

Increase in gonorrhoea among very young adolescents, Catalonia, Spain, January 2012 to June 2013

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Between January 2012 and June 2013, 27 sexually transmitted infections were reported in adolescents aged 13–15 years in Catalonia, Spain. In the first half of 2013, there were nine cases of gonorrhoea, while in the same period of 2012, there was one. In June 2013, two gonorrhoea cases aged 13–14 years, linked to a common source through a social network, were reported. The public health response should be adapted to this vulnerable population.

On 21 June 2013, the Public Health Agency of Catalonia received an alert from the Public Health Agency of Barcelona about the occurrence of gonorrhoea in two boys aged 13 and 14 years. The boys were coinfecting with *Chlamydia* and probably linked to a common exposure source, through an online social network. After case investigation, these two cases were linked to a third adolescent, a girl aged 14 years. As of 30 June, the Centre for Epidemiological Studies on STI/HIV/AIDS of Catalonia – responsible for the surveillance of sexually transmitted infections (STIs), including HIV/AIDS, for the Public Health Agency of Catalonia – observed a steady increase over the previous six months in the number of gonorrhoea cases reported among very young adolescents (13–15 years), which had not been identified as clusters.

We report here on the emergence of STIs among very young adolescents in Catalonia and draw attention

to the potential risk of a gonorrhoea outbreak and transmission of other STIs. We present a preliminary descriptive analysis of epidemiological and microbiological characteristics of cases from 1 January 2012 to 30 June 2013. We also compare the number of cases reported during first six months of 2012 and of 2013.

Surveillance of sexually transmitted infections in Catalonia

Three institutional information systems are used for STI surveillance in Catalonia: a name-based mandatory disease notification registry (MDI), STI sentinel surveillance registry (RITS) and microbiological notification system (SNMC), as described elsewhere [1]. Infectious syphilis, gonorrhoea and lymphogranuloma venereum (LGV) have been included in the MDI since 2007 [2]. Other STIs, such as genital *Chlamydia* infection, trichomoniasis, genital herpes and genital warts due to human papilloma virus infection, are monitored through the RITS and SNMC.

STI case-report data from the three surveillance systems are entered into the Public Health Agency of Catalonia's Epidemiological Repository System, allowing complementarity of variables and capture of cases. Confidentiality and data protection are assured [3].

STI case definitions used for surveillance reporting are standardised, as the European Union definitions

TABLE 1

Epidemiological and behavioural characteristics of adolescents aged 13–15 years with sexually transmitted infections, Catalonia, Spain, January 2012–June 2013 (n=27)

Characteristic	Number of cases		
	Gonorrhoea	Other STIs	Total
Demographic	n=10	n=17	n=27
Sex			
Male	7	1	8
Female	3	16	19
Age (years)			
13	1	0	1
14	1	5	6
15	8	12	20
Country of birth ^a			
Spain	2	11	13
Outside Spain	7	4	11
Health provider reporting the case			
Paediatric service	4	0	4
Sexually Transmitted Infection Unit	0	2	2
Sexual and reproductive health service	1	6	7
Family/general practitioner team	1	6	7
Hospital emergency department	4	3	7
History of STIs and behaviour	n=7	n=8	n=15
Sexual orientation			
Heterosexual	4	7	11
Homosexual	0	1	1
Unknown	3	0	3
Previous STI in the last 12 months			
Yes	0	1	1
No/unknown	7	7	14
HIV positive			
Yes	0	0	0
No	1	3	4
Unknown status	6	5	11
Condom use at last sex			
Yes	0	3	3
No/Unknown	7	5	12
New sex partner in the last three months			
Yes	0	2	2
No/Unknown	7	6	13
Number of sex partners in the last 12 months			
≤2	0	7	7
>2	0	1	1
Unknown	7	0	7
Contact tracing initiated			
Yes	2	5	7
No/unknown	5	3	8

HIV: human immunodeficiency virus; STI: sexually transmitted infection.

^a Information on country of birth was not available for all cases.

are used [4]. Very young adolescence was defined as a recorded age at STI diagnosis of between 13 and 15 years. A case reported from more than one of the three surveillance systems was counted only once in the analysis. When duplicates were detected, cases in the microbiological notification system were excluded from the analysis.

Sexually transmitted infections among adolescents aged 13–15 years

Epidemiological and behavioural characteristics of STIs among adolescents aged 13–15 years in Catalonia are shown in Table 1 and the reported STIs in Table 2.

A total of 27 STI cases were reported during the study period (January 2012 to June 2013). Of these, 13 were reported during the first six months of 2013; in the first half of 2012, nine cases were reported (Table 2). This increase was due mainly to the increased number of cases of gonorrhoea. The number of cases with other STIs was very low, making comparisons between the years difficult. Overall, during 2007 to 2012, three syphilis cases (one in 2007, 2011 and 2012) and one gonorrhoea case in 2011 were reported among very young adolescents aged 13–15 years.

Gonorrhoea

A total of 10 very young adolescents (13–15 years) with gonorrhoea were reported to the Public Health Agency of Catalonia during January 2012 to June 2013. Seven were boys and seven were born outside of Spain, in Latin America and the Caribbean. Sexual orientation (heterosexual) was known for only four of the cases. Paediatricians notified four of the 10 cases.

Gonorrhoea was the second most frequently reported STI during the study period: nine cases were reported in the first half of 2013 whereas in the same period of 2012, there was only one (Table 2).

Other sexually transmitted infections

From January 2012 to June 2013, a total of 17 cases of other STIs were reported among adolescents aged 14–15 years. All except one were girls; one 15 year-old homosexual boy with syphilis was reported. Unlike the situation for the gonorrhoea cases, only four of the 17 cases with other STIs were born outside of Spain.

Chlamydia trachomatis infection was the most common STI (11 of the 27 cases) and *Gardnerella vaginalis* infection ranked third (3/27). When comparing January to June of 2012 versus 2013, no increase was observed (Table 2).

History of sexually transmitted infections

Most of the cases did not know their HIV status, one had a previous STI in the past year and only three reported condom use at last sex. One case aged 14 years reported having three sexual partners during the last 12 months and two cases reported having a new sexual partner during last three months.

TABLE 2

Sexually transmitted infections reported among adolescents aged 13–15 years, Catalonia, Spain, January 2012–June 2013

Infection	Number of cases		
	January 2012–June 2013	January–June 2012	January–June 2013
Infectious syphilis	1	1	0
Gonorrhoea	10	1	9
Lymphogranuloma venereum	0	0	0
<i>Chlamydia trachomatis</i>	11	4	4
Herpes simplex virus	1	0	0
<i>Trichomonas vaginalis</i>	0	0	0
Genital warts due to human papilloma virus infection	1	1	0
<i>Gardnerella vaginalis</i>	3	2	0
Total	27	9	13

Most of these very young adolescents (7/27) were diagnosed in a sexual and reproductive health service or by a family/general practitioner team (n=7). Four cases were diagnosed by paediatricians and two were diagnosed at the Sexually Transmitted Infection Unit. Contact tracing investigations, initiated by the health-care provider who diagnosed the patient, were carried out for seven of the 15 cases for whom epidemiological information was available (initiation of contact tracing following diagnosis is obligatory in Catalonia). No information on use of a newly introduced partner notification card was reported. Active contact tracing follow-up was carried out by the Barcelona city epidemiological surveillance unit for the cluster of three gonorrhoea cases.

Microbiological detection

The microbiological notification system detected *C. trachomatis* (n=8), *Neisseria gonorrhoeae* (n=3) and herpes simplex virus (n=1). Polymerase chain reaction (PCR) was used to detection of *C. trachomatis* and no further molecular serovar typing was performed. The three *N. gonorrhoeae* detections were confirmed by culture, all of which were sensitive to ceftriaxone. No molecular typing was carried out.

Background

Sexual activity in early adolescence contributes to an increased burden of unplanned pregnancy, abortion, transmission of STIs, including exposure to HIV and can have an impact on a young person's general health [5,6].

Spain has the lowest legal age of consent for sexual activity (13 years) in the European Union [7]. According to the last National Sexual Health and Reproduction Survey, 34% of those interviewed declared starting sexual intercourse before 16 years of age – two-fold higher than in the previous survey (12% in 2003) [8,9]. In contrast, the legal age for use of health services without parental consent is 16 years [10].

In Catalonia, epidemiological data from individualised mandatory STI reporting, introduced in 2007 [2], showed an increase between years 2007 and 2012 for gonorrhoea and syphilis and two outbreaks of lymphogranuloma venereum (LGV). Resistance of *N. gonorrhoeae* to ceftriaxone was documented in Catalonia in 2011 [1].

Approximately 40% of persons with STIs in all age groups in Catalonia are born outside Spain [1]. Sex between men who have sex with men is the route of exposure in about 30% of gonorrhoea cases, 60% of syphilis cases and 100% of LGV cases. Data by age group have only been available since 2007. Young people aged 15–24 years represent about 24% of all reported gonorrhoea cases and 11% of syphilis cases, with no change over time (2007–2012).

Discussion

The increase seen in the number of gonorrhoea cases and the occurrence of other STIs in these very young adolescents raises issues regarding the health and vulnerability of this population [11]. In addition, the data indicate a special vulnerability of foreign-born minors diagnosed with gonorrhoea, as the proportion of those born outside Spain is higher than that seen for other STIs and in other age groups [1]. Rapid public health responses are needed to address these issues in very young adolescents (Box).

The reporting of two gonorrhoea cases linked to a common third adolescent and exposure through a social network points towards a potential risk for gonorrhoea to spread among a young population with access to new technologies. In addition, the occurrence of non-congenital syphilis in a homosexual boy (born outside Spain) highlights the potential transmission of this infection and potential for increased exposure to HIV due to unprotected sexual intercourse. In Catalonia, syphilis is mostly observed among men who have sex with men, with 37% HIV coinfection [1].

Box

Public health response required to prevent sexually transmitted infections in very young adolescents (aged 13–15 years)

- Communicate to public health agencies and scientific societies the increased vulnerability of this population for STI/HIV transmission.
- Alert paediatricians, family/general practitioners and contraception and sexuality youth centres about the potential transmission of gonorrhoea and other STIs in minors aged under 16 years.
- Review STI surveillance procedures and STI clinical management guidelines regarding minors aged under 16 years.
- Reinforce youth-sensitive counselling, screening and partner notification among very young adolescents.
- Reinforce sexual health education at an early age, as well as training of primary care health professionals and counsellors about sexual health issues in very young adolescents.
- Bring to the attention of the multisector entities (governmental commissions, public health-epidemiological commissions, maternal-child health commissions and non-governmental and community-based organisations) about these emerging health issues.

HIV: human immunodeficiency virus; STI: sexually transmitted infection.

Sex-related behaviour within the very young adolescents showed a low condom use at last sexual intercourse; one case had had more than two sexual partners in the last 12 months. During early puberty, most minors enter into a rapid increase in cognitive and emotional development and face a period influenced by peers and other adults [5,6]. Further analysis of sexual behaviour and STI/HIV exposure should be carried out in this population.

Health professionals, in particular paediatricians, should be aware of the recent cases and be prepared to test for these infections in their very young adolescent patients. There should also be adequate follow-up, which respects privacy and confidentiality issues and the cognitive maturity of these very young adolescents concerning their own sexual health.

The three surveillance systems have been shown to be useful, allowing us to identify and describe the epidemiology of this vulnerable population. Nevertheless, the coverage and case-finding capacity of these systems needs to be improved.

The data presented show that important STIs such as syphilis, *chlamydia* and gonorrhoea are appearing in very young adolescents. These findings are consistent with data from European countries, where an increase in the proportion of STI in the age group 15–19 years is being observed [12]. This observation raises important public health issues regarding age at first sexual intercourse, unprotected sex and other high-risk behaviours, including the use of social networks for sex and contact with high-risk populations in urban areas. Further analysis should be carried out to identify risk

determinants, in order to design specific public health programmes and interventions that potentiate a comprehensive approach to young people's sexual health.

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Conflict of interest

None declared.

Authors' contributions

Designed the study: NV, RL and EL; Wrote the first draft: NV; Collected, synthesised and analysed the data: NV, RL, EL, PGO, SM, IB, PP, ELG, IF, RE, PA, MV, PS, IL, IG, AMV, GF, AAP, CM, MJB, VG, JAC, JC; Interpreted the results critically and revised the article to ensure important intellectual content: NV, RL, EL and JC; All authors read and approved the final manuscript.

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