RAPID RISK ASSESSMENT

# Potential public health risks related to communicable diseases at the WorldPride festival in Madrid, 23 June–2 July 2017

05 May 2017

## Main conclusions and options for response

WorldPride Madrid 2017 is a festival that promotes lesbian, gay, bisexual and transgender issues at an international level and will take place in Madrid between 23 June and 2 July 2017. This document assesses the risk of outbreaks and transmission of communicable diseases during the festival period. For respiratory and vector-borne diseases, the risk is considered low, for food and waterborne diseases the risk is low to moderate, for vaccine-preventable diseases, it is moderate and for sexually transmitted infections, the risk is moderate to high.

People attending should consider the following options prior to, during, and after WorldPride Madrid 2017.

### Prior to travelling to WorldPride

- Seek advice from healthcare providers on vaccination recommendations issued by the Spanish health authorities and on routine vaccination courses and boosters as recommended in each respective EU country of residence. See ECDC vaccine schedule site.
- Be aware of the ongoing hepatitis A virus (HAV) infection outbreaks affecting men who have sex with men (MSM) in EU countries and ask for a review of HAV vaccination status.
- Obtain advice on the prevention of sexually transmitted infections (STI) and the practice of safer sex. Men who have sex with men in particular, should check their vaccination status against hepatitis A and B and ask healthcare providers about national recommendations on HIV pre-exposure prophylaxis (PrEP).
- Ensure coverage with valid health insurance or obtain a European Health Card

### During the WorldPride event

- Follow standard hygiene measures and advice on the prevention of food and waterborne diseases to decrease the risk of gastrointestinal illness, and consider general hygiene practices when consuming food and drink.
- Practice safer sex* using condoms to prevent sexually transmitted infections, including HIV and hepatitis B and C. Additionally, avoid faecal-oral exposure during sexual activity in order to prevent other infections such as shigellosis and hepatitis A (i.e. use of dental dams for oral sex, latex gloves for fingering or fisting,

* British Association for Sexual Health and HIV. A BASHH guide to safer sex. https://www.bashh.org/public/safer-sex-advice/

Erratum 10 May 2017: Corrections were made in the second and third bullet point in the 'Communicable diseases in Spain' section. There were also additional experts added in the 'Consulted experts' section.

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washing of genital and anal areas and of hands before and after sex).

## After the WorldPride event

- If experiencing symptoms suggestive of an infection consider contacting a healthcare provider.
- If engaged in unprotected sexual activity with a casual partner consider contacting a healthcare provider for advice on testing for STIs, including HIV and hepatitis. Alternatively, use the European Test Finder* tool to identify the most conveniently located testing centre.
- If travellers require hospitalisation within one year of being hospitalised in another country, they should report their previous hospitalisation, in order for possible acquisition of antimicrobial-resistant bacteria to be checked and appropriate measures to be put in place to prevent the further spread of AMR.

Based on the epidemiological profile for infectious diseases in Spain, the profile of the visiting populations and general risks during a mass gathering event, ECDC will conduct enhanced epidemic intelligence surveillance for communicable diseases from 21 June to 5 July 2017.

# Source and date of request

ECDC internal decision on 14 April 2017.

# Public health issue

International mass gatherings pose a risk for communicable disease transmission and outbreaks. The aim of this document is to assess the health risks related to communicable diseases in the context of the WorldPride festival in Madrid, from 23 June to 2 July 2017. This assessment provides the basis for ECDC's monitoring of health threats during WorldPride Madrid 2017.

# Consulted experts

ECDC experts (in alphabetical order): Karam Adel Ali, Andrew Amato, Chiara Bellegarde de Saint Lary, Sergio Brusin, Denis Coulombier, Tarik Derrough, Romit Jain, Josep Jansa, Kaja Kaasik-Aaslav, Piotr Kramarz, Otilia Mårdh, Thomas Mollet, Dominique Monnet, Teymur Noori, Anastasia Pharris, Lara Payne Hallström, Ines Reulet, Bertrand Sudre, Ettore Severi, Gianfranco Spiteri, Johanna Takkinen, Lilian Van Leest, Julie Wendling, Herve Zeller.

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Experts from the World Health Organization (WHO) contributed to this risk assessment. Although experts from WHO reviewed this rapid risk assessment, the views expressed in this document do not necessarily represent the views of WHO.

All experts have submitted declarations of interest and a review of these declarations did not reveal any conflicts of interest.

** NAM Aidsmap. Available here: http://www.aidsmap.com/european-test-finder

# Health risks associated with mass gatherings

International mass gatherings may increase the risk of communicable disease transmission and therefore represent a challenge to the public health response. For host countries, several challenges are associated with mass gatherings such as:

- potential outbreaks of endemic or imported infectious diseases
- influx of susceptible individuals
- opportunistic sale of food and beverages not covered by food-safety inspections
- increased risk behaviour associated with alcohol and recreational drugs use
- language communication barriers
- increased pressure on sanitary facilities
- heightened security levels.

The increased sensitivity needed for identifying potential health threats, coupled with heightened media attention and political pressure, can place a considerable burden on public health functions and decision-making processes [1,2].

A number of infectious disease outbreaks associated with mass gatherings have been documented in the EU and internationally in the past. These include food- and waterborne outbreaks, vaccine-preventable diseases and respiratory illnesses [3-9]. However, no outbreak was reported during the World Youth Days in Madrid in 2011 and the Olympic Games in London in 2012, except for a few gastrointestinal and respiratory infections during the latter [6,10]. Similarly, no public health events of potential international concern were reported during the FIFA World Cup hosted by Brazil in 2014 or during the Olympic Games in Rio in 2016.

It can be difficult to determine if an outbreak that takes place in temporal association with a mass gathering would not have occurred in the absence of that event. It is likely that some events are detected because of the increased surveillance around mass gatherings.

The public health risks associated with mass gathering events can be classified as follows:

- risks associated with the movement of visitors to the host countries and how this affects the epidemiological situation in that country
- risks associated with being a participant at a mass gathering event
- risks associated with the return of participants and visitors from the event and the possible exportation of communicable diseases.

Factors that determine the level of risk include:

- demographics, epidemiology and behaviour of the host population
- environment, climate, time of year, seasonality of endemic diseases at the location
- demographics, epidemiology and behaviour of the population attending the mass gathering (e.g. age, health status, risk behaviour before and during the event, movements and interactions between host and visiting populations, vaccination status, etc.);
- risk assessments, planning, preparation, surveillance and preventive public health interventions such as pre-travel advice, on-site information at the mass gathering venue, information campaigns, food inspection, etc.

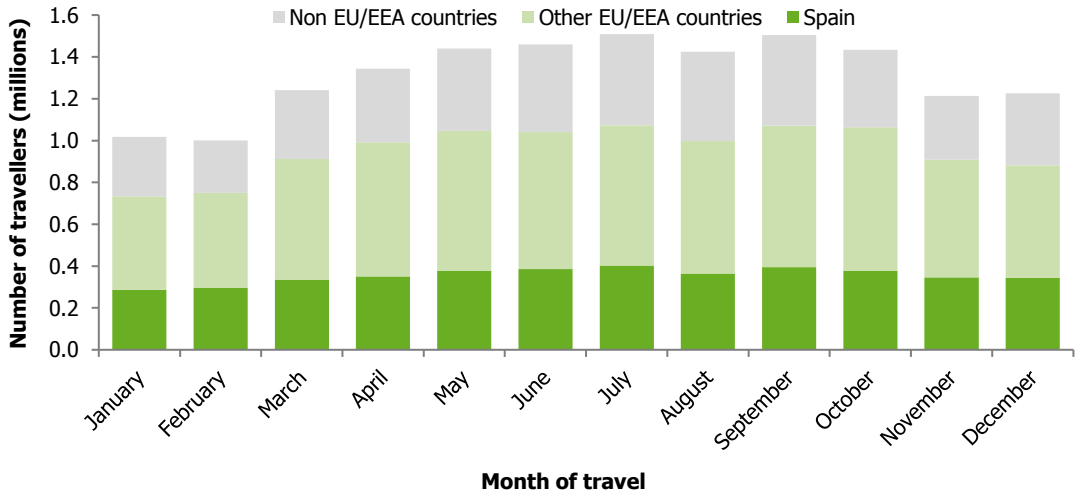
# Background information - WorldPride Madrid 2017

From 23 June until 2 July 2017, Madrid, Spain, will host a large mass gathering event, the WorldPride festival. According to the organisers' website, the event will bring nearly two million international visitors to the city. On 1 July, three million people are expected to participate in the world's largest Pride Parade in the centre of Madrid, starting at Atocha Station and ending in Plaza de Colón.

The events during WorldPride are scattered throughout Madrid. From Friday 23 June to Sunday 2 July 2017, a series of street celebrations will take place around the *Chueca* neighbourhood in downtown Madrid. The events comprise outdoor concerts on six different stages, parties, exhibitions, cultural and sporting activities.

Outside of organised mass gatherings, Madrid is a popular travel destination attracting millions of visitors every month (Figure 1). According to travel data from the International Air Transport Association (IATA), approximately 2.18 million people travelled to Madrid from abroad during June and July in 2015. Around 1.33 million of them came from an EU/EEA country.

**Figure 1. Distribution of air travellers to Madrid, Spain, by country group of origin and month, 2015**




*Source: International Air Transport Association.*

# ECDC threat assessment for the EU

## Communicable diseases in Spain

The overall profile of communicable diseases in Spain does not differ significantly from the rest of the EU. A short summary of the notable communicable disease events in recent years is provided below.

- Endemic transmission of measles in Spain was interrupted in 2015, however in the first three months of 2017 an outbreak of measles affecting around 40 unvaccinated or incompletely vaccinated adults in the Barcelona area was detected.
- Since the beginning of 2017 and as of 2 April 2017, Spain reported 1 314 cases of hepatitis A in the first three months of the year, compared with 198 cases for the same period in 2016. The Community of Madrid identified 313 cases up to 2 April and 435 cases up to 7 May 2017 [11]. Spain is affected by the large European outbreak of hepatitis A currently ongoing in several EU countries, mostly associated with MSM [12].
- In 2017, Spain detected 87 cases of meningococcal meningitis in the first thirteen weeks of the year, compared with 90 cases for the same period in 2016 [11]. The Community of Madrid identified six cases of meningococcal disease in the same period in 2017.
- According to the report on Legionnaires' disease in Europe, 2014, published in 2016, Spain reported 916 legionella cases. The main characteristics of the cases reported in 2014 were very similar to those reported in previous years: most cases were sporadic and community-acquired, and the disease affected mostly older males.
- In 2016, in Catalonia, an outbreak of enterovirus A71 associated with neurological complications affected over 100 children [17].
- Influenza season in Spain was between October 2016 and March 2017 according to FluNewsEurope.

# Risks associated with infectious diseases while attending WorldPride 2017

Outbreaks and spread of vaccine-preventable diseases are of particular concern during mass gatherings of any type due to the large number of people gathering in a concentrated geographical area.

After EuroPride 2016 in Amsterdam, Netherlands, the Dutch authorities reported two cases of hepatitis A among MSM in October 2016. The genetic sequence was identical to a large outbreak among MSM reported in Taiwan in 2016 [18]. Two additional strains of HAV sub-genotype IA are simultaneously circulating in Europe. From 1 June 2016 to 28 April 2017, 674 cases with an identical virus sequence to one of the three outbreak strains have been reported by Spain and 12 additional EU Member States, mostly among males, of which 83% are MSM [12]. ECDC guidance on HIV and STI prevention among MSM encourages Member States to offer and promote hepatitis A (and B) vaccine to all MSM [19] and the ECDC rapid risk assessment on hepatitis A outbreaks in the EU/EEA mostly affecting MSM identifies groups at high risk who should be prioritised for vaccination [18].

There have been documented outbreaks of meningococcal disease among MSM. In 2013, there were clusters of invasive meningococcal disease among MSM in European metropolitan centres caused by a serogroup C. *Neisseria meningitidis* strain. This strain was associated with an outbreak involving a high case-fatality rate that started in 2010 in New York City. Increased travel and international contacts in mass gathering settings, including sexual contact with partners from abroad, may be factors facilitating the spread of the disease among MSM [20].

EU travellers requiring hospitalisation or medical care in Spain have a low risk of acquiring healthcare-associated infections, including infections caused by antimicrobial-resistant bacteria, if standard precautions and other infection prevention and control measures are followed within hospitals and other healthcare facilities in Spain.

Foodborne outbreaks are a public health concern during mass gatherings due to the increased pressure on the local infrastructure for food preparation and sanitation for the participants.

There is low risk of respiratory illnesses and vector borne illnesses due to the seasonality or absence of the relevant vector during the time period of the event.

# Risk of importation of infectious diseases to Spain from the EU

The overall risk of food- or waterborne disease importation from another EU country to Spain is estimated to be low to very low. Due to the current ongoing outbreaks of vaccine-preventable diseases in Europe, there is a potential for importation of measles [21], meningitis and hepatitis A through infectious EU travellers. The risk of importation of other vaccine-preventable diseases is low to very low. There is a very low risk of importation of antimicrobial-resistant bacterial strains to Spain through infected EU travellers. The risk of importation increases slightly if those travellers were hospitalised during the months preceding travel.

# Risk for sexually-transmitted infections

It is expected that a large proportion of WorldPride Madrid 2017 attendees will be from lesbian, gay, bisexual and transgender (LGBT) populations. Data collected through the European Men-Who-Have-Sex-With-Men Internet Survey (EMIS) showed that 25% of MSM respondents reported having sex while travelling abroad in the previous 12 months, with a person not resident in the respondent's country of residence. Men over 25 years of age, those with a higher education, from large cities, or with HIV infection were more likely to report sex abroad. The countries where respondents most commonly had sex abroad were Spain (18%), Germany (11%), the USA (7%) and France (7%). The most common way of meeting sexual partners abroad was through the internet (32%), gay saunas (14%) or gay nightclubs and discos (13%). Combining sex and drugs (i.e. 'chemsex') was associated with increased risk of STI among EMIS respondents. According to the survey, being a resident of a large city was a strong predictor for chemsex [22].

There is a risk of HIV/STI transmission among those attendees that engage in unprotected sexual activity. Men who have sex with men are the population most affected by STIs and HIV in the EU/EEA, with 42% of the nearly 30 000 new HIV diagnoses in 2015 being among men who have sex with men [23]. Reported HIV prevalence in European MSM is above 10% in nine countries (Belgium, France, Georgia, Hungary, Malta, Montenegro, Romania, Slovakia and Spain) and between 5% and 10% in nine countries (Germany, Greece, Ireland, Kyrgyzstan, Moldova, Portugal, Serbia, Switzerland and Ukraine) [24].

Men who have sex with men also account for a large and increasing proportion of diagnoses of gonorrhoea (54%) and syphilis (75%), as well as for almost all cases of *Lymphogranuloma venereum* (99%) in the EU/EEA. Rates of syphilis in Spain (8.1 per 100 000 persons) are higher than the EU/EEA average (5.9) whereas gonorrhoea rates are lower (8.1) than the EU average (18.8).

Men who have sex with men accounted for the highest rates of gonorrhoea (four times more than in women or heterosexual men) and most (93%) syphilis cases diagnosed in STI clinics in the Netherlands in 2014 [25]. In 2014 in England, the reported rates of syphilis and gonorrhoea reached historical peaks, with MSM cases accounting for most of these increases [26].

Condom use during sex with partner/s of unknown viral burden or infection status is a major tool for preventing sexual transmission of HIV and of other STIs (although condoms do not provide complete protection against all STIs as they reduce but do not always eliminate mucosal contact) [19]. The risk of HIV transmission can be further decreased by consistent antiretroviral therapy in the infected partner that brings the viral load below detectable levels [27-29]. Pre-exposure prophylaxis (PrEP) - taking HIV medication before being exposed to HIV - either 'on-demand' or 'event based', has proved to effectively reduce the risk of HIV transmission through sex among gay and bisexual men [30-32]. Condom use and regular testing for prevention and diagnosis of other STIs are recommended for persons taking PrEP as recent studies indicate increased bacterial STI incidence [33] and hepatitis C prevalence [34] among MSM taking PrEP.

Gay pride events may offer opportunities for HIV/STI outreach testing that can identify undiagnosed infections. In 2009 and 2010, during Birmingham Pride events in the USA, of all the men visiting a testing centre, 98% accepted HIV testing and 96% syphilis testing, with 1.5% testing positive for HIV and 0.5% for syphilis [35]. STI testing will be also offered in Madrid during the event.

## Risks associated with the return of participants and visitors from WorldPride

Some communicable diseases are more likely to be exported from the event through returning travellers and could lead to spread in the country of residence. These include measles and rubella, and STIs including HIV and hepatitis A, B and C. Persons presenting with symptoms should contact their healthcare provider for diagnosis and treatment, and take measures to prevent further spread of infection through specific interventions (e.g. avoid handling food in case of HAV infection).

# Conclusions and options for response

WorldPride Madrid 2017 is the global LGBT Pride festival held in Madrid between 23 June and 2 July 2017. The risk of transmission and outbreaks of communicable diseases during the WorldPride Madrid 2017 is considered low for respiratory and vector borne diseases, low to moderate for food and waterborne diseases, moderate for vaccine preventable and moderate to high for sexually transmitted diseases.

Due to the current epidemiological situation in Spain and rest of the EU, prior to attendance, participants should consider seeking advice from their healthcare provider. They should ensure they are up to date with routine vaccination courses and boosters as recommended in their EU country of residence, and discuss the need for additional vaccinations or booster doses. In addition, participants should obtain advice on STI-prevention prior to attendance. Men who have sex with men in particular, should check their vaccination status against hepatitis A and B, and ask their healthcare provider about national recommendations on HIV pre-exposure prophylaxis (PrEP).

During the event, participants should follow standard hygiene measures and advice on the prevention of food and waterborne diseases to decrease the risk of gastrointestinal illness, and consider general hygiene practices when consuming food and drink.

Participants should practice safer sex[*] using condoms to prevent sexually transmitted infections, including HIV and hepatitis B and C. They should also avoid faecal-oral exposure during sexual activity and ensure proper personal hygiene (i.e. use of dental dams for oral sex, latex gloves for fingering or fisting, washing of genital and anal areas and of hands before and after sex) to prevent other infections such as shigellosis and hepatitis A.

After the event, if experiencing symptoms of infection or in case of unprotected sexual contact with a person or persons of unknown infection status, the participants should contact a healthcare provider for advice on testing for STIs, including HIV and viral hepatitis. They could also use the European Test Finder[*] tool to identify the most conveniently located testing centre. Testing of MSM who have engaged in unprotected sex, appropriate treatment and partner notification, can reduce the risk of further transmission of STI.

If travellers require hospitalisation within one year of being hospitalised in another country, they should report their previous hospitalisation, in order to check for the possible acquisition of antimicrobial-resistant bacteria and to put in place appropriate measures to prevent the further spread of AMR bacteria.

[**] http://www.aidsmap.com/european-test-finder

# ECDC actions for monitoring mass gathering events

The Autonomous Community of Madrid will implement daily surveillance specifically designed for this event, based on previous experience during the World Youth Day in 2011. Public health services will be reinforced in order to assure the best possible care for participants during the festival.

The Ministry of Health, Social Services and Equality of Spain will coordinate with ECDC in reporting surveillance results and any event of interest.

Based on the epidemiological profile for infectious diseases in Spain, the profile of the visiting populations and general risks during a mass gathering event, ECDC will conduct enhanced epidemic intelligence surveillance for communicable diseases from 21 June to 5 July 2017. Routine epidemic intelligence activities will be enhanced by expanding the information sources, using a targeted and systematic screening approach, tailoring tools (i.e. MedISys), determining validation sources, establishing a daily analysis and communication process with regular and specific public health partners and developing topical reports.

# References


1. Kaiser R, Coulombier D. Epidemic intelligence during mass gatherings. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin. 2006;11(12):E061221 3.
2. Abubakar I, Gautret P, Brunette GW, Blumberg L, Johnson D, Poumerol G, et al. Global perspectives for prevention of infectious diseases associated with mass gatherings. The Lancet infectious diseases. 2012 Jan;12(1):66-74.
3. Schenkel K, Williams C, Eckmanns T, Poggensee G, Benzler J, Josephsen J, et al. Enhanced surveillance of infectious diseases : the 2006 FIFA World Cup experience, Germany. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin. 2006;11(12):234-8.
4. European Centre for Disease Control and Prevention. Consultation of the ECDC Competent Bodies for Preparedness and Response. 2008.
5. Wilder-Smith A, Goh KT, Barkham T, Paton NI. Hajj-associated outbreak strain of Neisseria meningitidis serogroup W135: estimates of the attack rate in a defined population and the risk of invasive disease developing in carriers. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America. 2003 Mar 15;36(6):679-83.
6. Gardy JL, Naus M, Amlani A, Chung W, Kim H, Tan M, et al. Whole-Genome Sequencing of Measles Virus Genotypes H1 and D8 During Outbreaks of Infection Following the 2010 Olympic Winter Games Reveals Viral Transmission Routes. The Journal of infectious diseases. 2015 Nov 15;212(10):1574-8.
7. Pfaff G, Lohr D, Santibanez S, Mankertz A, van Treeck U, Schonberger K, et al. Spotlight on measles 2010: Measles outbreak among travellers returning from a mass gathering, Germany, September to October 2010. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin. 2010;15(50).
8. Public Health England. Outbreak Report Outbreak of Salmonella Agona phage type 40 associated with the Street Spice Festival, Newcastle upon Tyne February / March 2013. 2013.
9. Freidl GS SG, Bovée LP, Friesema IH, van Rijckevorsel GG, Ruijs WL, van Schie F, Siedenburg EC, Yang J, Vennema H. . Hepatitis A outbreak among men who have sex with men (MSM) predominantly linked with the EuroPride, the Netherlands, July 2016 to February 2017. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin. 2017;2017;22(8):pii=30468.
10. McCloskey B, Endericks T, Catchpole M, Zambon M, McLauchlin J, Shetty N, et al. London 2012 Olympic and Paralympic Games: public health surveillance and epidemiology. Lancet. 2014 Jun 14;383(9934):2083-9.
11. Institut Salud Carlos III. Epidemiological bulletin - Informe Semanal de Vigilancia 25 de abril de 2017 Spain2017. Available from: http://www.isciii.es/ISCIII/es/contenidos/fd-servicios-cientifico-tecnicos/fd-vigilancias-alertas/fd-boletines/fd-boletin-epidemiologico-semanal-red/pdf_2017/IS-170425-WEB.pdf.
12. European Centre for Disease Control and Prevention. Epidemiological update: Hepatitis A outbreaks in the EU/EEA mostly affecting men who have sex with men [Internet]. Stockholm2017. Available from: http://ecdc.europa.eu/en/press/news/_layouts/forms/News_DispForm.aspx?ID=1607&List=8db7286c-fe2d-476c-9133-18ff4cb1b568&Source=http%3A%2F%2Fecdc%2Eeuropa%2Eeu%2Fen%2Fpress%2Fepidemiological_updates%2FPages%2Fepidemiological_updates%2Easpx#sthash.9e9zdCJ1.dpuf.
13. European Centre for Disease Control and Prevention. Annual Epidemiological Report 2016 – Malaria. [Internet]. Stockholm: ECDC; 2016 [cited 2017 30 March]. Available from: http://ecdc.europa.eu/en/healthtopics/malaria/Pages/Annual-epidemiological-report-2016.aspx.
14. Sánchez-Gómez A, Amela C, Fernández-Carrión E, Martínez-Avilés M, Sánchez-Vizcaíno JM, Sierra-Moros MJ. Risk mapping of West Nile virus circulation in Spain, 2015. Acta Tropica. 2017 5//;169:163-9.
15. European Centre for Disease Control and Prevention. Crimean–Congo haemorrhagic fever in Spain: ECDC; 2016. Available from: http://ecdc.europa.eu/en/publications/Publications/crimean-congo-haemorrhagic-fever-spain-risk-assessment.pdf.
16. Arce A EA, Ordobas M, Sevilla S, García N, Moratilla L, de la Fuente S, Martínez AM, Pérez AM, Aránguez E, Iriso A, Sevillano O, Bernal J, Vilas F. Re-emergence of leishmaniasis in Spain: community outbreak in Madrid, Spain, 2009 to 2012. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin. 2012;2013;18(30):pii=20546.
17. European Centre for Disease Control and Prevention. Enterovirus detections associated with severe neurological symptoms, 8 Aug 2016 Stockholm: ECDC; 2016. Available from: http://ecdc.europa.eu/en/publications/Publications/01-08-2016-RRA-Enterovirus%2071-Spain,%20France,%20Netherlands.pdf.
18. European Centre for Disease Control and Prevention. Hepatitis A outbreaks in the EU/EEA mostly affecting men who have sex with men – first update, 23 February 2017. Stockholm: ECDC; 2017. 2017. Available from: http://ecdc.europa.eu/en/publications/Publications/16-02-2017-RRA%20UPDATE%201-Hepatitis%20A-United%20Kingdom.pdf.
19. European Centre for Disease Control and Prevention. HIV and STI prevention among men who have sex with men. Stockholm: : ECDC; 2015. Available from: http://ecdc.europa.eu/en/publications/Publications/hiv-sti-prevention-among-men-who-have-sex-with-men-guidance.pdf.
20. European Centre for Disease Control and Prevention. Invasive meningococcal disease among MSM, July 2013 Stockholm: ECDC; 2013. Available from: http://ecdc.europa.eu/en/publications/Publications/rapid-risk-assessment-invasive-meningococcal-disease-among-MSM.pdf.

21. World Health Organization. Fifth Meeting of the European Regional Verification Commission for Measles and Rubella Elimination (RVC) WHO; 2016. Available from: http://www.euro.who.int/__data/assets/pdf_file/0005/330917/5th-RVC-meeting-report.pdf.

22. Schmidt AJ, Bourne A, Weatherburn P, Reid D, Marcus U, Hickson F. Illicit drug use among gay and bisexual men in 44 cities: Findings from the European MSM Internet Survey (EMIS). The International journal on drug policy. 2016 Dec;38:4-12.

23. European Centre for Disease Control and Prevention. HIV/AIDS surveillance in Europe 2015 Stockholm2016. Available from: http://ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=1607.

24. European Centre for Disease Prevention and Control. HIV and men who have sex with men. Monitoring implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2017 progress report. Stockholm ECDC; 2017. Available from: http://ecdc.europa.eu/en/publications/Publications/HIV%20and%20men%20who%20have%20sex%20with%20men.pdf

25. The Dutch National Institute for Public Health and the Environment (RIVM). RIVM Report 2015-0041. Sexually transmitted infections, including HIV, in the Netherlands in 2014 2015. Available from: http://www.rivm.nl/en/Documents_and_publications/Scientific/Reports/2015/juni/Sexually_transmitted_infections_including_HIV_in_the_Netherlands_in_2014.

26. Mohammed H, Mitchell H, Sile B, Duffell S, Nardone A, Hughes G. Increase in Sexually Transmitted Infections among Men Who Have Sex with Men, England, 2014. Emerging infectious diseases. 2016;22(1):88-91.

27. World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: what's new. Geneva: 2015.

28. Aidsmap. Viral load and the risk of transmission [Internet]. 2017. Available from: http://www.aidsmap.com/Viral-load-and-the-risk-of-transmission/page/1320687/.

29. Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, et al. Prevention of HIV-1 Infection with Early Antiretroviral Therapy. New England Journal of Medicine. 2011;365(6):493-505.

30. European Centre for Disease Control and Prevention. Pre-exposure prophylaxis to prevent HIV among MSM in Europe [Internet]. Stockholm2015. Available from: http://ecdc.europa.eu/en/activities/sciadvice/_layouts/forms/Review_DispForm.aspx?List=a3216f4c-f040-4f51-9f77-a96046dbfd72&ID=780.

31. McCormack S, Dunn DT, Desai M, Dolling DI, Gafos M, Gilson R, et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. The Lancet.387(10013):53-60.

32. Molina J-M, Capitant C, Spire B, Pialoux G, Cotte L, Charreau I, et al. On-Demand Preexposure Prophylaxis in Men at High Risk for HIV-1 Infection. New England Journal of Medicine. 2015;373(23):2237-46.

33. Scott HM, Klausner JD. Sexually transmitted infections and pre-exposure prophylaxis: challenges and opportunities among men who have sex with men in the US. AIDS research and therapy. 2016;13:5.

34. Elske Hoornenborg, Maria Prins, Roel C.A.Achterbergh, Maarten F. Schim van der Loeff, Udi Davidovich, Arjan Hogewoning, et al. High prevalence of hepatitis-C virus among HIV negative MSM in Amsterdam PrEP Project. Conference on Retroviruses and Opportunistic Infections (CROI 2017), Seattle, abstract 519, 2017.; Seattle2017.

35. Manavi K, Williams G, Newton R. The uptake of HIV and syphilis testing in a nurse-delivered service during Gay Pride events. Int J STD AIDS. 2012 Dec;23(12):887-9.