



MEETING REPORT

**EU/EEA Network for STI Epidemiology and HIV
Epidemiology**

9 March 2016, Bratislava, Slovakia

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CT	Chlamydia trachomatis
EC	European Commission
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
EMIS	European MSM Internet Survey
EU	European Union
Euro-GASP	European Gonococcal Antimicrobial Surveillance Programme
FP	Framework Programme
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug Use(r)
LGV	Lymphogranuloma venereum
LSHTM	London School of Hygiene and Tropical Medicine
MSM	Men who have Sex with Men
OST	Opioid substitution treatment
PCR	Polymerase Chain Reaction
POCT	Point-Of-Care Test
PrEP	Pre-exposure prophylaxis
STI	Sexually Transmitted Infection
TESSy	The European Surveillance System
UNAIDS	Joint United Nations Programme on HIV/AIDS

Executive Summary

This meeting brought together national European Centre for Disease Prevention and Control (ECDC) contact points for HIV and STI epidemiology, researchers, civil society and representatives from international organisations including the European Commission. The meeting aimed to provide a platform for expert discussion to improve understanding of HIV and STI in the region and to discuss emerging trends and key challenges.

Sex between men is the main route of transmission for HIV and for several STI in the European Union, and the number of cases attributed to sex between men is increasing. Given this, key challenges and emerging trends in the prevention and control of HIV and STI among men who have sex with men (MSM) were discussed during a joint session. Emerging trends discussed included sexually transmitted enteric infection outbreaks, risk-taking in the context of sexualised drug use, pre-exposure prophylaxis for HIV and technologies for HIV and STI prevention among MSM such as mobile phone apps and Google trends. It was agreed that new multi-disciplinary strategies and adaptations to surveillance systems may be needed to effectively measure and counter the increasing trends of HIV and STI among MSM in most countries in Europe. It was also mentioned that there is significant potential for mobile apps to promote increased testing uptake among MSM and to generate valuable data about pre-exposure prophylaxis use, drug use and other behaviour associated with HIV and STI risk.

The parallel HIV and STI sessions focused, respectively, on issues of particular relevance to those networks. The HIV network discussed and provided feedback on the ECDC HIV programme priorities which include the HIV continuum of care, HIV testing and prevention focused on populations most at-risk, namely men who have sex with men. Strategies to improve HIV surveillance data through imputation for missing data were discussed and an update on the ECDC HIV Modelling tool was provided. The network endorsed work on an EU estimate of HIV incidence and the undiagnosed fraction, and suggested that further work should be done to support the production and publication of country-specific incidence estimates. Finally, the network discussed the value of increased collaboration with HIV cohorts and the importance of understanding representativeness when comparing HIV surveillance and HIV cohort data.

The STI network discussed the use of surveillance data to document progress towards elimination of congenital syphilis. Although all countries in the EU/EEA are below the threshold set by WHO for elimination of congenital syphilis, data on core process indicators in many countries are still lacking. The network endorsed ECDC planned activities, including the update of EPIS-STI and a project to organise regional workshops aiming at improving the understanding of STIs and promoting collaboration and sharing of ideas across countries. Feedback from a questionnaire sent to participants prior to the meeting identified a number of areas which ECDC could focus on including the public health value of *M. genitalium* testing. The network also discussed developments related to sexual transmission of Zika virus infection.

1. Introduction

Andrew Amato (ECDC) welcomed participants and outlined the objectives and themes of the meeting. Following a report from the HIV/STI coordination committee, the morning session would focus on HIV and STI among MSM and on key challenges and emerging trends in particular. The parallel HIV and STI sessions in the afternoon would focus, respectively, on HIV modelling, estimates and the use of cohort data to enhance HIV surveillance in Europe, and on the use of surveillance data to document progress towards elimination of congenital syphilis, STI priorities and emerging issues.

This report summarises the main points from the meeting presentations and plenary and working group discussions. Presentations were circulated to all participants following the meeting and are available on request. (See Annex 1 for the meeting agenda and Annex 2 for list of participants.)

Vasiliea Konte (Greece) provided feedback from the HIV/STI coordination committee. The committee met in December 2015 to review ECDC 2016-2017 priorities for HIV and STI surveillance, prevention and control, to provide input on technical issues with regard to surveillance and to advise ECDC on the agenda of the 2016 HIV-STI network meeting. ECDC priorities for scientific advice during 2016-2017, which the committee supports, include: improving the epidemiological understanding of HIV, chlamydia and hepatitis B/C through prevalence estimates; MSM sexual health and STI/HIV prevention; prevention and control of HIV/STI among youth, migrants and sex workers; prevention among MSM using mobile applications; evidence-based reports on promoting uptake of HIV testing, novel approaches to STI testing, and PrEP for HIV; technical support to build Member State capacity to respond to STI, HIV and hepatitis epidemics; and evaluating HIV testing guidance.

Key STI issues discussed by committee included: the results of the antenatal screening project; ECDC plans for a project on STI sentinel surveillance; the updated ECDC chlamydia guidance and the need to consider prevalence studies to address limitations of surveillance; the increase in Shigella infections among MSM; and Euro-GASP developments. Key HIV issues discussed included: the HIV continuum of care and related ECDC guidance and support to countries; increasing testing and reducing the undiagnosed fraction; potential use of cohort data to strengthen surveillance; and continued support to countries for HIV modelling.

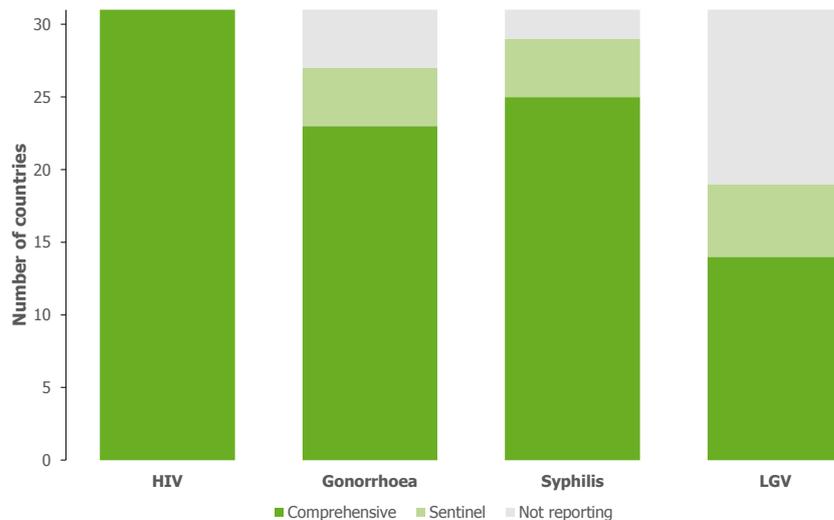
The committee recommended that ECDC focus initial support for STI sentinel surveillance on countries with limited data, increase emphasis on congenital syphilis, the HIV continuum of care and PrEP for HIV, address data quality issues and strengthen engagement with clinical and public health associations.

2. HIV and STI in men who sex with men

2.1 Trends in HIV and STI diagnoses among MSM in the EU/EEA

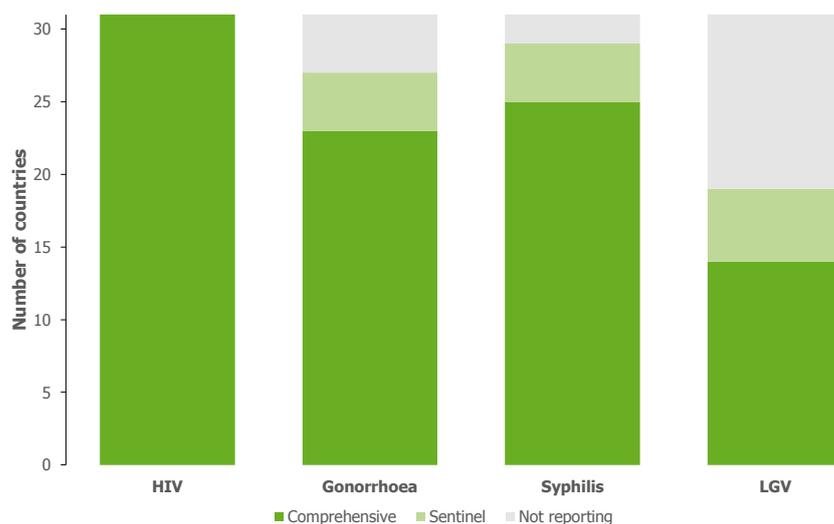
Gianfranco Spiteri (ECDC) presented a summary of recent HIV and STI trends among MSM based on data reported to TESSy. Data are reported on HIV and AIDS and notifiable STI (chlamydia including LGV, gonorrhoea, syphilis and congenital syphilis) based on agreed case definitions. The number of countries reporting 2014 data for HIV, gonorrhoea, syphilis and LGV is show in the figure below.

Which countries reported 2014 data?



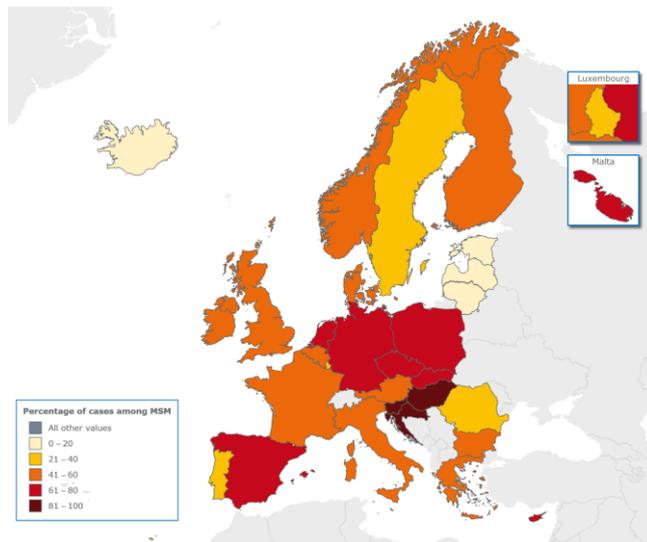
MSM represent a significant proportion of the total number of newly diagnosed cases reported in 2014 for which data was available on gender and transmission route, i.e. 53% of HIV, 47% of gonorrhoea, 72% of syphilis and 100% of LGV cases reported (all excluding unknowns).

Which countries reported 2014 data?

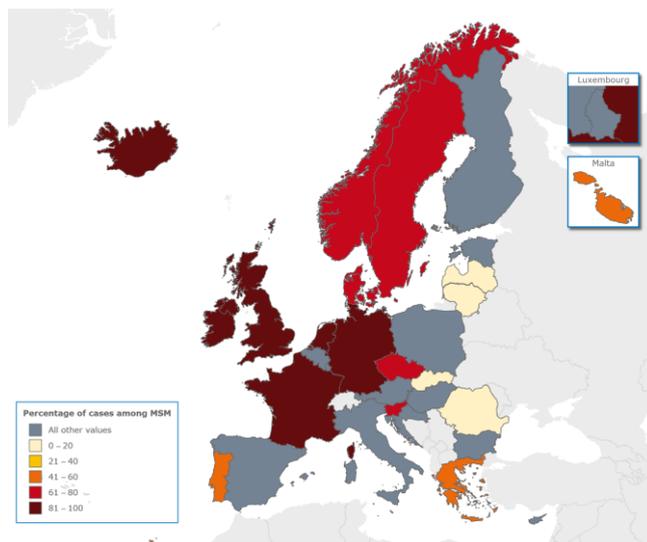


Although there are variations across countries, MSM account for a high proportion of all newly-diagnosed cases of HIV reported in 2014 in many EU/EEA countries (see map below).¹ The proportion of syphilis cases among MSM is higher in many countries (see map below).

Proportion of cases among MSM across Europe - HIV



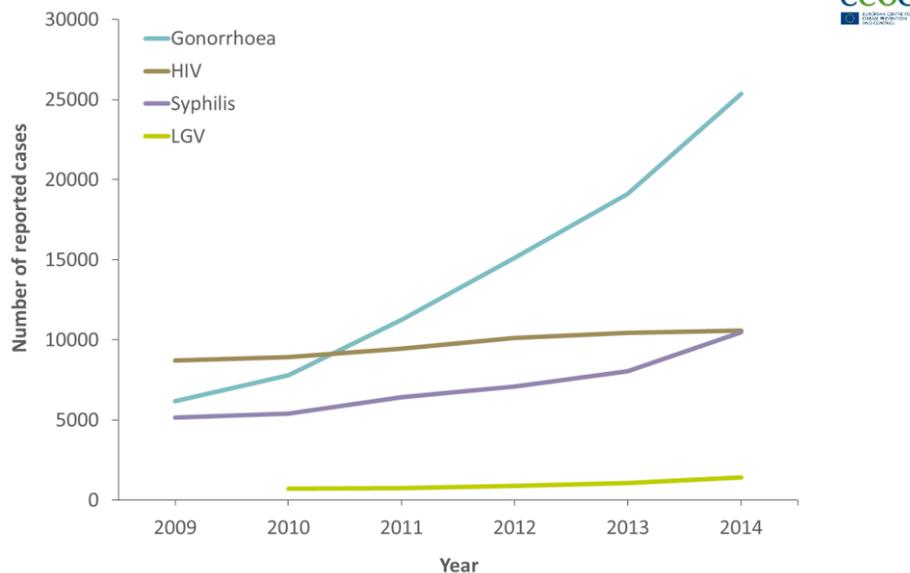
Proportion of cases among MSM across Europe - syphilis



¹ Note that map shows data for cases with known route of transmission i.e. excludes unknowns.

Data for 2009-2014 (see figure below) shows that there has been a dramatic increase in cases of gonorrhoea among MSM (although changes in testing policies and practices are likely to have affected trends), and less dramatic increases in cases of syphilis, HIV and LGV in this population. The most significant increases in HIV and gonorrhoea cases have occurred among MSM aged 25-34 years. There has been an increase in HIV cases among both native and migrant MSM.

Trends in cases among MSM, 2009-2014



Although MSM are less likely to be diagnosed late with HIV than those acquiring HIV infection through injecting drug use or heterosexual contact, around 40% of MSM were still diagnosed late in 2014. Available data also indicates that rates of HIV co-infection with gonorrhoea and with syphilis among MSM are significant.

Current surveillance has limitations. For example, data on some issues, such as co-infection, is available from only a few countries, there is no data at EU level to understand how testing and changing sexual behaviour affect trends. Going forward, the impact of PrEP on STI will be difficult to estimate. Consideration may need to be given to focusing STI surveillance on specific groups such as HIV-positive MSM and MSM who are on PrEP.

Key points raised by participants following the presentation included:

- The need to focus on hot spots or sub-populations, as data in some countries suggests that rates of new infection have declined, possibly due to high coverage of treatment.
- The overall data for age distribution e.g. showing higher rates of increase in gonorrhoea among younger MSM, masks variations in age distribution across countries.

2.2 Sexually transmitted enteric infection outbreaks

Gwenda Hughes (PHE) presented an overview of recent data on sexually transmitted enteric infections (STEI) among MSM in the UK. STEI are caused by various organisms, e.g. *Shigella* spp., *E. coli*, *Cryptosporidium* spp., *Entamoeba* spp. Cases and outbreaks among MSM have been documented in Australia, Canada, Germany, the UK and the US since the 1970s. *Shigella* is a Gram-negative

bacteria causing severe bacillary dysentery that is historically associated with travellers who have visited low income countries with poor hygiene. There are 4 species: *S. sonnei*, *S. flexneri*, *S. dysenteriae*, and *S. boydii*.

The UK has seen an increase in cases of Shigella in men, caused by *S. flexneri*, that are not associated with travel, since around 2010. In 2014, the male to female ratio of cases caused by serotype 2a was 17:1 and the ratio of cases caused by serotype 3a was 59:1.

Shigella and HIV datasets were compared to ascertain what proportion of Shigella cases were HIV positive, when they were infected with Shigella and how many of these cases were MSM. The majority of cases in men were among MSM. Interviews were conducted with 34 MSM cases to ascertain the extent to which sexual transmission might be responsible. Of these 34 men, 20 were HIV positive, all had high numbers of sexual partners, were involved in sex parties and sexualised drug use, engaged in oral-anal contact and had low awareness of enteric infections; eight had been admitted to hospital. Similar characteristics have been found in 9 cases of MSM with azithromycin-resistant *S. sonnei* and in 9 cases of MSM with *E. coli* infection. And, in an LGV case-finding study, of 444 MSM diagnosed with chlamydia, 8 were also infected with Shigella (of whom 6 were HIV positive) and 8 with campylobacter (of whom 4 were HIV positive). These findings suggest that localised sexual transmission of enteric infections is occurring among MSM, in particular among HIV-positive MSM, and that there is potential for wider spread of azithromycin-resistant shigellosis through sexual transmission. Consequently there is a need to improve surveillance, to increase awareness among MSM and clinicians, and to improve diagnosis and management of STI.

2.3 PrEP, treatment as prevention and HIV and STI trends

Henry de Vries (University of Amsterdam) presented an overview of the current status of PrEP and available data on the extent to which PrEP is influencing risk behaviour and STI rates.

A number of trials have demonstrated the efficacy of PrEP (see figure below) and, as of September 2015, WHO recommends that HIV-negative individuals at substantial risk of HIV infection should be offered oral PrEP as part of combination prevention approaches. PrEP evaluation studies are also planned, ongoing or completed in a range of countries (see map).

Successful PrEP efficacy trials

Study	Population	N	Efficacy
CAPRISA 004 <i>South Africa</i>	Women	889	39% TDF gel
iPrEx <i>Brazil, Ecuador, Peru, South Africa, Thailand, US</i>	MSM	2499	44% FTC/TDF
TDF2 study <i>Botswana</i>	Young men and women	1219	62% FTC/TDF
Partners PrEP study <i>Kenya, Uganda</i>	Heterosexual couples	4758	75% FTC/TDF
Bangkok Tenofovir Study <i>Thailand</i>	IDU	2413	67% TDF
PROUD study <i>UK</i>	MSM	500	86% FTC/TDF
IPERGAY study <i>France, Canada</i>	MSM	400	86% FTC/TDF

Grant, NEJM 2010; Thigpen 2012; Baeten 2012; Choopany 2013; Marazzo 2013; van Damme 2012; McCormack Lancet 2013; Molina NEJM 2015.

Planned, Ongoing and Completed PrEP Evaluation Studies (June 2015)



Data on the safety of PrEP shows that side effects are limited and reversible, although potential adverse effects on kidney function need to be monitored. There is no evidence that PrEP increases rates of STI positivity. PrEP clinical trials among MSM show high HIV risk reduction and high STI incidence, but without comparison it is not possible to identify the role of PrEP in modifying sexual risk behaviour or in high STI incidence.

Uptake of PrEP in the US has increased since the beginning of 2014. Gilead data on new PrEP starts show an increase of 332% between Q1 of 2014, with 530 new starts, and Q1 of 2015, with 1,761 new starts. It is too early to assess the impact on epidemic trends but, in San Francisco, the annual number of new infections appears to have fallen more rapidly since the advent of PrEP in 2013.

Europe has been slow to implement PrEP. Registration of Truvada® by Gilead is currently under EMA review; France has exempted PrEP from mandatory EMA registration for 3 years. The price of PrEP is expected to fall as drugs come off patent e.g. tenofovir, and interest in PrEP increases among manufacturers of generic drugs². Issues that need to be considered include: who should be offered PrEP; who will provide and monitor PrEP; and how PrEP will be paid for.

Key points raised by participants following the presentation included:

- The potential value of PrEP for IDU – needle and syringe programmes remain a more cost-effective approach for HIV prevention among this population.
- The likelihood that PrEP will increase the incidence of STI, based on experience following the introduction of HIV treatment and, hence, the need to strengthen STI testing and prevention efforts and to promote PrEP as one of a combination of interventions.

2.4 Sexualised drug use in Europe

Adam Bourne (LSHTM) provided an overview of data on sexualised drug use among MSM. Drug use among MSM, especially use of stimulants, is not new. However, patterns of drug use have changed, due in part to changes in the drug market e.g. in the UK there has been a shift from cocaine and ecstasy to mephedrone, GHB/GBL and crystal meth. In addition to stimulant properties, these drugs enhance sexual arousal and there is increasing evidence that they are used for specific and intentional sexual purposes. Sexualised drug use, or chemsex, is therefore defined as sex between men that occurs under the influence of drugs taken immediately preceding and/or during the sexual session. Use of a combination of drugs and methods (e.g. smoking, snorting, injecting, taking liquid doses) is common and this increases the risk of overdose.

In the UK, data sources include clinical audit studies and a cross-sectional study of attendees at 30 HIV clinics in 2014; the former report a prevalence of chemsex among MSM of between 9% and 39% and, in the latter, 29% of respondents reported engaging in chemsex. In the cross-sectional study, MSM engaging in chemsex had a higher mean number of casual sexual partners and higher odds of reporting unprotected anal sex and of receiving an STI diagnosis in the previous year. Data from the Dean Street clinic in London on MSM engaged in chemsex show that 29% were injecting drugs and that chemsex tended to accelerate following HIV diagnosis, break up of a relationship and moving to London. In terms of sexual risk taking, data from the South London Chemsex Study shows that men involved in chemsex fall into three categories: those that maintain safer sexual behaviour; those that engage in predetermined unsafe behaviour; and those who unintentionally engage in sexual risk behaviour as a result of drug use.

Data on chemsex from other European countries is limited. A recent qualitative study in the Netherlands focusing on injecting of crystal meth found that serosorting is a common risk reduction strategy, but low awareness of hepatitis C transmission and prevention and high levels of HIV and hepatitis C co-infection. And a study in Germany found that generic drug services are not well placed

² WHO has prequalified some generic companies for PrEP <http://apps.who.int/prequal/>

to meet the needs of MSM and services for MSM are not well equipped to address problematic drug use among MSM.

More research is needed to provide better data on: the prevalence of chemsex among MSM, and sub-groups of MSM; drugs used, as this varies between countries; social and contextual factors that influence sexualised drug use; the impact of chemsex e.g. on HIV and STI acquisition; and the effectiveness of interventions.

2.5 Mobile sexual networking applications

Sean Howell (Hornet) highlighted the potential of mobile sexual networking applications. He described some of the HIV-related health promotion and prevention interventions that are being implemented by [Hornet](#), a gay social network that has 9 million users worldwide, operates in 25 languages and facilitates the exchange of 200 million messages a week.

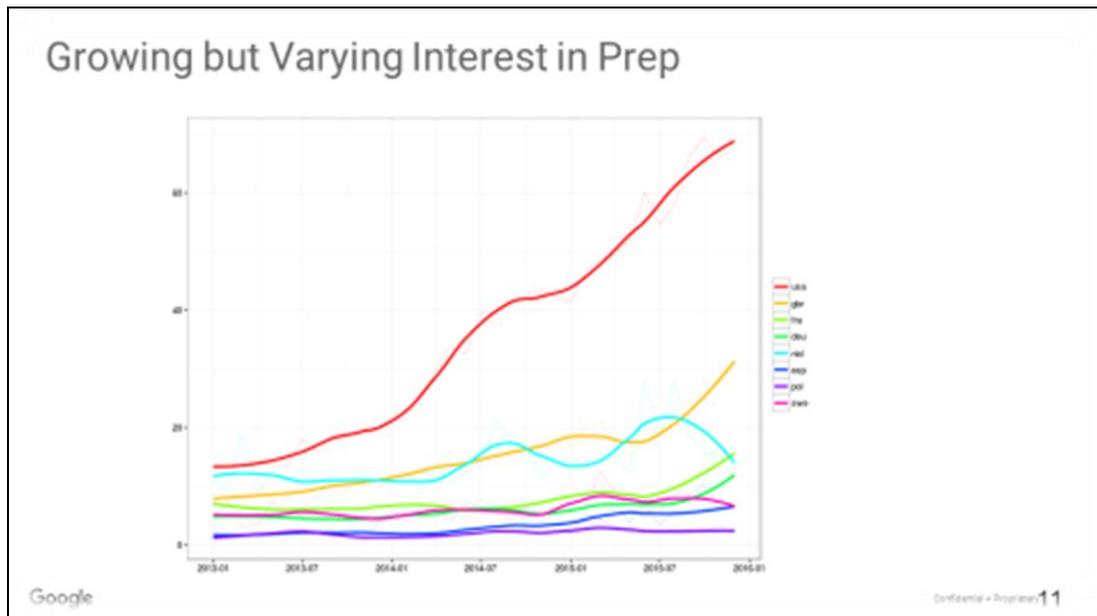
Hornet was the first gay social network to introduce a Know Your Status feature, which is included in members' profiles, reminds people to get tested and provides information about the nearest testing location and how to schedule a test. The Know Your Status section of member profiles has recently been expanded to include two new options: 'positive, undetectable' (for those who are positive, on ART and have undetectable viral load) and 'negative, on PrEP'. (Hornet has provided information about PrEP to its members in 17 languages.) Hornet has also created an HIV-positive community, to provide support and tackle stigma.

Social networks also have the potential to provide more accurate population size estimates in order to convince health policy makers and planners to invest appropriately in HIV prevention – e.g. UNAIDS estimates that there are 10,000 MSM in Nairobi but Hornet has 100,000 unique users in Nairobi and is not the only social networking app used by MSM who live there – and to generate and triangulate data – e.g. Hornet statistics show that globally, between December 2015 and early March 2016, the number of members with 'negative, on PrEP' in their profile increased from 4,372 to 9,078.

2.6 Using Google to better understand HIV interventions

Qing Wu (Google) highlighted the potential of Google Trend to improve population size estimates and monitor awareness of, and interest in, HIV-related issues e.g. HIV testing and PrEP. Google trends has advantages e.g. it is a consistent data source and people rarely lie when they are searching – but also limitations e.g. internet use is low in some countries and usage is biased in terms of age and demographics.

With respect to population size estimates, Google consumer research in the US suggests that a higher proportion of the population are lesbian, gay, bisexual or transgender than other research e.g. Gallop telephone surveys. With respect to HIV, globally there appears to be a correlation between the intensity of Google HIV/AIDS searches and rates of HIV. Analysis of Google searches also shows a growing interest in PrEP, although this varies across countries (see figure below). In the US, analysis of searches for PrEP and HIV treatment and PrEP and gonorrhoea appears to show that searches for treatment may decrease but searches for gonorrhoea may increase in locations where there are more searches for PrEP.



In summary, Google Trends data, which is available to the research community, can potentially provide insights into HIV, including differences between locations and populations, but data should be interpreted with caution.

Key points from Q&A and the panel discussion that followed these presentations included:

- There is limited data on how chemsex is viewed in the wider MSM community as research has focused on MSM who are involved in it. Some participants noted that there is stigma associated with use of drugs such as crystal meth; this may be partly due to negative media coverage of chemsex.
- There is low awareness of hepatitis C and its transmission among MSM involved in chemsex and, in contrast with HIV, limited HCV-related sero-sorting in relation to decisions about sexual partners or behaviours.
- There is a need for better data in Europe on chemsex and, specifically on overdose and death associated with chemsex.
- There is potential for MSM social networking apps to reach men who engage in chemsex, as these apps are often used to organise private parties where chemsex takes place.
- There is also potential for these apps to promote increased uptake of testing among MSM. For example, collaboration with Hornet and Grindr enabled the [European HIV Test Finder](#) to be made available via their apps to support [European Testing Week](#). ECDC is exploring whether the test finder could be expanded to include sites providing STI and hepatitis testing. Google maps could also be linked to the test finder to facilitate locating testing centres.
- There is no evidence that social networking apps increase the incidence of STI, based on a recent ECDC review of the evidence.
- There is scope to use social networking apps such as Hornet to generate valuable data about PrEP use and adherence, and about MSM who are involved in chemsex e.g. using a 'cohort study' approach similar to that used for tracking advertising. Hornet and Google could also play a valuable role in helping to recruit respondents for a future European Men's Internet Survey.
- There is insufficient evidence as yet to draw conclusions about whether or not PrEP increases STI incidence. In studies among MSM populations that already have very high rates of STI it is difficult to demonstrate an increase. Some participants noted that similar concerns about an increase in STI were raised about the introduction of oral contraceptives. Others noted that PrEP is one of a range of prevention options and that many PrEP users are also using condoms. A potential benefit of PrEP is that users will have more regular contact with health

services and this could enhance case finding. Overall, there was a consensus that STI prevention among MSM, including HIV-positive MSM, needs to be strengthened.

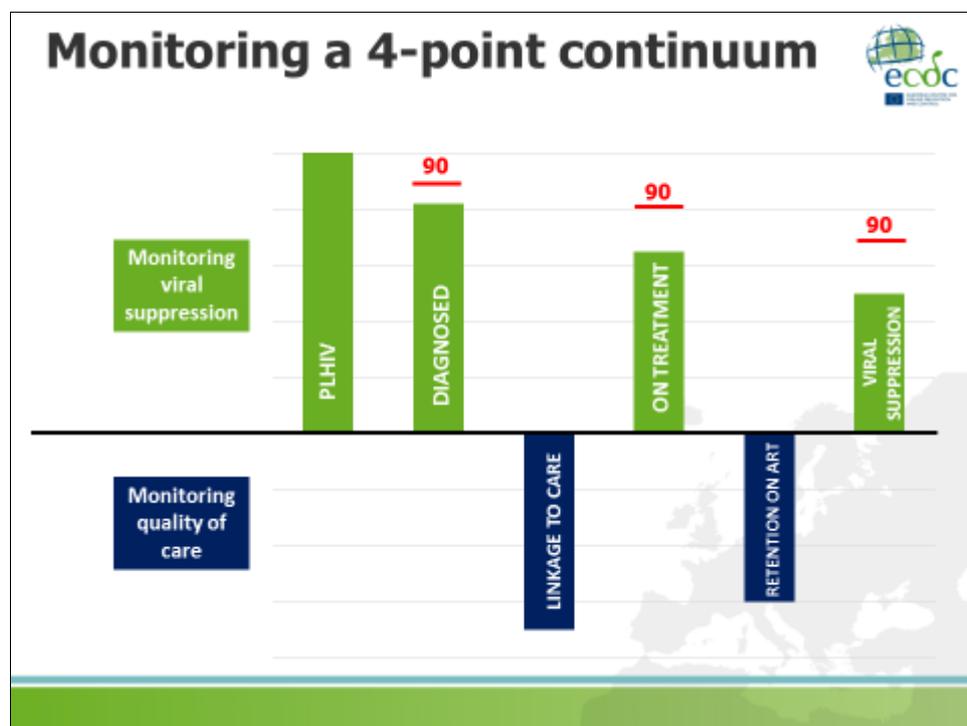
- The implications of developments such as chemsex and PrEP for surveillance systems and interpretation of surveillance data need to be considered. In the UK, for example, in anticipation of PrEP, the surveillance system is being adjusted to ensure that it will be possible to distinguish any actual increase in STI from an apparent increase resulting from an increase in or more frequent testing. It was also noted that some MSM are using PrEP in countries such as the UK where the drugs are not yet licensed. In France, HIV surveillance has been revised to include a PrEP prescription variable and STI surveillance has been revised to include a variable concerning whether a person was on PrEP when they were infected with an STI.
- The issue of chemsex, and injecting among MSM in particular, also raises questions about variables relating to population group and mode of transmission.

3. HIV network

3.1 Update on ECDC activities

Teymur Noori, Lara Tavošchi and Anastasia Pharris (ECDC) presented an update on ECDC HIV priorities and activities. Three priority areas are to support Member States to improve monitoring of the HIV continuum of care, to reduce the undiagnosed fraction and to strengthen prevention for key populations.

Activities related to the HIV continuum of care have included: i) producing a report, based on country data reported for Dublin Declaration monitoring; ii) holding an expert meeting, which agreed on use of a four-point continuum for monitoring for public health purposes (see figure below) and discussed opportunities to establish standard definitions and; iii) bring together surveillance and clinical cohort data. ECDC is implementing two projects to explore the use of surveillance and cohort data to improve monitoring of the continuum of care – assessing the representativeness of cohort data compared with surveillance data (see Section 3.3) and constructing continuums of care based on national cohorts, which will be taken forward under a recently launched framework contract.



With respect to prevention, priority populations are MSM and migrants. ECDC has issued [guidance on HIV and STI prevention among MSM](#) and supported a range of activities relating to the use of new technologies, in particular mobile applications, for HIV prevention and outreach e.g. collaboration with Aidsmap and app owners has resulted in the development of the European Test Finder and guidance on use of digital platforms and social media is being developed. ECDC published a [scientific opinion on PrEP](#) in 2015 and a meeting to discuss implementation issues and ECDC support for countries that are considering implementing PrEP will be held in April this year.

Activities related to reducing the undiagnosed fraction are focussed on promoting HIV testing and gathering sound strategic information to better tailor testing approaches. Results of the impact evaluation of the 2010 ECDC HIV testing guidance were presented alongside the planned way forward. This includes the update of the HIV testing guidance, country HIV testing service delivery

models and the European Test Finder and making these and other testing-related information available through an ECDC HIV testing web portal. An expert consultation is planned later in 2016 to explore the feasibility of developing a common framework for monitoring HIV testing services in the EU/EEA.

As a continued part of core activities of the ECDC programme on HIV, ECDC will also continue efforts to improve HIV data through support to countries to use the [ECDC HIV Modelling Tool](#) to develop more accurate estimates of the number of people living with HIV (see Section 3.2) and through enhanced surveillance analysis of e.g. trends in HIV diagnoses among migrants, in HIV among older adults and in HIV and STI among 15-24 year olds. ECDC has launched an online [Surveillance Atlas of Infectious Diseases](#) to make data more accessible and plans to integrate TESSy data for selected HIV variables into the Atlas in 2016; ECDC national contact points for HIV epidemiology will have the opportunity to review and approve data, maps and graphs before these are published in the Atlas.

Comments from participants included:

- The need to consider quality assurance for sites included in the European Test Finder and to encourage feedback so that the Test Finder can be kept up-to-date.
- The need for the continuum of care to include some measure of quality of life.

3.2 HIV modelling and estimates

Chantal Quinten (ECDC) provided an update on the ECDC modelling tool and validation project. The aim of the modelling project is to enable countries to produce more accurate estimates of the total number of people living with HIV. ECDC has conducted three trainings for Member States and feedback will be used to improve the tool. Overall, countries report that the tool is user-friendly and produces reliable estimates, but there is a need for more guidance on preparation of data and minimum completeness for input variables as well as ongoing support after training. ECDC has also validated the tool using estimates from five countries, and conducted a workshop with UNAIDS and these countries to compare outcomes of the modelling tool and the UNAIDS Spectrum approach.

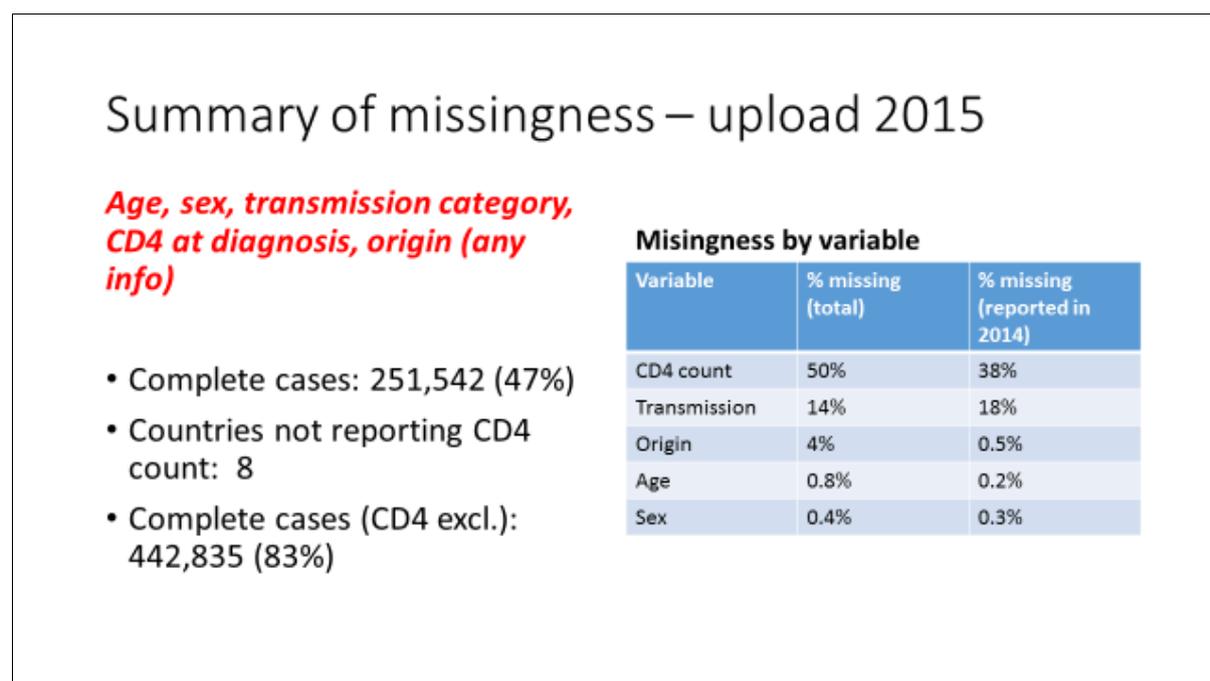
Later in the session participants voted with regard to the acceptability of developing an EU estimate of the number of people living with HIV and the number undiagnosed. There was strong support for developing an EU-estimate, although it was acknowledged that this may be challenging due to differences in surveillance systems. There was also support for inclusion of country estimates in future surveillance or European reports, however further discussion is needed to determine a mechanism for this.

A new ECDC project, in collaboration with the University of Athens and the National Institute of Public Health in Poland, is looking at how to improve HIV surveillance data quality and how to capture data on migrants in the model. ECDC is also planning a consultation meeting in the latter part of 2016 to identify solutions to common problems and ways to improve use of the model.

Magda Rosinska (National Institute of Public Health, Poland) elaborated on the work being done by the ECDC project to improve HIV estimates by addressing the limitations in HIV surveillance data (e.g. under-reporting, double-reporting, delayed reporting, missing information and misclassification), with a specific focus on adjustment for missing values and reporting delay. The objectives of the project are to: assess surveillance data quality problems at country level; identify existing methods for statistical adjustments of estimates based on surveillance data with quality issues; and evaluate the feasibility and usefulness of different models for improving the utility of surveillance data in Europe.

Key variables for HIV estimates include: transmission category, CD4 count at diagnosis, outcomes and migration status. Project review of TESSy data shows that completeness of HIV data is relatively good, but missing values are a challenge. For example, in 2015, completeness of data on CD4 count was low, at around 50%; other variables were more complete i.e. 83% of cases with complete information if CD4 is excluded (see figure below).

The project has also conducted a country survey to assess challenges compromising the quality of case-based HIV surveillance data, identify methods used to address data quality issues, and seek country views about future European-level HIV surveillance and support to improve surveillance data utility.



Twenty six EU/EEA countries responded to the survey and the main challenges to data quality and relevance reported by countries were missing data, misclassification, under-reporting and reporting delay. Reasons for missing data, for example, include data source reporting on only a sub-set of cases, losses to follow up and weak links between registries. Most countries address the problem of missing data through direct contact with data providers. In terms of desired improvements, 15 countries identified the need for a tool to adjust for missing values or reporting delays and 17 suggested implementing possible adjustments on combined European data and/or country data. Next steps for the project will include implementing available imputation methodologies on missing data by country and at EU level and adjusting the reporting delay methodology.

Key points raised in the subsequent discussion included:

- How to record pre-existing diagnosis among migrants – a few countries already collect data and differentiate these cases using the “HIV status” variable. Other countries may consider using this variable to differentiate such cases.
- How to define reporting delay – this is based on the date of notification vs. the date of reporting. Some countries noted that cases can be reported early but that subsequent additional information (ie CD4 and/or transmission) is reported late, which is a challenge for surveillance.

3.3 Use of HIV cohort data to enhance HIV surveillance

Georgia Vourli (Athens University Medical School) presented an ongoing ECDC project that is exploring the possibility of using data from the European HIV cohorts within EuroCoord to supplement data collected through HIV surveillance and monitoring. The project, which is supported by an advisory group of epidemiological and statistical experts, including members of the HIV Surveillance Network, aims to analyse the representativeness of new diagnoses drawn from TESSy alongside data from EuroCoord for the 10 participating countries, improve understanding of whether and where cohort data can be generalised, and explore and propose methods to improve representativeness.

The project will describe the distribution of individuals' age at diagnosis, sex, mode of infection and country of origin in both the surveillance and the cohort system. This will be done through a repeated analysis looking at patients diagnosed during different time periods, including 2000, 2005, 2010, and 2013. It was deemed not feasible to do an analysis of all cases ever diagnosed, due to the diversity of cohorts and surveillance systems' coverage over time. Members of groups that are under-represented will be assigned a larger weight compared to those over-represented in the cohort. The weighted cohort will then be more representative of the full HIV diagnosed population. An example of how this approach was applied to the Greek AMACS cohort data and the Greek HIV surveillance system was given, where there was a need to increase the weight of persons with IDU as a route of HIV transmission and foreign born origin, as these were under-represented in the cohort.

Annabelle Gourlay (EuroCoord/University College London) presented an ECDC project on estimating the HIV continuum of care, which aims to assess the utility of national cohort data in constructing national HIV care continuums and which was informed by discussions during the September 2015 ECDC meeting on improving monitoring of the continuum of care. The project aims to apply standardised definitions to data from 11 participating countries, using HIV surveillance data for measures of people living with HIV and those diagnosed and using EuroCoord HIV cohort data to measure those on treatment and those virally suppressed. Specific project objectives included to establish or enhance links between cohort investigators and public health and surveillance counterparts, to provide definitions and a framework for analysing the HIV continuum of care, as well as providing estimates for the continuum of care in participating countries. Definitions for the four-point continuum used by the project to generate a snapshot for 2013 were:

- i. Number of PLHIV in each country by the end of 2013 (modelling estimates)
- ii. Proportion of PLHIV ever diagnosed (surveillance)
- iii. Proportion ever diagnosed who ever initiated ART (cohort data)
- iv. Proportion ever on ART who were virally suppressed < 200 copies/mL at last visit (cohort)

Challenges in standardisation of methods have included limited out-migration data, linking migration and death data, differences in surveillance systems, time periods or changes over time, standardised modelling for different kinds of surveillance systems, distinguishing between linked to care and diagnosed, representativeness and coverage of cohorts, losses to follow-up in cohort data. The project has highlighted the need to understand the data presented and how to interpret it, including reasons for observed estimates and other differences aside from the definitions, such as cohort inclusion criteria and treatment guidelines. Preliminary results of initial analyses were discussed and will be presented at the AIDS 2016 conference in Durban.

Amanda Mocroft (EuroSIDA/University College London) presented data on improving public health information on HIV through synergy between HIV surveillance and cohorts. EuroSIDA is a prospective cohort study that started in 1994 and includes 21,880 patients followed in 115 clinics in 35 European countries. Ten different cohorts of patients have been recruited since 1994. The most recent cohort, cohort 10, includes only people who are co-infected with HCV. Each cohort has a different regional distribution. Of the total EuroSIDA patients, 74% are men; about 36% of patients are MSM, 28% are heterosexual and 28% are IDU. About 57% have ever started ART. More than 500,000 samples are available for EuroSIDA patients, including serial CD4 and viral load measurements.

EuroSIDA has been examining quality of care by looking at viral suppression for 90% of the observation time. Analyses (Podlekareva et al BMC Inf Disease 2012) show regional variations in viral suppression over time. Additional EuroSIDA data provided information on the frequency of viral load monitoring between regions and countries disaggregated by those on and those off ART. Between 2010 and 2014, EuroSIDA data indicated that there has been an increase in ART coverage in most regions, but less in Eastern Europe. Clinical events (new AIDS diagnoses and deaths) can also be measured. Cascades of care over time in Europe were 70% of people were on ART and had viral suppression. There was considerable variation in country data on proportion of persons on ART and virally suppressed.

Key points raised in the subsequent discussion following these presentations included:

- Possible mismatches between date of diagnosis in surveillance and cohort systems, as well as emigration or death reporting. There was a suggestion from Belgium to use the cohort to correct the national surveillance data in order to account for emigration. Other suggestions included comparing the national surveillance system with the sub-set of patients in UK CHIC and comparing Portuguese and Polish cases in the HIV systems to the national treatment registry.
- The rationale for the definition "ever on ART" versus "currently on ART"; the latter was seen to be more a more relevant concept to measure.
- The potential for the EuroSIDA network to inform European work, given that there is the possibility for standardised longitudinal data collection and that EuroSIDA includes clinical centres in countries without national cohorts. It was noted that there are inclusion and exclusion criteria and that EuroSIDA patients do not represent all patients in Europe, but EuroSIDA data could be a good framework for quality of care studies across Europe.
- The potential to establish a core dataset including variables on demographics, clinical events and treatment, with additional modules on TB co-infection, burden of disease, hepatitis C. This would necessitate the inclusion of a random sample of patients from each clinic. Going forward, research could focus on countries with less national data using existing infrastructure.

4. STI network

4.1 Use of surveillance data to document progress towards elimination of congenital syphilis

Lali Khotenashvili (WHO) provided an overview of the role of surveillance in the elimination phase of congenital syphilis infection. Available data shows that the number of newly reported cases of congenital syphilis in the WHO European region fell between 2002 and 2006 and has remained relatively stable since then. WHO has established impact and process indicators and targets for elimination, e.g. the target for the impact indicator is an incidence of ≤ 50 cases of congenital syphilis per 100,000 live births. In the region, 31 countries have a congenital syphilis strategy and/or programme and 33 have a policy recommending universal syphilis testing for pregnant women. Some countries have also made significant progress e.g. Moldova is ready for validation and Bulgaria and Belarus have the potential to progress towards validation; and WHO has planned further validation readiness assessment missions in 2016.

Lack of data is a major challenge. Relatively few countries have data on the core process indicators for validation. For example, only 24 countries have data on the percentage of women attending antenatal care who are screened for syphilis, 20 have data on the percentage of syphilis seropositive pregnant women, and only 10 have data on the percentage of seropositive women who are treated for syphilis with at least one dose of penicillin; only 6 countries in the region can report on all three of these indicators. The rate of congenital syphilis per 100,000 population remains the main indicator in a number of countries and a key question is how to demonstrate elimination in the absence of data for the core process indicators. Other challenges relate to the heterogeneity of congenital syphilis case definition, use of terminology, and the quality of data and robustness of data systems.

Marta Niedźwiedzka (Poland) discussed experience of using surveillance data to document progress towards elimination. Available data on the incidence of congenital syphilis for 2011-2014 shows an overall incidence rate in Poland of around 5/100,000 live births; however, incidence varies across the country and in some regions the mean rate for 2010-2014 was far higher. Until 2013, syphilis surveillance was based on aggregate reporting; since 2013 it has been based on case reporting, using the EU 2008 case definition. Although case reporting is mandatory for all clinicians and laboratories, there is under reporting. There are also 'possible' or 'probable' cases of congenital syphilis, i.e. cases recognised by a clinician but without laboratory confirmation, and these account for a significant proportion of total cases reported by sanitary-epidemiology stations (only 7 of 20 cases in 2014 and 8 of 18 in 2013 were confirmed cases). There are also issues related to classification of cases and lack of information in case reports. To improve the ability to assess progress towards elimination, steps need to be taken to assess reported cases, obtain case reports for cases that were not reported, and improve data on antenatal testing rates.

Tonka Varleva (Bulgaria) presented on the experience of documenting elimination of congenital syphilis using the WHO process, which included establishing a national working group, preparing the country report and other relevant documentation, application of the validation tools and verification of data. The process highlighted a number of challenges, e.g. limited uptake of antenatal care by some population groups, lack of integration of STI reporting and the complexity of the STI reporting system, and the National Health Insurance Fund only reports data on antenatal screening for women who are tested twice not for those who are only tested once.

Key points raised during the panel discussion following the presentations were:

- Some countries with very few cases of congenital syphilis will have difficulties in meeting the criteria for elimination, mainly because they do not collect data on the validation indicators.
- Some countries do not report to TESSy e.g. countries where reporting of congenital syphilis is not mandatory.

4.2 ECDC update and priorities

Otilia Mårdh (ECDC) provided an update on Epidemic Intelligence Information System (EPIS) STI reporting and future plans.

In 2014 and 2015 there were relatively few STI alerts. For example, in 2014, three countries, Belgium, Ireland and Portugal, reported observations on increased number of LGV cases; the UK reported increased notification of syphilis cases; Lithuania used the platform for reporting congenital syphilis; and increased antimicrobial resistance in *N. gonorrhoeae* was notified by the UK. In 2015, Ireland reported an increase in Shigella cases among MSM in Dublin and the UK reported a cluster of resistant *S. sonnei* among MSM in London.

EPIS has various platforms, but further development of these is on hold pending ECDC surveillance systems revisions. In the meantime, possible options for the EPIS STI platform are shown in the figure below:

Possible ways for EPIS STI *on short term!*



EPIS VPD model EPIS STI "migration"

SharePoint 2010

Includes:

- Urgent Inquiries
- General forum
- Announcements
- "Alert me": notifications for new/updated UI

Independent EPIS STI EPIS STI "remodelled"

SharePoint 2010

Keep current functionalities except "STI Alert Forum":

- STI Report
- General Forum
- Network Announcements
- Add "Alert me"
- No Null reports



Current data/reports will not be migrated.

Gianfranco Spiteri (ECDC) outlined plans for an ECDC project to support Member States to enhance understanding of STI epidemiology and strengthen responses to STI epidemics. Proposed steps would include: inviting countries with similar epidemiological profiles to participate; using a self-assessment questionnaire to describe sexual health services, national epidemics and response capacity; and organising workshops to promote dialogue and partnerships between countries, clinicians, civil society and other stakeholders. ECDC anticipates that the project will contribute to: better understanding of STI epidemiology, sexual health services and implementation of international and ECDC recommendations for STI prevention and control; sharing of examples of good practice; and identification of areas for improvement and ECDC support e.g. guidance, training, outbreak support.

Participants were happy for ECDC to revise and update EPIS STI; specific suggestions included providing better information about the platform and ensuring access through national coordination bodies. Participants were also supportive of the proposed ECDC project.

Andrew Amato (ECDC) presented a summary of ECDC's HIV, STI and hepatitis programme priorities for scientific advice and prevention during 2016-2017. ECDC's work will focus on at risk populations, with an emphasis on reducing infections among MSM and reducing the undiagnosed fraction. Priorities for scientific advice (see Session 1) reflect feedback to an ECDC survey from 24 countries. Comments from participants on ECDC priorities and feedback to the survey included:

- The need to consider the potential of mobile apps to increase testing and provide opportunities for prevention for other populations as well as MSM.
- The need to consider the likely impact of home sampling/screening on services i.e. as use of this approach increases fewer people will come to sexual health services for screening.
- The potential to use multiple test kits for prevalence surveys in order to generate prevalence data for multiple STI.
- The need to prioritise *M. genitalium* testing among those who are symptomatic and to assess the extent of co-infection e.g. of chlamydia and *M. genitalium*.

4.3 Emerging issues in STI

Otilia Mårdh (ECDC) presented an update on Zika virus infection. It is mostly asymptomatic and there is no vaccine and no specific antiviral treatment. Although mostly a vector-borne infection, transmitted by mosquitoes, there have been reports of sexual and vertical transmission and there is also a potential risk of transmission via blood transfusion. Sporadic cases have been reported in Africa and Asia, and outbreaks in Micronesia in 2007 and French Polynesia in 2013. In 2015, a significant number of cases (estimated at 0.4-1.3 million) were reported in Brazil. The infection is linked to severe pregnancy outcomes including microcephaly, CNS malformations, fetal growth retardation and fetal death, and to Guillain-Barré syndrome.

In the EU/EEA, as of 3 March 2016, 209 imported cases, including 10 in pregnant women, had been reported in 15 countries [Austria (1), Czech Republic (2), Denmark (1), Finland (2), France (81), Germany (26), Ireland (3), Italy (9), Malta (1), Netherlands (30), Portugal (7), Slovakia (1), Slovenia (1), Spain (32), Sweden (2), and the UK (10)].

The first case of sexual transmission of the virus was reported in the US in 2008 and a case of sexual transmission was reported in Italy in 2014; both cases were women infected by symptomatic male partners returning from travel. Four further cases of sexual transmission to females from symptomatic male returning travellers have been reported in 2016, two in the US, one in Argentina and one in France. Evidence for the risk of sexual transmission includes detection of the virus in semen and saliva, and WHO has now acknowledged that the risk of sexual transmission is more common than previously assumed. ECDC has issued recommendations to reduce the risk of sexual transmission and complications during pregnancy, and will shortly publish a risk assessment. Recommendations and additional information about Zika are available on the ECDC website.

Annex 1: Programme

WEDNESDAY 9 MARCH	
08:30 – 09:00	REGISTRATION
<p>Session 1: Opening Chairs: Barbara Suligoj and Andrew Amato Session objective: To provide an update on recent key ECDC activities and priorities for HIV and STI</p>	
09:00 – 09:15	Welcome and objectives of the meeting (Andrew Amato, ECDC)
09:15 – 09:30	Feedback from the HIV/STI Coordination Committee (Vasileia Konte, Greece)
<p>Session 2: HIV and STI in men who have sex with men-- emerging trends and key challenges for Europe Chairs: Barbara Suligoj and Andrew Amato Session objective: Emerging trends in HIV and STI surveillance, prevention and control among MSM in Europe</p>	
09:30 – 09:45	Recent trends in HIV and STI diagnoses among MSM in the EU/EEA (Gianfranco Spiteri, ECDC)
09:45 – 10:00	Sexually transmitted enteric infection outbreaks (Gwenda Hughes, United Kingdom)
10:00 – 10:15	PrEP, treatment as prevention and HIV and STI trends in Europe (Henry de Vries, Netherlands)
10:15 – 10:30	Discussion
10:30 – 11:00	COFFEE
Chairs: Isabelle Giraudon and Teymur Noori	
11:00 – 11:20	Sexualised drug use in Europe: Overview of data, information and trends (Adam Bourne, Sigma Research/LSHTM)
11:20 – 11:40	Mobile social networking applications (Sean Howell, Hornet)
11:40 – 12:00	How can Google help predict and better understand interventions on HIV? (Qing Wu, Google)
12:00 – 12:15	Discussion
12:15 – 12:45	Moderated panel discussion
12:45 – 14:00	LUNCH

PARALLEL SESSION: HIV NETWORK

Session 3: New frontiers for HIV surveillance in the EU/EEA

Chairs: Anastasia Pharris and Luis Mendao

Session objective: To update and consult on short-term priorities for ECDC focus with regard to HIV including future directions for HIV surveillance, modelling and estimates work

14:00 – 14:30	Update on ECDC activities on HIV
14:30 – 16:00	<p>Current status and future directions for HIV modelling and estimates</p> <ul style="list-style-type: none"> • ECDC Modelling tool: update and validation project (Chantal Quinten, ECDC) • Development and standardisation of EU estimates (Anastasia Pharris, ECDC) • New methods for improving HIV estimates (Magda Rosinska and Janusz Janiec, Poland)
16:00 – 16:30	COFFEE

Session 4: Exploring HIV cohort data to enhance HIV surveillance in Europe

Chairs: Amanda Mcroft and Teymur Noori

Session objective: To explore and discuss how HIV clinical data including cohorts can be used to enhance the information available through HIV surveillance

16:30 – 16:45	Evaluating representativeness of HIV surveillance systems and cohorts (Georgia Vourli, University of Athens)
16:45 – 17:05	Estimating the HIV continuum of care using HIV cohort and surveillance data (Annabelle Gourlay, University College London, EuroCoord)
17:05 – 17:25	How can we use the EuroSIDA network to estimate the quality and continuum of HIV care? (Amanda Mcroft, University College London, EuroSIDA)
17:25 – 17:50	Discussion: How can we improve public health information on HIV through synergy between HIV surveillance and HIV cohorts?
17:50 – 18:00	Summary and closing (Anastasia Pharris, ECDC)
18:30	ECDC-hosted reception (Crowne Plaza Hotel)

PARALLEL SESSION: STI NETWORK

Session 3: Towards validation of elimination of congenital syphilis in Europe

Chairs: Vasileia Konte and Otilia Mårdh

Session objective: To discuss how surveillance for STI in Europe could be further improved to respond to policy needs

14:00 – 14:15	Congenital syphilis surveillance in the elimination phase (Lali Khotenashvili)
14:15 – 14:30	Congenital syphilis in Poland – using surveillance data for documenting the progress toward EMTCT (Marta Niedźwiedzka)
14:30 – 14:45	Documenting the elimination of congenital syphilis – WHO process from a country perspective - Bulgaria (Tonka Varleva)
14:45 – 15:05	Panel discussion: use of surveillance data for documenting elimination of congenital syphilis
15:05 – 15:35	COFFEE

Session 4: Priorities for scientific advice and prevention activities

Chairs: Andrew Amato and Peter Truska

Session objective: Obtain feedback on the ECDC priorities for scientific advice for 2016 and 2017

15:35 – 15:45	EPIS-STI, reporting overview and plans for development (Otilia Mårdh)
15:45 – 16:00	Supporting member states' response to STI epidemics through a regional approach (Otilia Mårdh, Gianfranco Spiteri)
16:00 – 16:20	ECDC scientific advice and priorities for 2016/17: current plan and survey results (Andrew Amato)
16:20 – 16:30	Emerging issues in sexually transmitted infections: Zika virus (Otilia Mårdh)
16:30 – 16:50	Discussion
16:50 – 17:00	Summary and closing (Andrew Amato)
18:30	ECDC-hosted reception (Crowne Plaza Hotel)

Annex 2: List of participants

Name	Country
Adela Vasili	Albania
Alexander Spina	Austria
Angelika Eigentler	Austria
Lukas Richter	Austria
André Sasse	Belgium
Ruth Verbrugge	Belgium
Tania Crucitti	Belgium
Sanjin Musa	Bosnia and Herzegovina
Tonka Varleva	Bulgaria
Blaženka Hunjak	Croatia
Mirjana Lana Kosanovic Licina	Croatia
Tatjana Nemeth Blažić	Croatia
Hana Zákoucká	Czech Republic
Marek Maly	Czech Republic
Vratislav Nemecek	Czech Republic
Steen Hoffmann	Denmark
Susan Cowan	Denmark
Jevgenia Epštein	Estonia
Kristi Rüütel	Estonia
Rita Peetso	Estonia
Eija Hiltunen-Back	Finland
Kirsi Liitsola	Finland
Dragan Kocinski	Former Yugoslav Republic of Macedonia, the
Agathe Goubard	France
Florence Lot	France
Ndeindo Ndeikoudam Ngangro	France
Barbara Gunsenheimer- Bartmeyer	Germany
Klaus Jansen	Germany
Susanne Buder	Germany
Viviane Bremer	Germany
Georgios Nikolopoulos	Greece
Vasileia Konte	Greece

Name	Country
Ágnes Csohán	Hungary
Balla Eszter	Hungary
Mária Dudás	Hungary
Guðrún Sigmundsdóttir	Iceland
Derval Igoe	Ireland
Gillian Cullen	Ireland
Lisa Rose	Ireland
Silvia Pessah-Eljay	Israel
Barbara Suligoj	Italy
Paola Stefanelli	Italy
Luljeta Gashi	Kosovo*
Gatis Pakarna	Latvia
Violeta Mavcutko	Latvia
Algirdas Griškevičius	Lithuania
Irma Caplinskiene	Lithuania
Saulius Caplinskas	Lithuania
Christopher Barbara	Malta
Tanya Melillo Fenech	Malta
Alma Cicic	Montenegro
Alje van Dam	Netherlands
Birgit van Benthem	Netherlands
Eline Op de Coul	Netherlands
Hans Blystad	Norway
Hilde Kløvstad	Norway
Martin Steinbakk	Norway
Magdalena Rosińska	Poland
Marta Niedźwiedzka-Stadnik	Poland
Antonio Diniz	Portugal
Maria José Borrego	Portugal
Denisa Janta	Romania
Mariana Mardarescu	Romania
Marina Pana	Romania

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo Declaration of Independence

Name	Country
Danijela Simic	Serbia
Danica Staneková	Slovakia
Mária Avdičová	Slovakia
Peter Truska	Slovakia
Peter Pavlík	Slovakia
Irena Klavs	Slovenia
Samo Jeverica	Slovenia
Julio Vazquez	Spain
Maria Asuncion Diaz Franco	Spain
Inga Velicko	Sweden
Maria Axelsson	Sweden
Sven Löfdahl	Sweden
Andrew Skingsley	United Kingdom
Gwenda Hughes	United Kingdom
Helen Fifer	United Kingdom

Consultants, Guests, and Speakers

Name	Affiliation
Adam Bourne	LSHTM/Sigma Research
Amanda Mocroft	UCL/EuroSIDA
Annabelle Gourlay	UCL/EuroCoord
Ard van Sighem	Stichting HIV Monitoring
Claudia Rank	Public Health Agency of Canada
Cuong Chau	Public Health England
Francesco Tripodo	Public Health England
Gail Bolan	CDC
Georgia Vourli	Athens University Medical School
Gisela Leierer	Medical University of Innsbruck, Department of Dermatology and Venereology
Henry de Vries	University of Amsterdam, Academic Medical Centre
Isabelle Giraudon	EMCDDA
Janusz Janiec	National Institute of Public Health Poland- NIH
Jørgen Skov Jensen	Statens Serum Institut
Kathy Attawell	ECDC Consultant

Kristina Tomas	Public Health Agency of Canada
Luis Mendao	Civil Society Forum on HIV/AIDS
Magnus Unemo	Örebro University Hospital
Martí Vall-Mayans	IUSTI
Michelle Cole	Public Health England
Nikos Pantazis	Athens University Medical School
Peter Kirwan	Public Health England
Sara Croxford	OptTest
Sarah Woodhall	Public Health England
Sean Howell	Hornet Gay Social Network
Sini Pasanen	Civil Society Forum on HIV/AIDS
Susanne Jacobsson	Örebro University Hospital
Tariq Sadiq	The Institute for Infection and Immunity, St George's, University of London
Velina Pendolovska	European Commission (DG SANTE)
Qing Wu	Google

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Andrew Amato	ECDC
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Anastasia Pharris	ECDC
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Lara Tavoschi	ECDC

WHO Regional Office for Europe

Name	Affiliation
Annemarie Stengaard	WHO Regional Office for Europe
Lali Khotenashvili	WHO Regional Office for Europe