SURVEILLANCE OF TUBERCULOSIS IN EUROPE

EuroTB

Report on tuberculosis cases notified in 1997

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SUMMARY

The EuroTB programme for the surveillance of tuberculosis collects, analyses and disseminates epidemiological data on tuberculosis in the WHO European Region. Information is collected yearly on cases notified in each country, based on consensus recommendations including a common case definition, notification by both clinician and laboratory and a common set of variables.

In 1997, 353 871 cases of tuberculosis were notified in 51 countries of the region. Compared with 1996, the number of cases decreased by 2% in the European Union, but increased by 7% in the countries of former USSR and by 4% in the whole region.

Notification rates were :

- lower than 20 per 100 000 in 22 countries, all but 3 (Albania, Czech Republic, Israel) in western Europe ;
- between 20 and 49 cases per 100 000 in 14 countries, of which 8 in central Europe ;
- 50 cases per 100 000 or over in 15 countries, all but 1 (Portugal) in eastern Europe.

Patients of foreign origin accounted for 10% or more of the cases in 16 countries, most of which were in the western part of Europe. The proportion of patients of foreign origin recently increased in 13 countries, of which 7 notified more than 50% of patients of foreign origin in 1997.

Notification rates were highest in patients aged 65 or over in countries notifying less than 20 cases per 100 000, and in those aged 35-54 years in other countries. Above age 14, rates were higher in males in all age groups, with greater sex differences in countries notifying 20 cases per 100 000 or over.

The median proportion of cases with a positive culture was 58% in the 21 countries reporting this information. In the 23 countries reporting sputum smear results among pulmonary cases, the median proportion smear positive was 48%.

The proportions of cases resistant to isoniazid, to rifampicin, and the proportion multi-drug resistant were higher in Estonia and Romania than in the 5 Scandinavian countries, the Netherlands, Slovenia and Switzerland. In the latter 8 countries, drug resistance was more frequent among patients of foreign origin than among other patients.

Increases in notifications were observed in most countries in eastern Europe. Several factors, in particular socio-economic difficulties and inadequacies or deterioration of tuberculosis control, may have contributed to these increases. The high proportions of drug resistance and of multi-drug resistance reported by some countries probably reflect problems in the quality of tuberculosis treatment. In some countries, emerging HIV epidemics may pose increasing problems in the near future

Recent declines in notification rates and low levels of drug resistance (where information was available) in most countries in western and central Europe probably indicate that the tuberculosis control remains of good quality. The impact of HIV infection, previously observed in a few western countries, has probably diminished over recent years. The contribution of cases in populations of foreign origin appears to play an increasing role in some countries.

The results of three years of surveillance show improvements in availability and completeness of data, confirm the heterogeneous epidemiological situation of tuberculosis in Europe and justify the continuation of the European programme of tuberculosis surveillance, including drug resistance and treatment outcome monitoring.

RÉSUMÉ

Le programme EuroTB pour la surveillance de la tuberculose recueille, analyse et diffuse des données épidémiologiques sur la tuberculose dans la Région Europe de l'OMS. Des informations sur les cas déclarés dans chaque pays sont recueillies annuellement, sur la base de recommandations de consensus incluant une définition de cas commune, la déclaration à la fois par le clinicien et le laboratoire et un ensemble commun de variables.

En 1997, 353 871 cas de tuberculose ont été déclarés dans les 51 pays de la région. Comparé à 1996, le nombre de cas a baissé de 2 % dans l'Union Européenne, mais augmenté de 7% dans les pays de l'ex-URSS et de 4 % dans l'ensemble de la région.

Le taux de déclaration est :

- inférieur à 20 pour 100 000 habitants dans 22 pays, tous en Europe de l'ouest, sauf 3 (l'Albanie, la République tchèque et Israël) ;
- entre 20 et 49 cas pour 100 000 dans 14 pays, dont 8 en Europe centrale ;
- 50 cas pour 100 000 et plus dans 15 pays, tous en Europe de l'est (sauf le Portugal).

Les personnes d'origine étrangère représentent 10% des cas ou plus dans 16 pays, dont la plupart sont situés dans la partie occidentale de l'Europe. La proportion des patients d'origine étrangère a récemment augmenté dans 13 pays, dont 7 ont déclaré plus de 50% de patients d'origine étrangère en 1997.

Les taux de déclaration de tuberculose sont les plus élevés chez les patients âgés de 65 ans et plus dans les pays déclarant moins de 20 cas pour 100 000 et chez ceux âgés de 35 à 54 ans dans les autres pays. Au delà de l'âge de 14 ans, les taux sont plus élevés chez les hommes quel que soit le groupe d'âge, avec des différences par sexe plus marquées dans les pays déclarant 20 cas pour 100 000 ou plus.

La proportion médiane de cas ayant une culture positive est de 58% dans les 21 pays ayant fourni l'information. Dans les 23 pays ayant donné les résultats des frottis d'expectoration parmi les cas pulmonaires, la proportion médiane de cas ayant un frottis positif est de 48%.

La proportion des cas résistants à l'isoniazide, à la rifampicine et des cas multi-résistants est plus élevée en Estonie et en Roumanie que dans les 5 pays scandinaves, les Pays-Bas, la Slovénie et la Suisse. Dans ces 8 derniers pays, la résistance aux antituberculeux est plus fréquente chez les patients d'origine étrangère que chez les autres patients.

Une augmentation des cas déclarés a été observée dans la plupart des pays d'Europe orientale. Plusieurs facteurs ont pu contribuer à ces augmentations, en particulier les difficultés socio-économiques et les inadéquations ou la détérioration de la lutte antituberculeuse. Les proportions élevées de résistance et de multi-résistance aux antituberculeux déclarées par quelques pays reflètent probablement des problèmes de qualité du traitement. Dans certains pays, l'épidémie d'infection à VIH se développe et pourrait poser des problèmes plus importants dans un avenir proche

La baisse récente des taux de déclaration de même que les niveaux peu élevés de résistance aux antituberculeux (pour les pays disposant de l'information) dans la plupart des pays d'Europe occidentale et centrale, indiquent probablement que la lutte antituberculeuse demeure de bonne qualité. L'impact de l'infection à VIH qui avait été précédemment observé dans un petit nombre de pays occidentaux a probablement diminué ces dernières années. La part des cas dans la population d'origine étrangère semble jouer un rôle de plus en plus important dans certains pays.

Les résultats de ces trois années de surveillance témoignent d'une amélioration de la disponibilité et de la complétude des données, confirment l'hétérogénéité de la situation épidémiologique de la tuberculose en Europe et justifient la poursuite du programme européen de surveillance de la tuberculose en y incluant la surveillance des résistances et des résultats du traitement.

РЕЗЮМЕ

Программа ЕвроТБ по эпиднадзору за туберкулёзом собирает, анализирует и распространяет эпидемиологические данные о туберкулёзе в Европейском регионе ВОЗ. Сведения по количеству зарегистрированных случаев в каждой стране собираются ежегодно, на основании рекомендаций согласованности данных, включая общее определение случая заболевания, регистрации его клинически и лабораторно и общего набора параметров.

В 1997г., был зарегистрирован 353 871 случай туберкулёза в 51 стране региона. По сравнению с 1996 годом, количество случаев снизилось на 2% в Европейском Сообществе, но повысилось на 7% в бывших республиках СССР и на 4% во всём регионе.

Процентное содержание данных:

- менее 20 на 100 000 жителей в 22х странах, все в Западной Европе, кроме 3х (Албания, Чешская Республика, Израиль),
- от 20 до 49 случаев на 100 000 в 14 странах, 8 из которых находятся в Центральной Европе,
- 50 случаев на 100 000 и более в 15 странах, все во Восточной Европы, кроме Португалии.

В 16ти странах, большинство из которых расположенно в западной части Европы, 10% случаев или более касается выходцев из зарубежных стран. В последнее время, количество пациентов иностранного происхождения увеличилось в 13 странах, 7 из которых зарегистрировали более 50% больных иностранного происхождения в 1997 году.

Процентное содержание данных зарегистрированных случаев туберкулёза более высокое в группе больных в возрасте 65 лет и старше в странах, зарегистрировавших менее 20 случаев на 100 000 и других стран в возрастной группе 35 – 54 года. Старше 14 лет, процентное содержание более высокое у мужчин, независимо от возрастной группы, с большей разницей по половому признаку в странах, зарегистрировавших 20 или более случаев на 100 000 .

Средние данные в случаях выявления положительных посевов культуры составляют 58% в 21 странах, представивших эту информацию. В 23х странах, представивших результаты мазков мокроты в случаях лёгочной формы заболевания, средние данные положительных результатов мазков составляет 48%.

Количество случаев резистентности к изониазиду, рифампицину и случаев множественной резистентности более повышенно в Эстонии и в Румынии, чем в 5 скандинавских странах, Нидерландах, Словении и Швейцарии. В последних 8 странах, резистентность к противотуберкулёзным препаратам чаще встречается среди больных иностранного происхождения, чем у других пациентов.

Увеличение зарегистрированных случаев было замечено во многих странах восточной Европы. Этому могли способствовать множество факторов, в частности социально-экономические трудности, неадекватность или ухудшение борьбы с туберкулёзом. Повышенние резистентности и множественной резистентности к противотуберкулёзным препаратам, зарегистрированное в некоторых странах, возможно отражает проблемы качества лечения. В некоторых странах развивается эпидемия ВИЧ-инфекции, что может в ближайшем будущем повлечь за собой более сложные проблемы.

Недавнее снижение процентного содержания зарегистрированных случаев, а также низкий уровень резистентности к противотуберкулёзным препаратам (в странах, располагающих информацией) в большинстве стран восточной и центральной Европы, вероятно указывает на хороший уровень борьбы против туберкулёза. Влияние ВИЧ-инфекции, отмеченное ранее в нескольких странах западной Европы возможно уменьшилось за последние годы. В некоторых странах доля случаев заболевания среди населения иностранного происхождения, похоже, играет всё более решающую роль.

Результаты этих трёх лет эпиднадзора свидетельствуют об улучшении доступности и полноты данных, подтверждают разнородность эпидемиологической обстановки туберкулёза в Европе и оправдывают необходимость продолжения европейской программы по эпиднадзору за туберкулёзом, включая эпиднадзор за резистентностью к противотуберкулёзным препаратам и за результатами лечения.

TECHNICAL NOTE

The EuroTB programme for the surveillance of tuberculosis in Europe was set up in 1996 with the aim of providing valid and comparable information on the epidemiology of tuberculosis in order to improve tuberculosis control in this region.

The objectives of the programme are:

- to conduct regular surveillance of notified tuberculosis cases;
- to set up a regular system for the surveillance of anti-tuberculosis drug resistance;
- to conduct relevant surveys on other aspects of the epidemiological situation;
- to assist in the development of tuberculosis information systems

in all countries of the World Health Organization (WHO) European Region.

The programme is managed jointly by the European Centre for the Epidemiological Monitoring of AIDS (CESES) in Saint-Maurice, France and the Royal Netherlands Tuberculosis Association (KNCV) in The Hague, the Netherlands, and is financially supported by the commission of the European Communities (DGV).

Following a feasibility study performed on cases notified in 1995 [1,2], a routine system of data collection has been implemented. Countries of the WHO European Region are invited to participate on a voluntary basis and requested to appoint a national correspondent.

The principles and methods are those recommended by a WHO/International Union Against Tuberculosis and Lung Disease (IUALTD) working group and approved by European country representatives [3,4]:

- common definition of a notifiable case of tuberculosis (Box 1);
- notification of the case by both the clinician and the laboratory, and linkage of laboratory data with clinical information;
- common set of minimum information to be collected on each case.

Information is collected on cases notified in each country during the calendar year. In order to take into account the time required by each country to validate and close the yearly notification, data are collected 10 to 12 months after the end of the calendar year.

BOX 1

European definition of a notifiable case of tuberculosis

Definite case

- in countries where laboratories capable of identification of *Mycobacterium tuberculosis* complex are routinely available, a definite case is a case with **culture**-confirmed disease due to *M. tuberculosis* complex.

- in countries where routine culturing of specimens is not feasible, a patient with **sputum smear** examinations positive for acid-fast bacilli (AFB) is also considered to be a definite case.

Other than definite case

a case meeting both of the following conditions:
1) a clinician's judgement that the patient's clinical and/or radiological signs and/or symptoms are compatible with tuberculosis, and
2) a clinician's decision to treat the patient with a full course of anti-tuberculosis treatment.

All **definite** and **other than definite** cases are notifiable, whether new (in patients who have never had tuberculosis in the past) or recurrent (in patients who have been previously diagnosed with tuberculosis).

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Starting for cases notified in 1997, information on drug susceptibility has been added following recommendations on the standardisation of antituberculosis drug resistance surveillance in Europe by a WHO/IUATLD working group (Box 2). Information on drug susceptibility has been collected in countries providing computerised data where results are reported nationally and are individually linked with clinical data of the notification.

Individual anonymous computerised data are requested (Box 3). When individual data cannot be provided, countries are requested to complete pre-defined tables including the distribution of cases by categories of the relevant variables (Box 4).

BOX 2

Antituberculosis drug resistance

The **proportion of drug resistance at the start of treatment** is the proportion of tuberculosis cases whose bacilli are resistant to a drug or a combination of drugs, calculated at the start of treatment among all definite (culture-positive) cases notified over a calendar year.

The proportions of resistance to isoniazid and to rifampicin, and the proportion of **multi-drug resistance**, i.e. of resistance to both isoniazid and rifampicin with or without resistance to other drugs, at start of treatment, are major indicators of interest.

The proportion should be calculated separately:

- among **patients previously treated**. This is an indicator for **acquired resistance**, i.e. resistance which has emerged in a patient during treatment as a consequence of selection of drug resistant mutant bacilli. **Previous treatment** is defined as 1 month or more of combination of antituberculosis drugs and excludes preventive chemotherapy;

- among **patients never treated**, i.e. who never received previous treatment as defined above. This is the best indicator for **primary resistance**, i.e. resistance in a patient who has active tuberculosis following infection by drug resistant bacilli.

BOX 3

Individual data

- **year of report**
- **country of report**
- **age** (in years)

age at start of treatment (if available) otherwise, in order of preference:
  - age at diagnosis, or
  - age at notification

- **sex**
- **geographic origin**

country of birth (if available) otherwise, in order of preference:
  - origin based on birth place: born in the country of report / foreign-born
  - country of citizenship
  - origin based on citizenship: national / foreigner

- **case status**

based on previous history of tuberculosis and previous antituberculosis drug treatment (> 1 month) : new / recurrent previously treated / recurrent not previously treated / recurrent without information on treatment

- **site of disease**

major and minor site (if available) otherwise, in order of preference:
  - pulmonary / extra-pulmonary (pulmonary tuberculosis is defined as tuberculosis of the lung parenchyma and/or the tracheobronchial tree)
  - respiratory / extra-respiratory (respiratory tuberculosis includes pulmonary tuberculosis as well as pleural and/or intra-thoracic lymphatic tuberculosis)

- **sputum smear results**

on spontaneously produced or induced sputum
positive / negative / done but results unknown / not done

- **culture results**

on any specimen
positive / negative / done but results unknown / not done

- **drug susceptibility results** for isoniazid, rifampicin, ethambutol and streptomycin

for the specimen taken at start of treatment
susceptible / resistant / susceptibility tested but results unknown / not tested

BOX 4

Aggregate data

TB cases by **age group and sex**

TB cases by **age group, sex** and **geographic origin** (based on birth place or, if not available, on citizenship).

TB cases by **age group, sex** and **case status** (new/recurrent case)

TB cases by **age group, sex** and **bacteriological confirmation** (based on positive culture only or, alternatively, on positive culture or positive sputum smear).

TB cases by **age group, sex, site of disease** (based on pulmonary or, alternatively, on respiratory classification) and **sputum smear results.**

The following age groups are used in all tables :

0-4
5-14
15-24
25-34
35-44
45-54
55-64
65 years and over

Material for data collection and correspondence are prepared in English and Russian.

National correspondents are responsible for the quality of the data provided.

Notification rates of incident tuberculosis cases are calculated per 100 000 population, using United Nations demographic estimates for the year of notification [5]. Notification rates by geographic origin are calculated using demographic estimates provided by the countries. Notification rates may not fully reflect true tuberculosis incidence rates due to underreporting and other problems.

For countries reporting to EuroTB, figures may differ slightly from those published by WHO [6] because WHO figures are collected several months prior to the data collected by EuroTB, and as such, are often provisional.

For countries not reporting to EuroTB, total numbers of cases and notification rates published by WHO [6] are used.

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.

RESULTS

4.1. Tuberculosis cases notified in 1997

In 1997, 353 871 cases of tuberculosis were notified in 51 countries of the WHO European Region. Countries of the European Union notified 50 907 cases (14% of the total) and countries of the former USSR notified 216 371 cases (61% of the total). Compared with 1996, the number of cases decreased by 2% in the European Union, but increased by 7% in the countries of former USSR and by 4% in the whole WHO European Region.

The notification rate per 100 000 population varied between countries from 0 in Monaco and San Marino to 154 in Georgia with a median of 28 cases (Table 4).

The notification rate was under 20 cases per 100 000 population in 22 countries, mostly situated in the western part of Europe except for Albania, the Czech Republic and Israel. Among these 22 countries, 11 notified less than 10 cases per 100 000. The rate was 20 to 49 cases per 100 000 in 14 countries mostly located in central or eastern Europe except for Andorra and Spain. It was 50 cases or over per 100 000 population in 15 countries, all located in the eastern part of Europe except for Portugal (Map 1).

Tuberculosis notification rates in 1995 (Map 1), 1996 and 1997 (Map 2) were compared. For Andorra and Georgia, rates were compared between 1996 and 1997. An increase in rate was defined as at least 1.5% average increase per year, and a decrease as at least 1.5% average decrease per year, over the two-year period. The rate was defined as stable if not varying by more than 3% over the two years.

Among the 11 countries notifying **less than 10 cases** per 100 000 population in 1997, the rate decreased since 1995 in Greece, Iceland, Monaco, Netherlands, Norway, San Marino, Sweden and remained stable in Israel and Italy. In Luxembourg and Malta, the rate increased between 1995 and 1997, but variations in these two countries are difficult to interpret because of the low number of cases.

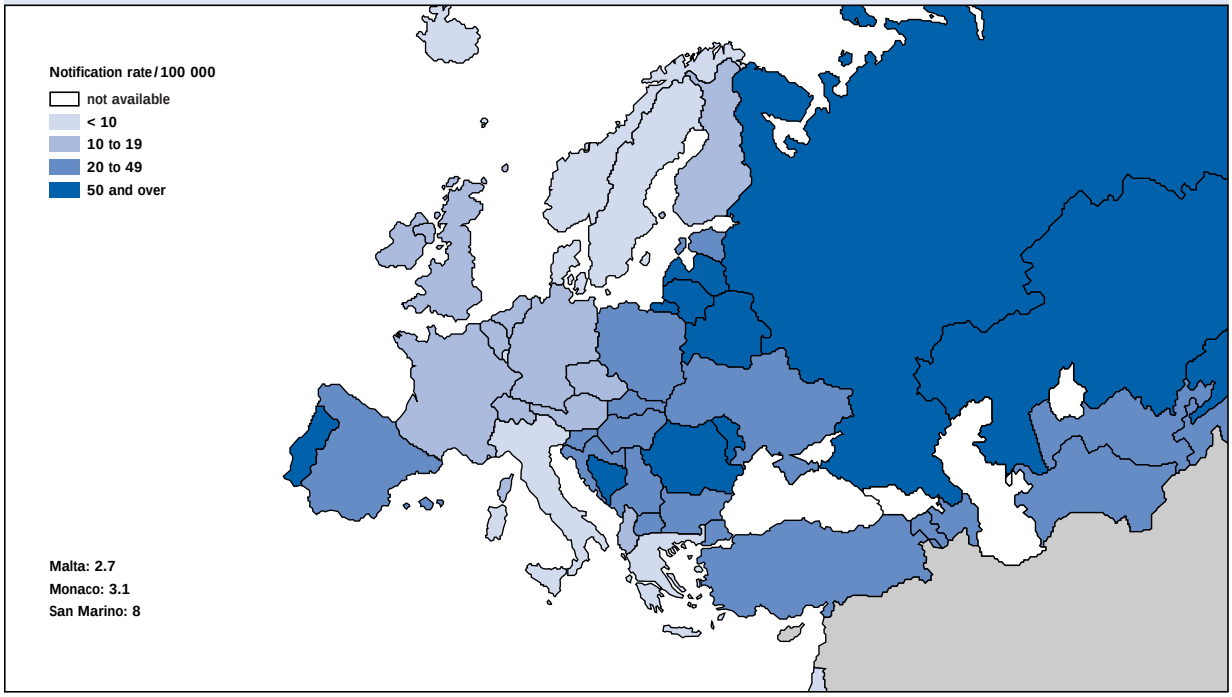
Among the 11 countries with a notification rate **between 10 and 19 cases** per 100 000 population in 1997, the rate decreased since 1995 in Albania, Belgium, Finland, France, Germany, Ireland and Switzerland, remained stable in Austria, Czech Republic and United Kingdom and increased in Denmark: this increase may mostly be due to an increase in cases among the foreign-borns (see Section 4.3. on Geographic origin).

Among the 14 countries with a notification rate **between 20 and 49 cases** per 100 000 population in 1997, the rate decreased or remained stable since 1995 in Croatia, Hungary, Macedonia, Poland, Slovakia, Slovenia, Tajikistan and Yugoslavia. In Tajikistan, the variable trends in notification rate, i.e., a decrease between 1995 and 1996 and an increase between 1996 and 1997, may partly result from variations in reporting due to previous disruption of the health services. The notification rate increased in 6 other countries (Andorra, Armenia, Bulgaria, Estonia, Spain, Turkey). The increase observed in Spain is probably partly due to an extension of the case definition (see Chapter 3 on Country surveillance systems).

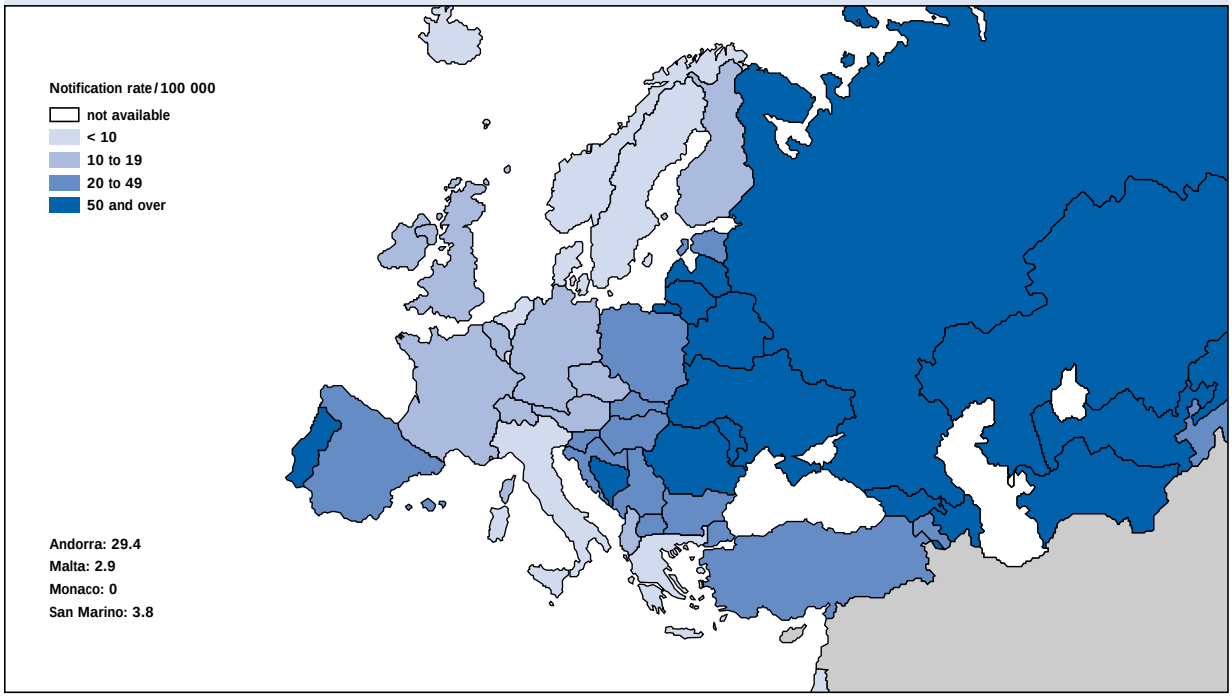
Among the 15 countries with a notification rate of **50 cases or over** per 100 000 population in 1997, the rate increased since 1995 in all except Portugal and Georgia where it decreased. The decrease in notification rate in Georgia between 1996 and 1997 may be partly explained by an over-reporting of cases in 1995 and 1996, because of the disruption of the tuberculosis control programme between 1991 and 1995. The notification rate increased by less than 10% per year on average in 3 countries (Belarus, Moldova and Romania) and by 10% per year or more in 10 countries (Azerbaijan, Bosnia-Herzegovina, Kazakstan, Kyrgyzstan, Latvia, Lithuania, Russian Federation, Turkmenistan, Ukraine, Uzbekistan).

Between 1995 and 1997, the tuberculosis notification rate thus decreased or remained stable in most countries notifying less than 20 cases per 100 000 (almost all in western Europe) and in several countries notifying between 20 and 50 cases per 100 000 (almost all situated in central Europe), while increasing in most

MAP 1 Tuberculosis notification rate 1995, 50 countries, WHO European Region



MAP 2 Tuberculosis notification rate 1997, 51 countries, WHO European Region



countries notifying 50 cases and over per 100 000 (almost all situated in eastern Europe). The largest increases were observed in several ex-USSR republics. Changes in the surveillance system in some of these countries are probably too recent to fully explain all observed increases.

In the 38 countries with available information on previous tuberculosis history (Table 5), the median proportion of recurrent cases was 11%. It was:

- 0 to 9% in 15 countries;
- 10 to 14% in 16 countries;
- 15% or over in 7 countries.

Between-country differences in the proportion of recurrent cases should be interpreted with caution, considering the differences in definitions of recurrent case included in the notification (see Chapter 3 on Country surveillance systems). For example, the high proportion of recurrent cases in Norway (18%) and Iceland (60%) may be related to the fact that more than 2/3 of the recurrent cases notified in these countries were cases with untreated previous tuberculosis (mostly elderly patients with a previous episode of tuberculosis diagnosed before 1950).

4.2. Age and sex

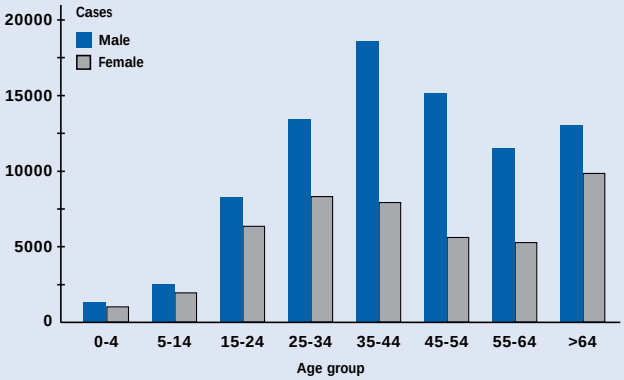
Overall, among the 38 countries with information available on sex, the majority (64%) of the tuberculosis patients reported were male. The median sex ratio (number of males/number of females) was 1.6, ranging from 0.7 in Iceland to 3.4 in Armenia (Table 6). Eleven countries reported at least twice as many cases in males as in females; of these countries, eight notified 20 cases or more per 100 000 population in 1997.

A total of 35 countries provided information on the age and sex distribution of all new and recurrent cases according to recommended age groups (Box 6, Table 7 & 8). Patients under 15 years of age accounted for 5% of the reported cases and children under 5 for 2%. Almost half of the cases (48%) were in the 15-44 year age group, 29% in the 45-64 year age group and 17% in those aged over 64. In all age groups, there were more male than female cases. The sex ratio was 1.4 among patients under 35 years of age, 1.3 among those aged 65 and over and 2.4 among those between 35 and 64 years of age. The overall age distribution was similar in 1996 and in 1997.

The distribution of cases by age and sex as well as the age and sex-specific notification rates varied considerably across countries (country profiles).

Patterns of age distribution differed according to the level of tuberculosis notification rate. In general, the proportions of patients in older age groups increased, and the proportions in younger age groups decreased, with decreasing notification rates. For example, the proportion of patients aged 65 years or more in countries notifying less than 20 cases per 100 000 (28%) was larger than that in countries notifying 20 to 49 cases per 100 000 (13%) and much larger than that in countries notifying 50 or more cases per 100 000 (9%).

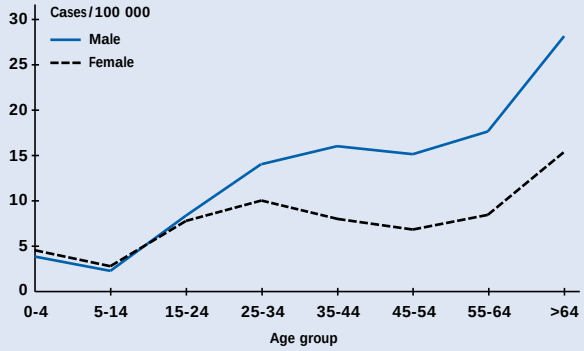
BOX 6 **Tuberculosis cases by age group and sex, 1997, 35 countries* (N = 130 590)**



* Andorra, Armenia, Austria, Belgium, Bosnia-Herzegovina, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Hungary, Iceland, Israel, Italy, Kazakstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, United Kingdom, Yugoslavia.

In countries with less than 20 cases per 100 000 (Box 7), notification rates in both sexes increased with age after age 14, with a small peak in the 25-34 year age group in females. The sharpest increases were observed in the group aged 65 years or over. In countries notifying 20 to 49 cases per 100 000 (Box 8), rates increased rapidly after age 14 in males but less rapidly in females, resulting in large sex differences, particularly between 35 and 64 years of age. In countries notifying 50 cases per 100 000 or over (Box 9), the rate increased with age only up to the 45-54 age group in males and to the 25-34 age group in females, and decreased thereafter.

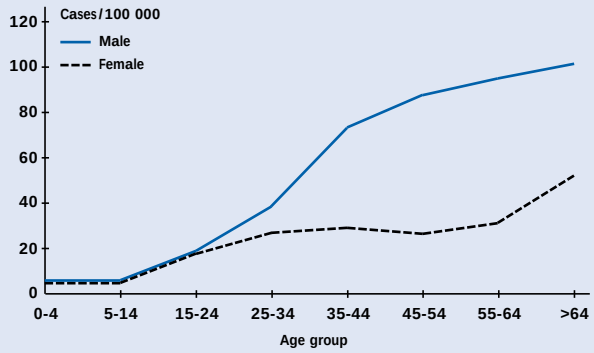
BOX 7 **Tuberculosis notification rate by age group and sex, 1997, 17 countries* with < 20 cases per 100 000**



* Austria, Belgium, Czech Republic, Denmark, Finlandand, France, Germany, Icela nd, Israel, Italy, Luxembourg, Malta, Netherlands, Norway, Sweden, Switzerland, United Kingdom

In all countries, notification rates among children were similar in males and females. In countries with lower notification rates (Box 7), rates were higher in younger (under 5 year-old) than in older (5-14 year-old) children, probably reflecting the fact that young children have a much higher risk of developing tuberculosis after infection than older children [8]. However, in countries with higher notification rates (Box 8 & 9), this was not the case, suggesting a possible under-reporting of cases in children under 5 in some countries.

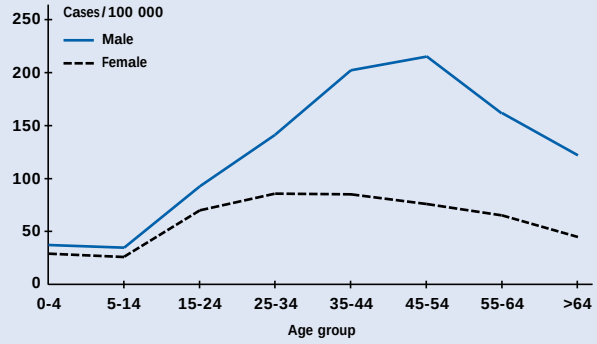
BOX 8 **Tuberculosis notification rate by age group and sex, 1997, 10 countries* with 20-49 cases per 100 000**



*Andorra, Armenia, Croatia, Estonia, Hungary, Macedonia, Poland, Slovakia, Slovenia, Yugoslavia

Some of the between-country variations in age distribution and in age-specific notification rates were related to differences in the distribution of cases by geographic origin. In the 26 countries with information available on patients' age group and geographic origin, the proportion aged 15 to 44 years was larger in foreigners than in nationals (69% versus 47%), while the proportion aged over 44 years was lower (25% versus 44%), and differences by sex were more marked in patients of foreign origin (more male patients). These differences are likely to influence age-specific notification rates in countries with larger proportions of cases in foreigners (see Section 4.3. on Geographic origin).

BOX 9 **Tuberculosis notification rate by age group and sex, 1997, 8 countries* with >49 cases per 100 000**



* Bosnia-Herzegovina, Georgia, Kazakstan, Lituania, Latvia, Moldova, Portugal, Romania.

4.3. Geographic origin

Among the 42 countries including patients of foreign origin in their notification in 1997 (Table 1), 29 provided information on origin (Table 9), based on birth place (as recommended) in 19, on citizenship in seven, and on both birth place and citizenship in three (France, Luxembourg and Switzerland).

Data from Croatia were not analysed because information was missing for a high proportion of cases (44%). The proportion of patients of foreign origin in the remaining 28 countries is illustrated in Map 3. For Luxembourg and Switzerland, information on birth place was used. Citizenship was used for France because information on birth place was missing for a high proportion of cases (26%).

The proportion of cases in foreign-born patients was:

- 0% in Armenia, Moldova and Slovakia;
- 1 to 9% in 7 countries (Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Lithuania);
- 10 to 49% in 4 countries (Iceland, Luxembourg, Malta, Slovenia);
- 50% or over in 6 countries (Andorra, Denmark, Israel, Norway, Sweden, Switzerland).

In countries providing information based on citizenship, the proportion of cases in foreigners was:

- 0% in Georgia and Romania;
- 10 to 49% in 5 countries (Austria, Belgium, France, Germany, Italy);
- 55% in the Netherlands.

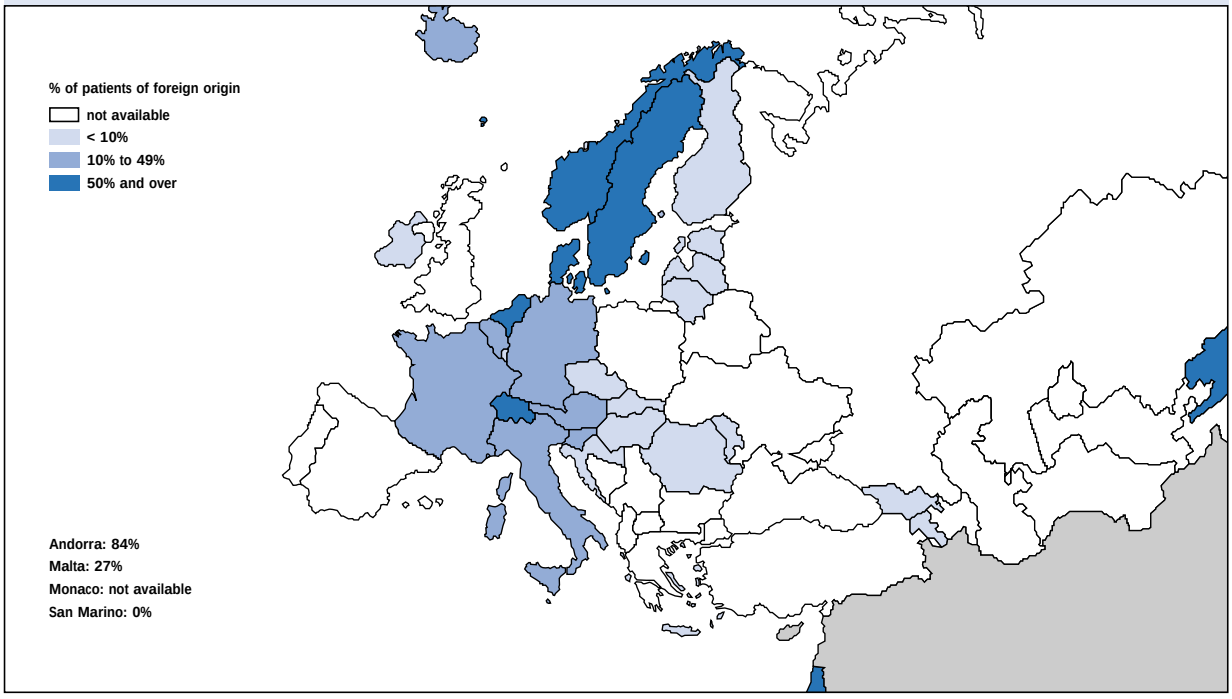
Comparisons of the proportion of patients of foreign origin across countries should however be made with caution, taking into account differences in notification of some population groups (e.g. asylum seekers, illegal immigrants), possible under-notification of patients of foreign origin, variations in immigration patterns and in policies regarding acquisition of nationality, and potential differences in tuberculosis screening programmes for immigrants.

Among the 22 countries with information available both in 1996 and in 1997, the proportion of patients of foreign origin:

- decreased (by ≥ 3%) or remained stable (less than 3% change) in 9 countries (Armenia, Austria, Belgium, France, Hungary, Iceland, Luxembourg, Malta, Slovakia). Interpretation of variations in Iceland, Luxembourg and Malta is however difficult because of the very small number of cases.

- increased (by ≥ 3%) in 13 countries (Andorra, Czech Republic, Denmark, Estonia, Finland, Germany, Israel, Italy, Netherlands, Norway, Slovenia, Sweden, Switzerland). Among these countries, 10 notified less than 20 cases per 100 000 population in 1997. The increase was greater than 10% in all countries notifying more than 50% of tuberculosis cases in patients

MAP 3 **Proportion of tuberculosis cases among patients of foreign origin, 1997, 28 countries, WHO European Region**

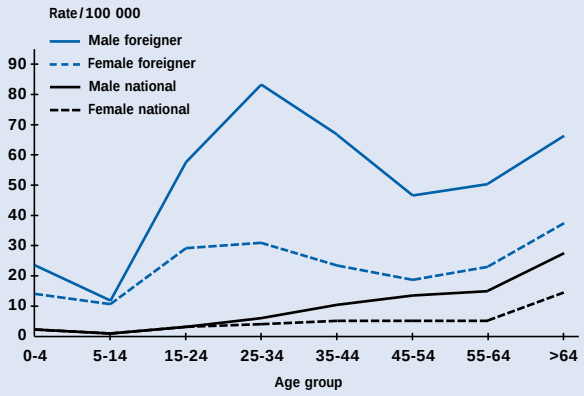


of foreign origin in 1997 (Andorra, Denmark, Netherlands, Norway, Sweden, Switzerland), except in Israel where it was 5%.

The notification rate was calculated separately for nationals and for patients of foreign origin in 10 countries (Belgium, Denmark, Finland, France, Germany, Hungary, Netherlands, Norway, Slovenia and Sweden) which could provide corresponding population figures for 1997. Rates were consistently higher in foreigners than in nationals (from 2 times higher in Slovenia to 42 times higher in Denmark), except in Hungary where rates were similar.

All these countries but one (Hungary) provided these figures for 1995 also. Between 1995 and 1997, the notification rate among nationals decreased at a decreasing rate of 3% or more per year on average. Notification rate among patients of foreign origin followed diverging trend, decreasing by 3% or more per year on average in 4 countries (Belgium, France, Slovenia and Sweden), remaining stable (< 3% change per year) in Germany and Norway and increasing by 10% or more per year on average in Denmark, Finland and the Netherlands. However, trends in the foreign population are probably less valid than those in nationals and should be interpreted with particular caution considering the difficulties in obtaining accurate population figures.

BOX 10 **TB rates by age group sex and geographic origin, 1997, 8 countries***



* Belgium, Finland, France, Germany, Netherlands, Norway, Slovenia, Sweden.

Of the 10 countries, all but two (Denmark and Hungary) provided also the age distribution by geographic origin of both the tuberculosis cases and the population. Large differences in age-specific rates by geographic origin were observed in the 8 countries (Box 10). Among the population of foreign origin, the notification rate clearly peaked in the 25-34 year age group, at a higher level in males than in females, then decreased before increasing again in the oldest age group (>64 years). Among nationals, the rate increased regularly with age from 14 years upwards with no peak in young adults, while remaining always at a much lower level than among the foreign population. Differences between males and females were more marked among the foreign population than among nationals.

Information on the specific country of origin of patients was provided by 15 countries in 1997 (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Iceland, Italy, Luxembourg, Malta, Netherlands, Norway, Slovenia, Sweden and Switzerland). The distribution by continent of origin is presented in Table 10. In the 11 of these 15 countries providing geographic origin based on birth place, 36% of the foreign-born patients were born in Europe, 35% in Africa, and 25% in Asia. In countries providing information based on citizenship, 21% of the foreign patients were citizens of countries within Europe, 44% within Africa and 26% within Asia. Because several countries of the WHO European Region are situated outside the European continent (Armenia, Azerbaijan, Georgia, Israel, Kazakstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan and Uzbekistan), the proportion of patients from the WHO European Region was higher than that of patients coming from the European continent only (34% vs 27%). The distribution by continent of origin in 1997 was similar to that in 1996 for countries providing information in both years.

As in 1995 and 1996, foreign or foreign-born patients in 1997 had very diverse origins, but almost half (46%) were born in, or were citizens of, one of the following five countries: Somalia (17%), Morocco (10%), Federal Republic of Yugoslavia (8%), Turkey (6%) and Bosnia-Herzegovina (5%).

4.4. Site of disease

Information on site of disease for all new and recurrent cases was reported by 37 countries (Table 11): 9 countries provided detailed information on major and minor site of disease from which it was possible to classify cases as pul-

monary or extra-pulmonary, 18 provided information based on the pulmonary classification and 10 provided information by classifying cases as respiratory or extra-respiratory. Among the countries providing information based on detailed site or on pulmonary classification, the median proportion of pulmonary cases was 78%, ranging from 55% in Albania to more than 90% in Andorra, Bosnia-Herzegovina, Croatia and Hungary. In the countries providing information based on respiratory classification, the median proportion of respiratory tuberculosis was 91%, ranging from 76% in United Kingdom to 95% or over in Latvia and Poland.

Among the 9 countries (Austria, Belgium, Iceland, Luxembourg, Malta, Norway, Romania, Slovenia and Switzerland) providing detailed information on major and minor site of disease (Box 11), 85% of the patients had pulmonary tuberculosis. Pulmonary tuberculosis could be reported as a major site only, whereas extra-pulmonary localisations could be reported either as major sites (if not associated with pulmonary tuberculosis) or as minor sites (if associated with another localisation). Pleural tuberculosis was reported in 11% of the patients. All other sites were reported in less than 3% of the patients. A minor site of disease was reported for 1085 patients (4%), of which 1001 also had pulmonary tuberculosis. Among those 1001 patients, 464 (46%) had pleural tuberculosis, 238 (24%) had disseminated tuberculosis and 78 (8%) had intrathoracic lymphatic tuberculosis.

Sites of disease were distributed differently according to age (Box 11). Extra-pulmonary tuberculosis without pulmonary localisation was significantly more frequent among children (less than 15 years of age) than among adults (20% versus 15%, $p<0.01$).

BOX 11 **Site of disease by age group, 9 countries* reporting individual data on major and minor site of disease**

Site of disease	Age group							
	0-14 years		15-44 years		45 years and over		Total †	
	N	(%)	N	(%)	N	(%)	N	(%)
Pulmonary	1044	(80.0)	13173	(83.7)	9513	(86.7)	23730	(84.7)
Pleural	157	(12.0)	1993	(12.7)	858	(7.8)	3008	(10.7)
Intrathoracic lymphatic	54	(4.1)	96	(0.6)	45	(0.4)	195	(0.7)
Extrathoracic lymphatic	62	(4.8)	336	(2.1)	248	(2.3)	646	(2.3)
Spine	11	(0.8)	52	(0.3)	54	(0.5)	117	(0.4)
Bone/joint other than spine	16	(1.2)	79	(0.5)	112	(1.0)	207	(0.7)
Meningitis	52	(4.0)	69	(0.4)	43	(0.4)	164	(0.6)
CNS ‡ other than meningitis	3	(0.2)	1	(0.0)	0	(0.0)	4	(0.0)
Genito-urinary	2	(0.2)	108	(0.7)	242	(2.2)	352	(1.3)
Peritoneal/digestive	9	(0.7)	81	(0.5)	56	(0.5)	146	(0.5)
Disseminated §	34	(2.6)	111	(0.7)	127	(1.2)	272	(1.0)
Other	8	(0.6)	122	(0.8)	128	(1.2)	258	(0.9)
Unknown	0	(0.0)	1	(0.0)	6	(0.1)	7	(0.0)

Note: The total number of patients is 28 027. Data shown are the number of sites; added % exceed 100% because some patients were reported with > 1 site of disease

* Austria, Belgium, Iceland, Luxembourg, Malta, Norway, Romania, Slovenia, Switzerland

† Including 5 cases with unknown age

‡ CNS = Central Nervous System

§ Disseminated tuberculosis includes:
- miliary tuberculosis
- tuberculosis in which *M. tuberculosis* complex has been isolated from the blood
- tuberculosis of more than two organ systems

Several localisations, associated or not with pulmonary tuberculosis, were reported more frequently in children than in adults:

- intrathoracic lymphatic (4% versus < 1%);
- extrathoracic lymphatic (5% versus 2%);
- meningeal (4% versus < 1%);
- disseminated (3% versus < 1%).

Pleural tuberculosis was rarely reported among children under 5 years of age (4%). The proportion of cases with pleural tuberculosis was the highest among children aged 5 to 14 (18%) and in the 15-24 year age group (20%). Above 24 years of age, the proportion of cases with pleural tuberculosis decreased with age (12% in patients aged 25-34, 9% in patients aged 35-44, 8% in patients aged 45 or more).

The distribution by site of disease also differed by sex: among adults over 15 years of age, women were 1.8 times more likely than men to have extra-pulmonary tuberculosis without pulmonary localisation (22% versus 12%).

The distribution of cases by detailed site of disease and by geographic origin was analysed for 7 countries reporting more than 5% of cases in patients of foreign origin (Austria, Belgium, Iceland, Luxembourg, Norway, Slovenia and Switzerland). The proportion of cases with extra-pulmonary tuberculosis without pulmonary localisation was higher among patients of foreign origin than among nationals (24% vs 20%, $p< 0.01$). This difference was found for children and younger adults (15 - 44 years) among whom patients of foreign origin, both males and females, were 1.5 times more likely than nationals to have extra-pulmonary tuberculosis only, whereas no difference by geographic origin was found among older adults (aged > 44 years).

Among patients aged less than 45 years, intrathoracic and extrathoracic lymphatic tuberculosis, associated or not with pulmonary tuberculosis, were reported more frequently in patients of foreign origin than in nationals (6% vs 3%, and 14% vs 4%, respectively).

Between 1996 and 1997, there was little change in the overall distribution of disease sites among countries providing individual data, except for the pulmonary localisation which was slightly more frequent in 1997 than in 1996 (85% versus 82%), while the intrathoracic lymphatic localisation was less frequent (0.7% versus 2.4%). This change was mainly due to the reclassification, in 1997, of the pediatric cases (the majority of which were reported in Romania) which were initially reported with intrathoracic lymphatic localisation only, as cases having pulmonary tuberculosis as major site and intrathoracic lymphatic localisation as minor site, according to the European recommendations [3,4].

4.5. Bacteriology

4.5.1. Sputum smear results

Information on sputum smear results was available in 32 countries (Table 12). The median proportion of smear positive cases was 48% (range 18% to 71%, excluding Malta with 0%) among the pulmonary cases, and 38% (range 17% to 61%) among the respiratory cases. In 15 countries, the proportion of pulmonary/respiratory cases with negative or unknown smear results was over 60%.

Individual information on sputum smears was provided by 17 countries. The median proportion of pulmonary or respiratory cases for which smear examination was reported as performed was 87%, ranging from 34% to 100%. The median proportion of smear positive cases among pulmonary cases (among respiratory cases in the Czech Republic) was 47% (range 30% to 71%, excluding Malta with 0%). The proportion of pulmonary or respiratory cases with unknown smear results ranged from 0% to 66% (median 13%). Unknown smear results could be due to the smear being reported as performed but results being unknown, to the smear not being performed, or to a complete absence of information.

The proportion of pulmonary/respiratory tuberculosis cases with a positive smear was lower in children under 15 years of age (12%) than in adults (59% in patients aged 15 to 44 years, 54% in patients aged 45 years and over).

4.5.2.Bacteriological confirmation

Information on bacteriological confirmation of the cases was available in 33 countries (Table 13): based on positive culture, as recommended, in 12 countries, and based on positive culture or positive sputum smear in 21, including Armenia for which confirmation was based on sputum smear only. The median proportion of bacteriol-

ogically confirmed cases was 71% in the first group of countries (range 40% to 90%) and 51% in the second group (range 14% to 80%). In 12 countries, the proportion of cases without bacteriological confirmation (non-confirmed or unknown) was over 50% regardless of the type of confirmation.

4.5.3. Culture results

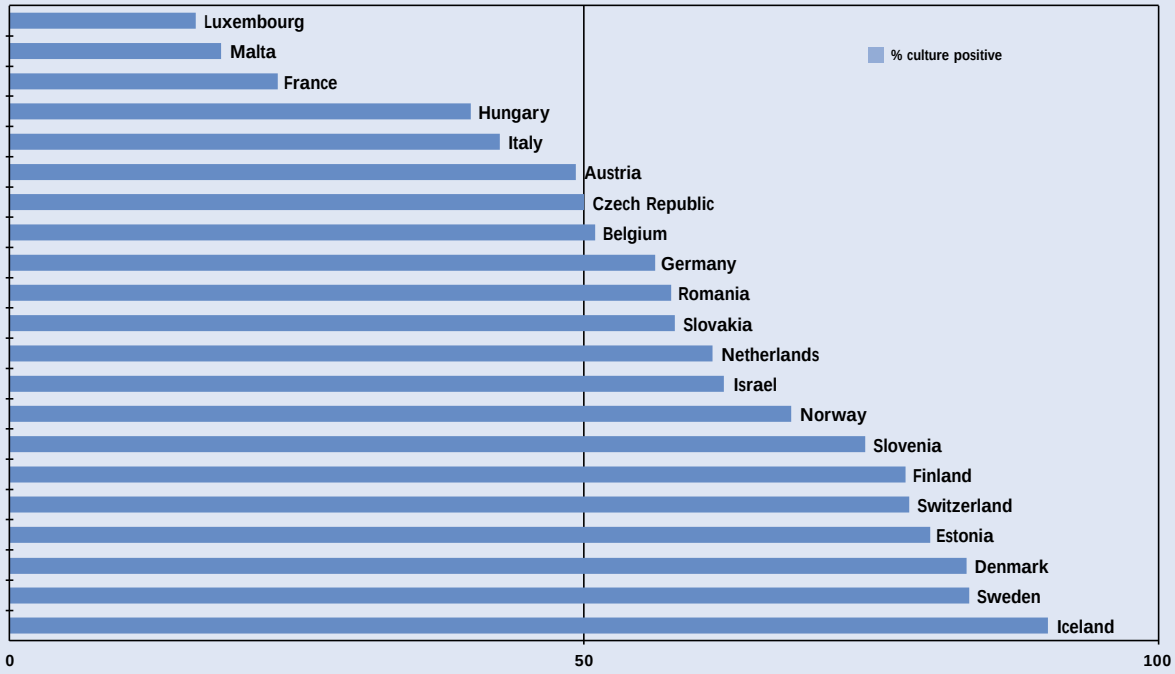
In 1997, information on culture was available in 21 countries. As in 1995 and in 1996, large between country differences in the proportion of cases with a positive culture were observed (Box 12). The proportion ranged from 16% to 90% (median: 58%). Such differences may not reflect real differences in the bacteriological status of the cases, as evidenced by the large between-country variations in the availability of information on culture.

Among the 18 countries providing individual information on culture, it was possible to separate cases for which culture was done but results were unknown from those with no culture done and those with no information on culture. The proportion of cases for which the culture was reported as performed but with unknown results ranged from 0% (in 10 countries) to 29%. The proportion of cases for which culture was reported as not done ranged from 0% (in 7 countries) to 30%. The proportion of cases with no information on culture ranged from 0 (in 4 countries) to 79%. The differences between countries may be explained by differences in diagnostic practices or in reporting patterns. For example:

• culture examination may not be possible for all suspected tuberculosis cases in the whole country, as in Italy and Romania;

• culture may not always be performed or, if performed and positive, may not necessarily be reported in countries where culture positivity is not required for bacteriological confirmation of the cases. This may

BOX 12 **Proportion (%) of cases with positive culture, 1997, 21 countries**



partly explain the high proportion of cases with no culture done (> 10%) in, for example, Austria, Belgium, Italy and Malta, and the high proportion of cases with unknown information on culture (> 20%) in France, Italy and Luxembourg. Indeed, the completeness of information and the proportion of cases with positive culture were higher in countries where culture positivity is required to classify a case as definite, as recommended [3,4];

• results of culture may not be systematically reported, because laboratories do not participate in the notification system. This may partly explain the low proportion of positive culture in some countries (e.g. France);

• only positive culture results may be required to be reported, as is the case in Denmark and Finland. Culture results are then provided as either positive or unknown, resulting in a high proportion of cases with unknown information on culture.

The average proportion of cases with a positive culture was significantly higher in cases with pulmonary/respiratory tuberculosis than in those with extra-pulmonary/extra-respiratory tuberculosis (60% versus 18%) and lower among children under 15 (18%) than among adult patients (54%).

Individual information on both culture and sputum smear results was provided by 17 countries in 1997 (Table 14). Among pulmonary tuberculosis cases confirmed by a positive culture, the proportion of cases with positive sputum smear ranged from 35% to 87% (excluding Malta with 0%) with a median of 50%.

Although it would be expected that almost all pulmonary smear positive cases are also culture positive, a small proportion (< 4%) of all cases were smear positive with a negative culture, in 8 countries (Austria, Belgium, France, Italy, Norway, Slovenia, Sweden, Switzerland).

Nine countries reported pulmonary smear positive cases with no culture results. These cases accounted for more than 5% of all cases in 7 countries (Austria, Belgium, Finland, France, Italy, Netherlands and Romania), 5 of which did not require culture positivity for classifying case as definite.

Compared to 1996, the proportion culture-positive among all cases increased in 1997 (median 58% vs 55%) among the 21 countries with available information.

4.6. Drug resistance

Information on drug susceptibility at start of treatment for tuberculosis cases notified in 1997 was collected from 10 countries providing individual data (Table 15).

Among these 10 countries, 9 (all except Finland) provided information on previous history of tuberculosis, and 7 (all except Finland, Denmark and Estonia) provided information on previous antituberculosis treatment. For the separate calculation of proportions of drug resistance in "patients never treated" and in "patients previously treated" (Box 2):

• patients with no previous treatment (if this information was available) and those with no previous episode of tuberculosis (if information on previous treatment was not available) were included in the first category;

• patients with previous treatment (if this information was available) and those with a previous episode of tuberculosis but no information on previous treatment were included in the second category.

4.6.1. Representativeness

The proportion of culture positive cases which were tested for isoniazid, rifampicin and ethambutol susceptibility varied by country (Table 15):

• 100% in Iceland, the Netherlands and Sweden;
• between 88% and 96% in Denmark, Norway and Slovenia;
• between 63% and 78% in Estonia, Finland and Switzerland;
• 28% in Romania.

Susceptibility to streptomycin was tested systematically in 6 countries. It was not tested in Iceland and Switzerland, and was not systematically tested in Norway and Slovenia (thus results for these countries are not presented).

Cases tested for drug susceptibility did not differ from cases not tested with regard to sex, age group, geographic origin, case status, site of disease and sputum smear results except:

• in Estonia, where the proportion tested was significantly higher in smear negative pulmonary cases or extrapulmonary cases than in smear positive pulmonary cases (78% versus 50%, p<0.01);

• in Romania, where the proportion tested was significantly higher in cases previously treated than in cases never treated (31% versus 27%, p<0.01) and significantly higher in smear positive than in other cases (29% versus 25%, p<0.01). Because of these differences and because of the low overall proportion of cases tested, results may not be representative for Romania and should be interpreted with caution;

• in Switzerland, where the proportion tested was significantly higher in men than in women (82% versus 72%, p<0.01) and higher in foreign-born patients than in those born in the country (81% versus 73%, p=0.05).

4.6.2. Results by country

The proportion of drug resistance among all culture positive cases tested for drug susceptibility varied between countries (Table 15). The median proportion was:

• 5.7% for isoniazid (range: 0% to 23.3%);

• 1.0% for rifampicin (range: 0% to 13.8%);

• 0.9% for multi-drug resistance (MDR), i.e. resistance to at least isoniazid and rifampicin (range: 0% to 13.0%);

• 0.4% for ethambutol (range: 0% to 7.4%);

• 8.9% for streptomycin among the six countries where susceptibility to this drug was systematically tested (range: 1.3% to 25.7%).

For all drugs, the proportions were highest in Estonia and lowest in Iceland (however, very few patients were tested in Iceland).

According to levels of drug resistance, two groups of countries could be defined: countries with lower levels of resistance (Denmark, Finland, Iceland, Netherlands, Norway, Slovenia, Sweden and Switzerland) and countries with higher levels of resistance (Estonia and Romania).

4.6.3. Results by patients' geographic origin

The proportions of resistance to all drugs tested were consistently higher among patients of foreign origin than among nationals in all countries except Estonia, Romania and Slovenia where proportions were similar. In Estonia and Romania however, this similarity cannot be meaningfully interpreted since very few patients were of foreign origin (4% in Estonia and <1% in Romania).

In the 8 **countries with lower levels of drug resistance** (i.e., all except Estonia and Romania), patients of Asian or African origin had a higher proportion of resistance to isoniazid (9.2% and 9.6% respectively) than patients originating from foreign countries in Europe (3.7%) or nationals (2.3%). Similar differences were observed for streptomycin resistance (10.1% and 12.9% respectively, versus 2.8% and 2.0%) and for MDR (1.3% and 1.3%, respectively, versus 0.6% and 0.1%). All differences were found both in patients never treated and in patients previously treated.

These differences may be due to high drug resistance levels in some countries of origin. For example, 465 of the 685 culture positive patients of African origin tested for drug susceptibility (68%) originated from countries of the horn of Africa (Ethiopia, Eritrea or Somalia) where drug resistance levels are probably high due to the disorganisation of antituberculosis treatment caused by civil wars and socio-economic problems. Immigration from these countries is likely to have been relatively recent. Proportions of resistance were high in patients from this region: 11.2% to isoniazid, 1.9% to rifampicin and 12.7% to streptomycin. Patients from these countries are at risk both for having developed drug resistance during treatment (acquired resistance) and for having tuberculosis following an infection by drug resistant bacilli (primary resistance) in their country of origin.

Differences by geographic origin should however be interpreted with caution. Drug resistance may not result only from problems in the country of origin. There may also be specific problems in the case management of immigrants and/or difficult living conditions which expose them to the risk of both acquired primary and drug resistance in the country of diagnosis. In addition, the number of patients originating from each specific country was too small to allow meaningful comparisons. Patterns of migration differ from one country to another, and the time elapsed since arrival of migrants was not known.

4.6.4. Results by case status

Among the 9 countries with information on case status, the proportions of drug resistance were higher among patients previously treated than among patients never treated in most countries and for most drugs (Table 15).

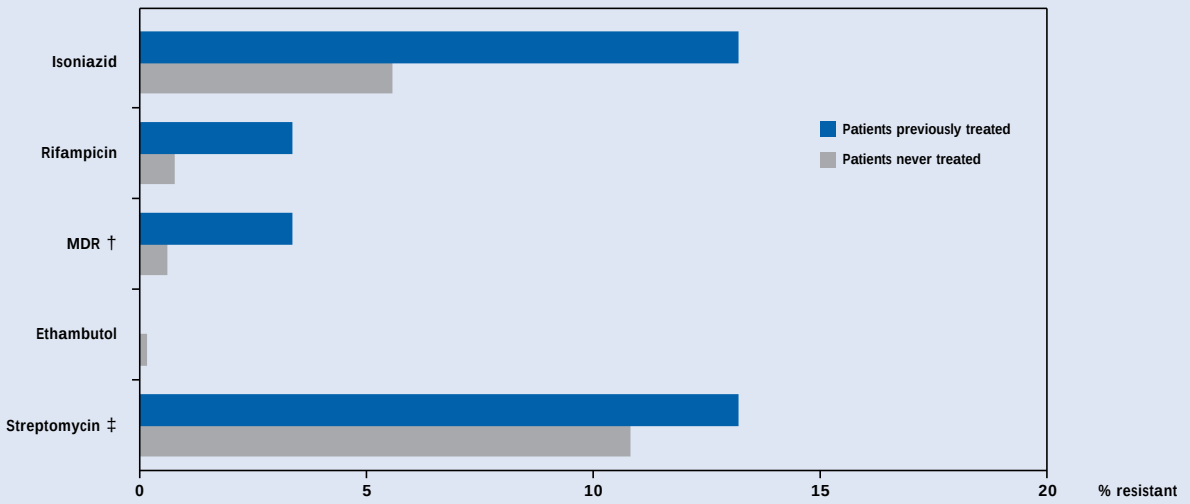
The median proportions of resistance in patients never treated and in patients previously treated were, respectively (Box 13):

- 5.6% (range: 0% to 22.8%) and 13.1% (range: 0% to 27.3%) for isoniazid;
- 0.7% (range: 0% to 13.8%) and 3.3% (range:0% to 14,3%) for rifampicin;
- 0.6% (range: 0% to 12.9%) and 3.3% (range: 0% to 13.6%) for MDR;
- 0.1% (range: 0% to 6.3%) and 0% (range: 0% to 15.9%) for ethambutol;
- 10.7% (range: 4.8% to 24.9%) and 13.1% (range: 3.8% to 31.8%) for streptomycin among the five countries where susceptibility to this drug was systematically tested.

These differences by case status were expected since patients previously exposed to antituberculosis drugs may have developed acquired resistance during their previous treatment.

Differences varied by country. For example, the proportion of isoniazid resistance was 7.5 times higher in patients previously treated than in patients never treated in Switzerland, whereas it was only 1.2 times higher in Estonia. These variations may be influenced by differences in criteria for notification of recurrent cases : indeed, only true relapse cases were included in the category of recurrent cases in Estonia, whereas other cases such as patients returning after treatment interruption, who are at higher risk of drug resistance than relapse cases, were included in the notification in Switzerland.

BOX 13 **Median proportions (%) of drug resistance,1997, 9 countries***



* Denmark, Estonia, Iceland, Netherlands, Norway, Romania, Slovenia, Sweden and Switzerland
† multi-drug resistance (resistance to at least isoniazid and rifampicin)
‡ in 5 countries: Denmark, Estonia, Netherlands, Romania and Sweden

In three countries, the proportion of resistance to certain drugs was higher in patients never treated than in patients previously treated:

- in Denmark for all drugs except rifampicin;
- in Sweden for streptomycin;
- in Norway, for isoniazid and rifampicin.

In these countries, the numbers of patients previously treated were small and none of the differences were statistically significant. Nevertheless, the relatively high proportions of drug resistance among patients never treated are likely to be explained by the large proportion of foreign-born patients (70% in Denmark, 68% in Sweden, 53% in Norway), most of whom originated from countries in Africa or in Asia with possibly high levels of drug resistance. These patients may have been infected by drug resistant tubercle bacilli in their country of origin. They may also have acquired drug resistance during a previous treatment but have been misclassified as "never treated" because of language problems during the recording of their previous history.

Drug resistance among **never treated patients** who are **nationals** is an indicator of past or present transmission of drug resistant bacilli within the country. The younger the patients, and the more recent the introduction of the drug in tuberculosis treatments (rifampicin being the most recently introduced), the more likely the transmission is to be recent. The proportion of drug resistance among such patients was examined separately in countries with lower levels of drug resistance (Denmark, Iceland, Netherlands, Norway, Slovenia, Sweden and Switzerland) and in countries with higher levels (Estonia and Romania), according to age, sex, site of disease and smear results.

- In countries with lower levels of resistance, no significant differences were found by sex or by site of disease and smear results (smear positive pulmonary cases compared with other pulmonary cases and extrapulmonary cases). The proportions were lower in younger (<35 years) than in older patients, although not significantly (0.5% versus 2.5% for isoniazid, 0% versus 0.3% for rifampicin). This indicates that there was probably little transmission of drug resistant tubercle bacilli in these countries during recent years.

- Patterns were different in countries with higher levels of resistance. In Estonia, proportions of drug resistance were higher among patients younger than 35 years than in older patients (25.8% versus 21.6% for isoniazid, 19.1% versus 11.4% for rifampicin, p=NS). In Romania, the proportion resistant to rifampicin was similar in the two age groups. The high proportion of drug resistance among younger patients observed in these two countries may indicate a relatively high level of transmission of drug resistant tubercle bacilli during recent years.

The proportion of drug resistance among patients previously treated, together with the proportion of previously treated patients among all patients, reflects to a large extent the quality of antituberculosis treatment.

- In the 7 countries with lower levels of resistance, the proportions of drug resistance among patients previously treated varied considerably between countries. However, they were based on small numbers of patients and differed according to geographic origin: the proportion resistant to isoniazid and to rifampicin was higher in foreign-born patients than in nationals.

- In Estonia and Romania, proportions of drug resistance were high, with no significant differences according to any of the patients' characteristics analysed.

4.6.5. Multi-drug resistance (MDR)

Among 7 140 cases tested for drug susceptibility in the 10 countries, a total of 202 MDR tuberculosis cases were reported.

The majority (180) of these cases were reported in Romania (131 cases) and Estonia (49 cases). In these two countries, 76% of the MDR cases were in patients never treated. Since MDR tuberculosis cases among patients never treated are likely to result from infection by multidrug resistant bacilli, they may indicate specific problems in infection control policies in hospitals, prisons or other institutions. All but two of the 180 cases were reported in nationals.

In the 8 other countries, 22 MDR cases were reported, among which 10 were reported in patients never treated and 11 in patients previously treated (case status was unknown for one). Most patients (18) were of foreign origin: 5 from Asia, 8 from Africa and 5 from other continents. Only 2 cases were diagnosed in nationals, both previously untreated.

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 multidrug 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 demonstrate 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.

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TABLES

TABLES

Table 1: Population groups included in the tuberculosis notification, 1997 (50 countries)

Country	Foreign citizens			Other groups				
	Legal residents	Asylum seekers	Illegal residents	Prisoners	Military personnel	Homeless people	Persons with AIDS or HIV infection	Institutionalised people
Albania *	■				■	■	■	■
Andorra *	■			■	■	■	■	■
Armenia	■			■	■	■	■	■
Austria	■	■	■	■	■	■	■	■
Azerbaijan *							■	■
Belarus					■	■	■	■
Belgium	■	■	■	■	■	■	■	■
Bosnia-Herzegovina †				■	■	■ ‡	■	■
Bulgaria *	■	■	■	■	■	■	■	■
Croatia	■	■	■	■	■	■	■	■
Czech Republic	■	■	■	■	■	■	■	■
Denmark	■	■	■	■	■	■	■	■
Estonia	■	■	■	■		■	■	■
Finland	■	■	■	■	■	■	■	■
France	■	■	■	■	■	■	■	■
Georgia *	■	■	■			■	■	■
Germany	■	■	■	■	■	■	■	■
Greece	■	■	■		■	■	■	■
Hungary	■	■	■	■	■	■	■	■
Iceland	■	■	■	■	■	■	■	■
Ireland	■	■	■	■	■	■	■	■
Israel	■	■	■	■	■	■	■	■
Italy	■	■	■	■	■	■	■	■
Kazakstan	■			■	■	■	■	■
Kyrgyzstan								
Latvia		■		■	■	■	■	■
Lithuania		■		■	■	■	■	■
Luxembourg	■	■	■	■	■	■	■	■
Macedonia					■	■	■	
Malta	■	■	■	■	■	■	■	■
Moldova	■				■	■	■	■
Netherlands	■	■	■	■	■	■	■	■
Norway	■	■		■	■	■	■	■
Poland	■			■	■	■	■	■
Portugal	■	■	■	■	■	■	■	■
Romania	■				■	■	■	■
Russian Federation								
San Marino	■			■	■	■	■	■
Slovakia	■	■	■		■	■	■	■
Slovenia	■	■		■	■	■	■	■
Spain	■	■	■	■	■	■	■	■
Sweden	■	■	■	■	■	■	■	■
Switzerland	■	■	■	■	■	■	■	■
Tajikistan *	■			■	■	■	■	■
Turkey								
Turkmenistan *				■	■	■	■	■
United Kingdom	■	■	■	■	■	■	■	■
Ukraine	■	■	■	■	■	■	■	■
Uzbekistan *								
Yugoslavia	■	■				■		■
Total	**39**	**32**	**27**	**36**	**42**	**45**	**45**	**45**

* Information provided for1996 † Information provided for the Federation of Bosnia-Herzegovina in 1996 and for Republic Srpska in 1997

‡ Included in the Federation of Bosnia-Herzegovina not in Republic Serbska

Table 2: National estimates of over-notification * and under-notification † of tuberculosis cases, 1997 (51 countries)

Country	Over notification (%)	Causes of over-notification	Under notification (%)	Population groups concerned by under-notification
Albania	- §		- §	
Andorra	- §		- §	
Armenia	0%		6%	Prisoners
Austria	- §		- §	
Azerbaijan	- §		- §	
Belarus	- §		0%	
Belgium	2%		- §	
Bosnia-Herzegovina	5% ‖		- §	Children, patients with AIDS, diangosis at death, refugees
Bulgaria	- §		- §	
Croatia	8%	Double counting, misdiagnosis	9%	
Czech Republic	< 1%	Double counting	1 to 2%	Foreigners
Denmark	0%		1 to 2%	Culture negative cases
Estonia	- §		- §	
Finland	0%		< 10%	All
France	10%	Children	33%	
Georgia	- §		- §	
Germany	2% ‡		17% ‡	
Greece	0%		- §	Foreigners, prisoners, patients with AIDS, diagnosis at death
Hungary	0%		0%	
Iceland	- §		- §	
Ireland	1%	Double counting, misdiagnosis	0%	
Israel	0%		1%	
Italy	- §		30% to 40%	Patients with AIDS
Kazakstan	- §		- §	Foreigners
Kyrgyzstan	1% ‡		3% ‡	Diagnosis at death, homeless
Latvia	0,5%		- §	
Lithuania	0%		0%	
Luxembourg	0%		- §	
Macedonia	8% ‡		7%	Children
Malta	0%		0%	
Moldova	0%		11%	Foreigners, prisoners
Monaco	- §		- §	
Netherlands	0%		0%	
Norway	4%		2% ‡	
Poland	0%		- §	
Portugal	0% ‡		2% ‡	
Romania	< 1%		- §	Foreigners, prisoners
Russian Federation	1,4%	Misdiagnosis	12,4%	Prisoners, children
San Marino	0%		0%	
Slovakia	- §		- §	
Slovenia	1% ‡		2% ‡	
Spain	- §		33%	
Sweden	0%		0%	Non bacteriological confirmed cases
Switzerland	2%		5%	Diagnosis at death
Tajikistan	- §		- §	
Turkey	20% ‡		20% ‡	
Turkmenistan	- §		- §	
Ukraine	10%		2%	Illegal immigrants, diagnosis at death
United Kingdom	15% to 35%	Double counting, misdiagnosis	14 % to 20%	All
Uzbekistan	- §		- §	
Yugoslavia	- §		- §	Foreigners, patients with AIDS, diagnosis at death, military personnel

* Estimated proportion of notified cases which are not true TB case † Estimated proportion of true TB cases which are not notified
‡ Information from a WHO survey on tuberculosis cases notified in 1995 § Information not available ‖ Information provided for Republic Srpska only

Table 3: Culture, drug susceptibility tests and laboratory networks for tuberculosis, 1997-1998 (47 countries)

Country	Access to culture	Laboratories doing culture		Practice of DST*	Laboratories doing DST*		National Reference Laboratory
		Total	/ Million †		Total	/ Million †	
Albania	partial	2	**0.6**	some	1	**0.3**	yes
Armenia	no	0	**0.0**	no	0	**0.0**	no
Austria	general	12	**1.5**	all	12	**1.5**	yes
Belarus	general	31	**3.1**	all	31	**3.1**	yes
Belgium	general	251	**24.8**	all	20	**2.0**	yes
Bosnia-Herzegovina	partial	10	**2.9**	some	4	**1.2**	yes ‡
Bulgaria	partial	16	**1.8**	some	10	**1.1**	no
Croatia	general	17	**3.8**	all	12	**2.7**	yes
Czech Republic	general	43	**4.2**	all	15	**1.5**	yes
Denmark	general	1	**0.2**	all	1	**0.2**	yes
Estonia	general	3	**2.0**	all	3	**2.0**	yes
Finland	general	18	**3.5**	all	1	**0.2**	yes
France	general	362	**6.1**	all	158	**2.7**	yes
Georgia	partial	3	**0.5**	some	1	**0.2**	yes
Germany	general	300	**3.7**	all	100	**1.2**	yes
Greece	partial	59	**5.6**	some	4	**0.4**	yes
Hungary	general	23	**2.3**	some	13	**1.3**	yes
Iceland	general	1	**3.7**	all	0	**0.0**	no §
Ireland	general	15	**4.2**	all	9	**2.5**	no
Israel	general	12	**2.1**	all	2	**0.4**	yes
Italy	partial	100	**1.7**	some	60	**1.0**	yes
Kazakstan	general	16	**0.9**	all	16	**0.9**	yes
Kyrgyzstan	general	1	**0.2**	all	1	**0.2**	yes
Latvia	general	21	**8.2**	all	1	**0.4**	yes
Lithuania	general	8	**2.2**	all	8	**2.2**	yes
Luxembourg	general	2	**4.9**	all	1	**2.5**	yes
Macedonia	partial	4	**1.8**	some	1	**0.5**	no
Malta	general	3	**8.2**	all	0	**0.0**	no §
Moldova	partial	8	**1.8**	some	8	**1.8**	yes
Monaco	general	1	**31.3**	all	0	**0.0**	no §
Netherlands	general	43	**2.8**	all	12	**0.8**	yes
Norway	general	16	**3.7**	all	3	**0.7**	yes
Poland	general	168	**4.4**	all	38	**1.0**	yes
Portugal	general	14	**1.4**	some	8	**0.8**	yes
Romania	partial	80	**3.5**	some	55	**2.4**	yes
Russian Federation	general	600	**4.1**	all	300	**2.0**	no
San Marino	general	1	**40.0**	all	0	**0.0**	no §
Slovakia	general	17	**3.2**	all	8	**1.5**	yes
Slovenia	general	8	**4.1**	all	2	**1.0**	yes
Spain	general	160	**4.0**	some	30	**0.8**	yes
Sweden	general	5	**0.6**	all	5	**0.6**	yes
Switzerland	general	31	**4.3**	all	16	**2.2**	yes
Tajikistan	partial	5	**0.8**	some	5	**0.8**	yes
Ukraine	general	28	**0.5**	all	28	**0.5**	no
United Kingdom	general	300	**5.1**	all	7	**0.1**	yes
Uzbekistan	general	14	**0.6**	no	14	**0.6**	no
Yugoslavia	general	41	**3.8**	all	12	**1.1**	no

* DST = drug susceptibility testing † per million population

‡ In Federation of Bosnia-Herzegovina, not in Republic Srpska § The National Reference Laboratory of another country is used

Table 4: Tuberculosis cases and tuberculosis notification rates, 1995, 1996 and 1997 (51 countries)

Country	1995		1996		1997	
	TB cases	Rate (per 100000)	TB cases	Rate (per 100000)	TB cases	Rate (per 100000)
Albania	664	**19.3**	707	**20.4**	655	**18.6**
Andorra	-*	-*	17	**23.9**	19	**29.4**
Armenia	836	**23.2**	935	**25.6**	1 026	**27.8**
Austria	1 383	**17.4**	1 445	**18.0**	1 369	**17.0**
Azerbaijan	3 306	**43.7**	5 006 ‡	**65.5** ‡	4 635 †	**60.5** †
Belarus	5 092	**50.2**	5 619	**55.5**	5 985	**59.2**
Belgium	1 380	**13.6**	1 352	**13.3**	1 263	**12.4**
Bosnia-Herzegovina	2 132	**61.6**	2 220	**62.9**	2 869	**77.5**
Bulgaria	3 245	**37.0**	3 109	**35.6**	3 437 †	**40.8** †
Croatia	2 114 †	**47.0** †	2 174	**48.5**	2 054	**45.9**
Czech Republic	1 851	**18.0**	1 936	**18.8**	1 834	**17.7**
Denmark	448	**8.6**	484	**9.3**	554	**10.6**
Estonia	608	**39.7**	683	**44.9**	744	**49.1**
Finland	662	**13.0**	644	**12.6**	573	**11.1**
France	8 723	**14.7**	7 656	**12.8**	6 832	**11.4**
Georgia	-*	-*	10 641 ‡	**194.7** ‡	8 446 ‡	**154.1** ‡
Germany	12 198	**15.0**	11 814	**14.4**	11 163	**13.6**
Greece	939 §	**9.0** §	945 §	**9.0** §	767 §	**7.2** §
Hungary	4 339	**42.9**	4 278	**42.5**	4 240	**42.2**
Iceland	12	**4.5**	11	**4.1**	10	**3.6**
Ireland	458	**12.9**	434	**12.2**	416	**11.6**
Israel	398	**7.1**	415	**7.2**	422	**7.2**
Italy	5 225	**9.1**	5 152	**9.0**	5 176	**9.0**
Kazakstan	11 095 §	**64.8** §	13 559 §	**78.8** §	16 109 §	**93.0** §
Kyrgyzstan	3 380	**71.2**	4 086	**84.7**	5 189	**105.8**
Latvia	1 541	**60.3**	1 761	**69.4**	2 003	**79.5**
Lithuania	2 362	**63.8**	2 608	**70.6**	2 926	**79.2**
Luxembourg	32	**7.9**	36	**8.8**	38	**9.1**
Macedonia	786	**36.3**	724	**33.2**	693	**31.5**
Malta	10	**2.7**	29	**7.9**	11	**2.9**
Moldova	2 753	**62.1**	2 922	**65.7**	2 908	**65.2**
Monaco	1	**3.1**	0	**0.0**	0	**0.0**
Netherlands	1 619	**10.4**	1 678	**10.8**	1 486	**9.4**
Norway	236	**5.4**	217	**5.0**	205	**4.6**
Poland	15 959	**41.6**	15 358	**39.9**	13 967	**36.2**
Portugal	5 577	**56.8**	5 248	**53,5**	5 112	**52.0**
Romania	23 271	**101.9**	24 113	**105.9**	23 903	**105.2**
Russian Federation	96 828	**65.9**	110 897	**75.6**	119 123	**81.3**
San Marino	2	**8.0**	0	**0.0**	1	**3.8**
Slovakia	1 537	**28.7**	1 499	**27.9**	1 298	**24.1**
Slovenia	525	**27.0**	563	**28.9**	481	**24.6**
Spain	8 764 ll	**22.1** ll	8 331 ll	**21.0** ll	9 347 °	**23.5** °
Sweden	564	**6.4**	493	**5.6**	456	**5.1**
Switzerland	830	**11.5**	764	**10.5**	747	**10.1**
Tajikistan	2 029 †	**34.8** †	1 647	**26.3**	2 143	**33.2**
Turkey	23 035	**37.2**	23 533	**37,3**	25 685	**40.0**
Turkmenistan	2 009	**49.0**	2 149	**51.3**	3 438	**80.3**
Ukraine	21 459 †	**41.8** †	26 834	**52.3**	28 344	**55.3**
United Kingdom	6 161	**10.6**	6 240	**10.7**	6 355	**10.8**
Uzbekistan	9 866	**43.2**	11 919	**51.1**	13 352	**56.0**
Yugoslavia	4 169	**38.4**	4 541	**41.8**	4 062	**37.4**

* Data not available † Source: Global Tuberculosis Control, WHO Report 1999, WHO/TB/99.259 ‡ Provisional data which are subject to revision
§ New cases only ll New respiratory cases only ° Respiratory and meningeal cases only

Table 5: Tuberculosis cases by case status, 1996 and 1997 (38 countries)

Country	New				Recurrent				Unknown status				Total	
	1996		1997		1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Albania	676	(96)	623	(95)	31	(4)	32	(5)	0	(0)	0	(0)	707	655
Andorra	17	(100)	18	(95)	0	(0)	1	(5)	0	(0)	0	(0)	17	19
Armenia	904	(97)	992	(97)	31	(3)	34	(3)	0	(0)	0	(0)	935	1026
Austria	1215	(84)	1193	(87)	226	(16)	176	(13)	4	(0)	0	(0)	1445	1369
Belarus	5008	(89)	5400	(90)	611	(11)	585	(10)	0	(0)	0	(0)	5619	5985
Belgium	1104	(82)	982	(78)	122	(9)	143	(11)	126	(9)	138	(11)	1352	1263
Bosnia-Herzegovina	2031	(91)	2542	(89)	189	(9)	327	(11)	0	(0)	0	(0)	2220	2869
Croatia	2039	(94)	1913	(93)	135	(6)	141	(7)	0	(0)	0	(0)	2174	2054
Czech Republic	1878	(97)	1767	(96)	58	(3)	67	(4)	0	(0)	0	(0)	1936	1834
Denmark	440	(91)	512	(92)	44	(9)	42	(8)	0	(0)	0	(0)	484	554
Estonia	593	(87)	660	(89)	90	(13)	84	(11)	0	(0)	0	(0)	683	744
France	4809	(63)	4407	(65)	682	(9)	634	(9)	2165	(28)	1791	(26)	7656	6832
Georgia	6896	(65) †	5435	(64) †	3745	(35) †	3011	(36) †	0	(0) †	0	(0) †	10641 †	8446 †
Hungary	3736	(87)	3552	(84)	542	(13)	688	(16)	0	(0)	0	(0)	4278	4240
Iceland	11	(100)	4	(40)	0	(0)	6	(60)	0	(0)	0	(0)	11	10
Israel	390	(94)	408	(97)	23	(6)	14	(3)	2	(0)	0	(0)	415	422
Kazakstan	-	-*	14401	(89)	-	-*	1708	(11)	-	-*	0	(0)	-	16109
Latvia	1476	(84)	1689	(84)	285	(16)	314	(16)	0	(0)	0	(0)	1761	2003
Lithuania	2357	(90)	2627	(90)	251	(10)	299	(10)	0	(0)	0	(0)	2608	2926
Luxembourg	33	(92)	34	(89)	3	(8)	4	(11)	0	(0)	0	(0)	36	38
Malta	28	(97)	9	(82)	1	(3)	2	(18)	0	(0)	0	(0)	29	11
Macedonia	-	-*	634	(91)	-	-*	59	(9)	-	-*	0	(0)	-	693
Moldova	2546	(87)	2541	(87)	376	(13)	367	(13)	0	(0)	0	(0)	2922	2908
Netherlands	1461	(87)	1322	(89)	217	(13)	164	(11)	0	(0)	0	(0)	1678	1486
Norway	146	(67)	151	(74)	39	(18)	37	(18)	32	(15)	17	(8)	217	205
Poland	13675	(89)	12389	(89)	1683	(11)	1578	(11)	0	(0)	0	(0)	15358	13967
Portugal	4656	(89)	4494	(88)	592	(11)	618	(12)	0	(0)	0	(0)	5248	5112
Romania	22250	(92)	21840	(91)	1863	(8)	2049	(9)	0	(0)	14	(0)	24113	23903
Russian Federation	99048	(89)	108166	(91)	11849	(11)	10957	(9)	0	(0)	0	(0)	110897	119123
Slovakia	1240	(83)	1098	(85)	259	(17)	200	(15)	0	(0)	0	(0)	1499	1298
Slovenia	480	(85)	422	(88)	83	(15)	56	(12)	0	(0)	3	(1)	563	481
Sweden	401	(81)	407	(89)	60	(12)	49	(11)	32	(6)	0	(0)	493	456
Switzerland	485	(63)	549	(73)	77	(10)	81	(11)	202	(26)	117	(16)	764	747
Turkey	-	-*	20778	(81)	-	-*	1937	(8)	-	-*	2970	(12)	-	25685
Turkmenistan	2061	(96)	3334	(97)	88	(4)	104	(3)	0	(0)	0	(0)	2149	3438
Ukraine	23414	(87)	24883	(88)	3420	(13)	3461	(12)	0	(0)	0	(0)	26834	28344
Uzbekistan	11474	(96)	12954	(97)	445	(4)	398	(3)	0	(0)	0	(0)	11919	13352
Yugoslavia	4115	(91)	3722	(92)	395	(9)	340	(8)	31	(1)	0	(0)	4541	4062

* Distribution by case status not available

† Provisional data which are subject to revision

Table 6: Tuberculosis cases by sex, 1996 and 1997 (38 countries)

Country	Male				Female				Unknown				Total	
	1996		1997		1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Albania	397	(56)	377	(58)	310	(44)	278	(42)	0	(0)	0	(0)	707	655
Andorra	12	(71)	12	(63)	5	(29)	7	(37)	0	(0)	0	(0)	17	19
Armenia	698	(75)	793	(77)	237	(25)	233	(23)	0	(0)	0	(0)	935	1026
Austria	948	(66)	854	(62)	497	(34)	515	(38)	0	(0)	0	(0)	1445	1369
Belgium	896	(66)	841	(67)	456	(34)	422	(33)	0	(0)	0	(0)	1352	1263
Bosnia-Herzegovina	1338	(60)	1631	(57)	882	(40)	1238	(43)	0	(0)	0	(0)	2220	2869
Croatia	1425	(66)	1344	(65)	749	(34)	710	(35)	0	(0)	0	(0)	2174	2054
Czech Republic	1154	(60)	1128	(62)	782	(40)	706	(38)	0	(0)	0	(0)	1936	1834
Denmark	291	(60)	308	(56)	193	(40)	246	(44)	0	(0)	0	(0)	484	554
Estonia	476	(70)	514	(69)	207	(30)	230	(31)	0	(0)	0	(0)	683	744
Finland	354	(55)	317	(55)	290	(45)	256	(45)	0	(0)	0	(0)	644	573
France	4659	(61)	4097	(60)	2971	(39)	2712	(40)	26	(0)	23	(0)	7656	6832
Georgia	6693	(63)*	5323	(63)*	3948	(37)*	3123	(37)*	0	(0)*	0	(0)*	10641*	8446*
Germany	7322	(62)	6968	(62)	4492	(38)	4195	(38)	0	(0)	0	(0)	11814	11163
Hungary	2791	(65)	2906	(69)	1487	(35)	1334	(31)	0	(0)	0	(0)	4278	4240
Iceland	5	(45)	4	(40)	6	(55)	6	(60)	0	(0)	0	(0)	11	10
Ireland	248	(57)	235	(56)	186	(43)	181	(44)	0	(0)	0	(0)	434	416
Israel	259	(62)	249	(59)	156	(38)	173	(41)	0	(0)	0	(0)	415	422
Italy	3160	(61)	3020	(58)	1984	(39)	1924	(37)	8	(0)	232	(4)	5152	5176
Kazakstan	-	-†	9343	(58)	-	-†	6766	(42)	-	-†	0	(0)	-	16109
Latvia	1200	(68)	1437	(72)	561	(32)	566	(28)	0	(0)	0	(0)	1761	2003
Lithuania	1728	(66)	1923	(66)	880	(34)	1003	(34)	0	(0)	0	(0)	2608	2926
Luxembourg	22	(61)	27	(71)	14	(39)	11	(29)	0	(0)	0	(0)	36	38
Macedonia	422	(58)	405	(58)	302	(42)	288	(42)	0	(0)	0	(0)	724	693
Malta	18	(62)	9	(82)	11	(38)	2	(18)	0	(0)	0	(0)	29	11
Moldova	2032	(70)	2013	(69)	890	(30)	895	(31)	0	(0)	0	(0)	2922	2908
Netherlands	1014	(60)	886	(60)	664	(40)	600	(40)	0	(0)	0	(0)	1678	1486
Norway	128	(59)	112	(55)	89	(41)	93	(45)	0	(0)	0	(0)	217	205
Poland	10320	(67)	9324	(67)	5038	(33)	4643	(33)	0	(0)	0	(0)	15358	13967
Portugal	3385	(65)	3411	(67)	1863	(35)	1701	(33)	0	(0)	0	(0)	5248	5112
Romania	16968	(70)	17108	(72)	7145	(30)	6795	(28)	0	(0)	0	(0)	24113	23903
Slovakia	874	(58)	767	(59)	625	(42)	531	(41)	0	(0)	0	(0)	1499	1298
Slovenia	341	(61)	295	(61)	222	(39)	186	(39)	0	(0)	0	(0)	563	481
Sweden	245	(50)	228	(50)	248	(50)	228	(50)	0	(0)	0	(0)	493	456
Switzerland	467	(61)	435	(58)	297	(39)	312	(42)	0	(0)	0	(0)	764	747
Turkmenistan	1209	(56)	1977	(58)	940	(44)	1461	(42)	0	(0)	0	(0)	2149	3438
United Kingdom	3584	(57)	3568	(56)	2656	(43)	2787	(44)	0	(0)	0	(0)	6240	6355
Yugoslavia	2630	(58)	2382	(59)	1880	(41)	1680	(41)	31	(1)	0	(0)	4541	4062

* Provisional data which are subject to revision
† Distribution by sex not available

Table 7: Tuberculosis cases by age group, 1996 and 1997 (36 countries)

Country	0-14 years				15-44 years				45-64 years			
	1996		1997		1996		1997		1996		1997	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Andorra	0	(0)	0	(0)	10	(59)	9	(47)	5	(29)	3	(16)
Armenia	119	(13)	97	(9)	546	(58)	660	(64)	228	(24)	225	(22)
Austria	50	(3)	61	(4)	643	(44)	549	(40)	395	(27)	400	(29)
Belgium	69	(5)	67	(5)	550	(41)	501	(40)	336	(25)	281	(22)
Bosnia-Herzegovina	43	(2)	59	(2)	804	(36)	1047	(36)	636	(29)	792	(28)
Croatia	100	(5)	104	(5)	817	(38)	769	(37)	688	(32)	655	(32)
Czech Republic	38	(2)	20	(1)	413	(21)	430	(23)	689	(36)	655	(36)
Denmark	40	(8)	52	(9)	277	(57)	349	(63)	93	(19)	98	(18)
Estonia	18	(3)	28	(4)	355	(52)	356	(48)	214	(31)	261	(35)
Finland	4	(1)	5	(1)	106	(16)	101	(18)	162	(25)	164	(29)
France	383	(5)	308	(5)	3198	(42)	2972	(44)	1886	(25)	1673	(24)
Georgia	1200	(11)*	1404	(17)*	6816	(64)*	4406	(52)*	2006	(19)*	1822	(22)*
Germany	578	(5)	480	(4)	4804	(41)	4512	(40)	3223	(27)	3144	(28)
Hungary	16	(0)	17	(0)	2105	(49)	1430	(34)	1508	(35)	1768	(42)
Iceland	1	(9)	0	(0)	4	(36)	2	(20)	1	(9)	2	(20)
Ireland	-	-†	32	(8)	-	-†	143	(34)	-	-†	98	(24)
Israel	17	(4)	20	(5)	151	(36)	166	(39)	88	(21)	94	(22)
Italy	174	(3)	154	(3)	2055	(40)	1963	(38)	1293	(25)	1219	(24)
Kazakstan	-	-†	1471	(9)	-	-†	8884	(55)	-	-†	4725	(29)
Latvia	86	(5)	90	(4)	890	(51)	1054	(53)	576	(33)	636	(32)
Lithuania	128	(5)	147	(5)	1163	(45)	1247	(43)	942	(36)	1025	(35)
Luxembourg	1	(3)	2	(5)	22	(61)	12	(32)	6	(17)	12	(32)
Macedonia	39	(5)	78	(11)	361	(50)	313	(45)	227	(31)	188	(27)
Malta	3	(10)	1	(9)	11	(38)	2	(18)	8	(28)	2	(18)
Moldova	94	(3)	85	(3)	1784	(61)	1819	(63)	859	(29)	851	(29)
Netherlands	98	(6)	91	(6)	978	(58)	889	(60)	290	(17)	244	(16)
Norway	19	(9)	20	(10)	91	(42)	82	(40)	36	(17)	28	(14)
Poland	181	(1)	161	(1)	6387	(42)	5698	(41)	5410	(35)	4987	(36)
Portugal	220	(4)	219	(4)	3074	(59)	2935	(57)	1113	(21)	1138	(22)
Romania	1195	(5)	1127	(5)	14227	(59)	14008	(59)	7028	(29)	7156	(30)
Slovakia	46	(3)	27	(2)	441	(29)	383	(30)	431	(29)	391	(30)
Slovenia	6	(1)	5	(1)	238	(42)	199	(41)	175	(31)	132	(27)
Sweden	26	(5)	30	(7)	206	(42)	212	(46)	94	(19)	70	(15)
Switzerland	24	(3)	22	(3)	380	(50)	391	(52)	145	(19)	117	(16)
United Kingdom	410	(7)	481	(8)	2752	(44)	2801	(44)	1399	(22)	1456	(23)
Yugoslavia	162	(4)	157	(4)	1969	(43)	1809	(45)	1394	(31)	1234	(30)

* Provisional data which are subject to revision

† Distribution by age group not available

> 64 years				Unknown				Total		Country
1996		1997		1996		1997		1996	1997	
N	(%)	N	(%)	N	(%)	N	(%)	N	N	
2	(12)	7	(37)	0	(0)	0	(0)	17	19	Andorra
42	(4)	44	(4)	0	(0)	0	(0)	935	1026	Armenia
357	(25)	359	(26)	0	(0)	0	(0)	1445	1369	Austria
397	(29)	414	(33)	0	(0)	0	(0)	1352	1263	Belgium
401	(18)	628	(22)	336	(15)	343	(12)	2220	2869	Bosnia-Herzegovina
569	(26)	526	(26)	0	(0)	0	(0)	2174	2054	Croatia
796	(41)	728	(40)	0	(0)	1	(0)	1936	1834	Czech Republic
74	(15)	55	(10)	0	(0)	0	(0)	484	554	Denmark
96	(14)	99	(13)	0	(0)	0	(0)	683	744	Estonia
372	(58)	303	(53)	0	(0)	0	(0)	644	573	Finland
2189	(29)	1879	(28)	0	(0)	0	(0)	7656	6832	France
619	(6)*	814	(10)*	0	(0)*	0	(0)*	10641*	8446*	Georgia
3209	(27)	3027	(27)	0	(0)	0	(0)	11814	11163	Germany
649	(15)	1025	(24)	0	(0)	0	(0)	4278	4240	Hungary
5	(45)	6	(60)	0	(0)	0	(0)	11	10	Iceland
-	-†	143	(34)	-	-†	0	(0)	-†	416	Ireland
157	(38)	142	(34)	2	(0)	0	(0)	415	422	Israel
1590	(31)	1565	(30)	40	(1)	275	(5)	5152	5176	Italy
-	-†	1029	(6)	-	-†	0	(0)	-	16109	Kazakstan
209	(12)	223	(11)	0	(0)	0	(0)	1761	2003	Latvia
375	(14)	507	(17)	0	(0)	0	(0)	2608	2926	Lithuania
5	(14)	9	(24)	2	(6)	3	(8)	36	38	Luxembourg
97	(13)	114	(16)	0	(0)	0	(0)	724	693	Macedonia
7	(24)	6	(55)	0	(0)	0	(0)	29	11	Malta
185	(6)	153	(5)	0	(0)	0	(0)	2922	2908	Moldova
312	(19)	262	(18)	0	(0)	0	(0)	1678	1486	Netherlands
71	(33)	74	(36)	0	(0)	1	(0)	217	205	Norway
3380	(22)	3121	(22)	0	(0)	0	(0)	15358	13967	Poland
841	(16)	820	(16)	0	(0)	0	(0)	5248	5112	Portugal
1659	(7)	1611	(7)	4	(0)	1	(0)	24113	23903	Romania
580	(39)	497	(38)	1	(0)	0	(0)	1499	1298	Slovakia
144	(26)	145	(30)	0	(0)	0	(0)	563	481	Slovenia
167	(34)	144	(32)	0	(0)	0	(0)	493	456	Sweden
215	(28)	217	(29)	0	(0)	0	(0)	764	747	Switzerland
1545	(25)	1501	(24)	134	(2)	116	(2)	6240	6355	United Kingdom
956	(21)	861	(21)	60	(1)	1	(0)	4541	4062	Yugoslavia

Table 8: Tuberculosis cases by age group, 1997 (35 countries)

Country	0-4 years		5-14 years		15-24 years		25-34 years		35-44 years	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Andorra	0	(0)	0	(0)	1	(5)	3	(16)	5	(26)
Armenia	26	(3)	71	(7)	273	(27)	199	(19)	188	(18)
Austria	44	(3)	17	(1)	101	(7)	214	(16)	234	(17)
Belgium	36	(3)	31	(2)	96	(8)	207	(16)	198	(16)
Bosnia-Herzegovina	22	(1)	37	(1)	257	(9)	369	(13)	421	(15)
Croatia	26	(1)	78	(4)	175	(9)	218	(11)	376	(18)
Czech Republic	9	(0)	11	(1)	70	(4)	119	(6)	241	(13)
Denmark	19	(3)	33	(6)	97	(18)	157	(28)	95	(17)
Estonia	8	(1)	20	(3)	60	(8)	130	(17)	166	(22)
Finland	2	(0)	3	(1)	15	(3)	37	(6)	49	(9)
France	155	(2)	153	(2)	571	(8)	1142	(17)	1259	(18)
Georgia	345	(4)*	1059	(13)*	1133	(13)*	1581	(19)*	1692	(20)*
Germany	234	(2)	246	(2)	955	(9)	1835	(16)	1722	(15)
Hungary	9	(0)	8	(0)	150	(4)	372	(9)	908	(21)
Iceland	0	(0)	0	(0)	1	(10)	0	(0)	1	(10)
Israel	8	(2)	12	(3)	41	(10)	70	(17)	55	(13)
Italy	84	(2)	70	(1)	379	(7)	850	(16)	734	(14)
Kazakstan	571	(4)	900	(6)	1976	(12)	2869	(18)	4039	(25)
Latvia	26	(1)	64	(3)	216	(11)	385	(19)	453	(23)
Lithuania	17	(1)	130	(4)	268	(9)	402	(14)	577	(20)
Luxembourg	1	(3)	1	(3)	4	(11)	2	(5)	6	(16)
Macedonia	28	(4)	50	(7)	78	(11)	130	(19)	105	(15)
Malta	0	(0)	1	(9)	1	(9)	1	(9)	0	(0)
Moldova	25	(1)	60	(2)	474	(16)	574	(20)	771	(27)
Netherlands	26	(2)	65	(4)	231	(16)	404	(27)	254	(17)
Norway	9	(4)	11	(5)	18	(9)	32	(16)	32	(16)
Poland	50	(0)	111	(1)	832	(6)	1544	(11)	3322	(24)
Portugal	65	(1)	154	(3)	705	(14)	1278	(25)	952	(19)
Romania	406	(2)	721	(3)	3950	(17)	4415	(18)	5643	(24)
Slovakia	9	(1)	18	(1)	60	(5)	116	(9)	207	(16)
Slovenia	3	(1)	2	(0)	38	(8)	74	(15)	87	(18)
Sweden	9	(2)	21	(5)	53	(12)	91	(20)	68	(15)
Switzerland	12	(2)	10	(1)	114	(15)	164	(22)	113	(15)
United Kingdom	179	(3)	302	(5)	716	(11)	1185	(19)	900	(14)
Yugoslavia	36	(1)	121	(3)	521	(13)	584	(14)	704	(17)

* Provisional data which are subject to revision

45-54 years		55-64 years		> 64 years		Unknown		Total	Country
N	(%)	N	(%)	N	(%)	N	(%)	N	
2	(11)	1	(5)	7	(37)	0	(0)	19	Andorra
117	(11)	108	(11)	44	(4)	0	(0)	1026	Armenia
223	(16)	177	(13)	359	(26)	0	(0)	1369	Austria
149	(12)	132	(10)	414	(33)	0	(0)	1263	Belgium
321	(11)	471	(16)	628	(22)	343	(12)	2869	Bosnia-Herzegovina
294	(14)	361	(18)	526	(26)	0	(0)	2054	Croatia
359	(20)	296	(16)	728	(40)	1	(0)	1834	Czech Republic
61	(11)	37	(7)	55	(10)	0	(0)	554	Denmark
149	(20)	112	(15)	99	(13)	0	(0)	744	Estonia
74	(13)	90	(16)	303	(53)	0	(0)	573	Finland
961	(14)	712	(10)	1879	(28)	0	(0)	6832	France
985	(12)*	837	(10)*	814	(10)*	0	(0)*	8446*	Georgia
1506	(13)	1638	(15)	3027	(27)	0	(0)	11163	Germany
1008	(24)	760	(18)	1025	(24)	0	(0)	4240	Hungary
0	(0)	2	(20)	6	(60)	0	(0)	10	Iceland
42	(10)	52	(12)	142	(34)	0	(0)	422	Israel
562	(11)	657	(13)	1565	(30)	275	(5)	5176	Italy
2879	(18)	1846	(11)	1029	(6)	0	(0)	16019	Kazakstan
343	(17)	293	(15)	223	(11)	0	(0)	2003	Latvia
558	(19)	467	(16)	507	(17)	0	(0)	2926	Lithuania
6	(16)	6	(16)	9	(24)	3	(8)	38	Luxembourg
88	(13)	100	(14)	114	(16)	0	(0)	693	Macedonia
1	(9)	1	(9)	6	(55)	0	(0)	11	Malta
526	(18)	325	(11)	153	(5)	0	(0)	2908	Moldova
146	(10)	98	(7)	262	(18)	0	(0)	1486	Netherlands
15	(7)	13	(6)	74	(36)	1	(0)	205	Norway
2856	(20)	2131	(15)	3121	(22)	0	(0)	13967	Poland
616	(12)	522	(10)	820	(16)	0	(0)	5112	Portugal
4382	(18)	2774	(12)	1611	(7)	1	(0)	23903	Romania
201	(15)	190	(15)	497	(38)	0	(0)	1298	Slovakia
64	(13)	68	(14)	145	(30)	0	(0)	481	Slovenia
29	(6)	41	(9)	144	(32)	0	(0)	456	Sweden
67	(9)	50	(7)	217	(29)	0	(0)	747	Switzerland
688	(11)	768	(12)	1501	(24)	116	(2)	6355	United Kingdom
585	(14)	649	(16)	861	(21)	1	(0)	4062	Yugoslavia

Table 9: Tuberculosis cases by geographic origin, 1996 and 1997 (29 countries)

Geographic origin = place of birth (22 countries)

Country	Born in the country				Foreign-born				Unknown birth-place				Total	
	1996		1997		1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Andorra	5	(29)	3	(16)	12	(71)	16	(84)	0	(0)	0	(0)	17	19
Armenia	820	(88)	1026	(100)	115	(12)	0	(0)	0	(0)	0	(0)	935	1026
Croatia	1052	(48)	960	(47)	222	(10)	185	(9)	900	(41)	909	(44)	2174	2054
Czech Republic	1936	(100)	1726	(94)	0	(0)	108	(6)	0	(0)	0	(0)	1936	1834
Denmark	195	(40)	174	(31)	283	(58)	380	(69)	6	(1)	0	(0)	484	554
Estonia	681	(100)	716	(96)	2	(0)	28	(4)	0	(0)	0	(0)	683	744
Finland	596	(93)	524	(91)	34	(5)	41	(7)	14	(2)	8	(1)	644	573
France	3075	(40)	3370	(49)	1289	(17)	1684	(25)	3292	(43)	1778	(26)	7656	6832
Hungary	4236	(99)	4196	(99)	42	(1)	44	(1)	0	(0)	0	(0)	4278	4240
Iceland	7	(64)	8	(80)	4	(36)	2	(20)	0	(0)	0	(0)	11	10
Ireland	-	-*	382	(92)	-	-*	25	(6)	-	-*	9	(2)	-	416
Israel	70	(17)	52	(12)	345	(83)	370	(88)	0	(0)	0	(0)	415	422
Latvia	-	-*	1889	(94)	-	-*	85	(4)	-	-*	29	(1)	-	2003
Lithuania	-	-*	2769	(95)	-	-*	157	(5)	-	-*	0	(0)	-	2926
Luxembourg	13	(36)	20	(53)	23	(64)	17	(45)	0	(0)	1	(3)	36	38
Malta	19	(66)	8	(73)	10	(34)	3	(27)	0	(0)	0	(0)	29	11
Moldova	-	-*	2908	(100)	-	-*	0	(0)	-	-*	0	(0)	-	2908
Norway	115	(53)	95	(46)	102	(47)	110	(54)	0	(0)	0	(0)	217	205
Slovakia	1497	(100)	1298	(100)	2	(0)	0	(0)	0	(0)	0	(0)	1499	1298
Slovenia	457	(81)	377	(78)	106	(19)	101	(21)	0	(0)	3	(1)	563	481
Sweden	198	(40)	156	(34)	295	(60)	300	(66)	0	(0)	0	(0)	493	456
Switzerland	227	(30)	239	(32)	359	(47)	403	(54)	178	(23)	105	(14)	764	747

Geographic origin = citizenship (10 countries)

Country	National citizen				Foreign citizen				Unknown citizenship				Total	
	1996		1997		1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Austria	1098	(76)	1029	(75)	347	(24)	340	(25)	0	(0)	0	(0)	1445	1369
Belgium	906	(67)	849	(67)	435	(32)	414	(33)	11	(1)	0	(0)	1352	1263
France	4929	(64)	4408	(65)	1845	(24)	1613	(24)	882	(12)	811	(12)	7656	6832
Georgia	-	-*	8446	(100) †	-	-*	0	(0) †	-	-*	0	(0) †	-	8446 †
Germany	8340	(71)	7736	(69)	3474	(29)	3427	(31)	0	(0)	0	(0)	11814	11163
Italy	4377	(85)	4121	(80)	572	(11)	691	(13)	203	(4)	364	(7)	5152	5176
Luxembourg	14	(39)	35	(92)	22	(61)	3	(8)	0	(0)	0	(0)	36	38
Netherlands	808	(48)	647	(44)	816	(49)	817	(55)	54	(3)	22	(1)	1678	1486
Romania	-	-*	23888	(100)	-	-*	15	(0)	-	-*	0	(0)	-	23903
Switzerland	348	(46)	327	(44)	416	(54)	420	(56)	0	(0)	0	(0)	764	747

* Distribution by geographic origin not available
† Provisional data which are subject to revision

Table 10: Continents of origin, tuberculosis patients of foreign origin, 1996 and 1997 (15 countries providing individual data)

Geographic origin = place of birth (11 countries)

Country	Continent of origin										Total foreign-born patients	
	Europe		Asia		Africa		Other		Unknown			
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Czech Republic	-*	82	-*	13	-*	10	-*	3	-*	0	-	108
Denmark	31	18	92	122	145	216	15	18	6	6	283	380
Estonia	2	22	0	6	0	0	0	0	0	0	2	28
Finland	7	7	10	9	17	25	0	0	0	0	34	41
Iceland	0	0	3	1	0	1	1	0	0	0	4	2
Luxembourg	16	12	4	1	2	2	1	1	0	1	23	17
Malta	2	1	4	1	4	1	0	0	0	0	10	3
Norway	18	17	52	58	30	33	2	2	0	0	102	110
Slovenia	105	101	0	0	1	0	0	0	0	0	106	101
Sweden	81	78	64	72	135	134	11	10	4	6	295	300
Switzerland †	204	194	106	83	90	108	15	17	1	1	416	403

Geographic origin = citizenship (4 countries)

Country	Continent of origin										Total foreign-born patients	
	Europe		Asia		Africa		Other		Unknown			
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Austria	222	216	83	108	15	13	6	3	21	0	347	340
Belgium	104	112	110	96	214	196	7	9	0	1	435	414
Italy	70	100	110	138	249	330	95	98	48	25	572	691
Netherlands	57	51	251	248	454	463	54	55	0	0	816	817

* Distribution by continent of origin not available
† Geographic origin based on citizenship for 1996

Table 11: Tuberculosis cases by site of disease, 1996 and 1997 (37 countries)

Country	Pulmonary / Respiratory				Extra-pulmonary / Extra respiratory				Unknown				Total	
	1996		1997		1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Pulmonary classification (27 countries)														
Albania	389	(55)	357	(55)	318	(45)	298	(45)	0	(0)	0	(0)	707	655
Andorra	-	-*	18	(95)	-	-*	1	(5)	-	-*	0	(0)	-	19
Armenia	862	(92) †	860	(84)	73	(8) †	166	(16)	0	(0)	0	(0)	935	1026
Austria	1225	(85)	1139	(83)	220	(15)	230	(17)	0	(0)	0	(0)	1445	1369
Belgium	1072	(79)	1003	(79)	278	(21)	257	(20)	2	(0)	3	(0)	1352	1263
Bosnia-Herzegovina	2165	(98) †	2617	(91)	54	(2) †	252	(9)	1	(0)	0	(0)	2220	2869
Croatia	1995	(92)	1859	(91)	179	(8)	195	(9)	0	(0)	0	(0)	2174	2054
Denmark	326	(67)	362	(65)	158	(33)	191	(34)	0	(0)	1	(0)	484	554
Estonia	627	(92)	663	(89)	55	(8)	81	(11)	1	(0)	0	(0)	683	744
Finland	431	(67)	363	(63)	213	(33)	210	(37)	0	(0)	0	(0)	644	573
France	5604	(73)	5092	(75)	1797	(23)	1661	(24)	255	(3)	79	(1)	7656	6832
Georgia	7649	(72) ‡	6417	(76)	2992	(28) ‡	2029	(24)	0	(0)	0	(0)	10641	8446
Hungary	4005	(94)	3879	(91)	273	(6)	359	(8)	0	(0)	2	(0)	4278	4240
Ireland	-	-*	319	(77)	-	-*	88	(21)	-	-*	9	(2)	-	416
Iceland	7	(64)	7	(70)	4	(36)	3	(30)	0	(0)	0	(0)	11	10
Israel	343	(83)	351	(83)	72	(17)	71	(17)	0	(0)	0	(0)	415	422
Italy	3800	(74)	3668	(71)	1333	(26)	1241	(24)	19	(0)	267	(5)	5152	5176
Luxemburg	29	(81)	31	(82)	6	(17)	7	(18)	1	(3)	0	(0)	36	38
Malta	18	(62)	9	(82)	11	(38)	2	(18)	0	(0)	0	(0)	29	11
Netherlands	1134	(68)	998	(67)	544	(32)	488	(33)	0	(0)	0	(0)	1678	1486
Norway	149	(69)	130	(63)	68	(31)	75	(37)	0	(0)	0	(0)	217	205
Portugal	3598	(69)	3688	(72)	1650	(31)	1424	(28)	0	(0)	0	(0)	5248	5112
Romania	19951	(83)	20468	(86)	4160	(17)	3435	(14)	2	(0)	0	(0)	24113	23903
Slovakia	1169	(78)	1021	(79)	330	(22)	277	(21)	0	(0)	0	(0)	1499	1298
Slovenia	454	(81)	373	(78)	107	(19)	104	(22)	2	(0)	4	(1)	563	481
Sweden	309	(63)	310	(68)	184	(37)	146	(32)	0	(0)	0	(0)	493	456
Switzerland	594	(78)	574	(77)	170	(22)	173	(23)	0	(0)	0	(0)	764	747
Respiratory classification (10 countries)														
Czech Republic	1606	(83)	1519	(83)	330	(17)	315	(17)	0	(0)	0	(0)	1936	1834
Germany	9957	(84)	9415	(84)	1857	(16)	1748	(16)	0	(0)	0	(0)	11814	11163
Kazakstan	-	-*	14912	(93)	-	-*	1197	(7)	-	(0)*	0	(0)	-	16109
Latvia	1677	(95)	1894	(95)	84	(5)	109	(5)	0	(0)	0	(0)	1761	2003
Lithuania	2331	(89)	2577	(88)	277	(11)	349	(12)	0	(0)	0	(0)	2608	2926
Macedonia	654	(90)	616	(89)	70	(10)	77	(11)	0	(0)	0	(0)	724	693
Moldova	2729	(93)	2720	(94)	193	(7)	188	(6)	0	(0)	0	(0)	2922	2908
Poland	14761	(96)	13396	(96)	597	(4)	571	(4)	0	(0)	0	(0)	15358	13967
United Kingdom	4147	(66) §	4820	(76)	2093	(34) §	1535	(24)	0	(0) §	0	(0) §	6240	6355
Yugoslavia	4225	(93)	3815	(94)	285	(6)	247	(6)	31	(1)	0	(0)	4541	4062

* Distribution by site of disease not available † Respiratory classification in 1996

‡ Provisional data which are subject to revision § England & Wales, Northern Ireland: pulmonary classification; Scotland: respiratory classification

Table 12: Pulmonary or respiratory tuberculosis cases by sputum smear results, 1996 and 1997 (32 countries)

Country	Smear positive				Smear negative or unknown				Total pulmonary/respiratory cases	
	1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Pulmonary classification (23 countries)										
Albania	173	(44)	247	(69)	216	(56)	110	(31)	389	357
Armenia	385	(45) *	470	(55)	477	(55) *	390	(45)	862 *	860
Austria	422	(34)	430	(38)	803	(66)	709	(62)	1225	1139
Belgium	493	(46)	491	(49)	579	(54)	512	(51)	1072	1003
Bosnia-Herzegovina	-	- †	895	(34)	-	- †	1722	(66)	-	2617
Denmark	129	(40)	123	(34)	197	(60)	239	(66)	326	362
Estonia	280	(45)	310	(47)	347	(55)	353	(53)	627	663
Finland	240	(56)	186	(51)	191	(44)	177	(49)	431	363
France	3002	(54)	2734	(54)	2602	(46)	2358	(46)	5604	5092
Georgia	1801	(24) ‡	1148	(18) ‡	5848	(76) ‡	5269	(82) ‡	7649 ‡	6417 ‡
Hungary	881	(22)	865	(22)	3124	(78)	3014	(78)	4005	3879
Iceland	1	(14)	5	(71)	6	(86)	2	(29)	7	7
Israel	193	(56)	221	(63)	150	(44)	130	(37)	343	351
Italy	2111	(56)	2011	(55)	1689	(44)	1657	(45)	3800	3668
Malta	5	(28)	0	(0)	13	(72)	9	(100)	18	9
Netherlands	424	(37)	352	(35)	710	(63)	646	(65)	1134	998
Norway	-	- †	90	(69)	-	- †	40	(31)	-	130
Portugal	2158	(60)	2140	(58)	1440	(40)	1548	(42)	3598	3688
Romania	11449	(57)	12683	(62)	8508	(43)	7785	(38)	19957	20468
Slovakia	413	(35)	326	(32)	756	(65)	695	(68)	1169	1021
Slovenia	257	(57)	179	(48)	197	(43)	194	(52)	454	373
Sweden	98	(32)	110	(35)	211	(68)	200	(65)	309	310
Switzerland	195	(33)	172	(30)	399	(67)	402	(70)	594	574
Respiratory classification (9 countries)										
Czech Republic	587	(37)	484	(32)	1019	(63)	1035	(68)	1606	1519
Germany	3680	(37)	3345	(36)	6277	(63)	6070	(64)	9957	9415
Kazakstan	-	- †	5060	(34)	-	- †	9852	(66)	-	14912
Latvia	978	(58)	1157	(61)	699	(42)	737	(39)	1677	1894
Lithuania	1261	(54)	1338	(52)	1070	(46)	1239	(48)	2331	2577
Macedonia	242	(37)	232	(38)	412	(63)	384	(62)	654	616
Moldova	250	(9)	468	(17)	2479	(91)	2252	(83)	2729	2720
Poland	4137	(28)	7279	(54)	10624	(72)	6117	(46)	14761	13396
Yugoslavia	-	- †	1927	(51)	-	- †	1888	(49)	-	3815

* Respiratory classification

† Distribution by sputum smear results not available

‡ Provisional data which are subject to revision

Table 13: Tuberculosis cases by bacteriological confirmation, 1996 and 1997 (33 countries)

Country	Confirmed				Non confirmed or unknown				Total	
	1996		1997		1996		1997		1996	1997
	N	(%)	N	(%)	N	(%)	N	(%)	N	N
Confirmation based on positive culture (12 countries)										
Czech Republic	1002	(52)	907	(49)	934	(48)	927	(51)	1936	1834
Denmark	427	(88)	459	(83)	57	(12)	95	(17)	484	554
Finland	510	(79)	445	(78)	134	(21)	128	(22)	644	573
Germany	6639	(56) *	6265	(56) *	5175	(44)	4898	(44)	11814	11163
Hungary	1830	(43)	1687	(40)	2448	(57)	2553	(60)	4278	4240
Iceland	6	(55)	9	(90)	5	(45)	1	(10)	11	10
Israel	206	(50)	260	(62)	209	(50)	162	(38)	415	422
Netherlands	1287	(77) †	905	(61)	391	(23) †	581	(39)	1878	1486
Norway	149	(69)	139	(68)	68	(31)	66	(32)	217	205
Slovenia	423	(75)	356	(74)	140	(25)	125	(26)	563	481
Sweden	417	(85)	380	(83)	76	(15)	76	(17)	493	456
Switzerland	588	(77)	582	(78)	176	(23)	165	(22)	764	747
Confirmation based on positive culture or positive sputum smear (21 countries)										
Albania	186	(26)	247	(38)	521	(74)	408	(62)	707	655
Armenia	385	(41) ‡	470	(46) ‡	550	(59) ‡	556	(54) ‡	935	1026
Austria	914	(63)	797	(58)	531	(37)	572	(42)	1445	1369
Belgium	905	(67)	776	(61)	447	(33)	487	(39)	1352	1263
Bosnia-Herzegovina	1131	(51)	1476	(51)	1089	(49)	1393	(49)	2220	2869
Estonia	440	(64)	595	(80)	243	(36)	149	(20)	683	744
France	3993	(52)	3722	(54)	3663	(48)	3110	(46)	7656	6832
Georgia	1801	(17) §	1148	(14) §	8840	(83) §	7298	(86) §	10641	8446
Italy	3296	(64)	3021	(58)	1856	(36)	2155	(42)	5152	5176
Kazakstan	-	- ‖	5336	(33)	-	- ‖	10773	(67)	-	16109
Latvia	1015	(58)	1179	(59)	746	(42)	824	(41)	1761	2003
Lithuania	1261	(48)	1366	(47)	1347	(52)	1560	(53)	2608	2926
Luxembourg	22	(61)	6	(16)	14	(39)	32	(84)	36	38
Macedonia	242	(33)	232	(33)	482	(67)	461	(67)	724	693
Malta	9	(31)	2	(18)	20	(69)	9	(82)	29	11
Moldova	938	(32)	840	(29)	1984	(68)	2068	(71)	2922	2908
Netherlands			996	(67)			490	(33)		1486
Poland	8087	(53)	7484	(54)	7271	(47)	6483	(46)	15358	13967
Portugal	2761	(53)	3691	(72)	2487	(47)	1421	(28)	5248	5112
Romania	14202	(59)	15947	(67)	9911	(41)	7956	(33)	24113	23903
Slovakia	835	(56)	748	(58)	664	(44)	550	(42)	1499	1298
Yugoslavia	2157	(48)	1927	(47)	2384	(52)	2135	(53)	4541	4062

* Information on bacteriological confirmation available on respiratory cases only
† Confirmation based on positive culture or positive smear
‡ Confirmation based on positive sputum smear only
§ Provisional data which are subject to revision
‖ Distribution by bacteriological confirmation not available

Table 14: Tuberculosis cases by site of disease, culture and sputum smear results, 1997 (17 countries with individual data)

Country	Pulmonary culture (+)		Pulmonary culture (-)		Pulmonary culture unknown		Extra pulmonary		Unknown site	Total
	Smear (+)	Smear (-) or unknown	Smear (+)	Smear (-) or unknown	Smear (+)	Smear (-) or unknown	Culture (+)	Culture (-) or unknown		
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N
Austria	302 (22)	306 (22)	22 (2)	205 (15)	106 (8)	198 (14)	61 (4)	169 (12)	0 (0)	1369
Belgium	356 (28)	285 (23)	26 (2)	112 (9)	109 (9)	115 (9)	0 (0)	257 (20)	3 (0)	1263
Czech Rep.	484 (26) *	423 (23) *	0 (0) *	437 (24) *	0 (0) *	175 (10) *	0 (0) *	315 (17) *	0 (0) *	1834
Denmark	123 (22)	176 (32)	0 (0)	0 (0)	0 (0)	63 (11)	160 (29)	31 (6)	1 (0)	554
Estonia	310 (42)	240 (32)	0 (0)	107 (14)	0 (0)	6 (1)	45 (6)	36 (5)	0 (0)	744
Finland	151 (26)	159 (28)	0 (0)	0 (0)	35 (6)	18 (3)	135 (24)	75 (13)	0 (0)	573
France	588 (9)	901 (13)	128 (2)	273 (4)	2018 (30)	1184 (17)	87 (1)	1574 (23)	79 (1)	6832
Iceland	5 (50)	1 (10)	0 (0)	1 (10)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	10
Italy	1183 (23)	587 (11)	151 (3)	424 (8)	677 (13)	646 (12)	408 (8)	833 (16)	267 (5)	5176
Luxembourg	- - †	6 (16) †	- - †	1 (3) †	- - †	24 (63) †	0 (0)	7 (18)	0 (0)	38
Malta	0 (0)	2 (18)	0 (0)	4 (36)	0 (0)	3 (27)	0 (0)	2 (18)	0 (0)	11
Netherlands	266 (18)	358 (24)	0 (0)	0 (0)	86 (6)	288 (19)	281 (19)	207 (14)	0 (0)	1486
Norway	82 (40)	12 (6)	4 (2)	19 (9)	4 (2)	9 (4)	45 (22)	30 (15)	0 (0)	205
Romania	10462 (44)	3257 (14)	0 (0)	3555 (15)	2221 (9)	973 (4)	7 (0)	3428 (14)	0 (0)	23903
Slovakia	326 (25)	339 (26)	0 (0)	356 (27)	0 (0)	0 (0)	83 (6)	194 (15)	0 (0)	1298
Slovenia	177 (37)	130 (27)	2 (0)	36 (7)	0 (0)	28 (6)	47 (10)	57 (12)	4 (1)	481
Sweden	107 (23)	147 (32)	3 (1)	36 (8)	0 (0)	17 (4)	126 (28)	20 (4)	0 (0)	456
Switzerland	157 (21)	287 (38)	10 (1)	71 (10)	5 (1)	44 (6)	138 (18)	35 (5)	0 (0)	747

* Respiratory classification

† Information on sputum smear results unknown

Table 15: Drug resistance at start of treatment among culture positive tuberculosis cases, 1997 (10 countries)

Country	Culture (+)	Tested *	Isoniazid resistant		Rifampicin resistant		MDR †		Ethambutol resistant		Streptomycin resistant	
	N	N	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Denmark	459	425	20	(4.7)	3	(0.7)	1	(0.2)	2	(0.5)	44	(10.4)
Estonia	595	378	88	(23.3)	52	(13.8)	49	(13.0)	28	(7.4)	97	(25.7)
Finland	445	320	14	(4.4)	2	(0.6)	1	(0.3)	0	(0.0)	4	(1.3)
Iceland	9	9	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	905	905	59	(6.5)	11	(1.2)	7	(0.8)	3	(0.3)	68	(7.5)
Norway	139	133	11	(8.3)	1	(0.8)	1	(0.8)	0	(0.0)	-	-
Romania	13726	3822	402	(10.5)	246	(6.4)	131	(3.4)	42	(1.1)	703	(18.4)
Slovenia	356	315	5	(1.6)	3	(1.0)	3	(1.0)	2	(0.6)	-	-
Sweden	380	380	24	(6.3)	4	(1.1)	4	(1.1)	0	(0.0)	18	(4.7)
Switzerland	585	453	23	(5.1)	6	(1.3)	5	(1.1)	4	(0.9)	-	-

Patients never treated ‡ (9 countries)

Country	Culture (+)	Tested *	Isoniazid resistant		Rifampicin resistant		MDR †		Ethambutol resistant		Streptomycin resistant	
	N	N	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Denmark	421	391	20	(5.1)	2	(0.5)	1	(0.3)	2	(0.5)	42	(10.7)
Estonia	520	334	76	(22.8)	46	(13.8)	43	(12.9)	21	(6.3)	83	(24.9)
Iceland	7	7	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	844	844	51	(6.0)	9	(1.1)	5	(0.6)	1	(0.1)	60	(7.1)
Norway	131	126	11	(8.7)	1	(0.8)	1	(0.8)	0	(0.0)	-	-
Romania	12132	3323	316	(9.5)	188	(5.7)	94	(2.8)	33	(1.0)	600	(18.1)
Slovenia	316	280	3	(1.1)	2	(0.7)	2	(0.7)	2	(0.7)	-	-
Sweden	354	354	20	(5.6)	2	(0.6)	2	(0.6)	0	(0.0)	17	(4.8)
Switzerland	437	345	11	(3.2)	0	(0.0)	0	(0.0)	0	(0.0)	-	-

Patients previously treated ‡ (9 countries)

Country	Culture (+)	Tested *	Isoniazid resistant		Rifampicin resistant		MDR †		Ethambutol resistant		Streptomycin resistant	
	N	N	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Denmark	38	34	0	(0.0)	1	(2.9)	0	(0.0)	0	(0.0)	2	(5.9)
Estonia	75	44	12	(27.3)	6	(13.6)	6	(13.6)	7	(15.9)	14	(31.8)
Iceland	2	2	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	61	61	8	(13.1)	2	(3.3)	2	(3.3)	2	(3.3)	8	(13.1)
Norway	4	4	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Romania	1594	499	86	(17.2)	58	(11.6)	37	(7.4)	9	(1.8)	103	(20.6)
Slovenia	39	34	2	(5.9)	1	(2.9)	1	(2.9)	0	(0.0)	-	-
Sweden	26	26	4	(15.4)	2	(6.3)	2	(7.7)	0	(0.0)	1	(3.8)
Switzerland	53	42	10	(23.8)	6	(14.3)	5	(11.9)	4	(9.5)	-	-

– Not available

* Number of cases tested for all 4 drugs, except in Iceland, Norway, Switzerland and Slovenia (number of cases tested for isoniazid, rifampicin and ethambutol)

† MDR = Multi Drug Resistant (resistant to both isoniazid and rifampicin, with or without resistance to other drugs)

‡ Treated: by at least one month of combined antituberculosis drugs, excluding preventive chemotherapy

COUNTRY PROFILES

NOTE ON COUNTRY PROFILES

Country profiles are not shown for some countries for one or more of the following reasons:

- only a total number of cases is available (Azerbaijan, Bulgaria, Kyrgysztan, Spain, Tajikistan);
- characteristics are available only for new cases (Belarus, Greece, Russian Federation, Ukraine, Uzbekistan, Turkmenistan);
- age groups are different from those recommended (Albania, Belarus, Ireland, Russian Federation, Uzbekistan,Turkey);
- only one case was reported (San Marino);
- no cases were reported (Monaco).

For countries reporting < 50 tuberculosis cases in 1997, only the figure "Tuberculosis cases by age group and sex" is presented.

For countries reporting < 5% of the cases in foreign born (or foreign) patients, the figure "Tuberculosis cases by age group, sex and birthplace (or citizenship)" is not presented.

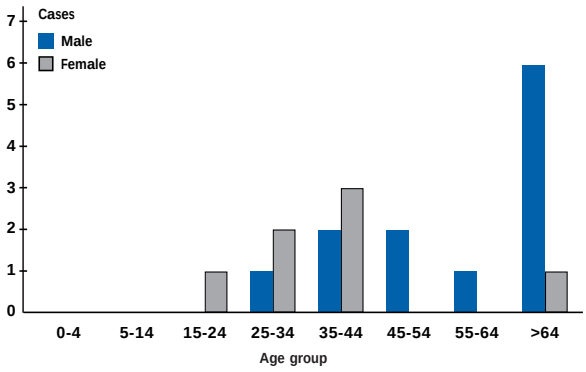
Information on susceptibility to isoniazid (H) and rifampicin (R) is included for countries where results of drug susceptibility tested at start of treatment are reported nationally and are individually linked with computerised data of the notification.

na: not available

ANDORRA

Total number of cases	19
Notification rate per 100 000	29.4
New cases	18
Recurrent cases	1
Cases in foreign born patients	16
Smear positive pulmonary cases	na
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

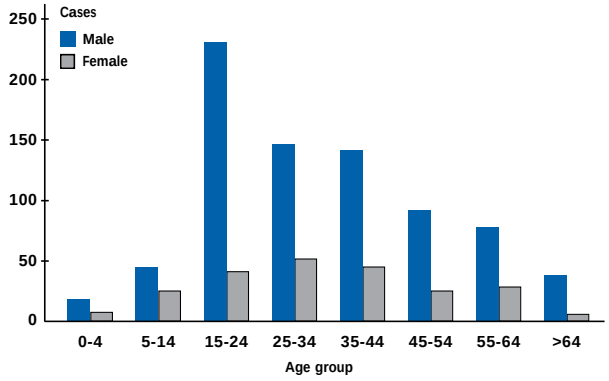
Tuberculosis cases by age group and sex, 1997



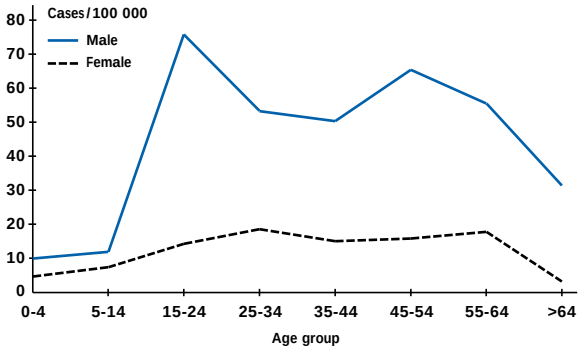
ARMENIA

Total number of cases	1 026
Notification rate per 100 000	27.8
New cases	992
Recurrent cases	34
Cases in foreign born	0
Smear positive pulmonary cases	470
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997

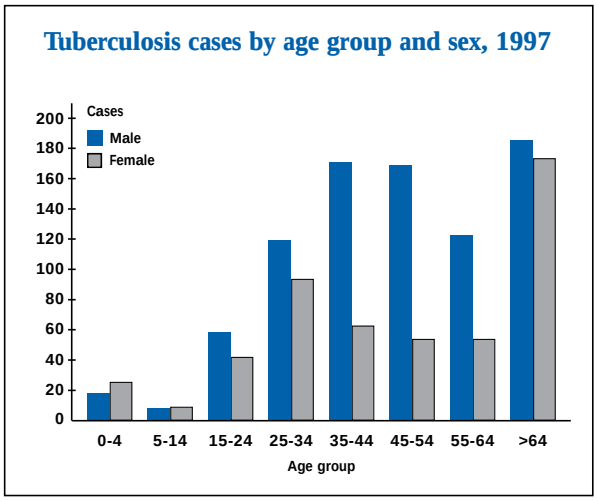


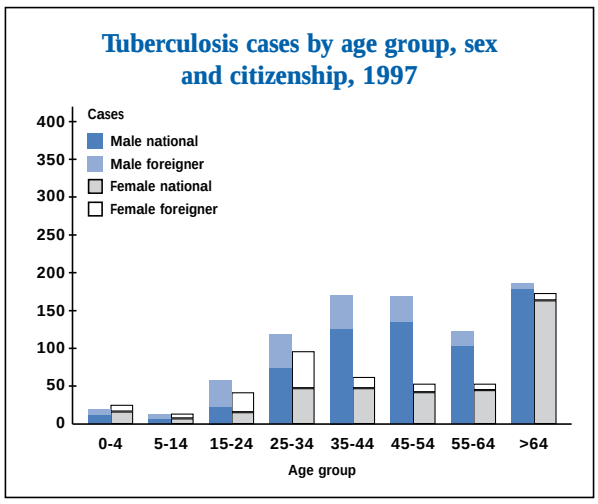
Tuberculosis notification rate by age group and sex, 1997

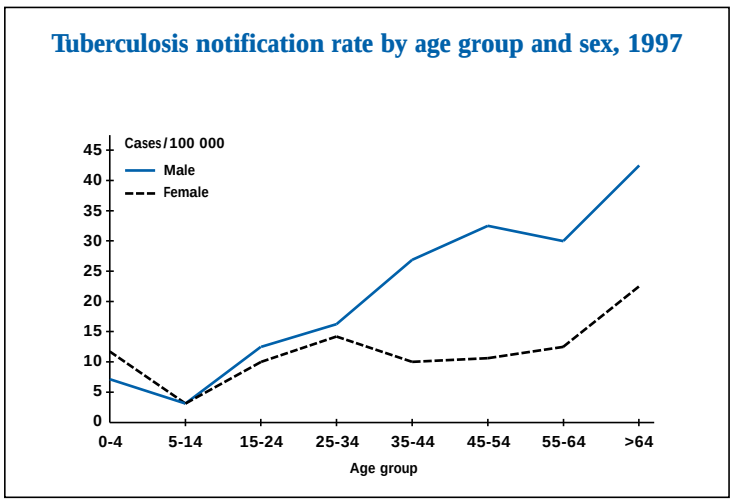


AUSTRIA

Total number of cases	1 369
Notification rate per 100 000	17.0
New cases	1 193
Recurrent cases	176
Cases in foreign citizens	340
Smear positive pulmonary cases	430
Culture positive cases	669
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

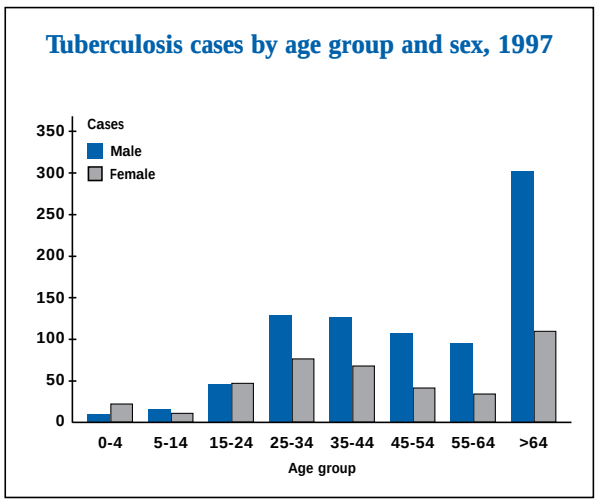


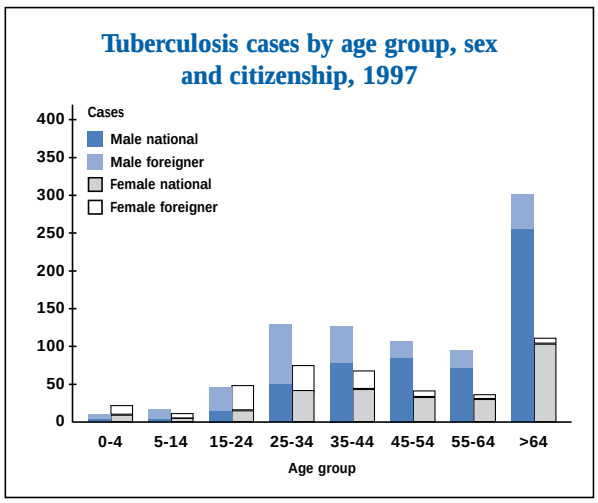


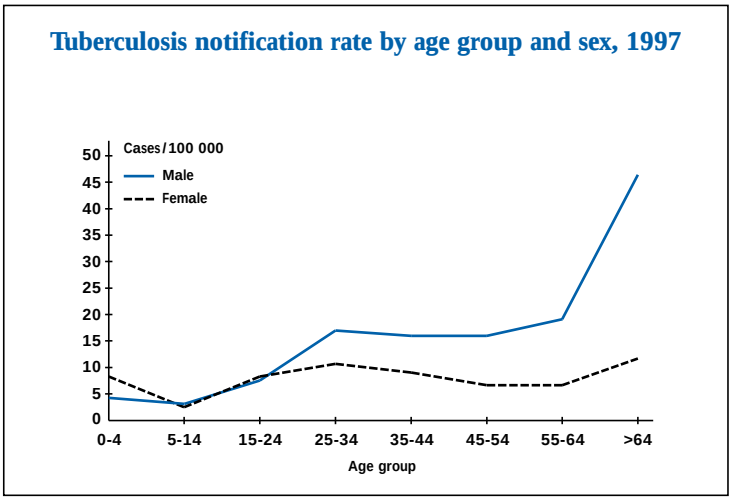


BELGIUM

Total number of cases	1 263
Notification rate per 100 000	12.4
New cases	982
Recurrent cases	143
Cases in foreign citizens	414
Smear positive pulmonary cases	491
Culture positive cases	641
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na



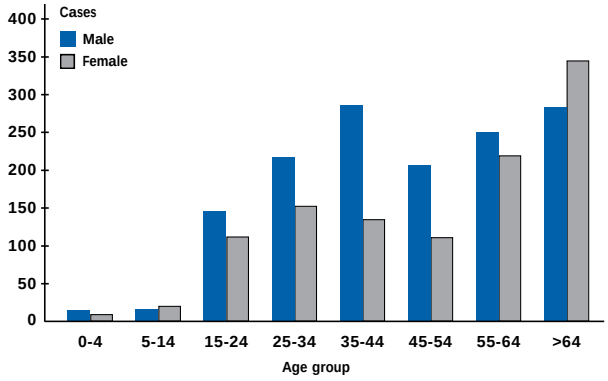




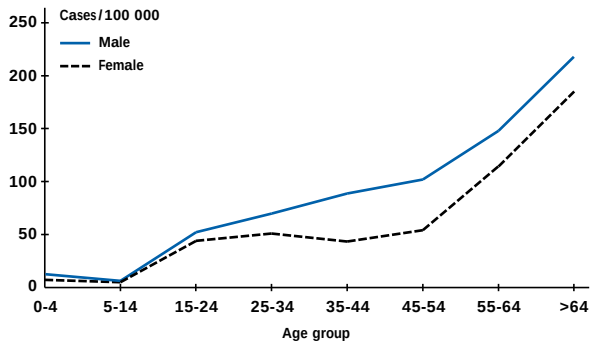
BOSNIA-HERZEGOVINA

Total number of cases	2 869
Notification rate per 100 000	77.5
New cases	2 542
Recurrent cases	327
Cases in foreigners	na
Smear positive pulmonary cases	895
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



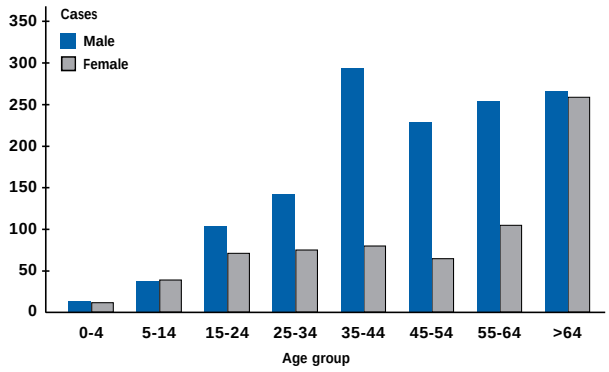
Tuberculosis notification rate by age group and sex, 1997



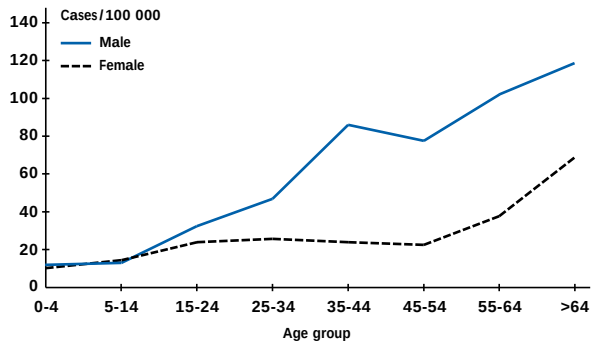
CROATIA

Total number of cases	2 054
Notification rate per 100 000	45.9
New cases	1 913
Recurrent cases	141
Cases in foreigners	na
Smear positive pulmonary cases	na
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



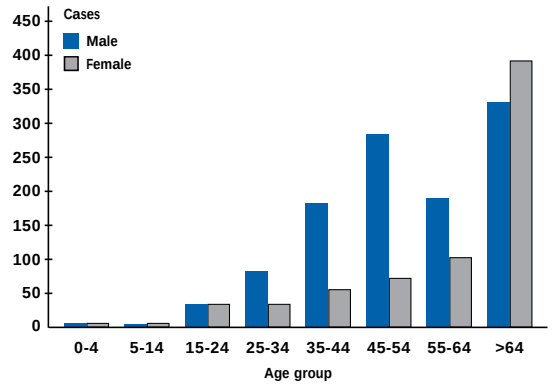
Tuberculosis notification rate by age group and sex, 1997



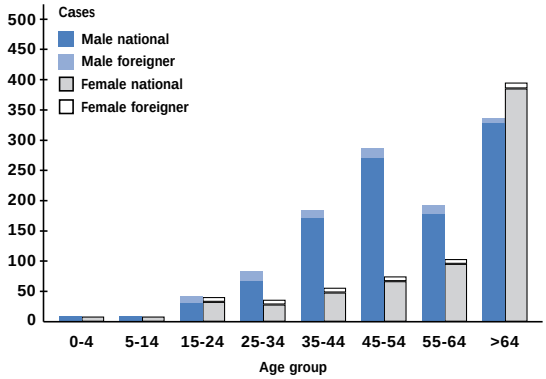
CZECH REPUBLIC

Total number of cases	1 834
Notification rate per 100 000	17.7
New cases	1 767
Recurrent cases	67
Cases in foreign born patients	108
Smear positive respiratory cases	484
Culture positive cases	907
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

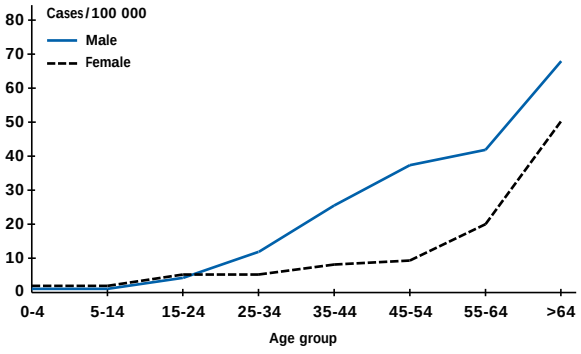
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and birthplace, 1997



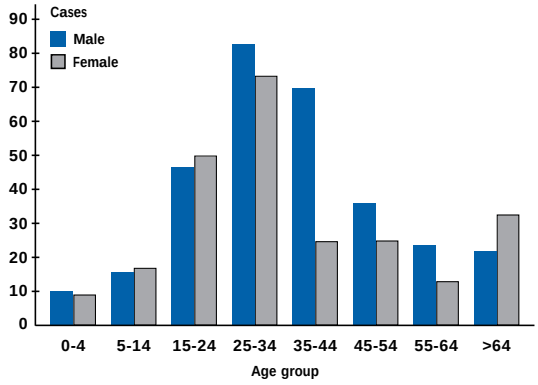
Tuberculosis notification rate by age group and sex, 1997



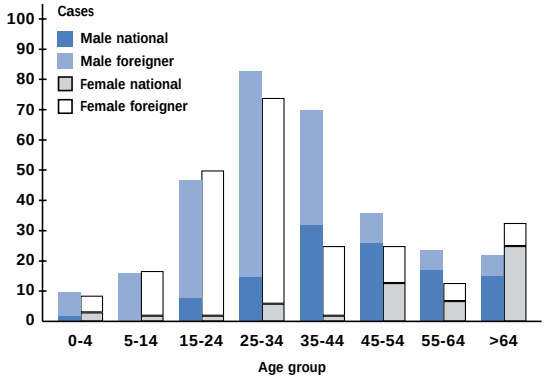
DENMARK

Total number of cases	554
Notification rate per 100 000	10.6
New cases	512
Recurrent cases	42
Cases in foreign born patients	380
Smear positive pulmonary cases	123
Culture positive cases	459
Cases tested for H and R susceptibility	425
among which :	
- cases resistant to H	20
- cases resistant to R	3
- cases resistant to H and R	1

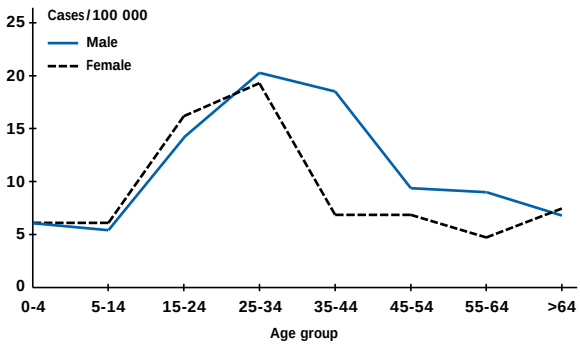
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and birthplace, 1997



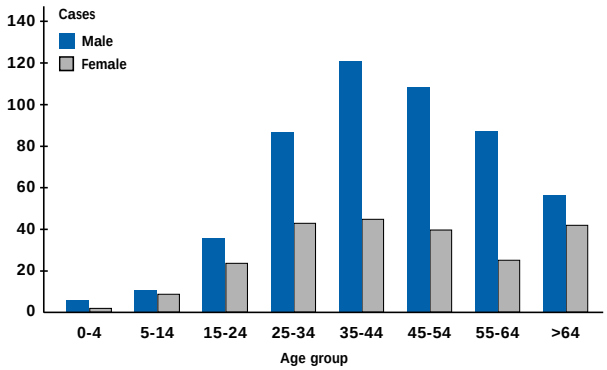
Tuberculosis notification rate by age group and sex, 1997



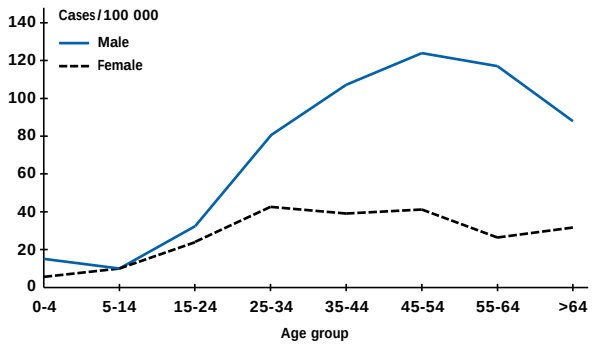
ESTONIA

Total number of cases	744
Notification rate per 100 000	49.1
New cases	660
Recurrent cases	84
Cases in foreign born patients	28
Smear positive pulmonary cases	310
Culture positive cases	595
Cases tested for H and R susceptibility	379
among which :	
- cases resistant to H	88
- cases resistant to R	52
- cases resistant to H and R	49

Tuberculosis cases by age group and sex, 1997

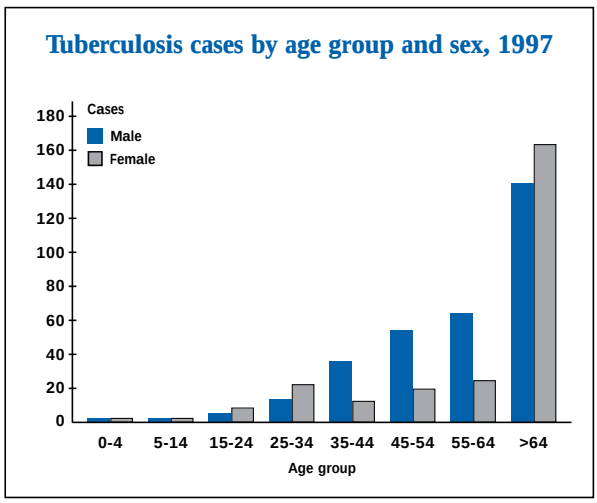


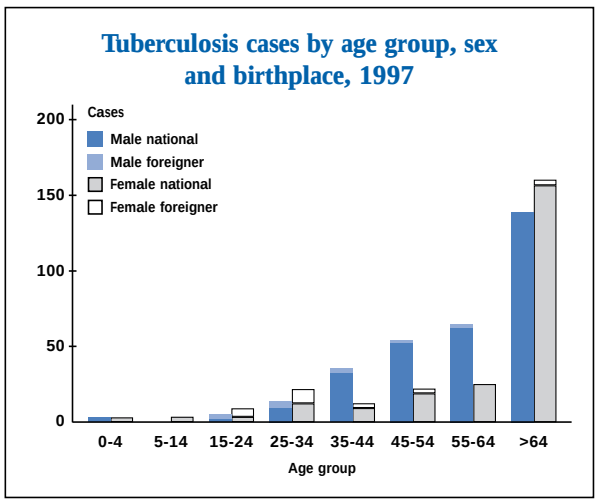
Tuberculosis notification rate by age group and sex, 1997

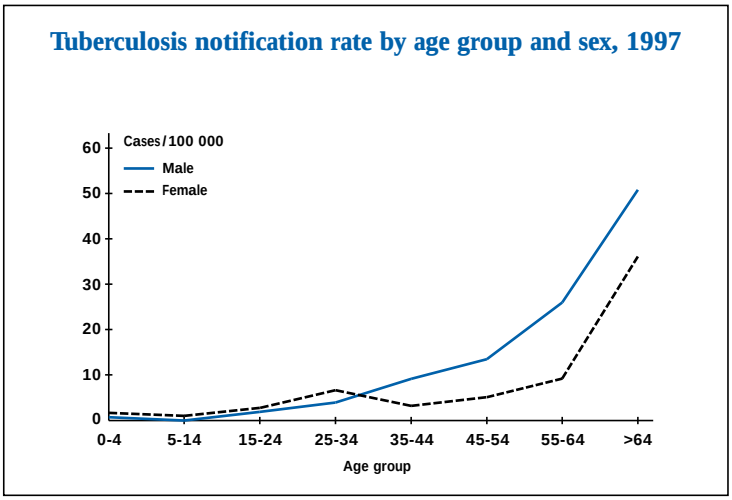


FINLAND

Total number of cases	573
Notification rate per 100 000	11.1
New cases	na
Recurrent cases	na
Cases in foreign born patients	41
Smear positive pulmonary cases	186
Culture positive cases	445
Cases tested for H and R susceptibility	320
among which :	
- cases resistant to H	14
- cases resistant to R	2
- cases resistant to H and R	1

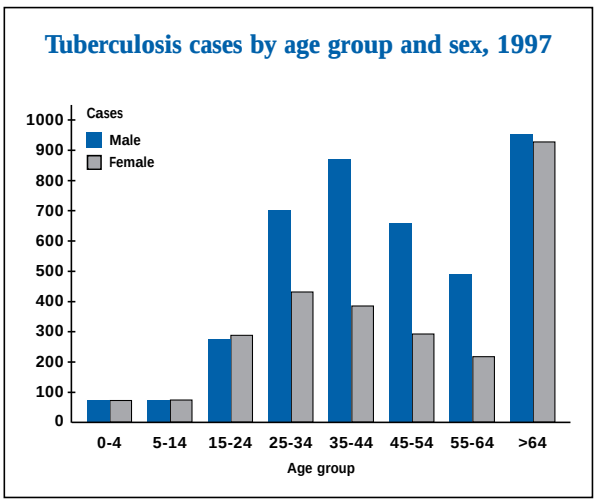


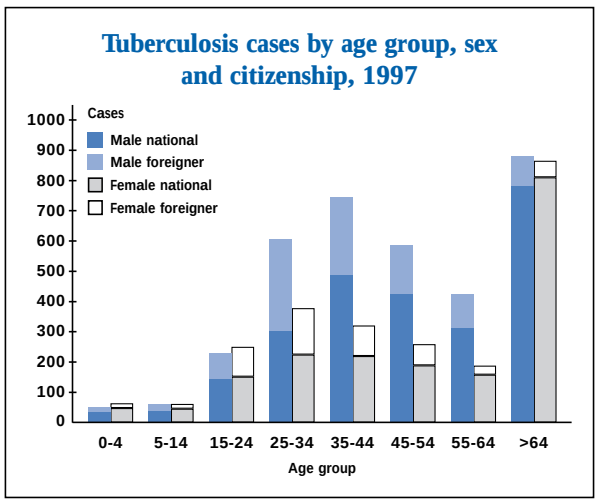


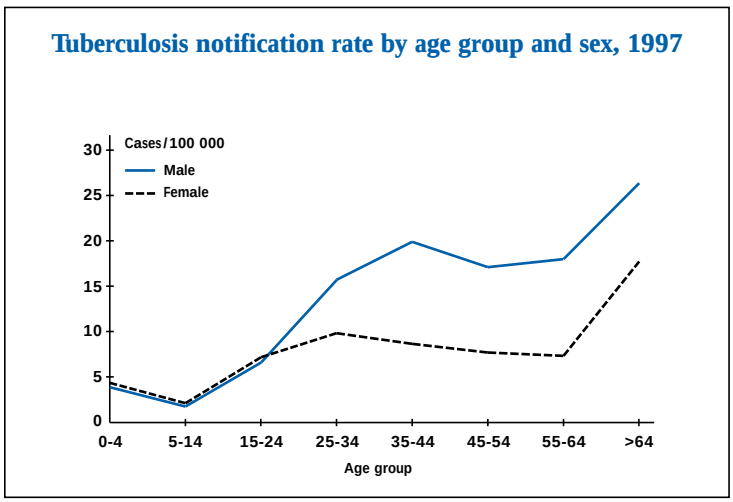


FRANCE

Total number of cases	6 832
Notification rate per 100 000	11.4
New cases	4 407
Recurrent cases	634
Cases in foreign citizens	1 613
Smear positive pulmonary cases	2 734
Culture positive cases	1 576
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na



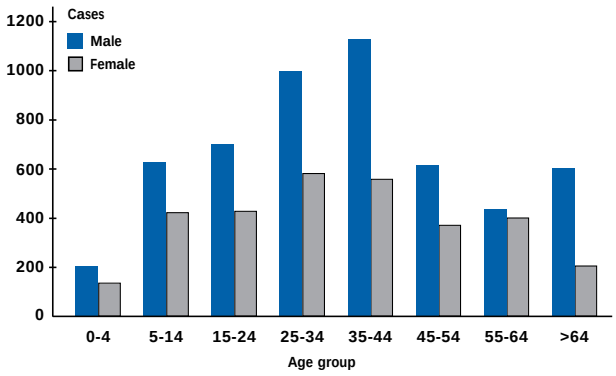




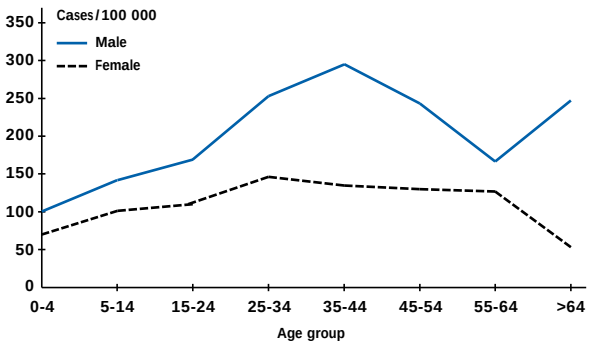
GEORGIA

Total number of cases	8 446
Notification rate per 100 000	154.1
New cases	5 435
Recurrent cases	3 011
Cases in foreign citizens	0
Smear positive pulmonary cases	1 148
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



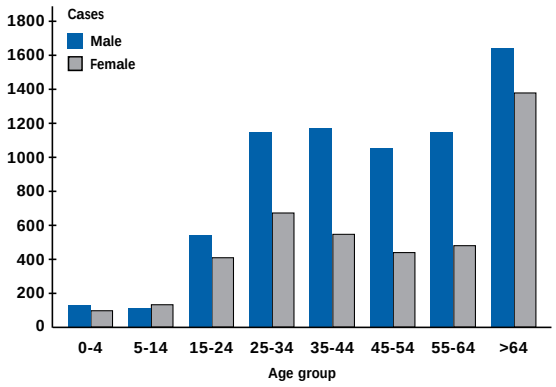
Tuberculosis notification rate by age group and sex, 1997



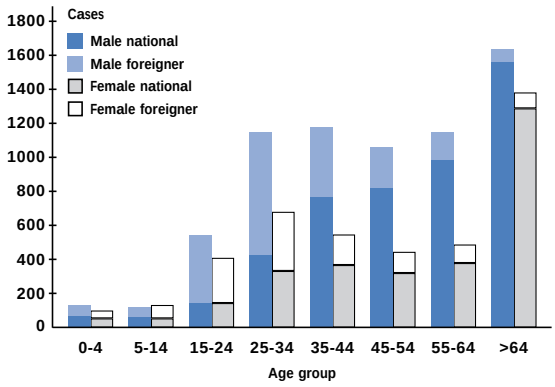
GERMANY

Total number of cases	11 163
Notification rate per 100 000	13.6
New cases	na
Recurrent cases	na
Cases in foreign citizens	3 427
Smear positive respiratory cases	3 345
Culture positive cases	6 265
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

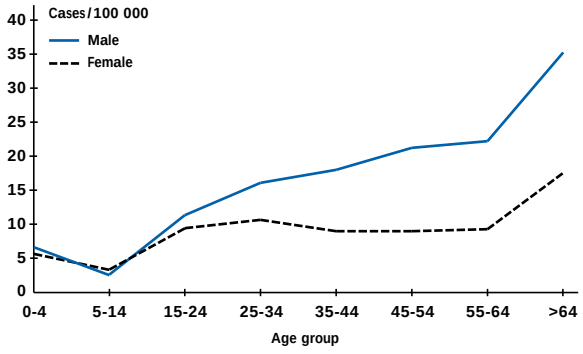
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and citizenship, 1997



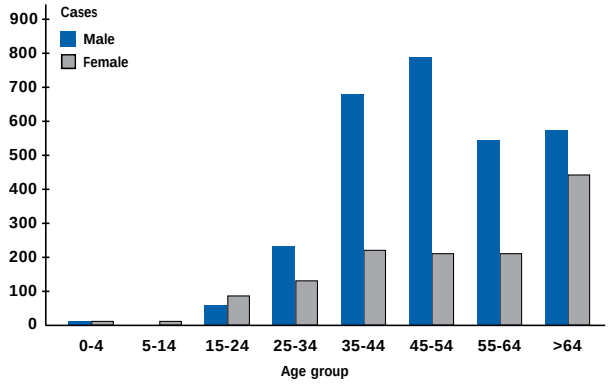
Tuberculosis notification rate by age group and sex, 1997



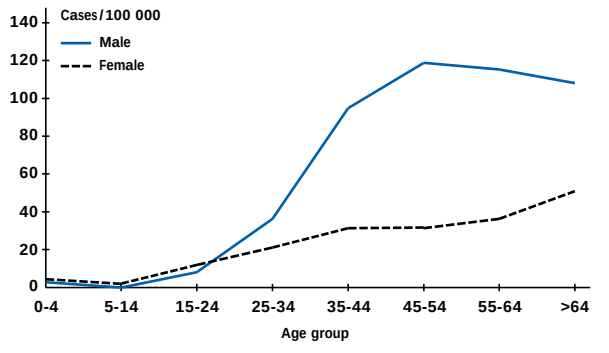
HUNGARY

Total number of cases	4 240
Notification rate per 100 000	42.2
New cases	3 552
Recurrent cases	688
Cases in foreign born patients	44
Smear positive pulmonary cases	865
Culture positive cases	1 687
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



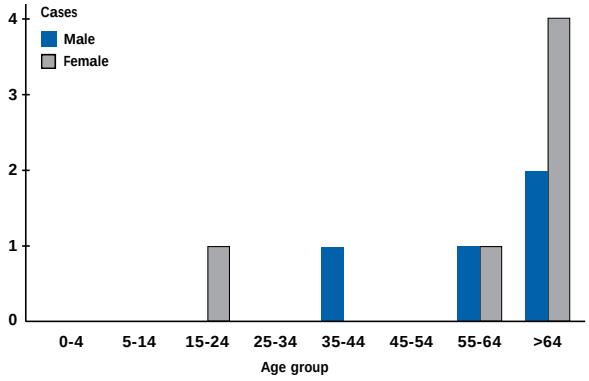
Tuberculosis notification rate by age group and sex, 1997



ICELAND

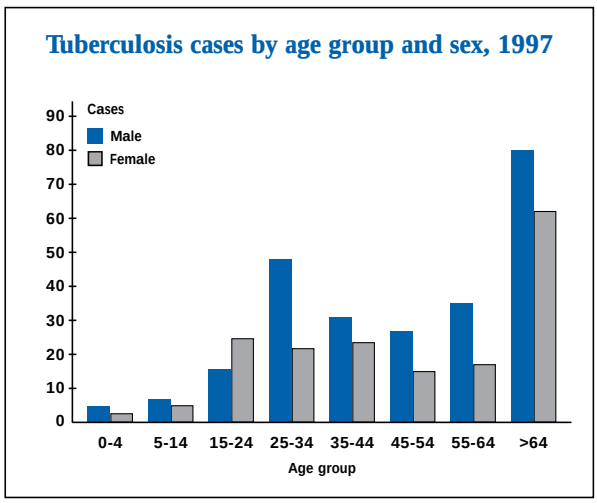
Total number of cases	10
Notification rate per 100 000	3.6
New cases	4
Recurrent cases	6
Cases in foreign born patients	2
Smear positive pulmonary cases	5
Culture positive cases	9
Cases tested for H and R susceptibility	9
among which :	
- cases resistant to H	0
- cases resistant to R	0
- cases resistant to H and R	0

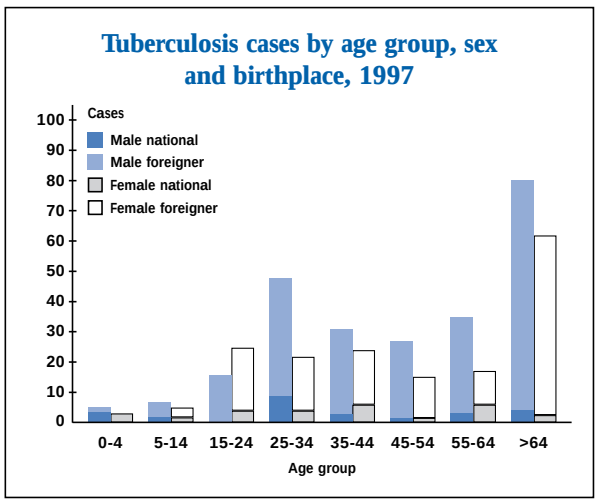
Tuberculosis cases by age group and sex, 1997

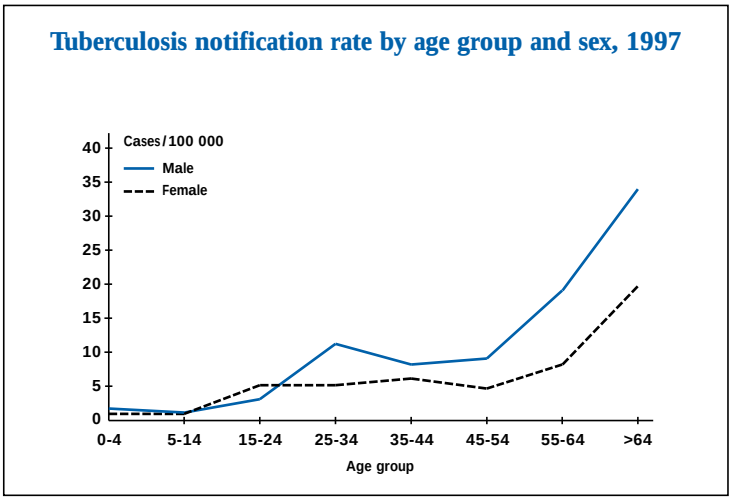


ISRAEL

Total number of cases	422
Notification rate per 100 000	7.2
New cases	408
Recurrent cases	14
Cases in foreign born patients	370
Smear positive pulmonary cases	221
Culture positive cases	260
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

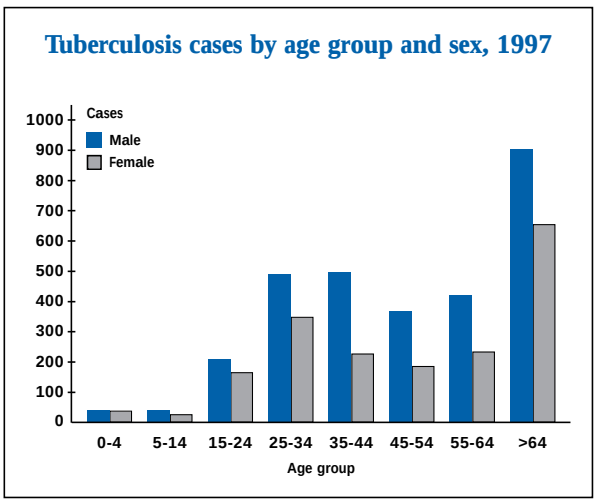


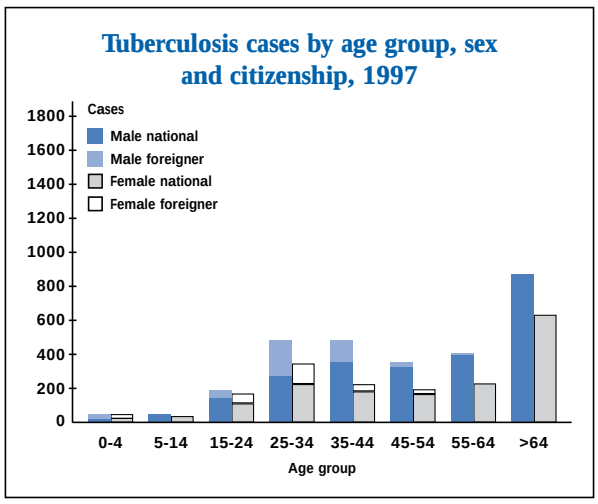


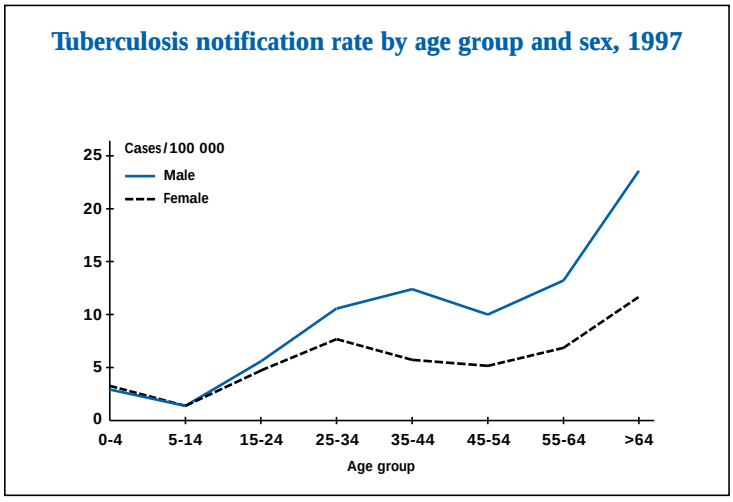


ITALY

Total number of cases	5 176
Notification rate per 100 000	9.0
New cases	na
Recurrent cases	na
Cases in foreign citizens	691
Smear positive pulmonary cases	2 011
Culture positive cases	2 193
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na



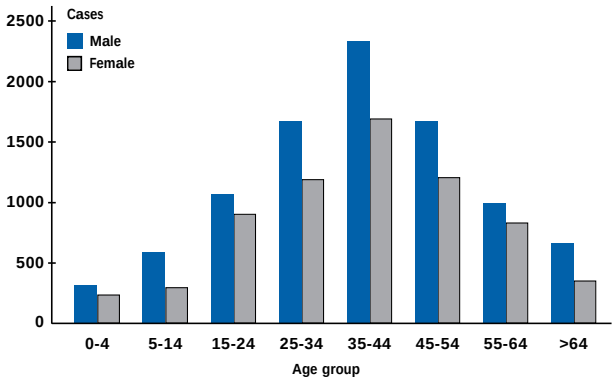




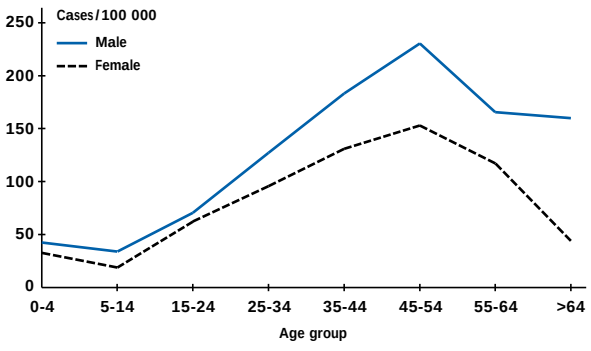
KAZAKSTAN

Total number of cases	16 109
Notification rate per 100 000	93.0
New cases	14 401
Recurrent cases	1 708
Cases in foreigners	na
Smear positive respiratory cases	5 060
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



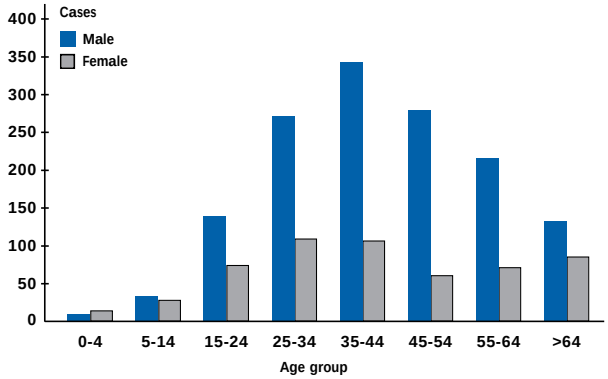
Tuberculosis notification rate by age group and sex, 1997



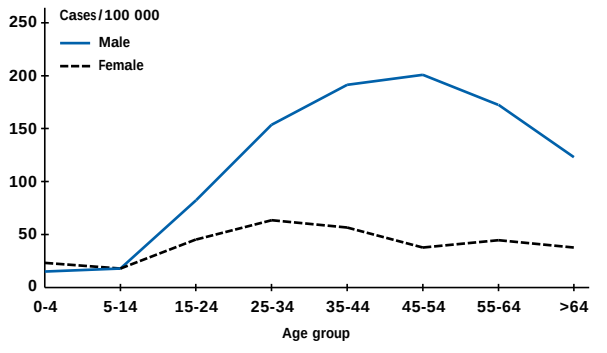
LATVIA

Total number of cases	2 003
Notification rate per 100 000	79.5
New cases	1 689
Recurrent cases	314
Cases in foreign born patients	85
Smear positive respiratory cases	1 157
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



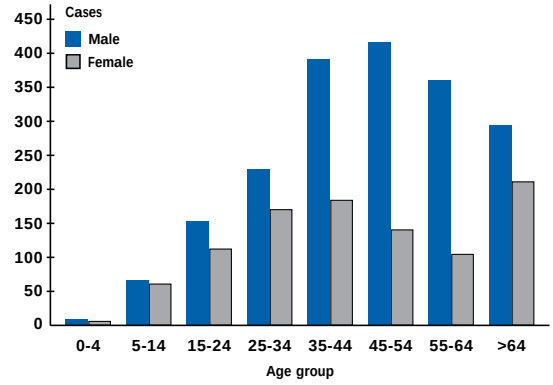
Tuberculosis notification rate by age group and sex, 1997



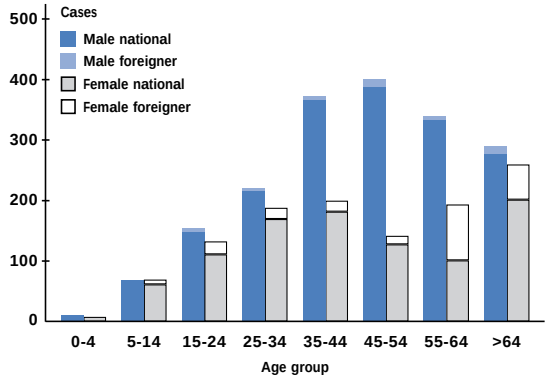
LITHUANIA

Total number of cases	2 926
Notification rate per 100 000	79.2
New cases	2 627
Recurrent cases	299
Cases in foreign born patients	157
Smear positive respiratory cases	1 338
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

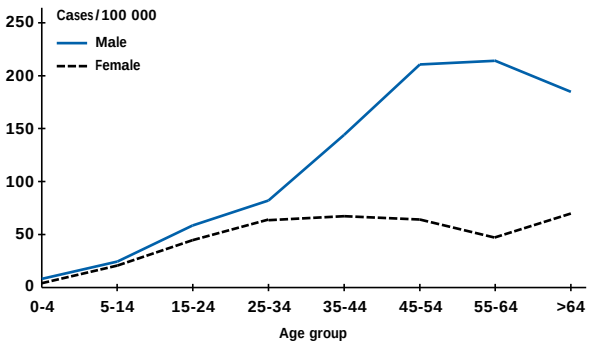
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and birthplace, 1997

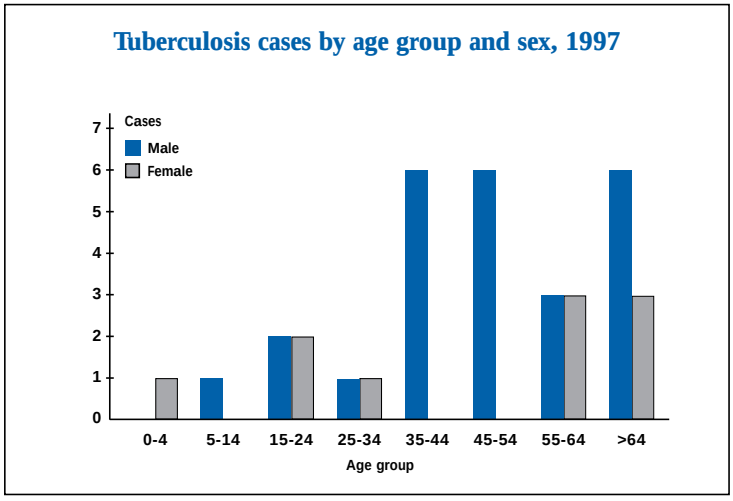


Tuberculosis notification rate by age group and sex, 1997



LUXEMBOURG

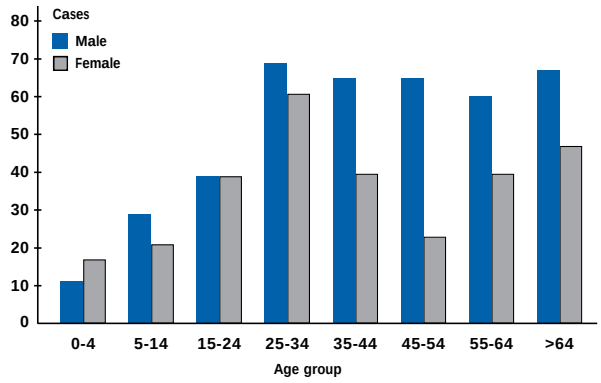
Total number of cases	38
Notification rate per 100 000	9.1
New cases	34
Recurrent cases	4
Cases in foreign born patients	17
Smear positive pulmonary cases	na
Culture positive cases	6
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na



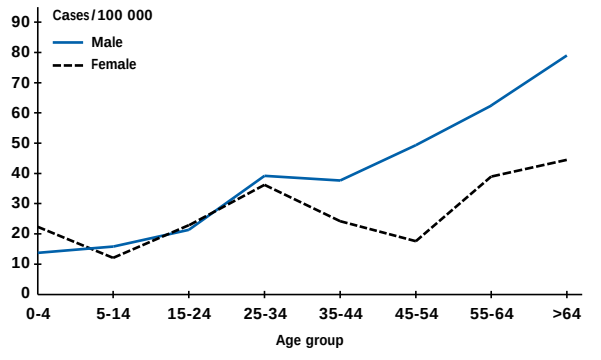
MACEDONIA

Total number of cases	693
Notification rate per 100 000	31.5
New cases	634
Recurrent cases	59
Cases in foreigners	na
Smear positive respiratory cases	232
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997

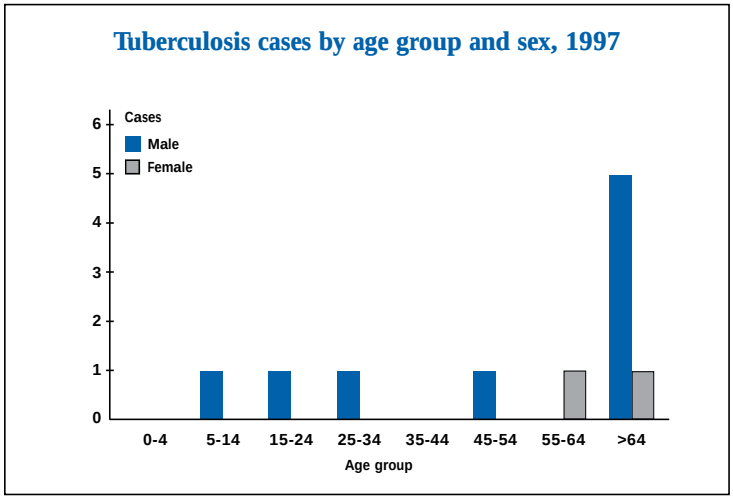


Tuberculosis notification rate by age group and sex, 1997



MALTA

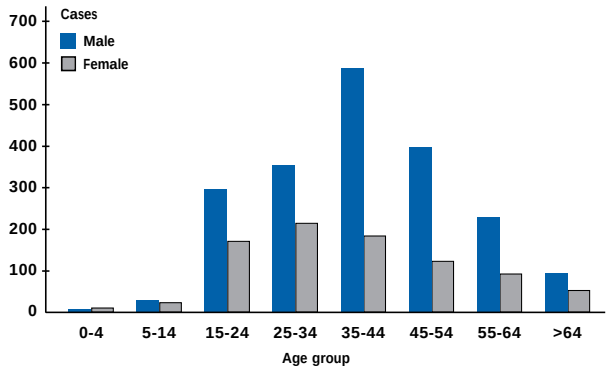
Total number of cases	11
Notification rate per 100 000	2.9
New cases	9
Recurrent cases	2
Cases in foreign born patients	3
Smear positive pulmonary cases	0
Culture positive cases	2
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na



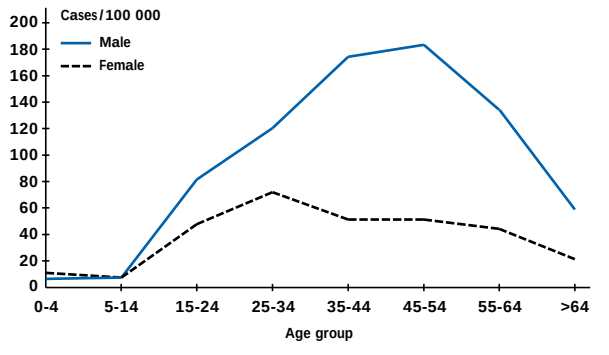
MOLDOVA

Total number of cases	2 908
Notification rate per 100 000	65.2
New cases	2 541
Recurrent cases	367
Cases in foreign born	0
Smear positive respiratory cases	468
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



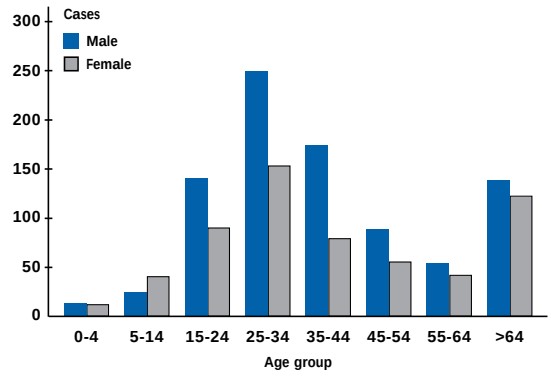
Tuberculosis notification rate by age group and sex, 1997



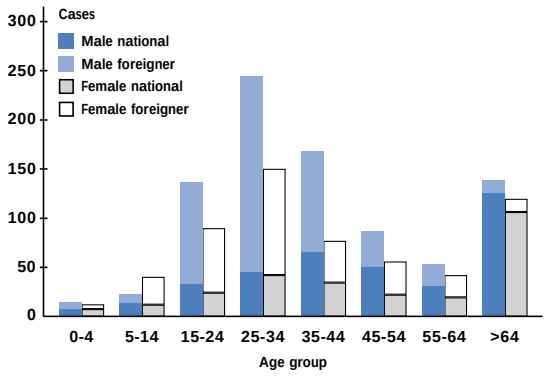
NETHERLANDS

Total number of cases	1 486
Notification rate per 100 000	9.4
New cases	1 322
Recurrent cases	164
Cases in foreign citizens	817
Smear positive pulmonary cases	352
Culture positive cases	905
Cases tested for H and R susceptibility	905
among which :	
- cases resistant to H	59
- cases resistant to R	11
- cases resistant to H and R	7

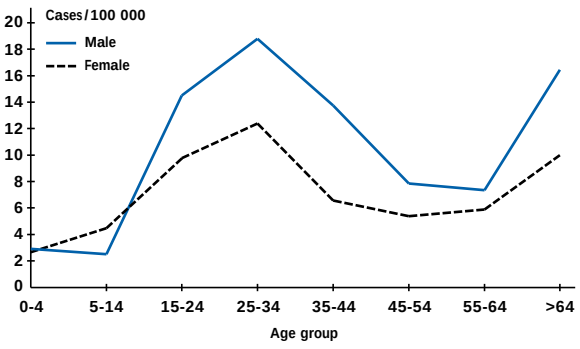
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and citizenship, 1997

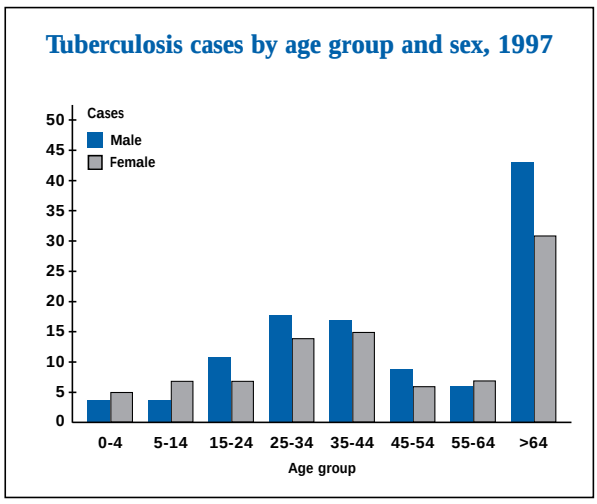


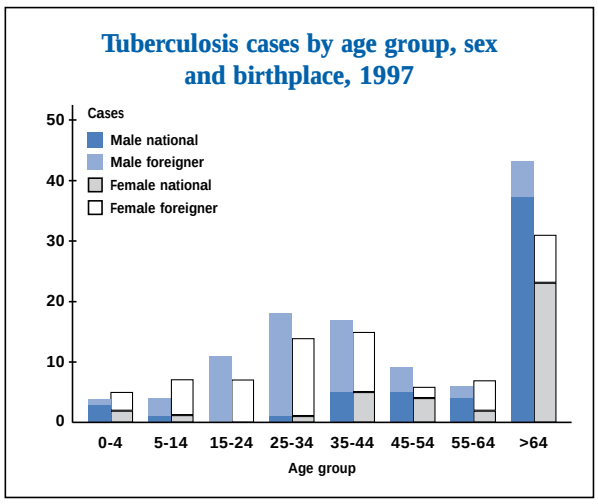
Tuberculosis notification rate by age group and sex, 1997

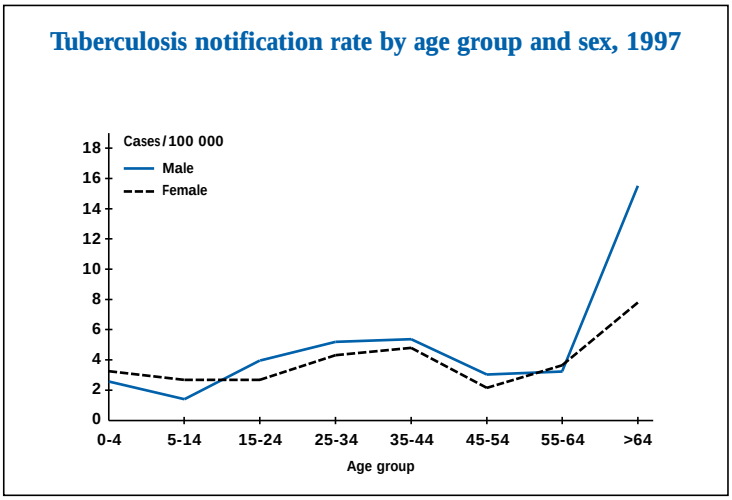


NORWAY

Total number of cases	205
Notification rate per 100 000	4.6
New cases	151
Recurrent cases	37
Cases in foreign born patients	110
Smear positive pulmonary cases	90
Culture positive cases	139
Cases tested for H and R susceptibility	133
among which :	
- cases resistant to H	11
- cases resistant to R	1
- cases resistant to H and R	1



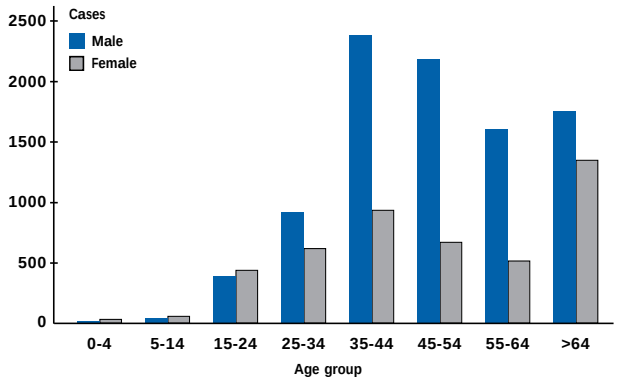




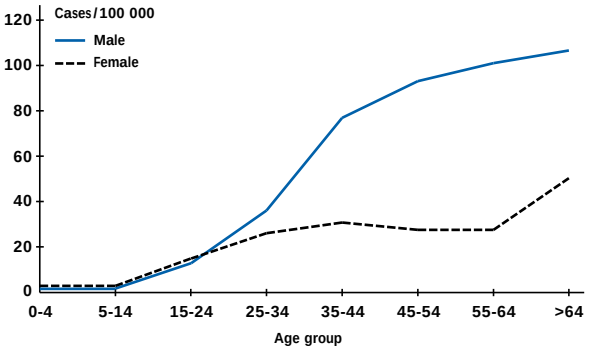
POLAND

Total number of cases	13 967
Notification rate per 100 000	36.2
New cases	12 389
Recurrent cases	1 578
Cases in foreigners	na
Smear positive respiratory cases	7 279
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



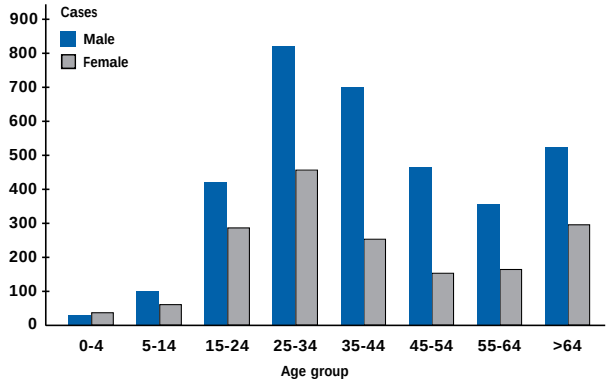
Tuberculosis notification rate by age group and sex, 1997



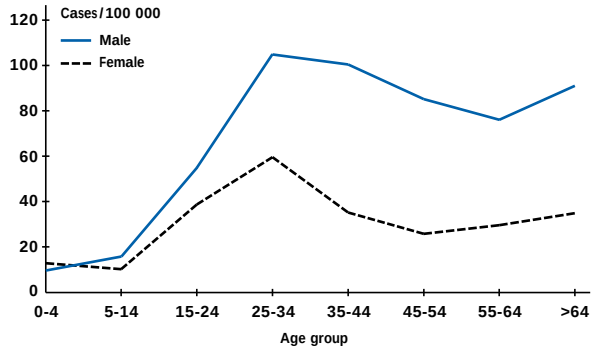
PORTUGAL

Total number of cases	5 112
Notification rate per 100 000	52.0
New cases	4 494
Recurrent cases	618
Cases in foreigners	na
Smear positive pulmonary cases	2 140
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



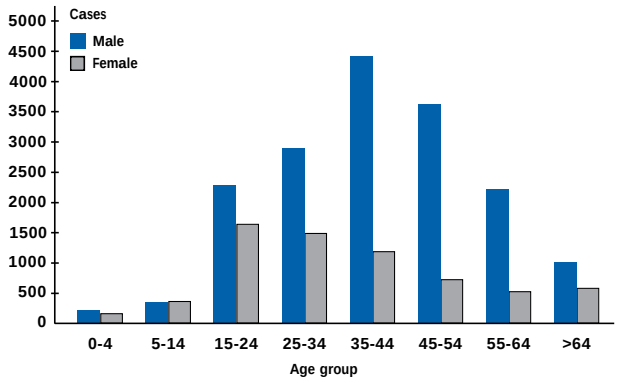
Tuberculosis notification rate by age group and sex, 1997



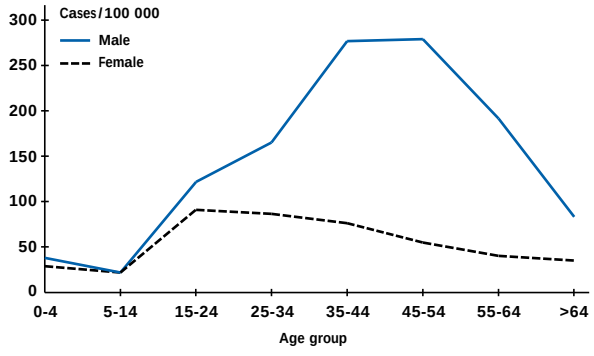
ROMANIA

Total number of cases	23 903
Notification rate per 100 000	105.2
New cases	21 840
Recurrent cases	2 049
Cases in foreign citizens	15
Smear positive pulmonary cases	12 683
Culture positive cases	13 726
Cases tested for H and R susceptibility	3 822
among which :	
- cases resistant to H	402
- cases resistant to R	246
- cases resistant to H and R	131

Tuberculosis cases by age group and sex, 1997



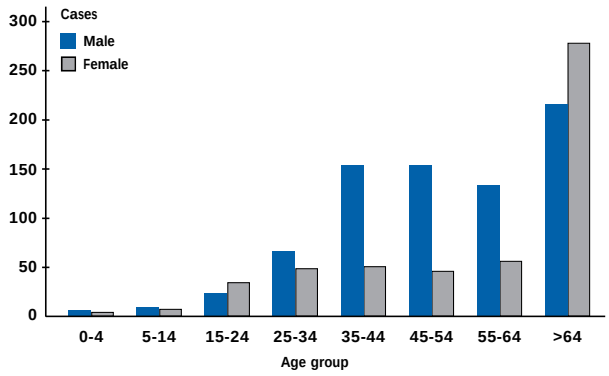
Tuberculosis notification rate by age group and sex, 1997



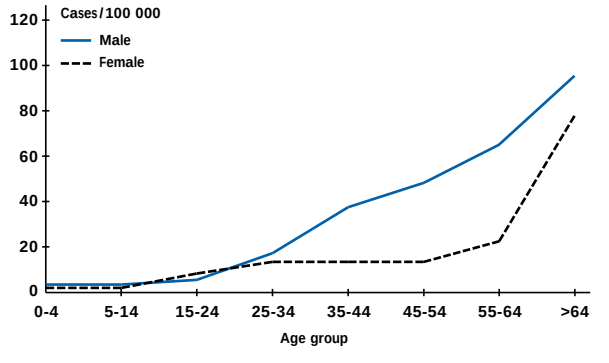
SLOVAKIA

Total number of cases	1 298
Notification rate per 100 000	24.1
New cases	1 098
Recurrent cases	200
Cases in foreign born patients	0
Smear positive pulmonary cases	326
Culture positive cases	748
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



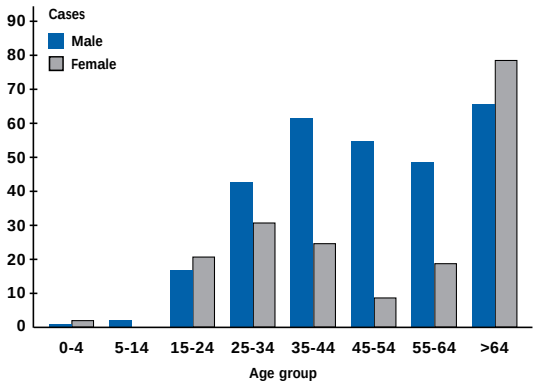
Tuberculosis notification rate by age group and sex, 1997



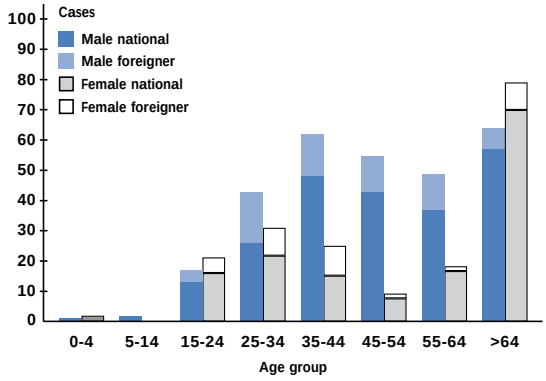
SLOVENIA

Total number of cases	481
Notification rate per 100 000	24.6
New cases	422
Recurrent cases	56
Cases in foreign born patients	101
Smear positive pulmonary cases	179
Culture positive cases	356
Cases tested for H and R susceptibility	325
among which :	
- cases resistant to H	5
- cases resistant to R	3
- cases resistant to H and R	3

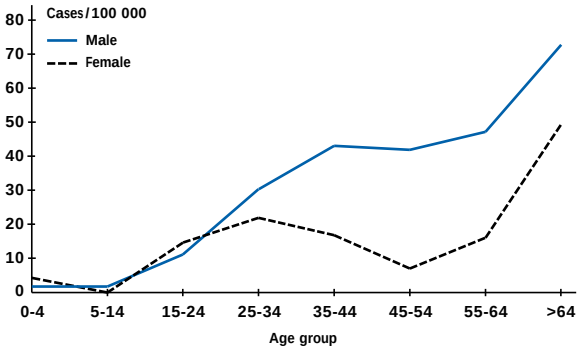
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and birthplace, 1997

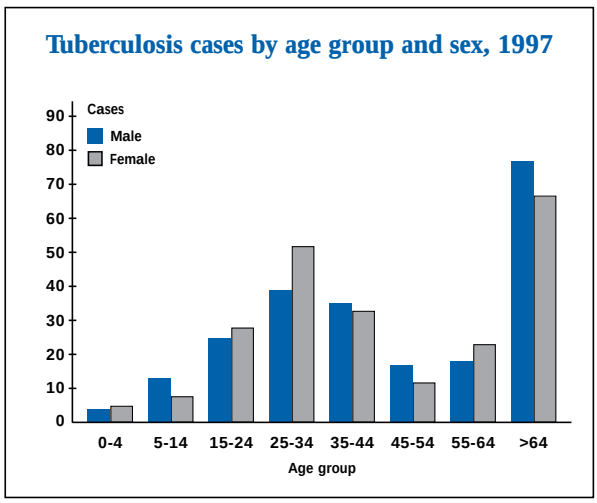


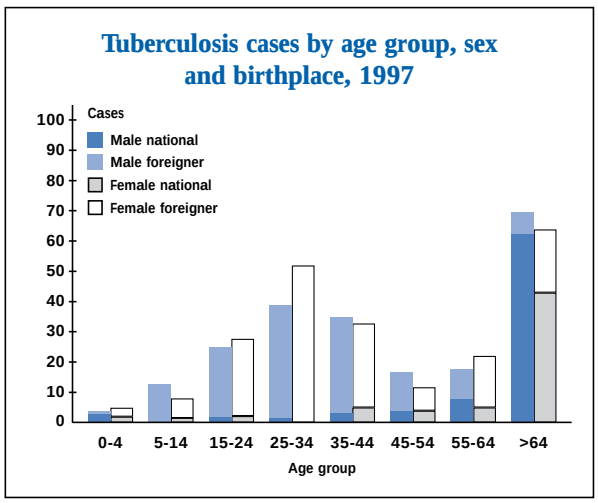
Tuberculosis notification rate by age group and sex, 1997

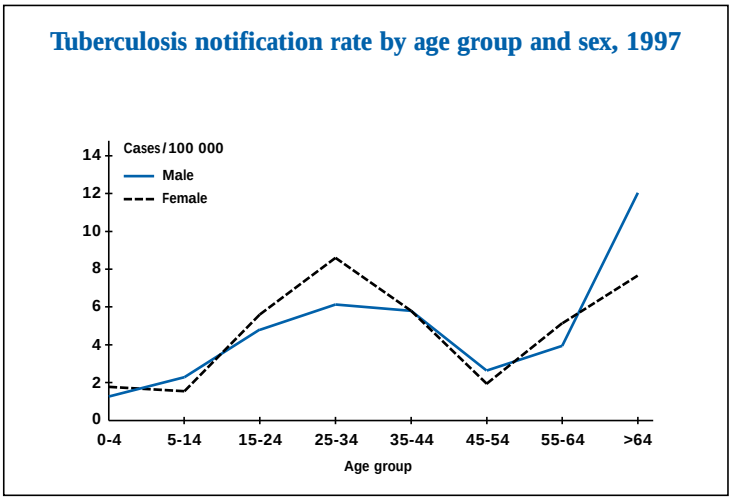


SWEDEN

Total number of cases	456
Notification rate per 100 000	5.1
New cases	407
Recurrent cases	49
Cases in foreign born patients	300
Smear positive pulmonary cases	110
Culture positive cases	380
Cases tested for H and R susceptibility	380
among which :	
- cases resistant to H	24
- cases resistant to R	4
- cases resistant to H and R	4



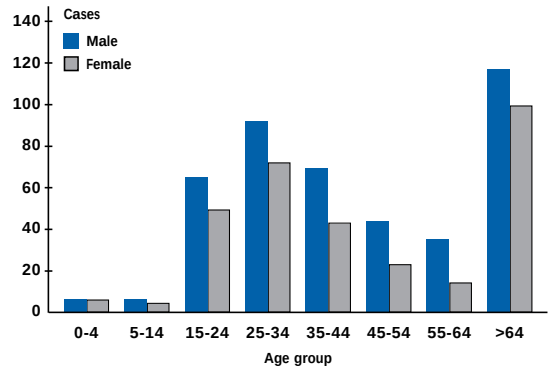




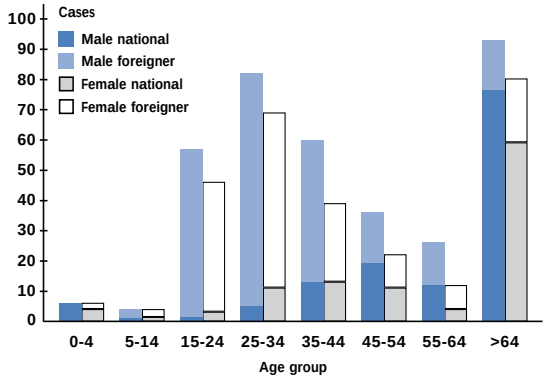
SWITZERLAND

Total number of cases	747
Notification rate per 100 000	10.1
New cases	549
Recurrent cases	81
Cases in foreign born patients	403
Smear positive pulmonary cases	172
Culture positive cases	582
Cases tested for H and R susceptibility	453
among which :	
- cases resistant to H	23
- cases resistant to R	6
- cases resistant to H and R	6

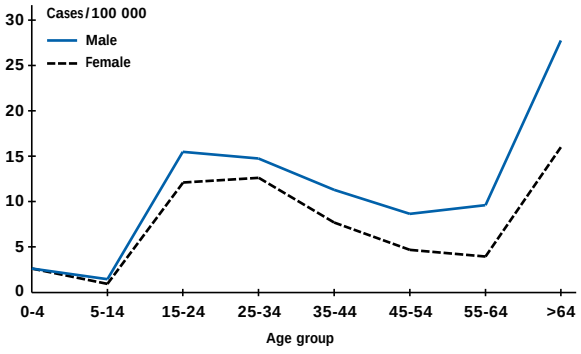
Tuberculosis cases by age group and sex, 1997



Tuberculosis cases by age group, sex and birthplace, 1997



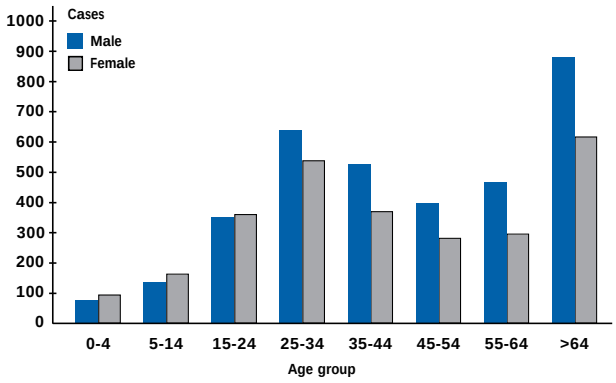
Tuberculosis notification rate by age group and sex, 1997



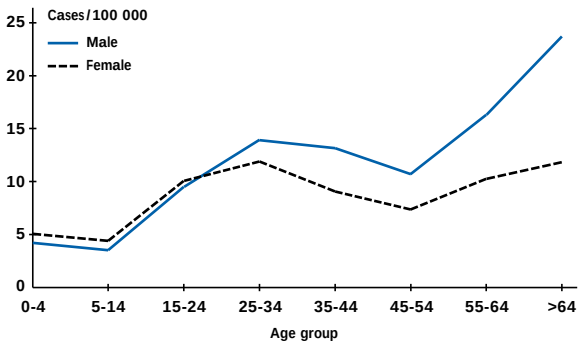
UNITED KINGDOM

Total number of cases	6 355
Notification rate per 100 000	10.8
New cases	na
Recurrent cases	na
Cases in foreigners	na
Smear positive respiratory cases	na
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



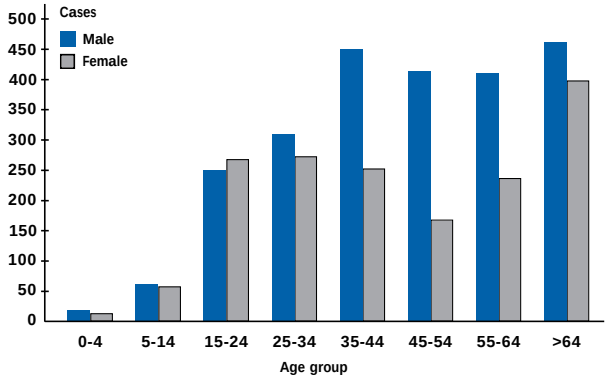
Tuberculosis notification rate by age group and sex, 1997



YUGOSLAVIA

Total number of cases	4 062
Notification rate per 100 000	37.4
New cases	3 722
Recurrent cases	340
Cases in foreigners	na
Smear positive respiratory cases	1 927
Culture positive cases	na
Cases tested for H and R susceptibility	na
among which :	
- cases resistant to H	na
- cases resistant to R	na
- cases resistant to H and R	na

Tuberculosis cases by age group and sex, 1997



Tuberculosis notification rate by age group and sex, 1997