

DISCUSSION

The results of this third year of surveillance through the EuroTB programme give an overview of the epidemiological situation of tuberculosis in Europe which confirms the heterogeneous picture provided by earlier reports and enables recent trends to be observed.

According to the level of tuberculosis notification rate, several groups of countries may be described. Almost all countries in the western part of Europe (except Portugal and Spain), and a few other countries such as Albania, the Czech Republic and Israel, reported less than 20 cases per 100 000 population in 1997. At the other end of the range, the group of 15 countries reporting 50 cases or over per 100 000 were all but one (Portugal) in the eastern part of Europe (Bosnia-Herzegovina, Romania and 12 former USSR republics). Between these two groups, the 14 countries with intermediate levels of notification rate (between 20 and 50 cases per 100 000) included Andorra, Armenia, Estonia, Spain, Tajikistan, Turkey and 8 countries in central Europe (Bulgaria, Croatia, Hungary, Macedonia, Poland, Slovakia, Slovenia and Yugoslavia).

In western Europe, notification rates had been regularly declining for decades in parallel with a continuing decrease in tuberculosis mortality. In the late 1980s and early 1990s, the notification rate stabilised or increased in many countries [9]. However, there was no confirmation of a clear increase in incidence thereafter: in most countries, notifications increased only temporarily (over 2 to 5 years) or appeared to remain fairly stable. In recent years (1995-1997), rates declined again in most western European countries, with a few exceptions such as Denmark where the increase starting in the late 1980s has continued.

In a few countries, notably France, Portugal and Spain, HIV infection was a factor contributing to the halting of the historical decline in tuberculosis incidence [10]. However, AIDS incidence, which had increased continuously since the beginning of the HIV epidemic in all western Europe, started to decrease after 1995 due partly to the impact of increasingly effective antiretroviral therapy and probably also to a diminishing HIV transmission [11]. This decrease has been accompanied by a decrease in the number of tuberculosis cases occurring as a first clinical

manifestation of AIDS (CESES, unpublished data) and thus probably by a general decrease in HIV-associated tuberculosis. Although slower than the decrease in the number of cases with other AIDS-defining diseases, and not consistent across all countries, this decrease in AIDS-associated tuberculosis can therefore have contributed to the recent declines in tuberculosis incidence.

In many countries of western Europe, trends in tuberculosis incidence have probably been increasingly influenced by patients of foreign origin. The proportion of cases occurring among the population of foreign origin has recently increased in several countries and in 1997, 7 countries notified more than 50% of tuberculosis cases in patients of foreign origin. Immigrants from countries with a higher incidence of tuberculosis, and particularly recent immigrants, clearly had an important influence on the incidence of the disease in some countries, as reflected by the countries of origin of some patients (Somalia, Bosnia-Herzegovina or the Federal Republic of Yugoslavia). In countries where information was available, notification rates were found to be consistently higher among patients of foreign origin than among nationals, but tuberculosis among the population of foreign origin seemed to have little effect on trends in notification rates among nationals, which were found to decrease over recent years.

Recent declines in tuberculosis incidence were observed not only in western Europe, but also in many countries in central Europe such as Croatia, the Czech Republic, Hungary, Macedonia, Poland, Slovakia and Slovenia. These trends may reflect improvements in the socio-economic situation and indicate that the quality of tuberculosis control has been maintained over recent years.

Levels of drug resistance were found to be relatively low in the 5 Scandinavian countries, the Netherlands, Slovenia and Switzerland. In all of these countries except Slovenia, the epidemiology of drug resistance was largely influenced by patients of foreign origin who constituted a high proportion of drug resistant cases. The low resistance levels among nationals and the low number of multi-drug resistant cases in these countries are, together with the decline in notification rates, further indications that

tuberculosis control, particularly tuberculosis treatment, remains of good quality.

On the other hand, increases were observed in most countries with higher notification rates between 1995 and 1997: in almost all republics of the former USSR, including the 3 Baltic States, as well as in Bosnia-Herzegovina, Bulgaria, Romania and Turkey. These recent trends continue the increases in tuberculosis mortality and morbidity observed since 1990 in eastern Europe [12]. Although there were a few changes in the notification system in some of these countries, these are unlikely to explain all observed increases. Moreover, some population groups such as foreigners, military personnel or prisoners, among which tuberculosis incidence may be high [13], are not yet included in the notification in many of these countries.

HIV infection probably had little influence on recent tuberculosis trends in eastern Europe, where the HIV epidemic is more recent and AIDS incidence is considerably lower than in western Europe. However, the number of AIDS cases and of newly diagnosed HIV infections has increased markedly in recent years in some countries, such as Moldova, Russian Federation and Ukraine [11]. Rapidly emerging HIV epidemics in this part of Europe represent a serious threat and their impact on the incidence of tuberculosis could be substantial in the near future.

These increases in tuberculosis notifications are likely to reflect a combination of several factors. There are specific situations, such as that of Bosnia-Herzegovina where at least part of the observed increase may be due to cases among the population recently returning to the country after the war. Socio-economic difficulties leading to impoverishment of some population groups are likely to have a negative influence on tuberculosis incidence. Disruption or deterioration of general health services, and in particular of the tuberculosis control programme, are probably playing a major role. Indeed, delays in diagnosis and treatment may result in increased transmission of tuberculosis infection, and inadequacies or interruptions of therapy may increase the probability of recurrence and the emergence of drug resistance. Indeed, the high proportions of drug resistance, and particularly of multi-drug resistance reported here by two countries (Estonia and Romania) and elsewhere by other eastern and central European countries [14] probably reflect problems in the delivery of tuberculosis treatment, and perhaps also gaps in infection control in some institutionalised settings.

After three years of implementation of the EuroTB programme, an overall progress in the implementation of the consensus recommendations on the standardisation of tuberculosis surveillance in Europe [3,4] may be observed. The majority of countries use the European definition of a notifiable case of tuberculosis. Although the number of countries with individual computerised information on tuberculosis cases has not yet increased, a few countries are expected to be able to provide such information in the near future. The availability of data, according to the common set of recommended variables, has improved since the beginning of the programme and, for the first time this year, 10 countries were able to provide individual data on drug resistance at start of treatment. Although results on drug resistance should not be taken as representative for Europe as a whole and limitations of the data should be taken into account, this demonstrates that surveillance of drug resistance as part of the tuberculosis notification system is feasible.

There are still important differences in country surveillance systems, particularly differential inclusion of some population groups (e.g. foreigners, prisoners), different criteria for the notification of recurrent cases, and variable rates of over and underreporting, which may introduce biases in comparisons between countries. Although information on both culture and smear results is essential - the first because culture is currently the gold standard for the diagnosis of tuberculosis in Europe [3,4], the second because sputum smear positivity is the best indicator of the infectiousness of a case - the completeness of bacteriological data still varies across countries, with little improvement compared to previous years [15]. The low quality of the bacteriological information may affect the validity of surveillance results in some countries.

Future changes in tuberculosis surveillance systems will further improve the quality and the comparability of data. Inclusion of high quality bacteriological information would be best achieved by incorporating laboratories in the national notification schemes, as recommended [3,4]. It is hoped that more countries will be able to implement monitoring of treatment outcome according to WHO/IUATLD recommendations for Europe [16] and to set up national systems of drug resistance surveillance in line with recently approved European recommendations for the standardisation of drug resistance surveillance. Based on these recommendations, EuroTB plans to extend the surveillance of antituberculosis drug resistance on a European-wide basis in the coming years.