



PRESIDENZA DEL CONSIGLIO DEI MINISTRI  
**Dipartimento Politiche Antidroga**



REGIONE VENETO  
**ULSS 20**  
**VERONA**



Regione del Veneto - Azienda ULSS 20  
Dipartimento delle Dipendenze



Screening and treatment of HIV and drug related diseases among drug users: a scientific update

# ***Anonymous Screening and Treatment for HIV/AIDS***

*Good practices at Verona Addiction Department*

*Verona 3<sup>rd</sup> April 2014*

# Commitments and targets for 2015

1.



Reduce sexual  
transmission of HIV  
by 50% by 2015

2.



Reduce transmission  
of HIV among people  
who inject drugs by  
50% by 2015

3.



Eliminate new HIV  
infections among children  
by 2015 and substantially  
reduce AIDS-related  
maternal deaths

4.



Reach 15 million people  
living with HIV with  
lifesaving antiretroviral  
treatment by 2015

5.



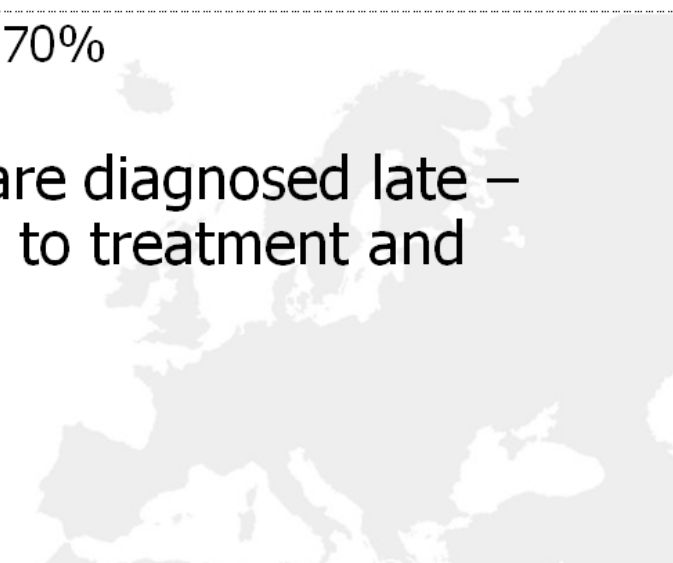
Reduce tuberculosis  
deaths in people living  
with HIV by 50 percent  
by 2015

# HIV infections: need for action



Levels of late diagnoses and undiagnosed HIV infections are high:

- An estimated 30% of people infected with HIV in Europe are unaware of their infection.
- Reported rates of HIV testing vary across countries:
  - among injecting drug users: up to 84%
  - among men who have sex with men: up to 70%
- A considerable proportion of patients are diagnosed late – a missed opportunity for timely access to treatment and care.





## ***HIV TESTING AND LINKAGE TO CARE***

### ***HIV testing***

- *Linkage to HIV care and prevention*

### ***Enrolment in care***

- *Eligibility assessment*
- *Pre art care retention*

### ***ART initiation***

- *Lifelong ART retention*
- *Adherence supplies*

### ***Viral load suppression***

### ***KEY POINTS***

***Early HIV testing is the first step in the pathway to successful HIV care***

# ENROLMENT IN CARE

## ***HIV testing***

- *Linkage to HIV care and prevention*

## ***Enrolment in care***

- *Eligibility assessment*
- *Pre ART care retention*

## ***ART initiation***

- *Lifelong ART retention*
- *Adherence supplies*

## ***Viral load suppression***

## ***KEY POINTS***

***Substantial numbers of people are being “lost” between taking an HIV test and starting ART***

# ***ART: INITIATION, RETENTION AND ADHERENCE***

## ***HIV testing***

- *Linkage to HIV care and prevention*

## ***Enrolment in care***

- *Eligibility assessment*
- *Pre art care retention*

## ***ART initiation***

- *Lifelong ART retention*
- *Adherence supplies*

## ***Viral load suppression***

## ***KEY POINTS***

***Initiating treatment early is vital for success***



# ***SUPPRESSING VIRAL LOAD***

## ***HIV testing***

- *Linkage to HIV care and prevention*

## ***Enrolment in care***

- *Eligibility assessment*
- *Pre art care retention*

## ***ART initiation***

- *Lifelong ART retention*
- *Adherence supplies*

## ***Viral load suppression***

## ***KEY POINTS***

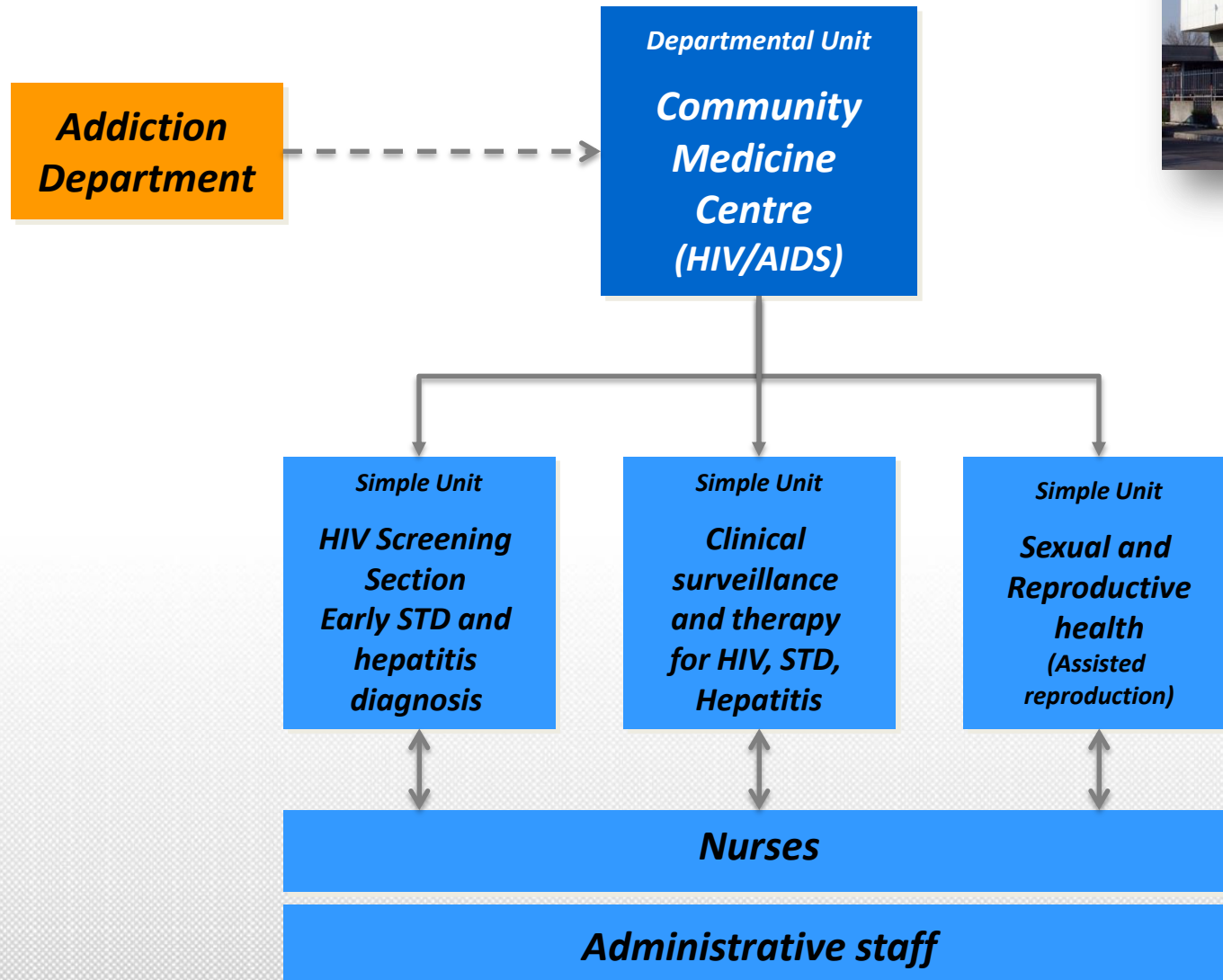
***Retaining people receiving ART in care and ensuring good treatment adherence are critical determinants of successful long-term viral load suppression***

# Community Medicine Centre (HIV/AIDS)

## *Our Model*



# Organization chart



# Team



*Oliviero Bosco*  
*Internal Medicine*



*Marina Malena*  
*Infectious Diseases*



*Umberto Galvan*  
*Psichiatry*



*Stefano Nardi*  
*Infectious Diseases*



*Mario Cruciani*  
*Infectious Diseases*



*Barbara Padovani*  
*Susanna Cavagna*  
*Stefania De Rosa*  
*Paola Di Ruscio*  
*Andrea Lanza*  
*Marta Salazzari*  
*Veronica Scolari*

*Nurses*

## Addiction Department

# CMC activities



- Screening for HIV, HCV, HBV and syphilis in addicted people
- Diagnosis and treatment for HIV positive people
- Diagnosis and treatment for viral hepatitis
- Diagnosis and treatment for other addiction related diseases
- Sexual and Reproductive Health (Assisted reproduction)



- Anonymous screening for HIV, HCV, HBV and syphilis in at risk population
- Diagnosis and treatment for HIV positive people
- Diagnosis and treatment for viral hepatitis
- Hospital infectious diseases service
- Home and residential care
- Sexual and Reproductive Health (Assisted reproduction)

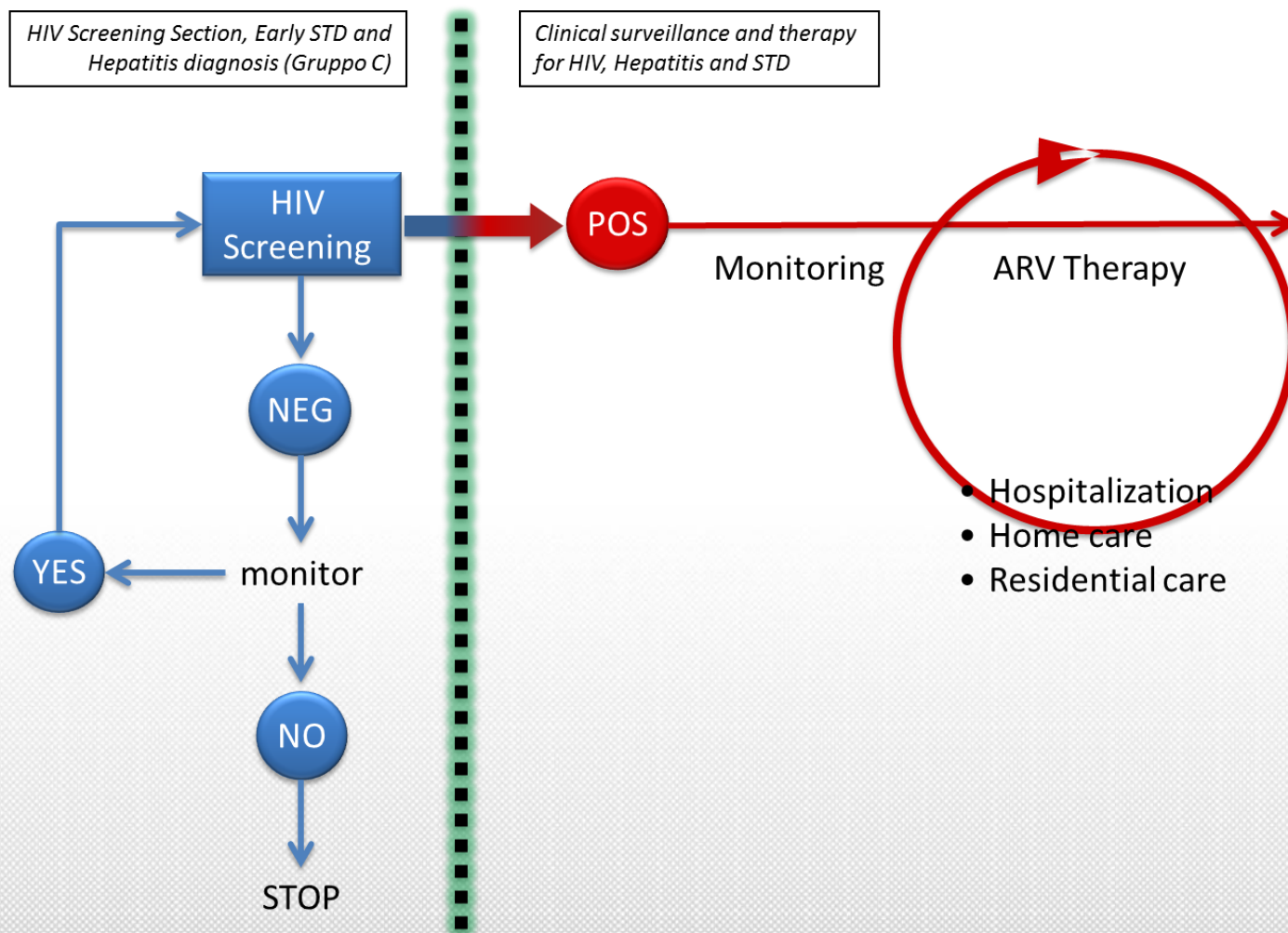


# Main activities

- ➔ Anonymous screening for HIV, HCV, HBV and syphilis in general at risk population
- ➔ Screening for HIV, HCV, HBV and syphilis in addicted people
- ➔ Diagnosis and treatment for HIV positive people
- ➔ Diagnosis and treatment for viral hepatitis
- ➔ Diagnosis and treatment for other addiction related diseases
- ➔ Assisted reproduction (Sexual and Reproductive health)
- ➔ Hospital infectious diseases service (infectious diseases and clinical microbiology visits for hospitalized patients)
- ➔ Home care and Residential care for AIDS affected people with limited resources

Locations    Community Medicine Centre  
Addiction units  
Hospital wards/services

# General procedure (HIV infection)



# Anonymous Screening and Testing

- Counseling
- Confidential
- Gratuitous
- Anonymous
- Contact–tracing e partner notification procedures



*Generate an Anonymous Code*

## a. Progressive number

year      month      progressive number

131017396

## b. Regional code

1<sup>st</sup> and 3<sup>rd</sup> letter of  
last name and 1<sup>st</sup>  
and 3<sup>rd</sup> letter of first  
name

birth date

gender      0 or 1  
(if twin)

BSOI231055M0

Bosco Oliviero

23.10.1955

Male No twin

# Tests provided

<b>HIV</b>	Ab	4 <sup>th</sup> generation test - p24 antigen
<b>HCV</b>	Ab	
<b>HBV</b>	HBs Ag HBs Ab HBc Ab	
<b>Syphilis</b>	Ab treponema	if positive <ul style="list-style-type: none"> <li>• VDRL</li> <li>• TPHA</li> <li>• Treponemal IgM</li> </ul>

# Screening and diagnosis of HIV infection

## purpose/goal

Quantify and limit the spread of HIV infection by serological screening:

- identification of those who have contracted the infection;
- screening of contacts at risk (all persons exposed to a patient with HIV infection)
- offer of treatment



# WDW procedures

Description	Manager
Pre-counseling: informative interview with the patient and obtaining consent	doctor/nurse
Make venipuncture for screening test (in the case of positivity, laboratory provides automatically to carry out the 2nd level test - Western Blot)	nurse
Interpretation of results and post-counseling	doctor
Programming monitoring at 45 and 90 days if recent risk behavior. In the case of persistence of risk behaviors, recommend monitoring every six months. In any case in DU we recommended to repeat the test every 6-12 months.	doctor/nurse

# Contact tracing and partner notification

## Definition

### Partner Notification (PN)

The action by which certain subjects (seropositive and/or physicians and other health care professionals) communicate to partners/contacts information related to possible infection, the need to be tested for HIV and adopt right away, prophylactic measures.

### Contact Tracing (CT)

The set of actions that health care providers shall, to actively and systematically trace and contact all parties (partners/contacts), reported by the index person, who had relations with him at risk (unprotected penetrative sexual intercourse, needle sharing, exchange of body fluids).

# Razionale

- 1.Reduce the number of people unknowingly infected
- 2.Reduce the prevalence of asymptomatic infections
- 3.Increase early access to treatment
  - increase survival
  - increase quality of life
  - decrease infectivity
  - decrease diffusion



# Constraints

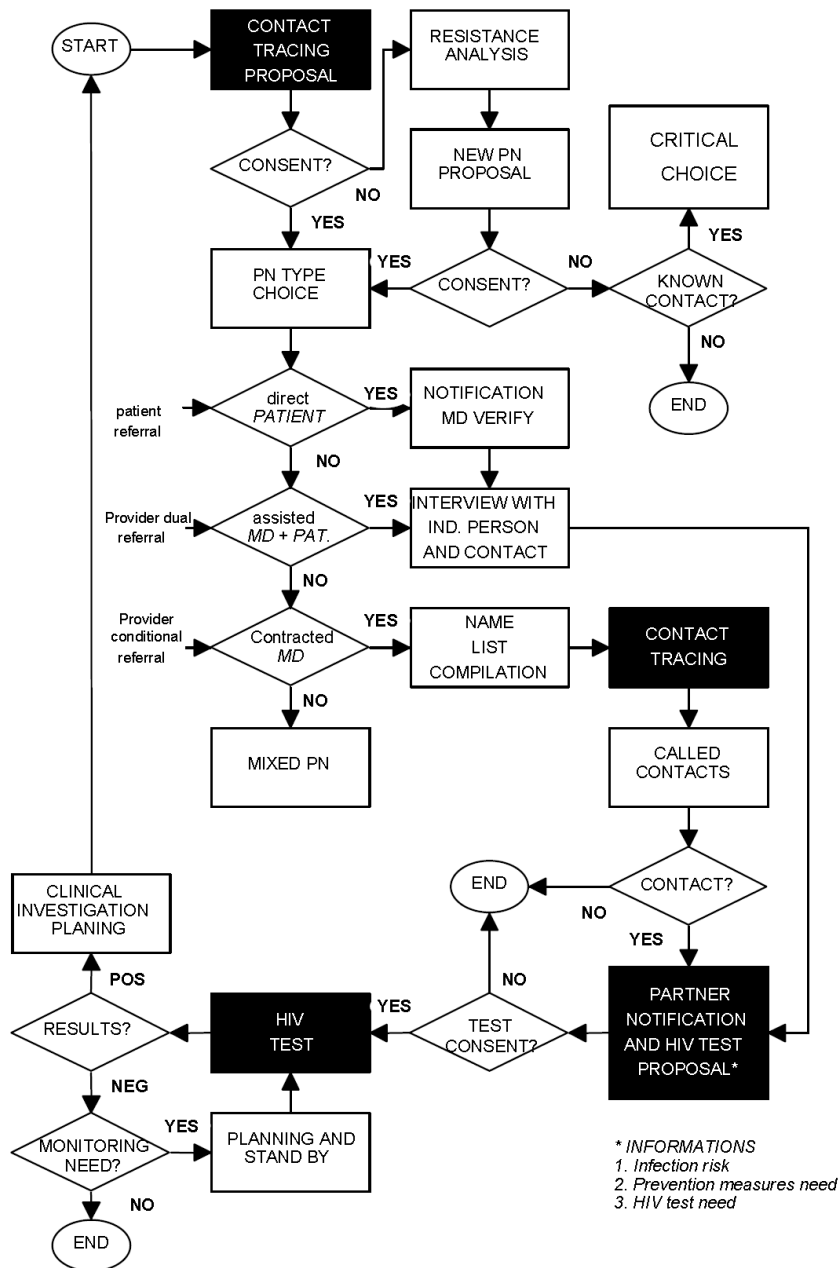
- Voluntary, informed and motivated patient's adhesion (index patient)
- Adhesion after explicit consent
- Possibility of rejection of the proposal or of partial compliance
- Solid relationship of trust between doctor and patient
- In a context of professional confidentiality
- Psychological support to people involved
- Protection of the privacy of the index patient
- Respect for human rights and dignity of the index patient and his partner
- Personnel with adequate training and preparation

## Targets

- 1. All persons identified for the first time HIV-positive*
- 2. All people living with HIV who have never systematically addressed the problem of PN*
- 3. All partners (contacts) with these people who have had unprotected sex or exchange of syringe*



- DIRECT
- ASSISTED
- DELAYED

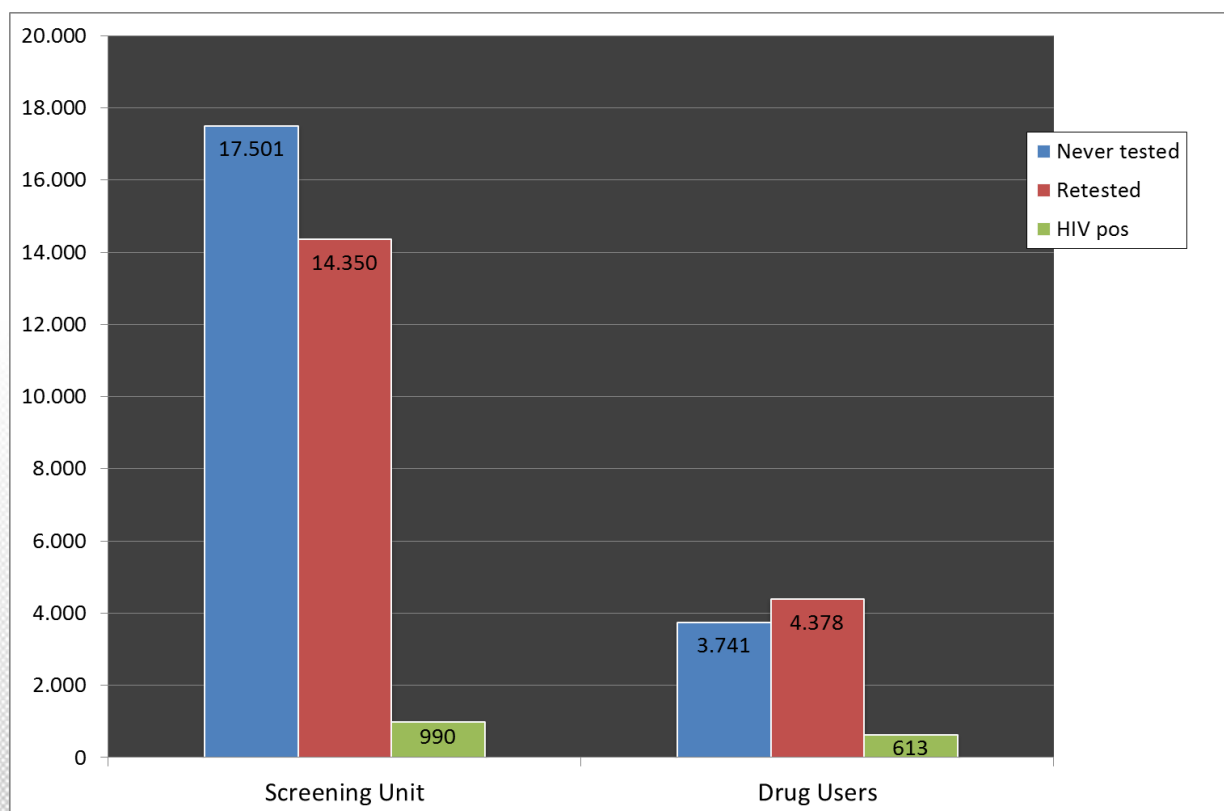




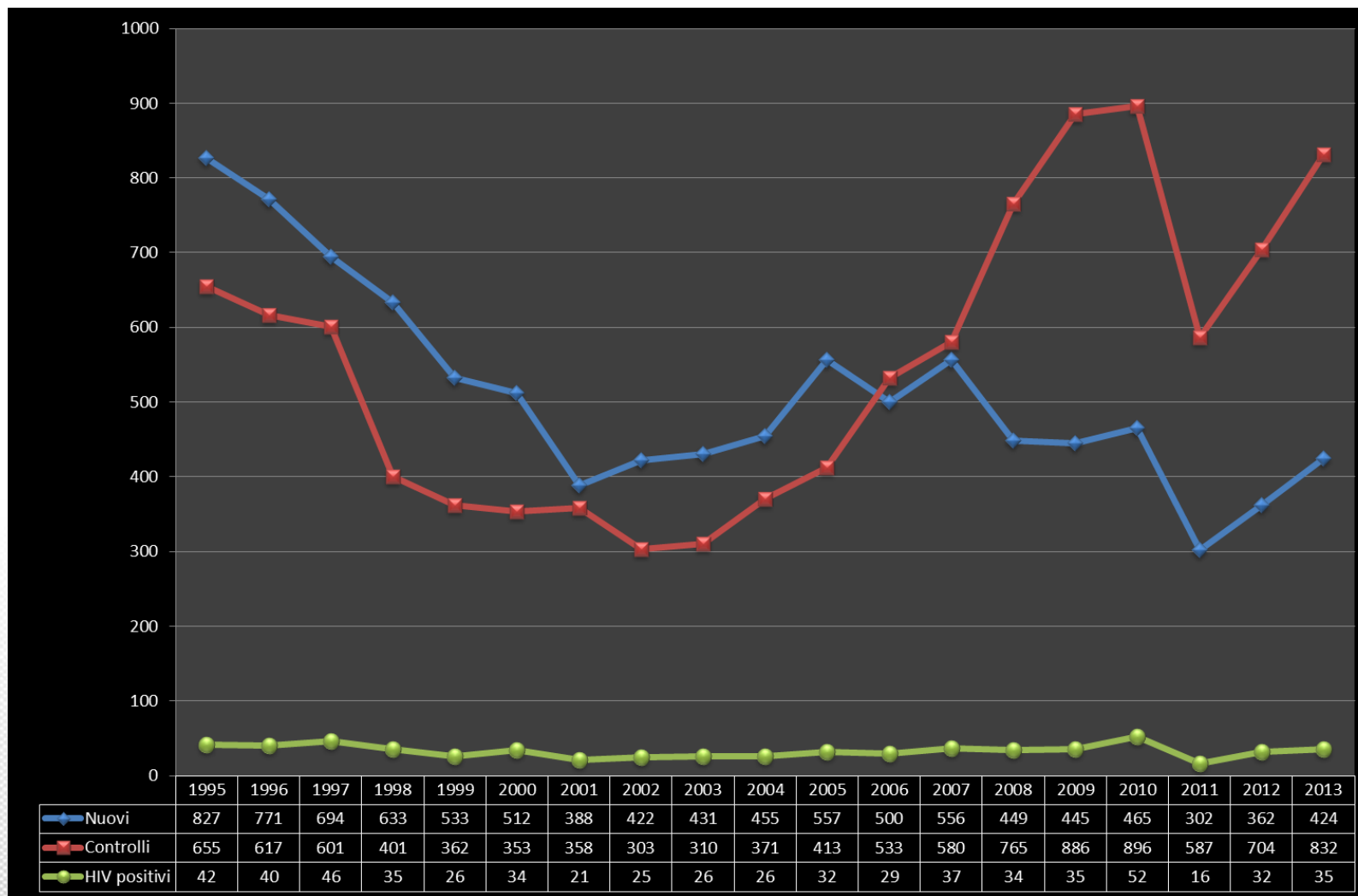
# Some Activity Data

# HIV Screening Unit – Testing 1985 -2013

Subjects	Never tested	Retested	Total	HIV pos
Screening Unit	17.501	14.350	31.851	990
Drug Users	3.741	4.378	8.119	613
Total	21.242	18.728	37.813	1.603

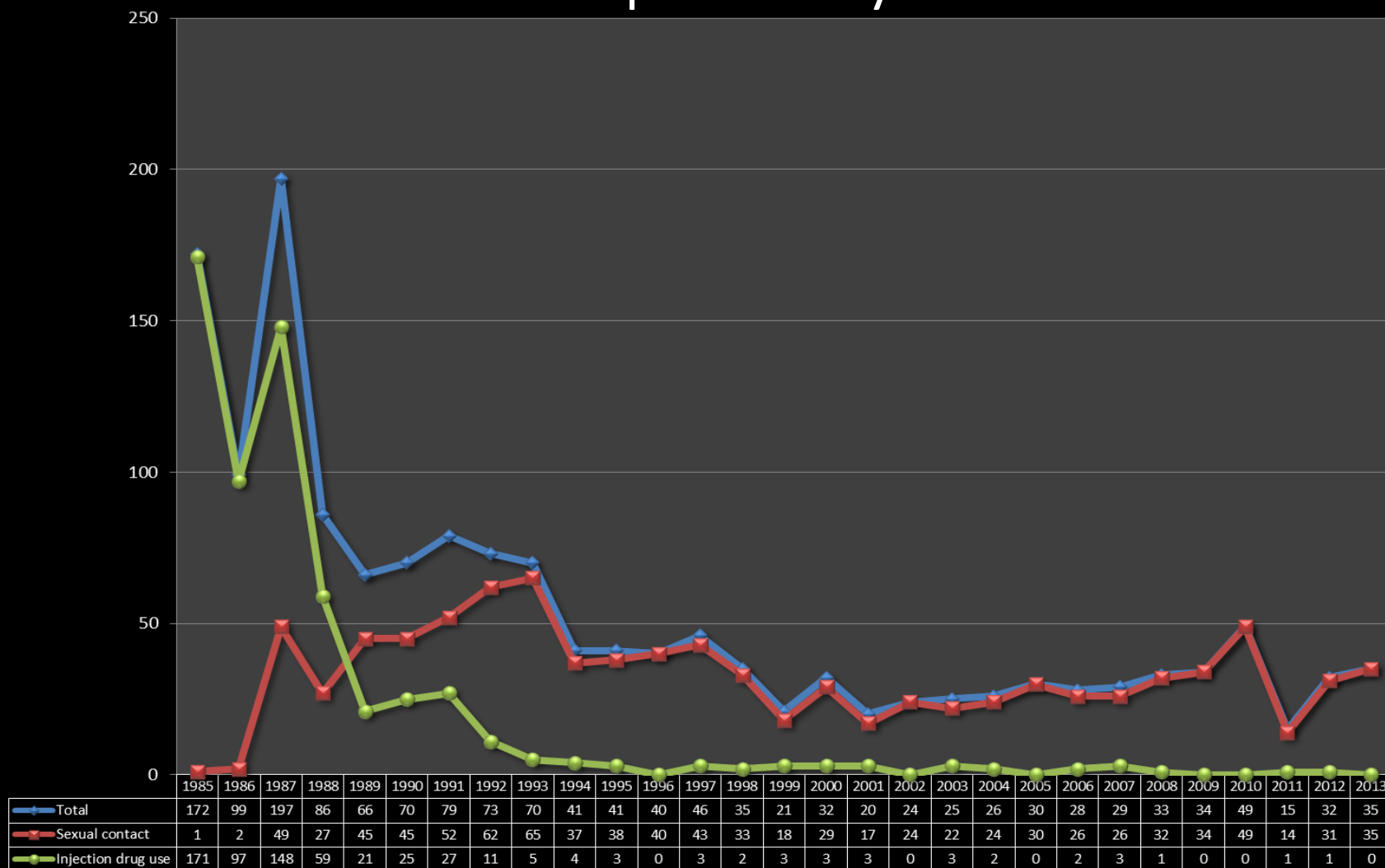


# Testing 1995 -2013

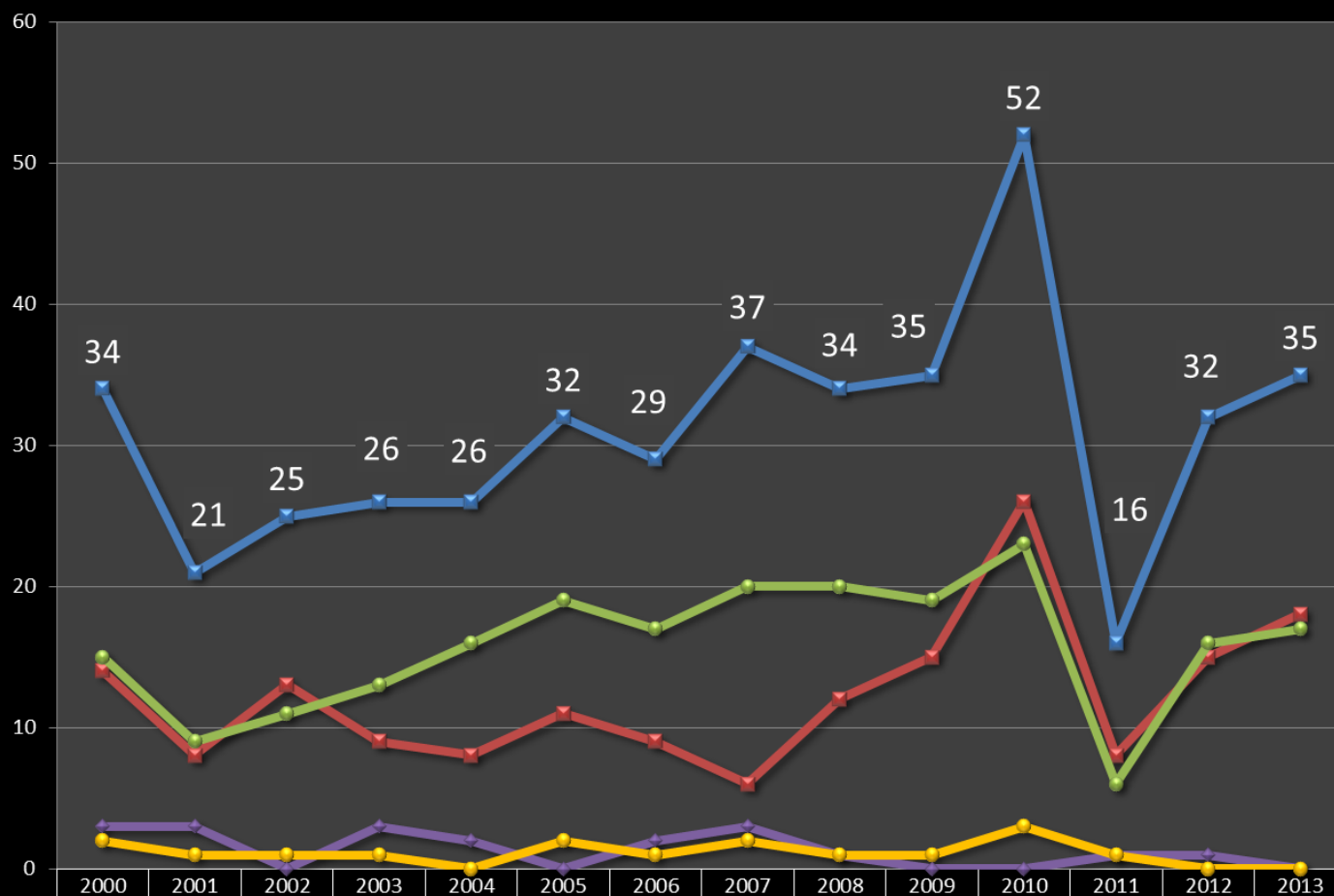




# New HIV positive by transmission route

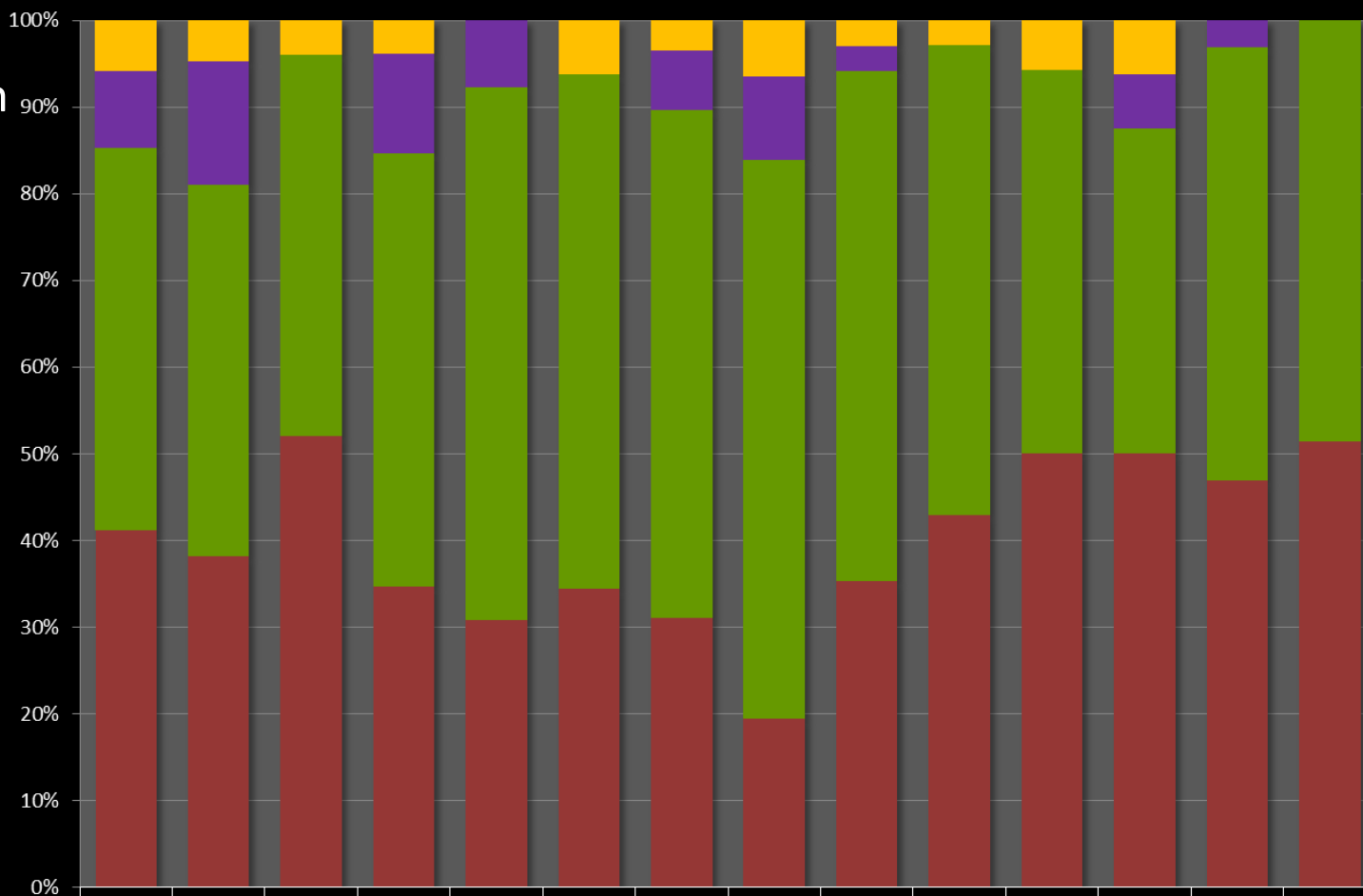


# New HIV pos transmission rate 2000-2013 (N)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	34	21	25	26	26	32	29	37	34	35	52	16	32	35
Heterosexual contact	14	8	13	9	8	11	9	6	12	15	26	8	15	18
Male-to-male sexual contact	15	9	11	13	16	19	17	20	20	19	23	6	16	17
Injection drug use	3	3	0	3	2	0	2	3	1	0	0	1	1	0
Unkown	2	1	1	1	0	2	1	2	1	1	3	1	0	0

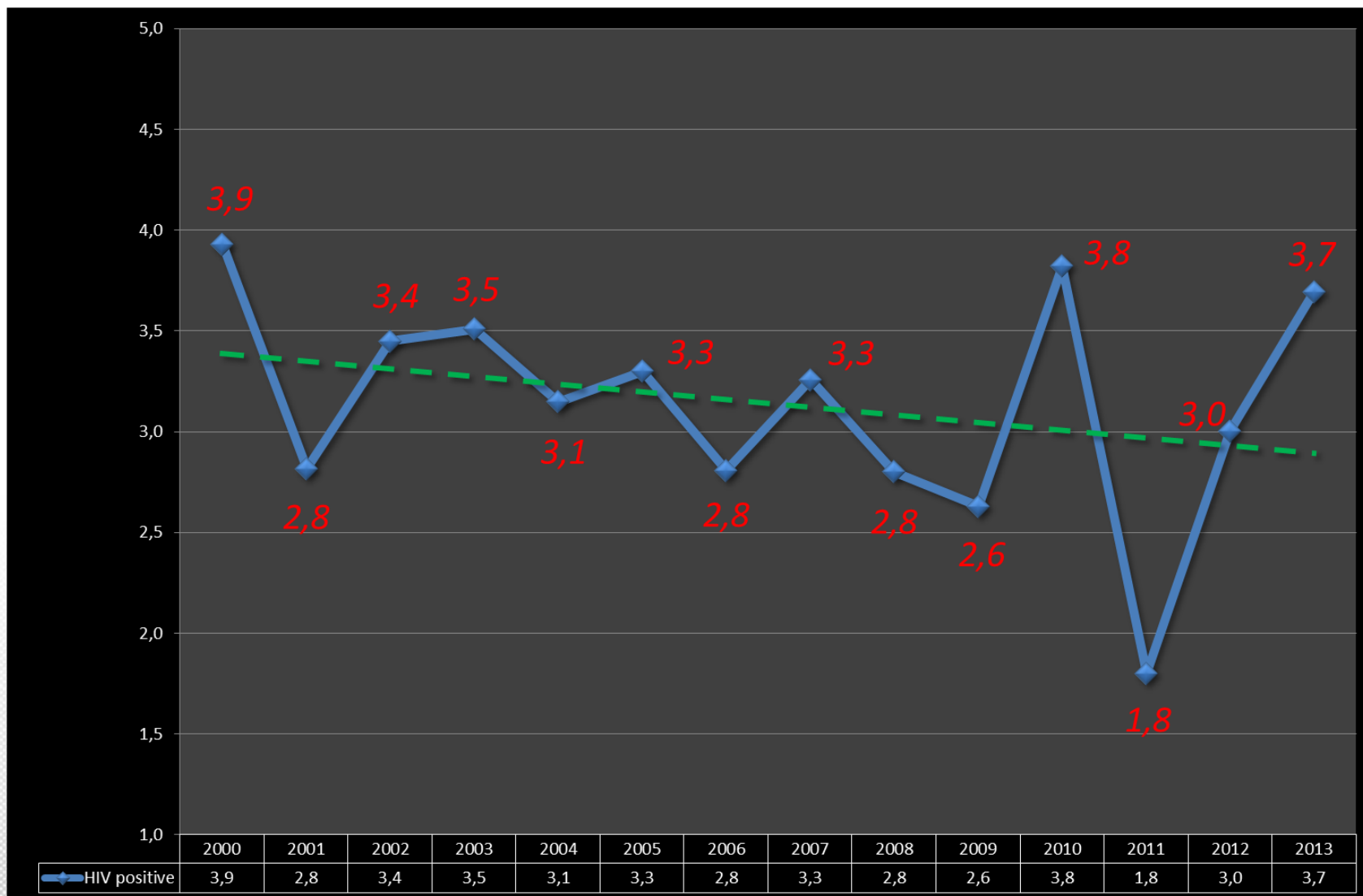
How HIV pos  
transmission  
route  
2000-2013 (%)



■ Unkown	5,9	4,8	4,0	3,8	0,0	6,3	3,4	5,4	2,9	2,9	5,8	6,3	0,0	0,0
■ Injection drug use	8,8	14,3	0,0	11,5	7,7	0,0	6,9	8,1	2,9	0,0	0,0	6,3	3,1	0,0
■ Male-to-male sexual contact	44,1	42,9	44,0	50,0	61,5	59,4	58,6	54,1	58,8	54,3	44,2	37,5	50,0	48,6
■ Heterosexual contact	41,2	38,1	52,0	34,6	30,8	34,4	31,0	16,2	35,3	42,9	50,0	50,0	46,9	51,4



# New HIV positive (%/total tested)



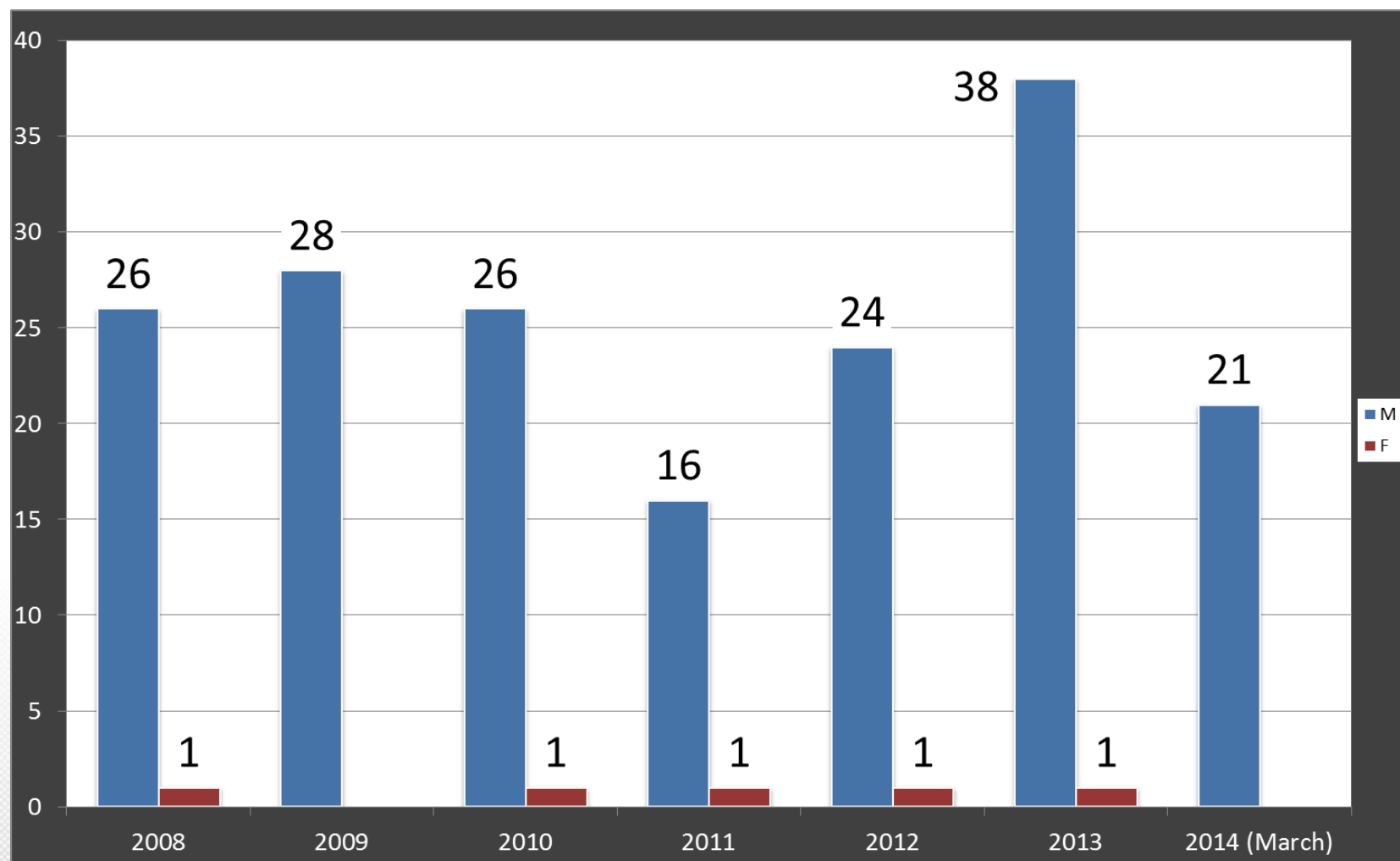
# Other Sexually Transmitted Infections

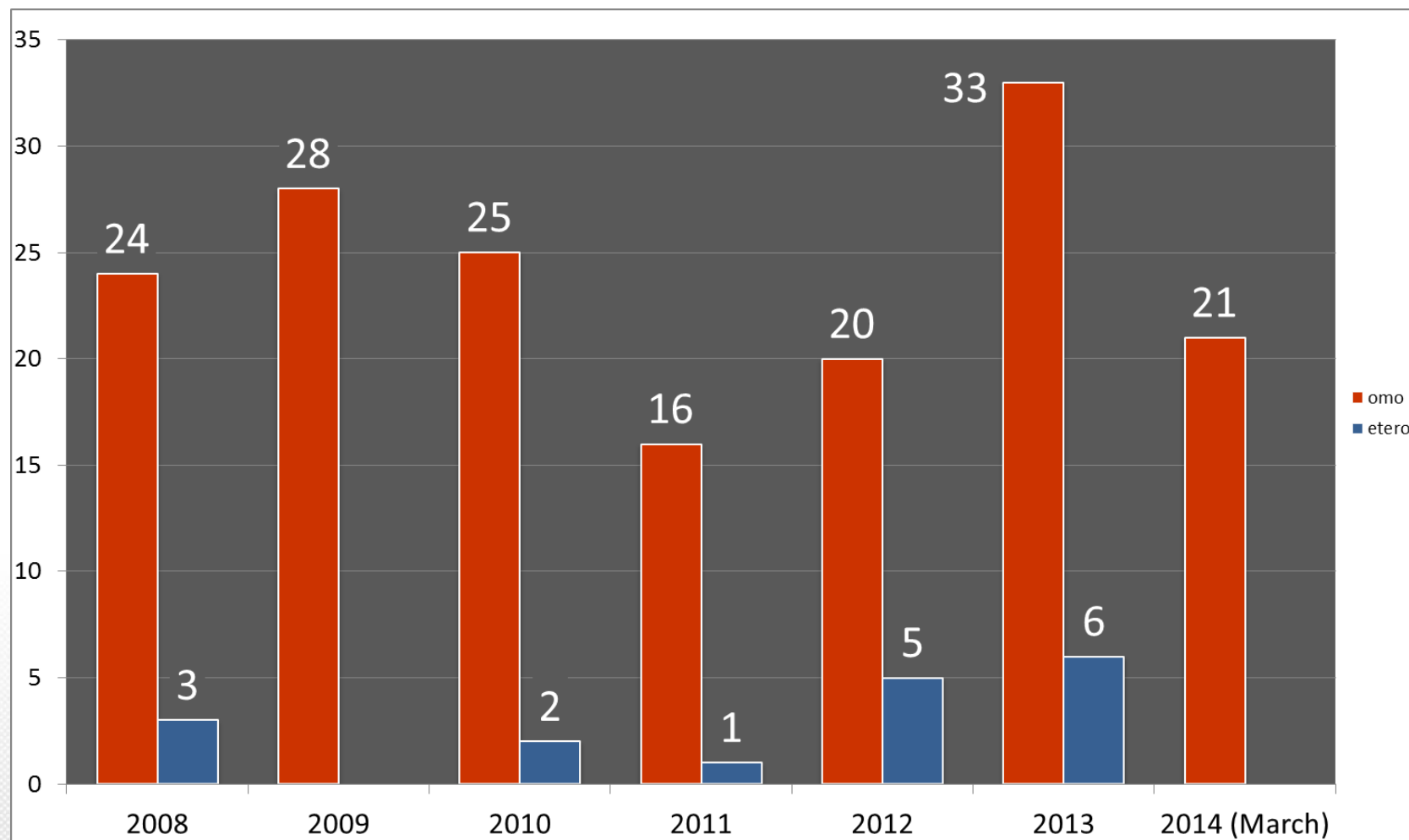
# Syphilis and Gonorrhoea

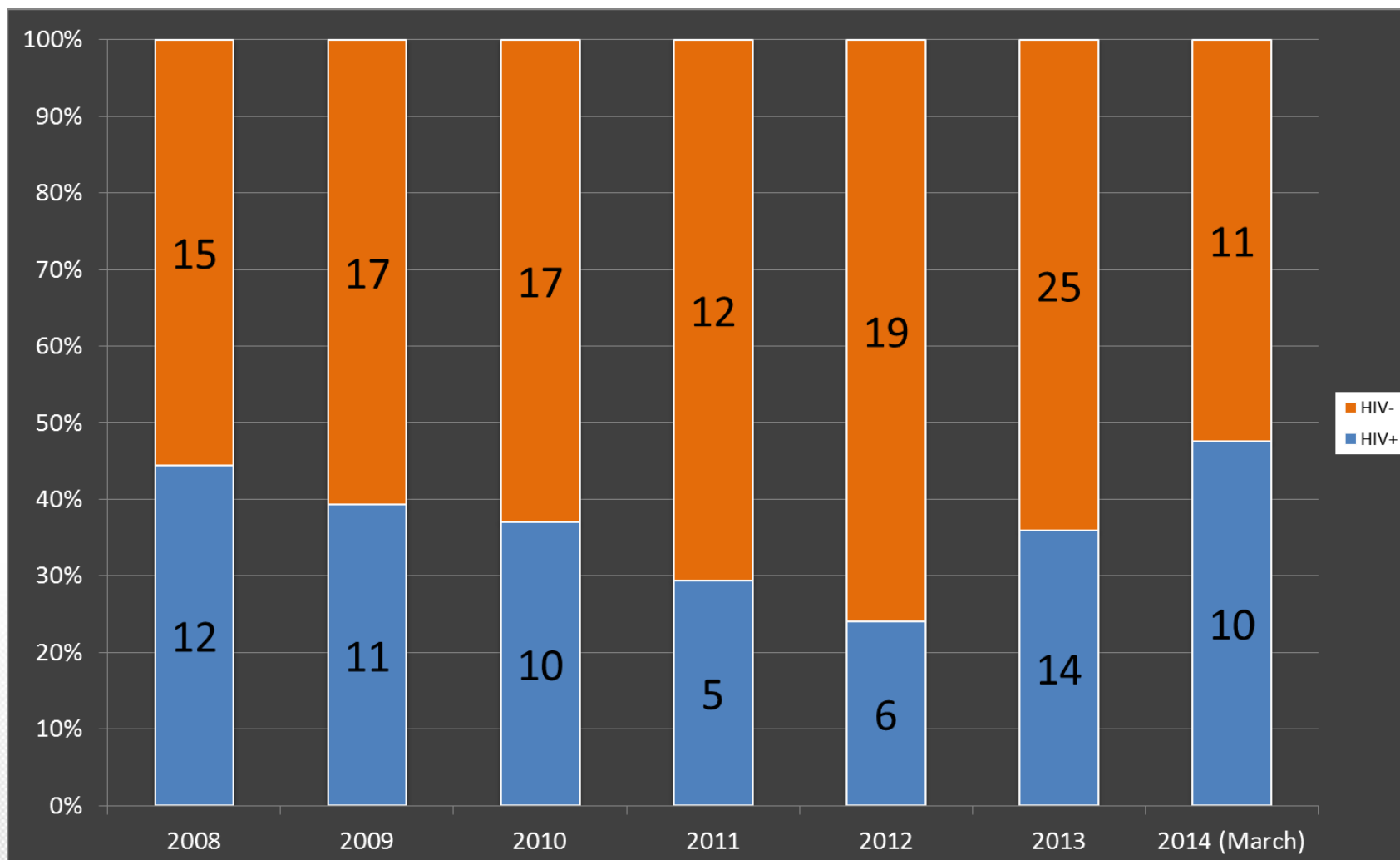
	2006	2007	2008	2009	2010	2011	2012	2013	2014 (March)
Syphilis	27	30	27	28	27	17	25	39	21
Gonorrhoea	5	10	13	13	12	9	11	3	1

- ▶ Treponema infection is mainly present in males with homosexual intercourse
- ▶ Over the last four years of people who have had syphilis, about a third were living with HIV at the same time.





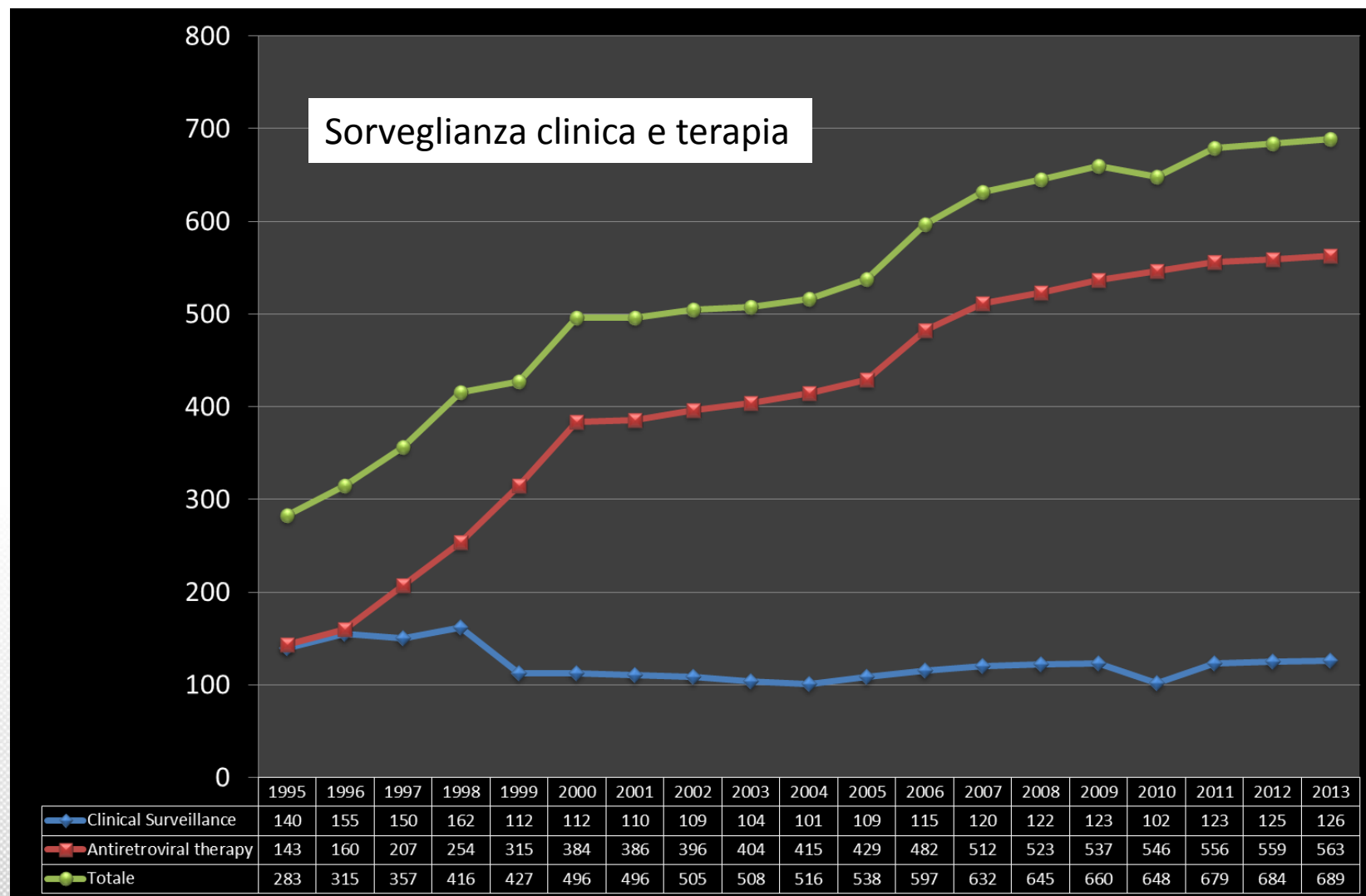






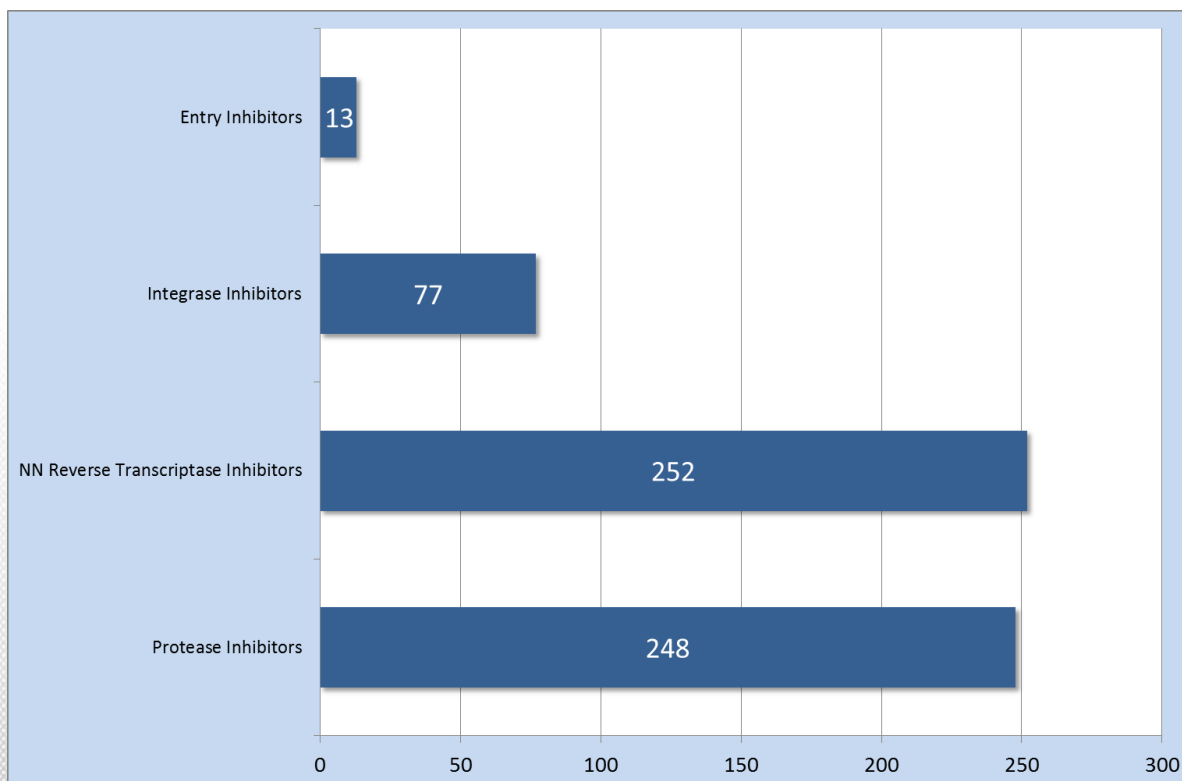
# Clinical surveillance and therapy for HIV positives

# HIV Infection



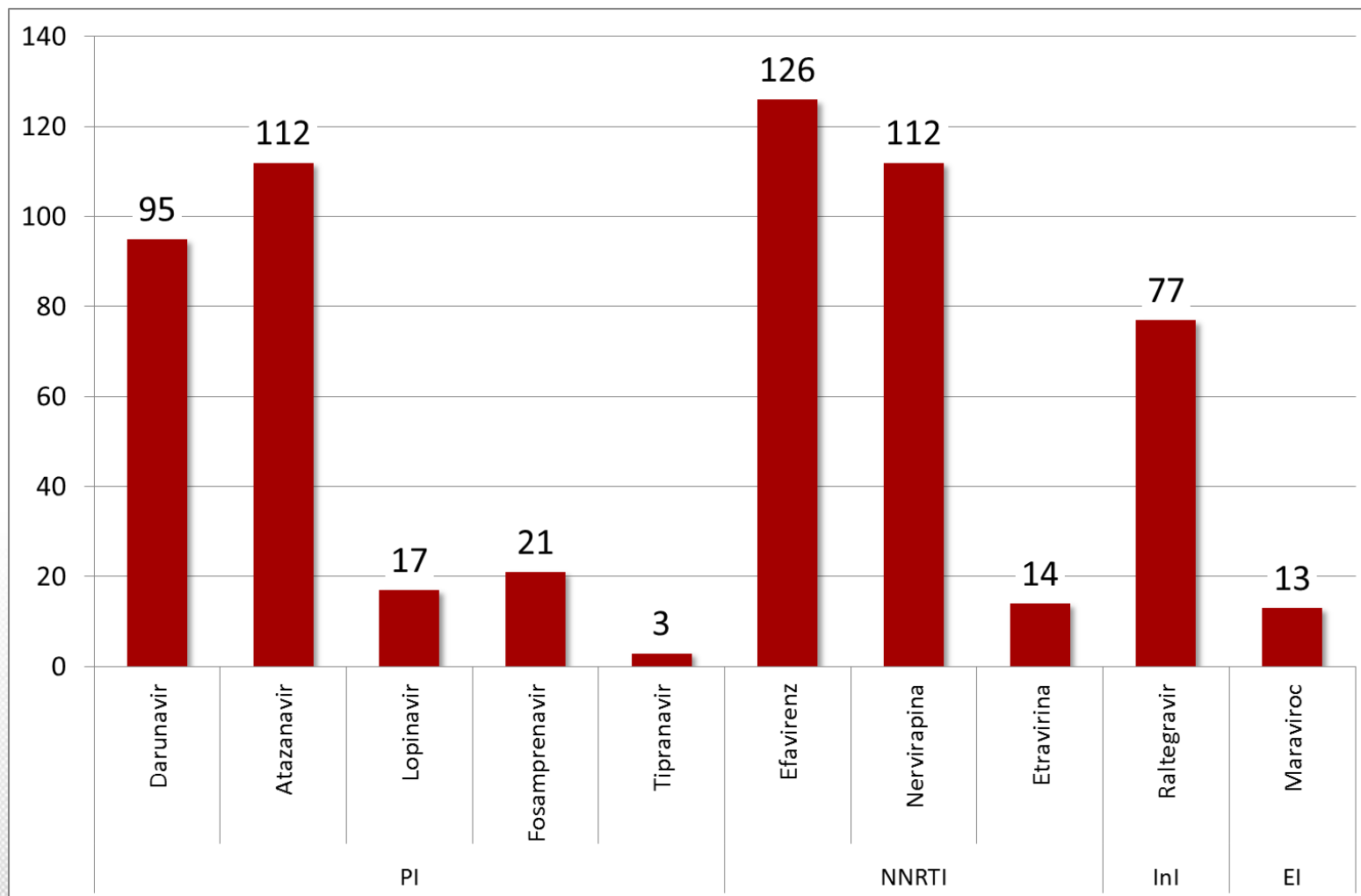
	Patients	
	N	%
Protease Inhibitors	231	40,3
Non Nucleoside Transcriptase Inhibitors	252	44,0
Integrase Inhibitors	77	13,4
Entry Inhibitors	13	2,3

# HAART

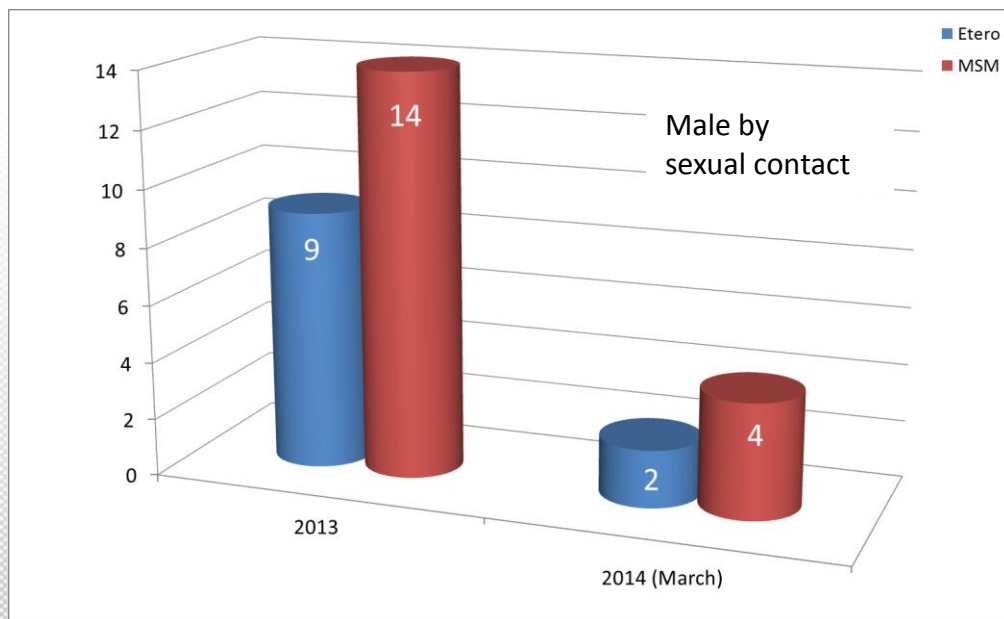
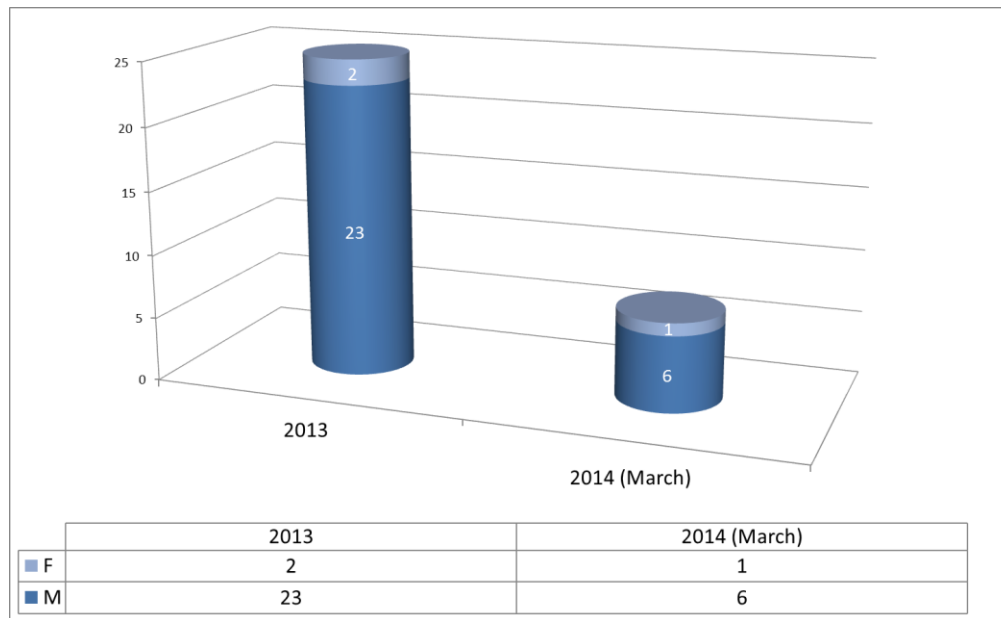




# Third Drug

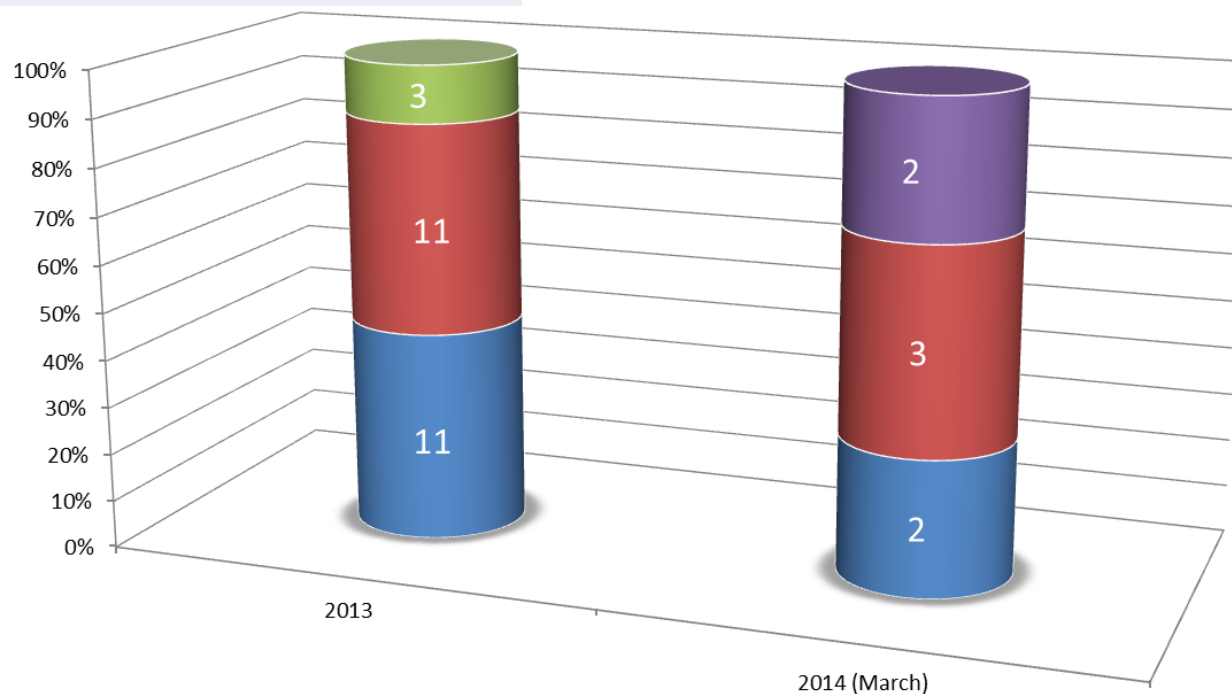


# New HIV Infections



## Time of infection

	Chronic	Recent	Acute	AIDS	Total
2013	11	11	3	0	<b>25</b>
2014 (March)	2	3	0	2	<b>7</b>



	2013	2014 (March)
■ AIDS	0	2
■ Acute	3	0
■ Recent	11	3
■ Chronic	11	2

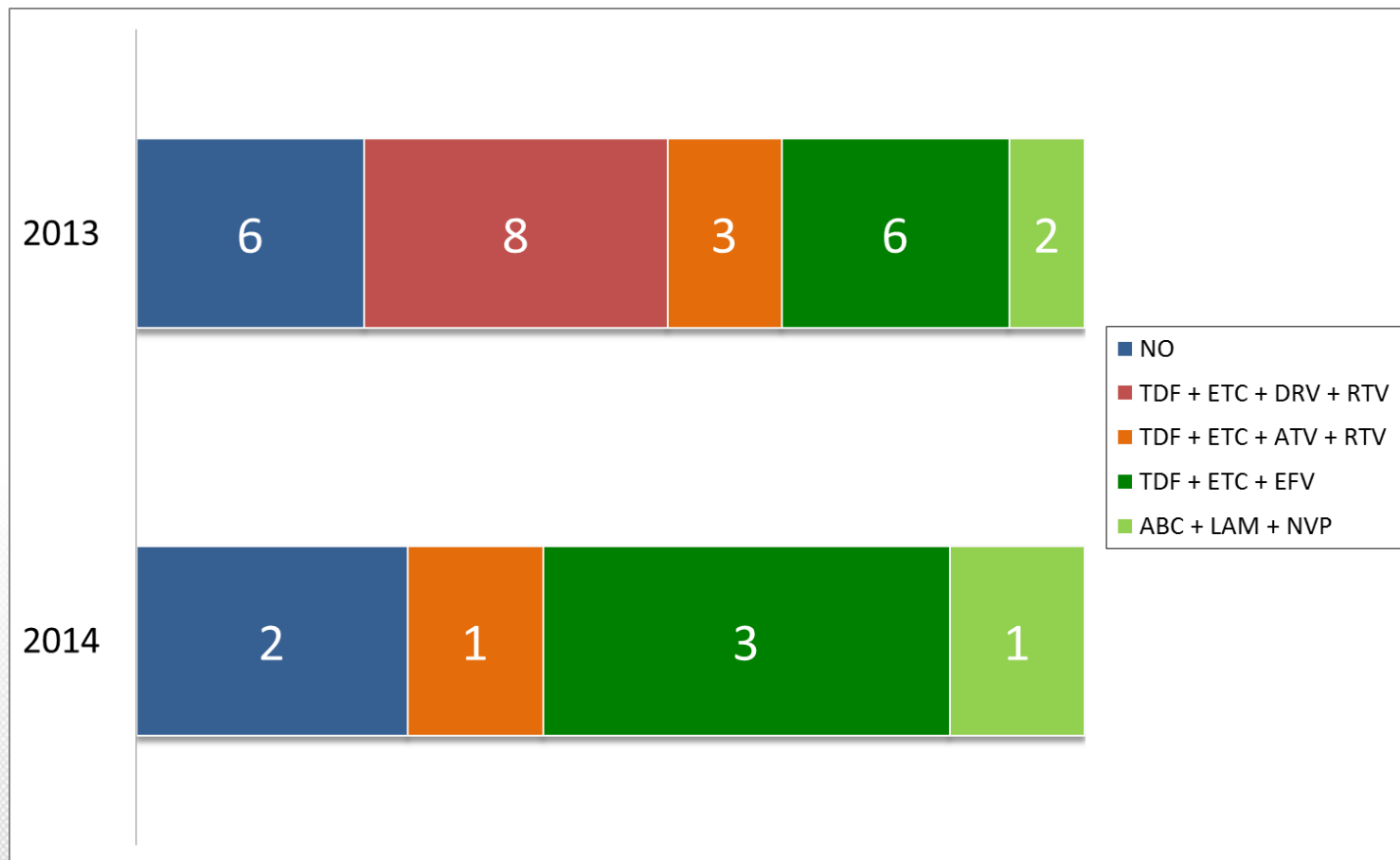


## Virologic and immunologic parameters

<b>2013 (25 HIV+)</b>	VL			CD4		
	M	Max	Min	M	Max	Min
Chronic	319.543	1.208.000	2.240	251	679	4
Recent	58.661	440.000	2.232	451	897	313
Acute	36.702	67.242	16.551	711	1.085	111
AIDS						

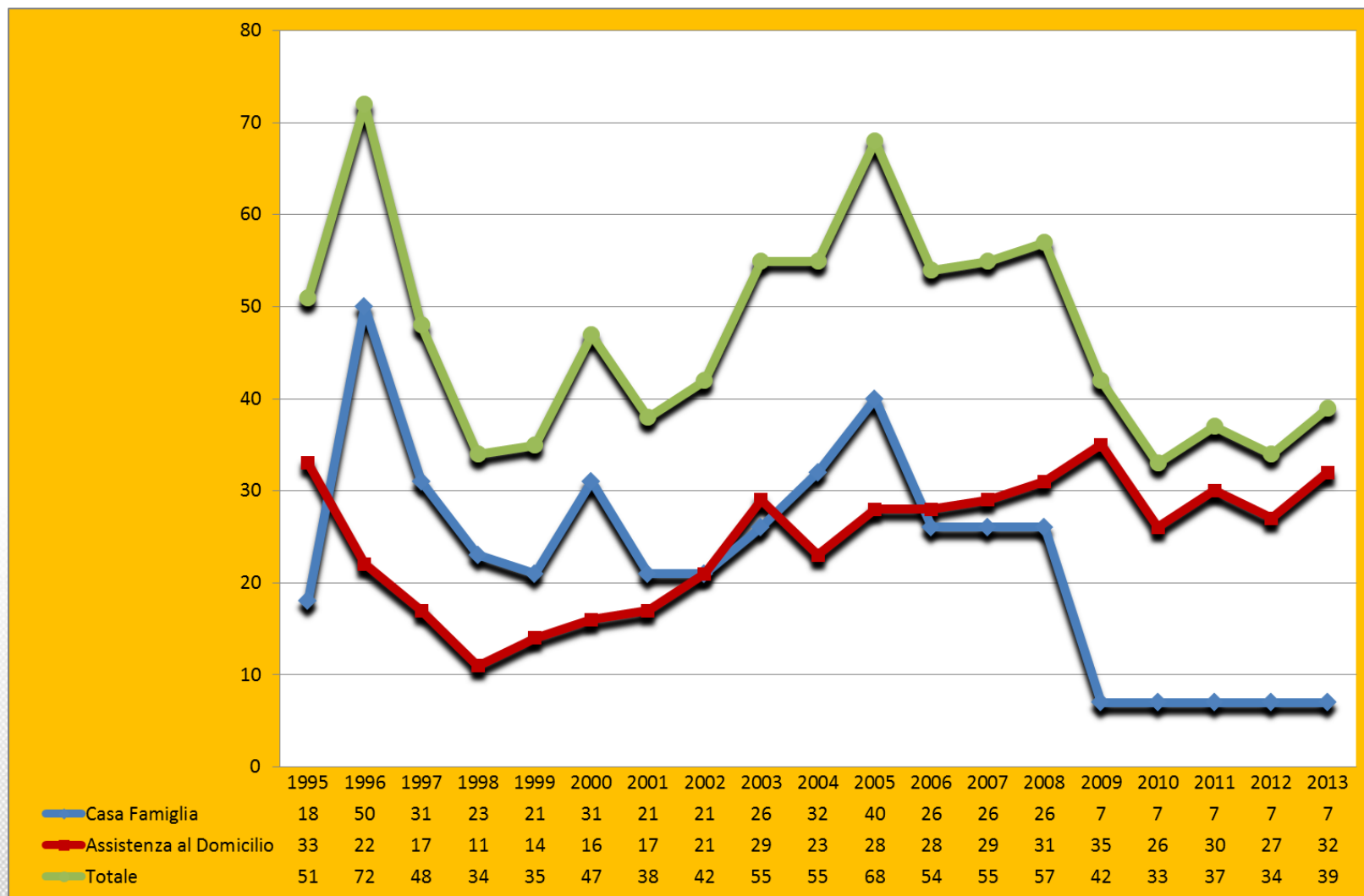
<b>2014 (7 HIV+)</b>	VL			CD4		
	M	Max	Min	M	Max	Min
Chronic	22.607	29.629	15.585	381	540	222
Recent	83.657	195.000	2.701	516	757	349
Acute						
AIDS	430.682	696.000	165.364	60	22	98

# Anti Retroviral Therapy



# Home and Residential Care

(for AIDS affected people with limited resources)





	2012	2013
Medical department*	43	59
Surgical department**	34	44
Geriatrics	39	123
Other***	10	19
Total	130	245
Phone and e-counselling	268	309

\* including general medicine, gastroenterology, nephrology, oncology, cardiology

\*\* including general surgery, orthopedics and gynecology

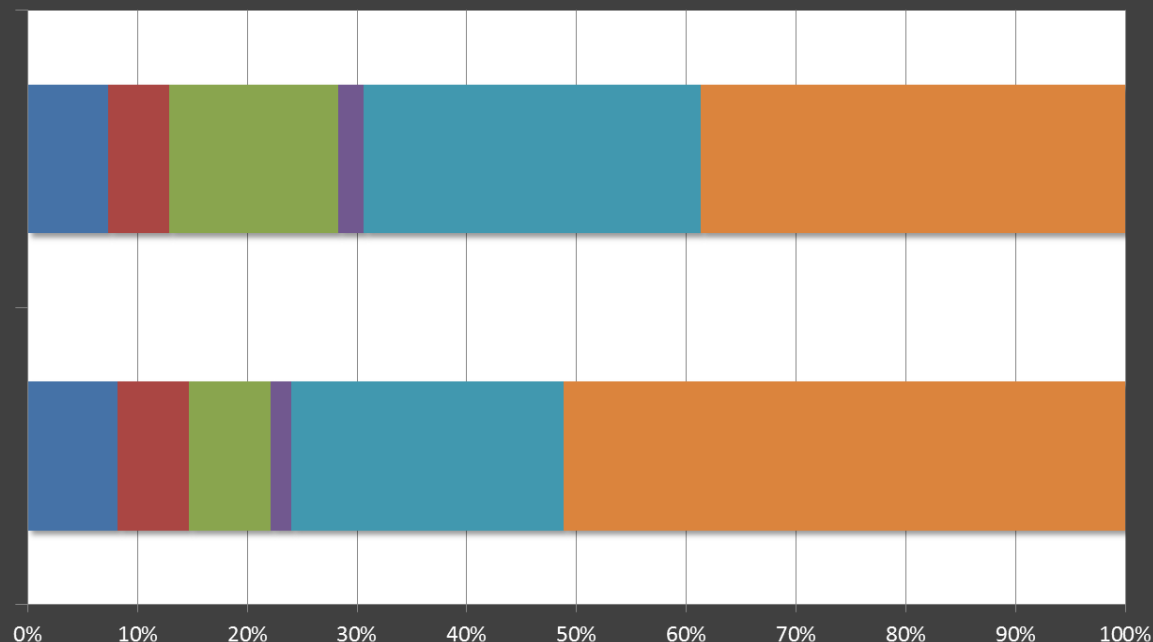
\*\*\* including Tuberculosis screening for healthcare workers

# Hospital infectious diseases service

(Infectious diseases and clinical microbiology visits for hospitalized patients)

2013

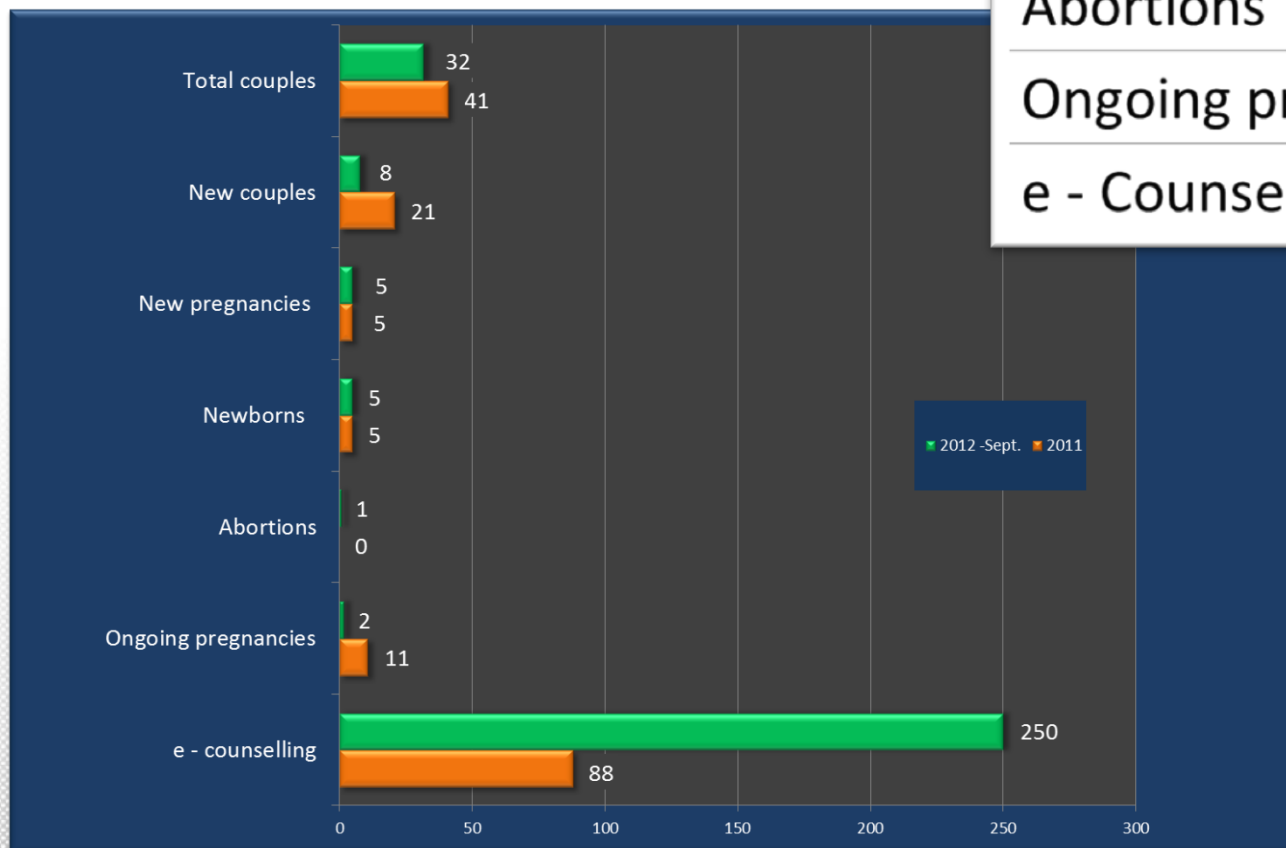
2012



	2012	2013
Medical department*	43	59
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Other***	10	19
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# Sexual and Reproductive health

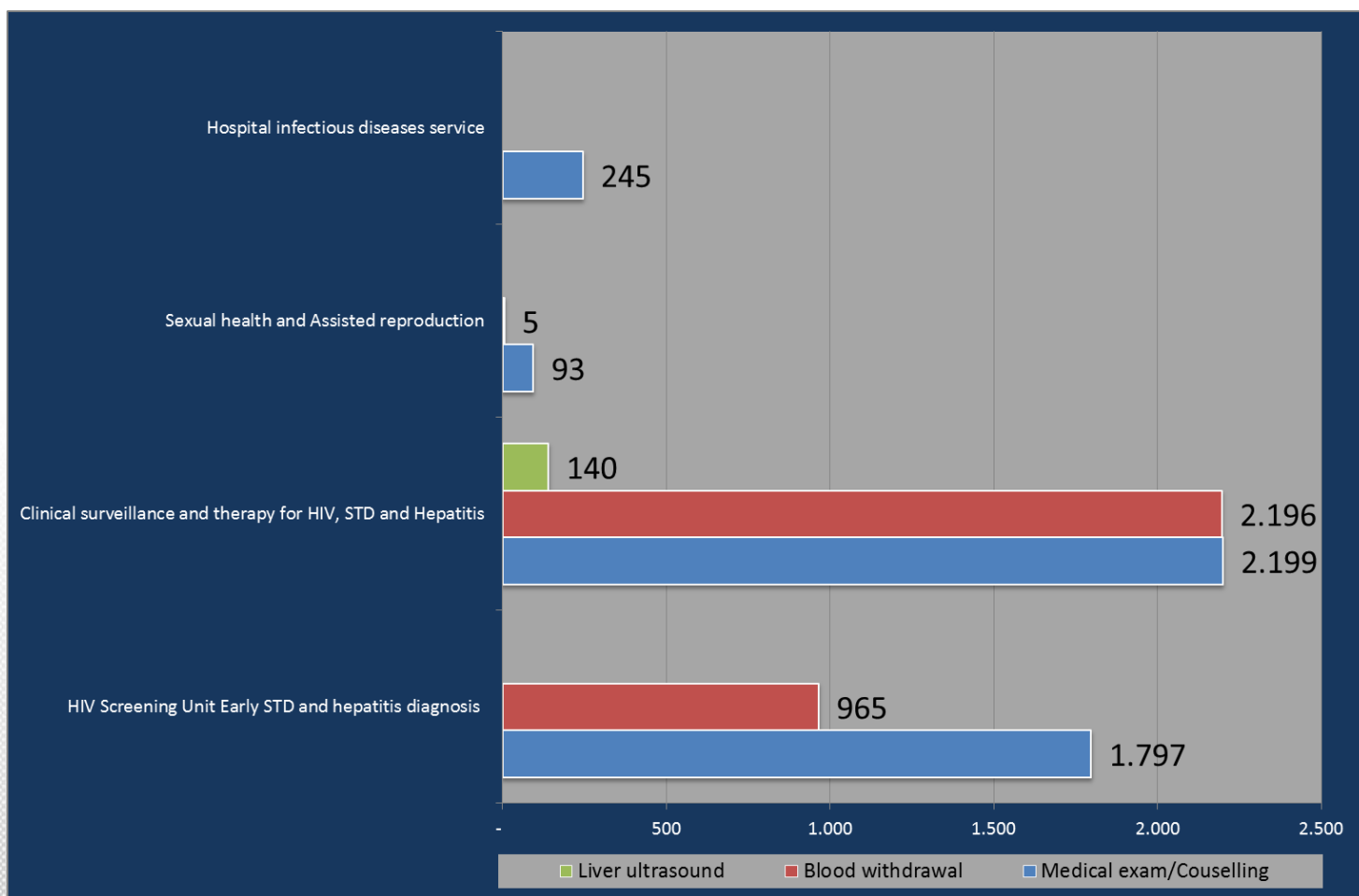
(Assisted reproduction)



	2002 - 2012
Total couples	232
Newborns	30
Abortions	4
Ongoing pregnancies	2
e - Counselling	338

# Clinical activity performed

	Medical exam or counselling	Blood withdrawal	Liver ultrasound
HIV Screening Unit Early STD and hepatitis diagnosis	1.797	965	
Clinical surveillance and therapy for HIV, STD and Hepatitis	2.199	2.196	140
Sexual health and Assisted reproduction	93	5	
Hospital infectious diseases service	245		



# *Costs of HIV infection*

Therapies	2013	
	Euro	USD
HIV	4.126.753,00	5.686.665,63
Hepatitis	129.932,34	179.046,76
TOTAL	4.256.685,34	5.865.712,40

Clinical Activity	medical exam/year		blood tests/year	
	Euro	USD	Euro	USD
Clinical Surveillance	11.592,00	14.714,88	88.320,00	112.113,41
Antiretroviral therapy	61.950,00	78.639,33	472.000,00	599.156,80
TOTAL	73.542,00	93.354,21	560.320,00	711.270,21

HIV patient on ART/year	Euro	USD
Drugs	7.323,58	10.091,89
Medical exam	105,00	144,69
Blood tests	800,00	1102,4
TOTAL	8.228,58	11.338,98





# HIV testing guidance: core principals

- Voluntary, confidential, undertaken with informed consent
- Access to treatment, care and prevention services
- Political commitment
- Reduce stigma
- Remove legal and financial barriers
- Access to HIV testing is an integral part of national strategies
- Involvement of stakeholders



# HIV testing guidance: developing a national strategy

**Whom to  
test?**

Know your epidemic: which groups are most at risk?

**Where to  
test?**

Make testing available in a variety of settings.

**When to  
test?**

Provide guidance on testing frequency.

**How to  
test?**

Raise public and professional awareness, ensure confidentiality; train the workforce; provide pre-test discussion to ensure informed consent, etc.

**Ensure prevention, access to HIV treatment and care**

# Take home messages

1. HIV testing: a matter of time
  - Early diagnosis is essential: timely referral of patients for treatment and care.
  - Early treatment reduces morbidity and mortality.
  - People diagnosed early may be less likely to transmit the virus.
  - Early diagnosis remains a critical public health priority.
2. Screening should always be offered at the same time of treatment for drug addiction
3. Anonymous testing can be a valuable tool to enhance the performance of screening
4. Early diagnosis with early treatment in TasP strategy

## What to Start: Comparison of 2011-2012 Guidelines

Regimen	CNA-SIMIT 2012 <sup>1</sup>	DHHS 2012 <sup>2</sup>	IAS 2012 <sup>3</sup>	EACS 2011 <sup>4</sup>	BHIVA 2012
EFV/TDF/FTC	Preferred (A1)	Preferred	Recommended	Recommended	Preferred
ATV/r + TDF/FTC	Preferred (A1)	Preferred	Recommended	Recommended	Preferred
DRV/r + TDF/FTC	Preferred (A1)	Preferred	Recommended	Recommended	Preferred
RAL + TDF/FTC	Preferred (A1)	Preferred	Recommended	Recommended	Preferred
EFV + ABC/3TC	Preferred (A1)*	Alternative	Recommended*	Recommended	Alternative**
ATV/r+ABV/3TC	Preferred (A1)*	Alternative	Recommended*	Recommended	Alternative**
RPV+TDF/FTC	Preferred (A1)*	Alternative	Alternative		
LPV/r + TDF/FTC	Preferred (B1)	Alternative	Alternative	Recommended	Alternative**
LPV/r + ABV/3TC	Preferred (B1)	Alternative	Alternative	Recommended	Alternative**
NVP + TDF /FTC	Preferred (B1)	Acceptable	Alternative	Recommended	Alternative

\* ABV/3TC preferred as A1 only if HIV-RNA <100.000 c/mL

\*\* Use of abacavir + lamivudine as NRTI backbone is recommended only if baseline viral load less than 100,000 copies/ml.

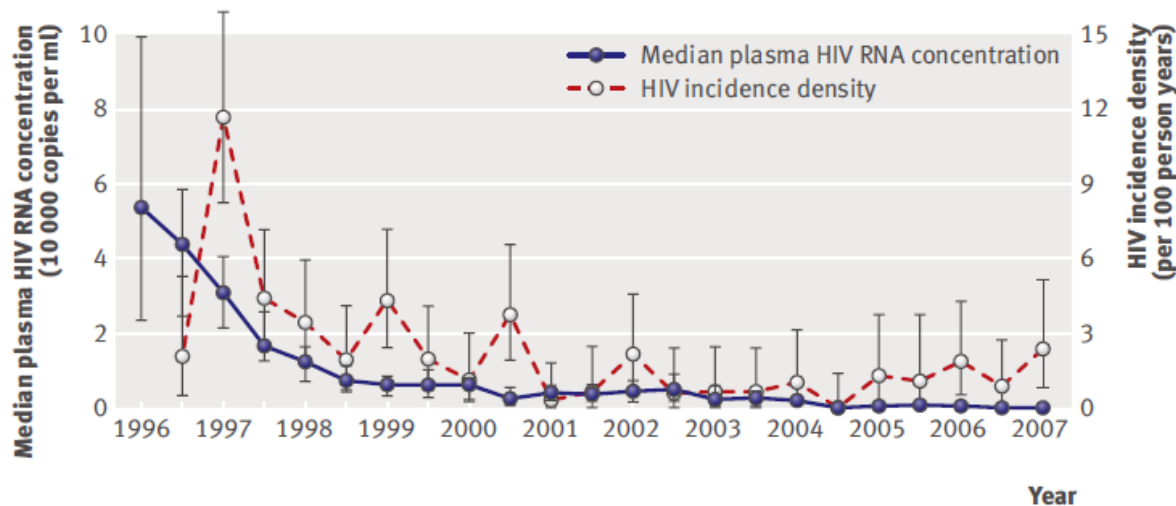
1. Linee Guida Italiane sull'utilizzo dei farmaci antiretrovirali e sulla gestione diagnostico-clinica delle persone con infezione da HIV-1, 2012. Available at: [http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_1301\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_1301_allegato.pdf)
2. DHHS Guidelines 2012 Available at <http://aidsinfo.nih.gov/guidelines>
3. ARV Treatment of Adult HIV Infection. 2012 Recommendation of the IAS-USA panel. JAMA 2012;308:387-402.
4. EACS Guidelines 2011. Available at [http://www.europeanaidsclinicalsociety.org/guidelinespdf/1\\_Treatment\\_of\\_HIV\\_Infected\\_Adults.pdf](http://www.europeanaidsclinicalsociety.org/guidelinespdf/1_Treatment_of_HIV_Infected_Adults.pdf)
5. BHIVA Guidelines 2012. Available at: <http://www.bhiva.org/documents/Guidelines/Treatment/2012/120430TreatmentGuidelines.pdf>



## Longitudinal community plasma HIV-1 RNA concentrations and incidence of HIV-1 among injecting drug users: prospective cohort study

*BMJ 2009;338:b1649*

Evan Wood, research scientist,<sup>1</sup> Thomas Kerr, research scientist,<sup>1</sup> Brandon D L Marshall, PhD candidate,<sup>2</sup> Kathy Li, senior statistician,<sup>1</sup> Ruth Zhang, statistician,<sup>1</sup> Robert S Hogg, director, HIV/AIDS drug treatment program,<sup>1</sup> P Richard Harrigan, director, research laboratories,<sup>1</sup> Julio S G Montaner, head<sup>3</sup>



Estimated community plasma HIV-1 RNA concentrations and HIV incidence density, with 95% confidence intervals, among two parallel cohorts of injecting drug users. HIV incidence first estimated in second half of 1996 as enrolment started in May 1996 and repeat HIV tests to assess incidence were available only after six months of follow-up

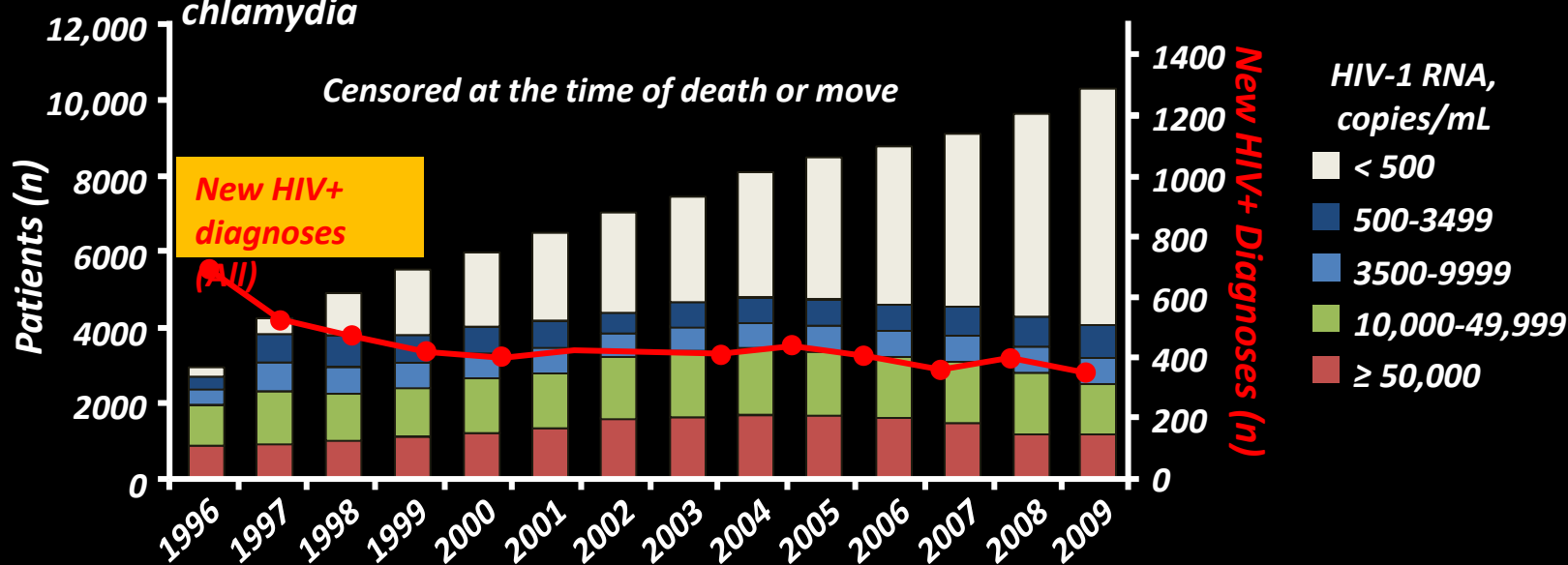
### WHAT THIS STUDY ADDS

- *A longitudinal measure of community plasma HIV-1 RNA correlates with the community HIV incidence rate and predicts HIV incidence independent of unsafe sexual behaviours and sharing syringes*
- *These data should prompt a re-examination of arguments that dichotomise HIV prevention and HIV treatment, which might not be independent strategies for reducing the rate of new HIV infections*
- *Injecting drug users can be successfully attracted to and retained in HAART programmes*

# Reduction in New HIV Diagnoses in BC: Testing, HAART, and Community VL

- Period of declining new HIV diagnoses in BC coincident with increased HIV testing rates, increased uptake of antiretroviral therapy, and decrease in community viral load (1996-2008)

— Decline in new HIV diagnoses despite increases in syphilis, gonorrhea, chlamydia

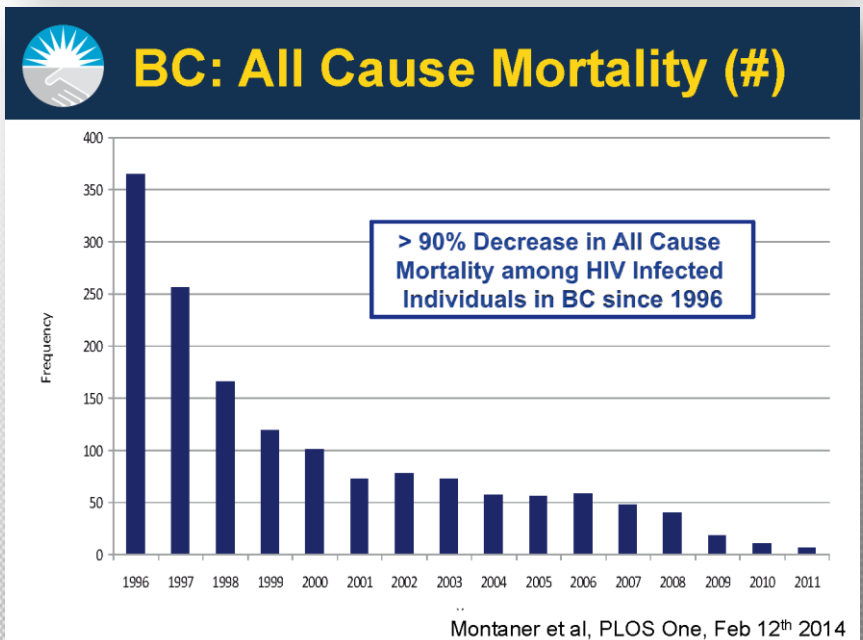
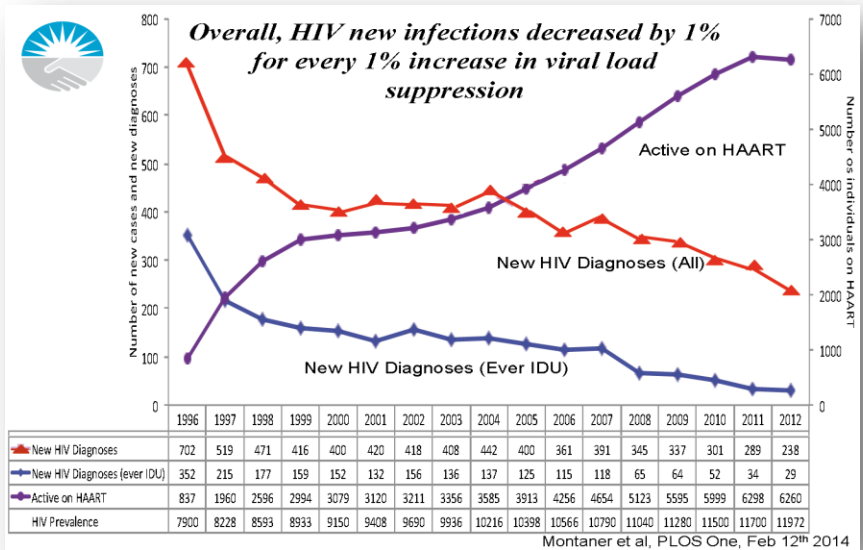
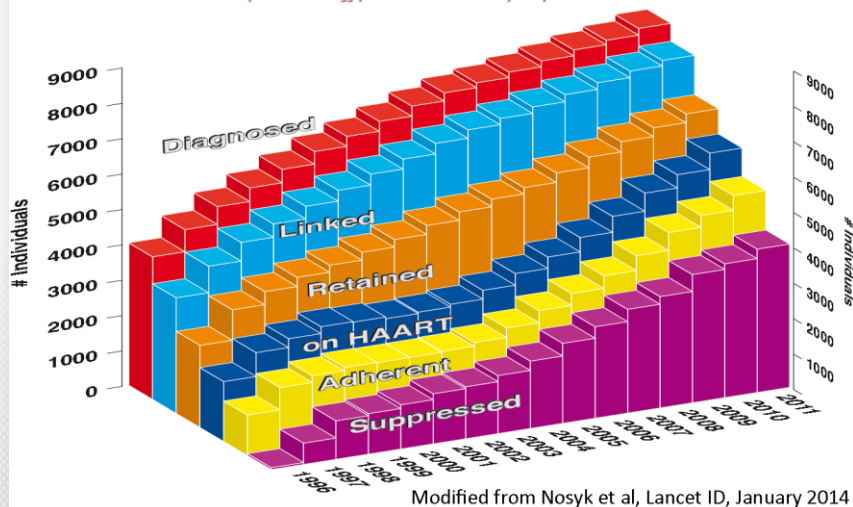


Montaner J, et al. CROI 2010. Abstract 88LB. Reproduced with permission.

# Impact of Expanded HAART on HIV Epidemic

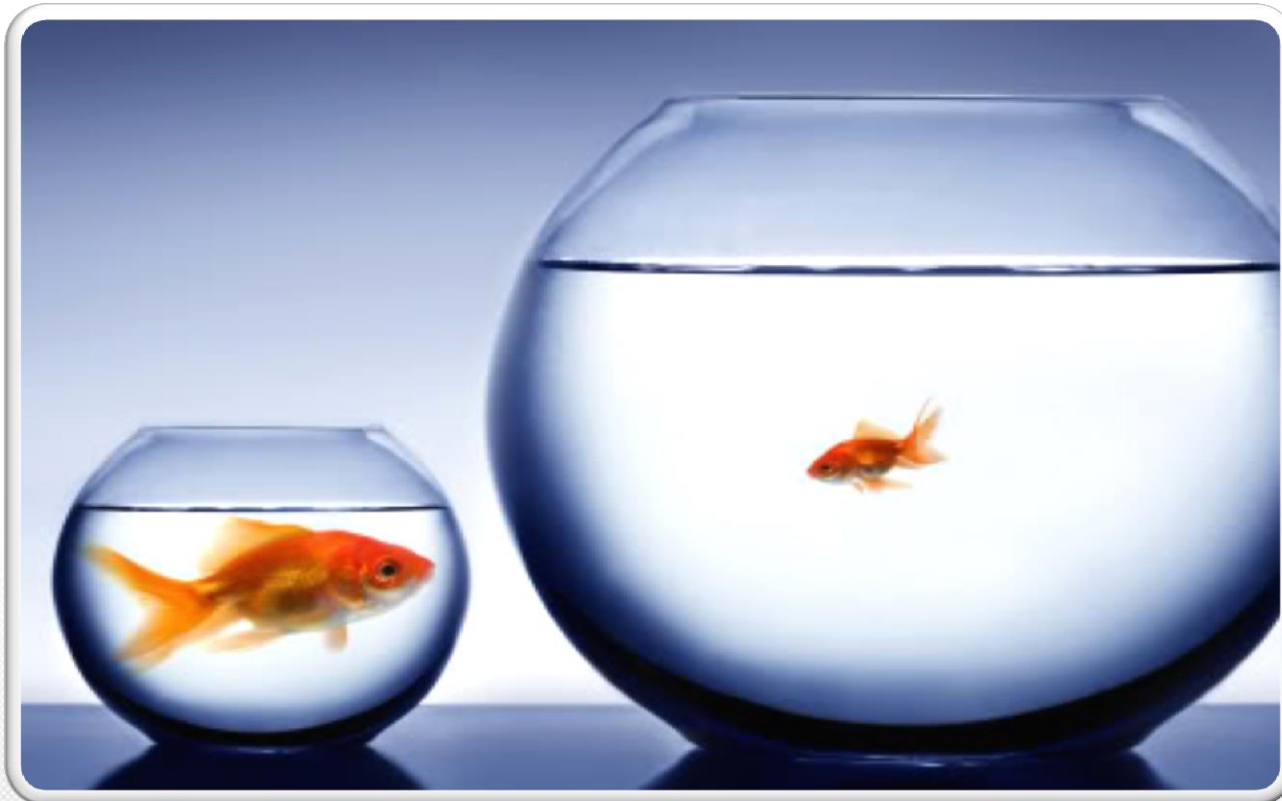
## The cascade of HIV care in British Columbia, Canada, 1996–2011: a population-based retrospective cohort study

Bohdan Nosyk, Julio S G Montaner, Guillaume Colley, Viviane D Lima, Keith Chan, Katherine Heath, Benita Yip, Hasina Samji, Mark Gilbert, Rolando Barrios, Rika Gustafson, Robert S Hogg, for the STOP HIV/AIDS Study Group

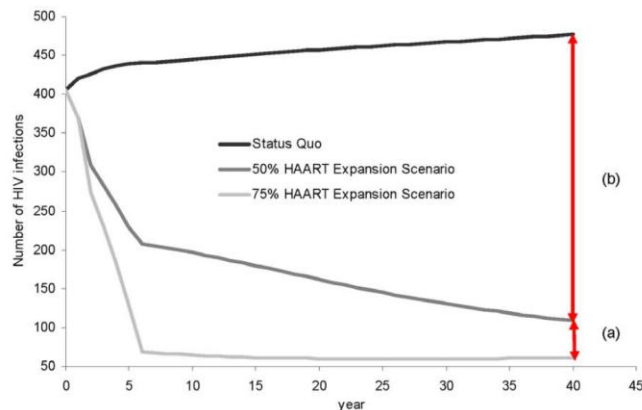




# Budgets







(a) HAART 50% Expansion Scenario

(b) HAART 75% Expansion Scenario

Cumulative number of HIV infections avoided = 11,387

Additional Cumulative number of HIV infections avoided = 3,524

Lifetime HIV drug treatment cost avoided = \$4.2 billion

Lifetime HIV drug treatment cost avoided = \$1.4 billion

Figure 2. Comparison of the projected number of new HIV infections: Status Quo approach versus 50% and 75% expansion scenarios (over 40 years).

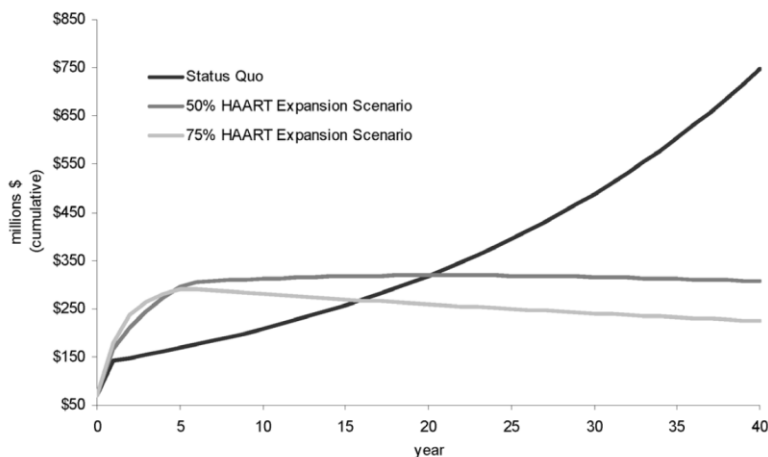


Figure 3. Return on increased investment resulting from implementation of the Status Quo approach versus 50% and 75% expansion scenarios (over 40 years).

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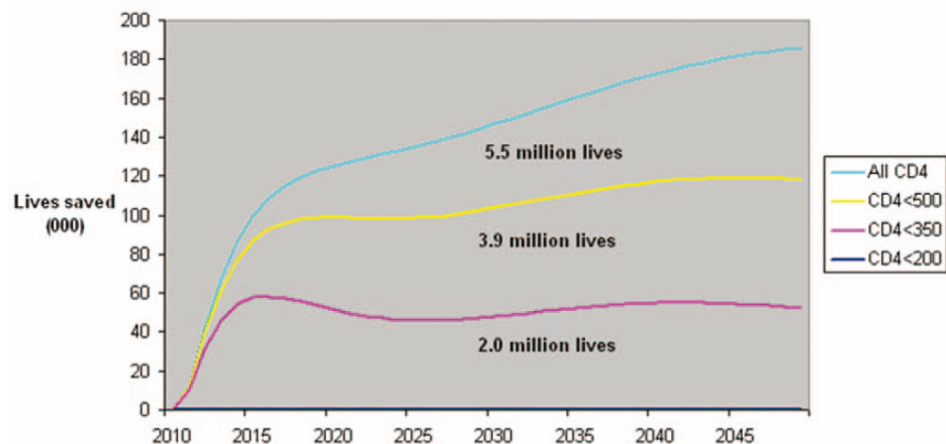
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## Expanding HAART Treatment to All Currently Eligible Individuals under the 2008 IAS-USA Guidelines in British Columbia, Canada

Viviane D. Lima<sup>1,2\*</sup>, Robert S. Hogg<sup>1,3</sup>, Julio S. G. Montaner<sup>1,2</sup>

**Conclusions/Significance:** The individual and public health benefits of these new guidelines are immense. The results show that by increasing the number of individuals on HAART save lives, it is cost averted, and it positively impacts society by decreasing the number of new HIV infections. Thus, public health community should consider incremental gains when considering guidelines and policy.

Lives saved by CD4 treatment threshold compared to CD4<200



**Figure 2. Lives saved by CD4 treatment threshold compared to current CD4<200 baseline.** Graph shows lives saved by CD4 treatment threshold compared to current CD4<200 baseline with the <350 scenario portrayed in "pink", <500 in "yellow" and all CD4 in "blue". Lives saved increase with earlier access to ART.

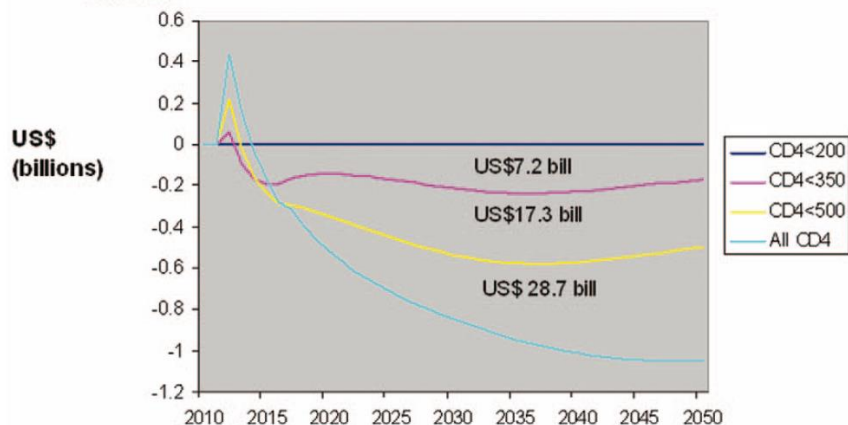
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## Expanding ART for Treatment and Prevention of HIV in South Africa: Estimated Cost and Cost-Effectiveness 2011-2050

Reuben Granich<sup>1\*</sup>, James G. Kahn<sup>2</sup>, Rod Bennett<sup>3</sup>, Charles B. Holmes<sup>4</sup>, Navneet Garg<sup>5</sup>, Celicia Serenata<sup>6</sup>, Miriam Lewis Sabin<sup>1</sup>, Carla Makhoulf-Obermeyer<sup>1</sup>, Christina De Filippo Mack<sup>7</sup>, Phoebe Williams<sup>1</sup>, Louisa Jones<sup>1</sup>, Caoimhe Smyth<sup>1</sup>, Kerry A. Kutch<sup>1</sup>, Lo Ying-Ru<sup>1</sup>, Marco Vitoria<sup>1</sup>, Yves Souteyrand<sup>1</sup>, Siobhan Crowley<sup>1</sup>, Eline L. Korenromp<sup>8,9</sup>, Brian G. Williams<sup>10</sup>

Difference in costs by year compared to costs of CD4<200 current scenario



**Figure 3. Annual cost by scenario compared to current prevention scenario baseline, 2010–2050.** This figure shows the annual cost by ART scenario compared to the projected baseline of <200 current scenario. Totals represent cumulative cost savings over 2010–2050 time period. Cost neutral time points cluster around 2015. Discounted savings over 40 years are 3.9, 8.8, and 13.8 billion for <350, <500, and all CD4 cells, respectively.



*Thanks for  
your attention*