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Trends of HIV infections using the anonymous mandatory reporting system and other data sources in Switzerland and in the Federal Republic of Germany

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In Switzerland and in the Federal Republic of Germany there is an anonymous mandatory reporting system for laboratories for HIV positive test results. Data on laboratory reports and blood donations are collected in both countries. In Switzerland, the Federal Office of Public Health gathers additional data from anonymous testing facilities and physicians' reports on HIV infections. The data on blood donations and those from anonymous testing facilities as well as those from routine reporting, may be used to estimate prevalence in the populations involved.
In the Federal Republic of Germany, the laboratory data have been recorded since 1987, when the mandatory reporting system was installed.[1] In Western Germany the reporting system was defined by a decree in 1987. Retrospective reporting for tests performed before was not legally required. Data from the former German Democratic Republic are not included in the present paper. In Switzerland, the registration began in 1985, when test kits were approved. Anonymous mandatory reporting was passed into law two years later.

Registry data

Figure 1 shows the annual number of reported HIV-positive test results from the laboratories by year. Detectable double reports are excluded. The data is not absolutely complete, nor can double reports be definitely excluded. The Swiss data shows an initial steep increase in positive test results in 1985 and 1986 after the test became available. In these years, a lot of people were tested who already had AIDS, or showed clinical evidence or suspicion of

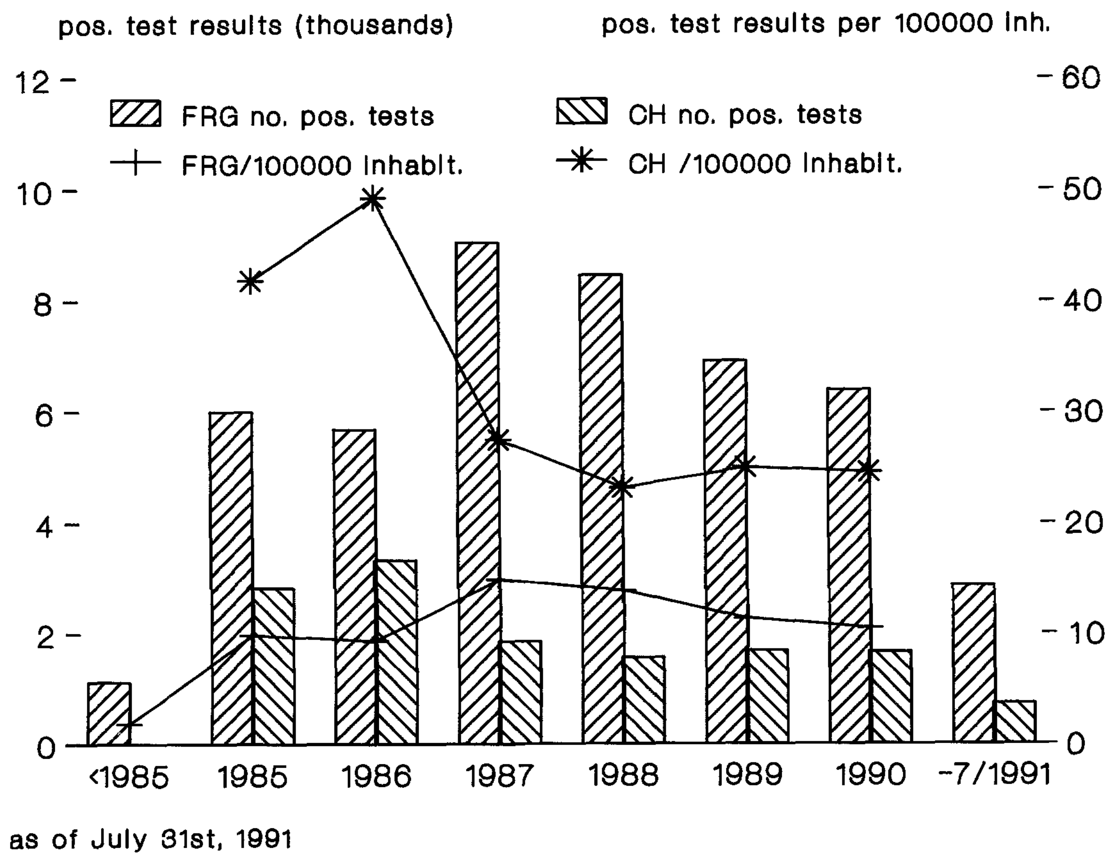
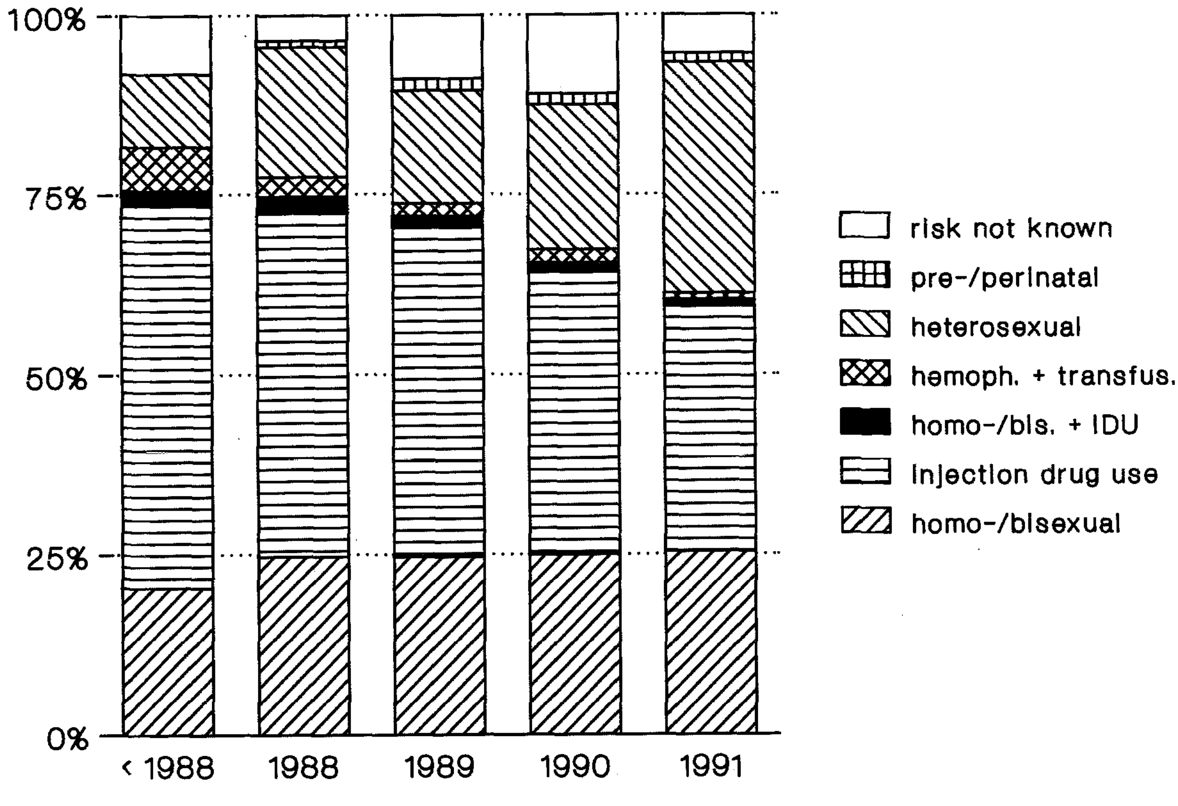


Fig. 1. HIV-positive test results, laboratory reports, Switzerland and FRG.



data as of July 31st, 1991

Fig. 2. Probable route of HIV infection; physicians' reports, Switzerland.

HIV infection. The bars represent the number of positive test results registered. The German data do not show this initial steep increase, which is most likely due to some underreporting in 1985 and 1986. However, the rate of HIV-positive test results relative to the population represented by the thick line is two or three times higher in Switzerland.
Data on the distribution of HIV-positive test results in the tested population according to age and sex are fairly representative in both countries. The average age of persons tested positive is 30 years in Switzerland, 26 years for women and 31 years for men. In the FRG, the average age is 32 years, 28 for women and 33 for men. The relation between men and women is 2.2 to 1 in Switzerland and 4.7 to 1 in Germany. The distribution of the probable route of infection cannot be measured using this data alone because of the large number of missing values (78% in Switzerland, and 68% in the FRG). However, half of the German cases where information is available on the probable route of infection (32%) indicated a homosexual contact.

In Switzerland the reporting system provides additional data on HIV-positive persons since December 1987 (Figure 2)[2]. When laboratories find a positive test result a questionnaire on risk behaviour and clinical status is sent to the attending physicians. For about three quarters of the laboratory reports, a physician's report is also available. The data confirm the results of the laboratory reports: there is an increase in the proportion of heterosexually infected persons and a decrease in the proportion of injecting drug users; the proportion of homo-/bisexual men remains constant.
None of the three instruments presented (laboratory reports in Switzerland and Germany, and physicians' reports in Switzerland) provides evidence for an increasing incidence of HIV infections. To obtain reliable trends over time, data such as the number of tests performed and the ratio of positive to negative test results should also be analysed.

Data on blood donations and anonymous testing

Figure 3 shows the proportion of HIV positive blood donors in both countries, and the 95%-confidence intervals. Such data is available for most countries in Western Europe and shows a comparable tendency. The interpretation is complicated as blood donors are a highly selected group. Persons at high risk are deterred from donating blood.
The Swiss data on tests performed at anonymous testing facilities allows a rough estimate to be made of the prevalence in the respective population groups (Figure 4). By the end of August 1991, 44,948 test results had been registered with an average of 2.2% positive test results. The data show a decline of this proportion from 10% in the year

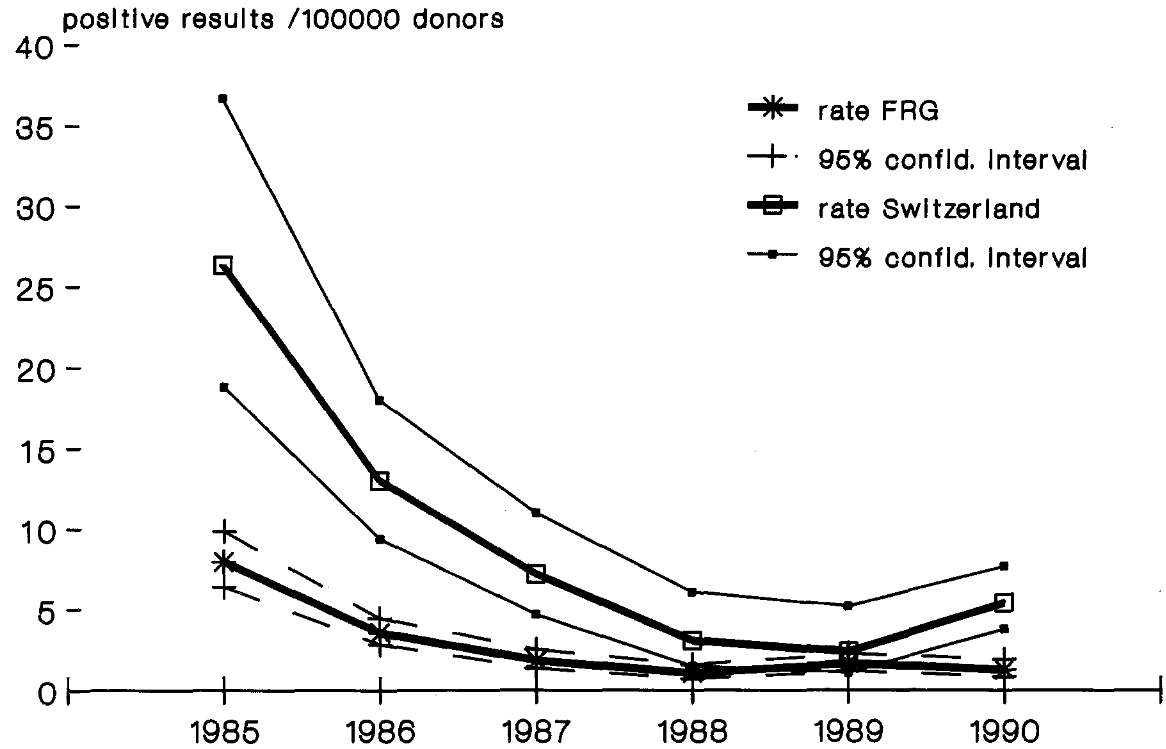


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Fig. 3. Rate of HIV-positive test results in blood donors; Swiss and German Red Cross.

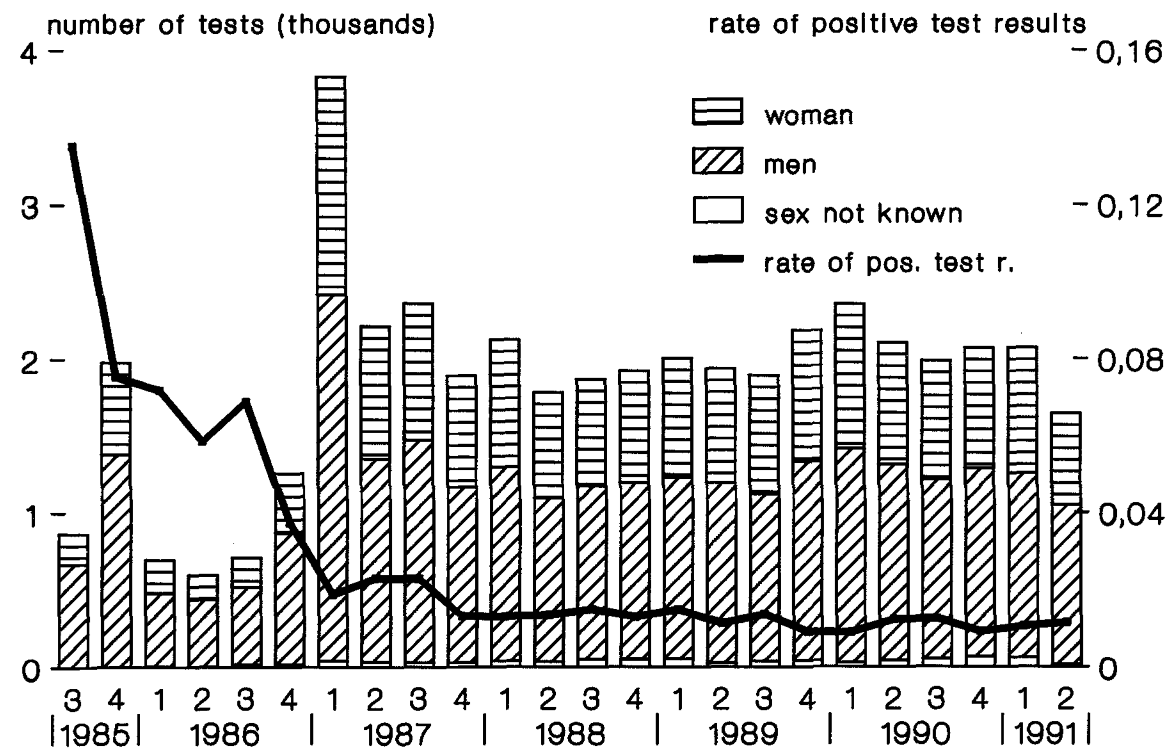

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Fig. 4. HIV tests in Swiss anonymous testing facilities, number and rate of positive test results by quarter of diagnosis.

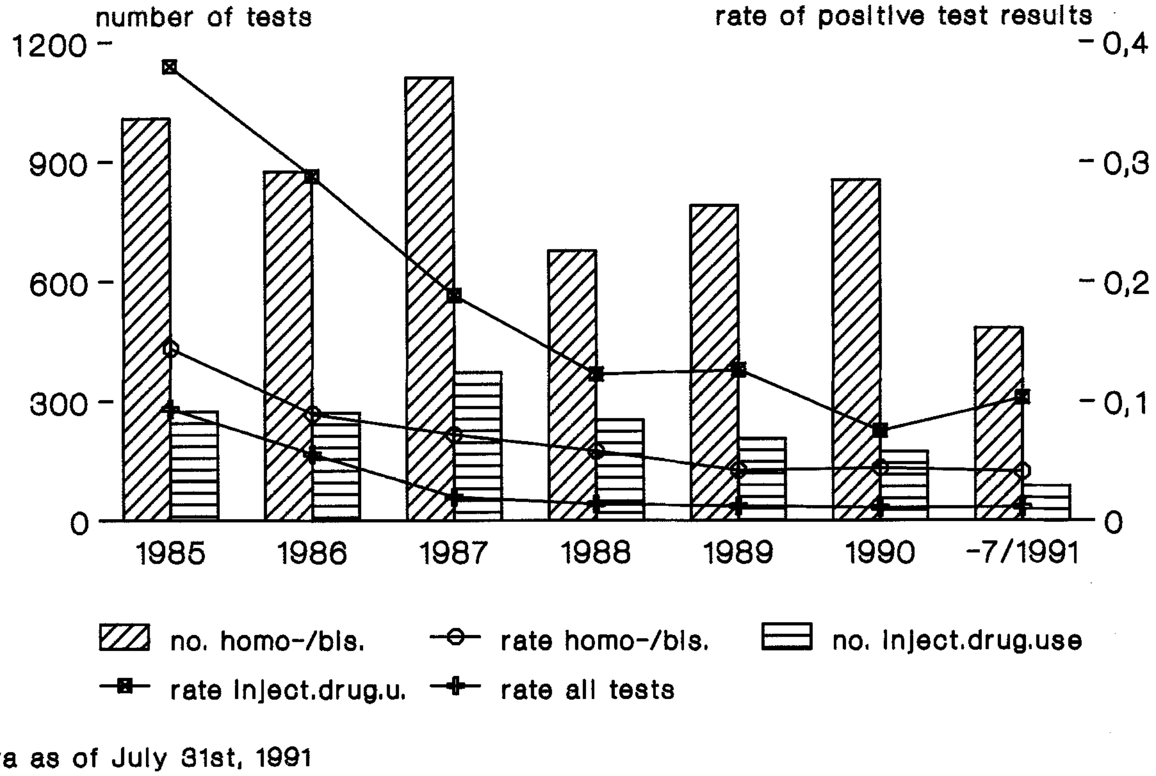

Fig. 5. Number of anonymous tests and rate of positive test results in homo-/bisexual men and IDU, Switzerland.

1985 to 1% in 1990. This effect is mainly due to a change in the tested population. In the early years, the proportion of tested persons with a considerable risk for an HIV infection (homo-/bisexual men and injecting drug users) was higher than in later years. The proportion of HIV positive persons is therefore dropping, among both the persons tested at anonymous testing facilities and the blood donors. However, a decreasing prevalence in the whole population or in different groups is only expected when the number of infected persons leaving the group under consideration exceeds the number of newly infected persons.

Possible explanations for the decreasing proportion of positive test results are:

1. In the two years following the approval of the test kits the newly-detected infections at the anonymous test sites were mainly infections which had started much earlier.
2. The risk for HIV infection of the population which is attending anonymous test sites has changed over time.
3. The probability of detecting an HIV-positive blood donor dropped, because persons with an elevated risk for HIV infection are deterred from donating blood. Once identified, HIV-positive blood donors were not allowed to continue donating blood. In the early years, there may have been a tendency in the population to misuse blood donation facilities as a means of individual testing for HIV.

The anonymous test site data show a shift regarding the risk behaviour in the population which is tested, from homo-/bisexual men and injecting drug users to persons with a heterosexual risk. As is to be expected, the prevalences vary according to the clientele and with the kind of behaviour involved. Even in the population of tested homo-/bisexual men and injecting drug users, the proportion of positive test results (lines in Figure 5) is dropping or is at least constant, while the number of tests performed in these groups does not change significantly.

In the heterosexual population which is tested at the anonymous test sites there is much variation (bars in Figure 6). In the early years the proportion of positive test results decreased, and it has remained constant since 1987 between 4 and 6 positive test results per thousand persons. The number of tests performed increased dramatically in 1987, probably due to a nation-wide AIDS prevention campaign and an increased availability of the test.

Discussion

The relatively high number of HIV-positive test results observed in Switzerland in the years 1985 and 1986 indicates a high proportion of people infected in the preceding years. The laboratory reports do not allow any estimate of the average time between infection and test. The results therefore cannot be interpreted as incidences.

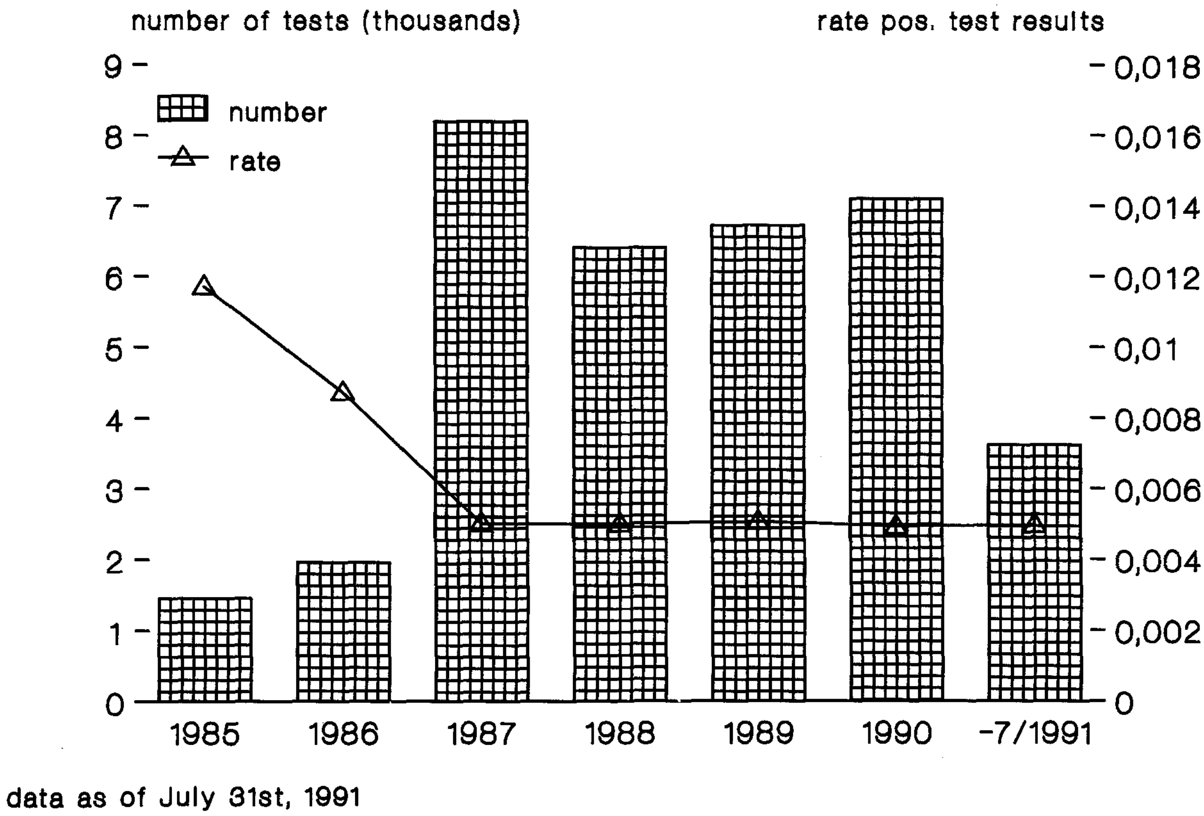

Fig. 6. Number of anonymous tests and rate of positive test results in heterosexuals, Switzerland.

The reporting systems in the two countries are comparable regarding the laboratory reports and the blood donation data. Additional reports of physicians are useful for obtaining information on the probable route of infection. For trend analysis, data from anonymous testing facilities are very useful. More studies are needed to determine the incidence and the prevalence of HIV in the population groups involved.

As a working hypothesis, and according to the literature[3,4], we may conclude from the data that the HIV prevalence is higher in Switzerland than in Germany. However, the attitude towards testing may be different in the two countries, which would result in a biased picture. The proportions of particular risk groups among those with HIV-positive test results, and the distribution of age and sex in persons tested positive for HIV, differ markedly. It seems that injection drug users and heterosexually infected persons play a more important role in the HIV epidemic in Switzerland, whilst in Germany homosexual men are the dominant group.

Routinely collected data and registry data are extremely valuable to produce a picture of the scope and trend of the HIV epidemic. However, if the results from different countries are to be compared, some reflection is needed on the way in which the data are collected. The results may well be confounded by different registration systems and different laws.

Summary

In Switzerland and in the Federal Republic of Germany the reporting of HIV infections is based on an anonymous mandatory reporting system for laboratories. In Switzerland, physicians have to complete a questionnaire on the patient's clinical status and risk behaviour. To make a rough estimate of the prevalence of HIV infections in the general population at low risk, data on blood donations are used in both countries. In Switzerland, additional data with information on positive and negative test results have been obtained since 1985 from anonymous test sites. In both countries, the data do not show evidence of an increasing incidence of HIV infection. The number of positive test results reported by the laboratories and physicians remains stable, and the rates of HIV-positive blood donations are declining. In the Federal Republic of Germany, homo-/bisexual men play the most important role in the epidemic, whilst in Switzerland, injecting drug users contribute most to the burden of HIV infection, and the proportion of persons probably heterosexually infected is increasing steadily. Possible selection biases need to be further discussed.

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Résumé

Tendances évolutives de l'infection par VIH en Suisse et en Allemagne d'après les déclarations anonymes obligatoires et d'autres instruments de surveillance
Le système de surveillance des infections par VIH dans les deux pays s'appuie sur une déclaration obligatoire et anonyme par les laboratoires. En Suisse, les médecins traitants reçoivent et complètent de plus des questionnaires complémentaires incluant des informations anamnestiques à propos du mode d'infection et de la clinique. La prévalence de l'infection VIH dans un groupe de population donné est estimée à partir de données qui proviennent du screening des donneurs de sang et des résultats des centres de dépistage anonyme. Ces données sont collectées systématiquement en Suisse depuis 1985 et fournissent aussi des indications sur le volume de résultats négatifs. Les données ne montrent pas une incidence croissante dans aucun des deux pays. Les nombres de tests positifs rapportés par les laboratoires et par les médecins sont relativement stables et les taux de tests positifs chez les donneurs de sang déclinent. En république fédérale d'Allemagne, le groupe des hommes homo-/bisexuels joue toujours le rôle le plus significatif. En Suisse par contre, les consommateurs de drogues par voie intraveineuse représentent le groupe le plus préoccupant, de plus la part des personnes infectées par voie hétérosexuelle continue à augmenter. Mais les biais de sélection possibles doivent aussi être discutés.

Zusammenfassung

Epidemiologische Tendenzen der HIV-Infektion in der Schweiz und in der Bundesrepublik Deutschland gemäss den Ergebnissen des anonymen Meldesystems und anderen Datenquellen
Die Erfassungssysteme für HIV-Infektionen in den beiden Ländern stützen sich auf eine anonyme Meldepflicht für Laboratorien. Zusätzlich sind in der Schweiz die behandelnden Ärzte verpflichtet, bei HIV-positiven Testergebnissen Ergänzungsmeldungen mit zusätzlichen anamnestischen Informationen über Infektionsweg und Klinik zu erstatten. Daten, mit denen die Prävalenz der HIV-Infektion in bestimmten Bevölkerungsgruppen abgeschätzt werden könnte, die also auch Informationen über negative Testergebnisse enthalten, sind die Ergebnisse des Blutspenderscreenings und die Testergebnisse der anonymen Teststellen, die in der Schweiz seit 1985 systematisch gesammelt werden. Alle diese Daten geben in den beiden Ländern keine Hinweise auf steigende Inzidenzen. Die Zahlen positiver Testergebnisse, die von den Laboratorien und den Ärzten mitgeteilt werden, sind einigermassen stabil und die Anteile positiver Ergebnisse bei den Blutspenden sinken. Während jedoch in der Bundesrepublik Deutschland immer noch die homo-/bisexuellen Männer die bedeutendste Rolle spielen, liegt das Schwergewicht in der Schweiz eher bei den intravenösen Drogenbenützern und dem stetig steigenden Anteil der heterosexuell infizierten Personen. Der Einfluss einer eventuellen Verzerrung durch Selbst- und Fremdselektion auf die Ergebnisse bleibt zu diskutieren.

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