Surveillance of **Tuberculosis** in Europe - **EuroTB**

Report on tuberculosis cases notified in 1998

Institut de Veille Sanitaire, France
WHO Collaborating Centre
for the Surveillance of Tuberculosis in Europe
Royal Netherlands Tuberculosis Association (KNCV)

Surveillance of tuberculosis in Europe: participating countries and national institutions

Andorra	Ministry of Health and Welfare	Andorra la Vella
Albania	Ministry of Health and Environment	Tirana
	University Hospital of Lung Diseases	Tirana
Armenia	Ministry of Health	Yerevan
Austria	Bundesministerium für soziale Sicherheit und Generationen	Vienna
Azerbaijan	Ministry of Health	Baku
Belarus	Scientific Research Institute of Pneumology and Pthisiology	Minsk
Belgium	Belgium Lung & Tuberculosis Association (BELTA)	Brussels
Bosnia & Herzegovina	Clinic of Pulmonary Diseases and Tuberculosis “Podhrastovi”	Sarajevo
	Public Health Institute	Banja Luka
Bulgaria	Ministry of Health	Sofia
Croatia	Croatian National Institute of Public Health	Zagreb
Czech Republic	Clinic of Chest Diseases & Thoracic Surgery	Prague
Denmark	Statens Serum Institut	Copenhagen
Estonia	Kivimae Hospital Ministry of Health	Tallinn
Finland	National Public Health Institute	Helsinki
France	Direction générale de la Santé	Paris
	Institut de Veille Sanitaire	Saint-Maurice
Georgia	Institute of Phtisiology and Pulmonology	Tbilisi
Germany	Robert Koch-Institut	Berlin
Greece	National Centre for Surveillance and Intervention (NCSI)	Athens
Hungary	“Koranyi” National Institute of Tuberculosis & Pulmonology	Budapest
Iceland	Reykjavik Health Care Centre	Reykjavik
Ireland	National Disease Surveillance Centre	Dublin
Israel	Ministry of Health	Jerusalem
Italy	Ministero della Sanità	Roma
	Istituto Superiore di Sanità	Roma
Kazakhstan	Kazakh Tuberculosis Research Institute	Almaty
Kyrgyzstan	National Tuberculosis & Lung Diseases Institute	Bishkek
Latvia	State Centre of Tuberculosis & Lung Diseases of Latvia	Riga
Lithuania	Lithuanian Centre of Pneumology & Tuberculosis	Vilnius
Luxembourg	Direction Générale de la Santé	Luxembourg
Macedonia, (Former Yugoslav Republic)	Institute for Lung Diseases and Tuberculosis	Skopje
Malta	Department of Health	G’mangia
Moldova, Republic of	The Republican Phtisiopulmonology Clinic	Chisinau
Monaco	Direction de l’Action Sanitaire et Sociale	Monaco
Netherlands	Royal Netherlands Tuberculosis Association (KNCV)	The Hague
Norway	National Health Screening Service	Oslo
Poland	National Tuberculosis & Lung Diseases Institute	Warsaw
Portugal	Ministério da Saúde	Lisbon
Romania	Institute of Pneumophtisiology “Marius Nasta”	Bucharest
Russian Federation	Russian Research Institute of Pneumophtisiology	Moscow
San Marino	Ospedale di Stato di San Marino	Cailungo
Slovakia	Ministry of Health	Bratislava
Slovenia	University clinic of respiratory and allergic diseases	Golnik
Spain	Instituto de Salud “Carlos III”	Madrid
Sweden	Swedish Institute for Infectious Disease Control	Solna
Switzerland	Swiss Federal Office of Public Health	Bern
Tajikistan	Tajikistan Medical University	Dushanbe
Turkey	Ministry of Health	Ankara
Turkmenistan	Central Republican Tuberculosis Control Hospital	Ashkhabad
Ukraine	Institute of Tuberculosis & Pulmonology	Kiev
United Kingdom	PHLS Communicable Disease Surveillance Centre	London
	Scottish Centre for Infection & Environmental Health	Glasgow
	Communicable Disease Surveillance Centre, NI	Belfast
Uzbekistan	Scientific Research Institute of Pthisiology and Pulmonology	Tashkent
Yugoslavia	Institute of Pulmonology & Protection against Tuberculosis	Belgrade

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Single copies and regular mailing can be requested at the address below; the report is also accessible via the website: **www.eurotb.org**

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SUMMARY

The EuroTB programme collects standardised information on tuberculosis case notifications including anti-tuberculosis drug resistance in the WHO European Region. In 1998, 363 521 cases of tuberculosis were notified in the 51 countries of the Region, of which 12% were in patients with a previous episode of tuberculosis. Notification rates were very different in three geographic areas:

- 13 per 100 000 in the West (the 15 EU countries, Andorra, Iceland, Israel, Malta, Monaco, Norway, San Marino, Switzerland);
- 78 per 100 000 in the East (the 15 Newly Independent States of the former Soviet Union, including the Baltic countries Estonia, Latvia and Lithuania);
- 47 per 100 000 in the Centre (the 13 remaining countries of the WHO European Region).

Compared to 1995, notification rates in 1998 decreased by 9% in the West, were relatively stable in the Centre (+3%) and increased markedly in the East (+37%).

Notification rates were highest in patients aged 65 or over in the West, peaked in the age group 25-34 in the East and were stable after age 35 in the Centre. Among adults, notification rates were higher in males, with greater sex differences in countries with higher notification rates. In the West, patients of foreign origin accounted for 27% of the cases notified and for more than 40% of cases in 10 countries.

In the 38 countries reporting data on culture, culture was positive for 50% of TB notified cases overall. The proportion of smear positive cases among pulmonary / respiratory cases was 41% overall in the 42 countries reporting this information.

The results of drug susceptibility testing (DST) at the start of treatment for notified cases (collected in the West, Centre and Baltic countries) were provided from 26 countries. Among the 18 countries providing DST results for more than 35% of notified cases and providing data by previous anti-TB treatment status, levels of drug resistance were lower among cases never treated compared to cases previously treated. The proportions of cases never treated resistant to at least isoniazid and rifampicin (multi-drug resistant cases, MDR) were 5-15% in the Baltic countries and lower than 1% in 14 countries in the West and in the Centre. Among cases previously treated, proportions of MDR-TB cases were 11-37% in the Baltic countries and 0-8% in the other countries. In the West proportions of MDR-TB cases were higher among foreigners compared to nationals.

In most countries in the West and in the Centre, the decrease or stabilisation in notification rates in recent years and the relatively low levels of drug resistance indicate that tuberculosis control programs are overall efficient in containing TB transmission. However, in many countries in the West, cases in patients of foreign origin represent a high and often increasing proportion of notified cases.

In the East, increasing tuberculosis notification rates in most countries are due to a combination of factors. In several countries socio-economic difficulties have led to the impoverishment of some population groups and to the disruption of health services, which may, in turn, have resulted in increased TB transmission. The high proportion of MDR-TB cases reported from the Baltic countries reflects probably difficulties in tuberculosis treatment programmes and calls for an assessment of drug resistance levels and trends in other countries in the East. The large HIV epidemics emerging in many countries in the East may further affect the situation of tuberculosis in the near future.

Surveillance data provided to EuroTB are increasingly standardised and complete. They confirm the interest of international surveillance for both monitoring trends and contributing to the evaluation of tuberculosis program.

RÉSUMÉ

Le programme EuroTB pour la surveillance de la tuberculose recueille, analyse et diffuse des données standardisées sur les cas de tuberculose déclarés incluant la résistance aux médicaments anti-tuberculeux dans la Région Europe de l'OMS. En 1998, 363 521 cas de tuberculose ont été déclarés dans les 51 pays de la région, dont 12% chez des patients ayant eut un épisode antérieur de tuberculose. Les taux de déclaration varient fortement selon les trois zones géographiques :

- 13 pour 100 000 à l'Ouest (comprenant les 15 pays de l'Union Européenne ainsi que l'Andorre, l'Islande, Israel, Malte, Monaco, la Norvège, Saint Marin et la Suisse);
- 78 pour 100 000 à l'Est (comprenant les 15 pays de l'Ex URSS qui incluent les pays Baltes : l'Estonie, la Lettonie et la Lituanie ;
- 47 pour 100 000 au Centre qui comprend les 13 pays restant de la Région OMS de l'Europe.

Comparé à 1995, en 1998 le taux de déclaration a baissé de 9 % à l'Ouest, a été relativement stable au Centre (+3%) et a sensiblement augmenté à l'Est (+37%).

Les taux de déclaration de tuberculose sont les plus élevés chez les patients âgés de 65 ans et plus à l'Ouest, chez les jeunes adultes (25-34 ans) à l'Est et sont stables au dessus de 35 ans au Centre. Chez les adultes, les taux sont plus élevés chez les hommes, avec des différences entre les sexes plus marquées dans les pays avec des taux de déclaration plus élevés. Les personnes d'origine étrangère représentent 27% des cas déclarés à l'Ouest et plus de 40% dans dix pays.

Dans les 38 pays ayant fourni l'information, les résultats de culture sont positifs dans 50% des cas. La proportion de cas ayant un frottis d'expectoration positif parmi les cas de tuberculose pulmonaire ou respiratoire est globalement de 41% dans les 42 pays disposant de cette information.

Les résultats des tests de sensibilité au médicaments antituberculeux en début de traitement pour les cas déclarés (recueillis à l'Ouest, au Centre et dans les pays Baltes) sont disponibles pour 26 pays. Parmi les 18 pays avec des résultats disponibles pour plus de 35% des cas déclarés, et ayant fourni l'information sur les traitements anti-tubérculeux antérieures, la proportion de cas multirésistants (MDR, résistants à au moins l'isoniazide et à la rifampicine) parmi les patients n'ayant jamais reçu un traitement anti-tubrculeux sont de 5 % à 15 % dans les pays Baltes et inférieurs à 1% dans 14 pays de l'Ouest et du Centre. Parmi les cas qui on déjà eut antérieurement un traitement anti-tuberculeux les proportions de cas MDR sont systématiquement plus élevés et plus variables (pays Baltes : 11 à 37% ; autres pays : 0 à 8%). A l'Ouest les proportions de cas MDR sont plus élevées chez les patients d'origine étrangère par rapport aux patients nationaux.

La baisse ou la stabilisation des taux de déclaration ainsi que les niveaux relativement bas de résistance aux anti-tuberculeux observés dans la plupart des pays de l'Ouest et du Centre témoignent du fait que les programmes de lutte anti-tuberculeux sont globalement efficients à contenir la transmission de la tuberculose. Cependant, à l'Ouest, les cas chez des patients d'origine étrangère représentent une proportion importante, souvent en hausse, des cas déclarés dans plusieurs pays.

A l'Est, les taux de déclaration ont augmenté dans la plupart des pays résultant d'une combinaison de plusieurs facteurs. Les difficultés socio-économiques ont amené un appauvrissement de certains groupes de population et une détérioration des systèmes de santé, qui à leur tour ont pu entraîner une augmentation de la transmission de la tuberculose dans plusieurs pays. Les proportions élevées de multi-résistance aux antituberculeux déclarées par les pays baltes reflètent probablement des problèmes de qualité du traitement et appellent à mener une évaluation des niveaux de résistance ainsi que de leur tendance dans les autres pays de l'Est. L'épidémie d'infection à VIH importante qui se développe dans plusieurs pays de l 'Est pourrait avoir un impact sur la situation de la tuberculose dans un avenir proche

Les données de surveillance fournies au programme EuroTB sont de plus en plus standardisées et complètes. Elles confirment l'intérêt d'une surveillance internationale pour d'une part surveiller les tendances et pour d'autre part contribuer à évaluer les programmes anti-tuberculeux.

РЕЗЮМЕ

Программа ЕвроТБ по эпиднадзору за туберкулезом собирает, анализирует и распространяет стандартные информации о сообщениях случаев туберкулеза в Европейском регионе ВОЗ включая резистентность к противотуберкулезным препаратам. В 1998 г. был зарегистрирован 363 521 случай туберкулеза в 51 стране региона среди которых находилось 12 % пациентов с предшествующим эпизодом туберкулеза. Показатели зарегистрированных заболеваний сильно отличаются в трех географических регионах :

- 13 случаев на 100 000 в Западной Европе (15 стран Европейского Сообщества, Андорра, Исландия, Израиль, Мальта, Монако, Норвегия, Сан-Марино, Швейцария) ;
- 78 случаев на 100 000 в Восточной Европе (15 новых независимых республик бывшего Советского Союза включая Балтийские страны - Естония, Латвия и Литва) ;
- 47 случаев на 100 000 в Центральной Европе (13 остальных стран Европейского региона ВОЗ).

В сравнении с 1995 годом показатели зарегистрированных случаев в 1998 г. понизились на 9 % в Западной Европе, остались относительно стабильными в центральной части (+ 3 %) и значительно увеличились в Восточной Европе (+ 37 %).

Показатели зарегистрированных случаев в Западной Европе наиболее высоки у пациентов в возрасте 65 лет и старше и у молодых взрослых (25 - 34 лет) в Восточной Европе и остались стабильными в Центральной Европе в возрастной группе выше 35 лет. В группе взрослых показатели зарегистрированных случаев были более высокие у мужчин, с большей разницей по половому признаку в странах где зарегистрировано более высокое количество случаев. Пациенты иностранного происхождения составляли 27 % от всех зарегистрированных случаев в Западной Европе и более чем 40 % зарегистрированных случаев в 10 странах.

В 38 странах представивших данные, выявление положительных посевов культуры, составило 50% случаев. В 42 странах представивших эти информации, показатели зарегистрированных случаев с положительным мазком мокроты при легочной форме заболевания или заболевания органов дыхания составляли в целом 41 %.

26 стран представили результаты исследований на лекарственную устойчивость (DST) в начале лечения у зарегистрированных случаев (данные собранны в Западной и Центральной Европе и в Балтийских странах). В 18 странах представивших результаты DST для более чем 35 % зарегистрированных случаев и данные по предшествующем статусе лечения туберкулеза пропорция случаев множественной лекарственной резистентности (MDR - резистентных по крайней мере к изионазиду и рифампицину) у пациентов не получивших никогда лечение составили 5-15 % в Балтийских странах и были ниже 1 % в 14х странах в Западной и Центральной Европе. Среди пациентов, получивших лечение в прошлом противотуберкулезными препаратами, пропорции случаев MDR систематически более высокие и различные (11 – 37 % в Балтийских странах и 0 – 8% в остальных странах.) В Западной Европе показатели множественной лекарственной резистентности / MDR/) более высокие у пациентов иностранного происхождения в сравнении с местными жителями.

За прошедшие годы в большинстве стран западной и центральной Европы снижение или стабилизация показателя зарегистрированных заболеваний, а также относительно низкий уровень резистентности к противотуберкулезным препаратам, показывают, что программы по эпиднадзору за туберкулезом, успешны и способствуют сдерживанию распространения туберкулеза. Однако, в западных странах, доля зарегистрированных случаев в группе населения иностранного происхождения имеет часто повышающуюся тенденцию роста случаев зарегистрированных в различных странах.

В восточной Европе показатель зарегистрированных случаев туберкулеза увеличивается в большинстве стран вследствие комбинации множества факторов. Социально-экономические трудности привели к обеднению некоторых слоев населения, а также к нарушению систем здравоохранения, что, возможно, влечет за собой увеличение случаев передачи туберкулеза в нескольких странах. Высокий процент случаев мултирезистентности (MDR) к противотуберкулезным препаратам возможно, отражает проблемы качества лечения туберкулеза, что вынуждает сделать оценку уровня и тенденции лекарственной резистентности в других восточных странах. Значительное распространение ВИЧ-инфекции,в некоторых странах Восточной Европы, может в ближайшем будущем повлиять на ситуацию туберкулеза.

Данные о эпиднаднадзоре, представленные бюро ЕвроТБ более и более стандартизируются и дополняются. Они оправдывают необходимость международного эпиднадзора для тенденций мониторинга и для вклада в оценку программ борьбы с туберкулезом.

TECHNICAL NOTE

The EuroTB programme for the surveillance of tuberculosis in Europe aims at improving the contribution of surveillance to tuberculosis control in the WHO European region through the provision of valid, comparable information on the epidemiology of tuberculosis. The programme, set up in 1996, is managed jointly by the Institut de Veille Sanitaire (InVS), France and the Royal Netherlands Tuberculosis Association (KNCV), the Netherlands, and is financially supported by the European Commission. All the 51 countries of the WHO European Region participate in EuroTB activities. Country participation is on a voluntary basis. Generally, a single national institution is appointed for participation in European TB surveillance activities and is responsible for the quality of data provided.

The principles, methods and definitions guiding EuroTB activities are those recommended by working groups including WHO and the International Union against Tuberculosis and Lung Disease (IUATLD) and approved by European country representatives **[1, 2].**

In order to allow for data validation and consolidation at national level, data are collected 10 to 12 months after the end of the calendar year of interest. Data reported for previous years are not routinely updated. Figures presented in this report may differ from those published by WHO **[3, 4]** which are collected earlier. For countries not reporting the total number of cases to EuroTB for a specific year, data published by WHO **[3]** have been used.

2.1 Data collection

Individual, anonymous data, according to a standardised data file specification are collected once a year on tuberculosis cases notified by clinicians (and / or laboratories where applicable) in each country in the previous calendar year. In countries unable to provide individual data, aggregate data by age group and sex, are collected according to standard Tables by geographic origin, status according to previous TB disease (new/recurrent case), bacteriological confirmation (culture and sputum smear results) and site of disease. Information on definitions used and on inclusion in notifications of cases diagnosed in specific population groups is collected through a specific questionnaire.

Results of drug susceptibility testing (DST) at the start of treatment for notified cases (collected for the first time for 1998) are provided either as individual data in the same data file containing other information on TB cases, or as aggregate Tables by age group and sex, by previous anti-TB treatment status (never treated / previously treated) and by geographic origin (national / foreigner). DST results are collected for isoniazid, rifampicin, ethambutol and streptomycin and are provided as "susceptible" or "resistant". If the proportion method is used, resistance is defined as growth of $\geq$ 1% colony growth at the critical concentrations of the drug being tested. Information on laboratory practices for DST and on the proportion of cases with available DST results by region was collected through a specific questionnaire.

In some of the countries, DST results provided are not related to TB notifications, i.e. they may also include DST results for cases not notified in 1998, (e.g. cases never notified or recurrent cases notified in previous years). Data from these countries are presented separately.

2.2 Case definition and classification

2.2.1 TB case definition

Definite TB case

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

- in countries where routine culturing of specimens is not feasible, patients with sputum smear posi-

tive for acid-fast bacilli (AFB) are also considered as definite cases.

Other-than-definite TB case
A case meeting the two following conditions:

- a clinician's judgement that the patient's clinical and/or radiological signs and/or symptoms are compatible with tuberculosis,

and

- a clinician's decision to treat the patient with a full course of anti-tuberculosis treatment.

All definite and other-than-definite TB cases starting treatment in a given calendar year are notifiable to EuroTB and are included in the data presented in this report.

2.2.2 Previous TB diagnosis

New case
A patient who has never had tuberculosis previously.

Recurrent case
A patient who has had a previous episode of tuberculosis.

Recurrent cases may include relapse, failure, return after default and chronic cases. The type of recurrent cases included in TB notifications varies across countries (see section 3.2). All new and recurrent cases starting treatment in the calendar year of interest should be notified to EuroTB and are included in the global figures presented in this report.

Recurrent cases ases should be notified only once in a given calendar year. For example, a patients who returns after default and starts treatment again in the same calendar year as the previous notified episode, should not be notified again in the same calendar year. Patients with a previous TB diagnosis (recurrent cases) but never treated (e.g. previous episode before availability of drugs) are variably classified as new or recurrent cases across countries.

2.2.3 Previous TB treatment

Never treated case
A patient who never received drug treatment for TB in the past or who received anti-tuberculosis drugs for less than one month.

Previously treated case
A patient who in a previous calendar year was diagnosed with tuberculosis and took anti-tuberculosis drugs (excluding preventive therapy) for at least one month.

This classification is mainly used for the analysis of drug resistance data. Drug resistance among cases never treated is an indicator of primary drug resistance, i.e. resistance in patient with active tuberculosis due to infection with resistant bacilli. Drug resistance among cases previously treated usually indicates acquired drug resistance, i.e. resistance emerging in a patient during treatment as a consequence of selection of drug resistant mutant bacilli. In countries providing individual data on both previous TB episodes and previous treatment, recurrent cases without information on previous treatment are classified as previously treated

2.2.4 Site of disease

For reporting to EuroTB, the *pulmonary* classification is recommended:

Pulmonary case
TB of the lung parenchyma and/or tracheo-bronchial tree.

Extrapulmonary case
TB affecting any site other than pulmonary as defined above, including pleural TB and intrathoracic lymphatic TB without involvement of the lung parenchyma.

Alternatively the respiratory classification can be used:

Respiratory case
All pulmonary cases (see above) plus pleural TB and intrathoracic lymphatic TB

Extra respiratory cases
TB affecting any site other than respiratory as defined above,

If pulmonary or respiratory TB is present the case is always classified as pulmonary or respiratory TB, including in cases of disseminated TB (i.e. TB involving more than two organs, miliary TB or isolate of *M. tuberculosis* complex from blood). In individual

data, information is provided on the major site and one minor site of disease. Pulmonary localisation, if present, is classified as major site by default, and other localisations may be classified as major or minor site of disease.

2.2.5 Geographic origin of the case

The recommended information to be provided on geographic origin of TB cases is the place of birth (born in the country / foreign born). As an alternative, information can be provided by citizenship (national / foreign citizen). Country of birth or of citizenship is collected in individual data. When presenting data by continent of origin, Israel, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan and Uzbekistan are classified in Europe, which therefore corresponds to the WHO European Region.

2.2.6 Drug resistance

For each drug on which information was collected (isoniazid, rifampicin, ethambutol and streptomicin), resistance is defined as resistance at the start of treatment to that drug alone or in any combination with resistance to the other three drugs. Concomitant resistance to at least isoniazid and rifampicin, with or without resistance to ethambutol and streptomycin, is defined as multidrug resistance (MDR).

2.3 Data presentation

Numbers of notified cases are shown by year of start of anti-TB treatment. Numbers of cases are not adjusted for underreporting which was estimated to vary between 0 and 40% for 1997 or for over-reporting (i.e. repeated counting of the same case, estimated to represent between 0-35% of notified cases) **[5]**.

Data by age group are presented only if provided according to the requested breakdown. For data which can be provided according to alternative classifications (geographic origin, site of disease), the type of classification provided is presented in the relevant Tables.

Country population denominators for calculation of notification rates are taken from United Nations demographic estimates (1994 update until 1997 **[6];** 1998 update for 1998 **[7]),** except for Andorra **[8].** National correspondents provided demographic estimates of the population by geographic origin (nationals/ foreigners) and regional populations (for Yugoslavia in 1998).

Based on epidemiological and geographical considerations, the 51 countries of the WHO European Region have been grouped into three geographic areas:

- West: the 15 European Union countries plus Andorra, Iceland, Israel, Malta, Monaco, Norway, San Marino, Switzerland); within the West, subtotals are shown for the European Union;

- East: the 15 Newly Independent States of the former Soviet Union, including the Baltic countries (Estonia, Latvia, Lithuania);

- Centre: the 13 remaining countries of the WHO European Region: Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, the Former Yugoslav Republic (FYR) of Macedonia, Poland, Romania, Slovakia, Slovenia, Turkey, Yugoslavia.

The respective total populations of the three areas were 395, 292 and 187 million in 1998.

Drug susceptibility testing (DST) results are presented as proportion of cases resistant, calculated using as denominator cases with available DST results. Proportions of resistant cases are shown in a given country only for drugs for which DST results are provided for all tested cases.

COUNTRY SURVEILLANCE SYSTEMS

Information on national TB case reporting systems in 1998 was obtained through a questionnaire survey. Detailed information referring to 1997 was published in the previous EuroTB annual report **[5].**

3.1 Inclusion of specific population groups in notifications

At European level it is recommended that all cases diagnosed in the country should be included in TB notifications. However, due to the organisation of the health systems and of surveillance, specific population groups are excluded from tuberculosis notification in some countries.

In 1998, cases diagnosed among foreigners (legal residents, asylum seekers, illegal residents), prisoners, military personnel, homeless, persons with HIV infection or AIDS and institutionalised persons were included in tuberculosis notifications in 29 countries, of which 19 countries in the West (Table 3).

Eight countries included only nationals, excluding all categories of foreigners patients (Azerbaijan, Belarus, Kyrgyzstan, Macedonia, Poland, Turkey, Turkmenistan, Uzbekistan), of which three (Kyrgyzstan, Turkey, Uzbekistan) exclude also the other population groups of interest (prisoners, military personnel, homeless, persons with HIV infection or AIDS and institutionalised persons)

Foreigners who were legal residents were included while illegal immigrants and/or asylum seekers were excluded in Andorra in the West, in four countries in the Centre (Albania, Romania, Slovakia and Yugoslavia) and in five countries in the East (Armenia, Kazakhstan, Latvia, Moldova, and Tajikistan). Compared with 1997, in 1998, one or more groups of foreigners previously excluded were included in notifications in six countries.

Prisoners were excluded from notification in 11 countries compared with 15 countries in 1997. The homeless were excluded from notifications in nine countries, military personnel in eight countries, persons with HIV infection or AIDS in six countries and institutionalised persons in six countries.

It should be noted that official inclusion of a specific group in notifications does not necessarily mean that notifications will be complete for that group. Exclusion of specific population groups from notification may particularly affect notification data in the East, where, in some countries, cases among prisoners may represent a relevant proportion of incident cases **[9]** and cases among individuals co-infected with HIV may do so in the near future **[10].**

3.2 Recommendations for notification of recurrent cases

In 1998, according to the European recommendations, all countries notified both new and recurrent TB cases except Turkmenistan where only new cases were included in notifications. However, recommendations on notifications of recurrent cases, differed across countries. In four of the 41 countries providing information no specific recommendations existed. In the majority of the other 37 countries**,** most types of recurrent cases including relapse and return after default (Table 1, cases A to F) were recommended to be included in notifications, whereas treatment failures were recommended to be included in 10 countries only (Table 1, case G) Recurrent cases to be notified included other than definite cases (Table 1 case A) in the majority of countries. Untreated recurrent cases (e.g. previous TB episode before 1950) were classified as new cases or as recurrent cases in comparable numbers of countries (Table 1, cases B, E). Limited information is available on how these recommendations are applied. In addition, information on previous history of tuberculosis is difficult to obtain and may result in misclassification of cases.

Standardised criteria for the notification and classification of recurrent cases, would improve the com-

TABLE 1 Recommendations for notification of recurrent cases, 1998, 37 countries

Case	Type of recurrent case: previous treatment	previous outcome	confirmation of current episode	No of countries in which it is recommended to notify as: new case	recurrent case	not specif	total	not to notify	No recomm.*	No answer	Total
A	yes	not specified	other than definite	2	25	1	28 †	4	1	4	9
B	no (before 1950)	–	definite	15	16		31	1	1	4	37
C	yes	completed	definite	3	29	1	33 †	0	0	4	4
D	yes	default	definite	2	22		24	2	5	6	37
E	no (<30 days)	interr > 2 mo	definite	14	12		26	2	4	5	11
F	yes	interr <2 mo	definite	8	14		22	5	4	6	15
G	yes	failure	definite	3	7		10	19	3	5	27

Note: Bosnia Herzegovina and UK not included because different recommendations in different parts of the country
* No recommendations
† including Czech Republic in which the recommendation does not specify the classification new/recurrent

parability of surveillance data at the international level, which is particularly relevant for surveillance of drug resistance and of treatment outcome.

3.3 Case definition and classification

In 1998, classification of cases as "definite" was limited to culture positive cases in 22 countries (compared to 12 countries in 1997) and included cases with both positive culture and/or positive sputum smear in 27 countries (Table 11). All countries notified TB cases with any disease localisation, except Spain, where notification of extra-respiratory cases was limited to meningeal localisations.

3.4 Estimates of over and under-notification

Estimates of under-notification for tuberculosis cases notified in 1997 were provided from 32 countries and varied widely from 0 in 8 countries to 20% or more in 4 countries. Over-notification (i.e. notification of cases, which do not correspond to case definition, or multiple reports of the same individual within a calendar year) was estimated to be 0 in 15 countries and 5% or more in 7 countries **[5]**.

3.5 Bacteriological diagnosis and laboratory reporting

In 1998, culture for *Mycobacteria* was considered to be widely available in 38 countries, available in some areas in 11 countries and not available in Armenia (Table 11). Access to culture does not necessarily mean that the culture is systematically performed for all suspected cases. In 27 of the 38 countries with widely accessible culture facilities, all level II laboratories routinely report initial isolates to the notification system.

TUBERCULOSIS CASES NOTIFIED IN 1998

4.1 Information provided

All the 51 countries in the WHO European Region provided some information on TB cases notified in 1998 (Table 4)**.** Twenty countries provided individual data and 31 provided aggregate data. Only the total number of cases was available for Belarus. In six countries, aggregate data (by sex, age, site of disease and bacteriology results) were provided on new cases only and are not presented in this report.

Compared with 1997 the number of countries providing data increased for all types of information (Table 4). Data by sex according to the requested age groups were provided by 40 countries (38 in 1997). Data by previous TB disease status (new/recurrent) were provided from 43 countries (38 in 1997), by geographic origin from 32 countries (29 in 1997), by site of disease from 42 countries (37 in 1997) and by sputum smear from 42 countries (32 in 1997). Aggregate data by culture result were collected for the first time in 1998 and were provided overall by 38 countries.

Data on the organisation of drug resistance surveillance (DRS) and on drug susceptibility testing (DST) results at the start of treatment were requested for the first time on cases notified in 1998 (in the East data were requested only from Baltic countries). DST results were provided from 29 countries (18 countries in the West, 8 in the Centre and the three Baltic countries) (Table 15). In 26 countries data refer to TB cases notified in 1998, of which 15 provided individual data (Table 4), and in three countries data are not related to TB cases notified (see 5.1).

4.2 Global 1998 figures and trends

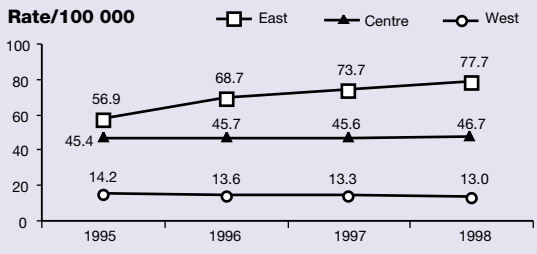
In 1998, 363 521 cases of tuberculosis were notified in the 51 countries of the WHO European Region, of which 226 575 (62%) where notified in the East. The overall notification rate in the region was 42 per 100 000 population and it ranged from 13 per 100 000 in the West, to 47 per 100 000 in the Centre to 78 per 100 000 in the East (Table 5).

TB notification rates were lower than 20 cases per 100 000 population in 22 countries in the West and in the Czech Republic; between 20 and 49 cases per 100 000 in 13 countries, including 10 countries in the Centre; and 50 cases or over per 100 000 population in 16 countries, including 13 countries in the East (Map 1).

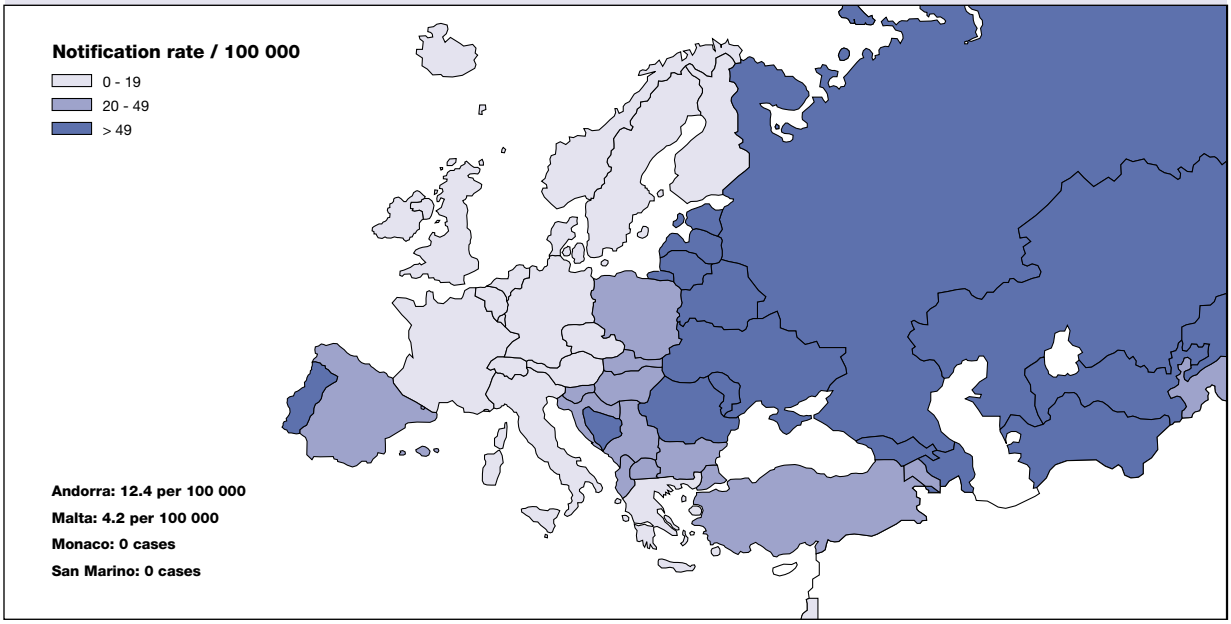
Among countries in the West notification rates ranged from zero (Monaco and San Marino) to 53 per 100 000 in Portugal. In the Centre, 60% of cases were notified from Romania and Turkey, each representing 30% of cases, and country rates ranged from 18 per 100 000 in the Czech Republic to 115 per 100 000 in Romania. In the East more than half of the cases were notified in the Russian Federation and rates ranged from 41 per 100 000 in Armenia to 128 per 100 000 in Kyrgyzstan.

Notification trends between 1995 and 1998 differed markedly by geographic area and by country (country profiles). When comparing rates in 1998 with 1995, notification rates had decreased from 14.2 to 13.0 in the West (-9%), increased slightly from 45.4 to 46.7 in the Centre (+3%) and increased markedly in the East from 56.9 to 77.7 per 100 000 (+37%). (Figure 1)

FIGURE 1 **Tuberculosis notification rates by geographic area, 1995-1998, WHO European Region**

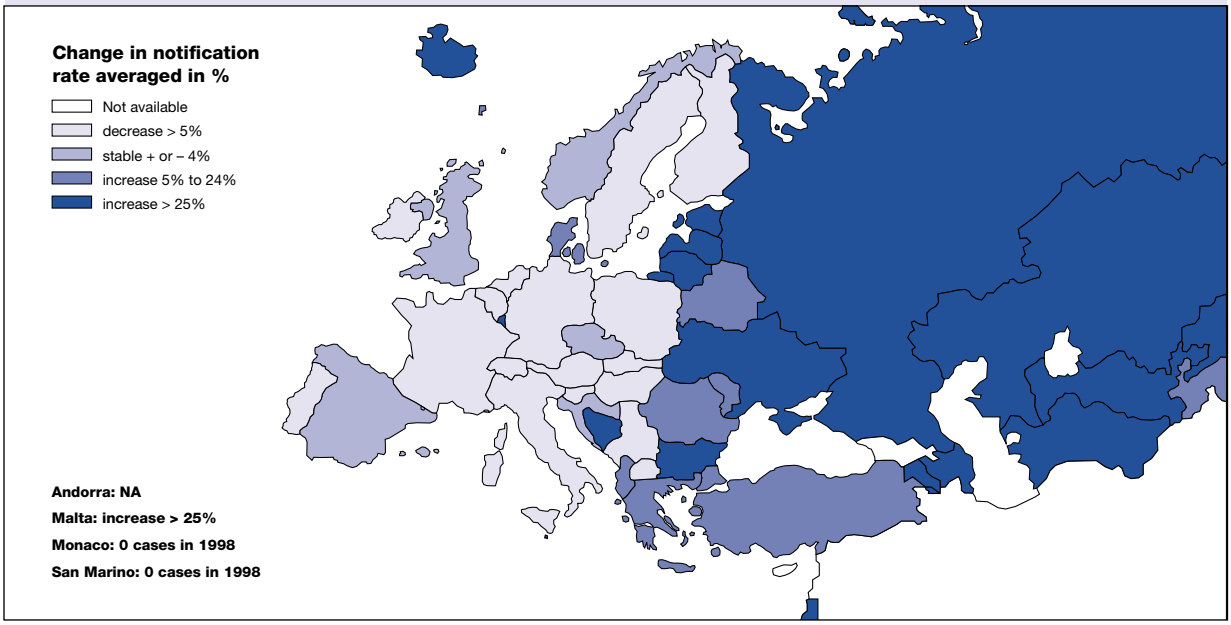


MAP 1 Tuberculosis notification rates 1998, 51 countries, WHO European Region



Trends in notification rates for the period 1995-1998 were analysed more in detail in each area. In the West, trends are not interpretable in Spain (where case definition changed in 1997 from new respiratory cases only to all respiratory and meningeal cases) and Greece and Israel, where numbers of cases notified increased by more than 50% between 1997 and 1998, due to immigration patterns and reorganisation in the TB programme (Israel) or to major changes in TB surveillance (Greece). In the other

MAP 2 Changes in tuberculosis notification rates, 1998 compared to 1995, WHO European Region



countries, annual notification rates in 1998 had decreased by 12% compared to 1995, with regular annual decreases of 4% throughout the period. Among the 14 countries with more than 50 cases notified per year, rates decreased by more than 5% between 1995 and 1998 in 11 countries, were stable in the United Kingdom (-0.4%) and Norway (+1.5%), and increased in Denmark (+16%). (Map 2).

In western Europe, notification rates in the period 1995-1998 show that incidence is decreasing again in most western European countries after the stabilisation or increases observed in many countries in the late 1980s and early 1990s [**11**]. Trends in many countries in the West are affected by increasing numbers of cases notified in patients of foreign origin (see below). Trends in notification rates among nationals were consistently decreasing in recent years in countries with increasing numbers of cases reported among foreigners, suggesting that tuberculosis in the population of foreign origin may have had a limited effect on transmission among nationals.

In the Centre notification rates were stable overall (+2% between 1995 and 1998) but contrasting trends were observed across countries (Map 2). Compared to 1995, in 1998 notification rates decreased by 8% or more in Hungary, Macedonia, Poland, Slovakia, Slovenia and Yugoslavia, decreased by 2% in the Czech Republic, were stable in Croatia and increased by more than 5% in Turkey (6%), Romania (13%), Bulgaria (34%), where limited information is available to interpret this trend and Bosnia-Herzegovina (36%) where part of the observed increase may be due to cases in the population of refugees returning after the war. Decreasing trends in several countries in the Centre may partly reflect improvements in the socio-economic situation and indicate that the quality of tuberculosis control has been maintained over recent years.

In the East data are not available for 1995 in Georgia, the only country in which rates decreased markedly in recent years (-36% between 1996 and 1998), partly due to retrospective reporting in 1996 of cases diagnosed during the early 1990s. In all the other countries, the notification rates increased by 37% overall in 1998 compared to 1995, with increases ranging widely between countries, from 6% in the Republic of Moldova to 95% in Kazakhstan.

These recent trends confirm the increases in tuberculosis mortality and morbidity observed since 1990 in Eastern Europe **[12].** The changes in the notification system in some of these countries such as increasing inclusion of some population groups at high TB incidence such as prisoners **[9]** in notifications are unlikely to explain all observed increases.

Increases in tuberculosis notifications are likely to reflect a combination of socio-economic difficulties leading to impoverishment of some population groups and to disruption of health services including tuberculosis control programmes. Delays in diagnosis and treatment may result in increased transmission of tuberculosis infection, and inadequate treatment may increase the probability of recurrence and the emergence of drug resistance, as suggested by the high proportions of multi-drug resistance reported from Baltic countries (see below and **[4])**.

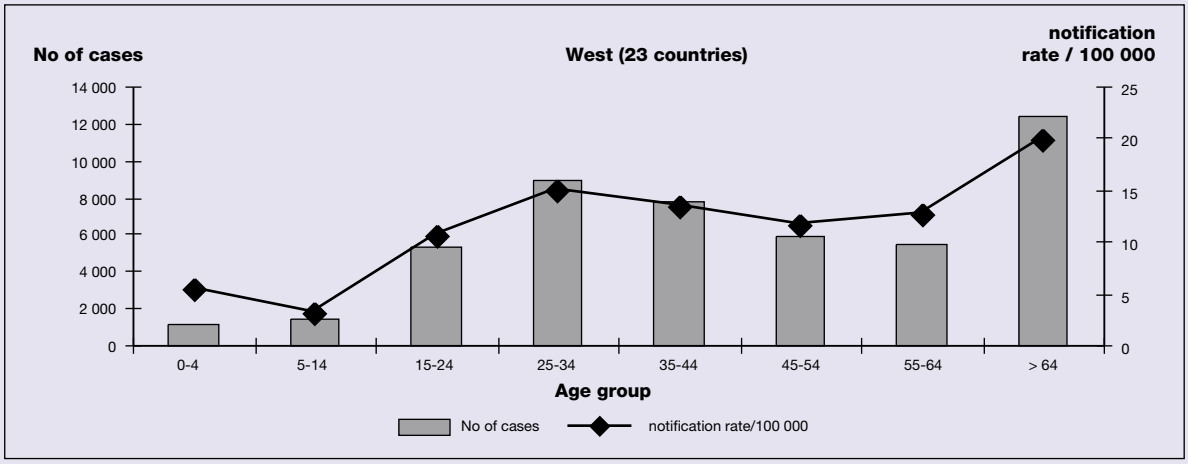
In several Eastern European countries, HIV infection is spreading at alarming rates **[13]**. Although AIDS incidence is still considerably lower than in western Europe the ongoing large scale HIV epidemics represent a serious threat for TB control and their impact on the incidence of tuberculosis could be substantial in the near future **[10]**.

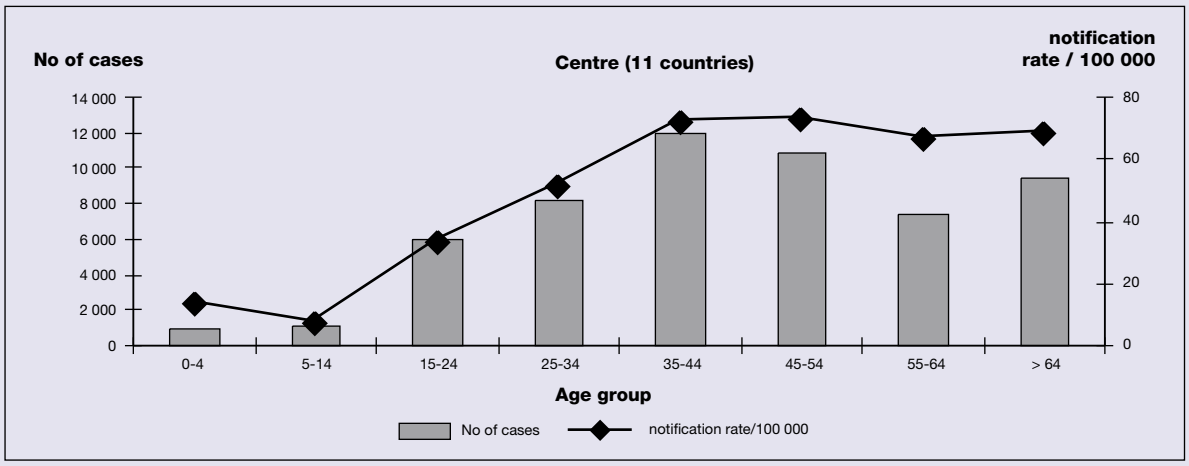
4.3 New and recurrent cases

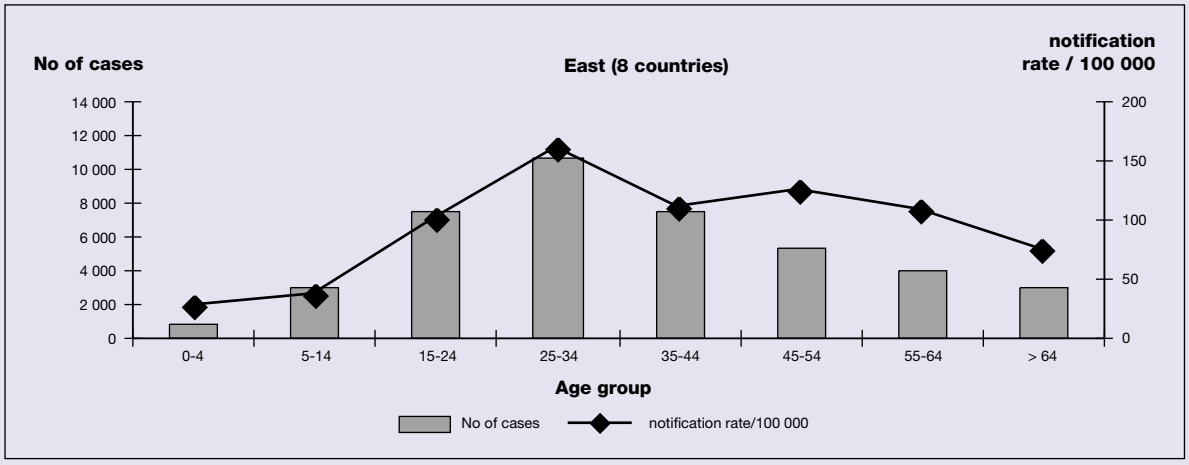
Information on previous tuberculosis diagnosis was available in 43 countries (Table 6). Overall, 88% of cases notified in 1998 were new cases, 10% were recurrent cases and 2% had no information on previous TB diagnosis. In four countries, 25% or more of cases were reported with unknown previous diagnosis (Croatia, Ireland, Spain and United Kingdom). Excluding these countries, the proportion of recurrent cases notified was 10% in the West, 13% in the Centre and 9% in the East. The proportion of recurrent cases ranged widely across countries and was lower than 5% in 8 countries, between 6 and 13% in 21 countries and 16 to 38% in 10 countries, without any clear geographic pattern. The slightly higher proportion of recurrent cases in the Centre (13%) is due to the higher proportion of recurrent cases notified in Turkey (19%), where 30% of the cases notified in the Centre were notified.

FIGURE 2

Number of TB cases and notification rates by age group, 1998, WHO European Region







Differing proportions of recurrent cases cannot easily be interpreted in terms of performance of the TB programmes. Indeed, differences between countries may be due to the differing recommendations for including recurrent cases in TB notifications (see section 3.2) and on the adherence to these recommendations, on which little information is available. For example, the high proportion of recurrent cases notified in Norway (29%) is mainly due to elderly patients with a previous episode of tuberculosis untreated (in the years before availability of anti-TB drugs) and not to failure of anti-TB treatments. The high proportion of recurrent cases notified in Georgia (26%), decreasing compared to 1997 (36%), may be due to inclusion in notifications of prevalent cases under treatment. On the opposite, proportions of recurrent cases below 5% (e.g. in five countries in the East), may be due to under-notification of recurrent cases.

4.4 Sex and age

The distribution of cases by age and sex as well as the age specific notification rates by sex varied considerably across areas (Figure 3) and countries (see country profiles).

Among the 40 countries which provided information on sex, 64% of the tuberculosis cases notified were male. The number of male cases per one female case (sex ratio) was 1.8 overall, ranging from 1.6 in the West (excluding Spain, sex not reported for 27% of cases) to 1.7 in the East and to 2.1 in the Centre. The sex ratio varied between countries, ranging from less than one in Iceland and Sweden to 4.8 in Armenia. Thirteen countries, of which 9 are situated in the Centre or East, reported at least twice as many cases in males than in females (Table 7). The sex ratio increased with age, peaked for the 45-64 years age group and then decreased for the older age groups. For the whole WHO European Region, it was 1.2 among patients under 15 years of age, 1.8 between 15 and 44 years, 2.7 between 45 and 64 years and 1.8 over 64 years.

A total of 40 countries provided information on the age and sex distribution of all notified cases (new and recurrent) according to requested age groups (Table 8, Figure 2). Paediatric cases (0-14 years of age) accounted for 6% of the reported cases of which one third were among children under 5. Proportions of cases by age group varied significantly across geographic areas. The age group 15-44 years represented 43% of the cases notified in the West, 47% of cases in the Centre and 61% of cases in the East. The elderly (64 years and over) represented 21% of cases in the West, 17% in the Centre and 7% of cases in the East.

Age specific notification rates were highest in the age group 65 years or over in the West, were similar from age 35 in the Centre and were highest in the age group 25-34 in the East (Figure 2). The highest notification rate observed in the older age group in countries of the West of Europe is mainly due to reactivation of old *M. tuberculosis* infection.

Among children, notification rates were similar in males and females in all countries. In the West and in the Centre, rates were higher in children under 5 compared to older children, probably reflecting higher risk of developing tuberculosis after infection in younger children compared to older children **[14]**. However, in the East, this was not the case, suggesting a possible under-reporting of cases in children under 5 in some countries.

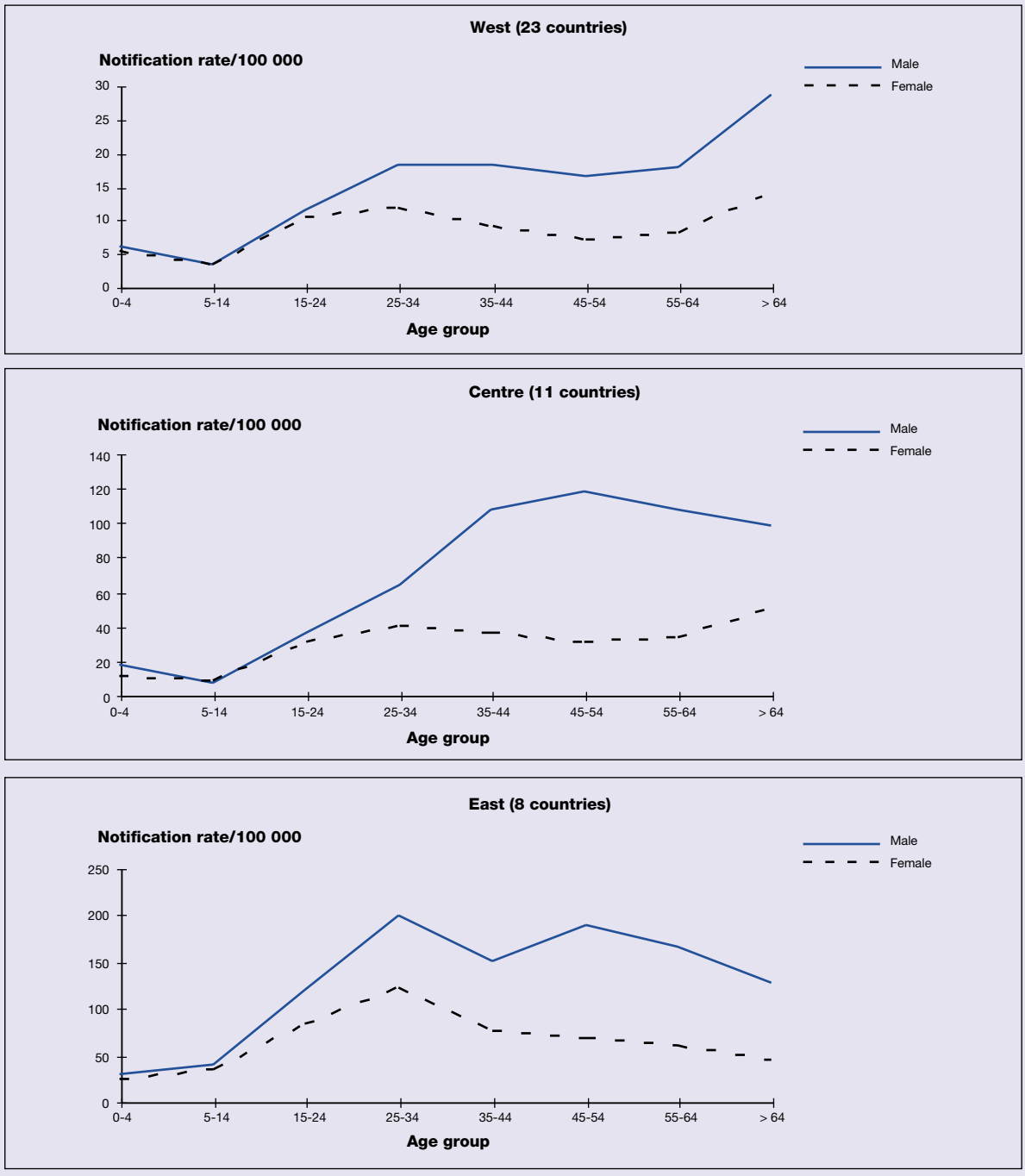
In the West, age specific notification rates among males were relatively stable across the age groups 25-34 to 55-64 and were highest among the elderly. In females, rates were highest in the age group 65 years or over. In the Centre, rates increased rapidly after age 14 in males but less rapidly in females, resulting in large sex differences, particularly between 35 and 64 years of age. In the East, rates peaked in the 25-34 age group in both sexes, with a second peak in group 45-54 among males, and decreased in older age groups.

Higher notification rates in males compared to females observed in all countries may reflect a higher prevalence of infection in males **[15]**. The larger difference in notification rates by sex observed in countries of the Centre and of the East could be also partly explained by an underreporting of females in some countries probably due to differences in access to health services **[16]**.

Additionally some of the country variations in the age distribution of cases and in age-specific notification rates were related to differences in the distribution of cases by geographic origin. In the 32 coun-

FIGURE 3

Number of TB cases and notification rates by age group, 1998, WHO European Region



tries with information available on patients' geographic origin, the proportion of cases aged 15 to 44 years was much larger in foreigners than in nationals (53% versus 16%), while the proportion aged over 44 years was lower (45% versus 81%), and proportions of male cases were higher among patients of foreign origin. These differences influence age-specific notification rates in countries with larger proportions of cases in foreigners, mostly situated in the West (see section 4.5).

4.5 Geographic origin

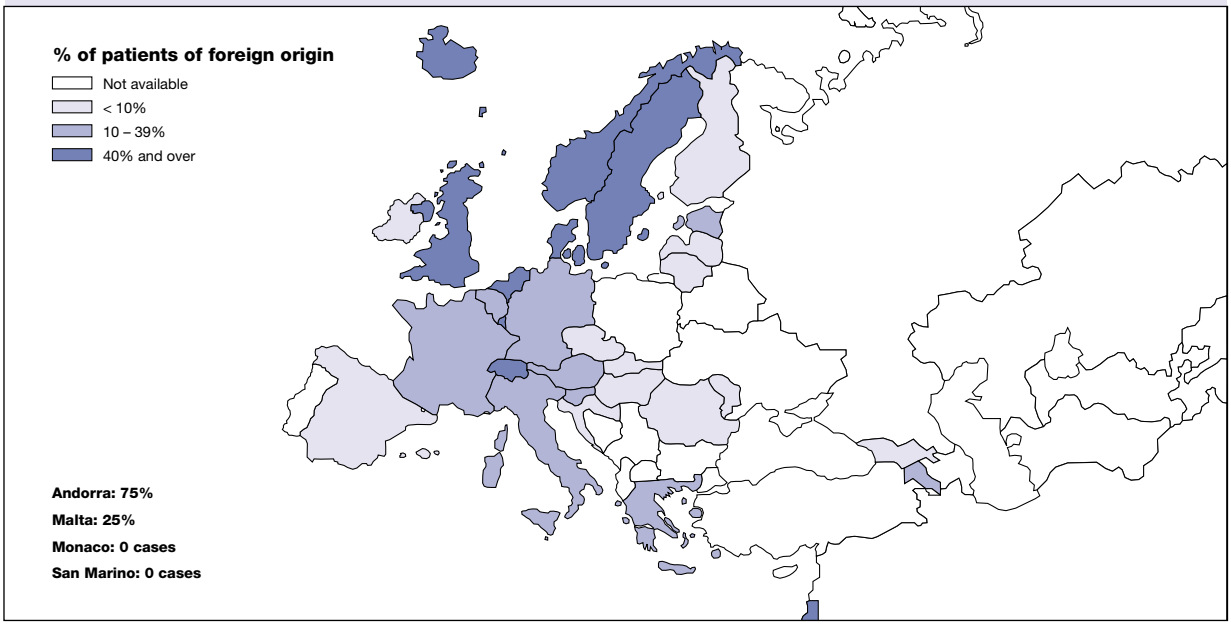
Among the 41 countries including patients of foreign origin in TB notifications (Table 3), 32 provided information on geographic origin, based on birthplace in 22 countries (recommended) or on citizenship in 10 countries.

Information was more frequently available in countries situated in the western part of Europe. All countries, except Portugal, provided information in the West, seven countries in the Centre and six countries in the East (Table 9, Map 3). The proportion of cases in foreign patients was 27% in the West and much lower in the Centre (1%) and in the East (4%). The proportion of missing information on geographic origin was less than 3 % in all countries except in France (14%), Switzerland (17%), Croatia (42%) and Spain (59%). When excluding Spain and Croatia, the proportion of TB cases in patient of foreign origin did not change in the Centre but increase to 33% in the West. In ten countries in the West, patients of foreign origin represented more than 40% of notified cases (Andorra, Denmark, Iceland, Israel, Luxembourg, Netherlands, Norway, Sweden, Switzerland and United Kingdom) (Map 3).

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

Trends in the proportion of TB cases in patients of foreign origin were calculated for 13 countries with available information, with at least 50 cases notified

MAP 3 **Proportion of tuberculosis cases notified in patients of foreign origin, 1998, WHO European Region**



and more than 10% of TB cases notified in foreign patients in 1998. Between 1995 and 1998, the proportion of TB cases in patients of foreign origin:

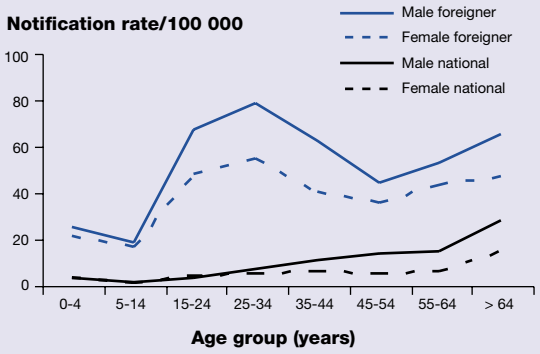
- increased regularly until 1997 and remained stable or decreased between 1997 and 1998 in Denmark, Norway and Sweden
- increased during the whole period in Belgium, Finland, Germany, Italy and Netherlands
- was relatively stable in France, Slovenia and Switzerland.

In all countries with increasing number of cases among patients of foreign origin, except Israel, the number of cases in nationals decreased during the period 1995 to 1998. However, the proportion of patients of foreign origin is difficult to interpret in Israel since the State of Israel was created recently (1948) and immigration has played and still plays a major role in the population structure of the country.

Notification rates were calculated separately for nationals and for patients of foreign origin in 13 countries with a proportion of cases in patients of foreign origin over 5%, that could provide population figures for foreigners in 1998 (Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Slovenia and Sweden). Rates were consistently higher in foreigners than in nationals (from 1.3 times higher in Ireland to 33 times higher in Netherlands). This variation may be explained by differences in migration patterns. For example the relatively low differences in Ireland and Slovenia may results from migration coming from neighbouring countries with comparable TB incidence. By contrast, in Denmark and the Netherlands there is immigration from higher incidence countries, which could explain a notification rate under 4 per 100 000 in nationals and of 99 and 118 per 100 000 respectively in patients of foreign origin. Notification rates in the foreign population should be interpreted with particular caution considering the difficulties in obtaining accurate figures on the population of foreign origin.

Age specific rates by geographic origin were calculated in the 11 countries of the West where the proportion of patients of foreign origin is highest. Large differences in age-specific rates by geographic origin were observed (Figure 4). In the population of foreign origin, the notification rates 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 adult rates increased regularly with age without a peak in young adults, and were constantly at a much lower level than those in the foreign population. Differences between males and females were more marked among the foreign population than among nationals under age 55.

FIGURE 4 TB notification rates by age group, sex and geographic origin, 1998, West *



* Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Luxembourg, Netherlands, Norway, Sweden

Nineteen countries in 1998 provided information on the specific country of origin of patients (Table 10). Overall, 24% of the 7055 foreign born or foreign citizen patients were from Europe (WHO European Region), 34% from Asia, and 33% from Africa.

As in the previous year, foreign patients in 1998 had very diverse origins, but almost half (47%) were born in, or were citizens of, one of the following five countries: Somalia (12%), India (11%), Pakistan (10%), Morocco (6%), Yugoslavia (4%), and Bosnia-Herzegovina (4%). The large majority of patients from India and Pakistan (84%) were reported in the United Kingdom. Patients form Somalia were reported mostly in Denmark, the Netherlands and the United Kingdom (77%) and 95% of patients from Morocco were reported in Italy, the Netherlands and the United Kingdom. Patients from Bosnia-Herzegovina and Yugoslavia were mainly (76%) notified in Austria, Croatia, Slovenia and Switzerland.

4.6 Site of disease

Information on site of disease was provided by 42 countries, based on the recommended pulmonary classification in 31 countries and on the respiratory classification in 11 countries (see technical note). The proportion of cases with unknown information on site of disease was less than 3% in all countries, except in Greece (6%). The overall proportion of pulmonary / respiratory cases was 75% in the West (excluding Spain where only meningeal cases are notified among extra-respiratory cases (range 63 - 84 %) compared to the Centre (88% ; range 56 - 96%) and to the East, where pulmonary/respiratory cases represented at least 90% of cases notified in all countries except Georgia (73%) (Table 12).

Information on both major and minor site of the disease was provided by 12 countries for a total of 37 610 patients (Austria, Belgium, Estonia, Iceland, Luxembourg, Malta, Norway, Romania, Slovakia, Slovenia, Switzerland and the United Kingdom, except Scotland) (Table 2). 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). A pulmonary localisation was reported in 80% of the patients. Pleural TB were reported as major or minor sites in 11% of the patients and lymphatic extra thoracic localisation in 5%. All other sites were reported in less than 2% of the patients. Meningeal tuberculosis was reported for 254 patients (0.7%).

The site of disease varied by age group (Table 2). The proportion of pulmonary TB increased with age and was significantly higher among patients aged over 15 years than among younger patients. Lymphatic intrathoracic tuberculosis as well as meningitis were more frequently reported in children under 15 years (4 to 4.8%) compared to adults (less than 1%). Pleural tuberculosis was more frequent among children (less than 15 years of age) and adults (15 – 44 years) than among patients aged over 45 years.

The site of disease varied also by sex. As in 1997, among patients over 15 years of age, women were 1.8 times more likely than men to have extra pulmonary TB without pulmonary localisation (28% versus 15%).

TABLE 2 Major and minor sites of TB disease by age group, 12 countries* reporting individual data

Major or minor site of disease †	Age group (years)							
	0-14		15-44		45 and over		Total ‡	
	N	(%)	N	(%)	N	(%)	N	(%)
Pulmonary	1 224	(59.6)	16 177	(80.0)	12 775	(83.4)	30 200	(80.3)
Pleural	245	(11.9)	2 563	(12.7)	1 181	(7.7)	3 998	(10.6)
Lymphatic intrathoracic	390	(19.0)	233	(1.2)	108	(0.7)	732	(1.9)
Lymphatic extrathoracic	169	(8.2)	1 018	(5.0)	634	(4.1)	1 822	(4.8)
Spine	15	(0.7)	133	(0.7)	119	(0.8)	267	(0.7)
Bone/joint other than spine	39	(1.9)	142	(0.7)	202	(1.3)	384	(1.0)
Meningeal	70	(3.4)	104	(0.5)	80	(0.5)	254	(0.7)
CNS § other than meningeal	3	(0.1)	20	(0.1)	10	(0.1)	33	(0.1)
Genito-urinary	5	(0.2)	124	(0.6)	353	(2.3)	482	(1.3)
Peritoneal/digestive	12	(0.6)	223	(1.1)	135	(0.9)	372	(1.0)
Disseminated ||	45	(2.2)	203	(1.0)	209	(1.4)	457	(1.2)
Other	40	(1.9)	290	(1.4)	286	(1.9)	616	(1.6)
Unknown	7	(0.3)	23	(0.1)	18	(0.1)	48	(0.1)

Note: added % exceed 100% because some patients were reported with more than one site of disease
* Austria, Belgium, Estonia, Iceland, Luxembourg, Malta, Norway, Romania, Slovakia, Slovenia, Switzerland, United Kingdom (except Scotland)
† Except for pulmonary localisation, which is always classified as major site
‡ Including 38 cases with unknown age
§ CNS = Central Nervous System
|| includes: – miliary tuberculosis
– tuberculosis in which *M. tuberculosis* complex has been isolated from the blood
– tuberculosis of more than two organ systems

Differences were also observed by geographic origin. Data were analysed for 16 countries providing individual data with more than 5% of TB cases in patients of foreign origin, of which 14 are situated in the West. Croatia was excluded from the analysis due to the high proportion of missing information on geographic origin (42%). In patients of foreign origin, extra pulmonary tuberculosis (without pulmonary localisation) were significantly more frequent than in nationals (37% vs 18%) while pulmonary cases were less frequent (63% vs 82%).

4.7 Bacteriology results

4.7.1 Culture

Aggregate data by culture result were collected for the first time for 1998. Data were provided overall from 38 countries, in seven of which access to culture is limited to some areas of the country (Table 11). Data from Croatia and Germany were provided through a complementary national survey including respectively 65% and 60% of cases notified in 1998. Overall, 50% of the cases notified in 1998 were culture confirmed.

In the 31 countries with access to culture in the whole country, proportions of culture confirmed cases were 57% in the West (range: 24-100%), 50% in the Centre (range 31-77%) and 54% in the Baltic countries (range: 49-66%). In countries providing individual data, proportions of culture positive cases were higher among pulmonary cases compared to extrapulmonary cases in the West (63% vs. 50%), in the Centre (61% vs. 9%, due to very low proportions of culture positive extrapulmonary cases in the Czech Republic and Romania) and in Estonia (68% vs. 37%).

The overall proportion of culture positive cases was similar in the 21 countries using culture only (49%) and in the 10 countries using both culture and/or sputum smear (51%) to classify cases as definite. However, it should be noted that several countries (Table 11) changed the definition of definite cases (culture positive only) in 1998, and the impact of this change on diagnostic practices and on notifications may not yet be fully visible.

Negative culture and unknown culture result / culture not performed were provided as separate categories from 29 countries (Table 11). In these countries, 46% of cases were culture positive, 22% were negative and 32% had unknown results or had no culture performed. The proportion of cases with unknown culture result or culture not performed was 25% or higher in 12 countries, including three countries with limited access to culture.

In countries providing individual data it was possible to separate cases with culture done but results unknown (> 10% of cases in Italy, Malta, Romania and the United Kingdom), culture not done (ranging from 0 in 10 countries to 10% in Romania, 25% in Malta and 30% in Austria) and no information on culture (6% overall, ranging from 0 in 7 countries to 22% in Finland and Italy and 48% in the Netherlands, due to incomplete follow up at time of data collection).

The differences in the proportion of culture positive cases between countries may be explained by differences in diagnostic practices or in notification systems. High proportions of cases with unknown culture result or culture not performed may be due to one or more of the following reasons:

- culture may not be available in the whole country, as in Romania.
- culture is not requested routinely for all suspected cases or not reported, especially in countries in which sputum smear is also accepted for bacteriological confirmation of the cases.
- laboratories do not participate in the case notification system (e.g. France) or are requested to report only positive culture results (e.g. Denmark and Finland). In the latter case, culture results are then recorded in the notification data set either as positive or as unknown, resulting in a high proportion of cases with unknown information on culture.
- data are still incomplete at the time of European data collection, for example in the Netherlands, where culture results are actively collected at a later time with treatment outcome results.

Time trends in the proportion of culture confirmed cases could be analysed in countries providing individual data but are inconclusive due to the varying numbers of cases with missing information.

4.7.2 Sputum smear

Results of sputum smear for pulmonary / respiratory cases were provided from 42 countries (Table 13). Overall, the proportion of cases with positive sputum smear was higher in the Centre (average 52%, range 28-66%) compared to the West (41%; range 26-60%) and the East (29%; range 20-48%).

In countries providing individual data, data could be analysed according to both culture and sputum smear results (Table 14). Among pulmonary cases with positive culture, the proportion of cases with positive sputum smear ranged from 33% to 75% with a higher proportion in countries in the Centre and East (67%) compared to the West (53%).

Several factors may affect the proportion of sputum smear positive cases including the classification used for definite cases and the use of diagnostic procedures (cases with a positive smear on bronchoalveolar lavage (BAL) may not have a subsequent sputum smear examination and are not classified as positive smear cases.

4.7.3 Bacteriologically confirmed cases

The proportions of cases with positive culture and / or positive sputum smear (bacteriologically confirmed cases) were calculated in countries providing individual data (Table 14). Overall, around two thirds of all notified cases with information on site of TB were bacteriologically confirmed (West: 64%; Centre 66%; Estonia: 68%). Proportions of bacteriologically confirmed cases among pulmonary cases were 75% overall (West: 73%; Centre 76%; Estonia: 71%).

DRUG SUSCEPTIBILITY TESTING (DST)

5.1 Data presentation

Drug susceptibility testing (DST) results as well as data on the organisation of drug resistance surveillance were requested from all countries in the West, the Centre and from Baltic countries in the East. Data were provided from 29 countries: 18 countries in the West, 8 in the Centre and the three Baltic countries.

DST results are presented divided in three groups of countries (Tables 15-18):

- 21 countries providing DST results for > 35% of all notified cases
- 5 countries providing DST results for ≤ 35% of notified cases
- 3 countries providing DST results not related to TB notifications

This grouping of countries aims to avoid over-interpretation of data and comparison of data with different characteristics and meaning. In the 26 countries providing results on notified cases, and particularly in those providing individual DST results, it is possible to compare cases with DST results to other notified cases in order to assess the representativeness of drug resistance data. The five countries providing DST results for <35% of notified cases reported low proportions of culture positive cases or provided DST results for a limited proportion of culture positive cases which may both result in low representativeness of DST results.

In the three countries reporting data not related to TB notification, information on other TB cases diagnosed in participating laboratories or clinical Centres is limited. Additional information needed to assess the representativeness of results was not collected systematically or not available, and data from these countries should not be considered as representative of the country situation.

Proportions of resistant cases presented in Tables 16-18 include cases with resistance to one drug alone or in any combination with resistance to the three other drugs on which information was collected. Proportions of drug resistant cases are calculated using as a denominator cases with available DST results. Proportions of cases resistant to ethambutol or streptomicin are not shown for some countries because resistance to these drugs was not systematically tested in all cases.

5.2 Laboratory practices

Among the 29 countries providing DST results, culture was available in the whole country in 25 countries and only in some areas in Albania, Greece, Romania and Yugoslavia. In all the countries, DST was performed using the internationally recommended methods **[2]** by a single laboratory in 10 countries, 2-10 laboratories in 10 countries and more than 10 laboratories in nine countries (Table 15). Among the 18 countries with more than one laboratory performing DST, a national proficiency testing scheme existed in 14 countries (not in Greece, Ireland, Netherlands and Yugoslavia).

A national Reference Laboratory (NRL) for *Mycobacteria* existed in all countries except Ireland, Malta and Yugoslavia. The NRL (or another laboratory) had participated, in 1998 or in a previous year, in an international proficiency testing programme in all countries except Greece, Luxembourg and the FYR of Macedonia. The proportion of agreement with the supranational reference laboratory for isoniazid and rifampicin (information provided from 20 countries) was 100% in 14 countries, 90-98% in 5 countries and 65% in one country (not shown).

5.3 Drug resistance results in 1998

5.3.1 Countries providing DST results for notified cases

In the 26 countries providing data on notified cases (Table 15), DST results refer to culture positive cases notified in the country (shown in Table 11) except:

- Germany, where data were collected through a complementary survey carried out on TB cases notified in 290/430 public health services, covering all regions and including 60% of cases notified in the country;

- Romania and Yugoslavia, where culture is available only in some regions and DST results were provided on TB cases notified respectively from 13/47 regions (30% of notified cases) and from the region of Belgrade (29% of notified cases).

- the Czech Republic, Israel, and Yugoslavia, where results were provided on pulmonary cases only.

In other countries, minor differences between Tables 11 and 15 in the numbers of culture positive cases may be due to later data collection of DST results compared to other bacteriological data.

The proportion of culture positive cases among notified cases varied widely across countries (range: 25-100%) and was lower than 50% in Albania, Hungary, Lithuania, Macedonia and Malta. DST results were available for over 97% of culture positive cases in 17 countries, 91% in Slovenia and the United Kingdom, 87% in Switzerland, 78% in Germany, 72% in Finland, 62% in the Czech Republic, 49% in Hungary and 46% in Romania. Because of the low proportion of culture positive cases, missing DST results, or both, the proportion of notified TB cases with available DST results was 35% or lower in five countries (Albania, Hungary, Macedonia, Malta and Romania, shown separately in Tables 15-18).

Countries providing DST results for > 35% of notified cases

Overall, in the 21 countries providing DST results for >35% of TB cases notified, 28.511 TB cases were notified, 17,692 (62%) were culture positive and 15,593 (55%) had DST results available. In these countries, compared to the other TB cases notified in 1998, cases with DST results were more frequently males (except in the Netherlands, Norway, Slovakia and Switzerland), aged 25-44 years and, in most western countries, of foreign origin.

Three of the countries (Czech Republic, Finland and Israel) did not provide DST data by previous treatment status. As previous treatment is a major determinant of drug resistance data from these three countries cannot be interpreted reliably. Among countries providing individual data, the proportions of cases previously treated were slightly lower among cases with DST results (7%) compared to the other notified cases (9%) except in Estonia (18% versus 13%) and Slovakia (21% versus 15%).

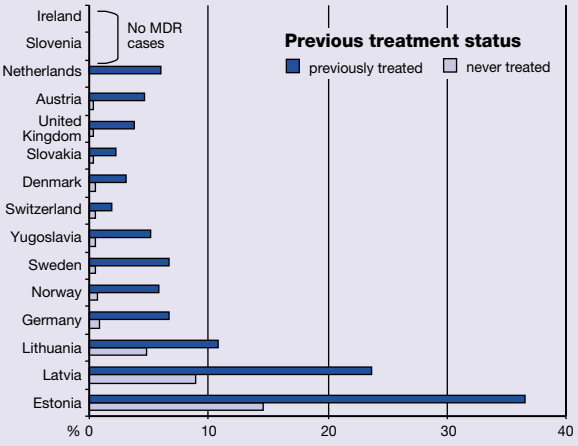
Overall results

In the 18 countries with at least 50 TB cases notified in 1998, the overall proportions of resistant cases were much higher in the Baltic countries and in Israel compared to the other 17 countries in the West and in the Centre (Table 17). Proportions of cases resistant to at least isoniazid were 13-30% in Baltic countries and Israel compared to 1-8% in the other countries (median 4.4%). For rifampicin, proportions of resistant cases were 7-20% in the Baltic countries and Israel compared to 0-2.5% (median 0.9%) in the other countries. Proportions of multidrug resistant (MDR) cases were 6-18% in the Baltic countries and Israel and 0-2.2% (median: 0.7%) in the other countries. For ethambutol proportions of resistant cases were 2-19% in the Baltic countries and Israel compared with 0-2% (median 0.4%; Germany excluded). For streptomicin proportions were respectively 12-35% compared with 1-12% (median 2%; Austria, Germany, Norway, Switzerland and United Kingdom excluded).

Previous treatment

Among cases with DST results, the proportions of previously treated cases were 18-22% in the Baltic countries and ranged from 7% in Denmark to 21% in Slovakia (median: 9%) in the countries in the West and in the Centre. Proportions of drug resistant cases were lower among patients never treated compared to patients previously treated (Table 17). For example, in the Baltic countries proportions of cases resistant to isoniazid were 12-25% among cases never treated and 17-50% among cases previously treated. In the other countries proportions were respectively 0.7-7.0% among cases never treated (median 3.9%) and 0-18% (median: 10%) among cases previously treated. Proportions of MDR cases among cases never treated were 5 - 15% in the three Baltic countries. and below 1% in the countries in the West and in the Centre (Figure 5).

FIGURE 5 **Proportion of multi drug resistant cases in countries providing DST results for > 35% of TB cases***



* and notifying at least 50 cases in 1998

The proportion of drug resistance among patients previously treated, together with the overall proportion of patients previously treated among notified patients, reflects to a large extent the quality of anti-tuberculosis treatment. However, in data presented here, numbers of resistant cases previously treated were small and proportions of resistant cases were higher in foreign-born patients, in which previous treatment may have been taken place in the countries of origin.

Geographic origin

Another important determinant of drug resistance levels is the geographic origin of TB cases, because patients born in countries with high TB incidence have a higher probability of having both primary and acquired drug resistances. DST results by geographic origin were not provided from Latvia and Yugoslavia (Table 18). Among the countries in the Centre and in the West, foreigners represented from 0 (Czech Republic and Slovakia) to 87% (Israel) of tested cases with information on geographic origin (median: 54%).

In countries in the West and Centre with >50 TB cases notified in 1998, the proportions of resistant cases were consistently higher among patients of foreign origin, except in the Netherlands and Slovenia where proportions were comparable. For example the proportions of MDR cases were 0-2.5% (median 0.3%) among nationals and 0-9% (median 1.4%) among patients of foreign origin which represented 76% of MDR cases diagnosed in these countries. Patients of African or Asian origin had higher proportions of drug resistance compared to patients originating from foreign countries in Europe (not shown).

Differences in drug resistance by geographic origin should not be over-interpreted. Drug resistance may result from infection or treatment both in the country of origin or in the country of diagnosis. In addition, the numbers of patients were too small to allow meaningful comparisons between individual countries, patterns of migration into European countries differ and no information is available on time of immigration.

Drug resistance among patients never treated and born in the country / was analysed in individual data available from 11 countries, as an indicator of transmission of drug resistant bacilli within the country. In Estonia, proportions of drug resistant cases were also slightly higher among patients under 35 years of age compared to older patients (36% versus 20% for isoniazid, 23% versus 12% for rifampicin). In the other countries, the proportions of resistant cases were higher for isoniazid in patient under 35 years (average: 3.2%) compared to older patients (average 2.3%) and were similar in the two age groups for rifampicin and for multidrug resistance. The higher level of drug resistance observed among younger patients in Estonia seems to indicate a high level of transmission of drug resistant tubercle bacilli during recent years.

Countries providing DST results for <35% of notified TB cases

Among the five countries with DST results available on less than 35% of notified cases, overall proportions of resistant cases were high in Hungary and Romania (MDR cases 5% and 4% respectively) and, as in other countries, lower among cases never treated (MDR cases 4% and 2% respectively) compared to cases previously treated. However, due the low proportion of culture positive cases with DST results (Hungary, Romania), the partial geographic coverage (Romania), and the lack of results

by previous treatment status (Albania, FYR of Macedonia) data from these countries should not be considered representative of the country situation.

5.3.2 Countries providing DST results not related to TB notifications

In France, Greece and Italy, DST results were provided from a source not linked to TB notifications (Table 15). Very little information is available on the patient population from which cases with DST results derive, and data may include an unknown proportion of cases not notified in 1998. Data from these countries represent selected samples of TB cases possibly not representative of the drug resistance situation in the countries.

In France data were collected through a network of 19 university hospital laboratories in 11/22 regions. DST results were available for 99% of culture positive cases diagnosed in those laboratories. However, information on other TB patients (not confirmed by culture) diagnosed in the clinical centres referring to the participating laboratories is not available; regional representativeness of data provided could not be estimated by comparison with notifications, due to incomplete data on culture results in France. Overall, resistance level in data from France are similar to those reported from other countries in western Europe but their representativeness should be assessed carefully.

In Greece, DST data are provided by all the three laboratories, which perform DST. However DST is performed systematically only for recurrent cases, which are rarely notified (2% of cases in 1998). This probably results in overestimated proportions of resistant cases. Total numbers of culture positive cases diagnosed in these Centres and data by previous treatment status were not available. Therefore the levels of resistance, higher compared to other countries in the West and in the Centre, are difficult to be interpreted.

In Italy, data derive from a subset of 46 laboratories and clinical centres from 13/20 regions. Proportions of resistant cases are very high (e.g. 37% of MDR cases among previously treated cases), suggesting that participating Centres are likely to care for complex cases with higher probability of resistance (Table 17). Neither the total number of TB cases nor the total number of culture positive cases diagnosed in participating centres were available. Therefore, data from Italy should not be considered as representative of the country situation.

5.4 Discussion on drug resistance data

DST results were presented in detail and compared for countries where proportions of culture confirmed cases are high and DST results are available for the majority of culture positive cases. Among these countries the level of drug resistance were found to be relatively low in the West and the Centre, particularly among patients never treated. Levels of drug resistance among patients previously treated are higher and more variable, partly due to differences in the recommendations for notification of recurrent TB cases. Data show consistently lower proportions of resistant cases among patients born in (or citizens of) the country of report compared to those originating from foreign countries. DST results presented indicate that tuberculosis control in general and tuberculosis treatment remain of good quality in many countries in the West and in the Centre. Standardised complementary information should be collected from countries in which DST results are not related to TB notification or have limited geographic coverage, in order to assess the representativeness of DST data provided.

Resistance levels were much higher in Baltic countries, among both never treated and previously treated cases indicating that in recent years resistant strains have emerged and have been transmitted in the population as a consequence of sub-optimal performance of treatment programmes. Data from other former Soviet Union countries will be collected from 1999 and should provide a more complete picture of the situation in Eastern Europe.

Although data on DST should not be taken as representative for Europe as a whole, and data standardisation and presentation need to be further improved, they demonstrate that surveillance of drug resistance as part of the tuberculosis notification system is feasible and can provide a relevant contribution to the evaluation of TB programmes.

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TABLES BY COUNTRY

Table 3: Inclusion of specific population groups in tuberculosis notifications, WHO European Region, 1998

Geographic area Country	Foreigners			Prisoners	Military personnel	Homeless persons	Persons with HIV/AIDS	Institutionalised persons
	Legal residents	Asylum seekers	Illegal residents					
West								
Austria	□	□	□	□	□	□	□	□
Belgium	□	□	□	□	□	□	□	□
Denmark	□	□	□	□	□	□	□	□
Finland	□	□	□	□	□	□	□	□
France	□	□	□	□	□	□	□	□
Germany	□	□	□	□	□	□	□	□
Greece	□	□	□		□	□	□	□
Ireland	□	□	□	□	□	□	□	□
Italy	□	□	□	□	□	□	□	□
Luxembourg	□	□	□	□	□	□	□	□
Netherlands	□	□	□	□	□	□	□	□
Portugal	□	□	□	□	□	□	□	□
Spain	□	□	□	□	□	□	□	□
Sweden	□	□	□	□	□	□	□	□
United Kingdom	□	□	□	□	□	□	□	□
Subtotal EU	**15**	**15**	**15**	**14**	**15**	**15**	**15**	**15**
Andorra	□							
Iceland	□	□	□	□	□	□	□	□
Israel	□	□	□	□	□	□	□	□
Malta	□	□	□	□	□	□	□	□
Monaco *	–	–	–	–	–	–	–	–
Norway	□	□	■	□	□	□	□	□
San Marino	□			□	□	□	□	□
Switzerland	□	□	□	□	□	□	□	□
Total West	**22**	**20**	**20**	**20**	**21**	**21**	**21**	**21**
Centre								
Albania		■		■	□	□	□	□
Bosnia-Herzegovina †	□	□	□	□	□	□	□	□
Bulgaria	□	□	□	□	□	□	□	□
Croatia	□	□	□	□	□	□	□	□
Czech Republic	□	□	□	□	□	□	□	□
Hungary	□	□	□	□	□	□	□	□
Macedonia, FYR				■	□	□	□	
Poland				□	□		□	□
Romania	□				□	□	□	□
Slovakia	□	□			□		□	□
Slovenia	□	□	■	□	□	□	□	□
Turkey								
Yugoslavia	□	□		■		□		□
Total Centre	**9**	**9**	**6**	**10**	**11**	**10**	**11**	**11**
East								
Armenia	□			□	□	□	□	□
Azerbaijan ‡				■	■		□	□
Belarus							□	□
Estonia	□	□	□	□	■	□	□	□
Georgia ‡	□	□	□			□	□	□
Kazakhstan	□			□	□	□	□	□
Kyrgyzstan								
Latvia	■	□		□	□	□	□	□
Lithuania	■	□	■	□	□	□	□	□
Moldova, Republic of	□				□	□	□	□
Russian Federation	■	■	■	■	■	■	■	■
Tajikistan	□	■						
Turkmenistan ‡				□	□	□	□	□
Ukraine	□	□	□	□	□	□	□	□
Uzbekistan								
Total East	**10**	**7**	**5**	**9**	**10**	**10**	**12**	**12**
Total WHO European Region	**41**	**36**	**31**	**39**	**42**	**41**	**44**	**44**

* No information provided † Foreigners not included in Republic Srpska
‡ Information provided for 1997 □ : included before 1998 ■ : included for the first time in 1998

Table 4: Data provided to EuroTB, WHO European Region, 1998

Geographic area Country	Type of data	Previous TB diagnosis	Sex	Age	Geographic origin	Site of disease	Sputum smear	Culture *	Anti TB drug resistance *
West									
Austria	individual	□	□	□	□	□	□	□	■
Belgium	individual	□	□	□	□	□	□	□	
Denmark	individual †	□	□	□	□	□	□	□	□
Finland	individual		□	□	□	□	□	□	□
France	aggregate	□	□	□	□	□	□	□	□
Germany	aggregate		□	□	□	□	□	□	□
Greece	aggregate	■	■	■	■	■	■	□	□
Ireland	individual	□	□	□	□	□	■	■	■
Italy	individual †		□	□	□	□	□	□	■
Luxembourg	individual	□	□	□	□	□	□	□	□
Netherlands	individual	□	□	□	□	□	□	□	□
Portugal	aggregate	□	□	□		□	□	□	
Spain	aggregate	■	■	■	■	■	■	□	
Sweden	individual	□	□	□	□	□	□	□	□
United Kingdom	individual	□	□	□	■	□	■	■	■
Subtotal EU		**12**	**15**	**15**	**14**	**15**	**15**	**15**	**12**
Andorra	aggregate	□	□	□	□	□	■	□	□
Iceland	individual	□	□	□	□	□	□	□	□
Israel	aggregate	□	□	□	□	□	□	□	□
Malta	individual	□	□	□	□	□	□	□	■
Monaco ‡	aggregate								
Norway	individual	□	□	□	□	□	□	□	□
San Marino ‡	aggregate								
Switzerland	individual	□	□	□	□	□	□	□	□
Total West		**18**	**21**	**21**	**20**	**21**	**21**	**21**	**18**
Centre									
Albania	aggregate	□	□	□		□	□	□	□
Bosnia-Herzegovina	aggregate	□	□	□		□	□	□	
Bulgaria	aggregate					■	□	□	
Croatia	individual	□	□	□	□	□	□	□	
Czech Republic	individual †	□	□	□	□	□	□	□	■
Hungary	aggregate	□	□	□	□	□	□	□	□
Macedonia, FYR	aggregate	□	□	□		□	□	□	□
Poland	aggregate	□	□	□		□	□	□	
Romania	individual	□	□	□	□	□	□	□	■
Slovakia	individual	□	□	□	□	□	□	□	□
Slovenia	individual	□	□	□	□	□	□	□	□
Turkey	aggregate	□				■	■		
Yugoslavia	aggregate	□	□	□		□	□	□	□
Total Centre		**12**	**11**	**11**	**6**	**12**	**12**	**12**	**8**
East									
Armenia	aggregate	□	□	□	□	□	□		
Azerbaijan	aggregate	■	■	■		■	■	□	
Belarus	aggregate								
Estonia	individual	□	□	□	□	□	□	□	□
Georgia	aggregate	□	□	□	□	□	□		
Kazakhstan	aggregate	□	□	□		□	□		
Kyrgyzstan	aggregate	□	■	■		■	■	■	
Latvia	aggregate	□	□	□	□	□	□	□	□
Lithuania	aggregate	□	□	□	□	□	□	□	□
Moldova, Republic of	aggregate	□	□	□	□	□	□	□	
Russian Federation	aggregate	□	■	■		■			
Tajikistan	aggregate	□	■	■		■			
Turkmenistan	aggregate		■	■		■	■	■	
Ukraine	aggregate	□	■	■		■	■	■	
Uzbekistan	aggregate	□				□	□		
Total East		**13**	**8**	**8**	**6**	**9**	**9**	**5**	**3**
Total WHO European Region		**43**	**40**	**40**	**32**	**42**	**42**	**38**	**29**

* Data collected for the first time in 1998 for countries providing aggregate data on TB cases † Except DST data
‡ No cases notified in 1998 ■ Information provided on new cases only ■ Data provided for the first time in 1998

Table 5: Tuberculosis cases and annual notification rates per 100 000 population, WHO European Region, 1995-1998

Geographic area / Country	1995 N	1995 Rate	1996 N	1996 Rate	1997 N	1997 Rate	1998 N	1998 Rate
West								
Austria	1 383	17.4	1 445	18.0	1 369	17.0	1 311	16.1
Belgium	1 380	13.6	1 352	13.3	1 263	12.4	1 203	11.9
Denmark	448	8.6	484	9.3	554	10.6	529	10.0
Finland	662	13.0	644	12.6	573	11.1	629	12.2
France	8 723	14.7	7 656	12.8	6 832	11.4	6 651	11.0
Germany	12 198	15.0	11 814	14.4	11 163	13.6	10 440	12.7
Greece	939 *	9.0 *	945 *	9.0 *	767 *	7.2 *	1 152	10.9
Ireland	458	12.9	434	12.2	416	11.6	424	11.5
Italy	5 225	9.1	5 152	9.0	5 176	9.0	4 795	8.4
Luxembourg	32	7.9	36	8.8	38	9.1	44	10.4
Netherlands	1 619	10.4	1 678	10.8	1 486	9.4	1 341	8.6
Portugal	5 577	56.8	5 248	53.5	5 112	52.0	5 260	53.3
Spain	8 764 †	22.1 †	8 331 †	21.0 †	9 347 †	23.5 †	9 111 †	22.9 †
Sweden	564	6.4	493	5.6	456	5.1	446	5.0
United Kingdom	6 161	10.6	6 240	10.7	6 355	10.8	6 176	10.5
Subtotal EU	**54 133**	**14.5**	**51 952**	**13.9**	**50 907**	**13.6**	**49 512**	**13.2**
Andorra	–	–	17	26.6	19	29.5	8	12.4
Iceland	12	4.5	11	4.1	10	3.6	17	6.2
Israel	398	7.1	415	7.2	422	7.2	656	11.0
Malta	10	2.7	29	7.9	11	2.9	16	4.2
Monaco	1	3.1	0	0.0	0	0.0	0	0.0
Norway	236	5.4	217	5.0	205	4.6	244	5.5
San Marino	2	8.0	0	0.0	1	3.8	0	0.0
Switzerland	830	11.5	764	10.5	747	10.1	749	10.3
Total West	**55 622**	**14.2**	**53 405**	**13.6**	**52 322**	**13.3**	**51 202**	**13.0**
Centre								
Albania	664	19.3	707	20.4	655	18.6	694	22.3
Bosnia-Herzegovina	2 132	61.6	2 220	62.9	2 869	77.5	3 071	83.6
Bulgaria	3 245	37.0	3 109	35.6	3 437	40.8	4 117	49.4
Croatia	2 114 ‡	47.0	2 174	48.5	2 054	45.9	2 118	47.3
Czech Republic	1 851	18.0	1 936	18.8	1 834	17.7	1 805	17.6
Hungary	4 339	42.9	4 278	42.5	4 240	42.2	3 999	39.5
Macedonia, FYR	786	36.3	724	33.2	693	31.5	620	31.0
Poland	15 959	41.6	15 358	39.9	13 967	36.2	13 302	34.4
Romania	23 271	101.9	24 113	105.9	23 903	105.2	25 758	114.6
Slovakia	1 537	28.7	1 499	27.9	1 298	24.1	1 282	23.8
Slovenia	525	27.0	563	28.9	481	24.6	449	22.5
Turkey	23 035	37.2	23 533	37.3	25 685	40.0	25 501	39.5
Yugoslavia	4 169	38.4	4 541	41.8	4 062	37.4	3 028 §	35.9 §
Total Centre	**83 627**	**45.4**	**84 755**	**45.7**	**85 178**	**45.6**	**85 744**	**46.7**
East								
Armenia	836	23.2	935	25.6	1 026	27.8	1 455	41.1
Azerbaijan	3 306	43.7	5 006	65.5	4 635 ‖	60.0	4 350	56.7
Belarus	5 092	50.2	5 619	55.5	5 985	59.2	5 595	54.2
Estonia	608	39.7	683	44.9	744	49.1	818	57.2
Georgia	–	–	10 641	194.7	8 446	154.1	6 302	124.6
Kazakstan	11 095 *	64.8 *	13 559 *	78.8 *	16 109	93.0	20 623	126.4
Kyrgyzstan	3 380	71.2	4 086	84.7	5 189	105.8	5 935	127.8
Latvia	1 541	60.3	1 761	69.4	2 003	79.5	2 182	90.0
Lithuania	2 362	63.8	2 608	70.6	2 926	79.2	3 016	81.7
Moldova, Republic of	2 753	62.1	2 922	65.7	2 908	65.2	2 891	66.0
Russian Federation	96 828	65.9	110 897	75.6	119 123	81.3	121 917	82.7
Tajikistan	2 029 ‡	33.3	1 647	26.3	2 143	33.2	2 503	41.6
Turkmenistan	2 009	49.0	2 149	51.3	3 438	80.3	3 712 *	86.1 *
Ukraine	21 459 ‡	41.8	26 834	52.3	28 344	55.3	31 318	61.6
Uzbekistan	9 866	43.2	11 919	51.1	13 352	56.0	13 958	59.2
Total East	**163 164**	**56.9**	**201 266**	**68.7**	**216 371**	**73.7**	**226 575**	**77.7**
Total WHO European Region	**302 413**	**35.1**	**339 426**	**39.0**	**353 871**	**40.5**	**363 521**	**41.8**

* New cases only ‡ Source: Global Tuberculosis Control, WHO Report 2000, WHO/CDS/TB/2000.275
† Until 1996, New respiratory cases only; since 1997 new and recurrent respiratory and meningeal cases § Without Kosovo and Metohia

Table 6: Tuberculosis cases according to previous TB diagnosis, WHO European Region, 1998

Geographic area Country	Case status according to previous TB diagnosis						Total
	New		Recurrent		Unknown		
	N	(%)	N	(%)	N	(%)	N
West							
Austria	1 157	(88)	154	(12)	0	(0)	1311
Belgium	936	(78)	129	(11)	138	(11)	1 203
Denmark	486	(92)	43	(8)	0	(0)	529
Finland	–	–	–	–	–	–	–
France	5 981	(90)	670	(10)	0	(0)	6 651
Germany	–	–	–	–	–	–	–
Greece	1 133	(98)	19	(2)	0	(0)	1 152
Ireland	185	(44)	39	(9)	200	(47)	424
Italy	–	–	–	–	–	–	–
Luxembourg	40	(91)	4	(9)	0	(0)	44
Netherlands	1 007	(75)	168	(13)	166	(12)	1 341
Portugal	4 685	(89)	575	(11)	0	(0)	5 260
Spain *	3 730	(41)	220	(2)	5 161	(57)	9 111
Sweden	373	(84)	73	(16)	0	(0)	446
United Kingdom	4 198	(68)	448	(7)	1 530	(25)	6 176
Subtotal EU	**23 911**	**(71)**	**2 542**	**(8)**	**7 195**	**(21)**	**33 648**
Andorra	7	(88)	1	(13)	0	(0)	8
Iceland	12	(71)	5	(29)	0	(0)	17
Israel	617	(94)	39	(6)	0	(0)	656
Malta	10	(63)	6	(38)	0	(0)	16
Monaco	–	–	–	–	–	–	0
Norway	174	(71)	70	(29)	0	(0)	244
San Marino	–	–	–	–	–	–	0
Switzerland	567	(76)	81	(11)	101	(13)	749
Total West	**25 298**	**(72)**	**2 744**	**(8)**	**7 296**	**(21)**	**35 338**
Centre							
Albania	671	(97)	23	(3)	0	(0)	694
Bosnia-Herzegovina	2 745	(89)	312	(10)	14	(0)	3 071
Bulgaria	–	–	–	–	–	–	–
Croatia	1 189	(56)	183	(9)	746	(35)	2 118
Czech Republic	1 588	(88)	66	(4)	151	(8)	1 805
Hungary	3 375	(84)	624	(16)	0	(0)	3 999
Macedonia, FYR	568	(92)	52	(8)	0	(0)	620
Poland	11 826	(89)	1 476	(11)	0	(0)	13 302
Romania	23 015	(89)	2 743	(11)	0	(0)	25 758
Slovakia	1 046	(82)	236	(18)	0	(0)	1 282
Slovenia	404	(90)	45	(10)	0	(0)	449
Turkey	20 776	(81)	4 725	(19)	0	(0)	25 501
Yugoslavia †	2 799	(92)	207	(7)	22	(1)	3 028
Total Centre	**70 002**	**(86)**	**10 485**	**(13)**	**933**	**(1)**	**81 627**
East							
Armenia	1 420	(98)	35	(2)	0	(0)	1 455
Azerbaijan	4 277	(98)	73	(2)	0	(0)	4 350
Belarus	–	–	–	–	–	–	–
Estonia	688	(84)	130	(16)	0	(0)	818
Georgia	4 644	(74)	1 658	(26)	0	(0)	6 302
Kazakhstan	18 505	(90)	2 118	(10)	0	(0)	20 623
Kyrgyzstan	5 770	(97)	165	(3)	0	(0)	5 935
Latvia	1 820	(83)	362	(17)	0	(0)	2 182
Lithuania	2 690	(89)	326	(11)	0	(0)	3 016
Moldova, Republic of	2 545	(88)	346	(12)	0	(0)	2 891
Russian Federation	110 935	(91)	10 982	(9)	0	(0)	121 917
Tajikistan	2 447	(98)	56	(2)	0	(0)	2 503
Turkmenistan	3 712	(100)	–	–	–	–	3 712
Ukraine	27 763	(89)	3 555	(11)	0	(0)	31 318
Uzbekistan	13 403	(96)	555	(4)	0	(0)	13 958
Total East	**200 619**	**(91)**	**20 361**	**(9)**	**0**	**(0)**	**220 980**
Total WHO European Region	**295 919**	**(88)**	**33 590**	**(10)**	**8 229**	**(2)**	**337 945**

* Respiratory and meningeal cases only † Without Kosovo and Metohia

Table 7: Tuberculosis cases by sex, WHO European Region, 1998

Geographic area / Country	Sex						Total	sex ratio *
	Male		Female		Unknown			
	N	(%)	N	(%)	N	(%)	N	
West								
Austria	802	(61)	509	(39)	0	(0)	1 311	1.6
Belgium	775	(64)	428	(36)	0	(0)	1 203	1.8
Denmark	291	(55)	238	(45)	0	(0)	529	1.2
Finland	331	(53)	298	(47)	0	(0)	629	1.1
France	3 962	(60)	2 658	(40)	31	(0)	6 651	1.5
Germany	6 632	(64)	3 808	(36)	0	(0)	10 440	1.7
Greece	741	(64)	411	(36)	0	(0)	1 152	1.8
Ireland	262	(62)	162	(38)	0	(0)	424	1.6
Italy	2 921	(61)	1 871	(39)	3	(0)	4 795	1.6
Luxembourg	31	(70)	13	(30)	0	(0)	44	2.4
Netherlands	786	(59)	555	(41)	0	(0)	1 341	1.4
Portugal	3 480	(66)	1 780	(34)	0	(0)	5 260	2.0
Spain †	4 520	(50)	2 093	(23)	2 498	(27)	9 111	2.2
Sweden	217	(49)	229	(51)	0	(0)	446	0.9
United Kingdom	3 432	(56)	2 742	(44)	2	(0)	6 176	1.3
Subtotal EU	**29 183**	**(59)**	**17 795**	**(36)**	**2 534**	**(5)**	**49 512**	**1.6**
Andorra	5	(63)	3	(38)	0	(0)	8	1.7
Iceland	4	(24)	13	(76)	0	(0)	17	0.3
Israel	391	(60)	265	(40)	0	(0)	656	1.5
Malta	12	(75)	4	(25)	0	(0)	16	3.0
Monaco	–	–	–	–	–	–	0	–
Norway	126	(52)	118	(48)	0	(0)	244	1.1
San Marino	–	–	–	–	–	–	0	–
Switzerland	467	(62)	282	(38)	0	(0)	749	1.7
Total West	**30 188**	**(59)**	**18 480**	**(36)**	**2 534**	**(5)**	**51 202**	**1.6**
Centre								
Albania	447	(64)	247	(36)	0	(0)	694	1.8
Bosnia-Herzegovina	1 771	(58)	1 300	(42)	0	(0)	3 071	1.4
Bulgaria	–	–	–	–	–	–	–	–
Croatia	1 382	(65)	736	(35)	0	(0)	2 118	1.9
Czech Republic	1 136	(63)	669	(37)	0	(0)	1 805	1.7
Hungary	2 724	(68)	1 275	(32)	0	(0)	3 999	2.1
Macedonia, FYR	372	(60)	248	(40)	0	(0)	620	1.5
Poland	8 919	(67)	4 383	(33)	0	(0)	13 302	2.0
Romania	18 315	(71)	7 442	(29)	1	(0)	25 758	2.5
Slovakia	807	(63)	475	(37)	0	(0)	1 282	1.7
Slovenia	265	(59)	184	(41)	0	(0)	449	1.4
Turkey	–	–	–	–	–	–	–	–
Yugoslavia ‡	1 896	(63)	1 111	(37)	21	(1)	3 028	1.7
Total centre	**38 034**	**(68)**	**18 070**	**(32)**	**22**	**(0)**	**56 126**	**2.1**
East								
Armenia	1 205	(83)	250	(17)	0	(0)	1 455	4.8
Azerbaijan	3 097	(71)	1 253	(29)	0	(0)	4 350	2.5
Belarus	–	–	–	–	–	–	–	–
Estonia	586	(72)	232	(28)	0	(0)	818	2.5
Georgia	4 295	(68)	2 007	(32)	0	(0)	6 302	2.1
Kazakhstan	11 664	(57)	8 959	(43)	0	(0)	20 623	1.3
Kyrgyzstan $	–	–	–	–	–	–	–	–
Latvia	1 584	(73)	598	(27)	0	(0)	2 182	2.6
Lithuania	1 989	(66)	1 027	(34)	0	(0)	3 016	1.9
Moldova, Republic of	2 017	(70)	874	(30)	0	(0)	2 891	2.3
Russian Federation $	–	–	–	–	–	–	–	–
Tajikistan $	–	–	–	–	–	–	–	–
Turkmenistan $	–	–	–	–	–	–	–	–
Ukraine $	–	–	–	–	–	–	–	–
Uzbekistan	–	–	–	–	–	–	–	–
Total East	**26 437**	**(63)**	**15 200**	**(37)**	**0**	**(0)**	**41 637**	**1.7**
Total WHO European Region	**94 659**	**(64)**	**51 750**	**(35)**	**2 556**	**(2)**	**148 965**	**1.8**

* Sex ratio = number of male cases per 1 female case † Respiratory and meningeal cases only ‡ Without Kosovo and Metohia
$ Provided, on new cases only, not presented

Table 8: Tuberculosis cases by age group, WHO European Region, 1998

Geographic area / Country	Age group (years) 0 - 4 N	(%)	5 - 14 N	(%)	15 - 24 N	(%)	25 - 34 N	(%)	35 - 44 N	(%)
West										
Austria	28	(2)	17	(1)	90	(7)	192	(15)	234	(18)
Belgium	40	(3)	38	(3)	92	(8)	208	(17)	200	(17)
Denmark	12	(2)	36	(7)	67	(13)	149	(28)	90	(17)
Finland	2	(0)	4	(1)	19	(3)	37	(6)	51	(8)
France	160	(2)	173	(3)	603	(9)	1 072	(16)	1 135	(17)
Germany	240	(2)	250	(2)	910	(9)	1 610	(15)	1 686	(16)
Greece	40	(3)	65	(6)	108	(9)	156	(14)	123	(11)
Ireland	9	(2)	16	(4)	50	(12)	65	(15)	46	(11)
Italy	65	(1)	82	(2)	359	(7)	812	(17)	666	(14)
Luxembourg	0	(0)	0	(0)	5	(11)	13	(30)	9	(20)
Netherlands	31	(2)	50	(4)	242	(18)	355	(26)	226	(17)
Portugal	65	(1)	158	(3)	657	(12)	1 178	(22)	1 096	(21)
Spain*	311	(3)	180	(2)	1 065	(12)	1 513	(17)	1 038	(11)
Sweden	4	(1)	16	(4)	66	(15)	83	(19)	52	(12)
United Kingdom	137	(2)	248	(4)	792	(13)	1 271	(21)	910	(15)
Subtotal EU	**1 144**	**(2)**	**1 333**	**(3)**	**5 125**	**(10)**	**8 714**	**(18)**	**7 562**	**(15)**
Andorra	0	(0)	0	(0)	0	(0)	1	(13)	3	(38)
Iceland	1	(6)	0	(0)	4	(24)	4	(24)	1	(6)
Israel	15	(2)	16	(2)	52	(8)	93	(14)	93	(14)
Malta	0	(0)	1	(6)	2	(13)	1	(6)	1	(6)
Monaco	–	–	–	–	–	–	–	–	–	–
Norway	5	(2)	9	(4)	25	(10)	46	(19)	35	(14)
San Marino	–	–	–	–	–	–	–	–	–	–
Switzerland	7	(1)	18	(2)	117	(16)	175	(23)	112	(15)
Total West	**1 172**	**(2)**	**1 377**	**(3)**	**5 325**	**(10)**	**9 034**	**(18)**	**7 807**	**(15)**
Centre										
Albania	2	(0)	25	(4)	88	(13)	124	(18)	113	(16)
Bosnia-Herzegovina	13	(0)	55	(2)	274	(9)	424	(14)	429	(14)
Bulgaria	–	–	–	–	–	–	–	–	–	–
Croatia	27	(1)	66	(3)	166	(8)	227	(11)	411	(19)
Czech Republic	10	(1)	24	(1)	61	(3)	140	(8)	248	(14)
Hungary	5	(0)	17	(0)	170	(4)	357	(9)	834	(21)
Macedonia, FYR	69	(11)	77	(12)	80	(13)	94	(15)	94	(15)
Poland	40	(0)	83	(1)	821	(6)	1 450	(11)	3 064	(23)
Romania	694	(3)	767	(3)	4 044	(16)	4 873	(19)	5 916	(23)
Slovakia	6	(0)	34	(3)	48	(4)	114	(9)	223	(17)
Slovenia	2	(0)	4	(1)	35	(8)	71	(16)	86	(19)
Turkey	–	–	–	–	–	–	–	–	–	–
Yugoslavia †	5	(0)	14	(0)	242	(8)	374	(12)	589	(19)
Total Centre	**873**	**(2)**	**1 152**	**(2)**	**6 029**	**(11)**	**8 248**	**(15)**	**12 007**	**(21)**
East										
Armenia	50	(3)	154	(11)	551	(38)	246	(17)	193	(13)
Azerbaidjan	95	(2)	240	(6)	500	(11)	2 533	(58)	335	(8)
Belarus	–	–	–	–	–	–	–	–	–	–
Estonia	3	(0)	7	(1)	74	(9)	132	(16)	193	(24)
Georgia	190	(3)	814	(13)	1 044	(17)	1 173	(19)	1 181	(19)
Kazakhstan	436	(2)	1 418	(7)	4 198	(20)	5 164	(25)	3 815	(18)
Kyrgyzstan ‡	–	–	–	–	–	–	–	–	–	–
Latvia	37	(2)	89	(4)	269	(12)	423	(19)	447	(20)
Lithuania	14	(0)	156	(5)	283	(9)	452	(15)	599	(20)
Moldova, Republic of	35	(1)	63	(2)	562	(19)	494	(17)	763	(26)
Russian Federation ‡	–	–	–	–	–	–	–	–	–	–
Tajikistan ‡	–	–	–	–	–	–	–	–	–	–
Turkmenistan ‡	–	–	–	–	–	–	–	–	–	–
Ukraine ‡	–	–	–	–	–	–	–	–	–	–
Uzbekistan	–	–	–	–	–	–	–	–	–	–
Total East	**860**	**(2)**	**2 941**	**(7)**	**7 481**	**(18)**	**10 617**	**(25)**	**7 526**	**(18)**
Total WHO European Region	**2 905**	**(2)**	**5 470**	**(4)**	**18 835**	**(13)**	**27 899**	**(19)**	**27 340**	**(18)**

* Respiratory and meningeal cases only † Without Kosovo and Metohia ‡ Provided on new cases only, not presented

Table 8 (cont.): Tuberculosis cases by age group, WHO European Region, 1998

Age group (years)									
45 - 54		55 - 64		> 64		Unknown		Total	Geographic area
N	(%)	N	(%)	N	(%)	N	(%)	N	Country
									West
227	(17)	166	(13)	356	(27)	1	(0)	1 311	Austria
163	(14)	129	(11)	333	(28)	0	(0)	1 203	Belgium
67	(13)	51	(10)	57	(11)	0	(0)	529	Denmark
67	(11)	100	(16)	349	(55)	0	(0)	629	Finland
933	(14)	715	(11)	1 832	(28)	28	(0)	6 651	France
1 364	(13)	1 512	(14)	2 868	(27)	0	(0)	10 440	Germany
104	(9)	119	(10)	314	(27)	123	(11)	1 152	Greece
45	(11)	45	(11)	126	(30)	22	(5)	424	Ireland
568	(12)	642	(13)	1 571	(33)	30	(1)	4 795	Italy
5	(11)	4	(9)	8	(18)	0	(0)	44	Luxembourg
115	(9)	98	(7)	224	(17)	0	(0)	1 341	Netherlands
714	(14)	526	(10)	866	(16)	0	(0)	5 260	Portugal
631	(7)	540	(6)	1 333	(15)	2 500	(27)	9 111	Spain *
22	(5)	33	(7)	170	(38)	0	(0)	446	Sweden
726	(12)	632	(10)	1 455	(24)	5	(0)	6 176	United Kingdom
5 751	**(12)**	**5 312**	**(11)**	**10 407**	**(21)**	**2 709**	**(5)**	**49 512**	**Subtotal EU**
1	(13)	1	(13)	2	(25)	0	(0)	8	Andorra
1	(6)	1	(6)	5	(29)	0	(0)	17	Iceland
86	(13)	74	(11)	227	(35)	0	(0)	656	Israel
2	(13)	2	(13)	7	(44)	0	(0)	16	Malta
–	–	–	–	–	–	–	–	0	Monaco
17	(7)	17	(7)	90	(37)	0	(0)	244	Norway
–	–	–	–	–	–	–	–	0	San Marino
71	(9)	49	(7)	200	(27)	0	(0)	749	Switzerland
5 929	**(12)**	**5 456**	**(11)**	**10 938**	**(21)**	**2 709**	**(5)**	**51 202**	**Total West**
									Centre
132	(19)	109	(16)	101	(15)	0	(0)	694	Albania
395	(13)	463	(15)	788	(26)	230	(7)	3 071	Bosnia-Herzegovina
–	–	–	–	–	–	–	–	–	Bulgaria
386	(18)	322	(15)	513	(24)	0	(0)	2 118	Croatia
354	(20)	274	(15)	694	(38)	1	(0)	1 805	Czech Republic
1 022	(26)	679	(17)	915	(23)	0	(0)	3 999	Hungary
65	(10)	66	(11)	75	(12)	0	(0)	620	Macedonia
2 914	(22)	1 862	(14)	3 068	(23)	0	(0)	13 302	Poland
4 676	(18)	2 856	(11)	1 905	(7)	27	(0)	25 758	Romania
227	(18)	168	(13)	460	(36)	2	(0)	1 282	Slovakia
70	(16)	46	(10)	135	(30)	0	(0)	449	Slovenia
–	–	–	–	–	–	–	–	–	Turkey
545	(18)	505	(17)	733	(24)	21	(1)	3 028	Yugoslavia †
10 654	**(19)**	**7 350**	**(13)**	**9 387**	**(17)**	**281**	**(1)**	**56 126**	**Total Centre**
									East
117	(8)	89	(6)	55	(4)	0	(0)	1 455	Armenia
406	(9)	137	(3)	104	(2)	0	(0)	4 350	Azerbaidjan
–	–	–	–	–	–	–	–	–	Belarus
192	(23)	115	(14)	102	(12)	0	(0)	818	Estonia
690	(11)	662	(11)	548	(9)	0	(0)	6 302	Georgia
2 467	(12)	1 944	(9)	1 181	(6)	0	(0)	20 623	Kazakhstan
–	–	–	–	–	–	–	–	–	Kyrgyzstan ‡
388	(18)	305	(14)	224	(10)	0	(0)	2 182	Latvia
560	(19)	427	(14)	525	(17)	0	(0)	3 016	Lithuania
459	(16)	337	(12)	178	(6)	0	(0)	2 891	Moldova, Republic of
–	–	–	–	–	–	–	–	–	Russian Federation ‡
–	–	–	–	–	–	–	–	–	Tajikistan ‡
–	–	–	–	–	–	–	–	–	Turkmenistan ‡
–	–	–	–	–	–	–	–		Ukraine ‡
–	–	–	–	–	–	–	–	–	Uzbekistan
5 279	**(13)**	**4 016**	**(10)**	**2 917**	**(7)**	**0**	**(0)**	**41 637**	**Total East**
21 862	**(15)**	**16 822**	**(11)**	**23 242**	**(16)**	**2 990**	**(2)**	**148 965**	**Total WHO European Region**

* Respiratory and meningeal cases only † Without Kosovo and Metohia ‡ Provided on new cases only, not presented

Table 9: Tuberculosis cases by geographic origin, WHO European Region, 1998

Geographic area / Country	Information provided	Geographic origin: Born in the country / national N	(%)	Foreign-born / foreign citizen N	(%)	Unknown N	(%)	Total N
West								
Austria	citizenship	1 023	(78)	288	(22)	0	(0)	1 311
Belgium	citizenship	776	(65)	427	(35)	0	(0)	1 203
Denmark	birthplace	184	(35)	344	(65)	1	(0)	529
Finland	birthplace	568	(90)	49	(8)	12	(2)	629
France	citizenship	4 126	(62)	1 595	(24)	930	(14)	6 651
Germany	citizenship	7 149	(68)	3 291	(32)	0	(0)	10 440
Greece	citizenship	1 026	(89)	126	(11)	0	(0)	1 152
Ireland	birthplace	389	(92)	35	(8)	0	(0)	424
Italy	citizenship	3 879	(81)	797	(17)	119	(2)	4 795
Luxembourg	birthplace	19	(43)	25	(57)	0	(0)	44
Netherlands	citizenship	536	(40)	805	(60)	0	(0)	1 341
Portugal	–	–	–	–	–	–	–	–
Spain *	birthplace	3 624	(40)	94	(1)	5 393	(59)	9 111
Sweden	birthplace	177	(40)	269	(60)	0	(0)	446
United Kingdom	birthplace	2 355	(38)	2 970	(48)	851	(14)	6 176
Subtotal EU		**25 831**	**(58)**	**11 115**	**(25)**	**7 306**	**(17)**	**44 252**
Andorra	birthplace	2	(25)	6	(75)	0	(0)	8
Iceland	birthplace	9	(53)	8	(47)	0	(0)	17
Israel	birthplace	96	(15)	560	(85)	0	(0)	656
Malta	birthplace	12	(75)	4	(25)	0	(0)	16
Monaco	–	–	–	–	–	–	–	0
Norway	birthplace	115	(47)	129	(53)	0	(0)	244
San Marino	–	–	–	–	–	–	–	0
Switzerland	birthplace	211	(28)	411	(55)	127	(17)	749
Total West		**26 276**	**(57)**	**12 233**	**(27)**	**7 433**	**(16)**	**45 942**
Centre								
Albania	–	–	–	–	–	–	–	–
Bosnia-Herzegovina †	–	–	–	–	–	–	–	–
Bulgaria	–	–	–	–	–	–	–	–
Croatia	birthplace	1 042	(49)	188	(9)	888	(42)	2 118
Czech Republic	birthplace	1 695	(94)	110	(6)	0	(0)	1 805
Hungary	citizenship	3 989	(100)	10	(0)	0	(0)	3 999
Macedonia, FYR	–	–	–	–	–	–	–	–
Poland ‡	–	–	–	–	–	–	–	–
Romania	citizenship	25 758	(100)	0	(0)	0	(0)	25 758
Slovakia	birthplace	1 281	(100)	1	(0)	0	(0)	1 282
Slovenia	birthplace	368	(82)	81	(18)	0	(0)	449
Turkey ‡	–	–	–	–	–	–	–	–
Yugoslavia §	–	–	–	–	–	–	–	–
Total Centre		**34 133**	**(96)**	**390**	**(1)**	**888**	**(3)**	**35 411**
East								
Armenia	birthplace	1 304	(90)	151	(10)	0	(0)	1 455
Azerbaijan ‡	–	–	–	–	–	–	–	–
Belarus ‡	–	–	–	–	–	–	–	–
Estonia	birthplace	704	(86)	114	(14)	0	(0)	818
Georgia	citizenship	6 302	(100)	0	(0)	0	(0)	6 302
Kazakhstan	–	–	–	–	–	–	–	–
Kyrgyzstan ‡	–	–	–	–	–	–	–	–
Latvia	birthplace	2 087	(96)	61	(3)	34	(2)	2 182
Lithuania	birthplace	2 784	(92)	231	(8)	1	(0)	3 016
Moldova, Republic of	birthplace	2 823	(98)	68	(2)	0	(0)	2 891
Russian Federation	–	–	–	–	–	–	–	–
Tajikistan	–	–	–	–	–	–	–	–
Turkmenistan ‡	–	–	–	–	–	–	–	–
Ukraine	–	–	–	–	–	–	–	–
Uzbekistan ‡	–	–	–	–	–	–	–	–
Total East		**16 004**	**(96)**	**625**	**(4)**	**35**	**(0)**	**16 664**
Total WHO European Region		**76 413**	**(78)**	**13 248**	**(14)**	**8 356**	**(9)**	**98 017**

* Respiratory and meningeal cases only † Foreigners not included in the notification in Republic Srpska
‡ Foreigners not included in TB notifications (Table 1) § Without Kosovo and Metohia

Table 10: Foreign tuberculosis patients by continent of origin, WHO European Region, 1998 (countries providing individual data)

Geographic area / Country	Information provided	Continent of origin: Europe * N	Europe * %	Asia* N	Asia* %	Africa N	Africa %	America or Oceania N	America or Oceania %	Unknown N	Unknown %	Total N
West EU												
Austria	citizenship	233	(81)	39	(14)	15	(5)	1	(0)	0	(0)	288
Belgium	citizenship	140	(33)	52	(12)	223	(52)	10	(2)	2	(0)	427
Denmark	birthplace	41	(12)	108	(31)	182	(53)	13	(4)	0	(0)	344
Finland	birthplace	9	(18)	8	(16)	30	(61)	2	(4)	0	(0)	49
Ireland	birthplace	8	(23)	14	(40)	11	(31)	2	(6)	0	(0)	35
Italy	citizenship	134	(17)	140	(18)	375	(47)	114	(14)	34	(4)	797
Luxembourg	birthplace	24	(96)	0	(0)	1	(4)	0	(0)	0	(0)	25
Netherlands	citizenship	117	(15)	191	(24)	421	(52)	39	(5)	37	(5)	805
Sweden	birthplace	69	(26)	59	(22)	126	(47)	13	(5)	2	(1)	269
United Kingdom †	birthplace	212	(7)	1 634	(55)	759	(26)	68	(2)	297	(10)	2 970
West other												
Iceland	birthplace	1	(13)	6	(75)	1	(13)	0	(0)	0	(0)	8
Malta	birthplace	4	(100)	0	(0)	0	(0)	0	(0)	0	(0)	4
Norway	birthplace	15	(12)	57	(44)	55	(43)	2	(2)	0	(0)	129
Switzerland	birthplace	207	(50)	75	(18)	103	(25)	21	(5)	5	(1)	411
Centre												
Croatia ‡	birthplace	187	(99)	0	(0)	0	(0)	1	(1)	0	(0)	188
Czech Republic	birthplace	70	(64)	33	(30)	4	(4)	3	(3)	0	(0)	110
Slovakia	birthplace	0	(0)	1	(100)	0	(0)	0	(0)	0	(0)	1
Slovenia	birthplace	81	(100)	0	(0)	0	(0)	0	(0)	0	(0)	81
East												
Estonia	birthplace	114	(100)	0	(0)	0	(0)	0	(0)	0	(0)	114
Total		**1 666**	**(24)**	**2 417**	**(34)**	**2 306**	**(33)**	**289**	**(4)**	**377**	**(5)**	**7 055**

* Armenia, Azerbaijan, Georgia, Israel, Kazakhstan, Kyrgystan, Tajikistan, Turkey, Turkmenistan and Uzbekistan are included in Europe, which corresponds to WHO European Region

† Except Scotland ‡ Information on geographic origin missing for 888 cases (42%)

Table 11: Tuberculosis cases by culture result, WHO European Region, 1998

Geographic area / Country	Definite TB case *	Access to culture	No. labs performing culture (1997)	Culture result: Positive		Negative		Unknown/ not performed		Negative/ unknown/ not performed		Total
			N	N	(%)	N	(%)	N	(%)	N	(%)	N
West												
Austria	C&S	Wide	12	733	(56)	190	(14)	388	(30)			1 311
Belgium	C&S	Wide	251	813	(68)	232	(19)	158	(13)			1 203
Denmark	C	Wide	1	445	(84)	80	(15)	4	(1)			529
Finland	C	Wide	18	490	(78)	–	–	–	–	139	(22)	629
France	C †	Wide	362	1 625	(24)	604	(9)	4 422	(66)			6 651
Germany ‡	C&S	Wide	300	4 168	(66) ‡	–	–	–	–	2 136	(34) ‡	6 304 ‡
Greece	C&S	Partial	59	420	(36)	–	–	–	–	732	(64)	1 152
Ireland	C&S	Wide	15	243	(57)	124	(29)	57	(13)			424
Italy	C&S §	Wide	100	2 261	(47)	846	(18)	1 688	(35)			4 795
Luxembourg	C&S	Wide	2	44	(100)	0	(0)	0	(0)			44
Netherlands	C †	Wide	43	692	(52)	–	–	–	–	649	(48)	1 341
Portugal	C †	Wide	14	3 430	(65)	–	–	–	–	1 830	(35)	5 260
Spain ‖	C&S	Wide	160	2 562	(28)	438	(5)	6 111	(67)			9 111
Sweden	C	Wide	5	368	(83)	53	(12)	25	(6)			446
United Kingdom	C	Wide	300	3 703	(60)	436	(7)	2 037	(33)			6 176
Subtotal EU				**21 997**	**(56)**	**3 003**	**(8)**	**14 890**	**(38)**	**5 486**	**(14)**	**39 200**
Andorra	C	Wide	1	8	(100)	0	(0)	0	(0)			8
Iceland	C	Wide	1	11	(65)	3	(18)	3	(18)			17
Israel	C	Wide	12	377	(57)	39	(6)	240	(37)			656
Malta	C †	Wide	3	4	(25)	8	(50)	4	(25)			16
Monaco	–	Wide	1	–	–	–	–	–	–	–	0	
Norway	C	Wide	16	176	(72)	41	(17)	27	(11)			244
San Marino	C	Wide	1	–	–	–	–	–	–	–	–	0
Switzerland	C	Wide	31	604	(81)	89	(12)	56	(7)			749
Total West				**23 177**	**(57)**	**3 183**	**(8)**	**15 220**	**(37)**	**5 486**	**(13)**	**40 890**
Centre												
Albania	C †	Partial	2	240	(35)	–	–	–	–	454	(65)	694
Bosnia-Herzegovina	C&S	Partial	10	1 209	(39)	969	(32)	893	(29)			3 071
Bulgaria	C	Wide	16	1 308	(32)	–	–	–	–	2 809	(68)	4 117
Croatia ‡	C	Wide	17	958	(70) ‡	418	(30) ‡	1	(0) ‡			1 377
Czech Republic	C	Wide	43	951	(53)	689	(38)	165	(9)			1 805
Hungary	C	Wide	23	1 483	(37)	–	–	–	–	2 516	(63)	3 999
Macedonia, FYR	C&S	Wide	4	194	(31)	–	–	–	–	426	(69)	620
Poland	C&S	Wide	168	7 501	(56)	5 801	(44)	0	(0)			13 302
Romania	C&S	Partial	80	13 158	(51)	5 420	(21)	7 180	(28)			25 758
Slovakia	C †	Wide	17	737	(57)	545	(43)	0	(0)			1 282
Slovenia	C	Wide	8	346	(77)	85	(19)	18	(4)			449
Turkey	C&S	Wide	–	–	–	–	–	–	–	–	–	–
Yugoslavia °	C †	Partial	41	1 873	(62)	956	(32)	199	(7)			3 028
Total Centre				**29 958**	**(50)**	**14 883**	**(25)**	**8 456**	**(14)**	**6 205**	**(10)**	**59 502**
East												
Armenia	C&S	no	0	–	–	–	–	–	–	–	–	–
Azerbaijan	C&S	Partial	–	314	(7)	57	(1)	3 979	(91)			4 350
Belarus	C&S	Wide	31	–	–	–	–	–	–	–	–	–
Estonia	C&S	Wide	3	536	(66)	242	(30)	40	(5)			818
Georgia	C&S §	Partial §	3	–	–	–	–	–	–	–	–	–
Kazakhstan	C&S	Partial	16	–	–	–	–	–	–	–	–	–
Kyrgyzstan **	C&S	Wide	1	–	–	–	–	–	–	–	–	–
Latvia	C&S	Wide	21	1 255	(58)	927	(42)	0	(0)			2 182
Lithuania	C †	Wide	8	1 469	(49)	1 186	(39)	361	(12)			3 016
Moldova, Republic of	C&S	Partial	8	557	(19)	354	(12)	1 980	(68)			2 891
Russian Federation	C&S	Wide	600	–	–	–	–	–	–	–	–	–
Tajikistan	C&S	Partial	5	–	–	–	–	–	–	–	–	–
Turkmenistan **	–	Partial §	–	–	–	–	–	–	–	–	–	–
Ukraine **	C&S §	Wide §	28	–	–	–	–	–	–	–	–	–
Uzbekistan	C&S	Partial	14	–	–	–	–	–	–	–	–	–
Total East				**4 131**	**(31)**	**2 766**	**(21)**	**6 360**	**(48)**	**0**	**(0)**	**13 257**
Total WHO European Region				**57 266**	**(50)**	**20 832**	**(18)**	**30 036**	**(26)**	**11 691**	**(10)**	**113 649**

* Culture positive only; C & S= culture or sputum smear positive § information provided for 1997 or 1996
† Based on positive culture or positive smear until 1997 ‖ Respiratory and meningeal cases only
‡ Results from a subset of TB cases included in a specific study (1 377 cases for Croatia and 6304 cases for Germany)
** provided, not shown because on new cases only ° Without Kosovo and Metohia and on pulmonary cases only

Table 12: Tuberculosis cases by site of disease, WHO European Region,1998

Geographic area / Country	Classification provided *	Site of disease: Pulmonary/ Respiratory N	(%)	Extra-pulmonary/ Extra-respiratory N	(%)	Unknown N	(%)	Total N
West								
Austria	pulm	1 077	(82)	234	(18)	0	(0)	1 311
Belgium	pulm	952	(79)	249	(21)	2	(0)	1 203
Denmark	pulm	351	(66)	175	(33)	3	(1)	529
Finland	pulm	396	(63)	233	(37)	0	(0)	629
France	pulm	4 925	(74)	1 646	(25)	80	(1)	6 651
Germany	resp	8 796	(84)	1 644	(16)	0	(0)	10 440
Greece	pulm	873	(76)	210	(18)	69	(6)	1 152
Ireland	pulm	314	(74)	102	(24)	8	(2)	424
Italy	pulm	3 680	(77)	1 115	(23)	0	(0)	4 795
Luxemburg	pulm	38	(86)	5	(11)	1	(2)	44
Netherlands	pulm	852	(64)	489	(36)	0	(0)	1 341
Portugal	pulm	3 772	(72)	1 488	(28)	0	(0)	5 260
Spain	resp	9 026	(99)	85	(1) †	0	(0)	9 111
Sweden	pulm	283	(63)	163	(37)	0	(0)	446
United Kingdom	pulm ‡	3 892	(63)	2 250	(36)	34	(1)	6 176
Subtotal EU	**39 227**	**(79)**	**10 088**	**(20)**	**197**	**(0)**	**49 512**	
Andorra	pulm	7	(88)	1	(13)	0	(0)	8
Iceland	pulm	12	(71)	5	(29)	0	(0)	17
Israel	pulm	497	(76)	159	(24)	0	(0)	656
Malta	pulm	13	(81)	3	(19)	0	(0)	16
Monaco	–	–	–	–	–	–	–	0
Norway	pulm	158	(65)	86	(35)	0	(0)	244
San Marino	–	–	–	–	–	–	–	0
Switzerland	pulm	581	(78)	167	(22)	1	(0)	749
Total West		**40 495**	**(79)**	**10 509**	**(21)**	**198**	**(0)**	**51 202**
Centre								
Albania	pulm	386	(56)	308	(44)	0	(0)	694
Bosnia-Herzegovina	pulm	2 773	(90)	297	(10)	1	(0)	3 071
Bulgaria	pulm	3 533	(86)	584	(14)	0	(0)	4 117
Croatia	pulm	1 921	(91)	197	(9)	0	(0)	2 118
Czech Republic	resp	1 504	(83)	301	(17)	0	(0)	1 805
Hungary	pulm	3 740	(94)	259	(6)	0	(0)	3 999
Macedonia, FYR	resp	555	(90)	65	(10)	0	(0)	620
Poland	resp	12 799	(96)	503	(4)	0	(0)	13 302
Romania	pulm	21 658	(84)	4 090	(16)	10	(0)	25 758
Slovakia	pulm	1 072	(84)	210	(16)	0	(0)	1 282
Slovenia	pulm	363	(81)	86	(19)	0	(0)	449
Turkey §	resp	–	–	–	–	–	–	–
Yugoslavia ‖	resp	2 829	(93)	199	(7)	0	(0)	3 028
Total Centre		**53 133**	**(88)**	**7 099**	**(12)**	**11**	**(0)**	**60 243**
East								
Armenia	pulm	1 355	(93)	100	(7)	0	(0)	1 455
Azerbaijan	resp	4 131	(95)	219	(5)	0	(0)	4 350
Belarus	–	–	–	–	–	–	–	–
Estonia	pulm	745	(91)	73	(9)	0	(0)	818
Georgia	pulm	4 586	(73)	1 716	(27)	0	(0)	6 302
Kazakhstan	resp	19 420	(94)	1 203	(6)	0	(0)	20 623
Kyrgyzstan §	resp	–	–	–	–	–	–	–
Latvia	resp	2 080	(95)	102	(5)	0	(0)	2 182
Lithuania	pulm	2 712	(90)	304	(10)	0	(0)	3 016
Moldova, Republic of	resp	2 723	(94)	168	(6)	0	(0)	2 891
Russian Federation §	resp	–	–	–	–	–	–	–
Tajikistan §	resp	–	–	–	–	–	–	–
Turkmenistan §	resp	–	–	–	–	–	–	–
Ukraine §	resp	–	–	–	–	–	–	–
Uzbekistan	resp	12 318	(88)	1 640	(12)	0	(0)	13 958
Total East		**50 070**	**(90)**	**5 525**	**(10)**	**0**	**(0)**	**55 595**
Total WHO European Region		**143 698**	**(86)**	**23 133**	**(14)**	**209**	**(0)**	**167 040**

* pulm = pulmonary; resp = respiratory † Meningeal cases only § provided, not shown because on new cases only ‖ Without Kosovo and Metohia
‡ England & Wales, Northern Ireland: pulmonary classification; Scotland: respiratory classification

Table 13: Pulmonary or respiratory tuberculosis cases by sputum smear result, WHO European Region, 1998

Geographic area / Country	Classification provided	Sputum smear result: Positive N	Positive (%)	Negative or unkown N	Negative or unkown (%)	Total N
West						
Austria	pulm	387	(36)	690	(64)	1 077
Belgium	pulm	249	(26)	703	(74)	952
Denmark	pulm	163	(46)	188	(54)	351
Finland	pulm	201	(51)	195	(49)	396
France	pulm	2 697	(55)	2 228	(45)	4 925
Germany	resp	3 124	(36)	5 672	(64)	8 796
Greece	pulm	287	(33)	586	(67)	873
Ireland	pulm	121	(39)	193	(61)	314
Italy	pulm	2 040	(55)	1 640	(45)	3 680
Luxembourg	pulm	27	(71)	11	(29)	38
Netherlands	pulm	293	(34)	559	(66)	852
Portugal	pulm	2 265	(60)	1 507	(40)	3 772
Spain	resp	2 441	(27)	6 585	(73)	9 026
Sweden	pulm	110	(39)	173	(61)	283
United Kingdom	pulm *	1 525	(39)	2 367	(61)	3 892
Subtotal EU		**15 930**	**(41)**	**23 297**	**(59)**	**39 227**
Andorra	pulm	2	(29)	5	(71)	7
Iceland	pulm	3	(25)	9	(75)	12
Israel	pulm	242	(49)	255	(51)	497
Malta	pulm	6	(46)	7	(54)	13
Monaco	–	–	–	–	–	0
Norway	pulm	43	(27)	115	(73)	158
San Marino	–	–	–	–	–	0
Switzerland	pulm	196	(34)	385	(66)	581
Total West		**16 422**	**(41)**	**24 073**	**(59)**	**40 495**
Centre						
Albania	pulm	235	(61)	151	(39)	386
Bosnia-Herzegovina	pulm	773	(28)	2 000	(72)	2 773
Bulgaria	pulm	1 325	(38)	2 208	(62)	3 533
Croatia †	pulm	546	(44)	694	(56)	1 240
Czech Republic	resp	511	(34)	993	(66)	1 504
Hungary	pulm	774	(21)	2 966	(79)	3 740
Macedonia, FYR	resp	206	(37)	349	(63)	555
Poland	resp	7 337	(57)	5 462	(43)	12 799
Romania	pulm	12 792	(59)	8 866	(41)	21 658
Slovakia	pulm	396	(37)	676	(63)	1 072
Slovenia	pulm	178	(49)	185	(51)	363
Turkey ‡	resp	–	–	–	–	–
Yugoslavia §	resp	1 873	(66)	956	(34)	2 829
Total Centre		**26 946**	**(51)**	**25 506**	**(49)**	**52 452**
East						
Armenia	resp	616	(45)	739	(55)	1 355
Azerbaijan	resp	739	(18)	3 392	(82)	4 131
Belarus	–	–	–	–	–	–
Estonia	pulm	359	(48)	386	(52)	745
Georgia	pulm	915	(20)	3 671	(80)	4 586
Kazakhstan	resp	6 979	(36)	12 441	(64)	19 420
Kyrgyzstan ‡	resp	–	–	–	–	–
Latvia	resp	818	(39)	1 262	(61)	2 080
Lithuania	pulm	787	(29)	1 925	(71)	2 712
Moldova, Republic of	resp	557	(20)	2 166	(80)	2 723
Russian Federation	resp	–	–	–	–	–
Tajikistan	resp	–	–	–	–	–
Turkmenistan ‡	resp	–	–	–	–	–
Ukraine ‡	resp	–	–	–	–	–
Uzbekistan	resp	3 538	(29)	3 880	(31)	12 318
Total East		**15 308**	**(31)**	**29 862**	**(60)**	**50 070**
Total WHO European Region		**58 676**	**(41)**	**79 441**	**(56)**	**143 017**

* England & Wales, Northern Ireland: pulmonary classification; Scotland: respiratory classification § Without Kosovo and Metohia
† Results from a subset of 1240 pulmonary TB cases included in a specific study ‡ Provided, not shown because on new cases only

Table 14: Tuberculosis cases by site of disease, culture and sputum smear result, WHO European Region, 1998 (countries with individual data)

Geographic area / Country	Pulmonary												Extra pulmonary				Unknown site		Total
	Culture positive				Culture negative				Culture not done / unknown										
	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
West EU																			
Austria	319	(24)	314	(24)	10	(1)	148	(11)	58	(4)	228	(17)	100	(8)	134	(10)	0	(0)	1 311
Belgium	228	(19)	459	(38)	0	(0)	180	(15)	21	(2)	64	(5)	126	(10)	123	(10)	2	(0)	1 203
Denmark	158	(30)	139	(26)	5	(1)	47	(9)	0	(0)	2	(0)	147	(28)	28	(5)	3	(1)	529
Finland	165	(26)	175	(28)	0	(0)	0	(0)	36	(6)	20	(3)	150	(24)	83	(13)	0	(0)	629
Ireland	119	(28)	74	(17)	0	(0)	80	(19)	2	(0)	39	(9)	50	(12)	52	(12)	8	(2)	424
Italy	1 264	(26)	612	(13)	182	(4)	445	(9)	594	(12)	583	(12)	385	(8)	730	(15)	0	(0)	4 795
Luxembourg	27	(61)	11	(25)	0	(0)	0	(0)	0	(0)	0	(0)	5	(11)	0	(0)	1	(2)	44
Netherlands	186	(14)	290	(22)	0	(0)	0	(0)	107	(8)	269	(20)	216	(16)	273	(20)	0	(0)	1 341
Sweden	110	(25)	124	(28)	0	(0)	32	(7)	0	(0)	17	(4)	134	(30)	29	(7)	0	(0)	446
United Kingdom *	1 298	(23)	1 047	(18)	23	(0)	209	(4)	204	(4)	750	(13)	1 076	(19)	1 078	(19)	34	(1)	5 719
West other																			
Iceland	3	(18)	5	(29)	0	(0)	3	(18)	0	(0)	1	(6)	3	(18)	2	(12)	0	(0)	17
Malta	3	(19)	1	(6)	3	(19)	5	(31)	0	(0)	1	(6)	0	(0)	3	(19)	0	(0)	16
Norway	38	(16)	77	(32)	2	(1)	22	(9)	3	(1)	16	(7)	61	(25)	25	(10)	0	(0)	244
Switzerland	185	(25)	279	(37)	9	(1)	68	(9)	2	(0)	38	(5)	140	(19)	27	(4)	1	(0)	749
Centre																			
Croatia †	546	(40)	349	(25)	0	(0)	344	(25)	0	(0)	1	(0)	63	(5)	74	(5)	0	(0)	1 377 †
Czech Republic ‡	511	(28)	440	(24)	0	(0)	419	(23)	0	(0)	134	(7)	0	(0)	301	(17)	0	(0)	1 805
Romania	8 912	(35)	3 960	(15)	494	(2)	3 543	(14)	3 386	(13)	1 363	(5)	284	(1)	3 806	(15)	10	(0)	25 758
Slovakia	369	(29)	311	(24)	27	(2)	365	(28)	0	(0)	0	(0)	57	(4)	153	(12)	0	(0)	1 282
Slovenia	178	(40)	129	(29)	0	(0)	48	(11)	0	(0)	8	(2)	39	(9)	47	(10)	0	(0)	449
East																			
Estonia	337	(41)	172	(21)	22	(3)	205	(25)	0	(0)	9	(1)	27	(3)	46	(6)	0	(0)	818
Total	**14 956**	**(31)**	**8 968**	**(18)**	**777**	**(2)**	**6 163**	**(13)**	**4 413**	**(9)**	**3 543**	**(7)**	**3 063**	**(6)**	**7 014**	**(14)**	**59**	**(0)**	**48 956**

* Without Scotland † Data collected on a subset (1377 cases) of the TB cases notified in 1998 ‡ Respiratory classification

Table 15: Type of drug resistance surveillance and representativeness, WHO European Region, 1998

Data provided / Country	No. Labs performing DST * N	Source of data	Geographic coverage	include only cases notified in 1998	Total cases N	culture positive cases † N	%	cases with DST results N	%
Only on TB cases notified; DST results for >35% of cases									
Andorra	1	all labs	national	yes	8	8	(100)	8	(100)
Austria	8	all labs	national	yes	1 311	733	(56)	733	(56)
Czech Republic ‡	14	all labs	national	yes	1 504	951	(63)	592	(39)
Denmark	1	all labs	national	yes	529	444	(84)	444	(84)
Estonia	2	all labs	national	yes	818	536	(66)	526	(64)
Finland	1	all labs	national	yes	629	490	(78)	353	(56)
Germany	80	survey §	national	yes	6 304	4 168	(66)	3 271	(52)
Iceland	1	all labs	national	yes	17	11	(65)	11	(65)
Ireland	8	all labs	national	yes	424	243	(57)	241	(57)
Israel ‡	2	all labs	national	yes	497	307	(62)	307	(62)
Latvia	1	all labs	national	yes	2 182	1 255	(58)	1 013	(46)
Lithuania	8	all labs	national	yes	3 016	1 469	(49)	1 469	(49)
Luxembourg	1	all labs	national	yes	44	44	(100)	44	(100)
Netherlands	12	all labs	national	yes	1 341	692	(52)	692	(52)
Norway	3	all labs	national	yes	244	176	(72)	175	(72)
Slovakia	7	all labs	national	yes	1282	746	(58)	746	(58)
Slovenia	1	all labs	national	yes	449	346	(77)	315	(70)
Sweden	5	all labs	national	yes	446	368	(83)	365	(82)
Switzerland	43	all labs	national	yes	749	604	(81)	528	(70)
United Kingdom	7	survey ‖	national	yes	6 176	3 703	(60)	3 362	(54)
Yugoslavia (Belgrade) ‡	12	2 labs	Belgrade region	yes	541	398	(74)	398	(74)
Only on TB cases notified; DST results for <35% of cases									
Albania	1	all labs	national	yes	694	240	(35)	240	(35)
Hungary	13	all labs	national	yes	3 999	1 483	(37)	733	(18)
Macedonia, FYR	1	all labs	national	yes	620	194	(31)	194	(31)
Malta	1	all labs	national	yes	16	4	(25)	4	(25)
Romania	55 (1997)	some labs	13/47 regions	yes	7 183	3 793	(53)	1 733	(24)
Not related to TB notification									
France	158 (1997)	19 labs	11/22 regions	no	–	1127	–	1 115	–
Greece	3	all labs	national	no	–	–	–	613	–
Italy	60 (1997)	22 labs & 24 Centres	13/20 regions	no	–	–	–	810	–

* Drug susceptibility testing † Number of culture positive cases may differ from table 11 due to later data collection on DST ‡ Pulmonary cases only
§ survey on cases notified to 290/430 local public health services ‖ Exhaustive survey of notified cases

Table 16: Drug resistance among TB cases notified in 1998, WHO European Region (29 countries)

Data provided / Country	Cases with DST † results	Cases resistant to at least *: Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR cases)		Ethambutol (EMB)		Streptomicin (SM)	
	N	N	%	N	%	N	%	N	%	N	%
Only on TB cases notified; DST results for >35% of cases											
Andorra	8	1	(12.5)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Austria	733	24	(3.3)	5	(0.7)	5	(0.7)	3	(0.4)	–	–
Czech Republic ‡	592	41	(6.9)	15	(2.5)	13	(2.2)	13	(2.2)	12	(2.0)
Denmark	444	29	(6.5)	3	(0.7)	3	(0.7)	1	(0.2)	51	(11.5)
Estonia	526	156	(29.7)	102	(19.4)	97	(18.4)	63	(12.0)	184	(35.0)
Finland	353	9	(2.5)	3	(0.8)	2	(0.6)	0	(0.0)	5	(1.4)
Germany	3 271	204	(6.2)	57	(1.7)	45	(1.4)	–	–	–	–
Iceland	11	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	–	–
Ireland	241	3	(1.2)	0	(0.0)	0	(0.0)	0	(0.0)	3	(1.2)
Israel ‡	307	48	(15.6)	26	(8.5)	25	(8.1)	19	(6.2)	49	(16.0)
Latvia	1013	287	(28.3)	129	(12.7)	124	(12.2)	196	(19.3)	228	(22.5)
Lithuania	1 469	192	(13.1)	99	(6.7)	87	(5.9)	35	(2.4)	169	(11.5)
Luxembourg	44	3	(6.8)	1	(2.3)	1	(2.3)	1	(2.3)	0	(0.0)
Netherlands	692	26	(3.8)	6	(0.9)	4	(0.6)	1	(0.1)	30	(4.3)
Norway	175	14	(8.0)	2	(1.1)	2	(1.1)	2	(1.1)	–	–
Slovakia	746	29	(3.9)	18	(2.4)	15	(2.0)	9	(1.2)	13	(1.7)
Slovenia	315	3	(1.0)	0	(0.0)	0	(0.0)	0	(0.0)	3	(1.0)
Sweden	365	21	(5.8)	4	(1.1)	4	(1.1)	2	(0.5)	11	(3.0)
Switzerland	528	32	(6.1)	5	(0.9)	3	(0.6)	8	(1.5)	–	–
United Kingdom	3 362	164	(4.9)	29	(0.9)	21	(0.6)	11	(0.3)	–	–
Yugoslavia (Belgrade) ‡	398	5	(1.3)	7	(1.8)	4	(1.0)	5	(1.3)	14	(3.5)
Only on TB cases notified; DST results for <35% of cases											
Albania	240	4	(1.7)	5	(2.1)	3	(1.3)	0	(0.0)	19	(7.9)
Hungary	733	103	(14.1)	48	(6.5)	37	(5.0)	32	(4.4)	78	(10.6)
Macedonia, FYR	194	16	(8.2)	5	(2.6)	3	(1.5)	5	(2.6)	19	(9.8)
Malta	4	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Romania	1 733	166	(9.6)	102	(5.9)	74	(4.3)	26	(1.5)	98	(5.7)
Not related to TB notification											
France	1 115	64	(5.7)	14	(1.3)	12	(1.1)	7	(0.6)	111	(10.0)
Greece	613	80	(13.1)	48	(7.8)	31	(5.1)	43	(7.0)	84	(13.7)
Italy	810	93	(11.5)	72	(8.9)	51	(6.3)	40	(4.9)	86	(10.6)

* Cases resistant to one drug only or also to other drugs shown in the Table, in any combination † Drug susceptibility testing ‡ Pulmonary cases only

Table 17: Drug resistance among tuberculosis cases notified in 1998, by previous treatment status, WHO European Region (29 countries)

	Cases never treated										
		resistant to at least * :									
	total with DST † results	Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol (EMB)		Streptomicin (SM)DST † results	
Country	N	N	%	N	%	N	%	N	%	N	%
Data on TB cases notified; DST results for >35% of cases											
Andorra	7	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Austria	669	20	(3.0)	2	(0.3)	2	(0.3)	2	(0.3)	–	–
Czech Republic ‡	–	–	–	–	–	–	–	–	–	–	–
Denmark	412	25	(6.1)	2	(0.5)	2	(0.5)	0	(0.0)	48	(11.7)
Estonia	433	110	(25.4)	67	(15.5)	63	(14.5)	45	(10.4)	140	(32.3)
Finland	–	–	–	–	–	–	–	–	–	–	–
Germany	1 583	77	(4.9)	23	(1.5)	13	(0.8)	–	–	–	–
Iceland	10	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	–	–
Ireland	112	1	(0.9)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Israel ‡	–	–	–	–	–	–	–	–	–	–	–
Latvia	789	222	(28.1)	72	(9.1)	71	(9.0)	36	(4.6)	173	(21.9)
Lithuania	1 181	144	(12.2)	63	(5.3)	56	(4.7)	26	(2.2)	120	(10.2)
Luxembourg	40	3	(7.5)	1	(2.5)	1	(2.5)	1	(2.5)	0	(0.0)
Netherlands	570	19	(3.3)	2	(0.4)	1	(0.2)	1	(0.2)	25	(4.4)
Norway	158	11	(7.0)	1	(0.6)	1	(0.6)	–	–	–	–
Slovakia	589	12	(2.0)	2	(0.3)	2	(0.3)	1	(0.2)	6	(1.0)
Slovenia	287	2	(0.7)	0	(0.0)	0	(0.0)	0	(0.0)	3	(1.0)
Sweden	335	16	(4.8)	2	(0.6)	2	(0.6)	2	(0.6)	1	(0.3)
Switzerland	405	22	(5.4)	3	(0.7)	2	(0.5)	6	(1.5)	–	–
United Kingdom	2 515	110	(4.4)	13	(0.5)	8	(0.3)	5	(0.2)	–	–
Yugoslavia (Belgrade) ‡	359	3	(0.8)	4	(1.1)	2	(0.6)	5	(1.4)	14	(3.9)
Data on TB cases notified; DST results for <35% of cases											
Albania	–	–	–	–	–	–	–	–	–	–	–
Hungary	599	71	(11.9)	30	(5.0)	24	(4.0)	0	(0.0)	0	(0.0)
Macedonia, FYR	–	–	–	–	–	–	–	–	–	–	–
Malta	3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Romania	1 572	105	(6.7)	46	(2.9)	32	(2.0)	16	(1.0)	54	(3.4)
Data not related to TB notification											
France	850	42	(4.9)	6	(0.7)	6	(0.7)	3	(0.4)	74	(8.7)
Greece	–	–	–	–	–	–	–	–	–	–	–
Italy	683	38	(5.6)	15	(2.2)	8	(1.2)	6	(0.9)	48	(7.0)

* Cases resistant to one drug only or also to other drugs shown in the Table, in any combination † Drug susceptibility testing ‡ Pulmonary cases only

Table 17 (cont.): Drug resistance among tuberculosis cases notified in 1998, by previous treatment status, WHO European Region (29 countries)

Cases previously treated											
	resistant to at least * :										
total with DST † results	Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol (EMB)		Streptomicin (SM)		
N	N	%	N	%	N	%	N	%	N	%	Country
											Data on TB cases notified; DST results for >35% of cases
1	1	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Andorra
64	4	(6.3)	3	(4.7)	3	(4.7)	1	(1.6)	–	–	Austria
–	–	–	–	–	–	–	–	–	–	–	Czech Republic ‡
32	4	(12.5)	1	(3.1)	1	(3.1)	1	(3.1)	3	(9.4)	Denmark
93	46	(49.5)	35	(37.6)	34	(36.6)	18	(19.4)	44	(47.3)	Estonia
–	–	–	–	–	–	–	–	–	–	–	Finland
282	50	(17.7)	20	(7.1)	19	(6.7)	–	–	–	–	Germany
1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	–	–	Iceland
19	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Ireland
–	–	–	–	–	–	–	–	–	–	–	Israel ‡
224	65	(29.0)	57	(25.4)	53	(23.7)	23	(10.3)	55	(24.6)	Latvia
288	48	(16.7)	36	(12.5)	31	(10.8)	9	(3.1)	49	(17.0)	Lithuania
4	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Luxembourg
50	4	(8.0)	4	(8.0)	3	(6.0)	0	(0.0)	3	(6.0)	Netherlands
17	3	(17.6)	1	(5.9)	1	(5.9)	–	–	–	–	Norway
157	17	(10.8)	16	(10.2)	13	(8.3)	8	(5.1)	7	(4.5)	Slovakia
28	1	(3.6)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Slovenia
30	5	(16.7)	2	(6.7)	2	(6.7)	0	(0.0)	0	(0.0)	Sweden
53	8	(15.1)	1	(1.9)	1	(1.9)	6	(11.3)	–	–	Switzerland
238	23	(9.7)	10	(4.2)	9	(3.8)	5	(2.1)	–	–	United Kingdom
39	2	(5.1)	3	(7.7)	2	(5.1)	0	(0.0)	0	(0.0)	Yugoslavia (Belgrade) ‡
											Data on TB cases notified; DST results for <35% of cases
–	–	–	–	–	–	–	–	–	–	–	Albania
134	32	(23.9)	18	(13.4)	13	(9.7)		(0.0)		(0.0)	Hungary
–	–	–	–	–	–	–	–	–	–	–	Macedonia, FYR
1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Malta
336	61	(18.2)	56	(16.7)	42	(12.5)	10	(3.0)	44	(13.1)	Romania
											Data not related to TB notification
65	11	(16.9)	6	(9.2)	6	(9.2)	2	(3.1)	12	(18.5)	France
–	–	–	–	–	–	–	–	–	–	–	Greece
115	53	(46.1)	55	(47.8)	42	(36.5)	31	(27.0)	34	(29.6)	Italy

* Cases resistant to one drug only or to other drugs shown in the Table, in any combination † Drug susceptibility testing ‡ Pulmonary cases only

Table 18: Drug resistance among tuberculosis cases notified in 1998, by geographic origin, WHO European Region (29 countries)

	Cases in national citizens / individuals born in the country											
			Resistant to at least*:									
	Classification of origin ‡	total with DST † results	Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol (EMB)		Streptomicin (SM)	
Country		N	N	%	N	%	N	%	N	%	N	%
Data on TB cases notified; DST results for >35% of cases												
Andorra	birth	2	1	(50.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Austria	citiz.	557	16	(2.9)	2	(0.4)	2	(0.4)	1	(0.2)	–	–
Czech Republic §	birth	592	41	(6.9)	15	(2.5)	13	(2.2)	13	(2.2)	12	(2.0)
Denmark	birth	170	9	(5.3)	0	(0.0)	0	(0.0)	0	(0.0)	9	(5.3)
Estonia	birth	452	135	(29.9)	88	(19.5)	83	(18.4)	58	(12.8)	157	(34.7)
Finland	birth	314	3	(1.0)	1	(0.3)	0	(0.0)	0	(0.0)	2	(0.6)
Germany	citiz.	1 854	54	(2.9)	14	(0.8)	7	(0.4)	–	–	–	–
Iceland	birth	8	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	–	–
Ireland	birth	218	2	(0.9)	0	(0.0)	0	(0.0)	0	(0.0)	2	(0.9)
Israel §	birth	40	2	(5.0)	1	(2.5)	1	(2.5)	0	(0.0)	8	(20.0)
Latvia	–	–	–	–	–	–	–	–	–	–	–	–
Lithuania	birth	1 372	172	(12.5)	86	(6.3)	76	(5.5)	30	(2.2)	151	(11.0)
Luxembourg	birth	19	1	(5.3)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Netherlands	citiz.	275	11	(4.0)	4	(1.5)	4	(1.5)	0	(0.0)	13	(4.7)
Norway	birth	84	1	(1.2)	0	(0.0)	0	(0.0)	0	(0.0)	–	–
Slovakia	birth	746	29	(3.9)	18	(2.4)	15	(2.0)	9	(1.2)	13	(1.7)
Slovenia	birth	259	3	(1.2)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Sweden	birth	141	5	(3.5)	0	(0.0)	0	(0.0)	0	(0.0)	1	(0.7)
Switzerland	birth	145	6	(4.1)	0	(0.0)	0	(0.0)	2	(1.4)	–	–
United Kingdom	birth	1 186	37	(3.1)	4	(0.3)	2	(0.2)	1	(0.1)	–	–
Yugoslavia (Belgrade) §	–	–	–	–	–	–	–	–	–	–	–	–
Data on TB cases notified; DST results for <35% of cases												
Albania	–	–	–	–	–	–	–	–	–	–	–	–
Hungary	–	–	–	–	–	–	–	–	–	–	–	–
Macedonia, FYR	–	–	–	–	–	–	–	–	–	–	–	–
Malta	birth	3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Romania	citiz.	1 908	166	(8.7)	102	(5.3)	74	(3.9)	26	(1.4)	98	(5.1)
Data not related to TB notification												
France	citiz.	631	20	(3.2)	2	(0.3)	1	(0.2)	0	(0.0)	42	(6.7)
Greece	citiz.	324	29	(9.0)	11	(3.4)	7	(2.2)	12	(3.7)	29	(9.0)
Italy	citiz.	588	65	(11.1)	60	(10.2)	33	(5.6)	33	(5.6)	57	(9.7)

* Cases resistant to one drug only or to other drugs shown in the Table, in any combination † Drug susceptibility testing
‡ birth = country of birth; citiz = citizenship § Pulmonary cases only

Table 18 (cont.): Drug resistance among tuberculosis cases notified in 1998, by geographic origin, WHO European Region (29 countries)

Cases in foreign citizens / individuals born abroad												
		Resistant to at least*:										
Classification of origin ‡	total with DST † results	Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol (EMB)		Streptomicin (SM)		
	N	N	%	N	%	N	%	N	%	N	%	Country
												Data on TB cases notified; DST results for >35% of cases
birth	6	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Andorra
citiz.	176	8	(4.5)	3	(1.7)	3	(1.7)	2	(1.1)	–	–	Austria
birth	0	–	–	–	–	–	–	–	–	–	–	Czech Republic §
birth	274	20	(7.3)	3	(1.1)	3	(1.1)	1	(0.4)	42	(15.3)	Denmark
birth	74	21	(28.4)	14	(18.9)	14	(18.9)	5	(6.8)	27	(36.5)	Estonia
birth	33	5	(15.2)	2	(6.1)	2	(6.1)	0	(0.0)	2	(6.1)	Finland
citiz.	1 055	129	(12.2)	41	(3.9)	37	(3.5)	–	–	–	–	Germany
birth	3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	–	–	Iceland
birth	23	1	(4.3)	0	(0.0)	0	(0.0)	0	(0.0)	1	(4.3)	Ireland
birth	267	46	(17.2)	25	(9.4)	24	(9.0)	19	(7.1)	41	(15.4)	Israel §
–	–	–	–	–	–	–	–	–	–	–	–	Latvia
birth	97	20	(20.6)	13	(13.4)	11	(11.3)	5	(5.2)	18	(18.6)	Lithuania
birth	25	2	(8.0)	1	(4.0)	1	(4.0)	1	(4.0)	0	(0.0)	Luxembourg
citiz.	417	15	(3.6)	2	(0.5)	0	(0.0)	1	(0.2)	17	(4.1)	Netherlands
birth	91	13	(14.3)	2	(2.2)	2	(2.2)	2	(2.2)	–	–	Norway
birth	0	–	–	–	–	–	–	–	–	–	–	Slovakia
birth	56	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Slovenia
birth	224	16	(7.1)	4	(1.8)	4	(1.8)	2	(0.9)	10	(4.5)	Sweden
birth	291	22	(7.6)	5	(1.7)	3	(1.0)	6	(2.1)	–	–	Switzerland
birth	1 670	102	(6.1)	22	(1.3)	17	(1.0)	9	(0.5)	–	–	United Kingdom
–	–	–	–	–	–	–	–	–	–	–	–	Yugoslavia (Belgrade) §
												Data on TB cases notified; DST results for <35% of cases
–	–	–	–	–	–	–	–	–	–	–	–	Albania
–	–	–	–	–	–	–	–	–	–	–	–	Hungary
–	–	–	–	–	–	–	–	–	–	–	–	Macedonia, FYR
birth	1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	Malta
citiz.	0	–	–	–	–	–	–	–	–	–	–	Romania
												Data not related to TB notification
citiz.	423	43	(10.2)	11	(2.6)	11	(2.6)	7	(1.7)	65	(15.4)	France
citiz.	86	10	(11.6)	6	(7.0)	6	(7.0)	2	(2.3)	8	(9.3)	Greece
citiz.	210	27	(12.9)	10	(4.8)	16	(7.6)	5	(2.4)	26	(12.4)	Italy

* Cases resistant to one drug only or to other drugs shown in the Table, in any combination † Drug susceptibility testing
‡ birth = country of birth; citiz = citizenship § Pulmonary cases only

COUNTRY PROFILES

NOTE ON COUNTRY PROFILES

Data may differ from those published by WHO, due essentially to later data collection by EuroTB, which results in more updated information.

Country profiles have not been prepared for:

- Belarus: only total number of cases provided
- Bulgaria : only a total number of cases provided by site of disease and sputum smear result
- Kyrgyzstan, Russian Federation, Tadjikistan, Turkey, Turkmenistan, Ukraine: aggregate data provided on new cases only
- San Marino, Monaco: zero cases notified in 1998

For countries reporting < 50 cases in 1998, only the figure «Tuberculosis notification rates, 1995-1998» is presented.

For countries reporting < 5% of the TB cases in patients of foreign origin in 1998, the figure «Tuberculosis cases by age group, sex and birthplace (or citizenship)» is not presented.

Trends 1995-1998 are presented only when at least 3 time points were available.

Abbreviations used in the table «Proportions of drug resistant cases» are as follows:
INH = isoniazid
RMP = rifampicin
MDR = multidrug-resistance

Proportions of drug resistant cases are calculated among tested cases.

ALBANIA

TB cases notified in 1998

Notification rate per 100 000	22.3	
	N	**(%)**
Total number of cases	694	(100)
New cases	671	(97)
Recurrent cases	23	(3)
Cases in foreigners	–	–
Culture positive cases	240	(35)
Pulmonary cases	386	(56)
- among which smear positive cases	235	

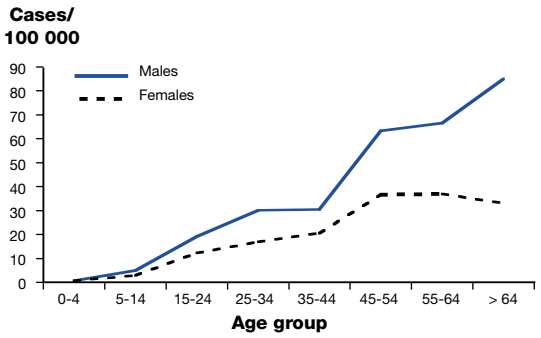
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 35 %
Geographic coverage: national
Number of cases tested: 240/694

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	–	–	–	–	240	(100)
Any resistance to INH	–	–	–	–	4	(1.7)
Any resistance to RMP	–	–	–	–	5	(2.1)
MDR (INH & RMP)	–	–	–	–	3	(1.3)

* including cases without information on previous treatment

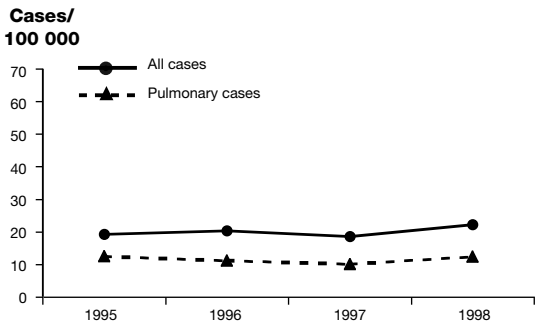
Tuberculosis notification rates by age group and sex, 1998



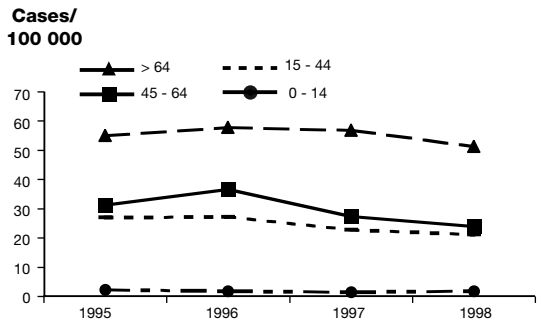
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



ANDORRA

TB cases notified in 1998

Notification rate per 100 000	12.4	
	N	**(%)**
Total number of cases	8	(100)
New cases	7	(88)
Recurrent cases	1	(13)
Cases in foreign born patients	6	(75)
Culture positive cases	8	(100)
Pulmonary cases	7	(88)
- among which smear positive cases	2	

Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 100 %
Geographic coverage: national
Number of cases tested: 8/8

	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	7	(100)	1	(100)	8	(100)
Any resistance to INH	0	(0.0)	1	(100)	1	(12.5)
Any resistance to RMP	0	(0.0)	0	(0.0)	0	(0.0)
MDR (INH & RMP)	0	(0.0)	0	(0.0)	0	(0.0)

* including cases without information on previous treatment

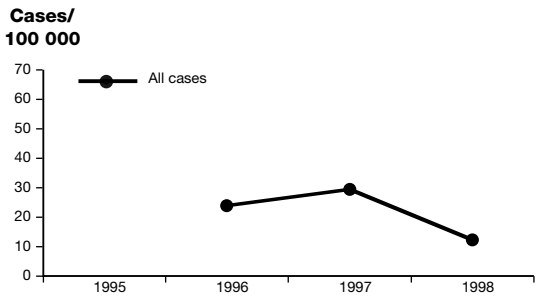
Tuberculosis notification rates by age group and sex, 1998

Insufficient number of cases for graphic presentation

Tuberculosis cases by age group, sex and citizenship, 1998

Insufficient number of cases for graphic presentation

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Insufficient number of cases for graphic presentation

ARMENIA

TB cases notified in 1998

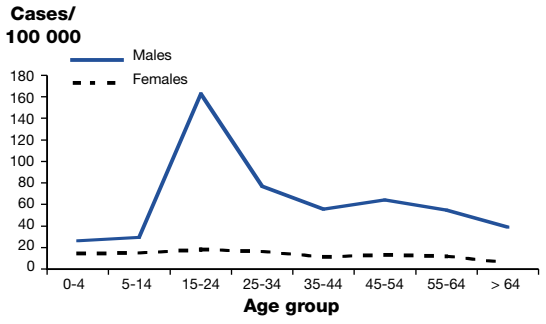
Notification rate per 100 000	41.1	
	N	**(%)**
Total number of cases	1 455	(100)
New cases	1 420	(98)
Recurrent cases	35	(2)
Cases in foreign born patients	151	(10)
Culture positive cases *	–	–
Respiratory cases	1 355	(93)
- among which smear positive cases	616	

* no access to culture in the country

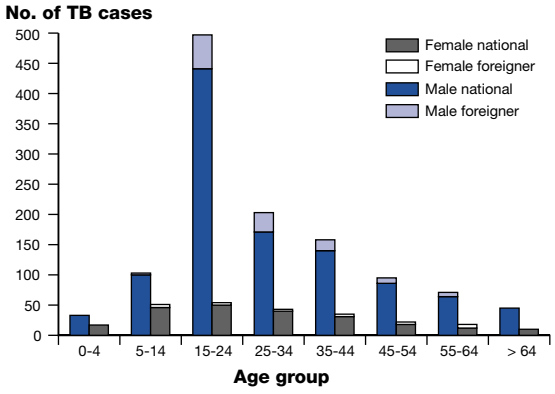
Proportions of drug resistant cases, 1998

Data not requested

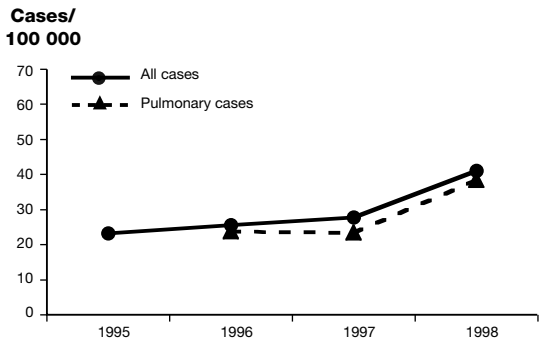
Tuberculosis notification rates by age group and sex, 1998



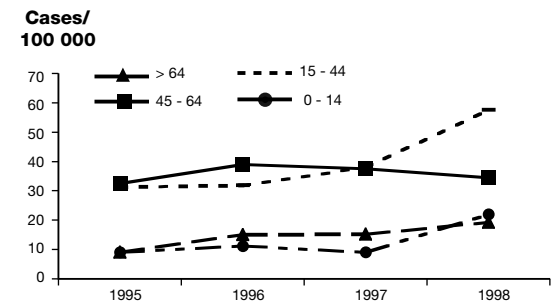
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



AUSTRIA

TB cases notified in 1998

Notification rate per 100 000	16.1	
	N	**(%)**
Total number of cases	1 311	(100)
New cases	1 157	(88)
Recurrent cases	154	(12)
Cases in foreign born patients	288	(22)
Culture positive cases	733	(56)
Pulmonary cases	1 077	(82)
- among which smear positive cases	387	

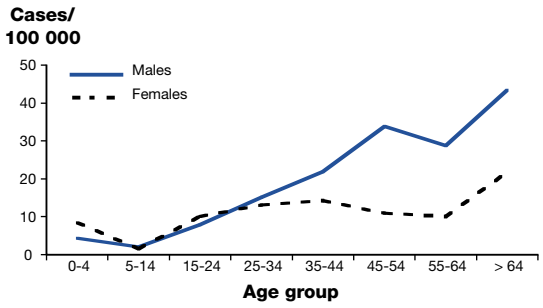
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 56 %
Geographic coverage: national
Number of cases tested: 733/1 311

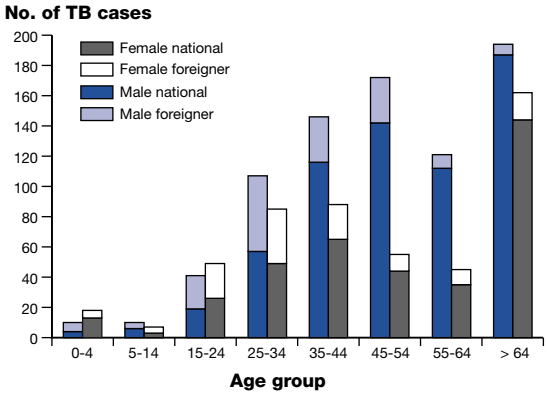
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	669	(100)	64	(100)	733	(100)
Any resistance to INH	20	(3.0)	4	(6.3)	24	(3.3)
Any resistance to RMP	2	(0.3)	3	(4.7)	5	(0.7)
MDR (INH & RMP)	2	(0.3)	3	(4.7)	5	(0.7)

* including cases without information on previous treatment

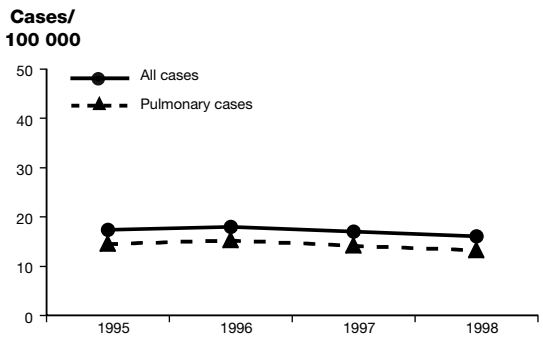
Tuberculosis notification rates by age group and sex, 1998



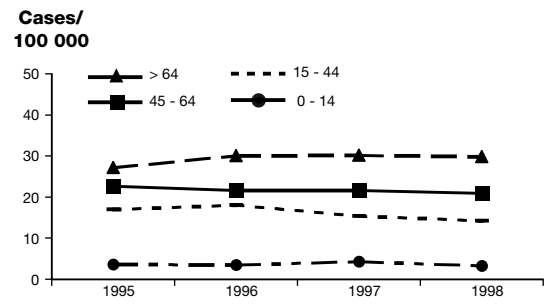
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



AZERBAIDJAN

TB cases notified in 1998

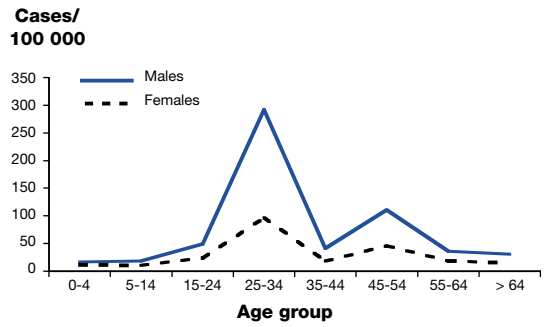
Notification rate per 100 000	56.7	
	N	**(%)**
Total number of cases	4 350	(100)
New cases	4 277	(98)
Recurrent cases	73	(2)
Cases in foreigners *	–	–
Culture positive cases	314	(7)
Pulmonary cases	4 131	(95)
- among which smear positive cases	–	–

* Foreigners not included in the notification

Proportions of drug resistant cases, 1998

Data not requested

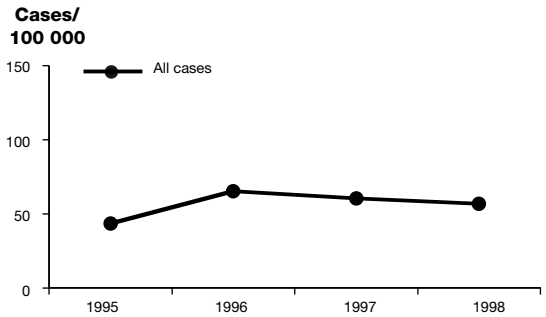
Tuberculosis notification rates by age group and sex, 1998



Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Not available

BELGIUM

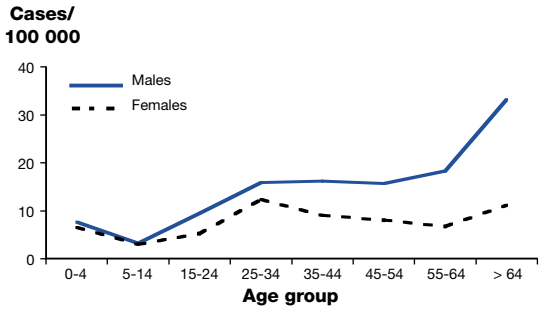
TB cases notified in 1998

Notification rate per 100 000	11.9	
	N	**(%)**
Total number of cases	1 203	(100)
New cases	936	(78)
Recurrent cases	129	(11)
Cases in foreign citizens	427	(35)
Culture positive cases	813	(68)
Pulmonary cases	952	(79)
- among which smear positive cases	249	

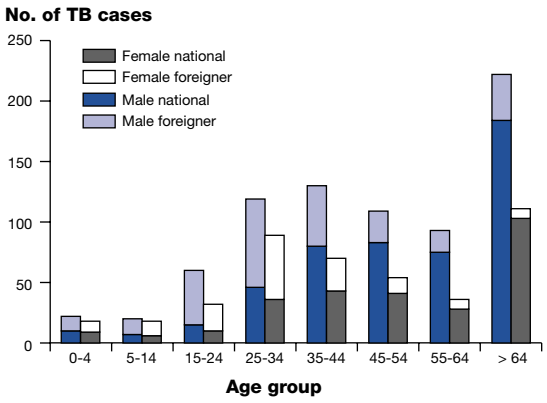
Proportions of drug resistant cases, 1998

Data not available

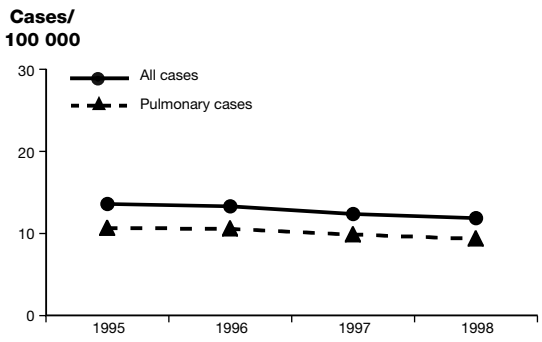
Tuberculosis notification rates by age group and sex, 1998



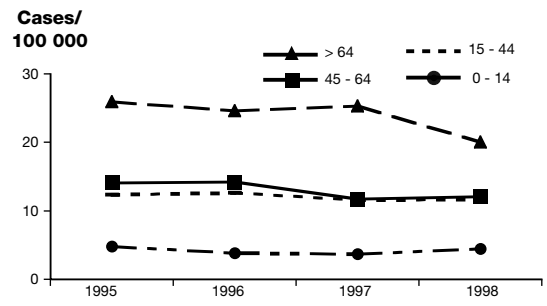
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



BOSNIA-HERZEGOVINA

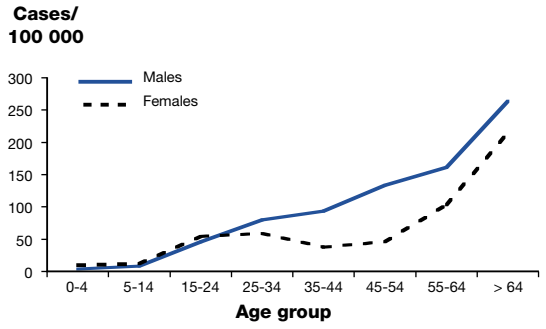
TB cases notified in 1998

Notification rate per 100 000	83.6	
	N	**(%)**
Total number of cases	3 071	(100)
New cases	2 745	(89)
Recurrent cases	312	(10)
Cases in foreigners	–	–
Culture positive cases	1 209	(39)
Pulmonary cases	2 773	(90)
- among which smear positive cases	773	

Proportions of drug resistant cases, 1998

Data not available

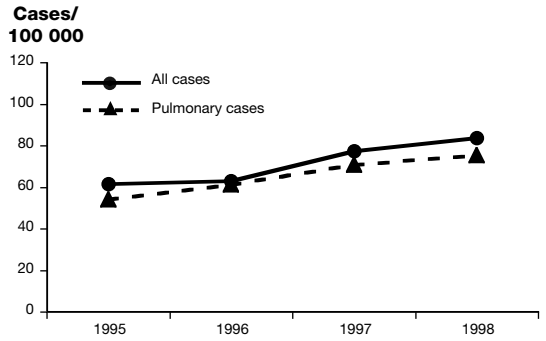
Tuberculosis notification rates by age group and sex, 1998



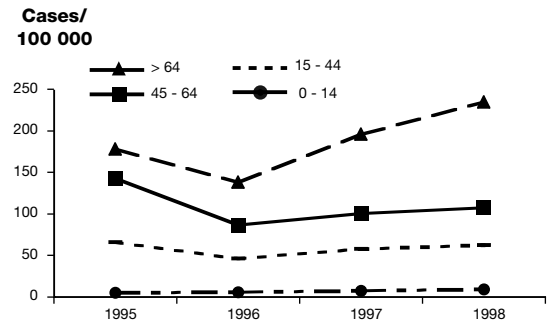
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



CROATIA

TB cases notified in 1998

Notification rate per 100 000	47.3	
	N	**(%)**
Total number of cases	2 118	(100)
New cases	1 189	(56)
Recurrent cases	183	(9)
Cases in foreign born patients *	188	(9)
Culture positive cases **	958	(70) **
Pulmonary cases	1 921	(91)
- among which smear positive cases **	546	

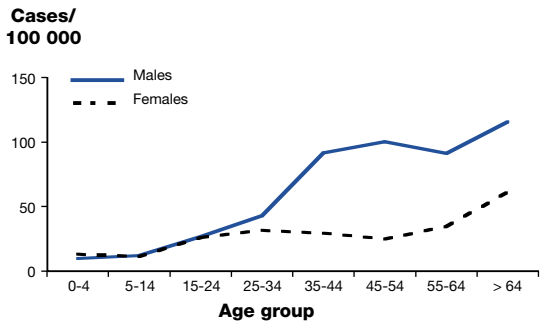
* 42% of the TB cases with unknown information on geographic origin

** data collected on a subset of 1 377 TB cases

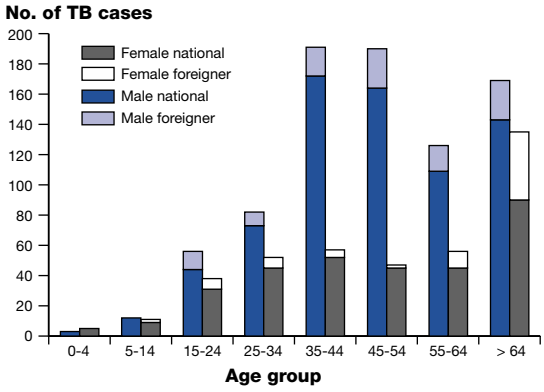
Proportions of drug resistant cases, 1998

Data not available

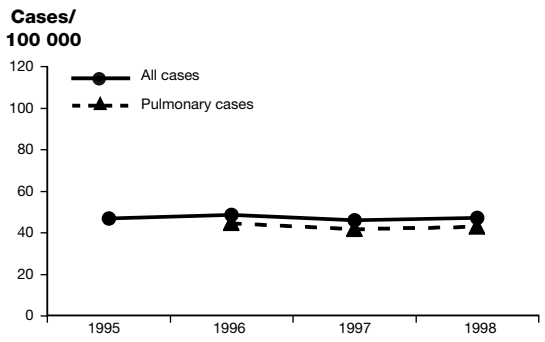
Tuberculosis notification rates by age group and sex, 1998



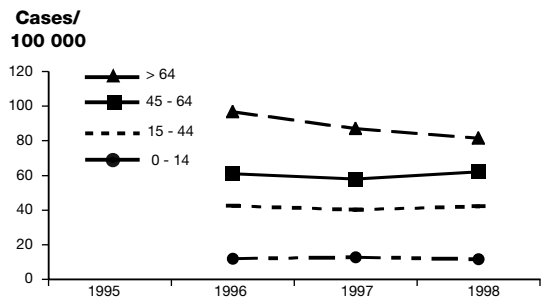
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



CZECH REPUBLIC

TB cases notified in 1998

Notification rate per 100 000	17.6	
	N	**(%)**
Total number of cases	1 805	(100)
New cases	1 588	(88)
Recurrent cases	66	(4)
Cases in foreign born patients	110	(6)
Culture positive cases	951	(53)
Respiratory cases	1 504	(83)
- among which smear positive cases	511	

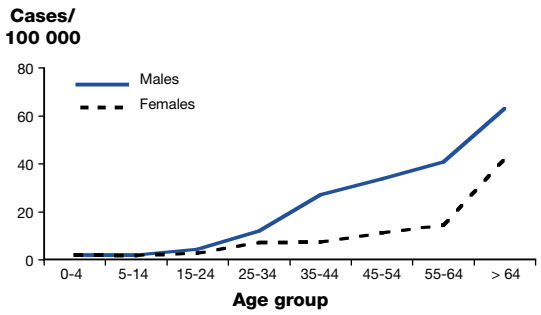
Proportions of drug resistant cases, 1998

Results refer only to pulmonary cases notified in 1998
Proportion of pulmonary notified cases with DST results: 39 %
Geographic coverage: national
Number of cases tested: 592/1 504

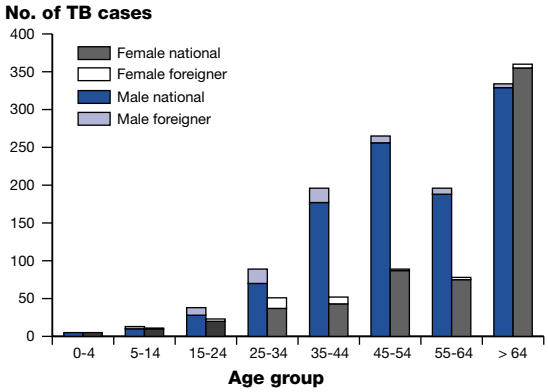
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	–	–	–	–	592	(100)
Any resistance to INH	–	–	–	–	41	(6.9)
Any resistance to RMP	–	–	–	–	15	(2.5)
MDR (INH & RMP)	–	–	–	–	13	(2.2)

* including cases without information on previous treatment

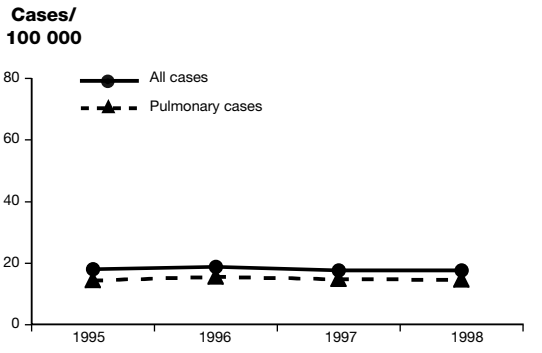
Tuberculosis notification rates by age group and sex, 1998



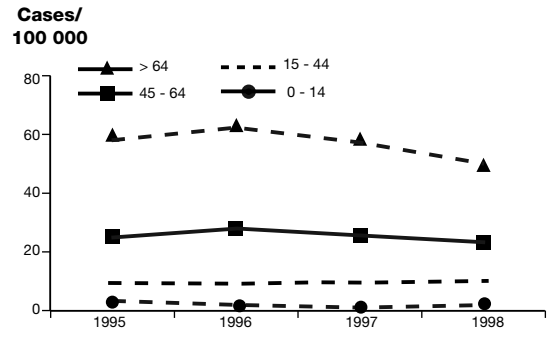
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



DENMARK

TB cases notified in 1998

Notification rate per 100 000	10.0	
	N	**(%)**
Total number of cases	529	(100)
New cases	486	(92)
Recurrent cases	43	(8)
Cases in foreign born patients	344	(65)
Culture positive cases	445	(84)
Pulmonary cases	351	(66)
- among which smear positive cases	163	

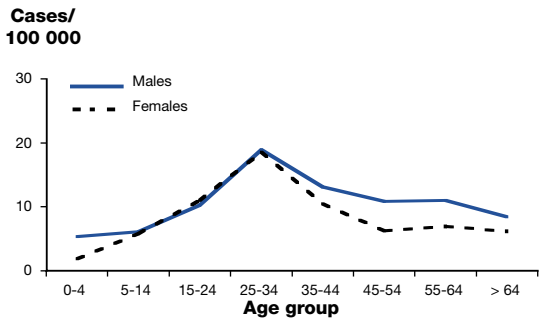
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 84 %
Geographic coverage: national
Number of cases tested: 444/529

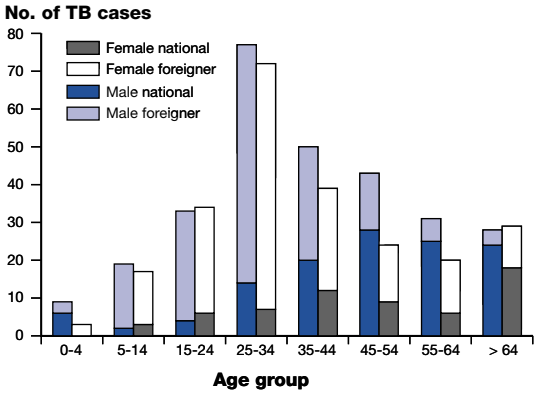
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	412	(100)	32	(100)	444	(100)
Any resistance to INH	25	(6.1)	4	(12.5)	29	(6.5)
Any resistance to RMP	2	(0.5)	1	(3.1)	3	(0.7)
MDR (INH & RMP)	2	(0.5)	1	(3.1)	3	(0.7)

* including cases without information on previous treatment

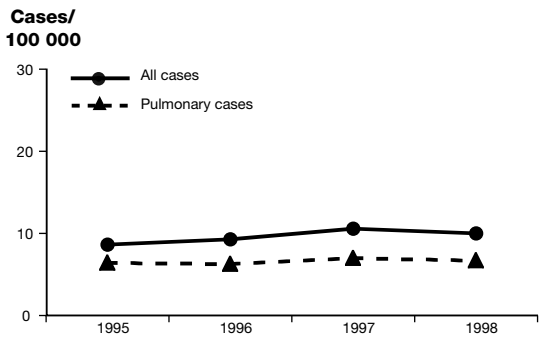
Tuberculosis notification rates by age group and sex, 1998



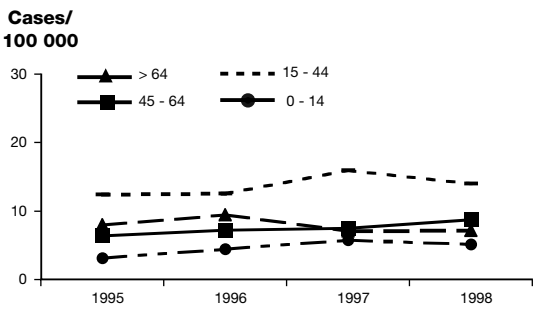
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



ESTONIA

TB cases notified in 1998

Notification rate per 100 000	57.2	
	N	**(%)**
Total number of cases	818	(100)
New cases	688	(84)
Recurrent cases	130	(16)
Cases in foreign born patients	114	(14)
Culture positive cases	536	(66)
Pulmonary cases	745	(91)
- among which smear positive cases	359	

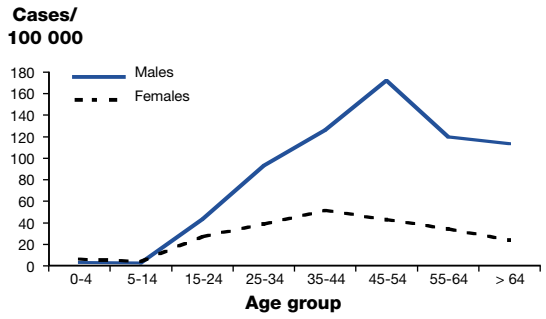
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 64 %
Geographic coverage: national
Number of cases tested: 526/818

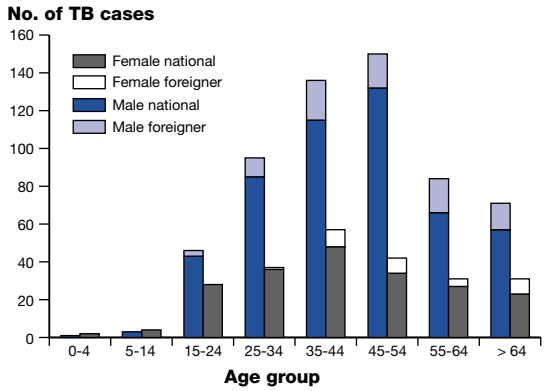
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	433	(100)	93	(100)	526	(100)
Any resistance to INH	110	(25.4)	46	(49.5)	156	(29.7)
Any resistance to RMP	67	(15.5)	35	(37.6)	102	(19.4)
MDR (INH & RMP)	63	(14.5)	34	(36.6)	97	(18.4)

* including cases without information on previous treatment

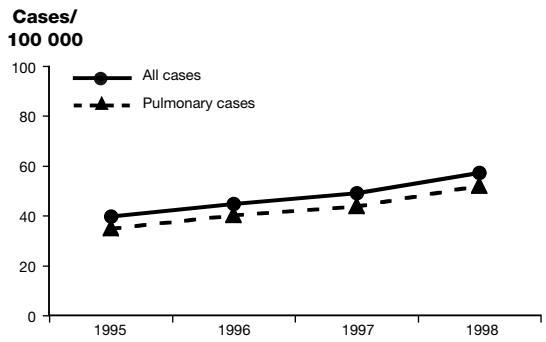
Tuberculosis notification rates by age group and sex, 1998



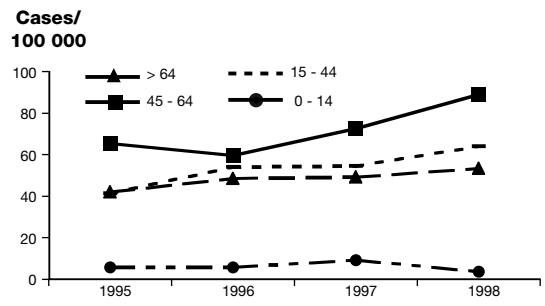
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



FINLAND

TB cases notified in 1998

Notification rate per 100 000	12.2	
	N	**(%)**
Total number of cases	629	(100)
New cases	–	–
Recurrent cases	–	–
Cases in foreign born patients	49	(8)
Culture positive cases	490	(78)
Pulmonary cases	396	(63)
- among which smear positive cases	201	

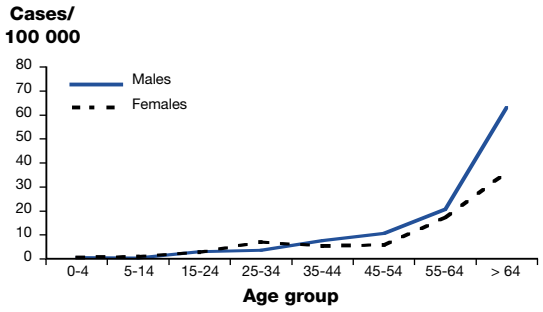
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 56 %
Geographic coverage: national
Number of cases tested: 353/629

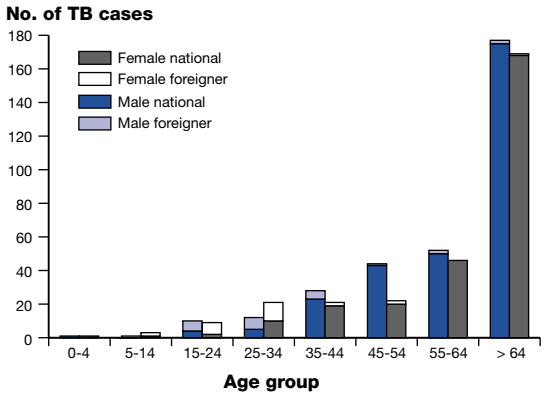
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	–	–	–	–	353	(100)
Any resistance to INH	–	–	–	–	9	(2.5)
Any resistance to RMP	–	–	–	–	3	(0.8)
MDR (INH & RMP)	–	–	–	–	2	(0.6)

* including cases without information on previous treatment

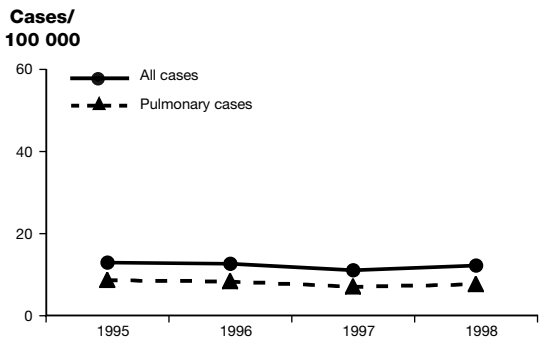
Tuberculosis notification rates by age group and sex, 1998



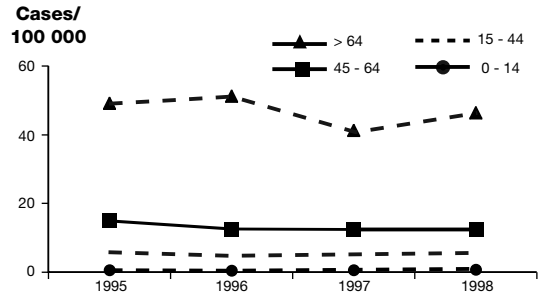
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



FRANCE

TB cases notified in 1998

Notification rate per 100 000	11.0	
	N	**(%)**
Total number of cases	6 651	(100)
New cases	5 981	(90)
Recurrent cases	670	(10)
Cases in foreign citizens	1 595	(24)
Culture positive cases	1 625	(24)
Pulmonary cases	4 925	(74)
- among which smear positive cases	2 697	

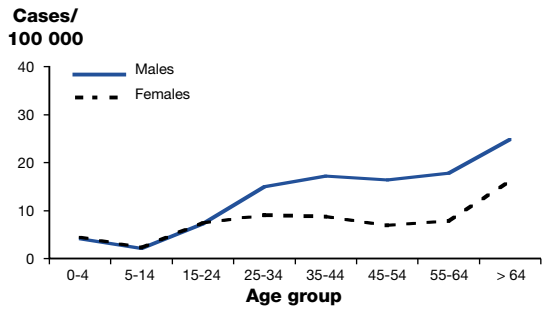
Proportions of drug resistant cases, 1998

DST results not linked with TB notification
Proportion of notified cases with DST results: NA
Geographic coverage: 11/22 regions
Number of cases tested: 1 115

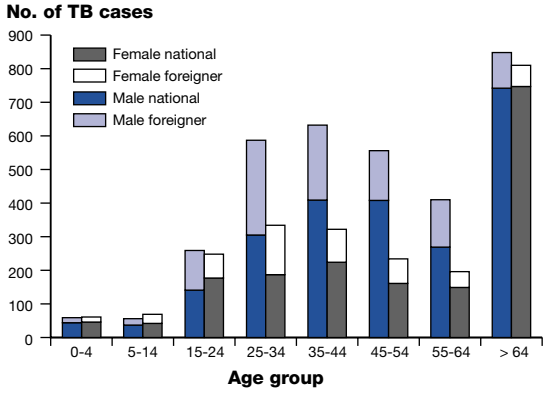
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	850	(100)	65	(100)	1 115	(100)
Any resistance to INH	42	(4.9)	11	(16.9)	64	(5.7)
Any resistance to RMP	6	(0.7)	6	(9.2)	14	(1.3)
MDR (INH & RMP)	6	(0.7)	6	(9.2)	12	(1.1)

* including cases without information on previous treatment

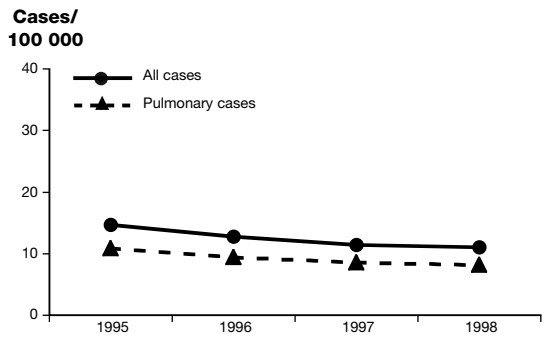
Tuberculosis notification rates by age group and sex, 1998



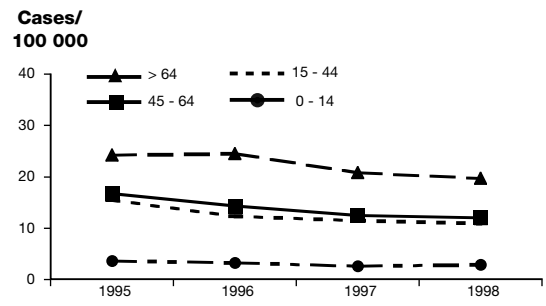
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



GEORGIA

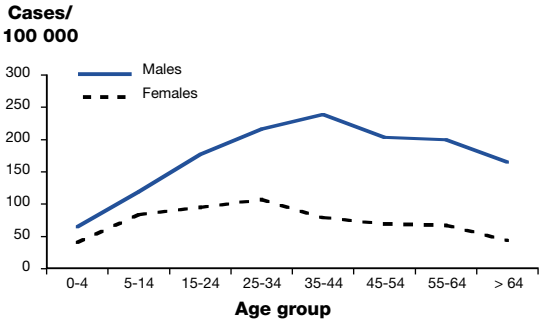
TB cases notified in 1998

Notification rate per 100 000	124.6	
	N	**(%)**
Total number of cases	6 302	(100)
New cases	4 644	(74)
Recurrent cases	1 658	(26)
Cases in foreign citizens	0	(0)
Culture positive cases	–	–
Pulmonary cases	4 586	(73)
- among which smear positive cases	915	

Proportions of drug resistant cases, 1998

Data not requested

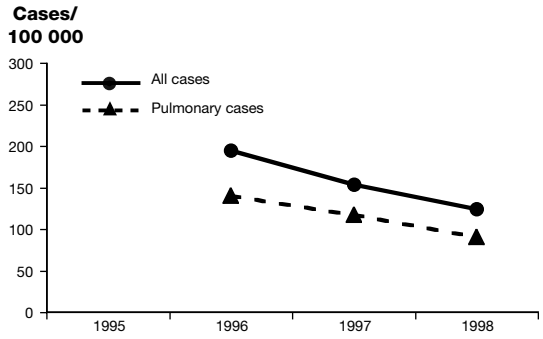
Tuberculosis notification rates by age group and sex, 1998



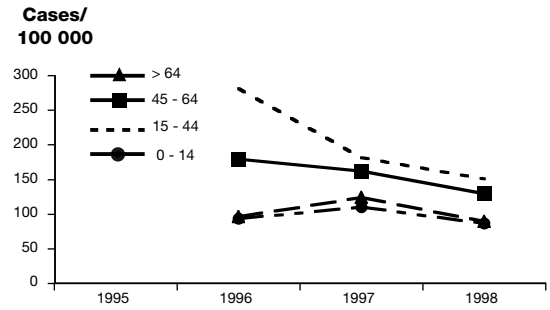
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



GERMANY

TB cases notified in 1998

Notification rate per 100 000	12.7	
	N	**(%)**
Total number of cases	10 440	(100)
New cases	–	–
Recurrent cases	–	–
Cases in foreign citizens	3 291	(32)
Culture positive cases *	4 168	(66) *
Respiratory cases	8 796	(84)
- among which smear positive cases	3 124	

* data collected on a subset of 6 304 TB cases

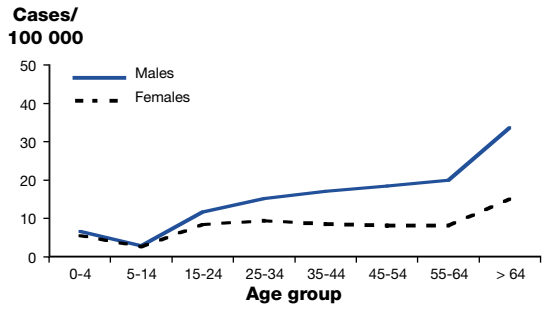
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998 in 290/430 public health units
Proportion of notified cases with DST results: 52 %
Geographic coverage: national
Number of cases tested: 3 271/6 304

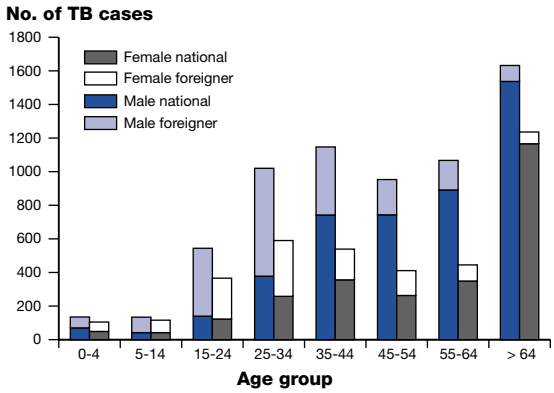
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	1 583	(100)	282	(100)	3 271	(100)
Any resistance to INH	77	(4.9)	50	(17.7)	204	(6.2)
Any resistance to RMP	23	(1.5)	20	(7.1)	57	(1.7)
MDR (INH & RMP)	13	(0.8)	19	(6.7)	45	(1.4)

* including cases without information on previous treatment

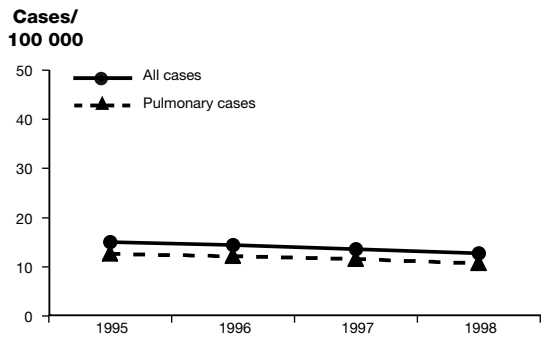
Tuberculosis notification rates by age group and sex, 1998



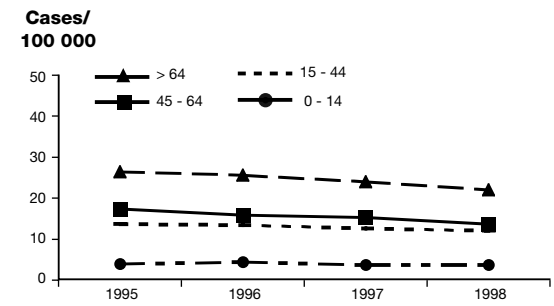
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



GREECE

TB cases notified in 1998

Notification rate per 100 000	10.9	
	N	**(%)**
Total number of cases	1 152	(100)
New cases	1 133	(98)
Recurrent cases *	19	(2)
Cases in foreign citizens	126	(11)
Culture positive cases	420	(36)
Pulmonary cases	873	(76)
- among which smear positive cases	287	

* Included in the notification since 1998

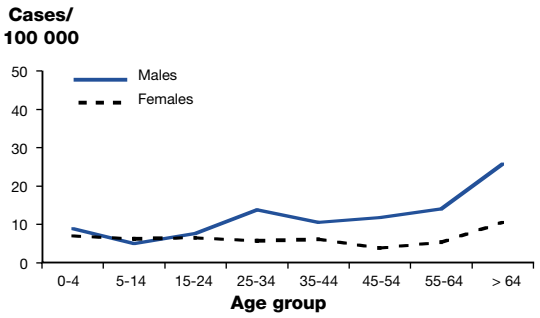
Proportions of drug resistant cases, 1998

DST results not linked with notification
Proportion of notified cases with DST results: NA
Geographic coverage: national
Number of cases tested: 613

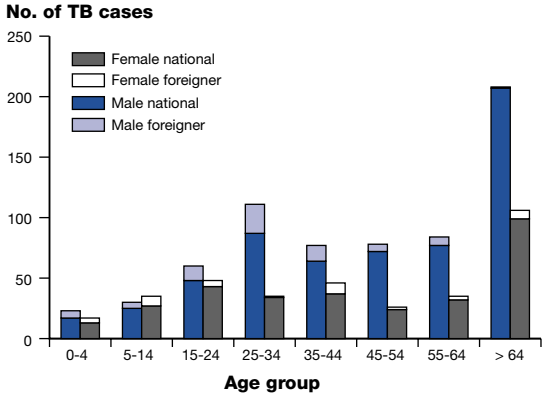
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	–	–	–	–	613	(100)
Any resistance to INH	–	–	–	–	80	(13.1)
Any resistance to RMP	–	–	–	–	48	(7.8)
MDR (INH & RMP)	–	–	–	–	31	(5.1)

* including cases without information on previous treatment

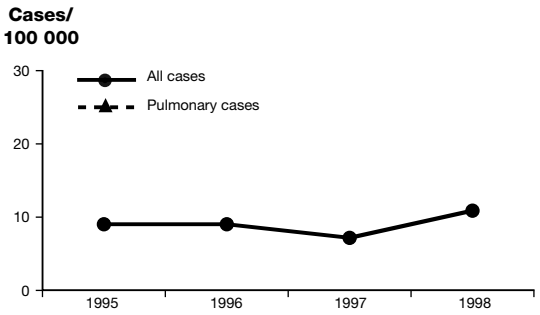
Tuberculosis notification rates by age group and sex, 1998



Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Not available

HUNGARY

TB cases notified in 1998

Notification rate per 100 000	39.5	
	N	**(%)**
Total number of cases	3 999	(100)
New cases	3 375	(84)
Recurrent cases	624	(16)
Cases in foreign citizens	10	(0)
Culture positive cases	1 483	(37)
Pulmonary cases	3 740	(94)
- among which smear positive cases	774	

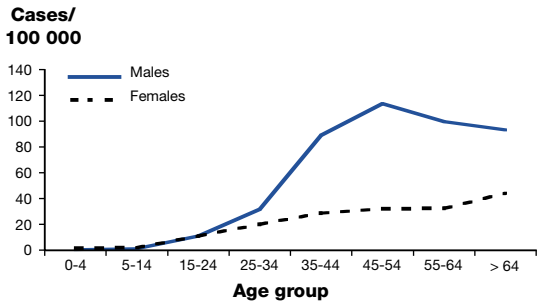
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 18 %
Geographic coverage: national
Number of cases tested: 733/3 999

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	599	(100)	134	(100)	733	(100)
Any resistance to INH	71	(11.9)	32	(23.9)	103	(14.1)
Any resistance to RMP	30	(5.0)	18	(13.4)	48	(6.5)
MDR (INH & RMP)	24	(4.0)	13	(9.7)	37	(5.0)

* including cases without information on previous treatment

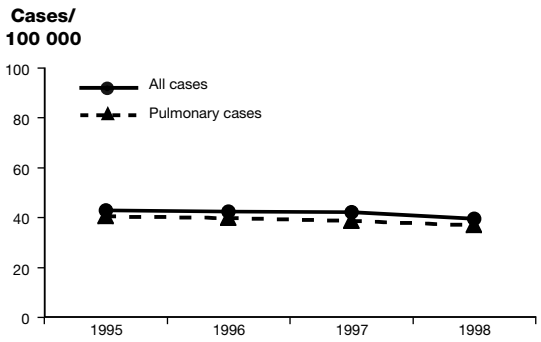
Tuberculosis notification rates by age group and sex, 1998



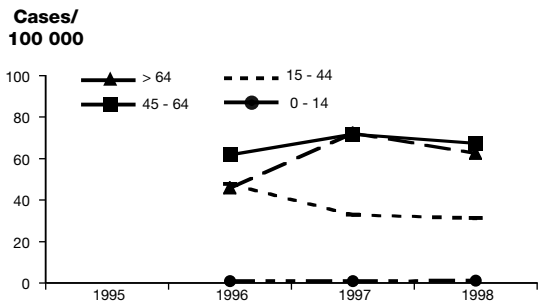
Tuberculosis cases by age group, sex and citizenship, 1998

Less than 5% of the TB cases in patients of foreign origin

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



ICELAND

TB cases notified in 1998

Notification rate per 100 000	6.2	
	N	**(%)**
Total number of cases	17	(100)
New cases	12	(71)
Recurrent cases	5	(29)
Cases in foreign born patients	8	(47)
Culture positive cases	11	(65)
Pulmonary cases	12	(71)
- among which smear positive cases	3	

Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 65 %
Geographic coverage: national
Number of cases tested: 11/17

	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	10	(100)	1	(100)	11	(100)
Any resistance to INH	0	(0.0)	0	(0.0)	0	(0.0)
Any resistance to RMP	0	(0.0)	0	(0.0)	0	(0.0)
MDR (INH & RMP)	0	(0.0)	0	(0.0)	0	(0.0)

* including cases without information on previous treatment

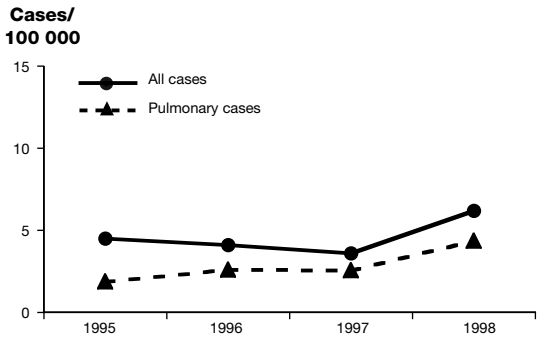
Tuberculosis notification rates by age group and sex, 1998

Insufficient number of cases for graphic presentation

Tuberculosis cases by age group, sex and citizenship, 1998

Insufficient number of cases for graphic presentation

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Insufficient number of cases for graphic presentation

IRELAND

TB cases notified in 1998

Notification rate per 100 000	11.5	
	N	**(%)**
Total number of cases	424	(100)
New cases	185	(44)
Recurrent cases	39	(9)
Cases in foreign born patients	35	(8)
Culture positive cases	243	(57)
Pulmonary cases	314	(74)
- among which smear positive cases	121	

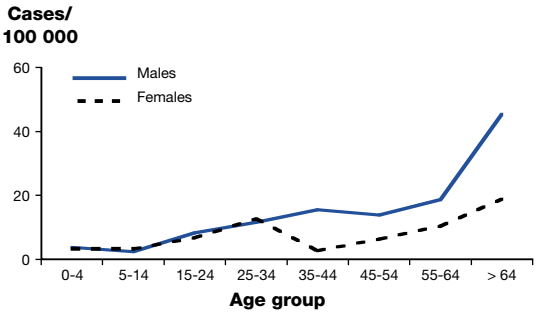
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 57 %
Geographic coverage: national
Number of cases tested: 241/424

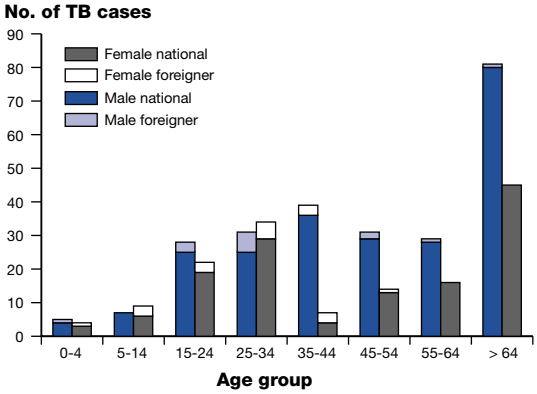
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	112	(100)	19	(100)	241	(100)
Any resistance to INH	1	(0.9)	0	(0.0)	3	(1.2)
Any resistance to RMP	0	(0.0)	0	(0.0)	0	(0.0)
MDR (INH & RMP)	0	(0.0)	0	(0.0)	0	(0.0)

* including cases without information on previous treatment

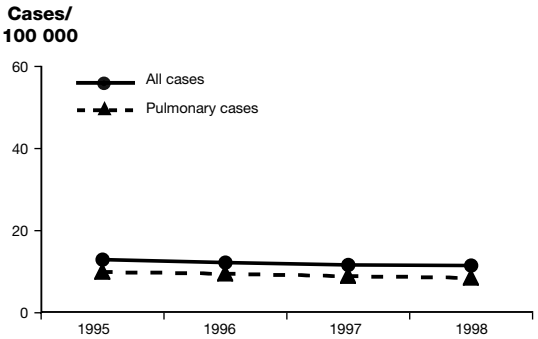
Tuberculosis notification rates by age group and sex, 1998



Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Not available

ISRAEL

TB cases notified in 1998

Notification rate per 100 000	11.0	
	N	**(%)**
Total number of cases	656	(100)
New cases	617	(94)
Recurrent cases	39	(6)
Cases in foreign born patients	560	(85)
Culture positive cases	377	(57)
Pulmonary cases	497	(76)
- among which smear positive cases	242	

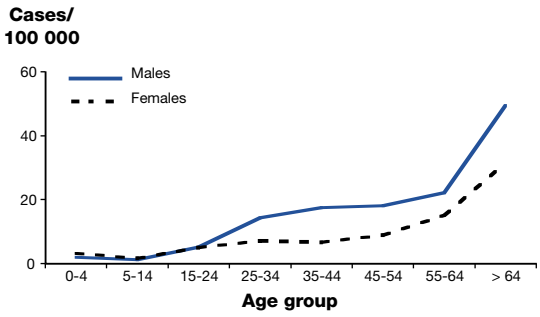
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 62 %
Geographic coverage: national
Number of cases tested: 307/497

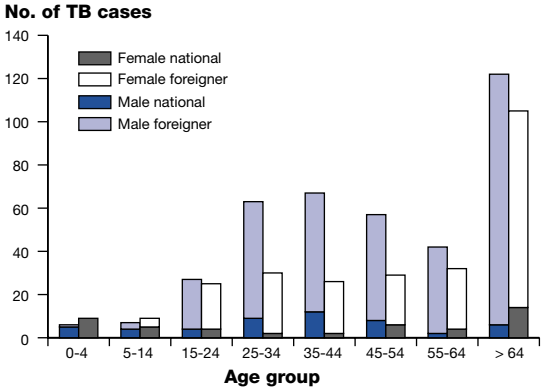
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	–	–	–	–	307	(100)
Any resistance to INH	–	–	–	–	48	(15.6)
Any resistance to RMP	–	–	–	–	26	(8.5)
MDR (INH & RMP)	–	–	–	–	25	(8.1)

* including cases without information on previous treatment

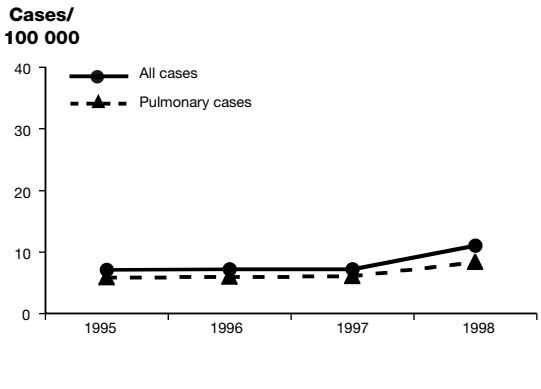
Tuberculosis notification rates by age group and sex, 1998



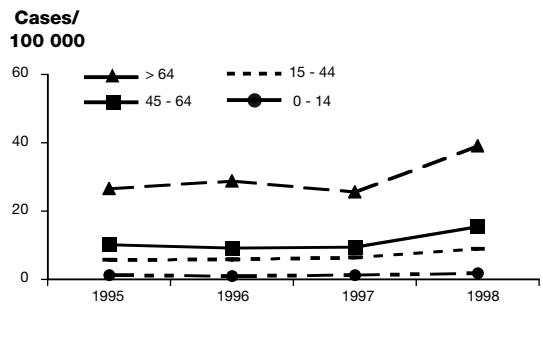
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



ITALY

TB cases notified in 1998

Notification rate per 100 000	8.4	
	N	**(%)**
Total number of cases	4 795	(100)
New cases	–	–
Recurrent cases	–	–
Cases in foreign citizens	797	(17)
Culture positive cases	2 261	(47)
Pulmonary cases	3 680	(77)
- among which smear positive cases	2 040	

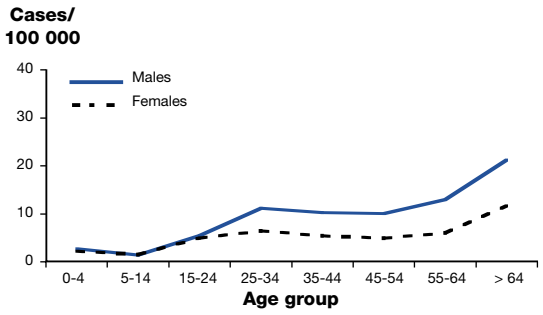
Proportions of drug resistant cases, 1998

DST results not linked with TB notification
Proportion of notified cases with DST results: NA
Geographic coverage: 13/20 regions
Number of cases tested: 810

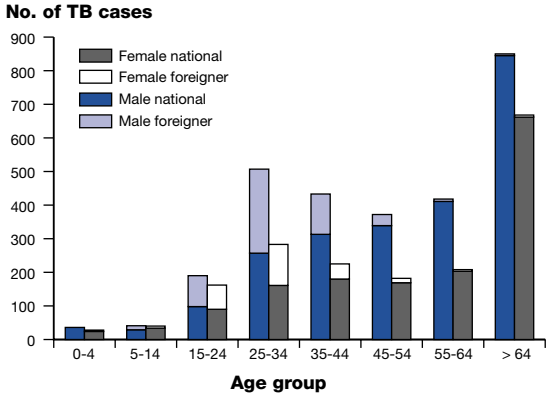
	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	683	(100)	115	(100)	810	(100)
Any resistance to INH	38	(5.6)	53	(46.1)	93	(11.5)
Any resistance to RMP	15	(2.2)	55	(47.8)	72	(8.9)
MDR (INH & RMP)	8	(1.2)	42	(36.5)	51	(6.3)

* including cases without information on previous treatment

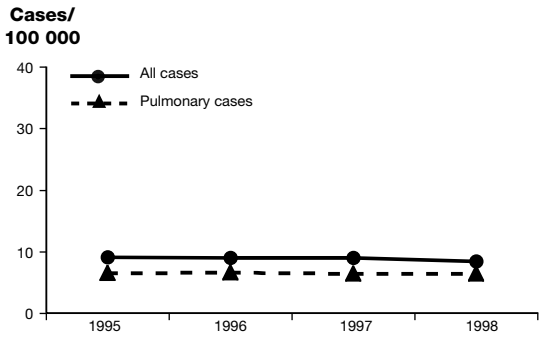
Tuberculosis notification rates by age group and sex, 1998



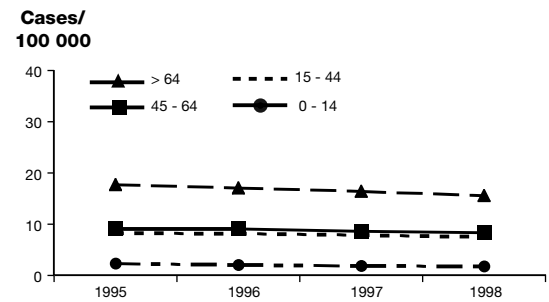
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



KAZAKHSTAN

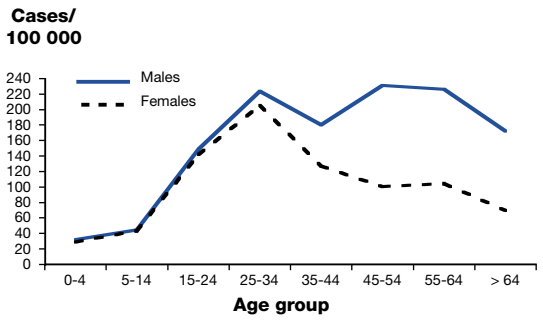
TB cases notified in 1998

Notification rate per 100 000	126.4	
	N	**(%)**
Total number of cases	20 623	(100)
New cases	18 505	(90)
Recurrent cases	2 118	(10)
Cases in foreigners	–	–
Culture positive cases	–	–
Respiratory cases	19 420	(94)
- among which smear positive cases	6 979	

Proportions of drug resistant cases, 1998

Data not requested

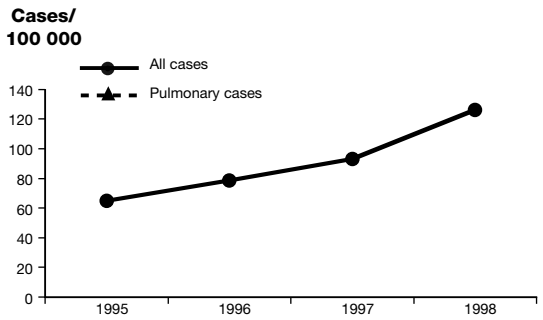
Tuberculosis notification rates by age group and sex, 1998



Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Not available

LATVIA

TB cases notified in 1998

Notification rate per 100 000	90.0	
	N	**(%)**
Total number of cases	2 182	(100)
New cases	1 820	(83)
Recurrent cases	362	(17)
Cases in foreign born patients	61	(3)
Culture positive cases	1 255	(58)
Respiratory cases	2 080	(95)
- among which smear positive cases	818	

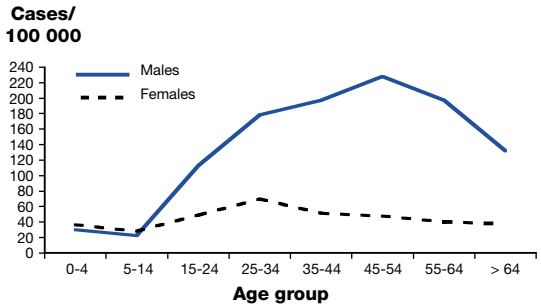
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 46 %
Geographic coverage: national
Number of cases tested: 1 013/2 182

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	789	(100)	224	(100)	1 013	(100)
Any resistance to INH	222	(28.1)	65	(29.0)	287	(28.3)
Any resistance to RMP	72	(9.1)	57	(25.4)	129	(12.7)
MDR (INH & RMP)	71	(9.0)	53	(23.7)	124	(12.2)

* including cases without information on previous treatment

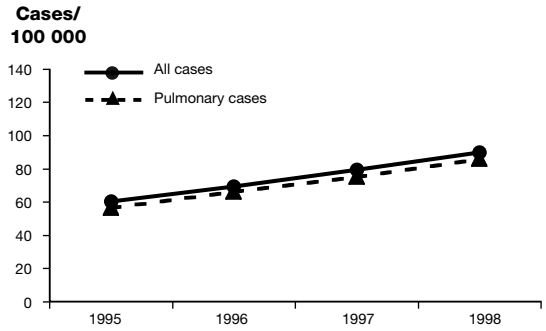
Tuberculosis notification rates by age group and sex, 1998



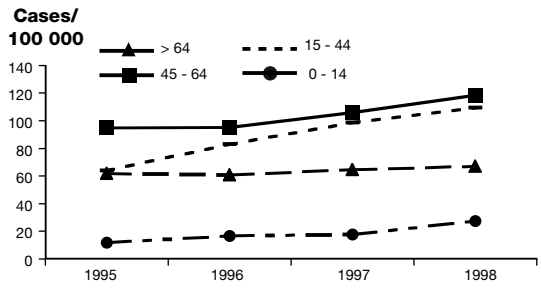
Tuberculosis cases by age group, sex and citizenship, 1998

Less than 5% of TB cases in foreign born patients

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



LITHUANIA

TB cases notified in 1998

Notification rate per 100 000	81.7	
	N	**(%)**
Total number of cases	3 016	(100)
New cases	2 690	(89)
Recurrent cases	326	(11)
Cases in foreign born patients	231	(8)
Culture positive cases	1 469	(49)
Pulmonary cases	2 712	(90)
- among which smear positive cases	787	

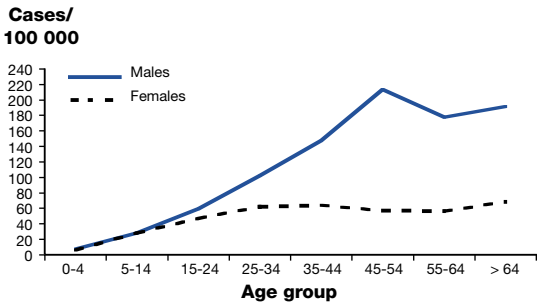
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 49 %
Geographic coverage: national
Number of cases tested: 1 469/3 016

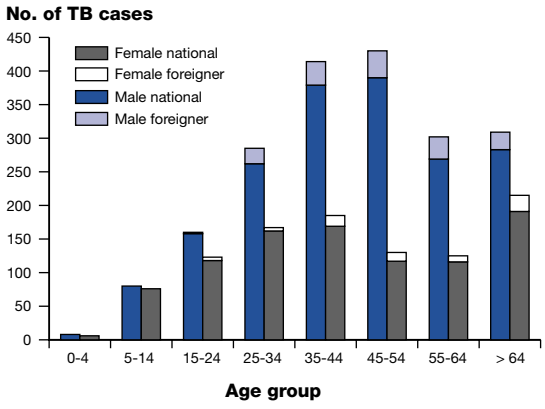
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	1 181	(100)	288	(100)	1 469	(100)
Any resistance to INH	144	(12.2)	48	(16.7)	192	(13.1)
Any resistance to RMP	63	(5.3)	36	(12.5)	99	(6.7)
MDR (INH & RMP)	56	(4.7)	31	(10.8)	87	(5.9)

* including cases without information on previous treatment

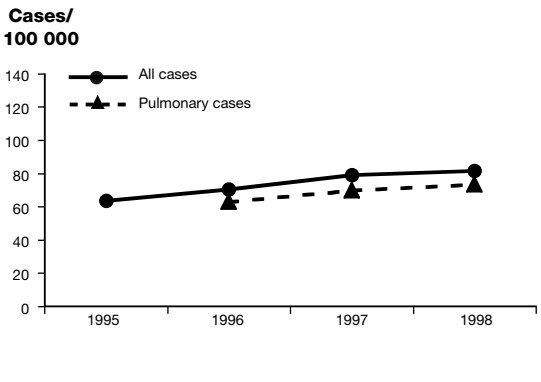
Tuberculosis notification rates by age group and sex, 1998



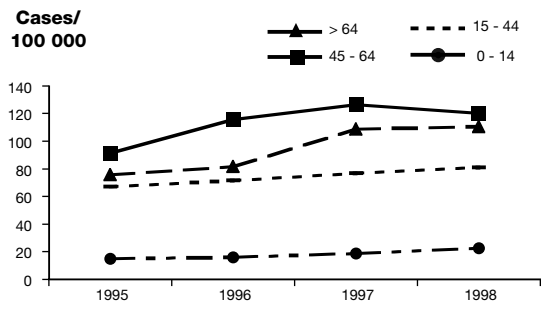
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



LUXEMBOURG

TB cases notified in 1998

Notification rate per 100 000	10.4	
	N	**(%)**
Total number of cases	44	(100)
New cases	40	(91)
Recurrent cases	4	(9)
Cases in foreign born patients	25	(57)
Culture positive cases	44	(100)
Pulmonary cases	38	(86)
- among which smear positive cases	27	

Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 100 %
Geographic coverage: national
Number of cases tested: 44/44

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	40	(100)	4	(100)	44	(100)
Any resistance to INH	3	(7.5)	0	(0.0)	3	(6.8)
Any resistance to RMP	1	(2.5)	0	(0.0)	1	(2.3)
MDR (INH & RMP)	1	(2.5)	0	(0.0)	1	(2.3)

* including cases without information on previous treatment

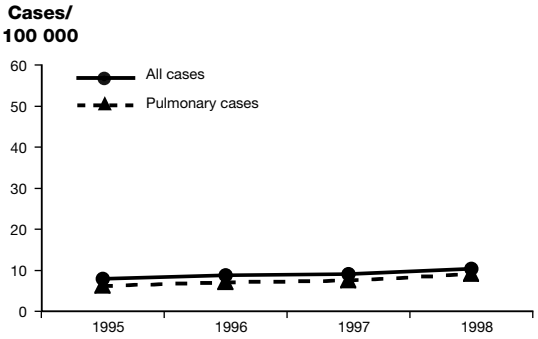
Tuberculosis notification rates by age group and sex, 1998

Insufficient number of cases for graphic presentation

Tuberculosis cases by age group, sex and citizenship, 1998

Insufficient number of cases for graphic presentation

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Insufficient number of cases for graphic presentation

MACEDONIA, FYR

TB cases notified in 1998

Notification rate per 100 000	31.0	
	N	**(%)**
Total number of cases	620	(100)
New cases	568	(92)
Recurrent cases	52	(8)
Cases in foreigners	–	–
Culture positive cases	194	(31)
Respiratory cases	555	(90)
- among which smear positive cases	206	

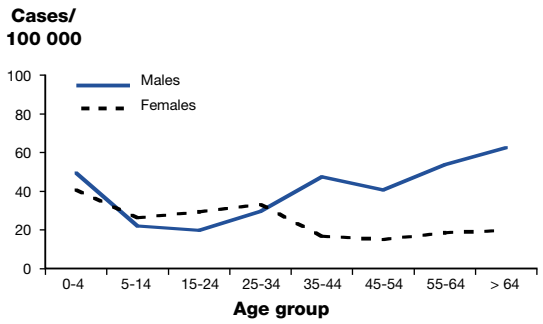
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 31 %
Geographic coverage: national
Number of cases tested: 194/620

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	–	–	–	–	194	(100)
Any resistance to INH	–	–	–	–	16	(8.2)
Any resistance to RMP	–	–	–	–	5	(2.6)
MDR (INH & RMP)	–	–	–	–	3	(1.5)

* including cases without information on previous treatment

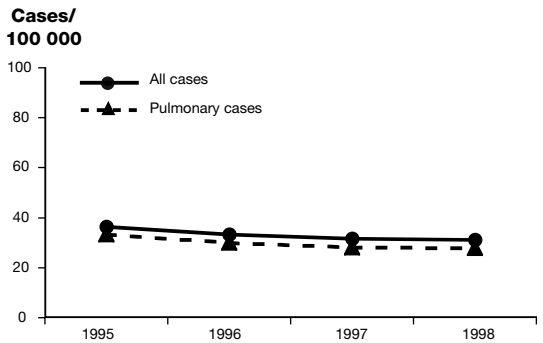
Tuberculosis notification rates by age group and sex, 1998



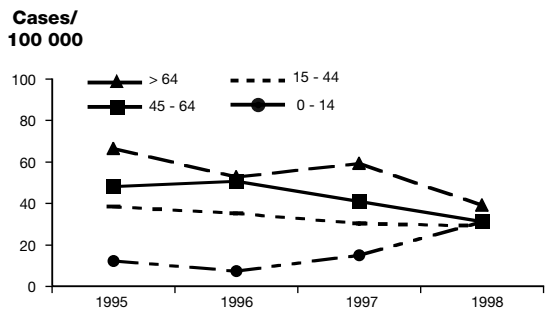
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



MALTA

TB cases notified in 1998

Notification rate per 100 000	4.2	
	N	**(%)**
Total number of cases	16	(100)
New cases	10	(63)
Recurrent cases	6	(38)
Cases in foreign born patients	4	(25)
Culture positive cases	4	(25)
Pulmonary cases	13	(81)
- among which smear positive cases	6	

Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 25 %
Geographic coverage: national
Number of cases tested: 4/16

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	3	(100)	1	(100)	4	(100)
Any resistance to INH	0	(0.0)	0	(0.0)	0	(0.0)
Any resistance to RMP	0	(0.0)	0	(0.0)	0	(0.0)
MDR (INH & RMP)	0	(0.0)	0	(0.0)	0	(0.0)

* including cases without information on previous treatment

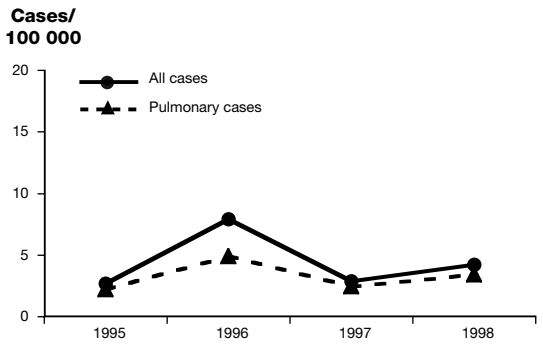
Tuberculosis notification rates by age group and sex, 1998

Insufficient number of cases for graphic presentation

Tuberculosis cases by age group, sex and citizenship, 1998

Insufficient number of cases for graphic presentation

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Insufficient number of cases for graphic presentation

MOLDOVA, REPUBLIC OF

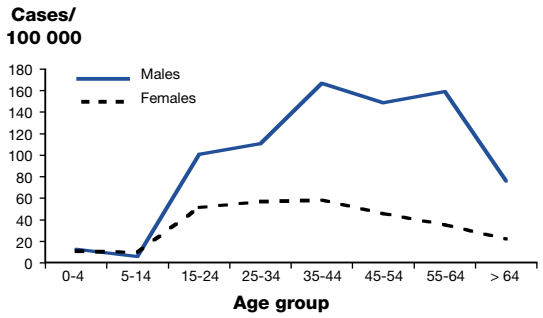
TB cases notified in 1998

Notification rate per 100 000	66.0	
	N	**(%)**
Total number of cases	2 891	(100)
New cases	2 545	(88)
Recurrent cases	346	(12)
Cases in foreign born patients	68	(2)
Culture positive cases	557	(19)
Respiratory cases	2 723	(94)
- among which smear positive cases	557	

Proportions of drug resistant cases, 1998

Data not requested

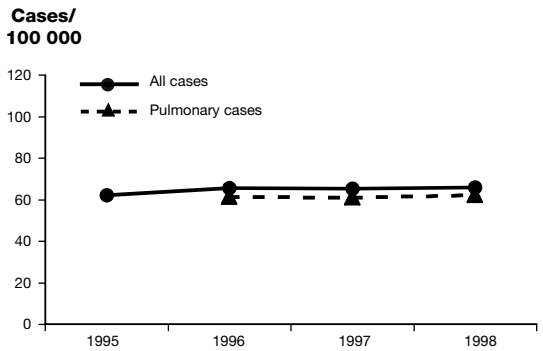
Tuberculosis notification rates by age group and sex, 1998



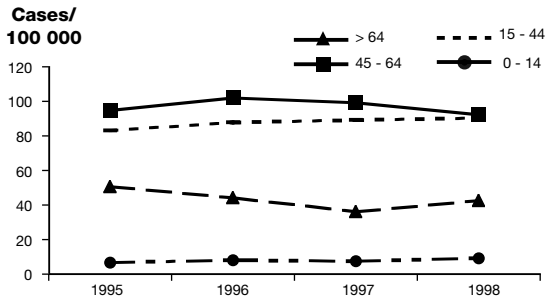
Tuberculosis cases by age group, sex and citizenship, 1998

Less than 5% of TB cases in foreign born patients

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



THE NETHERLANDS

TB cases notified in 1998

Notification rate per 100 000	8.6	
	N	**(%)**
Total number of cases	1 341	(100)
New cases	1 007	(75)
Recurrent cases	168	(13)
Cases in foreign citizens	805	(60)
Culture positive cases	692	(52)
Pulmonary cases	852	(64)
- among which smear positive cases	293	

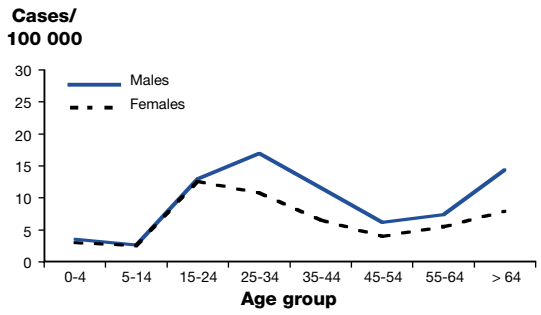
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 52 %
Geographic coverage: national
Number of cases tested: 692/1 341

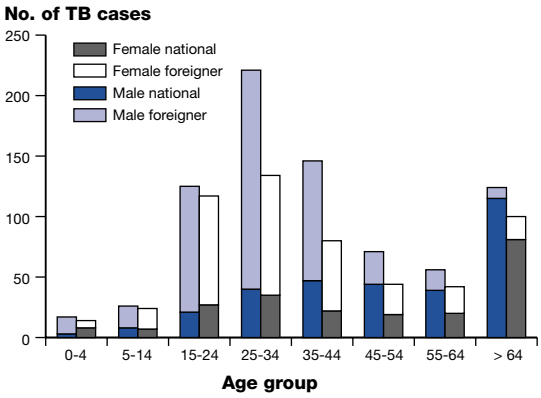
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	570	(100)	50	(100)	692	(100)
Any resistance to INH	19	(3.3)	4	(8.0)	26	(3.8)
Any resistance to RMP	2	(0.4)	4	(8.0)	6	(0.9)
MDR (INH & RMP)	1	(0.2)	3	(6.0)	4	(0.6)

* including cases without information on previous treatment

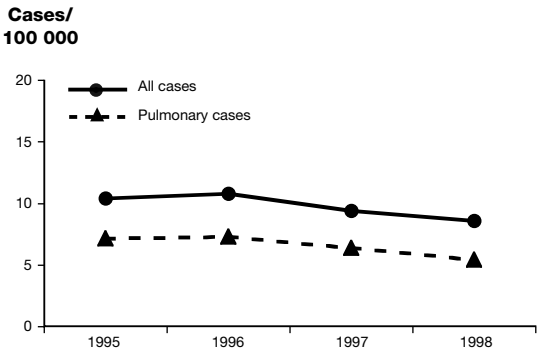
Tuberculosis notification rates by age group and sex, 1998



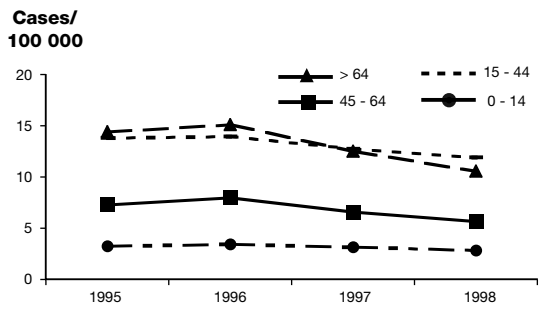
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



NORWAY

TB cases notified in 1998

Notification rate per 100 000	5.5	
	N	**(%)**
Total number of cases	244	(100)
New cases	174	(71)
Recurrent cases	70	(29)
Cases in foreign born patients	129	(53)
Culture positive cases	176	(72)
Pulmonary cases	158	(65)
- among which smear positive cases	43	

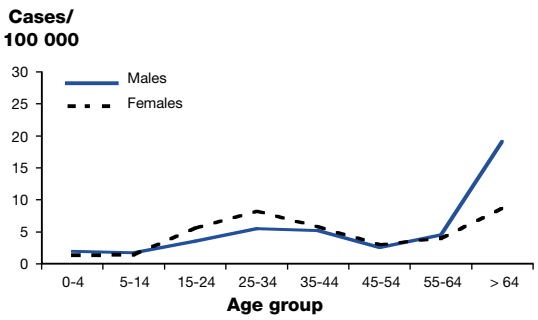
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 72 %
Geographic coverage: national
Number of cases tested: 175/244

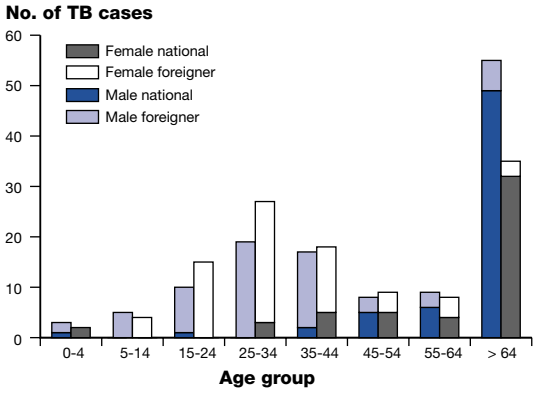
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	158	(100)	17	(100)	175	(100)
Any resistance to INH	11	(7.0)	3	(17.6)	14	(8.0)
Any resistance to RMP	1	(0.6)	1	(5.9)	2	(1.1)
MDR (INH & RMP)	1	(0.6)	1	(5.9)	2	(1.1)

* including cases without information on previous treatment

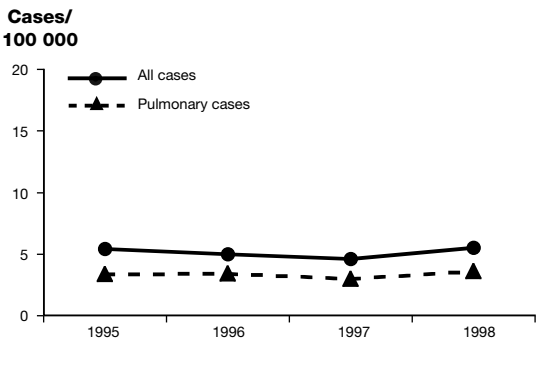
Tuberculosis notification rates by age group and sex, 1998



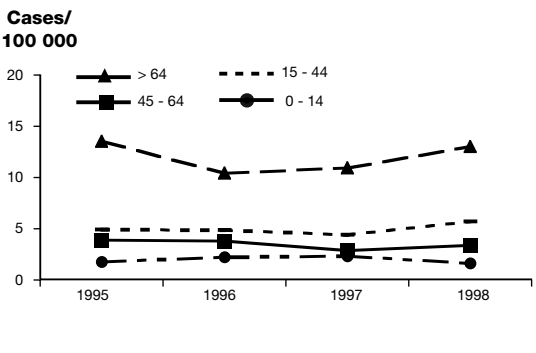
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



POLAND

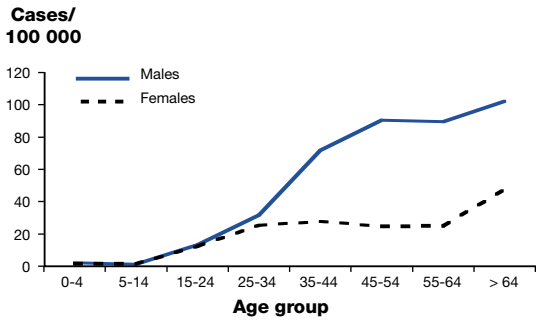
TB cases notified in 1998

Notification rate per 100 000	34.4	
	N	**(%)**
Total number of cases	13 302	(100)
New cases	11 826	(89)
Recurrent cases	1 476	(11)
Cases in foreigners	–	–
Culture positive cases	7 501	(56)
Respiratory cases	12 799	(96)
- among which smear positive cases	7 337	

Proportions of drug resistant cases, 1998

Data not available

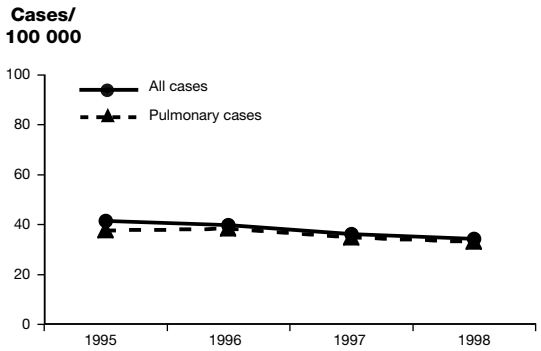
Tuberculosis notification rates by age group and sex, 1998



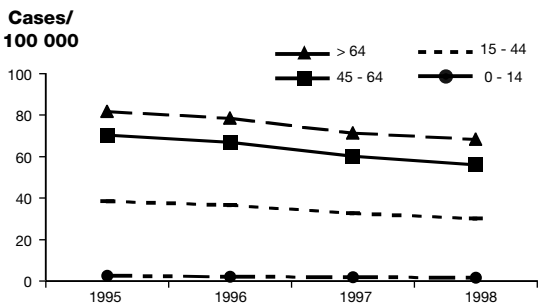
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



PORTUGAL

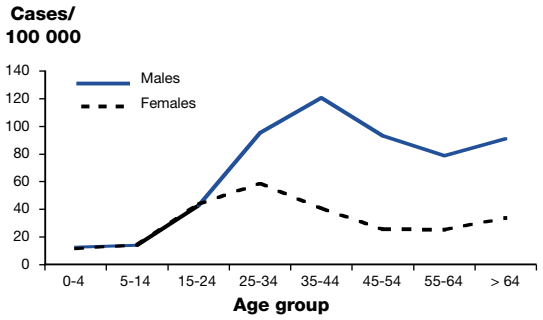
TB cases notified in 1998

Notification rate per 100 000	53.3	
	N	**(%)**
Total number of cases	5 260	(100)
New cases	4 685	(89)
Recurrent cases	575	(11)
Cases in foreigners	–	–
Culture positive cases	3 430	(65)
Pulmonary cases	3 772	(72)
- among which smear positive cases	2 265	

Proportions of drug resistant cases, 1998

Data not available

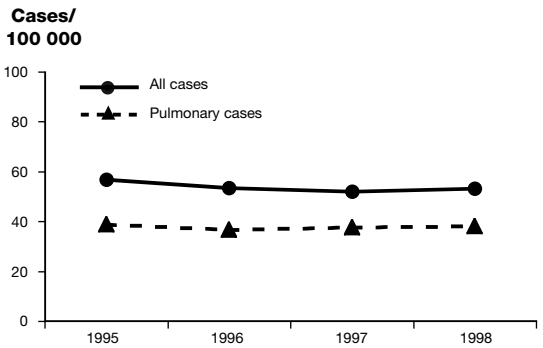
Tuberculosis notification rates by age group and sex, 1998



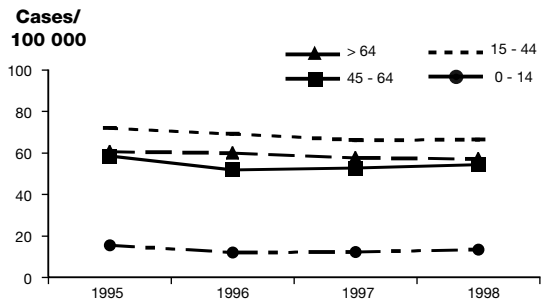
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



ROMANIA

TB cases notified in 1998

Notification rate per 100 000	114.6	
	N	**(%)**
Total number of cases	25 758	(100)
New cases	23 015	(89)
Recurrent cases	2 743	(11)
Cases in foreign citizens	0	(0)
Culture positive cases	13 158	(51)
Pulmonary cases	21 658	(84)
- among which smear positive cases	12 792	

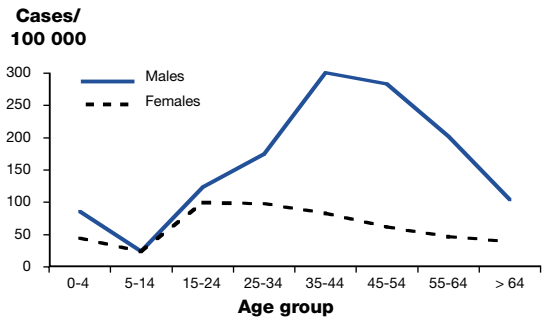
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 24 %
Geographic coverage: 13/47 regions
Number of cases tested: 1 733/7 183

	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	1 572	(100)	336	(100)	1 733	(100)
Any resistance to INH	105	(6.7)	61	(18.2)	166	(9.6)
Any resistance to RMP	46	(2.9)	56	(16.7)	102	(5.9)
MDR (INH & RMP)	32	(2.0)	42	(12.5)	74	(4.3)

* including cases without information on previous treatment

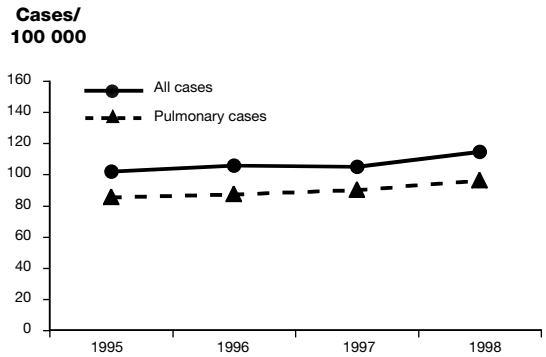
Tuberculosis notification rates by age group and sex, 1998



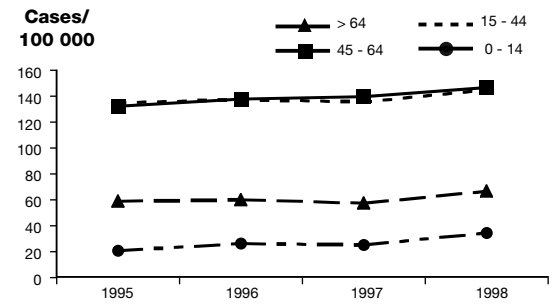
Tuberculosis cases by age group, sex and citizenship, 1998

0 case notified in foreign citizens

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



SLOVAKIA

TB cases notified in 1998

Notification rate per 100 000	23.8	
	N	**(%)**
Total number of cases	1 282	(100)
New cases	1 046	(82)
Recurrent cases	236	(18)
Cases in foreign born patients	1	(0)
Culture positive cases	737	57
Pulmonary cases	1 072	(84)
- among which smear positive cases	396	

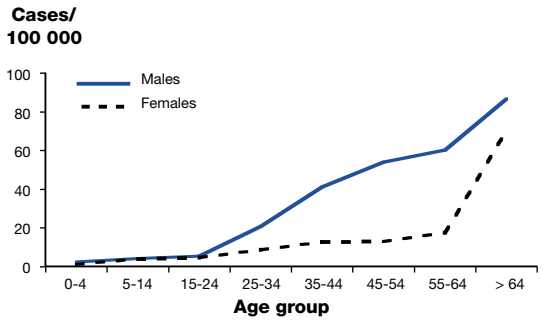
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 58 %
Geographic coverage: national
Number of cases tested: 746/1 282

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	589	(100)	157	(100)	746	(100)
Any resistance to INH	12	(2.0)	17	(10.8)	29	(3.9)
Any resistance to RMP	2	(0.3)	16	(10.2)	18	(2.4)
MDR (INH & RMP)	2	(0.3)	13	(8.3)	15	(2.0)

* including cases without information on previous treatment

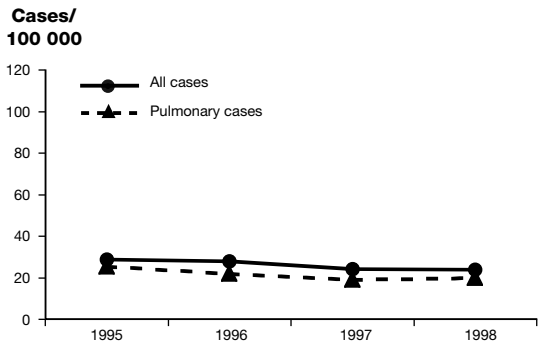
Tuberculosis notification rates by age group and sex, 1998



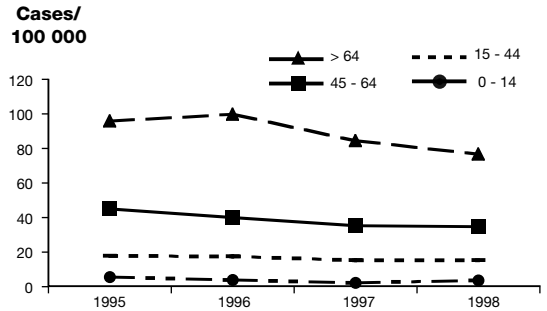
Tuberculosis cases by age group, sex and citizenship, 1998

Less than 5% of TB cases in foreign born patients

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



SLOVENIA

TB cases notified in 1998

Notification rate per 100 000	22.5	
	N	**(%)**
Total number of cases	449	(100)
New cases	404	(90)
Recurrent cases	45	(10)
Cases in foreign born patients	81	(18)
Culture positive cases	346	(77)
Pulmonary cases	363	(81)
- among which smear positive cases	178	

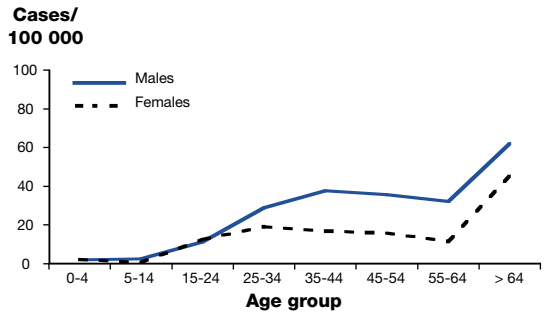
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 70 %
Geographic coverage: national
Number of cases tested: 315/449

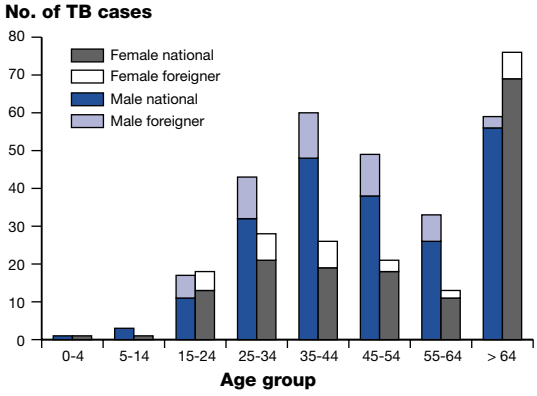
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	287	(100)	28	(100)	315	(100)
Any resistance to INH	2	(0.7)	1	(3.6)	3	(1.0)
Any resistance to RMP	0	(0.0)	0	(0.0)	0	(0.0)
MDR (INH & RMP)	0	(0.0)	0	(0.0)	0	(0.0)

* including cases without information on previous treatment

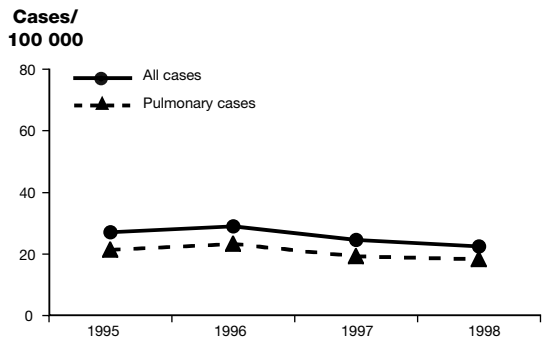
Tuberculosis notification rates by age group and sex, 1998



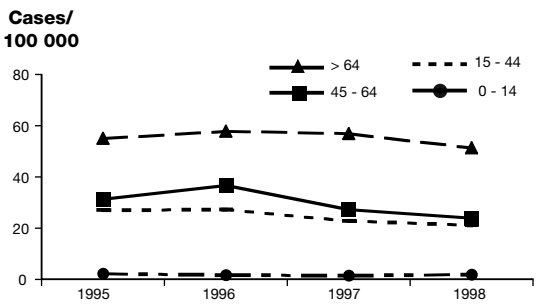
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



SPAIN

TB cases notified in 1998

Notification rate per 100 000	22.9	
	N	**(%)**
Total number of cases	9 111	(100)
New cases	3 730	(41)
Recurrent cases	220	(2)
Cases in foreign born patients **	94	(1)
Culture positive cases	2 562	(28)
Respiratory cases	9 026	(99)
- among which smear positive cases	2 441	

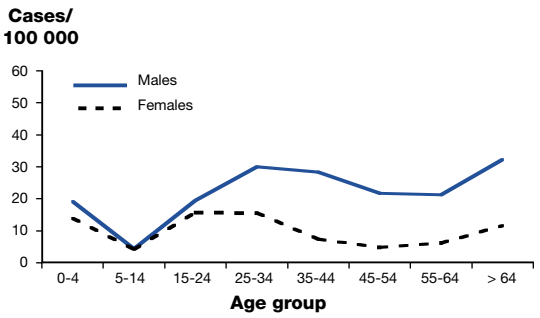
* Respiratory and meningeal cases only

** 59% of the TB cases with unknown information on geographic origin

Proportions of drug resistant cases, 1998

Data not available

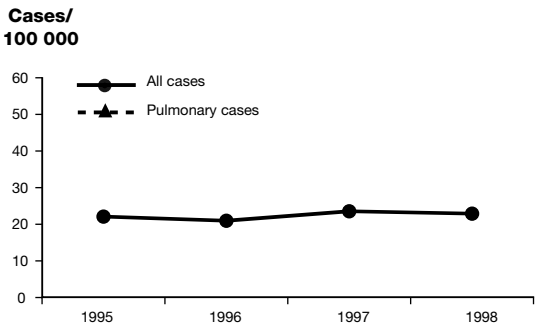
Tuberculosis notification rates by age group and sex, 1998 *



Tuberculosis cases by age group, sex and citizenship, 1998 *

Less than 5% of TB cases in foreign born patients

Tuberculosis notification rates, 1995-1998 **



Tuberculosis notification rates by age group, 1995-1998

Not available

** Until 1996, new respiratory cases only ; since 1997, new and recurrent respiratory and meningeal cases only

SWEDEN

TB cases notified in 1998

Notification rate per 100 000	5.0	
	N	**(%)**
Total number of cases	446	(100)
New cases	373	(84)
Recurrent cases	73	(16)
Cases in foreign born patients	269	(60)
Culture positive cases	368	(83)
Pulmonary cases	283	(63)
- among which smear positive cases	110	

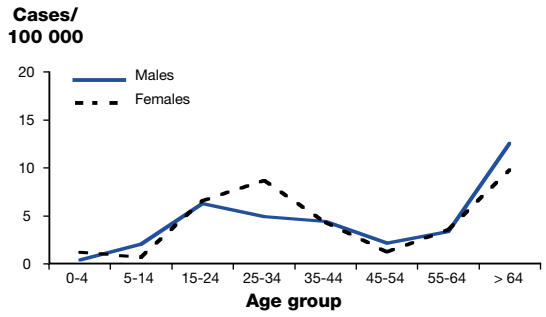
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 82 %
Geographic coverage: national
Number of cases tested: 365/446

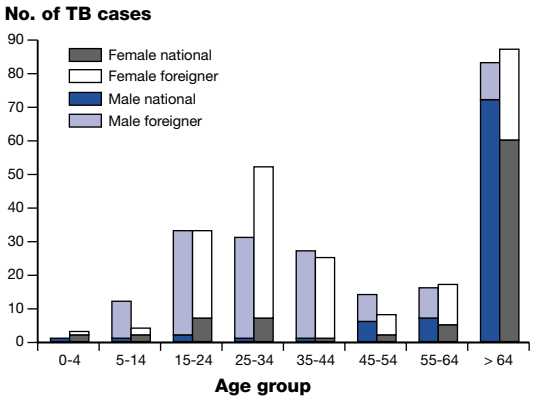
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	335	(100)	30	(100)	365	(100)
Any resistance to INH	16	(4.8)	5	(16.7)	21	(5.8)
Any resistance to RMP	2	(0.6)	2	(6.7)	4	(1.1)
MDR (INH & RMP)	2	(0.6)	2	(6.7)	4	(1.1)

* including cases without information on previous treatment

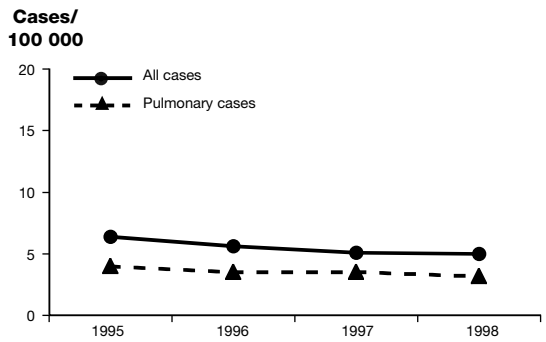
Tuberculosis notification rates by age group and sex, 1998



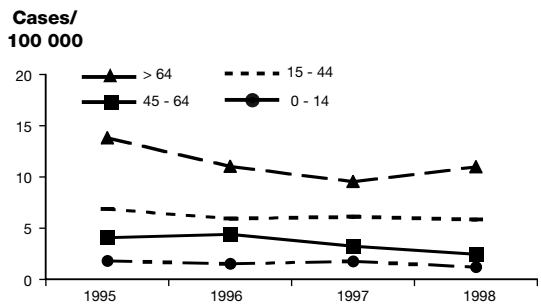
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



SWITZERLAND

TB cases notified in 1998

Notification rate per 100 000	10.3	
	N	**(%)**
Total number of cases	749	(100)
New cases	567	(76)
Recurrent cases	81	(11)
Cases in foreign born patients	411	(55)
Culture positive cases	604	(81)
Pulmonary cases	581	(78)
- among which smear positive cases	196	

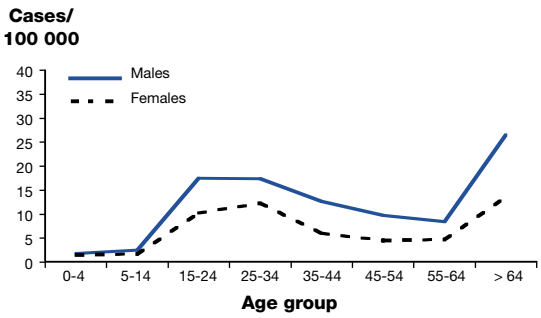
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 70 %
Geographic coverage: national
Number of cases tested: 528/749

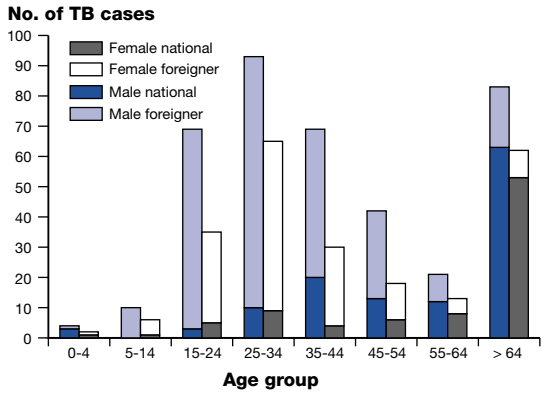
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	**(%)**	**N**	**(%)**	**N**	**(%)**
Tested	405	(100)	53	(100)	528	(100)
Any resistance to INH	22	(5.4)	8	(15.1)	32	(6.1)
Any resistance to RMP	3	(0.7)	1	(1.9)	5	(0.9)
MDR (INH & RMP)	2	(0.5)	1	(1.9)	3	(0.6)

* including cases without information on previous treatment

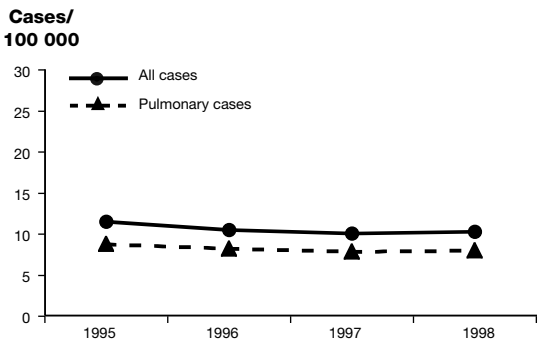
Tuberculosis notification rates by age group and sex, 1998



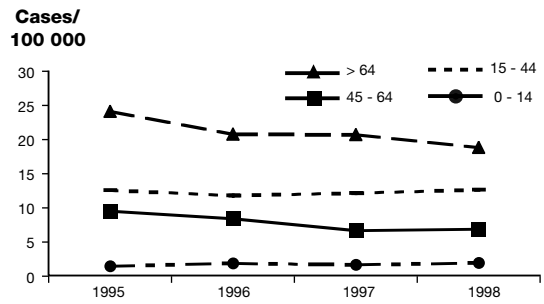
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



UNITED KINGDOM

TB cases notified in 1998

Notification rate per 100 000	10.5	
	N	**(%)**
Total number of cases	6 176	(100)
New cases	4 198	(68)
Recurrent cases	448	(7)
Cases in foreign born patients	2 970	(48)
Culture positive cases	3 703	(60)
Pulmonary cases *	3 892	(63)
- among which smear positive cases	1 525	

* Respiratroy cases for Scotland

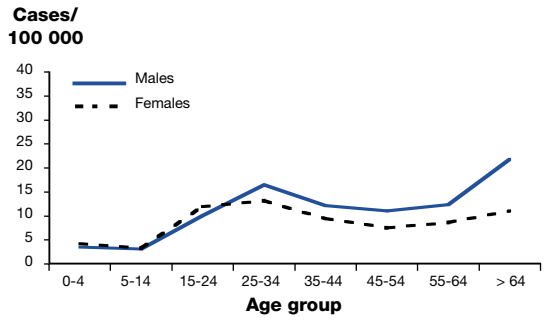
Proportions of drug resistant cases, 1998

Results refer only to cases notified in 1998
Proportion of notified cases with DST results: 54 %
Geographic coverage: national
Number of cases tested: 3 362/6 176

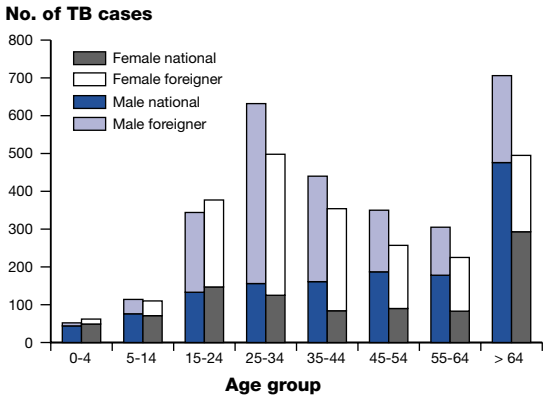
	Previous treatment status					
	Never treated		Previously treated		Total *	
	N	(%)	N	(%)	N	(%)
Tested	2 515	(100)	238	(100)	3 362	(100)
Any resistance to INH	110	(4.4)	23	(9.7)	164	(4.9)
Any resistance to RMP	13	(0.5)	10	(4.2)	29	(0.9)
MDR (INH & RMP)	8	(0.3)	9	(3.8)	21	(0.6)

* including cases without information on previous treatment

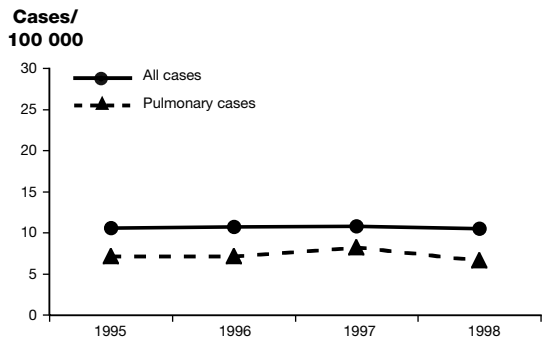
Tuberculosis notification rates by age group and sex, 1998



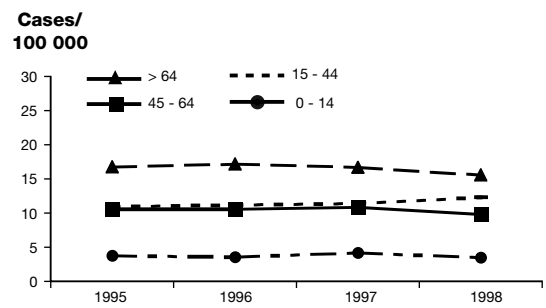
Tuberculosis cases by age group, sex and citizenship, 1998



Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998



UZBEKISTAN

TB cases notified in 1998

Notification rate per 100 000	35.9	
	N	**(%)**
Total number of cases	13 958	(100)
New cases	13 403	(96)
Recurrent cases	555	(4)
Cases in foreigners *	–	–
Culture positive cases	–	–
Respiratory cases	12 318	(88)
- among which smear positive cases	–	

* Foreigners not included in the notification

Proportions of drug resistant cases, 1998

Data not requested

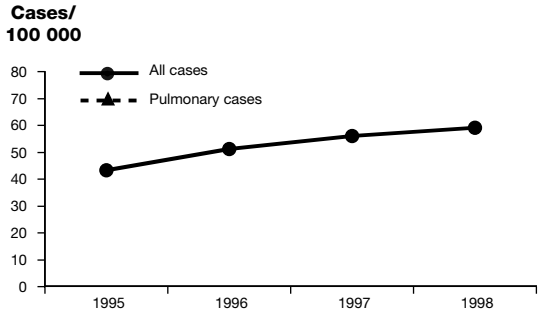
Tuberculosis notification rates by age group and sex, 1998

Not available

Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998



Tuberculosis notification rates by age group, 1995-1998

Not available

YUGOSLAVIA

TB cases notified in 1998 *

Notification rate per 100 000	35.9	
	N	**(%)**
Total number of cases	3 028	(100)
New cases	2 799	(92)
Recurrent cases	207	(7)
Cases in foreigners	–	–
Culture positive cases	1 873	(62)
Respiratory cases	2 829	(93)
- among which smear positive cases	1 873	

* Without Kosovo and Metohia

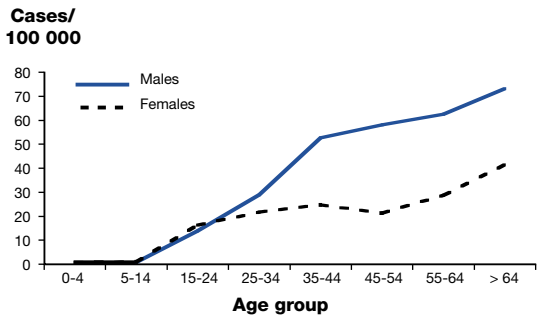
Proportions of drug resistant cases, 1998

Results refer only to pulmonary cases notified in 1998
Proportion of notified cases with DST results: 74 %
Geographic coverage: **Belgrade** region
Number of cases tested: 398/541

	Previous treatment status				Total *	
	Never treated		Previously treated			
	N	(%)	N	(%)	N	(%)
Tested	359	(100)	39	(100)	398	(100)
Any resistance to INH	3	(0.8)	2	(5.1)	5	(1.3)
Any resistance to RMP	4	(1.1)	3	(7.7)	7	(1.8)
MDR (INH & RMP)	2	(0.6)	2	(5.1)	4	(1.0)

* including cases without information on previous treatment

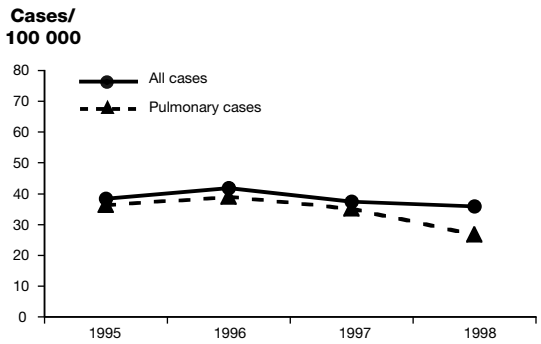
Tuberculosis notification rates by age group and sex, 1998 *



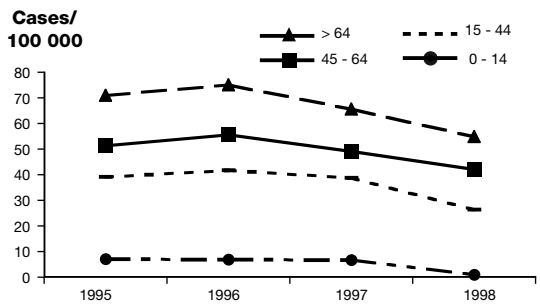
Tuberculosis cases by age group, sex and citizenship, 1998

Not available

Tuberculosis notification rates, 1995-1998 *



Tuberculosis notification rates by age group, 1995-1998 *



* 1998 Without Kosovo and Metohia