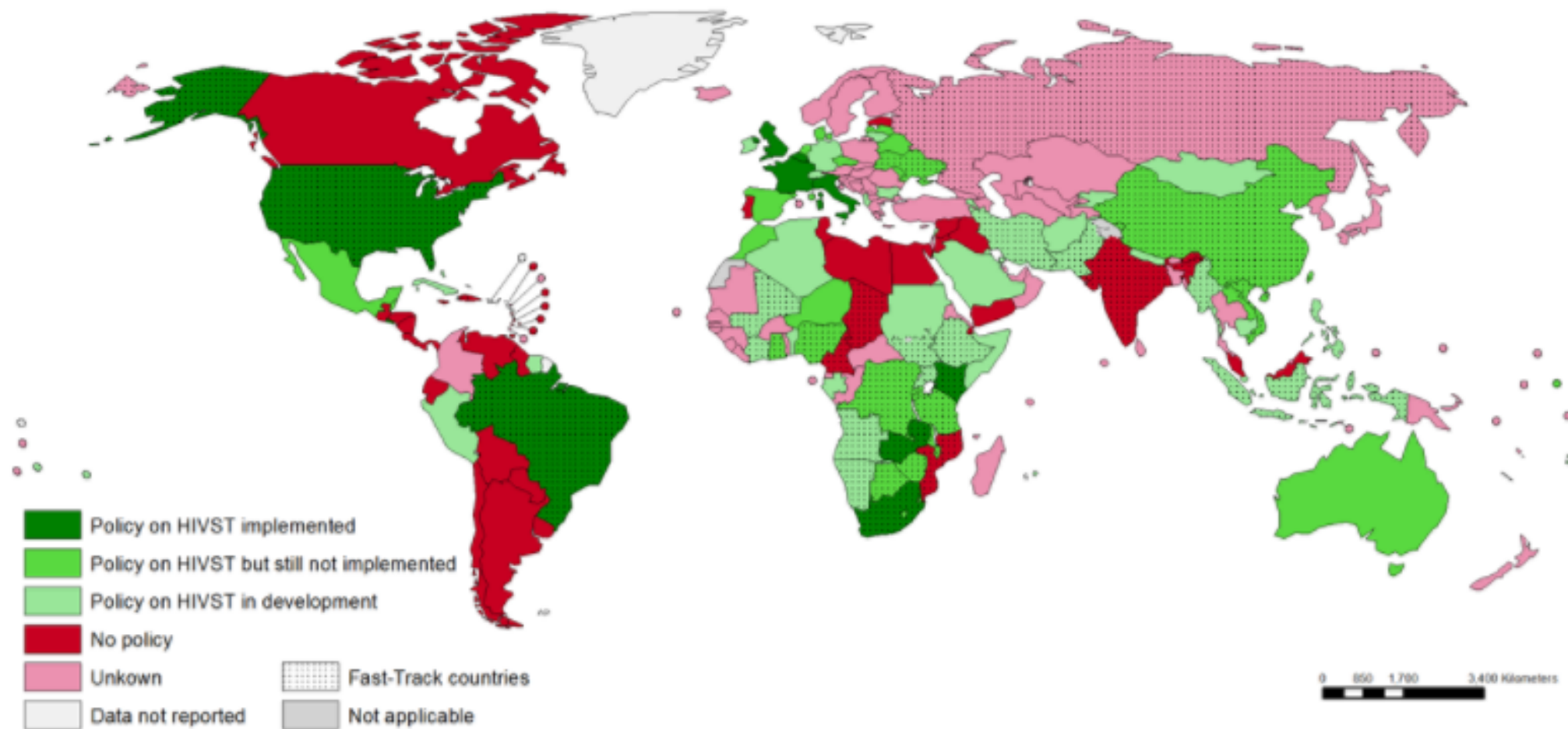
# Self testing

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- There are key populations who are often reluctant or unable to access existing services.
- Recognizing this, the World Health Organization (WHO) recommended that HIVST be offered as an approach to complement existing HIV testing approaches.
- Since then, HIVST has been scaling up rapidly.



## Status of HIV self-testing (HIVST) in national policies (situation as of November 2017)



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization  
Map Production: Information Evidence and Research (IER)  
World Health Organization



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# Self testing

- Is highly acceptable among various groups of users and in different settings
- Doubles the uptake of HIV testing in some populations
- Can be accurate and cost effective
- Non invasive
- Instant results

## **BUT**

- Limited support to people testing positive
- Linkage to care ?
- Maybe inaccurate during recent infection
- Risk of abuse





# The “ideal test”

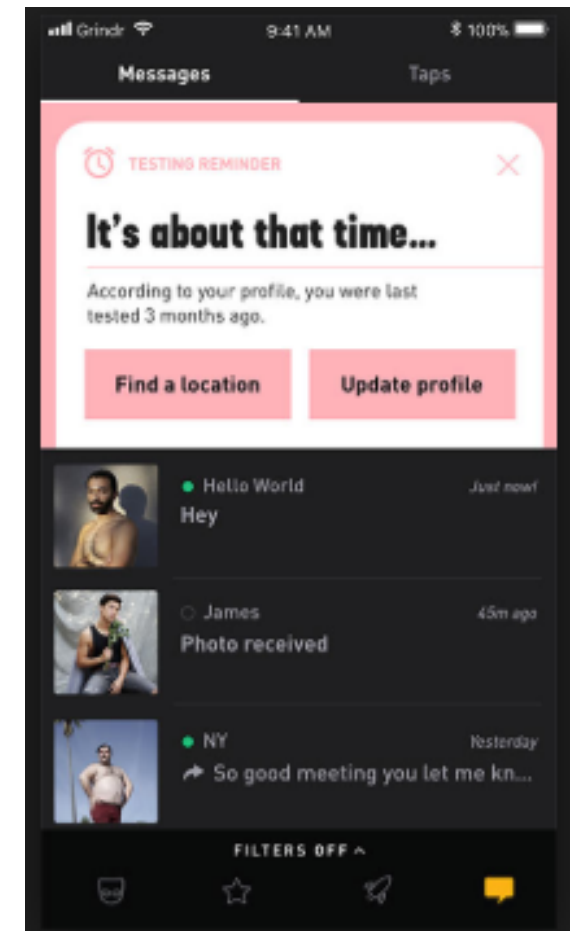
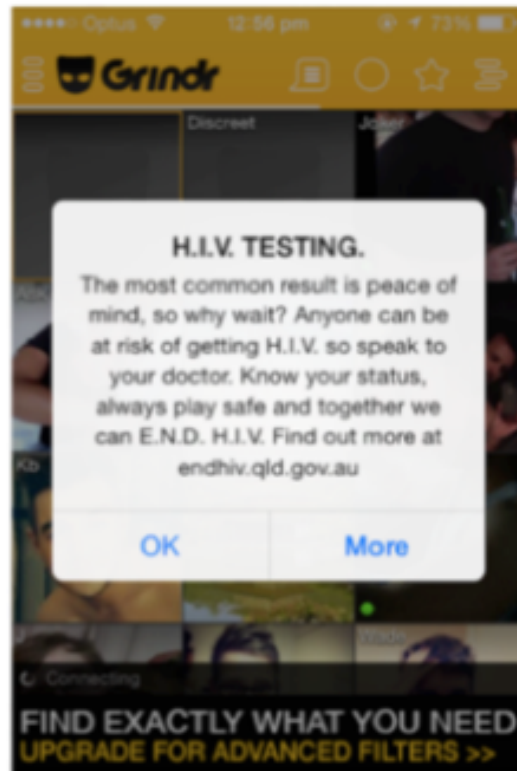
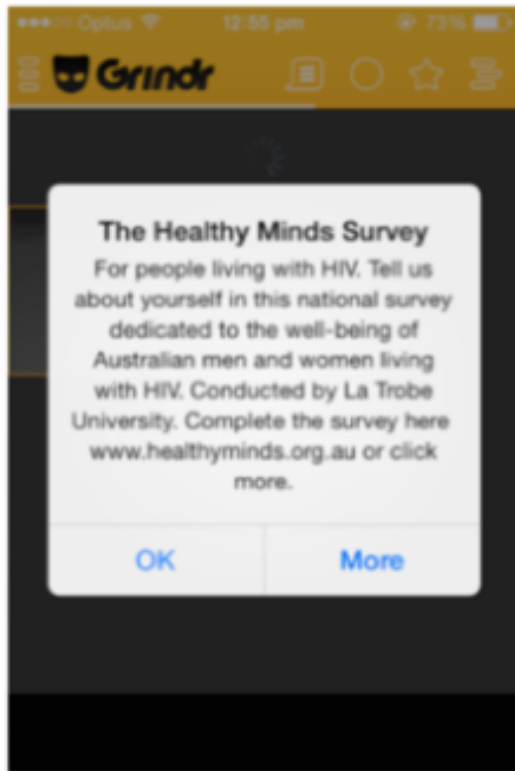
Does not exist

- Very accurate (sensitive and specific)
- Very accurate in identifying people who have recently been infected
- Reliable
- Non-invasive
- Safe
- Inexpensive
- Simple to carry out (no complex equipment or training)
- Quick to give results

targeted actions needed -  
tailored to specific populations

	Laboratory tests	Rapid, point-of-care tests	Self-sampling	Self-testing
<b>Available from</b>	Sexual health clinics, other medical settings.	Community settings, some clinics.	Order online.	Not yet available.
<b>Sample</b>	Blood from a vein.	Blood from a finger prick, or oral fluid.	Blood from a finger prick, or oral fluid.	Likely to be oral fluid, or blood from a finger prick.
<b>Speed of result</b>	Within 48 hours, or one to two weeks.	A few minutes.	One to two weeks.	A few minutes.
<b>Most infections detected within</b>	Four weeks (antibody/antigen test), a little longer for antibody only test.	Six to eight weeks.	Varies according to the sample and the test.	Unknown.
<b>Negative result reliable after</b>	Twelve weeks.	Twelve weeks.	Twelve weeks.	Unknown.
<b>How accurate, once the window period is over</b>	Gold standard.	Accurate for most people; slightly poorer performance than laboratory tests, especially when sample is oral fluid.	Accurate for most people; varies according to the sample and the test.	Unknown.
<b>Advantages</b>	The most reliable tests. Can provide STI screen at same time. Easier to implement quality control. Can test large numbers of people.	Instant results. Non-invasive.	Convenience. Privacy. Non-invasive.	Convenience. Privacy. Non-invasive. Instant results.
<b>Disadvantages</b>	Delay in getting results. Clinical settings only.	Inaccurate during recent infection.	Delay in getting results.	Limited support for people testing positive. Maybe inaccurate during recent infection. Risk of abuse.

# Increasing the uptake of HIV testing in order to reduce rates of undiagnosed infection and late diagnosis is a key goal of the HIV Prevention



Examples of HIV research and HIV awareness campaign pop-ups on the Grindr app. Screenshot taken from the Grindr app (2014).

# Increasing the uptake of HIV testing in order to reduce rates of undiagnosed infection and late diagnosis is a key goal of the HIV Prevention



## Eurovision Winner Conchita Wurst Reveals She's HIV-Positive



After an ex threatened to go public about her status, the renowned performer took matters into her own hands.

BY DAVID ARTAVIA

MONDAY, APRIL 16, 2018 - 11:47



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Дякую

Ευχαριστώ

Thank you

Спасибо