

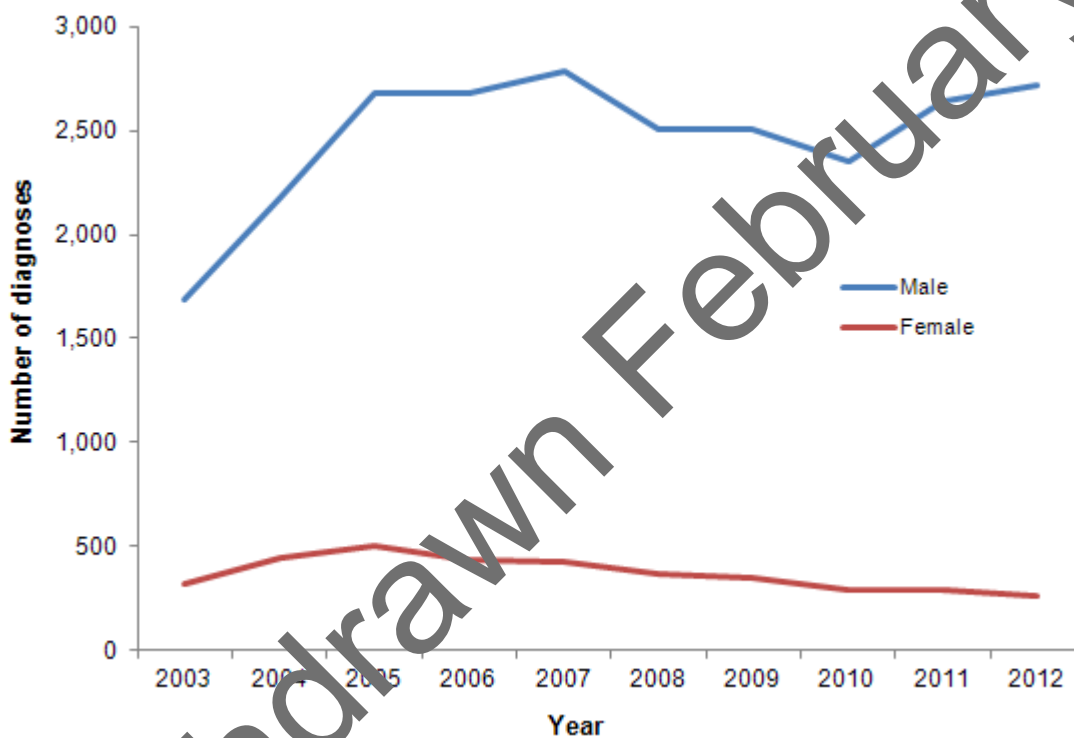
### HIV-STIs

#### Recent epidemiology of infectious syphilis and congenital syphilis

##### Recent epidemiology of infectious syphilis in England

Over the decade 2003 to 2012 diagnoses of infectious syphilis (primary, secondary and early latent) made at genitourinary medicine (GUM) clinics in England increased by 61% (from 1688 to 2713) in men (figure 1). In contrast diagnoses in women decreased by 16% (from 317 to 265). In 2012, 2978 cases of infectious syphilis were diagnosed in GUM clinics, 2713 in men of which 2061 were in MSM, and 265 in women.

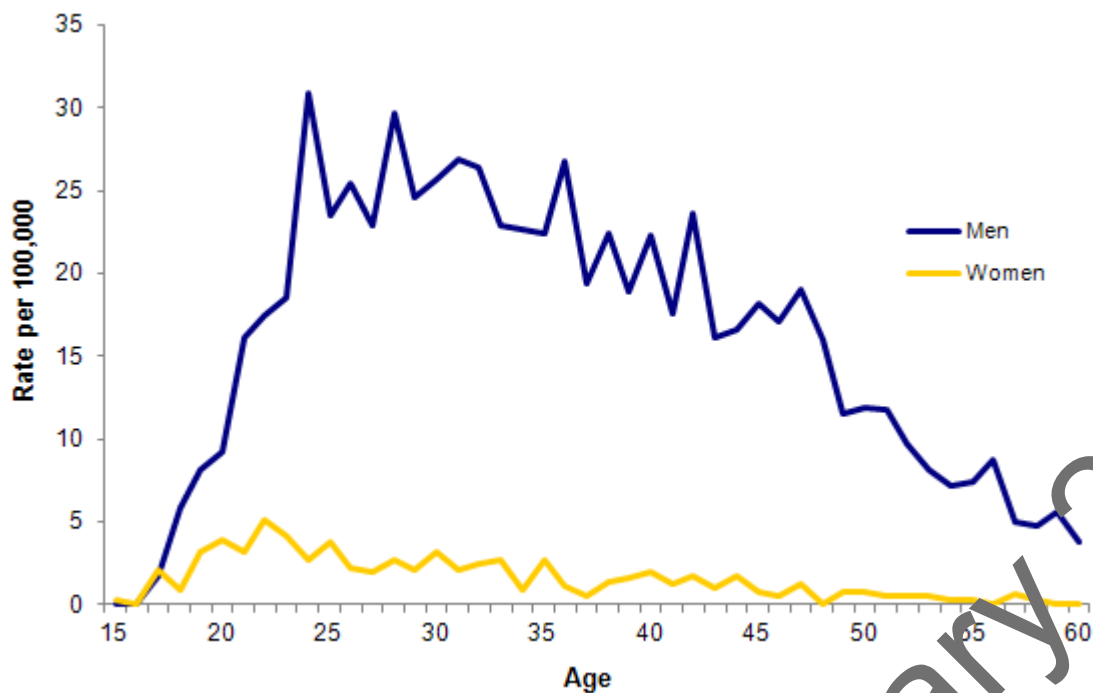
Figure 1. Diagnoses of infectious syphilis by gender, England: 2003 to 2012



Data source: GUMC/D

Rates of infection with primary and secondary syphilis were highest in the 25-34 year age group for men (25.1/100,000) and the 20-24 year age group for women (3.8/100,000)(figure 2).

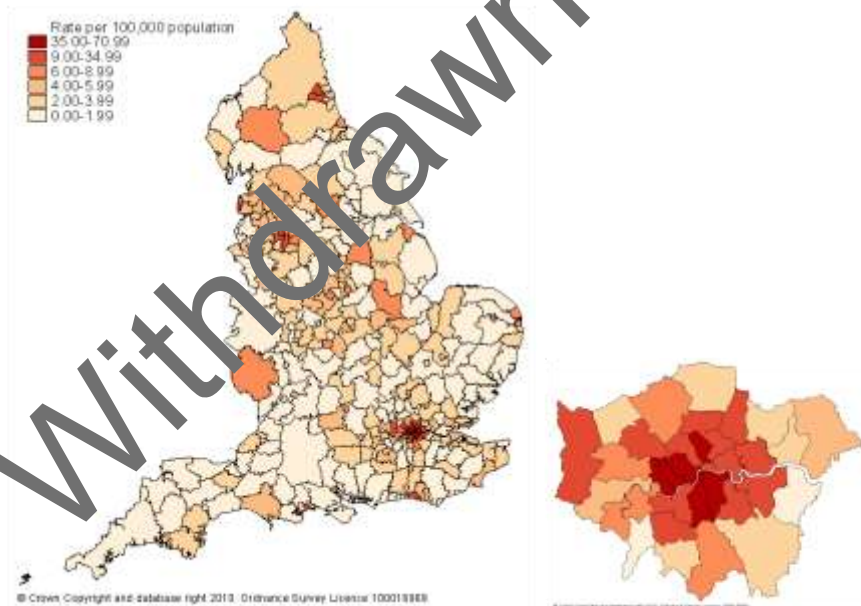
Figure 2. Diagnoses of infectious syphilis by age and gender, England: 2012



Data source: GUMCAD

Increased incidence has been focussed on urban areas such as central London, Manchester and Brighton, where a high proportion of the population are men who have sex with men (MSM) (figure 3). Sexual networks within these areas have driven the syphilis epidemic and other sexually transmitted infections including gonorrhoea, lymphogranuloma venereum, Hepatitis C and, more recently, sexually transmissible infections such as *Shigella flexneri* [1].

Figure 3. Diagnoses of infectious syphilis by Local Authority of residence, England: 2012



These overlapping epidemics have been influenced by the HIV epidemic and associated behavioural change in MSM. For example, recreational drug use in MSM has recently been identified as an important factor driving infection transmission within high risk sexual networks [1]. Progression of the infectious syphilis epidemic has been analysed using data from enhanced surveillance and returns from GUM clinics [2]. This showed that the general profile of the epidemic is one of white MSM aged 25-34 many of whom are co-infected with HIV and had high numbers of sexual partners, a profile that has been seen consistently since the re-emergence of infectious syphilis in the late 1990s.

## Outbreaks

Outbreaks of infectious syphilis have become a feature of the epidemic as infection is transmitted between sexual networks. Whilst many of these have been focussed on MSM, several have been seen amongst heterosexuals who typically have been less than 19 years of age, and may be socially vulnerable [3,4]. The outbreaks provide an insight into the complexity of the evolving syphilis epidemic and highlight the associated public health challenges. The responses to outbreaks seen in Rochdale, Teeside, south east Hampshire, Ipswich and more recently in Hereford were co-ordinated by multi-disciplinary outbreak control teams (OCT) using HPA and BASHH guidelines [5]. Such outbreaks may take months to develop as transmission is heavily influenced by sexual network density and structure. In common with diagnoses in MSM a high proportion of sexual partners were anonymous which reduces the effectiveness of partner notification (PN). Finding and treating cases and their partners has been a control priority and has been achieved by rolling out syphilis testing to young people's clinics, and contraceptive and termination of pregnancy services and by strengthening support for PN in local GUM services. Health promotion campaigns have also been used to target sexually active young people, promote awareness to reducing sexual risk-taking behaviours and encouraging testing. Successful outcomes are achieved as the result of a prompt, multifaceted public health response coordinated by an OCT formed as soon as the outbreak is detected.

## Congenital syphilis in the UK

Congenital syphilis (CS) occurs when syphilis is transmitted from a woman to her unborn baby during pregnancy. This can lead to miscarriage, stillbirth, neonatal death, or disorders such as deafness and bone deformities [6]. As such, congenital syphilis is a distressing condition, which is costly to health care systems [7]. Control methods are highly cost effective but are dependent on well-structured healthcare pathways. Cases can be prevented through antenatal screening and appropriate treatment. In England the uptake of antenatal screening for infectious syphilis has been >95% over the past five years (2005 to 2012) [8]. Of those screened, 0.15% had an initial positive result but less than a third of these had an active infection that required treatment [9].

In 2010, the HPA (now PHE) in collaboration with the UCL Institute of Child Health and the British Paediatric Surveillance Unit (BPSU) initiated a study of congenital syphilis in children less than two years of age. The study aimed to estimate the incidence of infection and investigate determinants of incidence, information which has been used as an evidence base to improve clinical pathways and patient management systems. Details of the study protocol are available at <http://www.rcpch.ac.uk/bpsu/studies>.

Preliminary analysis indicates that the incidence of CS for each year studied was: 0.0136 per 1000 live and still births (2010), and 0.0025/1000 (2011). Cases were seen throughout England, except the South West SHA and were mainly of white ethnicity. The influence of the eastern European syphilis epidemic was also observed. Cases have generally been seen in the mothers who were unable to access healthcare service due to cultural barriers or chaotic lifestyles, and who experienced high levels of socio-economic deprivation. Consequently the mothers generally accessed clinical services around the time of delivery in the third trimester.

The occurrence of CS indicates gaps within the coverage of prenatal care delivery systems and syphilis intervention strategies aimed at adults. Identifying women at high risk of infection and encouraging attendance at clinical services in early pregnancy is challenging. Local, proactive multi-agency interventions aimed at improving service access for women, their children and sexual partners in communities that have low rates of GP registrations and antenatal screening could play a vital role in increasing case ascertainment. Clinicians also need to be able to identify vulnerable women, who tend to be late bookers and could have been concealing their pregnancy, who are at risk of missing out on appropriate levels of care.

## Conclusions

Whilst numbers of infectious syphilis diagnoses are at their highest since the mid-1950's the character of the underlying epidemics has changed substantially. The current syphilis epidemic has a high proportion of primary and secondary cases which indicates that infection is detected and managed at an earlier stage of infection. In turn this has led to the virtual elimination of sequelae and vertical transmission [6]. Nevertheless, the re-establishment of syphilis as an endemic infection reflects a failure of control strategies. Sustained, intensive, targeted efforts to interrupt further transmission need to be maintained and intensified. Locally based interventions that penetrate sexual networks identified through partner notification and surveillance initiatives will probably be the most effective method of controlling infection.

## References

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