

# SIVES 2015

Integrated Surveillance  
System for STI and HIV in  
Catalonia

Technical document Nº22

20 years  
of research  
and information  
for action

## CEEISCAT EPIDEMIOLOGICAL REPORT



Generalitat de Catalunya  
Agència de Salut Pública de Catalunya

SIVES 2015

Technical  
document  
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### Integrated Surveillance System for STI and HIV in Catalonia

Barcelona, 2015



Generalitat de Catalunya  
**Agència de Salut Pública de Catalunya**

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## Preface

I am pleased to present the latest report of the Integrated Surveillance System for AIDS, HIV and STIs in Catalonia (SIVES 2015), which has become the reference tool for epidemiological information about these infections in Catalonia and for defining the priorities and objectives of the Health Plan of Catalonia in these areas.

In this regard, I would like to draw attention to the fact that the report continues to produce and present the indicators that are internationally used to monitor the HIV pandemic, signed by 52 European countries by means of the Dublin Declaration, and also by producing the "Treatment Cascade" for HIV and co-infection with hepatitis C, a tool suggested by the international agencies to calculate and monitor access to the diagnosis and treatment of these infections, therefore making it indispensable, not only for the Public Health Agency of Catalonia (ASPC) and CatSalut, but also for the media and professionals and NGOs that work in the sector. I would encourage all of them to use it.

Since with the SIVES 2015 we are celebrating 20 years of the creation of the Centre for Epidemiological Studies on Sexually Transmitted Infections (STIs) and HIV/AIDS of Catalonia (CEEISCAT) and of the actual report, I would like to make the most of the opportunity to acknowledge the work done by this organisation, which reports to the ASPC, and which over these 20 years has fought against AIDS and STIs.

I trust that the report will be of interest and useful to all the people who, one way or another, participate in the prevention of HIV and STIs, and once again I would like to thank all the healthcare professionals, as well as the community organisations that collaborate with the Department of Health in the different projects disseminated through the SIVES 2015.

**Boi Ruiz i Garcia**  
**Minister of Health**

## Foreword

I am pleased to present the latest biennial report of the Integrated Surveillance System for AIDS/HIV/STIs in Catalonia (SIVES) for 2015. The SIVES report is a reference publication in Spain and in Europe, featuring the value of including and analysing both the formal systems of epidemiological surveillance and other complementary sources of information and observational studies. The SIVES report has been published constantly since 1995, first annually and then biennially; this means that now, in 2015, it has been published regularly for 20 years and has gained both in coverage and validity and usefulness, because I have it on good knowledge that it is a basic tool for healthcare and public health professionals and for the NGOs that work in HIV/STIs. This anniversary also coincides with 20 years of the creation of the Centre for Epidemiological Studies on Sexually Transmitted Infections and HIV/AIDS of Catalonia (CEEISCAT), which reports to the Public Health Agency of Catalonia, whose main programmatic output is the SIVES.

I am therefore delighted to present this new report in this scenario, making the most of the opportunity to thank all the CEEISCAT staff and all the professionals and activists who, over the last 20 years, have contributed to disseminating the information presented and analysed in it. I trust that the SIVES will continue to improve and be useful to all the people who work in these areas, and I am sure that it will continue to be so for the ASPC's prevention policies.

Finally, once again I would like to thank all the healthcare and public health professionals, as well as the NGOs and the CEEISCAT staff, for their effort in producing this report and for maintaining the information systems and studies that feed it.

**Antoni Mateu i Serra**  
**Secretary for Public Health**

## Introduction

With the leadership of international agencies, HIV/AIDS Epidemiological Surveillance –as in so many other areas related to this infection– is developing faster and in a more complex fashion than other diseases, and at this moment in time it is clear that in order to generate the indicators necessary to monitor the strategic goals established by the World Health Organisation (WHO) and UNAIDS, information that complements the formal surveillance systems is required. As always, the report includes the information generated or managed by CEEISCAT, both from formal epidemiological surveillance systems (Notifiable Diseases Register –MDO–, Catalan Laboratory Notification System –SNMC– and the Sexually Transmitted Infection Register of Catalonia –RITS–), and from different observational studies and, evidently, programmatic information from healthcare and community services centres. And it is precisely this integration effort that has led international institutions such as the WHO to notice the Integrated Surveillance System for AIDS/HIV/STIs and HIV in Catalonia (SIVES) and choose it as an example of good practices in Epidemiological Surveillance in Europe at the recent Global Consultation Meeting on HIV Surveillance (Bangkok 2015).

The SIVES report that we present is the Technical Document of the CEEISCAT number 22 and, according to the information system, includes data updated until 2014. This year we have maintained the format and presentation changes introduced in the last version of the report, which –judging by the comments that have reached us– have helped to accomplish the objective of generating a more understandable and useful document. The only variation is the grouping together of all the key points and recommendations at the beginning of the report. Once again, the treatment cascade is included, which is an indispensable tool for monitoring access to the diagnosis and treatment of these infections. We also continue to believe in the need to promote the use of objective indicators in order to describe the epidemic and the corresponding response and that these indicators must provide the foundations for debate and decision-making, to which end we have sought to improve the Indicators Chapter at the end of the report. Information systems are fragile, and the consensus and the technological foundations deployed for them to work are difficult to construct but can easily fall apart in a matter of days. Maintaining these information systems in the current economic setting has not been an easy task, and has been achieved thanks evidently to the support provided by the Public Health Agency of Catalonia, but also through the drive of numerous health professionals, community activists, people living with the disease and those belonging to higher-risk groups or vulnerable populations who believed in the power of objective data and have continued to share and collaborate in generating information which –despite often being part of their daily work– still requires an additional effort. The WHO has specifically requested that NGOs and healthcare services share these data; this responsibility is also shared by the Administrations in using them in evidence-based policies. Thank you all very much.

This report is particularly relevant to the centre, because it coincides with the commemoration of 20 years of the creation of the CEEISCAT. Twenty years sourcing data and building information systems to generate useful strategic information for public health policies in HIV and STIs is a long time. We like to think that had it not been for this information, the evolution of the epidemic would have been even worse. The best guarantee of the continuity of information systems is that the indicators generated by them are actually used. With this request, and a restated commitment to continue to strive to maintain and improve the SIVES, on behalf of all the professionals of CEEISCAT I would like to thank everyone for their collaboration and I hope that the report will be useful to you.

**Jordi Casabona i Barbarà**  
**CEEISCAT Scientific Director**

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**Key points**

## HIV and AIDS

- It is estimated that in 2013 in Catalonia, 33,600 people live with the human immunodeficiency virus (HIV), 8000 of whom do not know that they are infected. Most people living with AIDS are men (79%) and the most common route of transmission is sexual (95%).
- The number of new cases of HIV among men who have sex with men (MSM) continues to increase, and is particularly high in the immigrant group (3.7/100 persons/year).
- HIV continues to be prevalent in new people who inject intravenous drugs (PWID) (16.7%) and in the prison population (8.9%), in whom, despite the reduction observed in recent years, the percentage is still among the highest in Europe.
- In Catalonia, the number of new cases of HIV notified per inhabitant is above the European median (11.1 and 5.7, respectively) and 42% are diagnosed late, with late diagnosis being particularly high in heterosexuals and PWID.
- It is important to maintain and intensify the promotion of safer sexual behaviours among risk populations.
- HIV testing should be encouraged in order to make sure that people are aware of their serological condition with regard to HIV.
- MSM, PWID, female sex workers and the sexual partners of people living with AIDS should have the HIV test performed at least every year, and more frequently if the risk is maintained.

## HIV and hepatitis C virus co-infection

- It is calculated that in Catalonia 7400 people live with HIV and hepatitis C (HCV) co-infection, 5100 of whom have been diagnosed.
- PWID continues to be the group with the highest percentage of HCV co-infection. In any event, and as has been observed in other European countries, the number of new cases of HCV in MSM - probably acquired through sex - is on the increase.
- It is important to promote the early diagnosis of hepatitis C in people living with HIV, particularly in groups with a high incidence (MSM and PWID) in order to improve the prognosis of both infections.
- It is important to consolidate surveillance systems to monitor the use and effectiveness of the new drugs for HCV, particularly in the population with HIV co-infection.

## HIV detection test

- In Catalonia, although the number of HIV detection tests conducted per inhabitant had gradually increased, it has fallen over the last three years, reaching a current rate of 34.8 tests per 1000 inhabitants, which is still well below other European countries such as Luxembourg or France (126.7 and 79.4 tests per 1000 inhabitants, respectively).
- HIV and HCV rapid detection tests are well-accepted by the personnel and users of community screening and harm reduction centres. It is estimated that these centres diagnose 25% of all new diagnoses notified in Catalonia.
- The percentage of infections detected in community screening centres is higher than that which is detected in the healthcare setting (2.0% and 0.7%, respectively). The community screening services achieve a greater performance when they focus on higher-risk populations and in the context of proximity programmes.
- The sites where HIV testing is offered must be diversified, and the effectiveness of screening needs to be improved in order to access population groups or subgroups with greatest risk of infection.

## Treatment and prophylaxis of HIV

- The treatment cascade in Catalonia suggests that almost half of the people that live with HIV (diagnosed and undiagnosed) have an undetectable viral load.
- Six months after having initiated antiretroviral therapy, 95% of the patients have an undetectable viral load.
- 60% of MSM would use pre-exposure prophylaxis (PEP) if it were available, whereas 19% of them believe that it would increase risk behaviours.
- It is important to monitor healthcare quality indicators in order to evaluate the healthcare provided to people living with HIV.

## Other sexually transmitted infections

- Herpes and condyloma acuminata are the most frequently-reported sexually-transmitted infections (STIs), affecting mainly young men and women.
- Over the last 10 years, the notified cases of syphilis and gonorrhoea have quadrupled and tripled, respectively, and syphilis affects mainly MSM.
- The cases of lymphogranuloma venereum course in bouts and are mainly MSM with HIV co-infection.
- Despite the fact that notified cases of *Chlamydia trachomatis* are below the European median, monitoring studies in young people point to an increase in the percentage of young people infected over the last few years.
- Infection by *Chlamydia trachomatis* affects mainly young heterosexual males and females, although an increase of cases detected in MSM has been observed.
- Knowledge and implementation of the recommendations for the screening of *Chlamydia trachomatis* in the current Clinical Practice Guidelines for sexually transmitted infections in Catalonia must be improved.
- In Catalonia, MSM constitute a key group for targeting multi-level preventive interventions to reduce the incidence of these infections.

## Monitoring of HIV/STI-associated behaviours

- Risk sexual behaviours in MSM remain high. Having had more than 10 occasional sexual partners, unprotected anal sex with a casual partner and with a stable partner of unknown serological status, and having self-declared gonorrhoea have been identified as behavioural determining factors of HIV seroconversion.
- Even although a high percentage of young people use a condom in their first sexual intercourse (85.2% young males and 86.1% young females), they do not do so consistently over time. The high number of cases and re-infections by *Chlamydia trachomatis* (8.5% and 13%, respectively), together with the high use of emergency contraception (49.2%), point to the persistence of risk behaviours among young people.
- For the first time in the last 10 years an increase has been observed in unprotected sex in female sex workers (FSW), with local FSW presenting the highest percentage of unprotected sex with clients.
- PWID present a reduction in the practice of sharing syringes, although a high percentage of them continue to share material indirectly, particularly immigrants (67.6%).
- A combined approach to HIV prevention is called for, integrating biomedical, behavioural and structural strategies in order to guarantee a sustained and effective long-term response.
- Sex education activities should be commenced at earlier ages and be maintained over the years.

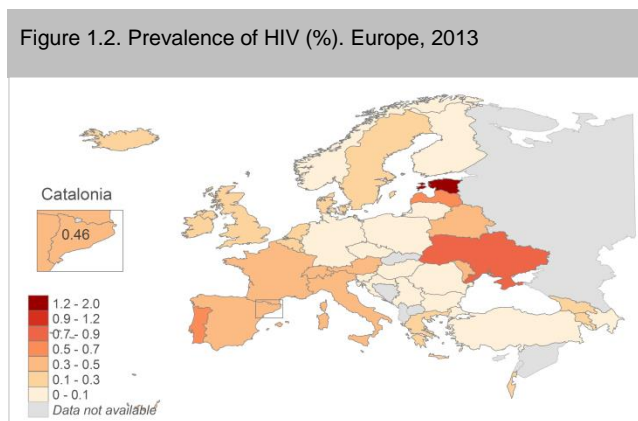
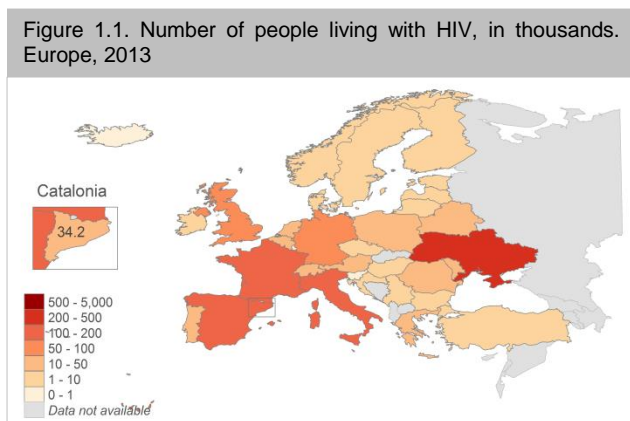
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**HIV and AIDS**

## 1.1. Number of people living with HIV/AIDS. Magnitude and impact of HIV

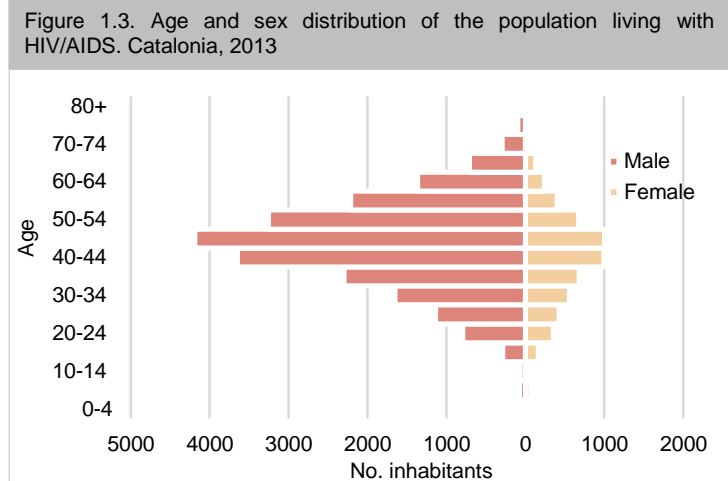
### 1.1.1. Diagnosed and undiagnosed HIV-infected people (global prevalence estimations)

In Catalonia in 2013, approximately 34,200 people were living with HIV (**figure 1.1**). The prevalence of HIV in the general population was 0.46%, similar to that of France (0.40%), and higher than the prevalence in other Northern European countries such as Germany (0.10%) or the United Kingdom (0.30%) (**figure 1.2**). The majority are males (79%), and around 53% of the total are aged between 35 and 50 (**figure 1.3**).



### Changes in the distribution of HIV in key groups over time

Regarding long-term trends in the distribution of key groups of people living with HIV (diagnosed and undiagnosed) aged between 15 and 49, it is estimated that as of 1995 there has been a major reduction in the group of people who inject drugs (PWID) and a progressive increase in men who have sex with men (MSM). Heterosexuals continue to comprise the majority of infected people (**figure 1.4**). Nevertheless, the current estimated prevalence of HIV are still highest in the PWID population (21.2%) and the MSM population (14.7%), and much lower in the population of heterosexual men and women (0.37% and 0.32%, respectively) (**figure 1.5 and section 1.2**).



### Undiagnosed HIV

Although there is no direct estimate of the number of people of the general population of Catalonia living with HIV and who are unaware of their serological status, this proportion is likely to be similar to that of the rest of Europe, in the region of 25-30%.<sup>1</sup>

An estimate of the proportion of undiagnosed HIV-infected MSM was made using data from the SIALON I multicentre study (Capacity building in HIV/syphilis prevalence estimation using non-invasive methods among

<sup>1</sup> Hamers FF, Phillips AN. Diagnosed and undiagnosed HIV-infected populations in Europe. HIV Med. 2008 Jul; 9(Suppl 2):6-12.

MSM in Southern and Eastern Europe)<sup>2</sup> (see the "Methods" chapter): it has been estimated that in Barcelona in 2008, the percentage of MSM with undiagnosed infection was 46.8%.

Figure 1.4. Estimation of the distribution of people living with HIV/AIDS between 15 and 49 by key populations. Catalonia, 1979-2012

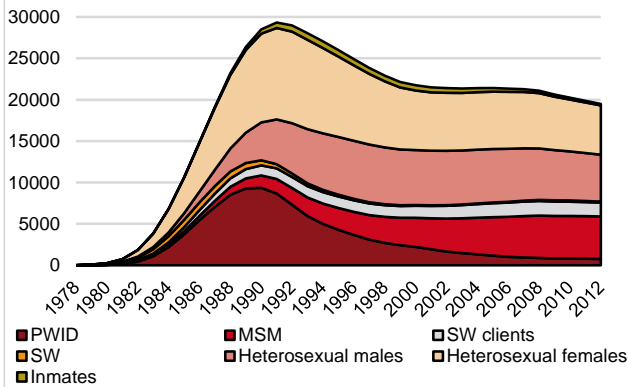


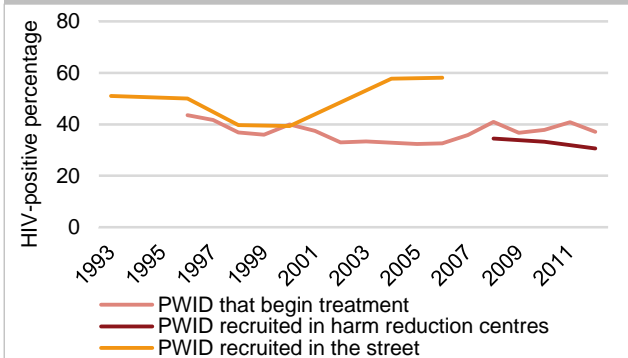
Figure 1.5. Estimation of prevalence in key populations between 15 and 49. Catalonia, 2013.



### 1.1.2. Prevalence of HIV in key populations

#### People who inject drugs

Figure 1.6. Evolution of the prevalence of HIV infection in PWID. Catalonia, 1993-2012



HIV prevalence in PWID, as measured in oral fluid samples collected in harm reduction centres, remained high in 2012 (30.6%), similar to the prevalence observed for the previous years (**figure 1.6**). The prevalence of new drug injectors (people who have been injecting drugs for five years or less) is 16.7%.

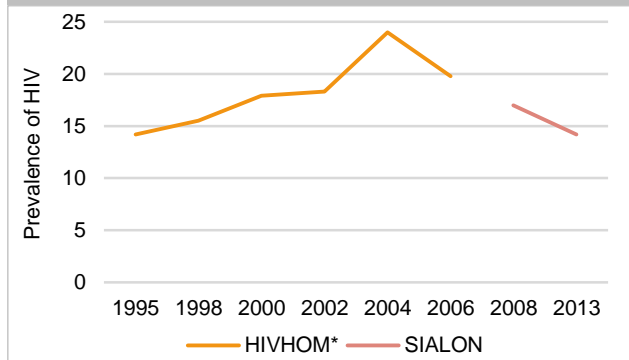
The prevalence obtained among PWID recruited from the Network of Drug Dependency Treatment Centres (Xarxa d'Atenció i Seguiment de les Drogodependències) is slightly higher (37.1% in 2012). Different previous studies based on PWID polled in the street showed higher HIV prevalence (58.1% in 2006) (**figure 1.6**).

#### Men who have sex with men

Cross-sectional studies carried out since 1993 among MSM polled in gay meeting venues (HIVHOM) show a global significant increase in the prevalence of HIV obtained from oral fluid samples (from 14.2% in 1993 to 19.8% in 2006) (**figure 1.7**).

The study's methodology was changed in 2008 when it became part of the SIALON I and SIALON II European multicentre project (see "Methods").

Figure 1.7. Evolution of the prevalence of HIV infection in PWID. Catalonia, 1993-2012



\* Significant trend / Sources: HIVHOM, SIALON I i SIALON II

<sup>2</sup> Ferrer L, Furegato M, Foschia JP, Folch C, González V, et al. Undiagnosed HIV infection in a population of MSM from six European cities: results from the Sialon project. Eur J Public Health. 2014 Aug 26. pii: cku139. [Epub ahead of print]. Doi: 10.1093/eurpub/cku139

The prevalence of HIV in MSM obtained in the 2013 study was 14.2% (95%CI: 10.0-19.8), showing no significant differences with regard to the prevalence observed in the previous study (**figure 1.7**).

### Female sex workers

The prevalence of HIV infection among female sex workers (FSW) in Catalonia remained constant over the 2005-2011 period (1.5% in 2011).

Taking country of origin into account, the prevalence is significantly higher among Spanish women (14.7% in Spanish-born woman and 0.3% in immigrants) (**figure 1.8**).

### Pregnant women

Unlinked anonymous testing for HIV in pregnant women has been carried out in Catalonia since 1994 by using a representative sample of live-borns included in the neonatal metabolic screening programme. Global HIV prevalence in 2013 was 0.12%. The long-term trend in prevalence (**figure 1.9**) is downwards, despite isolated peaks of prevalence in some years, such as 2011.

There was an increase in prevalence between 2007 and 2013 among women born abroad (0.21% to 0.27%), with a peak of 0.55% in 2012, and a reduction among Spanish-born women (from 0.09% to 0%) (**figure 1.10**).

Figure 1.9. Evolution of the prevalence of HIV in pregnant women. Catalonia 1994-2013

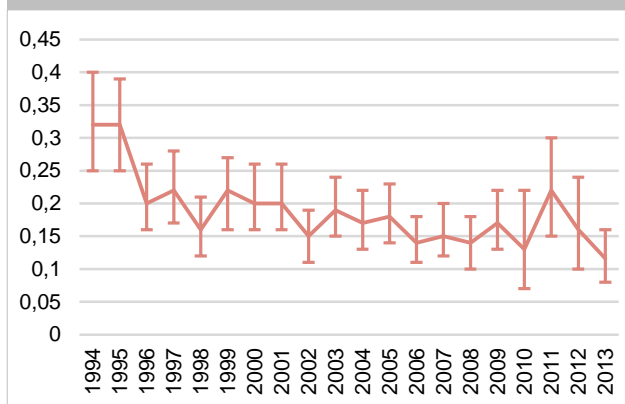


Figure 1.8. Evolution of the prevalence of HIV in female SW by country of origin. Catalonia 2005-2011

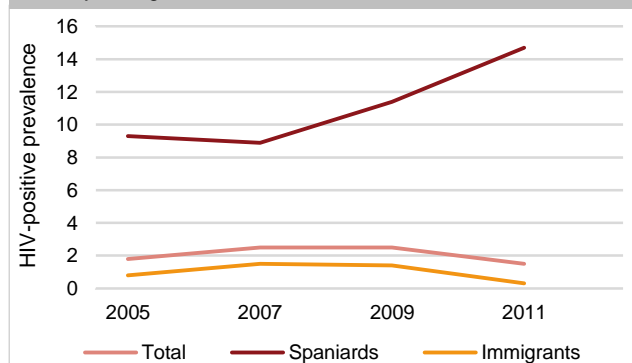
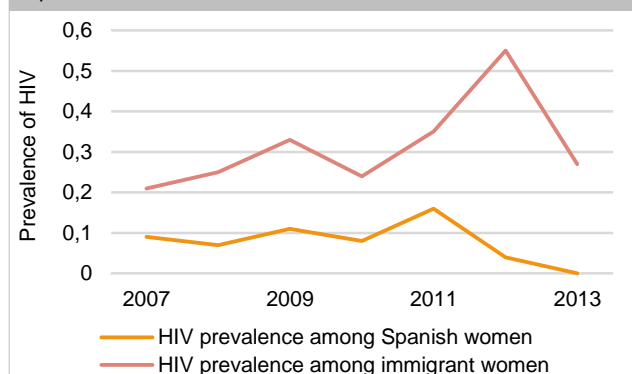


Figure 1.10. Evolution of the prevalence of HIV in pregnant women depending on whether they are immigrants or Spaniards. Catalonia 2007-2013



### Blood donors

In Catalonia, every year the Blood and Tissue Bank (Banc de Sang i Teixits) processes some 200,000 voluntary blood donations. In 2013, 11.3 positive samples per 100,000 donations were detected (**table 1.1**).

The rate is much higher in males than in females (20.9 versus 1.1 positive samples per 100,000 donations). The population of adolescent males aged between 15 and 19 presented the highest infection rate (86.0 per 100,000 donations), followed by young males aged between 25 and 29 (61.7 per 100,000 donations). Over the last decade, the trend is around 20 sero-positive donations with regard to HIV a year (8 positives per 100,000 donations) (**figure 1.11**). These rates are much lower when compared to those of other low-risk populations (newborns and workers), because they are obtained from a specific population (healthy population) and cannot therefore be extrapolated to the general population. However, these rates are higher than those of other Western and Central European countries (1.8 per

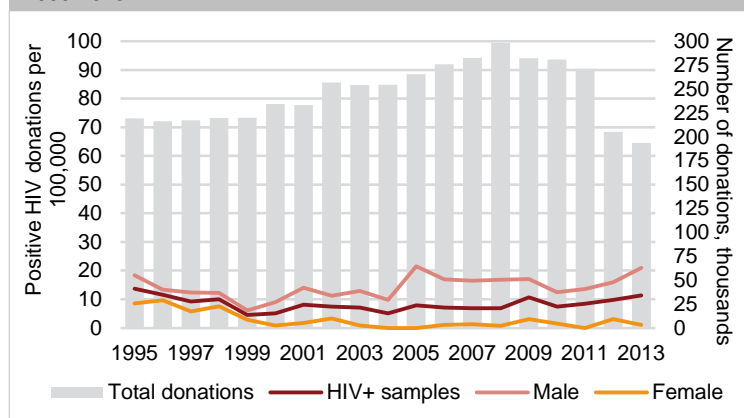


100,000 donations and 3.8 per 100,000 donations, respectively),<sup>3</sup> although the heterogeneity of the exclusion criteria between countries renders an interpretation of these differences difficult.<sup>4</sup>

Table 1.1 Summary of the epidemiological surveillance projects of HIV infection in specific populations in Catalonia, 2013.

Population	Start year	Periodicity	Biological sample	Latest available data	Population volume	Prevalence (%)
<b>General population</b>						
Newborns (pregnant woman)	1994	Every year	Dry blood	2013	35.334	0,12
Blood donors	1987	Annual	Serum	2013	193.627	0,01
<b>Vulnerable populations</b>						
PWID that begin treatment	1996	Annual	Serum	2012	464	37,06
PWID recruited in a harm reduction centre	2008	Every two years	Saliva	2012	733	30,60
MSM	1995	Every two years	Saliva	2013	400	14,20
Female SW	2005	Every two years	Saliva	2011	400	1,50
Prison population	1995	Annual	Serum	2013	3.824	8,91

Figure 1.11 Evolution of the HIV positivity rate in blood donors. Catalonia, 1990-2013

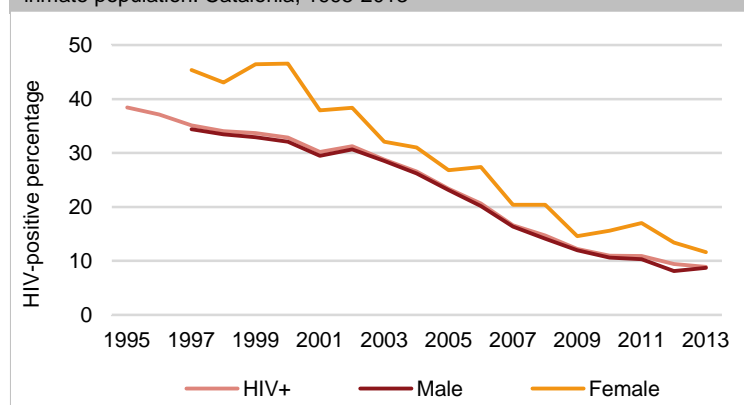


### Prison population

In 2013, the prevalence of HIV infection among inmates of three prisons in Catalonia was 8.9% (table 1.1). The downward evolution of prevalence, also observed over the last decade, has been maintained (figure 1.12).

In 2013, most of those infected were men (305 HIV-positive), with a prevalence of 8.7% and a median age between 40 and 44 years. The number of infected women was lower (36 HIV-positive), although the prevalences were higher than in men, 11.6%, and a median age between 35 and 39 years.

Figure 1.12 Evolution of the prevalence of HIV infection in the prison inmate population. Catalonia, 1995-2013



The prevalences observed and the trend towards reduction is similar in Spain,<sup>5</sup> although they are still high in comparison with those of the rest of Western Europe (Italy, 3.8%; France, 2.0%).<sup>6,7,8</sup> These differences may be related to the type of prison analysed and the differences in the inmates' epidemiological profile, with long sentences being served and the population of injected drugs users (particularly former users).

<sup>3</sup> Monitoring HIV prevalence in blood donations in Europe. Euro Surveill. 2007 May 24;12(5):E070524.5

<sup>4</sup> Suligoi B, Raimondo M, Regine V, Salfa MC, Camoni L. Epidemiology of human immunodeficiency virus infection in blood donations in Europe and Italy. Blood Transfus. 2010 Jul;8(3):178-85.

<sup>5</sup> Marco A, Saiz de la Hoya P, García-Guerrero J; Grupo PREVALHEP. Estudio multicéntrico de Prevalencia de Infección por el VIH y factores asociados en las prisiones de España. Rev Esp Sanid Penit. 2012 Jun;14(1):19-27.

<sup>6</sup> Semaille C, Le Strat Y, Chiron E, Chemlal K, Valantin MA, et al.; Prevacar Group. Prevalence of human immunodeficiency virus and hepatitis C virus among French prison inmates in 2010: a challenge for public health policy. Euro Surveill. 2013 Jul 11;18(28).

<sup>7</sup> World Health Organization. Global health sector strategy on HIV/AIDS 2011-2015. Geneva: WHO; 2011.

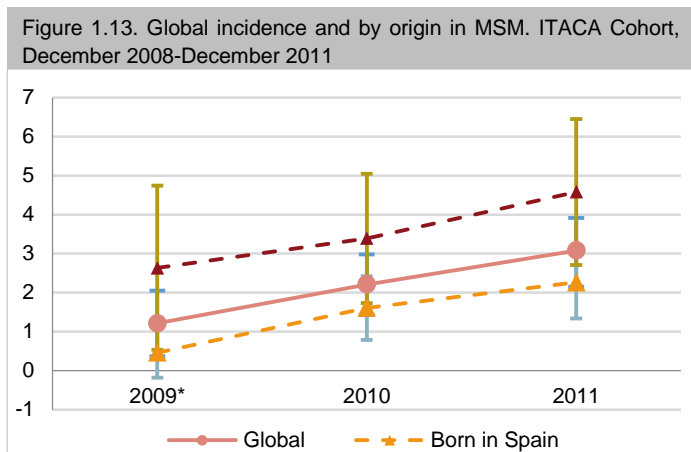
<sup>8</sup> World Health Organization. Status Paper on Prisons, Drug and Harm Reduction. Geneva: WHO; 2005.

### 1.1.3. HIV incidence

Estimates of HIV incidence in the general population have been produced using mathematical modelling techniques (Spectrum/Estimation and Projection Package [EPP]) which include, among other information, the data notified by the Integrated Surveillance System for AIDS, STIs and HIV in Catalonia (SIVES). Using this methodology, incidence estimates have increased in recent years, from 0.09 new cases per 1000 people in 2003 to 0.14 new cases per 1000 people in 2008. The incidence rate estimated with these models for 2013 is 0.2 per 1000 persons, equivalent to 695 (450-1306) new cases of infection in the population aged 15 to 49. Nearly half (48%) of all new infections occur in those aged 15 to 30, mainly in men (78%), and 39% of all new infections are in MSM.

#### Incidence in men who have sex with men

The incidence of HIV between December 2008 and December 2011, based on the ITACA Cohort, established in a community-based testing centre of Barcelona (BCN Checkpoint), presented a significant growing trend: it rose from 1.2/100 persons/year (95%CI: 0.37-2.06) in 2009 to 3.1/100 persons/year (95%CI: 2.17-3.93) in 2011 (**figure 1.13**). During the same study period, no significant differences were found in the cumulative incidence by age, whereas the incidence was twice as high in people born outside Spain than for those born in Spain, which was 3.7 (95%CI: 2.7-4.8) and 1.7 (95%CI: 1.7-2.2), respectively. The evolution of incidents over time only presents a significant growing trend in Spaniards (**figure 1.13**).



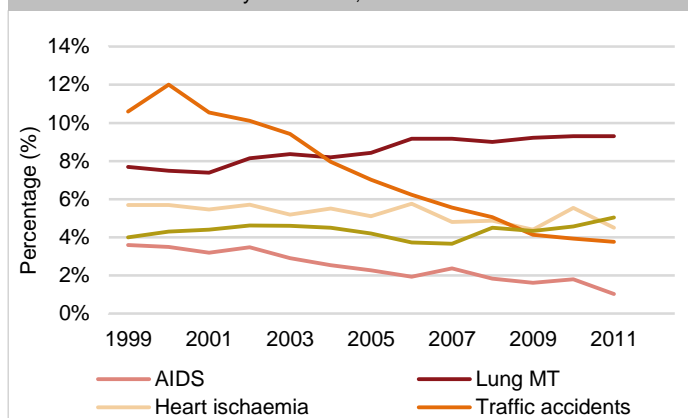
The ITACA Cohort serves to identify the determinants of seroconversion in this population group, and the risk factors for infection are as follows: being foreign, having more than five previous HIV tests on entering the cohort and, in the previous six months, having had unprotected penetrative anal sex with a stable partner of unknown serological status, having had more than 10 casual sex partners, having engaged in unprotected anal penetration with a casual partner and having self-declared gonorrhoea and having entered the cohort in 2010 or 2011.

### 1.1.4. Life expectancy, survival and causes of mortality

Up until the end of 2013, 10,815 deaths had been recorded in the HIV/AIDS Register of Catalonia. The peak of deaths (1193) was recorded in 1995. As of that year, there was a sharp reduction in deaths until 1998 (a drop of 70%), and this drop has been slower since 1999. In 2008, the number of deaths was 28% lower than in 2007.

**Figure 1.14** shows the impact of the AIDS epidemic on premature mortality in comparison to other principal causes of death, measured mainly by potential years of life lost from 1 to 70. In 2011, deaths due to AIDS accounted for 1.9% of potential years of life lost in Catalonia (using 73 causes of death).

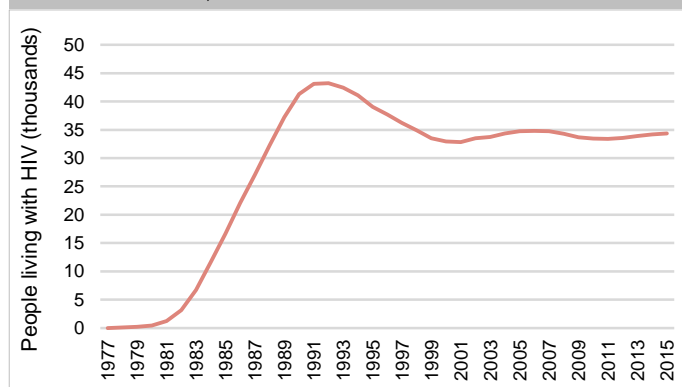
Figure 1.14. Potential years of life lost from 1 to 70 attributable to the main causes of mortality. Catalonia, 1999-2011



### 1.1.5. Projections

It is estimated that by 2017 in Catalonia there will be up to 34,700 people living with HIV (**figure 1.15**) and that the prevalence of HIV in the population aged between 15 and 49 will be 47 cases per 10,000 inhabitants. Of the total number of people living with HIV in this year, it is estimated that about 23,600 (18,100-26,500) will be eligible for treatment. Considering these estimates obtained with the Spectrum model,

Figure 1.15. Estimation and projection of the number of people living with HIV. Catalonia, 1978-2015



together with the data of the Catalan Health Service (CatSalut) on the number of people that receive antiretroviral therapy (ART), it is estimated that the total cost of ART for 2017 will be approximately €210 million (160-235).

Incidence estimates for the 2012–2017 period in Catalonia are in the order of 1–3 new HIV infections per 10,000 persons/year, equivalent to between 300 and 1000 new HIV infections per year. Assuming that ART coverage remains similar, the model's projections indicate that both the number of people who live with HIV and the virus' general incidence will remain stable over the coming five years.

## 1.2. HIV/AIDS diagnosis

### 1.2.1. HIV diagnoses

A total of 29,306 HIV cases were notified in European Union countries in 2012, a notification rate of 5.7 per 100,000 inhabitants (**figure 1.16**). HIV rates vary a great deal between countries. The countries with the highest rates are Estonia (23.6), Latvia (16.6), Belgium (11.1), Luxembourg (10.3) and the United Kingdom (10.1), whereas Slovakia has the lowest rate (0.9).<sup>9</sup>

In Spain, in 2012, a total of 2310 HIV diagnoses were notified from 18 autonomous regions. The rate was 8.5 cases per 100,000 inhabitants.<sup>10</sup>

Figure 1.16. Diagnosis rate per 100,000 inhabitants

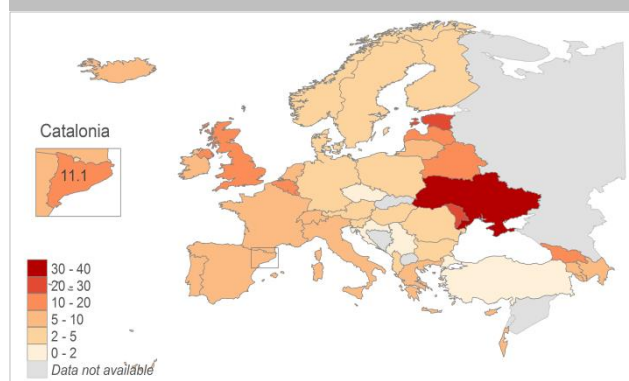
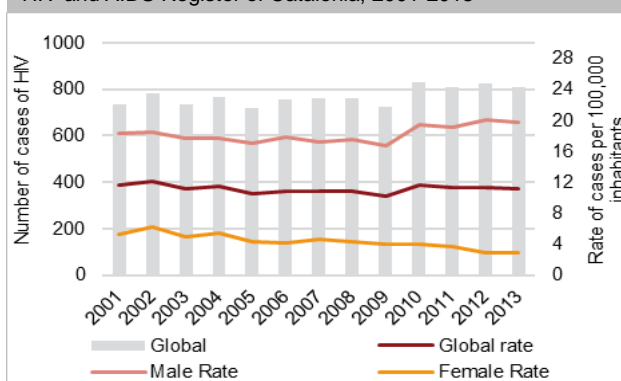


Figure 1.17. Evolution of the annual HIV diagnosis rate by sex. HIV and AIDS Register of Catalonia, 2001-2013



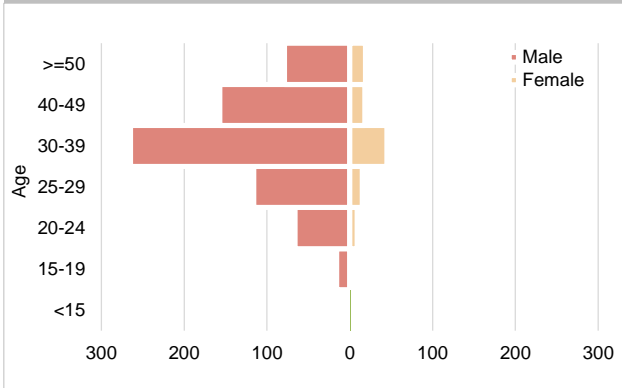
<sup>9</sup> European Centre for Disease Prevention and Control. Annual epidemiological report 2014 -sexually transmitted infections, including HIV and blood-borne viruses. Stockholm: ECDC; 2015.

<sup>10</sup> Centro Nacional de Epidemiología. Vigilancia epidemiológica del VIH/sida en España. Actualización 30 de junio de 2013. Madrid: Dirección General de Salud Pública y Sanidad Exterior; 2013.

In 2013, 808 HIV diagnoses were notified to the HIV/AIDS Register, which represents a global rate of 11.1 cases per 100,000 inhabitants, there having been no variations since 2001 (**figure 1.16**). This rate is higher than the European Union mean (5.7 cases per 100,000 inhabitants).

87% of the cases were males and 13% females, and the rates were 19.7 and 2.9 cases per 100,000 inhabitants, respectively (**figure 1.17**). The male-female ratio was 6:1.

Figure 1.18. Distribution of HIV diagnoses by sex and age group. HIV and AIDS Register of Catalonia, 2013



The mean age of the cases was 36.3 years. The group of young people aged between 15 and 24 accounts for 11% of the total cases notified, and there was one case of an under-15 infected by mother-to-child transmission (**figure 1.18**).

41% of the cases notified correspond to people born outside Spain. Of the total (321), 53% were people from Latin America and Caribbean countries. Between 2001 and 2008, there was a progressive increase in immigrants in total HIV cases throughout the period analysed, which rose from 24% to 46%, respectively. Between 2008 and 2013, the proportion of immigrants of the total HIV diagnoses stabilised (**figure 1.19**).

The most commonly notified HIV transmission group were MSM (59%), followed by heterosexual males (15%), heterosexual females (10%) and PWID (7%). During the 2001-2013 period, HIV diagnoses in MSM rose by 129%, increasing from 199 cases in 2001 to 456 cases in 2013. In heterosexual males, HIV diagnoses fell by 39%, from 195 cases in 2001 to 119 cases in 2013, and also fell in heterosexual women by 32%, from 118 cases in 2001 to 80 cases in 2013. Finally, HIV diagnoses in PWID fell by 69%, from 166 cases in 2001 to 52 cases in 2013 (**figure 1.20**).

Figure 1.19. Evolution of new HIV diagnoses by origin. HIV and AIDS Register of Catalonia, 2001-2013

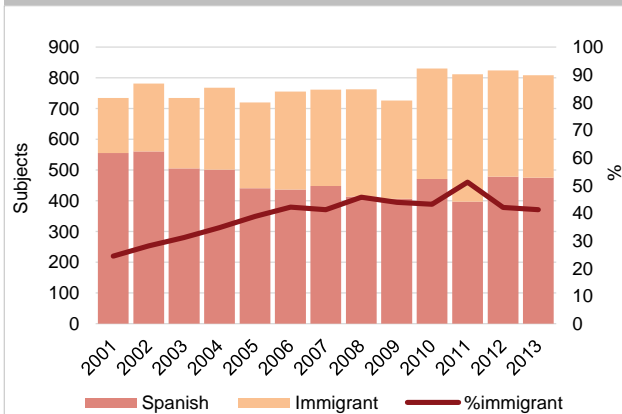
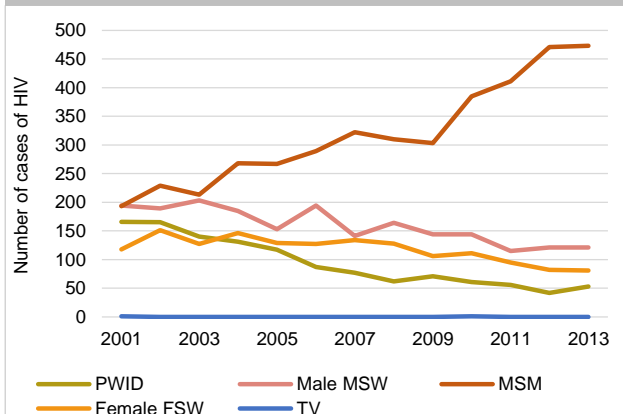


Figure 1.20. Evolution of HIV diagnoses by transmission groups. HIV and AIDS Register of Catalonia, 2001-2013



## Hepatitis B virus

Of the total 754 cases of HIV notified to the HIV/AIDS Register of Catalonia in 2013, 3.6% presented with hepatitis B virus co-infection. By transmission groups, this proportion was higher in PWID (10%), followed by heterosexual males (7.5%), MSM (6.1%) and heterosexual females (4.6%).

## Other sexually transmitted infections

Of the total 808 cases of HIV notified to the HIV/AIDS Register of Catalonia in 2013, 17% presented a sexually transmitted disease (STI) in the year prior to the diagnosis of HIV. This proportion was slightly higher among MSM (24%).

### 1.2.2. Late diagnosis

Of the total new HIV diagnoses notified to the HIV/AIDS Register of Catalonia in 2013 with the CD4 count available (85%), 42% presented a late diagnosis (CD4 < 350 cells/ $\mu$ L), and 22% an early diagnosis (CD4 < 200 cells/ $\mu$ L) (**figure 1.21**).

The late diagnosis proportion was similar in females and males (41% and 42%, respectively) and increased with age: 20% in under-25s, 40% in people aged between 25 and 44 and 64% in over-45s. With regard to transmission group, the highest late diagnosis proportion was observed among PWID (58%), followed by heterosexual males and females (56% in both cases). MSM present a lower rate of late diagnosis (38%).

There was a reduction in late diagnosis of HIV infection, which fell from 61% in 2001 to 42% in 2013. On analysis of the late diagnostic trend by transmission route, the reduction is maintained for MSM, who fell from 59% in 2001 to 38% in 2013. Late diagnosis in heterosexual males fell from 69% to 43%, and from 64% to 42% in heterosexual females (**figure 1.22**).

Figure 1.21. Evolution of late diagnosis and advanced disease in new diagnoses. HIV and AIDS Register of Catalonia, 2001-2013

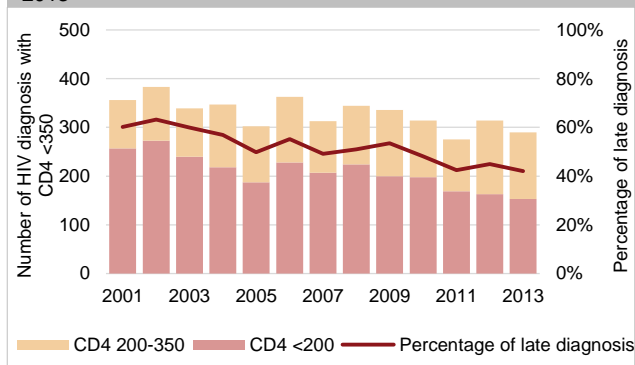
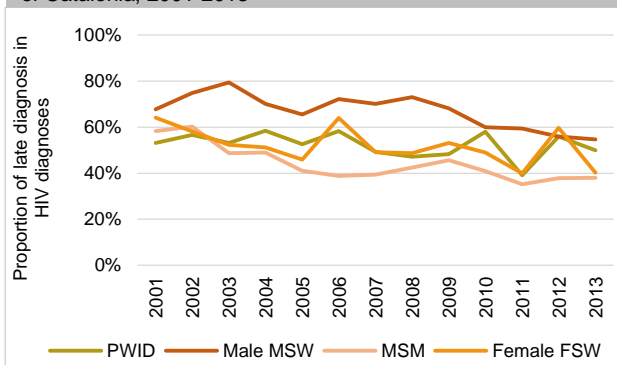


Figure 1.22. Evolution of the percentage of late diagnosis by transmission route in new diagnoses. HIV and AIDS Register of Catalonia, 2001-2013



### 1.2.3. AIDS diagnoses

In 2013, 150 HIV diagnoses were notified to the HIV/AIDS Register, which represents a global rate of 2.1 cases per 100,000 inhabitants. This rate is higher than the European Union mean (0.9 cases per 100,000 inhabitants) (**figure 1.23**).

Figure 1.23. Rate of AIDS notifications. Europe, 2012

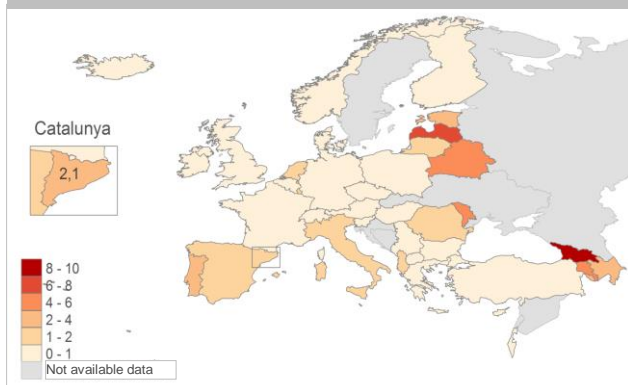
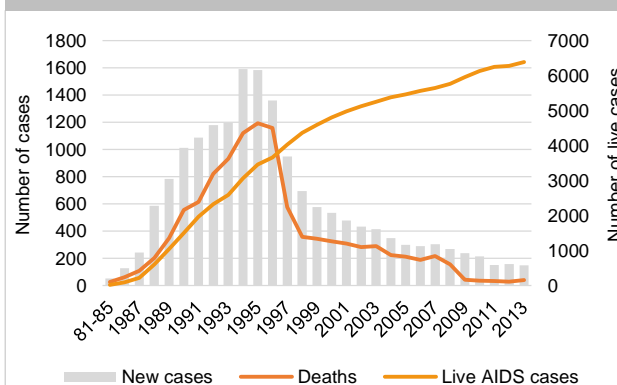


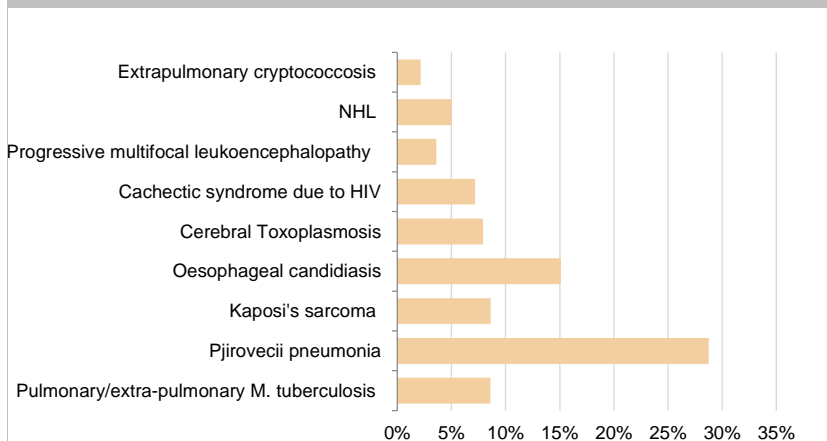
Figure 1.24. Annual evolution of AIDS cases in residents in Catalonia, 1981-2013



## Trends for the 1981-2013 period

The total number of AIDS cases notified between 1981 and December 31, 2013 was 17,293. **Figure 1.24** shows that since the diagnosis of the first case of AIDS in 1981, the annual incidence rate increased progressively, rising from 0.8 cases per 100,000 inhabitants in 1983 to 26.0 cases per 100,000 inhabitants in 1994, which coincided with the expansion of the epidemiological definition of *AIDS* case. There was a major fall in the number of cases between 1996 and 1998 (1359 and 694, respectively), which represented a 49% reduction in AIDS notifications in two years. Since then, the annual reduction in the number of AIDS cases has been smaller and more gradual, reflecting the stabilisation of the effect of the new therapies in the incidence of AIDS cases.

Figure 1.25. Distribution of most frequent AIDS-defining diseases in Catalonia, 2013



The most frequent AIDS-defining diseases in 2013 were pneumonia by *Pneumocystis jirovecii* (29%) and oesophageal candidiasis (15%) (**figure 1.25**).

### 1.2.4. HIV infection/AIDS in Barcelona

\*Patricia Garcia de Olalla, Roser Clos, Pilar Gorrindo, Joan A Caylà and the nursing team of the Epidemiology Service of the Public Health Agency of Barcelona.

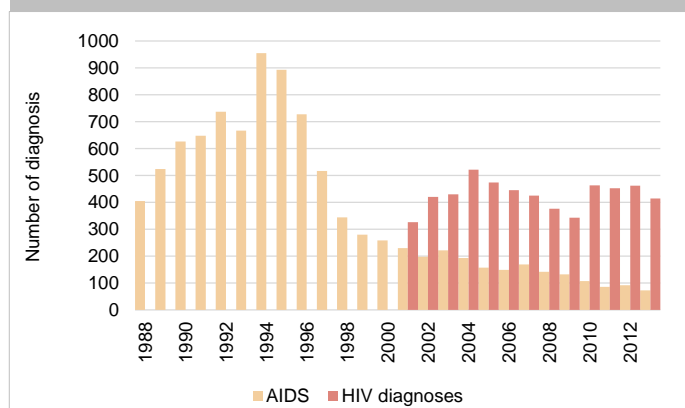
HIV infection/AIDS continues to be a major public health problem concentrated more in large cities, such as Barcelona.

### HIV infection

5573 diagnosed HIV cases were notified between 2001 and 2013, and there was an increase of 28% between 2009 and 2013; part of this increase may be attributed to the introduction of the statutory notification of HIV (**figure 1.26**). 72% of the notified cases corresponded to residents in Barcelona, with cases ranging from 222 in 2001 to 412 in 2012.

In 2013, a total of 438 people were diagnosed with an HIV infection for the first time, 86% (378) of whom lived in Barcelona, constituting an infection rate of 23.42 cases per 100,000 inhabitants and a fall of 9% with regard to 2012. **Figure 1.27** shows the diagnostic rates per 100,000 inhabitants for males and females living in the city.

Figure 1.26. Annual evolution of new diagnoses of AIDS and HIV infection in residents in Barcelona, 1988-2013



87% of the cases were males aged between 18 and 76, the ages of the 49 women ranged between 18 and 61 years, and the median age was 34 in both cases. The most frequent transmission route between males was homosexual intercourse, followed by heterosexual intercourse, with 82% (269) and 9% (29) of the cases, respectively. In women, the most frequent route was heterosexual intercourse (86%) (**figure 18**).

Regarding prognosis, this year there was a reduction in delay versus the previous year. Thus, in 2012 the delay was 44%, and 38% in 2013. Despite this, the difference between males and females has increased; in the case of females, the delay was 43%, whereas in males it was 38%.

Figure 1.27. Annual evolution of the rate of diagnosis of HIV and AIDS by sex. Barcelona, 2001-2013

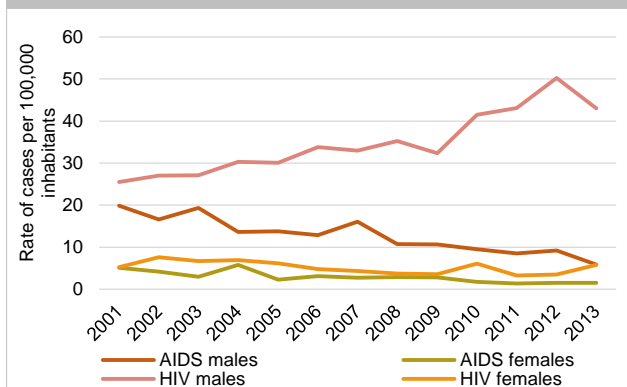
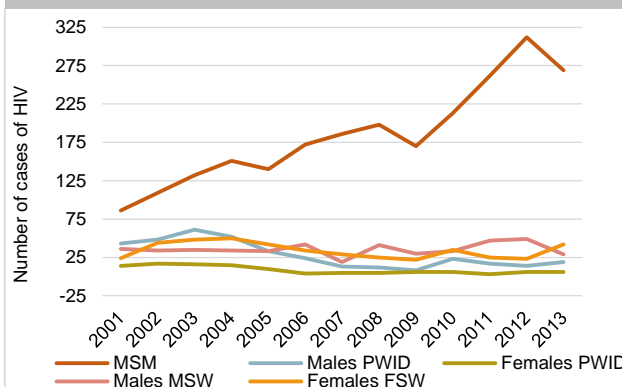


Figure 1.28. Annual evolution of new diagnoses of HIV infection by sex and transmission group. Barcelona, 2001-2013



## AIDS diagnoses

AIDS has continued to diminish substantially since the introduction of ART. Thus, between 2012 and 2013 there was a reduction of 30% in the number of cases, which fell from 84 cases in 2012 to 58 in 2013 (**figure 1.26**). Tuberculosis, *Pneumocystis jirovecii* pneumonia and Kaposi sarcoma were the most frequent AIDS-defining diseases in 2013, with 19%, 19% and 12%, respectively.

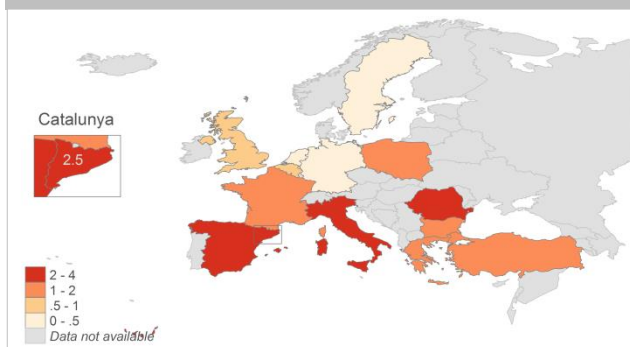
### 1.3. HIV and hepatitis C virus co-infection

#### 1.3.1. The hepatitis C virus: general situation

Hepatitis C is a worldwide health problem. The World Health Organisation (WHO) estimates that there are 150 million people with chronic hepatitis C virus (HCV) infection, many of whom will suffer from chronic and costly liver diseases, such as cirrhosis or liver cancer. According to the WHO, this may cause at least 350,000 deaths a year for hepatitis C-associated liver diseases. In Europe, the prevalence of HCV antibodies in the general population ranges from 0.12% in Belgium (1.6-2.6% in Spain) to 2.6% in Italy (**figure 1.29**), although it is much higher among PWID (25% to 75%) and there are major differences between countries. The notification rates of HCV cases in the European Union per 100,000 inhabitants rose from 4.5 to 6.9 between 1995 and 2007 (European Centre for Disease Prevention and Control [ECDC]), although this may be due to an increase in the diagnosis of this infection in recent years.

In Catalonia, acute HCV infection has been a Notifiable Disease (ND) since 2010 (DOGC 67/2010). In 2013, 34 cases were notified to the individual MDO Register of Catalonia, constituting an incidence of 0.4 cases per 100,000 inhabitants of the general population. Currently, the number of cases is under-declared due mainly to the under-diagnosing of acute infection, since most of these infections, being asymptomatic, go clinically unnoticed; moreover, it is difficult to distinguish between acute and chronic infection in patients who present HCV-positive antibodies and high transaminases, since no recent infection markers are available. Assuming that with the surveillance systems the symptomatic cases of acute hepatitis C are notified, and that these cases represent between 20% and 30% of all hepatitis C cases, we may estimate that there are between 100 and 170 acute infections in Catalonia every year.

Figure 1.29. Seroprevalence of HCV in Europe in the general population



HIV and HCV co-infection is one of the most important clinical problems for people living with HIV: it affects up to one third of people under clinical follow-up, and is particularly frequent in those who acquired HIV by injecting drugs. Despite the major impact of the introduction of ART (which have proven their efficacy in reducing mortality), cirrhosis and its derived complications are the main cause of death in patients with HIV and HCV co-infection

Although HCV is associated mainly with blood-borne transmission in people who inject drugs, sexual transmission, particularly between MSM, has become more important in recent years with the identification of transnational outbreaks of HCV, initially in Europe, but also in the USA and Australia.

The new, more effective, therapies are beginning to make it possible to eliminate the virus in the vast majority of cases, including patients with HIV co-infection and advanced liver diseases. However, these drugs are costly, and providing them to everyone who needs them will be a challenge to the healthcare services in most countries. Nevertheless, effective prevention interventions must be reinforced in vulnerable groups, particularly in those with high or increasing incidences.

The recent changes in the epidemiology and transmission routes of HCV, together with the new direct and highly-effective antiviral agents, point to the need to reinforce surveillance systems in order to identify future changes in the incidence of HCV and the treatment to be given to patients with HIV infection.

### 1.3.2. Number of people living with HIV and HCV co-infection

According to the data recently released by the EuroSIDA<sup>11</sup> cohort, the prevalence of HCV in Europe is variable according to the different geographical areas. In Eastern and Southern Europe, where HIV is acquired more often through the use of injected drugs, the prevalence was 15% and 29%, respectively. In Northern and Western Europe, where transmission is predominantly between MSM, 17% and 20% of patients presented positive anti-HCV antibodies, respectively (**figure 1.30**). Regarding transmission route, 61% of the total number of people with positive anti-HCV antibodies pointed to the use of injected drugs as the most likely HIV transmission route, whereas in 19% the transmission route was through heterosexual intercourse, and through homosexual intercourse in 13%.

The estimate of the number of people living with HIV in Catalonia in 2013 was approximately 34,200, of whom 71% (23,800 people) had diagnosed HIV and were under clinical follow-up for the infection. This estimate, obtained by applying the Spectrum/EPP 2011, a modelling programme developed by the Joint United Nations Programme on HIV/AIDS (UNAIDS/WHO) in order to generate key population indicators based on multiple information sources, is the point of departure for calculating the number of people with HIV and HCV co-infection in Catalonia in 2013 (**figure 1.31**). Around 28% of people living with HIV have also been exposed to HCV, of whom 79% are estimated to present chronic HCV infection. Taking this into account, it is estimated that a total of 7400 people were living with HIV and HCV co-infection in Catalonia in 2013, 5100 (69%) of whom had a diagnosed co-infection.

Figure 1.30. Prevalence of HCV (per 100) in people with HIV

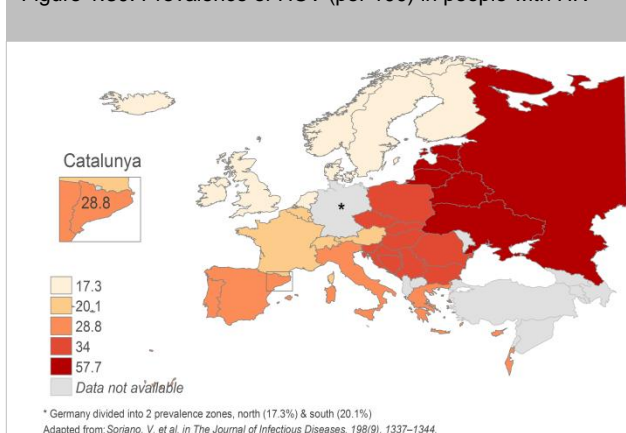
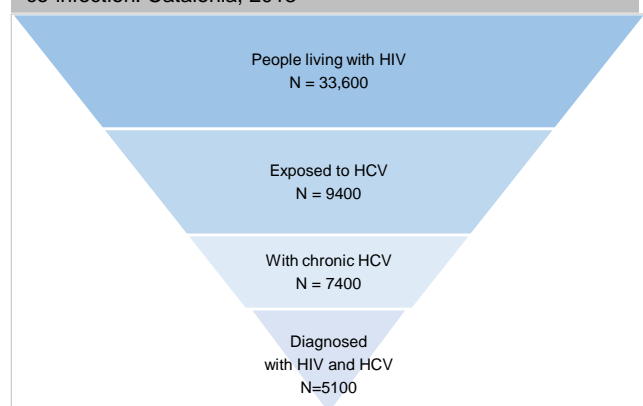


Figure 1.31. Estimation of people diagnosed with HIV and HCV co-infection. Catalonia, 2013



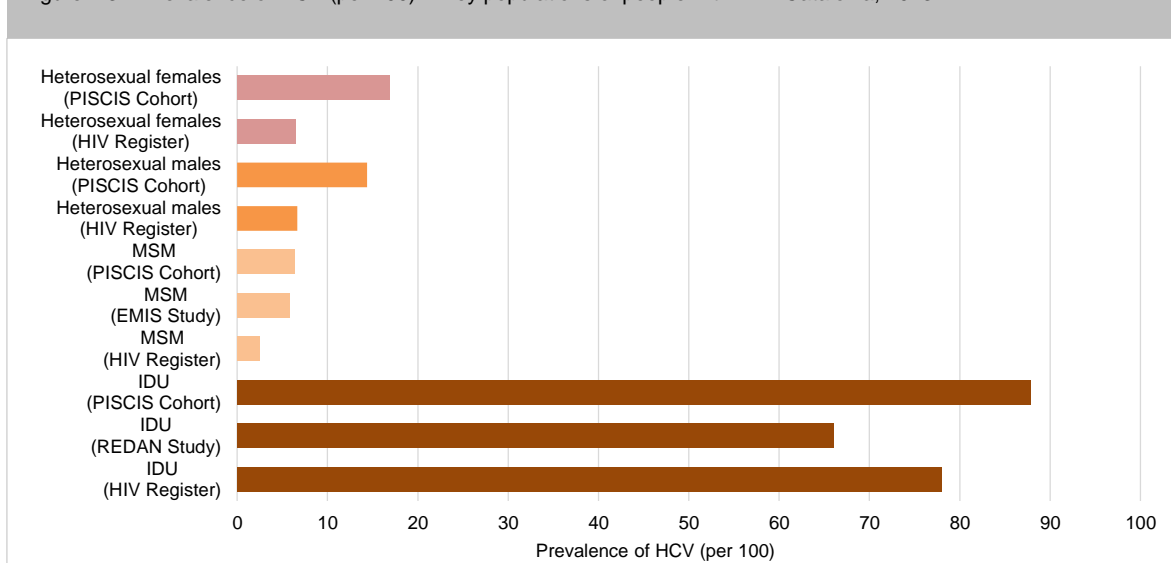
<sup>11</sup> Peters L, Mocroft A, Lundgren J, Grint D, Kirk O, et al. HIV and hepatitis C co-infection in Europe, Israel and Argentina: a EuroSIDA perspective. *BMC Infectious Diseases*. 2014;14 Suppl 6:S13.



### 1.3.3. Prevalence of HCV in key populations of people with HIV

The prevalence of HCV in people who acquired HIV infection by drug injection, in people who had heterosexual intercourse or in the MSM population, according to the different sources of information studied, is shown in **figure 1.32**. Differences in the percentages observed must be interpreted with caution on account of each study's design. In this way, the prevalence of HCV in the patients notified to the HIV Register represents the estimate at the time of the HIV diagnosis, whereas in the PISCIS cohort the prevalence is obtained from people who are being clinically monitored for HIV infection. Finally, the EMIS (European MSM Internet Survey) and REDAN are cross-sectional studies in MSM sentinel populations and people who inject drugs from harm reduction centres, respectively. The data show that people who inject drugs present the highest prevalence of HCV (between 66% and 88%), followed by heterosexual females and males (around 16% and 14%, respectively) and MSM (between 3% and 6%).

Figure 1.32. Prevalence of HCV (per 100) in key populations of people with HIV. Catalonia, 2013



#### Prevalence of HCV co-infection at the time of HIV diagnosis (HIV/AIDS Register of Catalonia)

Of the total 2545 cases of HIV notified between 2010 and 2013 to the HIV/AIDS Register of Catalonia, 9.3% presented with an HCV co-infection. This proportion was higher among PWID (78%), whereas in MSM it was 2.5%, 6.7% in heterosexual males and 6.5% in heterosexual females.

#### Prevalence of HCV co-infection in people living with HIV under clinical follow-up (PISCIS cohort)

Of the 9503 patients with HIV infection from the PISCIS cohort currently under clinical follow-up, 2709 (28%) presented positive anti-HCV antibodies. The prevalence of HCV according to the HIV transmission route was 88% in PWID, 16.8% in heterosexual females, 14.4% in heterosexual males and 6.4% in MSM. As for origin, the prevalence of HCV was higher in Spanish-born patients (34.6%) than in people born outside Spain (11.4%).

#### People who inject drugs (REDAN study)

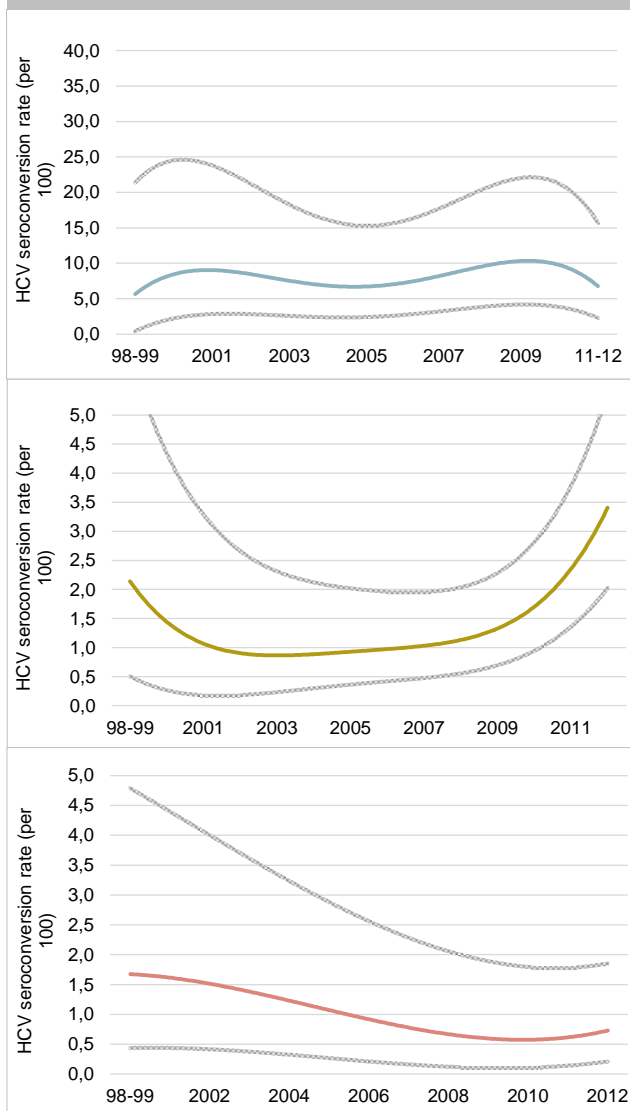
The prevalence of HCV infection based on oral fluid samples taken in people who inject drugs polled in 2012 and 2013 in harm reduction centres was 65%. The prevalence of HCV among injectors with HIV infection (30.5%) was 66%.

## Men who have sex with men (EMIS study)

A total of 13,111 MSM living in Spain participated in the EMIS study [1]. Of the total sample, 8.9% (n=1161) reported an HIV diagnosis. Among males with HIV infection, 5.8% (n=67) had previously been diagnosed with HCV. The proportion of MSM who had had a first diagnosis of HCV in the previous 12 months was 0.9% (n=10). MSM with HCV infection at the time of the study accounted for 2% (n=23). In 68% of MSM with co-infection, the HIV had been diagnosed more than five years previously.

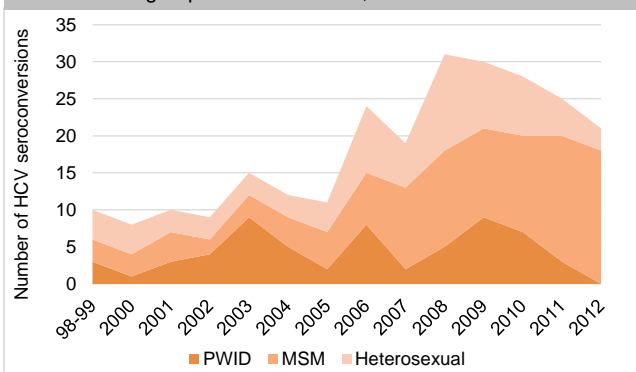
### 1.3.4. HCV incidence

Figure 1.33. Incidence rates (per 100 persons/year of follow-up) in people who inject drugs (a), MSM (b) and heterosexuals (c). PISCIS Cohort, 1998-2012



Between January 1988 and April 2012, 4258 patients with HIV infection and negative HCV serology were identified in the PISCIS cohort. Distribution with regard to HIV transmission group was 176 (4.15%) among PWID, 2179 (51.3%) among MSM, 1113 (25.9%) among heterosexuals, whereas 376 (8.7%) were unclassified. Of a total of 16,480 persons/year, 271 (6.4%) patients seroconverted during the study period, and the highest HCV cumulative incidence was in PWID (8.1 per 100 persons/year of follow-up), followed by the MSM group (4.3 per 100 persons/year of follow-up), and heterosexuals (4.0 per 100 persons/year of follow-up). With regard to trends, in global terms the incidence fell from 2.6 (95% CI: 1.3-4.6) per 100 persons/year of follow-up in 1998 and 1999 to 1.3 (95% CI: 0.7-2.4) per 100 persons/year of follow-up in 2003, and as of this year it increased progressively to 2.2 (95% CI: 1.4-2.3) per 100 persons/year of follow-up in 2012. The analysis of HCV incidence trends by transmission group showed that this increase was due particularly to the increase in seroconversions in the MSM group (**figure 1.33** and **figure 1.34**).

Figure 1.34. Number of HCV seroconversions by HIV transmission groups. PISCIS Cohort, 1998-2012



### 1.3.5. HCV treatment

Unlike HIV, HCV treatments can permanently eliminate this virus (sustained viral response). Until 2012, treatments consisted of the combination of peginterferon alfa-2a or 2b and ribavirin (bithery), but as of that year new treatment options emerged (direct antiviral agents) that considerably increased efficacy, even in patients with HIV and HCV co-infection.

In 2013, CatSalut funded hepatitis C treatment for 2061 patients (25% more than in 2012, with 1648 patients). Of these patients, 1258 were treated with bitherapy and 803 with triple therapy (the combination of a direct antiviral agent and bitherapy). The total cost was €24.5 million, twice the figure for 2012, which was €11.6 million. Considering the activity reports by the Advisory Council for the Drug Treatment of Viral Hepatitis (Consell Assessor sobre el Tractament Farmacològic de les Hepatitis Víriques),<sup>12</sup> around 15% of these patients presented HIV co-infection.

### 1.3.6. Progression and mortality

The clinical progression of patients with HIV and HCV co-infection is faster than in patients with HCV infection alone. For example, in the era prior to highly active antiretroviral therapy (HAART), up to 15-25% of co-infected patients suffered from cirrhosis in less than 15 years; on the other hand, only 2-6% mono-infected patients did. More recently, the risks of end-stage liver disease, including hepatocellular carcinoma, are higher in patients with HIV and HCV co-infection with cirrhosis.

The efficacy of ART has drastically reduced mortality in the HIV-infected patients of the PISCIS cohort, although the relative percentage of deaths ascribable to diseases other than AIDS has increased in recent years. The percentage of HCV-related deaths in patients with HIV and HCV co-infection was 25%.

The COHERE (Collaboration of Observational HIV Epidemiological Research in Europe) Hepatitis Working Group, a consortium of international cohorts involving the participation of the PISCIS cohort, evaluated the impact of the treatment of HCV with bitherapy on risk of death, and reported a trend towards a reduction in mortality.<sup>13</sup> The collaborations of international cohorts will contribute to demonstrating the impact of the implementation of the new HCV therapies with direct antiviral agents.

### 1.3.7. Behaviours associated with HIV and HCV co-infection in MSM

In the 13,111 MSM living in Spain who participated in the EMIS, no significant differences were found in the sociodemographic characteristics of people with HIV and HCV co-infection in comparison with mono-infected people, except for mean age, 43 and 38 years, respectively.

The comparison of sexual behaviours between mono-and co-infected people (**table 1.2**) showed that more co-infected people had been to a public sex venue (82% vs. 60% in the case of the mono-infected,  $p=0.035$ ) and had participated in private sex parties (65% vs. 31% in the case of the mono-infected,  $p=0.001$ ). Similarly, unprotected anal penetration with casual sexual partners, as well as with casual partners of unknown or discordant serological status, was higher in the co-infected than in the mono-infected (73% vs. 40%,  $p=0.007$ , and 55% vs. 33%,  $p=0.030$ , respectively). With regard to other sexual practices, receptive fisting -a sexual practice consisting of inserting the hand totally or partially into the partner's anal conduct- was more regular among the co-infected (30% vs. 12%,  $p=0.012$ ). The co-infected also presented higher percentages of the use of drugs such as poppers, Viagra<sup>®</sup> or similar, GHB/GLB, cocaine, ketamine and *speed*.

As the sample was not very extensive, the results must be interpreted with caution. Nevertheless, these results are quite similar to those coming from a broader analysis, by this same study, of a sample of people with HCV infection in which HIV-negative MSM were included.<sup>14</sup> The co-infected presented high-risk behaviours (for example, fisting, unprotected anal penetration with partners of unknown discordant serologic status, drug abuse), which suggests that secondary prevention interventions should focus on this group.

<sup>12</sup> Consell Assessor sobre el Tractament Farmacològic de les Hepatitis Víriques. Informe d'activitats: any 2010. Barcelona: Generalitat de Catalunya, Planificació i Recursos Sanitaris, Direcció General de Regulació; 2011.

<sup>13</sup> COHERE. Effect of hepatitis C treatment on CD4+ T-cell counts and the risk of death in HIV-HCV-coinfected patients: the COHERE collaboration. *Antiviral Therapy*. 2012;17(8):1541-50.

<sup>14</sup> Fernández-Dávila P, Folch C, Ferrer L, Soriano R, Diez M, et al. Hepatitis C virus infection and its relationship to certain sexual practices in men-who-have-sex-with-men in Spain: Results from the European MSM internet survey (EMIS). *Enferm Infecc Microbiol Clin*. 2015 May;33(5):303-10.

Table 1.2 Comparison of sexual behaviours and other variables associated with the risk of HCV infection in single- and co-infected HIV-positive MSM

	Single-infected (n=1093)		Co-infected (n=23)		Total (n=1116)		p value
	n	%	n	%	n	%	
<b>Sex for money</b>	83	7,8	0	0	83	7,6	0,163
<b>Sex abroad</b>	<b>404</b>	<b>37,4</b>	<b>9</b>	<b>39,1</b>	<b>413</b>	<b>37,4</b>	<b>0,58</b>
<b>Local sex visits</b>							
Public sex venue <sup>1</sup>	645	59,6	18	81,8	663	60	0,035
Private sex party (orgy)	334	31,1	15	65,2	349	31,8	0,001
Sauna	613	57,3	17	77,3	630	57,7	0,061
<b>Number of sexual partners</b>							
None	105	9,8	2	9,1	107	9,7	0,452
Fewer than 10	477	44,3	7	31,8	484	44,1	
10 or more	494	45,9	13	59,1	507	46,2	
<b>Anal penetration (AP) with casual partners<sup>2</sup></b>							
Insertive AP	691	83,4	18	90	709	83,5	0,429
Receptive AP	750	88,8	20	100	770	89	0,112
<b>Unprotected anal sex (UAS)</b>							
UAS with stable male partner <sup>2</sup>	272	25	4	17,4	276	24,9	0,207
UAS with a stable partner of discordant or unknown HIV	122	11,5	0	0	122	11,3	0,091
UAS with a casual male partner <sup>2</sup>	425	39,7	16	72,7	441	40,3	0,007
UAS with casual partners of discordant or unknown HIV	342	32,5	12	54,5	354	33	0,03
<b>Other sexual practices (with casual partners)</b>							
Insertive black kiss	712	84,6	17	85	729	84,6	0,957
Receptive black kiss	760	90,4	18	90	778	90,4	0,956
Insertive fisting	207	24,7	5	26,3	212	24,7	0,872
Receptive fisting	98	11,6	6	30	104	12	0,012
<b>Drug use</b>							
Drugs for sex							
Poppers	600	55,4	20	87,00	620	56,1	0,003
Viagra or similar	341	31,5	13	61,90	354	32,1	0,003
Drugs typically associated with partying							
GHB/GLB	202	18,5	8	34,80	210	18,8	0,048
Sniffed drugs							
Ketamine	158	14,5	8	34,80	166	14,9	0,007
Cocaine	408	37,3	15	65,20	423	37,9	0,006
Mephedrone	60	5,5	2	8,70	62	5,6	0,506
Speed	168	15,4	9	39,10	177	15,9	0,002
Injected drugs							
In some occasion	63	5,8	3	13,60	66	6	0,128
Last 12 months	35	3,2	0	0,00	35	3,2	0,39
<b>STI diagnosis</b>							
Syphilis	130	12,1	5	23,8	135	12,3	0,105
Gonorrhoea	70	6,5	2	8,7	72	6,5	0,669
Chlamydia	33	3,1	2	8,7	35	3,2	0,127
Herpes	30	2,8	2	8,7	32	2,9	0,093
HPV	71	6,6	3	13	74	6,7	0,218

<sup>1</sup> Dark room, sex-club, public sex party; <sup>2</sup> Among those who had anal sex

## 1.4. HIV screening test

### 1.4.1. Number of HIV diagnostic tests

#### Tests performed in laboratories

The number of notified diagnostic tests per 1000 inhabitants in Catalonia has increased year after year, peaking at 46.2 tests in 2011. In the last three years, the number of tests has fallen to the figure of 34.8 tests recorded in 2014 (**figure 1.35**). This rate ranges between the 18.8 recorded in the Terres de l'Ebre Health Region and the 38.7 recorded in the Barcelona Health Region (**figure 1.36**).

Figure 1.35. Evolution of the rate of HIV tests per 1000 inhabitants. Catalonia 1993-2014

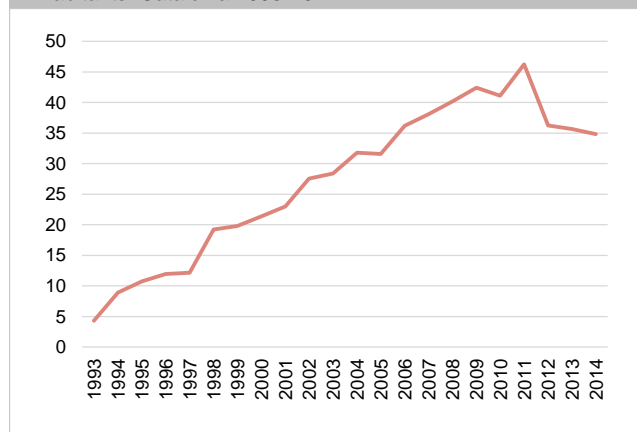
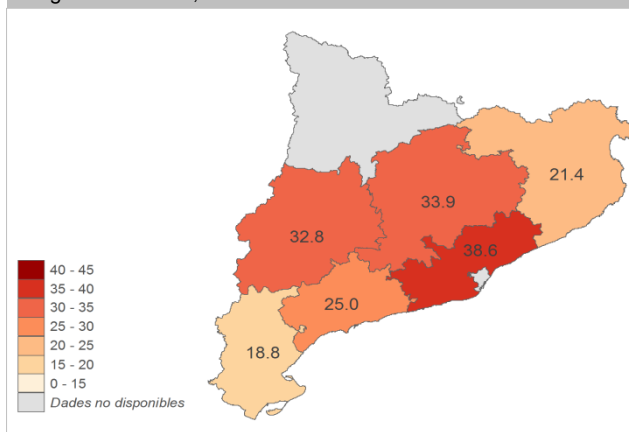
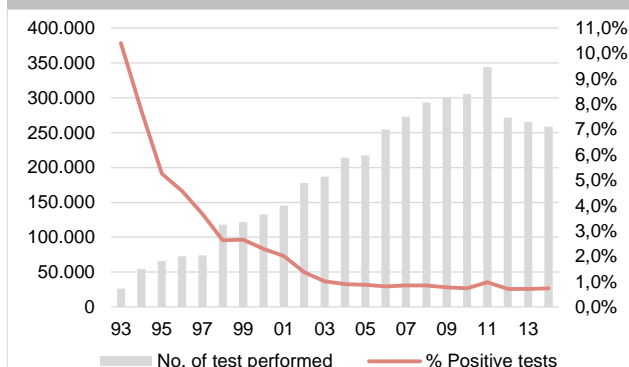


Figure 1.36. Estimation of the rate of diagnostic tests by Health Region. Catalonia, 2014



The testing rate in Catalonia is still far from that of countries such as Luxembourg and France, with rates of 126.7 and 79.4, respectively, according to data from 2013.<sup>15</sup> The annual number of tests performed and notified by the laboratories has increased progressively over the years, rising from 52,005 the year the study began to 258,483 in 2014. The percentage of tests with a positive result in this period (1993-2014) has gradually diminished (**figure 1.37**), and has remained stable in recent years (0.7-1.0%). It should be remembered that the proportion of data provided by each laboratory is often significantly different, both with regard to the number of tests performed and the percentage of positive results.

Figure 1.37. Number of HIV diagnostic tests performed and percentage of positive tests. Xarxa de laboratoris de Catalunya, 1993 - 2014



#### Tests performed in community screening centres

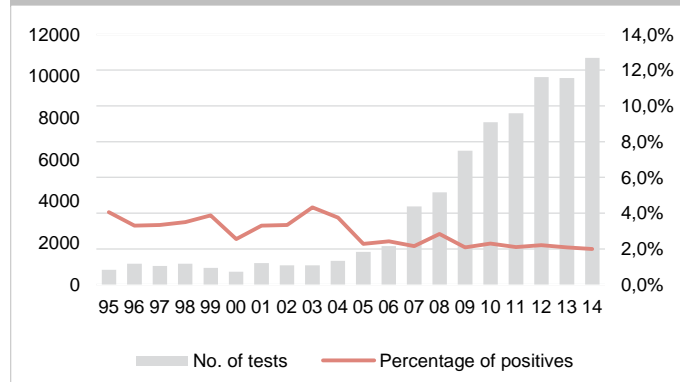
In the community screening centres that offer the HIV test, 73,970 HIV tests were performed between 1995 and 2014, with an infection prevalence of 2.4%. The evolution in the number of tests performed in the centres by year was relatively small until 2006, and ranged between 716 in 1995 and 1849 in 2006 (**figure 1.38**). At the end of 2006, the community screening centres introduced the rapid test, which led to a 102.9% increase in the demand for the HIV test in these centres.<sup>16</sup> The number of tests has continued to increase every year, reaching 10,868 in 2014, with a 2.0% of people

<sup>15</sup> European Centre for Disease Prevention and Control/WHO Regional Office for Europe. HIV/AIDS surveillance in Europe 2013. Stockholm: ECDC; 2014.

<sup>16</sup> Fernández-López L, Rifà B, Pujol F, Becerra J, Pérez M, et al. Impact of the introduction of rapid HIV testing in the Voluntary Counseling and Testing sites network of Catalonia, Spain. Int J STD AIDS. June 2010;21(6):388-91.

with HIV infection detected. If we compare 2014 to 2006, the increase is 487.8%. Despite this increase, the percentage of positive tests detected has not varied significantly. Beginning in 2007, the use of the standard test has fallen considerably in favour of the use of the rapid test. It is estimated that these community screening centres diagnose 25% of total new diagnoses notified in Catalonia.

Figure 1.38. Number of anti-HIV tests performed and percentage of positive tests



## Tests performed in pharmacies

Benet Rifà. STIs and HIV Surveillance, Prevention and Control Section of the General Subdirectorate for Surveillance and Response to Public Health Emergencies (Secció de Vigilància, Prevenció i Control de les Infeccions de Transmissió Sexual i el VIH de la Subdirecció General de Vigilància i Resposta a Emergències de Salut Pública).

Since April 2009 the STIs and HIV Surveillance, Prevention and Control Section of the General Subdirectorate for Surveillance and Response to Public Health Emergencies (Secció de Vigilància, Prevenció i Control de les Infeccions de Transmissió Sexual i el VIH of the Subdirecció General de Vigilància i Resposta a Emergències de Salut Pública), together with the Board of the College of Pharmacists, have been promoting the performance of the rapid HIV test in pharmacies, and a total of 9344 tests had been performed up until September 2014, with 94 reactive tests detected (1%), of which 41 were confirmed and 4 were false positives. 73% of the people who had the test done in a pharmacy were males with a mean age of 34 years. The most numerous group was the one between 30 and 39, with 42%. 11% were immigrants, mainly from Latin America. The main reason for having the test done was risk sexual practice, and 15% of the cases corresponded to homosexual practice. Of the reactive tests, 78% corresponded to males, 25% to immigrants, 74% were aged between 20 and 39, the main transmission route was through sex, with homosexual intercourse accounting for 52% of the cases.

## Tests performed in gay saunas in Barcelona

Patricia Garcia de Olalla, Constanza Jacques, Silvia Martín, Elia Díez, Joan A Caylà. Public Health Agency of Barcelona.

In 2012 and 2013, 463 tests were performed on a total of 377 presumably-HIV negative sauna users. The ages ranged between 18 and 76 (median 32.5); 35% had been born in Spain and 20% in Romania; 24% had completed at least one year of university education and 48% declared themselves to be sexual workers (SW). Of the 342 participants that volunteered information about their sexual orientation, 49% were homosexual, 30% bisexual and 21% heterosexual. 18% had never had the test done. In this period, 20 reactive tests were detected, amounting to an incidence of new diagnoses of 4.7% in 2012 and 6.1% in 2013.

Saunas provide the opportunity to implement prevention interventions in high-risk populations for HIV infection.

### 1.4.2. Characteristics of the people who request the HIV test and of the positive cases detected in the alternative centres where the test is offered\*.

\*the disaggregated data from the *Projecte dels Noms - Hispanosida* centre for 2012 and 2014 are not available

In the period between 1994 and 2014, 70.3% of the people who had the diagnostic test done in the community screening centres were males. In men and woman, the age group that had most diagnostic tests performed was the one comprised between 20 and 29. This age group was also the most numerous one among the positive results in females, although in males the age group of 30 to 39 had the greatest number of tests done (figure 1.39).

Figure 1.40 shows the evolution over time of the distribution of the percentage of tests performed and of positive results by transmission groups. The proportion of MSM that have the test done in these centres has gradually increased, and the proportion of PWID has diminished, reaching 72.2% and 0.9%, respectively, in 2014. Regarding positive tests, between 1996 and 2004, the most numerous group was PWID, although as of 2005 the proportion of this group gradually diminished, whereas that of the MSM group increased (MSM and MSM SW), reaching 94% of the total positive results detected in 2014.

Figure 1.39. Percentage of HIV diagnostic tests notified and percentage of positives. Distribution by age and sex. Alternative centres offering the HIV test, 1995-2014

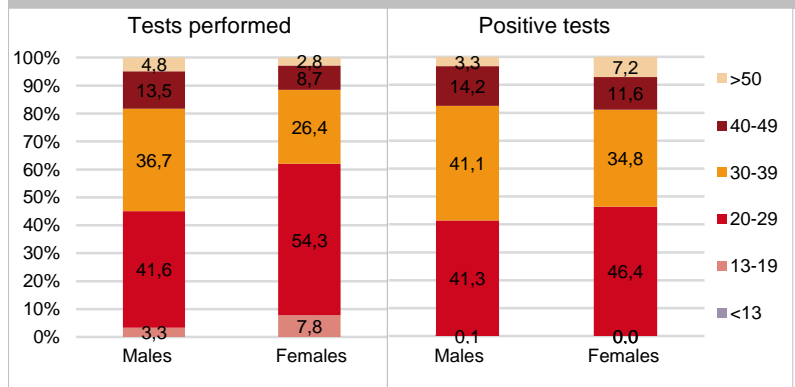
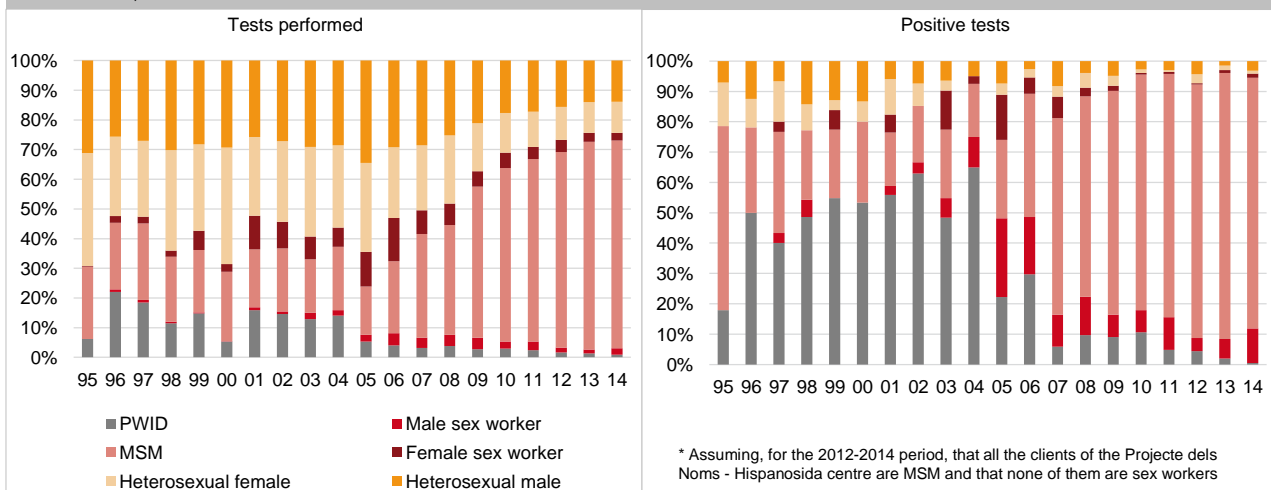


Figure 1.40. Evolution of the distribution of tests performed and of positive tests by transmission group. Alternative centres offering the HIV test, 1995-2014\*

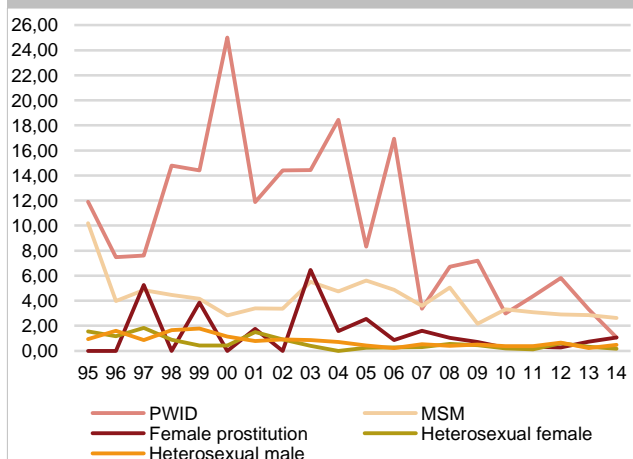


The transmission group with the highest percentage of positive tests detected in the course of the whole period is PWID, followed by MSM, whereas the heterosexual group has the lowest percentage of positive tests (figure 1.41). Nevertheless, in recent years the percentage of positive tests in the PWID group has gradually diminished, and in 2014 it was below that of the MSM, with 1.05% and 2.61%, respectively.

In 2014, 86.1% of the people who had the diagnostic test were males. In men and woman, the age group that had most diagnostic tests performed was the one comprised between 20 and 35 years. 36.2% of the positive tests were for people from other countries and 64.2% had already done the test at least once before. 98.6% of all tests were rapid tests.

2.0% (217/10,867) of all the tests performed were HIV-reactive. Of the total reactives, 92.6% were males, 77.1% had at least one previous diagnostic test with a negative result and 68.9% of the tests corresponded to people from other countries.

Figure 1.41. Annual evolution of the percentage of positive tests by transmission group. Alternative centres offering the HIV test, 1995-2014



According to the data of a cohort of sero-negative MSM from the ITACA project, which is performed in one of the alternative centres offering the HIV test, of the 5086 MSM that had entered the cohort between December 2008 and October 2011, 2248 males returned for at least one follow-up visit, at which they had another HIV test performed. The median number of visits was 1 (IQR = 1-2); the median time between visits, 9.3 months (IQR = 4.8-12.3); the median follow-up time, 13.3 months (IQR = 10.2-22.5) and the median time from seroconversion, 12.7 months (IQR = 8.4-20.8).

The sociodemographic profile of the males that entered the cohort is that of an over-25 (82.4%) born in Spain (65.8%), with university education (55.9%), self-employed or in paid employment (73.4%) and homosexual (88.3%). The epidemiological characteristics of the males that seroconverted in the study period and which distinguish them

from HIV-negative males are provided in **table 1.3**. They are foreign males who on entering the cohort reported a higher number of tests and who in the previous six months had had more than 10 partners with more frequency than the HIV-negative males, and had used a condom less frequently in penetrative sex with this type of partner. The seroconverters had met their partners more frequently in sexual meeting sites (such as sex clubs), in public spaces by means of *cruising*, on the Internet and at the gym. Moreover, they reported having used more recreational drugs than the HIV-negative men.

Table 1.3 Epidemiological characteristics of men who have sex with men participating in the ITACA cohort by serological status. December 2008-December 2011.

	HIV-negative (N=5001)	HIV-positive (N=85)	p value
<b>SOCIODEMOGRAPHIC CHARACTERISTICS</b>			
<b>Age (N=5083)</b>			
25 or older	82.3	83.5	ns
<b>Origin (N=5086)</b>			
Spanish	66.1	47.1	<0.001
Outside Spain	33.9	52.9	
<b>Education (N=5080)</b>			
Primary-	4.9	9.4	ns
Secondary	39	41.2	
University+	56	49.4	
<b>Employment situation (N=5080)</b>			
Paid employee/self-employed	73.4	70.6	ns
SW	1.1	1.2	
Unemployed	11.6	15.3	
Student	12.5	12.9	
Others	1.3	0	
<b>Sexual orientation (N=5035)</b>			
Homosexual	88.2	92.9	ns
Bisexual	11.3	7.1	
Others or do not know	0.5	0	

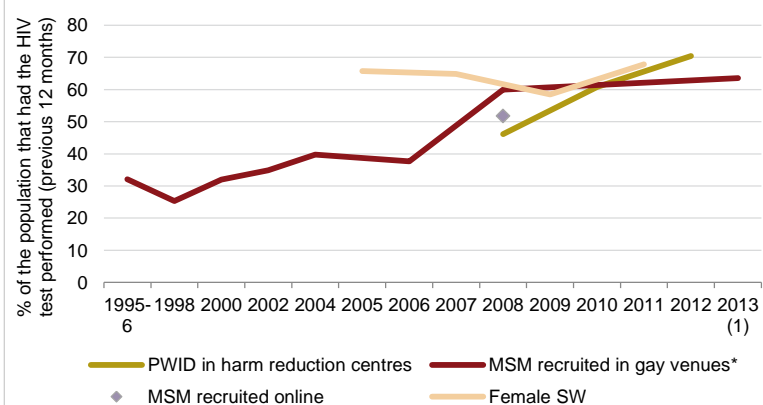


<b>HIV TEST (before entering the cohort)</b>			
<b>Number of tests (N=4951)</b>			<b>&lt;0.001</b>
0	15.4	6	
1-5	56.5	41.7	
6-10	19.4	32.1	
>10	8.6	20.2	
<b>SEXUAL BEHAVIOUR (previous 6 months)</b>			
<b>Stable partner (N=5066)</b>			
Yes	47.8	50.6	ns
<b>Unprotected anal sex with stable partner of unknown or discordant serostatus (N=2386)*</b>			
Yes	14.8	18.6	ns
<b>Casual partner (N=5073)</b>			
<b>Number of casual partners (N=4831)</b>			<b>&lt;0.001</b>
0	16	10.7	
≤10	66.3	44	
>10	17.7	45.2	
<b>Consistent use of condom in sex with casual partner (N=4298)**</b>			<b>0.01</b>
Yes	64	48.7	
<b>Meeting place of casual partners (N=4300)**</b>			
Discotheques or bars	58.3	60.5	ns
Saunas	19.9	27.6	ns
Dark rooms	6.6	11.8	ns
Sex clubs	5.5	13.2	0.004
The Internet	58	72.4	0.01
Cruising	11.7	22.4	0.01
Gym	7.3	17.1	0.001
Others	16.7	92	ns
<b>ALCOHOL AND DRUGS (in the previous 6 months)</b>			
<b>Use (N=5069)</b>			<b>&lt;0.001</b>
Alcohol	36.9	25.9	
Other substances	2.9	10.6	
Alcohol and other substances	38.1	50.6	
Had not used	22	12.9	
<b>SEXUAL TRANSMISSION INFECTIONS (in the previous 6 months)</b>			
<b>Self-declared (N=5081)</b>			ns
	5.9	8.3	

\*among those with a stable partner and have had penetrative sex in the previous 6 months; \*\* among those with a casual partner

### 1.4.3. Coverage of the HIV test in groups with high-risk behaviours

Figure 1.42. HIV diagnostic test coverage in populations with high-risk behaviours (previous 12 months)



94.1% of PWID from harm reduction centres in 2012 and 2013 had had the HIV test done at some point (95.7% Spanish-born and 91.7% immigrants,  $p < 0.05$ ). 70.4% of the PWID had had it done in the previous 12 months; this percentage presented a significant upward trend during the 2008-2013 period (figure 1.42).

Moreover, 73.1% of the MSM living in Catalonia polled via the Internet (EMIS Project) had had the HIV test done at some point. More than half of the MSM had had the HIV test done in the last year. Data collected in the SIALON II study from 2013 show that 63.6% of the MSM interviewed had had the

HIV test done in the last year (**figure 1.42**). Finally, of the 400 female SW included in the HIVITS-TS project in Catalonia, in 2011, 85.3% had had the HIV test done at some point, 67.8% had had the test done in the last 12 months, a similar percentage to that of previous studies (**figure 1.42**). By origin, women from Eastern Europe present the lowest percentage of tests performed in the last 12 months: 57.5% from Eastern Europe; 71.3% Africa, 74.3% Latin America and 80% Spain.

#### 1.4.4. HCV and HIV rapid test pilot study in harm reduction centres

Table 1.4 Description of harm reduction centre attendees that have had the HIV and/or HCV test performed

	Total	n	%
<b>Mean Age: 35.6 years (SD: 9.8)</b>			
<b>Age groups</b>	<b>236</b>		
<20		5	2,1%
20-29		74	31,4%
>30		157	66,5%
Sex: Males	238	174	73,1%
Origin: outside Spain	240	85	35,4%
Previous HIV test	232	189	81,5%
Previous HIV test positive	189	1	0,5%
Previous HCV test	228	178	78,1%
Previous HCV test positive	161	63	39,1%
Sexual orientation: Heterosexual	232	224	96,6%
STI in the last year	218	16	7,3%
Prostitution in the last year	224	15	6,7%
Injection of drugs	230	139	60,4%
Daily injection frequency	119	50	42,0%
Share syringes at last use	137	10	7,3%
Share other injection material	131	29	22,1%
Front-backloading in last use	119	10	8,4%
Sniff	173	117	67,6%
Smoke	184	130	70,7%
Type of consumer	214		
<i>Exclusive injector</i>		63	29,4%
<i>Injector and consumer by other routes</i>		76	35,5%
<i>Non-injector user</i>		75	35,0%

The HCV and HIV rapid test in harm reduction programmes for PWID can help to detect these infections in high-risk groups that do not seek conventional healthcare.

The objectives of this pilot study were to determine the viability and acceptability of HIV and HCV rapid testing in harm reduction programmes in Catalonia, identify the prevalence of HIV and HCV in these programmes and describe the percentage of reactive cases that are confirmed.

A total of 172 HCV and 190 HIV tests were performed, with a refusal percentage of 1.7% and 10.4%, respectively. **Table 1.4** shows the profile of the users that had a test done. 29.4% were exclusive injectors; 35.5% injectors and users via other routes, and 35% were only users via other routes. 42% of the injectors had a daily injection frequency, 7.3% had shared syringes at last use, 22.1% had shared some type of injection material and 8.4% had practised front-backloading. The global percentage of reactive HCV tests was 20.3%, with important differences by type of centre (11.3% in fixed centres, 44.8% in mobile units and 32.1% in fixed centres that also have a mobile unit). The global percentage of reactive HIV tests was 2.5% (0.8% in fixed centres, 4.3% in mobile units and 6.1% in

fixed centres with a mobile unit) (**table 1.5**). Of the 35 reactive HCV results, only 24 (60.6%) were confirmed, with one false negative. Of the 5 reactive HIV results, only 2 (40%) were confirmed, with one false negative.

The acceptability of rapid HIV and HCV detection tests was high among harm reduction programme users. 24 cases of HCV and 2 cases of HIV were confirmed, and the percentage of reactive tests was higher in the programmes with mobile units. This pilot study has proven the usefulness of rapid testing in oral fluid in harm reduction programmes, particularly in mobile units.

Table 1.5 Results of HIV and HCV tests by centre

Type of RT		HIV rapid test result			HCV rapid test result		
		Reactive	Total	% reactivities	Reactive	Total	% reactivities
Fixed centre	SAPS	0	13	0,0%	3	25	12,0%
	CAS Lluís Companys	0	15	0,0%	2	14	14,3%
	Arrels	0	24	0,0%	4	14	28,6%
	CAS Mataró	0	38	0,0%	1	26	3,8%
	CAS Vall Hebrón	0	23	0,0%	2	32	6,3%
	Prevention Area	1	6	16,7%	1	4	25,0%
	<b>TOTAL</b>	<b>1</b>	<b>119</b>	<b>0,8%</b>	<b>13</b>	<b>115</b>	<b>11,3%</b>
Mobile Unit/Street team	Area Gavà	0	8	0,0%	3	5	60,0%
	Creu Roja TGN	0	8	0,0%	2	2	100,0%
	AEC-GRIS	0	12	0,0%	2	7	28,6%
	ASAUPAM	1	11	9,1%	4	7	57,1%
	Squats	1	7	14,3%	2	8	25,0%
	<b>TOTAL</b>	<b>2</b>	<b>46</b>	<b>4,3%</b>	<b>13</b>	<b>29</b>	<b>44,8%</b>
Fixed Centre + mobile unit/ Street team	Sala Baluard	2	28	7,1%	9	24	37,5%
	AIDE	0	5	0,0%	0	4	0,0%
	<b>TOTAL</b>	<b>2</b>	<b>33</b>	<b>6,1%</b>	<b>9</b>	<b>28</b>	<b>32,1%</b>
<b>TOTAL</b>		<b>5</b>	<b>198</b>	<b>2,5%</b>	<b>35</b>	<b>172</b>	<b>20,3%</b>

#### 1.4.5. Rapid HIV test pilot study in Emergency Room

In the United States, following the recommendations of the Centres for Disease Control and Prevention (CDC), non-targeted HIV screening has been promoted by means of rapid testing in order to reduce the number of undiagnosed infections and to improve the early detection of infection. The United Kingdom, and more recently France, has also adopted this strategy. Nevertheless, the UNAIDS/WHO guidelines (2008) recommend offering the test to populations with a greater likelihood of being infected in order to increase the positive predictive value and the profitability of HIV testing.

The emergency departments are an important source of medical care for the population, including population subgroups with a greater risk of undiagnosed HIV infection who do not come to other healthcare centres, making it a good service for evaluating the non-targeted screening of the general population.

As rapid HIV testing is simpler and yields a preliminary result immediately, it is better accepted by patients and could thus increase the number of tests performed in the emergency departments.

The objectives of this pilot test were to study the acceptability of rapid testing in patients who go to the Emergency Room and to estimate the prevalence of HIV infection in this population.

This intervention study was conducted in the Emergency Room of the Hospital of Mataró (Barcelona) between July 2010 and March 2013. Two nurses offered the rapid HIV test in oral fluid to patients aged 18 to 64 that had gone to the Emergency Room and were capable of providing their informed consent for the rapid HIV test. The exclusion criteria were self-declared HIV infection and the incapacity to provide informed consent. The participants were included in the study by the two nurses following screening. The calculated sample was 3000 patients.

During the study period, the HIV test was offered to 2140 patients, 107 (5%) of whom refused, therefore 2033 had the test performed. Three patients obtained a reactive result. Moreover, there was the case of one patient who was in the window period at the time of the test who had the test repeated three months later in the hospital's HIV department and obtained a positive result. Taking this positive result into account as well, the percentage of reactive results was 0.2%.

Table 1.6 Descriptions of the Emergency Room users that have had the HIV test performed

	Total n	%
<b>Description of the population</b>		
Age: 37.51% (SD: 13.8)		
Sex (males)	2032	999 49.2%
Immigrant	2026	293 14.5%
Previous HIV test	2033	643 31.6%
Sexual orientation (heterosexual)	2031	1969 96.9%
Use of condom in last penetrative sex	1875	534 28.5%
STI in the last year	2000	24 1.2%
Use of intravenous drugs in the last year	2029	17 0.8%
Sex with SW in the last year	1873	21 1.1%
Sex with PWID in the last year	1873	3 0.2%
Sex with HIV-positive in the last year	1873	4 0.2%
<b>Opinion</b>		
Rapid test more comfortable than conventional test	2030	1634 80.5%
Prefers rapid test with oral fluid to rapid test with finger prick	2032	1511 74.4%
Would recommend the test to a friend	2032	1863 91.7%
Offering the HIV test in the Emergency Room is suitable	2031	1951 96.1%

**Table 1.6** shows a description of the people who had the HIV test done. Almost half of them were males (49.2%); the mean age was 37.51 (standard deviation [SD]: 13.8); 14.5% were immigrants and 31.6% had already had an HIV test performed. 80.5% asserted that the rapid test was more comfortable than the conventional test and 74.4% preferred the rapid test with oral fluid to the finger prick. 91.7% would recommend the test to a friend and 96.0% considered that offering the HIV test in the emergency room was appropriate.

Table 1.7 Comparison between Emergency Room users that accept the HIV test and those that do not accept it.

	Accept the test	Do not accept the test	p
<b>Age</b>	Mean 38.60 (SD 13.08)	Mean 44.41 (SD 13.27)	p<0.005
<b>Sex</b>	N= 2032	N= 107	p=0.91
	%	%	
Male	999 49,2%	52 48,6%	
Female	1033 50,8%	55 51,4%	
<b>Age groups</b>	N= 1947	N= 103	
<20	130 6,7%	4 3,9%	
21-35	728 37,4%	23 22,3%	
36-50	642 33,0%	35 34,0%	
>50	447 23,0%	41 39,8%	
<b>Educational level</b>	N=2024	N=57	p<0.005
No education	89 4,4%	6 10,5%	
Primary	677 33,4%	35 61,4%	
Secondary	881 43,5%	13 22,8%	
University	377 18,6%	3 5,3%	
<b>Origin</b>	N=2026	N=102	p=0.06
Spanish	1733 85,5%	94 92,2%	
Foreign	293 14,5%	8 7,8%	

The patients that did not accept the HIV test were older and had a lower educational level than the patients that did accept it (p<0.005) (**table 1.7**).

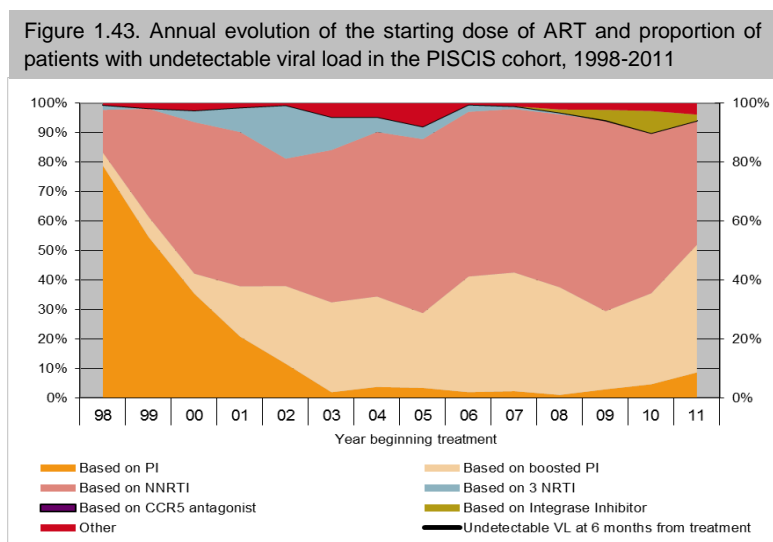
The results prove that rapid HIV testing in Emergency Rooms is acceptable and viable, although the benefit of non-targeted detection was only modest, with a percentage of reactive tests of 0.2%

## 1.5. Chemoprophylaxis and treatment of HIV

### 1.5.1. Treatment of HIV infection

The main source for demonstrating changes in HIV treatment regimens in Catalonia is the PISCIS Cohort, although the data of this cohort have not been updated in the last two years, and therefore data are only presented for up until 2011.

The PISCIS cohort is a tool for monitoring the use of ART in Catalonia. Between January 1998 and December 2011, a total of 7713 patients initiated ART for the first time in the PISCIS hospitals. 97% used a regimen that fulfilled HAART criteria. Of all the naive patients who initiated treatment, 72.7% did so with a baseline CD4+ count below 350 cells/ $\mu$ L. The preferred initial regimen was based on non-nucleoside reverse-transcriptase inhibitors (NNRTIs) in 49.8% of patients, followed by boosted protease inhibitors in 26.7%, and both regimes were combined with at least one nucleoside reverse transcriptase inhibitor (NRTI). **Figure 1.43** shows the evolution of the initial regimen used in the cohort by year. Of the patients who began ART in 2011, 95.7% had an undetectable VL (<500 copies/ml) 6 months after starting treatment. This proportion increased in the course of the study. More than 22,000 patients were treated with ART in Catalonia in 2010: the total cost exceeded €146 million.<sup>17</sup>



### 1.5.2. Service cascade

The service cascade (**figure 1.44**) is a graphic representation of the number of people living with HIV/AIDS in the successive HIV care and treatment stages. In recent years, it has become a public health tool to measure the quality of services offered with regard to HIV and permits comparisons with other countries. The cascade has its origin in the estimate of the number of people living with HIV in Catalonia, and represents the number of people in the successive care stages (diagnosed, in contact with the health system, under active follow-up, on ART and virologically suppressed). The estimates in each stage are derived from the different sources of information available in the SIVES. The number of people living with HIV was estimated with the Spectrum/EPP 2011 model, developed by UNAIDS/WHO.

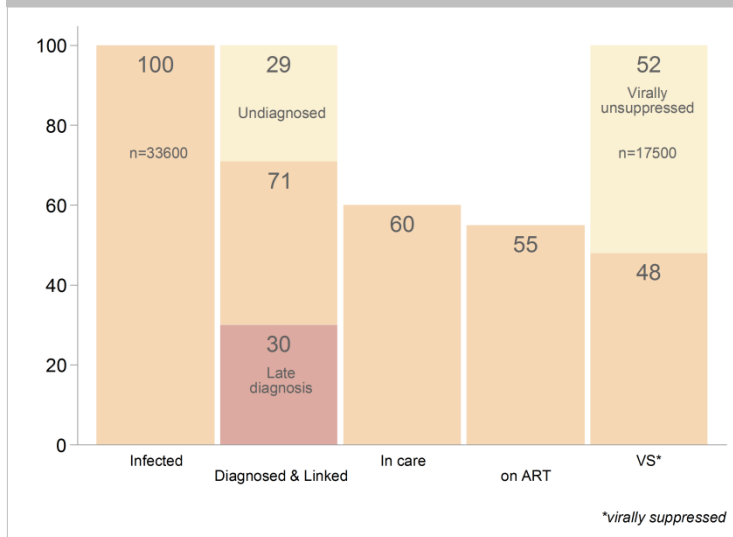
The percentage of people with a diagnosis and in contact with the health system was obtained from estimates described in the European literature. The percentage corresponding to the subsequent clinical follow-up stages were estimated using the PISCIS cohort. Finally, "cases of viral suppression" were defined as people presenting suppressed viral loads (<50 copies/ml) in 2011.

It is estimated that in Catalonia, at the end of 2011, there were up to 33,600 people living with HIV, 75% of whom had a diagnosed infection and had contacted the healthcare system at least once. Of the total, 64% were under active follow-up; 58% on ART and 51% virologically suppressed.

<sup>17</sup> CatSalut data.

This cascade is similar to that of other neighbouring countries, such as France and the United Kingdom (56% and 58% virologically suppressed, respectively). The proportion of people infected with viral suppression is larger than in the United States, which is indicative of the advantages of universal and free healthcare systems. The direct estimation of the proportion of people that have not been diagnosed with the infection and contact the healthcare system calls for additional studies.

Figure 1.43. Annual evolution of the starting dose of ART and proportion of patients with undetectable viral load in the PISCIS cohort, 1998-2011



### 1.5.3. Mother-to-child transmission

NENEXP is a follow-up cohort of HIV-positive pregnant women and their children. Information is currently available from 10 hospitals in Catalonia.

The rate of mother-to-child transmission shows an increasing trend in the 2000-2009 period, 1.6% in 2000 to 2.8% in 2009, followed by one case in 2010 and no cases until 2013.

Between 2000 and 2013, 15 HIV-positive children were identified from a total of 885 infected mothers. It should be noted that 19 of these women were diagnosed at the time of birth or subsequently; these people therefore did not take any type of prenatal measure to prevent HIV transmission. ART was given during pregnancy to 657 of the 885 pregnant women (74%).

### 1.5.4. Pre-exposure prophylaxis. Knowledge, attitudes and behaviours

The results of the ACCEPT survey on the acceptance and potential impact of biomedical interventions (pre-exposure prophylaxis (PrEP) and circumcision) for the primary prevention of HIV (see "Sources of information") show that 22.5% of the HIV-negative MSM that completed the online questionnaire (N = 646) had heard of PrEP and that the Internet was the main source of information. With regard to acceptance of the method, 59.3% of the males would be willing to use PrEP and 25.6% had never heard of it. PrEP use preferences indicate that the participants would be more willing to take PrEP during high sexual risk periods (65.5%) than during the weekends (5.2%). Similarly, a higher percentage of males would agree to take it if it was given in the form of a monthly injection (74.1%; 95%CI: 70.2-78.0) or prescribed for before a sexual meeting and as a single dose (71.4%; 95%CI: 67.3-75.4) than if they had to take more than one tablet a day (57.2%; 95%CI: 52.8-61.6) or one tablet a day (39.3%; 95%CI: 34.9-43.6). There are other hypothetical scenarios regarding PrEP that indicate that 46.1% of males would be willing or very willing to take PrEP, even although it has side effects, and that 12% would be willing or very willing to accept it if it had a high economic cost (€400) (**figure 1.45**). The preferred dispensing sources are doctors (90.9%) and pharmacists (84.6%). Finally, 19.3% of the respondents would not use a condom if they were taking PrEP.

SIVES 2015

**Other sexually  
transmitted  
infections**

## 2.1. Infectious and congenital syphilis

### 2.1.1. New diagnoses

In 2014, 902 cases of syphilis were notified, representing a global rate of 12.4 cases per 100,000 inhabitants (**figure 2.1**). This rate is higher than the EU mean of 5.1 cases per 100,000 inhabitants.<sup>18</sup>

Of these cases, 87% were males and 13% females, and the rates were 21.8 and 3.2 cases per 100,000 inhabitants, respectively (**figure 2.1**). The male-female ratio was 6:1.

The mean age was 37.4 years. The group of young people aged between 15 and 24 account for 9.5% of the total cases notified, and 3 cases were notified in under-15s (**figure 2.2**).

As for origin, 35% of the cases were notified in people born outside Spain. Of the total (315), 52% were people from Latin America and Caribbean countries.

Of the total number of cases notified, the epidemiological survey was completed in 627 cases, representing 69%. Of these, the majority were MSM (73%), followed by heterosexual males and females (9% and 7%, respectively) (**figure 2.3**).

Figure 2.1. Evolution of cases of syphilis in the last 10 years (2005-2014). Individual Notifiable Diseases Register of Catalonia

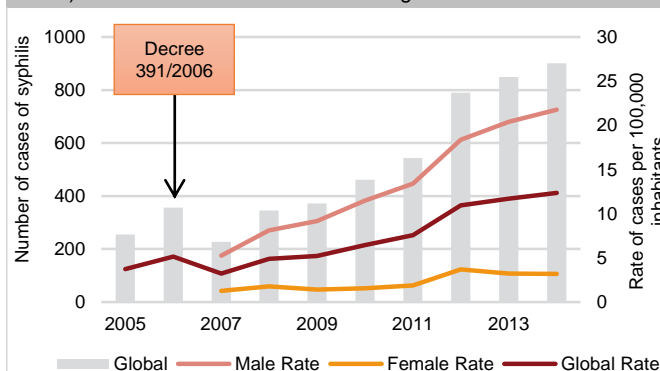
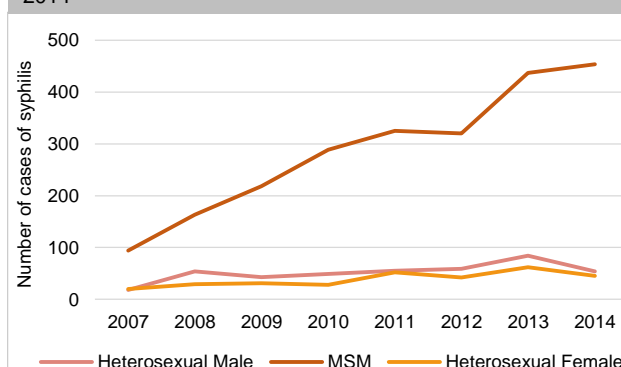


Figure 2.2. Distribution of syphilis cases by sex and age group. Individual Notifiable Diseases Register of Catalonia, 2014



Figure 2.3. Evolution of cases of syphilis by sexual orientation. Individual Notifiable Diseases Register of Catalonia, 2007-2014



HIV co-infection at the time of diagnosis was 38% overall and 48% in MSM.

Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (47% of the cases).
- Not having used a condom in the latest sexual intercourse (17% had used one).
- Having had a mean of 20 sexual partners in the previous 12 months.

Contact tracing was initiated in 60% of the patients, who declared a mean of 2.9 traceable sexual contacts.

<sup>18</sup> European Centre for Disease Prevention and Control. Sexually transmitted infections in Europe 2012. Stockholm: ECDC; 2014.



## Trends for the 2005-2014 period

**Figure 2.1** shows that the global rate of syphilis increased by 231% in the 2005-2014 period: the rate has risen from 3.7 to 12.4 cases per 100,000 inhabitants. In 2014, compared to 2013, the global rate of syphilis remained stable.

### Congenital syphilis

No case of congenital syphilis was notified or confirmed in Catalonia in 2014. The last confirmed case was in 2006, and no other case has been confirmed since.

#### 2.1.2. Laboratory notification

In 2014, a total of 1780 cases of *Treponema pallidum* infection were declared to the Catalan Laboratory Notification System (SNMC), of which, in 326 cases (18.3%), the result of the reaginic tests was available (**figure 2.4**).

Of these cases, 85.56% were males and 14.38% females. The mean age was 39 years.

## 2.2. *Neisseria gonorrhoeae*

### 2.2.1. New diagnoses

In 2014, 1555 cases of gonorrhoea were notified, representing a global rate of 21.3 cases per 100,000 inhabitants (**figure 2.5**). This rate is higher than the EU countries mean of 15.3 cases per 100,000 inhabitants.<sup>1</sup>

Of these cases, 85% were males and 15% females, and the rates were 37.0 and 6.2 cases per 100,000 inhabitants, respectively (**figure 2.5**). The male-female ratio was 6:1.

The mean age was 32 years. The group of young people aged between 15 and 24 account for 24% of the total cases notified, and 3 cases were notified in under-15s (**figure 2.6**).

As for origin, 26% of the cases were notified in people born outside Spain. Of the total (409), 51% were people from Latin America and Caribbean countries.

Of the total number of cases notified, the epidemiological survey was completed in 783 cases, representing 50%. The majority were MSM (46%), followed by heterosexual males and heterosexual females (24% and 15%, respectively) (**figure 2.7**).

The proportion of cases presenting HIV co-infection was 19%, reaching 39% in the case of MSM.

Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (55% of the cases).
- Not having used a condom in the latest sexual intercourse (15% had used one).
- Having had a mean of 15 sexual partners in the previous 12 months.

Contact tracing was initiated in 60% of the patients, who declared a mean of 2 traceable sexual contacts.

Figure 2.4. Evolution of STIs declared to the SNMC. Catalonia, 2000-2014

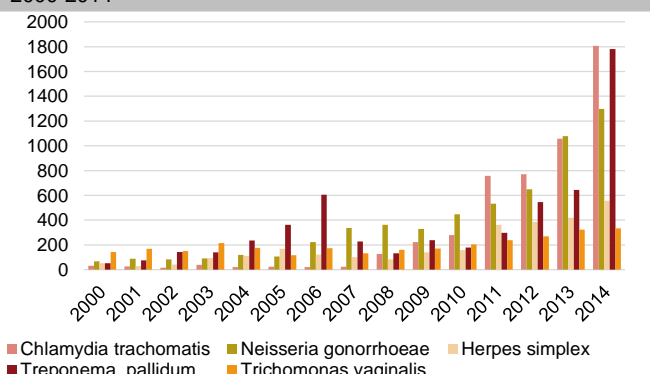


Figure 2.5. Evolution of cases of gonorrhoea in the 2005-2014 period. Individual Notifiable Diseases Register of Catalonia

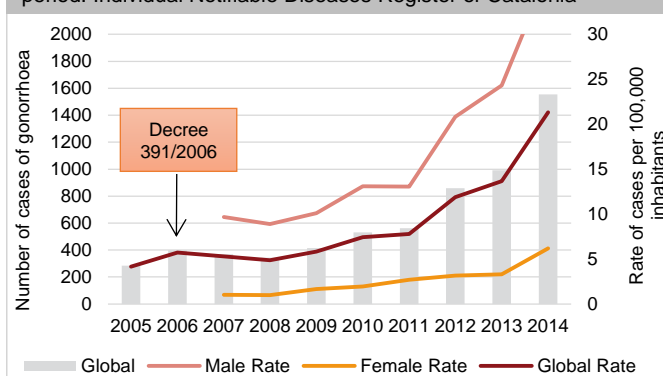


Figure 2.6. Distribution of cases of gonorrhoea by sex and age group. Individual Notifiable Diseases Register of Catalonia, 2014

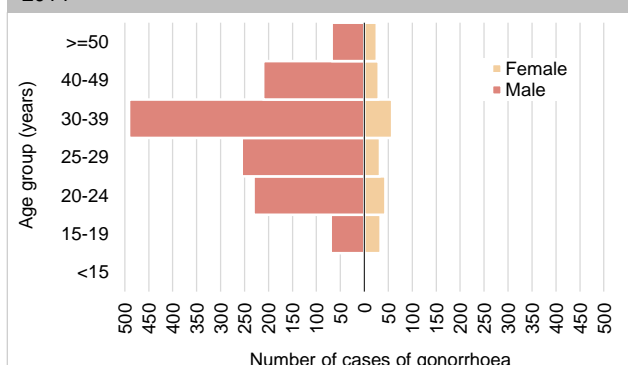
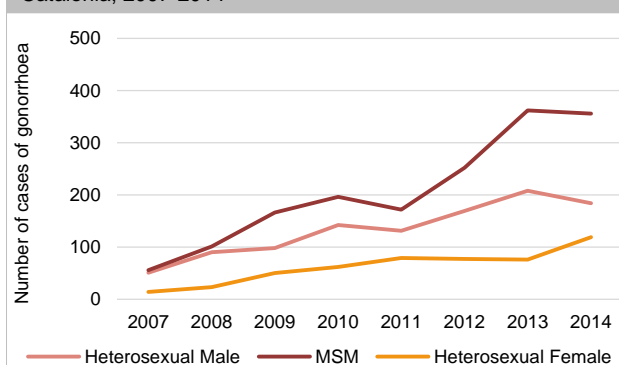


Figure 2.7. Evolution of cases of gonorrhoea by sexual orientation. Individual Notifiable Diseases Register of Catalonia, 2007-2014



## Trends for the 2005-2014 period

Figure 2.5 shows that the global rate of gonorrhoea increased by 414% in the 2005-2014 period: the rate has risen from 4.2 to 21.3 cases per 100,000 inhabitants. Compared to 2013, the global rate of gonorrhoea in 2014 increased by 60%, in both males and females.

### 2.2.2. Laboratory notification

In the course of 2014, a total of 1298 cases of *Neisseria gonorrhoeae* infection were declared to the SNMC (figure 2.4).

Of these cases, 87.1% were males and 12.8% females. The mean age was 27 years. The highest number of cases (715) was in the  $\geq 30$  age group.

In 481 cases, the microbiological diagnosis of this infection was performed solely by means of molecular biology techniques, polymerase chain reaction (PCR) was used in 420 cases, and the molecular biology technique used in the remaining 61 cases was not reported. In 439 cases the diagnosis was performed by culture alone, and in 374 cases it was made by means of both techniques. The most usual biological samples were urethral (60%), pharyngeal (13.7%), and anal (9.6%) exudates.

### 2.2.3. Surveillance of antibiotic sensitivity

The surveillance of *Neisseria gonorrhoeae* antibiotic sensitivity is performed with information gathered at the SNMC. In 2014, the proportion of cases of *Neisseria gonorrhoeae* infection in which the culture was performed (813) and antibiotic sensitivity was notified was very low (7.5%). Following the appearance of *Neisseria gonorrhoeae* strains with reduced sensitivity to third-generation cephalosporins in different countries and in Catalonia, the current antibiotic sensitivity surveillance system must be improved and be made more effective, as this will permit greater control of the spread of this infection.<sup>19 20</sup>

<sup>19</sup> Cámara J, Serra J, Ayats J, Bastida T, Carnicer-Pont D, Andreu A, Ardanuy C. Molecular characterization of two high-level ceftriaxone-resistant *Neisseria gonorrhoeae* isolates detected in Catalonia, Spain. J Antimicrob Chemother. 2012 Aug;67(8):1858-60.

<sup>20</sup> Carnicer-Pont D, Smithson A, Fina-Homar E, Bastida MT; the Gonococcus antimicrobial resistance surveillance working group. First cases of *Neisseria gonorrhoeae* resistant to ceftriaxone in Catalonia, Spain, May 2011. Enferm Infecc Microbiol Clin. 2012 Apr;30(4):218-9. DOI: 10.1016/j.eimc.2011.11.010

### 2.2.4. Prevalence

As part of the surveillance of STIs and associated risk behaviours, biennial cross-sectional surveys are held in vulnerable populations, such as young people, to estimate the prevalence of *Neisseria gonorrhoeae*.

#### Prevalence of *Neisseria gonorrhoeae* in young attendees of sexual and reproductive health centres (ASSIR) and youth care centres

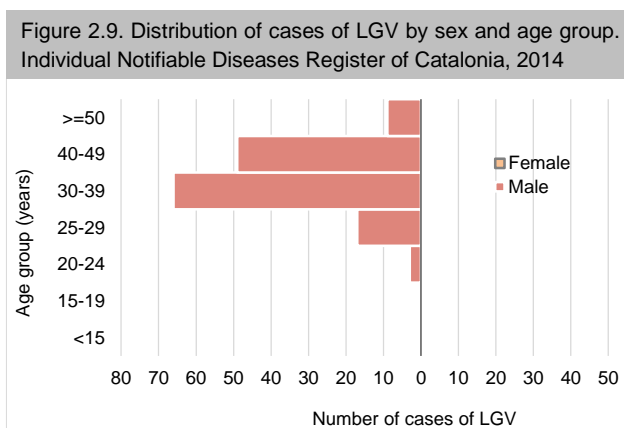
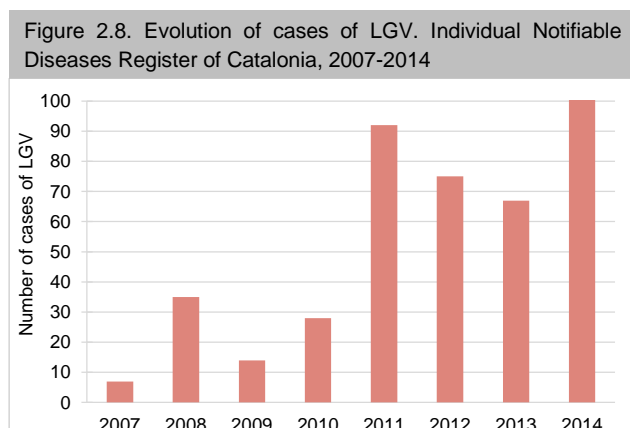
In 2012, the prevalence of *Neisseria gonorrhoeae* in the population of young people aged between 16 and 25 who were tested during routine visits to the ASSIR and youth care centres was **0.4%**, with two positive cases in Spanish women aged 16 and 17 years, respectively.

#### Prevalence of *Neisseria gonorrhoeae* among young people in prison

No positive case of *Neisseria gonorrhoeae* was detected among the young people aged between 16 and 25 who were tested in prisons that house the entirety of the youth prison population in 2014.

## 2.3. Genital infection due to *Chlamydia trachomatis* L1-L3: Lymphogranuloma venereum

### 2.3.1. New diagnoses



In 2014, 144 cases of lymphogranuloma venereum (LGV) were notified (**figure 2.8**). 100% of the cases were males (rate of 4 cases per 100,000 inhabitants), with a mean age of 38 years. The group of young people aged between 15 and 24 account for 2% of the total cases notified, and no cases were detected in under-15s (**figure 2.9**).

As for origin, 33% of the cases were notified in people born outside Spain. Of the total (46), 41% were from Latin America and the Caribbean, and 41% were from Western Europe.

Of the total number of cases notified, the epidemiological survey was completed in 81 cases, representing 56%. Of these cases, 94% were notified in MSM and 84% had HIV co-infection at the time of the diagnosis.

Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (62% of the cases).
- Not having used a condom in the latest sexual intercourse (15% had used one).
- Having had a mean of 42 sexual partners in the previous 12 months.

Contact tracing was initiated in 69% of the patients, who declared a mean of 5 traceable sexual contacts.

## 2.4. Genital infection due to *Chlamydia trachomatis* D-K serovars

### 2.4.1. New diagnoses

In 2014, 943 cases of genital infections due to *Chlamydia trachomatis* D-K serovars were reported to the Aggregate Notifiable Diseases Register, accounting for a rate of 13.0 cases per 100,000 inhabitants. In comparison with 2013, the rate of chlamydia has increased by 17% (**figure 2.10**). This rate is different to that of the EU countries, which is 184 cases per 100,000 inhabitants.<sup>18</sup>

The epidemiological characteristics of this infection are monitored through the Sexually Transmitted Infections Register of Catalonia (RITS) (**figure 2.11**), which collects 53% (5024/943) of the total cases of chlamydia notified to the Aggregate Notifiable Diseases Register for the year.

Of the total of 502 cases declared to the RITS, 54% were males, and the male-female ratio was 1.2:1.

Figure 2.10. Evolution of cases of *Chlamydia trachomatis* in the 2005-2014 period. Aggregate Notifiable Diseases Register of Catalonia

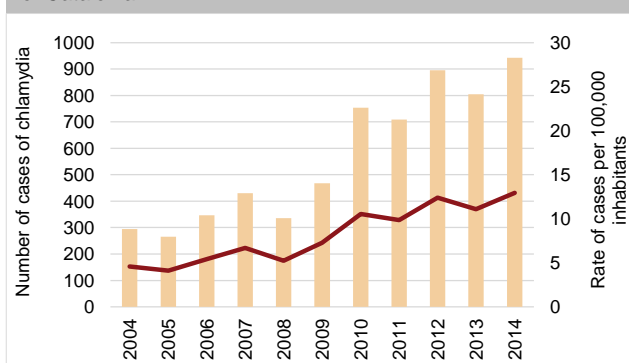
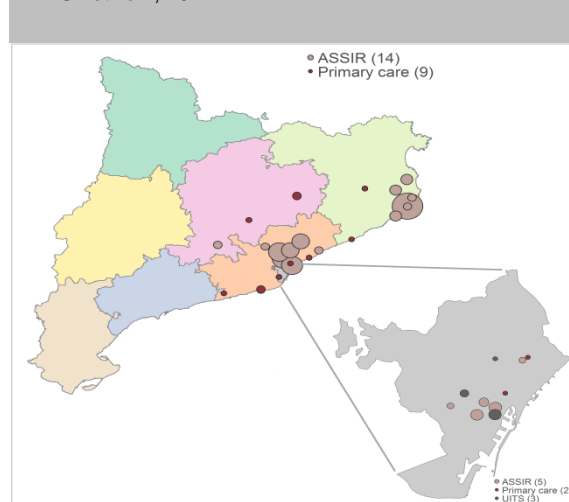


Figure 2.11. Distribution of the centres participating in the RITS network, 2014



The mean age was 30 years. The group of young people between 16 and 24 years account for 32% of the total cases notified, and 6 cases were detected in under-16s (**figure 2.12**).

Of these cases, 31% were foreigners, mainly from Latin America, the Caribbean and Western Europe.

Of the cases declared to the RITS, 70% were heterosexual males and females (26% and 44%, respectively). It should be mentioned that 30% of the cases involved MSM (**figure 2.13**). HIV co-infection accounted for 9%, 93% of whom were MSM.

Figure 2.12. Distribution of the cases of genital infection by *Chlamydia Trachomatis* D-K by sex and age group. RITS, 2014

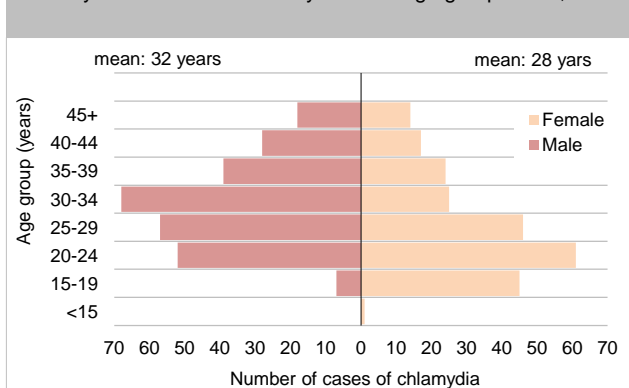
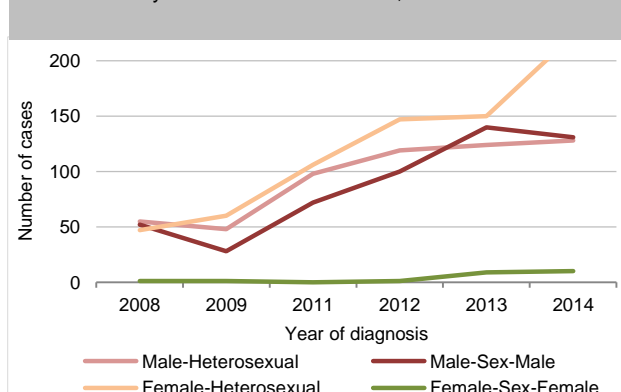


Figure 2.13. Evolution of cases of infection by *Chlamydia trachomatis* by sexual orientation. RITS, 2008-2014



Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (50% of the cases).
- Not having used a condom in the latest sexual intercourse (56% of the cases).
- Having had a mean of 5 sexual partners in the previous twelve months or up to 20 partners in the case of MSM.

Contact tracing was initiated in 79% of the patients, who declared a mean of 1 traceable sexual contact.

### 2.4.2. Laboratory notification

In the course of 2014, a total of 1808 cases of *Chlamydia trachomatis* infection were declared to the SNMC (**figure 2.4**). Of these cases, 56.30% were females and 43.7% males. The mean global age was 27 years.

The microbiological diagnosis of infection by *Chlamydia trachomatis* was made mainly (98.5%) by means of PCR-based molecular biology techniques. The most usual biological samples were endocervical (47.6%), urethral (19.3%) and anal (13.1%) exudates.

The *Chlamydia trachomatis* serovar was detected in 225 cases. The L1-L3 serovars causing the LGV were detected in 139 (61.8%) cases, and the D-K serovars in 86 (38.2%) cases. The *Chlamydia trachomatis* serovar is determined by molecular biology techniques.

Of the cases of LGV infection, 100% were males, with a mean age of 37 years, and of the cases of infection by the D-K serovar, 73.3% were males and 26.7% females, with a mean age of 30 years.

### 2.4.3. Prevalence

As part of the surveillance of STIs and associated risk behaviours, biennial cross-sectional surveys are held to estimate the prevalence of *Chlamydia trachomatis* in vulnerable populations, such as young people.

#### Prevalence of *Chlamydia trachomatis* in the population of young attendees of ASSIR and youth care centres

In 2012, the prevalence of *Chlamydia trachomatis* in the population of young people aged between 16 and 25 who were tested during routine visits to the ASSIR and youth care centres was **8.5%**, with a total of 43 positive cases.

While it did not present significant differences ( $p=0.10$ ), the prevalence was greater in females, 9.1%, with 42 positive cases, versus 2.2% in males, with 1 positive case.

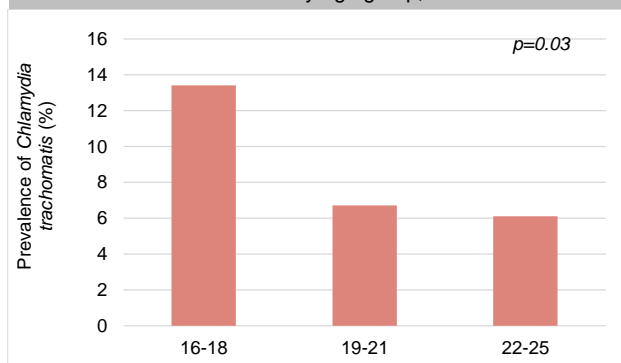
Foreigners presented significantly higher prevalences ( $p=0.01$ ) than the Spanish-born population: 13.7%, with 17 positive cases, and 6.8%, with 26 positive cases, respectively.

According to age group, the prevalence of *Chlamydia trachomatis* was significantly higher ( $p=0.03$ ) as participant age fell (**figure 2.14**).

Compared to the studies from previous years, there is a growing trend in the prevalence in this population (**figure 2.15**).

In order to measure the reinfection rate, retesting was performed six months later in 29 of the 43 possible cases: the *Chlamydia trachomatis* positivity rate in the retest was 10.3% (3/29).

Figure 2.14. Prevalence of *Chlamydia trachomatis* in young attendees of ASSIR centres by age group, 2012



## Prevalence of *Chlamydia trachomatis* among young people in prison

The prevalence of *Chlamydia trachomatis* in 2014 in young people in prison aged 16 to 25 who were tested in prisons that house the entirety of the youth population was 7.7%, with 20/259 positive cases, 5 in females and 15 in males. The prevalence in females was 12.5% and male prevalence was 6.8%.

Six (6) positive cases were detected in Spaniards and 14 in foreigners, with a prevalence of 6.7% and 8.3%, respectively. The differences are not significant in any of the cases.

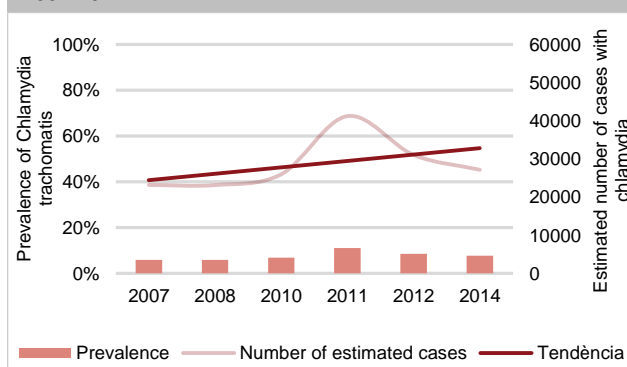
## Estimated number of cases with *Chlamydia trachomatis* in the population aged 16 to 24 in Catalonia

A calculation of the estimated number of cases with chlamydia in this population was made in order to estimate the magnitude of infection due to *Chlamydia trachomatis* among young people aged 16 to 24 in our setting.

Using a direct method, it was assumed that the prevalence of the sentinel populations of young attendees of ASSIR centres and young inmates is representative of the sexually active young population of Catalonia.

The sexually active young population aged between 16 and 24 was calculated taking into account the sexual practice results in the previous 12 months of the most recent National Health Survey.<sup>21</sup> According to this survey, 52% had had sex with vaginal or anal penetration or insertion, and/or oral sex. This proportion was applied to the population in Catalonia aged between 16 and 24 according to the census.<sup>22</sup>

Figure 2.15. Prevalence and estimated number of young people aged 15-24 with *Chlamydia trachomatis* in Catalonia, 2007-2014\*



Thus, applying the direct method, it is estimated that in 2014 in Catalonia there were 27,000 sexually active young people aged between 16 and 25 in the last year infected by *Chlamydia trachomatis* (figure 2.15).

\*ASSIR prevalence data for 2008, 2010 and 2012, and prison prevalence data for 2009, 2011 and 2014 (preliminary).

## 2.5. Infection by the genital Herpes Simplex virus

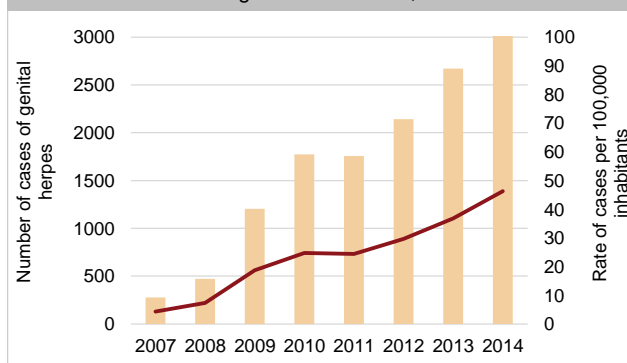
### 2.5.1. New diagnoses

In 2014, 3376 cases of genital herpes were notified to the Aggregate Notifiable Diseases Register, accounting for a rate of 46.3 cases per 100,000 inhabitants. Compared to 2013, the rate of herpes increased by 26% (figure 2.16).

The epidemiological characteristics of this infection were monitored by means of the RITS, with a total of 195 cases notified in 2014. Of these cases, 52% were males; and the male-female ratio was 1.1:1.

The mean age was 33 years. The group of young people aged between 16 and 24 account for 22% of the total

Figure 2.16. Evolution of cases of genital herpes. Aggregate Notifiable Diseases Register of Catalonia, 2007-2014



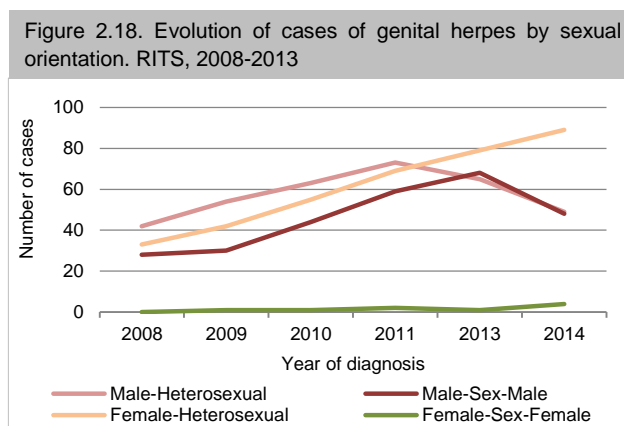
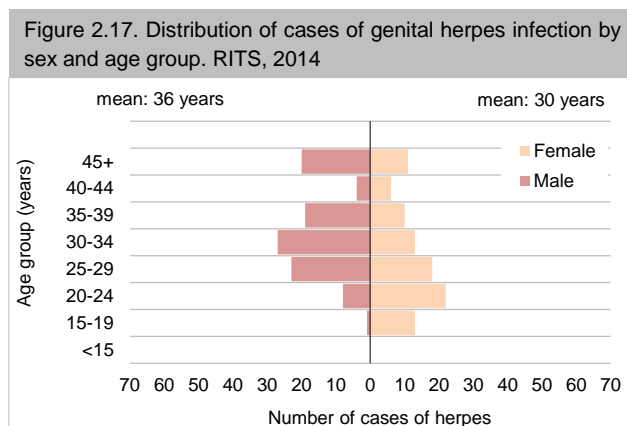
<sup>21</sup>. Resumen ejecutivo de la Encuesta Nacional de Salud Sexual (2009). [Madrid]: [Ministerio de Sanidad, Servicios Sociales e Igualdad]; 2009.

<sup>22</sup>. <http://www.ine.es/>

cases notified, and 1 case was detected in under-16s (**figure 2.17**).

With regard to country of birth, less than half were foreigners (36%), mainly from Latin America and the Caribbean and Western Europe.

Of the cases declared to the RITS, 71% were heterosexual males and females (25% and 46%, respectively) (**figure 2.18**). HIV co-infection accounted for 13%, 92% of whom were MSM.



Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (30% of the cases).
- Not having used a condom in the latest sexual intercourse (44%).
- Having had a mean of 5 sexual partners in the previous twelve months or up to 17 partners in the case of MSM.

### 2.5.2. Laboratory notification

In 2014, a total of 557 cases of infection by the Herpes Simplex virus was declared to the SNMC (**figure 2.4**), 462 (82.9%) of which corresponded to infections by the herpes virus type 2, 46 (8.3%) to herpes virus type 1, and the type was not notified in 49 cases.

Of the cases of herpes virus type 2 infection, 59.74% were females and 40.3% males. In the case of the herpes virus type 1 infection, 82.6% of the cases were females and 17.4% males. The mean age in the group of patients with herpes virus type 2 and type 1 infection was 30 years.

The microbiological diagnosis of this infection was carried out mainly by means of molecular biology techniques (PCR), and secondly by means of cell culture and antigen detection.

## 2.6. Infection by human papillomavirus: condyloma acuminata or anogenital wart

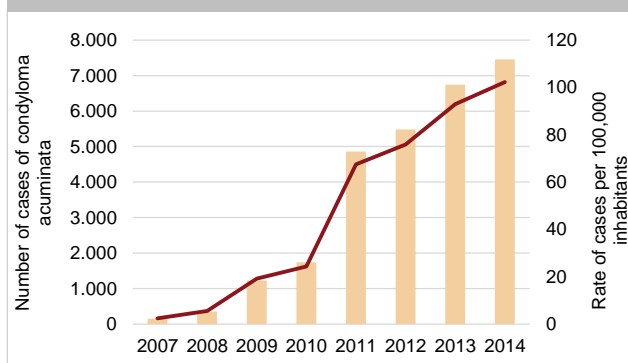
### 2.6.1. New diagnoses

Condyloma acuminata was the most frequent STI in our setting in 2014, with a total of 7458 declared cases, representing a rate of 102.3 cases per 100,000 inhabitants. In comparison with 2013, the rate of condyloma acuminata has remained stable (**figure 2.19**).

The epidemiological characteristics of this infection were monitored by means of the RITS, with a total of 488 cases notified in 2014. Of these cases, 45% were males; and the male-female ratio was 0.8:1.

The mean age was 31 years. The group of young people aged between 16 and 24 account for 28% of the total cases notified, and no cases were notified in under-16s (**figure 2.20**).

Figure 2.19. Evolution of cases of condyloma acuminata. Aggregate Notifiable Diseases Register of Catalonia, 2007-2013



By country of origin, the distribution was mainly in Spanish-born people and 20% in foreigners.

Of the cases declared to the RITS, 92% were heterosexual males and females (39% and 53%, respectively) (**figure 2.21**). HIV co-infection accounted for 1.6%, lower than that of any other STI.

Risk determinants for STI acquisition:

- Having had a new sexual partner in the previous three months (28% of the cases).
- Not having used a condom in the latest sexual intercourse (65% of the cases).
- Having had a mean of 3 sexual partners in the previous twelve months or up to 13 partners in the case of MSM.

Figure 2.20. Distribution of cases of condyloma acuminata by sex and age group. RITS, 2014

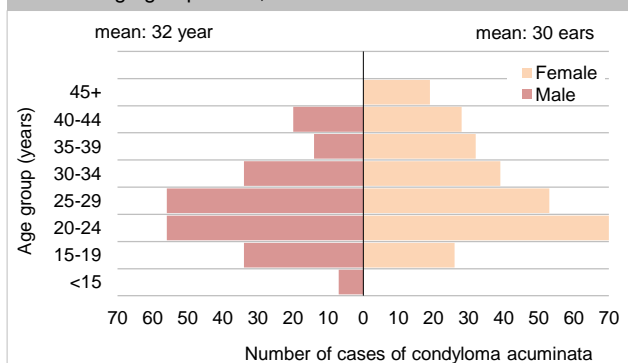
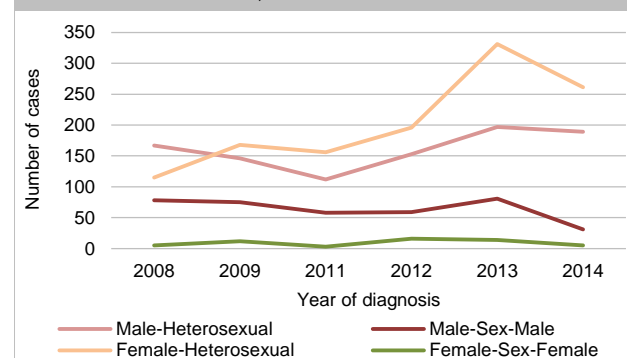


Figure 2.21. Evolution of cases of condyloma acuminata by sexual orientation. RITS, 2008-2014



## 2.7. Infection due to *Trichomonas vaginalis*

### 2.7.1. New diagnoses

In 2014, 837 cases of infection due to *Trichomonas vaginalis* were notified, accounting for a rate of 11.5 cases per 100,000 inhabitants. In comparison with 2013, the rate of trichomoniasis has remained stable (**figure 2.22**).

The epidemiological characteristics of this infection were monitored by means of the RITS, with a total of 60 cases declared in 2014. Although they represent a very low proportion of the total notified to the Aggregate Notifiable Diseases Register of Catalonia (8%), these cases provide us with important epidemiological information of which we would be otherwise unaware.

Of these cases, 95% were females; and the male-female ratio was 0.05:1. The mean age was 38 years (**figure 2.23**). The group of young people aged between 16 and 24 account for 15% of the total cases reported, and 48% of the cases falls within the above-40 age group.

37% were foreigners, mainly from Latin America and the Caribbean and North Africa.

All the cases were heterosexual (100%), and 1.7% presented HIV co-infection.

Contact tracing was initiated in 88% of the cases, with no mean traceable contact.



Figure 2.22. Evolution of cases of infection by *Trichomonas vaginalis*. Aggregate Notifiable Diseases Register of Catalonia, 2007-2014

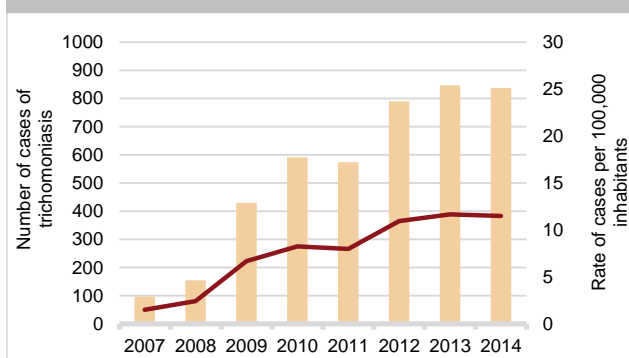
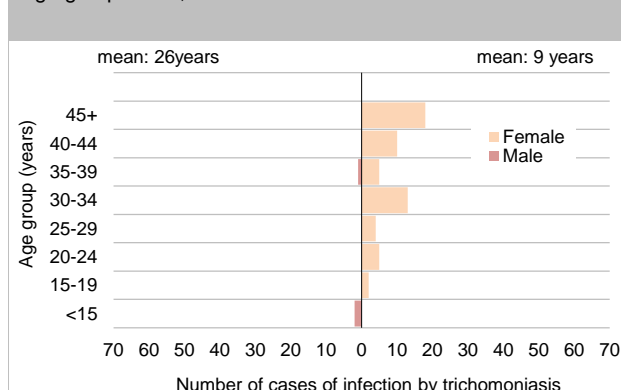


Figure 2.23. Distribution of cases of trichomoniasis by sex and age group. RITS, 2014



### 2.7.2. Laboratory notification

In the course of 2014, a total of **333** cases of infection due to *Trichomonas vaginalis* were declared to the SNMC (**figure 2.4**).

Of these cases, 98.79% were females, with a mean age of 39 years. The diagnostic technique was reported in 57.4% (191/333) of the samples collected, with 126 processed by culture and 21 by PCR.

88.6% of the samples collected for the diagnosis of *Trichomonas vaginalis* where vaginal exudates.

## 2.8. Hepatitis C

In recent years, the acquisition of the hepatitis C virus (mainly a parenteral transmission virus) through sexual transmission has been relatively frequent in MSM due to high-risk sexual practices. The latest data from Europe clearly point to the increase in the proportion of acute hepatitis C cases among MSM, which has rose from 0.8% in 2006 to 14.6% in 2012.<sup>23</sup>

In our setting, acute hepatitis C infection is an individual notifiable disease with a notification rate of 0.6 cases per 100,000 inhabitants in 2013.<sup>24</sup> Although there is no information about the transmission route of notified cases in Catalonia, in January 2013 the Public Health Agency of Barcelona (ASPB) detected, in the city of Barcelona, an increase in new hepatitis C infections in MSM, leading a health alert to be issued to the city's healthcare centres.<sup>25</sup>

### Behaviours associated with a first diagnosis of HCV in the previous 12 months in MSM

Of the 13,111 MSM living in Spain (2942 in Catalonia) that participated in the EMIS study, 1.9% (n=250) had been diagnosed with HCV at some point.<sup>26</sup> The proportion of MSM who had had a first diagnosis of HCV in the previous 12 months was 0.4% (n=46). Having a first diagnosis of hepatitis C in the previous 12 months was more common among HIV-positive males than HIV-negative males (0.9% versus 0.4%).

<sup>23</sup> European Centre for Disease Prevention and Control. Hepatitis B and C surveillance in Europe. 2012. Stockholm: ECDC; 2014.

<sup>24</sup> Hepatitis C a Catalunya. Situació epidemiològica. Vigilància ASPCAT. 2015;14.

<sup>25</sup> Manzaneres-Laya S, García de Olalla P, Garriga C, Quer J, Gorrindo P, Gómez S, et al. Increase of sexually transmitted hepatitis C virus in HIV+ men who have sex with men in Barcelona, Spain. A problem linked to HIV infection? HepHIV2014 Conference; 2014 Oct. 5-7; Barcelona. [PS3/04].

<sup>26</sup> Fernández-Dávila P, Folch C, Ferrer L, Soriano R, Diez M, Casabona J. Hepatitis C virus infection and its relationship to certain sexual practices in men-who-have-sex-with-men in Spain: Results from the European MSM internet survey (EMIS). Enferm Infecc Microbiol Clin. 2015 May;33(5):303-10.

In the multivariate model, the variables significantly associated with a first diagnosis of HCV in the previous year were visiting premises for having sex (bars with darkroom, sex club, sex parties in public or private premises), practising receptive fisting -- sexual practice consisting of inserting the hand totally or partially into the partner's anal conduct--, taking erectile dysfunction drugs (Viagra or similar) and having a diagnosis of syphilis in the previous 12 months.

SIVES 2015

**Monitoring of  
HIV/STIs-  
associated  
behaviours**

### 3.1. Men who have sex with men

A total of 402 MSM recruited in gay meeting venues in the city of Barcelona participated in the SIALON II study (see "Methods"). The methodology used to collect the sample was time-location sampling (TLS), a quasi-probabilistic method that ensures a greater diversity of the MSM population that attend these venues but which requires a weighted data analysis in view of the different probabilities of selection of the individuals. The study's socio-demographic data show the profile of a participant aged 37.2 years on average, most of them Spanish (58.7%), with a high educational level (51.8% university) and a high number that live in the city of Barcelona (67.5%).

Table 3.1 Sociodemographic and behavioural characteristics of MSM recruited in gay venues in Barcelona (SIALON, 2013).

Variable	n	%
<b>Age group (years)</b>		
18-24	42	14,3
25 or older	360	85,7
<b>University education</b>		
	201	51,8
<b>Origin</b>		
Spanish	270	58,7
Immigrant	101	25,2
Tourist (other country)	29	16,1
<b>City of residence: Barcelona</b>		
	316	67,5
<b>Number of male sexual partners*</b>		
None	27	7,9
1 to 5	178	49,1
6 to 10	64	21,3
11 or more	117	21,7
<b>Sex with a stable partner*</b>		
	196	59,2
<b>Sex with a casual partner*</b>		
	317	83,1
<b>Inconsistent use of condom (stable partner)*<sup>1</sup></b>		
	113	55,6
<b>Inconsistent use of condom (casual partner)*<sup>2</sup></b>		
	119	37,7
<b>Type of partner (latest anal sex)*</b>		
Stable	141	45,8
Casual	208	50,9
More than one partner	12	3,3
<b>Alcohol and drug use (latest anal sex)*<sup>3</sup></b>		
Alcohol	161	38,0
Poppers	77	12,5
Ecstasy	20	3,8
Viagra or similar	39	8,4
Cocaine	53	11,4
Hash or marijuana	58	13,2
Amphetamines	11	4,3
GHB	14	4,4
<b>Injected drugs (in some occasion)</b>		
	13	3,2

\* previous 6 months; <sup>1</sup> among those with a stable partner; <sup>2</sup> among those with a casual partner; <sup>3</sup> non-excluding categories

With regard to sexual behaviour in the previous 6 months (**table 3.1**), 21.7% of the MSM state that they have had sex with more than 10 male partners. 59.2% of the MSM state that they have had sex with stable partners and 83.1% with casual partners. The non-consistent use of condom with the stable and casual sexual partners in the previous six months was 55.6% and 37.7%, respectively. With regard to the latest penetrative sex, 45.8% state that it was with their stable partner, 50.9% with the casual partner and the rest (3.3%) with more than one partner. 68.7% of the MSM state that they used a condom in the latest penetrative sex and 38% that they had consumed alcohol. The drugs used most in the latest sexual intercourse were cannabis, poppers and cocaine (13.2%, 12.5% and 11.4%, respectively). The percentage of men that had used injected drugs at some point in their lives was 3.2%.

Furthermore, the ITACA Cohort recruited 5086 HIV-negative MSM between 2008 and December 2011, making it possible to estimate the incidence of HIV in this population and also monitor infection-associated behaviours. With regard to behavioural data on entering the cohort, 47.9% of the men stated that they had a stable partner and 84.9% a casual partner in the previous six months. With regard to the use of a condom in penetrative intercourse in this period, the proportion of men that did not use one systematically with stable and casual partners was 62.9% and 36.3%, respectively, and this proportion with the casual partner increased significantly between 2008 and 2011, from

35.9% to 39.4%, respectively. More than half of the men had met some of their sexual partners through the Internet, and this percentage increased from 57.6% in 2008 to 62.9% in 2011. In the previous six months, 18.2% of the men stated that they had used 2 or more drugs, and the prevalence of a self-declared STI was 5.9%. Both prevalences fell significantly during the period.

### 3.2. Female sex workers

A total of 400 female SW recruited in clubs, bars and in the street were interviewed in the four cross-sectional studies performed in Catalonia every two years since 2005, most of them immigrants (11.3% from Spain, 24.3% from Africa, 29.1% from Latin America and 35.4% from Eastern Europe). The women's mean age was 30.3 years (SD: 8.9), with a slight increase observed in the successive studies. Of these women, 13.9% declared a low educational level (below primary level) and 61.2% stated that they were single at the time of the interview. The proportion of women that stated that they had been sex workers for five years or more increased from 25.6% in 2005 to 46.4% in 2011 (**table 3.2**).

Table 3.2. Sociodemographic characteristics, access to social and healthcare services and prevalence of terminations of pregnancy in female sex workers (2005-2011)

	2005 (%)	2007 (%)	2009 (%)	2011 (%)	Total (%)
Mean age (SD) <sup>1</sup>	29.5 (9.3)	29.1 (9.4)	30.6 (8.9)	31.8 (8.0)	30.3 (8.9)
Education: below primary	13,8	13,7	15,2	12,9	13,9
Marital status: single	65,8	64,7	55,5	58,7	61,2
>5 years as SW <sup>2</sup>	25,6	24,0	35,8	46,4	32,9
Access to health services <sup>3</sup>	64,3	62,4	63,2	67	64,2
Access to social services <sup>2,3</sup>	38,4	41,5	51,9	36,3	42,0
Gynaecological examinations (annual)	87,0	78,7	80,3	84,3	82,6
Any TOP (ever)	nd	50	53,5	53,4	52,3
Any STI (ever) <sup>2</sup>	14,0	16,6	26,7	20,6	19,4

<sup>1</sup> Student t test significant; <sup>2</sup> Linear trend test significant; <sup>3</sup> previous 6 months; na: not available  
TOP: termination of pregnancy

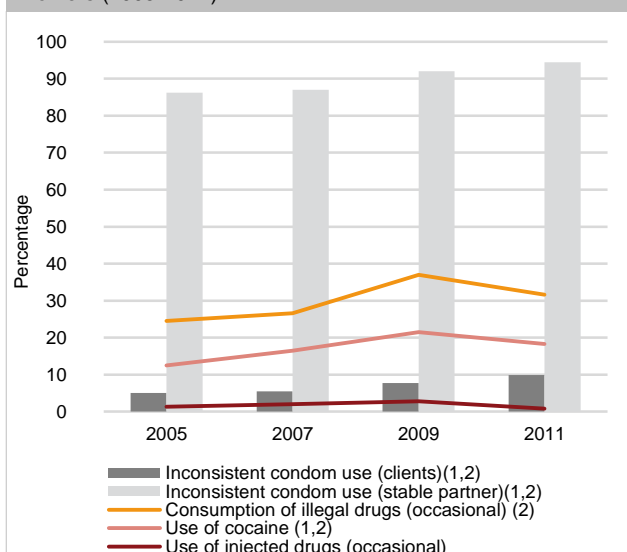
Of these women, 64.2% had attended the health services in the previous six months. Access to the social services in the previous six months increased significantly during the 2005-2009 period (from 38.4% to 51.9%), and fell in 2011 (36.3%). With the exception of 2007, more than 80% of the women had had annual gynaecological examinations. Half of the women (52.3%) had had a termination of pregnancy at least once in their life. An increasing trend was

observed in the self-declared prevalence of STI: from 14% in 2005 to 20.6% in 2011 (**table 3.2**).

The percentage of women who stated that they had used illegal drugs in their life presented an upward trend in the 2005-2011 period (from 24.5% in 2005 to 31.6% in 2011), as well as the percentage of women who stated that they had used cocaine in the previous six months (from 12.5% in 2005 to 18.3% in 2011). Injected drug use was minority in the different studies (1.7% overall). With regard to the use of condom in penetrative sex in the previous six months, there was an

increasing trend in the proportion of women that do not use it systematically, either with their clients (from 5.1% in 2005 to 9.9% in 2011) or with their stable partners (from 86.2% in 2005 to 94.4% in 2011) (**figure 3.1**).

Figure 3.1. Risk sexual behaviours and drug use in female sex workers (2005-2011)



Women that had not used the social services in the previous six months (OR=1.97; 95%CI: 1.20-3.23) and those who stated they do not have annual gynaecological examinations (OR = 2.31; 95%CI: 1.03-5.21) presented a greater probability of having had unprotected sex with their stable partners in the multivariate logistic regression analysis. Having had forced sexual intercourse on some occasion was also associated with inconsistent use of a condom in the stable partner (OR = 2.47; 95%IC: 1.10-5.57). On the other hand, Spanish women (OR = 2.54; 95%CI: 1.33-4.83) presented a higher probability of not having used a condom systematically with clients in the previous six months. Moreover, a high consumption of alcohol (OR = 3.90; 95%CI: 1.78-8.55 > 5 glasses of wine a week), having had two or more condom breakages in the

previous six months (OR = 2.78; 95%CI: 1.53-5.06) and having had an STI (OR = 2.00; 95%CI: 1.22-3.29) were also significantly associated with the non-systematic use of a condom with clients in the multivariate analysis.<sup>27</sup>

### 3.3. People who inject drugs

Between November 2012 and May 2013 (REDAN project), a total of 734 PWID attending harm reduction centres in Catalonia were interviewed. By origin, 444 (60.5%) were Spanish, and the rest (39.5%) were immigrants, mainly from the Eastern European countries (21.4%) and Italy (11.0%). The mean age of the immigrant participants was below that of the Spaniards (34.2 and 40.5 years, respectively). The percentage of men was higher among immigrants (86.6%), as was the percentage who stated that they had a university education (15.2%) (**table 3.3**).

Throughout the studies, it transpired that the percentage of participants who stated that they had had paid employment in the previous six months showed a decreasing trend, both in Spaniards (from 22.6% in 2008-2009 to 11.3% in 2012-2013) and in immigrants (from 24.1% in 2008-2009 to 16.2% in 2012-2013).

On the other hand, the percentage of unemployed immigrants (72.4% in 2012-2013) and those who stated they were homeless (19.4% in 2012-2013) increased significantly during the 2008-2013 period, as did the percentage of Spaniards who stated that they were receiving a retirement and/or disability pension (40.3% in 2012-2013). With regard to drug usage pattern, the percentage of new injectors remains stable, in other words people who have been using injected drugs for five years or less (14.9% and 27% in 2012-2013 for Spaniards and immigrants, respectively), as well as the percentage who state that they were being treated at the time of the interview (58.6% and 41.4% in 2012-2013 for Spaniards and immigrants, respectively). The use of injected heroin as main drug increased significantly among immigrants (from 40.3% in 2008-2009 to 51% in 2012-2013); on the other hand, the use of injected heroin plus cocaine or speedball fell (from 35.7% in 2008-2009 to 26.6% in 2012-2013) (**table 3.3**).

Table 3.3. Sociodemographic profile and drug use pattern of PWID attending harm reduction centres in Catalonia (2008-2013)

	Spanish				Immigrants			
	2008-9	2010-11	2012-3	p <sup>1</sup>	2008-9	2010-11	2012-3	p <sup>1</sup>
	n=439	n=464	n=444		n=309	n=297	n=290	
	%	%	%		%	%	%	
Age under-30	11,5	11,4	8,6	0,158	31,1	33,0	32,8	0,671
Male	78,1	78,4	80,0	0,507	88,0	89,2	86,6	0,590
Educational attainment < primary	7,5	9,5	16,6	<0,001	7,8	8,4	5,9	0,381
Paid employment*	22,6	14,4	11,3	<0,001	24,1	21,7	16,2	0,018
Unemployed*	40,3	42,0	41,9	0,639	55,7	63,1	72,4	<0,001
Receiving a pension*	28,1	33,8	40,3	<0,001	4,9	2,0	4,5	0,773
Homeless*	8,0	10,1	7,9	0,959	11,3	16,8	19,4	0,007
Ever been in prison	67,8	68,8	68,2	0,891	58,9	63,6	67,6	0,027
Years injecting: 5 or less	10,8	14,3	14,9	0,080	25,7	32,2	27,0	0,173
Currently undergoing treatment	59,7	63,8	58,6	0,729	32,5	38,7	41,4	0,068
Most frequent drug: Heroin*	41,3	52,5	44,9	0,291	40,3	51,2	51,0	0,008
Most frequent drug: Cocaine*	42,5	31,7	39,2	0,326	23,1	17,6	21,7	0,669
Most frequent drug: Speedball*	15,8	15,3	15,0	0,746	35,7	30,8	26,6	0,016
Daily drug injection*	43,7	39,4	43,7	0,985	57,6	58,9	46,4	0,004

\*previous 6 months; 1 Mantel trend test

The prevalence of accepting or sharing used syringes in the previous six months presents a decreasing trend in the 2008-2013 period in the group of Spanish and immigrant injectors, a trend that is maintained following the adjustment for different socio-demographic variables, such as sex, educational level, years injecting, being homeless and employment situation. Practices of indirectly sharing injection material remain stable over the 2008-2013 period, except with regard to

<sup>27</sup> Folch C, Casabona J, Sanclemente C, Esteve A, González V; Grupo HIVITS-TS. Tendencias de la prevalencia del VIH y de las conductas de riesgo asociadas en mujeres trabajadoras del sexo en Cataluña. Gac Sanit. 2014 May-Jun;28(3):196-202.

sharing injection material such as the spoon, filter or water to prepare the dose, which presents a significant increasing trend among immigrants (from 52.6% in 2008-2009 to 67.6% in 2012-2013) (**figure 3.2**).

The proportion of injectors who declare that they have not always used a condom in penetrative intercourse in the previous six months remains constant throughout the studies. In 2012-2013, 66.5% of Spaniards used a condom non-systematically with stable partners and 30.1% did so with casual partners. Among immigrants, these percentages were 75.9% and 26.8%, respectively. Of all the respondents in 2012-2013, 2.6% of the men and 16.0% of the women stated that they had had sex in exchange for money or drugs in the previous six months ( $p < 0.001$ ).

### 3.4. Young People

#### 3.4.1. Young People and the Internet

In the year 2012, a cross-sectional study was performed by means of an online survey with young Catalans aged between 16 and 25. The young people were recruited to a panel of more than 70,000 people, stratified by sex, age and province ( $n=800$ ). The young people's mean age was 20.3 years (SD: 2.4). Of these, 51.3% were males and 48.7% females; 7.6% were immigrants, and almost 3/4 of them were students (70.7%)

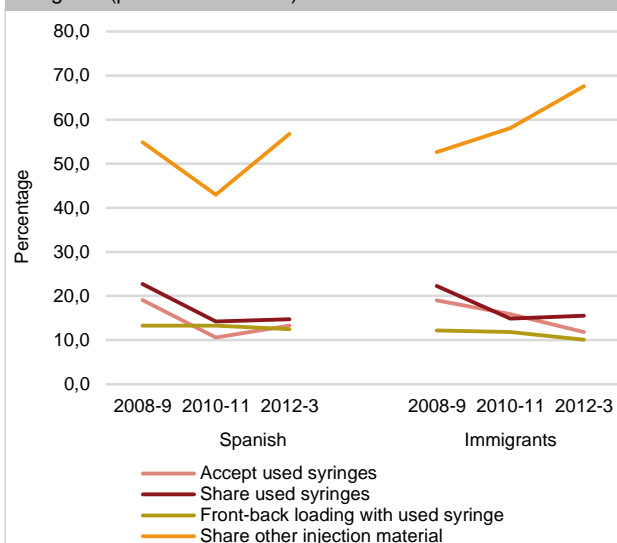
76.1% of the males and 83.3% of the females stated that they had had penetrative intercourse (vaginal and/or anal) on some occasion ( $p=0.012$ ), and no differences were observed in the mean starting age of these relationships (overall: 16.6 years). Of those that had had sex, 27.4% had begun before the age of 16. In their first sexual intercourse, 85.2% of the males and 86.1% of the females had used a condom ( $p > 0.05$ ).

Table 3.4. Sexual behaviour of young people (16-24 years) in the previous 12 months by sex. Catalonia, 2012.

	'oung males* N=301		'oung females* N=32		p
	n	(%)	n	(%)	
<b>Sex with heterosexual partner</b>					<b>&lt;0,001</b>
Yes	236	77,6	289	90,3	
No	68	22,4	31	9,7	
<b>Use of condom at last sexual intercourse <sup>1</sup></b>					<b>&lt;0,001</b>
Yes	177	75,6	167	58,4	
No	57	24,4	119	41,6	
<b>Heterosexual sex with a casual partner</b>					<b>&lt;0,001</b>
Yes	93	39,7	64	22,5	
No	141	60,3	221	77,5	
<b>Frequency of use of condom with casual partners <sup>2</sup></b>					<b>0,842</b>
Alw ays	64	68,8	45	70,3	
Not alw ays	29	31,2	19	29,7	
<b>Males who have sex with males</b>					
Yes	33	10,5	~	~	
No or does not answ er	282	89,5	~	~	
<b>Use of condom at last homosexual intercourse <sup>3</sup></b>					
Yes	18	54,5	~	~	
No or does not answ er	15	45,5	~	~	

\* Young people who state that they have had sex; <sup>1</sup> Young people who state that they have had sex with a heterosexual partner (previous 12 months); <sup>2</sup> Young people who state that they have had sex with casual partners (previous 12 months); <sup>3</sup> Young boys who state that they have had homosexual sex (previous 12 months)

Figure 3.2. Prevalence of risk behaviours related to injected drug use (previous 6 months)



**Table 3.4** displays the main sexual behaviour indicators of these young people over the last 12 months. A higher percentage of sexually active females state that they have had sex with a heterosexual partner in the previous 12 months (90.3% and 77.6%, respectively). The use of a condom in the latest heterosexual intercourse was greater among males (75.6% and 58.4%, respectively), as well as the percentage that stated that they have had sex with casual partners (39.7% and 22.5%, respectively). 10.5% of the males state that they have had sex with other men, and 54.5% claim that they used a condom the last time they had sex with another man.

Among the females that have had sexual intercourse, 10.7% stated that they had been pregnant at least

once and 7.5% had undergone termination of pregnancy. Half of the females (49.2%) had taken emergency contraception at some point (55% once, 26% twice and 19% three or more times).

### 3.4.2. Young attendees of ASSIR and youth care centres

In 2012, 506 young attendees of ASSIR and youth care centres were interviewed (CT/NG-ASSIR project), 90.9% of whom were women. The mean age was 21 years (SD: 2.7), mainly with secondary and university studies (41% and 49%, respectively). With regard to country of origin, 24.5% of the respondents came from other countries, mainly from Latin America (83%) (**table 3.5**).

Table 3.5. Sociodemographic and behavioural characteristics of young attendees of ASSIR and youth care centres

Variable (n=506)	Freq.	%
<b>Sex</b>		
Male	46	9,09
Female	460	90,91
<b>Age group (years)</b>		
16-18	149	29,45
19-21	178	35,18
21-25	179	35,38
<b>Educational attainment</b>		
No education	6	1,19
Primary	44	8,70
Secondary	209	41,30
University	247	48,81
<b>Origin</b>		
Spanish	382	75,49
Outside Spain	124	24,51
<b>Sexual orientation</b>		
Heterosexual	487	96,25
Homosexual	19	3,75
<b>Partner type*</b>		
Stable	384	75,89
Casual	122	24,11
<b>Cohabiting*</b>		
New sexual partner (last 3 months)	132	26,09
<b>Condom use (last sexual intercourse)</b>		
Yes	263	51,98
No	243	48,02
<b>Sex in meeting places for sex*</b>		
Drug use*	403	79,64
Post-use sex*	274	54,15
Knowledge of STI	406	80,24
Previous STI*	57	11,26
Symptoms (females)	43	8,50
Pregnancy (Females)	324	64,03
PID (Females)	18	3,56
Termination of pregnancy (Females)	3	0,59
	57	11,26

\* Previous 12 months; PID: pelvic inflammatory disease

The majority of the respondents defined their sexual orientation as heterosexual (96%). The mean age of first sexual intercourse was around 16 years (SD: 1.8) and the average number of sexual partners in the previous year was 2 (SD: 1). No significant differences were observed by sex.

The proportion of young people who had had sex with stable partners in the previous 12 months was 76%, and simultaneous sex 18%. 26% stated that they had a new sexual partner in the last three months, significantly greater in males (47% versus 24%,  $p=0.001$ ). Of the young people, 52% used a condom the last time they had sex, less so with casual partners than with stable partners (22.4% and 77.6%, respectively;  $p=0.001$ ) (**table 3.5**).

Of the young people, 79% stated that they had used drugs in the previous year, including alcohol (76.5%) and cannabis (31.4%). Of these, 54.2% stated that they had had sex after using some type of drug, and 15.6% had sex in sexual or recreational meeting places (saunas, the Internet, discotheques or bars) (**table 3.5**).

The majority (80%) stated that they knew what STIs were before the study, and 82% of the cases stated that they perceived no or hardly any risk of becoming infected through sexual intercourse, and no differences by age, sex or origin were observed. Depending on the type of partner, if the previous sex had been with casual partners, more risk was perceived than with stable partners (14% versus 8%,  $p=0.04$ ).

9.7% had had a previous STI in the last year and 8.5% presented symptoms of it. HIV serological status was unknown in 66.4% of the cases. Among women, 64.4% had never had a gynaecological examination before the study and 4% were pregnant at the time of the study (**table 3.5**).

The prevalence of *Chlamydia trachomatis* was 8.5%, greater in women than in men (9.1% vs. 2.2%,  $p=0.1$ ), and significantly greater in foreigners (13.7% vs. 6.8%,  $p=0.01$ ). The rate of reinfection of positive cases of *Chlamydia trachomatis* was measured after six months, and was 10.3%. The main characteristics of the population with a positive



*Chlamydia trachomatis* test in the retest were: women aged between 16 and 18, symptom-free, of foreign origin and with a new sexual partner in the last three months (**table 3.6**).

All the positive cases of the retest had received initial treatment, and contact tracing had been initiated; the first case reported 2 sexual partners in the previous three months, one of whom proved to be *Chlamydia trachomatis*-negative, whereas the other could not be followed up when referred to the family doctor; the second case reported 1 partner, who could not be located, and the final case was that of a pregnant woman on treatment, but not the partner (**figure 3.3**).

### 3.4.3. Young people in prison

In 2014 a total of 259 young inmates in Catalonia were interviewed, distributed as follows: 26 in the CP Dones (Women's Prison), 42 in the CP Brians 1, 109 in the CP de Joves (Young People's Prison) and 82 in the CP Quatre Camins (CT/NG-Prisons project). Most of them were males, 85%. The average age was 23 years (SD=4), mainly with primary education, followed by secondary education and no education (52%, 32% and 13.5%, respectively). Of these cases, 65% were foreigners, mainly from South-American (50.6%) and North African (30.1%) countries. The main reason for incarceration was robbery in 60% of the respondents. Mean prison time was 707 days (23 months).

The mean age at first sexual intercourse was 13.9 years (SD: 1.8), significantly lower in men than in women (13.6 years versus 15.1 years,  $p=0.000$ ), and no significant differences were found by country of origin.

The mean number of sexual partners in the previous year was 2.19 (SD=2), significantly greater in men than woman (2.35 versus 1.27,  $p=0.028$ ). The mean number of partners since incarceration was 1 (SD=1). The highest proportion (96%) were of heterosexual orientation. 76.4% stated that they had a stable couple in the previous 12 months. 25% said that they had concurrent partners, which was significantly greater in men (89.4 versus 10.6;  $p=0.000$ ). 13% had a new sexual partner in the previous 3 months.

Table 3.6. Sociodemographic and behavioural characteristics of young attendees of ASSIR and youth care centres at retest (6 months)

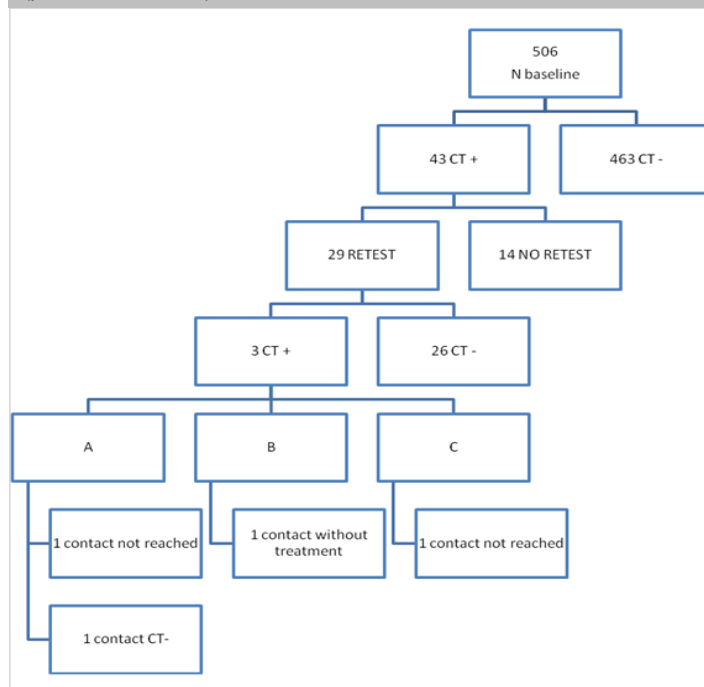
Variable	Total no. retest n=43	No. retester n=29	% tested	No. CT	% positivity re-test
<b>Sex</b>					
Male	1	0	0	0	0
Female	42	29	69	3	10,3
<b>Age group (years)</b>					
16-18	20	11	55	3	27,3
19-21	12	8	66,7	0	0
21-25	11	10	90,9	0	0
<b>Educational attainment</b>					
No education	0	0	0	0	0
Primary	6	3	50	0	0
Secondary	23	18	78,3	2	11,1
University	14	8	57,1	1	12,5
<b>Origin</b>					
Spanish	26	19	73,1	0	0
Outside Spain	17	10	58,8	3	30
<b>Partner type*</b>					
Stable	30	20	66,7	2	10
Casual	13	9	69,2	1	11,1
<b>Cohabiting</b>					
Yes	17	9	52,9	1	11,1
No	26	20	76,9	2	10
<b>New sexual partner**</b>					
Yes	14	8	57,1	2	25
No	29	21	72,4	1	4,8
<b>Condom use (last sexual intercourse)</b>					
Yes	17	11	64,7	2	18,2
No	26	18	69,2	1	5,6
<b>Drug use*</b>					
Yes	29	19	65,5	2	10,5
No	14	10	71,4	1	10
<b>Post-use sex*</b>					
Yes	22	14	63,6	1	7,1
No	21	15	71,4	2	13,3
<b>Symptoms</b>					
Yes	5	3	60	0	0
No	38	26	68,4	3	11,5
<b>Pregnancy</b>					
Yes	4	3	75	0	0
No	38	26	68,4	3	11,5

\*previous 12 months; \*\*previous 3 months

37.7% stated that they used no contraceptive method. 35% of the respondents used a condom, followed by hormonal methods, 22.7%. A condom was not used by 77% of the respondents during their last sexual contact. The last sexual contact was with steady partners in 80%. Condoms were most frequently used with the casual partner. Of the respondents, 35.5% used a condom with this type of partner. Condoms were less frequently used with the stable partner and were always used by 5.8% of the young people.

Of the respondents, 98.5% stated that they had vaginal sex, 41.3% anal sex, 78.4% oral sex and 17.8% oral and anal sex.

Figure 3.2. Prevalence of risk behaviours related to injected drug use (previous 6 months)



and B. The hepatitis C cases were one foreign woman and two men, one foreign and the other a Spaniard. All the cases of hepatitis B were in males, two foreigners and one Spaniard. 5% presented chlamydia symptoms. The prevalence of chlamydia was 7.7%. The figure was greater in females (12.5% versus 6.8% in males), in under-21s (10.6% versus 5.8% in over-21s) and in foreigners (8.3% versus 6.7% in Spaniards). The differences were not statistically significant in any case.

### 3.5. Acceptability of the new technologies to notify an STI/HIV to sexual partners of MSM

In 2013, one Internet-based survey and one in situ survey were performed in 3 centres with coverage in Barcelona in order to ascertain preferences regarding the best ways of notifying sexual partners of a possible exposure to an STI in the case of MSM living in Spain.

A total of 1578 MSM participated in the study: 1337 (85%) responded to the survey via the Internet, and 241 (15%) did so in the centres. The mean global age was 34 years (95%CI: 33-36). The percentage of residents in urban areas was 84% and the percentage of those who sought partners via the Internet was 69%.

With regard to the notification of a possible exposure to an STI/HIV to the sexual partners, 151 (46%) informed all the partners and 117 (35%) only informed some partners. The main reasons for not informing them were: "I didn't know who my sexual partners were" (51%) and "I didn't know how to notify them" (29%). The main notification methods used were: "face-to-face or by telephone" (73%), followed by "traceable SMS" (15%).

52.5% stated that they had sex in recreational or sexual meeting venues in the previous 12 months; 48.6% in bars/discotheques, 10.4% in saunas and 8.9% in sex clubs. 7.5% had sex in exchange for money or drugs, and 36% were prostitution clients. 59% had conjugal visit sex in prison. Conjugal visit sex was mainly with the stable partner (93%).

Regarding the use of drugs in the previous 12 months, most of the respondents (81%) had used some type of drug. This use was significantly greater in men than in women (84.9% and 10.6%, respectively). The most frequently-used drugs were cannabis (30.6%), hash (28.2%), alcohol (18.9%) and cocaine (11.2%). 61% used the drug during their prison stay. Of the respondents, 62% reported having sex after using one of these drugs (table 3.7).

4.2% had been previously diagnosed with an STI, most frequently condylomas, syphilis and gonorrhoea. Two positive HIV cases were found, one female and one male, both of them 25-year-old foreigners, and three positive cases of hepatitis C

Regarding the intention to notify exposure to an STI/HIV to sexual partners, in the case of non-HIV STI, the intention to notify is greater when the partner is stable (85%) than if the partner is casual (60%), and in the case of HIV infection the intention to notify a stable partner is also greater (94%) than if the partner is casual (73%). The main reason for not notifying a stable partner is "out of fear or shame" (55%), and in the case of the casual partner "I don't know how to contact them" (51%). The preferred method is face-to-face or by telephone, whether the partner is stable or casual (90%).

Regarding using a web site to notify an STI/HIV to sexual partners, of the 1134 participants that responded to this question, 37% stated that they would do so, 27% that they did not know if they would and 36% stated that they would not. The preferred type of website is one "specifically designed to notify" (41%) followed by a "web site connected to other sites that are normally used to find sexual partners" (20%). The best-rated characteristics of a website that facilitates notification to sexual partners are: "Providing information about STI" (89%) and "Providing information about centres where you can be attended" (83%).

SIVES 2015

**Indicators for  
the  
surveillance  
and  
evaluation of  
HIV/STI**

The systematic monitoring of standardised indicators is an important part of a surveillance and evaluation system for HIV infection, as is reflected in internationally consensus-based declarations and documents, and makes it possible to assess the effectiveness of the response to the epidemic and enable comparisons over time with other national and international settings.<sup>28 29 30 31</sup>

The criteria to be met by surveillance and evaluation indicators are relevance according to the established programmes, the possibility of obtaining them, a straightforward interpretation and the capacity to detect changes.

The indicators presented in this report, for the geographic area of Catalonia, are built from the data generated by the ensemble of notifiable systems and observational studies comprised by the SIVES and other sources of information, such as the observational studies:

- Notifiable Diseases Register (MDO) of Catalonia
- RITS
- Studies in sentinel populations
- Behavioural surveillance
- HIVLABCAT
- HIVDEVO
- AERI
- Spectrum/Estimation and Projection Package
- PISCIS cohort
- ITACA Cohort
- NENEXP cohort
- NONOPEP Register

The external sources used to prepare the indicators are provided at the end of the chapter.

Every two years, the SIVES 2014 includes a set of homogeneous indicators that allow us to diagnose the situation of HIV/STI and AIDS in Catalonia. This set of indicators responds to the demands that reach the Centre for Epidemiological Studies on STIs and HIV/AIDS of Catalonia (CEEISCAT) from different agencies and plans (Action Plan, Health Plan, Department of Health's Government Plan) and fulfils the national agreements (National Strategic AIDS Plan) and international agreements alluded to earlier (ECDC, UNGASS/GARP).

The table of indicators presented is structured in the following manner:

- Mortality due to HIV/AIDS
- Morbidity due to HIV/STIs
- Behavioural determinants of infection
- Response
  - Diagnosis
  - Treatment
  - Services
- Other sexual and reproductive health indicators
- Complementary indicators

Each indicator contains the following information fields:

- Source
- Periodicity
- Stratification

<sup>28</sup> Joint United Nations Programme on HIV/AIDS. Monitoring the Declaration of Commitment on HIV/AIDS: guidelines on construction of core indicators: 2010 reporting. Geneva: UNAIDS; 2009. UNAIDS/09.10S / JC1676S.

<sup>29</sup> Joint United Nations Programme on HIV/AIDS. Global AIDS Response progress reporting: monitoring the 2011 political declaration on HIV/AIDS: guidelines on construction of core indicators: 2012 reporting. Geneva: UNAIDS; 2011. UNAIDS / JC2215E.

<sup>30</sup> European Centre for Disease Prevention and Control. Mapping of HIV/STI behavioural surveillance in Europe. Stockholm: ECDC; 2009.

<sup>31</sup> Comissió Interdepartamental de la sida a Catalunya. Pla d'acció enfront del VIH/sida 2010-2013. Barcelona: Generalitat de Catalunya, Departament de Salut; 2010.

- Latest update (year)
- Value of the indicator (the figure)

Because of their international relevance, the GARP<sup>29</sup> indicators referred to in the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia, as well as the set of main indicators proposed by ECDC,<sup>30</sup> have been highlighted within the table.

MORTALITY DUE TO HIV/AIDS						
Indicator	Main source (secondary source)	Periodicity	Latest update	Stratified by	Indicator value	
Annual number of deaths due to AIDS	Notifiable Diseases Register of Catalonia (Mortality Register of Catalonia) <sup>32</sup>	Annual	2008	Global	157	
				Sex	Male	120
					Female	37
AIDS-specific mortality rate (per 100,000 inhabitants)	Notifiable Diseases Register of Catalonia (Mortality Register of Catalonia and Statistical Institute of Catalonia [Idescat]) <sup>32 33</sup>		2008	Global	2.2	
				Sex	Male	3.4
					Female	1
Mortality rate in people with an AIDS diagnosis (per 1000 person-year)	PISCIS Cohort	Biennial	1998-2012	Global	27.3	
				Sex	Male	28.5
					Female	23.1
				Population group	PWID	34
					MSM	17.9
					Heterosexual male	29.2
					Heterosexual female	14.2
Others	36.5					
Percent of people with an AIDS diagnosis who survive after 18 months	Notifiable Diseases Register of Catalonia (Mortality Register and Idescat) <sup>32 33</sup>	Annual	2008	Global	62.2	
				Sex	Male	61.5
					Female	65.3
				Population group	PWID	62.9
					MSM	59
					Heterosexuals	66.1
	Others	56.7				
PISCIS Cohort	Biennial	1998-2012	Global	90		

<sup>32</sup> Registre de mortalitat. Generalitat de Catalunya, Departament de Salut.

<sup>33</sup> Institut d'Estadística de Catalunya

Potential years of life lost due to AIDS in the population aged 1-70 (median years)	Notifiable Diseases Register of Catalonia (Mortality Register and Idescat) <sup>32 33</sup>	Annual	2011	Global	22	
Percent of people with AIDS who survive for more than 10 years	PISCIS Cohort	Biennial	1998-2012	Global	25	
Total annual case-fatality rate due to HIV	Notifiable Diseases Register of Catalonia (Mortality Register) <sup>32</sup>	Annual	2008	Global	2.7	
HIV-specific mortality rate (per 100,000 inhabitants)	Notifiable Diseases Register of Catalonia (Mortality Register and Idescat) <sup>32 33</sup>	Annual	2008	Global	1	
				Sex	Male	1.8
					Female	0.3
Mortality rate in HIV patients per 1000 person-year	PISCIS Cohort	Biennial	1998-2012	Global	17.3	
				Sex	Male	18.7
					Female	12.9
				Population group	PWID	29.1
					MSM	7
					Heterosexual male	21
					Heterosexual female	7.2
Others	22.2					



MORBIDITY DUE TO HIV/AIDS						
Indicator	Source	Periodicity	Latest update	Stratified by	Indicator value	
Annual number of new AIDS cases	Notifiable Diseases Register of Catalonia	Annual	2013	Global	150	
				Sex	Male	125
					Female	25
				Age	<19	0
					20-29	17
					30-39	38
					40-49	60
					≥50	35
				Population group	PWID	34
					MSM	59
					Heterosexual male	28
					Heterosexual female	17
Unknown	11					
Origin <sup>†</sup>	Spanish	94				
	Outside Spain	56				
Estimated number of people living with HIV/AIDS	Spectrum/EPP	Annual	2014	Global	34,200	
				Sex	Male	27,200
					Female	7000
AIDS incidence rate (per 100,000 inhabitants)	Notifiable Diseases Register of Catalonia	Annual	2013	Global	2.1	
				Sex	Male	3.5
					Female	0.7
Estimated prevalence of HIV in people aged over 15 years	Spectrum/EPP	Annual	2014	Global	0.41	
				Sex	Male	0.66
					Female	0.17
<b>GARP INDICATOR 1.6 and ECDC INDICATOR.</b> Percentage of young people aged 15-24 estimated to be living with HIV*	Spectrum/EPP	Annual	2014	Global	0.12	
<b>GARP INDICATOR 1.14 and ECDC INDICATOR.</b> Percentage of MSM who are living with HIV <sup>o</sup>	Sentinel populations and behavioural surveillance	Biennial	2013	Global	14.2	

<b>GARP INDICATOR 1.10 and ECDC INDICATOR.</b> Percentage of sex workers who are living with HIV [adaptation: female SW]	Sentinel populations and behavioural surveillance	Biennial	2011	Global	1.5	
<b>GARP INDICATOR 2.5 and ECDC INDICATOR.</b> Percentage of PWID who are living with HIV	Sentinel populations and behavioural surveillance	Biennial	2012-2013	Global	30.6	
<b>GARP INDICATOR 3.3.</b> Mother-to-child transmission of HIV [adaptation: unmodelled]	NENEXP Cohort	Annual	2013	Global	0	
Percentage of blood donors living with HIV	Sentinel populations	Annual	2013	Global	0.01	
Percentage of prison inmates living with HIV	Sentinel populations	Annual	2013	Global	8.9	
Percentage of pregnant women living with HIV	Sentinel populations	Annual	2013	Global	0.1	
<b>GARP INDICATOR 3.2.</b> Percentage of infants born to HIV-positive women receiving a virological test for HIV at 2 months [adaptation: mothers were tested for HIV before giving birth]	NENEXP Cohort	Annual	2013	Global	100	
<b>GARP INDICATOR 3.1.</b> Percentage of HIV-positive pregnant women who receive antiretrovirals to reduce the risk of mother-to-child transmission [adaptation: annual percentage of newborns born to HIV-positive women and exposed to antiretrovirals during pregnancy, birth and for 48 hours after birth].	NENEXP Cohort	Annual	2013	Global	98.3	
Estimated number of new HIV infections	Spectrum/EPP	Annual	2014	Global	600-1170	
Estimated annual incidence rate of HIV	Spectrum/EPP	Annual	2014	Global	0.01	
				Sex	Male	0.02
					Female	0.005

Annual incidence rate of HIV in new diagnoses (per 1000 persons/year)	HIVLABCAT and AERI	Annual	1998-2011	Global	0.2	
Cumulative incidence rate of HIV in MSM (per 100 persons/year)	ITACA Cohort	Biennial	2008-2011	Global	2.4	
				Origin <sup>†</sup>	Spanish	1.7
					Outside Spain	3.7
Annual number of new HIV diagnoses	Notifiable Diseases Register of Catalonia	Annual	2013	Global	808	
				Sex	Male	700
					Female	108
				Age	<19	19
					20-29	206
					30-39	310
					40-49	175
					≥50	98
				Population group	PWID	53
					MSM	473
					Heterosexual male	121
					Heterosexual female	81
					Unknown	80
				Health region	Terres de l'Ebre	10
					Tarragona	37
Lleida-Alt Pirineu and Aran	33					
Girona	51					
Catalunya Central	30					
Barcelona Nord and Maresme	50					
Barcelona Sud	106					
Barcelona Centre	56					

					Barcelona Ciutat	433
Annual distribution of new HIV diagnoses (%)	Notifiable Diseases Register of Catalonia	Annual	2013	Sex	Male	87
					Female	13
				Age	<19	2.4
					20-29	25.5
					30-39	38.4
					40-49	21.7
					≥50	12
				Population group	PWID	6.6
					MSM	58.5
					Heterosexual male	15
Heterosexual female	10					
				Unknown	9.9	
Rate of new HIV diagnoses (per 100,000)	Notifiable Diseases Register	Annual	2013	Global	11.1	

inhabitants)	of Catalonia			Sex	Male	19.7
					Female	2.9
Percentage of new HIV diagnoses with contact tracing initiated	Notifiable Diseases Register of Catalonia	Annual	2013	Global	47	

° The data for 2013 are preliminary, since the probabilities of the selection of persons in a weighted analysis were not taken into account. \* The percentage is estimated based on the total population aged 15-24 years on 1 January, 2011, according to Idescat data. † The "Outside Spain" category refers to persons born outside Spain.

SEXUALLY TRANSMITTED INFECTIONS						
Indicator	Source	Periodicity	Latest update	Stratified by	Indicator value	
Annual number of new diagnoses of LGV	Notifiable Diseases Register of Catalonia	Annual	2014	Global	144	
				Sex	Male	144
					Female	0
				Age	15-19	0
					20-24	3
					25-29	17
					30-39	66
40-49	49					

				Health region	Terres de l'Ebre	0
					Tarragona	2
					Lleida-Alt Pirineu and Aran	0
					Girona	1
					Catalunya Central	1
					Barcelona Nord and Maresme	3
					Barcelona Ciutat	111
					Costa de Ponent	16
					Vallès Occ. and Or.	10
Incidence rate of LGV per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	2.0	
				Sex	Male	4.0
					Female	—
				Age	15-19	0
					20-24	0.9
					25-29	4.1
					30-39	5.5
40-49	4.2					

Percentage of new LGV diagnoses with contact tracing initiated	Notifiable Diseases Register of Catalonia	Annual	2014	Global	69	
Annual number of new diagnoses of gonorrhoea	Notifiable Diseases Register of Catalonia	Annual	2014	Global	1555	
				Sex	Male	867
					Female	121
				Age	15-19	104
					20-24	275
					25-29	289
					30-39	549
40-49	241					
Health region	Terres de l'Ebre	11				

					Tarragona	48
					Lleida-Alt Pirineu and Aran	9
					Girona	95
					Catalunya Central	48
					Barcelona Nord and Maresme	125
					Barcelona Ciutat	837
					Costa de Ponent	185
					Vallès Occ. and Or.	197
Incidence rate of gonorrhoea per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	21	
				Sex	Male	37
					Female	6
				Age	15-19	32
					20-24	81
					25-29	69
					30-39	45
40-49	21					

Percentage of new diagnoses of gonorrhoea infection with contact tracing initiated	Notifiable Diseases Register of Catalonia	Annual	2014	Global	60	
Annual number of new diagnoses of syphilis	Notifiable Diseases Register of Catalonia	Annual	2014	Global	902	
				Sex	Male	784
					Female	118
				Age	15-19	14
					20-24	72
					25-29	145
30-39	340					
40-49	211					

				Health region	Terres de l'Ebre	8
					Tarragona	48
					Lleida-Alt Pirineu and Aran	19
					Girona	40
					Catalunya Central	19
					Barcelona Nord and Maresme	54
					Barcelona Ciutat	512
					Costa de Ponent	139
					Vallès Occ. and Or.	64
Syphilis incidence rate per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	12	
				Sex	Male	22
					Female	3
				Age	15-19	4
					20-24	21
					25-29	35
					30-39	28
35-44	18					

Percentage of new diagnoses of syphilis infection with contact tracing initiated	Notifiable Diseases Register of Catalonia	Annual	2014	Global	60	
Annual number of new diagnoses of neonatal conjunctivitis	Notifiable Diseases Register of Catalonia	Annual	2014	Global	8	
Rate of incidence of neonatal conjunctivitis per 100,000 newborns	Notifiable Diseases Register of Catalonia	Annual	2014	Global	14	
Annual number of new diagnoses of congenital syphilis	Notifiable Diseases Register of Catalonia	Annual	2014	Global	0	
Annual number of new diagnoses of chlamydia	Notifiable Diseases Register of Catalonia	Annual	2014	Global	943	
				Health region	Terres de l'Ebre	11



					Tarragona	11
				Global	7,458	
Annual number of new diagnoses of condylomas	Notifiable Diseases Register of Catalonia	Annual	2014	Health region	Terres de l'Ebre	119
						47
					Tarragona	353
						18
					Lleida-Alt Pirineu and Aran	355
						79
					Girona	564
						521
Incidence rate of chlamydia per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014		Catalunya Central	373
						99
					Barcelona Nord and Maresme	744
						2119
					Barcelona Ciutat	2119
					Costa de Ponent	1713
					Vallès Occ. and Or.	1118

Incidence rate of condylomas per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	102	
Annual number of new diagnoses of trichomoniasis	Notifiable Diseases Register of Catalonia	Annual	2014	Global	837	
				Health region	Terres de l'Ebre	
					Tarragona	
					Lleida-Alt Pirineu and Aran	
					Girona	
					Catalunya Central	
					Barcelona Nord and Maresme	
					Barcelona Ciutat	
					Costa de Ponent	
Vallès Occ. and Or.						

Incidence rate of trichomoniasis per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	11	
Annual number of new diagnoses of genital herpes	Notifiable Diseases Register of Catalonia	Annual	2014	Global	3376	
				Health region	Terres de l'Ebre	
					Tarragona	
					Lleida-Alt Pirineu and Aran	
					Girona	
					Catalunya Central	
					Barcelona Nord and Maresme	
					Barcelona Ciutat	
Costa de Ponent						
Vallès Occ. and Or.						
Incidence rate of genital herpes per 100,000 inhabitants	Notifiable Diseases Register of Catalonia	Annual	2014	Global	46	
Percentage of chlamydia in young people aged <25	Sentinel population (ASSIR)	Biennial	2012	Global	8.5	
				Sex	Male	2.2
	Female	9.1				
	Sentinel population (prisons)	Biennial	2014	Global	7.5	
Sex				Male	6.6	
	Female	12.1				
Number of cases of STI in the general and vulnerable population	RITS	Annual	2013	Global	3001	
				Population group	MSM	1053
					SW	69
SW client	47					
Percentage of cases with STI in the general and vulnerable population	RITS	Annual	2013	Global	39.0	
				Population group	MSM	35.1
					SW	2.3
					SW client	1.6

Number of cases diagnosed with an STI who are also infected with HIV	RITS	Annual	2013	Global	361	
				Sex	Male	359
					Female	2
				Age	<30	88
					≥30	273
				Population group	Homo/bisexual	374
Heterosexual	13					
Percentage of cases diagnosed with an STI who are also infected with HIV	RITS	Annual	2014	Global	12	
				Sex	Male	22.3
					Female	0.14
				Age	<30	6.7
					≥30	17.4
				Population group	Homo/bisexual	33
	Heterosexual				0.7	
	Notifiable Diseases Register of Catalonia			Global	Syphilis: 23	
					Gonorrhoea: 12	
					LGV: 69	
Number of cases with a concomitant diagnosis of STI/HIV	RITS	Annual	2013	Global	57	
Percentage of cases with a concomitant diagnosis of STI/HIV	RITS	Annual	2013	Global	1.9	
Number of cases diagnosed with a new STI who were previously diagnosed with an STI in the preceding year	RITS	Annual	2013	Global	336	
				Sex	Male	253
					Female	83
				Age	<30	162
					≥30	174
				Population group	Homo/bisexual	220
Heterosexual	116					

Percentage of cases diagnosed with a new STI who were previously diagnosed with an STI in the preceding year	RITS	Annual	2013	Global	11.2	
				Sex	Male	15.7
					Female	6
				Age	<30	11.3
					≥30	11.1
				Population group	Homo/bisexual	20.9
Heterosexual	6					
Number of cases diagnosed with an STI with high risk behaviours in the preceding year	RITS	Annual	2013	Global	1714	
				Sex	Male	1060
					Female	654
				Age	<30	815
					≥30	899
				Population group	Homo/bisexual	745
Heterosexual	969					
Percentage of cases diagnosed with an STI with high risk behaviours in the preceding year	RITS	Annual	2013	Global	57.1	
				Sex	Male	65.8
					Female	47
				Age	<30	56.8
					≥30	57.4
				Population group	Homo/bisexual	70.8
Heterosexual	49.9					
<b>ECDC INDICATOR.</b> Mean number of sexual partners in the previous 12 months in people diagnosed with an STI	RITS	Annual	2013	Global	11	
Number of cases diagnosed with an STI who have had concurrent/single sexual partners in the previous 12 months	RITS	Annual	2013	Global	Concurrent: 303	
					Single: 695	
Percentage of cases diagnosed with an STI who have had concurrent/single sexual partners in the previous 12 months	RITS	Annual	2013	Global	Concurrent: 10.1	
					Single: 23.2	

Number of cases who had a new sexual partner in the 3 months before the STI diagnosis	RITS	Annual	2013	Global	1073	
				Sex	Male	866
					Female	207
				Age	<30	483
					≥30	590
Population group	Homo/bisexual	664				
	Heterosexual	409				
Percentage of cases who had a new sexual partner in the 3 months before the STI diagnosis	RITS	Annual	2013	Global	35.8	
				Sex	Male	53.8
					Female	14.9
				Age	<30	33.7
					≥30	37.7
Population group	Homo/bisexual	63.1				
	Heterosexual	21				
Number of sexual practices reported by people diagnosed with an STI, by type of sexual practice	RITS	Annual	2013	Global	Vaginal: 937	
					Oral: 896	
					Oral/anal: 81	
					Anal: 451	
Percentage of sexual practices reported by people diagnosed with an STI, by type of sexual practice	RITS	Annual	2013	Global	Vaginal: 31.2	
					Oral: 29.9	
					Oral/anal: 2.7	
					Anal: 15	
Number of cases diagnosed with an STI who reported using a condom at last sex	RITS	Annual	2013	Global	433	
				Sex	Male	212
					Female	221
				Age	<30	212
					≥30	221
Population group	Homo/bisexual	162				
	Heterosexual	271				

ECDC INDICATOR. Percentage of cases diagnosed with an STI who reported using a condom at last sex	RITS	Annual	2013	Global	14.4	
				Sex	Male	13.2
					Female	15.9
				Age	<30	14.8
					≥30	14.1
Population group	Homo/bisexual	15.4				
	Heterosexual	13.9				
Number of cases diagnosed with an STI with contact tracing initiated	RITS	Annual	2013	Global	1680	
				Sex	Male	1039
					Female	641
				Age	<30	790
					≥30	890
Population group	Homo/bisexual	650				
	Heterosexual	1030				
Percentage of cases diagnosed with an STI with contact tracing initiated	RITS	Annual	2013	Global	56	
				Sex	Male	64.5
					Female	46.1
				Age	<30	55.1
					≥30	56.8
Population group	Homo/bisexual	61.7				
	Heterosexual	53				
Number of STIs by type of health service	RITS	Annual	2013	Global	ASSIR: 1279	
					EAP: 32	
					UITS: 1689	
Distribution of STIs by type of health service (%)	RITS	Annual	2013	Global	ASSIR: 42.6	
					EAP: 1.1	
					UITS: 56.3	

BEHAVIOURAL DETERMINANTS						
Indicator	Source	Periodicity	Latest update	Stratified by	Indicator value	
<b>General Population</b>						
<b>GARP INDICATOR 1.3.</b> Percentage of people aged above 16 who have had sexual intercourse with more than one partner in the past 12 months	<i>Survey of health and sexual habits.</i> Ministry of Health and Social Policy <sup>34</sup>	One-off	2009	Sex	Male	21.4
					Female	8.5
<b>GARP INDICATOR 1.4 and ECDC INDICATOR.</b> Percentage of people aged above 16 who have had sexual intercourse with more than one partner in the past 12 months and who reported the use of a condom during their last intercourse [adaptation: use of condom with casual partner]	<i>Survey of health and sexual habits.</i> Ministry of Health and Social Policy <sup>34</sup>	One-off	2009	Sex	Male	75.1
					Female	75
<b>MSM</b>						
<b>ECDC INDICATOR.</b> Percentage of MSM who correctly identify preventive measures for HIV sexual transmission and reject incorrect methods [adaptation: EMI indicator of knowledge of HIV transmission routes]*	Behavioural surveillance	Biennial	2010	Global	44.5	
<b>GARP INDICATOR 1.12 and ECDC INDICATOR.</b> Percentage of MSM reporting the use of a condom the last time they had anal sex with a partner [adaptation: among those who have had anal sex in the previous 12 months]	Behavioural surveillance	Biennial	2013	Global	68.7	
<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for anal sex with stable MSM partners in the previous 12 months	Behavioural surveillance	Biennial	2013	Global	55.6	
<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for anal sex with casual MSM partners in the previous 12 months	Behavioural surveillance	Biennial	2013	Global	37.7	

<sup>34</sup> Resultados de la encuesta nacional de salud sexual 2009. [Madrid]: Ministerio de Sanidad y Política Social; [2009].



Prevalence of unprotected anal sex with a stable partner of unknown or discordant serology status in MSM in the previous 12 months	Behavioural surveillance	Biennial	2010	Global	10.7
<b>ECDC INDICATOR.</b> Percentage of MSM who have paid for sex in the previous 12 months [adaptation: previous 6 months have been considered]	Behavioural surveillance	Biennial	2010	Global	7.4
Percentage of MSM who have been paid for sex in the previous 12 months	Behavioural surveillance	Biennial	2010	Global	4.7
<b>SW</b>					
<b>GARP INDICATOR 1.8 and ECDC INDICATOR.</b> Percentage of sexual workers reporting the use of a condom with their most recent client [adaptation: female SW in the previous 6 months, by type of client (stable or not stable)]	Behavioural surveillance	Biennial	2011	Global	Stable client: 91.1; not stable: 99.2
<b>ECDC INDICATOR.</b> Percentage of sexual workers who reported using a condom at last sex with a stable partner in the previous 12 months [adaptation: previous 6 months have been considered].	Behavioural surveillance	Biennial	2011	Global	8.5
<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for sex with clients in female SW in the previous 6 months	Behavioural surveillance	Biennial	2011	Global	90.1
<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for sex with a stable partner in SW in the previous 6 months	Behavioural surveillance	Biennial	2011	Global	5.6
<b>PWID</b>					
<b>GARP INDICATOR 2.2 and ECDC INDICATOR.</b> Percentage of PWID who report the use of a condom at last sexual intercourse [adaptation: sexual intercourse in the previous 6 months, by type of partner]	Behavioural surveillance	Biennial	2012-2013	Global	Stable partner 38.8; casual partner: 74.6

<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for sex with stable partners in PWID in the previous 6 months	Behavioural surveillance	Biennial	2012-2013	Global	29.3	
<b>ECDC INDICATOR.</b> Prevalence of consistent use of a condom for sex with a casual partner in PWID in the previous 6 months	Behavioural surveillance	Biennial	2012-2013	Global	63	
<b>GARP INDICATOR 2.3.</b> Percentage of PWID who reported using sterile equipment the last time they injected [adaptation: the constant use of sterile syringes within the last 6 months is considered]	Behavioural surveillance	Biennial	2012-2013	Global	87.3	
<b>YOUNG PEOPLE (under-25s)</b>						
Mean age at first sex	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	16.6	
				Sex	Male	16.7
	Female	16.5				
	Sentinel populations (ASSIR)	Biennial	2012	Global	16	
Sentinel populations (Prisons)	Biennial	2014	14			
<b>GARP INDICATOR 1.2.</b> Percentage of men and women aged 15-24 who have had their first sexual intercourse before the age of 15	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	12.3	
Percentage of young people who have had penetrative sex (anal or vaginal)	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	79.8	
				Sex	Male	76.1
Female	83.3					
<b>ECDC INDICATOR.</b> Mean number of sexual partners in the previous 12 months	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	2.1	
	Sentinel populations (ASSIR)	Biennial			2	
	Sentinel populations (Prisons)	Biennial	2014		2.2	

<b>ECDC INDICATOR.</b> Percentage of young sexually active heterosexuals who used a condom at last sex in the previous 12 months	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	66.2	
	Sentinel populations (ASSIR)	Biennial			52	
	Sentinel populations (Prisons)	Biennial	2014		21.3	
Percentage of cases diagnosed with an STI who reported using a condom at last sex	Sentinel populations (ASSIR)	Biennial	2012	Global	39.5	
	Sentinel populations (Prisons)	Biennial	2014		4.2	
Prevalence of contraceptive use at last sex <sup>o</sup>	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	89.7	
				Sex	Male	91
					Female	88.4
Use of emergency contraception at least once <sup>oo</sup>	Behavioural surveillance <sup>+</sup>	One-off	2012	Global	Female	49.2
Teenage pregnancy rate (<20) (%)	<i>Perinatal Health Indicators in Catalonia (Informe Indicadors de salut perinatal a Catalunya)</i> report, Department of Health; <i>Natural Population Movement (Moviment natural de la població)</i> , Idescat <sup>35 36</sup>	Annual	2012	Global	2.3	
<b>GARP INDICATOR 1.1.</b> Percentage of women and men aged 15–24 who correctly identify HIV sexual transmission routes and reject major misconceptions about HIV transmission* [adaptation: correctly answer to using a condom, mosquito bite, drinking from the same glass. Having relations within the couple was not included].	<i>Survey of health and sexual habits (Encuesta de salud y hábitos sexuales)</i> , National Statistics Institute <sup>37</sup>	One-off	2003	Global	70.8	

\* This indicator may be underestimated because of the way the EMIS indicator is built (correctly answer the five items of knowledge of HIV transmission.) + The indicators for young people derived from behavioural surveillance are part of the "Youth, health and the Internet" project funded by the Catalan Institute of Oncology. <sup>o</sup>Among those who ever had sex (considered methods are oral contraceptives, IUD, diaphragm, condom, tubal ligation, rhythm method and others; withdrawal is excluded). <sup>oo</sup> Among those who have ever had sex.

RESPONSE						
Diagnosis						
Indicator	Source	Periodicity	Latest update	Stratified by	Indicator value	
Number of diagnostic HIV tests performed annually in saunas	Public Health Agency of Catalonia	Annual	2012-2013	Global	463	
Number of diagnostic HIV tests performed in pharmacies	Programme for Treatment and Prevention of AIDS, Department of Health	Annual	2014	Global	1578	
Number of tests performed annually in HIV antibody anonymous detection centres	HIVDEVO	Annual	2014	Global	10,868	
Number of diagnostic HIV tests performed annually by the network of laboratories in Catalonia	VIHLABCAT	Annual	2014	Global	258,483	
Rate of diagnostic HIV tests performed annually by the network of laboratories in Catalonia (per 1000 inhabitants)	VIHLABCAT	Annual	2014	Global	34.8	
				Health region	Terres de l'Ebre	18.8
					Tarragona	25.1
					Lleida	32.8
					Girona	21.5
					Catalunya Central	34.0
					Barcelona	38.7
Alt Pirineu and Aran	-					

<sup>35</sup> Jané Checa M, Vidal Benedé MJ, Tomás Bonodo Z. Indicadors de salut perinatal a Catalunya. 2012. Full report. Barcelona: Agència de Salut Pública de Catalunya; 2013.

<sup>36</sup> Moviment Natural de Població. Institut d'Estadística de Catalunya; 2012.

<sup>37</sup> Instituto Nacional de Estadística. Encuesta de Salud y Hábitos Sexuales. Madrid: INE, 2003.

Percentage of positive diagnostic tests of those performed by the network of laboratories in Catalonia	VIHLBCAT	Annual	2014	Global	0.7	
				Health region	Terres de l'Ebre	0.2
					Tarragona	0.3
					Lleida	0.5
					Girona	0.2
					Catalunya Central	0.2
					Barcelona	0.9
Alt Pirineu and Aran	-					
Percentage of positive diagnostic tests performed in HIV antibody anonymous detection centres	HIVDEVO	Annual	2014	Global	2.0	
<b>GARP INDICATOR 1.5 and ECDC INDICATOR.</b> Percentage of people aged 15-49 who received an HIV test in the past 12 months and know their results	<i>Survey of health and sexual habits (Encuesta de salud y hábitos sexuales), National Statistics Institute<sup>37</sup></i>	One-off	2003	Global	6.4	
<b>GARP INDICATOR 1.9 and ECDC INDICATOR.</b> Percentage of sexual workers who have received an HIV test in the past 12 months and know their results [adaptation: female SW]	Behavioural surveillance	Biennial	2011	Global	67.8	
<b>GARP INDICATOR 1.13 and ECDC INDICATOR.</b> Percentage of MSM who have received an HIV test in the past 12 months and know their results	Behavioural surveillance	Biennial	2013	Global	63.6	
<b>GARP INDICATOR 2.4 and ECDC INDICATOR.</b> Percentage of PWID who have received an HIV test in the past 12 months and know their results	Behavioural surveillance	Biennial	2012-2013	Global	70.4	

Percentage of late diagnosis*	PISCIS Cohort	Biennial	1998-2012	Global	43.1	
				Sex	Male	45
					Female	28.8
				Age	13-24	23.1
					25-44	42.7
					45-49	52.6
					≥50	59.6
				Population groups	PWID	61.5
					MSM	38.4
					Heterosexual male	67.7
	Heterosexual female	28.6				
	Others/RNQ	50.0				
	Notifiable Diseases Register of Catalonia	Annual	2013	Global	42.0	
				Sex	Male	42.2
Female					40.7	
Age				13-24	20	
				25-44	40	
				45-49	64	
				≥50	63	
Population groups				PWID	50	
				MSM	38.0	
				Heterosexual male	55	
	Heterosexual female	40				
Percentage of people with a new diagnosis of HIV with recent infection	AERI	Annual	2011	Global	34.6	
*New infections diagnosed with a CD4 count of < 350 mm <sup>3</sup> .						

Treatment						
Percentage of patients who survive for 5 years after starting treatment	PISCIS Cohort	Biennial	1998-2012	Global	92.6	
					Late diagnosis	91
					No late diagnosis	96.8
Life expectancy of patients who start treatment (in years)	PISCIS Cohort	Biennial	1998-2012	Global	At age 20	40.5
					At age 35	30
Potential life years lost due to HIV before age 65 in patients who initiate treatment (per 1000 person-year)	PISCIS Cohort	Biennial	2010-2012	Global	303.8	
<b>GARP INDICATOR 4.1.</b> Percentage of eligible adults and children currently receiving ART [adaptation: % of adults]	PISCIS Cohort	Biennial	2012	Global	92.4	
<b>GARP INDICATOR 4.2.</b> Percentage of adults and children with HIV known to be on treatment 12 months after initiation of ART [adaptation: % of adults]	PISCIS Cohort	Biennial	2010-2012	Global	89.2	
Percentage of patients with an undetectable viral load 6 months after starting treatment	PISCIS Cohort	Biennial	2010-2012	Global	94.9	
Life years gained in adults due to the treatment of the total population since the start of the epidemic	Spectrum/EPP	Annual	Up to 2014	Global	21,163	
Percentage of transmitted resistance in people with recent infection	AERI	Annual	2005	Global	11	
Percentage of non-B subtypes in people with recent infection	AERI	Annual	2005	Global	19.2	

<b>GARP INDICATOR 5.1.</b> Percentage of incident TB cases in HIV-positive people that receive treatment for both TB and HIV [adaptation: TB treatment compliance in HIV infected people]	<i>Annual Report on the epidemiological situation and the trend in the tuberculosis epidemic in Catalonia (Informe anual sobre la situació epidemiològica i la tendència de l'epidèmia tuberculosa a Catalunya), Public Health Agency of Catalonia</i> <sup>38</sup>	Annual	2011	Global	65
<b>GARP INDICATOR 1.11.</b> Percentage of MSM reached by prevention programmes	Behavioural surveillance	Biennial	2010	Global	69.5
<b>GARP INDICATOR 1.7.</b> Percentage of SW reached by prevention programmes	Behavioural surveillance				Not available
<b>GARP INDICATOR 2.1.</b> Number of syringes distributed per PWID and year according to syringe-exchange programmes (syringe per injector-year) [adaptation: the number of injectors has been estimated]	Sub-Directorate General of Drug Dependence.	Biennial	2013	Global	136-145

<sup>38</sup> Rodés Monegal A, Jané Checa M, López Espinilla MM, García Lebrón M. Informe anual 2012. Situació epidemiològica i tendència de l'epidèmia tuberculosa a Catalunya. Prevenció i control de la tuberculosi a Catalunya. Barcelona: Agència de Salut Pública de Catalunya; 2014.



Other sexual and reproductive health indicators						
Prevalence of contraceptive use in women of child-bearing age between 15 and 49 years [adaptation: Spain overall]	<i>Seventh contraception survey in Spain (VII encuesta de anticoncepción en España)</i> , Daphne Group <sup>39</sup>	One-off	2011	Global	75	
Use of emergency contraception at least once in women aged 15-49	<i>A population survey on the use of and opinion about emergency contraception (Encuesta poblacional sobre uso y opinión de la píldora postcoital)</i> , Spanish Society of Contraception <sup>40</sup>	One-off	2011	Global	15.4	
Average age for having first child	<i>Natural population movement (Moviment natural de la població)</i> , Idescat <sup>36</sup>	Annual	2012	Global	30.1	
Percentage of Caesarean section births	<i>Natural population movement (Moviment natural de la població)</i> , Idescat <sup>36</sup>	Annual	2012	Global	27	
Total abortion rate (terminations of pregnancy per woman) <sup>††</sup>	<i>Termination of pregnancy statistics (Estadística de la interrupció voluntària de l'embaràs)</i> , Department of Health <sup>41</sup>	Annual	2012	Origin <sup>†</sup>	Spain	0.3
					Outside Spain	0.7
Total fertility rate (children per woman) <sup>††</sup>	<i>Natural population movement (Moviment natural de la població)</i> , Idescat <sup>36</sup>	Annual	2012	Origin <sup>†</sup>	Spain	1.1
					Outside Spain	1.6

<sup>39</sup> Equipo Daphne. VII Encuesta de Anticoncepción en España. [Madrid]: Bayer Healthcare; [2011].

<sup>40</sup> SIGMADOS. Encuesta poblacional sobre uso y opinión de la píldora postcoital. Madrid: Sociedad Española de Contracepción; 2011.

<sup>41</sup> Servei d'Informació i Estudis. Estadística de la interrupció voluntària de l'embaràs. Catalonia, 2012. [Barcelona]: Generalitat de Catalunya, Departament de Salut; 2013.

Complementary indicators					
<b>GARP INDICATOR 7.2.</b> Proportion of ever-married or partnered women aged 15-49 who experienced physical or sexual violence from an intimate partner in the past 12 months [adaptation: police reports of gender-based violence]	<i>Monthly Statistical Bulletin on violence against women (Boletín Estadístico Mensual sobre Violencia de Género), Ministry of Health, Social Services and Equality<sup>42</sup></i>	Annual	2013	Global	12.9
<b>INDICATOR 6.1.</b> Domestic and international AIDS spending by categories and financing sources (€) [adaptation: annual funding for HIV prevention activities in Catalonia]	<i>Evaluation report of the Multisectorial HIV-AIDS Plan 2008-2012 (Informe de Evaluación del Plan Multisectorial de VIH-SIDA 2008-2012), Ministry of Health, Social Services and Equality<sup>43</sup></i>	Annual	2011	Global	653,187
<b>GARP INDICATOR 7.1.</b> National Commitments and Policy Instruments					In preparation
<b>GARP INDICATOR 7.3.</b> School attendance among orphans and non-orphans aged 10–14					Not applicable
<b>GARP INDICATOR 7.4.</b> Proportion of the poorest households who received external economic support in the last 3 months					Not applicable

RNQ: risk not qualified;

†† The "Outside Spain" category refers to people with a nationality different to Spanish.

<sup>42</sup> Boletín estadístico mensual sobre violencia de género. August 2014. [Madrid]: Ministerio de Sanidad, Servicios Sociales e Igualdad; 2014.

<sup>43</sup> Informe de Evaluación del Plan Multisectorial de VIH-SIDA 2008-2012. Madrid: Ministerio de Sanidad, Política Social e Igualdad, Dirección General de Salud Pública, Calidad e Innovación; 2013.

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**Sources of  
information**

## 5.1. MDO Register

The MDO Register is fed by both the weekly aggregate or individualised notification by healthcare professionals when a patient with clinical signs or suspicion of a notifiable STI presents. A new decree unifies all the regulations existing hitherto in this matter. It is Decree 67/2010, of May 25, that regulates the system of notifiable diseases and the reporting of outbreaks to the Department of Health.

The *Notifiable Disease case-defining documents* and the *Disease Notification Manual* are available at this link, in the *Notifiable Diseases* section:

[http://canalsalut.gencat.cat/ca/home\\_professionals/temes\\_de\\_salut/vigilancia\\_epidemiologica/](http://canalsalut.gencat.cat/ca/home_professionals/temes_de_salut/vigilancia_epidemiologica/)

### 5.1.1. Aggregate reporting

Aggregate reports should be filed weekly (the week starts at midnight on Sunday and ends at midnight the following Saturday).

STIs aggregate reports are received for: genital chlamydia infection, condyloma acuminata, genital herpes, trichomoniasis, ophthalmia neonatorum and for the sum of other STIs.

### 5.1.2. Case notification

Some diseases should be reported individually in order to allow epidemiological action and immediate control. Individual case notification is undertaken when the disease is detected by the completion of a case notification form. The data collected on the form are confidential and are used exclusively for public health purposes.

Sexually transmitted infections that should be notified on a by-case basis include, since 1997, congenital syphilis and, since 2007, infectious syphilis, gonorrhoea and LGV. Moreover, AIDS has been subject to individual notification since 1987, whereas HIV infection was subject to voluntary notification between 2001 and 2010. With the publication of the Decree 67/2010, of May 25, HIV became statutorily notifiable and formed part of the epidemiological surveillance circuits of Catalonia.

## 5.2. The Catalan Laboratory Notification System (SNMC)

The SNMC is based on the collection of microbiological information for the selected aetiological diagnoses that are reported voluntarily by different reference hospital laboratories. Currently, a total of 50 hospital laboratories from different geographical areas of Catalonia report to the SNMC. The notified microorganisms are classified in 11 clinical syndromes:

- mycobacterial infections
- STIs
- meningoenzephalitis
- respiratory infections
- enteritis
- bacteraemia without apparent source
- other infectious diseases
- invasive pneumococcal infection
- invasive meningococcal infection
- invasive *Haemophilus influenzae* disease
- listeriosis

The Department of Health publishes, in the Health Channel (Canal Salut), in the *Microbiological Information (Notificació microbiològica)* section, all the information gathered by the SNMC: participating centres, a list of microorganisms and notification criteria:

[http://canalsalut.gencat.cat/ca/home\\_professionals/temes\\_de\\_salut/vigilancia\\_epidemiologica/](http://canalsalut.gencat.cat/ca/home_professionals/temes_de_salut/vigilancia_epidemiologica/)

## 5.3. Sentinel surveillance networks

Sentinel surveillance networks are used for the sentinel surveillance of HIV and other STIs and to complement the information gathered by other systems.

### 5.3.1. Sexually Transmitted Infection Register of Catalonia (RITS)

The RITS is a sentinel surveillance system of the STIs in Catalonia that is part of the Epidemiological Repository of Catalonia (REC) within the Department of Health's portal. The RITS gathers data from the voluntary notifications of 12 different STIs diagnosed by 164 sentinel professionals in 64 primary care centres Sexual and reproductive health centres (ASSIR), family medicine and specialised healthcare for STIs) in Catalonia. Demographic, clinical and behavioural information is collected on a voluntary basis using a standardised questionnaire. The target population are the incident cases of STIs from the participating primary care centres, and physicians or other health professionals notify any person with one or more diagnoses of a notifiable STIs included in the RITS. Hitherto, the RITS has complemented the aggregate notification system data to describe the situation with other STIs that cannot be described by means of the other registers.

### 5.3.2. Network of community-based voluntary counselling and testing centres in Catalonia (HIVDEVO)

Since 1994, community-based voluntary counselling and testing centres (HIVDEVO) have collected epidemiological data on the users of these services. In Catalonia, there are currently 12 centres offering free, anonymous, voluntary and confidential counselling and testing. These centres are located in Barcelona (ACASC, CJAS, BCN-Checkpoint, SAPS-Creu Roja, Stop Sida, Àmbit Prevenció and Gais Positius), Sabadell and Terrassa (Actua Vallès), Lleida (Associació Antisida de Lleida), Girona (ACAS Girona) and Tarragona (Assexora TGN and Creu Roja TGN). The tests are funded by the Department of Health of the Generalitat de Catalunya.

### 5.3.3. Catalonia Laboratory Network for HIV diagnosis (LABCAT)

In 1992, a network of laboratories was created in Catalonia which voluntarily report on diagnostic HIV testing and results. Currently, this network is comprised of hospital laboratories, primary care laboratories and private laboratories (HIVLABCAT). All the laboratories send a monthly report to CEEISCAT, notifying the total number of diagnostic tests carried out, as well as the number of new HIV diagnoses (excluding testing during blood donation screening).

## 5.4. Sentinel surveillance populations

The monitoring of sentinel populations permits the detection of variations and trends in the prevalence of HIV, other STIs and associated risk behaviours in these population groups and the distribution of these infections in Catalonia, complementing the information received from the other surveillance systems. These populations are selected to be representative, homogeneous and accessible and are intended to represent the general population as well as populations at high risk of acquiring HIV and the other STIs.

#### 5.4.1. Newborns (VIH nadó)

The estimation of the prevalence of HIV infection in pregnant women in Catalonia is undertaken through umbilical cord blood samples preserved on filter paper and systematically collected as part of the neonatal metabolic disorder screening programme. This programme covers 99% of babies born each year in Catalonia and has been running since 1994. Unlinked anonymous screening for HIV collects biological samples of almost half of live newborns.

The "VIH nadó" programme collects, along with the biological sample, additional data using a questionnaire. These data include age, country of origin of the baby's parents, province, place of residence and the baby's sex.

#### 5.4.2. Blood donors

Since 1985, all blood donations have been systematically screened for HIV in order to prevent its progressive transmission via blood or tissue transplantation. Aggregate data on HIV positivity are systematically sent to the CEEISCAT in order to calculate the positivity rate of HIV in a low-risk population. In addition, demographic variables such as age and sex are collected. The numerator is all HIV seropositive donations in a given year, and the denominator is the total number of donations collected in the same year by the Tissue Bank of Catalonia.

#### 5.4.3. Prison inmates in Catalonia

Since 1995, the SIVES has monitored the prevalence of HIV infection in the prison population through the systematic collection of anti-HIV antibody data from three prisons in Catalonia. With the positivity data, the point prevalence of HIV is calculated for age and sex for a particular day and year of the study. The numerator is all the HIV-positive inmates on a particular day and the denominator is the total prison population in the three prisons on the same day.

#### 5.4.4. Young attendees of sexual and reproductive health (ASSIR) centres, and youth care centres

As part of the monitoring of STIs and their associated risk behaviours, cross-sectional surveys are conducted biennially in a population of young people aged between 16 and 25 who have attended either ASSIR centres or youth care centres. The objective of these studies is to determine the prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* and the associated determinants of these infections. The first cross-sectional survey was performed in 2007.

The third cross-sectional survey was conducted in 2012 on a convenience sample of 500 young people. The sample was representative of attendees of the 14 centres included in the study, distributed over the healthcare regions of Barcelona, Catalunya Central, Girona and Lleida: three were youth care centres and the remaining eleven were ASSIR. The reinfection rate by *Chlamydia trachomatis* after six months of the positive baseline cases was measured. The target STIs were detected through DNA amplification techniques, real-time PCR (polymerase chain reaction) (Abbott RealTime PCR CT/NG CE) in urine samples. To calculate the prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* the number of positive samples are divided by the total number of samples tested.

All participants provided their written informed consent and were given a semi-structured, standardised questionnaire to study the determining factors of the infections. The questionnaire consisted of 40 questions grouped by socio-demographic data, partner relationships, contraception, sexual practices in the previous twelve months, other risk behaviours, drug use, medical history and reason for consultation. A descriptive analysis of all the variables was performed, followed by a multivariate logistic regression designed to explore the risk factors associated with genital infection with *Chlamydia trachomatis* to analyse the data.

#### 5.4.5. Young people in prison in Catalonia

As part of the monitoring of STIs and their associated risk behaviours, cross-sectional surveys are conducted biennially in young prison inmates aged between 18 and 25. The objective of these studies is to determine the prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* and the associated determinants of these infections in this young prison population. This survey began in 2008.

In the second half of 2014, the third cross-sectional study was performed on a convenience sample of 500 young people aged under 25 years and inmates of the Dones, Brians-1, Quatre Camins and Joves prisons. All participants gave their written informed consent and provided a urine sample for testing for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infection, and were analysed through the DNA amplification and real-time PCR (Abbott RealTime PCR CT/NG CE) techniques. The number of positive samples was divided by the total number of samples tested to calculate the prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*.

All participants provided their written informed consent and were given a semi-structured, standardised questionnaire to study the determining factors of the infections. The questionnaire consisted of 40 questions grouped by socio-demographic data, partner relationships, contraception, sexual practices in the previous twelve months, other risk behaviours, drug abuse, medical history and knowledge of STI. A descriptive analysis of all the variables was performed, followed by a multivariate logistic regression designed to explore the risk factors associated with genital infection with *Chlamydia trachomatis* to analyse the data.

#### 5.4.6. Female sex workers

Surveillance of the prevalence of HIV/STI in FSW in Catalonia was initiated in 2005, alongside monitoring of associated risk behaviours. Four cross-sectional studies have been conducted (2005, 2007, 2009 and 2011) in collaboration with the Àmbit Prevenció association. In each study, a convenience sample of 400 women over 18 years was selected and proportionally stratified by province and country of origin. Women were recruited from the street, clubs and bars all over Catalonia. All participants gave their written informed consent and behavioural information was gathered using a structured, standardised and anonymous questionnaire adapted from a questionnaire used by Doctors of the World in their 2002 study funded by the Foundation for the Investigation and Prevention of AIDS in Spain (Fundació per a la Investigació i la Prevenció de la Sida a Espanya, FIPSE).<sup>44</sup> The questionnaire was translated into Romanian, Russian and English and asked about behaviour during the previous six months. In addition, oral fluid specimens were collected anonymously to determine the prevalence of HIV infection.<sup>45</sup>

#### 5.4.7. People who inject drugs attending harm reduction centres

Surveillance for HIV and HCV in PWID and PWID-related behaviours from harm reduction centres was established in 2008. The PWID were recruited from all over Catalonia using multi-stage sampling, stratifying by type of centre (by whether the proportion of migrants was above or below 5%) and country of origin in each centre. Participants were included if they had injected drugs in the previous six months. All participants gave their written informed consent and behavioural information was gathered anonymously using a standardised questionnaire developed by the WHO<sup>46</sup> and administered by an interviewer. The questionnaire was translated into Romanian, Russian, French and English and asked about behaviour during the previous six months. In addition, oral fluid specimens were collected to determine the prevalence of HIV<sup>47</sup> and HCV infection,<sup>48</sup> respectively.

<sup>44</sup> Estébanez P, Rodríguez MA, Rodrigo J, Ramon P. Evaluación y tendencias de predictores de riesgo asociados a VIH/sida y otras ETS en trabajadoras sexuales en España. Study funded by FIPSE, 2002. Expediente 2065/99.

<sup>45</sup> Chohan BH, Lavreys L, Mandaliya KN, Kreiss JK, Bwayo JJ, Ndinya-Achola JO, et al. Validation of a modified commercial enzyme-linked immunoassay for detection of human immunodeficiency virus type 1 immunoglobulin G antibodies in saliva. ClinDiagn Lab Immunol. Març 2001;8(2):346-8.

<sup>46</sup> World Health Organization. Multi-city study on drug injecting and risk of HIV infection: a report prepared on behalf of the WHO International Collaborative Group. Geneva: WHO; 1994.

<sup>47</sup> Genscreen HIV-1|2 Assay Version 2 Bio-Rad Laboratories, Inc. 1000 Alfred Nobel Drive Hercules CA 94547 United States 5107247000. <http://www.bio-rad.com>.

<sup>48</sup> Judd A, Parry J, Hickman M, McDonald T, Jordan L, Lewis K, et al. Evaluation of a modified commercial assay in detecting antibody to hepatitis C virus in oral fluids and dried blood spots. J Med Virol. 2003;71(1):49-55.

#### 5.4.8. People who inject drugs attending treatment centres

In Catalonia, systematic monitoring of the prevalence of HIV infection by means of the systematic gathering of information in the sentinel population of PWID who initiated treatment for drug addiction in centres forming part of the Network for Care and Follow-Up of Drug Addiction (Xarxa d'Atenció i Seguiment de les Drogodependències) began in 1996. HIV testing in these centres was voluntary and used algorithms recommended by the UNAIDS/WHO to determine antibodies in this type of studies.<sup>49</sup>

#### 5.4.9. People who inject drugs interviewed on the street

Biennial surveys have been conducted since 1993 in order to monitor the evolution of the prevalence of HIV, sexual behaviours and drug use in PWID interviewed mainly in the street and in drug trading and use areas. The inclusion criterion was having injected drugs on some occasion in the previous two months (studies conducted between 1993–2004) or in the previous 6 months (study conducted in 2006). All participants gave their written informed consent and behavioural information was gathered using an anonymous standardised questionnaire managed by the interviewer and developed by the WHO, asking the respondents about their behaviour in the last six months. In addition, oral fluid specimens were collected to determine the prevalence of HIV<sup>50</sup> and HCV infection (only in the 2006 study), respectively.

#### 5.4.10. Men who have sex with men

Seven cross-sectional surveys have been conducted every two years since 1993 in conjunction with a community organisation of gay men (Stop Sida). The latest survey took place in May and June 2013. It is a multicentre study which aimed to obtain representative and reliable data on the prevalence of HIV, risk sexual behaviours and prevention needs of MSM in different European countries (SIALON II project: Capacity building in combining targeted prevention with meaningful HIV surveillance among MSM, funded by the Public Health Programme of the European Commission). The methodology used to collect the sample was time-location sampling (TLS), a quasi-probabilistic method that ensures a greater diversity of MSM in the sample in these venues.<sup>51,52</sup> Besides the behavioural information collected by means of an anonymous questionnaire, oral fluid samples are collected, with informed consent, to estimate the prevalence of HIV. Further information: <http://www.sialon.eu/>.

<sup>49</sup> Joint United Nations Programme on HIV/AIDS (UNAIDS) - WHO. Revised recommendations for the selection and use of HIV antibody tests. *Wkly Epidemiol Rec.* 21 March 1997;72(12):81-7.

<sup>50</sup> Granade TC, Phillips SK, Parekh B, Gomez P, Kitson-Piggott W, Oleander H, et al. Detection of antibodies to human immunodeficiency virus type 1 in oral fluids: a large-scale evaluation of immunoassay performance. *Clin Diagn Lab Immunol.* 1998;5(2):171-5.

<sup>51</sup> Fisher Raymond H, Ick T, Grasso M, Vaudrey J, McFerland W. Resource Guide: Time Location Sampling (TLS). San Francisco Department of Public Health HIV Epidemiology Section, Behavioral Surveillance Unit; 2007.

<sup>52</sup> Montoliu A, Ferrer L, Folch C, Esteve A, Casabona J. Planificació de un muestreo en poblaciones ocultas mediante Time Location Sampling. XXXII Meeting of the SEE and the IX Congresso da APE. Alicante, 3-6 September 2014.



## 5.5. Longitudinal observational studies

Longitudinal observational studies have played a key role in the study of HIV/AIDS infection as they allow the monitoring of patients over time. This type of epidemiological study has contributed to understanding highly relevant aspects, such as the natural history of the infection, when to start ART and explain disease progression during HAART, among many others.

### 5.5.1. PISCIS Cohort

The PISCIS Cohort is a multicentre, longitudinal and prospective study of HIV-infected subjects. Monitoring is performed according to the published clinical guidelines. The main objectives of the cohort are to study the natural history of HIV in the ART era, evaluate the efficacy of ART and study co-infections with hepatitis C and hepatitis B. All patients with HIV over-16 who have been monitored for the first time in one of the fourteen hospitals that participate in Catalonia and the Balearic Islands since January 1998, regardless of disease stage or degree of immunosuppression, were recruited. 14,673 HIV-positive patients were recruited between January 1998 and December 2011 (73,726 persons/year of follow-up). Ethical approval was given by the Ethics Committee of the coordinating centre, and confidentiality is guaranteed through the Data Protection Law. The PISCIS cohort actively participates in different international cohort collaborations, such as ART-CC, COHERE and HIV-Causal and is featured as a main author in research publications and projects.

Due to the technical impossibility of collecting data, the monitoring of the patients included in the PISCIS cohort has not been updated beyond April 2012.

### 5.5.2. ITACA Cohort

The ITACA cohort is a prospective longitudinal study in HIV-negative MSM and is a collaborative effort between a research centre, CEEISCAT, and the community-based centre BCN Checkpoint. It is the first cohort of MSM in Spain established in a community testing centre for HIV and other STIs.

The ITACA cohort was designed with the purpose of standardising data collection procedures to improve the operation of the community centre and establish a stable group of HIV-negative MSM with whom to develop and evaluate prevention interventions and implement epidemiological studies. After piloting the data collection instruments, the ITACA project started in 2008.

The inclusion criteria include adults who request HIV testing in BCN-Checkpoint, have a negative HIV test at the baseline visit and sign the informed consent form.

The procedures in the ITACA cohort during the first visit and the follow-up visits, at least once a year, include rapid antibody testing in blood for HIV (Determine 1/2), collection of social, demographic, behavioural and epidemiological information, through a questionnaire completed by a peer counsellor who is a member of BCN-Checkpoint, and offering exhaustive counselling based on a professional assessment of HIV infection risk.

The circuits are in place: participants who seroconvert are referred to the regular health system for appropriate monitoring and care.

### 5.5.3. NENEXP Cohort

The NENEXP cohort is a longitudinal study of HIV-positive pregnant women and their children conducted in ten hospitals in Catalonia. This study gathers information on all newborns and their mother who have been treated at participating centres that have been exposed to HIV and/or to therapeutic or prophylactic antiretroviral therapy during pregnancy, delivery or within 28 days of birth. The main objectives of the study are to determine and monitor the mother-to-child transmission rate of HIV and identify its determinants in Catalonia; to identify and monitor the adverse effects of the use of ART on pregnancy, delivery and neonatal period in pregnant woman, the unborn child and newborns in the short-, medium- and long term; to describe the sociodemographic profile of women infected with HIV who did not receive prenatal care until delivery and to identify factors in the mother, pregnancy and the newborn associated with the occurrence of adverse effects of exposure to ART during pregnancy, delivery and the first weeks of life.

## 5.6. Other projects and observational studies

### 5.6.1. Pilot study to implement HIV and HCV rapid detection testing in harm reduction programmes for people who inject drugs in Catalonia

The rapid HIV and HCV rapid detection test in harm reduction programmes for PWID can promote the identification of these infections in high-risk populations that do not seek conventional healthcare.

The objectives of this pilot study were to determine the viability and acceptability of HIV and HCV rapid testing in harm reduction programmes in Catalonia, identify the prevalence of HIV and HCV in these programmes and describe the percentage of reactive cases that are confirmed.

Between April and December 2011, rapid HCV and HIV testing in oral fluid was offered to the users of 13 harm reduction programmes (six fixed centres, five mobile units or street teams and two mixed centres). Epidemiological data were collected and the rapid tests and corresponding results were monitored.

### 5.6.2. Prevalence of HIV infection and acceptability of rapid HIV testing in patients who go to the Emergency Room

The objectives of this pilot test were to study the acceptability of rapid testing in patients who go to Emergency Rooms and to estimate the prevalence of HIV infection in this population.

This intervention study was conducted in the Emergency Room of the Hospital of Mataró (Barcelona) between July 2010 and March 2013. Two nurses offered the rapid HIV test in oral fluid to patients aged 18 to 64 that had gone to the Emergency Room and were capable of providing their informed consent for the test. The exclusion criteria were self-declared HIV infection and the incapacity to provide informed consent. The participants were included in the study by the two nurses following screening. The calculated sample was 3,000 patients.

### 5.6.3. On-line European survey for men who have sex with other men (European MSM Internet Survey, EMIS)

The EMIS Survey is part of a multi-centre project funded by the European Commission (Health Programme 2008-2013), in which over 180,000 men from 38 European countries participated and was available in 25 languages. The main objective of the EMIS was to describe the risk behaviours of MSM which expose them to HIV and other STIs within the framework of second-generation HIV surveillance. The Spanish participating centres included: CEEISCAT as associated centre, the NGO Stop SIDA, the Ministry of Health, Social Services and Equality and the National Epidemiology Centre (Centre Nacional d'Epidemiologia) of the Institute of Health Carlos III as collaborating centres. Data collection was conducted between June and August 2010 via an anonymous, confidential and self-administered online questionnaire. The survey included questions on social and demographic characteristics, stigma and discrimination, sexual behaviour with steady and casual sexual partners in the previous twelve months, sex outside Spain, sex in exchange for money and drugs, alcohol and drug consumption, knowledge of HIV/AIDS, STIs and HIV post-exposure prophylaxis, access to

information and prevention equipment, access to testing for HIV and other STIs, access to ART, HIV testing and the result of the last test, as well as previous diagnoses of STIs. These questions include 15 core indicators recommended by the ECDC to monitor risk behaviours in MSM.<sup>53</sup> The survey was promoted by the main national (Chueca, Gayromeo and Bakala) and international (Gayromeo and Manhunt) gay internet portals. Moreover, 500 posters and 10,000 cards containing information about the study were distributed nationally. It also enjoyed the support of the autonomous region's HIV programmes, the National LGBT Federation (Federació Estatal de Lesbianes, Gais, Transsexuals i Bisexuals), the Gay and Lesbian Coordinator (Coordinadora Gai-Lesbiana) and other NGOs.

#### 5.6.4. Survey in Young People

In 2012, an online survey was conducted on a sample of 800 young people aged 16 to 24 living in Catalonia. The sample was selected from a population panel of more than 70,000 people and was stratified by age, sex and province. The strata were assigned proportionally. Moreover, the population density of the municipalities of residents was regarded as a non-cross-tabulated quota to offset possible differences between the rural and urban setting (10%-14% of surveys in municipalities of less than 5000 inhabitants).

The respondents were invited individually to participate in the study by means of an exclusive recruitment process using existing databases. The panel included a series of measures designed to guarantee fieldwork quality, as well as the time taken to answer the questionnaire and the consistency of answers.

*The questionnaire was anonymous and online. The National Health and Sexual Habits Survey of 2003 by the National Statistics Institute and the National AIDS plan were taken into account to produce it, adding the indicators proposed by UNAIDS to evaluate sexual health in young people (GARP indicators: Global AIDS Response Progress Reporting, of the UNAIDS).*

#### 5.6.5. Acceptability survey of biomedical interventions for HIV prevention and ACCEPT survey

The CEEISCAT and the Stop Sida association of Barcelona promoted the state-wide study called *Acceptability and potential impact of biomedical interventions (pre-exposure prophylaxis and circumcision) for the primary prevention of HIV*, whose objective was to describe the knowledge, attitudes and behaviours and intention to use regarding biomedical interventions that have proved to be effective in the prevention of HIV in MSM.

The survey was administered in paper format at the Stop Sida association of Barcelona, Adhara in Seville and the Centre for AIDS Information and Prevention (Centre d'Informació i Prevenció de la Sida [CIPS]) of Alicante, and simultaneously via the Internet and throughout the Spanish state. ACCEPT is the name given to the survey's online branch which, in order to leverage the resources offered by the online Survey Monkey, also includes the *Acceptability and viability of using new technologies to notify a sexually transmitted infection to sexual contacts in the gay community study*.

The study was disseminated through banners posted on Spanish pro-gay websites (Bakala and Chueca). It also featured the support of non-governmental organisations and the CIPS that participate in the paper format version of the PrEP survey.

The online survey was implemented between July and November 2013, and the paper-format version was administered between June 2013 and February 2014.

The survey included questions about risk behaviours, precaution and sexual health, knowledge of and attitudes to PrEP and circumcision in gay males, bisexuals and other MSM.

<sup>53</sup> European Centre for Disease Prevention and Control. Mapping of HIV/STI behavioural surveillance in Europe. Stockholm: ECDC; 2009.

## 5.7. Modelling and projection

Modelling and projection studies can generate information that may help to understand epidemics and estimate their future course.

### 5.7.1. Spectrum/EPP 2011 estimation and projection programme

The Spectrum/EPP 2011 estimation and projection programme is a package of user-friendly applications used to model the HIV epidemic and provide health authorities with an analytical tool to support decision-making.

Spectrum/EPP 2011 was developed to understand the magnitude of the epidemic and to estimate the main HIV indicators, based upon the incidence and prevalence trends produced by the model. These indicators include the number of people living with HIV, new AIDS infections, deaths, the number of adults and children who need treatment and the impact of ART on survival. Estimates of these indicators are used by international organisations to mobilise and commit resources, as well as by countries wishing to develop their national strategic plans to identify and set treatment goals and estimate the impact of antiretroviral therapy and prevention of mother-to-child transmission at population level.

The UNAIDS Reference Group on Estimates, Modelling and Projections (<http://www.epidem.org/>) reviews the parameters used by Spectrum every 2 years. The review of these data and the incorporation of additional information makes it possible to recommend changes in the assumptions underpinning Spectrum to include the new research findings and provide the necessary indicators for the planning of national HIV programmes. Several recent updates on the progression of the HIV infection to death without therapy have benefited from the experience of the long-term cohort studies and the new treatment cohorts have provided valuable data on the effects of ART on survival.

The important data needed to generate estimates in Spectrum/EPP included the characteristics of the sub-populations (size, demographics and time in the sub-population), distribution of first- and second-line ART in the general population and sub-populations, prenatal sentinel surveillance data and survey data on the prevalence of HIV in high-risk populations. Other data required for estimation in Spectrum are the distribution of antiretroviral regimens for the prevention of mother-to-child transmission of HIV, infant feeding practices among HIV-positive mothers, the proportion of people with advanced HIV on ART per year and the distribution of cotrimoxazole and ART in children. Data on HIV prevalence are derived from the national second-generation sentinel surveillance of HIV, behavioural surveillance studies and specific studies. Details of data sources can be seen in **Table 1**.

Mathematical models in general and Spectrum software in particular are subject to limitations: some of the assumptions of Spectrum are derived from a small number of studies and may not be representative of all the key populations. The default parameters used in Spectrum are calculated primarily using data from low- and middle-income countries and may not be appropriate for models of epidemics in high-income countries. The impact of prevention programmes and the expansion of HIV testing are not included in the projections, and, although their impact on new infections is unclear, they should be taken into account when producing estimates of the incidence and prevalence of HIV.

The Spectrum/EPP 2011 model was funded primarily by the United States Agency for International Development (USAID) with technical collaboration from UNAIDS, WHO, UNICEF, the United Nations Population Division, the United States Census Bureau, the United Nations Population Fund (UNFPA) and other organisations. The programme is available in several languages for free at <http://www.futuresinstitute.org/>.

### 5.7.2. Cascade

Cascade is a visual representation of the number of HIV/AIDS who are at various stages of follow-up or on treatment for this disease.

Estimates of the number of people within each stage of the cascade are made by applying a percentage to the estimated number of people in the previous stage.

The first estimate presented is the number of people living with HIV derived from the Spectrum/EPP 2011 model.

Starting from this initial estimate it is applied in succession to the percentage of people who are diagnosed, under active follow-up, on ART and are virologically suppressed.

The percentage of undiagnosed people was derived from the European literature, since there are no direct estimates. The percentages of people under follow-up, on ART and virologically suppressed were estimated from the PISCIS cohort data.

"Under active follow-up" was defined as having had at least one follow-up visit in the hospital in the last year; "on ART" were people under active follow-up who had received ART in the same period. Finally, of the people on ART, "virologically suppressed" was defined as having a viral load < 50 copies/ml.

SIVES 2015

**Annexes**

## Annex I. Provisional data about new HIV diagnoses and AIDS cases reported in 2014 in Catalonia

### HIV diagnoses

In 2014, provisionally, 524 cases of HIV were reported.

88% of the cases were male and 12% female, with a male:female ratio of 7:1.

The mean age of the cases was 36.6 years. The group of young people between 15 and 24 account for 9.5% of the total cases reported, and there was no case under 15 years.

As for the origin of the cases, 37% of the cases were notified in people born outside the Spanish state. Of the total (196), 55% were people from Latin America and Caribbean countries. Between 2001 and 2008 there was a progressive increase in immigrants in the total number of HIV cases throughout the period analysed, which rose from 24% to 46%, respectively. As of 2008, and until 2014, the proportion of immigrants of the total HIV diagnoses stabilised.

The most frequent transmission route was that of MSM (42%), followed by heterosexual males (8%), heterosexual females (6%) and PWID (1.5%). During the 2001-2013 period, HIV diagnoses in MSM increased by 145%, rising from 193 cases in 2001 to 473 cases in 2013. In heterosexual males, HIV diagnoses fell by 38%, from 194 cases in 2001 to 121 cases in 2013, and fell by 31% in heterosexual females, from 118 cases in 2001 to 81 cases in 2013. Finally, HIV diagnoses in PWID fell by 68%, from 166 cases in 2001 to 53 cases in 2013.

### Late diagnosis

For the purpose of this report, late diagnosis (LD) of HIV infection is defined as when the CD4 cell count closest to the diagnosis was below 3350 cells/microlitre ( $\mu\text{L}$ ), and LD with advanced disease (ALD) as when the CD4 count was below 200 cells/ $\mu\text{L}$ .

Of the 524 HIV diagnoses notified in 2014, there was information about CD4 count in 429 (82%), of which 42% of the cases met LD criteria for HIV infection, 22% of whom presented ALD. There was a reduction in late diagnosis of HIV infection, which fell from 60% in 2001 to 42% in 2013.

The proportion of late diagnosis was greater in women than in men (56% and 43%, respectively) and increased with age: 14% in under 25s; 40% among those aged between 25 and 44 and 65% in over 45s. With regard to the transmission route, the highest proportion of late diagnosis was observed among PWID (628%), followed by heterosexual males and females (56% in both cases). MSM present the lowest rate of late diagnosis (37%).

### AIDS cases

In 2014, provisionally, the total number of AIDS cases notified was 93. An 83% of the cases were male and 17% female, with a male:female ratio of 5:1.

Provisionally, the most frequent aids-defining diseases in 2014 were pneumonia by *Pneumocystis jirovecii* (28.8%) and oesophageal candidiasis (15.1%).

Figure 1. Distribution of new HIV diagnoses by region of residence, 2014

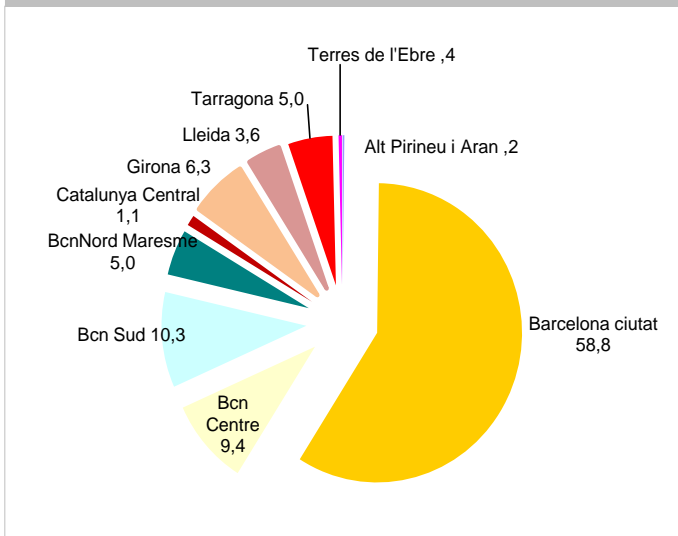


Figure 2. Distribution of HIV diagnoses by sex and age group. Catalonia 2014.

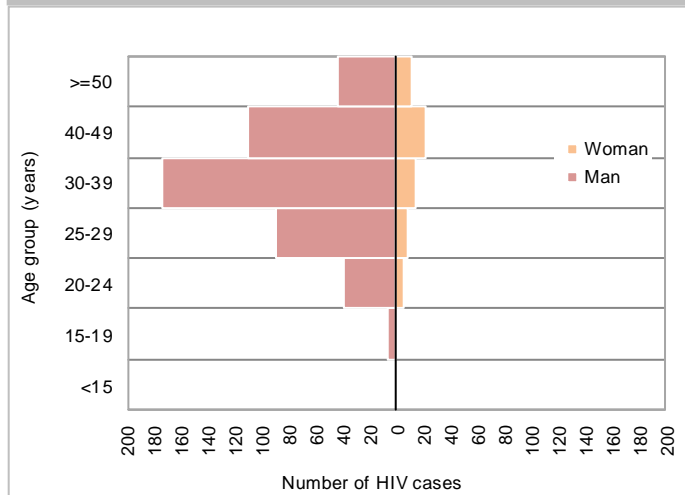
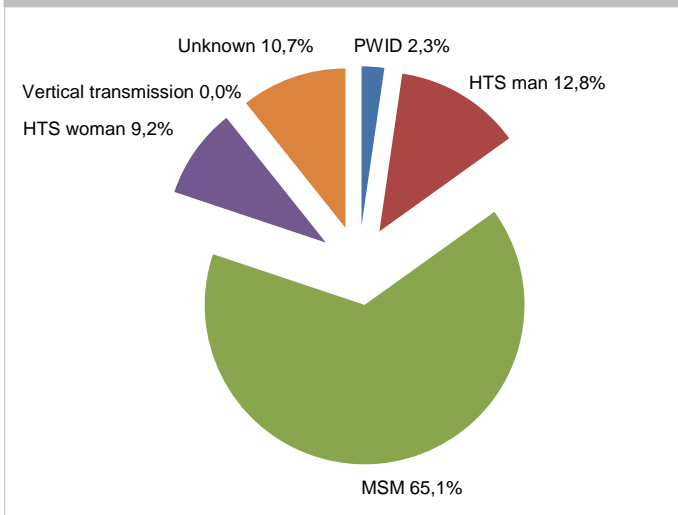


Figure 3. Distribution of new HIV diagnoses by transmission routes, 2014





## Annex II. Ten global indicators in HIV monitoring\*

	Indicator	Source
<b>1. People living with HIV</b>	34,200 (0.5%)	Spectrum/EPP, 2014
<b>2. National HIV funding [adaptation: Annual transfers for HIV prevention activities in Catalonia]</b>	653,187	Evaluation Report of the HIV-AIDS Multisectoral Plan 2008-2012 Ministry of Health, Social Services and Equality
<b>3. Prevention by key population</b>		
3.1. Sex workers (FSW) who report using a condom with the latest client	regular client: 91.1% non-regular client 99.2%	Behavioural surveillance, 2011
3.2. Men who have sex with men (MSM) who report using a condom at last penetrative sex with a male partner	68.70%	Behavioural surveillance, 2013
3.3. Injection material distributed by people who inject drugs (PWID)	136-145 syringes/year	General Subdirectorate of Drug-Dependence, 2013
3.4. General population that has had more than one partner in the last year and who report using a condom	Male: 75.1% Female: 75.0%	National Survey of Sexual Health. Ministry of Health, Social Services and Equality, 2009
<b>4. People living with diagnosed HIV</b>	71%	Service cascade
<b>5. HIV coverage healthcare</b>	20,160 (60%)	Service cascade
<b>6. Treatment coverage</b>	55%	Service cascade
<b>7. Treatment compliance</b>	89.20%	PISCIS Cohort, 2010-2012
<b>8. Viral suppression</b>	48%	Service cascade
<b>9. Deaths from AIDS</b>	2.2 per 100,000 inhabitants	Notifiable Diseases Register (MDO) of Catalonia, 2008
<b>10. HIV incidence</b>	0.01 per 1,000 persons MSM: 2.4 per 100 persons/year	Spectrum/EPP, 2014 ITACA Cohort in MSM, 2008-2011
*Key indicators recommended by the World Health Organisation (WHO) for monitoring the health sector's response to HIV. (Consolidated strategic information guidelines for HIV in the health sector. Geneva: WHO; 2015).		

### Annex III. Abbreviations

ART	antiretroviral therapy
ASSIR	sexual and reproductive health centres
CEEISCAT	Centre for Epidemiological Studies on Sexually Transmitted Infections and HIV/AIDS of Catalonia
CI	confidence interval
ECDC	European Centre for Disease Prevention and Control
GARP	Global AIDS Response Progress
HAART	highly active antiretroviral therapy
HCV	hepatitis C virus
HIV	human immunodeficiency virus
IQR	interquartile range
LGV	lymphogranuloma venereum
MDO	Notifiable Disease Register
MSM	men who have sex with men
PCR	polymerase chain reaction
PrEP	pre-exposure prophylaxis
PWID	people who inject drugs
RITS	Sexually Transmitted Infection Register of Catalonia
SD	standard deviation
SNMC	Catalan Laboratory Notification System
STI	sexually transmitted infection
SW	sex worker
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNGASS	United Nations General Assembly Special Session on HIV&AIDS
WHO	World Health Organisation

## Annex IV. Collaborators from contributing information systems

### Epidemiological monitoring of HIV infection/AIDS and of sexually transmitted infections

#### **Subdirectorat for Surveillance and Emergency Response in Public Health (Subdirecció General de Vigilància i Resposta a Emergències en Salut Pública)**

Public Health Office (M. Jané, G. Carmona, P. Ciruela).

#### **Epidemiological surveillance units**

UVE Barcelonès Nord and Maresme (J. Álvarez, I. Parrón); UVE Barcelona - Zona Sud (I. Barrabeig); UVE Vallès Occidental Vallès Oriental (R. Sala); UVE Central Catalonia Region (R. Torra); Territorial Health Services in Girona (N. Camps, M. Company); Territorial Health Services in Lleida (P. Godoy, A. Artigues); Territorial Health Services in Tarragona (S. Minguell, P. Pons); Territorial Health Services in Terres de l'Ebre (J. Ferràs); ASPB (J.A. Caylà, P. Garcia de Olalla, R. Clos); Secretariat for Penitentiary Services, Rehabilitation and Juvenile Justice. General Subdirectorat of Rehabilitation Programmes and Health. Department of Justice (R.A. Guerrero, V. Humet).

#### **Mortality register**

Mortality Register of the Information Service and Studies. General Directorate of Health Resources. DS (R. Gispert, A. Puigdefàbregas, G. Ribas).

#### **HIVSANG**

Transfusional Safety Laboratory. Blood and Tissue Bank. Vall d'Hebron Building (S. Sauleda).

#### **HIVPRESO**

General Directorate of Penitentiary Services, Rehabilitation and Juvenile Justice (R. Guerrero, M.V. Humet).

#### **SIALON II**

"Capacity building in combining targeted prevention with meaningful HIV surveillance among men who have sex with men (MSM)" Project. Participants: Italy, Romania, Slovakia, Slovenia, Belgium, Bulgaria, Germany, Lithuania, Poland, Portugal, Sweden, United Kingdom, Spain and EU/DGSANCO, of the European Commission under the Public Health Programme 200-2008-2013.

Participants in Catalonia: Microbiology Department. HUGTIP; Stop Sida Association (R. Muñoz, P. Fernández and interviewers: Percy, Jose, Giorgio, Edu and Gilbert).

#### **REDAN 2012-13**

Àmbit Prevenció Association (M. Meroño, A. Altabas); ASPB (T. Brugal, A. Espelt, C. Vecino); General Subdirectorat of Drug-Dependence - Public Health Agency of Catalonia (X. Majó, J. Colom); Microbiology Service HUGTIP (V. González, V. Ausina); Other Harm Reduction Centres Other (Prevention Area; SAPS, Baluard, CAS Lluís Companys; "El Local" Sant Adrià; AEC-Gris L'Hospitalet; Asaupa'm Badalona; Asaupa'm Santa Coloma; CAS Reus, AIDE Terrassa, Alba Terrassa, Arrels Lleida; CAS Reus; Red Cross Bus Constantí, IAS Girona, CADO Vic) and interviewers (A. Romaguera, M. Bessa, C. Stanescu, T. Balbas, J. Jiménez, M. Creixell, P. Freixa, M. Muñoz, S.I. Moreira, L. Virgili, L. Otin, C. Lazar, S. Riveros).

#### **HIVITS-TS 2011**

Àmbit Prevenció Association (C. Sanclemente, C. Lazar) and interviewers: C. Lazar, M. Bessa, M. Castro, S. Lopez, C. Rives, D. Faixó, A. Rafel, C. Benítez, M. Melgosa, S. Notario, S. Moreira, S. Sendyk, M. García, C. Stanescu, L. Virgili, M. Creixell, M. Sanchez, J. Jiménez, L. Otin and the Anti-AIDS associations of Lleida, Carretera Programme (Sant

Jaume de Calella Hospital), Actua Vallès, el lloc de la Dona, Projecte i Vida Foundation – prevention project Osona and Agency for an Integrated Approach to Sexual Workers of Barcelona.

#### **HIVUDVPT**

Assistant General Directorate of Drug-Dependence. Public Health Office DS (X. Majó, L. García).

#### **RITS: Register of Sexually Transmitted Infections of Catalonia**

##### Primary Care Teams (EAP)

###### Girona

Salt 2: EAP Alfons Moré i Paretas (M. Dolores Rivero Gemar).

###### Central Catalonia

Navarcles/Sant Fruitós de Bages: EAP Sant Fruitós de Bages (X. Puigdemongolas Armengol); Vic 2 south: EAP El Remei (P. Aguila Pujols, R. Codinachs Alsina).

###### Barcelona

Barcelona 10H: EAP Sant Martí (B. Escorihuela Martínez); Barcelona: EAP Ciutat Vella (David García Hernández).

###### North Metropolitan Area

ABS Pineda de Mar: EAP Pineda de Mar (P. Paulo Burguete); Premià de Mar: EAP Premià de Mar (A. Valls Martínez); Santa Coloma de Gramenet 5: North Metropolitan International Health Unit (L. Valerio Sallent).

###### South Metropolitan Area

L'Hospitalet de Llobregat 11: EAP Gornal (C. Pérez Olivera); Castelldefels 2: EAP Can Bou (M.J. Jareño Sanz, V.M. Silvestre Puerto); Vilanova i la Geltrú 3: EAP Baix-a-Mar (J. Milozzi Berrocal).

##### Sexual and reproductive health services (PASSIR)

###### Girona

ASSIR Baix Empordà (CABE): Hospital de Palamós (D. Meza Mejías, E. Castañeda, D. Pérez Pleguezuelo, E.M. Vicedo Madrazo, J.M. Marqueta Sánchez, E. Apalimov, E. Folch Borràs, M.L. Monje Beltran, E. Lineros Oller, V. Márquez Expósito, M. Hidalgo Grau, Ma.R.Vila Hernández); ASSIR Baix Empordà (CABE): EAP La Bisbal d'Empordà (M.E. Cesar Olmos, M. Hidalgo Grau); ASSIR Baix Empordà (CABE): EAP Torroella de Montgrí (M.E. Cesar Olmos, Ma.R.Vila Hernández); ASSIR Baix Empordà (CABE): EAP Catalina Cargol (Palamós) (E. Folch Borràs); ASSIR Baix Empordà (CABE): EAP Josep Alsina i Bofill (Palafrugell) (E. Lineros Oller); ASSIR Baix Empordà (CABE): EAP Sant Feliu de Guíxols (V. Márquez Expósito, M. Hidalgo Grau); ASSIR Baix Empordà (CABE): (A. Garatea).

###### Central Catalonia

ASSIR Anoia (ICS): EAP Anoia (R. Hernández Beltran).

###### Barcelona

Barcelona city area: (C. Martínez Bueno); ASSIR Esquerra (ICS): EAP Manso (M.R. Almirall Oliver, J. Cid Vaquero, J. Xandri Casals); ASSIR Esquerra (ICS): EAP Numància (A. Payaró Llisterra); ASSIR Litoral (Parc Salut MAR): EAP Dr. Lluís Sayé (M. Vilamala Muns, S. Vera García). ASSIR Litoral (Parc Salut MAR): EAP Gòtic (À. Ramírez Hidalgo, M. Padró Matarrodona, J. Gimeno Banus); ASSIR Litoral (Parc Salut MAR): EAP Sant Martí - El Clot (M. Honrado Eguren).

###### North Metropolitan Area

North Metropolitan Area: (G. Falguera Puig); ASSIR Maresme (ICS): EAP La Llànçia (C. Coll Capdevila). ASSIR Badalona (BSA): CASSIR BSA (À. Avecilla Palau, M. de Sebastian Sánchez, I. Ferré de Diego, M. Teixidó Famadas, D. Mateo Lara, M. del Socorro Ferrero Barrio); ASSIR Cerdanyola/Ripollet (ICS): EAP Cerdanyola-Ripollet (A. Acera Pérez, D. Rodríguez Capriles, P. Soteras Guasch, N.A. Sánchez García, M. Robert Ribosa, C. Basset Ausas, C. Graells Batet); ASSIR Granollers (ICS): EAP Vallès Oriental (D. Guix

Llistuella, J. Relat Llavina, A. Prats Oliveras, M. Duran de Grau); ASSIR Mollet del Vallès: (M.J. Ayuso Campos, E. López Gimeno, Ingrid Navarro Alonso, Montserrat Manzanares Miguel); ASSIR Rubí/Sant Cugat/Terrassa (Mútua Terrassa): EAP Rambla (E. Coll Navarro); ASSIR Sabadell (ICS): EAP Sant Fèlix (Pilar Soteras Guasch, Ramón Espelt i Badia, Edit López-Grado Nerín, Josep F. Sobrino Solano, Montse Villanueva Guevara, Àngels González Conesa).

#### STI Units

##### Barcelona

STI units: Infectious Diseases Special Programme Vall d'Hebron-Drassanes. Vall d'Hebron University Hospital (M. Arando Lasagabaster, P. Armengol Egea, M. J. Barberá Gracia, M. Vall Mayans, M. Cajal, C. Martín Callizo, G. Torrell, E. Ugarte); STI units: Andrology Department - Puigvert Foundation (Á. Vives Suñé); STI units: Dermatology Department – Hospital Clínic of Barcelona (M. Alsina Gisbert, JL Blanco, I. Fuertes, S. Pedregosa).

#### CT/NG-PRESONS

General Directorate of Penitentiary Services, Rehabilitation and Juvenile Justice (R. Guerrero, M.V. Humet); Women's Penitentiary Service of Barcelona (C. Sánchez, T. Quiroga); Juvenile Penitentiary Centre (M<sup>aj</sup>. Leal, M. Alvarez), Brians 1 Penitentiary Centre (N. Teixidó, J. Larino), Quatre Camins Penitentiary Centre (J. Pau, L. Moruno).

#### CT/NG-ASSIR

ASSIR EAP II Prat de la Riba, Lleida (M<sup>aj</sup>. Garrofé), ASSIR Palamós Hospital, Palamós (E. César, E. Folch), ASSIR BSA Mare de Déu de Lorda, Badalona (A. AVECILLA, M. de Sebastián, M. Teixidó), ASSIR Mataró-Maresme, Mataró (A. de Castro, I. González, C. Coll), ASSIR EAP II Sant Fèlix, Sabadell (R. Espelt, M. Abella, G. Falguera), ASSIR EAP II Cerdanyola-Ripollet, Ripollet (A. Acera, M. Robert, A. Cárceles, NA. Sánchez, M. Robert, M. Llucià, P. Soteras, A. Cuenca, S. Mesa), ASSIR EAP Osona, Vic (J. Tarres, J. Grau), ASSIR Bages-Solsonès, Manresa (N. Crespo, P. Piqué), ASSIR Terrassa, Terrassa (M<sup>ai</sup>. Cayuela), ASSIR Mollet, Mollet del Vallès (E. López, M. Manzanares, E. Adarve, A. Torrent), ASSIR Granollers, Granollers (D. Guix), ASSIR Esquerre, Barcelona (C. Seguí, J. Xandri, R. Almirall, F. Valenzuela, A. Payaró, L. Zamora, C. Piorno, M. Roure, G. Labay, R. Astudillo, X. Diez, E. Picola, R. Escriche, E. Vela, C. Fernández), Young People's Health Centre of l'Hospitalet, Hospitalet del Llobregat (E. Arranz, E. Castillo), Young People's Contraceptive and Sexuality Centre, CJAS, Barcelona (I. Campo, R. Ros), Young People's Health Centre of Girona (M. Hernández, C. Fornells).

### Monitoring of the prevention of HIV and behaviours

#### EMIS

The European MSM Internet Survey (EMIS) is part of a multi-centre project funded by the European Commission (EU-Health Programme 2008-2013). Participating members: Germany, Italy, The Netherlands, United Kingdom and Spain

#### SIALON II

“Capacity building in combining targeted prevention with meaningful HIV surveillance among men who have sex with men (MSM)” project. Participants: Italy, Romania, Slovakia, Slovenia, Belgium, Bulgaria, Germany, Lithuania, Poland, Portugal, Sweden, United Kingdom, Spain and EU/DGSANCO, of the European Commission under the Public Health Programme 200-2008-2013.

Participants in Catalonia: Microbiology Service. HUGTIP; Stop Sida Association (R. Muñoz, P. Fernández and interviewers: Percy, Jose, Giorgio, Edu and Gilbert).

#### REDAN 2012-13

Àmbit Prevenció Association (M. Meroño, A. Altabas); ASPB (T. Brugal, A. Espelt, C. Vecino); Assistant General Directorate of Drug-Dependence - Public Health Agency of Catalonia (X. Majó, J. Colom); Microbiology Department HUGTIP (V. González, V. Ausina); Other Harm Reduction Centres (Prevention Area; SAPS, Baluard, CAS Lluís Companys; “El Local” Sant Adrià; AEC-Gris Hospitalet; Asaupa'm Badalona; Asaupa'm Santa Coloma; CAS Reus, AIDE Terrassa, Alba Terrassa, Arrels Lleida; CAS Reus; Red Cross Bus Constantí, IAS Girona, CADO Vic) and interviewers (A. Romaguera, M. Bessa, C. Stanescu, T. Balbas, J. Jiménez, M. Creixell, P. Freixa, M. Muñoz, S.I. Moreira, L. Virgili, L. Otin, C. Lazar, S. Riveros).

**HIVITS-TS 2011**

Àmbit Prevenció Association (C. Sanclemente, C. Lazar) and interviewers: C. Lazar, M. Bessa, M. Castro, S. López, C. Rives, D. Faixó, A. Rafel, C. Benítez, M. Melgosa, S. Notario, S. Moreira, S. Sendyk, M. García, C. Stanescu, L. Virgili, M. Creixell, M. Sanchez, J. Jiménez, L. Otin) and the Anti-AIDS associations of Lleida, Carretera Programme (Sant Jaume de Calella Hospital), Actua Vallès, el lloc de la Dona, Projecte i Vida Foundation - Osona prevention project and Agency for an Integrated Approach to Sexual Workers of Barcelona.

**Young People and the Internet Study**

Cancer Epidemiology Research Programme – ICO (X. Bosch, S. Sanjosé, L. Bruni, M. Brotons, X. Castellsegué), Public Health Agency of Catalonia (C. Cabezas, L. Urbizondo), Internet Interdisciplinary Institute of the UOC (F. Lupiáñez), Block d'Idees (I. Soler).

**Monitoring of HIV diagnosis****Laboratories in Catalonia (HIVLABCAT)**

Clinical Analysis Department, Arnau de Vilanova University Hospital (J. Farré); Tarraco Clinical Laboratory (A. Vilanova, L. Guasp, C. Sarvisé; C. Molina); Clinical Laboratory EAP Just Oliveres, L'Hospitalet (E. Dopico); Barcelonès Nord and Vallès Oriental Clinical Laboratory (J. Ros, C. Guardià); Bon Pastor Clinical Laboratory (R. López); Manso Clinical Laboratory (I. Rodrigo; P. Bermejo); Alt Penedès, Anoia and Garraf Inter-regional Laboratory Consortium (A. Bosch, M.A. Benítez; A. Cebollero); Microbiology Department, Sant Joan de Reus University Hospital (J. Joven); South Reference Laboratory, Reus (J.M. Simó); Haematology Department, Verge de la Cinta Hospital of Tortosa (X. Ortin); Clinical Analysis Laboratory. Dr. Josep Trueta University Hospital of Girona (M.J. Ferri); Clinical Analysis Service, Sant Jaume de Calella Hospital (I. Caballé, J. Massa); Microbiology Department, Mataró Hospital (G. Sauca); Microbiology Department, HUGTIP (L. Matas); Microbiology Laboratory, Bellvitge University Hospital (A. Casanova; L. Calatayud); Microbiology Laboratory. Sant Joan de Déu Hospital Foundation of Martorell (M.A. Gasos); Biochemistry Department, Granollers General Hospital (M.C. Villà); Microbiology Laboratory, Vic General Hospital (J.M. Euras); Althaia Laboratory Manresa General Hospital (J. Franquesa); Sant Joan de Déu Hospital of Manresa, Altaia Foundation (M. Morta); Immunology Laboratory, Parc Taulí Healthcare Corporation (M.J. Amengual); Microbiology Laboratory, Santa Creu i Sant Pau Hospital (N. Margall); Microbiology Laboratory, Hospital Clínic i Provincial of Barcelona (T. Pumarola, J. Costa); Microbiology Laboratory, Reference Laboratory of Catalonia (M. Salvador); Microbiology Department, Vall d'Hebron University Hospital (E. Caballero); Dr. Echevarne Analysis Laboratory (J. Huguet).

**Assisted Diagnostic and Counselling Centres of Catalonia (HIVDEVO)**

CJAS (R. Ros, A.M. Gutiérrez; M. Pérez; M.P. Oliver); SAPS (E. Juárez, O. Díaz, E. Adan; L. Andreo); Stop-Sida (J. Bonilla; A. Morales); Anti-Sida Association of Lleida (N. Barberà, A. Binaixa, A. Rafel); ACASC (E. Caballero, J. Becerra, L.A. Leal; J. Quezadas); Actua Vallès (A. Avellaneda, M. Sité, B. Alsina; E. Artigas; M. López; R. del Valle; A. Capitán); Projecte dels Noms (J. Saz, F. Pujol, M. Meulbroeck); Àmbit Prevenció Association (M. Meroño, C. Jacques, C. Lazar, S. Silva); Gais Positius (V. Mateu, J. Roqueta; R. Araneda; A. Pazos); ACAS Girona (A. Lara).

**Other projects****PISCIS Study Group**

Coordinators: J. Casabona (Centre of Epidemiological Studies of Sexually Transmitted Infections and Aids of Catalonia: CEEISCAT), Jose M. Miró (Hospital Clínic-IDIBAPS, University of Barcelona).

Field coordinator CNJ Campbell (CEEISCAT).

Executive Committee: J. Casabona, A. Esteve, CNJ Campbell (CEEISCAT), Jose M. Miró (Hospital Clínic-IDIBAPS, University of Barcelona), D. Podzamczar (Bellvitge University Hospital-IDIBELL), J. Murillas (Son Espases Hospital of Mallorca).

Scientific Committee: JM Gatell, C. Manzano (Hospital Clínic-IDIBAPS, University of Barcelona), C. Tural, B. Clotet (Fight against AIDS Foundation, IrsiCaixa Foundation, Germans Trias i Pujol University Hospital, Autonomous University of Barcelona), E. Ferrer (Bellvitge University Hospital-IDIBELL), M. Riera (Son Espases Hospital of Mallorca), F. Segura, G. Navarro (Parc Taulí Health and University Corporation, Autonomous University of Barcelona), L. Force (Mataró Hospital, Maresme Health Consortium), J. Vilaró (Vic General Hospital), A. Masabeu (Palamós Hospital), I. García (L'Hospitalet General Hospital), J. Mercadal (Alt Penedès Regional Hospital), C. Cifuentes, F. Homar (Son Llätzer Hospital), D. Dalmau, À. Jaen (Mútua de Terrassa University Hospital), P. Domingo (Santa Creu i Sant Pau Hospital), V. Falcó, A. Curran (Vall d'Hebron University Hospital), C. Agustí (CEEISCAT).

Data management and statistical analysis: A. Esteve, A. Montoliu (CEEISCAT), I. Pérez (Hospital Clínic-IDIBAPS, University of Barcelona), Jordi Curto (Bellvitge University Hospital-IDIBELL).

IT support: F. Sánchez (CEEISCAT), F. Gargoulas (Son Espases Hospital and Son Llätzer Hospital), A. Gómez (Alt Penedès Regional Hospital), JC Rubia (L'Hospitalet General Hospital).

Participating clinics: L. Zamora, J.L. Blanco, F. Garcia-Alcaide, E. Martínez, J. Mallolas, (Hospital Clínic-IDIBAPS, University of Barcelona), JM. Llibre, G. Sirera, J. Romeu, A. Jou, E. Negredo, (Fight against AIDS Foundation, Germans Trias i Pujol University Hospital, Autonomous University of Barcelona), M. Saumoy, A. Imaz, F. Bolao, C. Cabellos, C. Peña, S. DiYacovo, E. Van Den Eynde (Bellvitge University Hospital-IDIBELL), M. Sala, M. Cervantes, M.J. Amengual, M. Navarro, V. Segura (Parc Taulí Healthcare and University Corporation, Autonomous University of Barcelona,) P. Barrufet, (Mataró Hospital, Maresme Health Consortium), J. Molina, M. Alvaro, María Orriols (Alt Penedès Hospital of Vilafranca), T. Payeras (Son Llätzer Hospital), M<sup>a</sup> Gracia Mateo (Santa Creu i Sant Pau Hospital).

Civil Society representatives:

Juane Fernández (1<sup>st</sup> of December Committee), Joan Bertran (RedVIH).

## AERIVIH

### Laboratories

Clínic Manso Laboratory. Barcelona (I. Rodrigo); Alt Penedès, Anoia and Garraf Inter-regional Laboratory Consortium (M.Á. Benítez, A. Cebollero); Hospital Clínic - IDIBAPS (T. Pumarola); Bellvitge University Hospital – Biomedical Research Institute of Bellvitge (IDIBELL) (A. Casanova); HUGTIP (E. Martró, L. Matas, V. González, V. Ausina); Vall d'Hebron University Hospital (E. Caballero); Santa Creu i Sant Pau Hospital (N. Margall); Arnau de Vilanova University Hospital (J. Farré); Mataró Hospital (M.G. Saucá); Verge de la Cinta Hospital of Tortosa (X. Ortín); Parc Taulí Healthcare Corporation (M.J. Armengual); Palamós Hospital (J.M. Prats); Vic General Hospital (M. Navarro); Sant Joan University Hospital of Reus (J.M. Simó); L'Hospitalet General Hospital (E. Márquez).

### Clinics

Hospital Clínic - IDIBAPS (J.M. Miró, F. Agüero, O. Sued, M. López-Diéguez, C. Manzano, J.M. Gatell); Bellvitge University Hospital – IDIBELL (E. Ferrer, D. Podzamczek); HUGTIP (C. Tural, B. Clotet); Vall d'Hebron University Hospital (E. Ribera); Alt Penedès Regional Hospital (J.M. Guadarrama); Santa Creu i Sant Pau Hospital (P. Domingo, M.M. Gutiérrez, M.G. Mateo, J. Martínez); Arnau de Vilanova University Hospital (T. Puig); Mataró Hospital (P. Barrufet, L. Force); Verge de la Cinta Hospital of Tortosa (A. Ortí); Parc Taulí Healthcare Corporation (G. Navarro, F. Segura); Palamós Hospital (À. Masabeu); Sant Joan University Hospital of Reus (B. Coll, C. Alonso Villaverde); L'Hospitalet General Hospital (I. García).

### Community-based testing sites

Sabater Tobella Laboratory (R. Sala); SAPS – Red Cross, Barcelona (O. Díaz, E. Adan); Stop Sida Association (J. Bonilla, A. Morales); Projecte dels Noms – Joves positius, Barcelona (F. Pujol, J. Saz, M. Meulbroek); Àmbit Prevenció Association, Barcelona (M. Meroño, S. Silva, C. Lazar); ACASC (J. Becerra, L. Leal); CJAS (R. Ros, A. Gutiérrez, M. Pérez); Actua Vallès (B. Alsina, A. Avellaneda, M. Sité); Gais Positius (J. Roqueta, V. Mateu, R. Araneda).

## ÍTACA

Hispanosida (F. Pujol, M. Meulbroek, H. Taboada, J. Saz, F. Pérez); Empresa Q-Soft; data input (Hispanosida).

**Primary resistances to ARD and determination of subtypes in infected people (AERIVIH sub-project)**

Hospital Clínic i Provincial of Barcelona (J.M. Miró, O. Sued, T. Pumarola, E. de Lazzari); IrsiCaixa Foundation (B. Clotet, L. Ruiz, T. Puig).

**Laboratories**

Clínic Manso Laboratory (I. Rodrigo); Clínic Cornellà de Llobregat Laboratory (R. Navarro); Clínic El Maresme Laboratory (C. Rovira); Bellvitge University Hospital - IDIBELL (A. Casanova); Microbiology Department. HUGTIP (E. Martró, L. Matas, V. González, V. Ausina); Vall d'Hebron University Hospital (E. Caballero); Santa Creu i Sant Pau Hospital (N. Margall); Arnau de Vilanova University Hospital (J. Farre); Mataró Hospital (M.G. Sauca); Verge de la Cinta Hospital of Tortosa (X. Ortin); Parc Taulí Healthcare Corporation (M.J. Armengual); Palamós Hospital (J.M. Prats); Vic General Hospital (J.M. Euras); Sant Joan University Hospital of Reus (J.M. Simó); Granollers General Hospital (M.C. Villa).

**Clinics**

Hospital Clínic-IDIBAPS (F. Agüero, M. López-Diéguéz, J.M. Gatell); Bellvitge University Hospital – IDIBELL (E. Ferrer, D. Podzamczer); HUGTIP (C. Tural); Vall d'Hebron University Hospital (E. Ribera); Santa Creu i Sant Pau Hospital (P. Domingo); Arnau de Vilanova University Hospital (T. Puig); Mataró Hospital (P. Barrufet, L. Force); Ramon y Cajal Hospital, Madrid (C. Gutiérrez); Verge de la Cinta Hospital of Tortosa (A. Orti); Parc Taulí Healthcare Corporation (G. Navarro, F. Segura); Palamós Hospital (A. Masabeu); Sant Joan University Hospital of Reus (B. Coll, C. Alonso Villaverde); Granollers General Hospital (S. Montull).

**Alternative screening centres**

Sabater Tobella Laboratory (R. Sala); Projecte dels Noms – Joves positius (F. Pujol, J. Saz), CJAS (R. Ros).

**NONOPEP**

Hospital Clínic i Provincial of Barcelona (J.M. Gatell, F. Garcia, A. León); Bellvitge University Hospital (J.M. Ramon, C. Micheo); Vall d'Hebron University Hospital (M. Campins, J.A. Rodriguez, X. Martinez).

**NENEXP**

Clínic Health Consortium - Sant Joan de Déu (C. Fortuny, J.M. Pérez, J.M. Boguna, A. Noguera); Vall d'Hebron University Hospital (M.C. Figueras, M. Casellas, P. Soler, A. Martin); Hospital del Mar, Barcelona (A. Mur, A. Paya); HUGTIP (C. Rodrigo, M. Mendez, N. Grane); Granollers General Hospital (M.T. Coll); Parc Taulí Healthcare Corporation (V. Pineda); Mataró Hospital (L. Garcia); Arnau de Vilanova University Hospital (M.T. Vallmanya, T. Puig); Joan XXIII University Hospital of Tarragona (A. Soriano, C. Bras, S. Veloso); Sant Joan University Hospital of Reus (F. Pagone); Ramon Llull University (E. Sánchez), Research Support Unit-Primary Care Management Costa de Ponent (J. Almeda).

**Acceptability study of biomedical interventions for HIV prevention**

Stop Sida of Barcelona (Catalonia), ADHARA of Seville (Andalusia) and the Centre for Aids Information and Prevention of Alicante (Autonomous Region of Valencia) organisations.

And many other healthcare professionals whose help and dedication contributed to obtaining the data presented here.



## Annex V. Relevant publications since 2012

### National Publications

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Fernández-Dávila P, Folch C, Ferrer L, Soriano R, Díez M, Casabona J. Hepatitis C virus infection and its relationship to certain sexual practices in men-who-have-sex-with-men in Spain: results from the European MSM internet survey (EMIS). *Enferm Infecc Microbiol Clin.* 2015 May;33(5):303-10. doi: 10.1016/j.eimc.2014.07.012.

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