

El modelo de BCN Checkpoint para el diagnóstico temprano de la infección por VIH

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Projecte dels NOMS-Hispanosida

IX JORNADA DE ENFERMEDADES EMERGENTES

Col·legi de Metges de Barcelona

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Disclosures

- In the past 2 years I have been a member of the Community Advisory Board for: ViiV Healthcare, Gilead Sciences and MSD
- In the past 2 years I have been a speaker for: Cepheid, Alere, Gilead Sciences

Content

- Introduction
- Detection of acute HIV infections
- Impact of early detection, fast linkage to care and immediately start of ART
- Next steps

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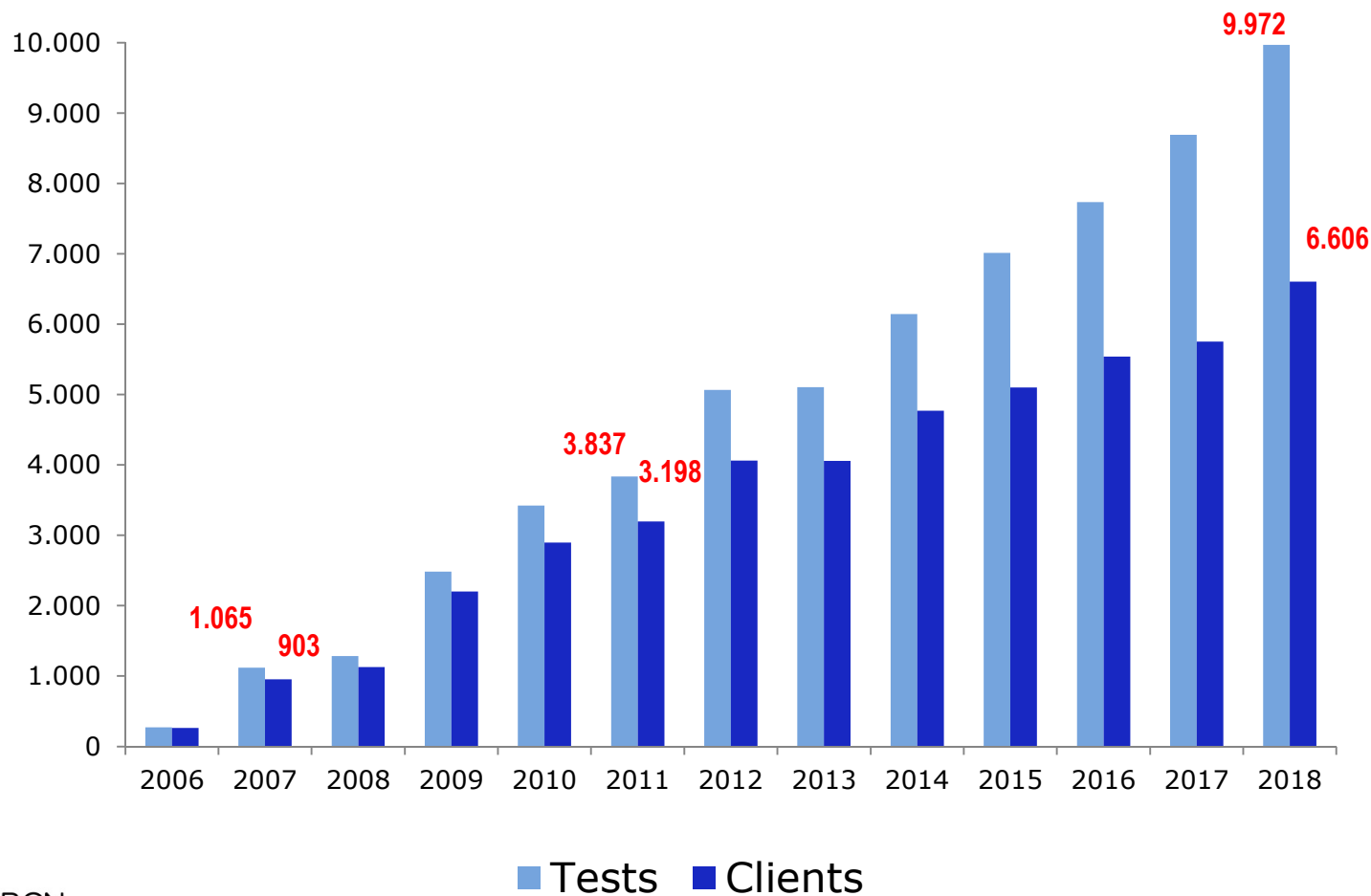
Introduction

- HIV is a concentrated epidemic in MSM in Western Europe
- BCN Checkpoint opened in January 2006, a community centre for MSM and TW to increase uptake of free HIV and STI testing
- Key factors:
 - ✓ Peer-led
 - ✓ POC testing
- The model of intervention has been recognized by ECDC, WHO Europe and UNAIDS and has been replicated throughout Europe



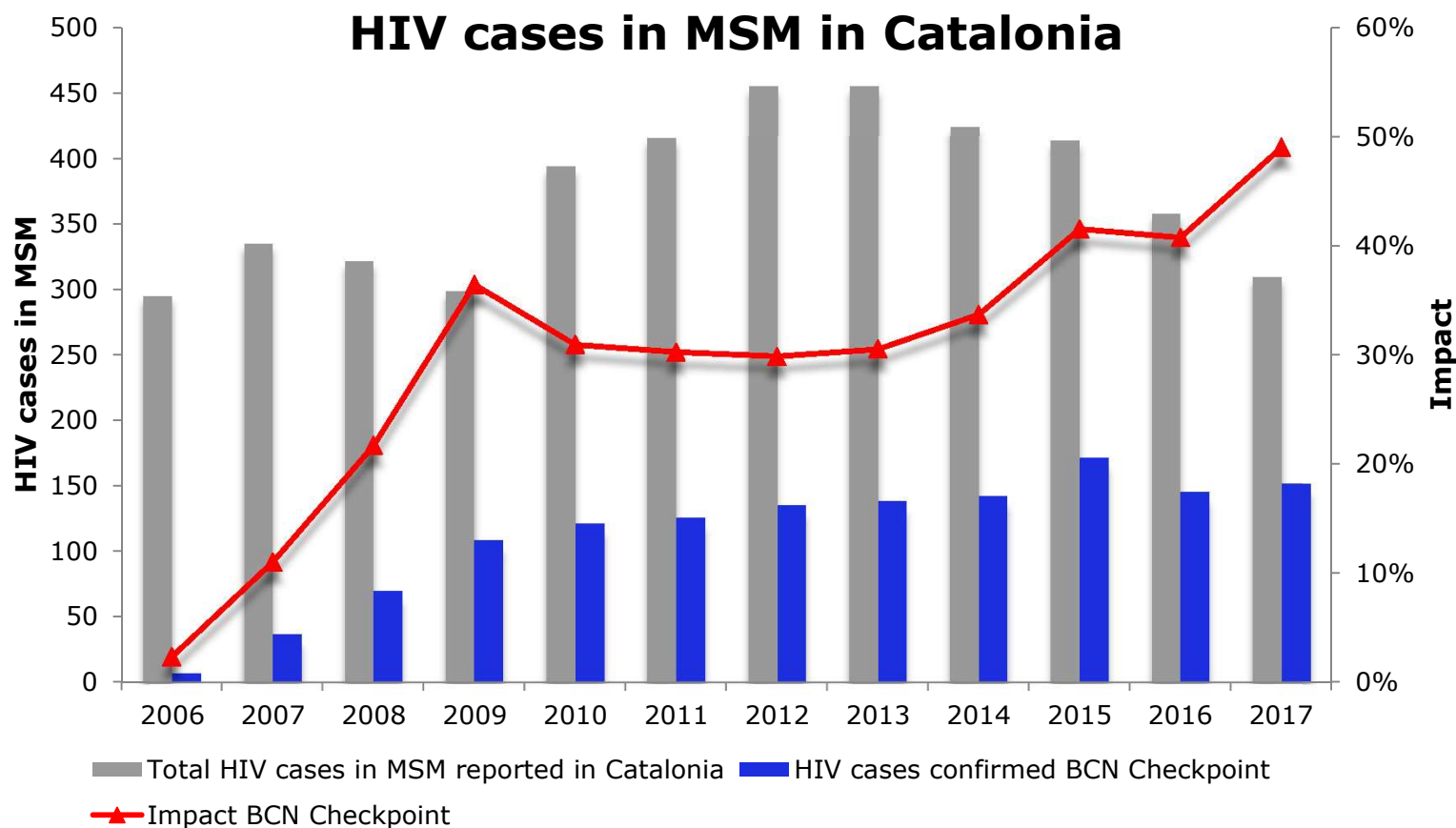
Number of tests and clients in BCN Checkpoint (2006 - 2018)

9,972 tests represents 3.6% of all HIV tests performed in the country



Impact of BCN Checkpoint

BCN Checkpoint detects around 1/3 of all reported cases in Catalonia



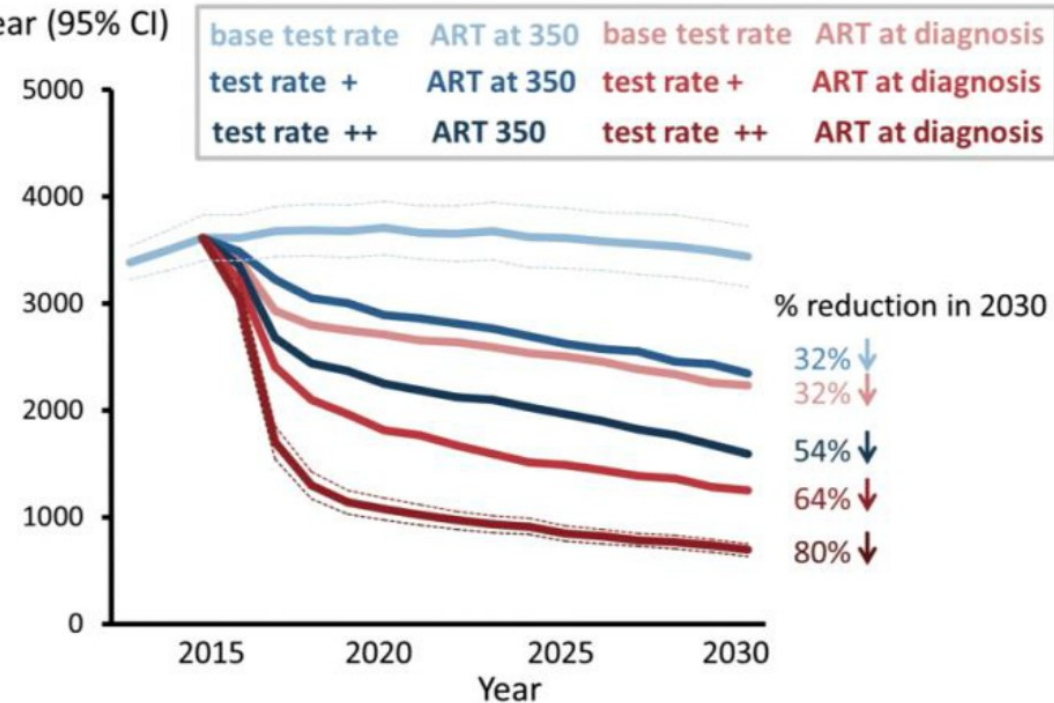
Content

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- **Detection of acute HIV infections**
- Impact of early detection, fast linkage to care and immediately start of ART
- Next steps

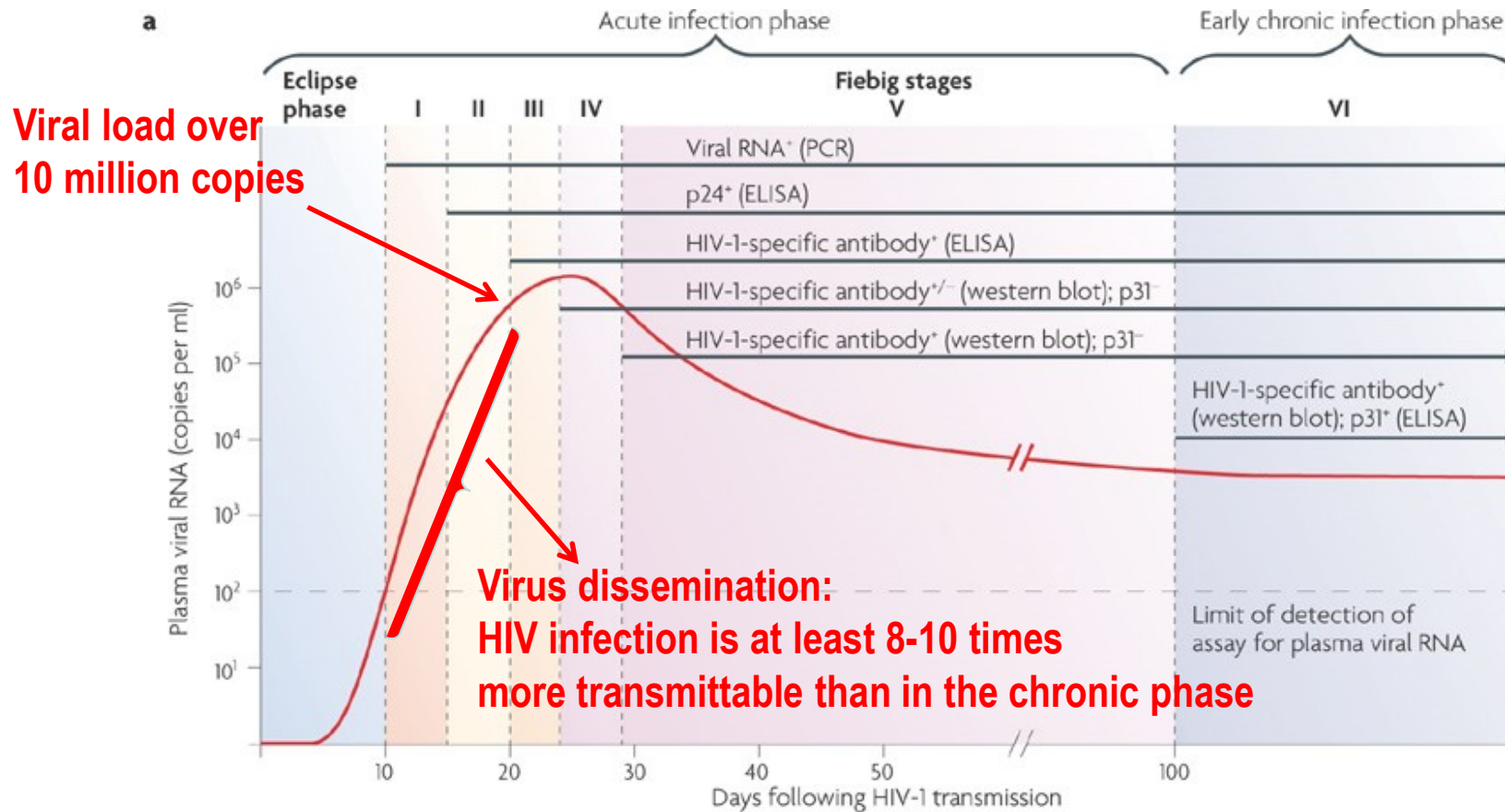
What can reduce HIV incidence?

HIV incidence

Number of new infections
per year (95% CI)



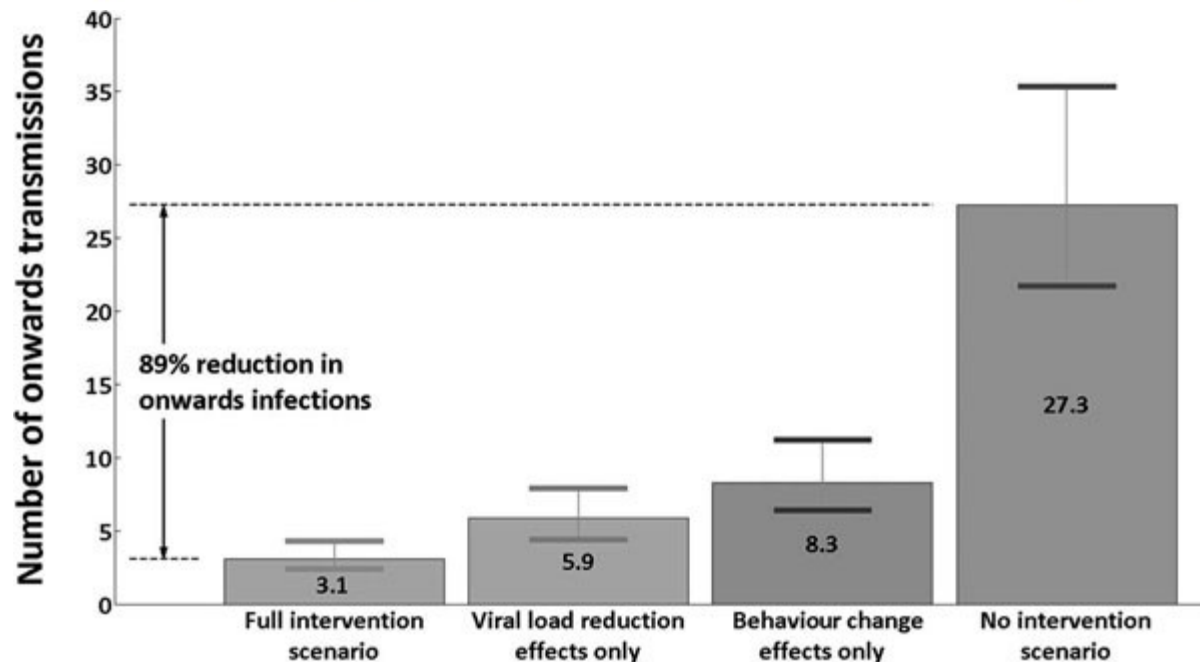
Detection of Acute HIV infections



Test, detect and start treatment

Research article

Acute HIV infection detection and immediate treatment estimated to reduce transmission by 89% among men who have sex with men in Bangkok

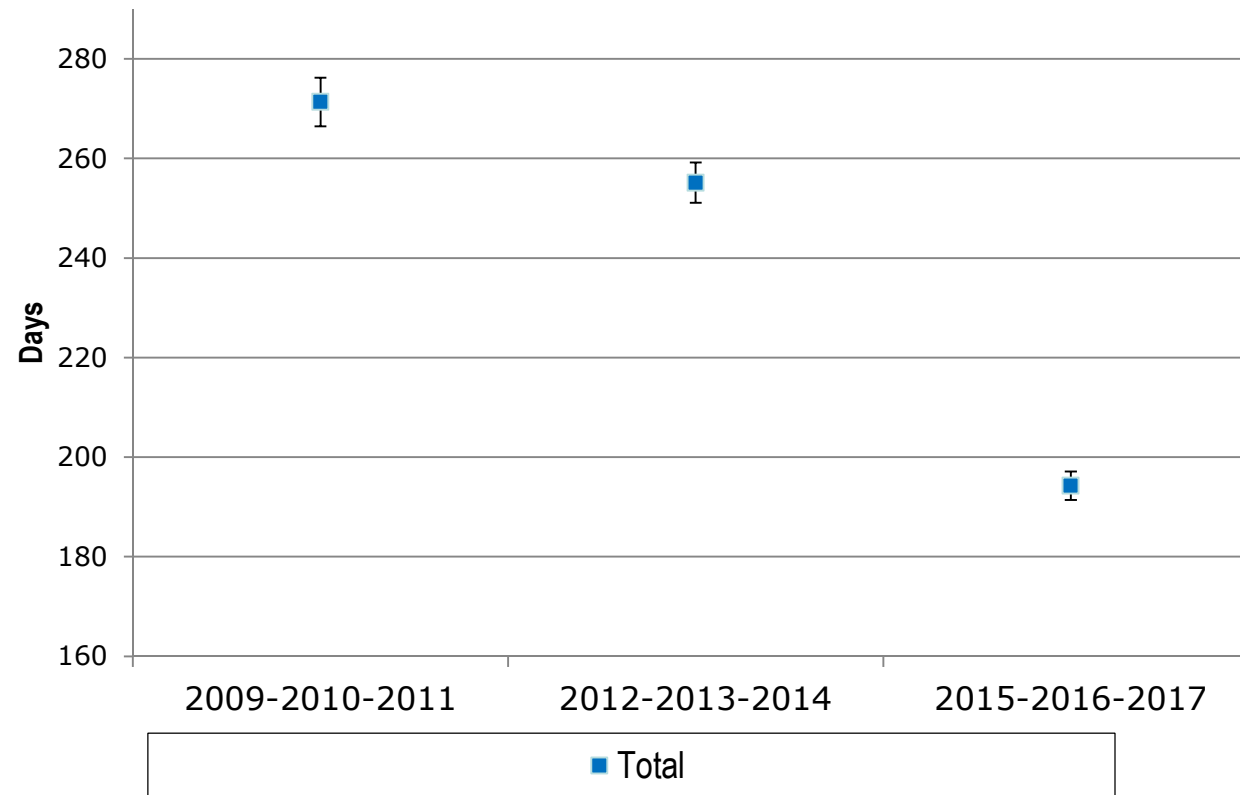


Detection of acute infections

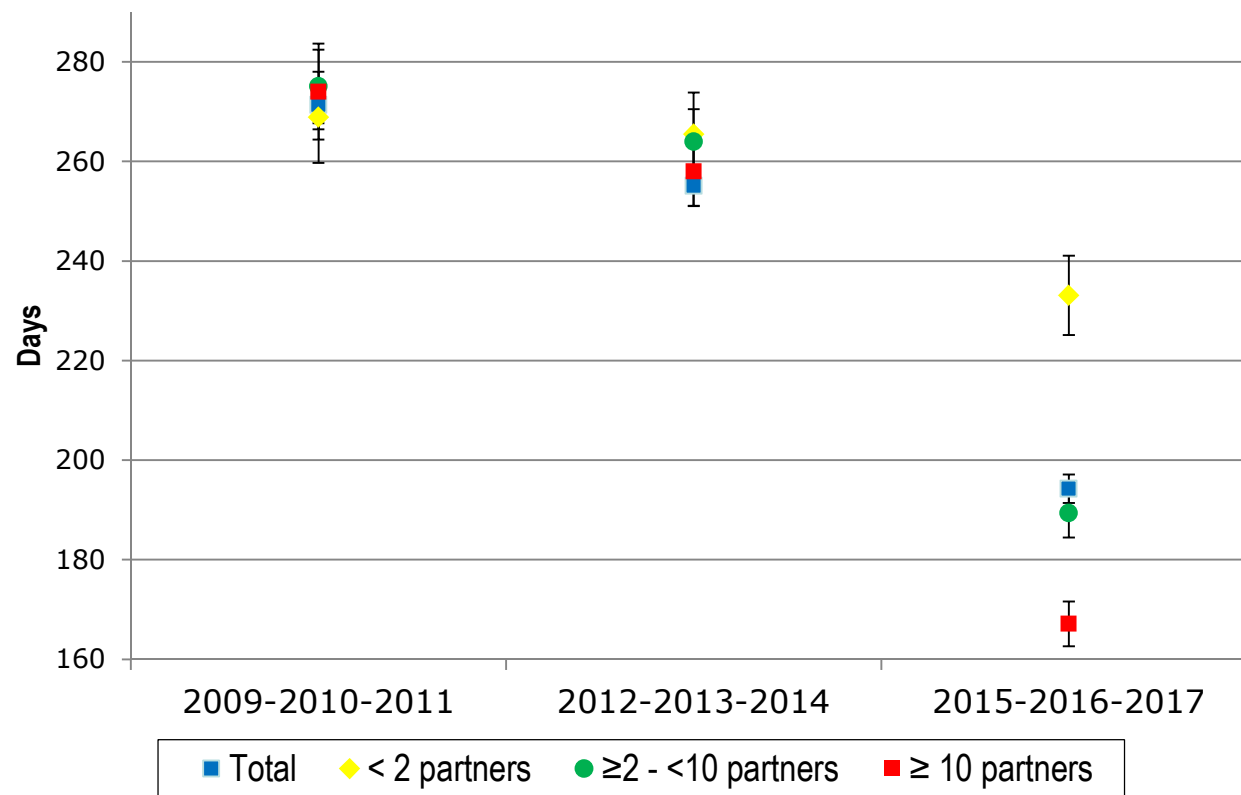
Recommendation to test every 3 months!
(2014)



Frequency of testing



Frequency of testing



Detection of acute infections

Recommendation to test every 3 months!
(2014)

New PoC technologies: P24, viral load



Detection of P24 antigen



Introduction Alere™ HIV Combo: 25 March 2016

Period: 25 March 2016 – 31 December 2017

Total tests performed: 13,127

Total reactive tests: 258

	antibodies	P24 and antibodies	P24	Total
Total reactive tests	246	7	5	258
False positive results	5	0	2	7
Confirmed positive results	241	7	3	251

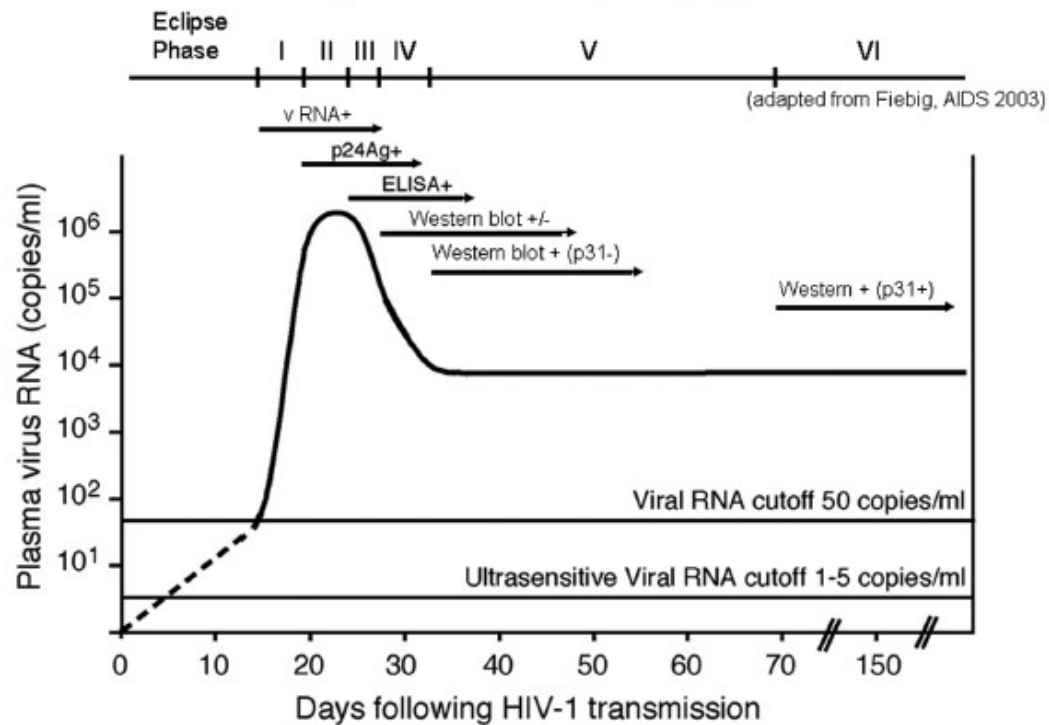
Added value detection of P24 antigen

Cases	Age	Marker	Time to hospital	Time to start treatment	VL	CD4
Nº 1	35	P24	1 day	same day	> 10 millones	257
Nº 2	46	P24	1 day	same day	> 10 millones	332
Nº 3	60	P24	2 days	same day	4.598.724	385
Nº 4	45	P24 and antibodies	16 days	same day	565.702	301
Nº 5	22	P24 and antibodies	12 days	3 days	270.345	144
Nº 6	28	P24 and antibodies	5 days	2 days	240.892	238
Nº 7	21	P24 and antibodies	7 days	6 days	183.819	168
Nº 8	40	P24 and antibodies	1 day	same day	942.000	39
Nº 9	39	P24 and antibodies	7 days	same day	83.250	610
Nº 10	22	P24 and antibodies		Not Available	Not Available	555



Detection of acute infections

Natural History and Laboratory Staging of HIV Infection



The Xpert HIV-1 Qual kit probit LOD on WHO standards is 278cp/ml (95%IC 253-304 cp/ml) from 100µl of whole blood

Detection of acute infections

When Rapid HIV Test result is negative, the Xpert HIV-1 Qual test was offered to clients who comply selection criteria

Period I

April 2015 – April 2016

Criteria period I:

- Condomless Anal Sex during the last 1-3 months
- Partner with a recent HIV diagnosis
- Symptoms of acute HIV infection

Results period I

	Period I	Period II
Total rapid HIV tests	8,018	
Total persons tested	5,718	
Total positive results	152	
Total Viral Load tests	1,178	
Total persons tested	993	
Total acute infections	7	
Prevalencia	0.70%	



Multivariate logistic regression analysis period I

Reason for HIV-RNA testing	OR (95%CI)	P-value
CAS during the last 1-3 months	0.18 (0.03-1.09)	0.062
Partner with a recent HIV diagnosis	3.92 (0.50-31.00)	0.195
Symptoms of acute HIV infection	9.11 (1.49-55.63)	0.017

**Confirmation test will be performed with
Xpert® HIV-1 Viral Load**



Adjustments for selection criteria

When Rapid HIV Test result is negative, the Xpert HIV-1 Qual test was offered to clients who comply selection criteria

Period I

April 2015 – April 2016

Criteria period I:

- Condomless Anal Sex during the last 1-3 months
- Partner with a recent HIV diagnosis
- Symptoms of acute HIV infection

Period II

May 2016 – May 2017

Criteria period II:

- CAS with ≥ 2 partners during last month
- Partner with a recent HIV diagnosis
- Symptoms of acute HIV infection
- ChemSex during last month
- Diagnosed rectal STI

Results period II



	Period I	Period II
Total rapid HIV tests	8,018	8,521
Total persons tested	5,718	5,925
Total positive results	152	157
Total Viral Load tests	1,178	702
Total persons tested	993	564
Total acute infections	7	10
Prevalence	0.70%	1.77%

+4.6%

+6.4%

Multivariate logistic regression analysis period II

Reason for HIV-RNA testing	OR (95%CI)	P-value
CAS with ≥ 2 partners during last month	1.62 (0.46-5.66)	0.452
Partner with a recent HIV diagnosis	21.08 (4.48-99.32)	< 0.001
Symptoms of acute HIV infection	1.61 (0.42-6.25)	0.489
ChemSex: GHB/GBL	10.27 (2.01-52.46)	0.005
ChemSex: Mephedrone	0.11 (0.01-1.14)	0.064
ChemSex: Methamphetamine	1.48 (0.29-7.49)	0.634

Early detection + start treatment = reduction transmissions

Cases	Age	Time to hospital (days)	Time to start ART (days)	VL (log)	CD4	% CD4
# 1	37	3	0	> 7.0	265	19%
# 2	38	2	0	> 7.0	117	17%
# 3	19	2	0	5.4	1,061	38%
# 4	35	1	0	> 7.0	928	46%
# 5	33	1	0	4.9	174	13%
# 6	25	1	0	6.2	470	31%
# 7	25	2	0	> 7.0	261	33%
# 8	31	1	0	3.4	439	24%
# 9	22	1	0	5.6	495	23%
# 10	23	1	1	5.9	1,097	35%
# 11	26	1	0	> 7.0	489	48%
# 12	32	1	0	> 7.0	916	39%
# 13	49	1	0	> 7.0	308	24%
# 14	50	1	0	4.9	575	34%
# 15	32	1	0	4.3	1,083	43%
# 16	42	2	0	> 7.0	599	22%
# 17	27	1	0	4.4	993	47%

47% had > 10 million copies of viral load

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Detection of acute HIV infections

Year	2015	2016	2017
Tests	1061	616	391
Cases	6	7	7

2015



2016



2017

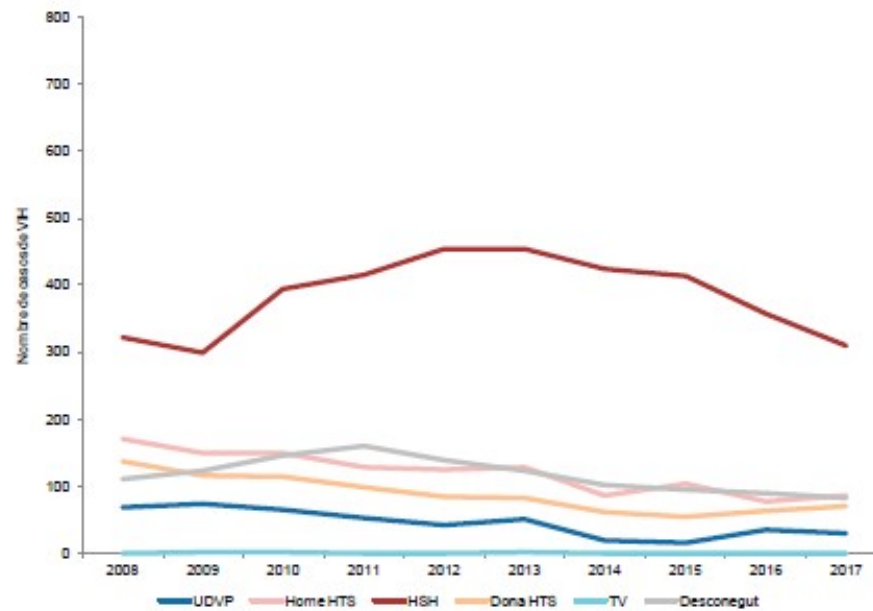


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Impact Early Detection + Fast Treatment

. Evolució dels diagnòstics de VIH segons via de transmissió. Catalunya, 2008-2017.



Impact Early Detection + Fast Treatment

Cohort BCN Checkpoint

Period between January 2009 and December 2017:

23,980.23 person-years of follow-up

507 HIV infections

Incidence HIV: 2,11 x 100 person-years

(95% CI: 1,94 – 2,30)

Impact Early Detection + Fast Treatment

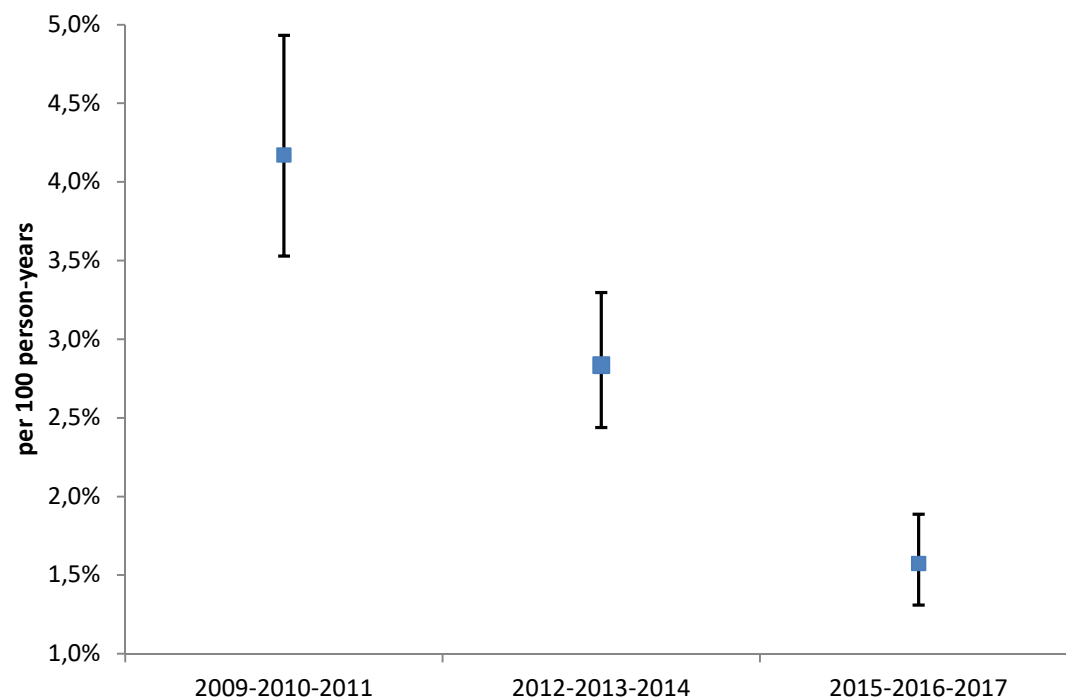
Cohort Barcelona Checkpoint

2009-2010-2011

2012-2013-2014

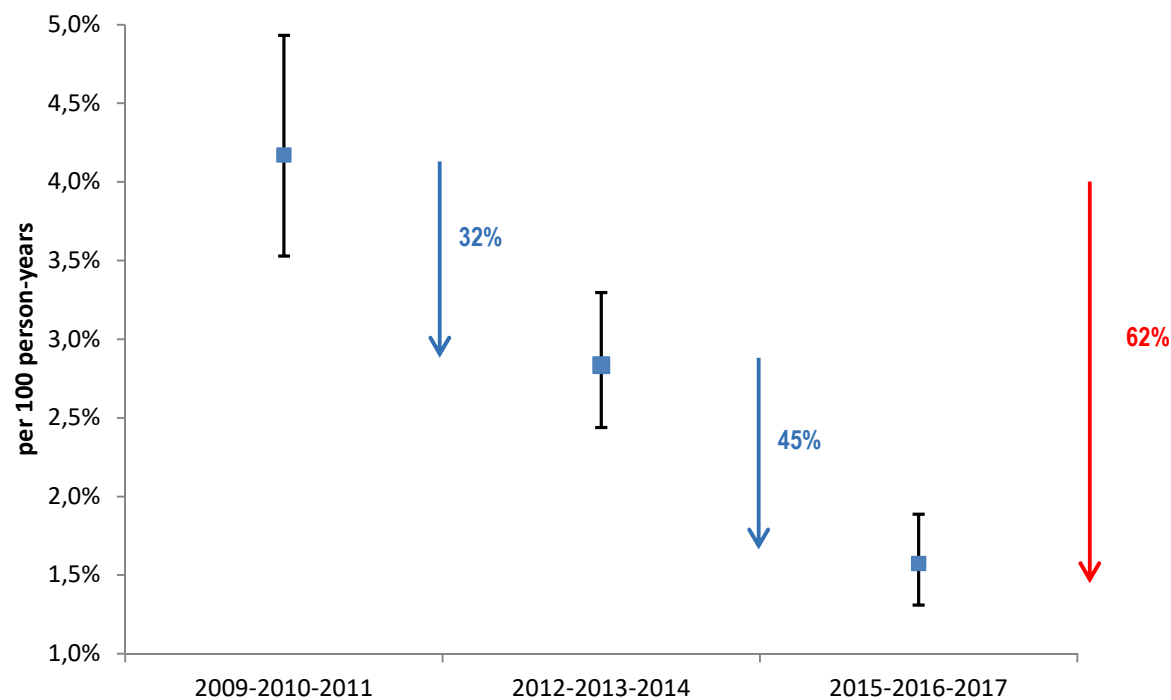
2014-2016-2017

Impact Early Detection + Fast Treatment



Period (years)	persons-years	Seroconversions	Incidence rate (95%CI)
2009 – 2011	3.284,62	137	4,17% (3,53-4,93)
2012 - 2014	5.960,46	169	2,84% (2,44-3,30)
2015 - 2017	7.315,63	115	1,57% (1,31-1,89)

Impact Early Detection + Fast Treatment



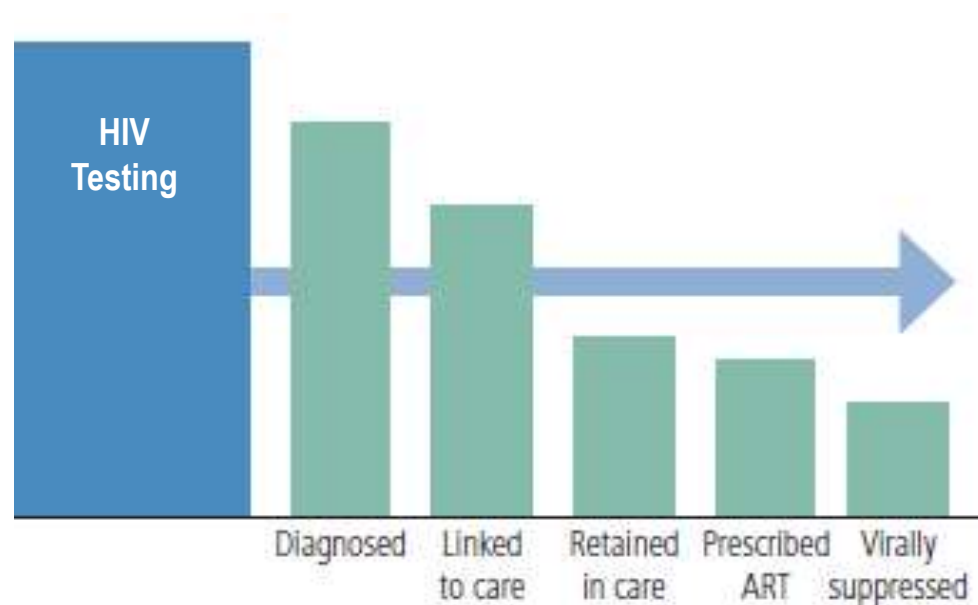
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HIV testing: the first step to Treatment as Prevention (TasP)

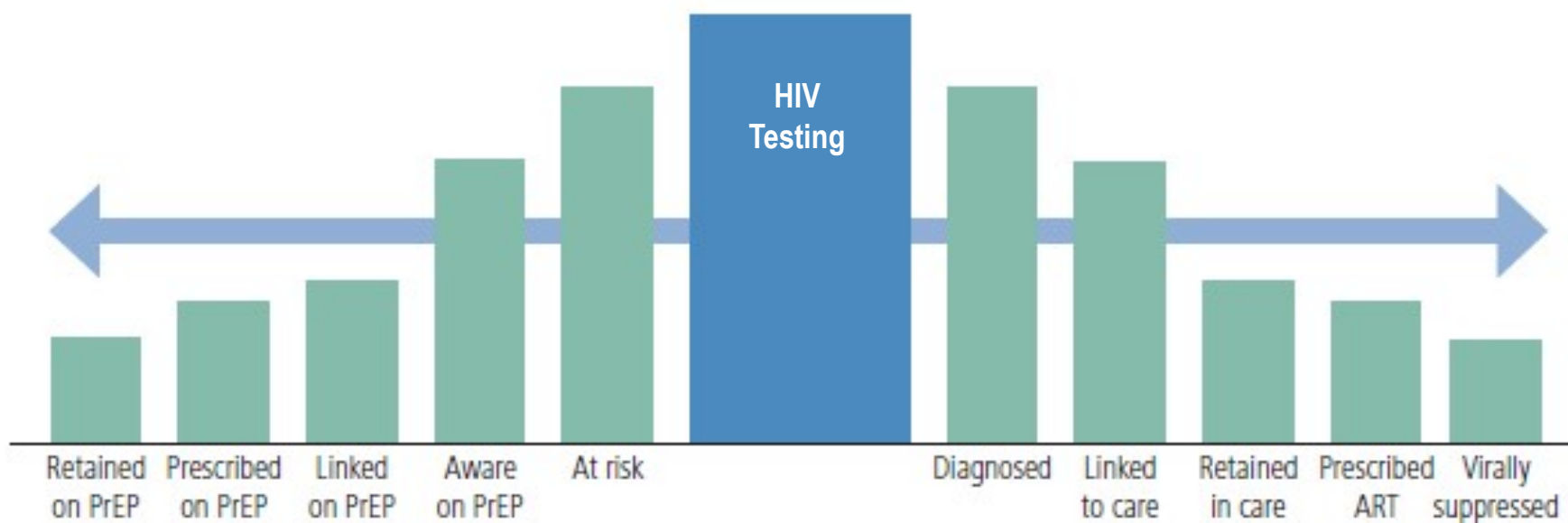
TEST & TREAT



<https://www.nastad.org/domestic/hiv-prevention-health-equity>

HIV testing: the first step to Pre-Exposure Prophylaxis (PrEP)

TEST & PrEP



<https://www.nastad.org/domestic/hiv-prevention-health-equity>

BCN PrEP·Point



¡Muchas gracias!