COUNTRY SURVEILLANCE SYSTEMS

Information on national surveillance systems was obtained through several sources:

• a questionnaire circulated in 1997 by WHO requesting information on national reporting systems for tuberculosis (in 1995), particularly estimates of over-reporting and under-reporting;

• questionnaires circulated in 1996, 1997 and 1998 by EuroTB requesting information on national tuberculosis case notification systems (in 1995, 1996 and 1997, respectively) according to the European recommendations:

- case definition;
- recurrent cases included in the notification (in 1996);
- criteria for bacteriological confirmation;
- population groups included in the notification;
- estimates of over-reporting and under-reporting (in 1997).

• a questionnaire circulated in 1998 by EuroTB requesting information on national laboratory networks and anti-tuberculosis drug resistance surveillance systems;
• regular exchange of information with national correspondents.

3.1. Case definition

In 1997, all 51 countries of the WHO European Region notified new and recurrent cases whatever the site of the disease, except:

• Greece, where only new cases were reported;
• Spain, where only respiratory and meningeal tuberculosis cases were reported.

Two changes in national case definitions took place in 1997:

• inclusion of recurrent cases in Kazakstan, where only new cases were previously notified;

• inclusion of all respiratory and meningeal cases in Spain, where only new respiratory cases were previously notified.

There were differences in bacteriological criteria to define a “definite” case of tuberculosis. Among the 33 countries with available information:

• 12 based the bacteriological confirmation on positive culture only, as recommended [3,4] (Czech Republic, Denmark, Finland, Germany, Hungary, Iceland, Israel, the Netherlands, Norway, Slovenia, Sweden and Switzerland);

• 20 based the bacteriological confirmation on positive culture and/or positive sputum smear (Albania, Austria, Belgium, Bosnia-Herzegovina, Estonia, France, Georgia, Italy, Kazakstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Poland, Portugal, Romania, Slovakia and Yugoslavia);

• 1 based the bacteriological confirmation on positive sputum smear only (Armenia).

3.2. Recurrent cases included in the notification

At the European level, it has been recommended [3,4] to notify all recurrent cases and to distinguish among them:

• those who received previous treatment with anti-tuberculosis drugs from those who did not, and among those who received previous treatment :
• those for whom the treatment was complete and adequate from those for whom it was not.

The definition of recurrent cases included in the notification differed between countries:

• some countries (20 in 1996) notified only relapses, i.e. cases in patients with a previous episode of tuberculosis who completed a full treatment with anti-tuberculosis drugs and were declared cured, with a bacteriological proof. Several of these countries may

probably notify only smear positive relapses, following international WHO recommendations [7] ;

• some countries (15 in 1996) notified relapses and other patients previously treated with anti-tuberculosis drugs, such as:

- patients returning after interruption of treatment;
- patients who failed to respond to their previous anti-tuberculosis treatment;

• two countries (Bosnia-Herzegovina, United Kingdom) used different definitions of recurrent cases in different parts of the country.

Patients with a previous episode of tuberculosis who did not receive previous treatment with anti-tuberculosis drugs (e.g. patients diagnosed in Europe before 1950) may be notified as new cases or as recurrent cases. In 1996, 7 countries included these patients in the category of recurrent cases.

Few countries specified how these definitions were applied. There may be differences in national instructions given to clinicians on whether or not to notify again a patient with a previous anti-tuberculosis treatment, and differences in the way clinicians adhere to these instructions. In addition, information on previous history of tuberculosis is difficult to obtain, and differences in the procedure used to retrieve previous information may result in misclassification of recurrent cases.

In order to clarify notification criteria, it has been recommended within the EuroTB programme that countries notify each calendar year all recurrent cases, i.e. all patients with tuberculosis according to the European definition (Box 1) who, in a previous calendar year:

• had tuberculosis, and

• received treatment (at least one month of combined anti-tuberculosis drugs, excluding preventive chemotherapy).

Cases should not be notified more than once in the calendar year.

For 1997, countries providing individual data were requested to give information in order to classify recurrent cases into cases with previous treatment as defined above and cases without. A total of 11 countries (Belgium, Iceland, Luxembourg, Malta, the Netherlands, Norway, Romania, Slovakia, Slovenia, Sweden and Switzerland) provided this information for cases notified in 1997.

3.3. Coverage of the notification

A total of 50 countries provided information on population groups systematically included in or excluded from the tuberculosis notification in 1996 and in 1997. Population groups included differed between countries (Table 1).

Among the 50 countries, only 23 included all the population groups mentioned in Table 1 in the tuberculosis notification (foreigners, prisoners, military personnel, homeless people, persons with AIDS or HIV infection, institutionalised people).

The foreign population was one of the groups most concerned by exclusions from the notification:

• 9 countries included only nationals, excluding all categories of foreigners: Azerbaijan, Belarus, Bosnia-Herzegovina, Kyrgyzstan, Macedonia, Russian Federation, Turkey, Turkmenistan, Uzbekistan;

• 12 countries included foreigners who were legal residents, but excluded illegal immigrants and/or asylum seekers: Albania, Andorra, Armenia, Kazakstan, Moldova, Norway, Poland, Romania, San Marino, Slovenia, Tajikistan, Yugoslavia.

Another group often excluded from the notification was prisoners, excluded by 15 countries: Albania, Azerbaijan, Belarus, Bosnia-Herzegovina (Republic Srpska), Georgia, Greece, Kyrgyzstan, Macedonia, Moldova, Romania, Russian Federation, Slovakia, Turkey, Uzbekistan, Yugoslavia.

Some countries excluded other groups, such as military personnel (in 8 countries), homeless people (in 5 countries), persons with AIDS or HIV infection (in 5 countries), institutionalised people (in 5 countries).

Four countries included none of the population groups mentioned in Table 1 in their tuberculosis notification: Kyrgyzstan, Russian Federation, Turkey, Uzbekistan.

Between 1996 and 1997, three countries extended the coverage of the tuberculosis notification:

- Kazakstan included foreigners (legal residents) since 1997;
- Armenia and Estonia included prisoners since 1997.

3.4. Over and under-reporting of tuberculosis cases

Estimates of over-notification (proportion of notified cases which are not true tuberculosis cases) were available in 33 countries (Table 2). The proportion was:

- 0% in 15 countries;
- between 0 and 4% in 11 countries;
- 5 % or more in 7 countries.

Causes of over-notification were provided by 6 countries and were mostly double counting or misdiagnosis.

Estimates of under-notification (proportion of true tuberculosis cases which are not notified) were provided for 29 countries.

The proportion was:

- 0% in 8 countries;
- between 0 and 4% in 8 countries;
- 5 to 19% in 9 countries;
- 20% or more in 4 countries.

A total of 18 countries provided information on population groups concerned by under-notification. The groups most frequently cited were:

- foreigners (9 countries);
- persons with diagnosis at death (6 countries);
- prisoners (7 countries).

3.5. Format and availability of information

Among the 49 countries reporting tuberculosis cases notified in 1997 to EuroTB, 19 provided individual computerised data and 30 provided aggregate data. The availability of information varied between countries (Box 5). For two countries (Azerbaijan and Bulgaria), the total number of cases and notification rates published by WHO [6] were used. Only a total number of cases was available for

BOX 5 **Availability of data, tuberculosis cases notified in 1997**

	Number of countries		
	providing individual data (N=19)	providing aggregate data (N=30)	Total (N=49)
case status (new/recurrent)	17	21	38
sex	19	19	38
age *	19	16	35
geographic origin	18	11	29
site of disease	19	18	37
bacteriological confirmation †	18	14	32
culture results ‡	19		19
sputum smear results	17	15	32
drug suceptibility ‡	10		10

* In years for individual data, in recommended age groups for aggregate data
† According to the definition used in each country : either by positive culture (as recommended) or by positive culture and/or postive sputum smear.
‡ Only for individual data

five countries (Azerbaijan, Bulgaria, Kyrgyzstan, Spain and Tajikistan).

Six countries (Belarus, Greece, Russian Federation, Ukraine, Uzbekistan and Turkmenistan) provided information on the characteristics of the new cases only. In order to present all the distributions on the total number of cases (new and recurrent), results for these countries are not included in the tables or country profiles presented later in this report.

3.6. Bacteriological diagnosis and laboratory networks

Information on the organisation and activities of the laboratories was obtained from 47 countries, i.e., all except Andorra, Azerbaijan, Turkey and Turkmenistan (Table 3).

In 1997, culture for suspected cases of tuberculosis was:

- possible in the whole country in 36 countries;
- possible in only some places in 10 countries: Albania, Bosnia-Herzegovina, Bulgaria, Georgia, Greece, Italy, Macedonia, Moldova, Romania and Tajikistan;
- not possible in Armenia.

This possibility means an access to facilities performing cultures but does not necessarily mean that the culture is performed for all cases.

By country, the median number of laboratories performing cultures was 3.2 per million population with wide variations, from 0.2 in Denmark and Kyrgysztan to 24.8 in Belgium.

Drug susceptibility tests were performed as a routine examination:

- for all tuberculosis patients in 33 countries;
- for some categories of patients or in some parts of the country only in 13 countries, i.e. the 10 countries with partial access to culture listed above, plus Hungary, Portugal and Spain;
- not at all in Armenia.

The number of laboratories offering drug susceptibility testing per million population also varied widely by country, from 0.1 in United Kingdom to 3.1 in Belarus with a median number of 0.9 laboratories per million population.

An official National Reference Laboratory (NRL) for mycobacteria was:

- established in 35 countries, among which 2 countries (France and Belgium) had two official NRL and one (Bosnia-Herzegovina) had a NRL responsible for only part of the country;
- not established in 12 countries, among which 4 (Iceland, Malta, Monaco and San Marino) used a laboratory situated in another country (Denmark, United Kingdom, France and Italy, respectively).

Responsibilities of the NRL included expertise, training, research and quality assurance programmes. The majority of these laboratories participated in an international proficiency testing programme, but only a few organised proficiency testing for other laboratories in their own country.