The syphilis trends observed, the spread to other geographic locations, and the high rate of co-infections with HIV in particular, are worrying. The increasing incidence of syphilis may indicate changes in sexual behaviour, especially among MSM and people who are aware of their HIV infection. Furthermore, the presence of syphilis may lead to future increases in HIV incidence, by facilitating HIV transmission and susceptibility [11].

In addition to consistent surveillance, integrated HIV-STI prevention programmes have to be reinforced. Finally, no effort should be spared to diagnose and treat cases of syphilis as early as possible.

Acknowledgements

We wish to thank all the members of Sentinel Networks for their invaluable contribution to the STI surveillance programmes.

References

be carried out for serology testing: a nontreponemal test (Venereal Disease Research Laboratory, VDRL) and a treponemal test (T. pallidum haemagglutination assay, TPHA). Benzylpenicillin benzathine 2.4 million UI in a single dose is the recommended treatment for infectious syphilis.

Required by law since 1942, mandatory notification of syphilis was abandoned in 2000 because syphilis was a rare disease and poorly reported by private physicians. In 1978, 80% of syphilis cases were diagnosed by private physicians, but more than 90% of notifications came from STI clinics [2].

No national syphilis trends are available after 1990, but data from Paris STI clinics revealed that syphilis cases declined evenly from 1980 [3]. By the late 1990s, less than 40 cases by year were reported (unpublished data, Direction de l’Action Sociale, de l’Enfance et de la Santé, Paris).

In November 2000, an unusual number of infectious syphilis cases were diagnosed in one Parisian STI clinic in a short time period. The resurgence of infectious syphilis was confirmed and a surveillance system was set up in 2001 [4].

In this article, we describe syphilis trends, characteristics of patients (2000-2003) and trends of the benzylpenicillin benzathine 2.4 million UI sales (2001-2003) in France.

**Methods**

Since 2001, the ongoing surveillance system for syphilis case reporting has been set up in volunteer settings, mainly public as STI clinics, hospital outpatient consultations (dermatology, infectious diseases) and in an existing Parisian network of private practitioners.

A standard infectious syphilis case definition includes primary, secondary and early latent syphilis (≤ 1 year of infection) (4). After patient’s informed consent, data collected by the provider at initial examination includes: age, gender, district code of residence, country of birth, sexual orientation, syphilis stage, dark field and serologic test results (TPHA, VDRL, HIV), and, for HIV positive patient, if there is an ongoing antiretroviral treatment.

Behavioral data complement case-reporting. A short anonymous self-administered questionnaire is offered to the patient focusing on sexual behaviors and preventive attitudes (number of sexual partners, condom use, sexual practices).

From 2001 to 2003, monthly sales of benzylpenicillin benzathine 2.4 million UI were obtained from a centralised wholesaler supplying all French private pharmacies. Data are available by French main cities and by region. France is divided into 22 administrative regions, the city of Paris belongs to the Ile-de-France region.

**Results**

From 2000 to 2003, 1089 syphilis cases were reported, 37 cases in 2000, 207 in 2001, 417 in 2002 and 428 in 2003. Between 2000 and 2002, the proportion of early latent syphilis increased (13.5%, 20.3%, 36.5%, p<10-3) and was stable in 2003 (34.3%). The increasing trend was significant only in the Ile-de-France region.

Syphilis cases were mostly men (96%), the median age was 36; range 15-80, and more than 70% were born in France. Over time, the proportions of cases aged over 4 years were stable (40.5%, 47.8%, 43.2%, 43.2%).

Each year, more than 80% of the cases were men having sex with men (MSM). Overall, 49% of syphilis cases had a concomitant HIV infection. The proportion of syphilis cases with HIV infection decreased over time, from 60% in 2000 to 33% in 2003 (c2 for trend, p<10-3). Among them, 86% were aware of their HIV (+) status (stable proportions over time) and 71% were receiving antiretroviral treatment at the time of syphilis diagnosis (stable proportions over time). MSM were more frequently HIV infected than heterosexuals, men or women [TABLE].

**Table**

**Figure 1**

Syphilis cases by HIV status and sexual orientation, France, 2000-2003

<table>
<thead>
<tr>
<th></th>
<th>Homo/Bisexual</th>
<th>Heterosexual Male</th>
<th>Heterosexual Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV status</td>
<td>N [%]</td>
<td>N [%]</td>
<td>N [%]</td>
<td>N [%]</td>
</tr>
<tr>
<td>positive</td>
<td>482 (53.4%)</td>
<td>17 (12.7%)</td>
<td>3 (7.0%)</td>
<td>502 (46.5)</td>
</tr>
<tr>
<td>negative</td>
<td>389 (86.1%)</td>
<td>107 (79.9%)</td>
<td>10 (2.4%)</td>
<td>502 (46.5)</td>
</tr>
<tr>
<td>not documented</td>
<td>32 (3.6%)</td>
<td>10 (7.5%)</td>
<td>7 (16.3%)</td>
<td>49 (4.5)</td>
</tr>
<tr>
<td>Total</td>
<td>903 (100)</td>
<td>134 (100)</td>
<td>43 (100)</td>
<td>1080 (100)</td>
</tr>
</tbody>
</table>

* Bourgogne, Languedoc, Nord, Pays-de-la-Loire, Provence-Alpes-Côte d’Azur

Among the 1,089 cases, 25.8% (281) had primary syphilis, 42.4% (462) secondary syphilis and 31.8% (346) an early latent syphilis. Between 2000 and 2002, the proportion of early latent syphilis increased (13.5%, 20.3%, 36.5%, p<10-3) and was stable in 2003 (34.3%). The increasing trend was significant only in the Ile-de-France region.

In the Ile-de-France region, 87% of syphilis cases were diagnosed among MSM compared to 75% among those of the other regions (p<10-3). No differences according to age or proportions of HIV infected were seen between cases in the Ile-de-France region or in the other regions (36.2 years vs 37.2 years; 50.3% vs 44.7%). Among MSM, the proportion of syphilis cases co-infected with HIV decreased, from 72% in 2000 to 47% in 2003 (c2 for trend, p<10-3). This decreasing trend was significant in the Ile-de-France region but not in the other regions.

Overall, 46% of the patients agreed to complete the self administered questionnaire. This percentage increased over time but each year, participation was better in the other regions than in...
the Ile-de-France. In the 3 months before syphilis diagnosis, 17% reported an exclusive steady partner and 83% casual partners. Both results did not change over time. Among those reporting casual partners, 14% reported one partner, 45% 2 to 5 partners, 24% 6 to 10 partners and 17% more than 10 partners. From 2001 to 2003, more than 50% of MSM reported knowing the person who was the source of infection. That person was reported as a steady partner for 23% of them and a casual partner for 77%. The casual partners were met in saunas/darkrooms (34%), parks/streets (18%), bars (14%), internet (13%) and various other places (21%). The comparison of unprotected sexual practices with the person who was the source of infection reported as a steady or a casual partner was respectively exclusive oral sex (39% vs 60%), exclusive anal intercourse (3% vs 8%) and association of the two practices (58% vs 32%) (p = 0.03).

In Paris and in the 5 regions, trends in the sales of benzylpenicillin benzathine 2.4 million UI in private pharmacies are similar to those observed in the surveillance system. From 2001 to 2003, sales increased in Paris (+ 22%) and in the 5 regions (+ 10%) [FIGURE 2]. For the French regions with no case reporting surveillance system, those sales are the only available indicator and they slightly increased (+ 5%) between 2001 and 2003.

**Figure 2**

Sales of benzylpenicillin 2.4 MUI in private pharmacies, France, 2001-2003

<table>
<thead>
<tr>
<th>Vials</th>
<th>Paris</th>
<th>5 regions*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>S1</td>
<td>S2</td>
</tr>
<tr>
<td>10000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>S1</td>
<td>S2</td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Bourgogne, Languedoc, Nord, Pays-de-la-Loire, Provence-Alpes-Côte d’Azur

**Discussion**

In France, withdrawal of syphilis mandatory notification and resurgence of syphilis occurred in 2000 and pinpointed the need to implement a surveillance system. For the first time, a French surveillance system is collecting clinical and behavioural data in volunteer, mostly public settings in charge of STI care. An additional system describing trends in the sales of benzylpenicillin benzathine 2.4 million UI is the quasi-exclusive treatment of syphilis but other rare indications exist as rheumatic fever, streptococcal diseases, and nonvenereal endemic syphilis.

The Ile-de-France region, mainly the city of Paris, was the area most affected by the syphilis epidemic. Between 2001 and 2002, part of the important increase in cases in Paris was due to a specific syphilis intervention campaign (May to September 2002). The campaign was aimed at raising awareness about syphilis and encouraging those at risk to come for screening, target populations being health professionals and MSM [5]. Free syphilis diagnosis and treatment were expanded at public clinics dedicated to HIV testing. Increasing trends of early latent syphilis cases suggest a positive impact of the campaign, one of the key messages being syphilis could be asymptomatic. Moreover, the impact of this intervention was also seen on the sales of benzylpenicillin benzathine 2.4 million UI suggesting that syphilis patients were treated by private providers. As in Paris, the syphilis campaign was also implemented in some main French cities but interventions could vary according to local decisions (e.g., free syphilis diagnosis).

A survey (Baromètre Gay) was conducted in gay venues after the campaign (end of 2002). In a self-administered questionnaire, 3.9% of the respondents of the Ile-de-France region reported a syphilis diagnosis in the last 12 months compared to 1.3% of the other respondents [6]. Moreover, more than one third (37%) of those from the Ile-de-France region had done a syphilis test in the 12 previous months compared to 18% of those from the other regions. The syphilis epidemic in France is predominant among MSM of whom more than half are HIV positive. Among MSM, the decreasing trend in HIV co-infection among syphilis cases in the Ile-de-France region could be explained by the fact that before the campaign, a syphilis test was offered more frequently to HIV positive persons and after, widely offered to MSM even in the absence of symptoms.

Analysis of the self-administered questionnaires associated to case reports suggested that unprotected oral sex is a risk behaviour for syphilis. This has been also described in a study in the United Kingdom [7]. In the French study cited previously among gay venues attendees, no question about unprotected oral sex was asked but factors independently associated with reporting a diagnosis of syphilis (in the 12 previous month) were at least one unprotected anal intercourse with casual partners in the last 12 months, an HIV (+) status and regular backroom attendance [6].

In conclusion, syphilis transmission is still ongoing in France in 2003. The voluntary syphilis surveillance system, despite its limits, fulfils the defined objectives. In the future and after an evaluation, the syphilis surveillance issues might change. Nevertheless, prevention programmes on syphilis and HIV infection should be sustained among high risk populations and the role of unprotected oral sex in the transmission of syphilis should be emphasised.

**References**