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Surveillance of **Tuberculosis** in Europe - **EuroTB 2002**

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## Report on tuberculosis cases notified in 2002

Institut de veille sanitaire  
WHO Collaborating Centre for the Surveillance of Tuberculosis in Europe  
Royal Netherlands Tuberculosis Association (KNCV)



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

Report on  
tuberculosis cases  
notified in 2002

**Institut de veille sanitaire**  
**WHO Collaborating Centre for the Surveillance of Tuberculosis in Europe**  
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# 1.1 SUMMARY

In 2002, 404,628 cases of tuberculosis (TB) were notified in the 52 countries of the WHO European Region. European TB surveillance data show a contrasted picture, with an increasing West-East gradient in TB notification rates.

## European Union and West

In the 25 countries of the enlarged European Union, Andorra, Iceland, Israel, Monaco, Norway, San Marino and Switzerland (EU & West), 66,877 TB cases were notified in 2002. The overall notification rate was 14 per 100,000 (over 50 in the Baltic States) and decreased by 4% yearly between 1998 and 2002. Patients of foreign origin represented a third of cases in 2002. In 16 countries with consistent data, numbers of cases of foreign origin were stable between 1998 and 2002 (-0.6% yearly) while they decreased by an average 7% yearly in nationals. TB rates in 2002 were 10 times higher in the population of foreign origin than in nationals. Rates peaked in the age group 25-34 years in the population of foreign origin and were highest over 64 years among nationals. Pulmonary cases represented 78% of TB cases and were more frequently culture confirmed (54%) than extra-pulmonary cases (29%). European AIDS reporting data (source: EuroHIV) showed that TB, the most frequent initial AIDS-indicative disease, represented 3.3% of total TB cases reported in 2002. The total prevalence of initial multi-drug resistance (MDR) was much higher in the Baltic States (21%) than in the other countries (1.7%; range: 0-3.6%), where it was high in foreigners from the countries of the former Soviet Union (12.7%), representing over 40% of MDR-TB cases. In 24 countries with complete treatment outcome monitoring (TOM) data, 74% of new pulmonary culture positive cases notified in 2001 were cured or had completed treatment (success), 7% died during treatment, 3% were still on treatment at 12 months, and 13% defaulted or had no outcome information. In most countries in the EU & West, TB morbidity is decreasing overall, and increasingly concentrates in migrants, in the elderly and in HIV-infected individuals. Data indicate the need to focus increasingly and adapt TB control efforts to populations at risk.

## Centre

In the Centre, total TB notification rates in 2002 were very high and increasing in Romania (153 per 100,000). Rates are much lower (20 to 62) in the other countries (Albania, Bosnia & Herzegovina, Bulgaria, Croatia, F.Y.R. of Macedonia, Romania, Serbia & Montenegro and Turkey) where decreasing trend was observed since 1998, except in Serbia & Montenegro and F.Y.R. of Macedonia. In 2002, age specific rates peaked in the age group 35-44 years in Romania (213), were not available in Turkey and were highest over 64 years in the other countries (70). Pulmonary cases represented 88% of cases, and, among these, 50% were culture positive and 55% were sputum smear positive. AIDS cases notified with TB as initial AIDS indicative disease represented 0.2% of total TB cases. Representative drug resistance data from Croatia and Bosnia & Herzegovina indicated total prevalence of MDR below 1%. Success ratios among new smear positive cases (4 countries) were low in Romania (7% failures) and in Turkey (9% still on treatment). Available data indicate a very high morbidity in Romania, and are insufficient to interpret trends in Bulgaria and Turkey, where surveillance should be upgraded.

## East

In the East (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Rep. of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan), 272,849 TB cases were reported in 2002 (97 per 100,000), of which half from the Russian Federation. Between 1998 and 2002, notification rates increased by 6% yearly overall, but did not increase in Armenia, Belarus and Georgia. Age specific rates (9 countries) peaked in the age group 25-34 years (129 per 100,000), suggesting high levels of transmission. Positive sputum smear was reported in 42% of pulmonary cases, while data on culture confirmation were sparse. Of the 1,501 AIDS cases notified in 2002 (most from Ukraine), 48% had no information on initial AIDS-indicative diseases and 32% had TB, representing 1.1% of total TB cases in Ukraine and <0.5% in the other countries. Drug resistance was poorly documented, apart from a national survey from Kazakhstan indicating 9% MDR among new cases in 2001. Complete TOM data among new smear positive cases notified in 2001 (6 countries) showed an overall success ratio of 76%, failure in 11% of cases and death in 5% of cases. TB surveillance data from the East depict a worrying situation deserving further national and international efforts for TB control, including strengthened surveillance and programme monitoring.





## 1.2 RÉSUMÉ

En 2002, 404 628 cas de tuberculose (TB) ont été déclarés dans la région Europe de l'OMS. (52 pays). Les données européennes de surveillance de la TB montrent une situation très contrastée avec un gradient Ouest-Est des taux de déclaration.

### Union Européenne et Ouest

Dans les 25 pays de l'Union européenne élargie plus Andorre, Islande, Israël, Monaco, Norvège, Saint-Marin et Suisse (UE & Ouest), 66 877 cas de TB ont été déclarés en 2002. Le taux de déclaration moyen est de 14 cas pour 100 000 (plus de 50 cas aux pays Baltes) et il a diminué de 4 % par an en moyenne entre 1998 et 2002. Les patients d'origine étrangère représentent 1/3 des cas en 2002. Dans 16 pays ayant fourni des données consistantes, le nombre de cas d'origine étrangère est resté stable entre 1998 et 2002 (-0,6 % par an) alors qu'il a diminué de 7 % en moyenne par an parmi les nationaux. Les taux de TB en 2002 sont 10 fois plus élevés dans la population d'origine étrangère que parmi les nationaux. Les taux de déclaration les plus élevés sont observés parmi la population étrangère du groupe d'âge 25-34 ans et parmi les nationaux au-delà de 64 ans. Les cas pulmonaires représentent 78 % des cas et sont plus souvent confirmés par culture (54 %) que les cas extra-pulmonaires (29 %). Les données européennes de déclaration de sida (source : EuroHIV) montrent que la TB, pathologie inaugurale indicatrice de sida, représente 3,3 % du total des cas de TB déclarés en 2002. La prévalence totale de multi-résistance (MDR) est la plus élevée dans les pays Baltes (21 %). Dans les autres pays, la proportion de MDR est de 1,7 % (étendue : 0-3,6 %) ; elle est élevée parmi les étrangers originaires des pays de l'ex-URSS (12,7 %), qui représentent plus de 40 % des cas de TB-MDR. Vingt-quatre pays ont fourni des données sur le résultat du traitement des cas pulmonaires à culture positive, déclarés en 2001. Parmi les nouveaux cas, 74 % ont été guéris ou ont complété le traitement (succès), 7 % sont décédés pendant le traitement et 3 % sont encore sous traitement après 12 mois. Dans 13 % des cas, le traitement a été interrompu ou son résultat est inconnu. Dans la plupart des pays de l'UE & Ouest, la morbidité liée à la tuberculose diminue et se concentre dans les groupes de population tels que les migrants, les personnes âgées et les personnes atteintes par le VIH. Les données de surveillance démontrent le besoin croissant de cibler et d'adapter les efforts de lutte antituberculeuse aux groupes de population à risque.

### Centre

Parmi les pays du Centre, le taux de déclaration de TB est très élevé et en augmentation en Roumanie (153 cas pour 100 000). Il est beaucoup plus faible (20-62) dans les autres pays (Albanie, Bosnie & Herzégovine, Bulgarie, Croatie, Macédoine, Serbie & Monténégro et Turquie) où il diminue depuis 1998 à l'exception de la Macédoine et Serbie & Monténégro. Les taux par groupe d'âge, non disponibles pour la Turquie, sont les plus élevés chez les 35-44 ans en Roumanie (213) et chez les personnes âgées de plus de 64 ans dans les autres pays (70). Les cas pulmonaires représentent 88 % des cas et, parmi eux 50 % sont confirmés par culture et 55 % ont un frottis d'expectoration positif. La TB, pathologie inaugurale indicatrice de sida, représente 0,2 % de l'ensemble des cas de TB déclarés. Les données de résistance de la Croatie et de la Bosnie & Herzégovine montrent une proportion de MDR inférieure à 1 %. Parmi les nouveaux cas à frottis positif, le ratio de succès en 2001 est supérieur à 85 % en Albanie et en Macédoine ; il est moins élevé en Roumanie (74 % ; 7 % d'échecs) et en Turquie (72 % ; 9 % sous traitement). Les données disponibles indiquent une morbidité très élevée en Roumanie ; cependant elles sont insuffisantes pour interpréter la situation épidémiologique en Bulgarie et en Turquie, où la surveillance doit être renforcée.

### Est

A l'Est (Arménie, Azerbaïdjan, Belarus, Géorgie, Kazakhstan, Kirghizstan, Rép. de Moldavie, Russie, Tadjikistan, Turkménistan, Ukraine et Ouzbékistan), 272 849 cas de TB ont été déclarés en 2002 (97 cas pour 100 000), dont la moitié en Russie. Globalement, entre 1998 et 2002, les taux de déclaration ont augmenté en moyenne de 6 % par an mais n'ont pas augmenté en Arménie, Belarus et Géorgie. Les taux de déclaration (9 pays) sont plus élevés dans le groupe d'âge 25-34 ans (129 cas pour 100 000), ce qui indique un niveau de transmission élevé. Alors que les données de confirmation par culture ne sont pas disponibles, 42 % des cas pulmonaires ont un frottis positif. Parmi les 1 501 cas de sida déclarés en 2002 (la plupart en Ukraine), 48 % n'ont pas de renseignement sur les pathologies inaugurales indicatrices de sida et 32 % ont la TB. Ces cas de TB représentent 1,1 % des cas de TB en Ukraine et moins de 0,5 % dans les autres pays. Les données nationales représentatives sur la résistance aux médicaments antituberculeux ne sont disponibles qu'au Kazakhstan où, en 2001, une enquête nationale a montré 9 % de MDR parmi les nouveaux cas. Parmi les nouveaux cas à frottis positif déclarés en 2001 (6 pays), les données sur le résultat de traitement montrent en moyenne 76 % de succès, 11 % d'échecs et 5 % de décès. Les données de surveillance démontrent une situation alarmante à l'Est qui nécessite un renforcement ultérieur des efforts nationaux et internationaux de lutte contre la TB, y compris une amélioration de la surveillance et de l'évaluation des programmes.



# 1.3 Резюме на русском языке

В 2002 г., было зарегистрировано 404 628 случаев туберкулеза в Европейском регионе ВОЗ (52 страны). Европейские данные по эпиднадзору за ТБ свидетельствуют о значительно отличающейся ситуации в отношении показателей зарегистрированных случаев, с уклоном Запад-Восток.

## Европейский Союз и Запад

В 25 странах расширенного Европейского Союза, в Андорре, Исландии, Израиле, Монако, Норвегии, Сан Марино и Швейцарии (ЕС & Запад), в 2002 г. было зарегистрировано 66 877 случаев. Средний показатель был 14 случаев на 100 000 (в прибалтийских странах превышал 50 случаев) и снизился ежегодно в среднем на 4 % между 1998 – 2002 гг. Пациенты иностранного происхождения составляли треть случаев в 2002 г. В 16 странах предоставивших достоверные данные, количество случаев иностранного происхождения осталось стабильным на протяжении 1998 – 2002 гг. (- 0.6 % ежегодно), пока снижение показателей на 7 % наблюдалось у местных жителей. Показатели ТБ в 2002 г. выше на 10 раз у жителей иностранного происхождения по сравнению с местными жителями. Самые высокие показатели зарегистрированных случаев наблюдались у иностранцев в возрастной группе 25 – 34 лет и у местных жителей в возрасте выше 64 лет. Легочные случаи составляли 78 % и они по большей части были подтверждены культуральным исследованием (54 %) чем внелегочные случаи (29 %). Европейские данные по сообщенным случаям СПИДа (источник EuroHIV) показывают что туберкулез, как первичный индикатор заболевания СПИДом, составлял 3,3 % всех случаев туберкулеза, о которых сообщалось в 2002 г. Глобальная превалентность случаев с многолекарственной устойчивостью (МЛУ) самая высокая в прибалтийских странах (21 %). В остальных странах наблюдалась превалентность ТБ с МЛУ 1,7 %. Она высока у иностранцев происходящих из стран бывшего Советского Союза (12,7 %), которые составляли более чем 40 % случаев туберкулеза с МЛУ. 24 страны предоставили данные об исходах лечения легочных случаев с положительной культурой, зарегистрированных в 2001 г. Среди новых случаев, 74 % пациентов излечилось или завершило лечение (успех), у 7 % наблюдался летальный исход в течение лечения и лечение у 3 % пациентов продлилось более 12 месяцев. У 13 % случаев лечение прерывалось или его результаты неизвестны. В большинстве стран ЕС & Запада распространение болезни в связи с туберкулезом снижается и сосредоточивается на группы жителей как напр. переселенцы, пожилые и пациенты с ВИЧ-инфекцией. Данные по эпиднадзору показывают необходимость направления и приспособления усилий по борьбе с туберкулезом группам риска.

## Центр

В странах Центра показатели зарегистрированных случаев туберкулеза самые высокие и увеличиваются в Румынии (153 случаев на 100 000); показатели были очень низки (20-62) в других странах (Албания, Босния & Герцеговина, Болгария, Хорватия, Македония, Сербия & Черногория и Турция), в которых снижающаяся тенденция наблюдалась с 1998 г., за исключением Сербии & Черногории и Бывшей Югославской Республики Македонии. В 2002 г., специфические показатели по возрастным группам достигли наивысшей степени в возрастной группе 35 – 44 лет в Румынии (213), были недоступны в Турции и были самыми высокими у жителей в возрасте выше 64 лет в остальных странах (70). Легочные случаи составляли 88 % случаев туберкулеза и среди них 50 % было подтверждено культуральным исследованием, 55 % составляли случаи с положительным мазком мокроты. Туберкулез как первичный индикатор заболевания СПИДом, составлял 0,2 % всех зарегистрированных случаев туберкулеза. Репрезентативные данные по резистентности в Хорватии и в Боснии & Герцеговине показывают, что превалентность МЛУ ниже 1го %. В 2001 г. пропорция успеха у новых случаев с положительным мазком мокроты (4 страны) была низка в Румынии (безуспешное лечение составляло 7 %) и в Турции (9 % проходят лечение). Доступные данные свидетельствуют о очень высокой болезненности в Румынии и они достаточны для освещения тенденций в Болгарии и в Турции, где нужно усилить эпиднадзор.

## Восток

В восточных странах (Армения, Азербайджан, Беларусь, Грузия, Казахстан, Кыргызстан, Республика Молдова, Российская Федерация, Таджикистан, Туркменистан, Украина и Узбекистан), в 2002 г. сообщалось о 272 849 случаях ТБ (97 случаев на 100 000), из которых половина в России. Вообще, между 1998-2002 гг., показатели зарегистрированных случаев увеличились ежегодно на 6 % но не увеличились в Армении, Беларуси и Грузии. Показатели зарегистрированных случаев (9 стран) самые высокие в возрастной группе 25 – 34 лет (129 случаев на 100 000), что свидетельствует о высоком уровне передачи. 42 % легочных случаев имеет положительный мазок мокроты, пока данные о подтвержденной культуре редки. Среди 1 501 случаев СПИДа зарегистрированных в 2002 г. (большинство на Украине), информация о патологиях, которые первичным индикатором заболевания СПИДом, отсутствовала у 48 % случаев и больные туберкулезом составляли 32 %. Эти случаи ТБ представляли 1,1 % всех зарегистрированных случаев туберкулеза на Украине и менее чем 0,5 % в других странах. Документальные данные по лекарственной резистентности недостаточны, помимо общенационального обследования в Казахстане, которое показало 9 % случаев с МЛУ у новых случаев в 2001 г. Полные данные по мониторингу исходов лечения (МИЛ) у новых случаев с положительным мазком, зарегистрированных в 2001 г. (6 стран), свидетельствуют о общем успехе у 76 % случаев, о безуспешном лечении у 11 % случаев и о летальном исходе у 5 % случаев. Данные по эпиднадзору показывают тревожную ситуацию на Востоке, которая вынуждает усиление народных и международных программ по борьбе с туберкулезом включая улучшения эпиднадзора и оценки программ.





## 2. COMMENTARY

In 2002, 404,628 tuberculosis (TB) cases were notified by the 52 countries of the WHO European Region, representing 9.9% of notifications made to WHO worldwide in the same year [1]. TB surveillance data for 2002 and recent trends are presented and commented below in three geographic areas, which have changed from previous years to account for the enlargement of the European Union

(EU) in 2004 (see technical note, page 119). In 2002, 67% of TB notifications derived from the East (overall notification rate 97 per 100,000), 17% from the EU & West (rate 14 per 100,000) and 16% from the Centre (rate 54 per 100,000). The overall notification rate was 46 per 100,000 population, with a clear West–East gradient (Figure 1) and diverging trends (Figure 4).

**Summary table. Tuberculosis surveillance data by geographic area, WHO European Region, 2002\***

Table showing data by country	Enlarged European Union and West (32 countries)		Centre (8 countries)		East (12 countries)		Total (52 countries)	
	N†		N†		N†		N†	
Population (total, million)	-	32 473.9	8 120.8		12 281.0		52 875.7	
<b>TB case notification</b>								
Total number of cases	1	32 66 877	8 64 902		12 272 849		52 404 628	
Notification rate per 100 000 population	1	32 14.1	8 51.9		12 97.1		52 46.2	
Mean of annual changes in notification rate, 1998-2002	1	32 -4.0%	8 +0.2%		12 +5.8%		52 +2.7%	
Median age group (years)	2	32 45-54	7 35-44		11 35-44		50 35-44	
Age 0-14 years	2	32 4%	7 5%		11 5%		50 5%	
Age over 64 years	2	32 23 %	7 14%		11 6%		50 10%	
Sex ratio (M:F)	3	32 1.7	7 2.1		11 2.2		50 2.1	
Foreign origin	4	31 29%	6 0.5%		2 0.4%		39 7%	
History of anti-TB treatment or TB	7	32 10%	8 17%		11 14%		51 13%	
Pulmonary disease ‡	8	30 78%	5 88%		8 88%		43 85%	
Sputum smear positive among pulmonary	13	30 4%	5 53%		8 42%		43 45%	
Culture positive	10	32 5%	7 55%		2 11%		41 41%	
HIV-infected TB cases	14	17 6% §	1 0.5%		3 0.4%		21 5%	
AIDS defining TB / total TB cases	15	30 3%	8 0.2%		10 0.5%		48 1.2%	
<b>Anti-TB drug resistance</b>								
Primary isoniazid resistance	19	20 10%††	2 1%		1 43%		22§§ 9%	
Primary multi-drug resistance	19	20 3%††	2 0.4%		1 14%		22§§ 3%	
Acquired isoniazid resistance	20	20 39%††	2 4%		1 68%		22§§ 35%	
Acquired multi-drug resistance	20	20 29%††	2 2%		1 56%		22§§ 26%	
<b>Treatment success (2001)**</b>								
New pulmonary cases††	28,30	20 74%	4 75%		7 75%		31 75%	
Retreated pulmonary cases††	29,31	20 57%	3 44%		7 61%		30 54%	

\* Mean value except when otherwise indicated; for definition of geographic areas see technical note.

† Number of countries with available data and included in the statistics

‡ Countries using the pulmonary classification (see technical note)

§ 2002 or latest available year (1999-2001)

|| Countries providing representative nationwide data (group A, see technical note); totals do not include data from the East (sample survey)

\*\* Cure or treatment completion; countries providing data on nationwide complete cohorts (group A, see technical note)

†† EU & West: culture positive cases; Centre & East: smear positive cases

‡‡ Mean prevalence much higher in the Baltic States than in the other countries (see Tables 19-20)

§§ Not including the East

## 2.1 European Union and West (EU & West)

### *Tuberculosis case notification*

In the 32 countries of the EU & West, 66,877 TB cases were notified in 2002, for an overall rate of 14 cases per 100,000 population. Rates were lower than 10 per 100,000 in 17 countries and were higher than 20 in the three Baltic States (Lithuania: 82; Latvia: 80; Estonia: 53), Portugal (46), Hungary (30) and Poland (27) (**Table 1, Figure 1**). The overall TB notification rate in 2002 was higher in the 10 countries which joined the EU in 2004 (28.9 per 100,000) than in the 15 previous EU countries (11.5 per 100,000), resulting in a 25% increase of the overall rate in the enlarged EU (14.4 vs. 11.5 per 100,000).

The overall notification rate in 2002 was 22% lower than in 1995. Average annual rates decreased between 1998 and 2002 in all countries except Belgium, Norway, the Netherlands and the United Kingdom (**Figure 5**). The average annual decrease between 1998 and 2002 (-4.0%) was greater than that observed between 1995 and 1998 (-2.8%), and between 1990 and 1995 (-0.1%). Most countries with decreasing notification rates between 1998 and 2002 had a decline in notification rates or stabilisation at low levels in the age groups 0-14 and 15-44 years (**country profiles**), suggesting decreasing or low level transmission in these age-groups.

In most countries, trends in numbers of cases differed markedly by geographic origin (**Table 5**). In 16 countries with consistent data between 1996 and 2002, average annual decreases in the numbers of cases were more marked in nationals (-7.0%) (ie cases born in or citizens of the country of report) than in foreigners (-0.6%) (ie cases born outside or not having citizenship of the country of report), resulting in an increase in the proportion of cases in foreigners from 29% to 36% (**Figure 7**). In 2002, in 13 countries providing population estimates by origin, age-specific notification rates in nationals increased progressively with age and were highest over 64 years (11.9 per 100,000), while in foreigners rates peaked in the age-group 25-34 years (85 per 100,000) and then increased again in the elderly (**Figure 3**). In these countries, overall rates were ten times higher in foreigners than in nationals (55.0 versus 5.4 per 100 000) and rate ratios ranged from 2 to 36 between countries. This wide variation reflects different migration patterns, and possibly also differences in demographic statistics by geographic origin, a factor which limits comparability of rates. Twenty-nine percent of cases in 2002 were

foreigners, reaching 40% or more in ten countries (**Table 4, Figure 2**). Among foreigners, 39% were from Africa, 28% from Asia (16% from the Indian subcontinent), 20% from the other areas of the WHO European Region (Centre or East), and 5% from a country of the EU & West other than the country of notification (**Table 6**).

Overall, 78% of cases had a pulmonary localisation (range: 62 – 100%) (**Table 8**), and 44% of them were sputum smear positive (**Table 13**; excluding Spain, respiratory classification). Extra-pulmonary TB represented 21% of cases overall and was more frequent in foreigners than in nationals (32% versus 20% respectively, individual data, not shown). Culture confirmation (**Table 10**) varied widely across countries (mean: 50%; range: 29%-100%), with higher proportions in the 16 countries with laboratory reporting of TB cases than in the 11 countries with no laboratory reporting (58% versus 41%). It was more frequent in pulmonary cases than in extra-pulmonary cases (54% versus 29% respectively, **Table 11**). Species identification, available for 19 countries (**Table 12**), showed *M. tuberculosis* in 90.3% of culture positive cases, *M. bovis* in 0.5% and *M. africanum* in 0.2% of the cases while in 9% species was unknown.

### *Tuberculosis and HIV infection*

Aggregate data on HIV serostatus of notified TB cases in recent years, derived from TB notification forms or from matching of TB and HIV case reporting data sets, were provided by 17 of 27 countries participating in a specific survey (**Table 14**). In 2001 or 2002, the estimated proportion of TB cases tested for HIV ranged very widely across countries from 4% to 100% (median: 39%), reflecting differences in testing policies. In the latest available year, HIV prevalence in TB patients was less than 1% in five of the new EU countries, 1-6% in seven countries and highest in Spain (12%) and in Portugal (15%), the western European countries where AIDS incidence rates (**Table 15**) and HIV prevalence in the general population are highest. An increase in HIV prevalence was observed in Estonia (from 0.1 in 1998 to 2.8% in 2002) and in Latvia (from 0.5 to 1.4%), reflecting recent HIV epidemics [2].

In European AIDS reporting data for 2002 (source: EuroHIV), TB was reported as initial AIDS-indicative disease in 2,756 of 11,501 AIDS cases in the EU & West (24%) (**Table 15**). AIDS cases with TB as initial AIDS indicative disease represented 3.3% of total TB cases notified in 2002, with highest proportions in

Portugal (9.9%) and Spain (8.3%, pulmonary TB). Both TB and AIDS notification data represent underestimates of HIV-associated TB (see technical note).

#### *Anti-tuberculosis drug resistance*

Data on anti-TB drug resistance surveillance (DRS) in 2002 were available for 28 countries in the EU & West. Drug susceptibility testing (DST) was performed in a laboratory abroad in Cyprus, Iceland and Malta, in a single national laboratory in eight countries, in 2-10 laboratories in 10 countries, 11-20 in six countries, 70 in Germany, 120 in France and over 200 in Italy (Table 16). In 16 countries, more than one DST method was used. Radiometric and non-radiometric proportion methods were used in 21 and 17 countries respectively, including Mycobacteria Growth Indicator Tube (MGIT) or MB/BacT in nine countries. Resistance ratio (3 countries) and absolute concentration (5 countries) were less commonly used.

National external quality assurance (EQA) for DST existed in 9 of the 20 countries with more than one laboratory performing DST (limited to the DRS network in Italy) and showed at least 90% concordance for rifampicin (RMP) and isoniazid (INH) in 146/151 participating laboratories overall (not shown). In 22 countries, the national reference laboratory (NRL) had participated in international EQA for DST in the period 2001-2003. Concordance with the supranational laboratory was 100% for INH and RMP in 15 countries, and lower (87-97%) for one or both drugs in six countries.

Of the 28 countries providing DRS data, 21 were classified in **group A**, and seven in **group B** (technical note, Table 17). In group A, data from United Kingdom were not linked with TB case notifications. In the 20 other countries, culture positive cases represented a median of 65% of notified cases (range: 45-100%). DST results were available for 90% of culture positive cases, with highest proportions of cases with missing information in the Czech Republic (33%), Ireland (27%), Belgium (21%), and Lithuania (13%). The prevalence of total, primary and acquired drug resistance for each drug, and of multidrug resistance (MDR), was much higher in the Baltic States than in the other 17 countries (Tables 18-20). Among new cases, the prevalence of primary isoniazid (INH) resistance was almost five times higher in the Baltic States (25.1%) than in the other countries (5.5%) and MDR was nine times more frequent (10.8% vs 1.2%). Similar differences were observed for acquired resistance among cases previ-

ously treated, of which 47.8% were MDR in the Baltic States compared with 7% in the other countries.

In the Baltic States, the prevalence of resistance did not differ significantly by geographic origin, most foreign-born cases being from other countries of the former Soviet Union (FSU) (Tables 23-24). In the other countries, the prevalence of drug resistance was higher among foreigners (MDR: 3.0%) than among nationals (0.7%). Among foreigners, prevalence was much higher in cases from the FSU (12.7%) - who accounted for 42% of all notified MDR-TB cases - than in cases from Africa (2.2%) or from the rest of Asia (1.3%).

In most of the 21 countries with at least three years of comparable DRS data between 1998 and 2002, trends in the prevalence of INH resistance and MDR were relatively stable when analysed by treatment history (Tables 21-22, country profiles) and geographic origin (Tables 25-26) and did not reach statistical significance ( $\chi^2$  test for trend). An increase of primary INH resistance was observed between 1998 and 2001 in the United Kingdom, associated with a large INH resistant TB outbreak in the London area [3]. In Israel, levels of primary drug resistance decreased sharply after a peak in 2000, which was associated with large immigration flows from Eastern Europe [4, 5].

DST data from seven additional countries were considered non-representative and classified in **group B**. In Cyprus, Hungary and Portugal, DST results were matched to TB notifications but the proportion of culture positive cases was low and/or DST result were available for less than 50% of these cases. In France DST data from a well-established network of teaching hospital laboratories show low prevalence of primary resistance [6], confirmed by exhaustive surveys of multidrug resistant isolates [7] but the representativeness of this network has not been formally assessed. In Italy, DST data are collected from selected laboratories in several regions including a large reference Centre for treatment of drug-resistant cases [8]. In Spain DST data are available on cases with isolates referred to the NRL. In Greece, culture and DST are not routinely used and DST data, provided from laboratories, represent diagnostic testing of selected cases and are not matched to TB notifications.

#### *Treatment outcome*

Data on treatment outcome monitoring (TOM) for 2001 were provided by 24 countries in the EU & West

(Table 27), an increase of four countries from 2000. In 21 countries TOM data were available for complete cohorts of notified pulmonary culture positive and/or smear positive TB cases notified (group A, technical note). Cohorts were incomplete in Denmark and in the United Kingdom, where cases with missing information on outcome were excluded from cohorts, and were collected from a small convenience sample of clinical centres in Italy (group B) [9]. Culture positive cohorts were larger than smear positive cohorts (mean ratio: 1.5) and had comparable success ratios overall. In new culture positive cases (Table 30), success ratios were 85% or higher in six countries, 74-80% in seven countries and lower than 70% in seven countries, mainly due to high proportions of cases with unknown outcome (over 10% in 5 countries). Death was reported in 7% of new cases (range: 0-14%). This wide range may be due differences in the proportion of elderly cases, which have much higher mortality ratios, co-morbidity, including HIV, or completeness of reporting of post-mortem diagnoses of TB. Failures represented 1% of the cases, ranging from zero in 12 countries to 10% in Hungary, while defaults represented 5% (range: 0-14%). The newly introduced category "still on treatment" represented 3% of cases overall, with highest proportions in the Baltic States (range: 7-11%, mainly MDR-TB cases) and in Hungary. In countries with low prevalence of drug resistance, treatments longer than 12 months may reflect non-standard care practices or the lack of follow-up information on bacteriology results needed to define failure.

Among retreated cases (Table 31), the overall success ratio was 57%, lower than among new cases. Deaths (10%), failures (4%) and still on treatment (10%) were more frequently reported than among new cases, due to the higher prevalence of drug resistance in this group and to the longer duration of re-treatment regimens. High proportions of defaulters (11%) and of cases with missing outcome information (6%) contributed to lower success ratios.

## 2.2 Centre

### *TB case notification*

In the eight countries of the Centre, 64,902 TB cases were reported in 2002, of which 53% from Romania and 29% from Turkey. The TB notification rate was 52 per 100,000 population overall, and ranged from less than 30 per 100,000 in Albania, Serbia & Montenegro and Turkey to a very high rate of 153 per 100,000 in Romania. Between 1998 and 2002,

notification rates decreased on average by 3-9% yearly in five countries, stabilised in Serbia & Montenegro and increased in the F.Y.R. of Macedonia (4%) and in Romania (8%) (Figure 5). In Romania, the very high notification rates in all age groups indicate persisting high level of TB transmission, making this country distinct from others in the Centre. The sustained increase in rates may partly be explained by increasing proportions of cases diagnosed clinically and increasing inclusion of re-treatment patients. In Bulgaria and in Turkey, the amount of TB surveillance data available remains insufficient to assess the TB situation (country profiles).

The proportion of paediatric TB cases (0-14 years) was 5% overall and was highest in the FYR of Macedonia (17%) and in Albania (8%), suggesting over-notification of paediatric TB in these countries (Table 2). Excluding Romania and Turkey, age specific rates among adults increased markedly in men but less so in women, resulting in large sex differences in the middle age groups. Apart from Bulgaria, countries with decreasing total notification rates between 1998 and 2002 (Figure 5) also reported a decline in rates in the under-45 population (country profiles), suggesting decreasing transmission in recent years.

In the five countries using the pulmonary classification, pulmonary cases represented 88% of cases (range 67-90%), of which 53% were sputum smear positive. Over half of the total cases were culture confirmed, except in Albania (38%), the FYR of Macedonia (19%) and Turkey (no data).

### *Tuberculosis and HIV infection*

In the Centre, HIV prevalence and AIDS incidence are low in the general population [2]. HIV prevalence data for notified TB cases were provided only from Albania (0.5% in 2002, Table 14), whereas TB data from AIDS notification were available for all countries (Table 15). Among the 399 AIDS cases notified in 2002 in the Centre, the mean proportion of cases with TB as initial AIDS indicative disease was 26% (range: 0-33%). AIDS cases with TB as initial AIDS indicative disease represented only 0.2% of all TB notifications in 2002.

### *Anti-tuberculosis drug resistance*

Apart from Turkey, all countries in the Centre provided DRS data for 2002. Albania, Bosnia & Herzegovina, Croatia and Romania participated in international EQA for DST (Table 16). Only DRS data from



Bosnia & Herzegovina, limited to the Federation of Bosnia in 2002, and from Croatia were classified in group A (Table 18). Drug resistance levels were low in both countries, in the range of those reported from EU countries other than the Baltic States, and stable between 1998 and 2002. Among countries in group B, data from Serbia & Montenegro, linked to TB notifications but limited to the region of Belgrade, showed low level of resistance. Diagnostic DST data from Albania, Bulgaria and the FYR of Macedonia, were not representative of the national situation, as culture and/or DST are not routinely used for TB diagnosis. In Romania, where a nationwide representative survey was implemented in 2003-2004 (results not yet available), DST data were provided only for 25% of culture positive cases notified and are not presented.

#### *Treatment outcome*

TOM data for TB cases notified in 2001 were provided on complete cohorts from Albania, FYR of Macedonia, Romania and Turkey (group A, Table 27). Success ratios in new smear positive cases were higher than 85% in Albania and the FYR of Macedonia, where very few deaths were reported suggesting underreporting of cases diagnosed post-mortem or who died before treatment; 75% in Romania (where 7% of cases failed) and 72% in Turkey (where 9% of the cases were reported as still on treatment) (Table 28). Data for retreated cases (Table 29) were not available for Turkey. In the other countries, success ratios were much lower than for new cases, with higher proportions of defaulters and, in Romania, 17% failures, a finding deserving further investigation. In group B, data from Serbia & Montenegro were limited to the region of Belgrade and data from Bulgaria were provided for DOTS areas only.

### 2.3 East

#### *TB case notification*

In 2002, 272,849 cases were reported from the East, of which 49% from the Russian Federation, ranking as fifth country worldwide in absolute number of TB notifications in 2002 [1]. The mean TB notification rate in the East was 97 cases per 100 000 population, with rates higher than 100 per 100,000 in Kazakhstan (213), Kyrgyzstan (134), Georgia (123) and Uzbekistan (105) (Table 1). Notification rates were 70% higher in 2002 than in 1995. The increasing incidence in countries of the East contributed substantially to the absence of a decline of tuberculosis in recent years in the whole world [10]. The mean annual increase in rates was 6% between 1998 and 2002

(Figure 5), down from 11% between 1995 and 1998. Average increases in rates in the most recent years were lower than those between 1995 and 1998 in all countries except the Republic of Moldova, Tajikistan and Uzbekistan. Between 1998 and 2002 rates stabilised in Armenia, Belarus and Georgia.

Paediatric TB cases represented more than 10% of cases notified in Turkmenistan and Uzbekistan, suggesting over-notification of paediatric TB (Table 2). Higher rates in children 5-14 years than in younger children in several countries also suggests relative over-reporting in the age group 5-14 years (country profiles). The age group 15-44 years accounted for 63% of the cases notified, while only 6% of the cases were aged over 64 years. Rates were highest in the age group 25-34 years in women and 25-54 years in men (Figure 6). The peak in notification rates in young adults indicates high levels of recent transmission. Between 1999 and 2002, age specific TB notification rates increased in the age-group 15-44 years in Kazakhstan, the Rep. of Moldova, Tajikistan and Ukraine, but decreased in the Russian Federation. On the other hand, in countries with available data, rates in children tended to be more stable.

Trends in the East have to be interpreted with caution, as in several countries TB notification has been variably affected by global changes in health and in TB control systems since the early 1990s. TB cases diagnosed in specific population groups (e.g. prisoners in the Russian Federation since 1998), and retreated cases other than relapses (e.g. Uzbekistan since 2002) were increasingly notified while 'case detection' increased in the context of expanding DOTS implementation in some countries (e.g. Tajikistan).

In 2002, 88% of cases in the East were pulmonary (range: 79-96%), and 42% of pulmonary cases were sputum smear positive (33-48%). Culture results were only available from Azerbaijan and Kazakhstan. The use of culture is still limited in several countries due to financial/logistic reasons, preference of direct microscopy (as in countries implementing DOTS) or radiology-based diagnosis. TB notification systems in this area do not yet collect information on culture results or are still unable to distinguish between cases confirmed by direct microscopy or by culture, still reported together as 'BK+'.

#### *Tuberculosis and HIV infection*

In the East, information on HIV serostatus of notified TB cases was provided from three countries showing HIV prevalence below 1% (Table 14). AIDS report-



ing data for 2002 were not available from Kazakhstan and the Russian Federation (Table 15). In the other 10 countries, a total of 1,501 AIDS cases were reported in 2002, of which 1,385 (92%) from Ukraine. Among AIDS cases, 721 (48%) were reported without information on initial AIDS indicative diseases and 487 (32%) had TB. TB as initial AIDS indicative disease represented 1.1% of total TB cases in Ukraine and less than 0.5% in the other countries.

The high TB morbidity among AIDS cases may reflect a high prevalence of TB infection in the HIV-infected population, earlier appearance of TB over other AIDS-defining diseases in countries with recent HIV epidemics or easier diagnosis compared with other AIDS-indicative diseases. On the other hand, low absolute numbers of AIDS cases reported with TB may also be due to AIDS underreporting. Overall, HIV/TB surveillance data available in the East are insufficient to monitor the overlap between the two epidemics, expected to increase both TB and MDR-TB case load in the coming years [11].

#### *Anti-tuberculosis drug resistance*

In the East, seven countries provided DRS data for 2002. Participation in international EQA activities was only reported from Kazakhstan (Table 16). DRS data were provided from seven countries (Tables 17-19). Data from a nationwide representative survey done in Kazakhstan in 2001 [12] were classified in **group A**. In this survey, 42.6% of new cases were resistant to INH and 14.2% were MDR (67.7% and 56.4% respectively among retreated cases), a situation comparable to that in the Baltic States. Data from diagnostic DST at the start of treatment, done for selected TB cases, were provided from Kazakhstan and from six other countries and were classified in **group B**. These data add to existing evidence that drug resistance is highly prevalent in most countries of the former Soviet Union [12-14].

#### *Treatment outcome*

In the East, seven countries provided TOM data on complete 2001 cohorts of smear positive cases (**group A**) and three for DOTS areas (**group B**). In group A (Table 28), the success ratio among new cases was 75% overall (range: 64-81%). In the Republic of Moldova, outcomes other than treatment completion were only reported from DOTS areas (19% of cases), which explains the high proportion of unknown outcomes, a category not reported from the other countries in the East. In the other countries, 5% of cases died range (2-14%) and 11% failed (range: 6-12%). The higher proportions of failures compared to the other areas of the Region may

indicate poor compliance (not qualifying as default) or low effectiveness of initial regimens due to drug resistance or poor drug quality. Among retreated cases (Table 29), the average success ratio was 62%, while 10% of cases died and 14% failed. Compliance to newly introduced outcome categories was low, with only one country reporting the category still on treatment and two countries reporting the category still on treatment and two countries reporting the category unknown.

## 2.4 Conclusions and recommendations

TB surveillance data presented in this report depict an increasingly diversified picture of TB epidemiology, indicating the countries of the former Soviet Union as the priority area for TB control in Europe. In the East, TB notification rates continue to increase in most countries and are highest in young adults indicating high levels of transmission. However, recent trends are difficult to interpret, as in many countries TB notification has become more complete after the mid 1990s and the wider implementation of the recommended DOTS strategy [15] and increased funding of TB control programmes may have resulted in more complete enrolment of patients. TB/HIV surveillance data are insufficient to detect the feared impact of spreading HIV epidemics on TB incidence. Drug resistance data remain very incomplete but suggest that MDR-TB is highly prevalent throughout the area, which may contribute to the high proportions of failures observed (11% in new cases). The improvement of surveillance and programme monitoring should be considered essential components of a more effective approach to TB control.

In most countries of the enlarged European Union, TB incidence is decreasing while cases in migrants from high incidence areas represent an increasing proportion of cases. With the notable exception of the Baltic States, the prevalence of anti-TB drug resistance remains low, suggesting that TB control efforts have prevented its emergence on a large scale. Migrants from the FSU carry a disproportionately high risk of MDR-TB. HIV prevalence in TB patients is higher in countries with higher HIV prevalence in the general population, and it is increasing in the Baltic States. AIDS notification data indicate that AIDS-associated TB represents a non-negligible proportion of TB incidence. Treatment success remains below global targets in most countries, as a result of high mortality in the elderly and incomplete information. The collection of individual TOM information, piloted in 2003, will enable more appropriate

analysis of this core indicator of the effectiveness of TB control efforts. TB prevention and control need to be strengthened in the EU, and to be targeted to high risk population groups, including migrants from high incidence areas, HIV infected individuals and the elderly. Geographic distribution within countries needs also to be addressed, as incidence is higher than national average in several metropolitan areas, where risk factors for TB concentrate and specific approaches are required [16].

European consensus papers [17-19] and collaborative actions including EuroTB have been instrumental in driving standardisation of surveillance at the European scale. The number of countries providing information on TB cases notified, on drug resistance and treatment outcome, based on standardised definitions has been steadily increasing over the years. However, efforts are still required to improve the quality of currently available data. The following aspects are highlighted:

- Further national uptake of agreed European definitions should be promoted to enable more reliable international comparisons.
- A computerised individual TB case reporting data set containing the recommended essential variables, already provided to EuroTB by 29 countries, should be available at national level in all countries and shared at European level.
- Laboratory reporting of TB cases should complement clinician reporting in all countries, to improve completeness of reporting and information on laboratory evidence of diagnosis. This should be accompanied by wider quality assurance of laboratories.
- Drug resistance surveillance should be implemented in all countries, using either ongoing collection of initial DST results for all cases, which proves feasible in most countries of the EU, or periodic prevalence surveys [20].
- Treatment outcome monitoring should be implemented in all countries and specific indicators developed to monitor trends in treatment results.
- The surveillance of HIV prevalence among TB patients should be improved by using information available at national level through TB, HIV and AIDS case reporting and by conducting HIV prevalence surveys in areas with high or increasing HIV prevalence [21].

European TB surveillance data should be adapted in the near future to improve the description of risk groups for TB and the assessment of programme performance, and to take into account recent advances in diagnostics (e.g. DNA-based tests).

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## 3. TABLES

## TABLES

**Table 1. Tuberculosis cases notified and rates per 100 000 population,  
WHO European Region, 1995-2002**

Geographic area Country	1995		1996		1997		1998	
	N	Rate	N	Rate	N	Rate	N	Rate
<b>EU &amp; West</b>								
Austria	1 383	17.2	1 489	18.4	1 398	17.3	1 306	16.1
Belgium	1 380	13.6	1 352	13.3	1 263	12.4	1 203	11.8
Cyprus	36	4.8	24	3.2	47	6.2	45	5.8
Czech Republic	1 851	17.9	1 936	18.8	1 834	17.8	1 805	17.5
Denmark	448	8.6	484	9.2	554	10.5	529	10.0
Estonia	608	42.0	683	48.0	744	52.9	818	58.7
Finland	662	13.0	644	12.6	573	11.1	629	12.2
France	8 723	14.6	7 656	12.8	6 832	11.3	6 651	11.0
Germany	12 198	14.9	11 814	14.4	11 163	13.6	10 440	12.7
Greece	939 *	9.0	945 *	9.0	767 *	7.2	1 152	10.7
Hungary	4 339	42.5	4 278	42.0	4 240	41.8	3 999	39.6
Ireland	458	12.7	434	11.9	416	11.3	424	11.4
Italy	5 225	9.1	5 152	9.0	5 176	9.0	4 795	8.3
Latvia	1 541	61.7	1 761	71.5	2 003	82.3	2 182	90.4
Lithuania	2 362	66.3	2 608	73.7	2 926	83.0	3 016	85.7
Luxembourg	32	7.9	36	8.8	38	9.1	44	10.4
Malta	10	2.6	29	7.6	11	2.9	16	4.2
Netherlands	1 619	10.5	1 678	10.8	1 486	9.5	1 341	8.5
Poland	15 959	41.3	15 358	39.7	13 967	36.1	13 302	34.4
Portugal	5 577	56.2	5 248	52.8	5 112	51.4	5 260	52.7
Slovakia	1 537	28.7	1 499	27.9	1 298	24.1	1 282	23.8
Slovenia	525	26.4	563	28.2	481	24.1	449	22.5
Spain †	8 764	21.9	8 331	20.8	9 347	23.2	9 111	22.5
Sweden	564	6.4	493	5.6	456	5.1	446	5.0
United Kingdom	6 161	10.7	6 240	10.8	6 355	10.9	6 176	10.6
<b>Subtotal EU</b>	<b>82 901</b>	<b>18.5</b>	<b>80 735</b>	<b>17.9</b>	<b>78 487</b>	<b>17.4</b>	<b>76 421</b>	<b>16.9</b>
Andorra	-	-	17	25.4	19	27.1	8	11.1
Iceland	12	4.5	11	4.1	10	3.7	17	6.1
Israel	398	7.4	415	7.5	422	7.5	656	11.1
Monaco	1	3.1	0	0.0	0	0.0	0	0.0
Norway	236	5.4	217	5.0	205	4.7	244	5.5
San Marino	2	8.0	0	0.0	1	3.8	0	0.0
Switzerland	830	11.7	764	10.7	747	10.4	749	10.4
<b>Total EU &amp; West</b>	<b>84 380</b>	<b>18.1</b>	<b>82 159</b>	<b>17.6</b>	<b>79 891</b>	<b>17.0</b>	<b>78 095</b>	<b>16.6</b>
<b>Centre</b>								
Albania	664	20.8	707	22.4	655	20.9	694	22.2
Bosnia & Herzegovina	2 132	62.3	2 220	64.8	2 869	81.4	3 071	83.4
Bulgaria	3 245	38.6	3 109	37.3	3 437 ‡	41.5	4 117	50.1
Croatia	2 114 ‡	47.5	2 174	49.2	2 054	46.6	2 118	47.9
Macedonia, F.Y.R.	786	40.0	724	36.7	693	34.9	620	31.0
Romania	23 271	102.6	24 113	106.7	23 90	105.9	25 758	114.3
Serbia & Montenegro	4 169 §	39.5	4 541 §	42.9	4 062 §	38.4	3 028	28.6
Turkey	23 035	36.5	23 533	36.7	25 685	39.4	25 501	38.5
<b>Total Centre</b>	<b>59 416</b>	<b>50.5</b>	<b>61 121</b>	<b>51.5</b>	<b>63 358</b>	<b>52.9</b>	<b>64 907</b>	<b>53.7</b>
<b>East</b>								
Armenia	836	25.1	935	28.6	1 026	31.8	1 455	45.7
Azerbaijan	3 306	42.4	5 006	63.5	4 635 ‡	58.2	4 350	54.2
Belarus	5 092	49.7	5 619	55.0	5 985	58.8	5 595	55.2
Georgia	-	-	10 641	199.5	8 446	158.8	6 302	118.7
Kazakhstan	11 095 *	67.0	13 559 *	82.7	16 109	99.5	20 623	129.0
Kyrgyzstan	3 380	74.1	4 086	88.5	5 189	110.7	5 935	124.6
Moldova, Republic of	2 753	63.5	2 922	67.5	2 908	67.4	2 891	67.2
Russian Federation	96 828	65.4	110 897	75.0	119 123	80.8	121 917	83.0
Tajikistan	2 029 ‡	35.3	1 647	28.3	2 143	36.4	2 503	42.0
Turkmenistan	2 009	47.7	2 149	49.9	3 438	78.2	3 712 *	82.8
Ukraine	21 459 ‡	41.6	26 834	52.4	28 344	55.7	31 318	62.0
Uzbekistan	9 866	43.3	11 919	51.3	13 352	56.4	13 958	58.0
<b>Total East</b>	<b>158 653</b>	<b>56.8</b>	<b>196 214</b>	<b>69.0</b>	<b>210 698</b>	<b>74.2</b>	<b>220 559</b>	<b>77.8</b>
<b>Total WHO European Region</b>	<b>302 449</b>	<b>35.1</b>	<b>339 494</b>	<b>39.0</b>	<b>353 947</b>	<b>40.6</b>	<b>363 561</b>	<b>41.6</b>

\* New cases only

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

‡ Source: World Health Organization. Global Tuberculosis Control: WHO Report 2004. Geneva, Switzerland, WHO/HTM/TB/2004.331

§ Including Kosovo as part of former Yugoslavia



# TABLES

**Table 1 (cont). Tuberculosis cases notified and rates per 100 000 population, WHO European Region, 1995-2002**

								Geographic area Country
1999		2000		2001		2002		
N	Rate	N	Rate	N	Rate	N	Rate	
								EU & West
1 245	15.4	1 225	15.1	1 075	13.3	1 067	13.2	Austria
1 270	12.4	1 313	12.8	1 321	12.9	1 294	12.6	Belgium
39	5.0	33	4.2	40	5.1	20	2.5	Cyprus
1 631	15.9	1 442	14.0	1 350	13.2	1 200	11.7	Czech Republic
536	10.1	548	10.3	511	9.6	419	7.8	Denmark
754	54.6	791	57.9	812	60.0	713	53.3	Estonia
566	11.0	537	10.4	494	9.5	473	9.1	Finland
6 674	11.0	6 714	11.0	6 465	10.5	6 322	10.3	France
9 974	12.1	9 064	11.0	7 539	9.2 *	7 684	9.3	Germany
952	8.8	703	6.4	617	5.6	582	5.3	Greece
3 914	38.9	3 598	35.9	3 150	31.6	3 007	30.3	Hungary
469	12.4	403	10.6	406	10.5	406	10.4	Ireland
4 429	7.7	4 759	8.3	4 505	7.8	4 212	7.3	Italy
1 968	82.2	2 063	87.0	2 082	88.6	1 855	79.6	Latvia
2 903	82.7	2 981	85.2	2 989	85.8	2 844	82.1	Lithuania
42	9.8	44	10.1	32	7.3	32	7.2	Luxembourg
22	5.7	18	4.6	16	4.1	24	6.1	Malta
1 535	9.7	1 404	8.8	1 436	9.0	1 401	8.7	Netherlands
12 179	31.5	11 477	29.7	10 672	27.6	10 475	27.1	Poland
5 160	51.6	4 494	44.9	4 399	43.8	4 591	45.7	Portugal
1 218	22.6	1 111	20.6	1 076	19.9	1 053	19.5	Slovakia
438	22.0	380	19.1	371	18.7	350	17.6	Slovenia
8 393	20.7	8 395	20.6	7 453	18.2	7 626	18.6	Spain †
493	5.6	458	5.2	428	4.8	412	4.6	Sweden
6 287	10.7	6 792	11.5	7 017	11.9	7 376	12.5	United Kingdom
73 091	16.1	70 747	15.6	66 256	14.6	65 438	14.4	Subtotal EU
9	12.0	11	16.7	5	6.2	5	6.0	Andorra
12	4.3	13	4.6	13	4.6	8	2.8	Iceland
520	8.8	591	9.8	564	9.1	511	8.1	Israel
3	9.1	0	0.0	0	0.0	0	0.0	Monaco
273	6.1	237	5.3	288	6.4	256	5.7	Norway
0	0.0	1	3.8	0	0.0	1	3.7	San Marino
772	10.8	629	8.8	611	8.5	658	9.2	Switzerland
74 680	15.9	72 229	15.3	67 737	14.3	66 877	14.1	Total EU & West
								Centre
765	24.6	631	20.3	572	18.3	612	19.5	Albania
3 075	80.0	2 606	65.5	2 551	62.7	2 551	61.8	Bosnia & Herzegovina
3 530	43.2	3 349	41.4	3 862	48.1	3 335	41.9	Bulgaria
1 770	39.9	1 630	36.7	1 505	33.9	1 470	33.1	Croatia
576	28.6	668	33.0	697	34.3	730	35.7	Macedonia, F.Y.R.
26 870	119.4	27 667	123.1	30 440	135.7	34 143	152.5	Romania
2 646	25.0	2 922	27.7	2 888	27.4	3 033	28.8	Serbia & Montenegro
22 088	32.8	18 038	26.4	18 890	27.3	19 028	27.1	Turkey
61 320	50.3	57 511	46.8	61 405	49.5	64 902	53.7	Total Centre
								East
1 499	47.7	1 344	43.2	1 401	45.4	1 455	47.4	Armenia
4 629	57.2	5 187	63.6	4 923	59.8	5 348	64.5	Azerbaijan
7 339	72.8	6 084 ‡	60.6	5 505 ‡	55.1	5 139	51.7	Belarus
6 546	123.8	6 436	122.3	5 876	112.5	6 345	122.6	Georgia
25 060	158.7	28 265	180.7	31 254	201.2	32 936	212.9	Kazakhstan
6 501	134.2	6 383	129.7	6 901	138.2	6 794	134.1	Kyrgyzstan
2 947	68.7	2 935	68.5	3 820	89.3	4 149	97.2	Moldova, Republic of
135 054	92.3	143 801	98.8	138 432	95.6	134 812	93.6	Russian Federation
2 553	42.4	2 779 ‡	45.6	3 508	57.1	4 052	65.4	Tajikistan
4 092	89.6	3 967	85.4	4 922	104.3	4 635	96.7	Turkmenistan
32 879	65.6	32 963	66.3	36 784	74.6	40 175	82.2	Ukraine
16 959	69.2	15 912	63.9	18 106	71.5	27 009	105.1	Uzbekistan
246 058	86.9	256 056	90.7	261 432	92.8	272 849	97.1	Total East
								Total WHO
382 058	43.6	385 796	44.0	390 574	44.5	404 628	46.2	European Region

\* Incomplete notification owing to change in notification system

† Until 1996 new respiratory cases only; since 1997 new and recurrent respiratory and meningial cases

‡ New cases only

Table 2. Tuberculosis cases by age group, WHO European Region, 2002

Geographic area Country	0-4		5-14		15-24		25-34		35-44	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
<b>EU &amp; West</b>										
Austria	11	(1)	27	(3)	99	(9)	137	(13)	198	(19)
Belgium	27	(2)	45	(3)	140	(11)	283	(22)	229	(18)
Cyprus	1	(5)	0	(0)	4	(20)	3	(15)	4	(20)
Czech Republic	1	(0)	6	(1)	54	(5)	109	(9)	147	(12)
Denmark	12	(3)	22	(5)	64	(15)	91	(22)	87	(21)
Estonia	1	(0)	2	(0)	45	(6)	113	(16)	183	(26)
Finland	1	(0)	5	(1)	10	(2)	29	(6)	22	(5)
France	140	(2)	155	(2)	747	(12)	1 324	(21)	1 083	(17)
Germany	152	(2)	197	(3)	669	(9)	1 180	(15)	1 224	(16)
Greece	11	(2)	32	(5)	33	(6)	92	(16)	86	(15)
Hungary	4	(0)	8	(0)	101	(3)	254	(8)	520	(17)
Ireland	6	(1)	12	(3)	39	(10)	90	(22)	70	(17)
Italy	78	(2)	63	(1)	339	(8)	805	(19)	659	(16)
Latvia	49	(3)	63	(3)	201	(11)	371	(20)	409	(22)
Lithuania	19	(1)	123	(4)	194	(7)	404	(14)	606	(21)
Luxembourg	1	(3)	0	(0)	2	(6)	5	(16)	5	(16)
Malta	0	(0)	0	(0)	4	(17)	3	(13)	3	(13)
Netherlands	29	(2)	43	(3)	280	(20)	396	(28)	228	(16)
Poland	37	(0)	88	(1)	597	(6)	944	(9)	1 873	(18)
Portugal	41	(1)	69	(2)	537	(12)	1 141	(25)	1 043	(23)
Slovakia	6	(1)	14	(1)	46	(4)	89	(8)	143	(14)
Slovenia	6	(2)	5	(1)	26	(7)	39	(11)	60	(17)
Spain *	277	(4)	209	(3)	1 065	(14)	1 708	(22)	1 420	(19)
Sweden	4	(1)	14	(3)	60	(15)	87	(21)	75	(18)
United Kingdom	163	(2)	280	(4)	1 075	(15)	1 851	(25)	1 168	(16)
<b>Subtotal EU</b>	<b>1 077</b>	<b>(2)</b>	<b>1 482</b>	<b>(2)</b>	<b>6 431</b>	<b>(10)</b>	<b>11 548</b>	<b>(18)</b>	<b>11 545</b>	<b>(18)</b>
Andorra	0	(0)	0	(0)	4	(80)	0	(0)	1	(20)
Iceland	0	(0)	1	(13)	3	(38)	1	(13)	1	(13)
Israel	20	(4)	14	(3)	60	(12)	84	(16)	59	(12)
Monaco	0	-	0	-	0	-	0	-	0	-
Norway	3	(1)	9	(4)	54	(21)	63	(25)	46	(18)
San Marino	0	-	0	-	0	-	0	-	1	-
Switzerland	16	(2)	6	(1)	133	(20)	153	(23)	105	(16)
<b>Total EU &amp; West</b>	<b>1 116</b>	<b>(2)</b>	<b>1 512</b>	<b>(2)</b>	<b>6 685</b>	<b>(10)</b>	<b>11 849</b>	<b>(18)</b>	<b>11 758</b>	<b>(18)</b>
<b>Centre</b>										
Albania	13	(2)	39	(6)	82	(13)	86	(14)	105	(17)
Bosnia & Herzegovina	8	(0)	35	(1)	242	(9)	302	(12)	350	(14)
Bulgaria	55	(2)	91	(3)	373	(11)	551	(17)	513	(15)
Croatia	15	(1)	53	(4)	92	(6)	142	(10)	260	(18)
Macedonia, F.Y.R.	46	(6)	79	(11)	108	(15)	136	(19)	99	(14)
Romania	610	(2)	1 250	(4)	4 307	(13)	6 625	(19)	6 523	(19)
Serbia & Montenegro	4	(0)	21	(1)	218	(7)	362	(12)	477	(16)
Turkey	-	-	-	-	-	-	-	-	-	-
<b>Total Centre</b>	<b>751</b>	<b>(2)</b>	<b>1 568</b>	<b>(3)</b>	<b>5 422</b>	<b>(12)</b>	<b>8 204</b>	<b>(18)</b>	<b>8 327</b>	<b>(18)</b>
<b>East</b>										
Armenia	23	(2)	49	(3)	303	(21)	287	(20)	244	(17)
Azerbaijan	27	(1)	262	(5)	1 267	(24)	1 403	(26)	1 151	(22)
Belarus	12	(0)	67	(1)	593	(12)	1 109	(22)	1 188	(23)
Georgia	107	(2)	421	(7)	1 057	(17)	1 368	(22)	1 297	(20)
Kazakhstan	385	(1)	1 866	(6)	7 709	(23)	8 680	(26)	6 674	(20)
Kyrgyzstan	-	-	-	-	-	-	-	-	-	-
Moldova, Republic of	33	(1)	81	(2)	808	(19)	958	(23)	908	(22)
Russian Federation †	1 663	(1) ‡	2 157	(2) ‡	19 160	(16)	29 514	(24)	29 028	(24)
Tajikistan	64	(2)	282	(7)	989	(24)	796	(20)	530	(13)
Turkmenistan	23	(0)	598	(13)	984	(21)	1 305	(28)	833	(18)
Ukraine †	164	(0)	533	(1)	4 766	(13)	7 929	(22)	8 730	(24)
Uzbekistan †	232	(1)	2 786	(14)	3 863	(19)	5 049	(25)	3 317	(17)
<b>Total East</b>	<b>2 733</b>	<b>(1)</b>	<b>9 102</b>	<b>(4)</b>	<b>41 499</b>	<b>(17)</b>	<b>58 398</b>	<b>(24)</b>	<b>53 900</b>	<b>(22)</b>
<b>Total WHO European Region</b>	<b>4 600</b>	<b>(1)</b>	<b>12 182</b>	<b>(3)</b>	<b>53 606</b>	<b>(15)</b>	<b>78 451</b>	<b>(22)</b>	<b>73 985</b>	<b>(21)</b>

\* Respiratory and meningeal cases only

† Age groups only for new cases

‡ Paediatric age-groups are 0-6 and 7-14 years

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**Table 2 (cont.). Tuberculosis cases by age group, WHO European Region, 2002**

45-54		55-64		>64		Unknown		Total	Geographic area
N	(%)	N	(%)	N	(%)	N	(%)		Country
EU & West									
202	(19)	147	(14)	246	(23)	0	(0)	1 067	Austria
149	(12)	106	(8)	315	(24)	0	(0)	1 294	Belgium
1	(5)	1	(5)	6	(30)	0	(0)	20	Cyprus
254	(21)	178	(15)	451	(38)	0	(0)	1 200	Czech Republic
62	(15)	35	(8)	46	(11)	0	(0)	419	Denmark
194	(27)	93	(13)	82	(12)	0	(0)	713	Estonia
53	(11)	78	(16)	275	(58)	0	(0)	473	Finland
818	(13)	555	(9)	1 499	(24)	1	(0)	6 322	France
1 085	(14)	1 008	(13)	2 162	(28)	7	(0)	7 684	Germany
69	(12)	51	(9)	192	(33)	16	(3)	582	Greece
855	(28)	504	(17)	761	(25)	0	(0)	3 007	Hungary
52	(13)	41	(10)	89	(22)	7	(2)	406	Ireland
418	(10)	465	(11)	1 244	(30)	141	(3)	4 212	Italy
361	(19)	207	(11)	194	(10)	0	(0)	1 855	Latvia
601	(21)	423	(15)	473	(17)	1	(0)	2 844	Lithuania
8	(25)	6	(19)	5	(16)	0	(0)	32	Luxembourg
3	(13)	6	(25)	5	(21)	0	(0)	24	Malta
161	(11)	98	(7)	166	(12)	0	(0)	1 401	Netherlands
2 763	(26)	1 412	(13)	2 761	(26)	0	(0)	10 475	Poland
642	(14)	401	(9)	694	(15)	23	(1)	4 591	Portugal
204	(19)	154	(15)	397	(38)	0	(0)	1 053	Slovakia
59	(17)	44	(13)	111	(32)	0	(0)	350	Slovenia
846	(11)	621	(8)	1 426	(19)	54	(1)	7 626	Spain *
36	(9)	32	(8)	104	(25)	0	(0)	412	Sweden
806	(11)	658	(9)	1 360	(18)	15	(0)	7 376	United Kingdom
10 702	(16)	7 324	(11)	15 064	(23)	265	(0)	65 438	Subtotal EU
0	(0)	0	(0)	0	(0)	0	(0)	5	Andorra
1	(13)	1	(13)	0	(0)	0	(0)	8	Iceland
59	(12)	59	(12)	156	(31)	0	(0)	511	Israel
0	-	0	-	0	-	0	-	0	Monaco
17	(7)	12	(5)	52	(20)	0	(0)	256	Norway
0	-	0	-	0	-	0	-	1	San Marino
63	(10)	46	(7)	136	(21)	0	(0)	658	Switzerland
10 842	(16)	7 442	(11)	15 408	(23)	265	(0)	66 877	Total EU & West
Centre									
84	(14)	94	(15)	109	(18)	0	(0)	612	Albania
377	(15)	329	(13)	881	(35)	27	(1)	2 551	Bosnia & Herzegovina
637	(19)	462	(14)	626	(19)	27	(1)	3 335	Bulgaria
283	(19)	181	(12)	444	(30)	0	(0)	1 470	Croatia
90	(12)	74	(10)	98	(13)	0	(0)	730	Macedonia, F.Y.R.
7 544	(22)	3 735	(11)	3 427	(10)	122	(0)	34 143	Romania
631	(21)	450	(15)	870	(29)	0	(0)	3 033	Serbia & Montenegro
-	-	-	-	-	-	-	-	-	Turkey
9 646	(21)	5 325	(12)	6 455	(14)	176	(0)	45 874	Total Centre
East									
186	(13)	235	(16)	125	(9)	3	(0)	1 455	Armenia
752	(14)	339	(6)	146	(3)	1	(0)	5 348	Azerbaijan
1 058	(21)	505	(10)	607	(12)	0	(0)	5 139	Belarus
900	(14)	549	(9)	622	(10)	24	(0)	6 345	Georgia
4 222	(13)	2 036	(6)	1 364	(4)	0	(0)	32 936	Kazakhstan
-	-	-	-	-	-	-	-	-	Kyrgyzstan
829	(20)	325	(8)	207	(5)	0	(0)	4 149	Moldova, Republic of
24 838	(20)	9 776	(8)	7 204	(6)	0	(0)	123 340	Russian Federation †
291	(7)	148	(4)	96	(2)	856	(21)	4 052	Tajikistan
482	(10)	216	(5)	194	(4)	0	(0)	4 635	Turkmenistan
7 189	(20)	3 748	(10)	3 412	(9)	0	(0)	36 471	Ukraine †
2 071	(10)	1 398	(7)	1 244	(6)	0	(0)	19 960	Uzbekistan †
42 818	(18)	19 275	(8)	15 221	(6)	884	(0)	243 830	Total East
63 306	(18)	32 042	(9)	37 084	(10)	1 325	(0)	356 581	Total WHO European Region

\* Respiratory and meningeal cases only

† Age groups only for new cases

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**Table 3. Tuberculosis cases by sex, WHO European Region, 2002**

Geographic area	Male		Female		Unknown		Total	Sex ratio M:F
Country	N	(%)	N	(%)	N	(%)		
EU & West								
Austria	676	(63)	391	(37)	0	(0)	1 067	1.7
Belgium	854	(66)	440	(34)	0	(0)	1 294	1.9
Cyprus	13	(65)	7	(35)	0	(0)	20	1.9
Czech Republic	772	(64)	428	(36)	0	(0)	1 200	1.8
Denmark	229	(55)	190	(45)	0	(0)	419	1.2
Estonia	495	(69)	218	(31)	0	(0)	713	2.3
Finland	249	(53)	224	(47)	0	(0)	473	1.1
France	3 935	(62)	2 370	(37)	17	(0)	6 322	1.7
Germany	4 735	(62)	2 947	(38)	2	(0)	7 684	1.6
Greece	390	(67)	191	(33)	1	(0)	582	2.0
Hungary	2 015	(67)	992	(33)	0	(0)	3 007	2.0
Ireland	255	(63)	148	(36)	3	(1)	406	1.7
Italy	2 641	(63)	1 563	(37)	8	(0)	4 212	1.7
Latvia	1 283	(69)	572	(31)	0	(0)	1 855	2.2
Lithuania	1 979	(70)	865	(30)	0	(0)	2 844	2.3
Luxembourg	18	(56)	14	(44)	0	(0)	32	1.3
Malta	11	(46)	13	(54)	0	(0)	24	0.8
Netherlands	797	(57)	604	(43)	0	(0)	1 401	1.3
Poland	6 911	(66)	3 564	(34)	0	(0)	10 475	1.9
Portugal	3 182	(69)	1 409	(31)	0	(0)	4 591	2.3
Slovakia	659	(63)	394	(37)	0	(0)	1 053	1.7
Slovenia	222	(63)	128	(37)	0	(0)	350	1.7
Spain *	5 096	(67)	2 511	(33)	19	(0)	7 626	2.0
Sweden	191	(46)	221	(54)	0	(0)	412	0.9
United Kingdom	4 004	(54)	3 335	(45)	37	(1)	7 376	1.2
Subtotal EU	41 612	(64)	23 739	(36)	87	(0)	65 438	1.8
Andorra	2	(40)	3	(60)	0	(0)	5	0.7
Iceland	3	(38)	5	(63)	0	(0)	8	0.6
Israel	269	(53)	242	(47)	0	(0)	511	1.1
Monaco	0	-	0	-	0	-	0	-
Norway	132	(52)	124	(48)	0	(0)	256	1.1
San Marino	1	(100)	0	(0)	0	(0)	1	-
Switzerland	375	(57)	283	(43)	0	(0)	658	1.3
Total EU & West	42 394	(63)	24 396	(36)	87	(0)	66 877	1.7
Centre								
Albania	394	(64)	218	(36)	0	(0)	612	1.8
Bosnia & Herzegovina	1 517	(59)	1 034	(41)	0	(0)	2 551	1.5
Bulgaria	2 210	(66)	1 098	(33)	27	(1)	3 335	2.0
Croatia	924	(63)	546	(37)	0	(0)	1 470	1.7
Macedonia, F.Y.R.	423	(58)	306	(42)	1	(0)	730	1.4
Romania	23 800	(70)	10 343	(30)	0	(0)	34 143	2.3
Serbia & Montenegro	1 932	(64)	1 101	(36)	0	(0)	3 033	1.8
Turkey	-	-	-	-	-	-	-	-
Total Centre	31 200	(68)	14 646	(32)	28	(0)	45 874	2.1
East								
Armenia	1 165	(80)	290	(20)	0	(0)	1 455	4.0
Azerbaijan	4 207	(79)	1 141	(21)	0	(0)	5 348	3.7
Belarus	3 774	(73)	1 365	(27)	0	(0)	5 139	2.8
Georgia	4 569	(72)	1 773	(28)	3	(0)	6 345	2.6
Kazakhstan	19 013	(58)	13 923	(42)	0	(0)	32 936	1.4
Kyrgyzstan †	3 625	(58)	2 654	(42)	0	(0)	6 279	1.4
Moldova, Republic of	3 048	(73)	1 101	(27)	0	(0)	4 149	2.8
Russian Federation †	91 206	(74)	32 134	(26)	0	(0)	123 340	2.8
Tajikistan	1 879	(46)	1 317	(33)	856	(21)	4 052	1.4
Turkmenistan	3 001	(65)	1 634	(35)	0	(0)	4 635	1.8
Ukraine	-	-	-	-	-	-	-	-
Uzbekistan †	11 474	(57)	8 486	(43)	0	(0)	19 960	1.4
Total East	146 961	(69)	65 818	(31)	859	(0)	213 638	2.2
Total WHO European Region	220 555	(68)	104 860	(32)	974	(0)	326 389	2.1

\* Respiratory and meningeal cases only

† New cases only

Table 4. Tuberculosis cases by geographic origin, WHO European Region, 2002

Geographic area Country	Classification	Native-born / national citizen		Foreign born / foreign citizen		Unknown		Total
		N	(%)	N	(%)	N	(%)	
EU & West								
Austria	citizenship	769	(72)	298	(28)	0	(0)	1 067
Belgium	citizenship	637	(49)	657	(51)	0	(0)	1 294
Cyprus	birthplace	13	(65)	7	(35)	0	(0)	20
Czech Republic	birthplace	1 036	(86)	164	(14)	0	(0)	1 200
Denmark	birthplace *	154	(37)	257	(61)	8	(2)	419
Estonia	birthplace	573	(80)	140	(20)	0	(0)	713
Finland	birthplace	422	(89)	43	(9)	8	(2)	473
France	birthplace	2 657	(42)	2 564	(41)	1 101	(17)	6 322
Germany	birthplace	4 040	(53)	2 924	(38)	720	(9)	7 684
Greece	citizenship	444	(76)	111	(19)	27	(5)	582
Hungary	birthplace	2 948	(98)	47	(2)	12	(0)	3 007
Ireland	birthplace	268	(66)	107	(26)	31	(8)	406
Italy	birthplace	2 890	(69)	1 293	(31)	29	(1)	4 212
Latvia	birthplace	1 714	(92)	114	(6)	27	(1)	1 855
Lithuania	birthplace	2 711	(95)	133	(5)	0	(0)	2 844
Luxembourg	birthplace	19	(59)	13	(41)	0	(0)	32
Malta	citizenship	15	(63)	9	(38)	0	(0)	24
Netherlands	citizenship	539	(38)	854	(61)	8	(1)	1 401
Poland	-	-	-	-	-	-	-	-
Portugal	birthplace	4 002	(87)	584	(13)	5	(0)	4 591
Slovakia	birthplace	1 041	(99)	12	(1)	0	(0)	1 053
Slovenia	birthplace	273	(78)	77	(22)	0	(0)	350
Spain †	birthplace	3 147	(41)	444	(6)	4 035	(53)	7 626
Sweden	birthplace	116	(28)	296	(72)	0	(0)	412
United Kingdom	birthplace	2 257	(31)	4 167	(56)	952	(13)	7 376
Subtotal EU		32 685	(59)	15 315	(28)	6 963	(13)	54 963
Andorra	citizenship	5	(100)	0	(0)	0	(0)	5
Iceland	birthplace	5	(63)	3	(38)	0	(0)	8
Israel	birthplace	79	(15)	432	(85)	0	(0)	511
Monaco	-	0	-	0	-	0	-	0
Norway	birthplace	61	(24)	195	(76)	0	(0)	256
San Marino	citizenship	1	(100)	0	(0)	0	(0)	1
Switzerland	birthplace	189	(29)	399	(61)	70	(11)	658
Total EU & West		33 025	(59)	16 344	(29)	7 033	(12)	56 402
Centre								
Albania	citizenship	610	(100)	2	(0)	0	(0)	612
Bosnia & Herzegovina	both	2 545	(100)	6	(0)	0	(0)	2 551
Bulgaria	citizenship	3 335	(100)	0	(0)	0	(0)	3 335
Croatia	birthplace	789	(54)	168	(11)	513	(35)	1 470
Macedonia, F.Y.R.	birthplace	486	(67)	31	(4)	213	(29)	730
Romania	birthplace	34 136	(100)	7	(0)	0	(0)	34 143
Serbia & Montenegro	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-
Total Centre		41 901	(98)	214	(0)	726	(2)	42 841
East								
Armenia	-	-	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-
Kyrgyzstan	-	-	-	-	-	-	-	-
Moldova, Republic of	citizenship	4 134	(100)	15	(0)	0	(0)	4 149
Russian Federation ‡	citizenship	134 221	(100)	591	(0)	0	(0)	134 812
Tajikistan	-	-	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-	-	-
Ukraine	-	-	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-	-	-
Total East		138 355	(100)	606	(0)	0	(0)	138 961
Total WHO European Region		213 281	(90)	17 164	(7)	7 759	(3)	238 204

\* By birthplace of parents for Danish-born cases under 26 years of age

† Respiratory and meningeal cases only

‡ New cases only



Table 5. Tuberculosis cases by geographic origin, EU &amp; West\*, 1995-2002

Geographic area Country	Classification	1995	1996	1997	1998	1999	2000	2001	2002
<b>A. Native-born / national citizens</b>									
Austria	citizenship	1 037	1 138	1 052	1 014	926	890	804	769
Belgium	citizenship	919	906	849	776	809	758	714	637
Cyprus	birthplace	-	-	-	-	-	-	15	13
Czech Republic	birthplace	1 834	1 936	1 726	1 695	1 496	1 299	1 157	1 036
Denmark	birthplace †	190	195	174	184	164	198	174	154
Estonia	birthplace	-	681	716	704	587	608	630	573
Finland	birthplace	611	596	524	568	517	490	427	422
France	birthplace	-	-	-	-	-	3 198	2 870	2 657
Germany	birthplace	-	-	-	-	-	-	3 781	4 040
Greece	citizenship	-	-	-	1 026	704	635	513	444
Hungary	birthplace	-	4 236	4 196	-	3 832	3 521	3 077	2 948
Ireland	birthplace	-	-	-	389	404	354	328	268
Italy	birthplace	-	-	-	-	3 346	3 511	3 063	2 890
Latvia	birthplace	-	-	1 889	2 087	1 614	1 893	1 931	1 714
Lithuania	birthplace	-	-	2 769	2 784	2 699	2 821	2 815	2 711
Malta	citizenship	-	-	-	-	-	13	13	15
Netherlands	citizenship	706	808	647	536	603	516	545	539
Portugal	birthplace	-	-	-	-	4 406	4 047	3 903	4 002
Slovakia	birthplace	-	1 497	1 298	1 281	1 214	1 103	1 063	1 041
Slovenia	birthplace	401	457	377	368	335	286	287	273
Sweden	birthplace	249	198	156	177	174	151	142	116
United Kingdom	birthplace	-	-	-	2 353	2 087	2 369	2 368	2 257
<b>Subtotal EU</b>		-	-	-	-	-	-	<b>30 620</b>	<b>29 519</b>
Andorra	citizenship	-	-	-	-	-	-	5	5
Iceland	birthplace	11	7	8	9	4	8	6	5
Israel	birthplace	-	70	52	96	71	91	87	79
Monaco	birthplace	-	0	0	0	1	0	0	0
Norway	birthplace	139	115	95	115	93	70	82	61
San Marino	citizenship	1	0	1	0	0	1	0	-
Switzerland	birthplace	-	-	239	211	269	228	192	189
<b>Total EU &amp; West</b>		-	-	-	-	-	-	<b>30 992</b>	<b>29 858</b>
<b>B. Foreign-born / foreign citizens</b>									
Austria	citizenship	332	351	346	292	319	335	271	298
Belgium	citizenship	455	435	414	427	454	508	604	657
Cyprus	birthplace	-	-	-	-	-	-	25	7
Czech Republic	birthplace	17	0	108	110	135	143	193	164
Denmark	birthplace †	246	283	380	344	371	350	334	257
Estonia	birthplace	-	2	28	114	167	183	182	140
Finland	birthplace	30	34	41	49	49	47	58	43
France	birthplace	-	-	-	-	-	2 193	2 305	2 564
Germany	birthplace	-	-	-	-	-	-	2 741	2 924
Greece	citizenship	-	-	-	126	116	68	104	111
Hungary	birthplace	-	42	44	-	64	56	57	47
Ireland	birthplace	-	-	-	35	65	49	65	107
Italy	birthplace	-	-	-	-	961	1 201	1 391	1 293
Latvia	birthplace	-	-	85	61	39	147	122	114
Lithuania	birthplace	-	-	157	231	146	160	174	133
Malta	citizenship	-	-	-	-	-	5	3	9
Netherlands	citizenship	913	833	817	805	898	879	881	854
Portugal	birthplace	-	-	-	-	325	434	491	584
Slovakia	birthplace	-	2	0	1	4	8	13	12
Slovenia	birthplace	111	106	101	81	103	94	84	77
Sweden	birthplace	315	291	300	269	319	305	286	296
United Kingdom	birthplace	-	-	-	2 987	2 967	3 384	3 610	4 167
<b>Subtotal EU</b>		-	-	-	-	-	-	<b>13 994</b>	<b>14 858</b>
Andorra	citizenship	-	-	-	-	-	-	0	0
Iceland	birthplace	1	4	2	8	8	5	7	3
Israel	birthplace	27	345	370	560	449	500	477	432
Monaco	birthplace	-	0	0	0	2	0	0	0
Norway	birthplace	97	102	110	129	180	167	206	195
San Marino	citizenship	1	0	0	0	0	0	0	-
Switzerland	birthplace	-	-	403	411	469	341	338	399
<b>Total EU &amp; West</b>		-	-	-	-	-	-	<b>15 022</b>	<b>15 887</b>

\* Countries with at least two successive datapoints with the same classification of origin and with at least 80% of cases with information on origin in all years

† By birthplace of parents for Danish-born cases under 26 years of age

## TABLES

**Table 6. Tuberculosis cases of foreign origin by area of origin, WHO European Region, 2002  
(27 countries with individual data)**

Geographic area Country		Classification		Area of origin								Total
				WHO European Region								
				EU & West		Centre and East		Asia		Africa		
N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	
EU & West												
Austria	citizenship	10	(3)	202	(68)	50	(17)	33	(11)	3	(1)	298
Belgium	citizenship	61	(9)	107	(16)	92	(14)	373	(57)	24	(4) †	657
Cyprus	birthplace	0	(0)	5	(71)	2	(29)	0	(0)	0	(0)	7
Czech Republic	birthplace	25	(15)	86	(52)	48	(29)	3	(2)	2	(1)	164
Danemark ‡	birthplace	3	(1)	31	(12)	97	(38)	99	(39)	27	(11) †	257
Estonia	birthplace	6	(4)	134	(96)	0	(0)	0	(0)	0	(0)	140
Finland	birthplace	1	(2)	9	(21)	14	(33)	17	(40)	2	(5)	43
France	birthplace	-	-	-	-	302	(12)	1 714	(67)	548	(21) §	2 564
Germany	birthplace	272	(9)	1 579	(54)	617	(21)	411	(14)	45	(2)	2 924
Greece	citizenship	5	(5)	70	(63)	27	(24)	9	(8)	0	(0)	111
Hungary	birthplace	3	(6)	29	(62)	11	(23)	4	(9)	0	(0)	47
Ireland	birthplace	15	(14)	9	(8)	35	(33)	44	(41)	4	(4)	107
Italy	birthplace	32	(2)	249	(19)	269	(21)	509	(39)	234	(18)	1 293
Latvia	birthplace	15	(13)	98	(86)	1	(1)	0	(0)	0	(0)	114
Luxembourg	birthplace	6	(46)	3	(23)	3	(23)	1	(8)	0	(0)	13
Malta	citizenship	1	(11)	0	(0)	0	(0)	8	(89)	0	(0)	9
Netherlands	citizenship	13	(2)	110	(13)	203	(24)	486	(57)	42	(5)	854
Portugal	birthplace	26	(4)	40	(7)	31	(5)	450	(77)	37	(6)	584
Slovakia	birthplace	0	(0)	2	(17)	9	(75)	1	(8)	0	(0)	12
Slovenia	birthplace	0	(0)	76	(99)	0	(0)	1	(1)	0	(0)	77
Sweden	birthplace	19	(4)	76	(2)	2 144	(53)	1 443	(35)	260	(6)	4 079
United Kingdom II	birthplace	156	(6)	58	(19)	105	(35)	108	(36)	8	(3)	296
Subtotal EU		669	(5)	2 971	(20)	4 060	(28)	5 714	(39)	1 236	(8)	14 650
Iceland	birthplace	0	(0)	0	(0)	2	(67)	0	(0)	1	(33)	3
Norway	birthplace	-	-	-	-	63	(32)	102	(52)	30	(15) **	195
Switzerland	birthplace	48	(12)	107	(27)	85	(21)	130	(33)	29	(7)	399
Total EU & West		717	(5)	3 078	(20)	4 210	(28)	5 946	(39)	1 296	(9)	15 247
Centre												
Croatia	birthplace	6	(4)	161	(96)	1	(1)	0	(0)	0	(0)	168
Romania	birthplace	1	(14)	2	(29)	2	(29)	2	(29)	0	(0)	7

\* 850 cases from America and Oceania

† 1 case from Europe, country not specified

‡ By birthplace of parents for Danish-born cases under 26 years of age

§ 240 cases from Europe, country not specified

II Excluding Scotland

\*\* 29 cases from Europe, country not specified

**Table 7. Tuberculosis cases by history of anti-TB treatment or of tuberculosis, WHO European Region, 2002**

Geographic area	History of anti-TB treatment*								Total
	Never treated (new case)		Previously treated for TB		Unknown TB treatment history				
					Previously diagnosed with TB		Unknown TB history		
	Country	N	(%)	N	(%)	N	(%)	N	
EU & West									
Austria	981	(92)	23	(2)	63	(6)	0	(0)	1 067
Belgium	952	(74)	-	-	91	(7)	251	(19)	1 294
Cyprus	18	(90)	2	(10)	0	(0)	0	(0)	20
Czech Republic	1 156	(96)	44	(4)	0	(0)	0	(0)	1 200
Denmark	386	(92)	-	-	33	(8)	0	(0)	419
Estonia	525	(74)	188	(26)	0	(0)	0	(0)	713
Finland	404	(85)	24	(5)	0	(0)	45	(10)	473
France	4 315	(68)	544	(9)	0	(0)	1 463	(23)	6 322
Germany	4 623	(60)	665	(9)	299	(4)	2 097	(27)	7 684
Greece	279	(48)	29	(5)	0	(0)	274	(47)	582
Hungary	2 507	(83)	464	(15)	36	(1)	0	(0)	3 007
Ireland	350	(86)	15	(4)	18	(4)	23	(6)	406
Italy	2 846	(68)	287	(7)	237	(6)	842	(20)	4 212
Latvia	1 540	(83)	315	(17)	0	(0)	0	(0)	1 855
Lithuania	2 097	(74)	323	(11)	424	(15)	0	(0)	2 844
Luxembourg	31	(97)	1	(3)	0	(0)	0	(0)	32
Malta	24	(100)	0	(0)	0	(0)	0	(0)	24
Netherlands	1 169	(83)	69	(5)	12	(1)	151	(11)	1 401
Poland	9 314	(89)	1 144	(11)	17	(0)	0	(0)	10 475
Portugal	4 220	(92)	371	(8)	0	(0)	0	(0)	4 591
Slovakia	873	(83)	176	(17)	4	(0)	0	(0)	1 053
Slovenia	313	(89)	37	(11)	0	(0)	0	(0)	350
Spain †	5 229	(69)	343	(4)	0	(0)	2 054	(27)	7 626
Sweden	375	(91)	36	(9)	1	(0)	0	(0)	412
United Kingdom ‡	5 149	(74)	-	-	222	(3)	1 603	(23)	6 974
Subtotal EU	49 676	(76)	5 100	(8)	1 457	(2)	8 803	(14)	65 036
Andorra	5	(100)	0	(0)	0	(0)	0	(0)	5
Iceland	8	(100)	0	(0)	0	(0)	0	(0)	8
Israel	462	(90)	28	(5)	21	(4)	0	(0)	511
Monaco	0	-	0	-	0	-	0	-	0
Norway	242	(95)	14	(5)	0	(0)	0	(0)	256
San Marino	1	(100)	0	(0)	0	(0)	0	(0)	1
Switzerland	467	(71)	67	(10)	0	(0)	124	(19)	658
Total EU & West	50 861	(77)	5 209	(8)	1 478	(2)	8 927	(13)	66 475
Centre									
Albania	571	(93)	41	(7)	0	(0)	0	(0)	612
Bosnia & Herzegovina	2 298	(90)	253	(10)	0	(0)	0	(0)	2 551
Bulgaria	2 962	(89)	373	(11)	0	(0)	0	(0)	3 335
Croatia	1 340	(91)	123	(8)	0	(0)	7	(0)	1 470
Macedonia, FYR	646	(88)	84	(12)	0	(0)	0	(0)	730
Romania	26 640	(78)	7 503	(22)	0	(0)	0	(0)	34 143
Serbia & Montenegro	2 789	(92)	244	(8)	0	(0)	0	(0)	3 033
Turkey	16 376	(86)	2 095	(11)	0	(0)	557	(3)	19 028
Total Centre	53 622	(83)	10 716	(17)	0	(0)	564	(1)	64 902
East									
Armenia	1 393	(96)	62	(4)	0	(0)	0	(0)	1 455
Azerbaijan	4 964	(93)	384	(7)	0	(0)	0	(0)	5 348
Belarus	4 432	(86)	683	(13)	0	(0)	24	(0)	5 139
Georgia	4 390	(69)	100	(2)	1 855	(29)	0	(0)	6 345
Kazakhstan	24 478	(74)	3 068	(9)	5 390	(16)	0	(0)	32 936
Kyrgyzstan	6 172	(91)	622	(9)	0	(0)	0	(0)	6 794
Moldova, Republic of	3 433	(83)	336	(8)	380	(9)	0	(0)	4 149
Russian Federation	123 340	(91)	11 472	(9)	0	(0)	0	(0)	134 812
Tajikistan	-	-	-	-	-	-	-	-	-
Turkmenistan	3 611	(78)	70	(2)	954	(21)	0	(0)	4 635
Ukraine	36 471	(91)	3 704	(9)	0	(0)	0	(0)	40 175
Uzbekistan	19 960	(74)	628	(2)	6 421	(24)	0	(0)	27 009
Total East	232 644	(87)	21 129	(8)	15 000	(6)	24	(0)	268 797
Total WHO European Region	337 127	(84)	37 054	(9)	16 478	(4)	9 515	(2)	400 174

\* See technical note

† Respiratory and meningeal cases only

‡ Excluding Scotland

# TABLES

**Table 8. Tuberculosis cases by site of disease, WHO European Region, 2002**

Geographic area Country	Classification	Pulmonary / Respiratory		Extra-pulmonary / Extra-respiratory		Unknown		Total
		N	(%)	N	(%)	N	(%)	
EU & West								
Austria	pulmonary	856	(80)	211	(20)	0	(0)	1 067
Belgium	pulmonary	974	(75)	316	(24)	4	(0)	1 294
Cyprus	pulmonary	14	(70)	6	(30)	0	(0)	20
Czech Republic	pulmonary	923	(77)	277	(23)	0	(0)	1 200
Denmark	pulmonary	308	(74)	111	(26)	0	(0)	419
Estonia	pulmonary	628	(88)	85	(12)	0	(0)	713
Finland	pulmonary	295	(62)	178	(38)	0	(0)	473
France	pulmonary	4 563	(72)	1 686	(27)	73	(1)	6 322
Germany	pulmonary	5 950	(77)	1 438	(19)	296	(4)	7 684
Greece	pulmonary	504	(87)	78	(13)	0	(0)	582
Hungary	pulmonary	2 789	(93)	218	(7)	0	(0)	3 007
Ireland	pulmonary	297	(73)	87	(21)	22	(5)	406
Italy	pulmonary	3 221	(76)	991	(24)	0	(0)	4 212
Latvia	pulmonary	1 624	(88)	231	(12)	0	(0)	1 855
Lithuania	pulmonary	2 351	(83)	493	(17)	0	(0)	2 844
Luxembourg	pulmonary	28	(88)	4	(13)	0	(0)	32
Malta	pulmonary	19	(79)	5	(21)	0	(0)	24
Netherlands	pulmonary	900	(64)	501	(36)	0	(0)	1 401
Poland	pulmonary	9 438	(90)	1 037	(10)	0	(0)	10 475
Portugal	pulmonary	3 355	(73)	1 222	(27)	14	(0)	4 591
Slovakia	pulmonary	845	(80)	208	(20)	0	(0)	1 053
Slovenia	pulmonary	295	(84)	55	(16)	0	(0)	350
Spain *	respiratory	7 493	(98)	133	(2)	0	(0)	7 626
Sweden	pulmonary	263	(64)	148	(36)	1	(0)	412
United Kingdom †	pulmonary	4 112	(59)	2 735	(39)	127	(2)	6 974
Subtotal EU		52 045	(80)	12 454	(19)	537	(1)	65 036
Andorra	pulmonary	4	(80)	1	(20)	0	(0)	5
Iceland	pulmonary	6	(75)	2	(25)	0	(0)	8
Israel	pulmonary	392	(77)	119	(23)	0	(0)	511
Monaco	pulmonary	0	-	0	-	0	-	0
Norway	pulmonary	157	(61)	99	(39)	0	(0)	256
San Marino	respiratory	0	(0)	1	(100)	0	(0)	1
Switzerland	pulmonary	504	(77)	154	(23)	0	(0)	658
Total EU & West		53 108	(80)	12 830	(19)	537	(1)	66 475
Centre								
Albania	pulmonary	410	(67)	202	(33)	0	(0)	612
Bosnia & Herzegovina	pulmonary	2 268	(89)	283	(11)	0	(0)	2 551
Bulgaria	respiratory	2 942	(88)	393	(12)	0	(0)	3 335
Croatia	pulmonary	1 323	(90)	147	(10)	0	(0)	1 470
Macedonia, F.Y.R.	pulmonary	557	(76)	173	(24)	0	(0)	730
Romania	pulmonary	30 197	(88)	3 946	(12)	0	(0)	34 143
Serbia & Montenegro	respiratory	2 817	(93)	216	(7)	0	(0)	3 033
Turkey	pulmonary	-	-	-	-	-	-	-
Total Centre		40 514	(88)	5 360	(12)	0	(0)	45 874
East								
Armenia	pulmonary	1 274	(88)	181	(12)	0	(0)	1 455
Azerbaijan	pulmonary	4 610	(86)	738	(14)	0	(0)	5 348
Belarus	respiratory	-	-	-	-	-	-	-
Georgia	pulmonary	5 010	(79)	1 335	(21)	0	(0)	6 345
Kazakhstan	pulmonary	31 745	(96)	1 191	(4)	0	(0)	32 936
Kyrgyzstan	pulmonary	4 334	(64)	2 460	(36)	0	(0)	6 794
Moldova, Republic of	pulmonary	3 542	(85)	607	(15)	0	(0)	4 149
Russian Federation	respiratory	-	-	-	-	-	-	-
Tajikistan	pulmonary	-	-	-	-	-	-	-
Turkmenistan	pulmonary	4 117	(89)	518	(11)	0	(0)	4 635
Ukraine	respiratory	-	-	-	-	-	-	-
Uzbekistan	pulmonary	23 692	(88)	3 317	(12)	0	(0)	27 009
Total East		78 324	(88)	10 347	(12)	0	(0)	88 671
Total WHO European Region		171 946	(86)	28 537	(14)	537	(0)	201 020

\* Respiratory and meningeal cases only

† Excluding Scotland (respiratory classification)

**Table 9. Tuberculosis cases, by detailed site of disease and age group, WHO European Region, 2002\***

Site of disease	Age group (years)							
	0-14 (Cases=886)		15-44 (Cases=11 897)		45 and over (Cases=15 084)		Total† (Cases=28 045)	
	Sites †	(%)§	Sites †	(%)§	Sites †	(%)§	Sites †	(%)§
<b>Pulmonary</b>	<b>603</b>	<b>(68.1)</b>	<b>9 427</b>	<b>(79.2)</b>	<b>11 999</b>	<b>(79.5)</b>	<b>22 184</b>	<b>(79.1)</b>
<b>Extrapulmonary</b>								
Pleura	36	(4.1)	928	(7.8)	919	(6.1)	1 887	(6.7)
Intrathoracic lymphnodes	174	(19.6)	262	(2.2)	211	(1.4)	651	(2.3)
Extrathoracic lymphnodes	68	(7.7)	760	(6.4)	676	(4.5)	1 507	(5.4)
Spine	8	(0.9)	109	(0.9)	180	(1.2)	298	(1.1)
Bone/joint other than spine	14	(1.6)	113	(0.9)	230	(1.5)	358	(1.3)
Meninges	14	(1.6)	81	(0.7)	76	(0.5)	171	(0.6)
CNS other than meninges II	2	(0.2)	17	(0.1)	14	(0.1)	34	(0.1)
Genito-urinary	4	(0.5)	193	(1.6)	549	(3.6)	751	(2.7)
Peritoneal / digestive	12	(1.4)	126	(1.1)	151	(1.0)	290	(1.0)
Disseminated ¶	14	(1.6)	231	(1.9)	188	(1.2)	435	(1.6)
Other	27	(3.0)	384	(3.2)	473	(3.1)	886	(3.2)
<b>Unknown</b>	<b>17</b>	<b>(1.9)</b>	<b>115</b>	<b>(1.0)</b>	<b>202</b>	<b>(1.3)</b>	<b>336</b>	<b>(1.2)</b>
<b>Total sites</b>	<b>976</b>		<b>12 631</b>		<b>15 666</b>		<b>29 452</b>	

\* 18 countries with individual data: Austria, Belgium, Croatia, Cyprus, Czech Republic, Estonia, Germany, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Norway, Portugal, Slovakia, Slovenia and Switzerland

† Number of sites. One major and one minor site can be reported for a case (see technical note); both are counted in this Table

‡ Includes 178 cases with unknown age

§ Percentage of cases in which the site was reported; total exceeds 100%

II CNS = Central Nervous System

¶ Includes miliary TB, TB of more than two organ systems or isolate of *M. tuberculosis* complex from the blood

## TABLES

**Table 10. Tuberculosis cases by culture result, WHO European Region, 2002**

Geographic area Country	Routine use of culture*	Laboratories which report TB cases	Positive		Negative / not done / unknown		Total
			N	(%)	N	(%)	
EU & West							
Austria	yes	-	696	(65)	371	(35)	1067
Belgium	yes	all	1 014	(78)	280	(22)	1 294
Cyprus	yes	none	13	(65)	7	(35)	20
Czech Republic	yes	all	758	(63)	442	(37)	1 200
Denmark	yes	none	320	(76)	99	(24)	419
Estonia	yes	all	535	(75)	178	(25)	713
Finland	yes	all	391	(83)	82	(17)	473
France	yes	none	1 839	(29)	4 483	(71)	6 322
Germany	yes	all	4 857	(63)	2 827	(37)	7 684
Greece	no	some	271	(47)	311	(53)	582
Hungary	yes	all	954	(32)	2 053	(68)	3 007
Ireland	yes	none	181	(45)	225	(55)	406
Italy	no	none	1 600	(38)	2 612	(62)	4 212
Latvia	yes	some	1 296	(70)	559	(30)	1 855
Lithuania	yes	none	1 544	(54)	1 300	(46)	2 844
Luxembourg	yes	all	32	(100)	0	(0)	32
Malta	yes	all	14	(58)	10	(42)	24
Netherlands	yes	none	768	(55)	633	(45)	1 401
Poland	yes	all	5 660	(54)	4 815	(46)	10 475
Portugal	yes	some	2 209	(48)	2 382	(52)	4 591
Slovakia	yes	all	504	(48)	549	(52)	1 053
Slovenia	yes	all	292	(83)	58	(17)	350
Spain †	yes	none	3 837	(50)	3 789	(50)	7 626
Sweden	yes	all	354	(86)	58	(14)	412
United Kingdom	yes	none	2 316	(31)	5 060	(69)	7 376
Subtotal EU			32 255	(49)	33 183	(51)	65 438
Andorra	yes	all	3	(60)	2	(40)	5
Iceland	yes	all	6	(75)	2	(25)	8
Israel	yes	all	344	(67)	167	(33)	511
Monaco	-	-	0	-	0	-	0
Norway	yes	all	192	(75)	64	(25)	256
San Marino	yes	none	1	(100)	0	(0)	1
Switzerland	no	all	519	(79)	139	(21)	658
Total EU & West			33 320	(50)	33 557	(50)	66 877
Centre							
Albania	no	some	232	(38)	380	(62)	612
Bosnia & Herzegovina	yes	all	1 494	(59)	1 057	(41)	2 551
Bulgaria	yes	some	1 626	(49)	1 709	(51)	3 335
Croatia	yes	all	844	(57)	626	(43)	1 470
Macedonia, F.Y.R.	no	some	142	(19)	588	(81)	730
Romania	no	all	19 045	(56)	15 098	(44)	34 143
Serbia & Montenegro	no	some	1 786	(59)	1 247	(41)	3 033
Turkey	yes	some	-	-	-	-	-
Total Centre			25 169	(55)	20 705	(45)	45 874
East							
Armenia	no	some	-	-	-	-	-
Azerbaijan	no	none	1 040	(19)	4 308	(81)	5 348
Belarus	yes	none	-	-	-	-	-
Georgia	no	none	-	-	-	-	-
Kazakhstan	no	all	3 122	(9)	29 814	(91)	32 936
Kyrgyzstan	no	none	-	-	-	-	-
Moldova, Republic of	no	none	-	-	-	-	-
Russian Federation	no	none	-	-	-	-	-
Tajikistan	no	some	-	-	-	-	-
Turkmenistan	no	all	-	-	-	-	-
Ukraine	no	-	-	-	-	-	-
Uzbekistan	no	none	-	-	-	-	-
Total East			4 162	(11)	34 122	(89)	38 284
Total WHO European Region			62 651	(41)	88 384	(59)	151 035

\* Routine use of culture nationwide for pulmonary cases

† Respiratory and meningial cases only



# TABLES

**Table 11. Tuberculosis cases by culture result and site of disease, WHO European Region, 2002 \***

Geographic area Country	Positive		Culture done Negative		Unknown		Culture not done		No information		Total †
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	
A) Pulmonary cases											
EU & West											
Austria	593	(69)	134	(16)	0	(0)	129	(15)	0	(0)	856
Belgium	818	(84)	115	(12)	12	(1)	2	(0)	97	(10)	974
Cyprus	13	(93)	1	(7)	0	(0)	0	(0)	0	(0)	14
Czech Republic	636	(69)	287	(31)	0	(0)	0	(0)	0	(0)	923
Denmark	242	(79)	17	(6)	0	(0)	0	(0)	49	(16)	308
Estonia	501	(80)	119	(19)	0	(0)	8	(1)	0	(0)	628
Finland II	261	(88)	-	-	-	-	-	-	34	(12)	295
France	1 633	(36)	280	(6)	1 687	(37)	0	(0)	963	(21)	4 563
Germany	3 923	(66)	1 259	(21)	175	(3)	241	(4)	352	(6)	5 950
Greece	253	(50)	7	(1)	112	(22)	32	(6)	100	(20)	504
Hungary	899	(32)	1 252	(45)	138	(5)	436	(16)	64	(2)	2 789
Ireland	143	(48)	24	(8)	0	(0)	9	(3)	121	(41)	297
Italy	1 546	(48)	334	(10)	0	(0)	476	(15)	865	(27)	3 221
Latvia	1 242	(76)	356	(22)	0	(0)	26	(2)	0	(0)	1 624
Luxembourg	28	(100)	0	(0)	0	(0)	0	(0)	0	(0)	28
Malta	12	(63)	4	(21)	0	(0)	3	(16)	0	(0)	19
Netherlands	526	(58)	73	(8)	19	(2)	33	(4)	249	(28)	900
Portugal	2 049	(61)	268	(8)	69	(2)	696	(21)	273	(8)	3 355
Slovakia	451	(53)	361	(43)	0	(0)	8	(1)	25	(3)	845
Slovenia	261	(88)	17	(6)	0	(0)	16	(5)	1	(0)	295
Sweden	230	(87)	23	(9)	0	(0)	0	(0)	10	(4)	263
United Kingdom ‡§	1 387	(34)	-	-	-	-	-	-	2 725	(66)	4 112
Subtotal EU	17 647	(54)	4 931	(15)	2 212	(7)	2 115	(6)	5 928	(18)	32 763
Iceland	5	(83)	0	(0)	0	(0)	1	(17)	0	(0)	6
Norway	119	(76)	20	(13)	0	(0)	0	(0)	18	(11)	157
Switzerland	399	(79)	-	-	-	-	77	(15)	28	(6)	504
Total EU & West	18 170	(54)	4 951	(15)	2 212	(7)	2 193	(7)	5 974	(18)	33 430
Centre											
Bosnia & Herzegovina II	1 030	(68)	490	(32)	0	(0)	0	(0)	0	(0)	1 520
Croatia	785	(59)	213	(16)	0	(0)	1	(0)	324	(24)	1 323
Romania	18 677	(62)	7 654	(25)	2 927	(10)	939	(3)	0	(0)	30 197
Total pulmonary cases	38 662	(58)	13 308	(20)	5 139	(8)	3 133	(5)	6 298	(9)	66 470
B) Extra-pulmonary cases											
EU & West											
Austria	103	(49)	33	(16)	0	(0)	75	(36)	0	(0)	211
Belgium	193	(61)	62	(20)	6	(2)	13	(4)	42	(13)	316
Cyprus	0	(0)	4	(67)	0	(0)	1	(17)	1	(17)	6
Czech Republic	122	(44)	155	(56)	0	(0)	0	(0)	0	(0)	277
Denmark	78	(70)	14	(13)	0	(0)	0	(0)	19	(17)	111
Estonia	34	(40)	48	(56)	0	(0)	3	(4)	0	(0)	85
Finland II	130	(73)	-	-	-	-	-	-	48	(27)	178
France	193	(11)	387	(23)	603	(36)	0	(0)	503	(30)	1 686
Germany	782	(54)	322	(22)	42	(3)	194	(13)	98	(7)	1 438
Greece	18	(23)	6	(8)	17	(22)	7	(9)	30	(38)	78
Hungary	55	(25)	78	(36)	5	(2)	77	(35)	3	(1)	218
Ireland	33	(38)	14	(16)	0	(0)	5	(6)	35	(40)	87
Italy	54	(5)	183	(18)	0	(0)	476	(48)	278	(28)	991
Latvia	54	(23)	42	(18)	1	(0)	134	(58)	0	(0)	231
Luxembourg	4	(100)	0	(0)	0	(0)	0	(0)	0	(0)	4
Malta	2	(40)	0	(0)	0	(0)	3	(60)	0	(0)	5
Netherlands	242	(48)	51	(10)	17	(3)	34	(7)	157	(31)	501
Portugal	156	(13)	110	(9)	33	(3)	198	(16)	725	(59)	1 222
Slovakia	53	(25)	138	(66)	0	(0)	8	(4)	9	(4)	208
Slovenia	31	(56)	14	(25)	0	(0)	9	(16)	1	(2)	55
Sweden	124	(84)	15	(10)	0	(0)	0	(0)	9	(6)	148
United Kingdom ‡§	676	(25)	-	-	-	-	-	-	2 059	(75)	2 735
Subtotal EU	3 137	(29)	1 676	(16)	724	(7)	1 237	(11)	4 017	(37)	10 791
Iceland	1	(50)	1	(50)	0	(0)	0	(0)	0	(0)	2
Norway	73	(74)	9	(9)	0	(0)	0	(0)	17	(17)	99
Switzerland	120	(78)	-	-	-	-	21	(14)	13	(8)	154
Total EU & West	3 331	(30)	1 686	(15)	724	(7)	1 258	(11)	4 047	(37)	11 046
Centre											
Bosnia & Herzegovina II	4	(2)	223	(98)	0	(0)	0	(0)	0	(0)	227
Croatia	59	(40)	42	(29)	0	(0)	1	(1)	45	(31)	147
Romania	368	(9)	1 589	(40)	459	(12)	1 530	(39)	0	(0)	3 946
Total extra-pulmonary cases	3 762	(24)	3 540	(23)	1 183	(8)	2 789	(18)	4 092	(27)	15 366
* Countries providing individual data			§ Excluding Scotland								
† Excluding 820 cases with site unknown			II Excluding Rep. Srpska								
‡ Only positive results reported											

\* Countries providing individual data

‡ Excluding Scotland

† Excluding 820 cases with site unknown

II Excluding Rep. Srpska

‡ Only positive results reported

## TABLES

**Table 12. Tuberculosis cases by *M. tuberculosis* complex species, WHO European Region, 2002\***

Geographic area Country	<i>M. tuberculosis</i>		<i>M. bovis</i>		<i>M. africanum</i>		Unknown / not done		Total culture positive
	N	(%)	N	(%)	N	(%)	N	(%)	
EU & West									
Austria	191	(27.4)	4	(0.6)	1	(0.1)	500	(71.8)	696
Belgium	972	(95.9)	4	(0.4)	0	(0.0)	38	(3.7)	1 014
Cyprus	13	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	13
Czech Republic	716	(94.5)	3	(0.4)	0	(0.0)	39	(5.1)	758
Denmark	305	(95.3)	2	(0.6)	0	(0.0)	13	(4.1)	320
Estonia	535	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	535
Finland	389	(99.5)	0	(0.0)	0	(0.0)	2	(0.5)	391
Hungary	954	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	954
Ireland	132	(72.9)	12	(6.6)	0	(0.0)	37	(20.4)	181
Italy	1 351	(84.4)	3	(0.2)	11	(0.7)	235	(14.7)	1 600
Latvia	1 296	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	1 296
Luxembourg	32	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	32
Malta	13	(92.9)	0	(0.0)	0	(0.0)	1	(7.1)	14
Netherlands	717	(93.4)	8	(1.0)	0	(0.0)	43	(5.6)	768
Slovakia	504	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	504
Slovenia	292	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	292
Sweden	344	(97.2)	9	(2.5)	1	(0.3)	0	(0.0)	354
Subtotal EU	8 756	(90.1)	45	(0.5)	13	(0.1)	908	(9.3)	9 722
Iceland	6	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	6
Norway	190	(99.0)	1	(0.5)	1	(0.5)	0	(0.0)	192
Switzerland	477	(91.9)	4	(0.8)	8	(1.5)	30	(5.8)	519
Total EU & West	9 429	(90.3)	50	(0.5)	22	(0.2)	938	(9.0)	10 439
Centre									
Bosnia & Herzegovina †	1 028	(99.4)	0	(0.0)	0	(0.0)	6	(0.6)	1 034
Croatia ‡	844	(100.0)	-	-	-	-	-	-	844
Romania	19 045	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	19 045

\* Countries providing individual data

† Excluding Rep. Srpska

‡ Species other than *M. tuberculosis* not reported

# TABLES

**Table 13. Pulmonary tuberculosis cases by sputum smear result, WHO European Region, 2002**

Geographic area Country	Classification of site	Routine use of sputum smear nationwide	Positive		Negative / Unknown		Total
			N	(%)	N	(%)	
EU & West							
Austria	pulmonary	yes	276	(32)	580	(68)	856
Belgium	pulmonary	yes	452	(46)	522	(54)	974
Cyprus	pulmonary	yes	10	(71)	4	(29)	14
Czech Republic	pulmonary	yes	337	(37)	586	(63)	923
Denmark	pulmonary	yes	150	(49)	158	(51)	308
Estonia	pulmonary	yes	298	(47)	330	(53)	628
Finland	pulmonary	yes	136	(46)	159	(54)	295
France	pulmonary	yes	2 558	(56)	2 005	(44)	4 563
Germany	pulmonary	yes	2 030	(34)	3 920	(66)	5 950
Greece	pulmonary	no	231	(46)	273	(54)	504
Hungary	pulmonary	yes	664	(24)	2 125	(76)	2 789
Ireland	pulmonary	yes	105	(35)	192	(65)	297
Italy	pulmonary	no	1 476	(46)	1 745	(54)	3 221
Latvia	pulmonary	yes	828	(51)	796	(49)	1 624
Lithuania	pulmonary	yes	1 202	(51)	1 149	(49)	2 351
Luxembourg	pulmonary	yes	18	(64)	10	(36)	28
Malta	pulmonary	yes	5	(26)	14	(74)	19
Netherlands	pulmonary	yes	356	(40)	544	(60)	900
Poland	pulmonary	yes	4 156	(44)	5 282	(56)	9 438
Portugal	pulmonary	yes	2 156	(64)	1 199	(36)	3 355
Slovakia	pulmonary	yes	242	(29)	603	(71)	845
Slovenia	pulmonary	yes	147	(50)	148	(50)	295
Spain	respiratory	yes	3 520	(47)	3 973	(53)	7 493
Sweden	pulmonary	no	121	(46)	142	(54)	263
United Kingdom *	pulmonary	yes	1 349	(33)	2 763	(67)	4 112
Subtotal EU			22 823	(44)	29 222	(56)	52 045
Andorra	pulmonary	yes	2	(50)	2	(50)	4
Iceland	pulmonary	yes	2	(33)	4	(67)	6
Israel	pulmonary	yes	188	(48)	204	(52)	392
Monaco	pulmonary	-	0	-	0	-	0
Norway	pulmonary	no	31	(20)	126	(80)	157
San Marino	respiratory	yes	0	-	0	-	0
Switzerland	pulmonary	no	145	(29)	359	(71)	504
Total EU & West			23 191	(44)	29 917	(56)	53 108
Centre							
Albania	pulmonary	no	253	(62)	157	(38)	410
Bosnia & Herzegovina	pulmonary	yes	899	(40)	1 369	(60)	2 268
Bulgaria	respiratory	yes	1 380	(47)	1 562	(53)	2 942
Croatia	pulmonary	yes	494	(37)	829	(63)	1 323
Macedonia, F.Y.R.	pulmonary	no	240	(43)	317	(57)	557
Romania	pulmonary	yes	16 511	(55)	13 686	(45)	30 197
Serbia & Montenegro	respiratory	no	-	-	-	-	-
Turkey	pulmonary	yes	-	-	-	-	-
Total Centre			19 777	(52)	17 920	(48)	37 697
East							
Armenia	pulmonary	no	573	(45)	701	(55)	1 274
Azerbaijan	pulmonary	no	1 981	(43)	2 629	(57)	4 610
Belarus	respiratory	yes	-	-	-	-	-
Georgia	pulmonary	yes	1 638	(33)	3 372	(67)	5 010
Kazakhstan	pulmonary	yes	15 115	(48)	16 630	(52)	31 745
Kyrgyzstan	pulmonary	yes	1 945	(45)	2 389	(55)	4 334
Moldova, Republic of	pulmonary	no	1 482	(42)	2 060	(58)	3 542
Russian Federation	respiratory	no	-	-	-	-	-
Tajikistan	pulmonary	no	-	-	-	-	-
Turkmenistan	pulmonary	yes	1 796	(44)	2 321	(56)	4 117
Ukraine	respiratory	-	-	-	-	-	-
Uzbekistan	pulmonary	no	8 501	(36)	15 191	(64)	23 692
Total East			33 031	(42)	45 293	(58)	78 324
Total WHO European Region			75 999	(45)	93 130	(55)	169 129

\* Excluding Scotland (respiratory classification)

## TABLES

**Table 14. HIV infection among notified TB cases, WHO European Region\*, 1997-2002**

Geographic area Country	Patients tested for HIV	1997			1998			1999			2000			2001			2002		
		TB cases	HIV+ N (%)		TB cases	HIV+ N (%)		TB cases	HIV+ N (%)		TB cases	HIV+ N (%)		TB cases	HIV+ N (%)		TB cases	HIV+ N (%)	
EU & West																			
Belgium	19%	-	-	-	-	-	-	-	-	-	1 313	52 (4.0)	-	1 321	60 (4.5)	-	1 320	51 (3.9)	-
Czech Rep.	22%	-	-	-	-	-	-	-	-	-	1 200	2 (0.2)	-	1 350	2 (0.1)	-	1 442	0 (0.0)	-
Denmark	50%	-	-	-	-	-	-	537	13 (2.4)	-	548	11 (2.0)	-	511	11 (2.2)	-	-	-	-
Estonia	98%	744	1 (0.1)	-	820	0 (0.0)	-	754	1 (0.1)	-	791	1 (0.1)	-	812	7 (0.9)	-	713	20 (2.8)	-
France	41% †	6 756	318 (4.7)	-	6 651	282 (4.2)	-	6 674	264 (4.0)	-	6 714	327 (4.9)	-	6 465	364 (5.6)	-	-	-	-
Ireland	-	-	-	-	424	2 (0.5)	-	469	6 (1.3)	-	395	7 (1.8)	-	-	-	-	-	-	-
Latvia	90%	-	-	-	-	-	-	1 914	9 (0.5)	-	2 009	14 (0.7)	-	2 022	27 (1.3)	-	1 818	25 (1.4)	-
Lithuania ‡	-	-	-	-	-	-	-	-	-	-	2 668	2 (0.1)	-	2 606	3 (0.1)	-	2 420	1 (0.0)	-
Malta	100%	-	-	-	16	0 (0.0)	-	22	2 (9.1)	-	18	0 (0.0)	-	16	0 (0.0)	-	24	0 (0.0)	-
Netherlands	4% §	1 486	52 (3.5)	-	1 341	35 (2.6)	-	1 535	53 (3.5)	-	-	-	-	-	-	-	-	-	-
Portugal	51% †	-	-	-	-	-	-	-	-	-	4 494	700 (15.6)	-	4 387	680 (15.5)	-	4 431	669 (15.1)	-
Slovakia	95%	1 296	0 (0.0)	-	1 282	0 (0.0)	-	1 218	0 (0.0)	-	1 111	0 (0.0)	-	1 076	0 (0.0)	-	1 053	0 (0.0)	-
Slovenia	28%	483	1 (0.2)	-	449	1 (0.2)	-	438	2 (0.5)	-	380	2 (0.5)	-	372	2 (0.5)	-	349	1 (0.3)	-
Spain II	45% †	-	-	-	-	-	-	-	-	-	8 395	815 (9.7)	-	7 453	599 (8.0)	-	7 626	926 (12.1)	-
United Kingdom ‡	-	-	-	-	-	-	-	17 633	479 (2.7) ¶	-	-	-	-	-	-	-	-	-	-
Iceland	13%	10	0 (0.0)	-	17	0 (0.0)	-	12	0 (0.0)	-	13	0 (0.0)	-	13	0 (0.0)	-	8	1 (12.5)	-
Israel ‡	20%	-	-	-	656	25 (3.8)	-	520	13 (2.5)	-	591	28 (4.7)	-	564	25 (4.4)	-	475	24 (5.1)**	-
Centre																			
Albania	2%	655	0 (0.0)	-	694	0 (0.0)	-	765	2 (0.3)	-	631	1 (0.2)	-	572	3 (0.5)	-	612	3 (0.5)**	-
East																			
Armenia	15%	-	-	-	-	-	-	-	-	-	-	-	-	1 343	0 (0.0)	-	1 393	3 (0.2)	-
Azerbaijan ‡	99%	4 302	2 (0.0)	-	4 350	6 (0.1)	-	4 629	4 (0.1)	-	5 113	5 (0.1)	-	4 877	12 (0.2)	-	4 428	7 (0.2)	-
Belarus ‡	92%	-	-	-	-	-	-	-	-	-	-	-	-	5 505	33 (0.6)	-	5 139	36 (0.7)	-

\* Totals of TB cases in this table were reported separately from main TB notification and may differ from that cited elsewhere in this report

Numbers (and percentages) of HIV positive TB cases presented here are likely to be lower than true figures because not all TB cases are tested for HIV and because reporting of HIV serostatus is often incomplete

† 2001

‡ HIV serostatus attributed through linkage between TB and HIV case reports

§ 1999

II Respiratory and meningeal TB cases only

¶ TB cases notified in 1998-2000

\*\* Preliminary data for 2002

# TABLES

**Table 15. AIDS cases with tuberculosis as AIDS indicative disease, WHO European Region, 2002**

(source: EuroHIV, European Non Aggregate AIDS Data Set, update June 2003)\*

Geographic area Country	Total AIDS cases		AIDS indicative disease		TB as AIDS indicative disease						Cases of AIDS indicative TB/ total TB cases § (%)
	N	Rate / 100 000	N	(%)	Pulmonary TB †		Extra-pulmonary TB ‡		Total TB		
					N	(%)	N	(%)	N	(%)	
EU & West											
Austria	75	0.9	4	(5)	12	(16)	2	(3)	14	(19)	1.3%
Belgium	148	1.4	0	(0)	40	(27)	13	(9)	53	(36)	4.1%
Cyprus	n/a	-	-	-	-	-	-	-	-	-	-
Czech Republic	9	0.1	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Denmark	49	0.9	0	(0)	6	(12)	3	(6)	9	(18)	2.1%
Estonia	4	0.3	0	(0)	1	(25)	0	(0)	1	(25)	0.1%
Finland	21	0.4	0	(0)	6	(29)	3	(14)	9	(43)	1.9%
France	1 820	3.0	0	(0)	210	(12)	169	(9)	379	(21)	6.0%
Germany	1 018	1.2	0	(0)	45	(4)	36	(4)	81	(8)	1.1%
Greece	99	0.9	0	(0)	10	(10)	0	(0)	10	(10)	1.7%
Hungary	25	0.3	4	(16)	1	(4)	0	(0)	1	(4)	0.03%
Ireland	12	0.3	2	(17)	1	(8)	2	(17)	3	(25)	0.7%
Italy	1 863	3.2	0	(0)	106	(6)	77	(4)	183	(10)	4.3%
Latvia	55	2.3	0	(0)	23	(42)	0	(0)	23	(42)	1.2%
Lithuania	10	0.3	2	(20)	2	(20)	0	(0)	2	(20)	0.1%
Luxembourg	1	0.2	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Malta	4	1.0	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Netherlands	n/a	-	-	-	-	-	-	-	-	-	-
Poland	124	0.3	1	(1)	22	(18)	6	(5)	28	(23)	0.3%
Portugal	1 024	10.2	122	(12)	269	(26)	184	(18)	453	(44)	9.9%
Slovakia	2	0.04	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Slovenia	2	0.1	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Spain	3 937	9.9	0	(0)	634	(16)	584	(15)	1 218	(31)	8.3% II
Sweden	56	0.6	1	(2)	3	(5)	3	(5)	6	(11)	1.5%
United Kingdom	838	1.4	0	(0)	166	(20)	54	(6)	220	(26)	2.9%
Subtotal EU	11 196	2.6	136	(1)	1 557	(14)	1 136	(10)	2 693	(24)	3.3%
Andorra	n/a	-	-	-	-	-	-	-	-	-	-
Iceland	0	0.0	0	-	0	-	0	-	0	-	0.0%
Israel	72	1.1	6	(8)	22	(31)	8	(11)	30	(42)	5.9%
Monaco	0	0.0	0	-	0	-	0	-	0	-	-
Norway	33	0.7	0	(0)	7	(21)	3	(9)	10	(30)	3.9%
San Marino	1	3.7	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Switzerland	199	2.8	0	(0)	19	(10)	4	(2)	23	(12)	3.5%
Total EU & West	11 501	2.5	142	(1)	1 605	(14)	1 151	(10)	2 756	(24)	3.3%
Centre											
Albania	10	0.3	6	(60)	0	(0)	0	(0)	0	(0)	0.0%
Bosnia & Herzegovina	3	0.1	0	(0)	1	(33)	0	(0)	1	(33)	0.0%
Bulgaria	13	0.2	1	(8)	3	(23)	0	(0)	3	(23)	0.1%
Croatia	15	0.3	0	(0)	4	(27)	0	(0)	4	(27)	0.3%
Macedonia, F.Y.R.	5	0.2	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Romania	222	1.0	18	(8)	71	(32)	3	(1)	74	(33)	0.2%
Serbia & Montenegro	83	0.8	2	(2)	8	(10)	1	(1)	9	(11)	0.3%
Turkey	48	0.1	0	(0)	8	(17)	5	(10)	13	(27)	0.1%
Total Centre	399	0.3	27	(7)	95	(24)	9	(2)	104	(26)	0.2%
East											
Armenia	1	0.0	1	(100)	0	(0)	0	(0)	0	(0)	0.0%
Azerbaijan	14	0.2	0	(0)	11	(79)	0	(0)	11	(79)	0.2%
Belarus	18	0.2	0	(0)	5	(28)	1	(6)	6	(33)	0.1%
Georgia	51	1.0	9	(18)	8	(16)	16	(31)	24	(47)	0.4%
Kazakhstan	n/a	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	6	0.1	0	(0)	5	(83)	0	(0)	5	(83)	0.1%
Moldova, Republic of	18	0.4	1	(6)	2	(11)	0	(0)	2	(11)	0.05%
Russian Federation	n/a	-	-	-	-	-	-	-	-	-	-
Tajikistan	0	0.0	0	-	0	-	0	-	0	-	-
Turkmenistan	1	0.02	0	(0)	0	(0)	1	(100)	1	(100)	0.02%
Ukraine	1 385	2.8	710	(51)	430	(31)	8	(1)	438	(32)	1.1%
Uzbekistan	7	0.03	0	(0)	0	(0)	0	(0)	0	(0)	0.0%
Total East	1 501	1.2	721	(48)	461	(31)	26	(2)	487	(32)	0.6%
Total WHO European Region	13 401	1.9	890	(7)	2 161	(16)	1 186	(9)	3 347	(26)	1.3% II

\* Numbers and rates of AIDS cases in this report differ from those in EuroHIV reports, usually presented by year of diagnosis, adjusted for reporting delay

† In persons over 12 years of age; includes cases with concomitant pulmonary and extrapulmonary TB

‡ At all ages

§ Total TB cases reported in 2002 (Table 1 of this report)

II For Spain, the numerator only includes pulmonary AIDS-indicative TB, as only respiratory and meningeal TB cases are notified in Spain

n/a = not available

# TABLES

**Table 16. Laboratory practices for anti-TB Drug Susceptibility Testing (DST), WHO European Region, 2002**

Geographic area Country	No. labs. performing		DST methods					Quality assurance for DST					
	Culture	DST	non radiometric proportion †	radiometric proportion	resistance ratio	absolute concentr.	other	National *		International			
								No. labs		Year	% agreement of results for		
											INH	RMP	
<b>EU &amp; West</b>													
Austria	11	9	■	-	-	-	-	no	-	yes	2003	100	100
Belgium	50	17	■	■	-	-	■	no	-	yes	2002	97	87
Cyprus ‡	2	0	-	■	-	-	-	-	-	-	-	-	-
Czech Republic	45	14	■	■	-	-	-	yes	14	no	-	-	-
Denmark	1	1	-	■	-	-	-	-	-	yes	2002	100	100
Estonia	3	2	-	■	-	-	-	yes	2	yes	2002	100	100
Finland	15	2	■	■	-	-	-	no	-	yes	2002	100	100
France	320	120	■	■	-	-	■	no	-	yes	2002	100	90
Germany	200	70	■	■	-	-	-	yes	70	yes	2002	100	100
Greece	7	5	■	■	-	-	■	no	-	no	-	-	-
Hungary	21	14	■	■	-	■	-	yes	12	yes	2002	100	100
Ireland	15	4	-	■	-	-	-	no	-	yes	2002	100	89
Italy	>200	>200	■	■	■	■	■	yes	20	yes	2003	100	100
Latvia	8	1	-	■	-	■	-	-	-	no	-	-	-
Lithuania	6	1	-	■	-	-	-	-	-	yes	2002	96	97
Luxembourg	1	1	■	■	-	-	-	-	-	no	-	-	-
Malta ‡	1	0	-	-	-	-	-	-	-	-	-	-	-
Netherlands	43	20	■	-	-	■	■	no	-	yes	2003	100	100
Portugal	60	14	■	■	-	-	-	no	-	yes	2002	100	100
Slovakia	15	7	■	-	-	-	-	yes	7	yes	2002	100	100
Slovenia	6	1	■	-	-	-	■	-	-	yes	2000	100	100
Spain	200	n/a	■	-	-	-	-	no	-	no	-	-	-
Sweden	5	5	-	■	-	-	-	yes	5	yes	2002	>90	>90
United Kingdom	~250	7	-	-	■	■	■	yes	6	yes	2003	100	100
Iceland ‡	1	0	■	■	-	-	-	-	-	-	-	-	-
Israel	18	2	-	-	■	-	■	no	-	yes	2002	100	89
Norway	14	4	-	■	-	-	-	no	-	yes	2001	-	-
Switzerland	33	15	■	■	-	-	-	yes	15	yes	2002	100	100
<b>Centre</b>													
Albania	3	1	■	-	-	-	-	-	-	yes	2002	90	90
Bosnia & Herzegovina §	5	5	■	■	-	-	-	yes	5	yes	2002	-	-
Bulgaria	28	19	■	-	-	-	-	no	-	no	-	-	-
Croatia §	16	11	■	-	-	-	-	yes	11	yes	2001	100	100
Macedonia	3	1	■	-	-	-	-	-	-	no	-	-	-
Romania	129	75	-	-	-	■	-	yes	3	yes	2002	95	95
Serbia & Montenegro	36	11	■	-	-	-	-	yes	5	no	-	-	-
<b>East</b>													
Armenia	2	2	■	-	-	■	-	no	-	no	-	-	-
Azerbaijan	12	12	■	-	-	■	-	no	-	no	-	-	-
Georgia II	1	1	■	-	-	■	-	-	-	no	-	-	-
Kazakhstan	21	21	-	-	-	■	-	yes	20	yes	2002	100	100
Kyrgyzstan	13	3	-	-	-	■	-	no	-	no	-	-	-
Moldova, Rep. of	4	4	-	-	-	■	-	no	-	no	-	-	-
Turkmenistan	1	1	■	-	-	-	-	-	-	no	-	-	-

n/a = not available; INH = isoniazid; RMP = rifampicin

\* For countries with more than one national laboratory performing DST

† On Lowenstein-Jensen or Middlebrook7H10

‡ DST done abroad

§ Federation of Bosnia only

II Last updated in 2002



## TABLES

**Table 17. Characteristics of Drug Resistance Surveillance (DRS), WHO European Region, 2002 \***

Geographic area Country	Routine use of culture	Source of data	Geographic coverage of DRS	% of culture confirmed cases †	Cases included in DRS		
					Culture positive	Cases with DST result (INH & RMP) N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases							
EU & West							
Austria	yes	TB notifications	national	65%	696	674	(97)
Belgium	yes	TB notifications	national	79%	1 014	806	(79)
Czech Republic	yes	TB notifications	national	63%	758	510	(67)
Denmark	yes	TB notifications	national	76%	320	307	(96)
Estonia	yes	TB notifications	national	75%	535	533	(100)
Finland	yes	TB notifications	national	83%	391	384	(98)
Germany	yes	TB notifications	national	63%	4 857	4 489	(92)
Ireland	yes	TB notifications	national	45%	181	133	(73)
Latvia	yes	TB notifications	national	70%	1 296	1 249	(96)
Lithuania	yes	TB notifications	national	54%	1 544	1 343	(87)
Luxembourg	yes	TB notifications	national	100%	32	32	(100)
Malta	yes	TB notifications	national	58%	14	13	(93)
Netherlands	yes	TB notifications	national	55%	768	768	(100)
Slovakia	yes	TB notifications	national	48%	504	497	(99)
Slovenia	yes	TB notifications	national	83%	292	292	(100)
Sweden	yes	TB notifications	national	86%	354	354	(100)
United Kingdom	yes	NRL ¶	national	58%	4 629	4 572	(99)
Subtotal EU					18 185	16 956	(93)
Iceland	yes	TB notifications	national	75%	6	6	(100)
Israel	yes	TB notifications	national	67%	344	344	(100)
Norway	yes	TB notifications	national	75%	192	192	(100)
Switzerland	yes	TB notifications	national	79%	519	515	(99)
Total EU & West					19 246	18 013	(94)
Centre							
Bosnia & Herzegovina §	yes	TB notifications	national	59%	1 034	1 033	(100)
Croatia	yes	TB notifications	national	57%	844	844	(100)
East							
Kazakhstan (2001) ‡		cluster sample survey	national	-	-	678	-
Group B) Culture / DST not routinely performed, data on selected cases / areas							
EU & West							
Cyprus	yes	TB notifications	national	40%	13	7	(54)
France	yes	28 teaching hosp. labs	national	-	1 528	1 511	(99)
Greece	no	All labs doing DST	unknown	-	-	587	-
Hungary	yes	TB notifications	national	32%	954	564	(59)
Italy	no	20 selected laboratories	partial	-	509	509	(100)
Portugal	yes	TB notifications	national	48%	2 209	1 077	(49)
Spain	yes	NRL	partial	-	2 088	2 088	(100)
Centre							
Albania	no	TB notifications	national	38%	232	199	(86)
Bulgari	yes	TB notifications	partial	-	1 626	246	(15)
Macedonia, FYR	no	NRL	national	49%	170	170	(100)
Romania	no	TB notifications	national	56%	19 045	4 688	(25)
Serbia & Montenegro	no	TB notifications	Belgrade	-	357	357	(100)
East							
Armenia	no	NRL	national	-	-	-	-
Azerbaijan	no	selected laboratories	partial	-	596	596	(100)
Georgia	no	NRL II	partial	-	201	183	(91)
Kazakhstan	no	All labs doing DST	national	-	39 923	14 245	(36)
Kyrgyzstan	no	NRL	partial	-	-	638	-
Moldova, Rep. of	no	TB notifications	national	-	1 162	1 022	(88)
Turkmenistan	no	NRL	partial	-	-	98	-

NRL = National Reference Laboratory

\* Or last available year

† In areas included in DRS

‡ Data from countrywide survey in 2001

§ Federation of Bosnia only

|| Data from penitentiary system only

¶ Linkage with TB case notification ongoing

# TABLES

**Table 18. Global drug resistance, all tuberculosis cases, WHO European Region, 2002**

Geographic area Country	Cases with DST result (INH & RMP)	Cases resistant to at least:									
		Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol *		Streptomycin *	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases											
EU & West											
Austria	674	18	(2.7)	4	(0.6)	2	(0.3)	1	(0.1)	13	(1.9)
Belgium	806	61	(7.6)	22	(2.7)	21	(2.6)	17	(2.1)	-	-
Czech Republic	510	20	(3.9)	12	(2.4)	10	(2.0)	8	(1.6)	17	(3.3)
Denmark	307	16	(5.2)	2	(0.7)	1	(0.3)	4	(1.3)	33	(10.7)
Estonia	533	180	(33.8)	140	(26.3)	139	(26.1)	134	(25.1)	178	(33.4)
Finland	384	10	(2.6)	3	(0.8)	3	(0.8)	6	(1.6)	8	(2.1)
Germany	4 489	357	(8.0)	102	(2.3)	90	(2.0)	96	(2.1)	340	(7.6)
Ireland	133	4	(3.0)	1	(0.8)	0	(0.0)	0	(0.0)	-	-
Latvia	1 249	425	(34.0)	224	(17.9)	221	(17.7)	149	(11.9)	376	(30.1)
Lithuania	1 343	471	(35.1)	302	(22.5)	297	(22.1)	216	(16.1)	418	(31.1)
Luxembourg	32	0	(0.0)	0	(0.0)	0	(0.0)	3	(9.4)	0	(0.0)
Malta	13	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	768	27	(3.5)	3	(0.4)	2	(0.3)	2	(0.3)	21	(2.7)
Slovakia	497	13	(2.6)	6	(1.2)	3	(0.6)	1	(0.2)	9	(1.8)
Slovenia	292	11	(3.8)	2	(0.7)	2	(0.7)	1	(0.3)	9	(3.1)
Sweden	354	33	(9.3)	4	(1.1)	4	(1.1)	1	(0.3)	24	(6.8)
United Kingdom	4 572	330	(7.2)	66	(1.4)	51	(1.1)	29	(0.6)	-	-
Iceland	6	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Israel	344	56	(16.3)	17	(4.9)	17	(4.9)	15	(4.4)	65	(18.9)
Norway	192	22	(11.5)	7	(3.6)	7	(3.6)	-	-	-	-
Switzerland	515	31	(6.0)	11	(2.1)	11	(2.1)	4	(0.8)	-	-
Centre											
Bosnia & Herzegovina §	1 033	6	(0.6)	4	(0.4)	4	(0.4)	3	(0.3)	2	(0.2)
Croatia	844	17	(2.0)	9	(1.1)	6	(0.7)	4	(0.5)	9	(1.1)
East											
Kazakhstan (survey)	-	-	-	-	-	-	-	-	-	-	-
Group B) Culture / DST not routinely performed, data on selected cases / areas											
EU & West											
Cyprus	7	1	(14.3)	1	(14.3)	1	(14.3)	0	(0.0)	2	(28.6)
France	1 511	81	(5.4)	34	(2.3)	23	(1.5)	15	(1.0)	-	-
Greece	587	43	(7.3)	26	(4.4)	22	(3.7)	16	(2.7)	41	(7.0)
Hungary	564	63	(11.2)	20	(3.5)	17	(3.0)	16	(2.8)	52	(9.2)
Italy	509	81	(15.9)	38	(7.5)	33	(6.5)	24	(4.7)	67	(13.2)
Portugal	1 077	77	(7.1)	29	(2.7)	27	(2.5)	23	(2.1)	94	(8.7)
Spain	2 088	109	(5.2)	46	(2.2)	31	(1.5)	9	(0.4)	30	(1.4)
Centre											
Albania	199	11	(5.5)	8	(4.0)	5	(2.5)	3	(1.5)	12	(6.0)
Bulgaria	246	150	(61.0)	122	(49.6)	81	(32.9)	-	-	-	-
Macedonia, FYR	170	15	(8.8)	2	(1.2)	2	(1.2)	2	(1.2)	14	(8.2)
Serbia & Montenegro	357	6	(1.7)	10	(2.8)	5	(1.4)	5	(1.4)	18	(5.0)
East											
Armenia †	507	195	(38.5)	147	(29.0)	118	(23.3)	94	(18.5)	263	(51.9)
Azerbaijan ‡	-	-	-	-	-	-	-	-	-	-	-
Georgia	183	85	(46.4)	33	(18.0)	33	(18.0)	51	(27.9)	85	(46.4)
Kazakhstan	14 245	6 116	(42.9)	4 272	(30.0)	3 453	(24.2)	4 267	(30.0)	7 202	(50.6)
Kyrgyzstan	638	264	(41.4)	127	(19.9)	122	(19.1)	144	(22.6)	414	(64.9)
Moldova, Rep. of	1 022	252	(24.7)	262	(25.6)	192	(18.8)	35	(3.4)	367	(35.9)
Turkmenistan	98	63	(64.3)	55	(56.1)	42	(42.9)	-	-	-	-

\* Data presented if DST results were available for > 90% of cases tested for INH and RMP

† Data on cases previously treated and with unknown treatment history

‡ New cases only

§ Federation of Bosnia only

|| Data not classified by treatment history or geographic origin

## TABLES

**Table 19. Drug resistance among tuberculosis cases never treated (primary resistance), WHO European Region, 2002**

Geographic area Country	Cases with DST result (INH & RMP)	Cases resistant to at least:									
		Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol †		Streptomycin †	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases											
EU & West											
Austria*	631	15	(2.4)	3	(0.5)	1	(0.2)	1	(0.2)	12	(1.9)
Belgium*	629	43	(6.8)	16	(2.5)	15	(2.4)	13	(2.1)	-	-
Czech Republic	494	18	(3.6)	11	(2.2)	9	(1.8)	8	(1.6)	16	(3.2)
Denmark	283	15	(5.3)	2	(0.7)	1	(0.4)	4	(1.4)	30	(10.6)
Estonia	374	94	(25.1)	64	(17.1)	64	(17.1)	62	(16.6)	93	(24.9)
Finland	325	10	(3.1)	3	(0.9)	3	(0.9)	6	(1.8)	7	(2.2)
Germany	1 631	117	(7.2)	26	(1.6)	24	(1.5)	29	(1.8)	105	(6.4)
Ireland*	111	4	(3.6)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Latvia	960	257	(26.8)	96	(10.0)	95	(9.9)	70	(7.3)	229	(23.9)
Lithuania	925	217	(23.5)	87	(9.4)	84	(9.1)	65	(7.0)	187	(20.2)
Luxembourg	31	0	(0.0)	0	(0.0)	0	(0.0)	3	(9.7)	0	(0.0)
Malta*	13	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	636	18	(2.8)	2	(0.3)	2	(0.3)	2	(0.3)	15	(2.4)
Slovakia	407	7	(1.7)	3	(0.7)	2	(0.5)	1	(0.2)	4	(1.0)
Slovenia	262	5	(1.9)	1	(0.4)	1	(0.4)	1	(0.4)	7	(2.7)
Sweden	308	27	(8.8)	4	(1.3)	4	(1.3)	1	(0.3)	18	(5.8)
United Kingdom	-	-	-	-	-	-	-	-	-	-	-
Iceland	6	0	-	0	-	0	-	0	-	-	-
Israel	305	40	(13.1)	6	(2.0)	6	(2.0)	4	(1.3)	48	(15.7)
Norway	184	20	(10.9)	7	(3.8)	7	(3.8)	-	-	-	-
Switzerland	368	13	(3.5)	3	(0.8)	3	(0.8)	0	(0.0)	-	-
Centre											
Bosnia & Herzegovina ‡	933	4	(0.4)	2	(0.2)	2	(0.2)	1	(0.1)	0	(0.0)
Croatia	747	11	(1.5)	6	(0.8)	4	(0.5)	2	(0.3)	6	(0.8)
East											
Kazakhstan (survey)	359	153	(42.6)	56	(15.6)	51	(14.2)	89	(24.8)	185	(51.5)
Group B) Culture / DST not routinely performed, data on selected cases / areas											
EU & West											
Cyprus*	0	0	-	0	-	0	-	0	-	0	-
France	1 255	59	(4.7)	17	(1.4)	11	(0.9)	8	(0.6)	-	-
Greece	587	43	(7.3)	26	(4.4)	22	(3.7)	16	(2.7)	41	(7.0)
Hungary	483	46	(9.5)	13	(2.7)	10	(2.1)	11	(2.3)	39	(8.1)
Italy	196	31	(15.8)	14	(7.1)	12	(6.1)	5	(2.6)	27	(13.8)
Portugal	994	62	(6.2)	19	(1.9)	17	(1.7)	14	(1.4)	84	(8.5)
Spain	907	43	(4.7)	8	(0.9)	4	(0.4)	0	(0.0)	11	(1.2)
Centre											
Albania	183	5	(2.7)	3	(1.6)	0	(0.0)	1	(0.5)	10	(5.5)
Bulgaria	111	46	(41.4)	41	(36.9)	16	(14.4)	-	-	-	-
Macedonia, FYR	110	5	(4.5)	0	(0.0)	0	(0.0)	2	(1.8)	9	(8.2)
Serbia & Montenegro	320	5	(1.6)	9	(2.8)	4	(1.3)	4	(1.3)	16	(5.0)
East											
Armenia	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	596	36	(6.0)	34	(5.7)	8	(1.3)	26	(4.4)	111	(18.6)
Georgia	121	48	(39.7)	12	(9.9)	12	(9.9)	26	(21.5)	49	(40.5)
Kazakhstan	7 441	2 325	(31.2)	1 229	(16.5)	947	(12.7)	1 573	(21.1)	2 878	(38.7)
Kyrgyzstan	525	181	(34.5)	75	(14.3)	70	(13.3)	88	(16.8)	322	(61.3)
Moldova, Rep. of	480	51	(10.6)	45	(9.4)	30	(6.3)	5	(1.0)	90	(18.8)
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-

\* Information on previous TB treatment history not available or incomplete; classified according to TB history (See technical note)

† Data presented if DST results were available for > 90% of cases tested for INH and RMP

‡ Federation of Bosnia only

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**Table 20. Drug resistance among tuberculosis cases previously treated (acquired resistance), WHO European Region, 2002**

Geographic area Country	Cases with DST result (INH & RMP)	Cases resistant to at least:									
		Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol †		Streptomycin †	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases											
EU & West											
Austria *	43	3	(7.0)	1	(2.3)	1	(2.3)	0	(0.0)	1	(2.3)
Belgium*	57	8	(14.0)	4	(7.0)	4	(7.0)	2	(3.5)	-	-
Czech Republic	16	2	(12.5)	1	(6.3)	1	(6.3)	0	(0.0)	1	(6.3)
Denmark	24	1	(4.2)	0	(0.0)	0	(0.0)	0	(0.0)	3	(12.5)
Estonia	159	86	(54.1)	76	(47.8)	75	(47.2)	72	(45.3)	85	(53.5)
Finland	18	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	1	(5.6)
Germany	331	62	(18.7)	30	(9.1)	29	(8.8)	24	(7.3)	51	(15.4)
Ireland*	9	0	(0.0)	1	(11.1)	0	(0.0)	0	(0.0)	-	-
Latvia	289	168	(58.1)	128	(44.3)	126	(43.6)	79	(27.3)	147	(50.9)
Lithuania	418	254	(60.8)	215	(51.4)	213	(51.0)	151	(36.1)	231	(55.3)
Luxembourg	1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Malta*	0	-	-	-	-	-	-	-	-	-	-
Netherlands	34	3	(8.8)	0	(0.0)	0	(0.0)	0	(0.0)	2	(5.9)
Slovakia	87	6	(6.9)	3	(3.4)	1	(1.1)	0	(0.0)	5	(5.7)
Slovenia	30	6	(20.0)	1	(3.3)	1	(3.3)	0	(0.0)	2	(6.7)
Sweden	46	6	(13.0)	0	(0.0)	0	(0.0)	0	(0.0)	6	(13.0)
United Kingdom	-	-	-	-	-	-	-	-	-	-	-
Iceland	0	0	-	0	-	0	-	0	-	-	-
Israel	39	16	(41.0)	11	(28.2)	11	(28.2)	11	(28.2)	17	(43.6)
Norway	8	2	(25.0)	0	(0.0)	0	(0.0)	-	-	-	-
Switzerland	45	12	(26.7)	7	(15.6)	7	(15.6)	4	(8.9)	-	-
Centre											
Bosnia & Herzegovina ‡	100	2	(2.0)	2	(2.0)	2	(2.0)	2	(2.0)	2	(2.0)
Croatia	97	6	(6.2)	3	(3.1)	2	(2.1)	2	(2.1)	3	(3.1)
East											
Kazakhstan (survey)	319	216	(67.7)	196	(61.4)	180	(56.4)	173	(54.2)	246	(77.1)
Group B) Culture / DST not routinely performed, data on selected cases / areas											
EU & West											
Cyprus*	1	1	(100.0)	1	(100.0)	1	(100.0)	0	(0.0)	1	(100.0)
France	92	17	(18.5)	14	(15.2)	10	(10.9)	7	(7.6)	-	-
Greece	0	-	-	-	-	-	-	-	-	-	-
Hungary	74	15	(20.3)	7	(9.5)	7	(9.5)	4	(5.4)	11	(14.9)
Italy	42	24	(57.1)	16	(38.1)	15	(35.7)	11	(26.2)	21	(50.0)
Portugal	83	15	(18.1)	10	(12.0)	10	(12.0)	9	(10.8)	10	(12.0)
Spain	156	18	(11.5)	13	(8.3)	9	(5.8)	4	(2.6)	7	(4.5)
Centre											
Albania	16	6	(37.5)	5	(31.3)	5	(31.3)	2	(12.5)	2	(12.5)
Bulgaria	135	104	(77.0)	81	(60.0)	65	(48.1)	-	-	-	-
Macedonia, FYR	23	10	(43.5)	2	(8.7)	2	(8.7)	0	(0.0)	2	(8.7)
Serbia & Montenegro	37	1	(2.7)	1	(2.7)	1	(2.7)	1	(2.7)	2	(5.4)
East											
Armenia	169	124	(73.4)	102	(60.4)	88	(52.1)	69	(40.8)	134	(79.3)
Azerbaijan	-	-	-	-	-	-	-	-	-	-	-
Georgia	62	37	(59.7)	21	(33.9)	21	(33.9)	25	(40.3)	36	(58.1)
Kazakhstan	6 804	3 791	(55.7)	3 043	(44.7)	2 506	(36.8)	2 694	(39.6)	4 324	(63.6)
Kyrgyzstan	113	83	(73.5)	52	(46.0)	52	(46.0)	56	(49.6)	92	(81.4)
Moldova, Rep. of	479	188	(39.2)	204	(42.6)	154	(32.2)	30	(6.3)	254	(53.0)
Turkmenistan	-	-	-	-	-	-	-	-	-	-	-

\* Information on previous TB treatment history not available or incomplete ; classified according to TB history (See technical note)

† Data presented if DST results were available for > 90% of cases tested for INH and RMP

‡ Federation of Bosnia only

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**Table 21. Resistance to isoniazid by anti-TB treatment status,  
WHO European Region, 1998-2002 \***

Geographic area Country	1998		1999		2000		2001		2002	
	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)
<b>A) Cases never treated (primary resistance)</b>										
<b>EU &amp; West</b>										
Austria	669	(3.0)	703	(4.3)	694	(2.9)	589	(3.3)	631	(2.4)
Belgium	-	-	-	-	562	(5.3)	562	(6.4)	629	(6.8)
Czech republic	-	-	628	(1.6)	616	(3.4)	663	(3.2)	494	(3.6)
Denmark	412	(6.1)	392	(7.4)	392	(7.4)	356	(5.6)	283	(5.3)
Estonia	433	(25.4)	428	(27.3)	410	(22.9)	375	(24.0)	374	(25.1)
Finland	-	-	371	(0.5)	374	(2.7)	348	(3.4)	325	(7.1)
Germany	1 583	(4.9) ‡	2 206	(4.3) ‡	1 743	(3.8) ‡	2 354	(6.8)	1 631	(7.2)
Ireland	112	(0.9)	101	(2.0)	136	(2.9)	67	(1.5)	111	(3.6)
Latvia	789	(28.1)	825	(27.8)	897	(29.0)	911	(29.4)	960	(26.8)
Lithuania	1 181	(12.2)	819	(21.7)	701	(21.8)	972	(20.6)	925	(23.5)
Luxembourg	40	(7.5)	-	-	39	(5.1)	28	(3.6)	31	(0.0)
Malta	2	(0.0)	13	(0.0)	9	(0.0)	9	(0.0)	13	(0.0)
Netherlands	570	(3.1)	899	(5.8)	768	(5.6)	484	(5.0)	636	(2.8)
Slovakia	589	(1.2)	456	(1.8)	465	(3.2)	464	(2.6)	407	(1.7)
Slovenia	287	(0.7)	364	(2.3)	282	(2.1)	281	(3.2)	262	(1.9)
Sweden	335	(4.8)	377	(9.0)	322	(10.9)	338	(8.0)	308	(8.8)
United Kingdom	2 515	(3.9)	2 138	(6.2)	2 312	(5.9)	2 494	(6.9)	-	-
Iceland	10	(0.0)	7	(0.0)	8	(0.0)	11	(9.1)	6	(0.0)
Israel	-	-	-	-	253	(25.7)	294	(18.0)	305	(13.1)
Norway	158	(7.0)	144	(7.6)	160	(13.1)	182	(8.2)	184	(10.9)
Switzerland	405	(5.4)	428	(5.6)	330	(5.5)	342	(4.4)	368	(3.5)
<b>Centre</b>										
Bosnia & Herzegovina	-	-	1 154	(0.6)	993	(0.5)	1 132	(0.0)	933	(0.0) §
Croatia	-	-	761	(1.8)	780	(1.0)	713	(1.4)	747	(1.5)
<b>B) Cases previously treated (acquired resistance)</b>										
<b>EU &amp; West</b>										
Austria	64	(6.8)	53	(13.2)	67	(3.0)	41	(12.2)	43	(7.0)
Belgium	-	-	-	-	78	(12.8)	74	(4.1)	57	(14.0)
Czech Republic	-	-	70	(8.6)	22	(9.1)	15	(6.7)	16	(12.5)
Denmark	32	(12.5)	24	(8.3)	33	(24.2)	24	(4.2)	24	(4.2)
Estonia	93	(49.5) II	89	(53.9) II	117	(54.7) II	205	(62.0)	159	(54.1)
Finland	-	-	27	(3.7)	29	(13.8)	26	(11.5)	18	(0.0)
Germany	282	(17.7) ‡	303	(15.5) ‡	257	(17.1) ‡	499	(24.5)	331	(18.7)
Ireland	19	(0.0)	22	(0.0)	26	(3.8)	14	(7.1)	9	(0.0)
Latvia	224	(29.0)	190	(31.9)	247	(35.2)	187	(31.6)	289	(58.1)
Lithuania	288	(16.7) II	167	(53.9) II	220	(56.4) II	480	(53.1)	418	(60.8)
Luxembourg	4	(0.0)	-	-	5	(0.0)	1	(0.0)	1	(0.0)
Malta	2	(0.0)	0	(0.0)	1	(0.0)	1	(0.0)	0	(0.0)
Netherlands	50	(8.0)	42	(7.1)	95	(8.4)	14	(0.0)	34	(8.8)
Slovakia	157	(5.7)	122	(4.9)	110	(10.9)	111	(9.0)	87	(6.9)
Slovenia	28	(3.6)	35	(5.7)	38	(7.9)	26	(11.5)	30	(20.0)
Sweden	30	(20.0)	31	(25.8)	42	(4.8)	21	(19.0)	46	(13.0)
United Kingdom	238	(8.8)	220	(4.5)	237	(10.1)	209	(7.7)	-	-
Iceland	1	(0.0)	1	(0.0)	1	(0.0)	1	(0.0)	0	(0.0)
Israel	-	-	-	-	24	(37.5)	23	(47.8)	39	(41.0)
Norway	17	(17.6)	40	(0.0)	10	(0.0)	32	(9.4)	8	(25.0)
Switzerland	53	(15.1)	57	(21.1)	57	(3.5)	59	(6.8)	45	(26.7)
<b>Centre</b>										
Bosnia & Herzegovina	-	-	121	(5.0)	153	(3.3)	154	(1.3)	100	(2.0) §
Croatia	-	-	93	(4.3)	99	(4.0)	93	(5.4)	97	(6.2)

\* Countries in group A (see Table 17 and technical note). For trends in other countries, see country profiles

† Cases with DST results for INH and RMP

‡ Cases reported in selected health units

§ Federation of Bosnia only

II Relapses only reported

## TABLES

**Table 22. Multidrug resistance by anti-TB treatment status,  
WHO European Region, 1998-2002 \***

Geographic area Country	1998		1999		2000		2001		2002	
	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)
<b>A) Cases never treated (primary resistance)</b>										
<b>EU &amp; West</b>										
Austria	669	(0.3)	703	(0.3)	694	(0.4)	589	(0.7)	631	(0.2)
Belgium	-	-	-	-	562	(1.2)	562	(2.3)	629	(2.4)
Czech republic	-	-	628	(0.3)	616	(1.1)	663	(1.2)	494	(1.8)
Denmark	412	(0.5)	392	(0.0)	392	(0.3)	356	(0.0)	283	(0.4)
Estonia	433	(14.5)	428	(17.5)	410	(12.2)	375	(14.1)	374	(17.1)
Finland	-	-	371	(0.0)	374	(0.3)	348	(0.9)	325	(0.9)
Germany	1 583	(0.8) ‡	2 206	(0.8) ‡	1 743	(0.8) ‡	2 354	(2.3)	1 631	(1.5)
Ireland	112	(0.0)	101	(1.0)	136	(0.7)	67	(0.0)	111	(0.0)
Latvia	789	(9.0)	825	(10.4)	897	(9.3)	911	(10.9)	960	(9.9)
Lithuania	1 181	(4.7)	819	(7.8)	701	(8.7)	972	(7.7)	925	(9.1)
Luxembourg	40	(2.5)	-	-	39	(0.0)	28	(0.0)	31	(0.0)
Malta	2	(0.0)	13	(0.0)	9	(0.0)	9	(0.0)	13	(0.0)
Netherlands	570	(0.2)	899	(0.4)	768	(0.9)	484	(0.4)	636	(0.3)
Slovakia	589	(0.3)	456	(0.7)	465	(1.1)	464	(0.2)	407	(0.5)
Slovenia	287	(0.0)	364	(0.0)	282	(0.0)	281	(1.1)	262	(0.4)
Sweden	335	(0.6)	377	(0.8)	322	(1.2)	338	(0.6)	308	(1.3)
United Kingdom	2 515	(0.3)	2 138	(0.5)	2 312	(0.9)	2 494	(0.8)	-	-
Iceland	10	(0.0)	7	(0.0)	8	(0.0)	11	(0.0)	6	(0.0)
Israel	-	-	-	-	253	(14.2)	294	(5.8)	305	(2.0)
Norway	158	(0.6)	144	(2.1)	160	(1.9)	182	(1.1)	184	(3.8)
Switzerland	405	(0.5)	428	(0.7)	330	(0.0)	342	(0.9)	368	(0.8)
<b>Centre</b>										
Bosnia & Herzegovina	-	-	1 154	(0.3)	993	(0.1)	1 132	(0.0)	933	(0.0) §
Croatia	-	-	761	(0.3)	780	(0.1)	713	(0.3)	747	(0.5)
<b>B) Cases previously treated (acquired resistance)</b>										
<b>EU &amp; West</b>										
Austria	64	(4.7)	53	(5.7)	67	(1.5)	41	(2.4)	43	(2.3)
Belgium	-	-	-	-	78	(5.1)	74	(1.4)	57	(7.0)
Czech Republic	-	-	70	(2.9)	22	(9.1)	15	(6.7)	16	(6.3)
Denmark	32	(3.1)	24	(0.0)	33	(3.0)	24	(0.0)	24	(0.0)
Estonia	93	(36.6)	89	(48.3)	117	(45.3)	205	(51.2)	159	(47.2)
Finland	-	-	27	(0.0)	29	(3.4)	26	(3.8)	18	(0.0)
Germany	282	(6.7) ‡	303	(5.9) ‡	257	(7.4) ‡	499	(7.1)	331	(8.8)
Ireland	19	(0.0)	22	(0.0)	26	(3.8)	14	(7.1)	9	(0.0)
Latvia	224	(23.7)	190	(26.8)	247	(27.1)	187	(27.3)	289	(43.6)
Lithuania	288	(10.8)	167	(42.5)	220	(43.2)	480	(39.8)	418	(51.0)
Luxembourg	4	(0.0)	-	-	5	(0.0)	1	(0.0)	1	(0.0)
Malta	2	(0.0)	0	(0.0)	1	(0.0)	1	(0.0)	0	(0.0)
Netherlands	50	(6.0)	42	(0.0)	95	(1.1)	14	(0.0)	34	(0.0)
Slovakia	157	(1.9)	122	(2.5)	110	(1.8)	111	(4.5)	87	(1.1)
Slovenia	28	(0.0)	35	(5.7)	38	(0.0)	26	(0.0)	30	(3.3)
Sweden	30	(10.0)	31	(12.9)	42	(2.4)	21	(9.5)	46	(0.0)
United Kingdom	238	(3.8)	220	(2.7)	237	(4.2)	209	(2.4)	-	-
Iceland	1	(0.0)	1	(0.0)	1	(0.0)	1	(0.0)	0	(0.0)
Israel	-	-	-	-	24	(20.8)	23	(21.7)	39	(28.2)
Norway	17	(5.9)	40	(0.0)	10	(0.0)	32	(9.4)	8	(0.0)
Switzerland	53	(1.9)	57	(10.5)	57	(1.8)	59	(3.4)	45	(15.6)
<b>Centre</b>										
Bosnia & Herzegovina	-	-	121	(2.5)	153	(2.0)	154	(1.3)	100	(2.0) §
Croatia	-	-	93	(3.2)	99	(1.0)	93	(3.2)	97	(2.1)

\* Countries in group A (see Table 17 and technical note). For trends in other countries, see country profiles

† Cases with DST results for INH and RMP

‡ Cases reported in selected health units

§ Federation of Bosnia only

|| Relapses only



**Table 23. Drug resistance, tuberculosis cases in persons born in/citizens of the country of report, WHO European Region, 2002**

Geographic area Country	Definition used	Cases with DST results (INH & RMP)	Cases resistant to at least:									
			Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol*		Streptomycin*	
			N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases												
EU & West												
Austria	citiz	492	9	(1.8)	1	(0.2)	0	(0.0)	0	(0.0)	6	(1.2)
Belgium	citiz	400	16	(4.0)	3	(0.8)	3	(0.8)	2	(0.5)	-	-
Czech Republic	birth	458	15	(3.3)	10	(2.2)	8	(1.7)	7	(1.5)	12	(2.6)
Denmark †	birth	121	5	(4.1)	1	(0.8)	1	(0.8)	1	(0.8)	8	(6.6)
Estonia	birth	426	147	(34.5)	118	(27.7)	117	(27.5)	114	(26.8)	147	(34.5)
Finland	birth	338	3	(0.9)	1	(0.3)	1	(0.3)	4	(1.2)	2	(0.6)
Germany	birth	2 324	89	(3.8)	19	(0.8)	17	(0.7)	23	(1.0)	70	(3.0)
Ireland	birth	87	0	(0.0)	1	(1.1)	0	(0.0)	0	(0.0)	-	-
Latvia	birth	1 165	396	(34.0)	213	(18.3)	210	(18.0)	142	(12.2)	354	(30.4)
Lithuania	citiz	1 283	444	(34.6)	287	(22.4)	282	(22.0)	205	(16.0)	397	(30.9)
Luxembourg	birth	19	0	(0.0)	0	(0.0)	0	(0.0)	1	(5.3)	0	(0.0)
Malta	citiz	8	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	citiz	294	8	(2.7)	1	(0.3)	1	(0.3)	0	(0.0)	4	(1.4)
Slovakia	birth	492	13	(2.6)	6	(1.2)	3	(0.6)	1	(0.2)	9	(1.8)
Slovenia	birth	228	8	(3.5)	1	(0.4)	1	(0.4)	1	(0.4)	6	(2.6)
Sweden	birth	100	5	(5.0)	1	(1.0)	1	(1.0)	0	(0.0)	2	(2.0)
United Kingdom	birth	-	-	-	-	-	-	-	-	-	-	-
Iceland	birth	3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Israel	birth	44	9	(20.5)	3	(6.8)	3	(6.8)	3	(6.8)	11	(25.0)
Norway	birth	42	1	(2.4)	0	(0.0)	0	(0.0)	-	-	-	-
Switzerland	birth	148	6	(4.1)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Centre												
Bosnia & Herzegovina ‡	citiz	1 028	6	(0.6)	4	(0.4)	4	(0.4)	3	(0.3)	2	(0.2)
Croatia	birth	583	13	(2.2)	8	(1.4)	5	(0.9)	3	(0.5)	8	(1.4)
East												
Kazakhstan (survey)	-	-	-	-	-	-	-	-	-	-	-	-
Group B) Culture / DST not routinely performed, data on selected cases / areas												
EU & West												
Cyprus	citiz	-	-	-	-	-	-	-	-	-	-	-
France	birth	700	18	(2.6)	7	(1.0)	4	(0.6)	5	(0.7)	-	-
Greece	citiz	-	-	-	-	-	-	-	-	-	-	-
Hungary	birth	549	58	(10.6)	17	(3.1)	14	(2.6)	14	(2.6)	47	(8.6)
Italy	birth	262	34	(13.0)	21	(8.0)	19	(7.3)	14	(5.3)	33	(12.6)
Portugal	birth	959	64	(6.7)	20	(2.1)	19	(2.0)	17	(1.8)	82	(8.6)
Spain	birth	1 817	78	(4.3)	33	(1.8)	19	(1.0)	6	(0.3)	26	(1.4)
Centre												
Albania	-	199	11	(5.5)	8	(4.0)	5	(2.5)	3	(1.5)	12	(6.0)
Bulgaria	-	-	-	-	-	-	-	-	-	-	-	-
Macedonia, FYR	-	-	-	-	-	-	-	-	-	-	-	-
Serbia & Montenegro	-	-	-	-	-	-	-	-	-	-	-	-
East												
Armenia	birth	506	195	(38.5)	147	(29.1)	118	(23.3)	94	(18.6)	263	(52.0)
Azerbaijan	citiz	596	36	(6.0)	34	(5.7)	8	(1.3)	26	(4.4)	111	(18.6)
Georgia	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	citiz	638	264	(41.4)	127	(19.9)	122	(19.1)	144	(22.6)	414	(64.9)
Moldova, Rep. of	-	1 022	252	(24.7)	262	(25.6)	192	(18.8)	35	(3.4)	367	(35.9)
Turkmenistan	birth	98	63	(64.3)	55	(56.1)	42	(42.9)	-	-	-	-

birth = place of birth; citiz = citizenship

\* Data presented if DST results were available for > 90% of cases tested for INH and RMP

† Up to the age of 25 years, cases are classified according to the place of birth of their parents

‡ Federation of Bosnia only

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**Table 24. Drug resistance, tuberculosis cases in persons of foreign origin, WHO European Region, 2002**

Geographic area Country	Definition used	Cases with DST results (INH & RMP)	Cases resistant to at least:								Streptomycin*	
			Isoniazid (INH)		Rifampicin (RMP)		INH & RMP (MDR)		Ethambutol*			
			N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Culture and DST performed routinely; national data on all notified / representative sample of TB cases												
EU & West												
Austria	citiz	182	9	(4.9)	3	(1.6)	2	(1.1)	1	(0.5)	7	(3.8)
Belgium	citiz	406	45	(11.1)	19	(4.7)	18	(4.4)	12	(3.0)	-	-
Czech Republic	birth	52	5	(9.6)	2	(3.8)	2	(3.8)	1	(1.9)	5	(9.6)
Denmark †	birth	181	11	(6.1)	1	(0.6)	0	(0.0)	3	(1.7)	25	(13.8)
Estonia	birth	107	33	(30.8)	22	(20.6)	22	(20.6)	20	(18.7)	31	(29.0)
Finland	birth	39	7	(17.9)	2	(5.1)	2	(5.1)	2	(5.1)	6	(15.4)
Germany	birth	1 811	248	(13.7)	80	(4.4)	71	(3.9)	66	(3.6)	246	(13.6)
Ireland	birth	34	3	(8.8)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Latvia	birth	84	29	(34.5)	11	(13.1)	11	(13.1)	7	(8.3)	22	(26.2)
Lithuania	citiz	60	27	(45.0)	15	(25.0)	15	(25.0)	11	(18.3)	21	(35.0)
Luxembourg	birth	13	0	(0.0)	0	(0.0)	0	(0.0)	2	(15.4)	0	(0.0)
Malta	citiz	5	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Netherlands	citiz	471	19	(4.0)	2	(0.4)	1	(0.2)	2	(0.4)	17	(3.6)
Slovakia	birth	5	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Slovenia	birth	64	3	(4.7)	1	(1.6)	1	(1.6)	0	(0.0)	3	(4.7)
Sweden	birth	254	28	(11.0)	3	(1.2)	3	(1.2)	1	(0.4)	22	(8.7)
United Kingdom	birth	-	-	-	-	-	-	-	-	-	-	-
Iceland	birth	3	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	-	-
Israel	birth	300	47	(15.7)	14	(4.7)	14	(4.7)	12	(4.0)	54	(18.0)
Norway	birth	150	21	(14.0)	7	(4.7)	7	(4.7)	-	-	-	-
Switzerland	birth	308	21	(6.8)	10	(3.2)	10	(3.2)	4	(1.3)	-	-
Centre												
Bosnia & Herzegovina ‡	citiz	5	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Croatia	birth	135	3	(2.2)	1	(0.7)	1	(0.7)	1	(0.7)	0	(0.0)
East												
Kazakhstan (survey)	-	-	-	-	-	-	-	-	-	-	-	-
Group B) Culture / DST not routinely performed, data on selected cases / areas												
EU & West												
Cyprus	citiz	0	0	-	0	-	0	-	0	-	0	-
France	birth	811	63	(7.8)	27	(3.3)	19	(2.3)	10	(1.2)	-	-
Greece	citiz	-	-	-	-	-	-	-	-	-	-	-
Hungary	birth	12	5	(41.7)	3	(25.0)	3	(25.0)	2	(16.7)	5	(41.7)
Italy	birth	247	47	(19.0)	17	(6.9)	14	(5.7)	10	(4.0)	34	(13.8)
Portugal	birth	115	13	(11.3)	9	(7.8)	8	(7.0)	6	(5.2)	12	(10.4)
Spain	birth	271	31	(11.4)	13	(4.8)	12	(4.4)	3	(1.1)	4	(1.5)
Centre												
Albania	-	-	-	-	-	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	-	-	-	-	-	-	-	-
Macedonia, FYR	-	-	-	-	-	-	-	-	-	-	-	-
Serbia & Montenegro	-	-	-	-	-	-	-	-	-	-	-	-
East												
Armenia	birth	1	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Azerbaijan	citiz	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	citiz	-	-	-	-	-	-	-	-	-	-	-
Moldova, Rep. of	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	birth	-	-	-	-	-	-	-	-	-	-	-

birth = place of birth; citiz = citizenship

\* Data presented if DST results were available for > 90% of cases tested for INH and RMP

† Up to the age of 25 years, cases are classified according to the place of birth of their parents

‡ Federation of Bosnia only

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**Table 25. Resistance to isoniazid by geographic origin,  
WHO European Region, 1998-2002 \***

Geographic area Country	1998		1999		2000		2001		2002	
	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)	Total tested †	Resistant to INH (%)
<b>A) Cases in persons born in/citizens of the country of report</b>										
<b>EU &amp; West</b>										
Austria	557	(2.9)	581	(4.0)	564	(1.8)	493	(3.0)	492	(1.8)
Belgium	-	-	-	-	420	(2.9)	392	(4.3)	400	(4.0)
Czech republic	592	(6.9)	-	-	618	(3.7)	612	(1.8)	458	(3.3)
Denmark	170	(5.3)	285	(1.1)	165	(3.0)	139	(1.4)	121	(4.1)
Estonia	452	(29.9)	396	(33.3)	408	(28.9)	453	(37.1)	426	(34.5)
Finland	314	(1.0)	412	(0.5)	397	(2.3)	347	(1.2)	338	(0.9)
Germany	1 854	(2.9) ‡	2 048	(3.1) ‡	1 686	(2.4) ‡	2 121	(3.5)	2 324	(3.8)
Ireland	218	(0.9)	220	(3.6)	191	(2.1)	83	(1.2)	87	(0.0)
Latvia	-	-	982	(28.8)	1 058	(30.8)	1 025	(29.9)	1 165	(34.0)
Lithuania	1 372	(12.5)	-	-	868	(30.0)	1 373	(31.3)	1 283	(34.6)
Luxembourg	19	(5.3)	-	-	17	(0.0)	7	(14.3)	19	(0.0)
Malta	3	(0.0)	9	(0.0)	7	(0.0)	9	(0.0)	8	(0.0)
Netherlands	275	(4.0)	367	(3.5)	307	(4.2)	177	(2.8)	294	(2.7)
Slovakia	636	(2.5)	574	(2.3)	568	(4.6)	567	(3.5)	492	(2.6)
Slovenia	263	(1.1)	253	(2.0)	239	(2.5)	232	(3.4)	228	(3.5)
Sweden	141	(3.5)	138	(5.1)	109	(7.3)	113	(4.4)	100	(5.0)
United Kingdom	1 186	(3.1)	949	(4.1)	933	(4.3)	1 005	(6.2)	-	-
Iceland	8	(0.0)	3	(0.0)	6	(0.0)	5	(0.0)	3	(0.0)
Israel	40	(5.0)	27	(3.7)	38	(23.7)	32	(15.6)	44	(20.5)
Norway	84	(1.2)	62	(1.6)	49	(6.1)	60	(3.3)	42	(2.4)
Switzerland	145	(4.1)	215	(3.3)	178	(3.9)	156	(1.9)	148	(4.1)
<b>Centre</b>										
Croatia	-	-	646	(1.6)	590	(1.2)	566	(1.8)	583	(2.2)
<b>B) Cases in persons born abroad / non citizens of the country of report</b>										
<b>EU &amp; West</b>										
Austria	176	(4.5)	175	(8.0)	197	(6.1)	160	(6.3)	182	(4.9)
Belgium	-	-	-	-	310	(11.3)	357	(10.1)	406	(11.1)
Czech republic	-	-	-	-	20	(0.0)	66	(16.7)	52	(9.6)
Denmark	274	(7.3)	131	(21.4)	260	(12.3)	241	(7.9)	181	(6.1)
Estonia	74	(28.4)	121	(27.3)	119	(33.6)	127	(38.6)	107	(3.8)
Finland	33	(15.2)	38	(2.6)	40	(15.0)	54	(16.7)	39	(17.9)
Germany	1 055	(12.2) ‡	1 276	(9.7) ‡	1 055	(11.8) ‡	1 552	(13.5)	1 811	(13.7)
Ireland	23	(4.3)	40	(5.0)	25	(8.0)	15	(6.7)	34	(8.8)
Latvia	-	-	33	(18.2)	86	(24.4)	73	(28.8)	84	(34.5)
Lithuania	97	(20.6)	-	-	53	(32.1)	79	(31.6)	60	(45.0)
Luxembourg	25	(8.0)	-	-	21	(4.8)	9	(0.0)	13	(0.0)
Malta	1	(0.0)	4	(0.0)	3	(0.0)	1	(0.0)	5	(0.0)
Netherlands	417	(3.6)	553	(7.1)	550	(6.9)	323	(5.9)	471	(4.0)
Slovakia	0	-	4	(25.0)	7	(14.3)	8	(25.0)	5	(0.0)
Slovenia	56	(0.0)	86	(4.7)	81	(3.7)	75	(5.3)	64	(4.7)
Sweden	225	(7.6)	270	(13.0)	254	(11.4)	246	(10.6)	254	(11.0)
United Kingdom	1 671	(6.1)	1 566	(6.8)	1 625	(7.6)	1 830	(7.4)	-	-
Iceland	3	(0.0)	5	(0.0)	3	(0.0)	7	(14.3)	3	(0.0)
Israel	267	(17.2)	304	(14.1)	235	(27.2)	285	(20.7)	300	(15.7)
Norway	91	(14.3)	122	(8.2)	121	(14.9)	154	(10.4)	150	(14.0)
Switzerland	291	(7.6)	372	(8.6)	266	(5.6)	283	(6.0)	308	(6.8)
<b>Centre</b>										
Croatia	-	-	141	(3.5)	146	(2.1)	125	(0.8)	135	(2.2)

\* Countries in group A (see Table 17 and technical note). Trends in group B countries not interpretable (see country profiles)

† Cases with DST results for INH and RMP

‡ Cases reported in selected health units

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**Table 26. Multidrug resistance by geographic origin, WHO European Region, 1998-2002\***

Geographic area Country	1998		1999		2000		2001		2002	
	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)	Total tested †	MDR (%)
<b>A) Cases in persons born in / citizens of the country of report</b>										
<b>EU &amp; West</b>										
Austria	557	(0.4)	581	(0.0)	564	(0.2)	493	(0.4)	492	(0.0)
Belgium	-	-	-	-	420	(0.2)	392	(1.3)	400	(0.8)
Czech republic	592	(2.2)	-	-	618	(1.5)	612	(0.8)	458	(1.7)
Denmark	170	(0.0)	285	(0.0)	165	(0.0)	139	(0.0)	121	(0.8)
Estonia	452	(18.4)	396	(24.5)	408	(19.1)	453	(27.6)	426	(27.5)
Finland	314	(0.0)	412	(0.0)	397	(0.0)	347	(0.0)	338	(0.3)
Germany	1 854	(0.4) ‡	2 048	(0.3) ‡	1 686	(0.5) ‡	2 121	(1.0)	2 324	(0.7)
Ireland	218	(0.0)	220	(0.5)	191	(1.0)	83	(1.2)	87	(0.0)
Latvia	-	-	982	(13.5)	1 058	(13.1)	1 025	(13.8)	1 165	(18.0)
Lithuania	1 372	(5.5)	-	-	868	(17.2)	1 373	(18.3)	1 283	(22.0)
Luxembourg	19	(0.0)	-	-	17	(0.0)	7	(0.0)	19	(0.0)
Malta	3	(0.0)	9	(0.0)	7	(0.0)	9	(0.0)	8	(0.0)
Netherlands	275	(1.5)	367	(0.0)	307	(0.0)	177	(0.0)	294	(0.3)
Slovakia	636	(0.8)	574	(0.9)	568	(1.2)	567	(0.9)	492	(0.6)
Slovenia	263	(0.0)	253	(0.4)	239	(0.0)	232	(0.9)	228	(0.4)
Sweden	141	(0.0)	138	(0.7)	109	(1.8)	113	(1.8)	100	(1.0)
United Kingdom	1 186	(0.2)	949	(0.0)	933	(0.5)	1 005	(0.6)	-	-
Iceland	8	(0.0)	3	(0.0)	6	(0.0)	5	(0.0)	3	(0.0)
Israel	40	(2.5)	27	(0.0)	38	(10.5)	32	(3.1)	44	(6.8)
Norway	84	(0.0)	62	(1.6)	49	(2.0)	60	(0.0)	42	(0.0)
Switzerland	145	(0.0)	215	(0.0)	178	(0.0)	156	(0.0)	148	(0.0)
<b>Centre</b>										
Croatia	-	-	646	(0.5)	590	(0.2)	566	(0.7)	583	(0.9)
<b>B) Cases in persons born abroad / non citizens of the country of report</b>										
<b>EU &amp; West</b>										
Austria	176	(1.7)	175	(2.9)	197	(1.5)	160	(1.9)	182	(1.1)
Belgium	-	-	-	-	310	(3.2)	357	(3.6)	406	(4.4)
Czech republic	-	-	-	-	20	(0.0)	66	(6.1)	52	(3.8)
Denmark	274	(1.1)	131	(0.0)	260	(0.8)	241	(0.0)	181	(0.0)
Estonia	74	(18.9)	121	(17.4)	119	(21.0)	127	(26.0)	107	(20.6)
Finland	33	(6.1)	38	(0.0)	40	(5.0)	54	(3.7)	39	(5.1)
Germany	1 055	(3.5) ‡	1 276	(2.7) ‡	1 055	(3.6) ‡	1 552	(5.1)	1 811	(3.9)
Ireland	23	(0.0)	40	(2.5)	25	(4.0)	15	(0.0)	34	(0.0)
Latvia	-	-	33	(12.1)	86	(12.8)	73	(12.3)	84	(13.1)
Lithuania	97	(11.3)	-	-	53	(13.2)	79	(19.0)	60	(25.0)
Luxembourg	25	(4.0)	-	-	21	(0.0)	9	(0.0)	13	(0.0)
Malta	1	(0.0)	4	(0.0)	3	(0.0)	1	(0.0)	5	(0.0)
Netherlands	417	(0.0)	553	(0.7)	550	(1.5)	323	(0.6)	471	(0.2)
Slovakia	0	-	4	(25.0)	7	(0.0)	8	(12.5)	5	(0.0)
Slovenia	56	(0.0)	86	(1.2)	81	(0.0)	75	(1.3)	64	(1.6)
Sweden	225	(2.2)	270	(2.2)	254	(1.2)	246	(0.8)	254	(1.2)
United Kingdom	1 671	(1.0)	1 566	(1.1)	1 625	(1.7)	1 830	(1.1)	-	-
Iceland	3	(0.0)	5	(0.0)	3	(0.0)	7	(0.0)	3	(0.0)
Israel	267	(9.0)	304	(8.6)	235	(15.7)	285	(7.4)	300	(4.7)
Norway	91	(2.2)	122	(1.6)	121	(1.7)	154	(3.2)	150	(4.7)
Switzerland	291	(1.0)	372	(3.0)	266	(0.8)	283	(2.5)	308	(3.2)
<b>Centre</b>										
Croatia	-	-	141	(1.4)	146	(0.7)	125	(0.0)	135	(0.7)

\* Countries in group A (see Table 17 and technical note). Trends in group B countries not interpretable (see country profiles)

† Cases with DST results for INH and RMP

‡ Cases reported in selected health units

**Table 27. Characteristics of treatment outcome monitoring (TOM), WHO European Region, 2001**

Geographic area Country	Geographic coverage	Type of data provided	Sputum smear positive cases			Pulmonary culture positive cases		
			Notified in TOM areas †	Included in TOM cohorts N	(%)*	Notified in TOM areas †	Included in TOM cohorts N	(%)*
Group A) Complete cohorts with nationwide coverage								
EU & West								
Austria	national	individual	276	276	100%	590	590	100%
Belgium	national	aggregate	472	465	99%	739	724	98%
Cyprus	national	aggregate	26	26	100%	-	-	-
Czech Republic	national	individual	395	395	100%	729	729	100%
Estonia	national	individual	337	337	100%	557	557	100%
Germany	national	individual	2 034	2 034	100%	3 943	3 943	100%
Hungary	national	individual	725	725	100%	917	917	100%
Ireland	national	aggregate	125	128	102%	122	181	148%
Latvia	national	aggregate	882	874	99%	1 275	1 335	105%
Lithuania	national	aggregate	1 360	1 360	100%	1 698	1 698	100%
Malta	national	individual	3	3	100%	10	10	100%
Netherlands	national	individual	321	321	100%	627	627	100%
Poland	national	aggregate	3 699	3 636	98%	5 805	5 635	97%
Portugal	national	aggregate	2 097	2 284	109%	2 097	2 241	107%
Slovakia	national	individual	269	269	100%	517	517	100%
Slovenia	national	individual	154	154	100%	273	273	100%
Sweden	national	aggregate	111	113	102%	233	234	100%
Andorra	national	aggregate	1	1	100%	3	3	100%
Iceland	national	individual	3	3	100%	7	7	100%
Israel	national	aggregate	-	-	-	249	313	126%
Norway	national	individual	61	61	100%	156	156	100%
Centre								
Albania	national	aggregate	195	195	100%	191	191	100%
Macedonia, FYR	national	aggregate	190	190	100%	-	-	-
Romania	national	aggregate	14 115	15 966	113%	13 536	14 863	110%
Turkey ‡	national	aggregate	4 444	4 359	98%	-	-	-
East								
Azerbaijan §	national	aggregate	1 689	1 689	100%	-	-	-
Georgia	national	aggregate	1 691	1 691	100%	-	-	-
Kazakhstan	national	aggregate	12 095	11 794	98%	-	-	-
Kyrgyzstan	national	aggregate	1 774	1 754	99%	-	-	-
Moldova, Rep. of	national	aggregate	1 250	1 250	100%	-	-	-
Tajikistan	national	aggregate	781	768	98%	-	-	-
Turkmenistan	national	aggregate	1 797	1 797	100%	-	-	-
Group B) Incomplete cohorts or partial geographic coverage								
EU & West								
Denmark	national	aggregate	140	119	85%	254	213	84%
Italy	selected centres	aggregate	1 143	223	20%	1 212	31	26%
United Kingdom ¶	national	aggregate	1 394	1 050	75%	2 477	1 874	76%
Centre								
Bulgaria **	DOTS areas	aggregate	-	429	-	-	-	-
Serbia & Montenegro	Belgrade region	aggregate	288	288	100%	372	372	100%
East								
Armenia	DOTS areas	aggregate	330	330	100%	-	-	-
Russian Federation ††	DOTS areas	aggregate	4 933	4 912	100%	-	-	-
Uzbekistan ‡	DOTS areas	aggregate	854	854	100%	-	-	-

\* May exceed 100% due to information on initial smear or culture results updated at follow-up

† In countries providing individual TOM data, numbers of cases notified in 2001 may differ from those presented in other parts of the report

‡ New cases only

§ Includes TB cases in prisoners

|| Retreated cases other than relapses not included in TOM

¶ Excluding Scotland

\*\* Smear and culture positive cases

†† Sputum smear and/or culture positive cases

## TABLES

**Table 28. Outcome of new pulmonary sputum smear positive TB cases,  
WHO European Region, 2001**

Geographic area	Total included	Success						Died		Failed		Defaulted		Transferred		Still on treatment		Unknown	
		Cured		Treatment completed		Subtotal success										N	(%)	N	(%)
Country		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Complete cohorts with nationwide coverage																			
EU & West																			
Austria	253	0	(0)	195	(77)	195	(77)	22	(9)	0	(0)	17	(7)	0	(0)	0	(0)	19	(8)
Belgium	346	73	(21)	150	(43)	223	(64)	32	(9)	0	(0)	4	(1)	6	(2)	7	(2)	74	(21)
Cyprus	25	23	(92)	0	(0)	23	(92)	0	(0)	0	(0)	0	(0)	2	(8)	0	(0)	0	(0)
Czech Republic	380	207	(54)	69	(18)	276	(73)	18	(5)	1	(0)	4	(1)	0	(0)	0	(0)	81	(21)
Estonia	212	132	(62)	3	(1)	135	(64)	29	(14)	8	(4)	23	(11)	0	(0)	17	(8)	0	(0)
Germany	1 363	582	(44)	295	(23)	877	(64)	139	(10)	2	(0)	24	(2)	0	(0)	70	(5)	251	(18)
Hungary	579	189	(32)	76	(14)	265	(46)	75	(13)	66	(11)	35	(6)	21	(4)	107	(18)	10	(2)
Ireland	87	14	(16)	35	(40)	49	(56)	3	(3)	1	(1)	5	(6)	0	(0)	0	(0)	29	(33)
Latvia	661	467	(71)	16	(2)	483	(73)	66	(10)	9	(1)	44	(7)	0	(0)	59	(9)	0	(0)
Lithuania	935	673	(72)	0	(0)	673	(72)	103	(11)	27	(3)	107	(11)	4	(0)	21	(2)	0	(0)
Malta	3	1	(33)	2	(67)	3	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Netherlands	303	50	(17)	188	(62)	238	(79)	19	(6)	0	(0)	16	(5)	0	(0)	4	(1)	26	(9)
Poland	3 155	2 119	(67)	276	(9)	2 395	(76)	175	(6)	27	(1)	185	(6)	34	(1)	0	(0)	339	(11)
Portugal	2 042	198	(10)	1 398	(68)	1 596	(78)	104	(5)	4	(0)	93	(5)	74	(4)	171	(8)	0	(0)
Slovakia	226	189	(84)	7	(3)	196	(87)	24	(11)	1	(0)	2	(1)	0	(0)	3	(1)	0	(0)
Slovenia	139	33	(24)	81	(58)	114	(82)	11	(8)	1	(1)	7	(5)	3	(2)	3	(2)	0	(0)
Sweden	106	0	(0)	66	(62)	66	(62)	13	(12)	1	(1)	3	(3)	3	(3)	7	(7)	13	(12)
Andorra	1	1	(100)	0	(0)	1	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Iceland	3	0	(0)	2	(67)	2	(67)	0	(0)	0	(0)	1	(33)	0	(0)	0	(0)	0	(0)
Israel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	58	32	(55)	19	(33)	51	(88)	3	(5)	0	(0)	2	(3)	2	(3)	0	(0)	0	(0)
Centre																			
Albania	171	76	(44)	80	(47)	156	(91)	2	(1)	7	(4)	2	(1)	4	(2)	0	(0)	0	(0)
Macedonia, FYR	164	83	(51)	63	(38)	146	(89)	0	(0)	4	(2)	13	(8)	0	(0)	0	(0)	1	(1)
Romania	11 275	6 794	(60)	1 699	(15)	8 493	(75)	634	(6)	833	(7)	849	(8)	124	(1)	76	(1)	266	(2)
Turkey	4 359	0	(0)	3 140	(72)	3 140	(72)	98	(2)	0	(0)	206	(5)	213	(5)	397	(9)	305	(7)
East																			
Azerbaijan	1 421	1 079	(76)	14	(1)	1 093	(77)	55	(4)	117	(8)	105	(7)	31	(2)	0	(0)	20	(1)
Georgia	1 014	339	(33)	340	(34)	679	(67)	21	(2)	76	(7)	146	(14)	79	(8)	0	(0)	13	(1)
Kazakhstan	8 894	6 774	(76)	148	(2)	6 922	(78)	418	(5)	1 036	(12)	325	(4)	193	(2)	0	(0)	0	(0)
Kyrgyzstan	1 458	1 059	(73)	122	(8)	1 181	(81)	68	(5)	84	(6)	89	(6)	36	(2)	0	(0)	0	(0)
Moldova, Rep. of *	1 060	120	(11)	563	(53)	683	(64)	9	(1)	37	(3)	11	(1)	12	(1)	0	(0)	308	(29)
Tajikistan	670	388	(58)	92	(14)	480	(72)	93	(14)	82	(12)	0	(0)	15	(2)	0	(0)	0	(0)
Turkmenistan	1 243	797	(64)	0	(0)	797	(64)	110	(9)	153	(12)	171	(14)	0	(0)	12	(1)	0	(0)
Group B) Incomplete cohorts or partial geographic coverage																			
EU & West																			
Denmark	108	61	(56)	34	(31)	95	(88)	2	(2)	0	(0)	0	(0)	3	(3)	0	(0)	8	(7)
Italy	198	58	(29)	21	(11)	79	(40)	0	(0)	2	(1)	5	(3)	22	(11)	0	(0)	90	(45)
United Kingdom	864	0	(0)	664	(77)	664	(77)	73	(8)	1	(0)	42	(5)	13	(2)	42	(5)	29	(3)
Centre																			
Bulgaria †	380	285	(75)	44	(12)	329	(87)	14	(4)	16	(4)	12	(3)	9	(2)	0	(0)	0	(0)
Serbia & Montenegro	262	201	(51)	37	(37)	238	(91)	14	(5)	0	(0)	5	(2)	3	(1)	1	(0)	1	(0)
East																			
Armenia	284	241	(85)	16	(6)	257	(90)	6	(2)	8	(3)	11	(4)	2	(1)	0	(0)	0	(0)
Russian Federation ‡	4 058	2 620	(65)	120	(3)	2 740	(68)	338	(8)	577	(14)	261	(6)	142	(3)	0	(0)	0	(0)
Uzbekistan	854	476	(56)	173	(20)	649	(76)	36	(4)	100	(12)	55	(6)	14	(2)	0	(0)	0	(0)

\* Categories other than success and unknown only reported from DOTS areas

† Smear and culture positive cases

‡ Smear and/or culture positive cases



**Table 29. Outcome of retreated pulmonary sputum smear positive TB cases, WHO European Region, 2001**

Geographic area	Total	Success						Died	Failed	Defaulted	Transferred	Still on		Unknown					
		Cured		Treatment completed		Subtotal success						treatment							
Country	included	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)		
Group A) Complete cohorts with nationwide coverage																			
EU & West																			
Austria	9	0	(0)	7	(78)	7	(78)	1	(11)	0	(0)	0	(0)	0	(0)	0	(0)	1	(11)
Belgium	42	8	(19)	17	(40)	25	(60)	6	(14)	0	(0)	0	(0)	0	(0)	1	(2)	10	(24)
Cyprus	1	0	(0)	1	(100)	1	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Czech Republic	15	7	(47)	3	(20)	10	(67)	0	(0)	0	(0)	0	(0)	2	(13)	0	(0)	3	(20)
Estonia	125	37	(30)	4	(3)	41	(33)	13	(10)	17	(14)	18	(14)	0	(0)	36	(29)	0	(0)
Germany	188	75	(40)	32	(17)	107	(57)	19	(10)	3	(2)	8	(4)	0	(0)	13	(7)	38	(20)
Hungary	130	30	(23)	13	(10)	43	(32)	20	(15)	30	(23)	10	(8)	3	(2)	19	(15)	5	(4)
Ireland	14	2	(14)	4	(29)	6	(43)	0	(0)	0	(0)	1	(7)	0	(0)	1	(7)	6	(43)
Latvia	213	93	(44)	5	(2)	98	(46)	25	(12)	4	(2)	23	(11)	0	(0)	63	(30)	0	(0)
Lithuania	425	162	(38)	0	(0)	162	(38)	80	(19)	36	(8)	102	(24)	1	(0)	44	(10)	0	(0)
Malta	0	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Netherlands	14	3	(21)	8	(57)	11	(79)	1	(7)	0	(0)	1	(7)	0	(0)	1	(7)	0	(0)
Poland	481	303	(63)	40	(8)	343	(71)	30	(6)	14	(3)	43	(9)	0	(0)	0	(0)	51	(11)
Portugal	242	18	(7)	132	(55)	150	(62)	23	(10)	0	(0)	24	(10)	14	(6)	31	(13)	0	(0)
Slovakia	43	27	(63)	5	(12)	32	(74)	7	(16)	1	(2)	2	(5)	0	(0)	0	(0)	1	(2)
Slovenia	15	4	(27)	8	(53)	12	(80)	0	(0)	0	(0)	1	(7)	0	(0)	2	(13)	0	(0)
Sweden	7	0	(0)	3	(43)	3	(43)	1	(14)	0	(0)	0	(0)	1	(14)	0	(0)	2	(29)
Andorra	0	0	-	0	-	0	(0)	0	-	0	-	0	-	0	-	0	-	0	-
Iceland	0	0	-	0	-	0	(0)	0	-	0	-	0	-	0	-	0	-	0	-
Israel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway	3	3	(100)	0	(0)	3	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Centre																			
Albania	24	7	(29)	11	(46)	18	(75)	1	(4)	1	(4)	4	(17)	0	(0)	0	(0)	0	(0)
Macedonia, FYR	26	10	(38)	4	(15)	14	(54)	3	(12)	1	(4)	7	(27)	0	(0)	0	(0)	1	(4)
Romania	4 691	1 517	(32)	554	(12)	2 071	(44)	517	(11)	812	(17)	662	(14)	49	(1)	580	(12)	0	(0)
Turkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East																			
Azerbaijan	268	96	(36)	4	(1)	100	(37)	45	(17)	65	(24)	58	(22)	0	(0)	0	(0)	0	(0)
Georgia	677	144	(21)	163	(24)	307	(45)	59	(9)	83	(12)	180	(27)	32	(5)	0	(0)	16	(2)
Kazakhstan	2 900	1 796	(62)	120	(4)	1 916	(66)	271	(9)	457	(16)	162	(6)	94	(3)	0	(0)	0	(0)
Kyrgyzstan	296	186	(63)	39	(13)	225	(76)	18	(6)	19	(6)	26	(9)	8	(3)	0	(0)	0	(0)
Moldova, Rep. of *	190	24	(13)	4	(2)	28	(15)	1	(1)	6	(3)	11	(6)	3	(2)	0	(0)	141	(74)
Tajikistan	98	24	(24)	31	(32)	55	(56)	27	(28)	5	(5)	11	(11)	0	(0)	0	(0)	0	(0)
Turkmenistan	554	387	(70)	0	(0)	387	(70)	40	(7)	50	(9)	71	(13)	6	(1)	0	(0)	0	(0)
Group B) Incomplete cohorts or partial geographic coverage																			
EU & West																			
Denmark	11	5	(45)	2	(18)	7	(64)	1	(9)	1	(9)	1	(9)	1	(9)	0	(0)	0	(0)
Italy	21	8	(38)	3	(14)	11	(52)	0	(0)	0	(0)	0	(0)	1	(5)	0	(0)	9	(43)
United Kingdom	91	0	(0)	67	(74)	67	(74)	9	(10)	0	(0)	3	(3)	3	(3)	8	(9)	1	(1)
Centre																			
Bulgaria †	49	26	(53)	12	(24)	38	(78)	3	(6)	7	(14)	1	(2)	0	(0)	0	(0)	0	(0)
Serbia & Montenegro	26	12	(46)	1	(4)	13	(65)	8	(31)	0	(0)	1	(4)	0	(0)	0	(0)	4	(15)
East																			
Armenia	46	31	(67)	0	(0)	31	(67)	0	(0)	10	(22)	5	(11)	0	(0)	0	(0)	0	(0)
Russian Federation ‡	854	261	(31)	152	(18)	413	(48)	105	(12)	223	(26)	52	(6)	61	(7)	0	(0)	0	(0)
Uzbekistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* Categories other than success and unknown only reported from DOTS areas

† Smear and culture positive cases

‡ Smear and/or culture positive cases

**Table 30. Outcome of new pulmonary culture positive TB cases, WHO European Region, 2001**

Geographic area Country	Total included	Success						Died N (%)	Failed N (%)	Defaulted N (%)	Transferred N (%)	Still on treatment		Unknown					
		Cured N (%)	Treatment completed N (%)	Subtotal success N (%)	N (%)	N (%)	N (%)					N (%)							
Group A) Complete cohorts with nationwide coverage																			
EU & West																			
Austria	547	0	(0)	416	(76)	416	(76)	51	(9)	0	(0)	35	(6)	0	(0)	0	(0)	45	(8)
Belgium	534	113	(21)	223	(42)	336	(63)	49	(9)	1	(0)	5	(1)	12	(2)	5	(1)	126	(24)
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Czech Republic	704	362	(51)	125	(18)	487	(69)	33	(5)	2	(0)	10	(1)	2	(0)	0	(0)	170	(24)
Estonia	351	236	(67)	2	(1)	238	(68)	30	(9)	8	(2)	40	(11)	0	(0)	35	(10)	0	(0)
Germany	2 589	1 050	(41)	668	(26)	1 718	(66)	311	(12)	3	(0)	41	(2)	0	(0)	127	(5)	389	(15)
Hungary	732	292	(40)	100	(14)	392	(54)	74	(10)	73	(10)	49	(7)	24	(3)	113	(15)	7	(1)
Ireland	129	17	(13)	59	(46)	76	(59)	9	(7)	1	(1)	4	(3)	0	(0)	0	(0)	39	(30)
Latvia	1 004	745	(74)	24	(2)	769	(77)	69	(7)	9	(1)	67	(7)	1	(0)	89	(9)	0	(0)
Lithuania	1 142	844	(74)	0	(0)	844	(74)	112	(10)	26	(2)	130	(11)	4	(0)	26	(2)	0	(0)
Malta	9	1	(11)	7	(78)	8	(89)	1	(11)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Netherlands	601	120	(20)	399	(66)	519	(86)	27	(4)	0	(0)	42	(7)	0	(0)	11	(2)	2	(0)
Poland	4 905	3 263	(67)	471	(10)	3 734	(76)	233	(5)	39	(1)	292	(6)	45	(1)	0	(0)	562	(11)
Portugal	2 024	210	(10)	1 416	(70)	1 626	(80)	94	(5)	5	(0)	103	(5)	67	(3)	129	(6)	0	(0)
Slovakia	413	340	(82)	16	(4)	356	(86)	47	(11)	2	(0)	4	(1)	0	(0)	4	(1)	0	(0)
Slovenia	250	61	(24)	137	(55)	198	(79)	35	(14)	1	(0)	10	(4)	2	(1)	4	(2)	0	(0)
Sweden	220	0	(0)	143	(65)	143	(65)	29	(13)	1	(0)	4	(2)	6	(3)	8	(4)	29	(13)
Andorra	2	2	(100)	0	(0)	2	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Iceland	7	0	(0)	6	(86)	6	(86)	0	(0)	0	(0)	1	(14)	0	(0)	0	(0)	0	(0)
Israel	288	224	(78)	3	(1)	227	(79)	25	(9)	3	(1)	17	(6)	8	(3)	0	(0)	8	(3)
Norway	145	75	(52)	49	(34)	124	(86)	8	(6)	0	(0)	4	(3)	8	(6)	1	(1)	0	(0)
Centre																			
Albania	177	57	(32)	101	(57)	158	(89)	7	(4)	5	(3)	3	(2)	4	(2)	0	(0)	0	(0)
Macedonia, FYR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Romania	10 960	5 239	(48)	2 540	(23)	7 779	(71)	464	(4)	639	(6)	641	(6)	94	(1)	117	(1)	1 226	(11)
Turkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Group B) Incomplete cohorts or partial geographic coverage																			
EU & West																			
Denmark	196	101	(52)	72	(37)	173	(88)	6	(3)	0	(0)	1	(1)	5	(3)	0	(0)	11	(6)
Italy	270	71	(26)	39	(14)	110	(41)	2	(1)	2	(1)	12	(4)	26	(10)	0	(0)	118	(44)
United Kingdom	1 450	250	(17)	878	(61)	1 128	(78)	122	(8)	2	(0)	66	(5)	21	(1)	65	(4)	46	(3)
Centre																			
Bulgaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serbia & Montenegro	335	225	(67)	42	(13)	267	(80)	18	(5)	0	(0)	10	(3)	1	(0)	1	(0)	38	(11)

**Table 31. Outcome of retreated pulmonary culture positive TB cases, WHO European Region, 2001**

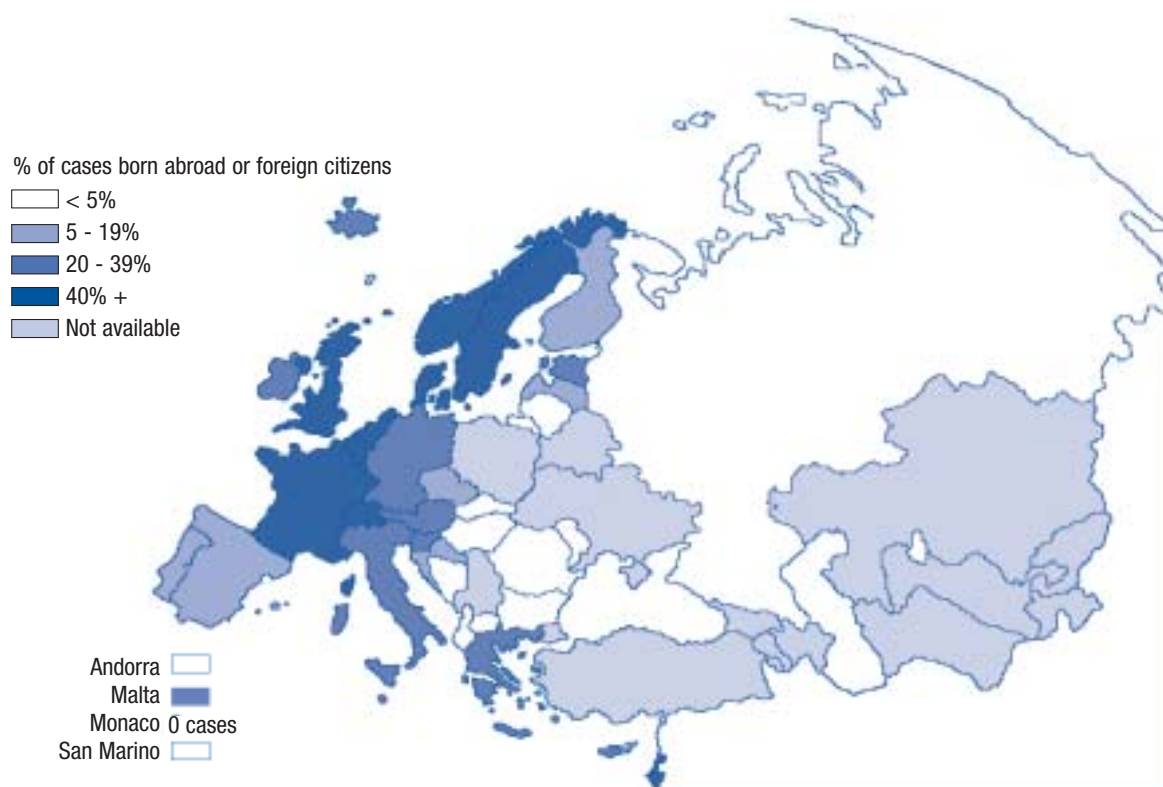
Geographic area Country	Total included	Cured		Success Treatment completed		Subtotal success		Died		Failed		Defaulted		Transferred		Still on treatment		Unknow	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Group A) Complete cohorts with nationwide coverage																			
EU & West																			
Austria	15	0	(0)	10	(67)	10	(67)	4	(27)	0	(0)	0	(0)	0	(0)	0	(0)	1	(7)
Belgium	80	18	(23)	31	(39)	49	(61)	11	(14)	0	(0)	0	(0)	0	(0)	3	(4)	17	(21)
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	25	11	(44)	5	(20)	16	(64)	0	(0)	0	(0)	0	(0)	2	(8)	0	(0)	7	(28)
Estonia	206	66	(32)	4	(2)	70	(34)	21	(10)	19	(9)	31	(15)	0	(0)	65	(32)	0	(0)
Germany	327	144	(44)	63	(19)	207	(63)	30	(9)	3	(1)	10	(3)	0	(0)	22	(7)	55	(17)
Hungary	165	51	(31)	21	(13)	72	(44)	18	(11)	36	(22)	14	(8)	2	(1)	21	(13)	2	(1)
Ireland	21	2	(10)	8	(38)	10	(48)	0	(0)	0	(0)	1	(5)	0	(0)	1	(5)	9	(43)
Latvia	331	140	(42)	9	(3)	149	(45)	32	(10)	6	(2)	25	(8)	0	(0)	119	(36)	0	(0)
Lithuania	556	242	(44)	0	(0)	242	(44)	88	(16)	40	(7)	134	(24)	1	(0)	51	(9)	0	(0)
Malta	1	0	(0)	0	(0)	0	(0)	1	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Netherlands	21	5	(24)	12	(57)	17	(81)	1	(5)	0	(0)	2	(10)	0	(0)	1	(5)	0	(0)
Poland	730	455	(62)	56	(8)	511	(70)	41	(6)	20	(3)	70	(10)	2	(0)	0	(0)	86	(12)
Portugal	217	24	(11)	131	(60)	155	(71)	21	(10)	0	(0)	27	(12)	13	(6)	1	(0)	0	(0)
Slovakia	104	75	(72)	10	(10)	85	(82)	15	(14)	1	(1)	2	(2)	0	(0)	0	(0)	1	(1)
Slovenia	23	6	(26)	13	(57)	19	(83)	0	(0)	0	(0)	2	(9)	0	(0)	2	(9)	0	(0)
Sweden	14	0	(0)	6	(43)	6	(43)	2	(14)	0	(0)	1	(7)	1	(7)	0	(0)	4	(29)
Andorra	1	1	(100)	0	(0)	1	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Iceland	0	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
Israel	25	17	(68)	3	(12)	20	(80)	2	(8)	1	(4)	0	(0)	0	(0)	1	(4)	1	(4)
Norway	11	6	(55)	1	(9)	7	(64)	0	(0)	0	(0)	0	(0)	2	(18)	2	(18)	0	(0)
Centre																			
Albania	14	4	(29)	5	(36)	9	(64)	1	(7)	1	(7)	3	(21)	0	(0)	0	(0)	0	(0)
Macedonia, FYR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Romania	3 903	1 182	(30)	625	(16)	1 807	(46)	394	(10)	597	(15)	580	(15)	38	(1)	487	(12)	0	(0)
Turkey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Group B) Incomplete cohorts or partial geographic coverage																			
EU & West																			
Denmark	17	7	(41)	5	(29)	12	(71)	1	(6)	1	(6)	2	(12)	1	(6)	0	(0)	0	(0)
Italy	33	9	(27)	4	(12)	13	(39)	1	(3)	0	(0)	1	(3)	1	(3)	0	(0)	17	(52)
United Kingdom	136	25	(18)	76	(56)	101	(74)	20	(15)	0	(0)	4	(3)	3	(2)	6	(4)	2	(1)
Centre																			
Bulgaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Serbia & Montenegro	37	17	(46)	4	(11)	21	(57)	8	(22)	0	(0)	1	(3)	0	(0)	0	(0)	7	(19)

## 4. MAPS AND FIGURES

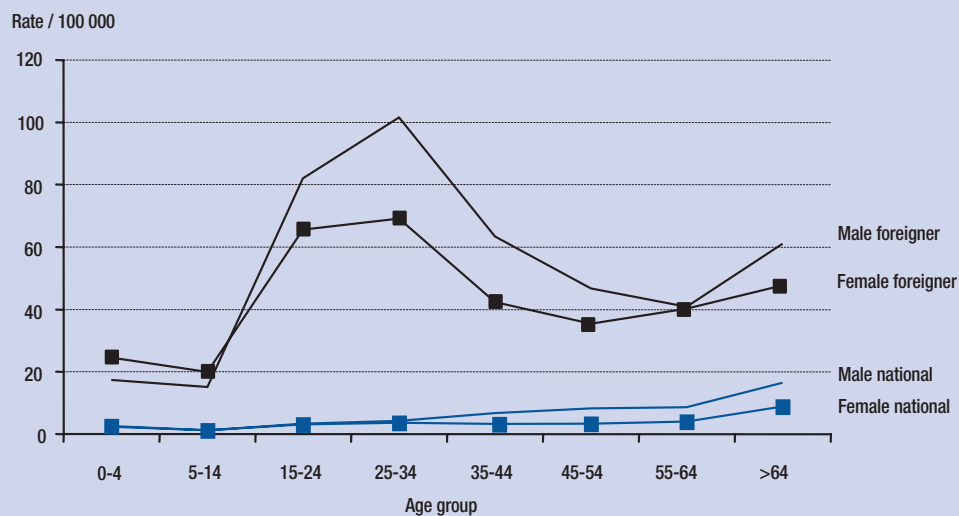
Figure 1. Tuberculosis notification rates per 100 000 population, 2002



Figure 2. Proportion of tuberculosis cases of foreign origin, 2002

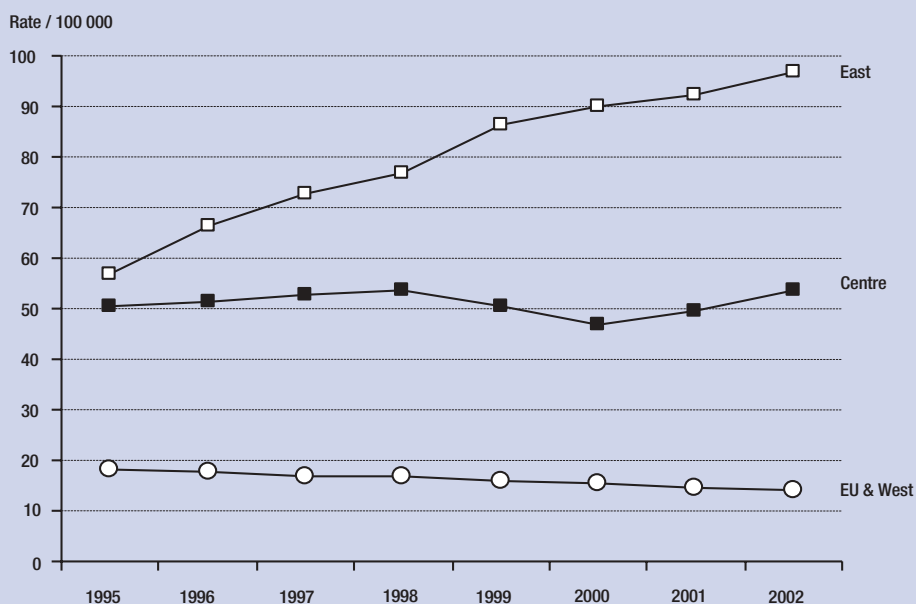


**Figure 3. TB notification rates by age group, sex and geographic origin, EU & West\*, 2002**



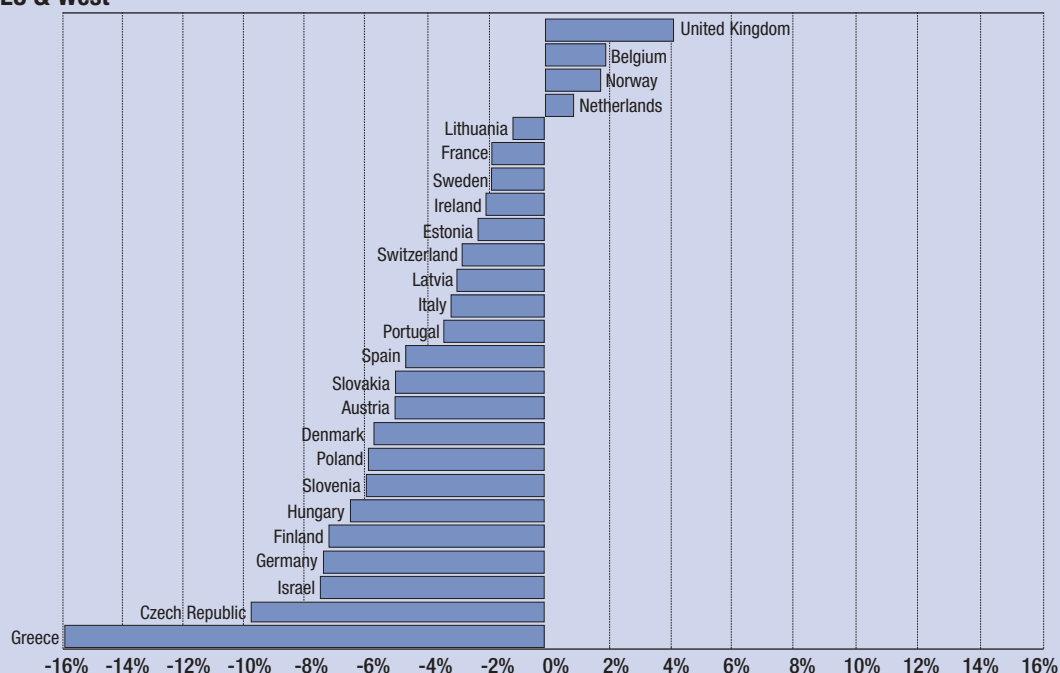
\* Countries providing population estimates by geographic origin: Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Netherlands, Norway, Slovenia, Sweden, Switzerland, United Kingdom

**Figure 4. Tuberculosis notification rates by geographic area, 1995-2002**

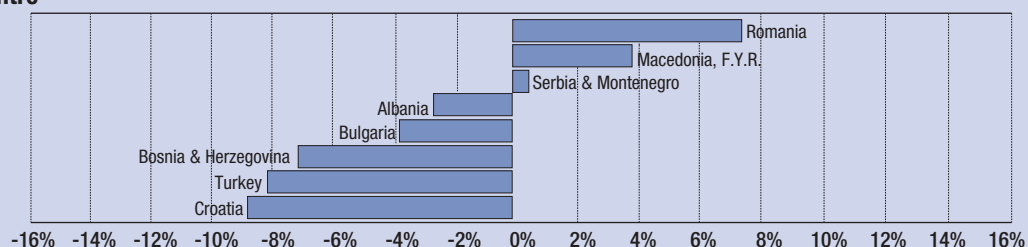


**Figure 5. Mean annual percentage change in TB notification rates, WHO European Region, 1998-2002**

**EU & West**



**Centre**



**East**

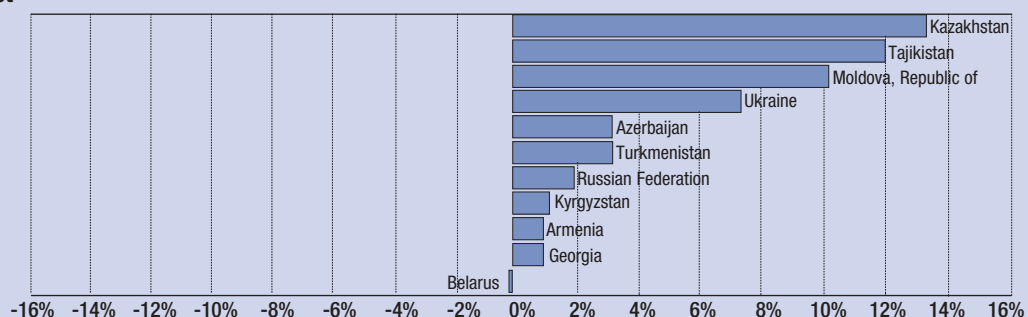
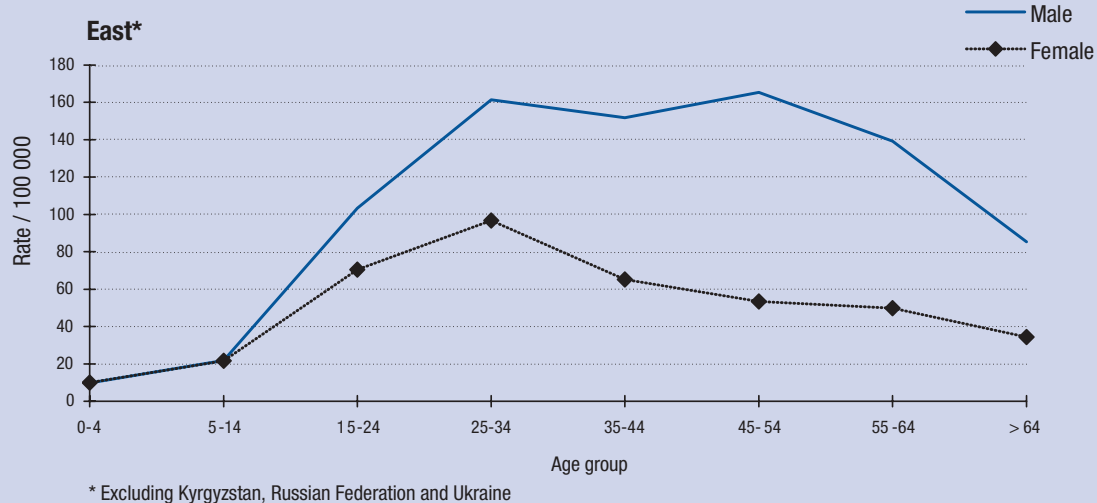
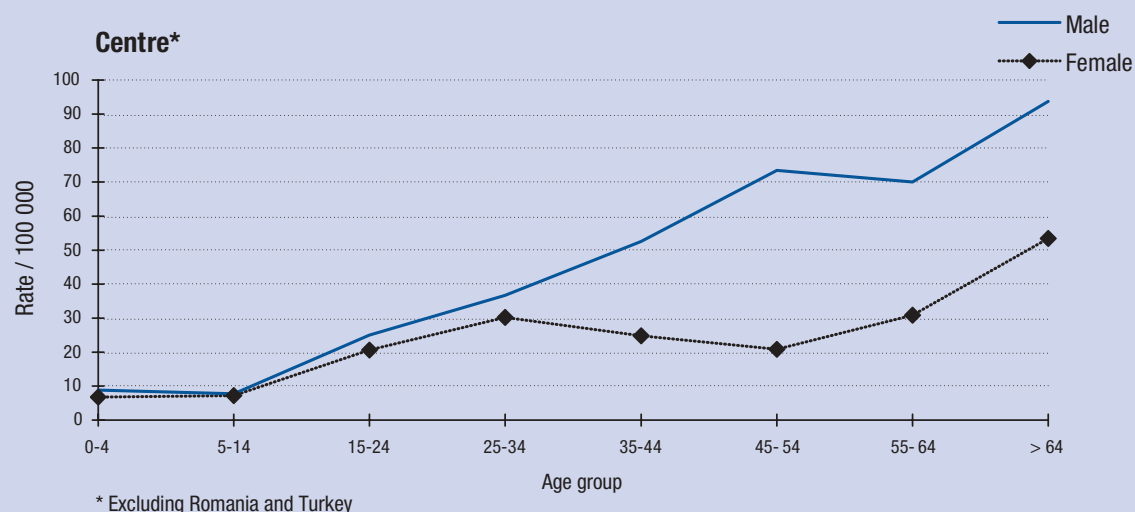
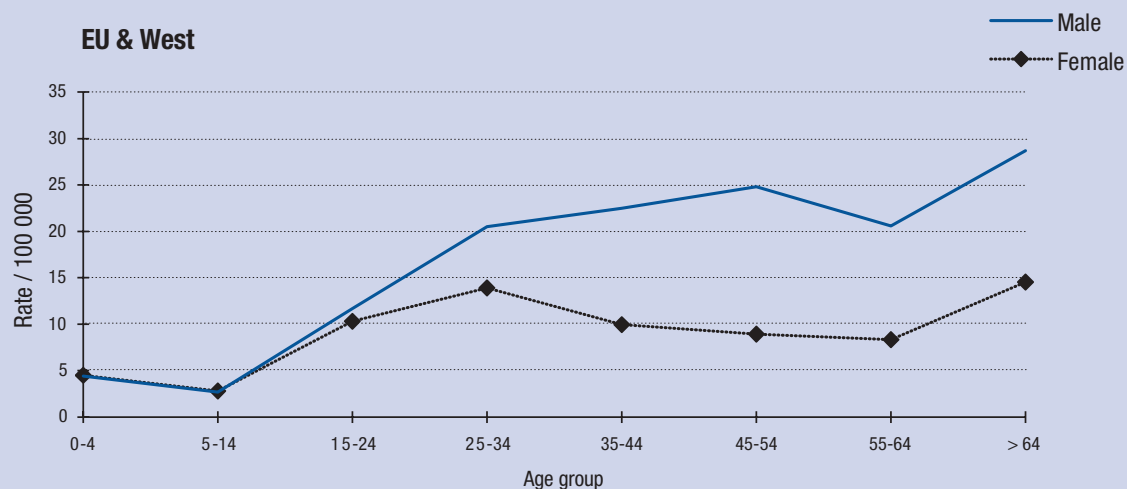
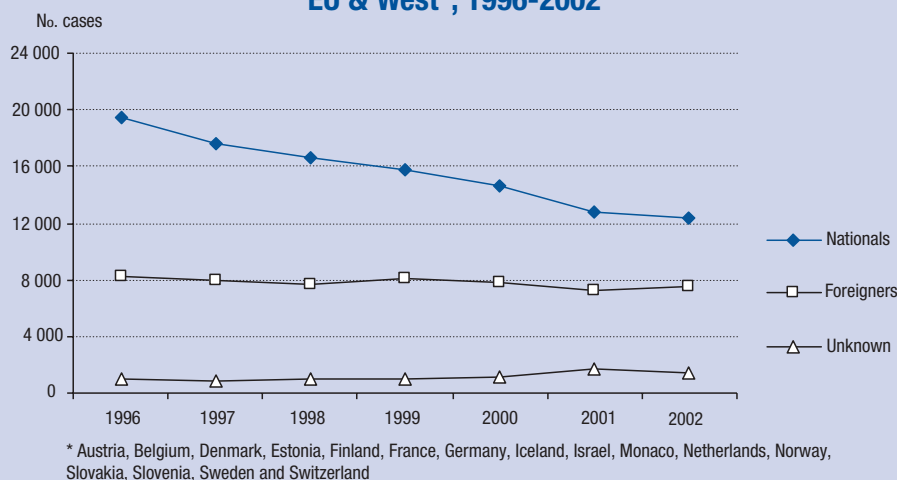


Figure 6. TB notification rates by age group and sex, WHO European Region, 2002

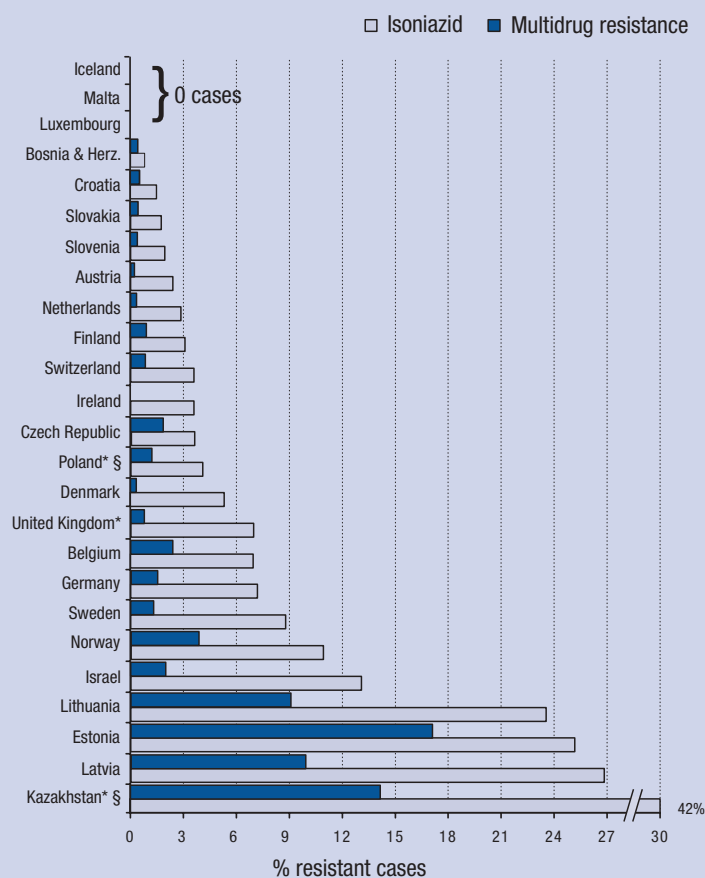




**Figure 7. Tuberculosis cases by geographic origin, EU & West\*, 1996-2002**



**Figure 8. Primary resistance to isoniazid and primary multidrug resistance, WHO European Region, 2002**



## 5. COUNTRY PROFILES

<b>Albania</b>	<b>63</b>	<b>Latvia</b>	<b>89</b>
<b>Andorra</b>	<b>64</b>	<b>Lithuania</b>	<b>90</b>
<b>Armenia</b>	<b>65</b>	<b>Luxembourg</b>	<b>91</b>
<b>Austria</b>	<b>66</b>	<b>Macedonia, FYR of</b>	<b>92</b>
<b>Azerbaijan</b>	<b>67</b>	<b>Malta</b>	<b>93</b>
<b>Belarus</b>	<b>68</b>	<b>Moldova, Republic of</b>	<b>94</b>
<b>Belgium</b>	<b>69</b>	<b>Monaco</b>	<b>95</b>
<b>Bosnia &amp; Herzegovina</b>	<b>70</b>	<b>The Netherlands</b>	<b>96</b>
<b>Bulgaria</b>	<b>71</b>	<b>Norway</b>	<b>97</b>
<b>Croatia</b>	<b>72</b>	<b>Poland</b>	<b>98</b>
<b>Cyprus</b>	<b>73</b>	<b>Portugal</b>	<b>99</b>
<b>Czech Republic</b>	<b>74</b>	<b>Romania</b>	<b>100</b>
<b>Denmark</b>	<b>75</b>	<b>Russian Federation</b>	<b>101</b>
<b>Estonia</b>	<b>76</b>	<b>San Marino</b>	<b>102</b>
<b>Finland</b>	<b>77</b>	<b>Serbia &amp; Montenegro</b>	<b>103</b>
<b>France</b>	<b>78</b>	<b>Slovakia</b>	<b>104</b>
<b>Georgia</b>	<b>79</b>	<b>Slovenia</b>	<b>105</b>
<b>Germany</b>	<b>80</b>	<b>Spain</b>	<b>106</b>
<b>Greece</b>	<b>81</b>	<b>Sweden</b>	<b>107</b>
<b>Hungary</b>	<b>82</b>	<b>Switzerland</b>	<b>108</b>
<b>Iceland</b>	<b>83</b>	<b>Tajikistan</b>	<b>109</b>
<b>Ireland</b>	<b>84</b>	<b>Turkey</b>	<b>110</b>
<b>Israel</b>	<b>85</b>	<b>Turkmenistan</b>	<b>111</b>
<b>Italy</b>	<b>86</b>	<b>Ukraine</b>	<b>112</b>
<b>Kazakhstan</b>	<b>87</b>	<b>United Kingdom</b>	<b>113</b>
<b>Kyrgyzstan</b>	<b>88</b>	<b>Uzbekistan</b>	<b>114</b>



## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	612
Notification rate per 100 000	19.5
Sex ratio (M:F)	1.8
Median age-group, nationals	35-44 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	2 (0.3%)
New (never-treated)	571 (93.3%)
Culture positive	232 (37.9%)
Pulmonary	410 (67.0%)
of which sputum smear positive	253 (61.7%)

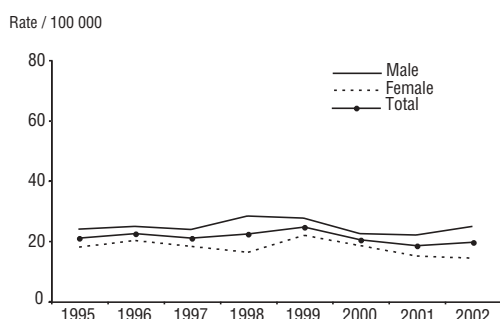
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	national
Linkage with TB case notification	No §
Cases with DST results	199
Cases resistant to INH	11 (5.5%)
Cases resistant to RMP	8 (4.0%)
MDR cases	5 (2.5%)
Cases resistant to EMB	3 (1.5%)
Cases resistant to SM	12 (6.0%)
Data representativeness unknown	
Culture and DST not routinely performed	
§ TB cases referred to the NRL	

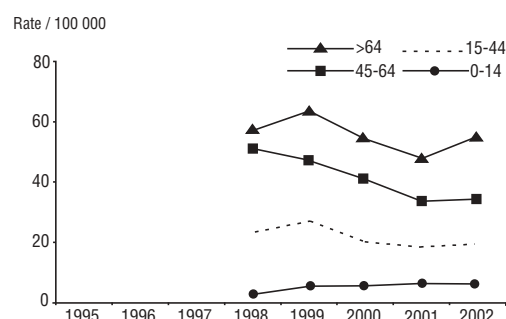
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	171
Success	139 (81%)
Death	8 (5%)
Failure	4 (2%)
Default	6 (4%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	14 (8%)

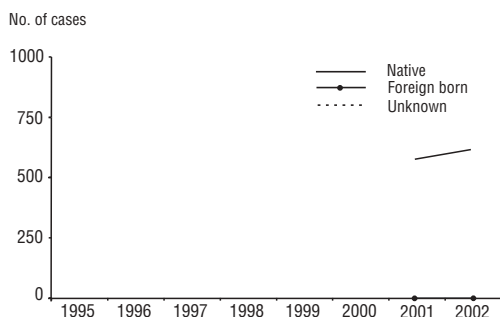
Tuberculosis notification rates by sex, 1995-2002



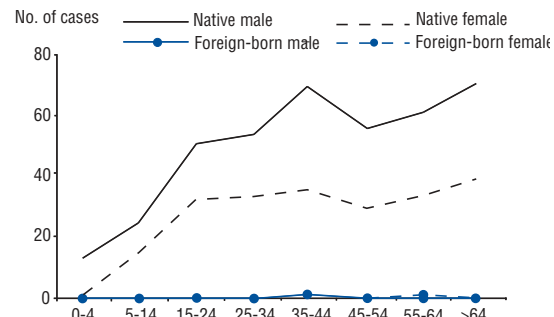
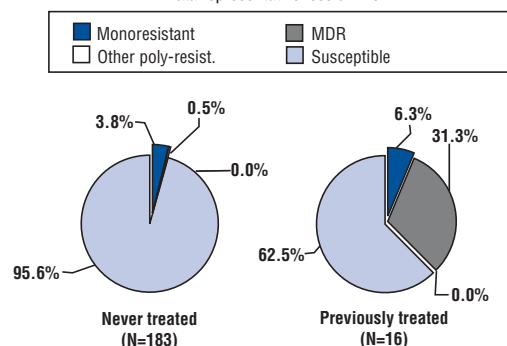
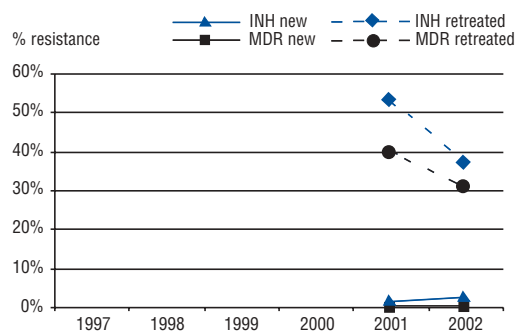
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002



Tuberculosis cases by geographic origin, age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	5
Notification rate per 100 000	6.0
Sex ratio (M:F)	0.7
Median age-group, nationals	15-24 years
Median age-group, non-nationals	-
Individuals born abroad	0 (0.0%)
New (never-treated)	5 (100.0%)
Culture positive	3 (60.0%)
Pulmonary	4 (80.0%)
of which sputum smear positive	2 (50.0%)

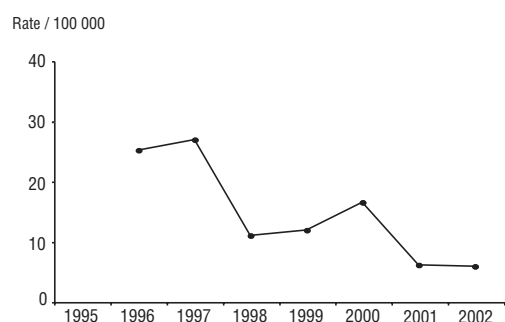
### Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	national
Linkage with TB case notification	Yes
Cases with DST results	3
Cases resistant to INH	0 (0.0%)
Cases resistant to RMP	0 (0.0%)
MDR cases	0 (0.0%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	0 (0.0%)

### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	2
Success	2 (100%)
Death	0 (0%)
Failure	0 (0%)
Default	0 (0%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	0 (0%)

TB notification rates, 1995-2002



Tuberculosis notification rates by age group, 1995-2002

**Insufficient number of cases for graphic presentation**

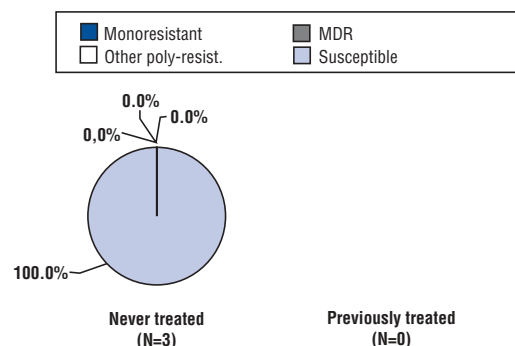
Tuberculosis cases by geographic origin, 1995-2002

**Insufficient number of cases for graphic presentation**

Tuberculosis cases by geographic origin, age group and sex, 2002

**Insufficient number of cases for graphic presentation**

Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002

**No resistance reported**

## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	1 455
Notification rate per 100 000	47.4
Sex ratio (M:F)	4.0
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign citizens	-
New (never-treated)	1 393 (95.7%)
Culture positive	- -
Pulmonary	1 274 (87.6%)
of which sputum smear positive	573 (45.0%)

## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	national
Linkage with TB case notification	No \$
Cases with DST results	507#
Cases resistant to INH	195 (38.5%)
Cases resistant to RMP	147 (29.0%)
MDR cases	118 (23.3%)
Cases resistant to EMB	94 (18.5%)
Cases resistant to SM	263 (51.9%)

Data representativeness unknown

Culture and DST not routinely performed

\$ TB cases referred to the NRL

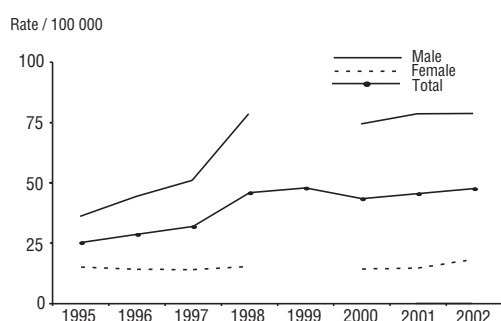
# 33% of cases previously treated and 66% with unknown treatment history

## Treatment Outcome Monitoring, 2001

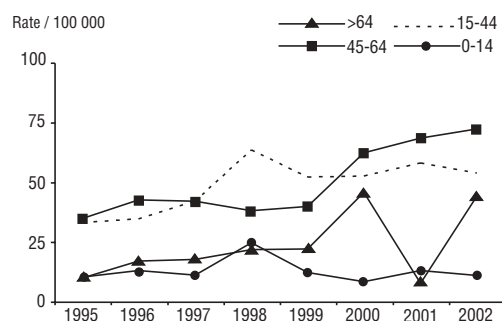
Geographic coverage	DOTS areas *
Cohort	new pulmonary smear positive
Included in TOM cohort	284
Success	257 (90%)
Death	6 (2%)
Failure	8 (3%)
Default	11 (4%)
Transfer	2 (1%)
Still on treatment	0 (0%)
Unknown	0 (0%)

\* Representing 53% of cases reported

Tuberculosis notification rates by sex, 1995-2002



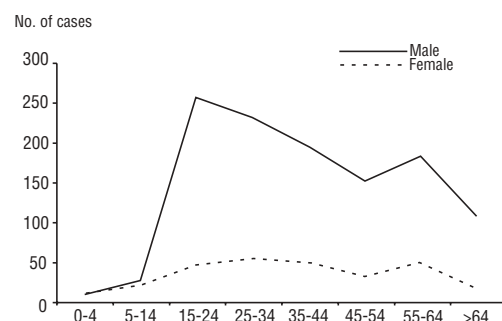
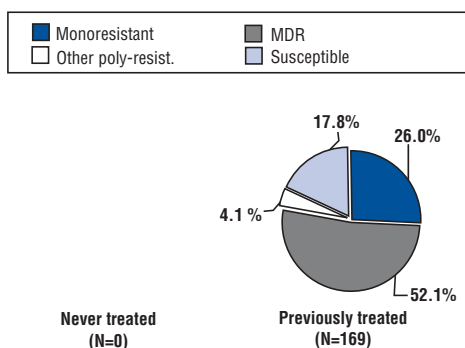
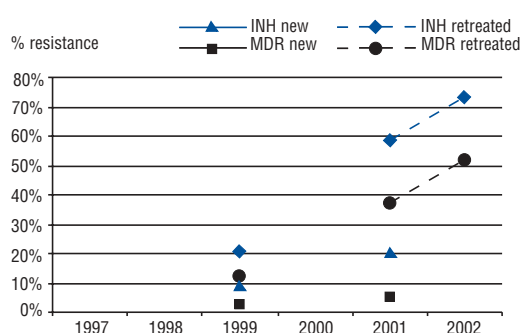
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002

**Foreigners not included  
in TB notifications**

Tuberculosis cases by age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 067
Notification rate per 100 000	13.2
Sex ratio (M:F)	1.7
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Foreign citizens	298 (27.9%)
New (never-treated)	981 (91.9%)
Culture positive	696 (65.2%)
Pulmonary	856 (80.2%)
of which sputum smear positive	276 (32.2%)

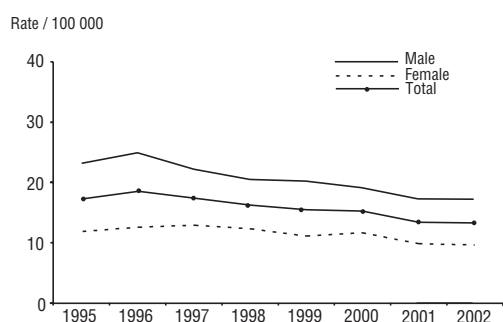
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	national
Linkage with TB case notification	Yes
Cases with DST results	674
Cases resistant to INH	18 (2.7%)
Cases resistant to RMP	4 (0.6%)
MDR cases	2 (0.3%)
Cases resistant to EMB	1 (0.1%)
Cases resistant to SM	13 (1.9%)

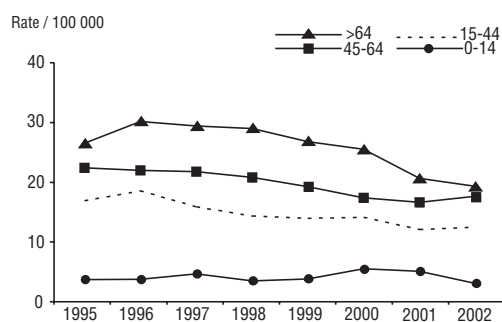
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	547
Success	416 (76%)
Death	51 (9%)
Failure	0 (0%)
Default	35 (6%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	45 (8%)

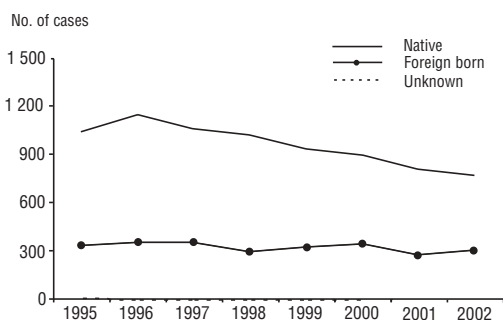
Tuberculosis notification rates by sex, 1995-2002



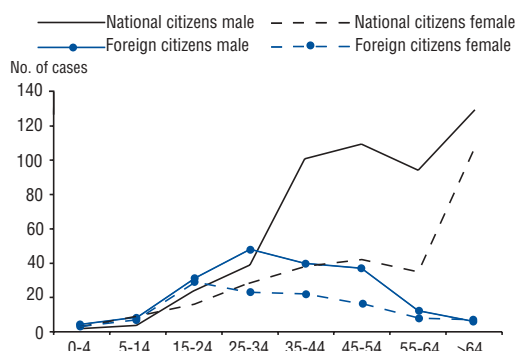
Tuberculosis notification rates by age group, 1995-2002



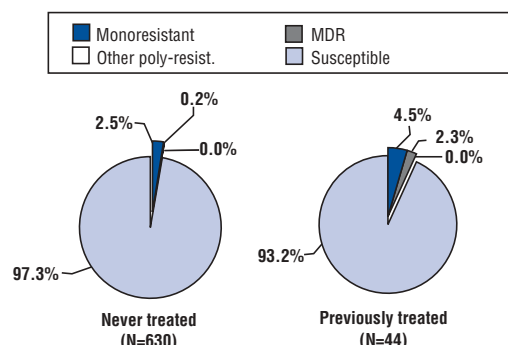
Tuberculosis cases by geographic origin, 1995-2002



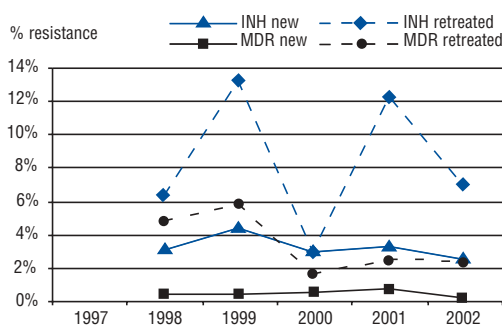
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002





## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	5 348
Notification rate per 100 000	64,5
Sex ratio (M:F)	3.7
Median age-group, nationals	25-34 years
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	4 964 (92.8%)
Culture positive	1 040 (19.4%)
Pulmonary	4 610 (86.2%)
of which sputum smear positive	1 981 (43.0%)§

## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	partial
Linkage with TB case notification	No §
Cases with DST results	596 #
Cases resistant to INH	36 (6.0%)
Cases resistant to RMP	34 (5.7%)
MDR cases	8 (1.3%)
Cases resistant to EMB	26 (4.4%)
Cases resistant to SM	111 (18.6%)

Data representativeness unknown

Culture and DST not routinely performed

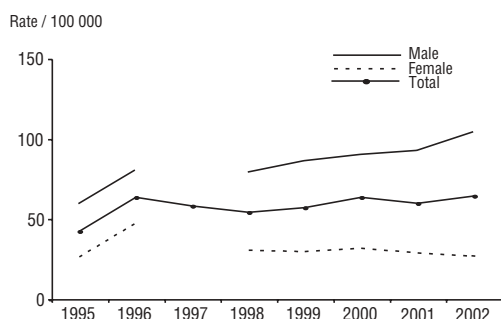
§ Data from selected laboratories

# New cases only

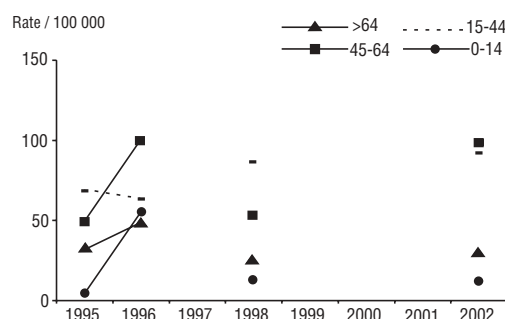
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	1 421
Success	1 093 (77%)
Death	55 (4%)
Failure	117 (8%)
Default	105 (7%)
Transfer	31 (2%)
Still on treatment	0 (0%)
Unknown	20 (1%)

Tuberculosis notification rates by sex, 1995-2002



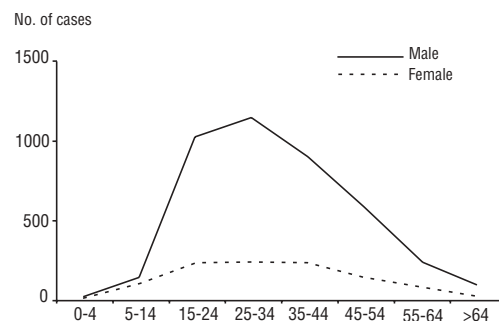
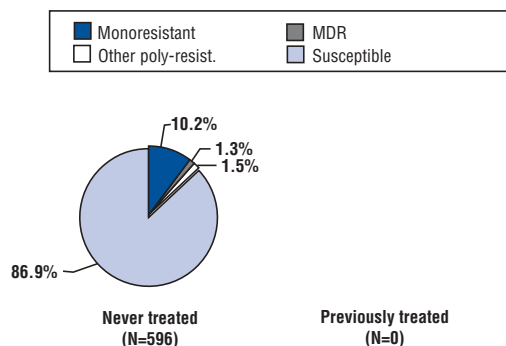
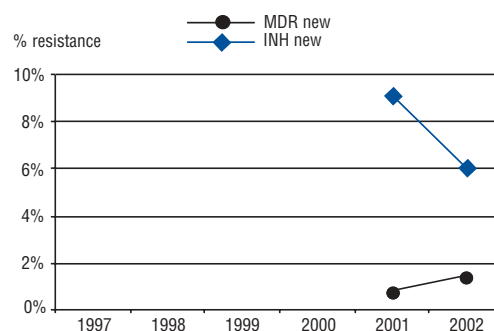
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002

Foreigners not included  
in TB notifications

Tuberculosis cases by age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown

### Tuberculosis case notifications, 2002

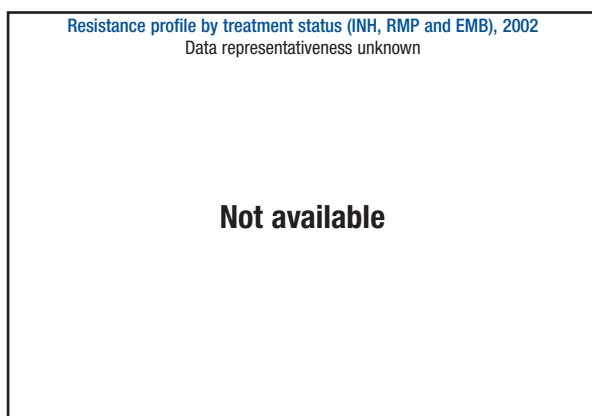
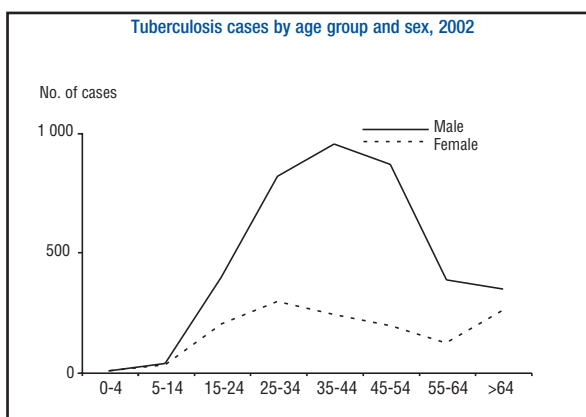
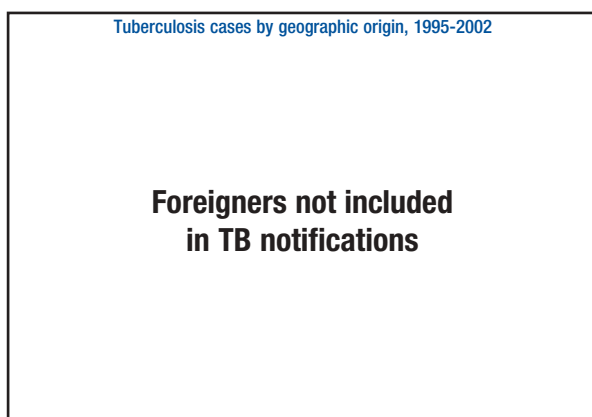
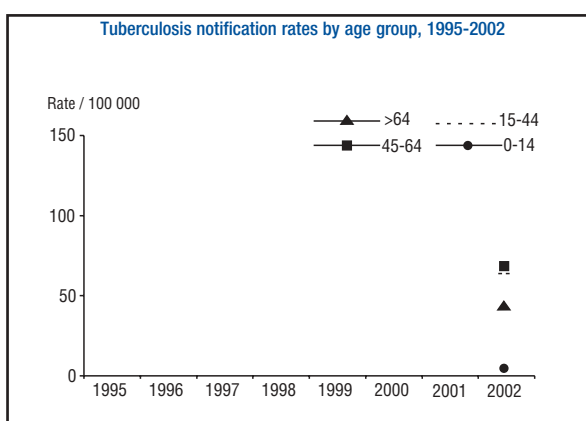
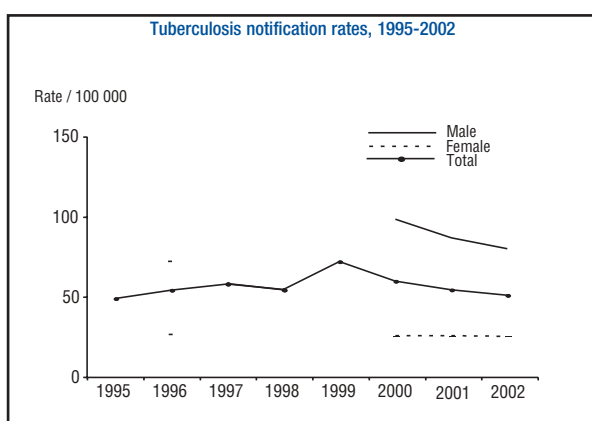
Type of data provided	Aggregate
Total number of cases	5 139
Notification rate per 100 000	51.7
Sex ratio (M:F)	2.8
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	4 432 (86.2%)
Culture positive	- -
Respiratory	- -
of which sputum smear positive	- -

### Drug Resistance Surveillance, 2002

Not available

### Treatment Outcome Monitoring, 2001

Not available



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 294
Notification rate per 100 000	12.6
Sex ratio (M:F)	1.9
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Foreign citizens	657 (50.8%)
New (never-treated)	952 (73.6%)
Culture positive	1 014 (78.4%)
Pulmonary	974 (75.3%)
of which sputum smear positive	452 (46.4%)

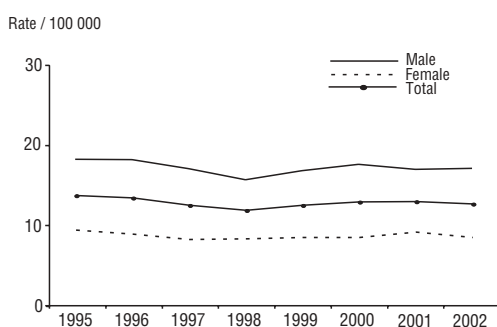
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	national
Linkage with TB case notification	yes
Cases with DST results	806
Cases resistant to INH	61 (7.6%)
Cases resistant to RMP	22 (2.7%)
MDR cases	21 (2.6%)
Cases resistant to EMB	17 (2.1%)
Cases resistant to SM	- -

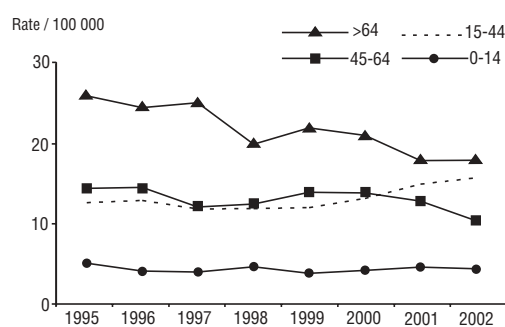
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	534
Success	336 (63%)
Death	49 (9%)
Failure	1 (0%)
Default	5 (1%)
Transfer	12 (2%)
Still on treatment	5 (1%)
Unknown	126 (24%)

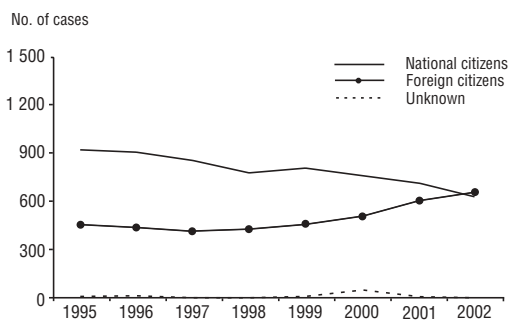
Tuberculosis notification rates by sex, 1995-2002



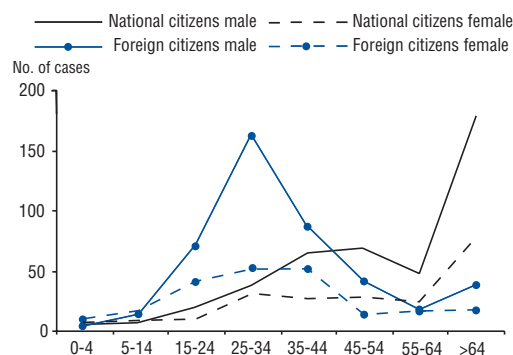
Tuberculosis notification rates by age group, 1995-2002



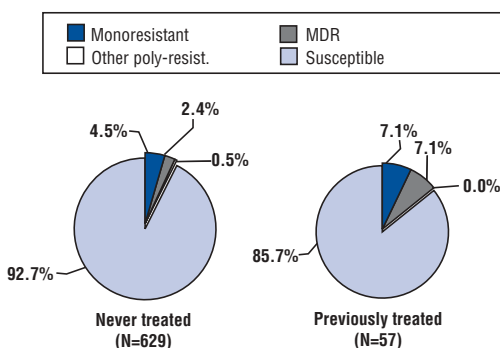
Tuberculosis cases by geographic origin, 1995-2002



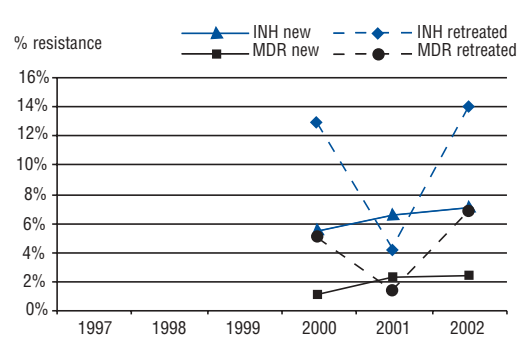
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



### Tuberculosis case notifications, 2002

Type of data provided	Individual*
Total number of cases	2 551
Notification rate per 100 000	61.8
Sex ratio (M:F)	1.5
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Foreign citizens	6 (0.2%)
New (never-treated)	2 298 (90.1%)
Culture positive	1 494 (58.6%)
Pulmonary	2 268 (88.9%)
of which sputum smear positive	899 (39.6%)

\*Federation of Bosnia

### Drug Resistance Surveillance, 2002\*

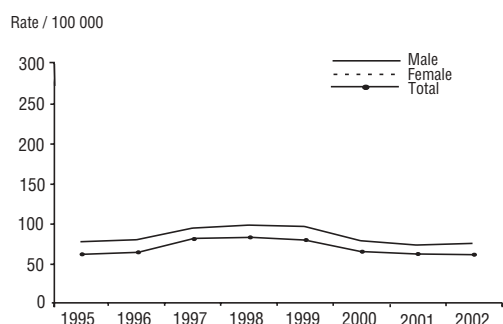
International proficiency testing	yes
Geographic coverage	national
Linkage with TB case notification	yes
Cases with DST results	1 033
Cases resistant to INH	6 (0.6%)
Cases resistant to RMP	4 (0.4%)
MDR cases	4 (0.4%)
Cases resistant to EMB	3 (0.3%)
Cases resistant to SM	2 (0.2%)

\*Federation of Bosnia

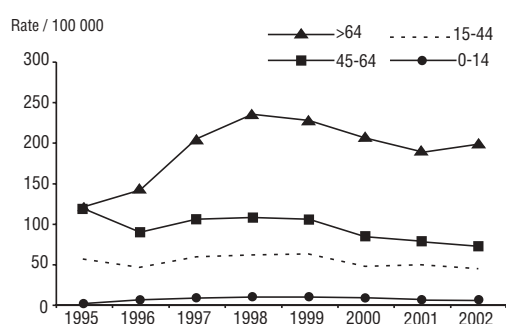
### Treatment Outcome Monitoring, 2000

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	1 147
Success	1 006 (88%)
Death	8 (1%)
Failure	6 (1%)
Default / unknown	16 (1%)
Transfer	10 (1%)
Still on treatment	-
Other not evaluated	101 (9%)

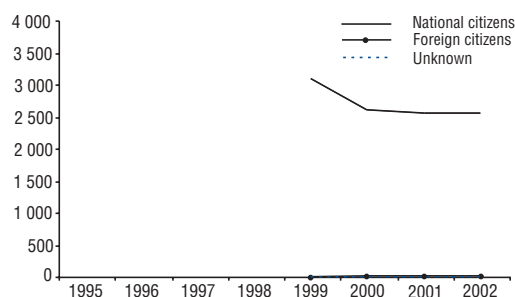
Tuberculosis notification rates by sex, 1995-2002



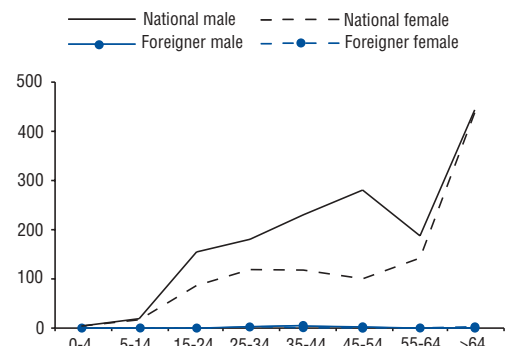
Tuberculosis notification rates by age group, 1995-2002



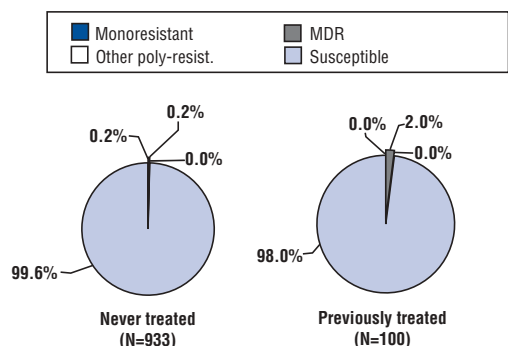
Tuberculosis cases by geographic origin, 1995-2002



Tuberculosis cases by geographic origin, age group and sex, 2002

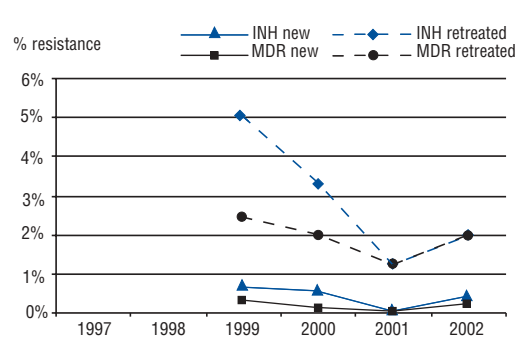


Resistance profile by treatment status (INH, RMP and EMB) 2002\*



\* Federation of Bosnia

Resistance to INH and MDR by treatment status, 1997-2002\*\*



\*\*Federation of Bosnia only in 2002

## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	3 335
Notification rate per 100 000	41.9
Sex ratio (M:F)	2.0
Median age-group (all cases)	45-54 years
Median age-group, non-nationals	-
Foreign born/citizens	-
New (never-treated)	2 962 (88.8%)
Culture positive	1 626 (48.8%)
Respiratory	2 942 (88.2%)
of which sputum smear positive	1 380 (46.9%)

## Drug Resistance Surveillance, 2002

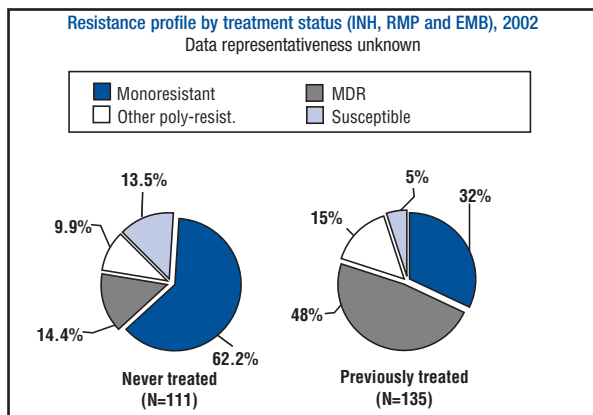
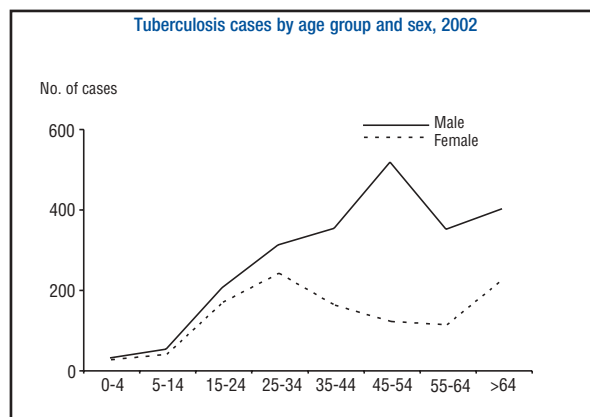
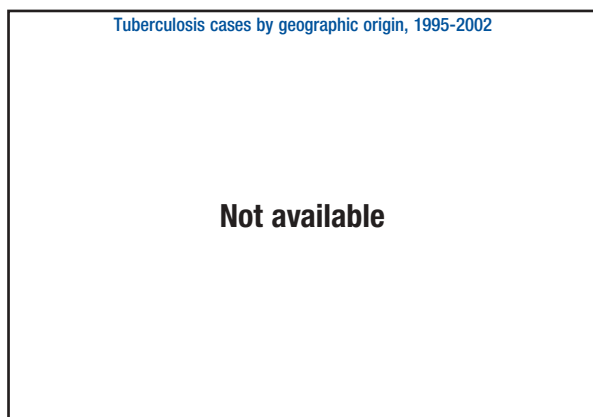
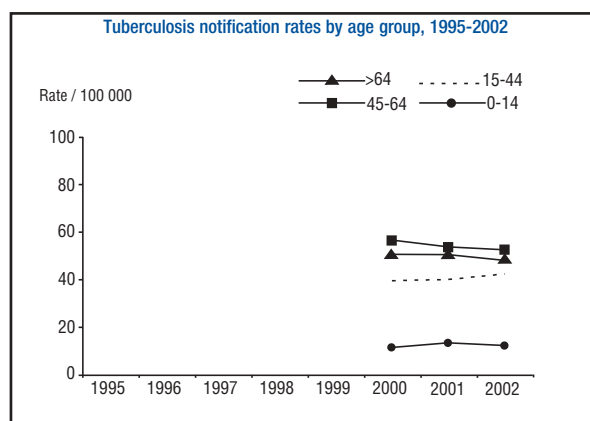
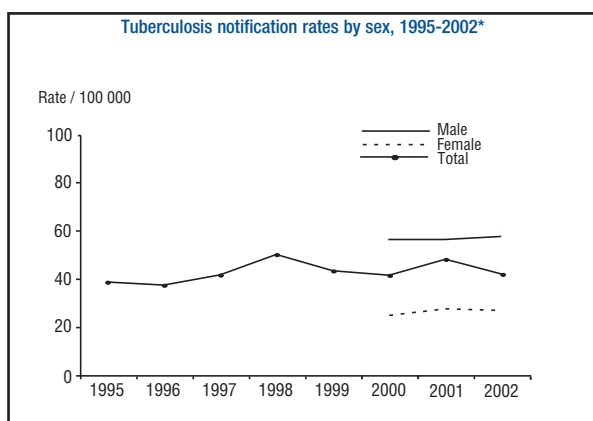
International proficiency testing	No
Geographic coverage	partial
Linkage with TB case notification	yes
Cases with DST results	246
Cases resistant to INH	150 (61.0%)
Cases resistant to RMP	122 (49.6%)
MDR cases	81 (32.9%)
Cases resistant to EMB	-
Cases resistant to SM	-

Data representativeness unknown

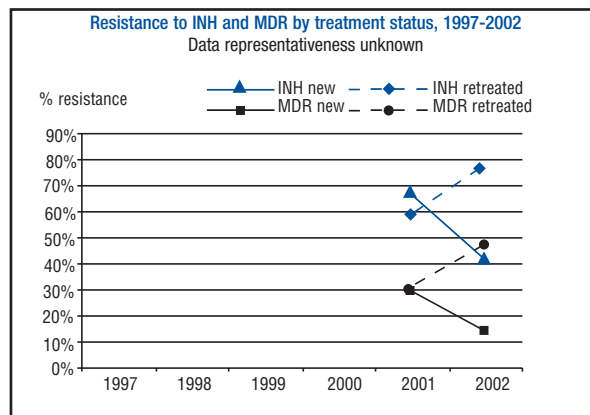
## Treatment Outcome Monitoring, 2001

Geographic coverage	DOTS areas
Cohort	new pulmonary smear positive §
Included in TOM cohort	380
Success	329 (87%)
Death	14 (4%)
Failure	16 (4%)
Default	12 (3%)
Transfer	9 (2%)
Still on treatment	0 (0%)
Unknown	0 (0%)

§ Cases with both smear and culture positive



\* 14% with sex unknown in 2001



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 470
Notification rate per 100 000	33.1
Sex ratio (M:F)	1.7
Median age-group, nationals	45-54 years
Median age-group, non-nationals	45-54 years
Individuals born abroad*	168 (11.4%)
New (never-treated)	1 340 (91.2%)
Culture positive	844 (57.4%)
Pulmonary	1 323 (90.0%)
of which sputum smear positive	494 (37.3%)

\* 35% of cases with unknown origin

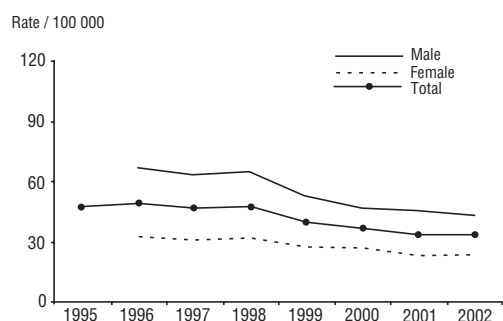
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	844
Cases resistant to INH	17 (2.0%)
Cases resistant to RMP	9 (1.1%)
MDR cases	6 (0.7%)
Cases resistant to EMB	4 (0.5%)
Cases resistant to SM	9 (1.1%)

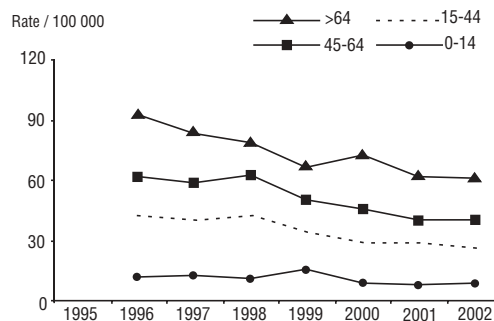
## Treatment Outcome Monitoring, 2001

Not available

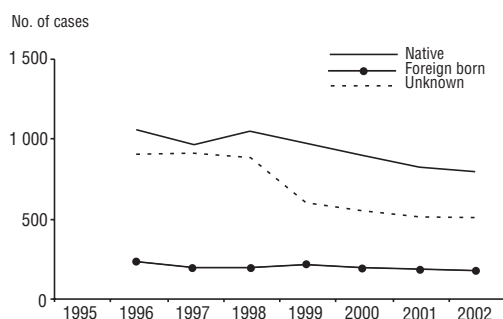
Tuberculosis notification rates by sex, 1995-2002



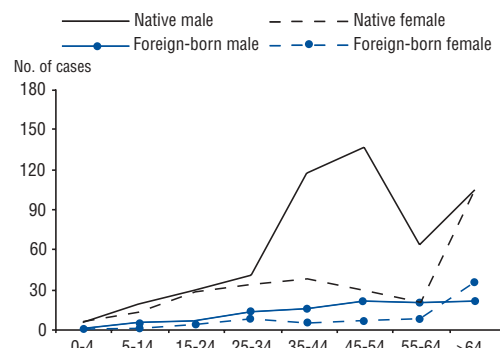
Tuberculosis notification rates by age group, 1995-2002



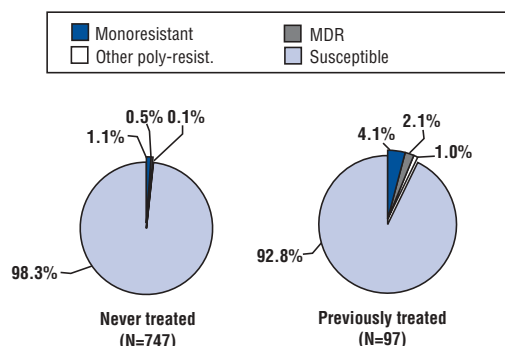
Tuberculosis cases by geographic origin, 1995-2002



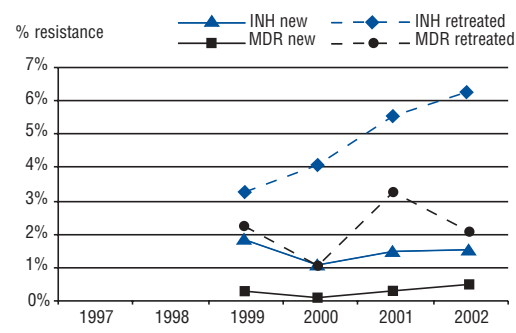
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual**
Total number of cases	20
Notification rate per 100 000	2.5
Sex ratio (M:F)	1.9
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	7 (35.0%)
New (never-treated)	18 (90.0%)
Culture positive	13 (65.0%)
Pulmonary	14 (70.0%)
of which sputum smear positive	10 (71.4%)

\*\* Except DST results

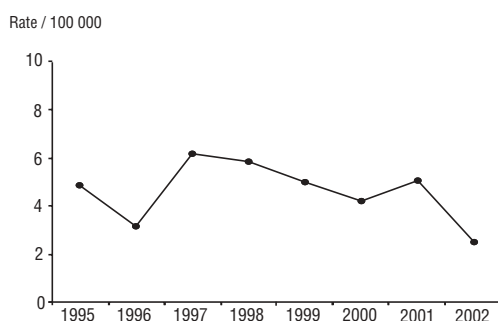
## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	national
Linkage with TB case notification	Yes
Cases with DST results	7
Cases resistant to INH	1 (14.3%)
Cases resistant to RMP	1 (14.3%)
MDR cases	1 (14.3%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	2 (28.6%)
Data representativeness unknown	

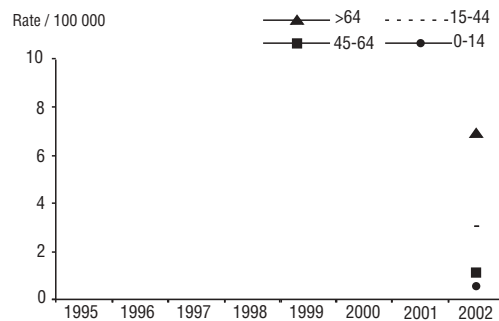
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	25
Success	23 (92%)
Death	0 (0%)
Failure	0 (0%)
Default	0 (0%)
Transfer	2 (8%)
Still on treatment	0 (0%)
Unknown	0 (0%)

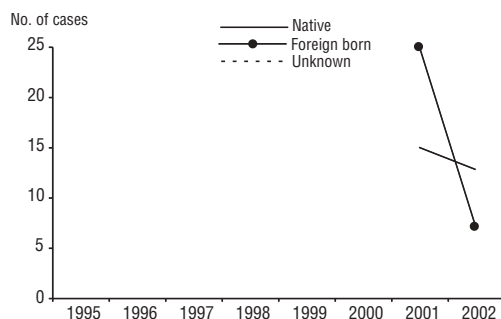
Tuberculosis notification rates, 1995-2002



Tuberculosis notification rates by age group, 1995-2002\*

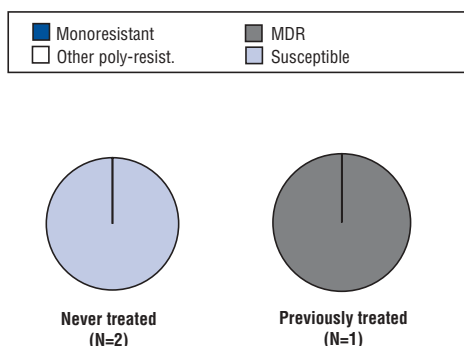
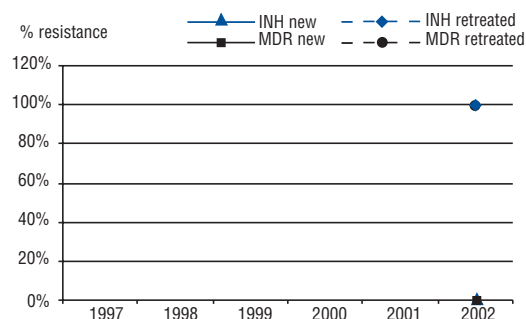


Tuberculosis cases by geographic origin, 1995-2002\*



Tuberculosis cases by geographic origin, age group and sex, 2002

**Insufficient number  
of cases for graphic  
presentation**

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 200
Notification rate per 100 000	11.7
Sex ratio (M:F)	1.8
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	164 (13.7%)
New (never-treated)	1 156 (96.3%)
Culture positive	758 (63.2%)
Pulmonary	923 (76.9%)
of which sputum smear positive	337 (36.5%)

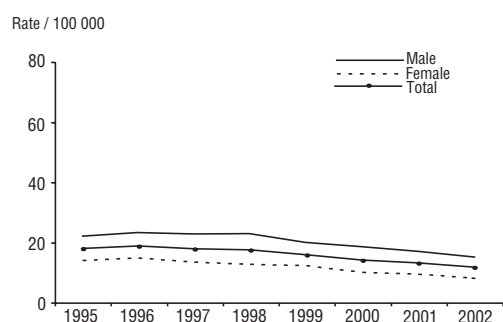
## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	510
Cases resistant to INH	20 (3.9%)
Cases resistant to RMP	12 (2.4%)
MDR cases	10 (2.0%)
Cases resistant to EMB	8 (1.6%)
Cases resistant to SM	17 (3.3%)

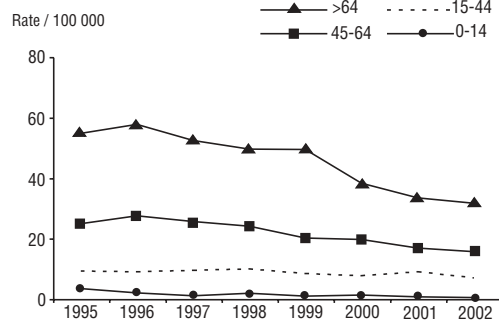
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	704
Success	487 (69%)
Death	33 (5%)
Failure	2 (0%)
Default	10 (1%)
Transfer	2 (0%)
Still on treatment	0 (0%)
Unknown	170 (24%)

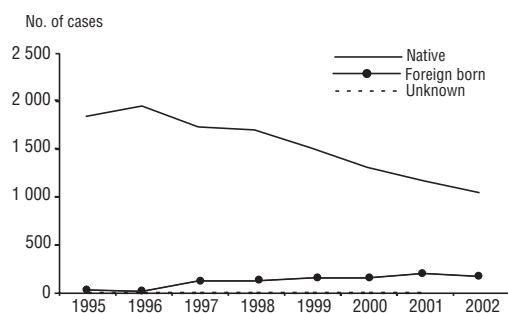
Tuberculosis notification rates by sex, 1995-2002



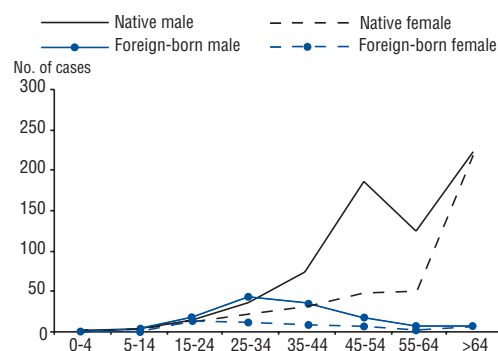
Tuberculosis notification rates by age group, 1995-2002



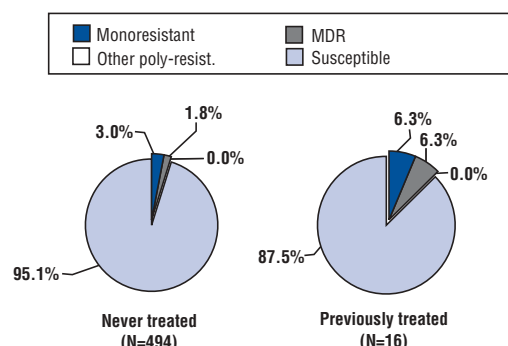
Tuberculosis cases by geographic origin, 1995-2002



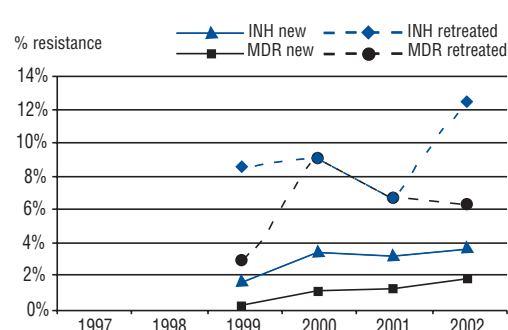
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	419
Notification rate per 100 000	7.8
Sex ratio (M:F)	1.2
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	257 (61.3%)
New (never-treated)	386 (92.1%)
Culture positive	320 (76.4%)
Pulmonary	308 (73.5%)
of which sputum smear positive	150 (48.7%)

## Drug Resistance Surveillance, 2002

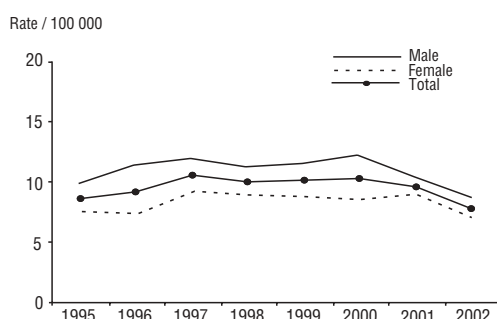
International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	307
Cases resistant to INH	16 (5.2%)
Cases resistant to RMP	2 (0.7%)
MDR cases	1 (0.3%)
Cases resistant to EMB	4 (1.3%)
Cases resistant to SM	33 (10.7%)

## Treatment Outcome Monitoring, 2001

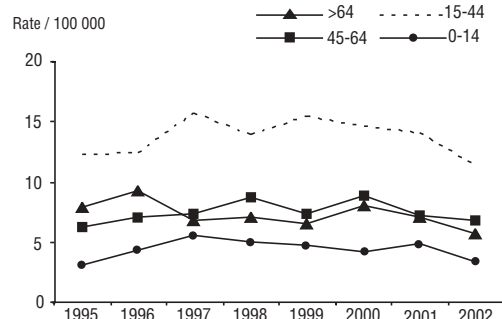
Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	196*
Success	173 (88%)
Death	6 (3%)
Failure	0 (0%)
Default	1 (1%)
Transfer	5 (3%)
Still on treatment	0 (0%)
Unknown	11 (6%)

\* 84% of cases notified

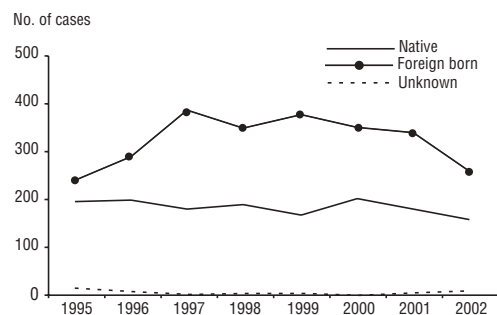
Tuberculosis notification rates by sex, 1995-2002



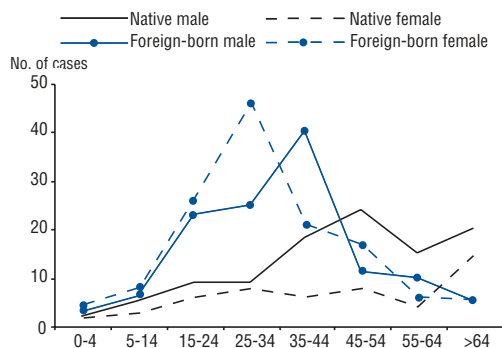
Tuberculosis notification rates by age group, 1995-2002



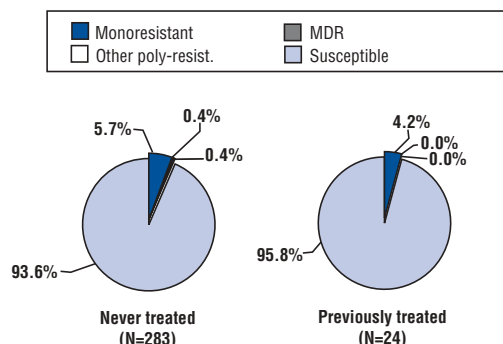
Tuberculosis cases by geographic origin, 1995-2002



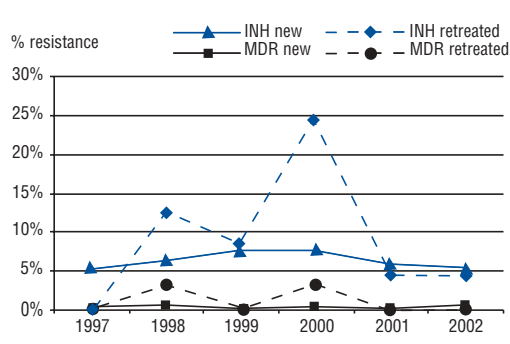
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



### Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	713
Notification rate per 100 000	53.3
Sex ratio (M:F)	2.3
Median age-group, nationals	45-54 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	140 (19.6%)
New (never-treated)	525 (73.6%)
Culture positive	535 (75.0%)
Pulmonary	628 (88.1%)
of which sputum smear positive	298 (47.5%)

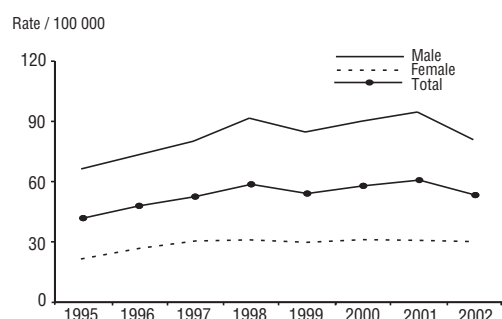
### Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	533
Cases resistant to INH	180 (33.8%)
Cases resistant to RMP	140 (26.3%)
MDR cases	139 (26.1%)
Cases resistant to EMB	134 (25.1%)
Cases resistant to SM	178 (33.4%)

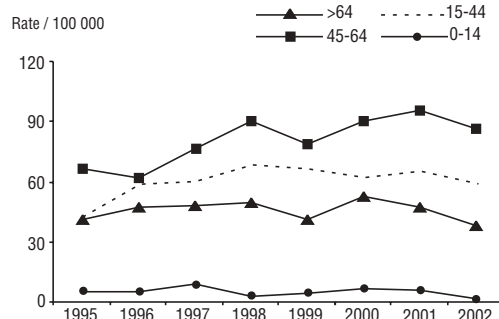
### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	351
Success	238 (68%)
Death	30 (9%)
Failure	8 (2%)
Default	40 (11%)
Transfer	0 (0%)
Still on treatment	35 (10%)
Unknown	0 (0%)

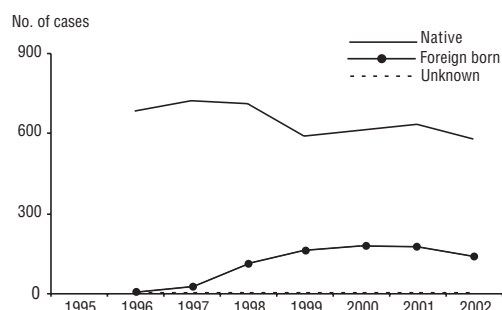
Tuberculosis notification rates by sex, 1995-2002\*



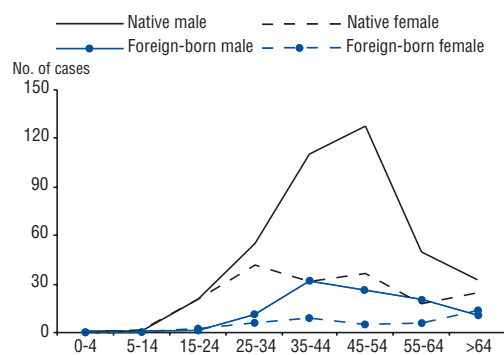
Tuberculosis notification rates by age group, 1995-2002\*



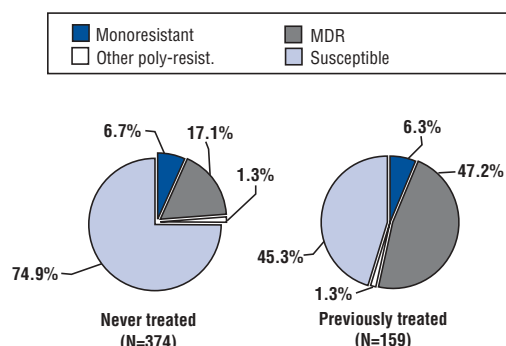
Tuberculosis cases by geographic origin, 1995-2002\*



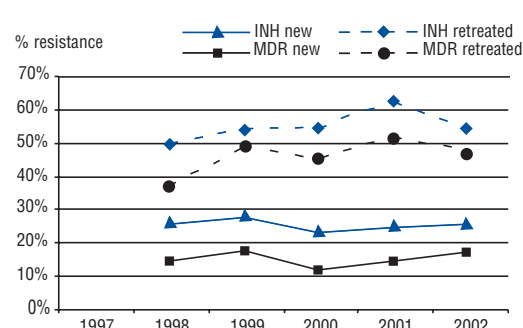
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002\*



\* Retreated cases other than relapses included since 2001

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	473
Notification rate per 100 000	9.1
Sex ratio (M:F)	1.3
Median age-group, nationals	65+ years
Median age-group, non-nationals	25-34 years
Individuals born abroad	43 (9.1%)
New (never-treated)	404 (85.4%)
Culture positive	391 (82.7%)
Pulmonary	295 (62.4%)
of which sputum smear positive	128 (43.4%)

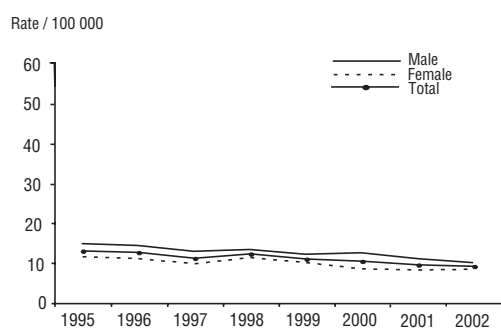
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	384
Cases resistant to INH	0 (0.0%)
Cases resistant to RMP	0 (0.0%)
MDR cases	0 (0.0%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	0 (0.0%)

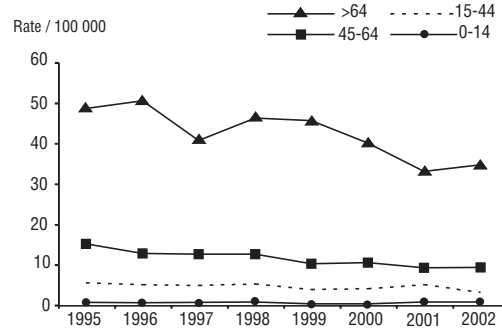
## Treatment Outcome Monitoring, 2001

Not available

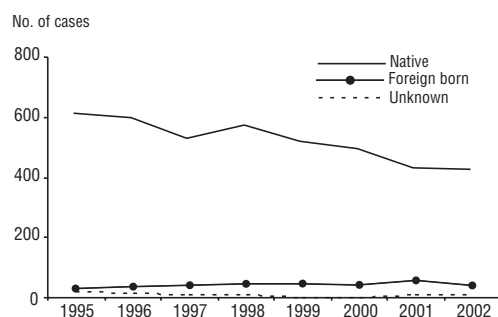
Tuberculosis notification rates by sex, 1995-2002



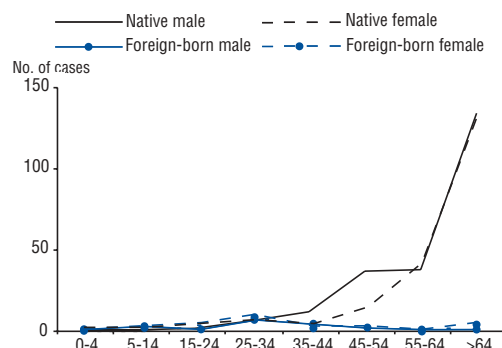
Tuberculosis notification rates by age group, 1995-2002



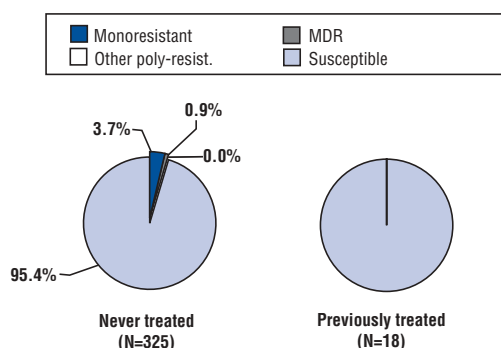
Tuberculosis cases by geographic origin, 1995-2002



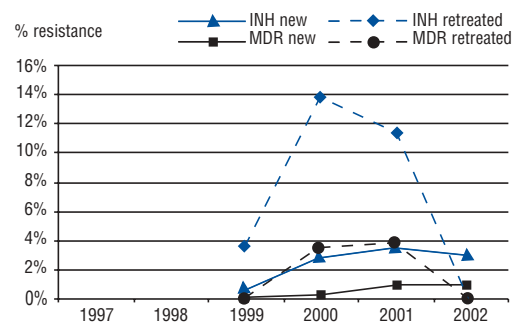
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual*
Total number of cases	6 322
Notification rate per 100 000	10.3
Sex ratio (M:F)	1.7
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad §	2 564 (40.6%)
New (never-treated)	4 315 (68.3%)
Culture positive **	1 839 (29.1%)
Pulmonary	4 563 (72.2%)
of which sputum smear positive	2 558 (56.1%)

\* Except DST results

§ 17% of cases with missing information

\*\* 60% of cases with culture result not available

## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	national
Linkage with TB case notification	No †
Cases with DST results	1 511
Cases resistant to INH	81 (5.4%)
Cases resistant to RMP	34 (2.3%)
MDR cases	23 (1.5%)
Cases resistant to EMB	15 (1.0%)
Cases resistant to SM	- -

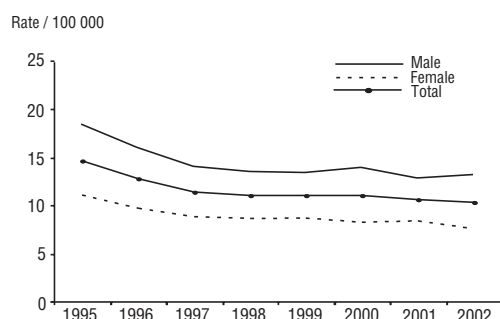
Data representativeness unknown

† TB cases diagnosed in a sentinel network of 28 teaching hospital laboratories

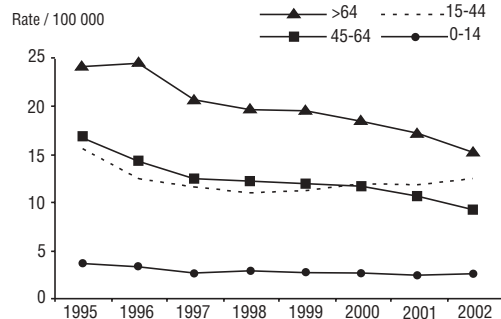
## Treatment Outcome Monitoring, 2001

Not available

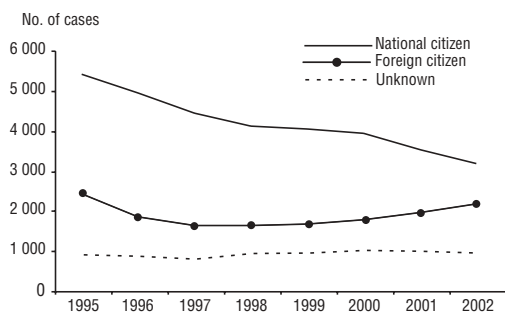
Tuberculosis notification rates by sex, 1995-2002



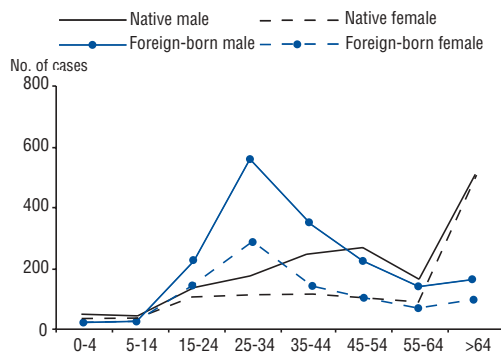
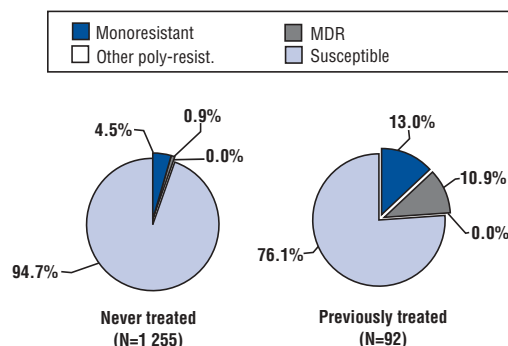
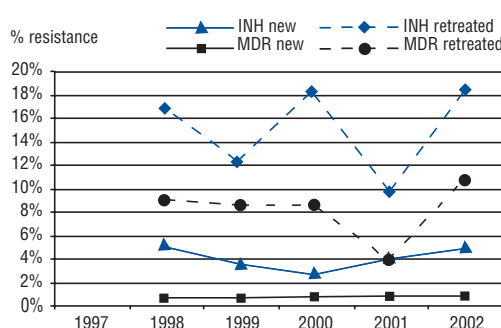
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002 (by citizenship)



Tuberculosis cases by geographic origin, age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown

## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	6 345
Notification rate per 100 000	122.6
Sex ratio (M:F)	2.6
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign born/citizens	-
New (never-treated)	4 390 (69.2%)
Culture positive	-
Pulmonary	5 010 (79.0%)
of which sputum smear positive	1 638 (32.7%)

## Drug Resistance Surveillance, 2002

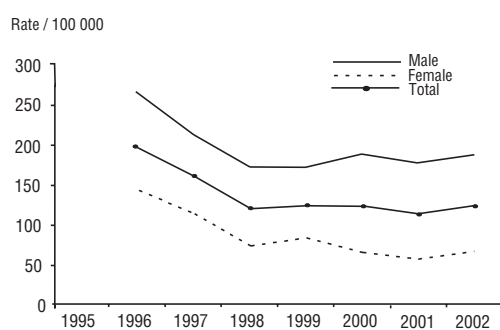
International proficiency testing	No
Geographic coverage	penitentiary system
Linkage with TB case notification	No §
Cases with DST results	183
Cases resistant to INH	85 (46.4%)
Cases resistant to RMP	33 (18.0%)
MDR cases	33 (18.0%)
Cases resistant to EMB	51 (27.9%)
Cases resistant to SM	85 (46.4%)

Data representativeness unknown  
 Culture and DST not routinely performed  
 § Cases in prisoners referred to NRL

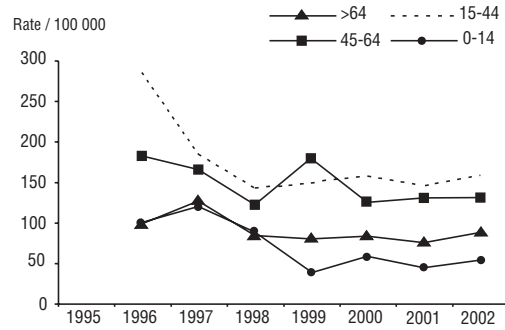
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	1 014
Success	679 (67%)
Death	21 (2%)
Failure	76 (7%)
Default	146 (14%)
Transfer	79 (8%)
Still on treatment	0 (0%)
Unknown	13 (1%)

Tuberculosis notification rates by sex, 1995-2002



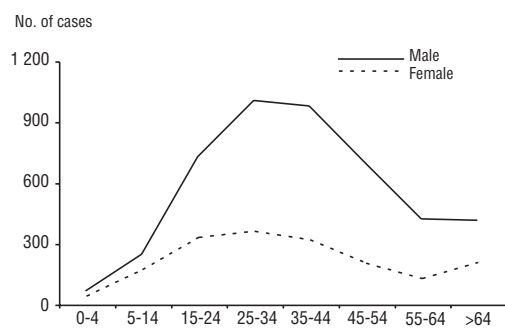
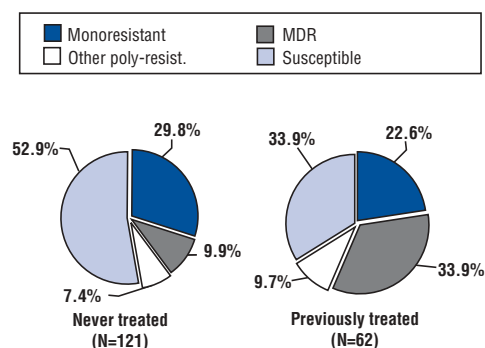
Tuberculosis notification rates by age group, 1995-2002



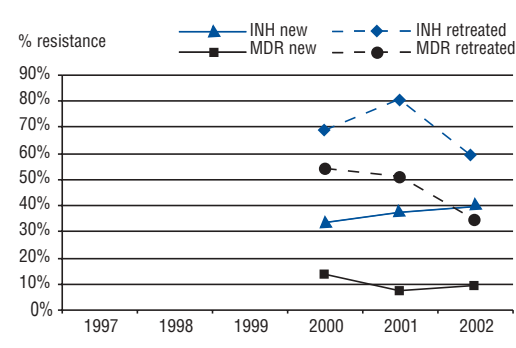
Tuberculosis cases by geographic origin, 1995-2002

Foreigners not included  
 in TB notifications

Tuberculosis cases by age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002 §  
Data representativeness unknown

§ Cases in prisoners

Resistance to INH and MDR by treatment status, 1997-2002\*  
Data representativeness unknown

\* In 2002, only cases in prisoners

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	7 684
Notification rate per 100 000	9.3
Sex ratio (M:F)	1.6
Median age-group, nationals	55-64 years
Median age-group, non-nationals	35-44 years
Foreign born*	2 924 (38.1%)
New (never-treated)	4 623 (60.2%)
Culture positive	4 857 (63.2%)
Pulmonary	5 950 (77.4%)
of which sputum smear positive	2 030 (34.1%)

\* 9% with geographic origin unknown

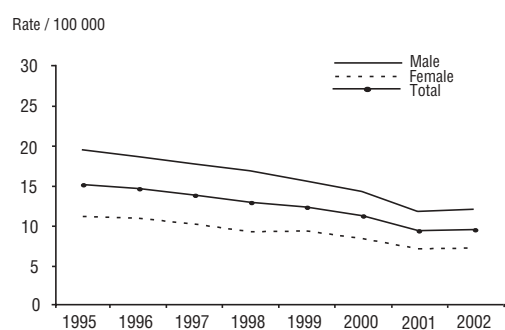
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	4 489
Cases resistant to INH	357 (8.0%)
Cases resistant to RMP	102 (2.3%)
MDR cases	90 (2.0%)
Cases resistant to EMB	96 (2.1%)
Cases resistant to SM	340 (7.6%)

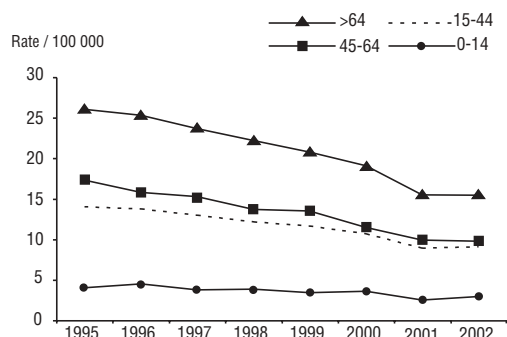
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	2 589
Success	1 718 (66%)
Death	311 (12%)
Failure	3 (0%)
Default	41 (2%)
Transfer	0 (0%)
Still on treatment	127 (5%)
Unknown	389 (15%)

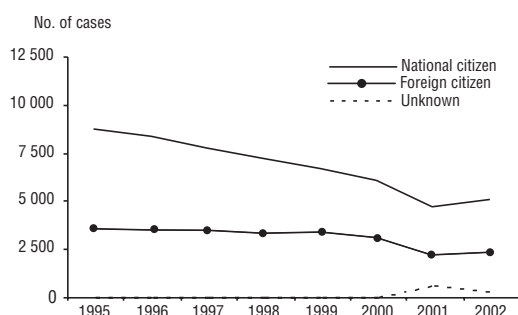
Tuberculosis notification rates by sex, 1995-2002



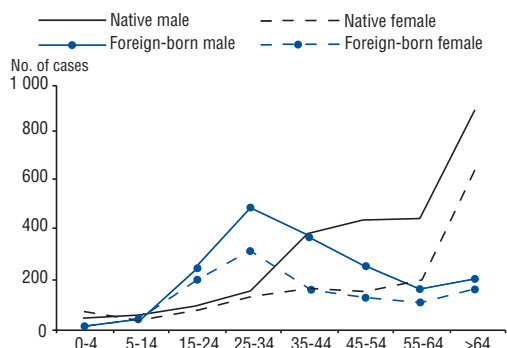
Tuberculosis notification rates by age group, 1995-2002



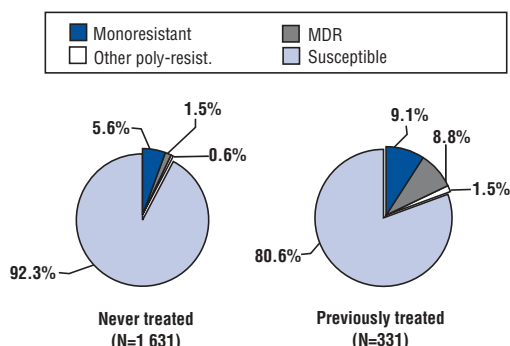
Tuberculosis cases by geographic origin, 1995-2002 (by citizenship)



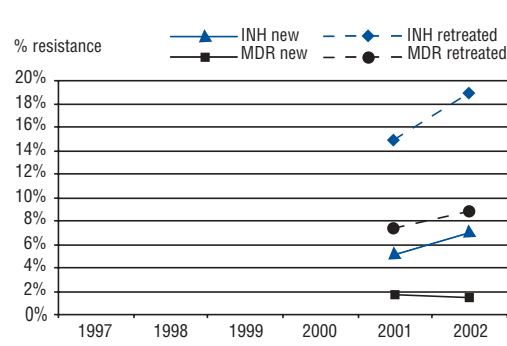
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002





## Tuberculosis case notifications, 2002

Type of data provided	Individual*
Total number of cases	582
Notification rate per 100 000	5.3
Sex ratio (M:F)	2.0
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Foreign citizens	111 (19.1%)
New (never-treated)	541 (93.0%)
Culture positive	271 (46.6%)
Pulmonary	504 (86.6%)
of which sputum smear positive	231 (45.8%)

\* Except for DST results

## Drug Resistance Surveillance, 2002 §

International proficiency testing	No
Geographic coverage	-
Linkage with TB case notification	No §
Cases with DST results	587
Cases resistant to INH	43 (7.3%)
Cases resistant to RMP	26 (4.4%)
MDR cases	22 (3.7%)
Cases resistant to EMB	16 (2.7%)
Cases resistant to SM	41 (7.0%)

Data representativeness unknown

Culture not routinely performed

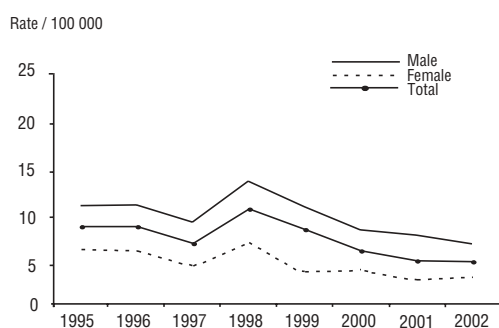
§ New cases only

\$ Data from all laboratories performing DST

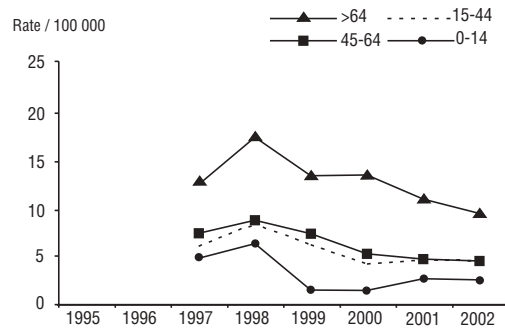
## Treatment Outcome Monitoring, 2001

Not available

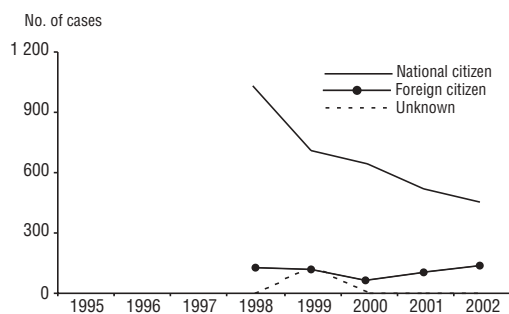
Tuberculosis notification rates by sex, 1995-2002\*\*



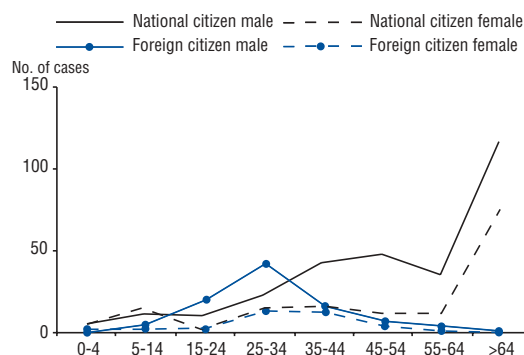
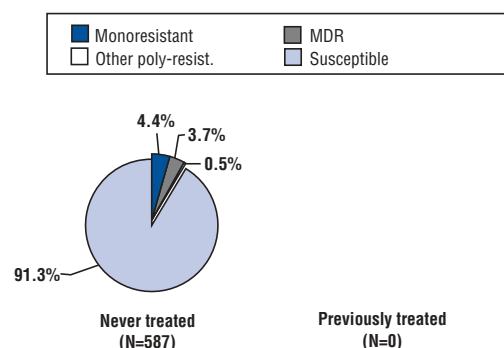
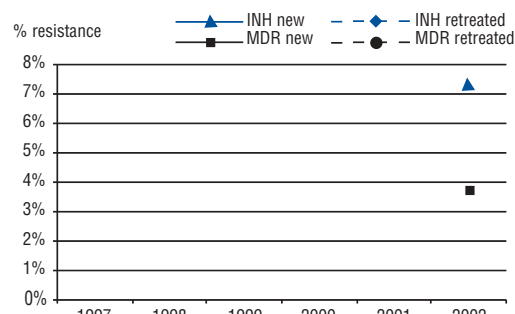
Tuberculosis notification rates by age group, 1995-2002\*\*



Tuberculosis cases by geographic origin, 1995-2002\*



Tuberculosis cases by geographic origin, age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002 §  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002 §  
Data representativeness unknown

\*\* TB case definition changed in 1998

§ New cases only in 2002

### Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	3 007
Notification rate per 100 000	30.3
Sex ratio (M:F)	2.0
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	47 (1.6%)
New (never-treated)	2 507 (83.4%)
Culture positive	954 (31.7%)
Pulmonary	2 789 (92.8%)
of which sputum smear positive	664 (23.8%)

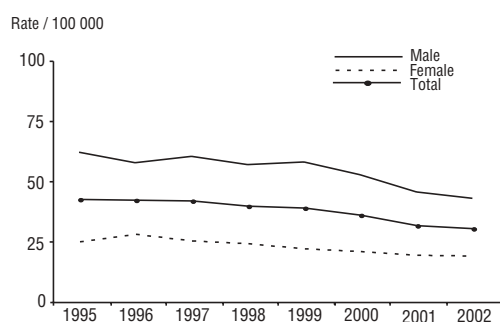
### Drug Resistance Surveillance, 2002

International proficiency testing	yes
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	564
Cases resistant to INH	63 (11.2%)
Cases resistant to RMP	20 (3.5%)
MDR cases	17 (3.0%)
Cases resistant to EMB	16 (2.8%)
Cases resistant to SM	52 (9.2%)
Data representativeness unknown	
Culture and DST not routinely performed	

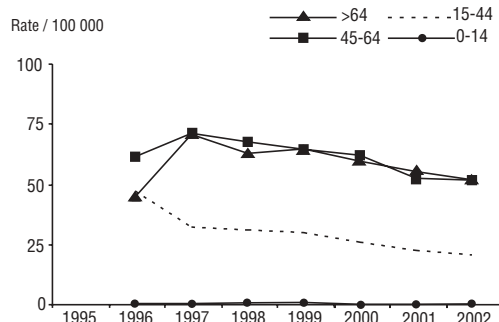
### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	732
Success	392 (54%)
Death	74 (10%)
Failure	73 (10%)
Default	49 (7%)
Transfer	24 (3%)
Still on treatment	113 (15%)
Unknown	7 (1%)

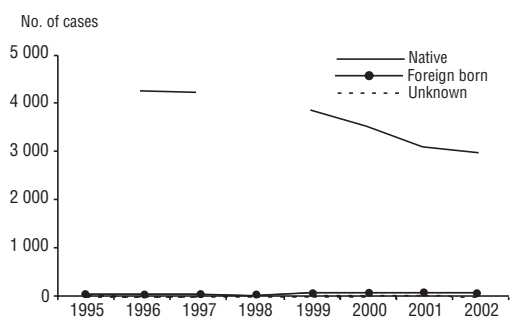
Tuberculosis notification rates by sex, 1995-2002\*



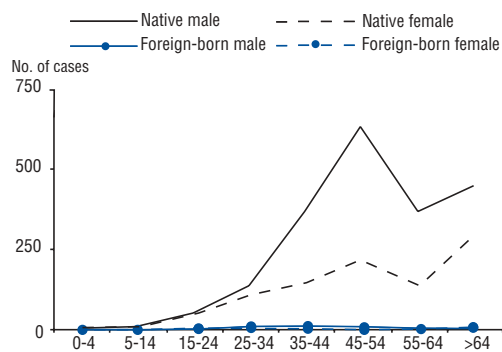
Tuberculosis notification rates by age group, 1995-2002\*



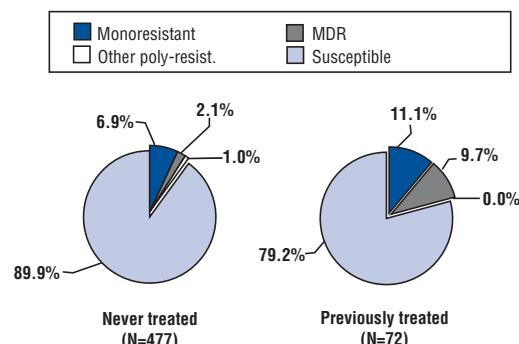
Tuberculosis cases by geographic origin, 1995-2002\*



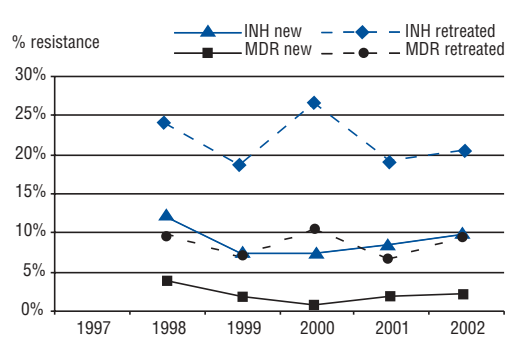
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



\* TB case definitions changed in 1997

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	8
Notification rate per 100 000	2.8
Sex ratio (M:F)	0.6
Median age-group, nationals	15-24 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	3 (37.5%)
New (never-treated)	8 (100.0%)
Culture positive	6 (75.0%)
Pulmonary	6 (75.0%)
of which sputum smear positive	2 (33.3%)

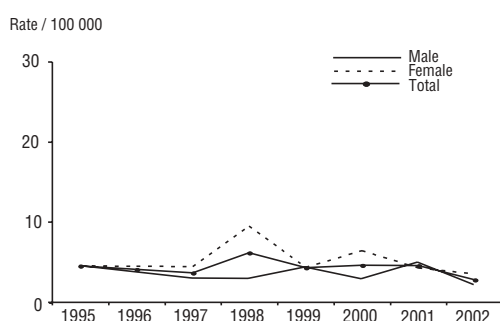
## Drug Resistance Surveillance, 2002

International proficiency testing	yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	6
Cases resistant to INH	0 (0.0%)
Cases resistant to RMP	0 (0.0%)
MDR cases	0 (0.0%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	0 (0.0%)

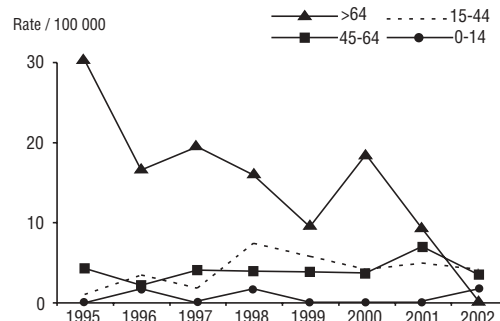
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	7
Success	6 (86%)
Death	0 (0%)
Failure	0 (0%)
Default	1 (14%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	0 (0%)

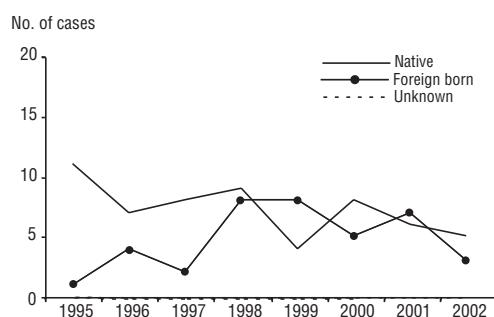
Tuberculosis notification rates by sex, 1995-2002



Tuberculosis notification rates by age group, 1995-2002



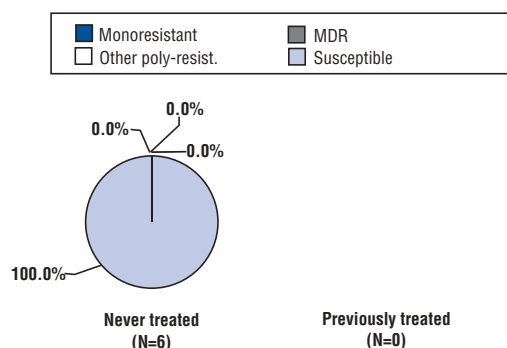
Tuberculosis cases by geographic origin, 1995-2002



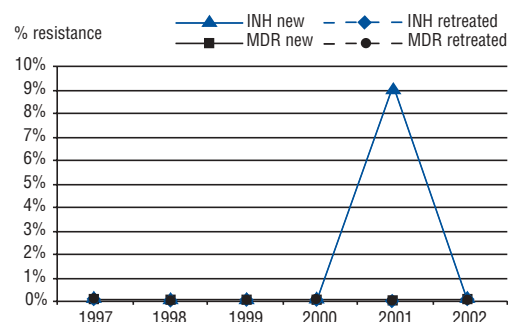
Tuberculosis cases by geographic origin, age group and sex, 2002

Insufficient number  
of cases for graphic  
presentation

Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	406
Notification rate per 100 000	10.4
Sex ratio (M:F)	1.7
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	107 (26.4%)
New (never-treated)	350 (86.2%)
Culture positive *	181 (44.6%)
Pulmonary	297 (73.2%)
of which sputum smear positive	105 (35.4%)

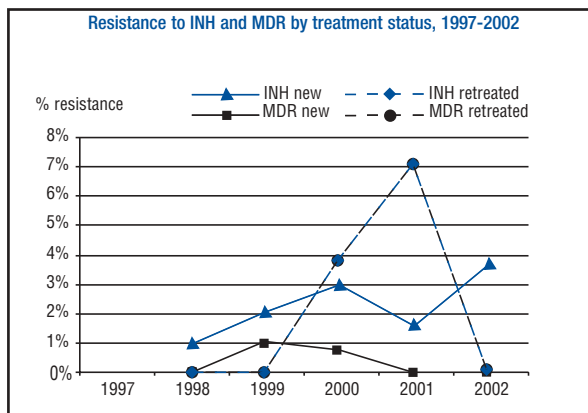
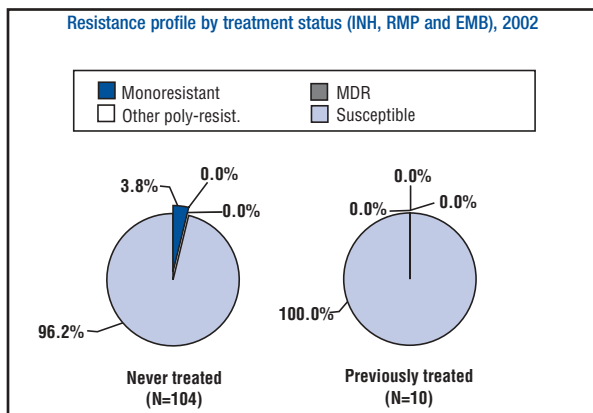
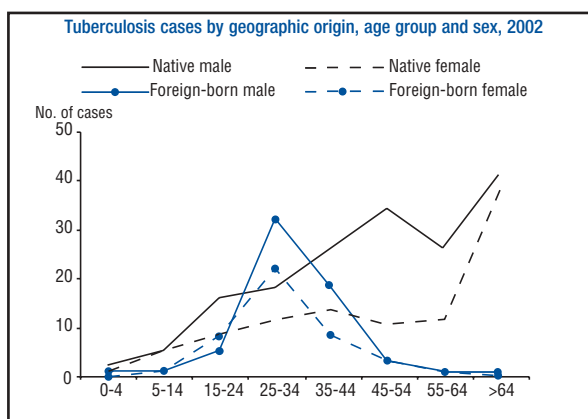
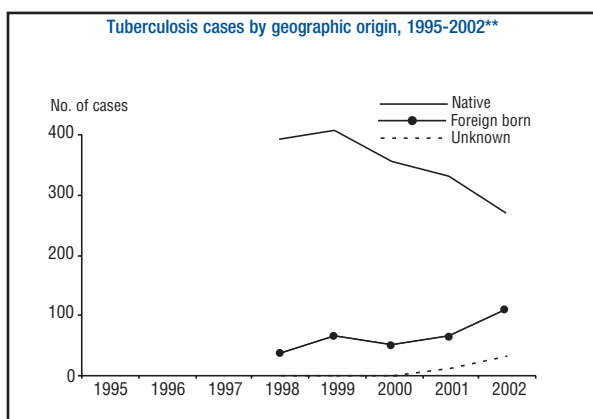
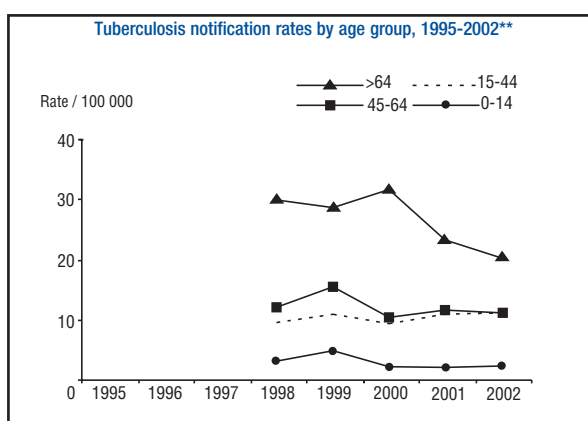
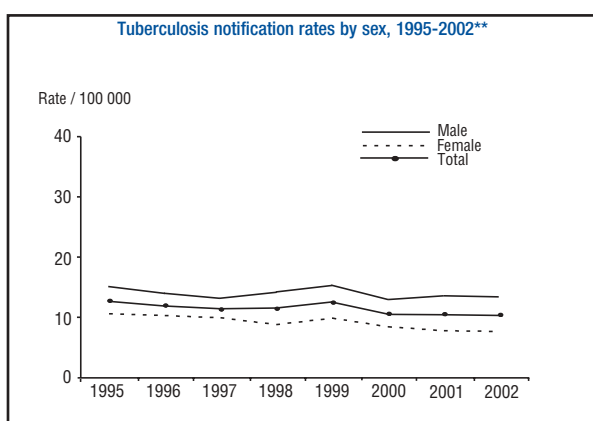
\* 46% with culture result unknown

## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	133
Cases resistant to INH	4 (3.0%)
Cases resistant to RMP	1 (0.8%)
MDR cases	0 (0.0%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	- -

## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	129
Success	76 (59%)
Death	9 (7%)
Failure	1 (1%)
Default	4 (3%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	39 (30%)



\*\* Notification system reorganised in 1998

## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	511
Notification rate per 100 000	8.1
Sex ratio (M:F)	1.1
Median age-group, nationals	25-34 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	432 (84.5%)
New (never-treated)	462 (90.4%)
Culture positive	344 (67.3%)
Pulmonary	392 (76.7%)
of which sputum smear positive	188 (48.0%)

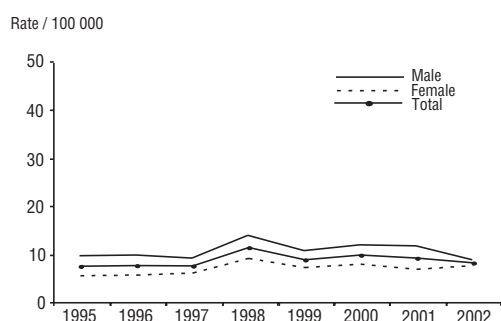
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	344
Cases resistant to INH	56 (16.3%)
Cases resistant to RMP	17 (4.9%)
MDR cases	17 (4.9%)
Cases resistant to EMB	15 (4.4%)
Cases resistant to SM	65 (18.9%)

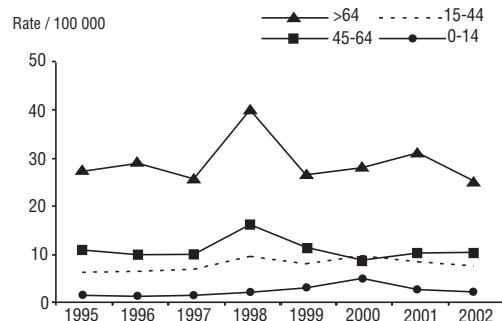
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	288
Success	227 (79%)
Death	25 (9%)
Failure	3 (1%)
Default	17 (6%)
Transfer	8 (3%)
Still on treatment	0 (0%)
Unknown	8 (3%)

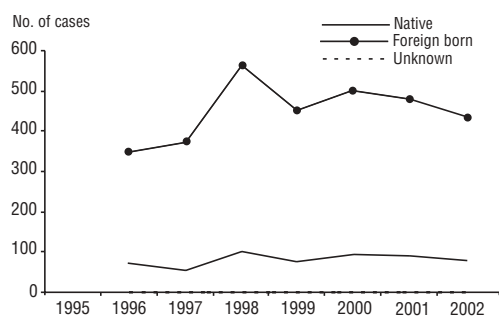
Tuberculosis notification rates by sex, 1995-2002\*



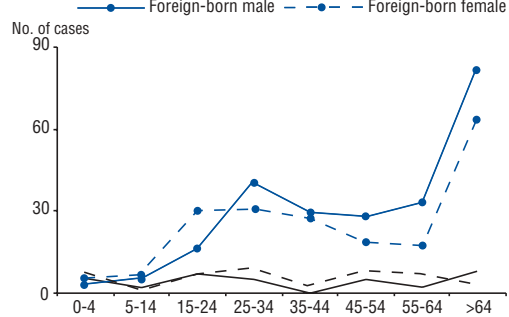
Tuberculosis notification rates by age group, 1995-2002\*



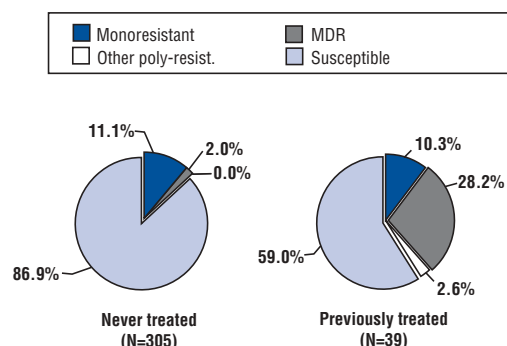
Tuberculosis cases by geographic origin, 1995-2002\*



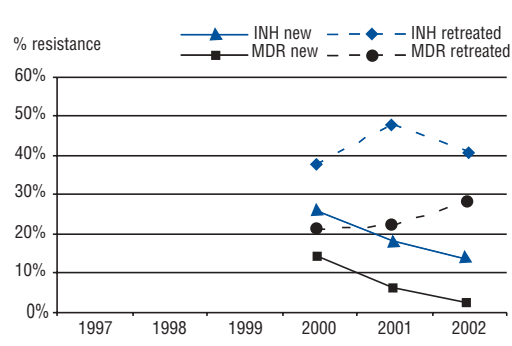
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



\* TB notification system reorganised in 1998

## Tuberculosis case notifications, 2002

Type of data provided	Individual*
Total number of cases	4 212
Notification rate per 100 000	7.3
Sex ratio (M:F)	1.7
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	1 293 (30.7%)
New (never-treated)	2 846 (67.6%)
Culture positive**	1 600 (38.0%)
Pulmonary	3 221 (76.5%)
of which sputum smear positive	1 476 (45.8%)

\* Except for DRS

\*\* 50% of cases with culture result unknown

## Drug Resistance Surveillance, 2002

International proficiency testing	yes
Geographic coverage	8 / 21 regions
Linkage with TB case notification	No §
Cases with DST results	509 -
Cases resistant to INH	81 (15.9%)
Cases resistant to RMP	38 (7.5%)
MDR cases	33 (6.5%)
Cases resistant to EMB	24 (4.7%)
Cases resistant to SM	67 (13.2%)

Data representativeness unknown

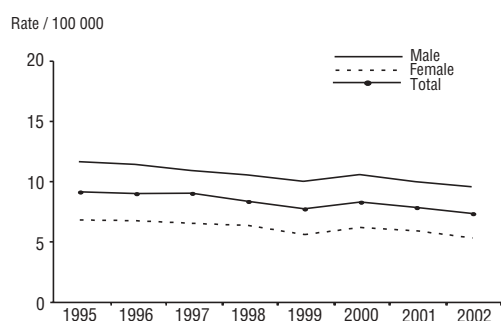
§ Cases diagnosed in a network of 20 laboratories

## Treatment Outcome Monitoring, 2001

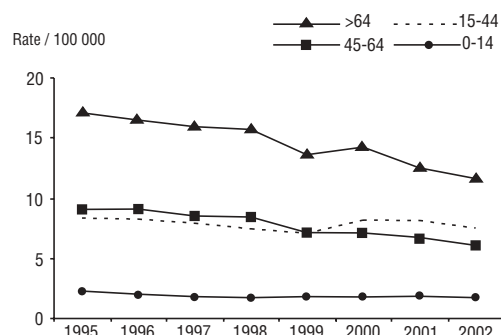
Geographic coverage	selected regions
Cohort	new pulmonary culture positive
Included in TOM cohort	270 §
Success	110 (41%)
Death	2 (1%)
Failure	2 (1%)
Default	12 (4%)
Transfer	26 (10%)
Still on treatment	0 (0%)
Unknown	118 (44%)

§ Cases from selected centres; representativeness unknown

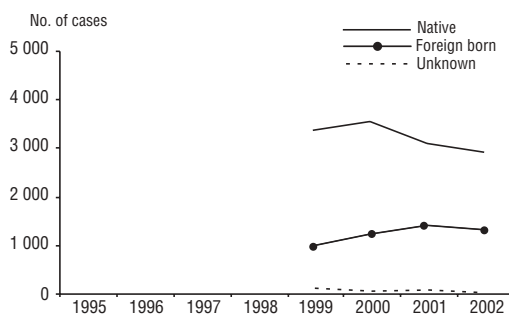
Tuberculosis notification rates by sex, 1995-2002



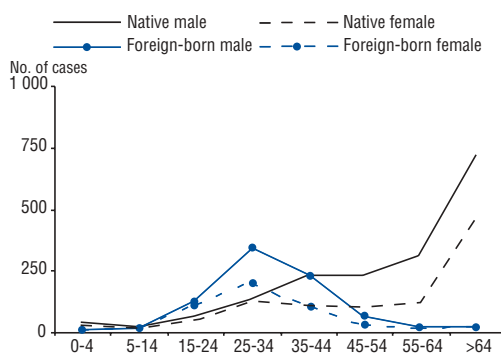
Tuberculosis notification rates by age group, 1995-2002



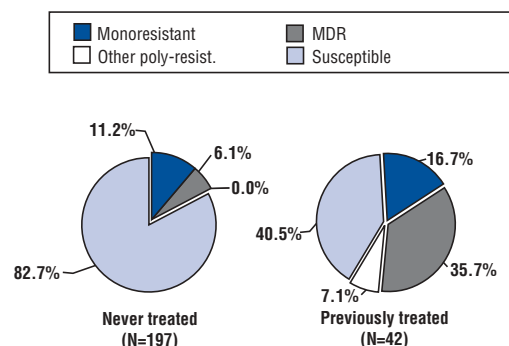
Tuberculosis cases by geographic origin, 1995-2002



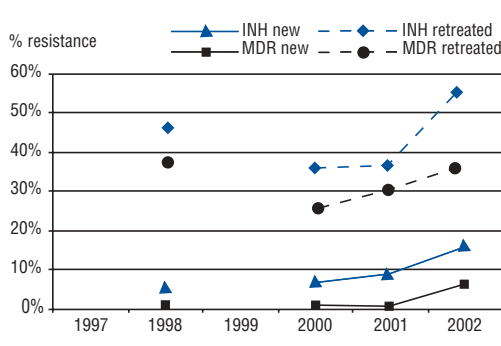
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	32 936
Notification rate per 100 000	212.9
Sex ratio (M:F)	1.4
Median age-group, nationals	25-34 years
Median age-group, non-nationals	-
Foreign born/citizens	-
New (never-treated)	24 478 (74.3%)
Culture positive	3 122 (9.5%)
Pulmonary	31 745 (96.4%)
of which sputum smear positive	15 115 (47.6%)

## Drug Resistance Surveillance, 2001\*

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	No §
Cases with DST results	359 *
Cases resistant to INH	153 (42.6%)
Cases resistant to RMP	56 (15.6%)
MDR cases	51 (14.2%)
Cases resistant to EMB	89 (24.8%)
Cases resistant to SM	185 (51.5%)

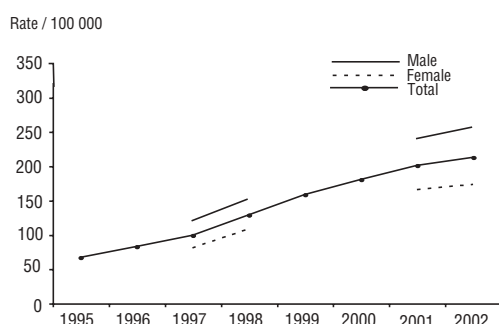
§ Data from nationwide survey

\* New cases; for retreated cases see graphs below

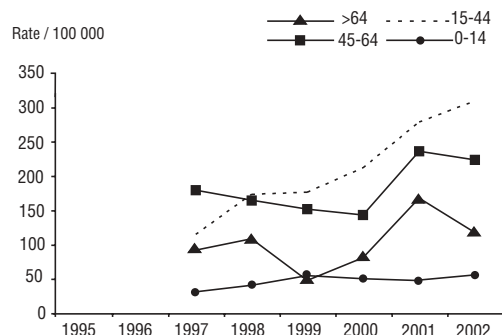
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	8 894
Success	6 922 (78%)
Death	418 (5%)
Failure	1 036 (12%)
Default	325 (4%)
Transfer	193 (2%)
Still on treatment	0 (0%)
Unknown	0 (0%)

Tuberculosis notification rates by sex, 1995-2002



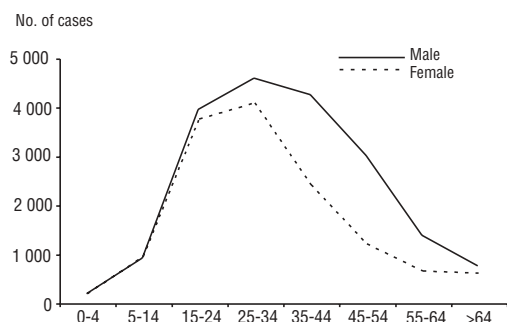
Tuberculosis notification rates by age group, 1995-2002



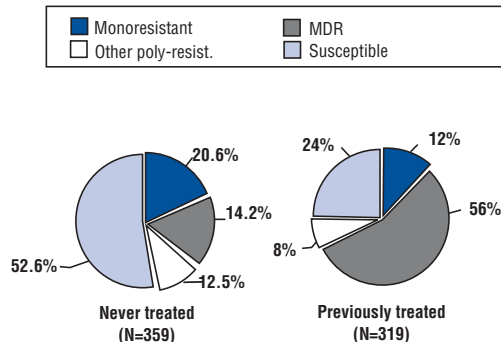
Tuberculosis cases by geographic origin, 1995-2002

**Foreigners not included in TB notifications**

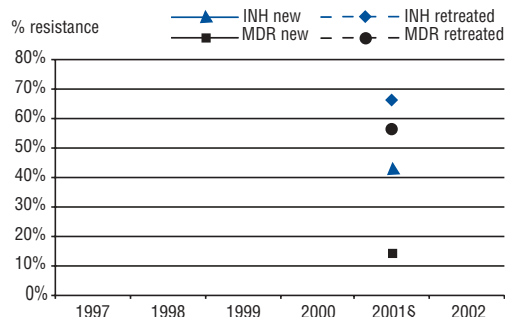
Tuberculosis cases by age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2001 §



Resistance to INH and MDR by treatment status, 1997-2002 §



§ Data from nationwide survey

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	6 794
Notification rate per 100 000	134.1
Sex ratio (M:F)*	1.3
Median age-group, nationals	-
Median age-group, non-nationals	-
Individuals born abroad	-
New (never-treated)	6 172 (90.8%)
Culture positive	638 (9.4%)
Pulmonary	4 334 (63.8%)
of which sputum smear positive	1 945 (44.9%)

\* New cases only

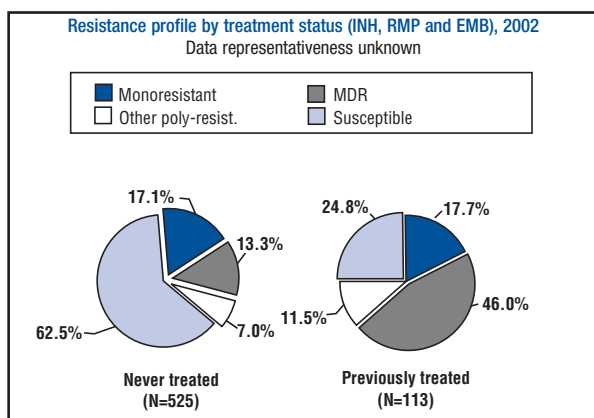
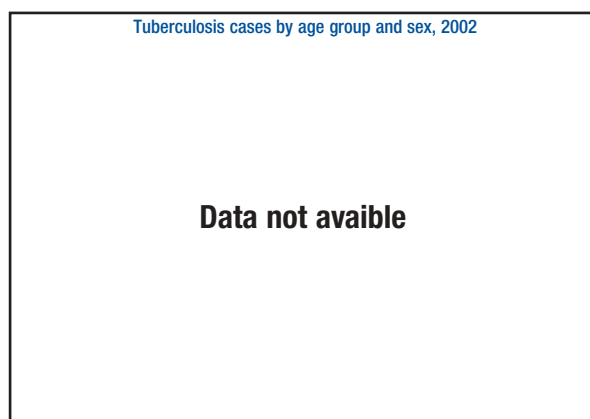
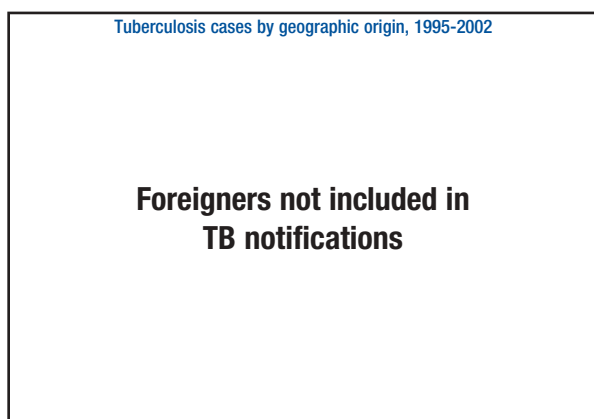
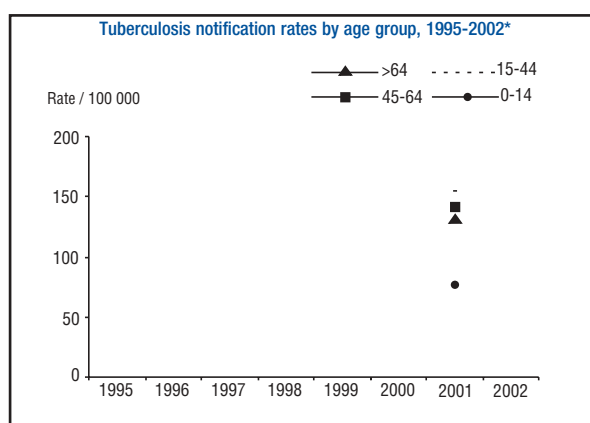
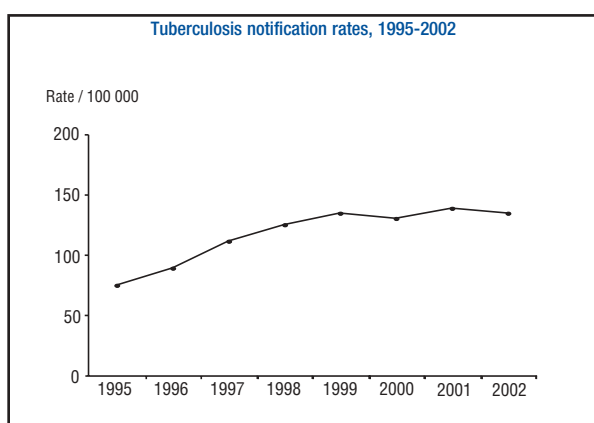
### Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	partial
Linkage with TB case notification	No §
Cases with DST results	638
Cases resistant to INH	264 (41.4%)
Cases resistant to RMP	127 (19.9%)
MDR cases	122 (19.1%)
Cases resistant to EMB	144 (22.6%)
Cases resistant to SM	414 (64.9%)

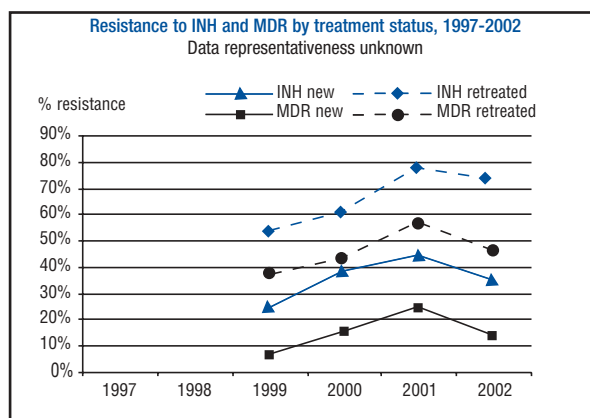
Data representativeness unknown  
Culture and DST not routinely performed  
§ Cases diagnosed at the NRL

### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	1 458
Success	1 181 (81%)
Death	68 (5%)
Failure	84 (6%)
Default	89 (6%)
Transfer	36 (2%)
Still on treatment	0 (0%)
Unknown	0 (0%)



\* New cases only





## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 855
Notification rate per 100 000	79.6
Sex ratio (M:F)	2.2
Median age-group, nationals	35-44 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	114 (6.1%)
New (never-treated)	1 540 (83.0%)
Culture positive	1 296 (69.9%)
Pulmonary	1 624 (87.5%)
of which sputum smear positive	828 (51.0%)

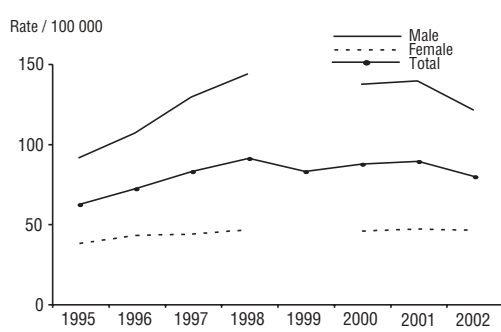
## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	1 249
Cases resistant to INH	425 (34.0%)
Cases resistant to RMP	224 (17.9%)
MDR cases	221 (17.7%)
Cases resistant to EMB	149 (11.9%)
Cases resistant to SM	376 (30.1%)

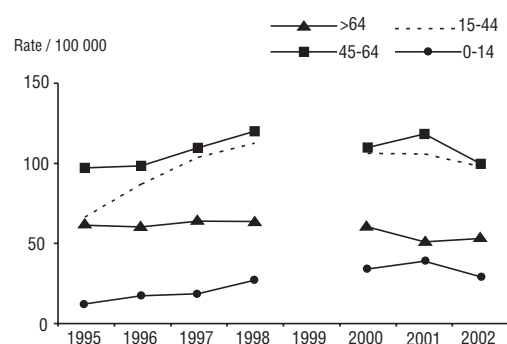
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	1 004
Success	769 (77%)
Death	69 (7%)
Failure	9 (1%)
Default	67 (7%)
Transfer	1 (0%)
Still on treatment	89 (9%)
Unknown	0 (0%)

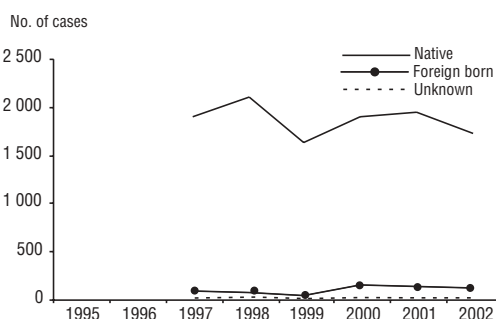
Tuberculosis notification rates by sex, 1995-2002\*



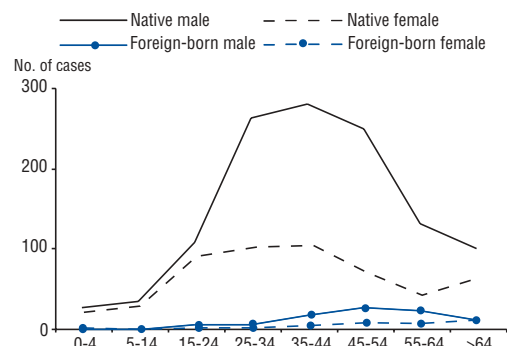
Tuberculosis notification rates by age group, 1995-2002\*



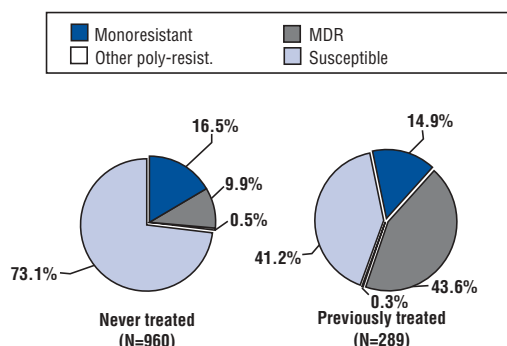
Tuberculosis cases by geographic origin, 1995-2002\*



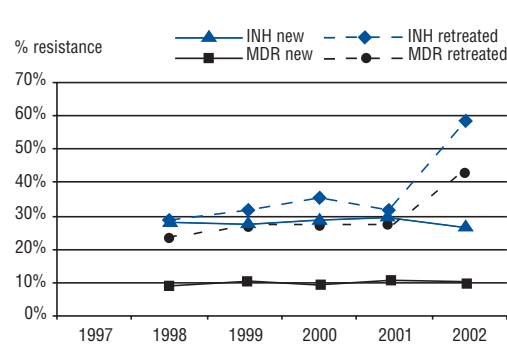
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002\*



\* Retreated cases other than relapses included since 2000

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	2 844
Notification rate per 100 000	82,1
Sex ratio (M:F)	2,3
Median age-group, nationals	45-54 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	133 (4.7%)
New (never-treated)	2 097 (73.7%)
Culture positive	1 544 (54.3%)
Pulmonary	2 351 (82.7%)
of which sputum smear positive	1 202 (51.1%)

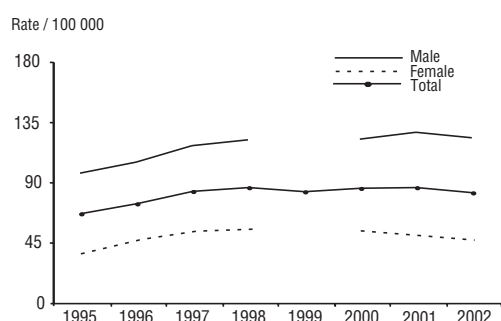
### Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	1 343
Cases resistant to INH	471 (35.1%)
Cases resistant to RMP	302 (22.5%)
MDR cases	297 (22.1%)
Cases resistant to EMB	216 (16.1%)
Cases resistant to SM	418 (31.1%)

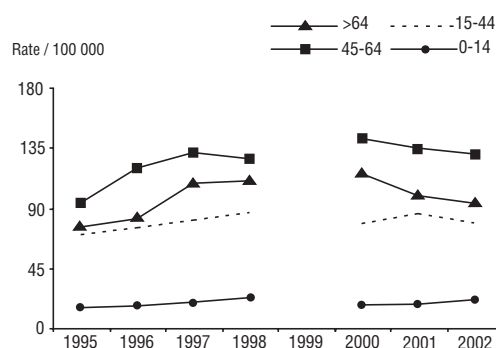
### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	1 142
Success	844 (74%)
Death	112 (10%)
Failure	26 (2%)
Default	130 (11%)
Transfer	4 (0%)
Still on treatment	26 (2%)
Unknown	0 (0%)

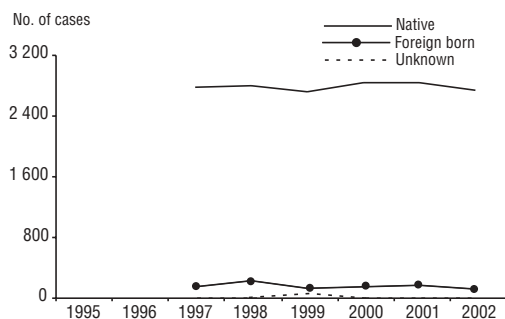
Tuberculosis notification rates by sex, 1995-2002\*



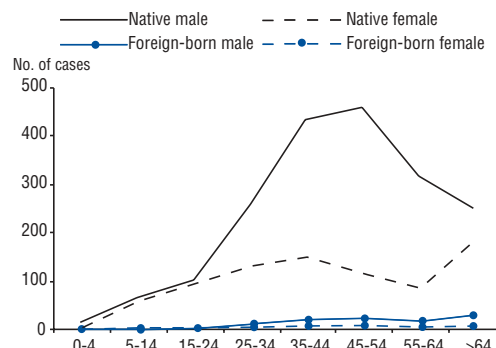
Tuberculosis notification rates by age group, 1995-2002\*



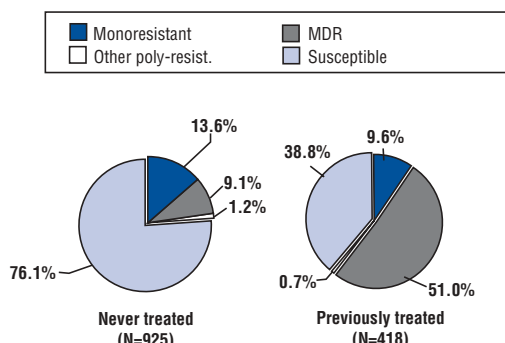
Tuberculosis cases by geographic origin, 1995-2002\*



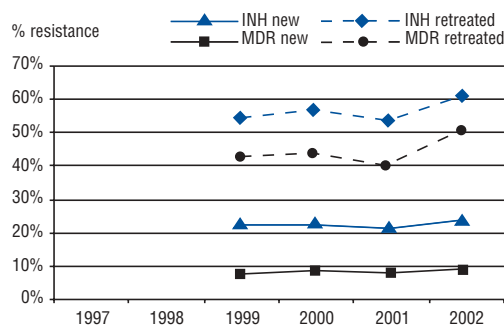
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002\*



\* Retreated cases other than relapses included since 2001

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	32
Notification rate per 100 000	7.2
Sex ratio (M:F)	1.3
Median age-group, nationals	55-64 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	13 (40.6%)
New (never-treated)	31 (96.9%)
Culture positive	32 (100.0%)
Pulmonary	28 (87.5%)
of which sputum smear positive	18 (64.3%)

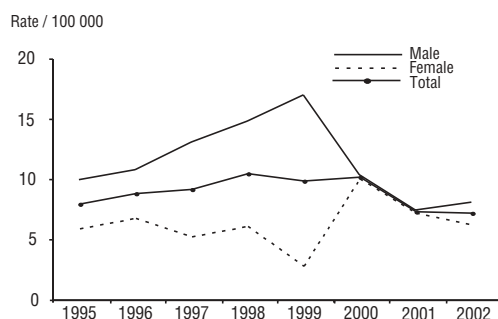
## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	32
Cases resistant to INH	0 (0.0%)
Cases resistant to RMP	0 (0.0%)
MDR cases	0 (0.0%)
Cases resistant to EMB	3 (9.4%)
Cases resistant to SM	0 (0.0%)

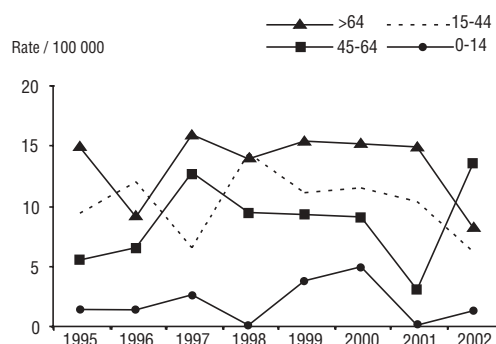
## Treatment Outcome Monitoring, 2001

Not available

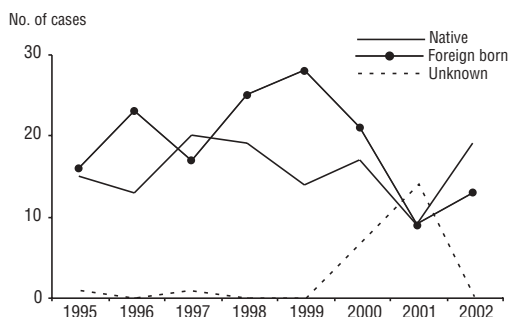
Tuberculosis notification rates by sex, 1995-2002



Tuberculosis notification rates by age group, 1995-2002



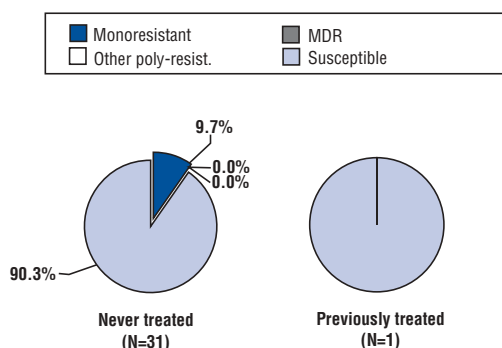
Tuberculosis cases by geographic origin, 1995-2002



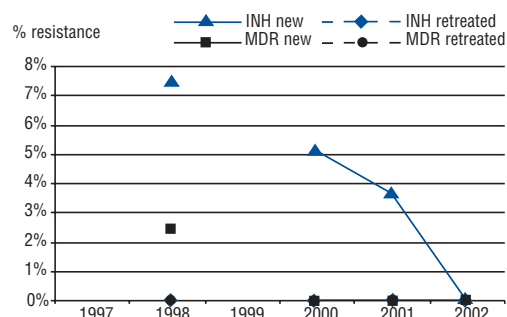
Tuberculosis cases by geographic origin, age group and sex, 2002

Insufficient number of cases for graphic presentation

Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	730
Notification rate per 100 000	35.7
Sex ratio (M:F)	1.4
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Foreign born/citizens	31 (4.2%)
New (never-treated)	646 (88.5%)
Culture positive	142 (19.5%)
Pulmonary	557 (76.3%)
of which sputum smear positive	240 (43.1%)

### Drug Resistance Surveillance, 2002

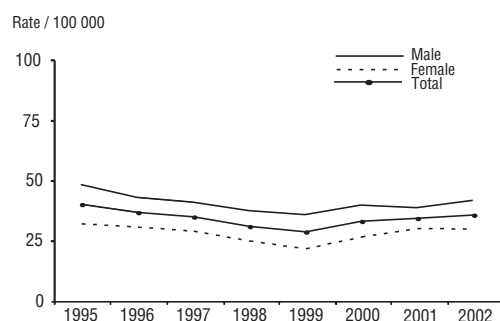
International proficiency testing	No
Geographic coverage	national
Linkage with TB case notification	No §
Cases with DST results	170
Cases resistant to INH	15 (8.8%)
Cases resistant to RMP	2 (1.2%)
MDR cases	2 (1.2%)
Cases resistant to EMB	2 (1.2%)
Cases resistant to SM	14 (8.2%)

**Data representativeness unknown**  
**Culture and DST not routinely used**  
**§ Cases diagnosed at the NRL**

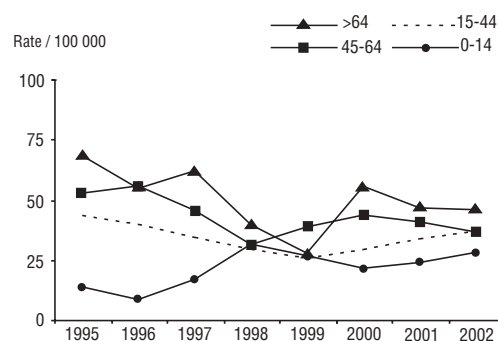
### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	164
Success	146 (89%)
Death	0 (0%)
Failure	4 (2%)
Default	13 (8%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	1 (1%)

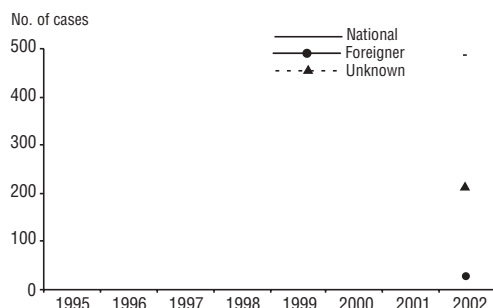
Tuberculosis notification rates by sex, 1995-2002



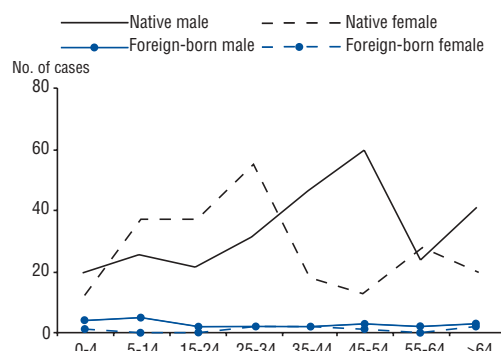
Tuberculosis notification rates by age group, 1995-2002



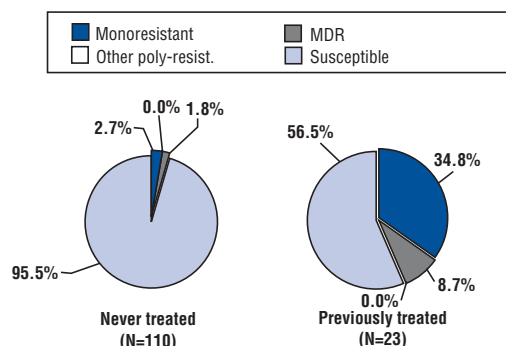
Tuberculosis cases by geographic origin, 1995-2002



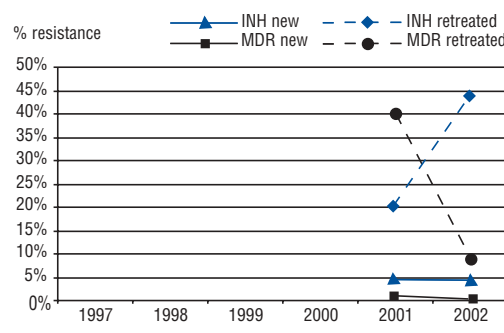
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	24
Notification rate per 100 000	6.1
Sex ratio (M:F)	0.8
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Foreign citizens	9 (37.5%)
New (never-treated)	24 (100.0%)
Culture positive	14 (58.3%)
Pulmonary	19 (79.2%)
of which sputum smear positive	5 (26.3%)

## Drug Resistance Surveillance, 2002

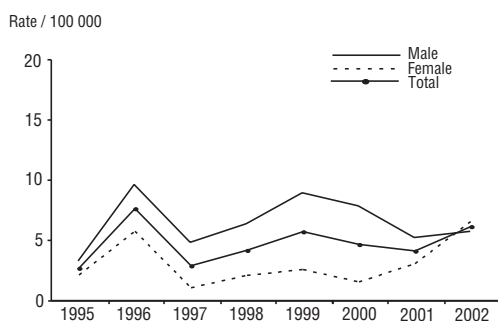
International proficiency testing	yes	\$
Geographic coverage	National	
Linkage with TB case notification	yes	
Cases with DST results	13	
Cases resistant to INH	0	(0.0%)
Cases resistant to RMP	0	(0.0%)
MDR cases	0	(0.0%)
Cases resistant to EMB	0	(0.0%)
Cases resistant to SM	0	(0.0%)

\$ DST done in the United Kingdom

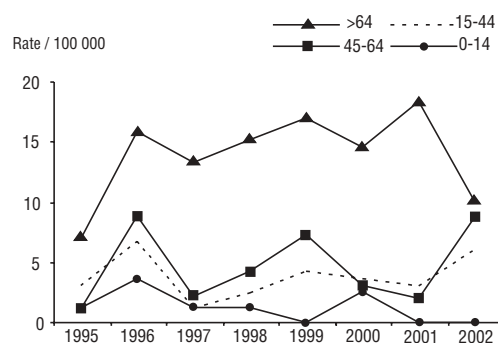
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	9
Success	8 (89%)
Death	1 (11%)
Failure	0 (0%)
Default	0 (0%)
Transfer	0 (0%)
Still on treatment	0 (0%)
Unknown	0 (0%)

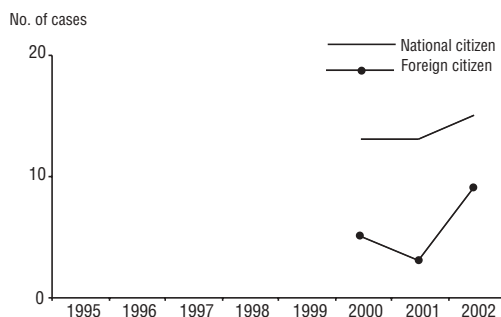
Tuberculosis notification rates by sex, 1995-2002



Tuberculosis notification rates by age group, 1995-2002



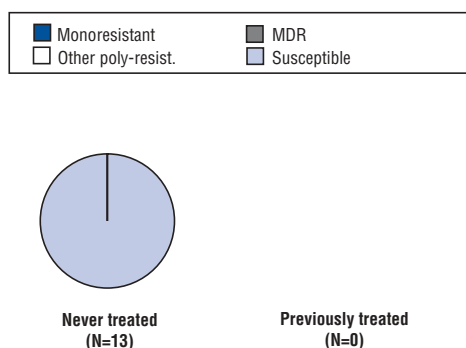
Tuberculosis cases by geographic origin, 1995-2002



Tuberculosis cases by geographic origin, age group and sex, 2002

**Insufficient number of cases for graphic presentation**

Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002

**No resistance reported**

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	4 149
Notification rate per 100 000	97.2
Sex ratio (M:F)	2.8
Median age-group, nationals	35-44 years
Median age-group, non-nationals	35-45 years
Foreign citizens	15 (0.4%)
New (never-treated)	3 433 (82.7%)
Culture positive	- -
Pulmonary	3 542 (85.4%)
of which sputum smear positive	1 482 (41.8%)

### Drug Resistance Surveillance, 2002

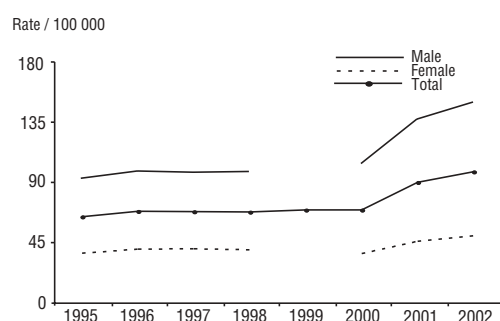
International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	1 022
Cases resistant to INH	252 (24.7%)
Cases resistant to RMP	262 (25.6%)
MDR cases	192 (18.8%)
Cases resistant to EMB	35 (3.4%)
Cases resistant to SM	367 (35.9%)
Data representativeness unknown	
Culture not routinely performed	

### Treatment Outcome Monitoring, 2001\*

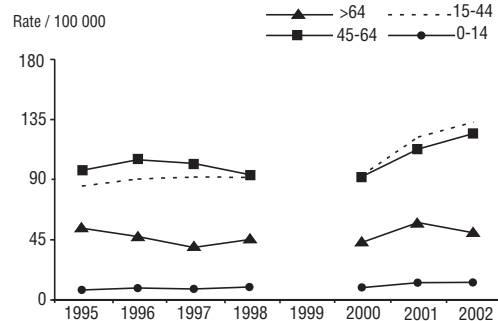
Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	1 060
Success	683 (64%)
Death	9 (1%)
Failure	37 (3%)
Default	11 (1%)
Transfer	12 (1%)
Still on treatment	0 (0%)
Unknown	308 (29%)

\* Categories other than success reported only from DOTS areas

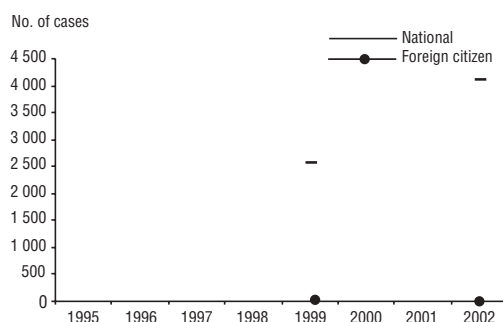
Tuberculosis notification rates by sex, 1995-2002



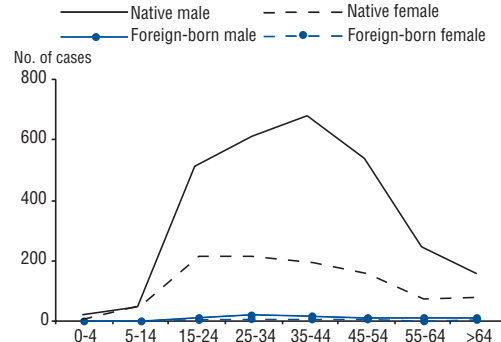
Tuberculosis notification rates by age group, 1995-2002



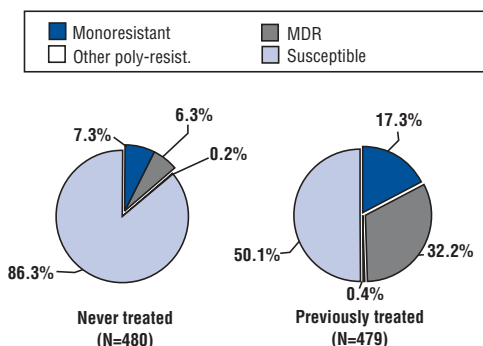
Tuberculosis cases by geographic origin, 1995-2002



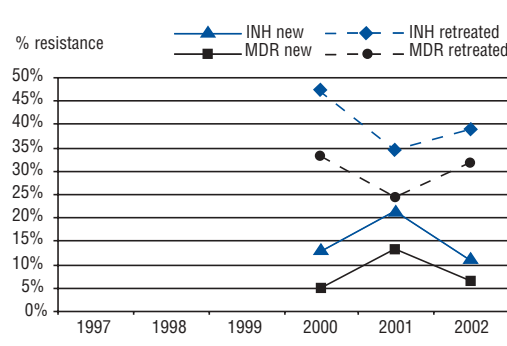
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	0
Notification rate per 100 000	0.0
Sex ratio (M:F)	-
Median age-group, nationals	-
Median age-group, non-nationals	-
Individuals born abroad	-
New (never-treated)	- -
Culture positive	- -
Pulmonary	- -
of which sputum smear positive	- -

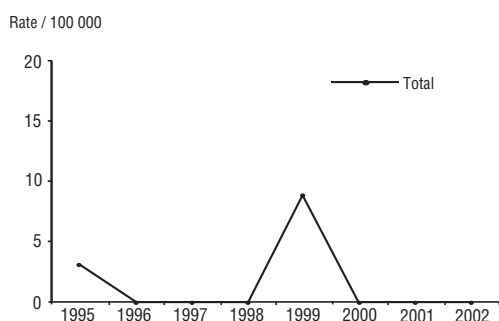
## Drug Resistance Surveillance, 2002

## Treatment Outcome Monitoring, 2001

Zero cases

Zero cases

Tuberculosis notification rates, 1995-2002



Tuberculosis notification rates by age group, 1995-2002

Insufficient number of  
cases for graphic  
presentation

Tuberculosis cases by geographic origin, 1995-2002

Insufficient number of  
cases for graphic  
presentation

Tuberculosis cases by geographic origin, age group and sex, 2002

Zero cases in 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002

Zero cases in 2002

Resistance to INH and MDR by treatment status, 1997-2002

No resistance reported

### Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 401
Notification rate per 100 000	8.7
Sex ratio (M:F)	1.3
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Foreign citizens	854 (61.0%)
New (never-treated)	1 169 (83.4%)
Culture positive*	768 (54.8%)
Pulmonary	900 (64.2%)
of which sputum smear positive	356 (39.6%)

\* 36% with culture result unknown

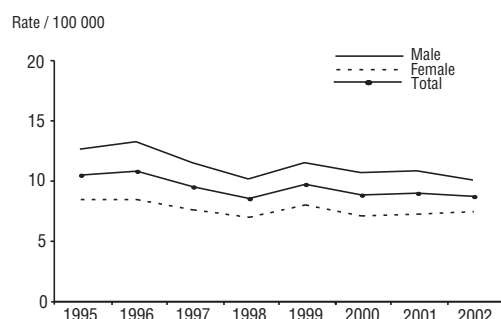
### Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	768
Cases resistant to INH	27 (3.5%)
Cases resistant to RMP	3 (0.4%)
MDR cases	2 (0.3%)
Cases resistant to EMB	2 (0.3%)
Cases resistant to SM	21 (2.7%)

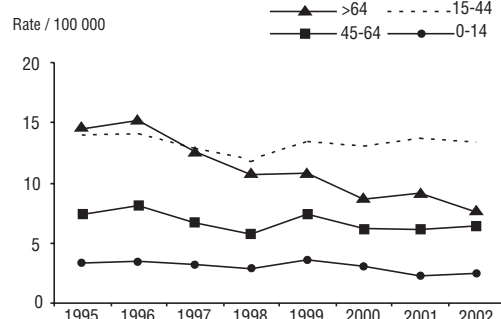
### Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	601
Success	519 (86%)
Death	27 (4%)
Failure	0 (0%)
Default	42 (7%)
Transfer	0 (0%)
Still on treatment	11 (2%)
Unknown	2 (0%)

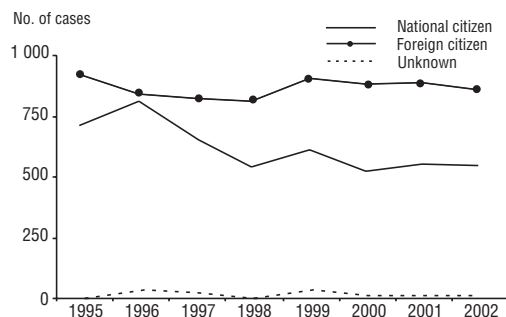
Tuberculosis notification rates by sex, 1995-2002



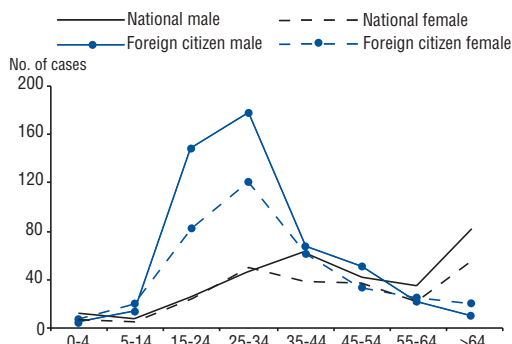
Tuberculosis notification rates by age group, 1995-2002



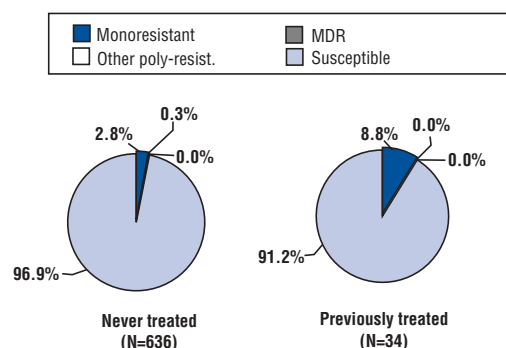
Tuberculosis cases by geographic origin, 1995-2002



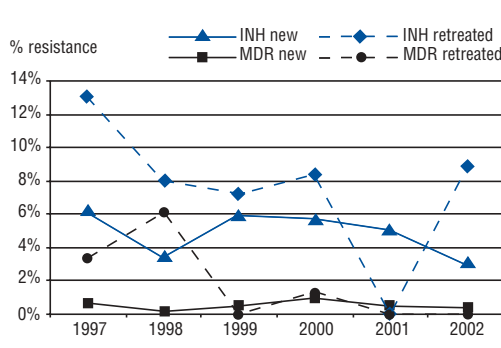
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002





## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	256
Notification rate per 100 000	5.7
Sex ratio (M:F)	1.1
Median age-group, nationals	> 64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	195 (76.2%)
New (never-treated)	242 (94.5%)
Culture positive	192 (75.0%)
Pulmonary	157 (61.3%)
among which sputum smear positive	31 (19.7%)

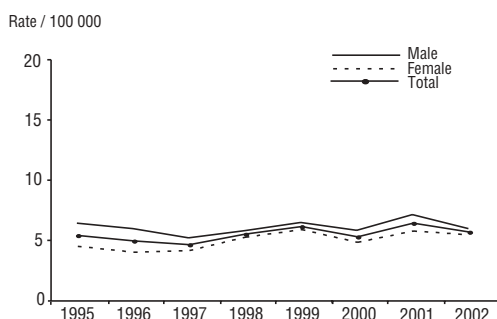
## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	192
Cases resistant to INH	22 (11.5%)
Cases resistant to RMP	7 (3.6%)
MDR cases	7 (3.6%)
Cases resistant to EMB	8 (4.2%)
Cases resistant to SM	23 (12.0%)

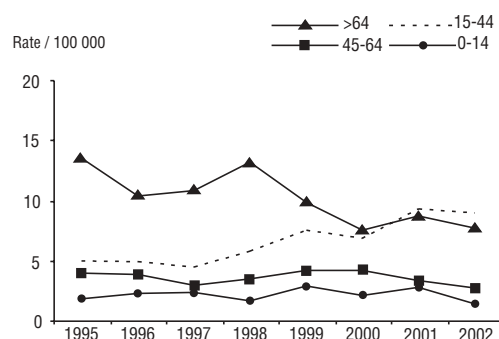
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	145
Success	124 (86%)
Death	8 (6%)
Failure	0 (0%)
Default	4 (3%)
Transfer	8 (6%)
Still on treatment	1 (1%)
Unknown	0 (0%)

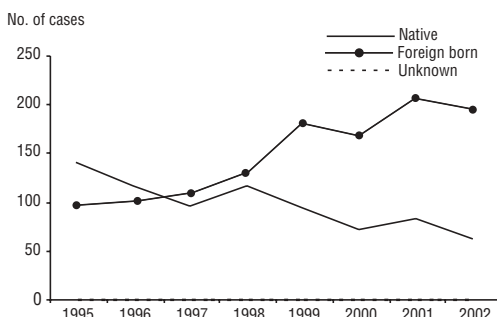
Tuberculosis notification rates by sex, 1995-2002



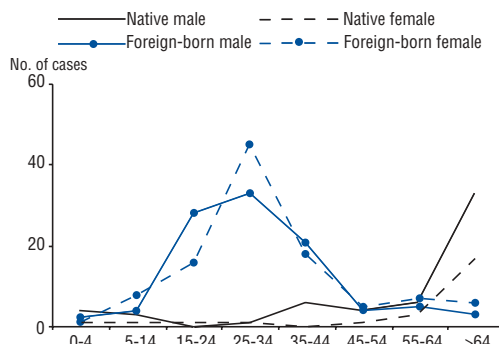
Tuberculosis notification rates by age group, 1995-2002



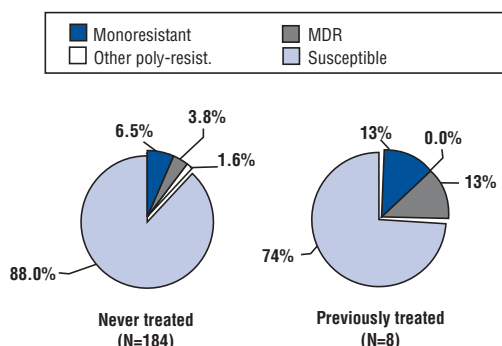
Tuberculosis cases by geographic origin, 1995-2002



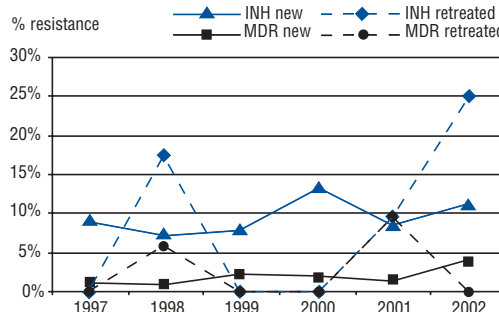
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual*
Total number of cases	10 475
Notification rate per 100 000	27.1
Sex ratio (M:F)	1.9
Median age-group (all cases)	45-54 years
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	9 314 (88.9%)
Culture positive	5 660 (54.0%)
Pulmonary	9 438 (90.1%)
of which sputum smear positive	4 156 (44.0%)

\* Except for site, bacteriology and DST

## Drug Resistance Surveillance, 2001

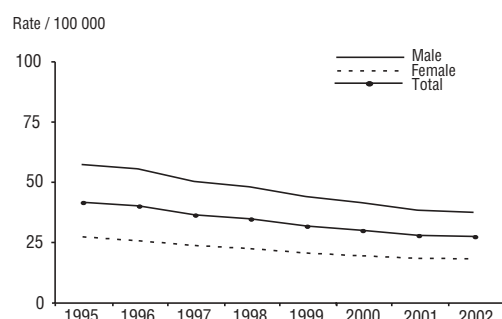
International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	No §
Cases with DST results	3 705
Cases resistant to INH	221 (6.0%)
Cases resistant to RMP	104 (2.8%)
MDR cases	92 (2.5%)
Cases resistant to EMB	41 (1.1%)
Cases resistant to SM	- -

§ Survey of selected laboratories

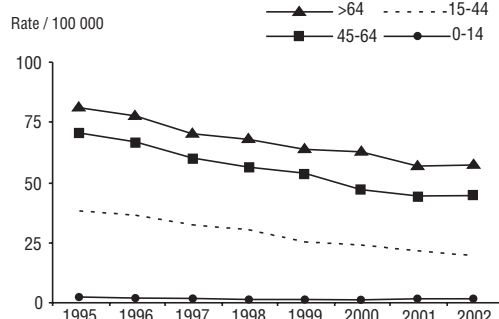
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	3 155
Success	2 395 (76%)
Death	175 (6%)
Failure	27 (1%)
Default	185 (6%)
Transfer	34 (1%)
Still on treatment	0 (0%)
Unknown	339 (11%)

Tuberculosis notification rates by sex, 1995-2002



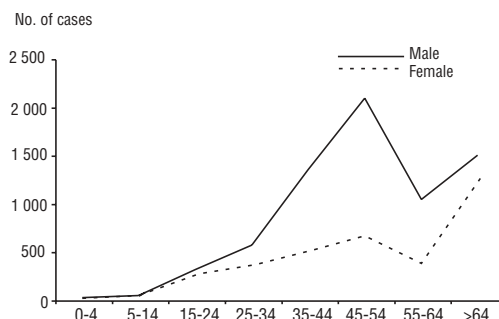
Tuberculosis notification rates by age group, 1995-2002



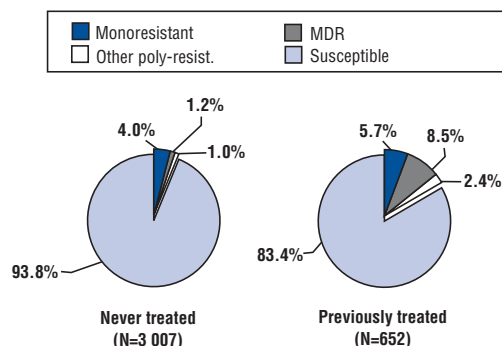
Tuberculosis cases by geographic origin, 1995-2002

Not available

Tuberculosis cases by age group and sex, 2002

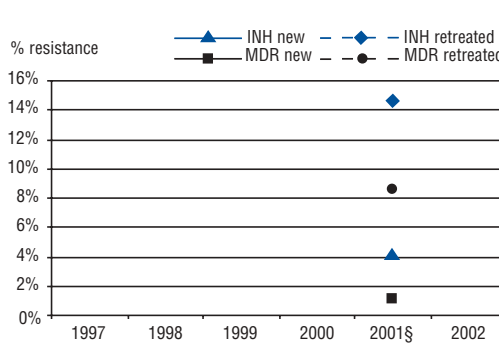


Resistance profile by treatment status (INH, RMP and EMB), 2001 §



§ Survey of selected laboratories

Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	4 591
Notification rate per 100 000	45.7
Sex ratio (M:F)	2.3
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	584 (12.7%)
New (never-treated)	4 220 (91.9%)
Culture positive	2 209 (48.1%)
Pulmonary	3 355 (73.1%)
of which sputum smear positive	2 156 (64.3%)

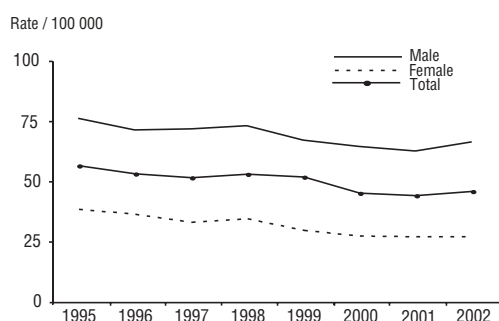
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	yes
Cases with DST results	1 077
Cases resistant to INH	77 (7.1%)
Cases resistant to RMP	29 (2.7%)
MDR cases	27 (2.5%)
Cases resistant to EMB	23 (2.1%)
Cases resistant to SM	94 (8.7%)
Data representativeness unknown	

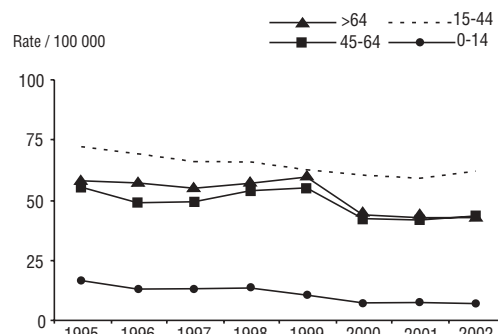
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	2 024
Success	1 626 (80%)
Death	94 (5%)
Failure	5 (0%)
Default	103 (5%)
Transfer	67 (3%)
Still on treatment	129 (6%)
Unknown	0 (0%)

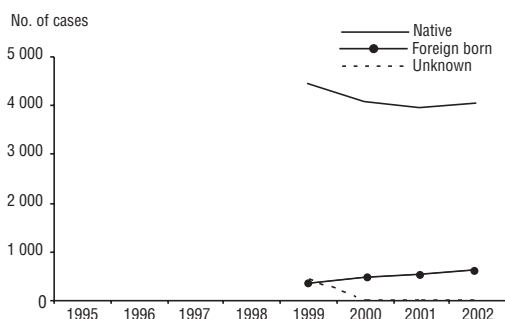
Tuberculosis notification rates by sex, 1995-2002



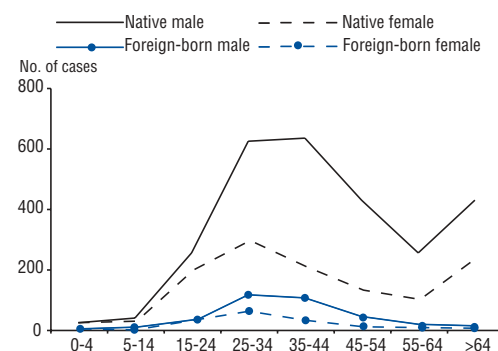
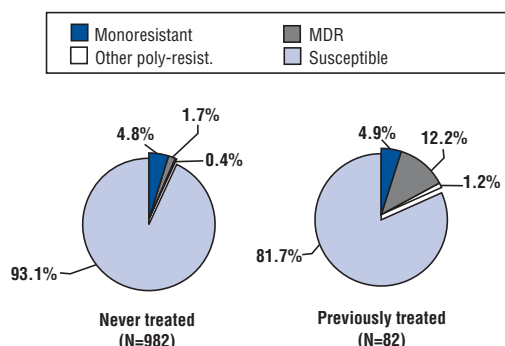
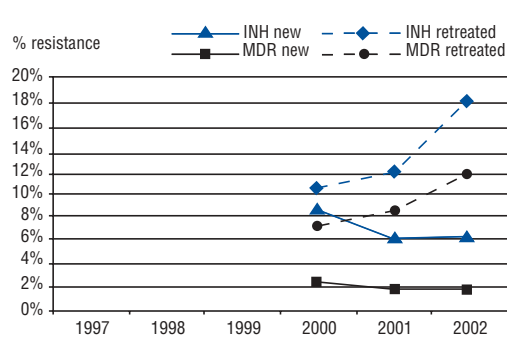
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002



Tuberculosis cases by geographic origin, age group and sex, 2002

Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknownResistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	34 143
Notification rate per 100 000	152.5
Sex ratio (M:F)	2.3
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Foreign citizens	7 (0.0%)
New (never-treated)	26 640 (78.0%)
Culture positive	19 045 (55.8%)
Pulmonary	30 197 (88.4%)
of which sputum smear positive	16 511 (54.7%)

## Drug Resistance Surveillance, 2001

International proficiency testing	yes
Geographic coverage	partial
Linkage with TB case notification	Yes §
Cases with DST results	3 050
Cases resistant to INH	408 (13.4%)
Cases resistant to RMP	253 (8.3%)
MDR cases	198 (6.5%)
Cases resistant to EMB	28 (0.9%)
Cases resistant to SM	91 (3.0%)

Data representativeness unknown

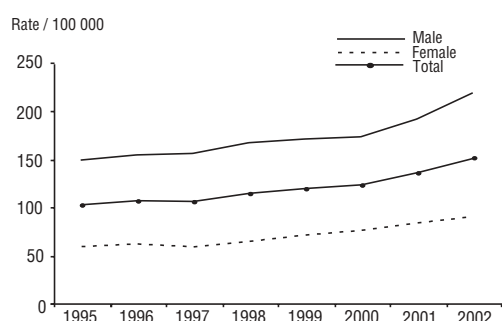
Culture and DST not routinely performed

§ Representative national survey ongoing

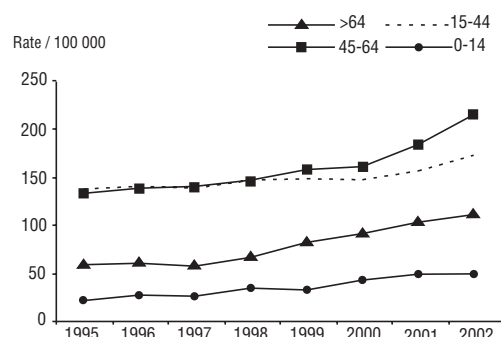
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	11 275
Success	8 493 (75%)
Death	634 (6%)
Failure	833 (7%)
Default	849 (8%)
Transfer	124 (1%)
Still on treatment	76 (1%)
Unknown	266 (2%)

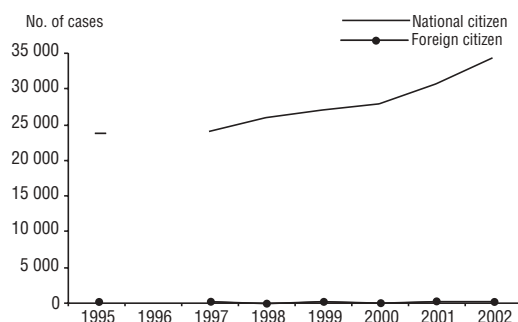
Tuberculosis notification rates by sex, 1995-2002



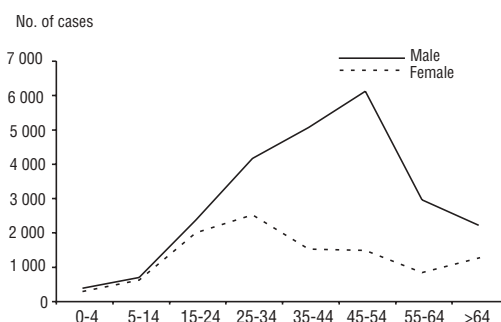
Tuberculosis notification rates by age group, 1995-2002



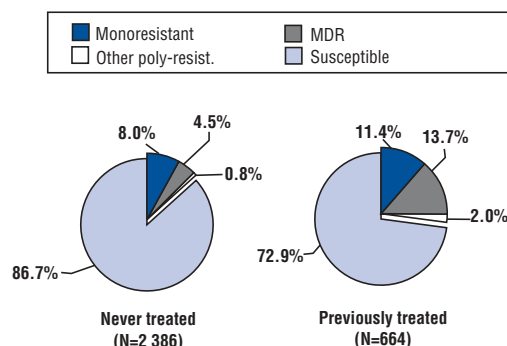
Tuberculosis cases by geographic origin, 1995-2002



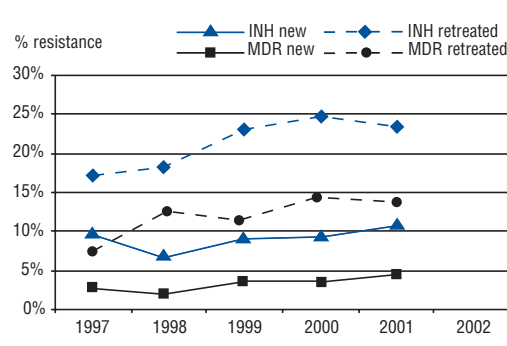
Tuberculosis cases by age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2001  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



## Tuberculosis case notifications, 2002

Type of data provided	Aggregate	
Total number of cases	134 812	
Notification rate per 100 000	93.6	
Sex ratio (M:F)*	2.8	
Median age-group, nationals	-	
Median age-group, non-nationals	-	
Foreign citizens*	591	(0.4%)
New (never-treated)	123 340	(91.5%)
Culture positive	-	-
Respiratory	-	-
of which sputum smear positive	-	-

## Drug Resistance Surveillance, 2002

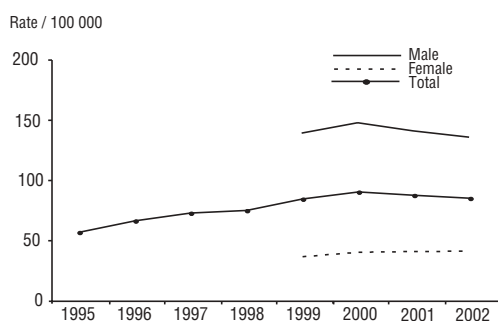
Not available

## Treatment Outcome Monitoring, 2001

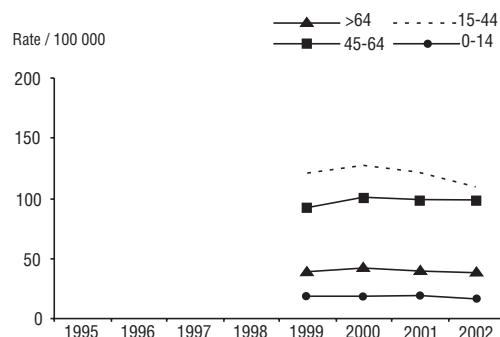
Geographic coverage	DOTS areas *	
Cohort	new pulmonary smear and/or culture positive	
Included in TOM cohort	4 058	
Success	2 740	(68%)
Death	338	(8%)
Failure	577	(14%)
Default	261	(6%)
Transfer	142	(3%)
Still on treatment	0	(0%)
Unknown	0	(0%)

\* Representing 15.5% of cases reported

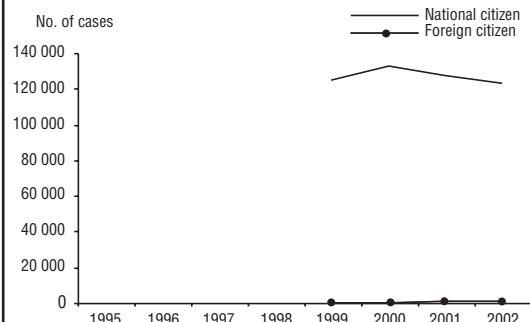
Tuberculosis notification rates, 1995-2002\*



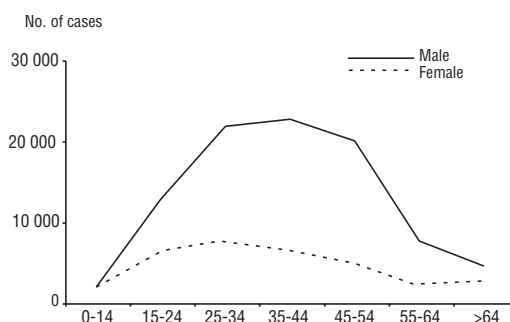
Tuberculosis notification rates by age group, 1995-2002\*



Tuberculosis cases by geographic origin, 1995-2002\*



Tuberculosis cases by age group and sex, 2002\*



Resistance profile by treatment status (INH, RMP and EMB), 2002

Not available

Resistance to INH and MDR by treatment status, 1997-2002

Not available

\* New cases only

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	1
Notification rate per 100 000	3.7
Sex ratio (M:F)	-
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Individuals born abroad	0 (0.0%)
New (never-treated)	1 (100.0%)
Culture positive	1 (100.0%)
Respiratory	0 (0.0%)
of which sputum smear positive	0 -

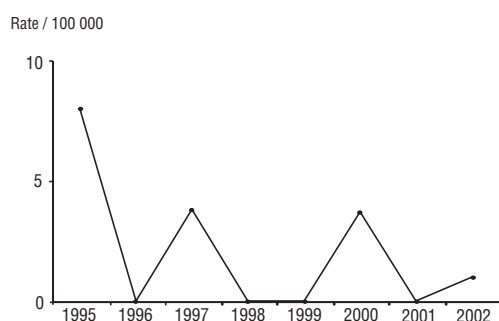
### Drug Resistance Surveillance, 2002

### Treatment Outcome Monitoring, 2001

**Zero cases**

**Zero cases**

Tuberculosis notification rates, 1995-2002



Tuberculosis notification rates by age group, 1995-2002

**Insufficient number of cases for graphic presentation**

Tuberculosis cases by geographic origin (citizenship), 1995-2002

**Insufficient number of cases for graphic presentation**

Tuberculosis cases by geographic origin, age group and sex, 2002

**Insufficient number of cases for graphic presentation**

Resistance profile by treatment status (INH, RMP and EMB), 2002

**No resistance reported**

Resistance to INH and MDR by treatment status, 1997-2002

**No resistance reported**

## Tuberculosis case notifications, 2002

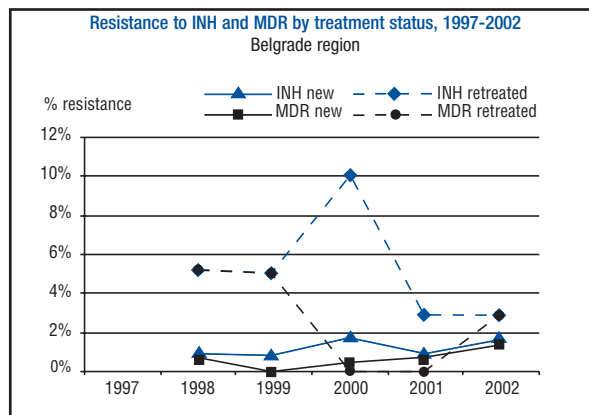
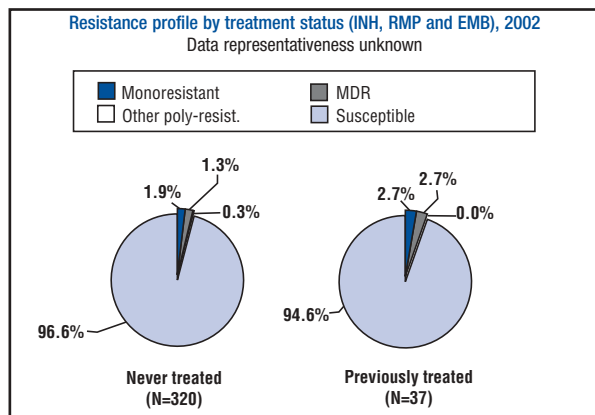
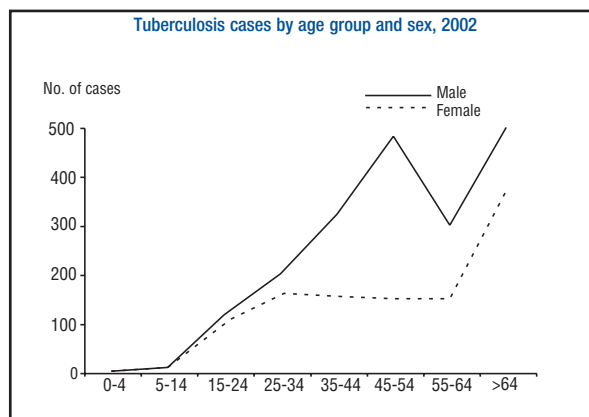
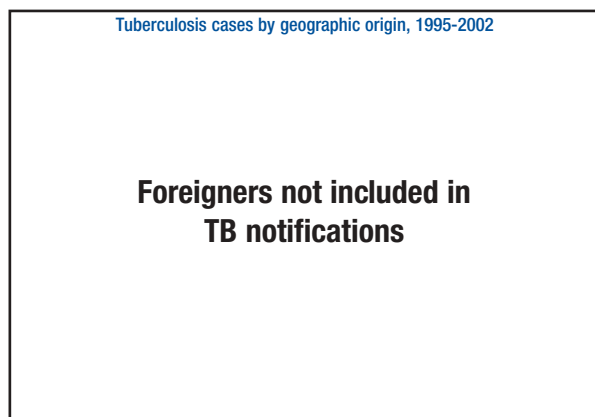
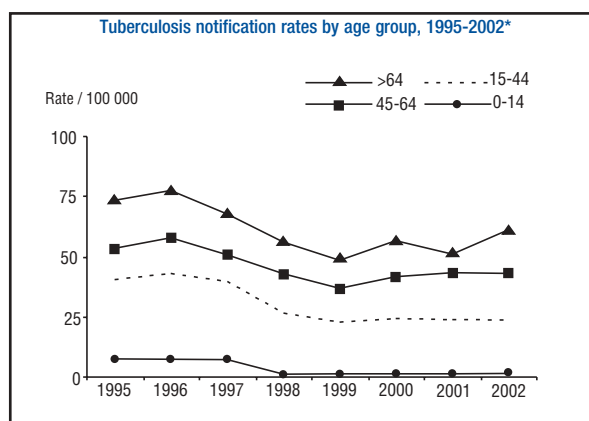
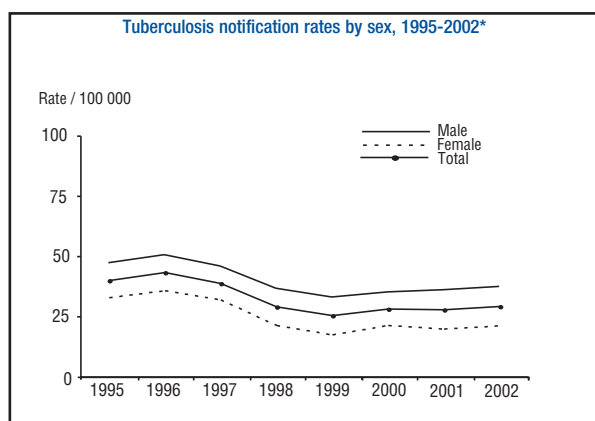
Type of data provided	Aggregate
Total number of cases	3 033
Notification rate per 100 000	28.8
Sex ratio (M:F)	1.8
Median age-group, nationals	45-44 years
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	2 789 (92.0%)
Culture positive	1 786 (58.9%)
Respiratory	2 817 (92.9%)
of which sputum smear positive	- -

## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	Belgrade region
Linkage with TB case notification	Yes
Cases with DST results	357
Cases resistant to INH	6 (1.7%)
Cases resistant to RMP	10 (2.8%)
MDR cases	5 (1.4%)
Cases resistant to EMB	5 (1.4%)
Cases resistant to SM	18 (5.0%)
Data representativeness unknown	
Culture and DST not routinely used	

## Treatment Outcome Monitoring, 2001

Geographic coverage	Belgrade region
Cohort	new pulmonary culture positive
Included in TOM cohort	335
Success	267 (80%)
Death	18 (5%)
Failure	0 (0%)
Default	10 (3%)
Transfer	1 (0%)
Still on treatment	1 (0%)
Unknown	38 (11%)



\* Including Kosovo until 1997

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	1 053
Notification rate per 100 000	19.5
Sex ratio (M:F)	1.7
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	12 (1.1%)
New (never-treated)	873 (82.9%)
Culture positive	504 (47.9%)
Pulmonary	845 (80.2%)
of which sputum smear positive	242 (28.6%)

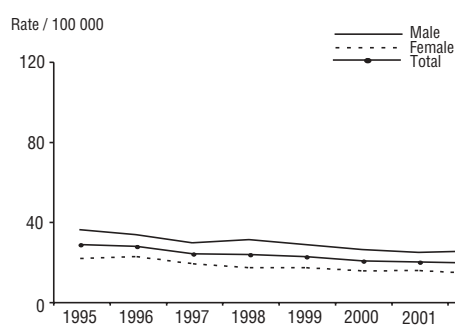
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	497
Cases resistant to INH	13 (2.6%)
Cases resistant to RMP	6 (1.2%)
MDR cases	3 (0.6%)
Cases resistant to EMB	1 (0.2%)
Cases resistant to SM	9 (1.8%)

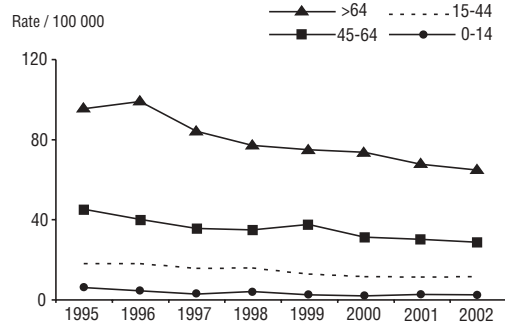
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	413
Success	356 (86%)
Death	47 (11%)
Failure	2 (0%)
Default	4 (1%)
Transfer	0 (0%)
Still on treatment	4 (1%)
Unknown	0 (0%)

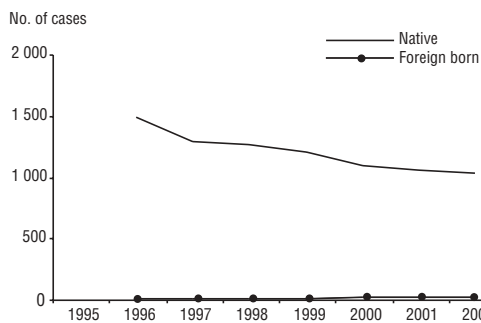
Tuberculosis notification rates by sex, 1995-2002



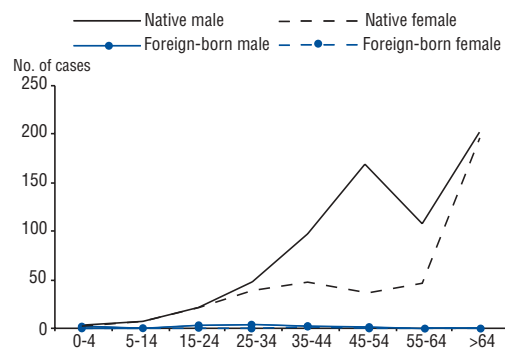
Tuberculosis notification rates by age group, 1995-2002



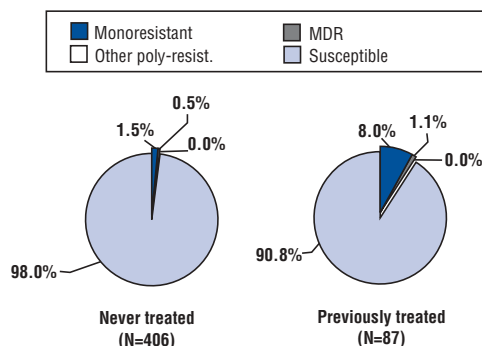
Tuberculosis cases by geographic origin, 1995-2002



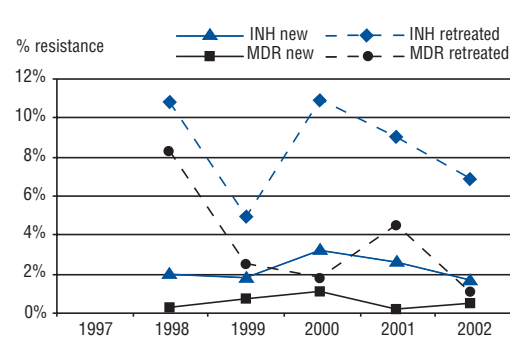
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002





## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	350
Notification rate per 100 000	17.6
Sex ratio (M:F)	1.7
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	77 (22.0%)
New (never-treated)	313 (89.4%)
Culture positive	292 (83.4%)
Pulmonary	295 (84.3%)
of which sputum smear positive	147 (49.8%)

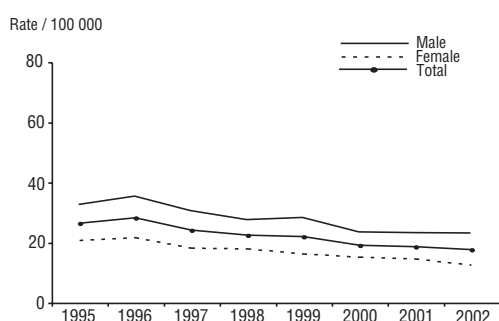
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	292
Cases resistant to INH	11 (3.8%)
Cases resistant to RMP	2 (0.7%)
MDR cases	2 (0.7%)
Cases resistant to EMB	1 (0.3%)
Cases resistant to SM	9 (3.1%)

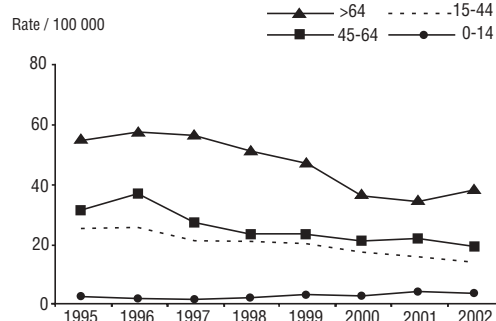
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	250
Success	198 (79%)
Death	35 (14%)
Failure	1 (0%)
Default	10 (4%)
Transfer	2 (1%)
Still on treatment	4 (2%)
Unknown	0 (0%)

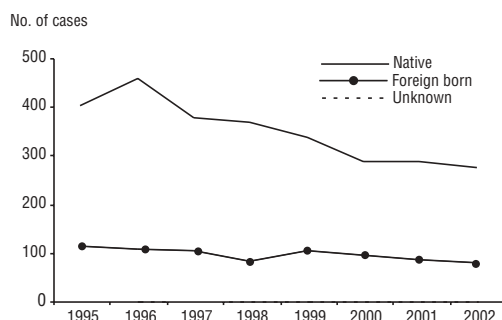
Tuberculosis notification rates by sex, 1995-2002



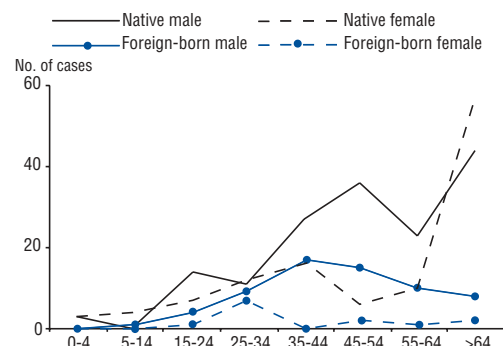
Tuberculosis notification rates by age group, 1995-2002



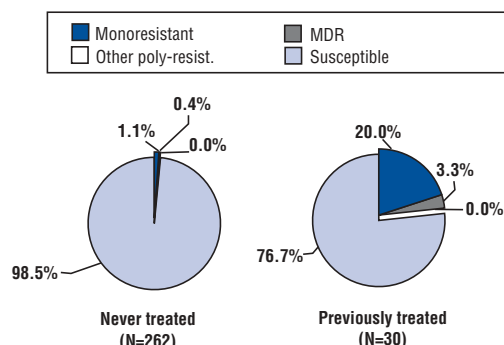
Tuberculosis cases by geographic origin, 1995-2002



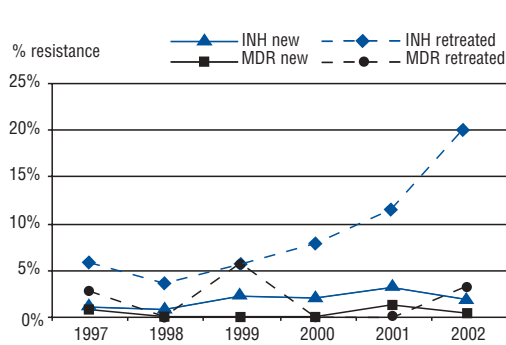
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002\*

Type of data provided	Aggregate
Total number of cases	7 626
Notification rate per 100 000	18.6
Sex ratio (M:F)	2.0
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Individuals born abroad †	444 (5.8%)
New (never-treated)	5 229 (68.6%)
Culture positive	3 837 (50.3%)
Respiratory	7 493 (98.3%)
of which sputum smear positive	3 520 (47.0%)

† 53% of cases missing information on origin

## Drug Resistance Surveillance, 2002

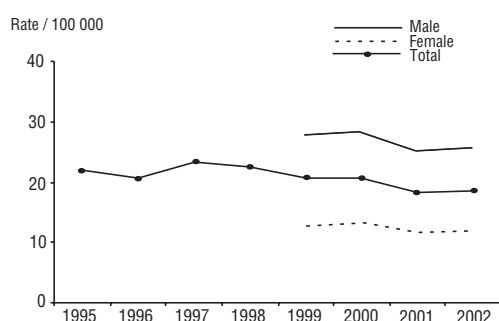
International proficiency testing	No
Geographic coverage	partial
Linkage with TB case notification	No §
Cases with DST results	2 088 -
Cases resistant to INH	109 (5.2%)
Cases resistant to RMP	46 (2.2%)
MDR cases	31 (1.5%)
Cases resistant to EMB	9 (0.4%)
Cases resistant to SM	30 (1.4%)

Data representativeness unknown  
§ TB cases referred to NRL

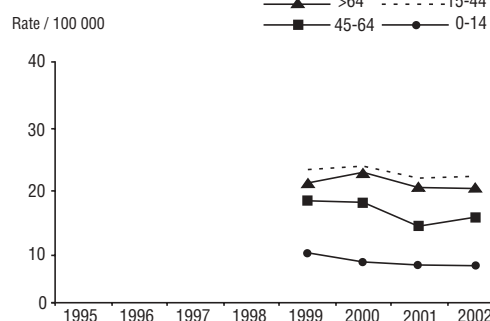
## Treatment Outcome Monitoring, 2001

Not available

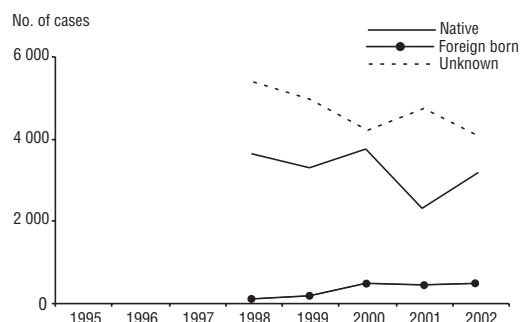
Tuberculosis notification rates, 1995-2002\*



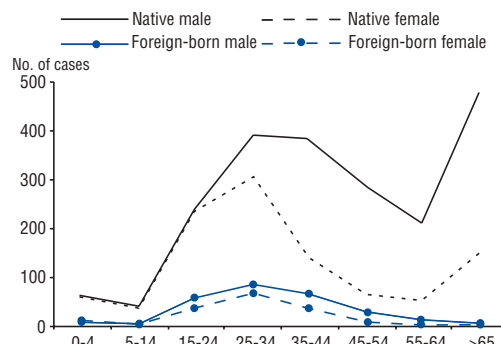
Tuberculosis notification rates by age group, 1995-2002\*



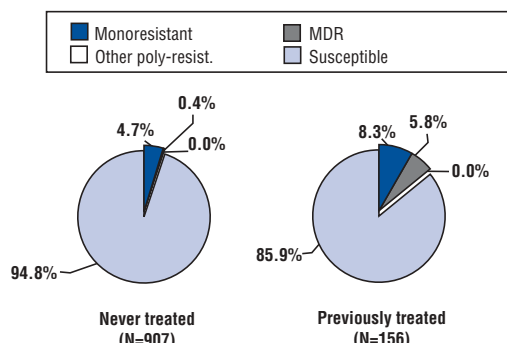
Tuberculosis cases by geographic origin, 1995-2002\*



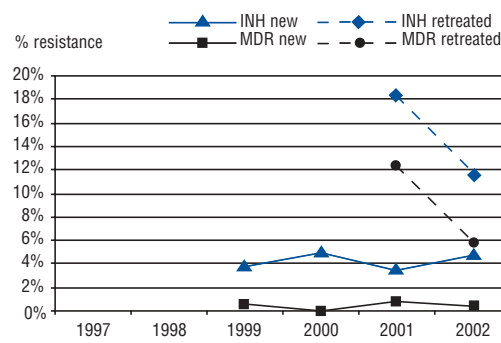
Tuberculosis cases by geographic origin, age group and sex, 2002\*



Resistance profile by treatment status (INH, RMP and EMB), 2002  
Data representativeness unknown



Resistance to INH and MDR by treatment status, 1997-2002  
Data representativeness unknown



\* Respiratory and meningial cases only

## Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	412
Notification rate per 100 000	4.6
Sex ratio (M:F)	0.9
Median age-group, nationals	> 64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	296 (71.8%)
New (never-treated)	375 (91.0%)
Culture positive	354 (85.9%)
Pulmonary	263 (63.8%)
of which sputum smear positive	121 (46.0%)

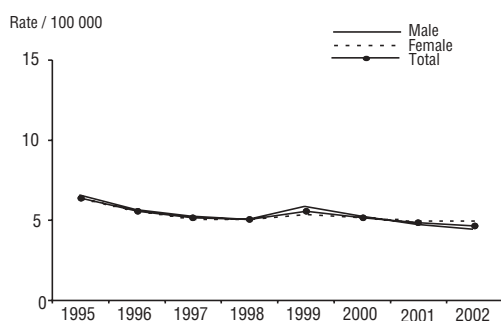
## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	354
Cases resistant to INH	33 (9.3%)
Cases resistant to RMP	4 (1.1%)
MDR cases	4 (1.1%)
Cases resistant to EMB	1 (0.3%)
Cases resistant to SM	24 (6.8%)

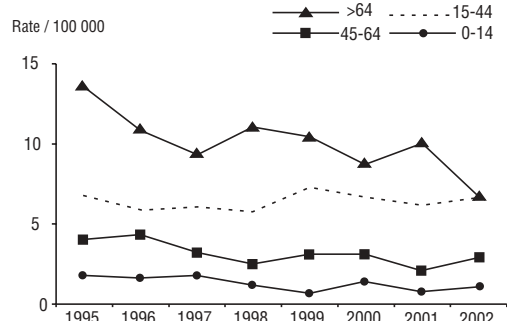
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	220
Success	143 (65%)
Death	29 (13%)
Failure	1 (0%)
Default	4 (2%)
Transfer	6 (3%)
Still on treatment	8 (4%)
Unknown	29 (13%)

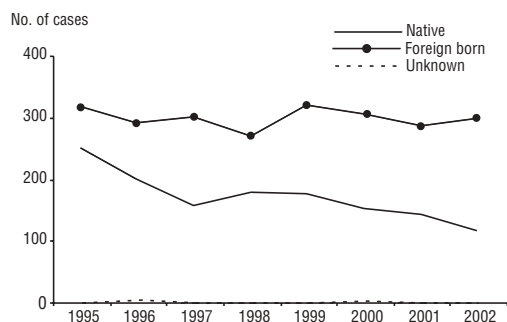
Tuberculosis notification rates by sex, 1995-2002



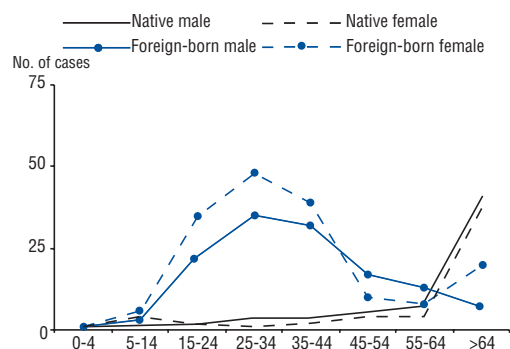
Tuberculosis notification rates by age group, 1995-2002



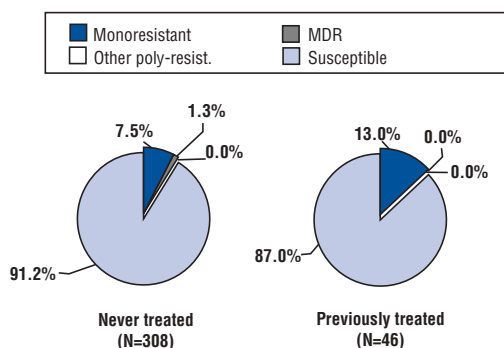
Tuberculosis cases by geographic origin, 1995-2002



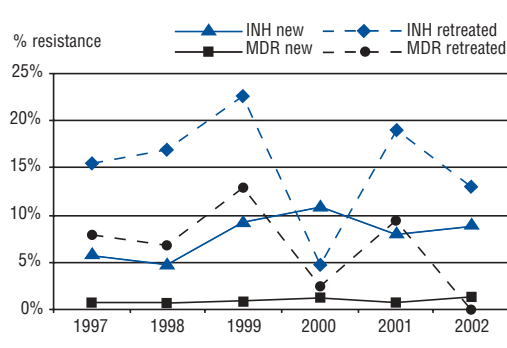
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



### Tuberculosis case notifications, 2002

Type of data provided	Individual
Total number of cases	658
Notification rate per 100 000	9.2
Sex ratio (M:F)	1.3
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	399 (60.6%)
New (never-treated)	467 (71.0%)
Culture positive	519 (78.9%)
Pulmonary	504 (76.6%)
of which sputum smear positive	145 (28.8%)

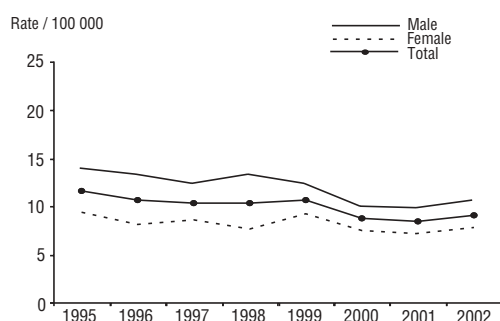
### Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National
Linkage with TB case notification	Yes
Cases with DST results	515
Cases resistant to INH	31 (6.0%)
Cases resistant to RMP	11 (2.1%)
MDR cases	11 (2.1%)
Cases resistant to EMB	4 (0.8%)
Cases resistant to SM	- -

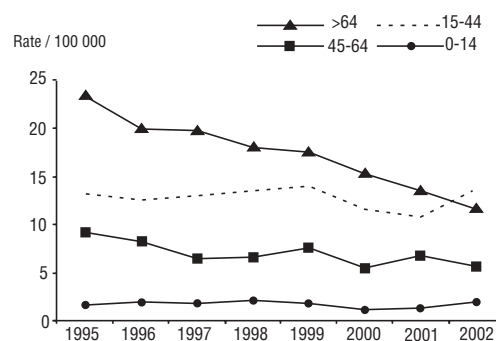
### Treatment Outcome Monitoring, 2001

Not available

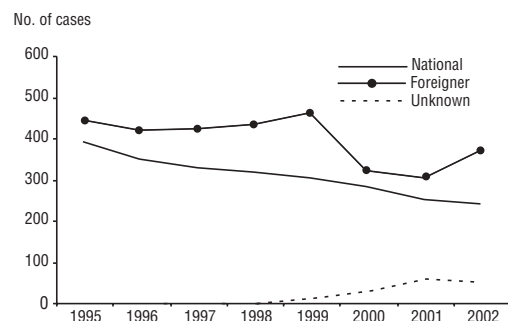
Tuberculosis notification rates by sex, 1995-2002



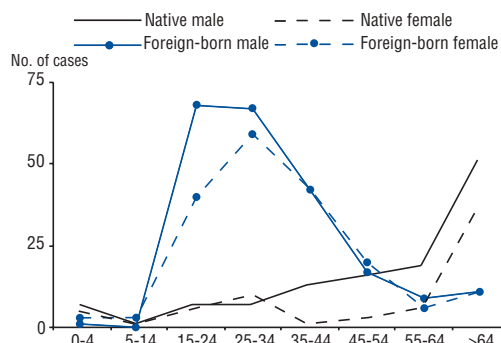
Tuberculosis notification rates by age group, 1995-2002



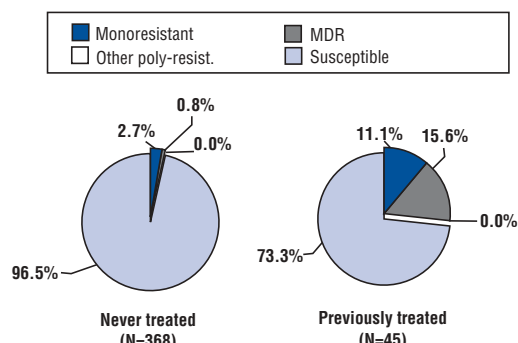
Tuberculosis cases by geographic origin, 1995-2002 (by citizenship)



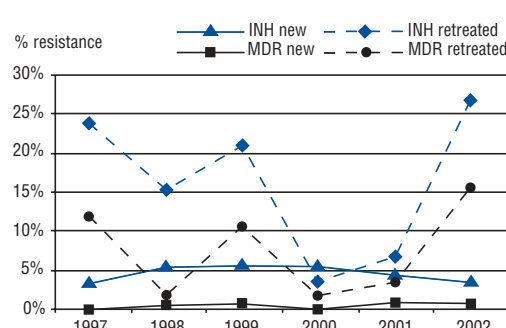
Tuberculosis cases by geographic origin, age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002



Resistance to INH and MDR by treatment status, 1997-2002



## Tuberculosis case notifications, 2002

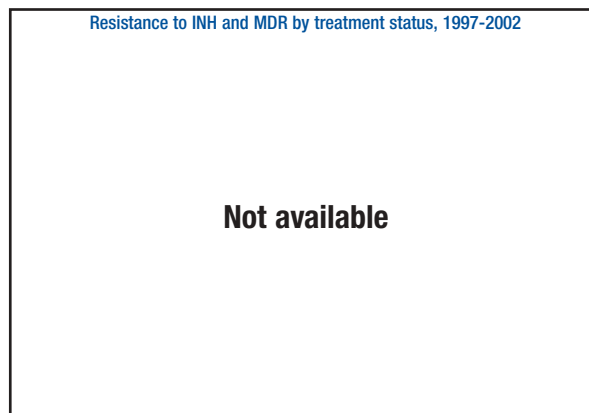
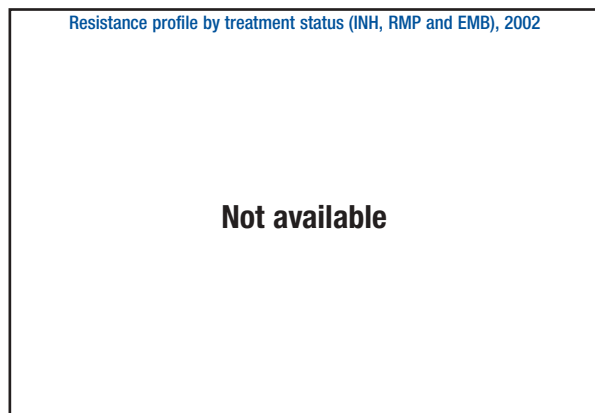
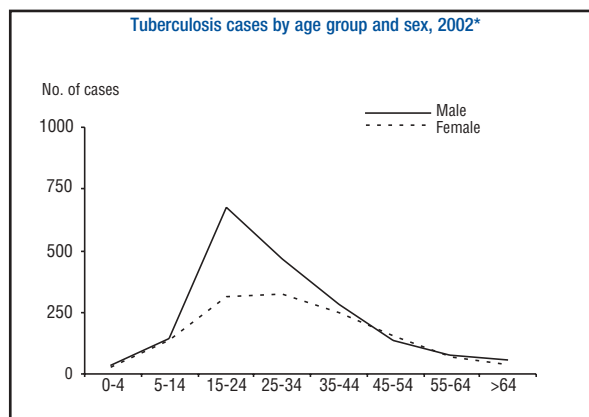
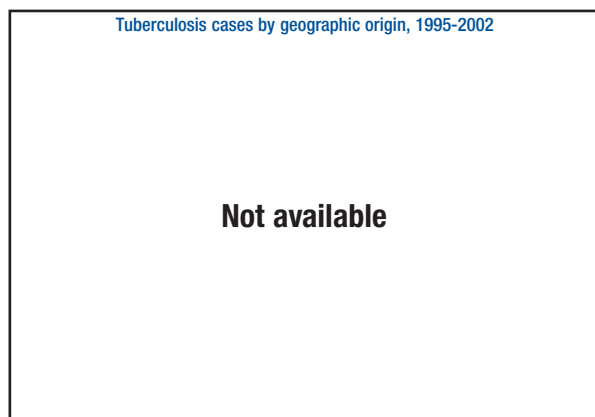
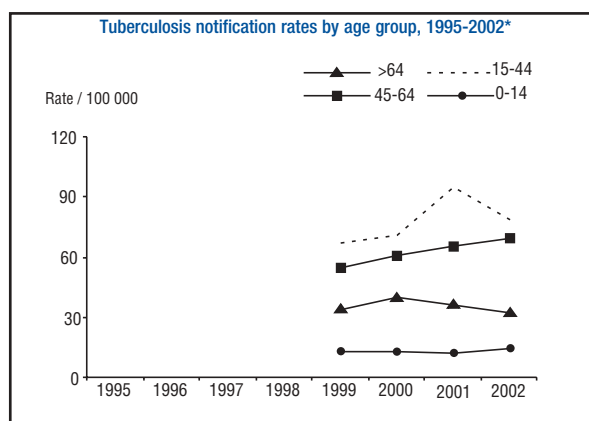
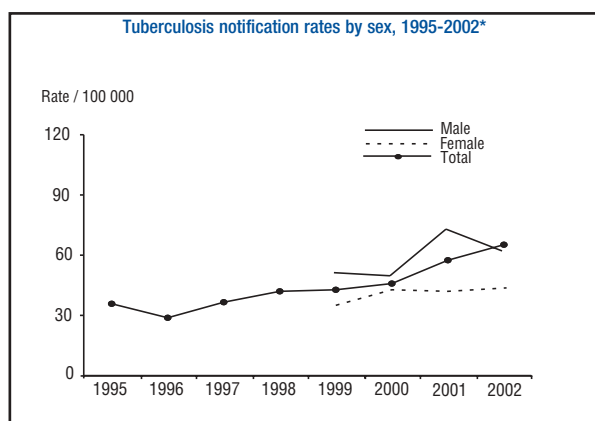
Type of data provided	Aggregate
Total number of cases	4 052
Notification rate per 100 000	65.4
Sex ratio (M:F) *	1.4
Median age-group, all cases *	25-34 years
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	- -
Culture positive	- -
Respiratory	- -
of which sputum smear positive	- -

## Drug Resistance Surveillance, 2002

Not available

## Treatment Outcome Monitoring, 2001

Geographic coverage	National
Cohort	new pulmonary smear positive
Included in TOM cohort	670
Success	480 (72%)
Death	93 (14%)
Failure	82 (12%)
Default	0 (0%)
Transfer	15 (2%)
Still on treatment	0 (0%)
Unknown	0 (0%)



\* 21% with age-group and sex unknown (2002)

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	19 028
Notification rate per 100 000	27.1
Sex ratio (M:F)	-
Median age-group, all cases	-
Median age-group, non-nationals	-
Foreign born/citizens	- -
New (never-treated)	16 376 (86.1%)
Culture positive	- -
Pulmonary	- -
of which sputum smear positive	- -

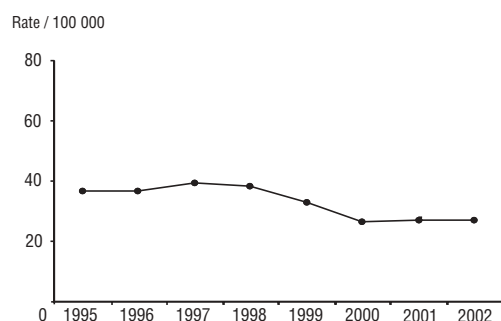
### Drug Resistance Surveillance, 2002

### Treatment Outcome Monitoring, 2001

Not available

Not available

Tuberculosis notification rates, 1995-2002



Tuberculosis notification rates by age group, 1995-2002

Not available

Tuberculosis cases by geographic origin, 1995-2002

Not available

Tuberculosis cases by age group and sex, 2002

Not available

Resistance profile by treatment status (INH, RMP and EMB), 2002

Not available

Resistance to INH and MDR by treatment status, 1997-2002

Not available

## Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	4 635
Notification rate per 100 000	96.7
Sex ratio (M:F)	1.8
Median age-group, all cases	25-34 years
Median age-group, non-nationals	-
Individuals born abroad	- -
New (never-treated)	3 611 (77.9%)
Culture positive	- -
Pulmonary	4 117 (88.8%)
of which sputum smear positive	1 796 (43.6%)

## Drug Resistance Surveillance, 2002

International proficiency testing	No
Geographic coverage	partial
Linkage with TB case notification	No §
Cases with DST results	98
Cases resistant to INH	63 (64.3%)
Cases resistant to RMP	55 (56.1%)
MDR cases	42 (42.9%)
Cases resistant to EMB	- -
Cases resistant to SM	- -

Data representativeness unknown

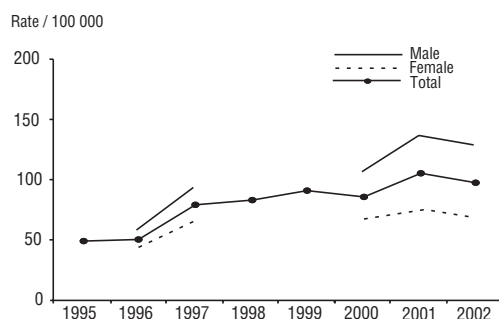
Culture and DST not routinely performed

§ TB cases referred from the NRL

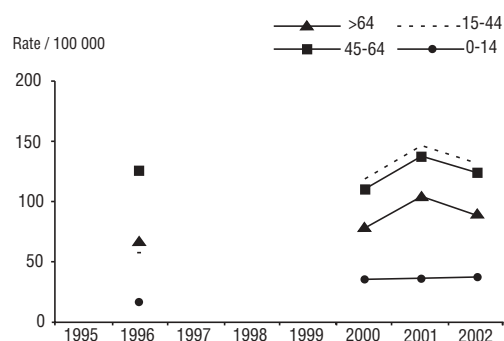
## Treatment Outcome Monitoring, 2001

Geographic coverage	national
Cohort	new pulmonary smear positive
Included in TOM cohort	1 243
Success	797 (64%)
Death	110 (9%)
Failure	153 (12%)
Default	171 (14%)
Transfer	0 (0%)
Still on treatment	12 (1%)
Unknown	0 (0%)

Tuberculosis notification rates by sex, 1995-2002



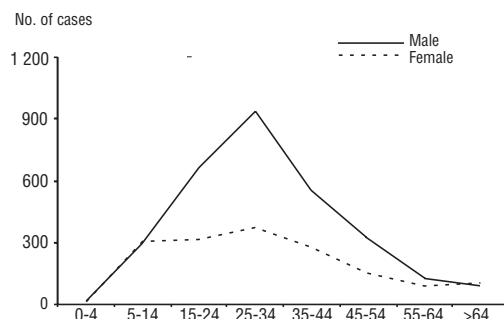
Tuberculosis notification rates by age group, 1995-2002



Tuberculosis cases by geographic origin, 1995-2002

**Foreigners not included in  
TB notifications**

Tuberculosis cases by age group and sex, 2002



Resistance profile by treatment status (INH, RMP and EMB), 2002

**Not available**

Resistance to INH and MDR by treatment status, 1997-2002

**Not available**

### Tuberculosis case notifications, 2002

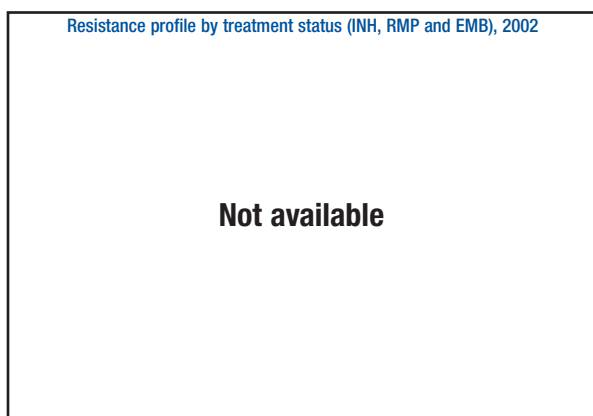
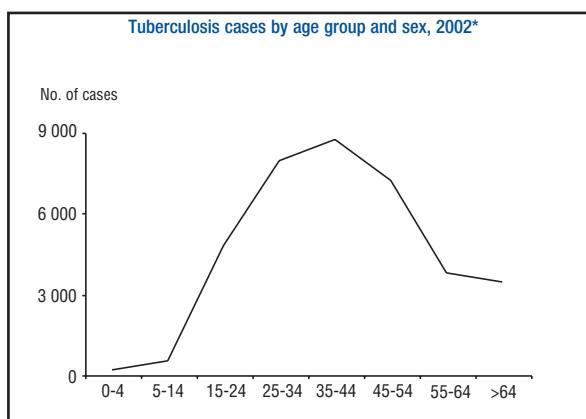
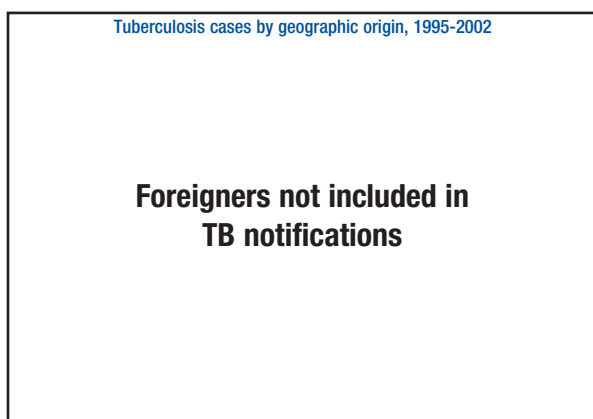
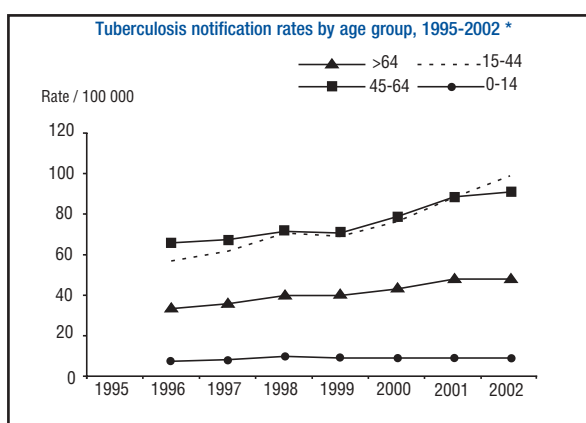
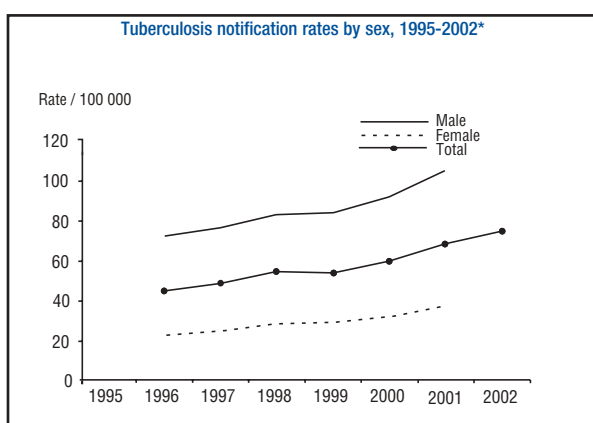
Type of data provided	Aggregate	
Total number of cases	40 175	
Notification rate per 100 000	82.2	
Sex ratio (M:F)	-	
Median age-group, all cases *	35-44 years	
Median age-group, non-nationals	-	
Individuals born abroad	-	-
New (never-treated)	36 471	(90.8%)
Culture positive	-	-
Pulmonary	-	-
of which sputum smear positive	-	-

### Drug Resistance Surveillance, 2002

Not available

### Treatment Outcome Monitoring, 2001

Not available



\* New cases only



## Tuberculosis case notifications, 2002

Type of data provided	Individual *
Total number of cases	7 376
Notification rate per 100 000	12.5
Sex ratio (M:F)	1.2
Median age-group, all cases	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad †	4 079 (55.3%)
New (never-treated) *	5 149 (69.8%)
Culture positive §	2 316 (31.4%)
Pulmonary *	3 907 (53.0%)
of which sputum smear positive	1 394 (35.7%)

\* Except Scotland

† 18% missing data

§ Clinician reporting only (68% result unknown)

## Drug Resistance Surveillance, 2002

International proficiency testing	Yes
Geographic coverage	National *
Linkage with notification	No ‡
Cases with DST results	4 572
Cases resistant to INH	330 (7.2%)
Cases resistant to RMP	66 (1.4%)
MDR cases	51 (1.1%)
Cases resistant to EMB	29 (0.6%)
Cases resistant to SM	- -

‡ Aggregate DST data from laboratories

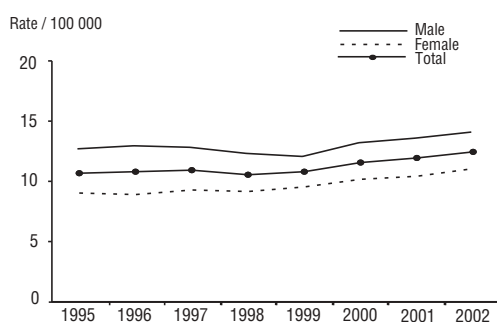
(linkage with TB notifications not yet available)

## Treatment Outcome Monitoring, 2001

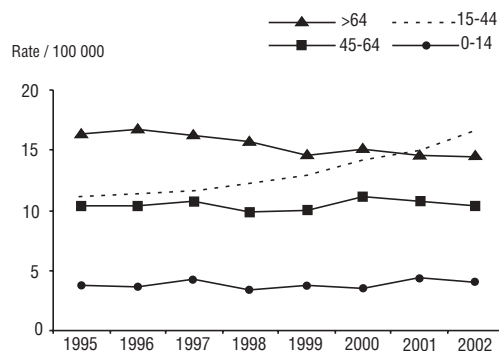
Geographic coverage	national
Cohort	new pulmonary culture positive II
Included in TOM cohort	1 450 *
Success	1 128 (78%)
Death	122 (8%)
Failure	2 (0%)
Default	66 (5%)
Transfer	21 (1%)
Still on treatment	65 (4%)
Unknown	46 (3%)

II Incomplete cohort: 75% of notified cases

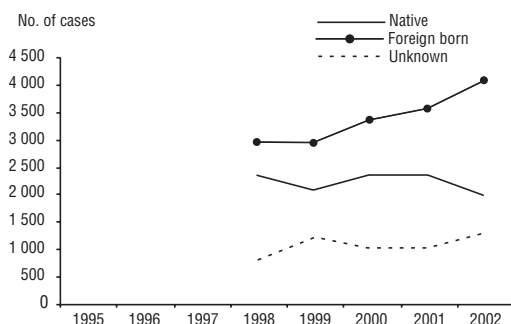
Tuberculosis notification rates by sex, 1995-2002



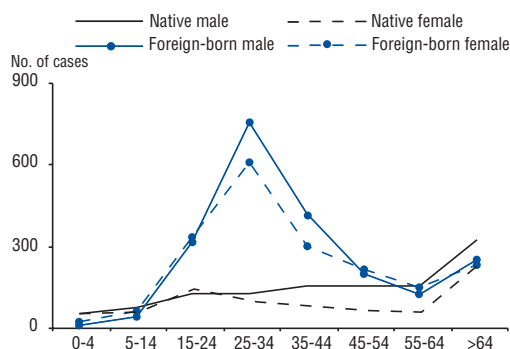
Tuberculosis notification rates by age group, 1995-2002\*



Tuberculosis cases by geographic origin, 1995-2002



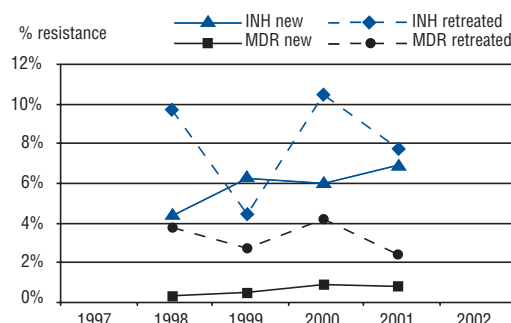
Tuberculosis cases by geographic origin, age group and sex, 2002\*



Resistance profile by treatment status (INH, RMP and EMB), 2002

Not available at  
time of publication

Resistance to INH and MDR by treatment status, 1997-2002



\* Except Scotland

### Tuberculosis case notifications, 2002

Type of data provided	Aggregate
Total number of cases	27 009
Notification rate per 100 000	105.1
Sex ratio (M:F)*	1.4
Median age-group, all cases*	25-34 years
Median age-group, non-nationals	-
Individuals born abroad	- -
New (never-treated)	19 960 (73.9%)
Culture positive	- -
Respiratory	23 692 (87.7%)
of which sputum smear positive	8 501 (35.9%)

\* New cases only (2002)

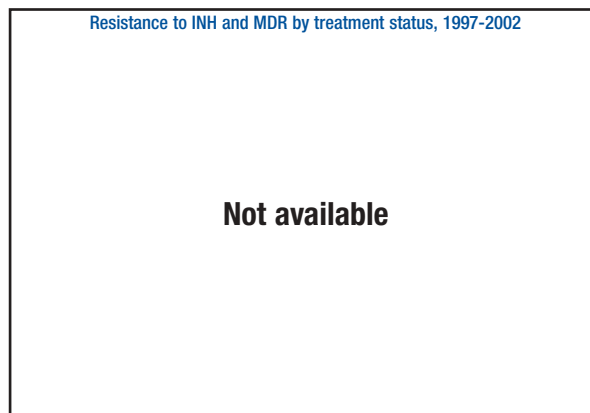
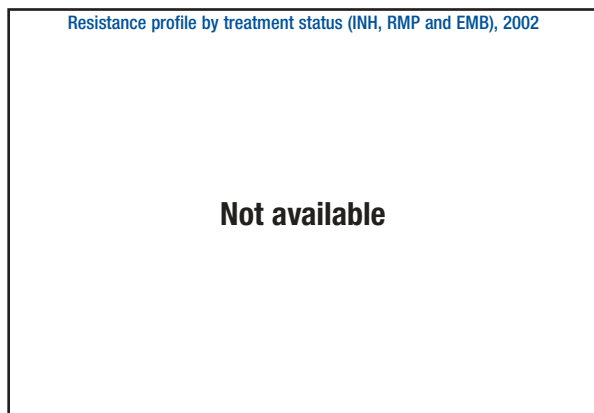
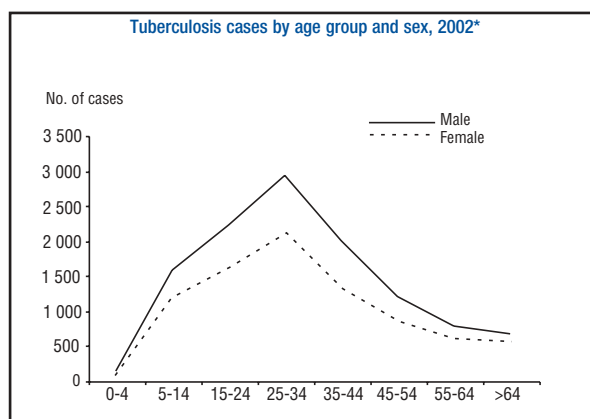
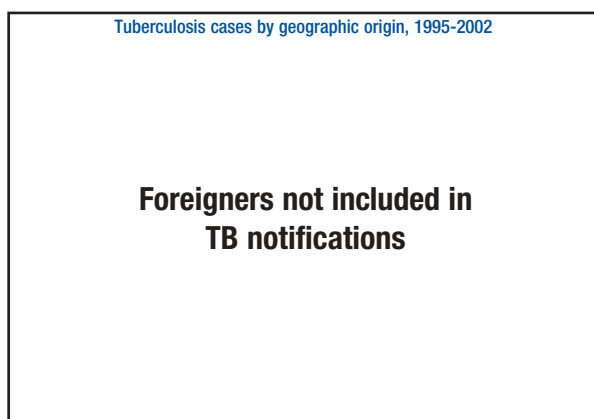
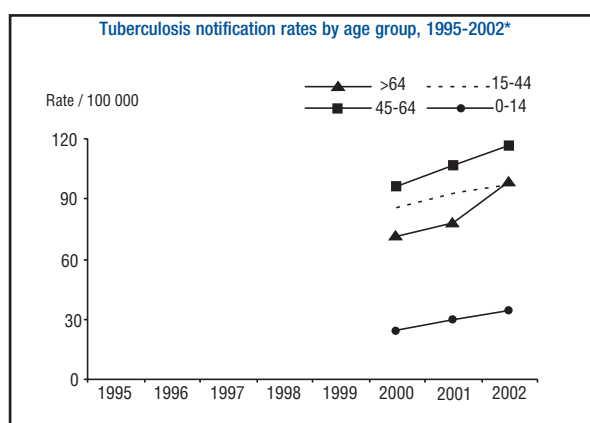
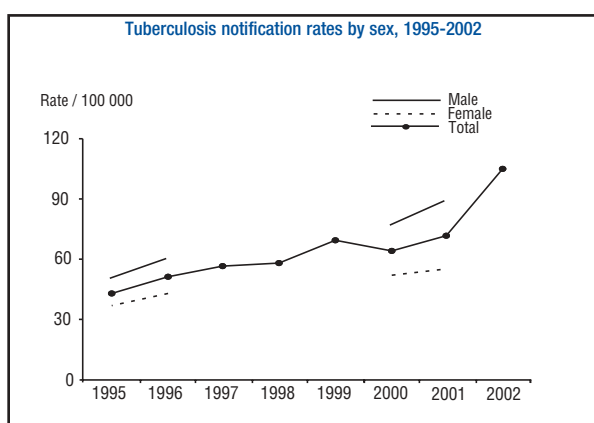
### Drug Resistance Surveillance, 2002

Not available

### Treatment Outcome Monitoring, 2001

Geographic coverage	DOTS Areas
Cohort	new pulmonary smear positive
Included in TOM cohort	854 *
Success	649 (76%)
Death	36 (4%)
Failure	100 (12%)
Default	55 (6%)
Transfer	14 (2%)
Still on treatment	0 (0%)
Unknown	0 (0%)

\* New cases only



\* New cases only (2002)

## 6. TECHNICAL NOTE

All the 52 countries of the WHO European Region participate in the tuberculosis surveillance activities co-ordinated by EuroTB (see list of participants). National surveillance institutions are appointed for participation in EuroTB activities and are responsible for the quality of data provided. Country participation is on a voluntary basis. The principles, methods and definitions guiding EuroTB activities are those recommended by working groups including European experts, WHO and the International Union against Tuberculosis and Lung Disease (IUATLD) [1-4].

### Data collection and management

Data are collected once per year. In order to allow for validation and consolidation at national level, data are collected several months after the end of the year of report, or after the end of the observation period in the case of treatment outcome.

#### TB case notification

Individual, anonymous data, according to standardised definitions and data file specification are collected yearly on TB cases notified at the national level in the previous calendar year. Individual data are validated by the EuroTB team in collaboration with national correspondents and then collated in a European data set. For 2002, individual data were provided by 29 countries (see country profiles).

Countries not providing individual data supply instead aggregate data as standard tables including numbers of TB cases by age and sex, geographic origin, anti-TB treatment history, site of disease, culture and sputum smear results. Since 1999, aggregate data are collected jointly with the WHO Regional Office for Europe, using a common form completed through the Internet, via the Computerised Information System for Infectious Diseases (CISID, <http://data.euro.who.int>), or using electronic or paper versions. Data are validated by both WHO and EuroTB teams and then aggregated in data sets (e.g. data by sex and age group) - which also include individual data - used to produce both WHO and EuroTB annual reports. Differences with data published by WHO [5] may be due to continuing data validation by EuroTB after closing files for publication of WHO report and to remaining differences in definitions.

#### Drug resistance surveillance (DRS)

Data on the results of drug susceptibility testing (DST) at the start of treatment for isoniazid, rifampicin, ethambutol and streptomycin are collected yearly since 1998, together with information on the organisation of DRS and on laboratory practices for DST. DST results are provided as "susceptible" or "resistant". If the proportion method is used, resistance is defined as  $\geq 1\%$  colony growth at the critical concentrations of the drug being tested.

In countries providing individual data on notified TB cases, DST results are usually provided in the individual data set (see above). In countries without individual data or where DST results are not matched to TB case notification, DST results are provided as aggregate tables with numbers of cases resistant to each drug or drug combination, by previous anti-TB treatment status and by geographic origin. Proportions of resistant cases are calculated using as a denominator cases with available DST results for at least rifampicin and isoniazid. The results for ethambutol and streptomycin are presented if DST results are available for at least 90% of the cases tested for isoniazid and rifampicin.

In order to describe primary and acquired drug resistance, data are analysed by anti-TB treatment history or, when unfeasible due to incomplete information, by TB history. Resistance among cases never treated indicates primary drug resistance due to infection with resistant bacilli. Resistance among cases previously treated usually indicates acquired drug resistance emerging during treatment as a consequence of selection of drug-resistant mutant bacilli. It can also result from exogenous re-infection with resistant bacilli.

Depending on the characteristics of national surveillance, DST data provided to EuroTB may be collected for all culture positive TB cases notified in the country, or for cases included in specific surveys or diagnosed in / referred to selected laboratories. Finally, geographic coverage of DRS is partial in some countries. On the basis of these differences, DRS data are analysed and presented in two groups:

**group A includes countries in which:**

- culture and DST are routinely performed at TB diagnosis;

and

- DST results are matched with TB cases notified and available for a high proportion of culture positive TB cases or;
- DST results derive from collected for large national samples or representative samples of TB cases.

**group B includes countries in which:**

- culture and/or DST are not routinely performed at TB diagnosis;
- DST results are matched with TB cases notified are available for less than 50% of culture positive TB cases or;
- DST results are provided for TB cases diagnosed in selected laboratories;
- DST data provided have partial geographic coverage.

Data in group A are considered representative and comparable across countries, whereas data in group B are not considered representative of national situations, particularly in countries where culture and DST are not a diagnostic routine at TB diagnosis.

Treatment outcome monitoring (TOM)

Treatment outcome information is collected jointly with WHO (see above) in aggregate form for sputum smear positive cases and for pulmonary culture positive cases (regardless of sputum smear status) notified in the calendar year before the last (i.e. in 2001 for data collected in 2003). In each group of cases, outcome information is collected stratified by TB treatment history (new, retreated, unknown history). In 2003, a pilot collection of individual TOM data was implemented, by requesting an updated 2001 individual TB case notification data file with an additional 'treatment outcome' variable. For participating countries, TOM data presented in the report come from this source.

Cohorts should include all cases notified in the calendar year of interest, after exclusion of cases found not to be eligible at follow-up (e.g. final diagnosis other than TB, exclusion of duplicate reports). However, in some countries cases with missing information on outcome or with specific characteristics (e.g. post mortem diagnosis, re-treatment cases) are excluded from cohorts, and the retreatment cases included in the cohorts differ from those included in notifications (relapses only versus any type of retreatment). This limits the comparison of outcomes between countries.

Completeness of cohorts is essential to ensure comparability of data. In order to assess completeness of cohorts, the sum of cases included in TOM cohorts after exclusion of non-eligible cases is compared with the total numbers of smear positive or pulmonary culture positive cases notified to EuroTB in the same year. In case of differences between the two figures, countries are requested to provide information on exclusion criteria. On the basis of this information, TOM data are classified in two groups for data presentation:

- group A, cohorts including at least 98% of smear positive or pulmonary culture positive TB cases notified, considered as representative;
- group B, cohorts including less than 98% of TB cases notified, or cases from selected areas, or for which corresponding notification data for assessing completeness of TOM cohorts were not available.

Cases are observed until meeting an outcome or for a maximum of 12 months after the start of treatment. Outcome categories for 2001 data collection, are those internationally recommended [3,4], with two additional categories "still on treatment at 12 months", and "unknown" (see definitions below). Classification of outcomes differs across countries and, particularly, incomplete follow-up laboratory information results in variable use of "treatment completion" instead of "cure" and of "still on treatment" instead of "failure". These differences, among others, limit the international comparisons of treatment outcome data.

TOM data published in this report may differ from those published from WHO [5] due to longer validation, and pooling of data from DOTS and non-DOTS areas.

HIV/TB surveillance

Information on HIV/TB surveillance presented in this report comes from two different sources:

- 1) Information on HIV serostatus of notified TB cases (Table 14) was collected in 2003 through a specific survey on HIV testing and HIV surveillance among TB patients, in which 42 European countries participated. Numbers and percentages of HIV positive TB cases are likely to be lower than true figures because not all TB cases are tested for HIV and because information on HIV serostatus of TB cases is incomplete in many countries.

2) TB is an AIDS defining condition in Europe [6]. Information on TB morbidity at AIDS diagnosis (Table 15), available from most European countries, is derived from the European Non Aggregate AIDS Data Set (ENAAADS), produced by the EuroHIV project. AIDS data are presented here by year of report and differ from those published by EuroHIV, which are based on year of diagnosis, adjusted for reporting delays. The contribution of HIV to total TB incidence is higher than that inferable from these data, since TB episodes diagnosed after initial AIDS diagnosis are not reported to AIDS notification systems. To provide a “lower-band” estimate of the proportion of HIV-associated TB, numbers of AIDS cases with TB as initial AIDS indicative disease are divided by total TB cases notified in the same year.

## Definitions

### Laboratory confirmation

#### *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*, *M. Africanum* or *M. bovis* (excluding *M. bovis* BCG);
- in countries where routine culturing of specimens is not feasible, patients with sputum smear positive for acid-fast bacilli (AFB) are also considered as definite cases.

#### *Other-than-definite TB case*

A patient 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 notified in the calendar year of interest should be reported to EuroTB and are included in the totals presented in this report. Cases should be notified only once in a given calendar year.

### Previous anti-TB treatment status

#### *Never treated case*

A case who never received a drug treatment for active TB in the past or who received anti-TB drugs for less than one month.

#### *Previously treated case*

A case who was diagnosed with TB and received treatment with anti-TB drugs (excluding preventive therapy) for at least one month.

Note: Never treated cases are commonly referred to as “new” cases although this term should not be considered to indicate “incidence” in the strict epidemiological sense. Among cases with a history of TB treatment (retreated cases), relapses are included in notifications in all countries whereas cases retreated after failure or after default or chronic cases are variably included in notifications across countries [7]. In countries where information on previous anti-TB treatment is not available or is incomplete, previous treatment status is classified according to previous TB diagnosis.

### Site of disease

#### *Pulmonary case*

A case with TB affecting the lung parenchyma and/or the tracheo-bronchial tree.

#### *Extrapulmonary case*

A case with TB affecting any site other than pulmonary as defined above. Pleural TB and intrathoracic lymphatic TB without involvement of the lung parenchyma are classified as extrapulmonary.

Note: Cases with both pulmonary and extrapulmonary localisation are classified as pulmonary cases. Cases with disseminated TB (i.e. TB involving more than two organ systems, miliary TB or isolation of *M. tuberculosis* complex from blood) are classified as pulmonary if the lung parenchyma or tracheo-bronchial tree are affected and as extrapulmonary otherwise. In individual data, detailed information is collected on the major site and one minor site of disease. The pulmonary localisation is always classified as the major site.

As an alternative to the recommended “pulmonary” classification above, in some countries cases are classified according to the “respiratory” classification, in which pleural and intrathoracic lymphatic TB cases are classified as “respiratory” cases together with pulmonary cases (as defined above), and cases with disease of any other site as extrapulmonary.

### Geographic origin

The geographic origin of TB cases is classified according to place of birth (born in the country / foreign born) or, if unavailable, citizenship (citizen /

non citizen). The country or continent of origin is included in individual data. The term “national” as used in this report refers to cases born in, or having citizenship of, the country of report, while “foreigner” refers to both cases born outside, or not having citizenship of, the country of report.

### Drug resistance

*Mono-resistance*: resistance to a single first-line anti-TB drug (isoniazid, rifampicin, ethambutol or streptomycin).

*Poly-resistance*: resistance to at least two of the first line anti-TB drugs listed above.

*Multi-drug resistance*: resistance to at least isoniazid and rifampicin.

*Resistance among cases never treated*: it indicates primary drug resistance due to infection with resistant bacilli.

*Resistance among cases previously treated*: it usually indicates acquired drug resistance emerging during treatment as a consequence of selection of drug-resistant mutant bacilli. It can also result from exogenous re-infection with resistant bacilli.

### Treatment outcomes

#### *Cured*

- Treatment completion and culture becoming negative on samples taken at the end of treatment and on at least one previous
- occasion or in countries where sputum smear positive cases are classified as definite cases sputum microscopy becoming negative for AFB at the end of treatment and on at least one previous occasion.

#### *Completed*

Treatment completion and does not meet the criteria to be classified as cure or treatment failure.

#### *Failed*

Culture or sputum smear remaining positive or becoming positive again at 5 months or later during the course of treatment.

#### *Died*

Death before cure or treatment completion, irrespective of cause.

#### *Defaulted*

Treatment interrupted for 2 months or more, not resulting from a decision of the care provider or patient lost to follow-up for 2 months or more before the end of treatment, except transferred.

#### *Transferred*

Patient referral to another clinical unit for treatment and information on outcome not available.

#### *Still on treatment*

Patient still on treatment at 12 months and who did not meet any other outcome during treatment. It includes patients with:

- initial treatment changed due to polyresistance (ie. resistance to at least two first line drugs) on the isolate taken at the start of treatment
- treatment prolonged because of side effects / complications, initial regimen planned for > 12 months
- information on the reasons for being still on treatment not available

#### *Unknown*

Information on outcome not available, for cases not known to have been transferred.

## **Data presentation**

Numbers of cases are not adjusted for under-reporting or for over-reporting of TB cases. Among 28 European countries which provided recent estimates of completeness of TB notification, 21 estimated a completeness of TB reporting of 95% or over (EuroTB, unpublished data).

For calculation of notification rates, country population denominators by age and sex are taken from United Nations demographic estimates, 2002 update [8], except for Andorra and San Marino [9, 10] and Monaco (2000, provided from national correspondent). Population estimates by geographic origin, provided from national correspondents, were updated in 2002-3.

Based on epidemiological and geographical considerations, the 52 countries of the WHO European Region have been grouped into three geographic areas:

- the European Union and West (EU & West): the 25 Member States of the enlarged EU plus Andorra, Iceland, Israel, Monaco, Norway, San Marino and Switzerland;



- the Centre: Albania, Bosnia & Herzegovina, Bulgaria, Croatia, the F.Y.R. of Macedonia, Romania, Serbia & Montenegro and Turkey;
- the East: 12 countries of the former Soviet Union (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan).

The respective total populations of the three areas were 474, 121 and 281 million in 2002.

Maps included in this report were adapted from the map of the WHO European Region located on WHO EURO website ([www.who.dk](http://www.who.dk)), using the Vertical Near-side perspective, central meridian: 45, reference latitude: 35, height of viewpoint: 20000000-.

### Geographic areas, WHO European Region



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