

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

Report on
tuberculosis cases
notified in 2000

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



Surveillance of tuberculosis in Europe: participating countries and national institutions (2001)

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

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EuroTB staff

Delphine Antoine (until 2001)	epidemiologist
Philippe Barboza (2002)	epidemiologist
Hedwige Bousquié	assistant
Dennis Falzon	epidemiologist
Andrea Infuso	coordinator
Jaap Veen	tuberculosis consultant (KNCV)

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EuroTB – InVS

12, rue du Val d’Osne – 94415 Saint-Maurice Cedex – France

Telephone: +33.1.41.79.68.05 Fax: + 33.1.41.79.68.02
e-mail: eurotb@invs.sante.fr internet: www.eurotb.org

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1.1 SUMMARY

EuroTB is a European network for the surveillance of tuberculosis (TB) created in 1996 with the aim of improving the contribution of surveillance to TB control. Its main activities are the annual collection, validation, analysis and publication of standardised surveillance data provided from national surveillance institutions in the 51 countries of the WHO European Region. In 2000, 385 810 cases of TB were notified in the Region, with large differences in notification rates between three areas:

- 12 cases per 100 000 population in the West (the 15 EU countries, Andorra, Iceland, Israel, Malta, Monaco, Norway, San Marino and Switzerland);
- 90 per 100 000 in the East (the 15 Newly Independent States of the former Soviet Union).
- 41 per 100 000 in the Centre (the 13 remaining countries)

Between 1995 and 2000, in the West, notification rates decreased by 3% yearly overall, but increased in Denmark, Luxembourg, Norway and the United Kingdom, due to an increase in foreign-born cases. In 10 countries with available data, average annual decreases in numbers of cases were more marked among nationals (-7%) than among persons of foreign origin (-1.5%). In the Centre, rates decreased by 3-6% yearly in nine countries, were stable in Albania, and increased by 2-4% annually in Bosnia-Herzegovina, Bulgaria and Romania. In the East, rates in 2000 were 57% higher than in 1995, with mean annual increases of 5-12% in most countries. Over the same period, TB cases diagnosed in specific population groups were increasingly included in TB notifications.

Age specific rates were highest in the age group over 64 years in the West (24% of cases) and in the Centre (26% of cases; Romania excluded), while in the East rates peaked in the age group 25-34 years (22% of cases). Rates were higher in men, with higher sex ratios in countries with higher notification rates. In the West, 30% of the cases were of foreign origin (>40% in nine countries). Overall, 10% of cases had already had a treated or untreated TB episode in the past. In countries using the pulmonary classification (n=34), pulmonary cases represented 70% of TB cases in the West, 82% in the East and 86% in the Centre. Nearly half of the pulmonary cases in the West and Centre, and one third in the East were sputum smear positive. Overall, 50% of all cases notified in the West, the Centre and the Baltic states were confirmed by culture (range: 19-100%). In the other countries in the East information on culture remained incomplete.

Nationwide, representative data on drug susceptibility testing at the start of treatment for TB cases notified in 2000 were provided from 24 countries. Among cases never treated, the proportions of primary multi-drug resistant (MDR) cases were very high in the Baltic states (9-12%), and Israel (14%), and averaged 0.7% in 20 countries in the West and Centre (range 0-1.9%). Among cases previously treated, 4.7% were MDR in the West and Centre, and 37% in the Baltic states. In the West, the global proportion of MDR cases was higher in persons of foreign origin (2.7%) than in nationals (0.5%).

Nationwide treatment outcome data for new smear positive TB cases notified in 1999 were available for 22 countries. The proportion of cases with no information on outcome was lower than 10% in the majority of the countries. Death was reported in 7-8% of cases in each geographic area. The median success rate (cure or treatment completion) was 84% in the Centre, 77% in the West, and 72% in the East. In the East, median proportions of failure (5%), default (5%) and transfer (2%) were higher than in the Centre and in the West.

Surveillance data indicate that in most countries in Western and Central Europe, TB control remains effective overall. In the West, the population of foreign origin is a risk group for both TB and drug resistance, deserving targeted control approaches. In the East, the huge increase in TB notification rates indicates increasing TB incidence and, in some countries, also improved completeness of notification and case detection, due to expanding implementation of the WHO recommended DOTS strategy for TB control. High levels of drug resistance, and in some countries, poor treatment outcomes indicate a sub-optimal past or present performance of TB control programmes, in a time of socio-economic hardship. These trends and the possible impact of the spreading HIV epidemic, call for urgent action to readapt and strengthen TB control programmes in the East.

1.2 RÉSUMÉ

EuroTB est un réseau européen de surveillance de la tuberculose (TB) créé en 1996 dans le but d'améliorer la contribution de la surveillance au contrôle de la TB. Ses activités principales sont le recueil, la validation, l'analyse et la publication de données de surveillance standardisées, fournies par les institutions nationales de surveillance dans les 51 pays de la Région Europe de l'OMS. En 2000, 385 810 cas de TB ont été déclarés dans la Région, avec des différences importantes dans les taux de déclaration selon trois zones :

- 12 cas pour 100 000 habitants à l'Ouest (les 15 pays de l'UE ainsi que Andorre, Islande, Israël, Malte, Monaco, Norvège, Saint Marin et Suisse) ;
- 90 pour 100 000 à l'Est (les 15 pays de l'ex-URSS)
- 41 pour 100 000 au Centre (les 13 autres pays de la Région)

Entre 1995 et 2000, les taux de déclaration ont globalement diminué de 3 % par an à l'Ouest mais ont augmenté au Danemark, au Luxembourg, en Norvège et au Royaume-Uni, dus à une progression du nombre de cas nés à l'étranger. La diminution annuelle du nombre de cas est plus importante chez les nationaux (-7 %) par rapport aux individus d'origine étrangère (-1,5 %) (données de 10 pays). Au Centre, les taux annuels ont diminué de 3 à 6 % dans neuf pays, sont restés stables en Albanie et ont augmenté de 2 à 4 % par an en Bosnie-Herzégovine, en Bulgarie et en Roumanie. A l'Est, les taux en 2000 sont 57 % plus élevés qu'en 1995, avec des augmentations annuelles moyennes de 5 à 12 % dans la plupart des pays. Sur cette même période les cas de TB diagnostiqués dans des groupes de population spécifiques, sont de plus en plus inclus parmi les cas déclarés.

Les taux de déclaration par âge sont plus élevés dans le groupe d'âge au-dessus de 64 ans à l'Ouest (24 % des cas), et au Centre (26 % des cas ; Roumanie exclue) alors qu'à l'Est les taux sont plus élevés dans le groupe d'âge 25-34 ans (22 % des cas). Les taux sont plus élevés chez les hommes, avec des différences entre sexes plus importantes dans les pays où le taux de déclaration est plus élevé. A l'Ouest, 30 % des cas sont d'origine étrangère (>40 % dans neuf pays). Globalement, 10 % des cas ont un antécédent de TB traité ou non-traité. Dans les pays utilisant la classification pulmonaire (n=34), 70 % des cas sont pulmonaires à l'Ouest, 82 % à l'Est et 86 % au Centre. Globalement, environ 50 % des cas ont un frottis d'expectoration positif à l'Ouest et au Centre et un tiers à l'Est. Environ 50 % des cas à l'Ouest, au Centre et au pays Baltes ont été confirmés par la culture (19-100 %). L'information sur la culture reste incomplète dans les autres pays de l'Est.

Vingt-quatre pays ont fourni des données nationales représentatives sur les antibiogrammes en début de traitement pour les cas de TB déclarés. Parmi les cas sans antécédents de traitement, la proportion de cas multirésistants (MDR) est très élevée au pays Baltes (9 à 12 %) et en Israël (14 %) alors qu'elle est de 0,7 % en moyenne dans 20 pays à l'Ouest et au Centre (0 à 1,9 %). Parmi les cas déjà traités, 4,7 % sont MDR à l'Ouest et au Centre et 37 % dans les pays baltes. A l'Ouest, la proportion globale de cas MDR est plus élevée parmi les cas d'origine étrangère (2,7 %) que parmi les cas nationaux (0,5 %).

Des données nationales sur le résultat des traitements des cas de TB déclarés en 1999 sont disponibles pour 22 pays. La proportion de cas non renseignés est inférieure à 10 % dans la plupart des pays. La proportion médiane de décès est comparable dans les trois zones (7 à 8 %). La proportion médiane de résultats favorables (guérison ou traitement complété) est de 84 % au Centre, 77 % à l'Ouest, et 72 % à l'Est, où les proportions médianes de faillites (5 %), d'interruptions (5 %) et de transferts (2 %) sont plus élevées qu'à l'Ouest et au Centre.

Dans la plupart des pays de l'Ouest et du Centre de l'Europe, les données de surveillance indiquent que le contrôle de la TB reste globalement efficace. A l'Ouest, la population d'origine étrangère représente un groupe à risque de TB et de résistance et nécessite d'interventions spécifiques. A l'Est, l'augmentation massive des taux de déclaration indique une augmentation de l'incidence de la TB, et, dans certains pays, une meilleure exhaustivité et un diagnostic plus adapté dans le cadre de l'expansion de la stratégie de contrôle DOTS recommandée par l'OMS. Les niveaux élevés de résistance aux médicaments antituberculeux et les résultats de traitement peu favorables observés dans plusieurs pays montrent une performance réduite des programmes de lutte, dans une période de difficultés socio-économiques. Ces tendances, qui pourraient être accentuées par l'épidémie d'infections à VIH, appellent à une réadaptation et à un renforcement urgents des programmes de lutte anti-tuberculeuse à l'Est.

3. TUBERCULOSIS CASES NOTIFIED IN 2000

3.1 Completeness of TB notification

Geographic coverage

All countries provided data on TB cases notified in the whole country, except Yugoslavia where cases in Kosovo were not included and Denmark, where cases from Greenland and the Faeroe islands were not included.

Previously treated cases

In all countries, both new and previously treated TB cases were notified. However, the criteria for notification of previously treated cases differ across countries [8], which can affect the comparison of notification data for recurrent cases. Completeness of reporting improved in 2000 in the East, with only five countries providing parts of their data on new cases alone, down from 10 in 1999.

Site of disease

Countries notified TB cases with any disease localisation, except for Spain, where notification of extra-respiratory cases was limited to meningeal TB, and where total notification rates are therefore not comparable with those of other countries.

Inclusion of specific population groups

In 2000, 32 countries included in their TB notifications cases diagnosed in specific population groups (Table 1), i.e. foreigners, prisoners, military personnel, homeless, persons with HIV infection or AIDS and institutionalised persons. In the other countries one or more of the groups listed above were not included in TB notification, which directly affects completeness of reporting.

Sources of reporting

In 25 countries (14 in the West, 7 in the Centre and 4 in the East), both clinicians and laboratories notified TB cases whereas in the other countries only clinicians notified TB cases. Laboratory reporting is recommended [2] and may result in higher completeness of reporting for definite cases.

3.2 Information provided

All the 51 countries in the WHO European Region provided data on national notification systems and on TB cases notified in 2000 (Tables 1-3). No TB cases were notified in Monaco. Individual data on TB cases were provided from 24 countries (16 in the West, seven in the Centre and Estonia).

A breakdown of cases by sex was provided from all countries except Turkey (Table 4). The number of cases by age group was provided from all countries except Azerbaijan, Belarus, Kyrgyzstan and Turkey (Table 5). Paediatric age groups provided from the Russian Federation (0-6 and 7-14 years) were different from those requested (0-4 and 5-14 years). The distribution of cases by both age group and sex was also available for most countries (Country profiles). The distribution of cases by site of disease and sputum smear result was available for most countries, whereas information on previous anti-TB treatment status (43/51), geographic origin (34/51) and culture result (42/51) was less complete.

Geographic origin of cases was provided from 34 of the 42 countries that include cases of foreign origin in TB notifications (all 23 countries in the West, seven countries in the Centre and four countries in the East, Table 6). Cases were classified by country of birth, as recommended, in 25 countries, by citizenship in 8 countries and variably in the two parts of Bosnia-Herzegovina. In addition to the 43 countries providing case classification by previous anti-TB treatment status, three others provided only information by previous TB history (Table 9).

All countries notified cases with any anatomic localisation, except for Spain, which notified only respiratory and meningeal TB cases. Numbers of cases by site of disease were available for all countries except Turkmenistan and Uzbekistan (Table 10). The recommended pulmonary classification (see technical note) was used in 34 countries and the respiratory classification in 16 countries. In 2000, three countries in the East moved from respiratory to pulmonary classification. Information on the major site and one minor site of disease (see technical note)

was available for 15 countries, representing 63% of individual records reported (Table 11).

In 2000, culture for *Mycobacteria* was considered to be routinely performed for diagnosis of pulmonary TB in the whole country in 37 countries and in some areas in 11 countries. In Albania and Moldova culture was not routinely performed, while no information was provided from Turkey (Table 12). In countries providing individual data, information on culture was quite incomplete: 79% of pulmonary cases in the Centre and 61% in the West, and 42% of extrapulmonary cases in each area. Sputum smear was considered to be routinely used for TB diagnosis in the whole country in 43 countries (Table 15).

3.3 General figures and trends

In 2000, 385 810 TB cases were notified by the 51 countries of the WHO European Region, representing 10.5% of notifications made to WHO worldwide in the same year [4]. In the European Region, 68% of notifications derived from the East, 20% from the Centre and 13% from the West (Table 3). In the East, 55% of the cases were notified by the Russian Federation. In the Centre, 37% of the cases were

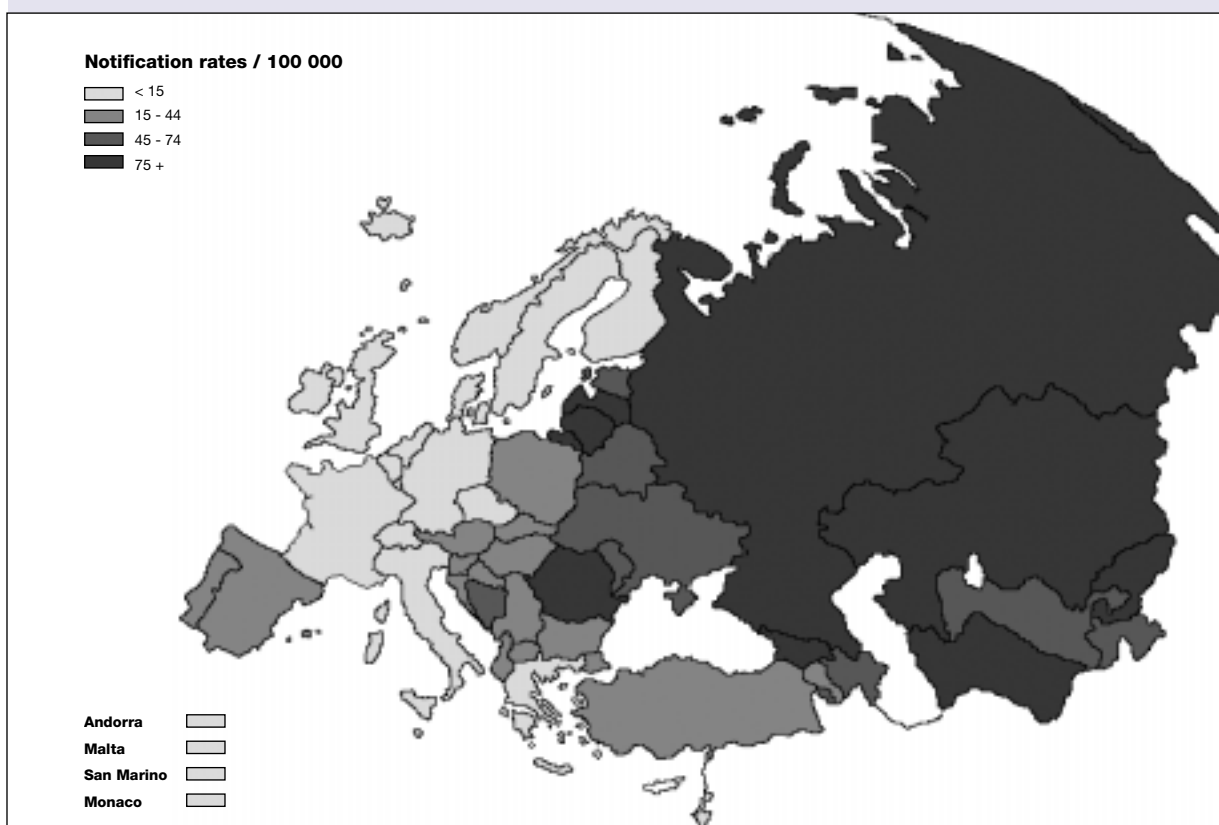
from Romania and 24% from Turkey.

The overall notification rate was 44 per 100 000 population, with important geographic variations between areas and countries (Table 3, Map 1). TB notification rates in 2000 were:

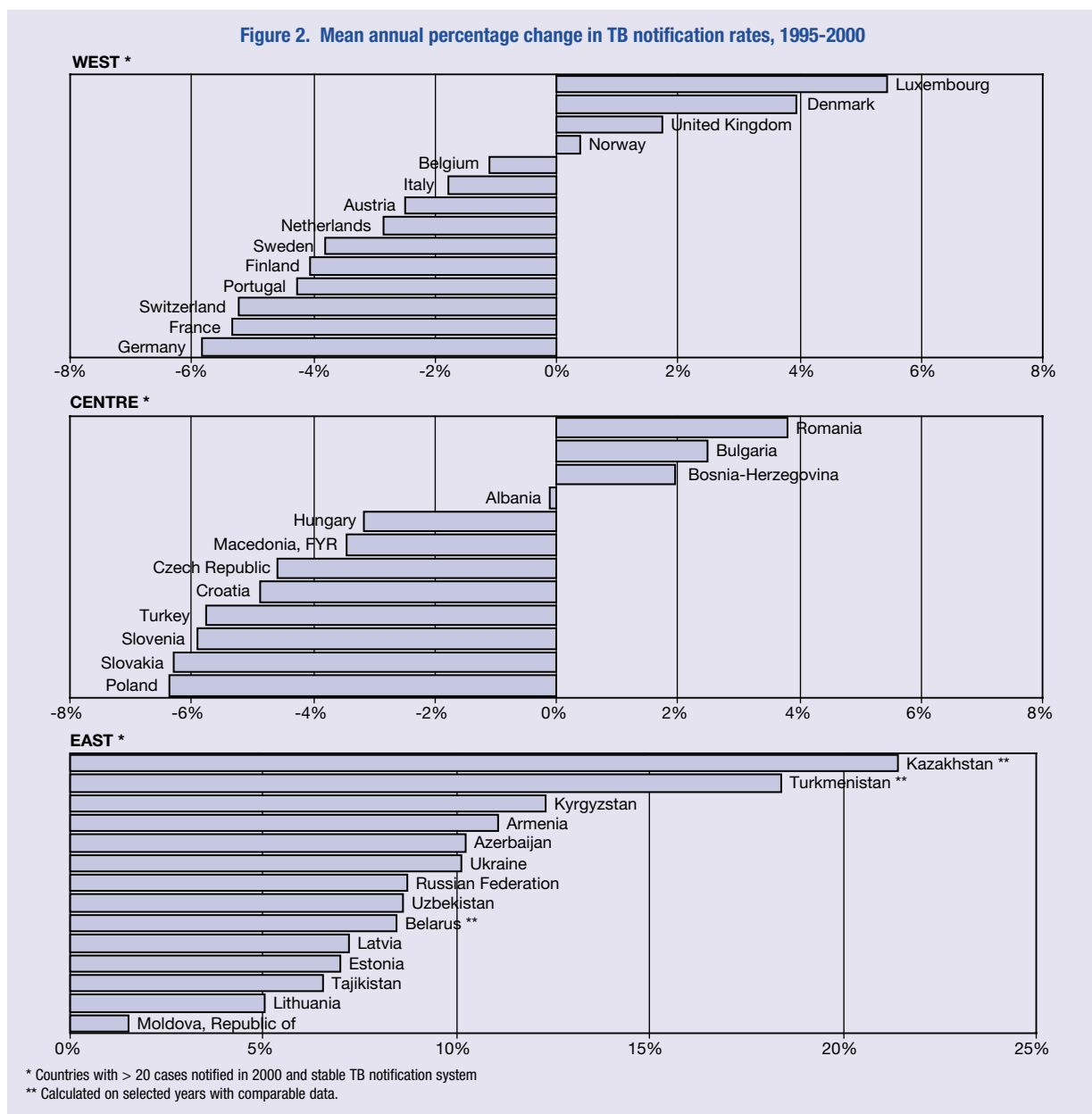
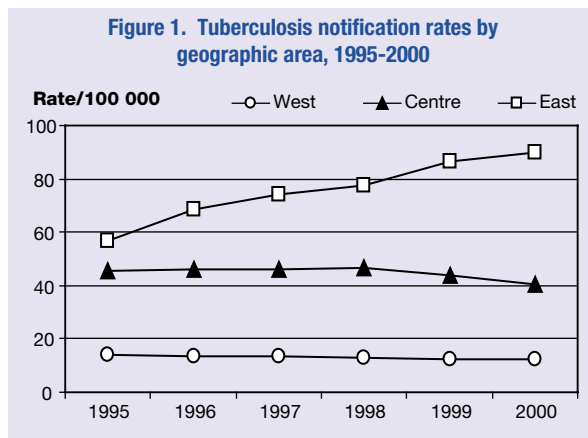
- 12 per 100 000 population in the West, where rates were 15 or less in 21 countries, and were higher in Portugal (45) and in Spain (21);
- 41 per 100 000 population in the Centre, ranging between 20 and 44 in nine countries, lower in the Czech Republic (14) and Slovenia (19) and higher in Romania (124) and in Bosnia-Herzegovina (66);
- 90 per 100 000 population in the East, where rates were 45 or more in all countries except Armenia (36), and were highest in Kazakhstan (175), Kyrgyzstan (130) and Georgia (122).

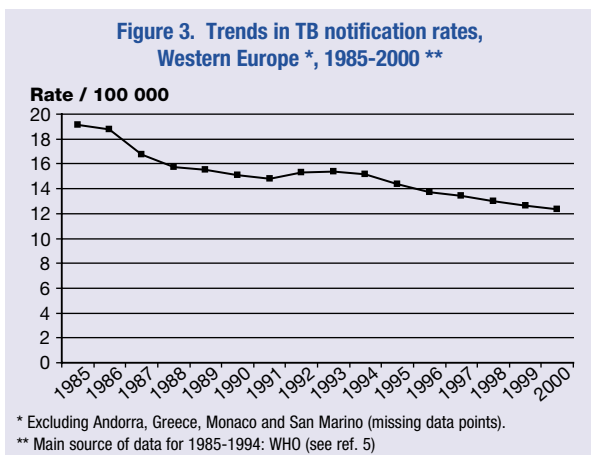
Trends in notification rates between 1995 and 2000 varied widely across areas and countries (Table 3, Figures 1-3 and Country profiles). In the West, the overall notification rate was 14% lower in 2000 than in 1995, with an average annual decrease of 3.1%. This rate of decline was sharper than that observed between 1990 and 1995 (1.0%), when a net increase in notification rates was actually observed between

Map 1. Tuberculosis notification rates per 100 000 population, 2000



1991 and 1993, reflecting a tendency in six of the 19 countries depicted in Figure 3. However, the downward trend in mean annual rates between 1995 and 2000 was lower than that observed between 1985-1990 (4.5%), and from 1974 to 1985 (4.9%, 14 countries [12]). In countries reporting more than 20 cases in 2000, between 1995 and 2000, rates decreased by an annual average of 2% to 6% in 10 countries with stable surveillance by systems. Rates decreased by less than 2% yearly in Belgium and Italy, increased by less than 2% yearly in Norway and in the United Kingdom, and increased by more than 2% yearly in Denmark, and Luxembourg (Figure 2). In 10 countries with available data, average annual decreases in





the numbers of notified cases between 1995 and 2000 were more marked among nationals (-7%) than among persons of foreign origin (-1.5%) (See Figure 6 and Section 3.5 below).

In the Centre, overall notification rates were 12% lower in 2000 than in 1995, with notification rates decreasing on average by 3 to 7% yearly in nine countries, stable in Albania and increasing by 2-4% yearly in Bosnia-Herzegovina, Bulgaria and Romania. Wide yearly fluctuations in rates in some countries may point to unstable notification systems, on which detailed information is not available. Stable or increasing rates, may indicate sub-optimal performance of TB control in Albania, Bulgaria and Romania, and the effects of the war in Bosnia-Herzegovina, where rates peaked in 1998-1999. The extremely high and increasing notification rates in all age groups in Romania indicate a persisting high level of TB transmission, making it distinct from other countries in the Centre.

In the East notification rates were 57% higher in 2000 than in 1995 (excluding Georgia where no data were available for 1995), with mean annual increases of 5-12% in most countries. In Kazakhstan, the yearly increase since 1997 averaged 21%. Between 1999 and 2000, the increase of notification rates was higher than 5% in six countries, down from 12% between 1995 and 1996). In several of these countries, recent trends in notifications may have been variably affected by global changes in health and surveillance systems, including the increasing notification of cases diagnosed in specific population groups such as prisoners and foreigners, not previously included in statistics (see Section 3.1), and by increasing case detection in the context of expanding DOTS implementation.

In several countries in the East increasing incidence is coupled with high levels of multi-drug resistance (see Section 5 and [13]) and with the spread of HIV epidemics, starting in 1995 [14]. HIV co-infection is expected to increase TB caseload in the coming years. In some countries in the East, TB represented a major cause of morbidity among AIDS cases reported in 2000 (see Section 4). These elements depict a serious situation, which deserves urgent large-scale public health interventions.

3.4 Sex and age

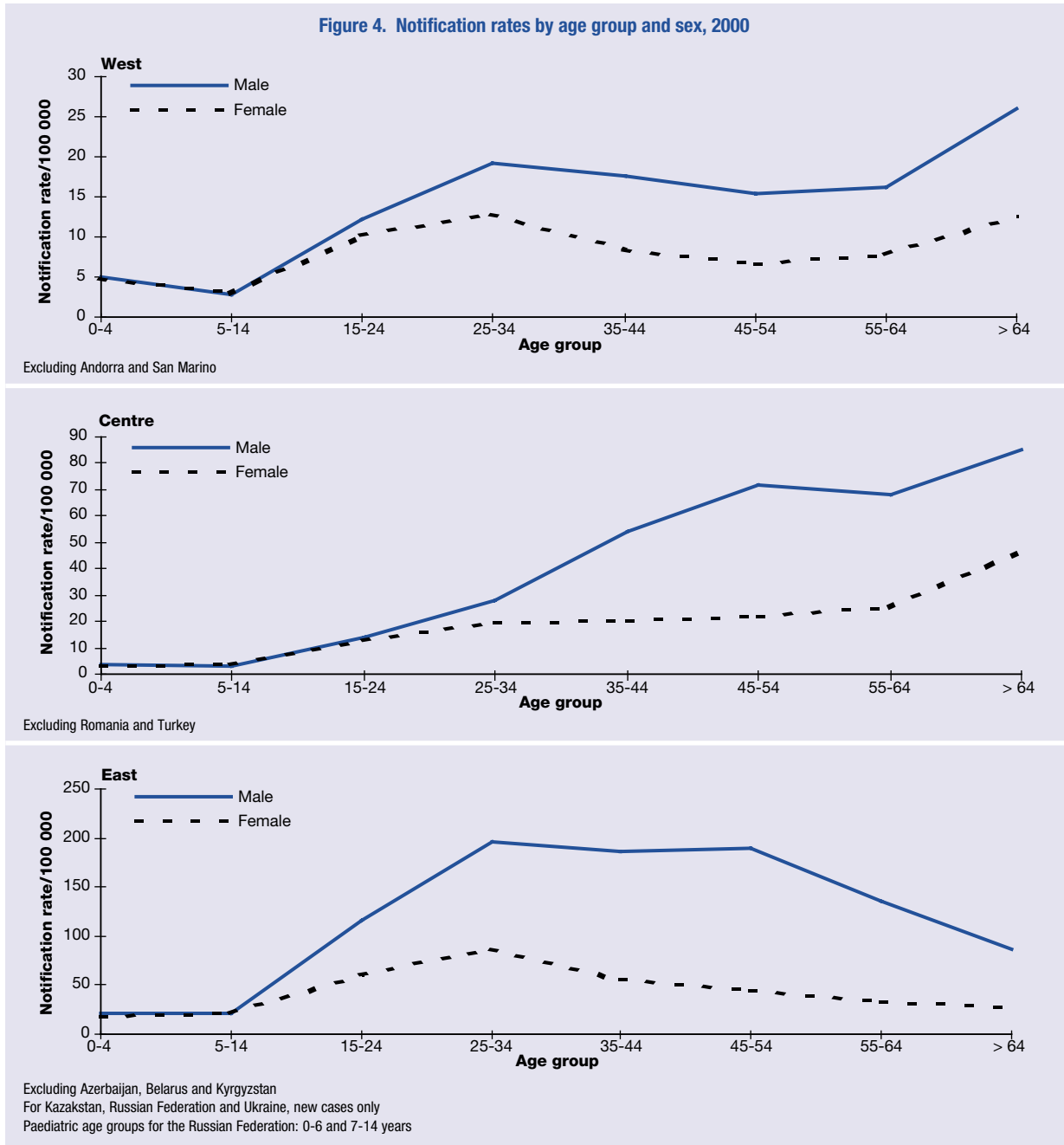
Sixty-nine percent of all TB cases notified in 2000 were males (Table 4). As in 1999, the proportion of male cases notified increased from West (62%) to Centre (66%) to East (71%). Twenty countries, of which 10 in the East, reported two times or more cases in males as in females. While this suggests regional differences in frequency of disease by sex, it may also be a result of differential notification practices and access to care.

Paediatric cases (0-14 years) accounted for 5% of cases overall (Table 5), with less than one third of these under 5 years. Notifications in the age-group 0-14 years represented more than 10% of cases notified in Israel, the FYR of Macedonia, Malta, Tajikistan, Turkmenistan and Uzbekistan, suggesting over-notification of paediatric TB cases in some of these countries. In the West, rates were higher in children under 5 than in children aged 5-14 (Figure 4), reflecting higher risk of developing TB after infection in younger children than in older children [15]. Rates were comparable in the two paediatric age groups in the Centre and the East, suggesting that over-reporting of paediatric cases, where occurring, concentrates in the age group 5-14 years.

Among adults, the age group 15-44 years accounted for 48% of the cases notified in the West, 44% in the Centre and 63% in the East. Conversely, the age group over 64 years represented 24% of the cases in the West, 18% in the Centre and 6% in the East.

The ratio of males to females was found to vary by age. While it was 1.1 among those under 15 years, the ratio increased to 3.0 in the age group 45-54 years, decreasing to 1.4 amongst those over 64 years. The high sex ratio in the 45-54 age group was observed in all the three areas, but was more pronounced in the Centre and in the East (Figure 2) than in the West. While this trend was observed amongst

Figure 4. Notification rates by age group and sex, 2000



national cases, foreigners tended to have lower sex ratios at nearly all ages when compared to nationals, except in young adulthood (Figure 5 and Country profiles).

In the West, age specific notification rates among men were relatively stable across the age groups 25-34 years to 55-64 years and were highest among the elderly (over 64 years). In women, rates were highest in the age groups 25-34 years and among the elderly. In the Centre, rates increased markedly after age

14 in men but less so in women, resulting in large sex differences in the age groups 35-44 years and older. In the East, rates were highest in the age group 25-34 years in both sexes and decreased steadily from the age group 35-44 years in women. Among men rates remained high until the age group 45-54 years and decreased markedly in the older ages.

The higher TB notification rates in adult men compared to women observed in all countries result from higher prevalence of infection in men [16]. The larg-

er difference in notification rates by sex observed in the Centre and in the East could also be partly explained by under-reporting of female cases due to differences in the access to health services in some countries [17].

The higher notification rate in the older age group in the West mainly reflects reactivation of old *M. tuberculosis* infection. Higher notification rates in young adults in the East indicate high levels of transmission in recent years in this area. However, it should be pointed out that a large proportion of cases from the East were new cases (82% of cases included in Figure 4), which have a median age 5 years lower than cases with previous TB episodes (based on individual data, not shown).

In the 32 countries providing the age distribution of TB cases by geographic origin, the proportion of cases aged 15 to 34 years was much higher in foreigners (46%) than in nationals (26%) (see Section 3.5 and Country profiles).

In the 15 countries in the West and Centre with decreasing total notification rates between 1995 and

2000, and with available data (Figure 2), the age specific rates decreased in the under-45 population, except in Austria, Macedonia and Slovenia (0-14) and Belgium (15-44) (Country profiles). This suggests decreasing transmission in the West and Centre. In the East, in contrast, age specific TB notification rates increased in the under-45 population in five countries with available data (Armenia, Estonia, Latvia, Lithuania and Rep. of Moldova), although decreasing in the 0-14 age group in Armenia. Trends in the East have to be interpreted with caution, considering the recent inclusion of cases from specific population groups (e.g. prisoners in the Rep. of Moldova), which may have variably affected the age distribution of cases over this time period.

3.5 Geographic origin

In the West, cases of foreign origin represented 30% of notified cases overall and more than 40% in nine countries (Table 6, Map 2). In the Centre and in the East, countries reporting the highest proportions of foreign-born cases were Slovenia (25%), Estonia (23%) and Croatia (11%).

Map 2. Proportion of tuberculosis cases of foreign origin, 2000

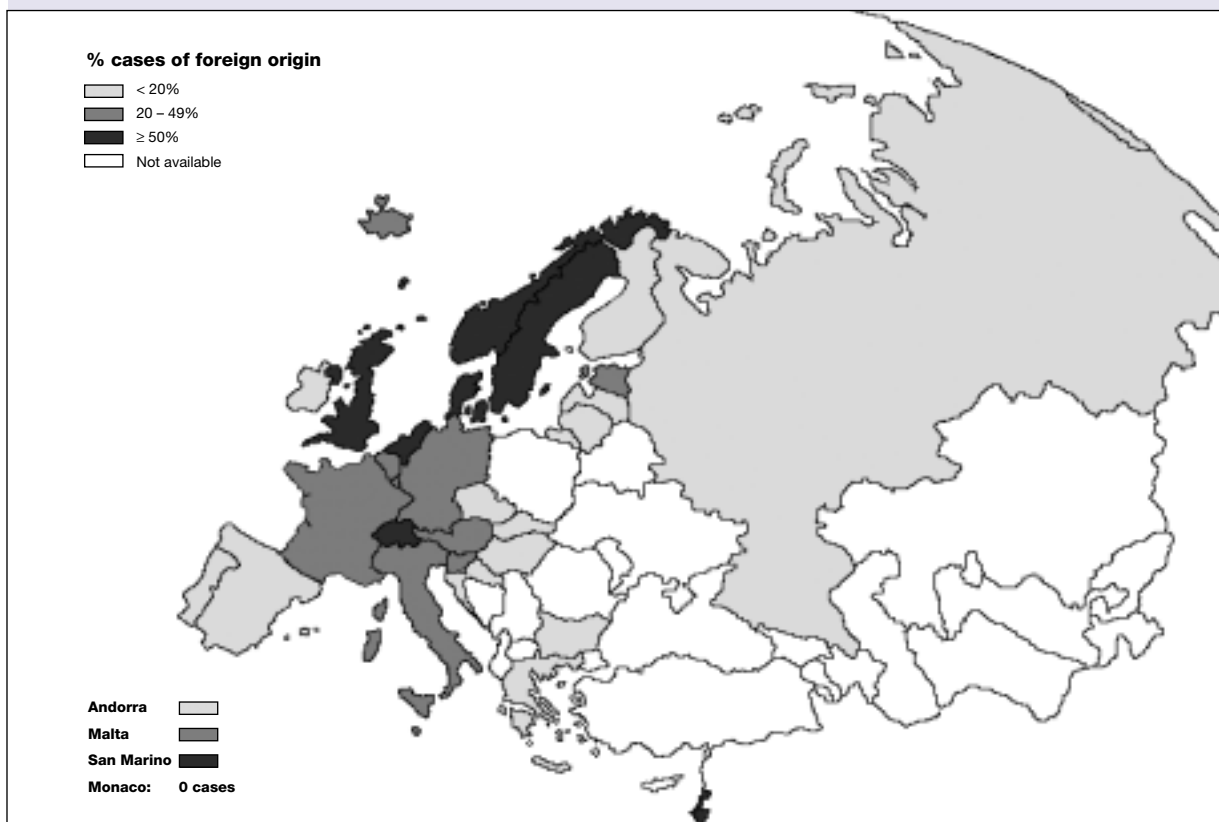
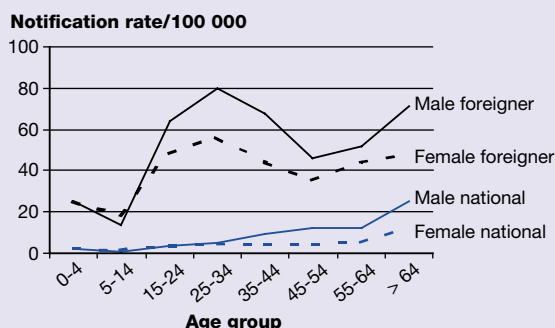
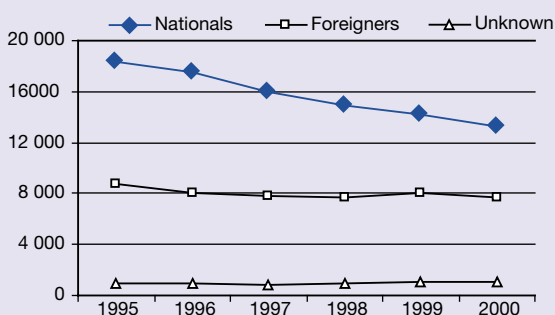


Figure 5. TB notification rates by age group, sex and geographic origin, 11 countries *, 2000



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

Figure 6. Tuberculosis cases by geographic origin, Western Europe *, 1995-2000



* Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland

In 11 countries providing denominator population statistics (Austria, Belgium, Denmark, Finland, France, Germany, Iceland, The Netherlands, Norway, Slovenia, Sweden), notification rates were overall seven times higher in foreigners (49.7 per 100 000) than in nationals (7.2), with rate ratios ranging from 2.8 in Slovenia to 37 in The Netherlands and in Norway. In the population of foreign origin, age specific notification rates were higher in men than in women, and peaked in the age groups 25-34 and over 64 years (Figure 5). Among nationals, adult rates increased regularly with age and were highest in the age group over 64 years. Rates in nationals were much lower at all ages than those in the foreign population. These differences in rates by geographic origin depend on migration patterns, which vary widely across western Europe and should be interpreted with caution considering the difficulties in obtaining accurate denominators for the population of foreign origin.

Notifications in nationals in the West decreased progressively from 1995 to 2000 (Table 7 and Country

profiles). The downward trend in total notifications in the West from 1995-2000 (Figure 6) was steeper in cases amongst nationals (28%) than amongst foreigners (12%), resulting in an increase in the proportion of TB notifications in persons of foreign origin from 31% in 1995 to 35% in 2000. TB among nationals decreased in five countries of the Centre over the period 1997-2000 and increased significantly in Romania. (Table 7)

In 22 countries providing information on country of origin (Table 8), 37% of cases of foreign origin were from Africa (10% from Somalia and 5% from Morocco), and 32% from Asia (20% from the Indian sub-continent). Twenty three percent were from a country of the WHO European Region other than the country of notification: 14% from the Centre (the majority from the countries of the former Yugoslavia), 5% from the West and 3% from the East.

3.6 Previous anti-tuberculosis treatment

Overall, 88% of TB cases notified in 2000 had never been treated for TB, 10% had been previously treated for TB and 2% had no information on previous anti-TB treatment (Table 9). Cases with missing information on previous anti-TB treatment were concentrated in the West, where they represented 18% of cases. A minority of these cases had been previously diagnosed with TB.

No clear West – East trend could be observed in the proportion of cases with a history of anti-TB treatment. Previously treated cases represented 7% of the cases in the West (range 0-14%), 12% in the Centre (6-17%) and 10% in the East (1-32%). Some of these variations may reflect differences in definitions used (e.g. previous TB history being used as a proxy for past treatment), as well as in completeness of notification of previously treated cases (see Section 3.1). Therefore, these data cannot be interpreted as an indicator of the effectiveness of previous anti-TB treatments.

3.7 Site of disease

In the 20 countries in the West using the pulmonary classification, the proportion of pulmonary cases was 70% (range 58-99%, Table 10). Pulmonary cases represented 86% (range 62-93%) of cases in the countries in the Centre and 82% (range 73-95%)

in the countries in the East using the pulmonary classification. Respiratory cases represented 94% of cases in the countries in the Centre (range 77-99%) and 95% in the countries in the East (range 85-96%) using the respiratory classification.

In the West in 2000, extra-pulmonary TB was much more frequent in cases of foreign origin than in nationals (37% versus 25%). This partly explains the higher frequency of extra-pulmonary cases in the West compared to the Centre and East, although there may also be differences in completeness of notification of extra-pulmonary cases within the Region.

In the countries providing individual data, the site of disease was analysed by age, sex and geographic origin. Cases with exclusive extra-pulmonary disease tended to be younger than those with pulmonary disease (40 years versus 45 years). Extra-pulmonary TB was also more frequent among children than among adults (27% versus 18%). Among adults, female cases were much more likely than male cases to have extra-pulmonary TB (24% versus 14%).

In 15 countries providing major and minor sites of disease (Table 11), 80.3% of all cases were classified as pulmonary, 19.5% as extra-pulmonary, and 0.2% as unknown. One or more extra-pulmonary localisations (as major and/or minor site of disease) were reported in 25% of the cases. The commonest extra-pulmonary localisations were the pleura (6.6% of cases), extra thoracic lymph nodes (3.8%) and the genito-urinary system (2.6%). Intra-thoracic lymphatic TB and meningeal TB were more frequently reported among children than among adults (respectively 16.7% versus 1.3% and 1.7% versus 0.5%).

3.8 Bacteriology results

3.8.1 Culture

In some countries in the Centre and in the East (e.g. Russian Federation, Ukraine), "bacteriological confirmation" of diagnosis is reported, without distinguishing between culture or sputum smear results. This information is not presented in the Tables.

While nearly half of all notified cases were culture positive in the West and in the Centre, only 21% were culture positive in the East, where data were available from only eight countries (Table 12). Proportions of culture positive cases were:

- 60% or higher in 12 countries in the West and in six countries in the Centre (Bosnia-Herzegovina, Czech Republic, Estonia, Latvia, Slovenia and Yugoslavia).
- 40% or lower in Italy and France in the West, in Albania and Hungary in the Centre and in Azerbaijan, Kazakhstan, Rep. of Moldova and Turkmenistan in the East.

Low proportions of cases with positive culture may be due to:

- difficult access to laboratories, as in several countries in the East,
- diagnostic practices such as request of culture in selected cases (e.g. Hungary), preferential use of radiology (as in some NIS) or of direct microscopy (as in NIS countries implementing DOTS);
- characteristics of surveillance, such as missing laboratory reporting leading to incomplete information on culture (e. g. France) (Table 12).

Culture results were further analysed by site of disease in countries providing individual data (Table 13). In countries using the pulmonary classification, culture results were available in a higher proportion of pulmonary cases in the Centre than in the West and positive culture results were commoner in the West (55%) than in the Centre (48%). This was also the case for extra-pulmonary cases (34% versus 12%). High proportions of "negative" culture results in some countries suggest that coding of culture results needs further validation.

3.8.2 Species identification

Species identification for culture positive TB cases notified was available for 20 countries providing individual data (Table 14). Excluding Romania, in which a large proportion of cases had no species identified, 91% of culture positive cases were due to *M. tuberculosis* and 8.7% had no information on species. In the West, *M. bovis* represented 0.5% of the cases and *M. africanum* 0.6%. The Netherlands reported the highest proportion of cases with non-*M. tuberculosis* strains, with 1.2% *M. bovis* and 2.3% *M. africanum*. In the Centre and East, all cases were due to *M. tuberculosis* apart from five cases due to *M. bovis* in the Czech Republic.

3.8.3 Sputum smear

The results of sputum smear microscopy were provided from 46 countries (Table 15). In the countries using the pulmonary classification, the proportion of pulmonary cases with sputum smear positive for

acid-fast bacilli was 50% in the Centre and 45% in the West. In the East, 34% of pulmonary cases were sputum smear positive (seven countries), compared to 30% of respiratory cases for the five countries submitting data using this classification. This lower proportion is to be expected since the respiratory classification includes forms of disease without lung involvement (pleural and intra-thoracic lymphatic cases). Low proportions of smear positive cases could also be due to:

- earlier diagnosis, with cases having lower bacillary loads at detection
- differences in the availability or in the quality of sputum microscopy
- use of microscopy of bronco-alveolar lavage specimens rather than sputum for diagnosis: results from such specimens are excluded under current

definitions used in surveillance, since they would not be comparable in terms of test sensitivity and specificity with smear microscopy of spontaneous sputum

- non-inclusion of results of smear microscopy using auramine stain instead of Ziehl-Nielsen stain.

Differences in diagnostic practices and in the quality of the information on culture and on sputum smear available through TB notifications limit the use of these data for international comparisons. More complete and accurate information on laboratory confirmation of diagnosis could be obtained through laboratory reporting of TB cases, recommended in Europe [1] but still not implemented in several countries (Table 1) and possibly by the collection of complementary laboratory evidence of diagnosis (e.g. DNA-based tests).

4. HIV-ASSOCIATED TUBERCULOSIS IN 2000

Data on HIV prevalence among TB cases are not routinely collected at European level. Data on tuberculosis as AIDS indicative disease in Europe are available through AIDS case reporting data collected by EuroHIV (see technical note). AIDS indicative diseases are provided from all 51 countries except Romania. Excluding Romania, in 2000, a total of 12 008 AIDS cases were notified in the other countries of the WHO European Region (Table 16), with AIDS notification rates of 2.8 per 100 000 population in the West (range 0-11.9), 0.2 in the Centre (0.05-0.6) and 0.3 (range 0-1.3) in the East. No AIDS cases were notified in six countries (Andorra, Belarus, Kazakhstan, Monaco, Tajikistan and Turkmenistan). Information on AIDS indicative diseases was available for over 99% of the 12 008 cases, of which 3 067 (26%) had TB at the time of AIDS diagnosis.

Tuberculosis was the single most common AIDS indicative disease overall and its frequency varied widely across geographic areas and countries. The average proportions of AIDS cases with TB were:

- 22% in the West (range 0-55%; median: 16%, excluding countries reporting zero AIDS cases), with highest proportions in Portugal (55%), Israel (38%) and Spain (34%);
- 17% in the Centre (range: 0-56%; median: 9%), with highest proportions in Bulgaria (56 %);
- 73% in the East (range 0-100%; median 33%), with highest proportions in Kyrgyzstan (100%; 1 case), Ukraine (82%), Georgia (50%), Azerbaijan and Lithuania (42%).

These data indicate that TB significantly contributes to HIV-related morbidity in Europe, and more so in the East. High proportions of AIDS cases with TB at AIDS diagnosis reflect high prevalence of TB infection in the HIV infected population, the earlier appearance of TB compared to other AIDS defining conditions in countries where HIV epidemics are

recent and possibly also better diagnosis of TB compared to other AIDS defining diseases in some countries. In some western European countries, high proportions of AIDS cases with TB may be also due to high proportions of HIV/AIDS cases among migrants from high incidence countries, among whom TB co-infection is frequent.

The contribution of HIV to total TB incidence is higher than that inferable from cases of TB reported as an AIDS indicative disease. Persons with AIDS can develop TB after initial AIDS diagnosis and yet this event will not be reported to AIDS surveillance. However, in the attempt to estimate a “minimum” proportion of HIV-associated TB, numbers of AIDS cases with TB were compared with total TB cases notified in 2000 (shown in Table 3). This comparison was not done for Spain where only respiratory and meningeal TB cases are notified whereas all TB sites are reported as AIDS indicative disease. In the other countries, AIDS cases with TB as AIDS indicative disease represented 15% of total TB cases in Portugal, 2-5% in nine countries in the West, 1-1.9% in three countries in the West and in Ukraine, and less than 1% in the other countries. These minimum estimates may be affected by different completeness of TB and AIDS case detection and notification at country level. AIDS notification may be particularly incomplete in some countries of the East where numbers of AIDS cases remain very low in spite of high numbers of HIV cases reported in recent years [14].

In order to improve coordination of TB and HIV prevention and care, surveillance of HIV-TB co-infection should be strengthened through an improved use of surveillance information already available at both national and international level and the implementation of specific HIV prevalence surveys, particularly in countries where both infections are prevalent.

5. DRUG RESISTANCE SURVEILLANCE IN 2000

5.1 Laboratory practices

Data on laboratory practices for drug susceptibility testing (DST) were provided from 43 countries (Table 17). DST was performed by a single laboratory in 11 countries (located abroad in two of these), 2-10 laboratories in 14 countries, 11-20 laboratories in nine countries and 20-300 laboratories in eight countries. A national DST proficiency-testing scheme existed in 18 of the 31 countries where more than one laboratory performed DST.

Twenty-nine countries participated in an international proficiency-testing scheme between 1999 and 2001. The concordance of DST results for isoniazid (INH) and rifampicin (RMP) between the national reference laboratory (NRL) and the supranational reference laboratory was not provided from Austria and Bosnia-Herzegovina, was 90% or over for both drugs in 26 countries, and was 90% for INH and 80% for RMP in the Russian Federation.

In 25 countries more than one DST method was used. Non-radiometric proportion was used in a total of 28 countries, radiometric proportion in 24 countries, absolute concentration in 14 countries and resistance ratio in four countries. Other methods were used in eight countries, including the Mycobacteria Growth Indicator Tube (MGIT®), a modified non-radiometric proportion method, in six countries.

5.2 Type of data provided

DST results at the start of treatment were provided from 39 of the 43 countries providing information on laboratory practices (Table 18). DST results from Luxembourg and Georgia were included in the analysis, although they may also refer to isolates taken during treatment.

In 30 countries DST data were linked to TB case notification, i.e. were provided on the initial isolate of TB cases notified countrywide (24 countries) or in selected areas (6 countries). In nine countries DST

results were not linked to TB notifications and data were provided on cases diagnosed at the NRL (6 countries) or in other laboratories (3 countries) (Table 18). INH, RMP and ethambutol (EMB) were systematically tested in all countries while streptomycin (SM) was tested for less than 90% of the cases tested for INH and RMP in seven countries from the West (data not shown in the Tables). Data were provided for each combination of resistance from all countries except Belarus where only total numbers of mono-resistant, multi-drug resistant (MDR) and other poly-resistant cases were available.

Data by previous anti-TB treatment status were provided from all countries except Albania and Azerbaijan (Table 20-21). For Belarus and Spain data were provided only for never treated cases. When the information on previous treatment was not available or incomplete, DST data were presented and analysed according to previous TB diagnosis (see technical note). Therefore the terms "never treated" or "previously treated" should be taken to mean "never treated or diagnosed" and "previously treated or diagnosed" respectively. Data by geographic origin were provided from 33 countries (Tables 22-23).

Countries were classified in two groups, according to the TB case population included in DRS and the completeness of DST results provided (Tables 18-23). Group A includes countries in which culture and DST are routinely performed for TB diagnosis and in which DST results were provided for all or a large national sample of notified culture positive cases; group B includes countries in which data provided did not meet the conditions above and were not considered representative of the national situation (see also technical note).

5.3 DST results in countries providing representative national data (group A)

Of the 39 countries providing DRS data, 24 were included in this group: 16 in the West, five in the Centre and three in the East (the Baltic states) (Table 18). DST results were provided for all culture

positive cases notified at national level in 23 of these countries. In Germany DST results were provided for TB cases notified in two thirds of local health units accounting for 56% of cases notified nationwide. In 17 countries, DST data were provided as a part of the individual TB data set. Overall, in the countries of group A culture positive cases represented 61% of the TB cases notified (range: 45-100%). DST results for INH and RMP were available for 17 049 of the 19 815 culture positive cases (86%). The proportion of culture positive cases with missing DST results was highest in Lithuania (41%), Andorra (40%), Czech Republic (27%), Bosnia-Herzegovina (26%; incomplete information from Rep. Srpska), Belgium (25%) and Germany (19%).

Global proportions of resistant and MDR cases were much higher in the Baltic states and in Israel compared to the other countries in the West and the Centre (Table 19). Global proportions of resistance are not commented further, as priority is given to analysis of data according to history of previous anti-TB treatment, indicating respectively primary resistance among cases never treated and acquired resistance among cases previously treated.

5.3.1 Resistance by previous anti-TB treatment status

Data were analysed by previous treatment history in 14 countries and by previous TB diagnosis in 10 countries (Tables 20-21). Overall, of the 17 049 cases with DST results 78% were never treated, 12% had a history of previous anti-TB treatment and 11% were reported with no information on previous TB or anti-TB treatment history.

Proportions of resistant cases were generally higher among previously treated cases than among never treated cases. In both groups of cases, resistance to individual drugs and multi-drug resistance were much higher in the Baltic states and Israel than in the other countries in the West and in the Centre. The proportions of MDR cases among never treated cases were 9.7% (9-12%) in the Baltic states, 14.2% in Israel, 0.8% (0-2%) in the other countries in the West and 0.4% (0-1.1%) in the Centre (Table A, Figure 7).

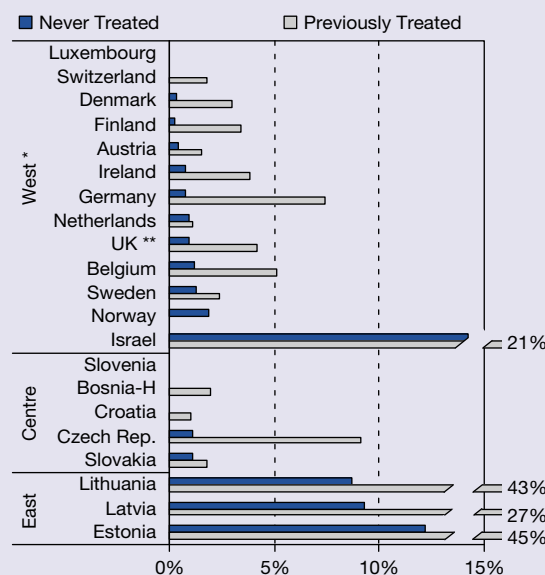
High proportions of both primary and acquired resistance in the Baltic states indicate a poor performance of treatment programmes in previous years. Between 1998 and 2000, proportions of primary and acquired MDR cases were relatively stable

Table A. Anti-TB drug resistance by previous anti-TB treatment status, 2000, group A

Drug	Country / country group	Previous anti-TB treatment status	
		Never treated	Previously treated
INH	Baltic States	25.2%	47.1%
	Israel	25.7%	37.5%
	West, other	5.3%	11.3%
	Centre	1.8%	6.2%
RMP	Baltic States	10.0%	37.5%
	Israel	14.6%	20.8%
	West, other	1.0%	5.0%
	Centre	0.7%	4.0%
INH and RMP (MDR)	Baltic States	9.7%	36.8%
	Israel	14.2%	20.8%
	West, other	0.8%	4.3%
	Centre	0.4%	1.9%
EMB	Baltic States	7.1%	22.1%
	Israel	9.9%	8.3%
	West, other	0.7%	2.8%
	Centre	0.5%	3.3%
SM	Baltic States	22.3%	42.5%
	Israel	22.1%	29.2%
	West, other *	2.5%	5.7%
	Centre	1.1%	4.3%

* Nine countries where SM was tested for at least 90% of cases tested for INH and RMP (see Tables 20-21)

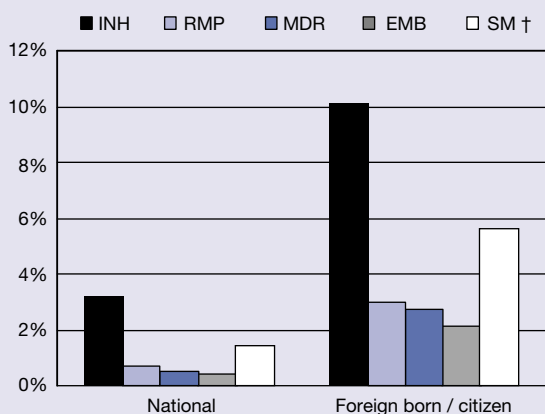
Figure 7. Proportion of MDR-TB cases by previous anti-TB treatment status, 2000, group A



* Andorra, Iceland and Malta: ≤ 10 cases with DST results, all susceptible
 ** without Scotland

in Estonia and Latvia and increased markedly in Lithuania. The observed trend in Lithuania is possibly due to decreasing completeness of information on DST results (from 100% in 1998 to 59% in 2000) resulting in the increasing selection of cases with higher risk of resistance.

Figure 8. Anti-TB drug resistance by geographic origin, Western Europe *, 2000



* 16 countries
 † 9 countries with DST results for >90% of the cases tested for INH & RMP

The high levels of resistance in Israel are likely to reflect prevalence of resistance in the countries of origin of recent immigrants, many of whom derive from the NIS [18]. In the other countries in the West and in the Centre the levels of resistance and MDR remained low and were associated with previous TB history and, in the West, with foreign origin (see below). The analysis of data for the period 1998-2000, available from 11 countries did not show any clear trend in the levels of drug resistance. A longer observation will be needed to get more conclusive indications on drug resistance trends.

5.3.2 Resistance by geographic origin

DST results by geographic origin were provided from all 24 countries in group A (Tables 22-23). Geographic origin was defined according to country of birth in 21 countries and to nationality in Austria, Belgium and the Netherlands.

In the West, among the 10 892 cases with DST results 46% were of foreign origin, 47% were nationals and 8% were notified without information on geographic origin. Proportions of resistant cases were overall higher among the cases of foreign origin (Figure 8). The proportion of MDR among cases of foreign origin was 2.7% compared to 0.5% among nationals. Cases of foreign origin represented overall 85% of MDR cases notified (136/160) in the West. In the five countries of the Centre and in the three Baltic states, 8% of cases with DST results were born abroad and proportions of resistant cases did not differ markedly when analysed by geographic origin.

5.4 DST results in countries providing data for selected cases (group B)

In the 15 countries classified in group B, data were considered as less representative than data from countries in group A. International comparisons based on these data should be made with caution.

- In France, data were collected through a stable sentinel network of university hospital laboratories covering 15 of the 23 regions (including Paris), not linked to case notification. Although the representativeness of this network has not been formally assessed, data collected show consistently low and stable levels of resistance over time [19].
- In Italy data were collected through a convenience sample of 20 laboratories located in 10 of the 20 regions, for which representativeness has not been assessed [20]. The denominator of culture positive cases diagnosed in these laboratories was not available to assess completeness of case inclusion.
- In six countries data were provided on TB cases notified but were not considered representative because of incomplete geographic coverage (Yugoslavia), or because of selective use of culture (Belarus and Republic of Moldova), DST (Portugal) or both (Romania and Hungary), leading to a selection of cases for which DST results were available. This can possibly affect the observed levels of resistance.
- In Albania, Armenia, Azerbaijan, Georgia, Kyrgyzstan and Spain, DST data were provided for cases diagnosed at the National Reference Laboratory, likely to be unrepresentative of TB cases both in regards of the geographic coverage and of the characteristics of patients included.
- In Kazakhstan data were provided from all laboratories performing DST but were not linked to case notifications and included all patients diagnosed, resulting in an over-representation of previously treated cases.

Among countries in group B, data from countries in the East showed very high levels of resistance, with primary multi-drug resistance reported in 5% of the cases or more. Although these data cannot be taken as representative of national situations they should further stimulate the implementation of representative anti-TB drug resistance surveys, a high priority for the orientation and monitoring of control measures [21].

6. TREATMENT OUTCOME MONITORING IN 1999

6.1 Type of data provided

Thirty countries provided treatment outcome data on at least one cohort of cases notified in 1999: 11 countries in the West, seven in the Centre and 12 in the East (Table 23). Data were provided only for sputum smear positive cases in 10 countries, for both sputum smear positive and pulmonary culture positive cases in 18 countries, and only for pulmonary culture positive cases in Israel.

The Russian Federation provided data from selected DOTS areas for smear positive cases and nationwide data for culture positive cases notified to the Ministry of Health. Among the other countries, 24 provided outcome data for TB cases notified in the whole country and five countries provided data with incomplete geographic coverage, including cases notified in selected areas implementing DOTS (Armenia, Poland, Romania and Uzbekistan) or diagnosed in a network of clinical Centres (Italy).

Outcome categories used differed across countries. In several countries of the West:

- the category “cured” was not reported because information on sputum smear or culture result at the end of treatment is not routinely collected or incomplete. In these countries cases with favourable outcome were all reported in the category “treatment completed”. For comparison of favourable outcomes, in Tables 25-28 a subtotal of cured and completed outcome (success) is presented.
- the category “failure” was not used. Failing cases still continuing treatment at the time of outcome assessment were rather classified at national level in a specific outcome category “still on treatment”, reported here in the category “other / unknown”.

In the Russian Federation, in the culture positive cohort all favourable outcomes were reported as cured. Different outcome definitions were reported from the Republic of Moldova where only cases “cured” (based on radiological improvement) were reported, while for the rest of the cases outcome

information was not available and cases were all classified as “others” (not included in the analysis below).

6.2 Completeness of TOM cohorts

In order to assess the completeness of inclusion in TOM cohorts, total cases considered for TOM were compared with smear positive or pulmonary culture positive cases notified to EuroTB in 1999 (Table 24, see also technical note). In 13/22 countries providing nationwide data, the sum of new and retreated smear positive cases considered for TOM (including those non-eligible) was identical to the total number of smear positive cases notified to EuroTB. In seven countries, smear positive TOM cohorts were smaller compared to 1999 notifications (87-99% of notified cases), due to exclusion of cases for:

- administrative reasons (e.g. records lost, identification as duplicate report, erroneous initial report of positive laboratory results);
- missing information on anti-TB treatment history, as cases could not be entered in either the new or the retreated cohorts
- other case characteristics, e.g. death or default before starting treatment.

In two countries, numbers of smear positive TOM cohorts were slightly larger than those of notified cases (102% in Azerbaijan and Ireland), possibly due to reclassification of smear status after notification or to double inclusion of some cases in the new and retreated cohorts. For pulmonary culture positive cases, the comparison of the sizes of TOM cohorts and notifications showed identical numbers in six countries. TOM cohorts were smaller than notifications in four countries (82-99%) and larger in four countries (107-145%).

In the majority of countries providing national data the numbers of cases considered for TOM are comparable to those of notified cases, which should ensure completeness and representativeness of the outcome data provided. However the large differ-

ences observed in some countries limit the use of TOM data for international comparisons. Further harmonization of TOM in Europe is needed and is currently being discussed.

In countries providing data with incomplete geographic coverage, numbers of cases notified in the areas included in TOM were not available. In these countries the comparison of the size of TOM cohorts with nationwide notifications provided an estimate of TOM coverage.

6.3 Outcome in countries providing nationwide data

6.3.1 Sputum smear positive cohorts

Nationwide outcome data for new smear positive cases were available for 22 countries (Table B and Table 25). The proportion of cases with unknown outcome was 0 in 11 countries and higher than 10% in Ireland (44%), Belgium (24%) and FYR of Macedonia (11%). Potentially unfavourable outcomes (default or transfer) were more frequently reported in the East (median: 13%) than in the West (3%) or in the Centre (4%). Death was reported in a comparable median proportion of cases in the three areas (7-8%). Failure was almost not reported in the West, and represented a median of 1% of cases in the Centre and 5% in the East. The median proportion of favourable outcomes (cure or completion)

was 84% in the Centre, 77% in the West and 73% in the East.

Eighteen of the 22 countries providing outcome for the new sputum smear positive cohort also provided data on the corresponding cohort of retreated cases (Table 26). Among retreated cases the median proportions of successful outcomes were lower compared to new cases (73% in the Centre, 61% in the West and 62% in the East). Deaths represented a median of 15% of outcomes in the West, 14% in the Centre and 9% in the East. Proportions of potentially unfavourable outcomes were comparable to those of the cohort of new cases. Failure was more frequently reported among retreated cases than among new cases in the Centre (median 3% and 1% respectively) and in the East (10% and 5% respectively).

6.3.2 Pulmonary culture positive cohorts

Nationwide outcome data on new culture positive pulmonary cases were available for Israel, the Russian Federation and 15 countries providing also nationwide data on the new smear positive cohort (Tables 27-28 and Country profiles). In most of these countries culture is used routinely for TB diagnosis and cohorts of new culture positive pulmonary cases were larger than those of smear positive cases (Table 24), as they include most smear positive cases. Outcomes of culture positive cohorts provide a more complete picture of treatment outcome of all potentially infectious TB cases, and were roughly comparable to those of smear positive cohorts in most countries.

Table B. Treatment outcome of new smear positive TB cases, 1999, countries providing nationwide data

outcome	West (9 countries)		Centre (5 countries)		East (8 countries) *	
	median %	range %**	median %	range %	median %	range %
cure	0	(0-45)	68	(26-81)	67	(47-83)
completion	67	(32-77)	14	(3-60)	6	(0-15)
success (cure + completion)	77	(48-85)	84	(74-90)	73	(61-83)
death	7	(6-13)	8	(2-16)	7	(2-15)
failure	0	(0)	1	(0-2)	5	(1-21)
default	3	(3-16)	2	(1-9)	5	(3-22)
transfer	0	(0-3)	1	(0-2)	2	(0-10)
other / unknown	0	(0-44)	4	(0-11)	0	(0-8)

* Rep. of Moldova excluded

** Does not include countries reporting < 10 cases (Andorra, Iceland and Malta)

6.4 Outcome in countries providing data from selected areas

Outcome data with partial geographic coverage were provided from six countries for the smear positive cohorts and two countries for the culture positive cohorts. These data cannot be considered as representative of country situations. However, in countries with partial DOTS coverage, outcome data from DOTS areas provide an indication of the effectiveness of this strategy.

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COUNTRY PROFILES

Albania	69	Lithuania	95
Andorra	70	Luxembourg	96
Armenia	71	Macedonia, FYR of	97
Austria	72	Malta	98
Azerbaijan	73	Moldova, Republic of	99
Belarus	74	Monaco	100
Belgium	75	Netherlands	101
Bosnia & Herzegovina	76	Norway	102
Bulgaria	77	Poland	103
Croatia	78	Portugal	104
Czech Republic	79	Romania	105
Denmark	80	Russian Federation	106
Estonia	81	San Marino	107
Finland	82	Slovakia	108
France	83	Slovenia	109
Georgia	84	Spain	110
Germany	85	Sweden	111
Greece	86	Switzerland	112
Hungary	87	Tajikistan	113
Iceland	88	Turkey	114
Ireland	89	Turkmenistan	115
Israel	90	Ukraine	116
Italy	91	United Kingdom	117
Kazakhstan	92	Uzbekistan	118
Kyrgyzstan	93	Yugoslavia	119
Latvia	94		

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	631
Notification rate per 100 000	20.1
Sex ratio (M:F)	1.3
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign citizens	-
New (never treated)	593 (94.0%)
Culture positive	119 (18.9%)
Pulmonary	392 (62.1%)
of which sputum smear positive	186 (47.4%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage §	Some areas
Linkage with notification	No §
Cases with DST results	98
Cases resistant to INH	8 (8.2%)
Cases resistant to RMP	7 (7.1%)
MDR cases	6 (6.1%)
Cases resistant to EMB	4 (4.1%)
Cases resistant to SM	12 (12.2%)

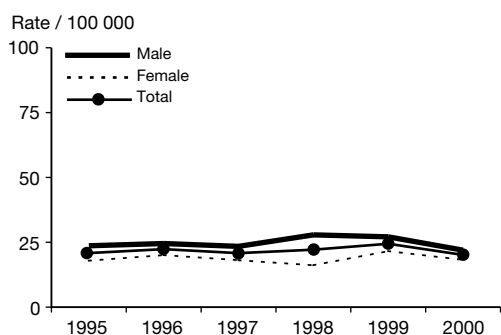
Culture and DST not routinely performed

§ Cases diagnosed at the NRL

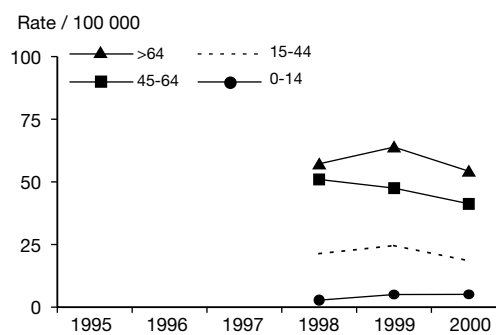
Treatment Outcome Monitoring, 1999

Not available

Tuberculosis notification rates by sex, 1995-2000



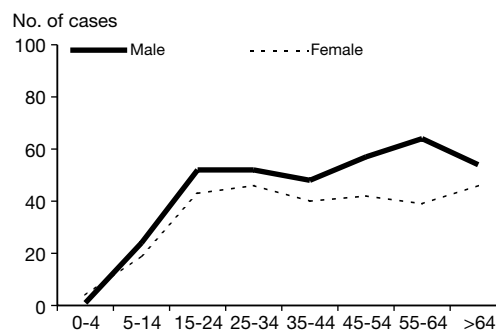
Tuberculosis notification rates by age group, 1995-2000



Tuberculosis cases by geographic origin, 1995-2000

Not available

Tuberculosis cases by age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000

Not available

Resistance by treatment status and geographic origin, 2000

Not available

Tuberculosis case notifications, 2000

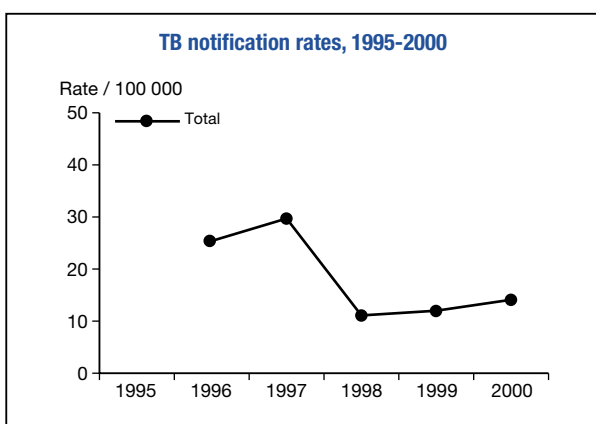
Type of data provided	Aggregate
Total number of cases	11
Notification rate per 100 000	14.1
Sex ratio (M:F)	9.0
Median age-group, nationals	05-14
Median age-group, non-nationals	35-44 years
Individuals born abroad	8 (72.7%)
New (never treated)	11 (100.0%)
Culture positive	6 (54.5%)
Pulmonary	10 (90.9%)
of which sputum smear positive	1 (11.1%)

Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	3 / 5 (60%)
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, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	3
Success	2 (67%)
Death	0 (0%)
Failure	0 (0%)
Default	1 (33%)
Transfer	0 (0%)
Other / unknown	0 (0%)



Tuberculosis notification rates by age group, 1995-2000

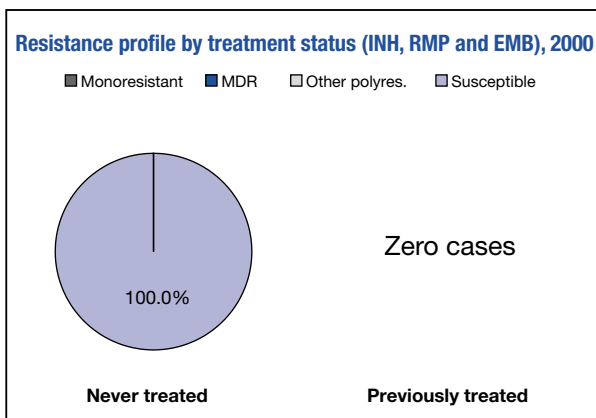
Insufficient number of cases for graphic presentation

Tuberculosis cases by geographic origin, 1995-2000

Insufficient number of cases for graphic presentation

Tuberculosis cases by geographic origin, age group and sex, 2000

Insufficient number of cases for graphic presentation



Resistance by treatment status and geographic origin, 2000

No resistance reported

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	1 344
Notification rate per 100 000	35.5
Sex ratio (M:F)	4.9
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign citizens	0 (0.0%)
New (never treated)	1 279 (95.2%)
Culture positive	- -
Pulmonary	1 191 (88.6%)
of which sputum smear positive	686 (57.6%)

Drug Resistance Surveillance, 2000

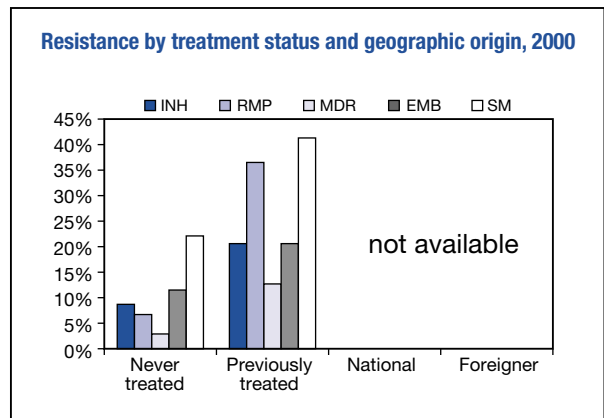
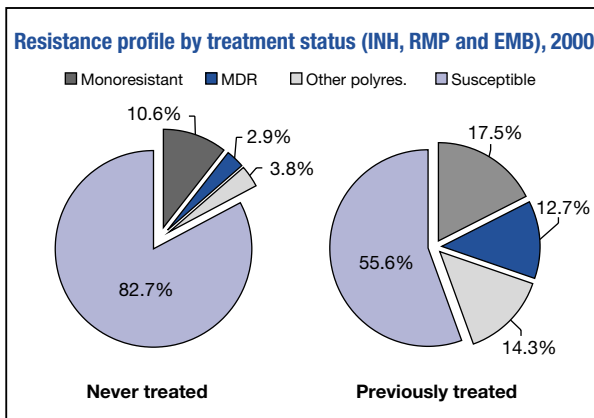
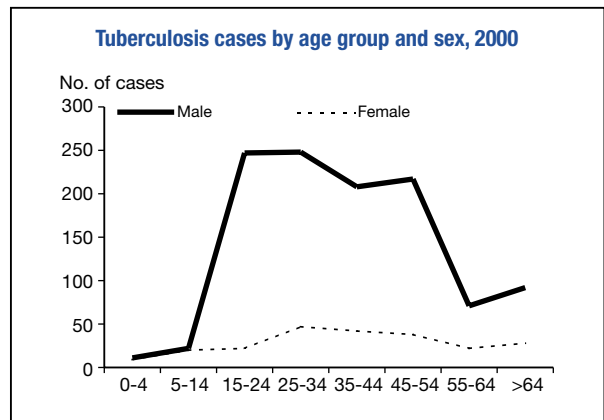
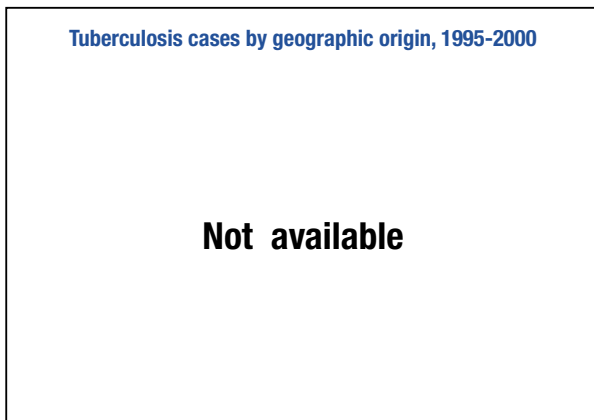
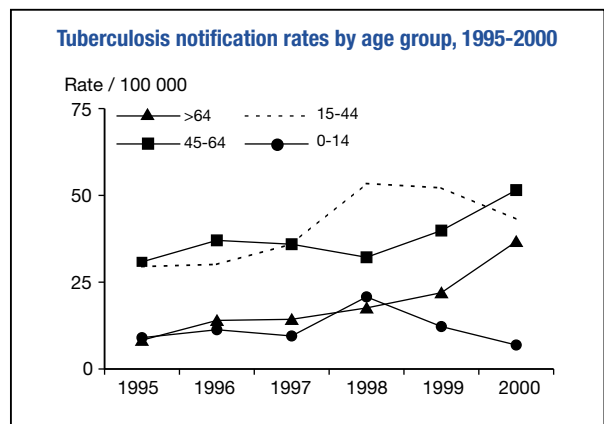
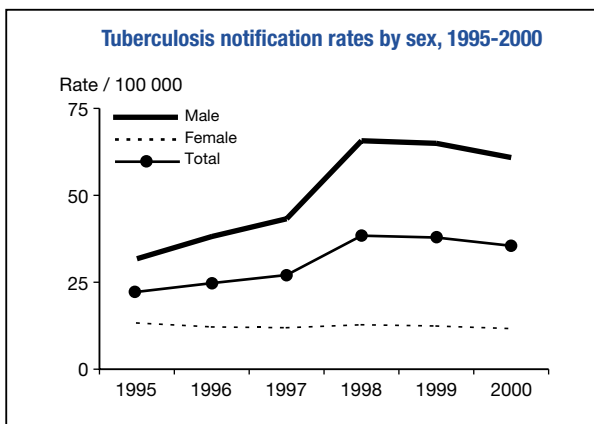
International proficiency testing	No
Geographic coverage	-
Linkage with notification	No §
Cases with DST results	167 -
Cases resistant to INH	22 (13.2%)
Cases resistant to RMP	30 (18.0%)
MDR cases	11 (6.6%)
Cases resistant to EMB	25 (15.0%)
Cases resistant to SM	49 (29.3%)

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

Treatment Outcome Monitoring, 1999

Geographic coverage	Some areas §
Cohort	new sputum smear positive
Included in TOM cohort	391
Success	343 (88%)
Death	8 (2%)
Failure	18 (5%)
Default	20 (5%)
Transfer	2 (1%)
Other / unknown	0 (0%)

§ DOTS areas, representing 73% of smear positive cases



Tuberculosis case notifications, 2000

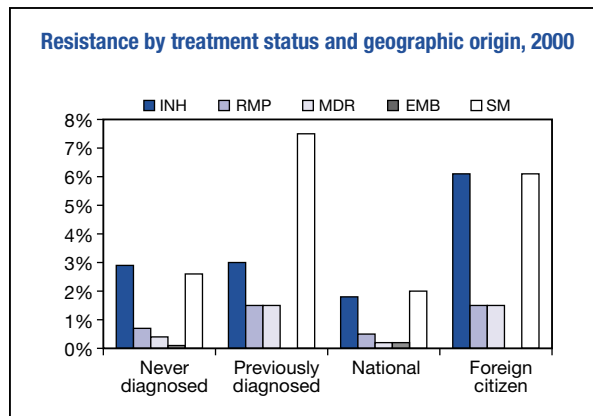
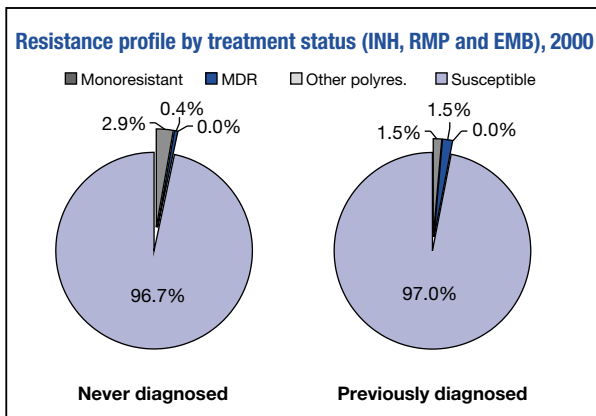
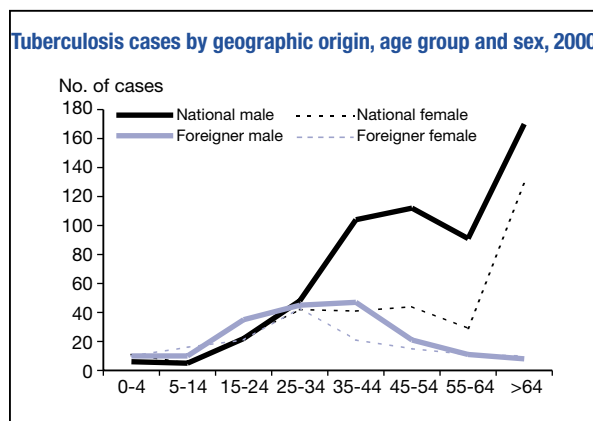
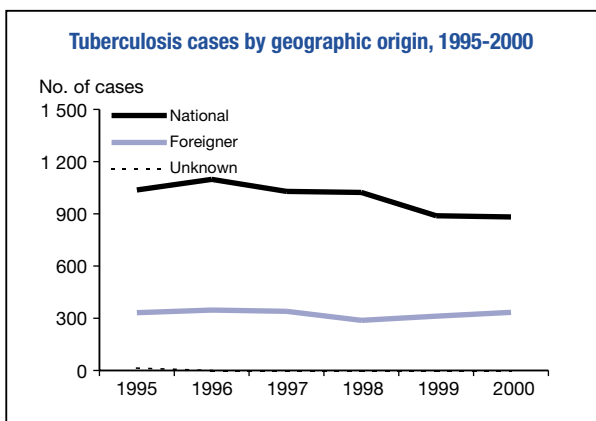
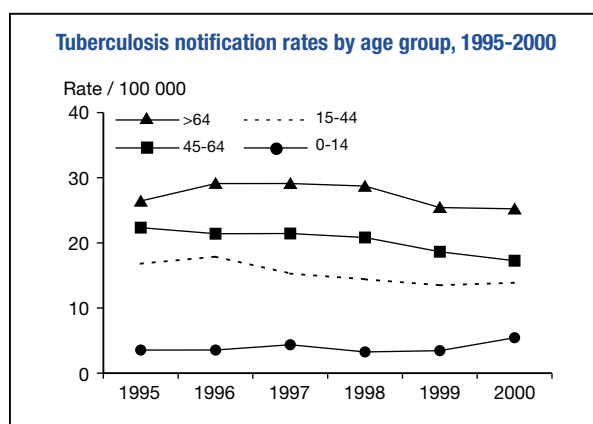
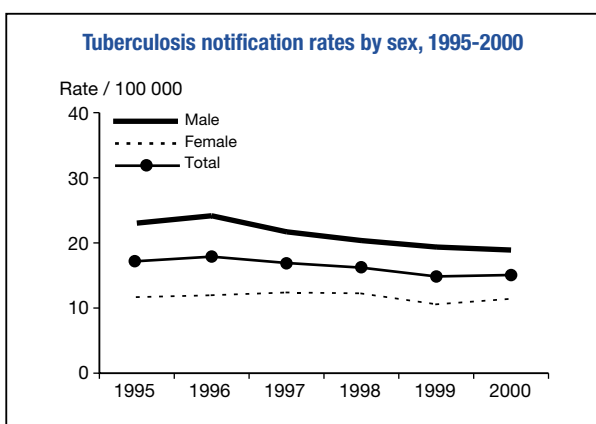
Type of data provided	Individual
Total number of cases	1 218
Notification rate per 100 000	15.1
Sex ratio (M:F)	1.6
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Foreign citizens	334 (27.4%)
New (never treated)	1 106 (90.8%)
Culture positive	762 (62.6%)
Pulmonary	1 003 (82.3%)
of which sputum smear positive	333 (33.2%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	761 / 762 (100%)
Cases resistant to INH	22 (2.9%)
Cases resistant to RMP	6 (0.8%)
MDR cases	4 (0.5%)
Cases resistant to EMB	1 (0.1%)
Cases resistant to SM	23 (3.0%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	544
Success	417 (77%)
Death	61 (11%)
Failure	0 (0%)
Default	33 (6%)
Transfer	0 (0%)
Other / unknown	33 (6%)



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	5 187
Notification rate per 100 000	64.5
Sex ratio (M:F)*	2.9
Median age-group, nationals	-
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	5 113 (98.6%)
Culture positive	492 (9.5%)
Pulmonary	4 942 (95.3%)
of which sputum smear positive	964 (19.5%)

* for new cases

Drug Resistance Surveillance, 2000

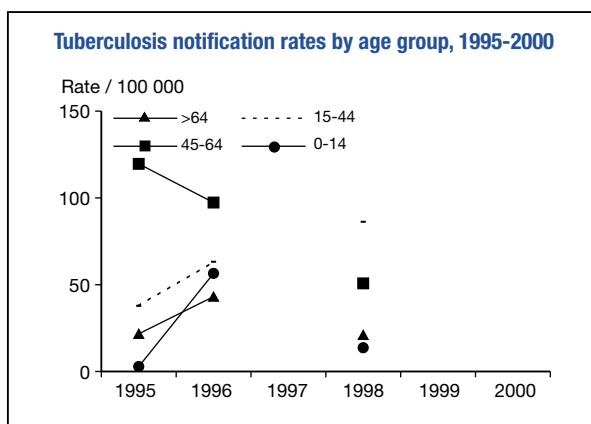
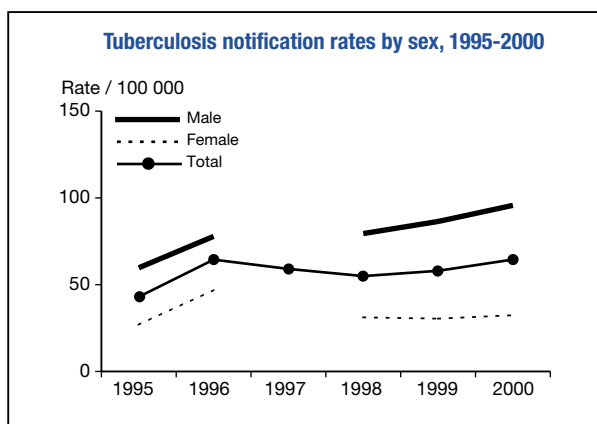
International proficiency testing	No
Geographic coverage	Baku
Linkage with notification	No §
Cases with DST results	184 / 184 (100%)
Cases resistant to INH	10 (5.4%)
Cases resistant to RMP	8 (4.3%)
MDR cases	3 (1.6%)
Cases resistant to EMB	4 (2.2%)
Cases resistant to SM	21 (11.4%)

Culture and DST not routinely performed

§ Cases diagnosed at the NRL

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	763
Success	636 (83%)
Death	19 (2%)
Failure	43 (6%)
Default	53 (7%)
Transfer	12 (2%)
Other / unknown	0 (0%)



Tuberculosis cases by geographic origin, 1995-2000

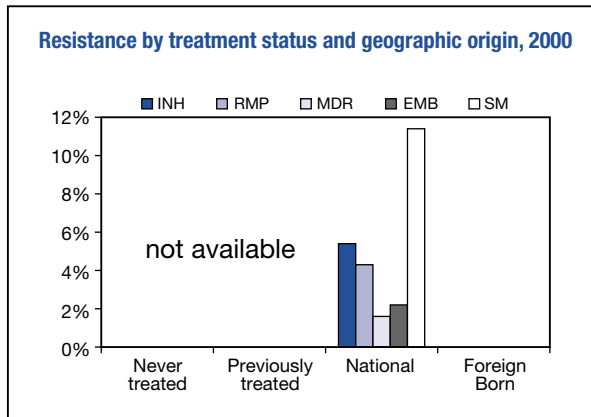
Foreigners not included in TB notifications

Tuberculosis cases by geographic origin, age group and sex, 2000

Not available

Resistance profile by treatment status (INH, RMP and EMB), 2000

Not available



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	6 084
Notification rate per 100 000	59.7
Sex ratio (M:F)	3.4
Median age-group, nationals	–
Median age-group, non-nationals	–
Foreign born / citizens	– –
New (never treated)	– –
Culture positive *	2 550 (41.9%)
Respiratory	5 636 –
of which sputum smear positive	– –

* new cases notified to MoH

Drug Resistance Surveillance, 2000

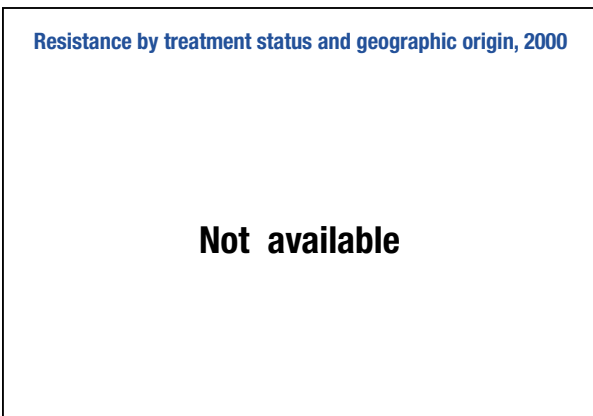
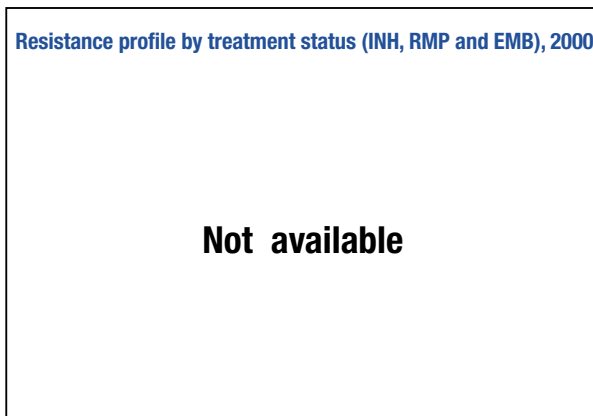
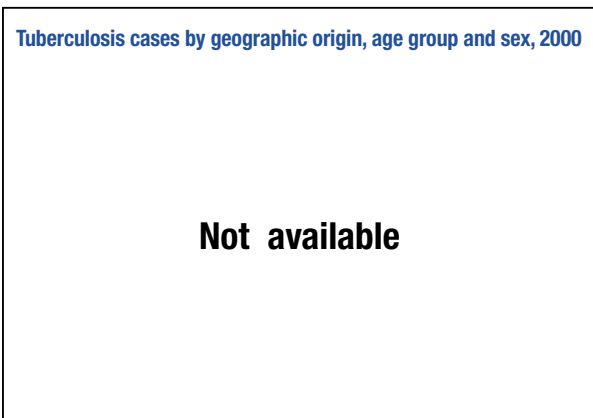
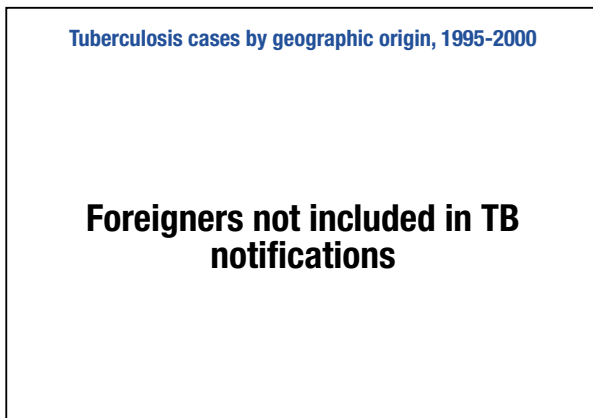
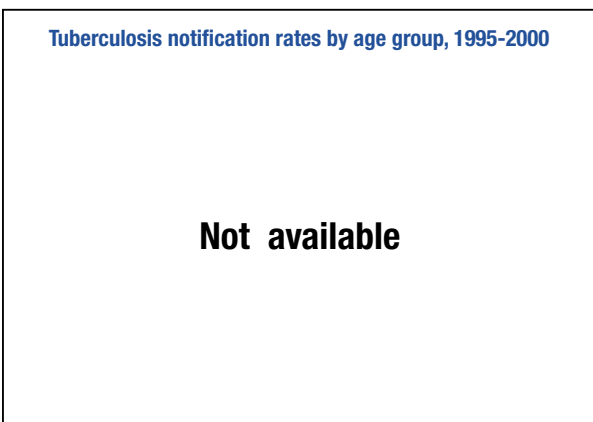
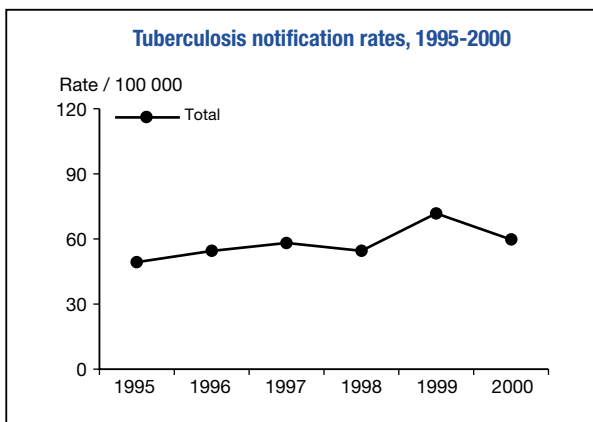
International proficiency testing	No
Geographic coverage	National
Linkage with notification	yes §
Cases with DST results	2 060 / 2 550 (81%)
Cases resistant to INH	– –
Cases resistant to RMP	– –
MDR cases	220 § (10.7%)
Cases resistant to EMB	– –
Cases resistant to SM	– –

Culture not routinely performed

§ New cases notified to MoH (prisons not included)

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	1 313
Notification rate per 100 000	12.8
Sex ratio (M:F)	2.0
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Foreign citizens	508 (38.7%)
New (never treated)	1 009 (76.8%)
Culture positive	969 (73.8%)
Pulmonary	964 (73.4%)
of which sputum smear positive	464 (48.1%)

* except for DRS

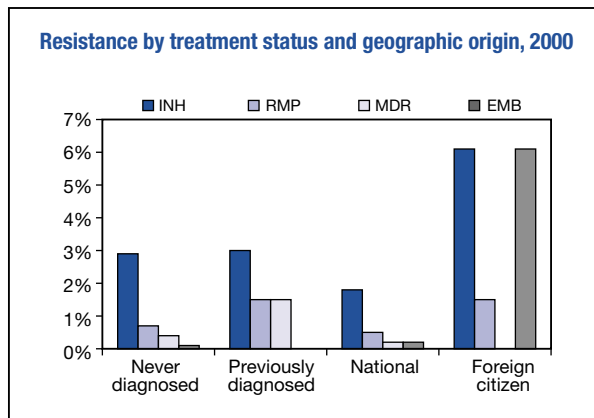
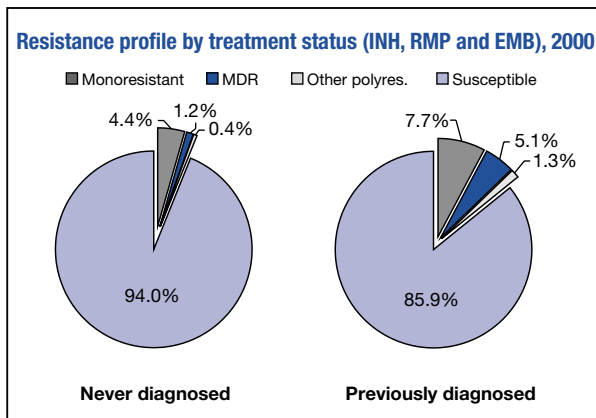
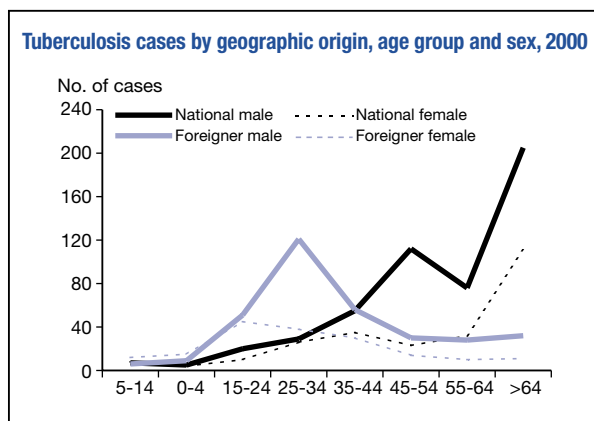
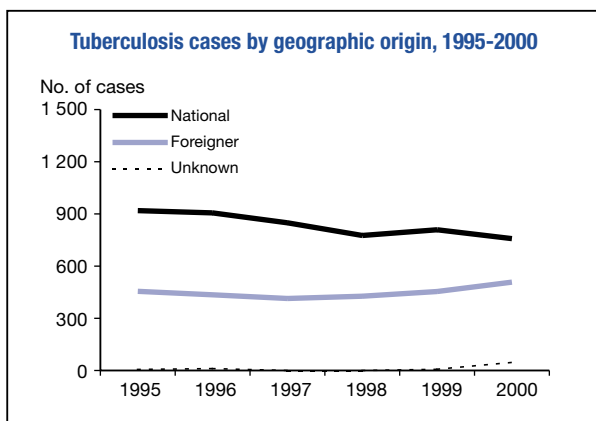
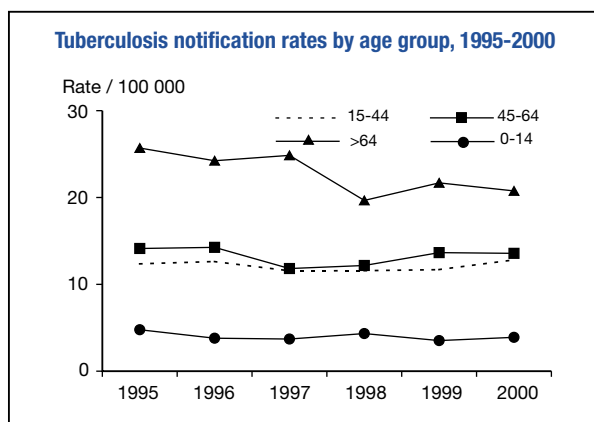
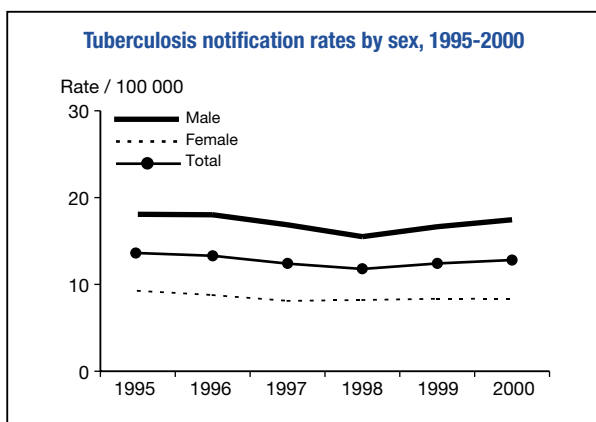
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	730 / 969 (75.3%)
Cases resistant to INH	47 (6.4%)
Cases resistant to RMP	14 (1.9%)
MDR cases	11 (1.5%)
Cases resistant to EMB	12 (1.6%)
Cases resistant to SM	- -

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	558 §
Success	322 (58%)
Death	80 (14%)
Failure	0 (0%)
Default	9 (2%)
Transfer	9 (2%)
Other / unknown	138 (25%)

§ some patient records lost, excluded



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	2 606
Notification rate per 100 000	65.5
Sex ratio (M:F)	1.4
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Foreign born / citizens	12 (0.5%)
New (never treated)	2 291 (87.9%)
Culture positive	1 554 (59.6%)
Pulmonary	2 337 (89.7%)
of which sputum smear positive	881 (37.7%)

Drug Resistance Surveillance, 2000

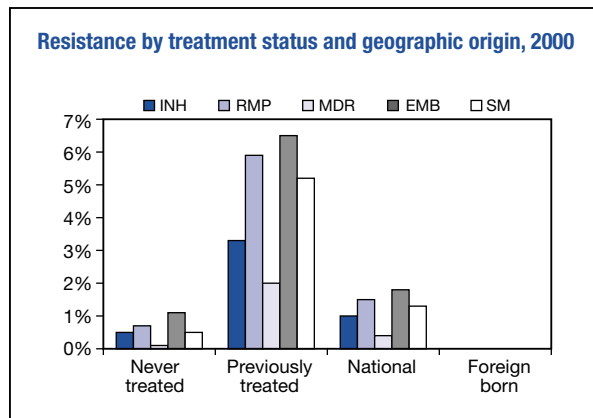
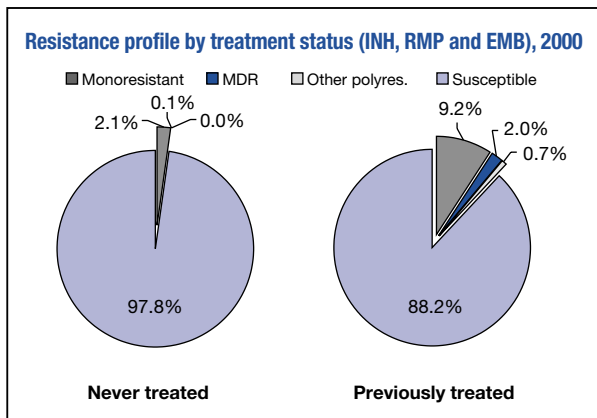
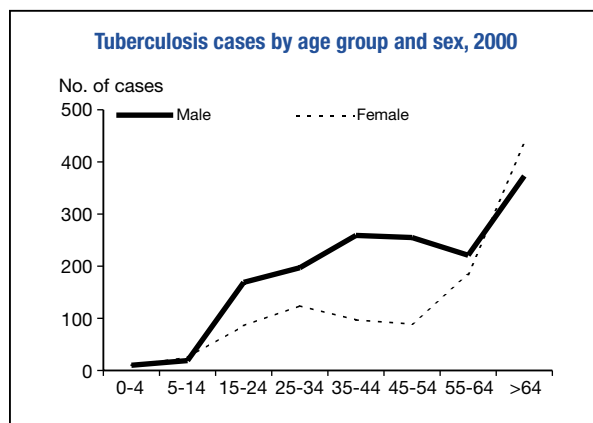
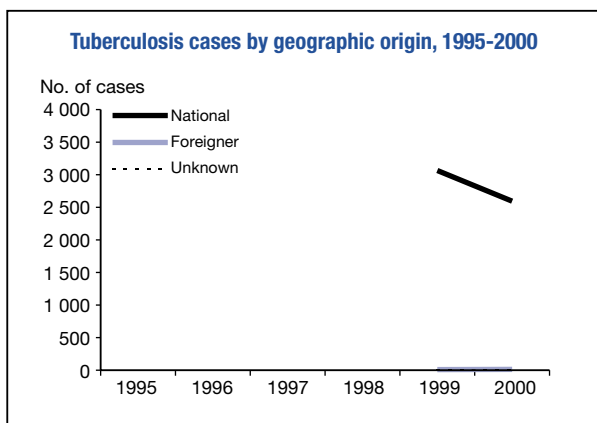
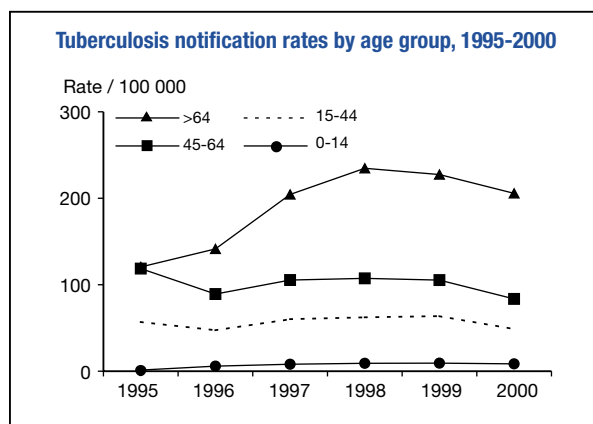
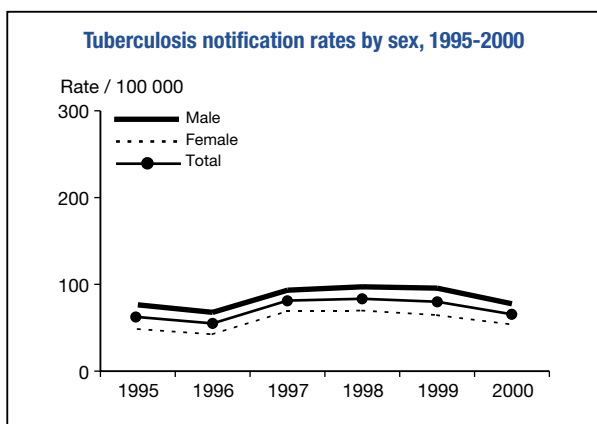
International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes *
Cases with DST results	1 153 / 1 554 § (74%)
Cases resistant to INH	11 (1.0%)
Cases resistant to RMP	17 (1.5%)
MDR cases	5 (0.4%)
Cases resistant to EMB	21 (1.8%)
Cases resistant to SM	15 (1.3%)

* Not in Rep. Srpska (cases diagnosed in 3 labs)

§ incomplete data for Rep. Srpska (119 / 520)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	1 269
Success	1 176 (93%)
Death	11 (1%)
Failure	5 (0%)
Default	32 (3%)
Transfer	8 (1%)
Other / unknown	37 (3%)



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	3 349
Notification rate per 100 000	42.1
Sex ratio (M:F)	2.1
Median age-group, nationals	45-54 years
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	2 966 (88.6%)
Culture positive	1 408 (42.0%)
Respiratory	2 907 (86.8%)
of which sputum smear positive	2 907 (100.0%)

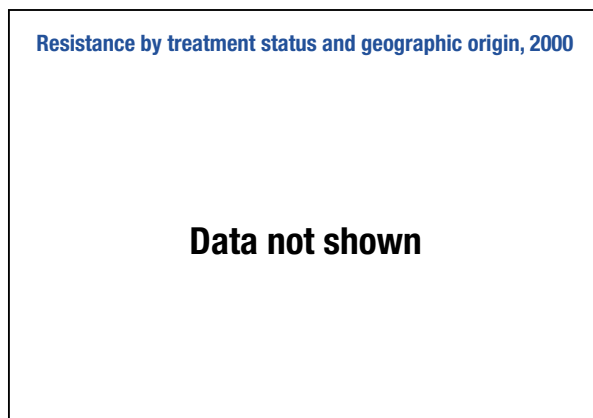
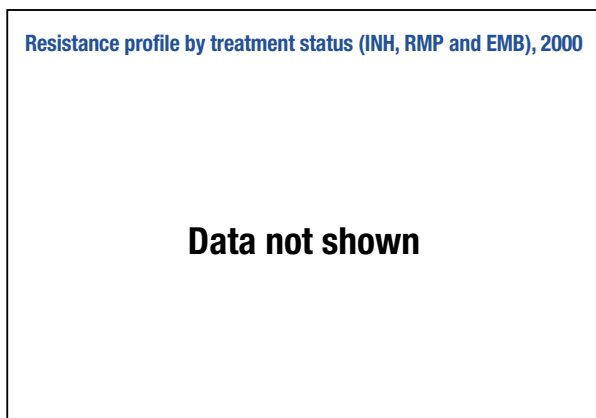
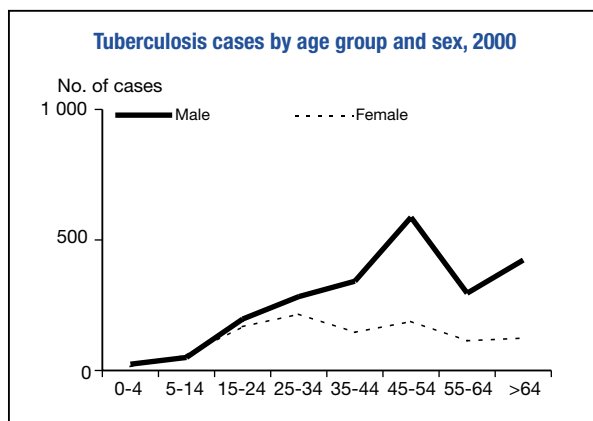
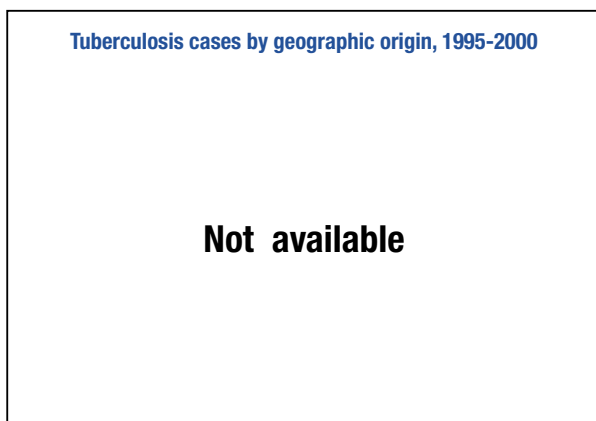
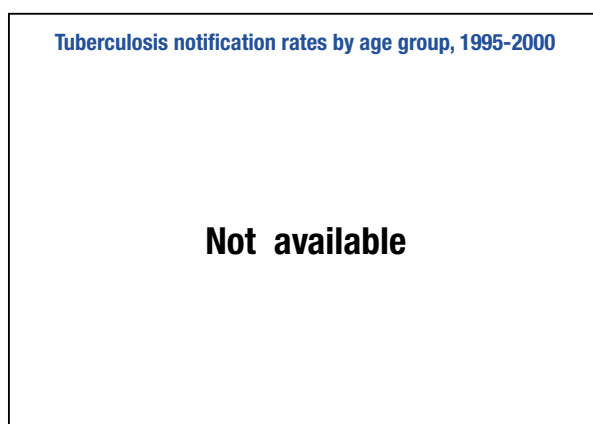
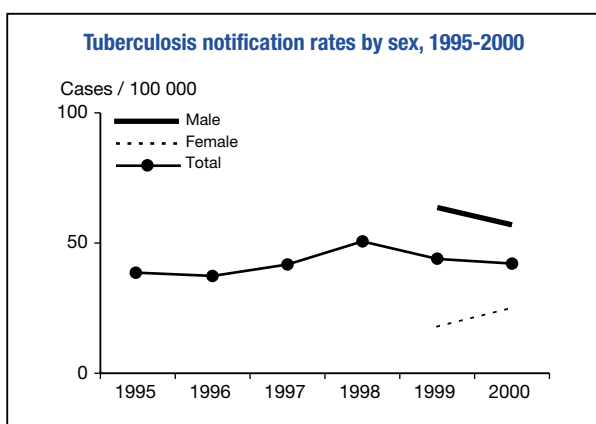
Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	National
Linkage with notification	No
Cases with DST results	369
Cases resistant to INH	-
Cases resistant to RMP	-
MDR cases	-
Cases resistant to EMB	-
Cases resistant to SM	-

DST performed at start or during treatment in case of poor clinical response; data not shown

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	1 630
Notification rate per 100 000	35.0
Sex ratio (M:F)	1.6
Median age-group, nationals	45-54 years
Median age-group, non-nationals	55-64 years
Individuals born abroad*	185 (11.3%)
New (never treated)	1 489 (91.3%)
Culture positive	883 (54.2%)
Pulmonary	1 475 (90.5%)
of which sputum smear positive	504 (34.2%)

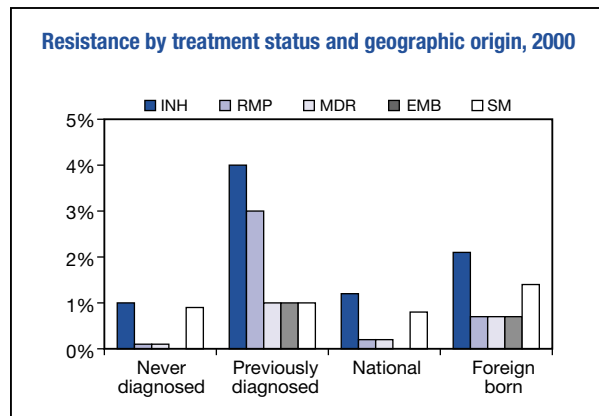
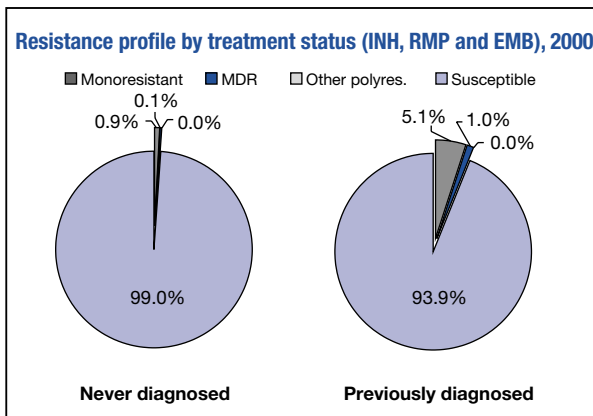
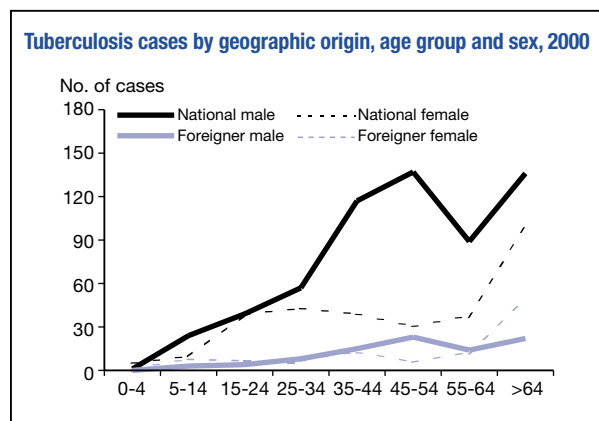
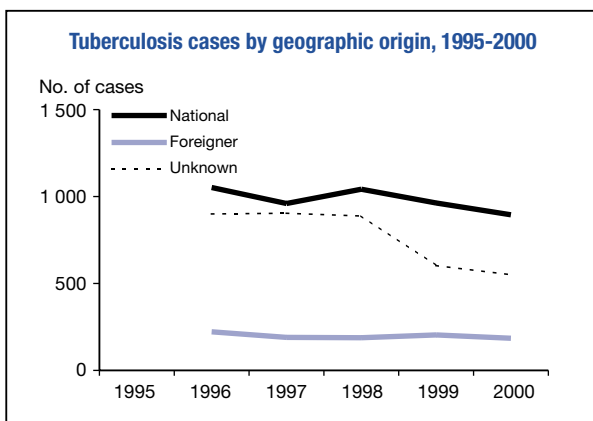
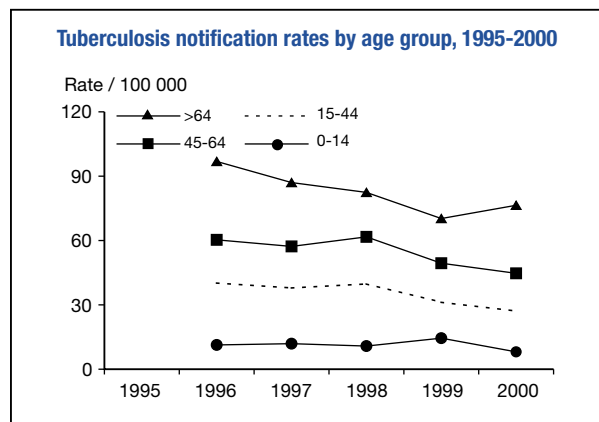
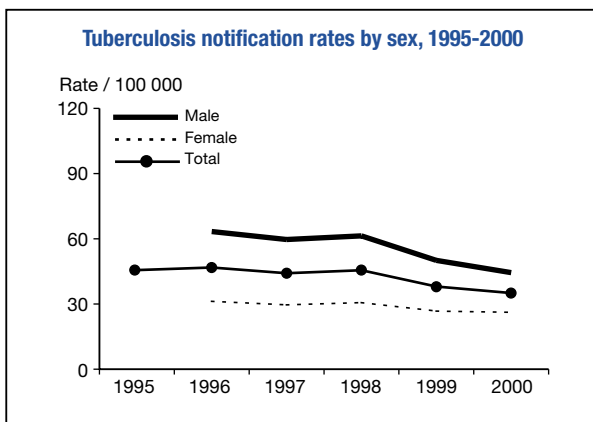
* 34% of cases origin unknown

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	879 / 883 (99.5%)
Cases resistant to INH	12 (1.4%)
Cases resistant to RMP	4 (0.5%)
MDR cases	2 (0.2%)
Cases resistant to EMB	1 (0.1%)
Cases resistant to SM	8 (0.9%)

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

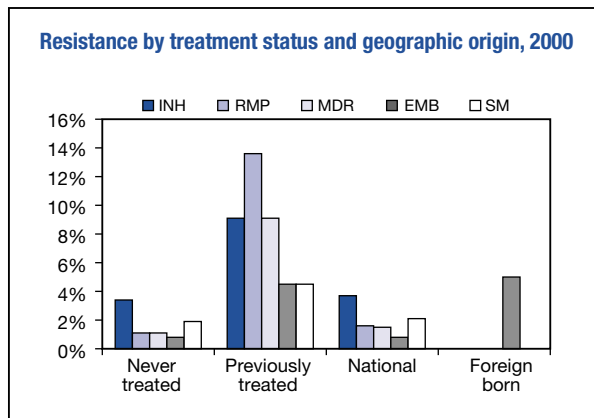
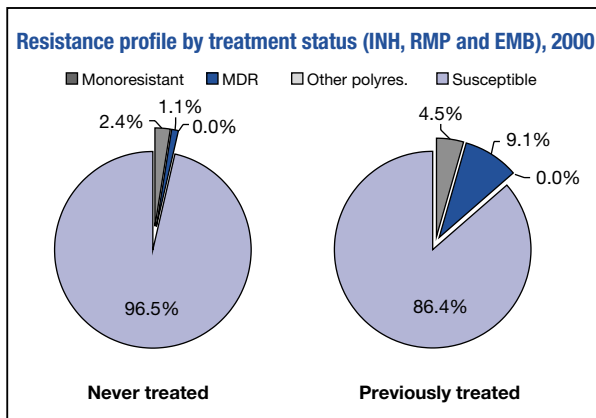
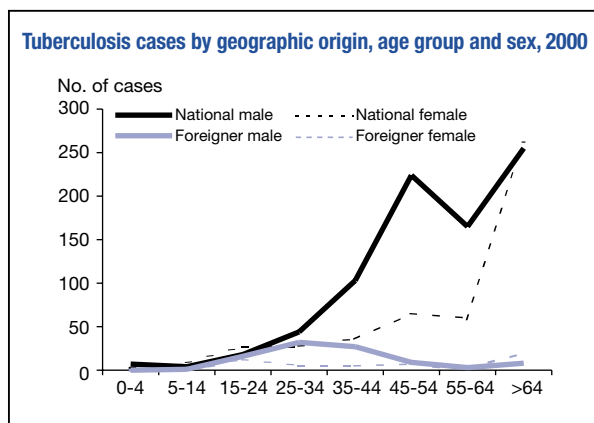
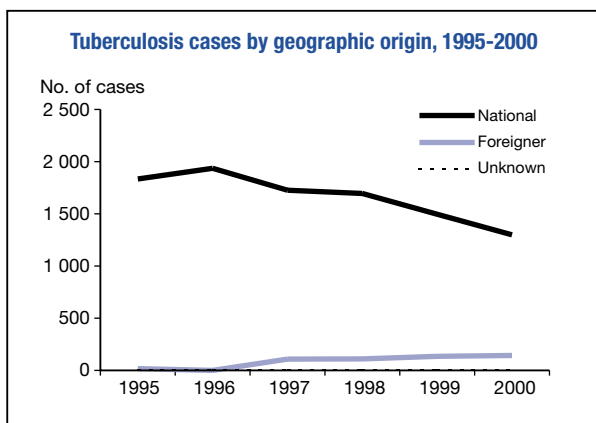
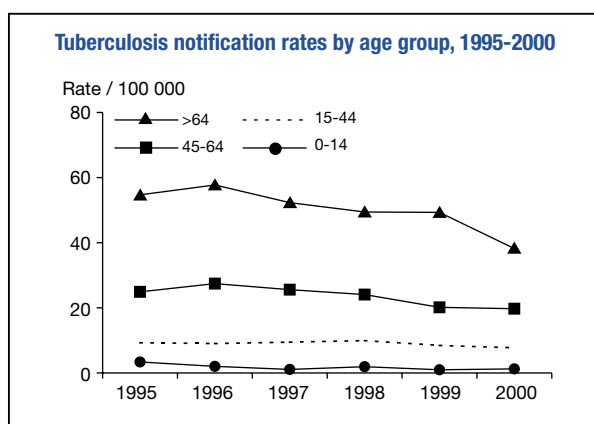
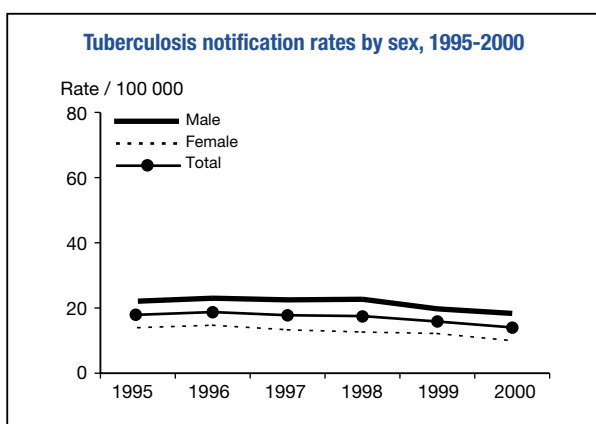
Type of data provided	Individual
Total number of cases	1 442
Notification rate per 100 000	14.0
Sex ratio (M:F)	1.7
Median age-group, nationals	55-64 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	143 (9.9%)
New (never treated)	1 389 (96.3%)
Culture positive	873 (60.5%)
Respiratory	1 244 (86.3%)
of which sputum smear positive	442 (35.5%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	640 / 873 (73%)
Cases resistant to INH	23 (3.6%)
Cases resistant to RMP	10 (1.6%)
MDR cases	9 (1.4%)
Cases resistant to EMB	6 (0.9%)
Cases resistant to SM	13 (2.0%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	606
Success	438 (72%)
Death	123 (20%)
Failure	3 (0%)
Default	9 (1%)
Transfer	12 (2%)
Other / unknown	21 (3%)



Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	548
Notification rate per 100 000	10.3
Sex ratio (M:F)	1.4
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	350 (63.9%)
New (never treated)	509 (92.9%)
Culture positive	430 (78.5%)
Pulmonary	397 (72.4%)
of which sputum smear positive	152 (38.3%)

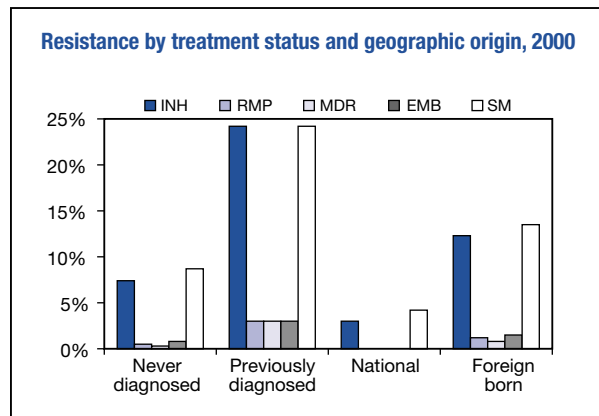
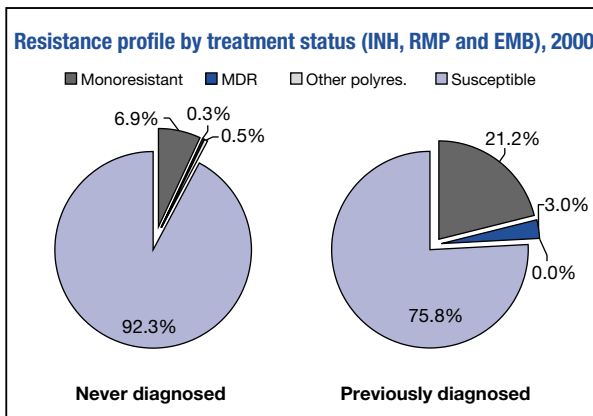
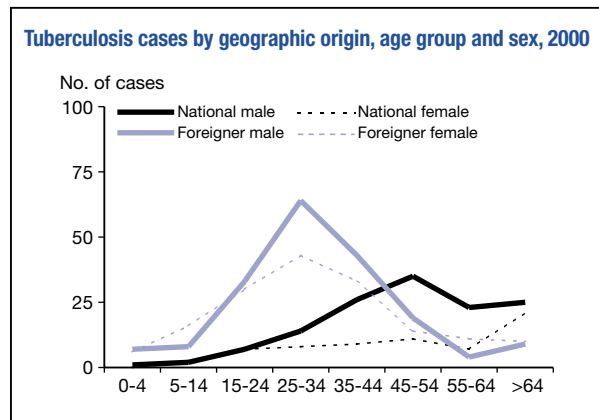
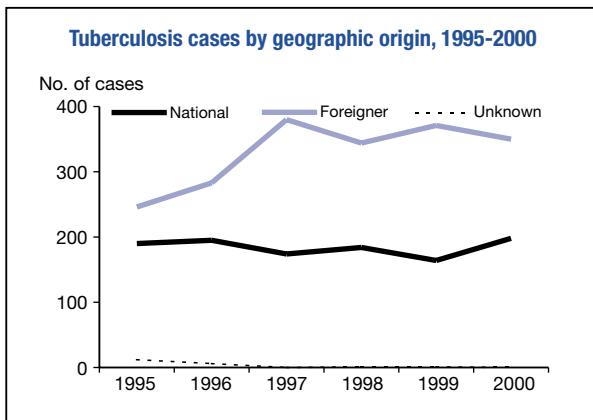
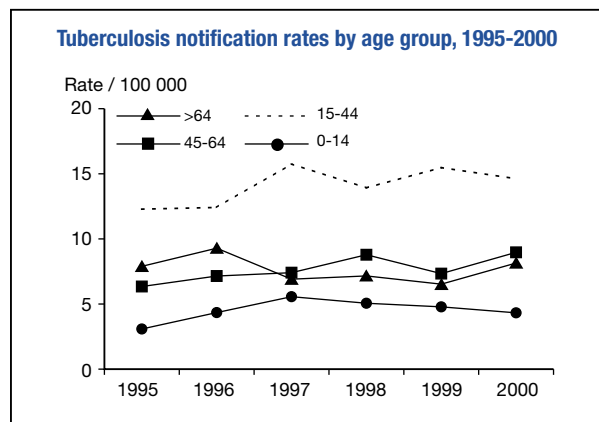
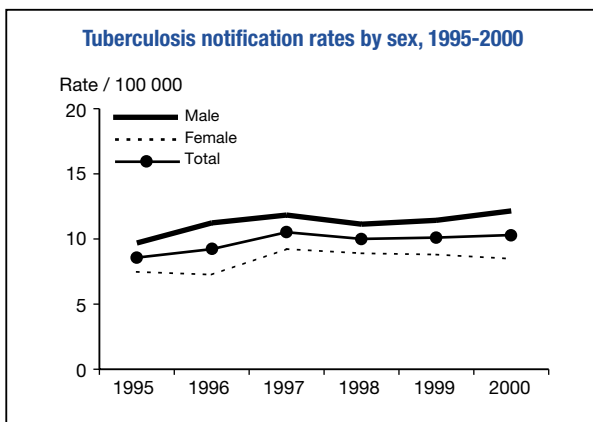
* except DST results

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	425 / 430 (99%)
Cases resistant to INH	37 (8.7%)
Cases resistant to RMP	3 (0.7%)
MDR cases	2 (0.5%)
Cases resistant to EMB	4 (0.9%)
Cases resistant to SM	42 (9.9%)

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

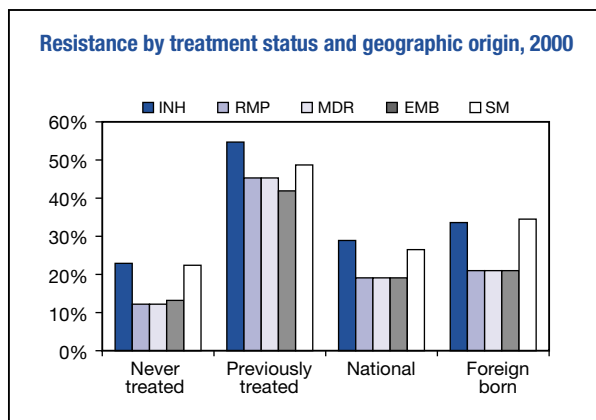
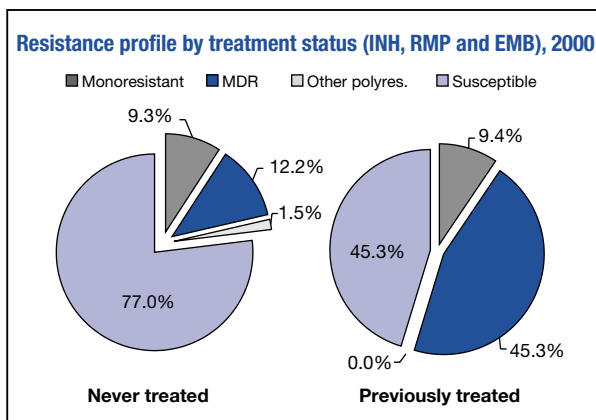
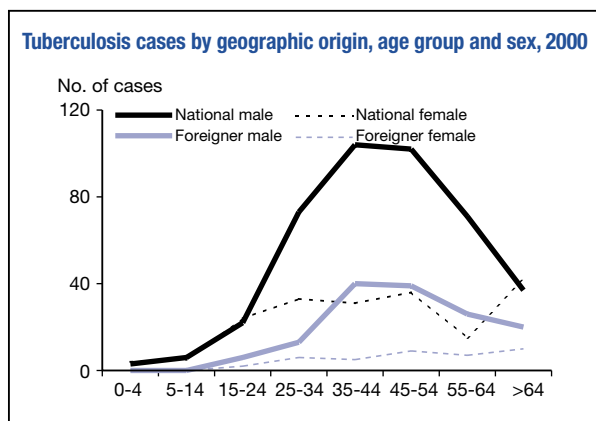
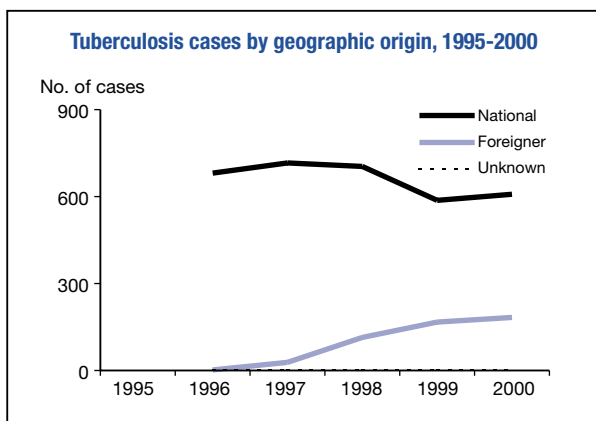
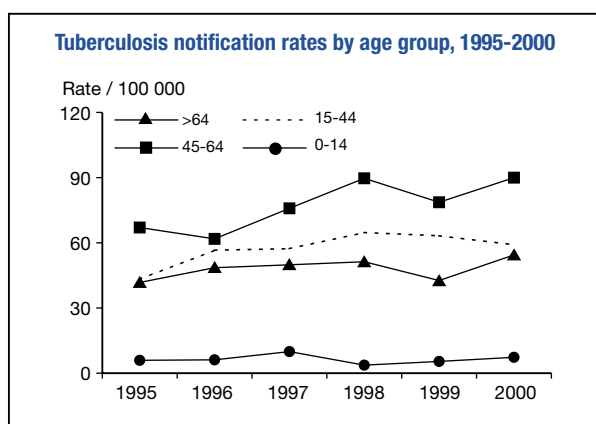
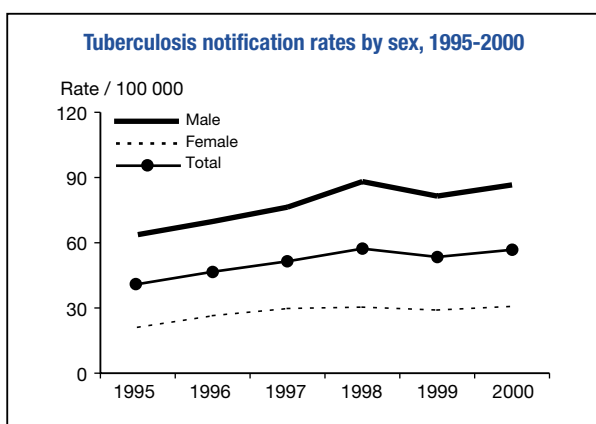
Type of data provided	Individual
Total number of cases	791
Notification rate per 100 000	56.8
Sex ratio (M:F)	2.5
Median age-group, nationals	35-44 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	183 (23.1%)
New (never treated)	642 (81.2%)
Culture positive	541 (68.4%)
Pulmonary	721 (91.2%)
of which sputum smear positive	316 (43.8%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	527 / 541 (97%)
Cases resistant to INH	158 (30.0%)
Cases resistant to RMP	103 (19.5%)
MDR cases	103 (19.5%)
Cases resistant to EMB	103 (19.5%)
Cases resistant to SM	149 (28.3%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	414
Success	296 (71%)
Death	54 (13%)
Failure	12 (3%)
Default	52 (13%)
Transfer	0 (0%)
Other / unknown	0 (0%)



Tuberculosis case notifications, 2000

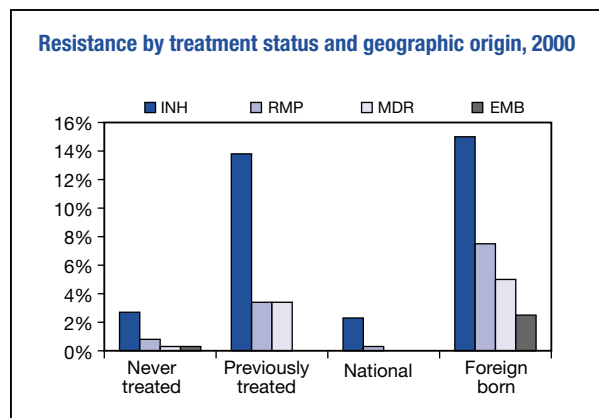
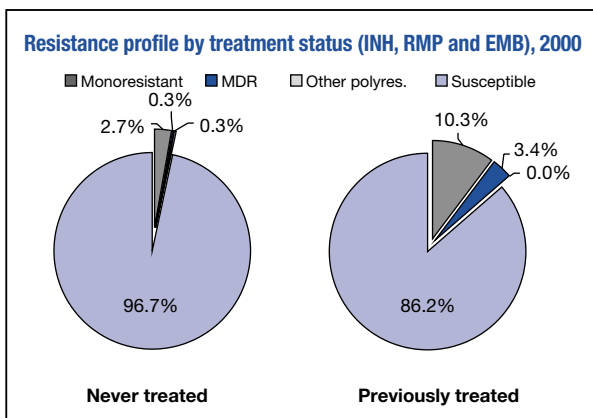
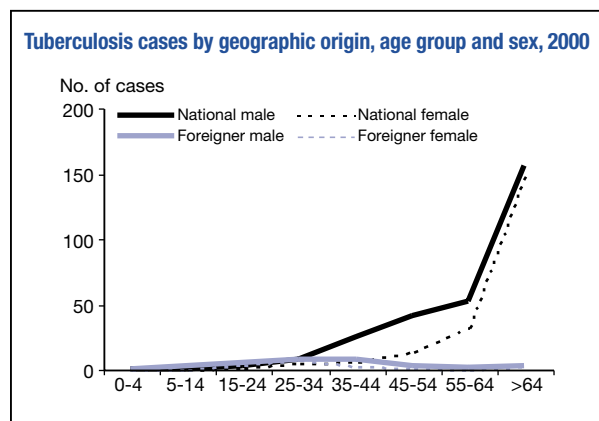
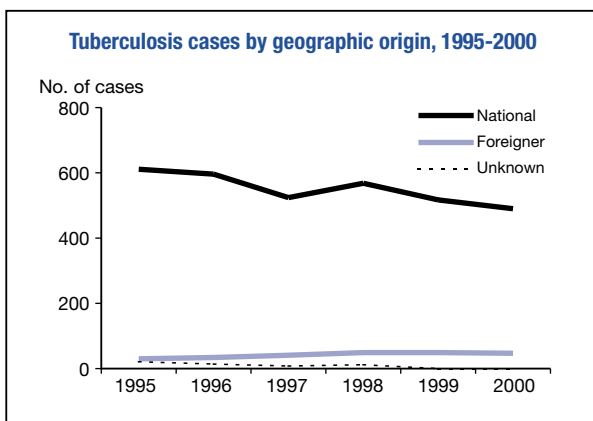
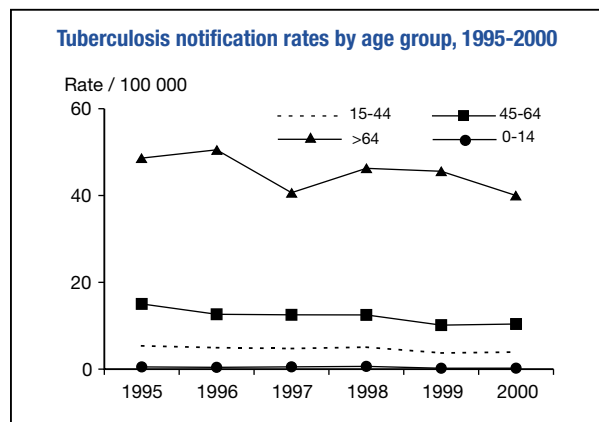
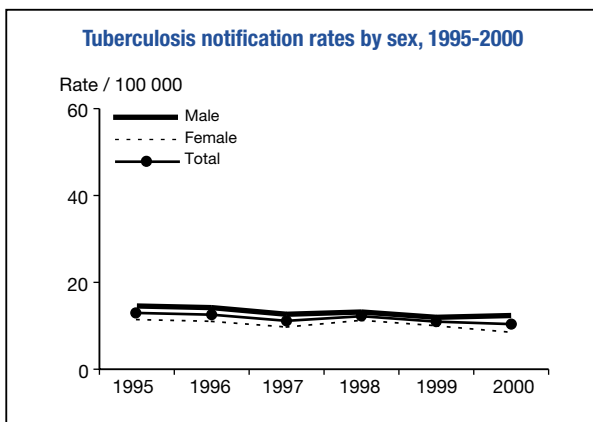
Type of data provided	Individual
Total number of cases	537
Notification rate per 100 000	10.4
Sex ratio (M:F)	1.4
Median age-group, nationals	65+ years
Median age-group, non-nationals	25-34 years
Individuals born abroad	47 (8.8%)
New (never treated)	461 (85.8%)
Culture positive	451 (84.0%)
Pulmonary	370 (68.9%)
of which sputum smear positive	227 (61.4%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	439 / 451 (97%)
Cases resistant to INH	15 (3.4%)
Cases resistant to RMP	4 (0.9%)
MDR cases	2 (0.5%)
Cases resistant to EMB	1 (0.2%)
Cases resistant to SM	- -

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	6 714
Notification rate per 100 000	11.0
Sex ratio (M:F)	1.6
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad §	2 193 (32.7%)
New (never treated)	4 354 (64.8%)
Culture positive **	1 857 (27.7%)
Pulmonary	4 838 (72.1%)
of which sputum smear positive	2 674 (55.3%)

* except DST results
 § 20% of cases with missing information
 ** culture done, result unknown in 34%

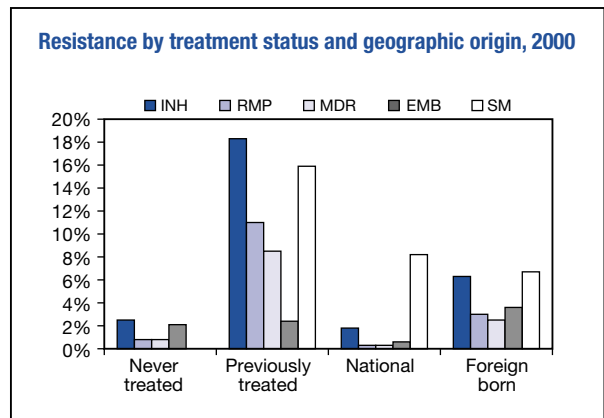
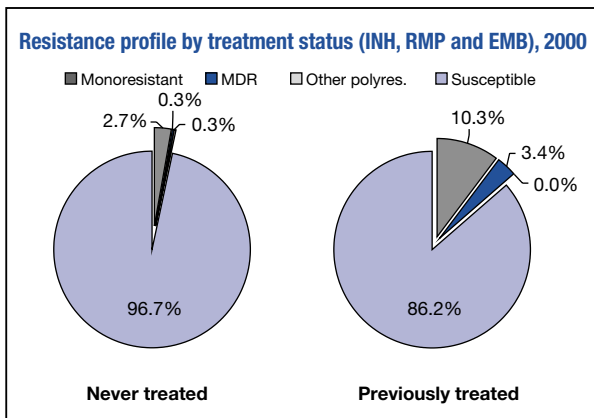
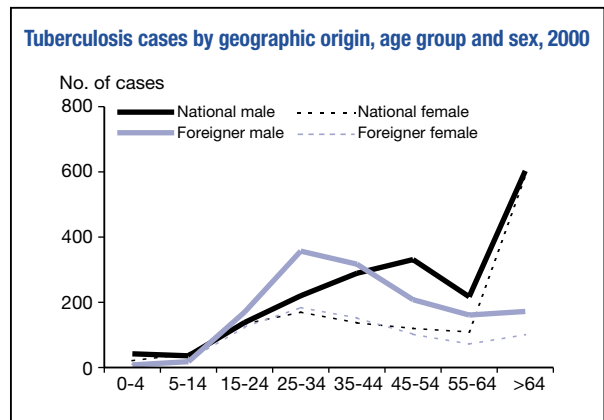
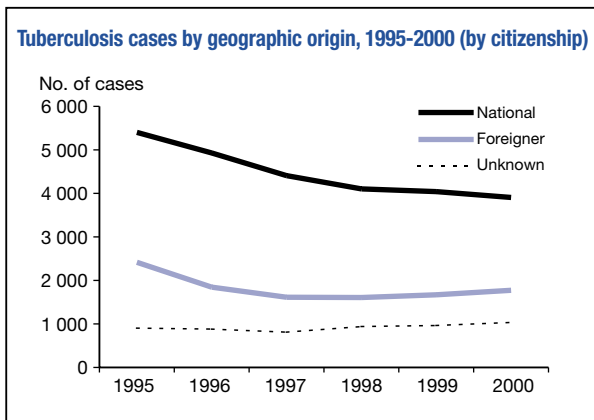
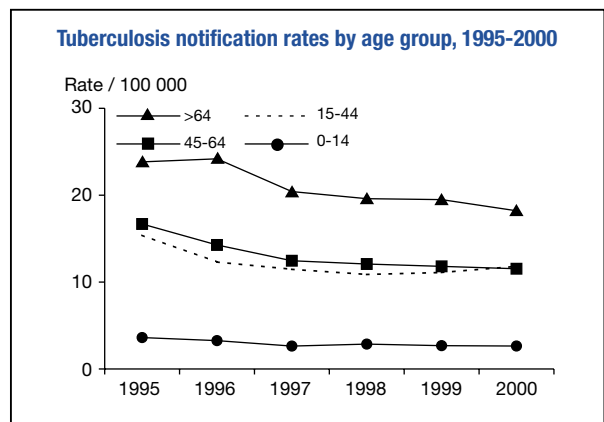
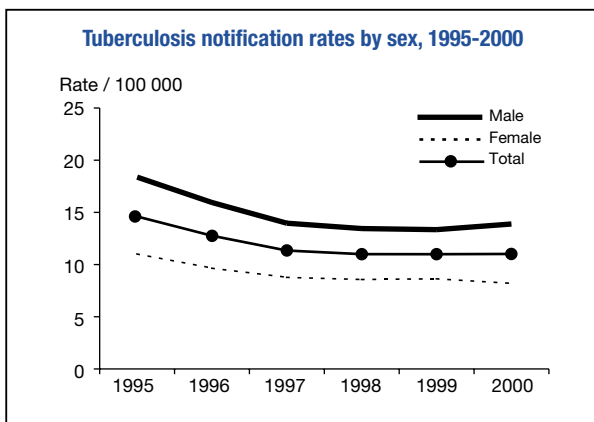
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	15 / 23 regions
Linkage with notification	No §
Cases with DST results	1 189 / 1 201 (99%)
Cases resistant to INH	45 (3.8%)
Cases resistant to RMP	18 (1.5%)
MDR cases	15 (1.3%)
Cases resistant to EMB	23 (1.9%)
Cases resistant to SM	88 (7.4%)

§ TB cases diagnosed in a sentinel network of 23 teaching hospital laboratories

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	6 436
Notification rate per 100 000	122.3
Sex ratio (M:F)	2.6
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	4 393 (68.3%)
Culture positive	- -
Pulmonary	4 963 (77.1%)
of which sputum smear positive	1 451 (29.2%)

Drug Resistance Surveillance, 2000

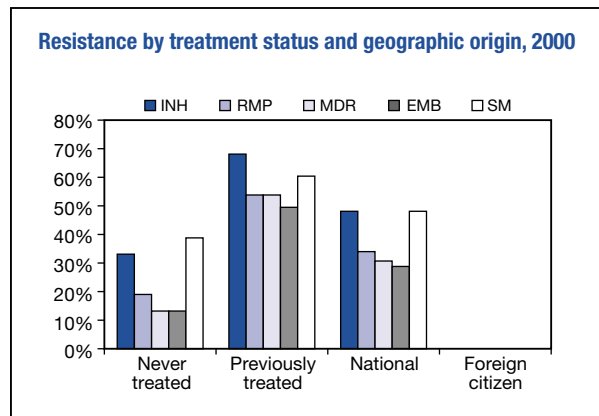
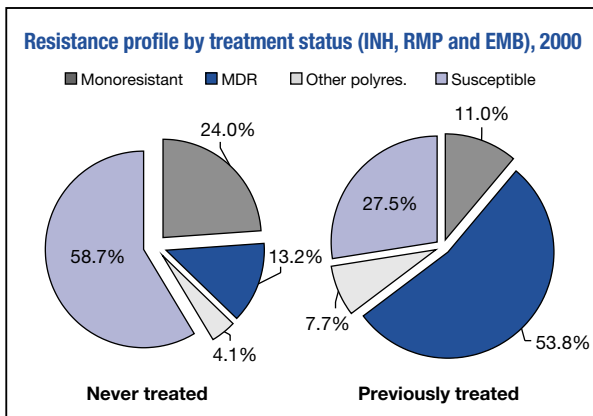
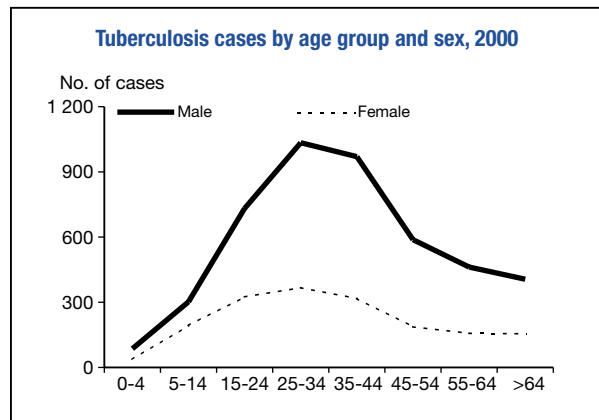
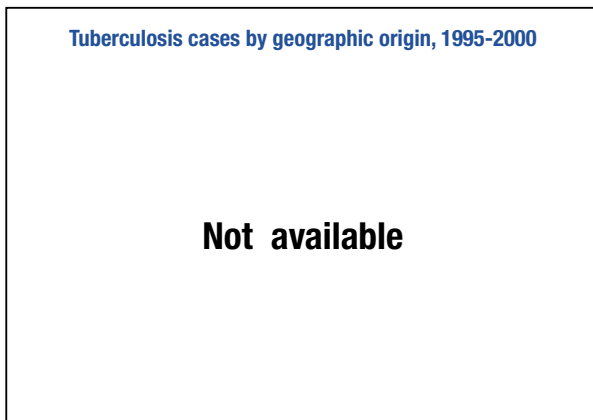
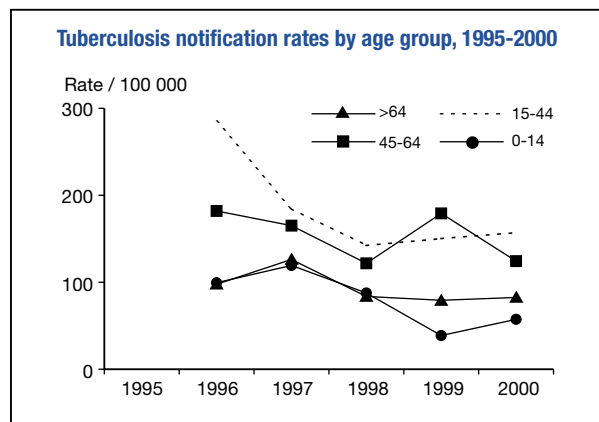
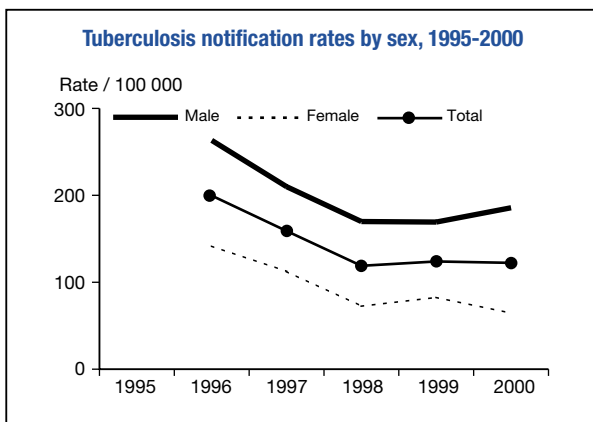
International proficiency testing	No
Geographic coverage	Tbilisi
Linkage with notification	No §
Cases with DST results	212 / 213 (99.5%)
Cases resistant to INH	102 (48.1%)
Cases resistant to RMP	72 (34.0%)
MDR cases	65 (30.7%)
Cases resistant to EMB	61 (28.8%)
Cases resistant to SM	102 (48.1%)

Culture and DST not routinely performed

§ Cases diagnosed at the NRL

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	746
Success	457 (61%)
Death	38 (5%)
Failure	41 (5%)
Default	161 (22%)
Transfer	14 (2%)
Other / unknown	35 (5%)



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	9 064
Notification rate per 100 000	11.1
Sex ratio (M:F)	1.6
Median age-group, nationals	55-64 years
Median age-group, non-nationals	-
Foreign citizens	3 047 (33.6%)
New (never treated)	- -
Culture positive*	3 427 (67.5%)
Respiratory	7 535 (83.1%)
of which sputum smear positive	2 665 (35.4%)

* 5 080 cases notified in two thirds of local health units

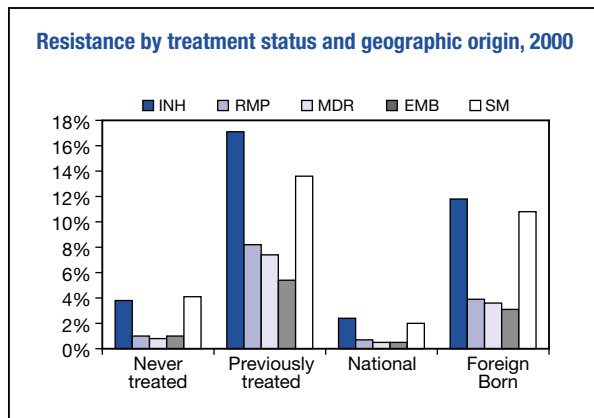
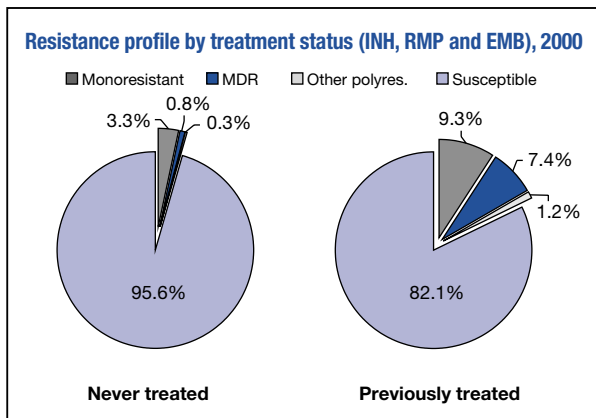
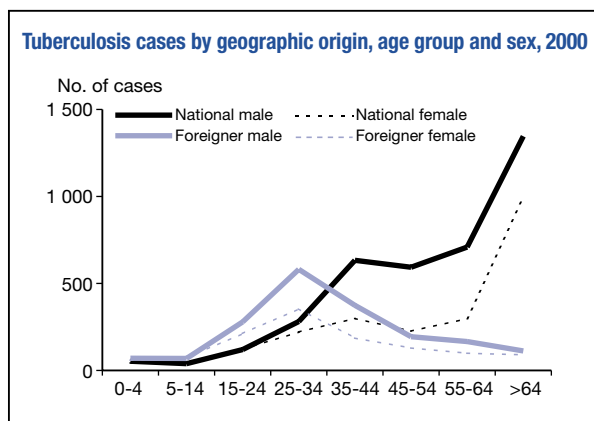
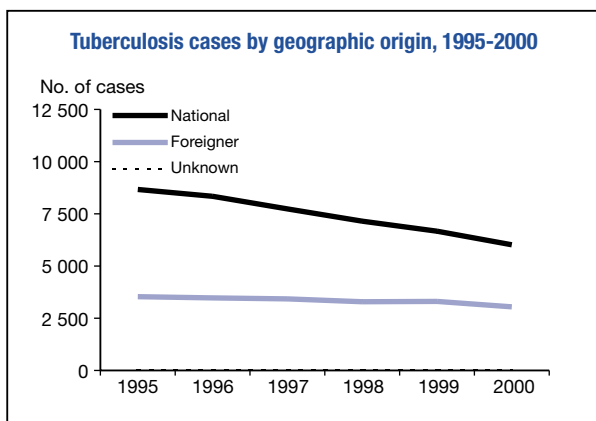
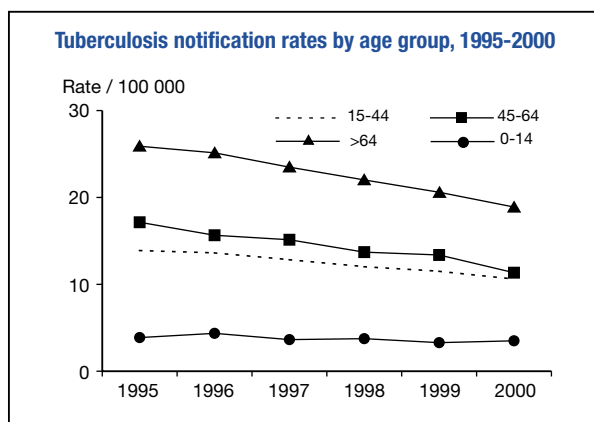
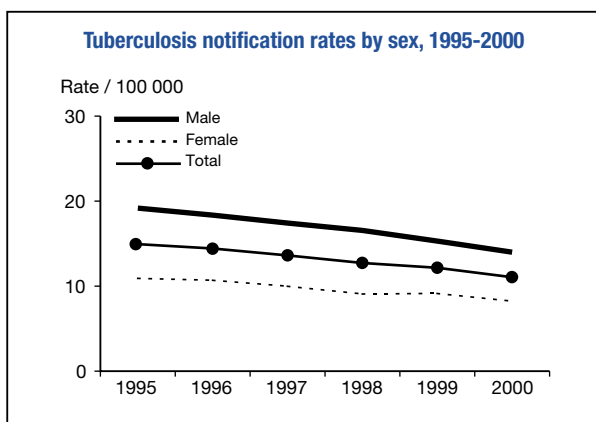
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage §	National
Linkage with notification	Yes §
Cases with DST results	2 780 / 3 427 (81%)
Cases resistant to INH	166 (6.0%)
Cases resistant to RMP	54 (1.9%)
MDR cases	47 (1.7%)
Cases resistant to EMB	43 (1.5%)
Cases resistant to SM	151 (5.4%)

§ Cases notified in two thirds of local health units

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	703
Notification rate per 100 000	6.6
Sex ratio (M:F)	2.0
Median age-group, nationals	65+ years
Median age-group, non-nationals	35-44 years
Foreign citizens	68 (9.7%)
New (never treated)	655 (93.2%)
Culture positive	287 (40.8%)
Pulmonary	622 (88.5%)
of which sputum smear positive	283 (45.5%)

Drug Resistance Surveillance, 2000

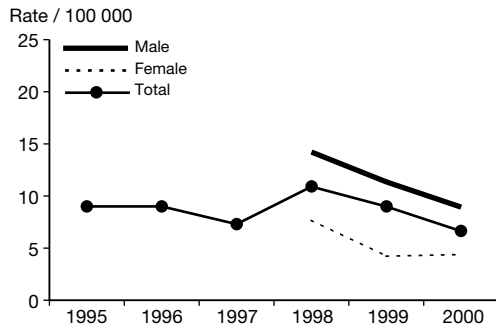
International proficiency testing	No
Geographic coverage	Some areas
Linkage with notification	No §
Cases with DST results	861
Cases resistant to INH	-
Cases resistant to RMP	-
MDR cases	-
Cases resistant to EMB	-
Cases resistant to SM	-

§ Data from 3 labs; DST results at start or during treatment done for selected cases; not shown

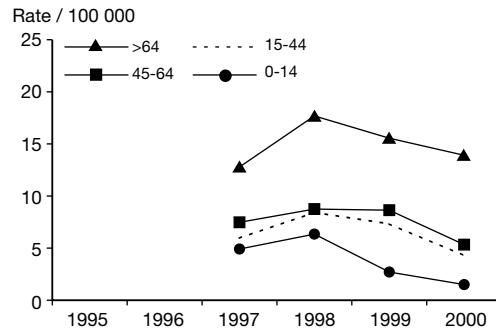
Treatment Outcome Monitoring, 1999

Not available

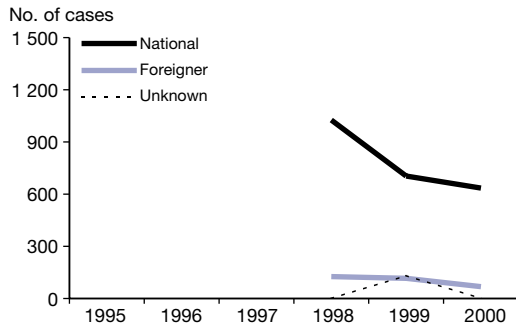
Tuberculosis notification rates by sex, 1995-2000*



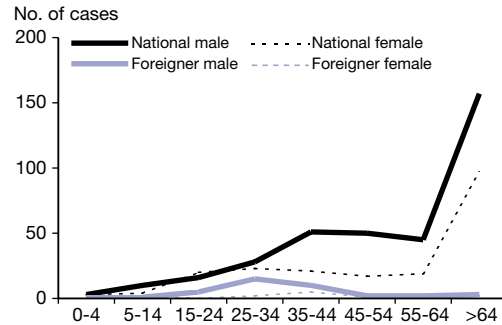
Tuberculosis notification rates by age group, 1995-2000*



Tuberculosis cases by geographic origin, 1995-2000*



Tuberculosis cases by geographic origin, age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000

Data not shown

Resistance by treatment status and geographic origin, 2000

Data not shown

* TB case definition changed in 1998

Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	3 598
Notification rate per 100 000	36.1
Sex ratio (M:F)	2.3
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	56 (1.6%)
New (never treated)	2 994 (83.2%)
Culture positive	912 (25.3%)
Pulmonary	3 354 (93.2%)
of which sputum smear positive	501 (14.9%)

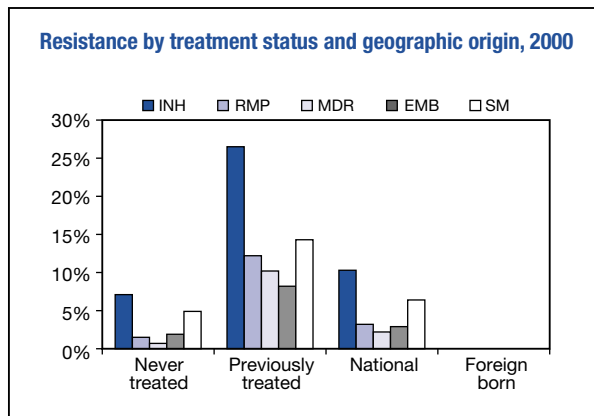
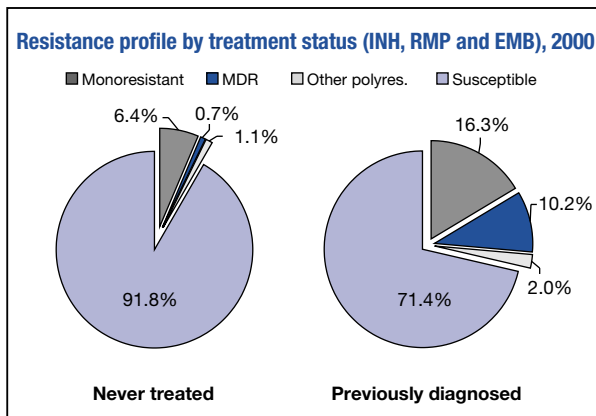
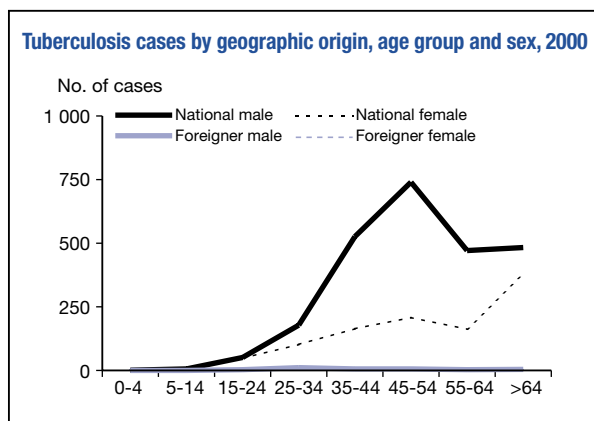
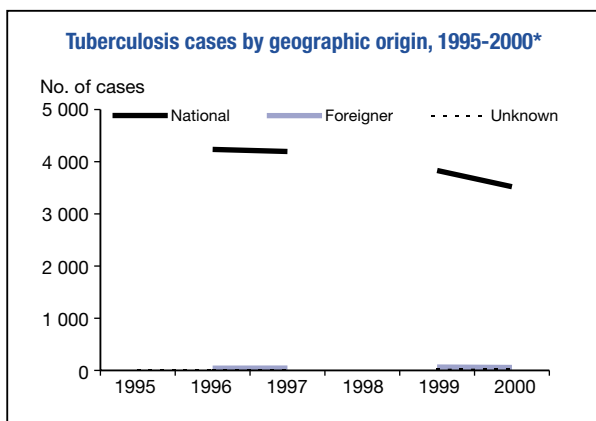
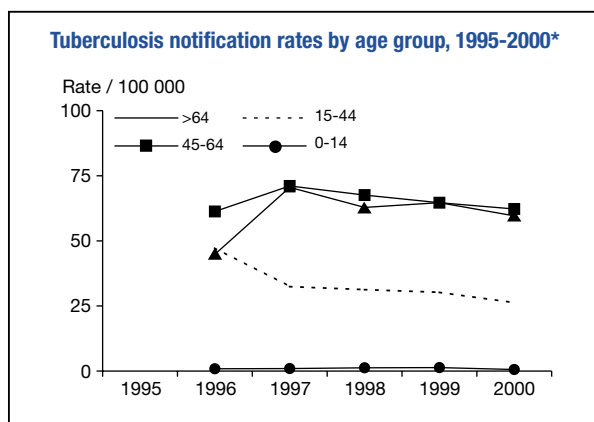
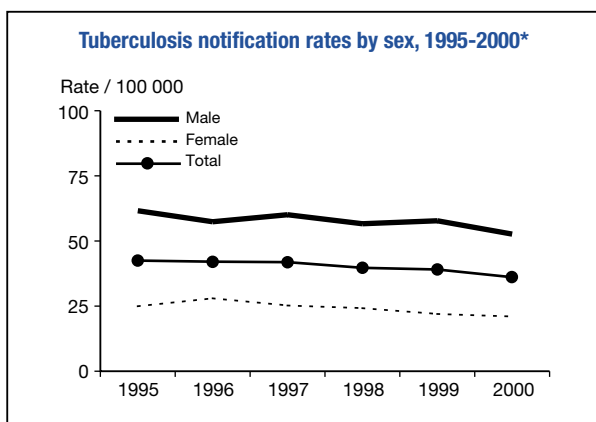
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	316 / 912 (35%)
Cases resistant to INH	32 (10.1%)
Cases resistant to RMP	10 (3.2%)
MDR cases	7 (2.2%)
Cases resistant to EMB	9 (2.8%)
Cases resistant to SM	20 (6.3%)

Culture and DST not routinely performed

Treatment Outcome Monitoring, 1999

Not available



* TB case definitions changed in 1997

Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	13
Notification rate per 100 000	4.7
Sex ratio (M:F)	0.4
Median age-group, nationals	65+ years
Median age-group, non-nationals	25-34 years
Individuals born abroad	5 (38.5%)
New (never treated)	12 (92.3%)
Culture positive	9 (69.2%)
Pulmonary	9 (69.2%)
of which sputum smear positive	3 (33.3%)

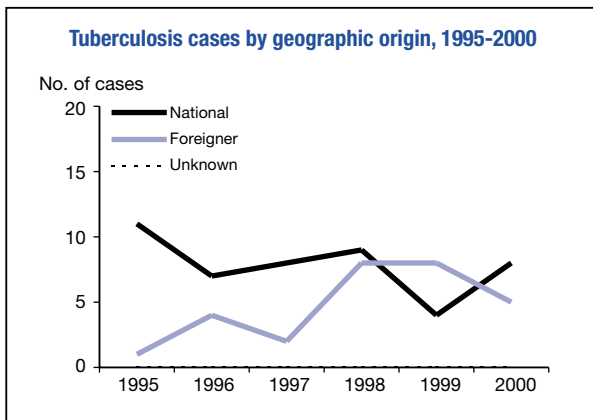
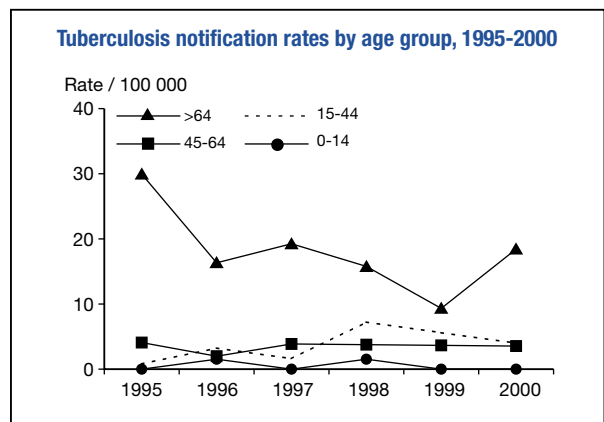
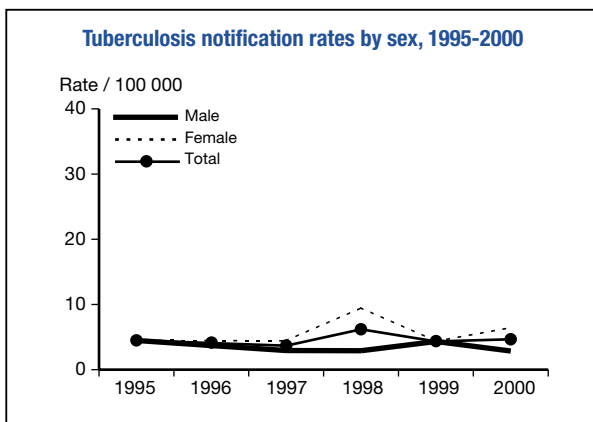
Drug Resistance Surveillance, 2000

International proficiency testing	Yes §
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	9 / 9 (100%)
Cases resistant to INH	0 (0%)
Cases resistant to RMP	0 (0%)
MDR cases	0 (0%)
Cases resistant to EMB	0 (0%)
Cases resistant to SM	0 (0%)

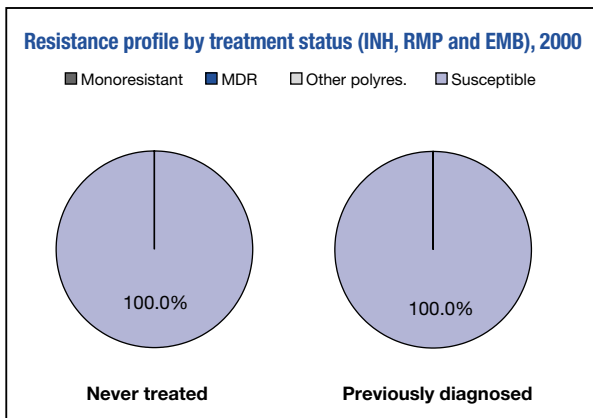
§ DST performed in Denmark

Treatment Outcome Monitoring, 1999

Geographic coverage	national
Cohort	new pulmonary culture positive
Included in TOM cohort	6
Success	6 (100%)
Death	0 (0%)
Failure	0 (0%)
Default	0 (0%)
Transfer	0 (0%)
Other / unknown	0 (0%)



Insufficient number of cases for graphic presentation



No resistance reported

Tuberculosis case notifications*, 2000

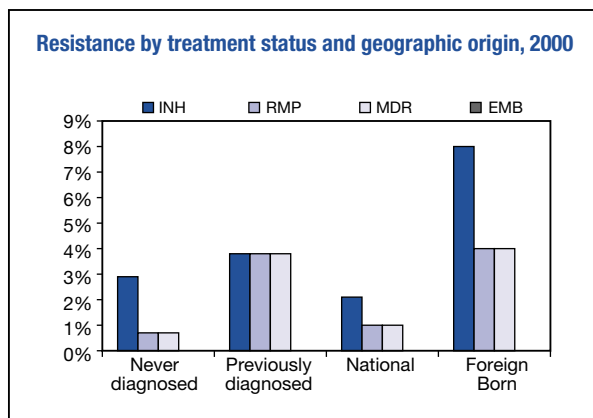
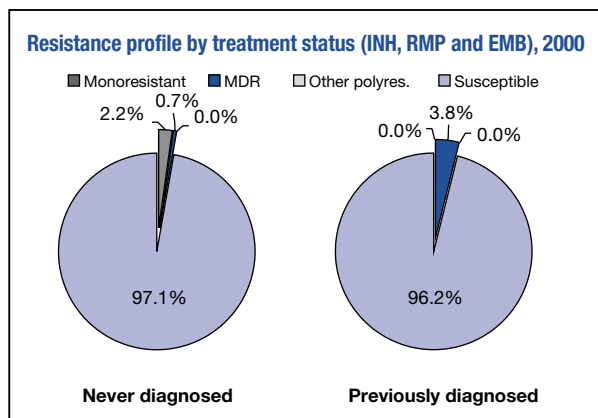
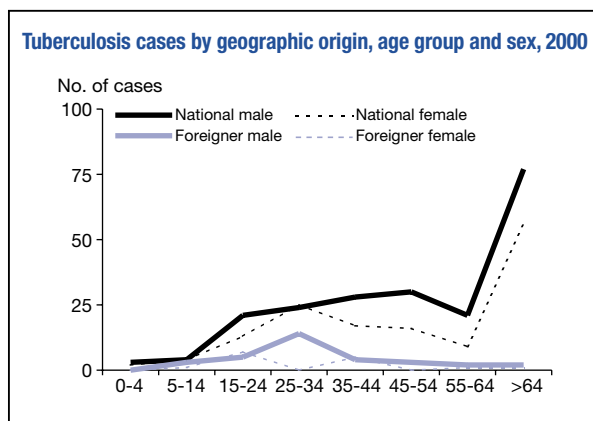
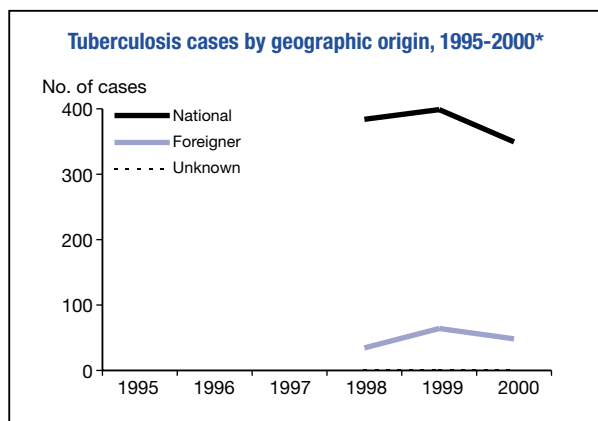
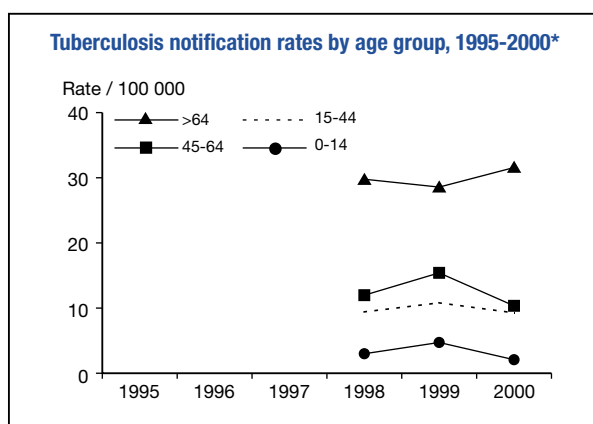
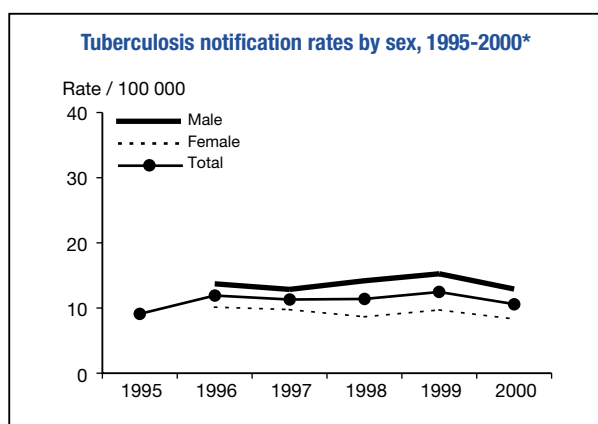
Type of data provided	Individual
Total number of cases	403
Notification rate per 100 000	10.6
Sex ratio (M:F)	1.5
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	49 (12.2%)
New (never treated)	275 (68.2%)
Culture positive	229 (56.8%)
Pulmonary	289 (71.7%)
of which sputum smear positive	142 (49.1%)

Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	216 / 229 (94%)
Cases resistant to INH	6 (2.8%)
Cases resistant to RMP	3 (1.4%)
MDR cases	3 (1.4%)
Cases resistant to EMB	0 (0%)
Cases resistant to SM	- -

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	126
Success	60 (48%)
Death	9 (7%)
Failure	0 (0%)
Default	1 (1%)
Transfer	0 (0%)
Other / unknown	56 (44%)



* Notification system reorganised in 1998

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	591
Notification rate per 100 000	9.8
Sex ratio (M:F)	1.5
Median age-group, nationals	25-34 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	500 (84.6%)
New (never treated)	88 (14.9%)
Culture positive	276 (46.7%)
Pulmonary	478 (80.9%)
of which sputum smear positive	222 (46.4%)

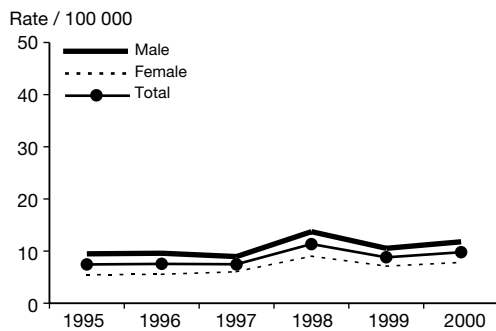
Drug Resistance Surveillance, 2000

International proficiency testing	Yes	2000
Geographic coverage	National	
Linkage with notification	Yes	
Cases with DST results	279 / 312	(89%)
Cases resistant to INH	74	(26.3%)
Cases resistant to RMP	42	(14.9%)
MDR cases	41	(14.6%)
Cases resistant to EMB	28	(10.0%)
Cases resistant to SM	63	(22.4%)

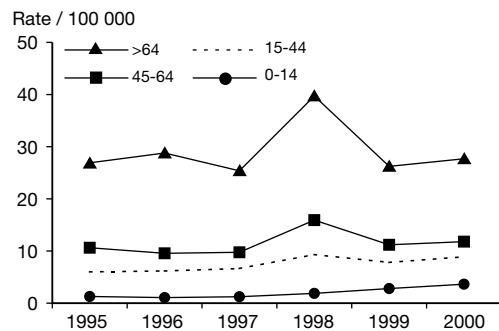
Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	289
Success	237 (82%)
Death	30 (10%)
Failure	6 (2%)
Default	8 (3%)
Transfer	5 (2%)
Other / unknown	3 (1%)

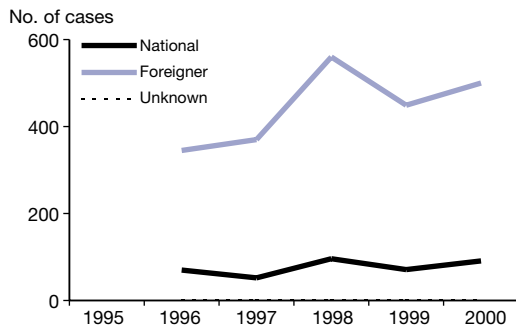
Tuberculosis notification rates by sex, 1995-2000*



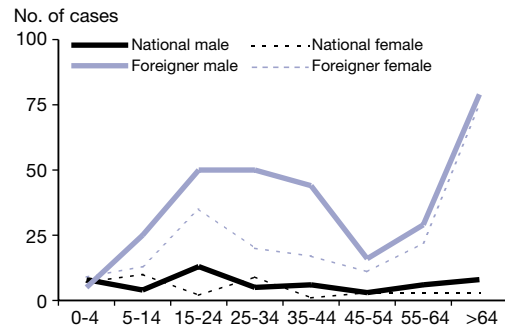
Tuberculosis notification rates by age group, 1995-2000*



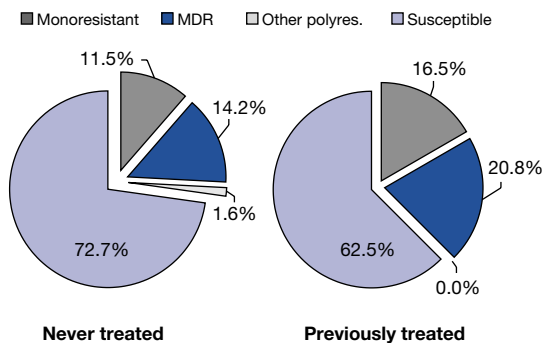
Tuberculosis cases by geographic origin, 1995-2000*



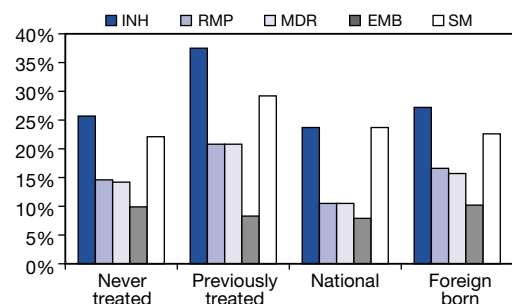
Tuberculosis cases by geographic origin, age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000



Resistance by treatment status and geographic origin, 2000



* TB notification system reorganised in 1998

Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	4 759
Notification rate per 100 000	8.3
Sex ratio (M:F)	1.6
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	1 201 (25.2%)
New (never treated)	3 137 (65.9%)
Culture positive**	1 778 (37.4%)
Pulmonary	3 604 (75.7%)
of which sputum smear positive	1 351 (37.5%)

* except for DRS

** culture done, result unknown in 34% of cases

Drug Resistance Surveillance, 2000

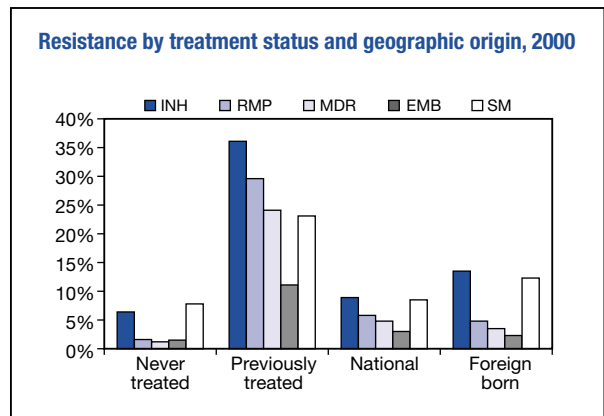
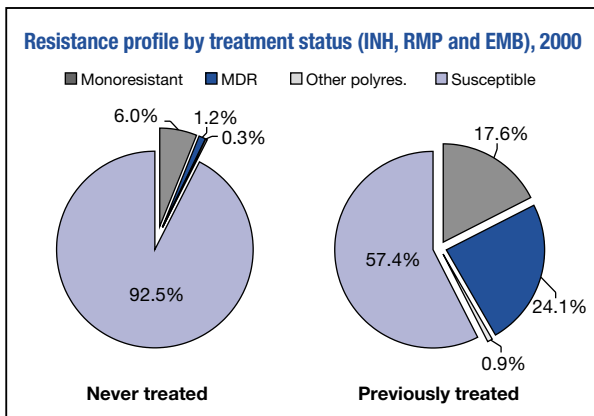
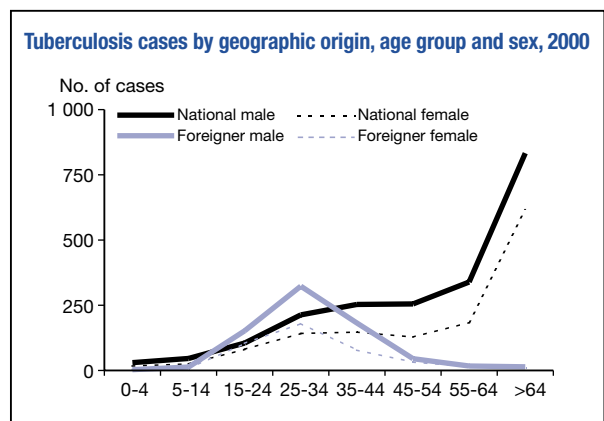
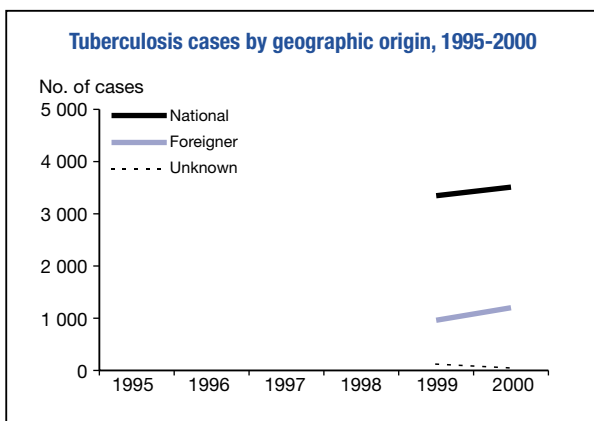
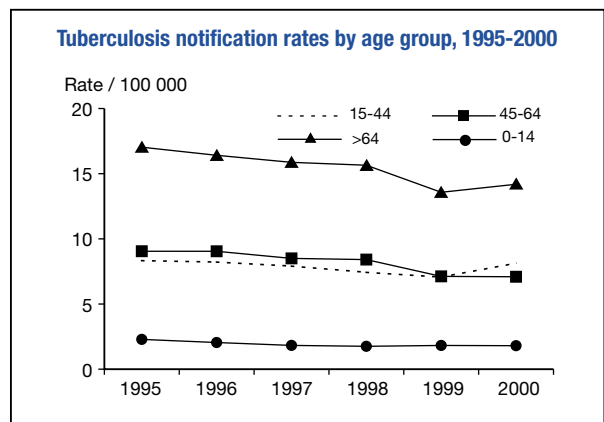
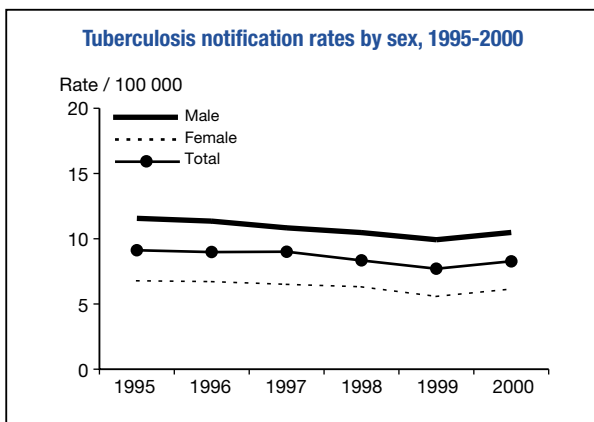
International proficiency testing	yes
Geographic coverage	10 / 20 regions
Linkage with notification	no §
Cases with DST results	806 -
Cases resistant to INH	86 (10.7%)
Cases resistant to RMP	44 (5.5%)
MDR cases	35 (4.3%)
Cases resistant to EMB	22 (2.7%)
Cases resistant to SM	80 (9.9%)

§ Cases diagnosed in 20 selected laboratories

Treatment Outcome Monitoring, 1999

Geographic coverage	Some areas #
Cohort	new pulmonary culture positive
Included in TOM cohort	231
Success	163 (71%)
Death	7 (3%)
Failure	0 (0%)
Default	27 (12%)
Transfer	24 (10%)
Other / unknown	10 (4%)

Cases diagnosed in 46 clinical centres in 10 regions



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	28 265
Notification rate per 100 000	174.8
Sex ratio (M:F)*	1.3
Median age-group, nationals*	25-34 years
Median age-group, non-nationals	-
Foreign born / citizens	-
New (never treated)	22 782 (80.6%)
Culture positive	1 905 (6.7%)
Respiratory	25 498 (90.2%)
of which sputum smear positive	12 926 (50.7%)

* ?????

Drug Resistance Surveillance, 2000

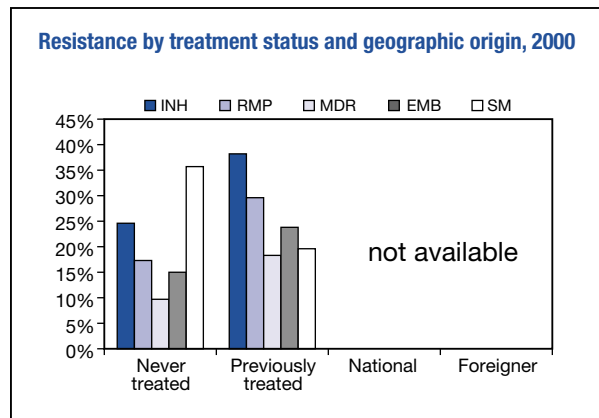
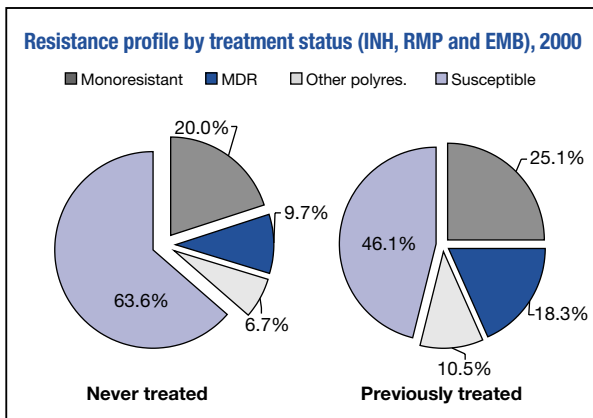
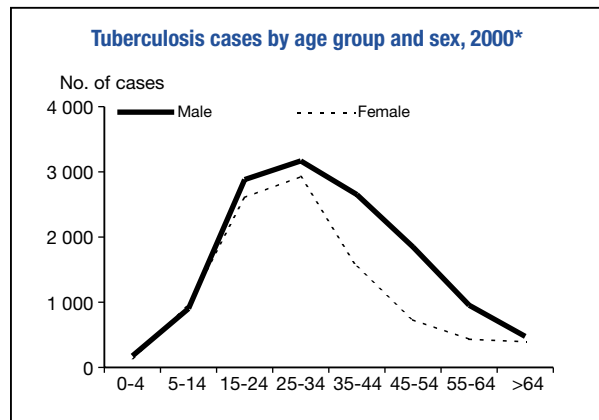
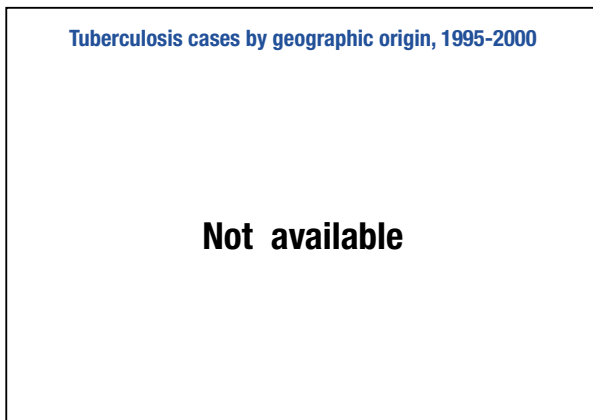
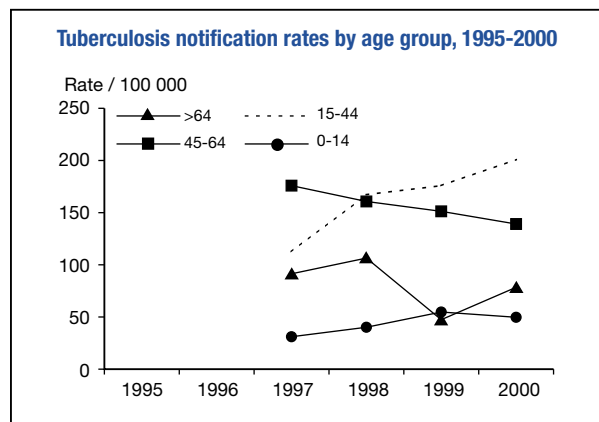
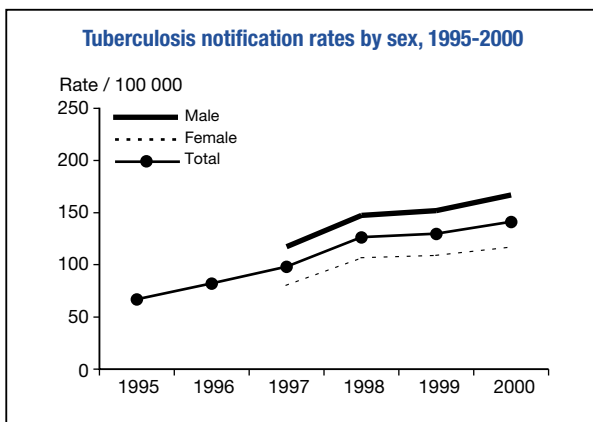
International proficiency testing	No
Geographic coverage	National
Linkage with notification	No §
Cases with DST results	7 263 -
Cases resistant to INH	2 391 (32.9%)
Cases resistant to RMP	1 804 (24.8%)
MDR cases	1 088 (15.0%)
Cases resistant to EMB	1 483 (20.4%)
Cases resistant to SM	3 213 (44.2%)

Culture and DST not routinely performed

§ Data from all laboratories performing DST

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	6 827
Success	5 407 (79%)
Death	316 (5%)
Failure	591 (9%)
Default	229 (3%)
Transfer	284 (4%)
Other / unknown	0 (0%)



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	6 383
Notification rate per 100 000	129.7
Sex ratio (M:F)*	1.6
Median age-group, nationals	-
Median age-group, non-nationals	-
Individuals born abroad	-
New (never treated)	5 953 (93.3%)
Culture positive	-
Pulmonary	4 655 (72.9%)
of which sputum smear positive	1 726 (37.1%)

* New sputum smear positive cases only

Drug Resistance Surveillance, 2000

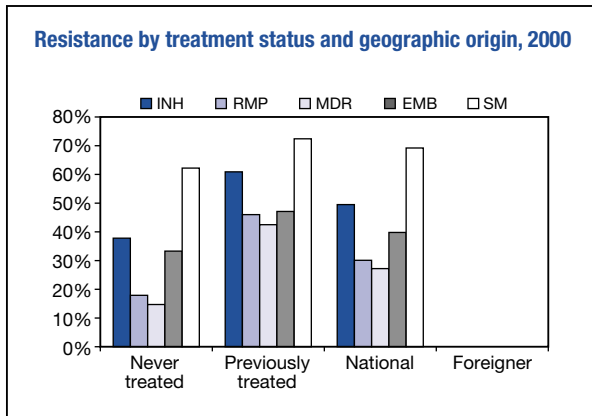
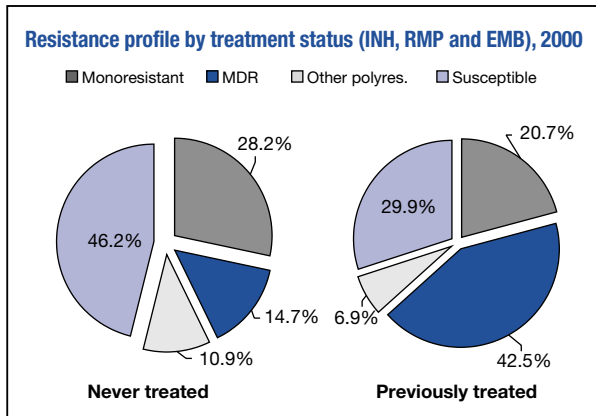
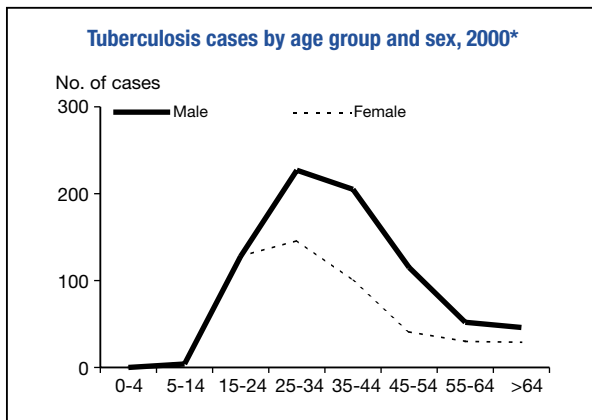
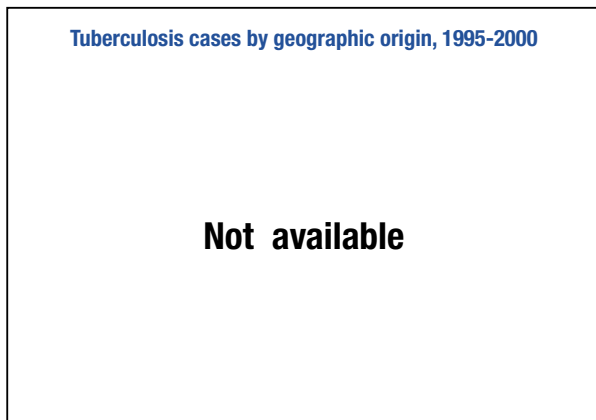
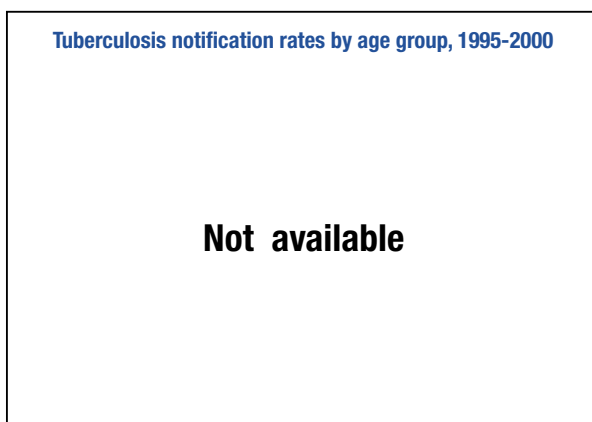
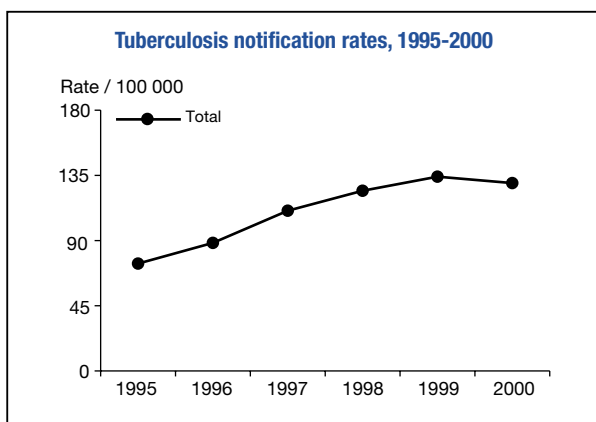
International proficiency testing	No
Geographic coverage	Bishkek
Linkage with notification	No
Cases with DST results	279
Cases resistant to INH	138 (49.5%)
Cases resistant to RMP	84 (30.1%)
MDR cases	76 (27.2%)
Cases resistant to EMB	111 (39.8%)
Cases resistant to SM	193 (69.2%)

Culture and DST not routinely performed

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive #
Included in TOM cohort	1 272
Success	1 053 (83%)
Death	38 (3%)
Failure	63 (5%)
Default	47 (4%)
Transfer	71 (6%)
Other / unknown	0 (0%)

Cases from prisons not included



* New sputum smear positive cases only

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	2 063
Notification rate per 100 000	85.2
Sex ratio (M:F)	2.6
Median age-group, nationals	35-44 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	147 (7.1%)
New (never treated)	1 715 (83.1%)
Culture positive	1 298 (62.9%)
Pulmonary	1 751 (84.9%)
of which sputum smear positive	842 (48.1%)

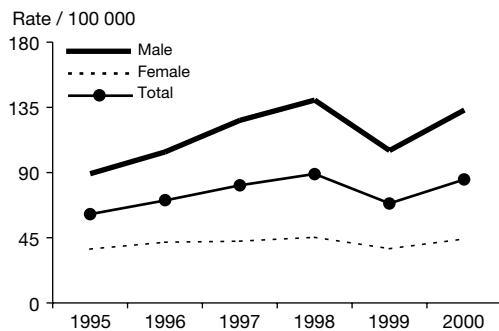
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	1 144 / 1 298 (88%)
Cases resistant to INH	347 (30.3%)
Cases resistant to RMP	150 (13.1%)
MDR cases	150 (13.1%)
Cases resistant to EMB	93 (8.1%)
Cases resistant to SM	300 (26.2%)

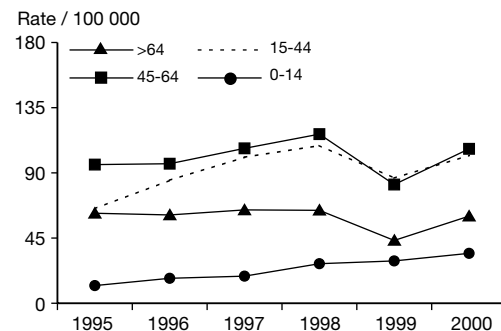
Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	919
Success	716 (78%)
Death	70 (8%)
Failure	9 (1%)
Default	41 (4%)
Transfer	9 (1%)
Other / unknown	74 (8%)

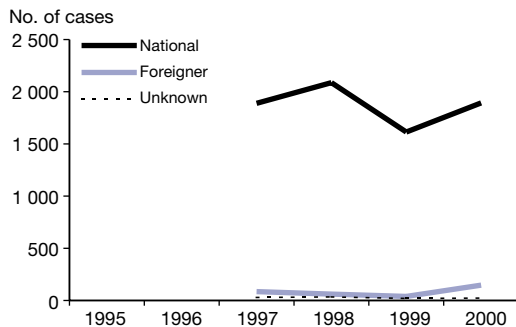
Tuberculosis notification rates by sex, 1995-2000



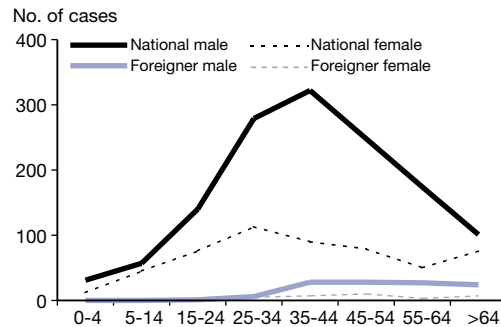
Tuberculosis notification rates by age group, 1995-2000



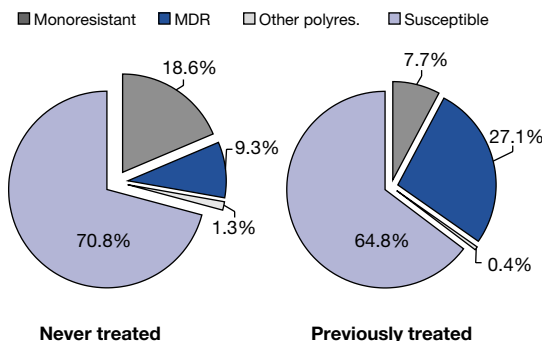
Tuberculosis cases by geographic origin, 1995-2000



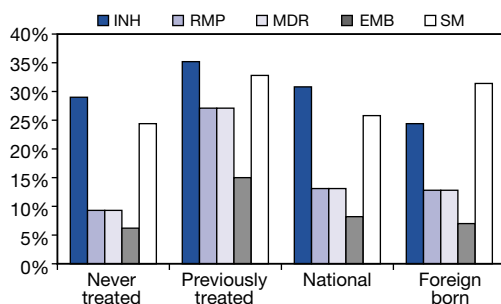
Tuberculosis cases by geographic origin, age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000



Resistance by treatment status and geographic origin, 2000



Tuberculosis case notifications, 2000

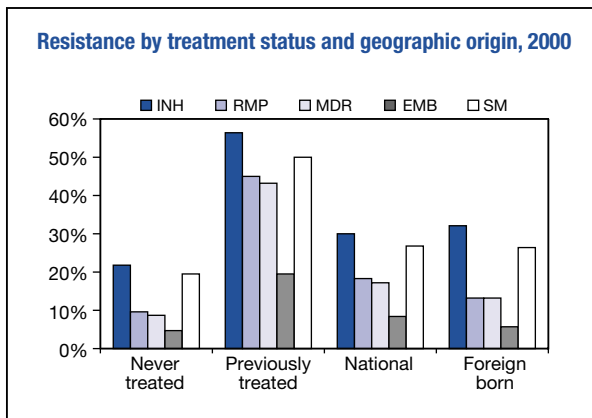
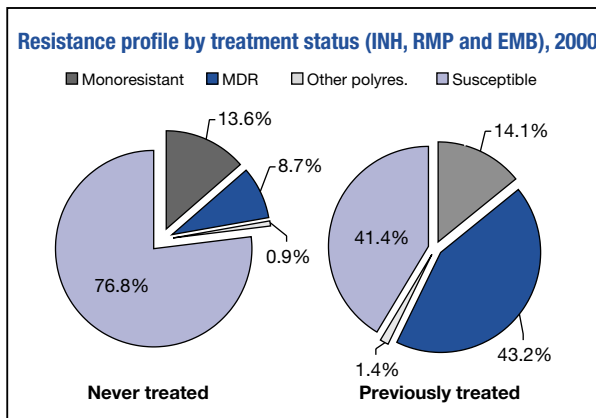
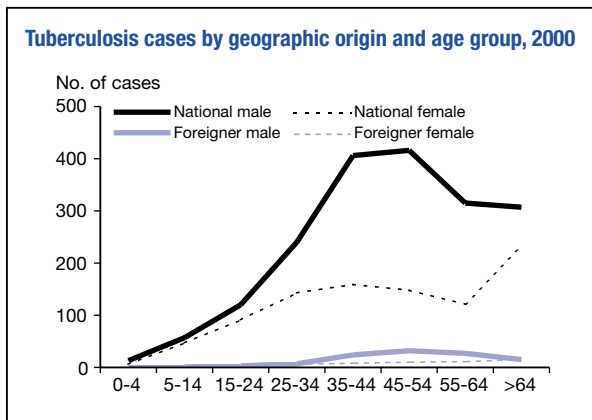
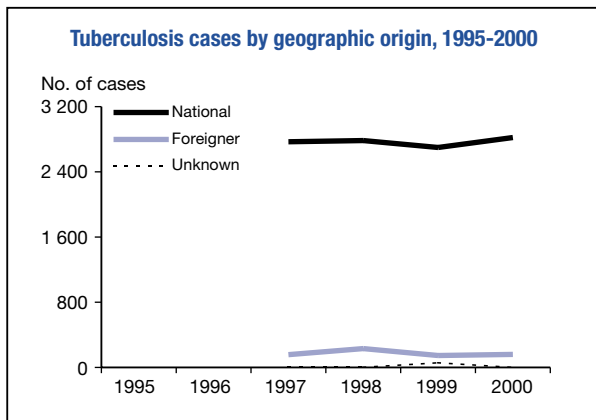
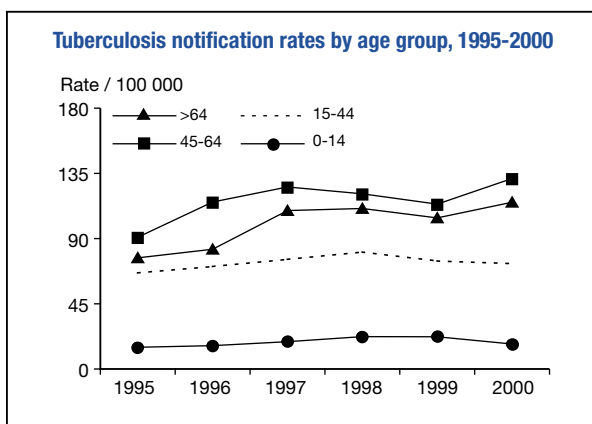
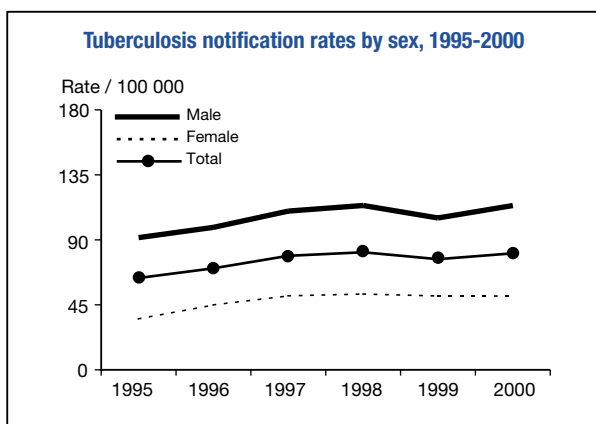
Type of data provided	Aggregate
Total number of cases	2 981
Notification rate per 100 000	80.7
Sex ratio (M:F)	2.0
Median age-group, nationals	45-54 years
Median age-group, non-nationals	45-54 years
Individuals born abroad	160 (5.4%)
New (never treated)	2 330 (78.2%)
Culture positive	1 556 (52.2%)
Pulmonary	2 415 (81.0%)
of which sputum smear positive	1 058 (43.8%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	921 / 1 556 (59%)
Cases resistant to INH	277 (30.1%)
Cases resistant to RMP	166 (18.0%)
MDR cases	156 (16.9%)
Cases resistant to EMB	76 (8.3%)
Cases resistant to SM	246 (26.8%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	1 073 (100%)
Success	807 (75%)
Death	93 (9%)
Failure	29 (3%)
Default	127 (12%)
Transfer	3 (0%)
Other / unknown	14 (1%)



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	44
Notification rate per 100 000	10.1
Sex ratio (M:F)	1.0
Median age-group, nationals	55-64 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	21 (47.7%)
New (never treated)	40 (90.9%)
Culture positive	44 (100.0%)
Pulmonary	42 (95.5%)
of which sputum smear positive	24 (57.1%)

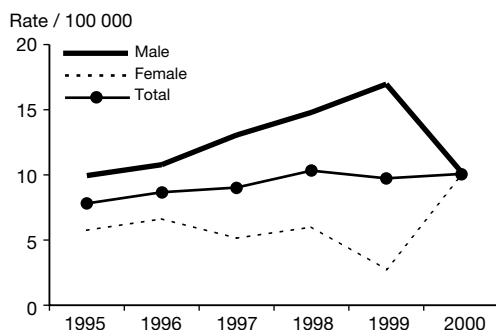
Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	44 / 44 (100%)
Cases resistant to INH	2 (4.5%)
Cases resistant to RMP	0 (0%)
MDR cases	0 (0%)
Cases resistant to EMB	0 (0%)
Cases resistant to SM	1 (2.3%)

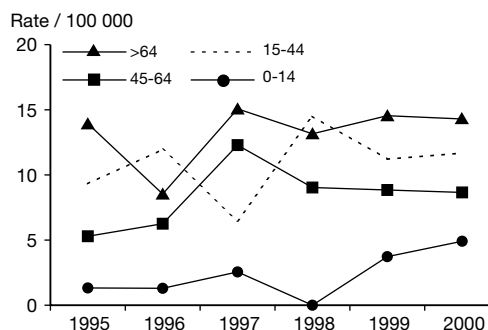
Treatment Outcome Monitoring, 1999

Not available

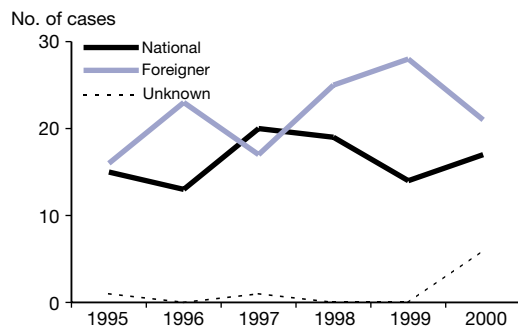
Tuberculosis notification rates by sex, 1995-2000



Tuberculosis notification rates by age group, 1995-2000



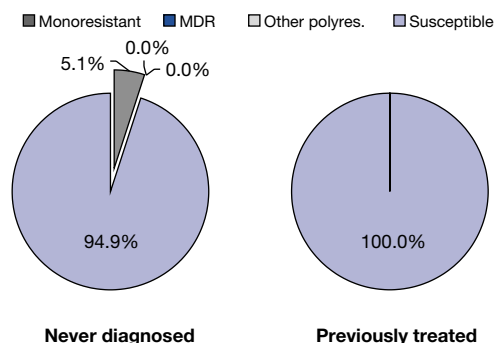
Tuberculosis cases by geographic origin, 1995-2000



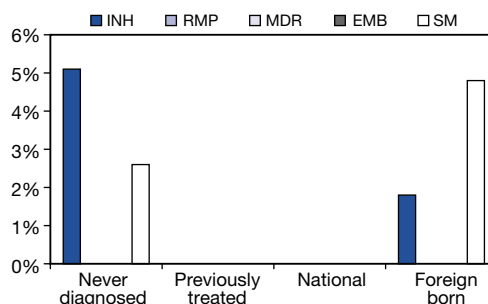
Tuberculosis cases by geographic origin, age group and sex, 2000

Insufficient number of cases for graphic presentation

Resistance profile by treatment status (INH, RMP and EMB), 2000



Resistance by treatment status and geographic origin, 2000



Tuberculosis case notifications, 2000

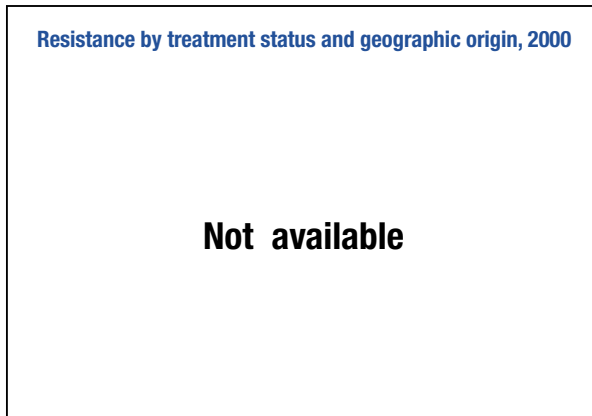
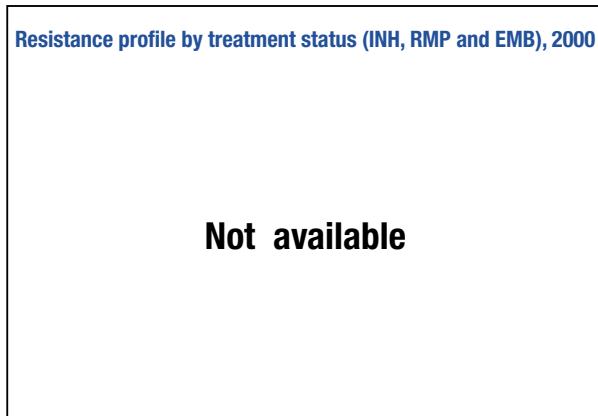
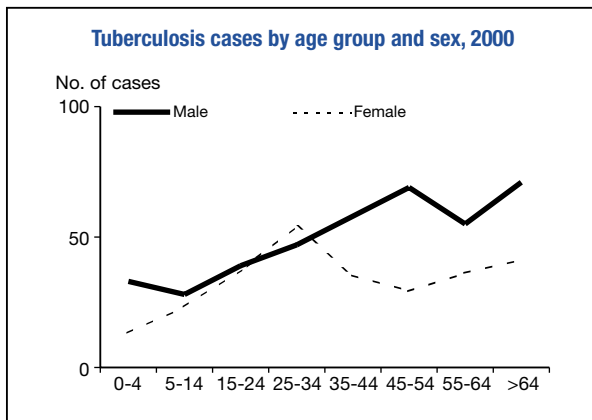
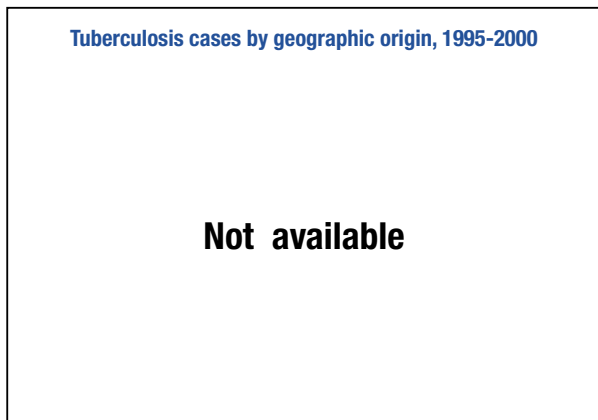
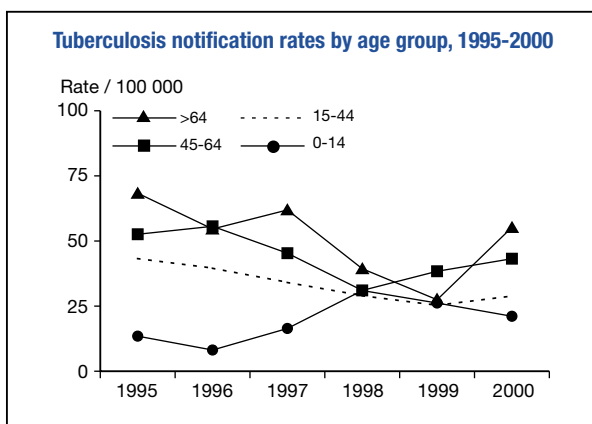
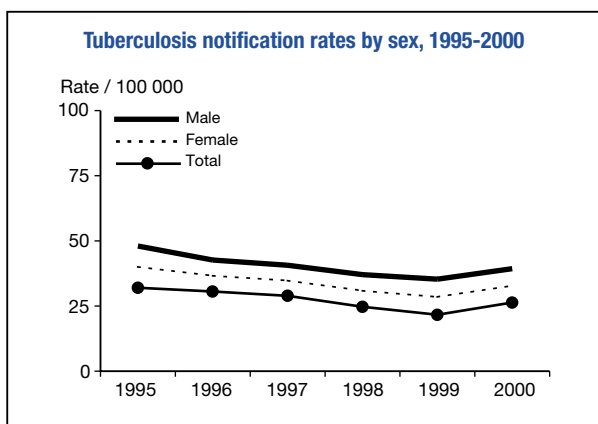
Type of data provided	Aggregate
Total number of cases	668
Notification rate per 100 000	32.8
Sex ratio (M:F)	1.5
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	625 (93.6%)
Culture positive	- -
Respiratory	516 (77.2%)
of which sputum smear positive	183 (35.5%)

Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	122
Success	90 (74%)
Death	3 (2%)
Failure	2 (2%)
Default	11 (9%)
Transfer	2 (2%)
Other / unknown	14 (11%)



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	18
Notification rate per 100 000	4.6
Sex ratio (M:F)	5.0
Median age-group, nationals	> 64 years
Median age-group, non-nationals	15-24 years
Foreign citizens	5 (27.8%)
New (never treated)	15 (83.3%)
Culture positive	10 (55.6%)
Pulmonary	15 (83.3%)
of which sputum smear positive	5 (33.3%)

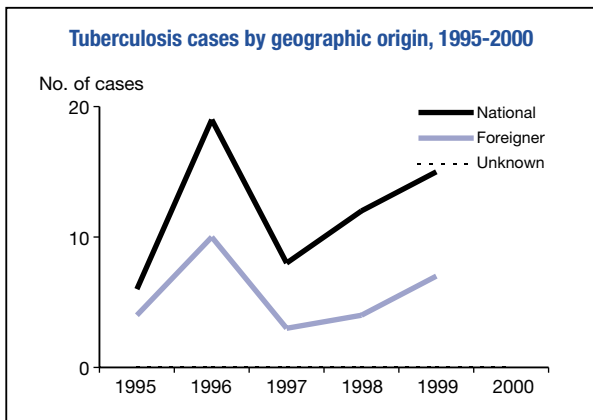
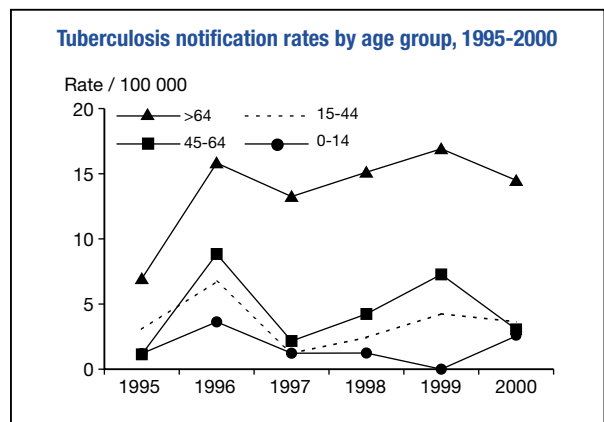
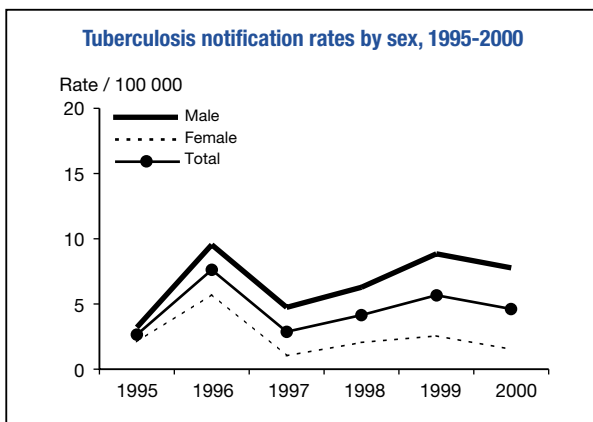
Drug Resistance Surveillance, 2000

International proficiency testing	yes §
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	10 / 10 (100%)
Cases resistant to INH	0 (0%)
Cases resistant to RMP	0 (0%)
MDR cases	0 (0%)
Cases resistant to EMB	0 (0%)
Cases resistant to SM	0 (0%)

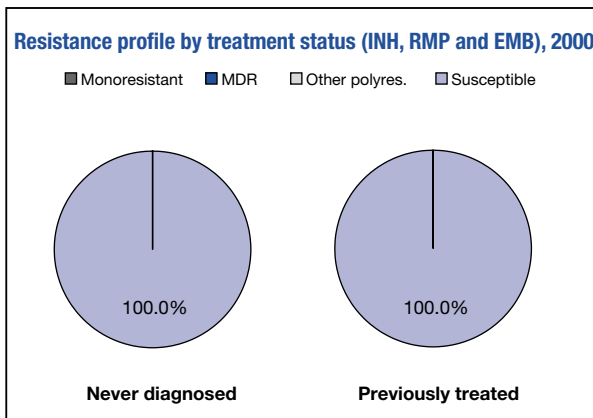
§ DST done in the UK

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	10
Success	8 (80%)
Death	2 (20%)
Failure	0 (0%)
Default	0 (0%)
Transfer	0 (0%)
Other / unknown	0 (0%)



Insufficient number of cases for graphic presentation



No resistance reported

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	2 935
Notification rate per 100 000	68.3
Sex ratio (M:F)	2.6
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Individuals born abroad	-
New (never treated)	2 561 (87.3%)
Culture positive	989 (33.7%)
Respiratory	2 813 (95.8%)
of which sputum smear positive	1 025 (36.4%)

Drug Resistance Surveillance, 2000

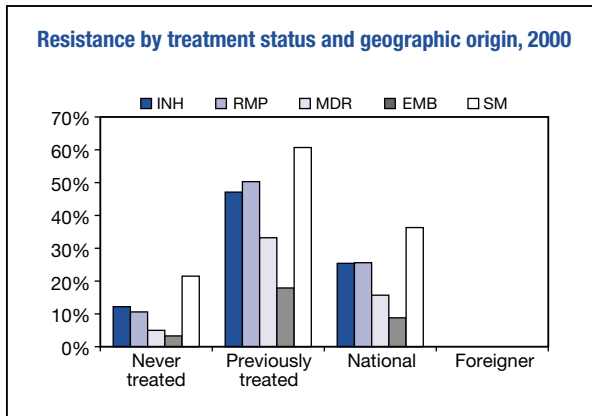
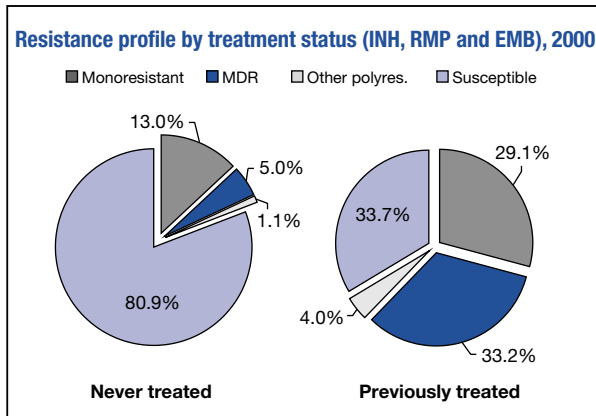
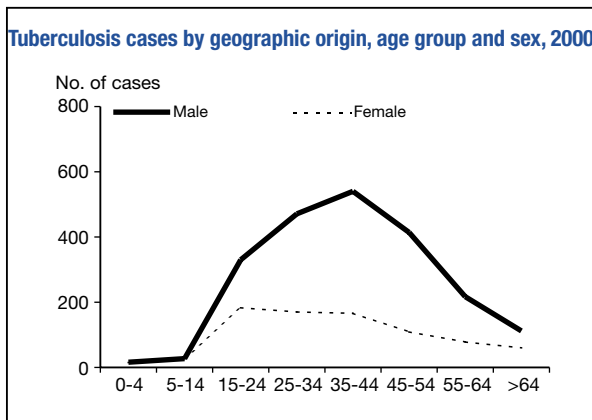
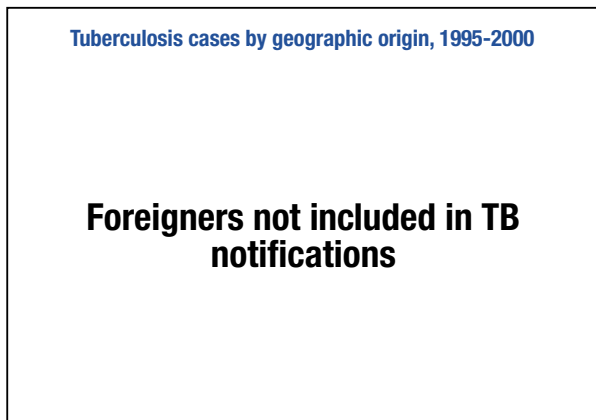
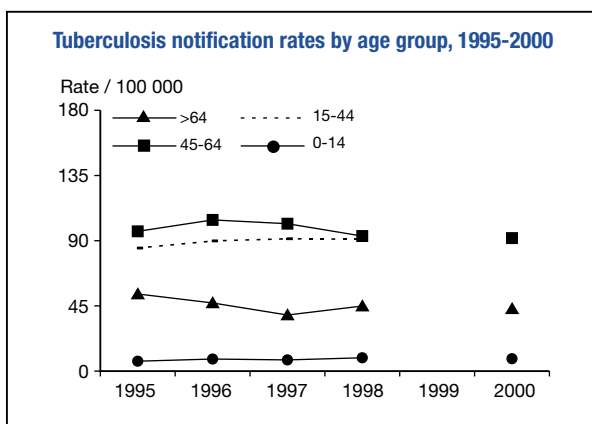
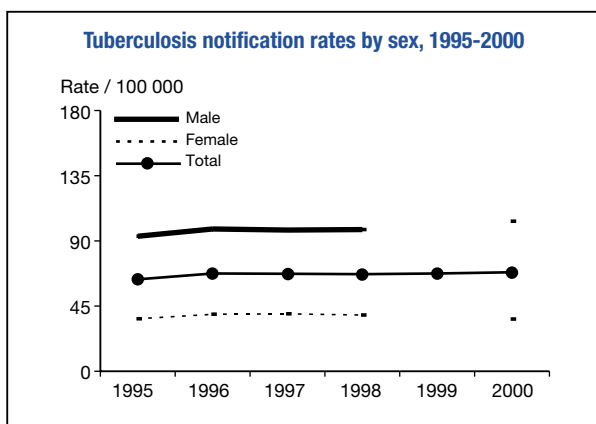
International proficiency testing	No
Geographic coverage	Some areas
Linkage with notification	Yes
Cases with DST results	989 / 989 (100%)
Cases resistant to INH	251 (25.4%)
Cases resistant to RMP	253 (25.6%)
MDR cases	155 (15.7%)
Cases resistant to EMB	87 (8.8%)
Cases resistant to SM	359 (36.3%)

Culture not routinely performed

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	764
Cure	457 (60%)
Death	-
Failure	-
Default	-
Transfer	-
Other / unknown	307 (40%)

Note: Only 2 outcome categories: cure and other



Tuberculosis case notifications, 2000

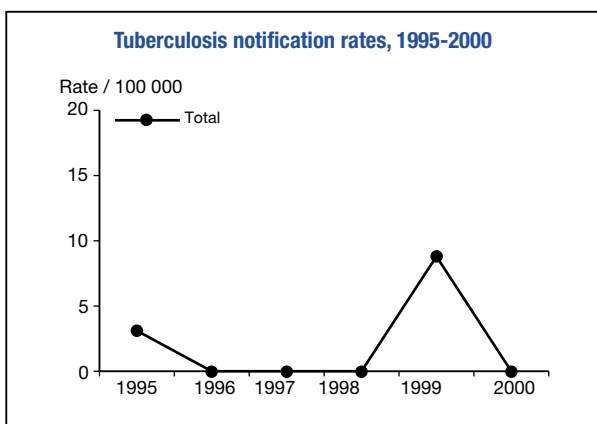
Drug Resistance Surveillance, 2000

Treatment Outcome Monitoring, 1999

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	0 -
New (never treated)	0 -
Culture positive	0 -
Pulmonary	0 -
of which sputum smear positive	0 -

zero cases in 2000

not available



Insufficient number of cases for graphic presentation

Insufficient number of cases for graphic presentation

Insufficient number of cases for graphic presentation

zero cases in 2000

zero cases in 2000

Tuberculosis case notifications, 2000

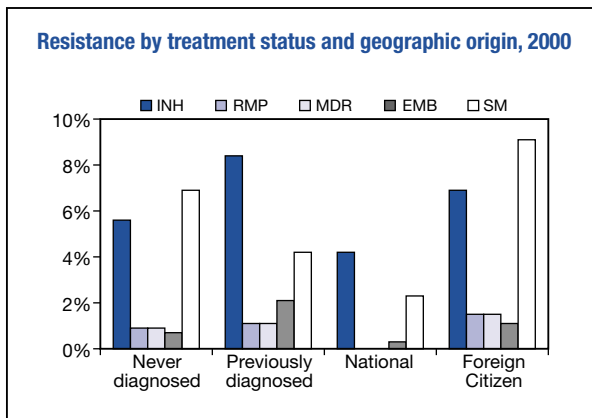
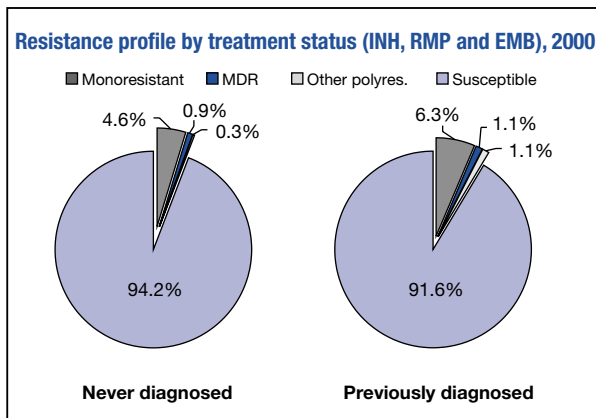
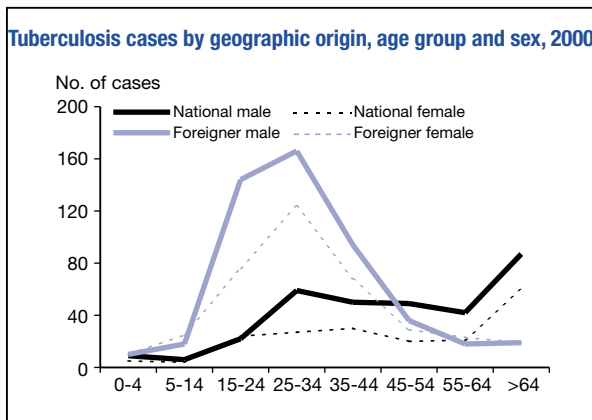
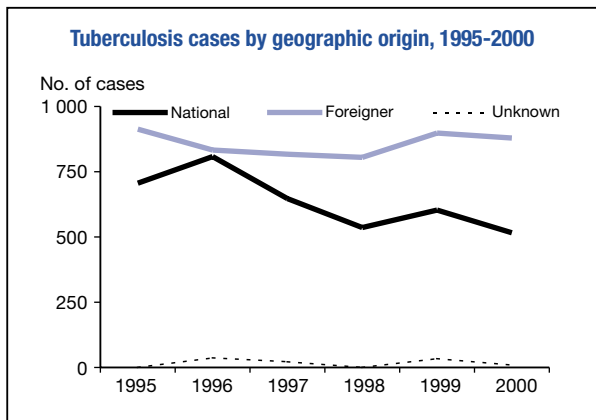
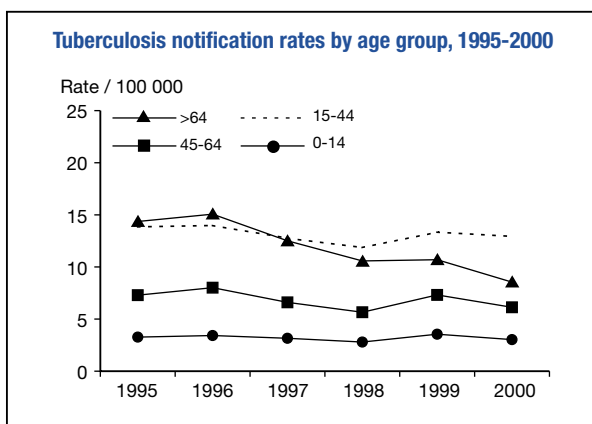
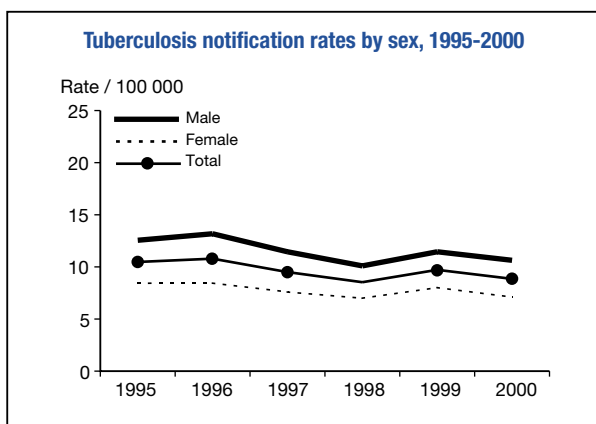
Type of data provided	Individual
Total number of cases	1 404
Notification rate per 100 000	8.9
Sex ratio (M:F)	1.5
Median age-group, nationals	45-54 years
Median age-group, non-nationals	25-34 years
Foreign citizens	879 (62.6%)
New (never treated)	1 294 (88.6%)
Culture positive	863 (60.0%)
Pulmonary	927 (66.0%)
of which sputum smear positive	324 (35.0%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	863 / 863 (100%)
Cases resistant to INH	51 (5.9%)
Cases resistant to RMP	8 (0.9%)
MDR cases	8 (0.9%)
Cases resistant to EMB	7 (0.8%)
Cases resistant to SM	57 (6.6%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	627
Success	541 (86%)
Death	38 (6%)
Failure	0 (0%)
Default	29 (5%)
Transfer	19 (3%)
Other / unknown	0 (0%)



Tuberculosis case notifications, 2000

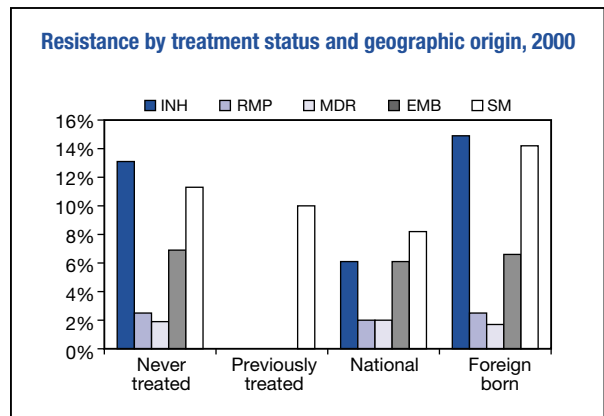
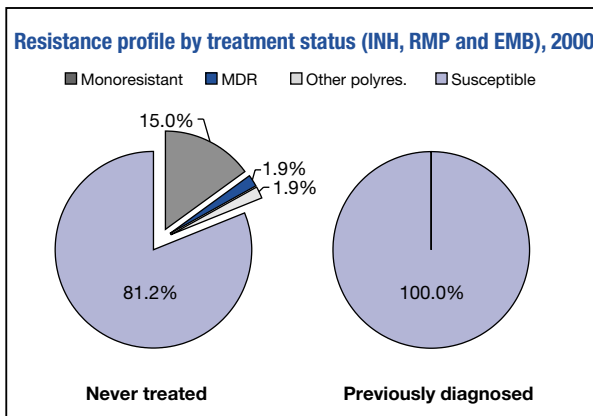
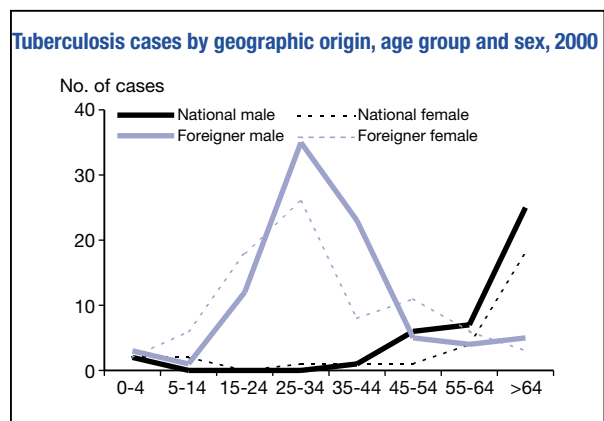
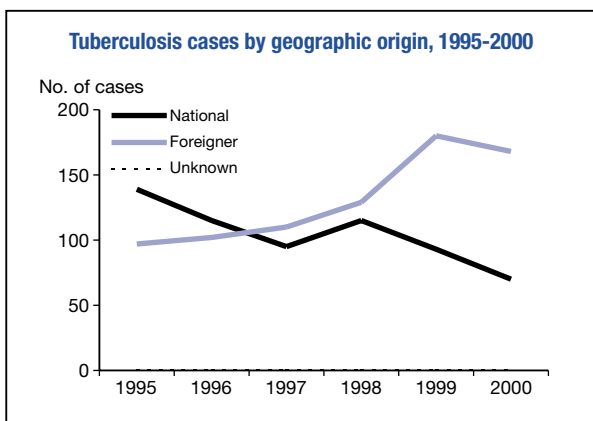
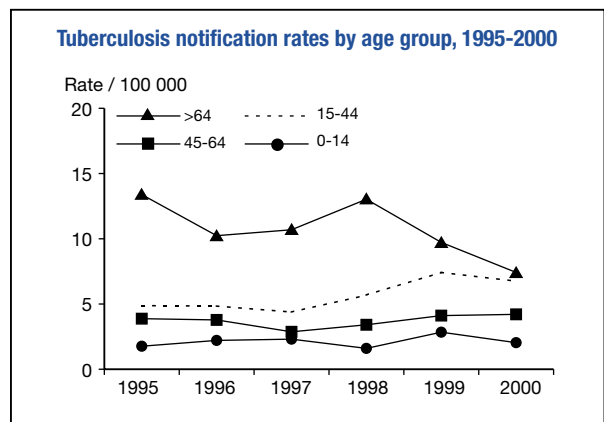
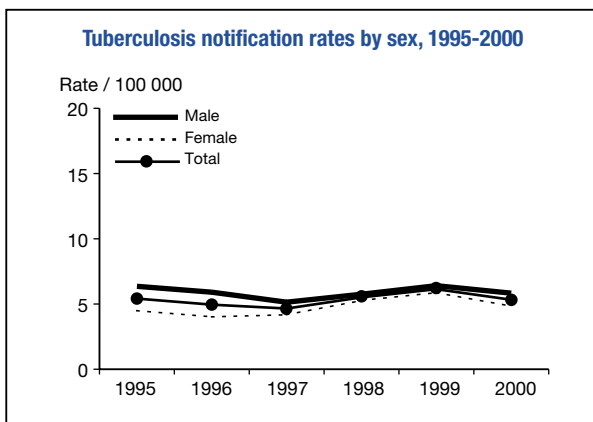
Type of data provided	Individual
Total number of cases	238
Notification rate per 100 000	5.3
Sex ratio (M:F)	1.2
Median age-group, nationals	> 64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	168 (70.6%)
New (never treated)	219 (92.0%)
Culture positive	170 (71.4%)
Pulmonary	150 (63.0%)
among which sputum smear positive	40 (26.7%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	170 / 170 (100%)
Cases resistant to INH	21 (12.4%)
Cases resistant to RMP	4 (2.4%)
MDR cases	3 (1.8%)
Cases resistant to EMB	11 (6.5%)
Cases resistant to SM	19 (11.2%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	101
Success	78 (77%)
Death	11 (11%)
Failure	1 (1%)
Default	7 (7%)
Transfer	4 (4%)
Other / unknown	0 (0%)



Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	11 477
Notification rate per 100 000	29.7
Sex ratio (M:F)	2.0
Median age-group, nationals	45-54 years
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	10 049 (87.6%)
Culture positive	6 377 (55.6%)
Respiratory	11 327 (98.7%)
of which sputum smear positive	3 770 (33.3%)

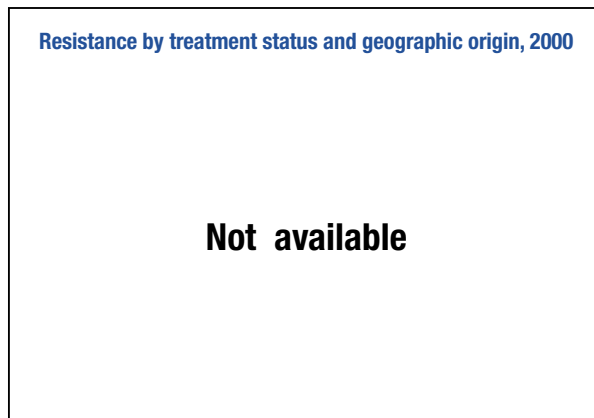
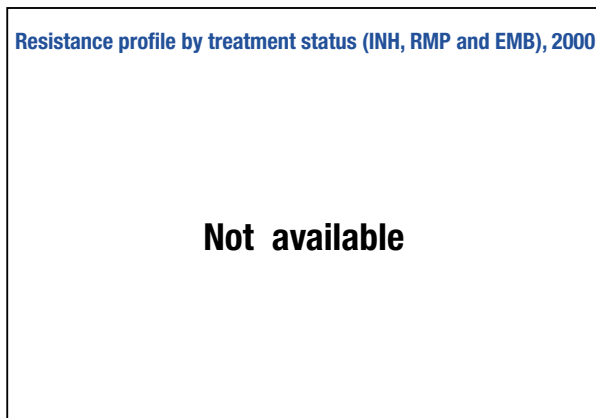
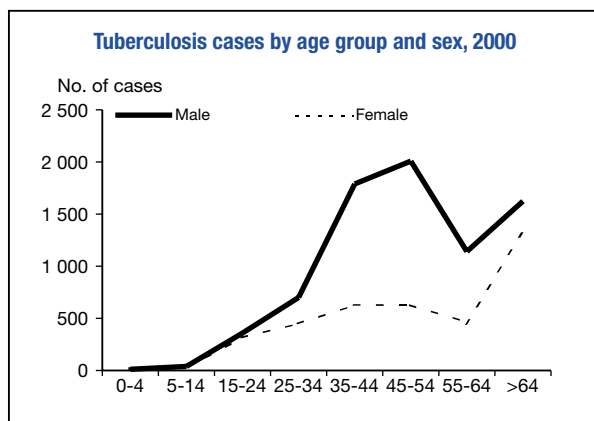
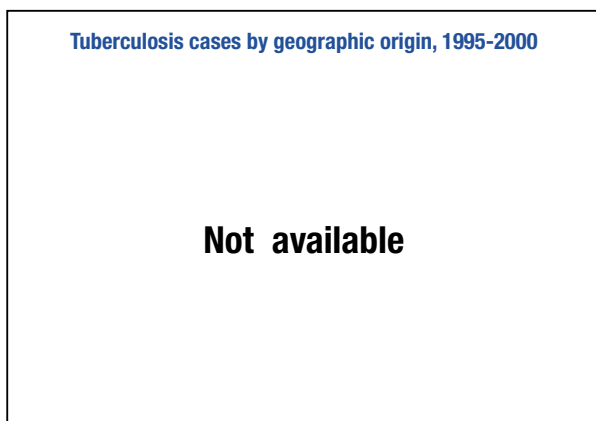
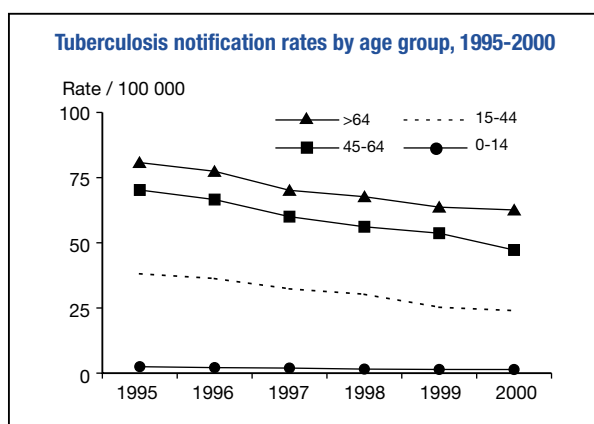
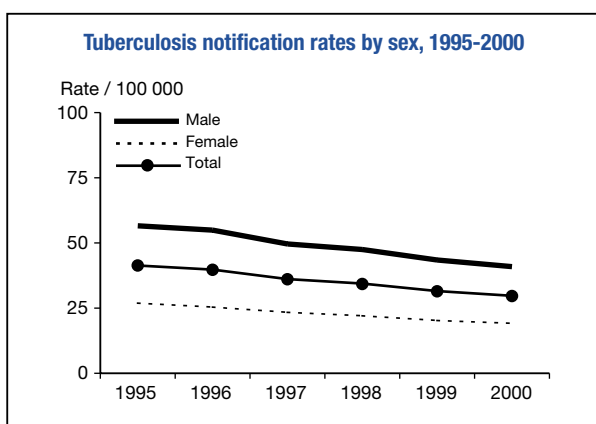
Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

Geographic coverage	2 DOTS regions §
Cohort	new sputum smear positive
Included in TOM cohort	173
Success	120 (69%)
Death	18 (10%)
Failure	12 (7%)
Default	2 (1%)
Transfer	2 (1%)
Other / unknown	19 (11%)

§ representing 4% of smear positive cases notified



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	4 494
Notification rate per 100 000	44.9
Sex ratio (M:F)	2.2
Median age-group, nationals	35-44 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	434 (9.7%)
New (never treated)	4 033 (89.7%)
Culture positive	2 281 (50.8%)
Pulmonary	3 247 (72.3%)
of which sputum smear positive	2 106 (64.9%)

Drug Resistance Surveillance, 2000

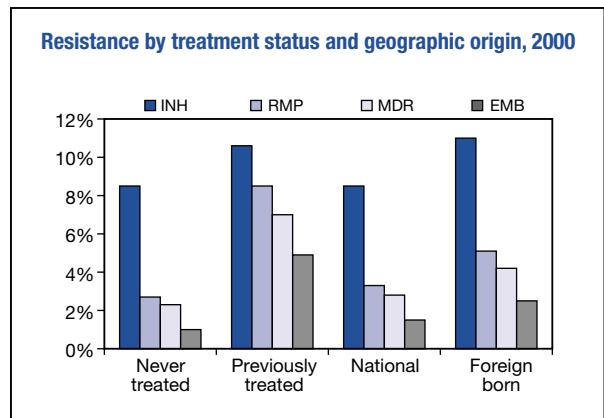
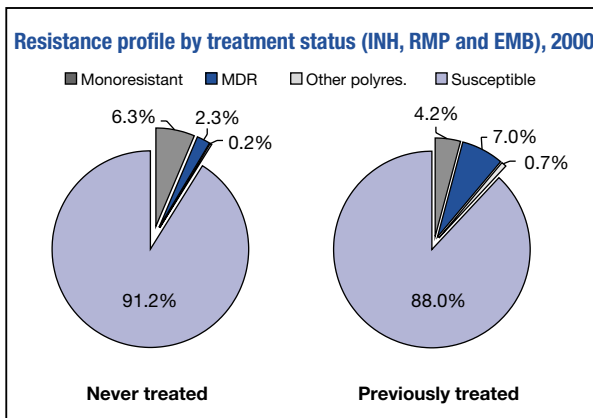
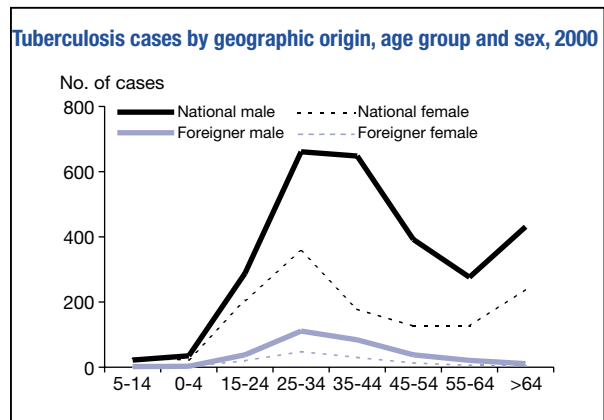
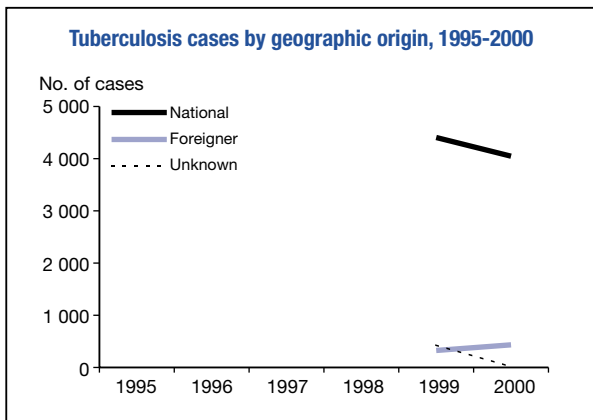
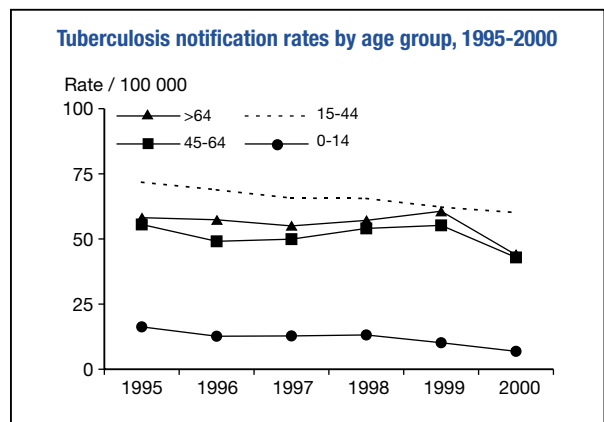
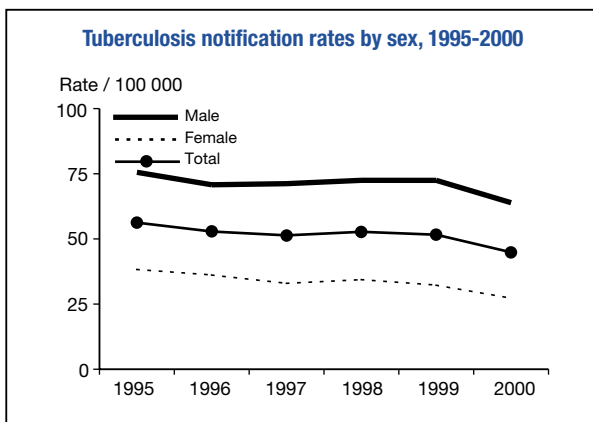
International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	1 006 / 2 281 (44%)
Cases resistant to INH	88 (8.8%)
Cases resistant to RMP	35 (3.5%)
MDR cases	30 (3.0%)
Cases resistant to EMB	16 (1.6%)
Cases resistant to SM	– –

DST not routinely performed

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	890
Success	769 (86%)
Death	62 (7%)
Failure	0 (0%)
Default	35 (4%)
Transfer	20 (2%)
Other / unknown	4 (0%)

Cases notified during the first semester 1999



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	27 720
Notification rate per 100 000	123.5
Sex ratio (M:F)	2.2
Median age-group, nationals	35-44 years
Median age-group, non-nationals	-
Foreign citizens	0 (0.0%)
New (never treated)	23 864 (86.1%)
Culture positive	12 009 (43.3%)
Pulmonary	23 434 (84.5%)
of which sputum smear positive	12 322 (52.6%)

Drug Resistance Surveillance, 2000

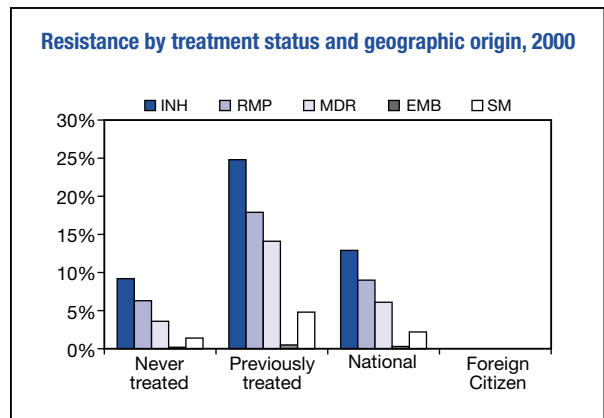
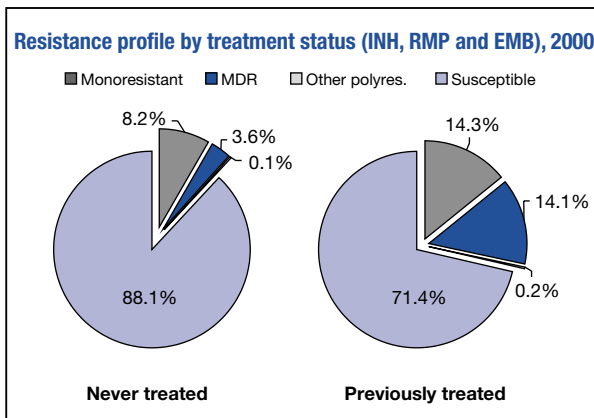
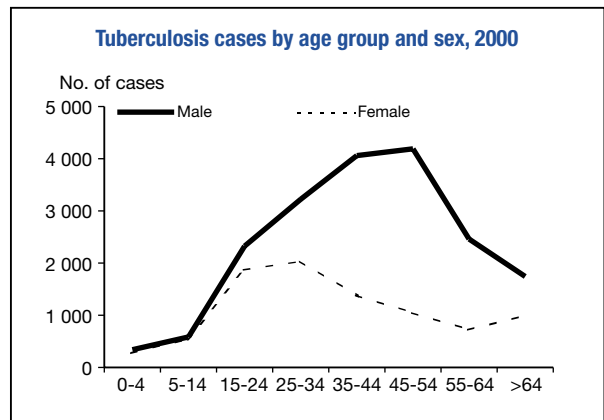
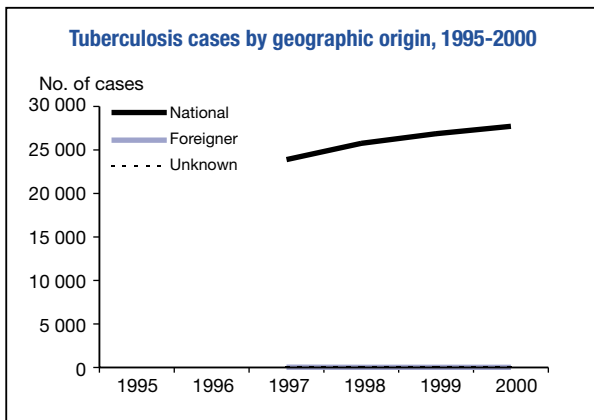
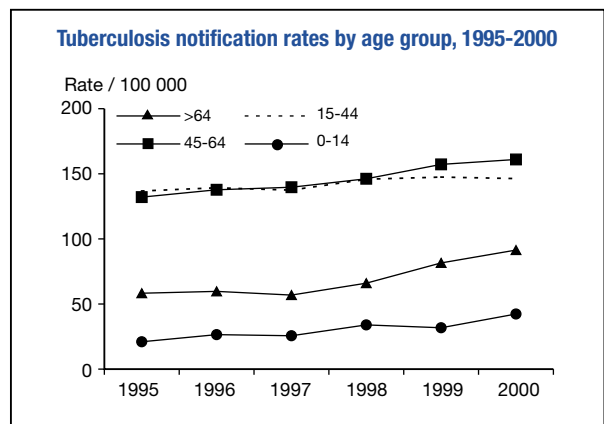
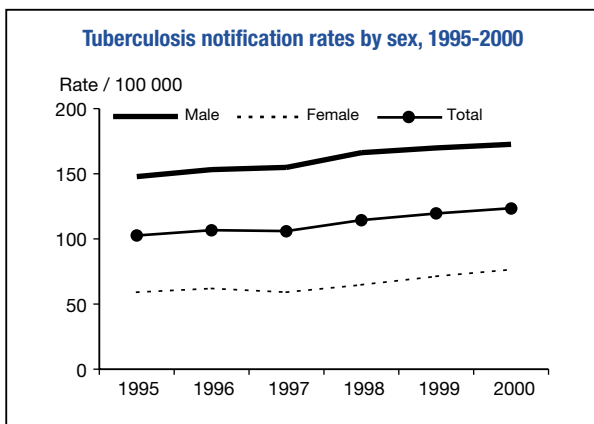
International proficiency testing	No
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	2 728 / 12 009 (28%)
Cases resistant to INH	352 (12.9%)
Cases resistant to RMP	246 (9.0%)
MDR cases	166 (6.1%)
Cases resistant to EMB	7 (0.3%)
Cases resistant to SM	61 (2.2%)

Culture and DST not routinely performed

Treatment Outcome Monitoring, 1999

Geographic coverage	some areas §
Cohort	new pulmonary smear positive
Included in TOM cohort	1 373
Success	1 052 (77%)
Death	78 (6%)
Failure	121 (9%)
Default	76 (6%)
Transfer	39 (3%)
Other / unknown	7 (1%)

§ mainly DOTS areas; 11% of smear positive cases



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	143 801
Notification rate per 100 000	98.8
Sex ratio (M:F)*	3.1
Median age-group, nationals*	35-44 years
Median age-group, non-nationals	-
Foreign citizens*	342 (0.2%)
New (never treated)	132 071 (91.8%)
Culture positive	- -
Respiratory	138 600 (96.4%)
of which sputum smear positive	31 649 (22.8%)

Drug Resistance Surveillance, 1999

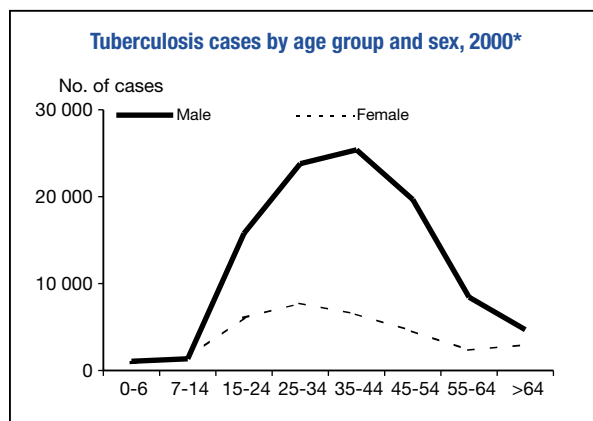
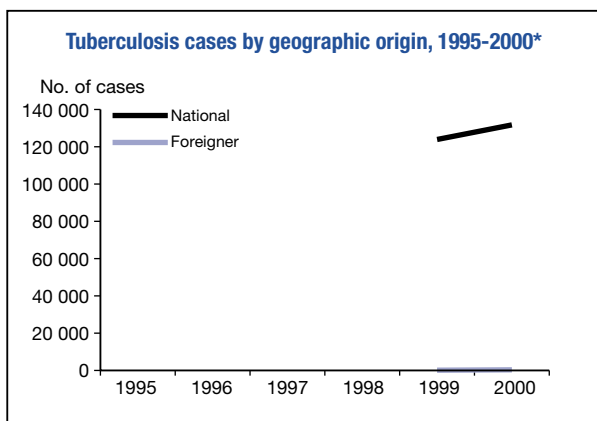
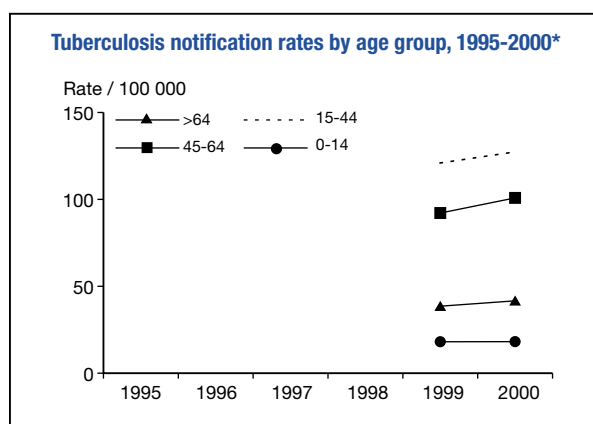
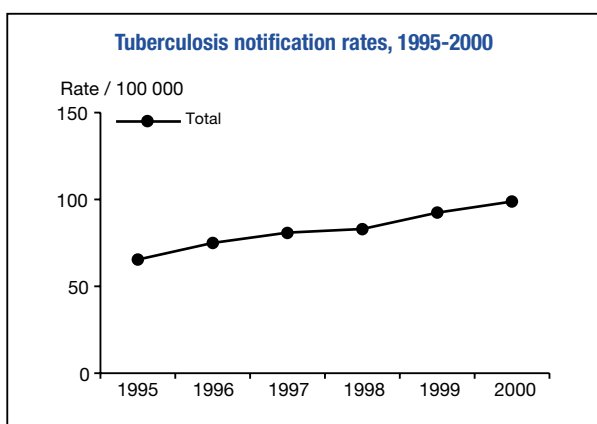
International proficiency testing	yes (2001)
Geographic coverage	national
Linkage with notification	yes §
Cases with DST results	36 217 -
Cases resistant to INH	- -
Cases resistant to RMP	- -
MDR cases	2 429 (6.7%)
Cases resistant to EMB	- -
Cases resistant to SM	- -

§ new respiratory cases notified to MoH; prisoners not included

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive §
Included in TOM cohort	36 166 -
Success	25 100 (69%)
Death	5 158 (14%)
Failure	5 209 (14%)
Default	0 (0%)
Transfer	457 (1%)
Other / unknown	242 (1%)

§ Cases notified to MoH (not including prisoners)



Resistance profile by treatment status (INH, RMP and EMB), 2000

Not available

Resistance by treatment status and geographic origin, 2000

Not available

* New cases only

Tuberculosis case notifications, 2000

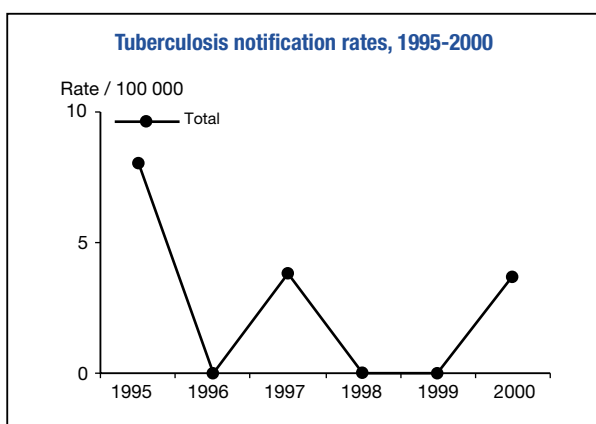
Type of data provided	Aggregate
Total number of cases	1
Notification rate per 100 000	3.7
Sex ratio (M:F)	-
Median age-group, nationals	-
Median age-group, non-nationals	-
Individuals born abroad	0
New (never treated)	1 (100.0%)
Culture positive	1 (100.0%)
Respiratory	1 (100.0%)
of which sputum smear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

Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

zero cases in 1999



Tuberculosis notification rates by age group, 1995-2000

Insufficient number of cases for graphic presentation

Tuberculosis cases by geographic origin (citizenship), 1995-2000

Insufficient number of cases for graphic presentation

Tuberculosis cases by geographic origin, age group and sex, 2000

Insufficient number of cases for graphic presentation

Resistance profile by treatment status (INH, RMP and EMB), 2000

Not available

Resistance by treatment status and geographic origin, 2000

Not available

Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	1 111
Notification rate per 100 000	20.6
Sex ratio (M:F)	1.6
Median age-group, nationals	55-64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	8 (0.7%)
New (never treated)	925 (83.3%)
Culture positive	596 (53.6%)
Pulmonary	904 (81.4%)
of which sputum smear positive	284 (31.4%)

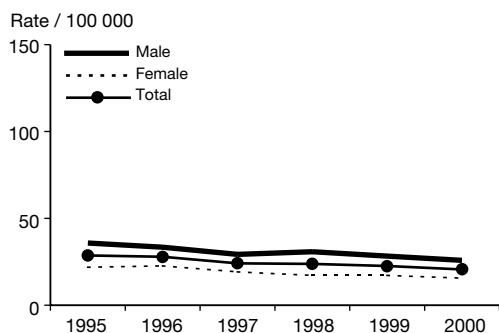
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	575 / 596 (96%)
Cases resistant to INH	27 (4.7%)
Cases resistant to RMP	9 (1.6%)
MDR cases	7 (1.2%)
Cases resistant to EMB	2 (0.3%)
Cases resistant to SM	12 (2.1%)

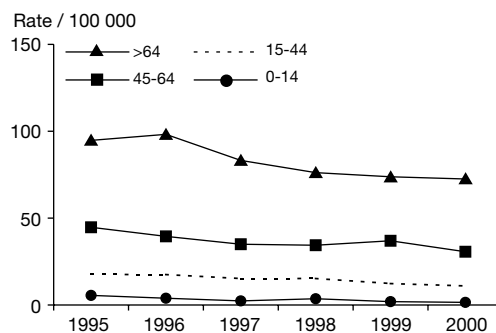
Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	430
Success	353 (82%)
Death	60 (14%)
Failure	5 (1%)
Default	7 (2%)
Transfer	0 (0%)
Other / unknown	5 (1%)

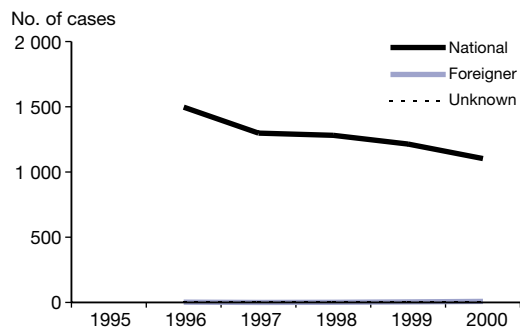
Tuberculosis notification rates by sex, 1995-2000



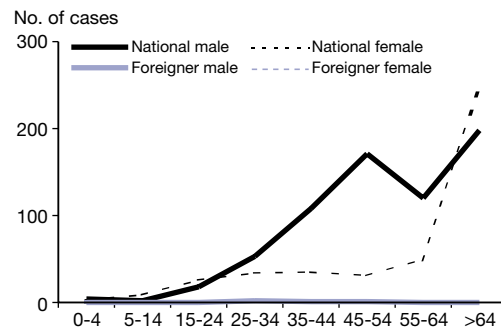
Tuberculosis notification rates by age group, 1995-2000



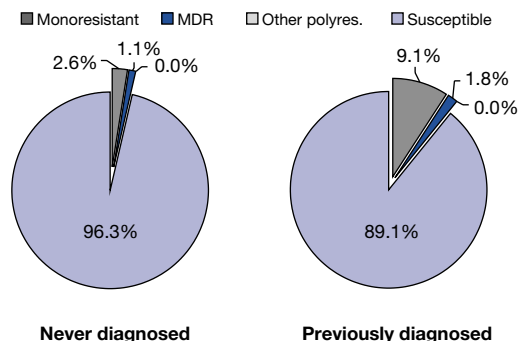
Tuberculosis cases by geographic origin, 1995-2000



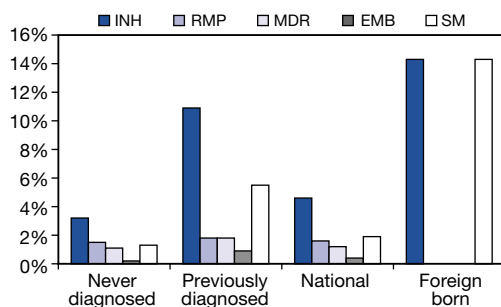
Tuberculosis cases by geographic origin, age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000



Resistance by treatment status and geographic origin, 2000



Tuberculosis case notifications, 2000

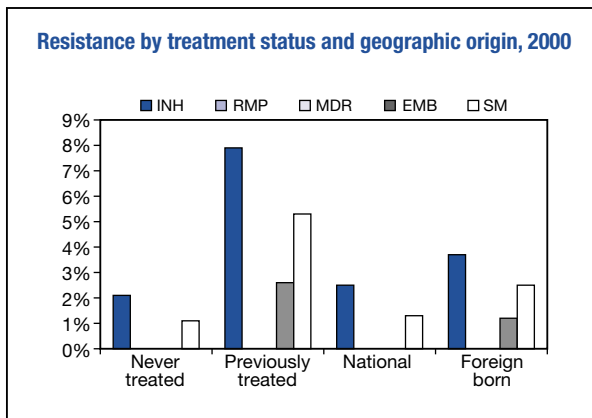
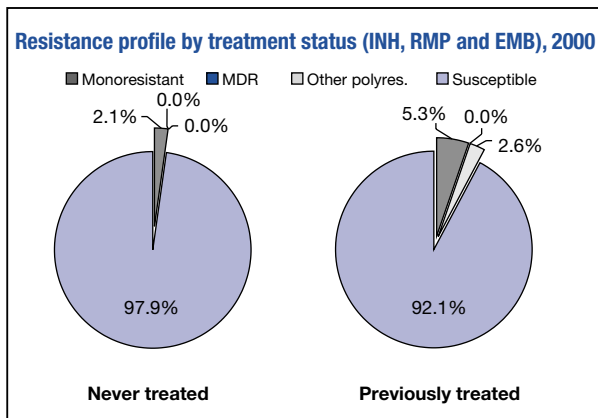
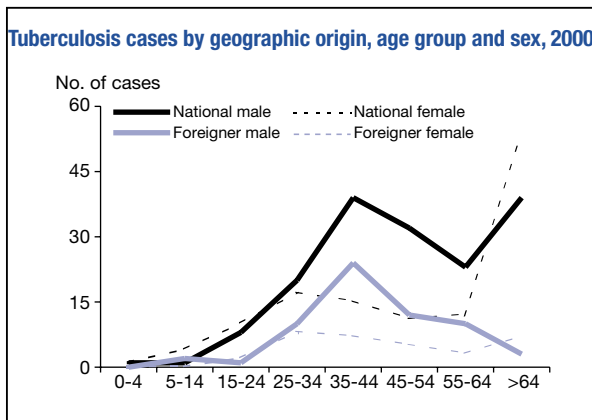
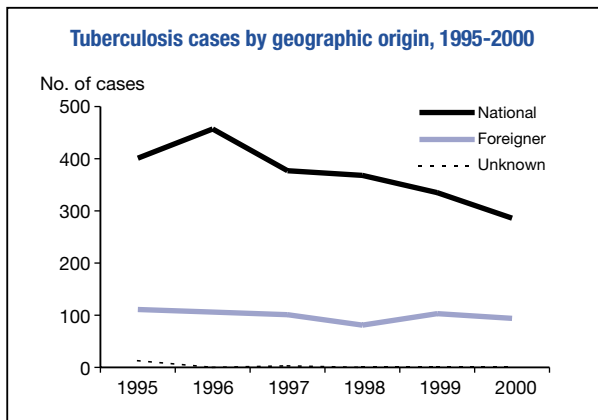
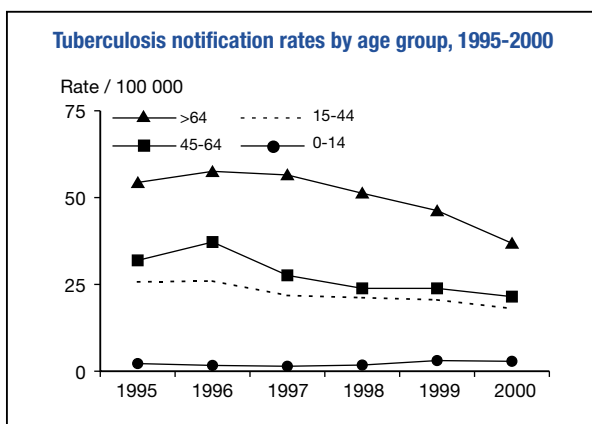
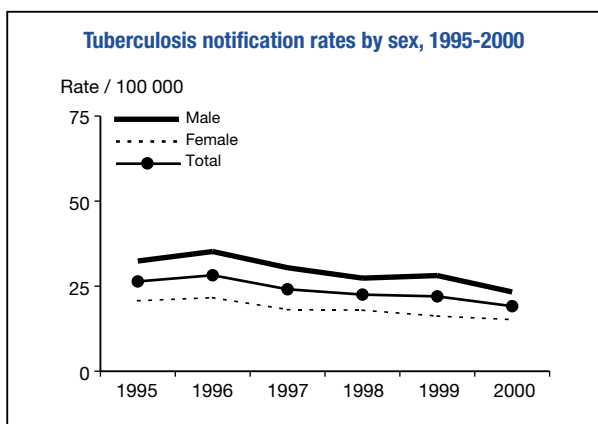
Type of data provided	Individual
Total number of cases	380
Notification rate per 100 000	19.1
Sex ratio (M:F)	1.5
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad	94 (24.7%)
New (never treated)	336 (88.4%)
Culture positive	324 (85.3%)
Pulmonary	319 (83.9%)
of which sputum smear positive	169 (53.0%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	320 / 324 (99%)
Cases resistant to INH	9 (2.8%)
Cases resistant to RMP	0 (0.0%)
MDR cases	0 (0.0%)
Cases resistant to EMB	1 (0.3%)
Cases resistant to SM	5 (1.6%)

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new pulmonary culture positive
Included in TOM cohort	277
Success	231 (83%)
Death	32 (12%)
Failure	0 (0%)
Defaulter	12 (4%)
Transfers out	2 (1%)
Other / unknown	0 (0%)



Tuberculosis case notifications *, 2000

Type of data provided	Aggregate
Total number of cases	8 395
Notification rate per 100 000	21.0
Sex ratio (M:F)	2.1
Median age-group, nationals	35-44 years
Median age-group, non-nationals	35-44 years
Individuals born abroad **	451 (5.4%)
New (never treated)	6 155 (73.3%)
Culture positive	3 436 (40.9%)
Respiratory	8 270 (98.5%)
of which sputum smear positive	3 646 (44.1%)

* respiratory and meningeal cases only

** 50% of cases with missing information

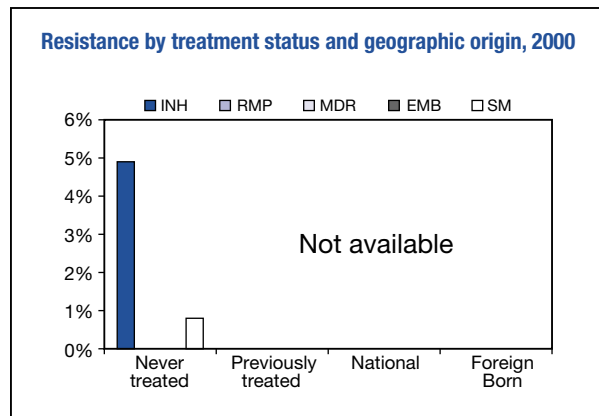
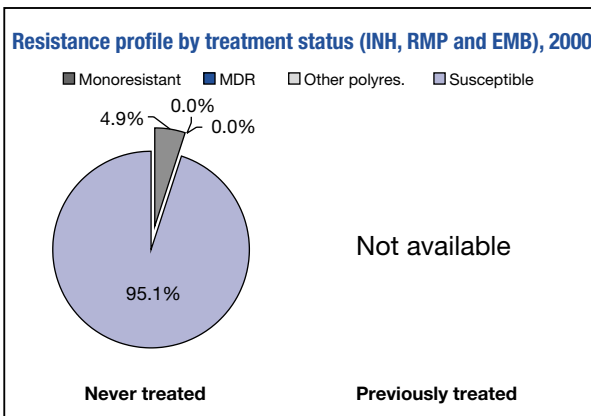
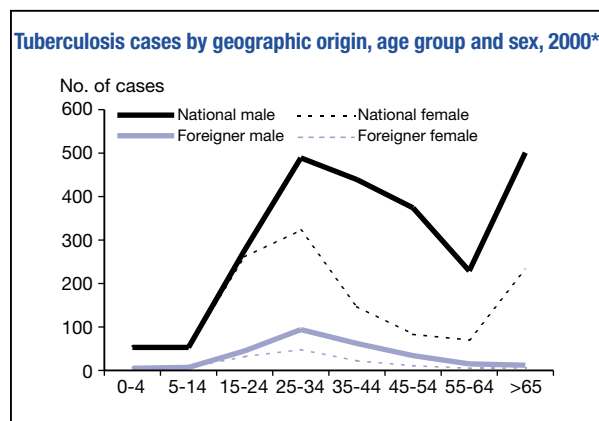
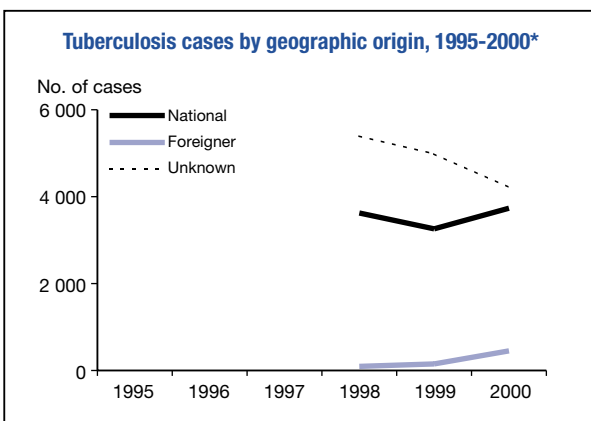
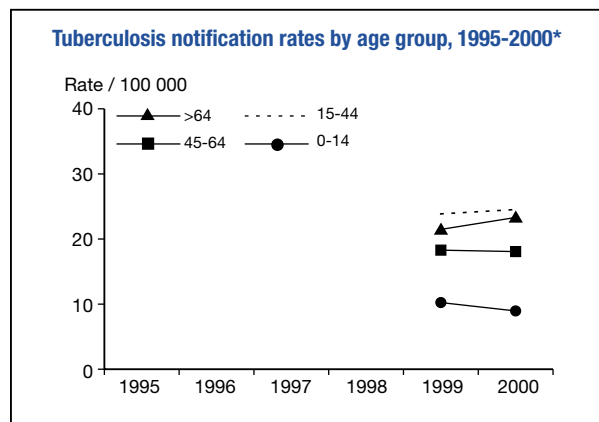
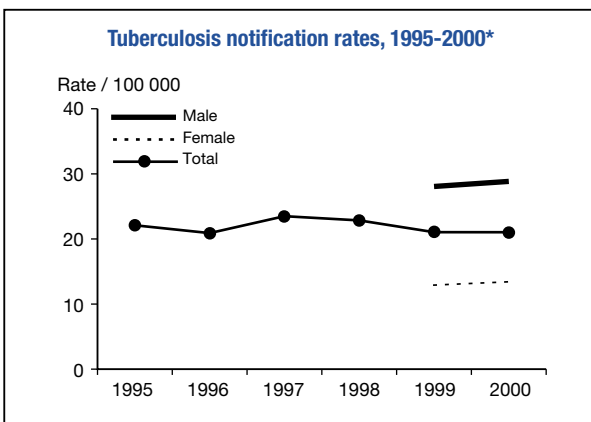
Drug Resistance Surveillance, 2000

International proficiency testing	No
Geographic coverage	National
Linkage with notification	No §
Cases with DST results	364
Cases resistant to INH	18 (4.9%)
Cases resistant to RMP	0 (0%)
MDR cases	0 (0%)
Cases resistant to EMB	0 (0%)
Cases resistant to SM	3 (0.8%)

§ New TB cases referred to NRL

Treatment Outcome Monitoring, 1999

Not available



* TB case definition changed in 1997

Tuberculosis case notifications, 2000

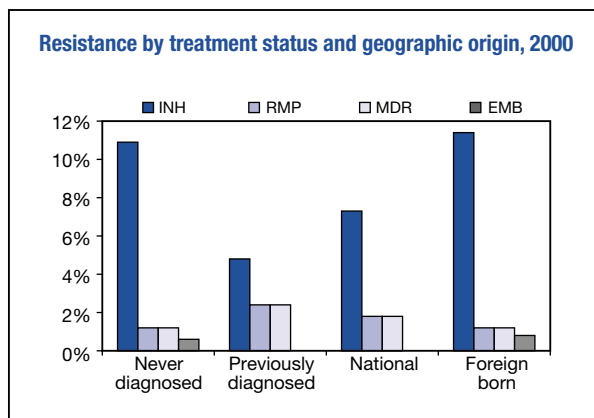
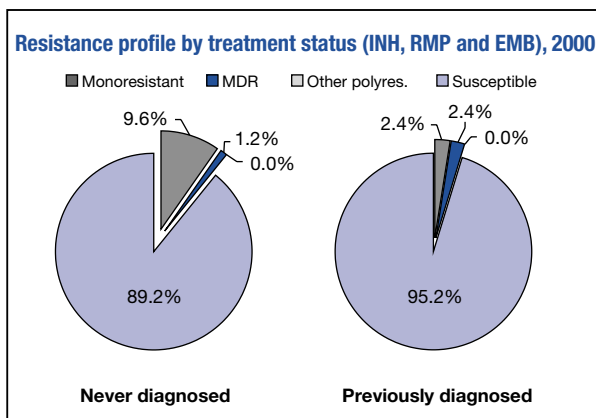
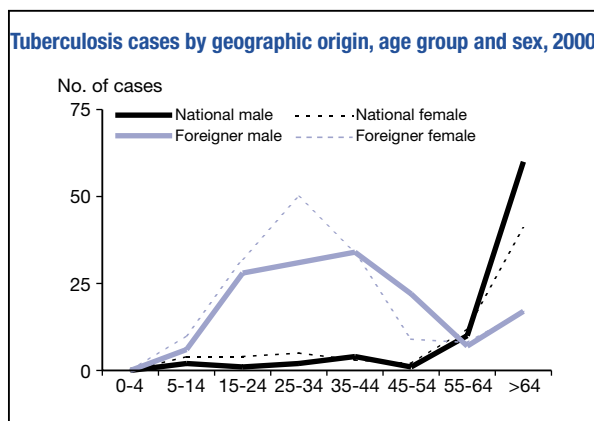
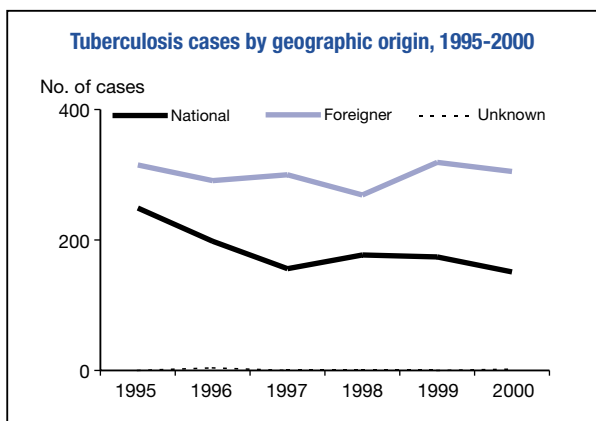
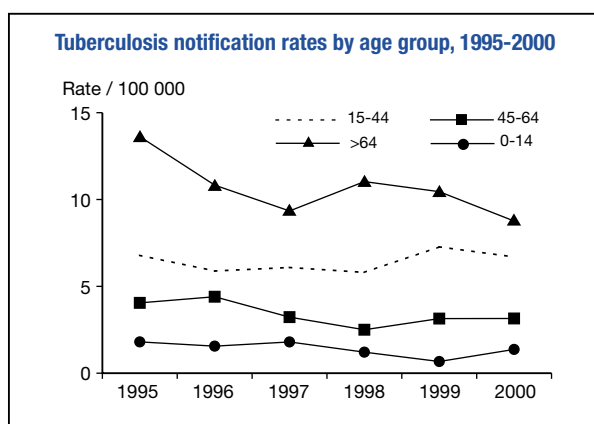
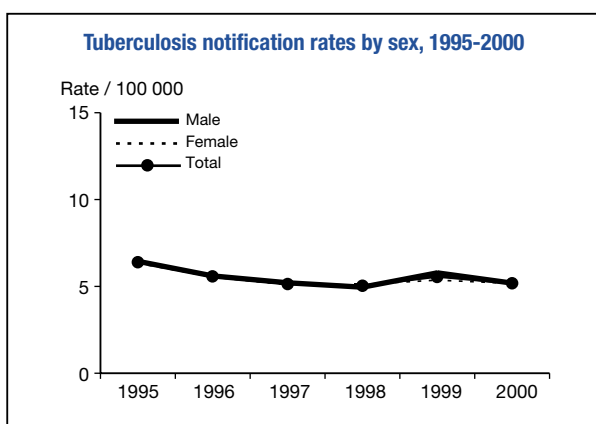
Type of data provided	Individual
Total number of cases	458
Notification rate per 100 000	5.2
Sex ratio (M:F)	1.0
Median age-group, nationals	> 64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	305 (66.6%)
New (never treated)	403 (88.0%)
Culture positive	371 (81.0%)
Pulmonary	304 (66.4%)
of which sputum smear positive	128 (42.1%)

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	365 / 371 (98%)
Cases resistant to INH	37 (10.1%)
Cases resistant to RMP	5 (1.4%)
MDR cases	5 (1.4%)
Cases resistant to EMB	2 (0.5%)
Cases resistant to SM	- -

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Individual
Total number of cases	629
Notification rate per 100 000	8.8
Sex ratio (M:F)	1.3
Median age-group, nationals	> 64 years
Median age-group, non-nationals	25-34 years
Individuals born abroad	341 (54.2%)
New (never treated)	425 (67.6%)
Culture positive	494 (78.5%)
Pulmonary	477 (75.8%)
of which sputum smear positive	134 (28.1%)

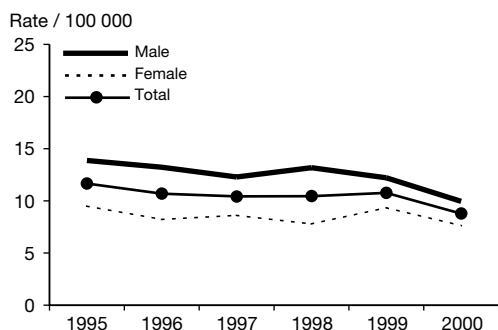
Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	492 / 494 (100%)
Cases resistant to INH	24 (4.9%)
Cases resistant to RMP	3 (0.6%)
MDR cases	2 (0.4%)
Cases resistant to EMB	0 (0.0%)
Cases resistant to SM	- -

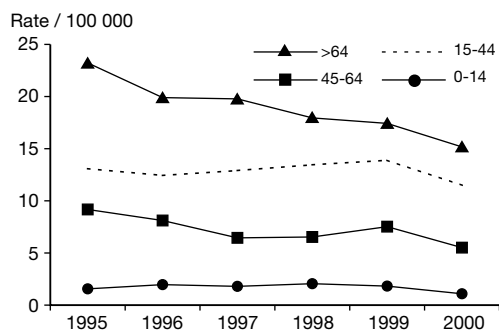
Treatment Outcome Monitoring, 1999

Not available

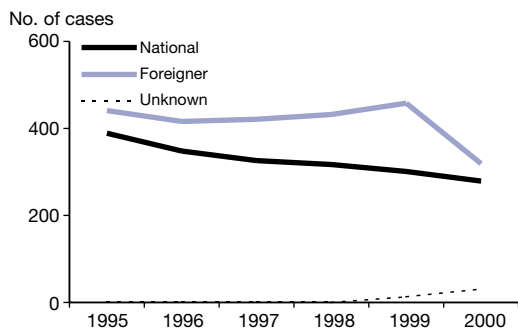
Tuberculosis notification rates by sex, 1995-2000



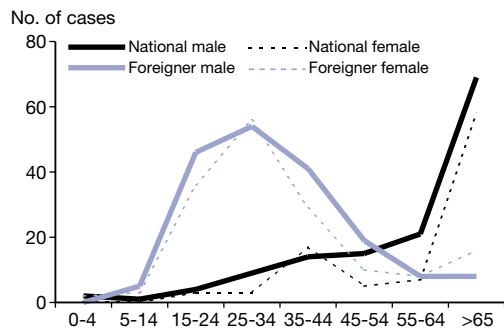
Tuberculosis notification rates by age group, 1995-2000



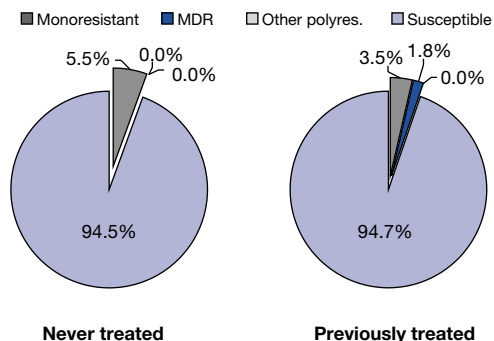
Tuberculosis cases by geographic origin, 1995-2000 (by citizenship)



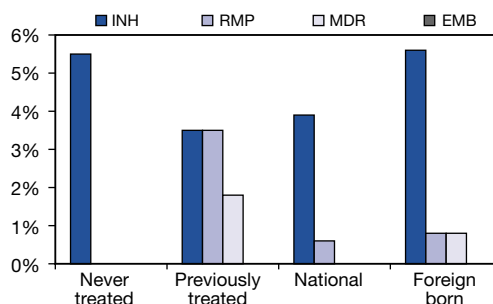
Tuberculosis cases by geographic origin, age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000



Resistance by treatment status and geographic origin, 2000



Tuberculosis case notifications, 2000

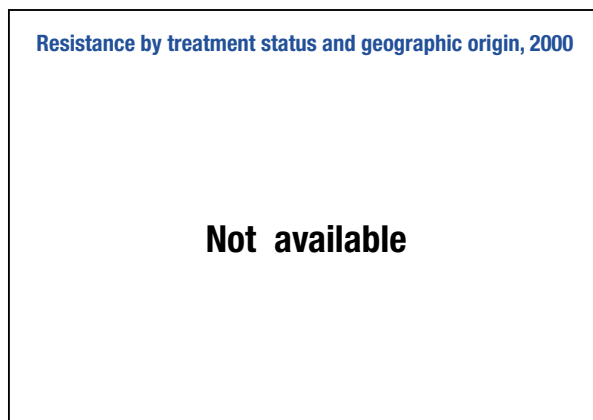
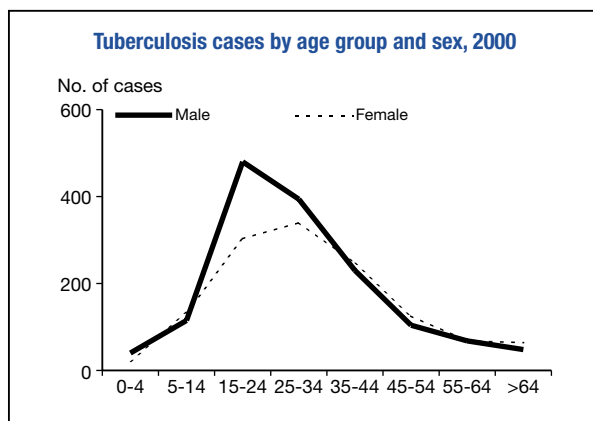
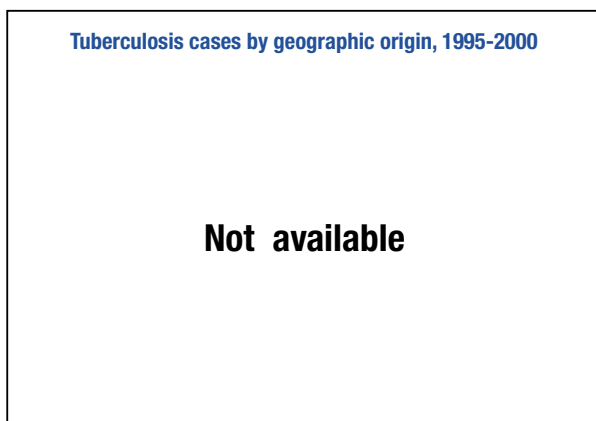
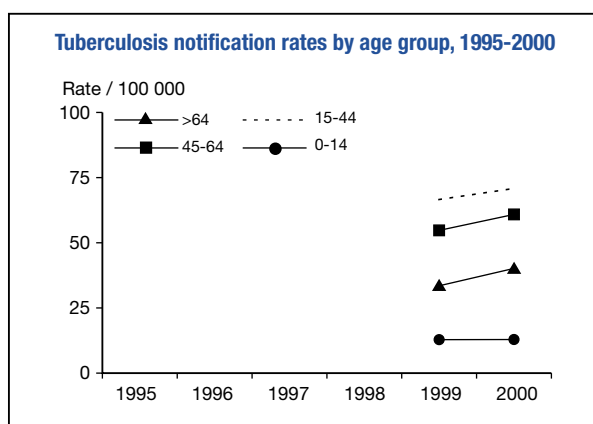
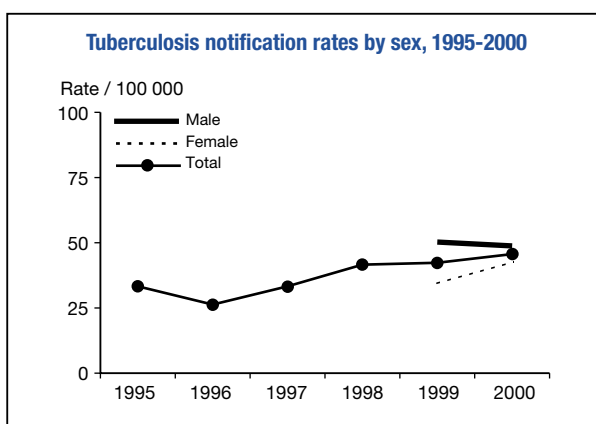
Type of data provided	Aggregate
Total number of cases	2 779
Notification rate per 100 000	45.7
Sex ratio (M:F)	1.1
Median age-group, nationals	-
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	- -
Culture positive	- -
Respiratory	2 352 (84.6%)
of which sputum smear positive	434 (18.5%)

Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	18 038
Notification rate per 100 000	27.1
Sex ratio (M:F)	-
Median age-group, nationals	-
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	- -
Culture positive	- -
Respiratory*	13 667 (75.8%)
of which sputum smear positive	5 123 (37.5%)

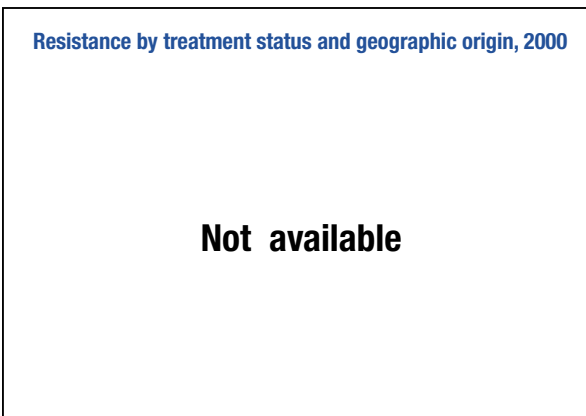
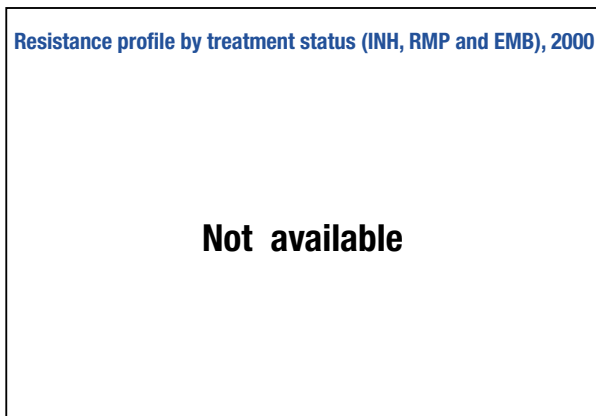
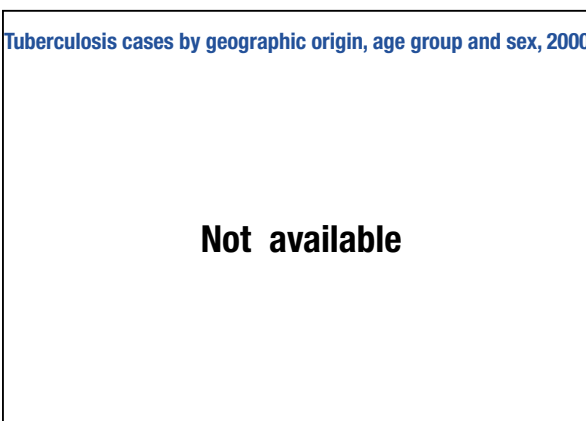
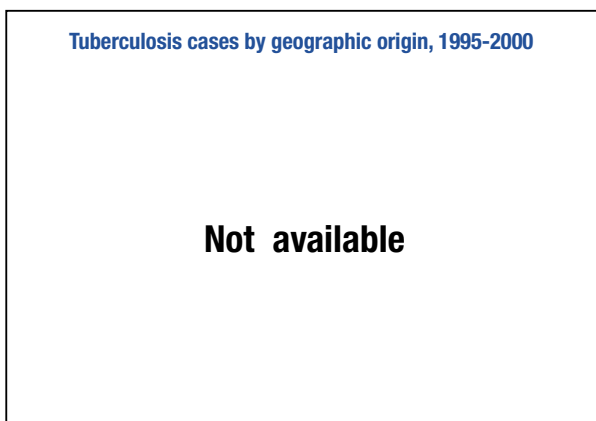
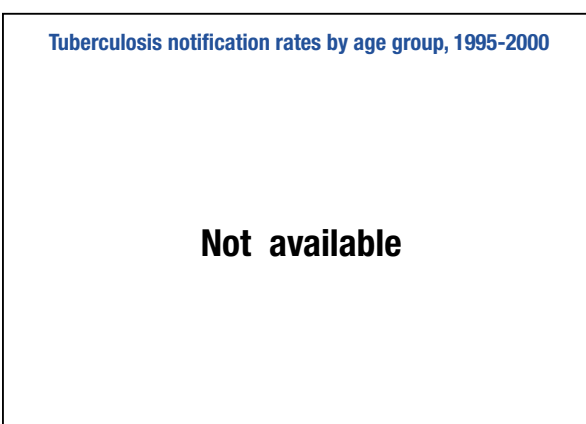
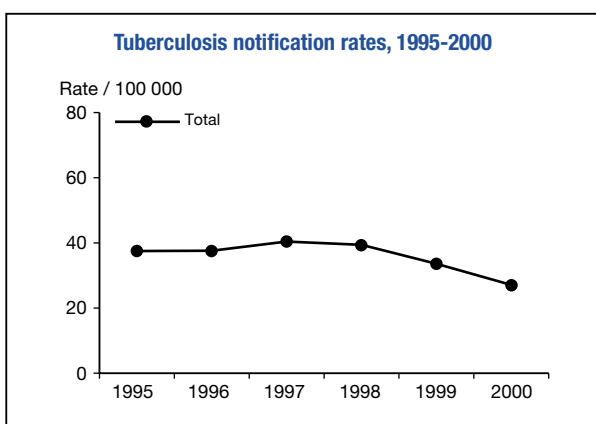
* 1999; not known to have changed in 2000

Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

Not available



Tuberculosis case notifications, 2000

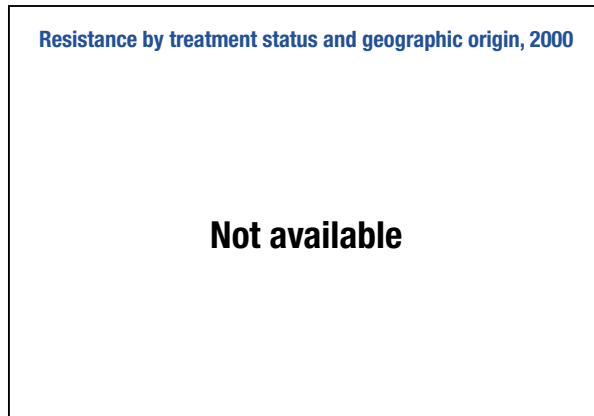
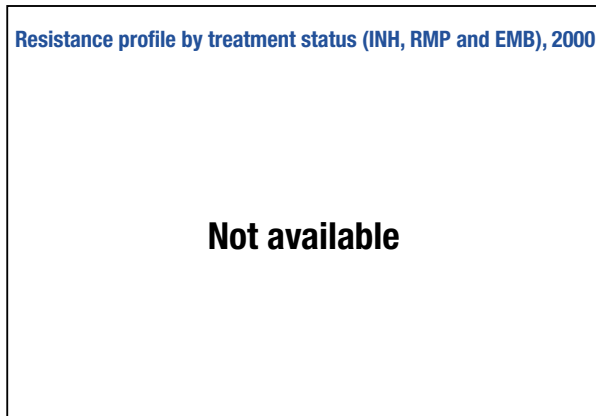
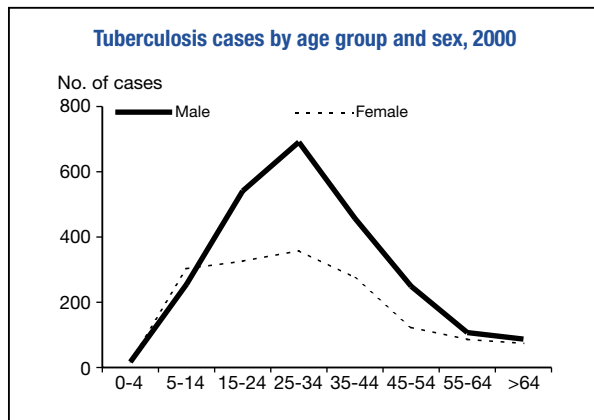
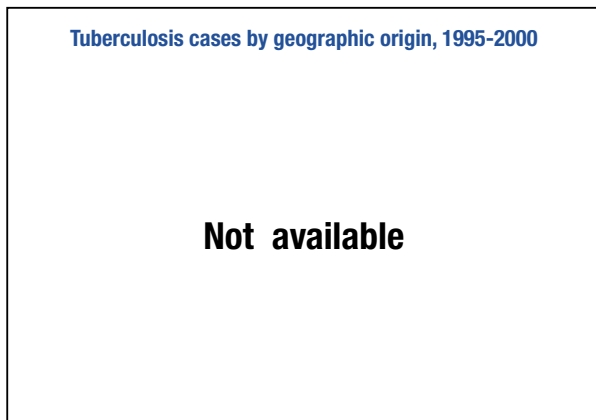
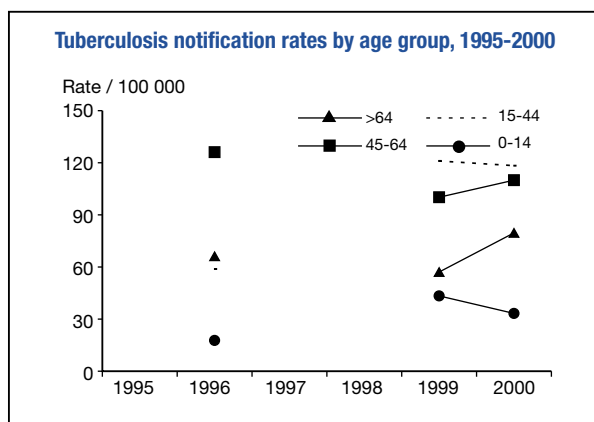
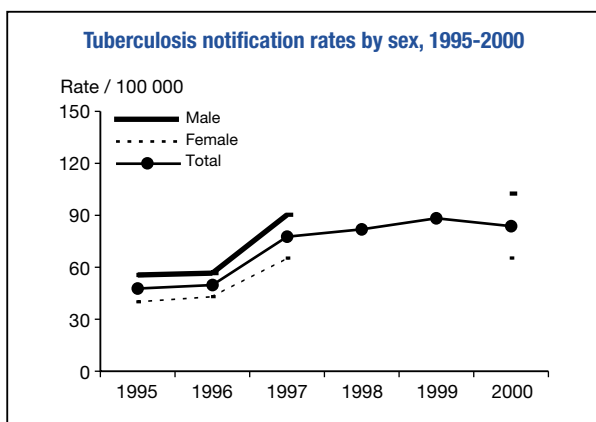
Type of data provided	Aggregate
Total number of cases	3 967
Notification rate per 100 000	83.7
Sex ratio (M:F)	1.5
Median age-group, nationals	25-34 years
Median age-group, non-nationals	-
Individuals born abroad	- -
New (never treated)	3 896 (98.2%)
Culture positive	1 975 (49.8%)
Respiratory	- -
of which sputum smear positive	- -

Drug Resistance Surveillance, 2000

Not available

Treatment Outcome Monitoring, 1999

Geographic coverage	National
Cohort	new sputum smear positive
Included in TOM cohort	964
Success	579 (60%)
Death	80 (8%)
Failure	207 (21%)
Default	0 (0%)
Transfer	98 (10%)
Other / unknown	0 (0%)



Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	32 963
Notification rate per 100 000	66.5
Sex ratio (M:F)*	2.5
Median age-group, nationals*	35-44 years
Median age-group, non-nationals	-
Individuals born abroad	-
New (never treated)	29 753 (90.3%)
Culture positive	-
Respiratory	31 206 (94.7%)
of which sputum smear positive	13 948 (44.7%)

* New cases only

Drug Resistance Surveillance, 1999

International proficiency testing	no
Geographic coverage	Kiev
Linkage with notification	no §
Cases with DST results	484
Cases resistant to INH	116 (24.0%)
Cases resistant to RMP	102 (21.1%)
MDR cases	86 (17.8%)
Cases resistant to EMB	10 (2.1%)
Cases resistant to SM	110 (22.7%)

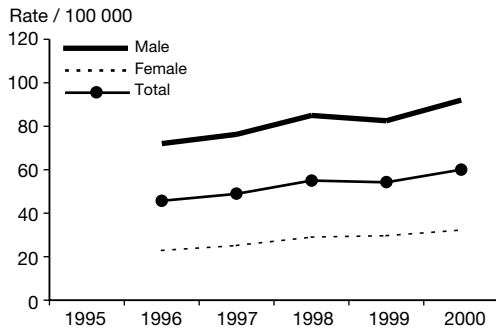
Culture and DST not routinely performed

§ Cases diagnosed at the NRL

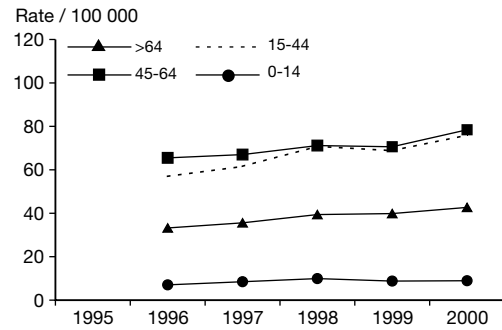
Treatment Outcome Monitoring, 1999

Not available

Tuberculosis notification rates by sex, 1995-2000*



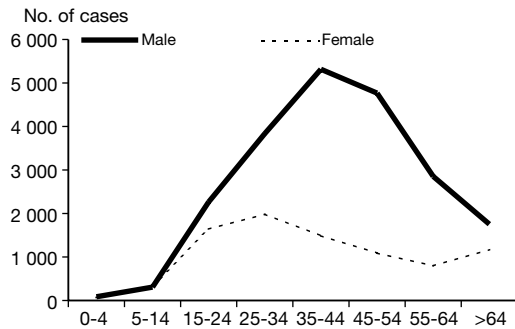
Tuberculosis notification rates by age group, 1995-2000*



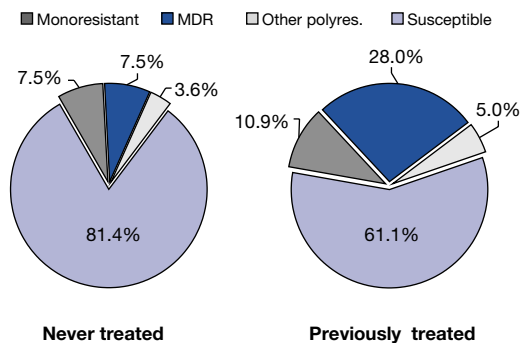
Tuberculosis cases by geographic origin, 1995-2000

Foreigners not included in TB notifications

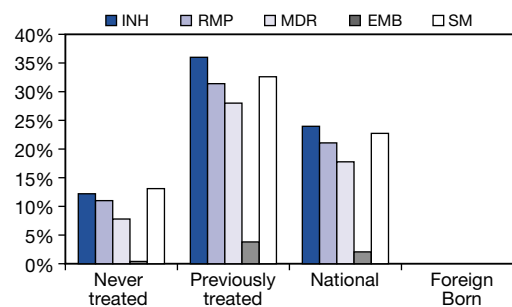
Tuberculosis cases by age group and sex, 2000*



Resistance profile by treatment status (INH, RMP and EMB), 1999



Resistance by treatment status and geographic origin, 1999



* New cases only

Tuberculosis case notifications, 2000

Type of data provided	Individual *
Total number of cases	6 792
Notification rate per 100 000	11.4
Sex ratio (M:F)	1.2
Median age-group, nationals	45-54 years
Median age-group, non-nationals	35-44 years
Individuals born abroad **	3 384 (49.8%)
New (never treated) *	4 923 (76.6%)
Culture positive	3 644 (54.6%)
Pulmonary *	3 691 (57.9%)
of which sputum smear positive *	1 406 (36.7%)

* Excluding Scotland

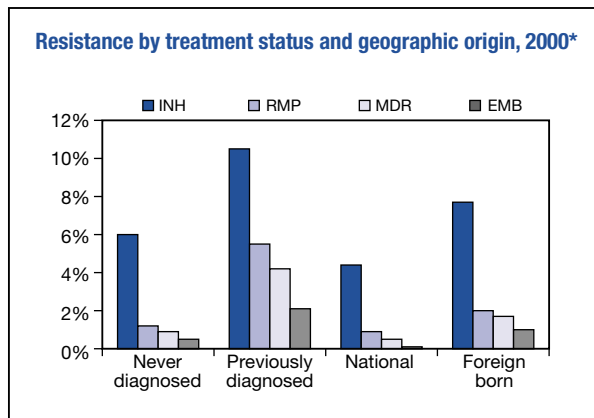
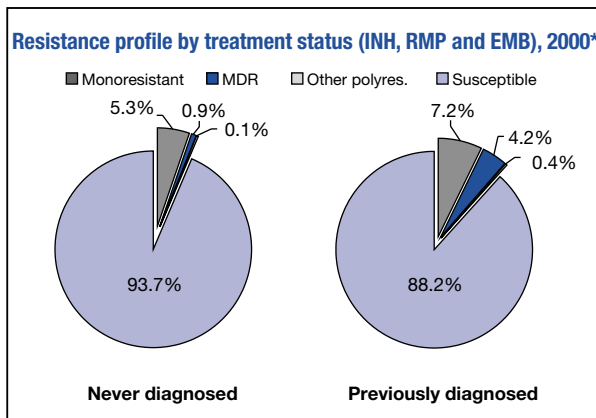
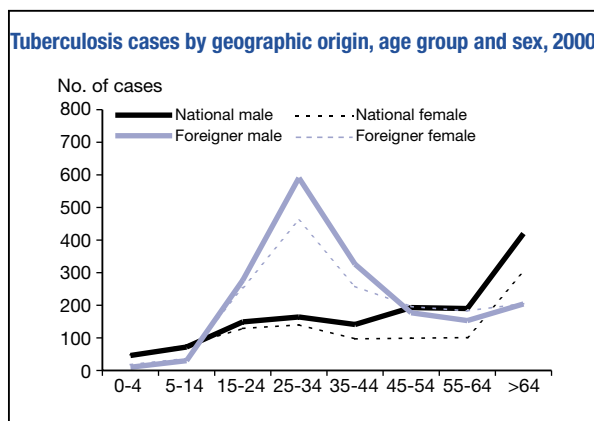
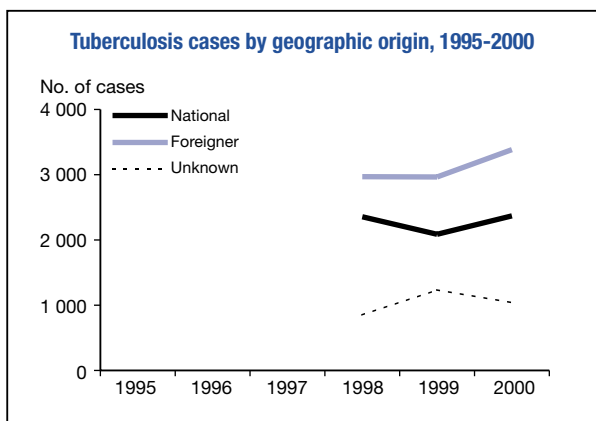
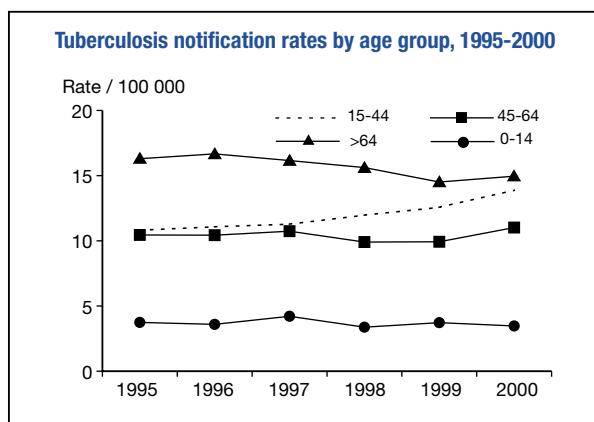
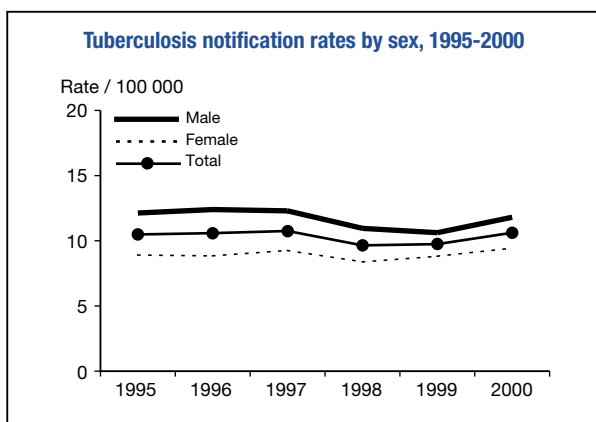
** 15% missing data

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	National
Linkage with notification	Yes
Cases with DST results	3 306 / 3 644 (91%)
Cases resistant to INH	203 (6.1%)
Cases resistant to RMP	48 (1.5%)
MDR cases	37 (1.1%)
Cases resistant to EMB	19 (0.6%)
Cases resistant to SM	- -

Treatment Outcome Monitoring, 1999

Not available



* Excluding Scotland

Tuberculosis case notifications, 2000

Type of data provided	Aggregate
Total number of cases	15 912
Notification rate per 100 000	64.0
Sex ratio (M:F)	1.4
Median age-group, nationals	25-34 years
Median age-group, non-nationals	-
Individuals born abroad	- -
New (never treated)	- -
Culture positive	- -
Respiratory	- -
of which sputum smear positive	- -

Drug Resistance Surveillance, 2000

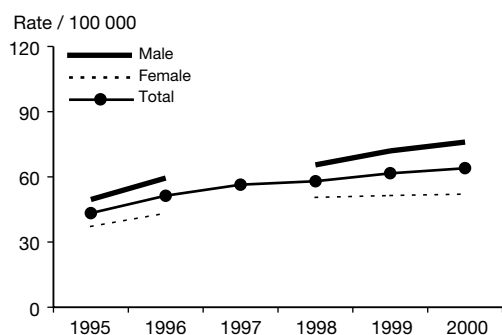
Not available

Treatment Outcome Monitoring, 1999

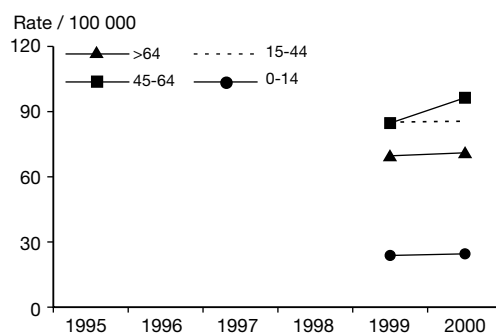
Geographic coverage	some areas §
Cohort	new sputum smear positive
Included in TOM cohort	135
Success	106 (79%)
Death	9 (7%)
Failure	10 (7%)
Default	9 (7%)
Transfer	1 (1%)
Other / unknown	0 (0%)

§ DOTS areas, representing 8% of sputum smear positive cases

Tuberculosis notification rates by sex, 1995-2000



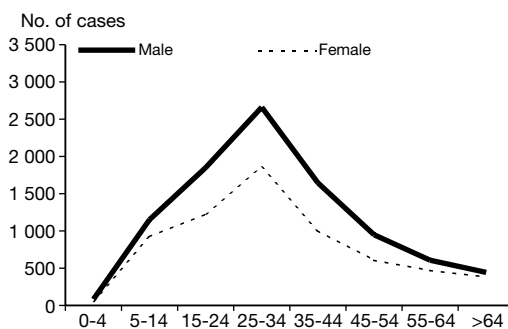
Tuberculosis notification rates by age group, 1995-2000



Tuberculosis cases by geographic origin, 1995-2000

Not available

Tuberculosis cases by age group and sex, 2000



Resistance profile by treatment status (INH, RMP and EMB), 2000

Not available

Resistance by treatment status and geographic origin, 2000

Not available

Tuberculosis case notifications *, 2000

Type of data provided	Aggregate
Total number of cases	2 922
Notification rate per 100 000	34.7
Sex ratio (M:F)	1.6
Median age-group, nationals	45-54 years
Median age-group, non-nationals	-
Foreign born / citizens	- -
New (never treated)	2 661 (91.1%)
Culture positive	1 765 (60.4%)
Respiratory	2 736 (93.6%)
of which sputum smear positive	- -

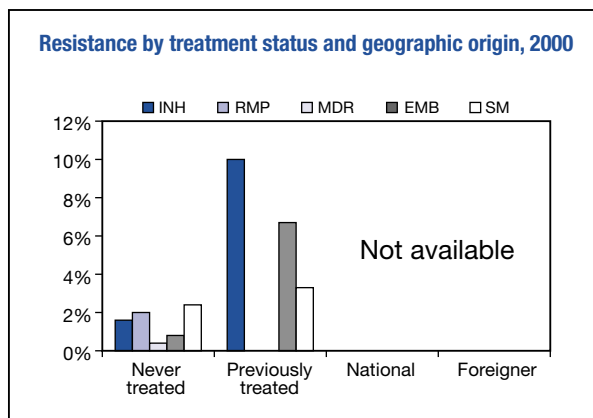
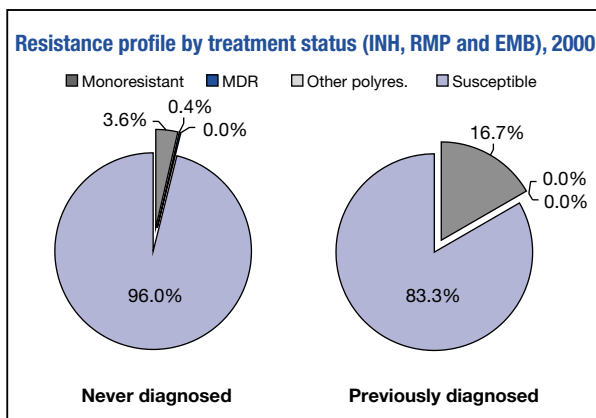
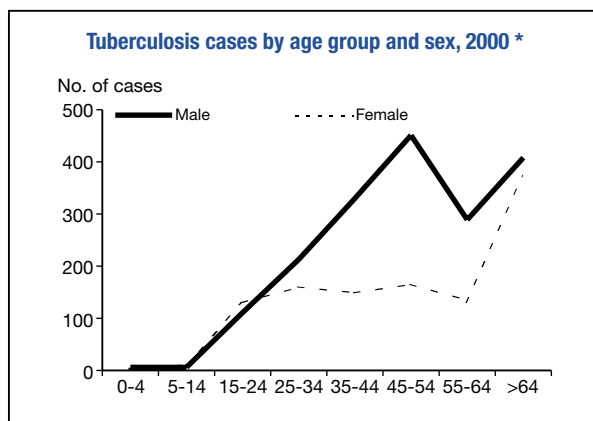
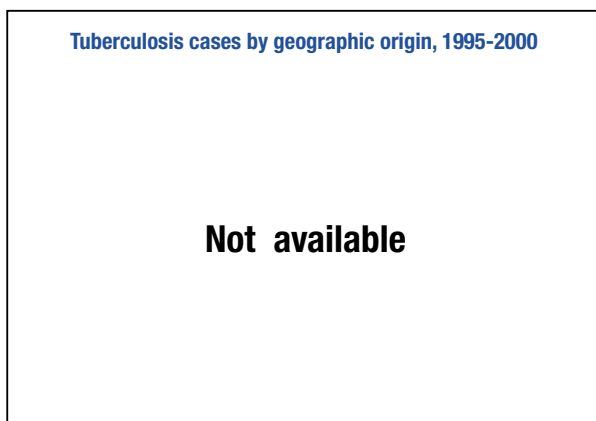
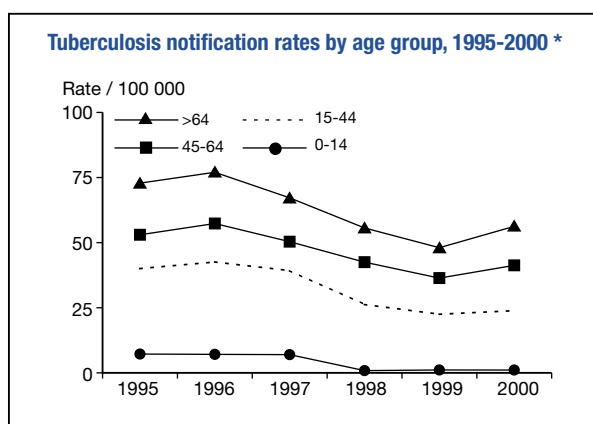
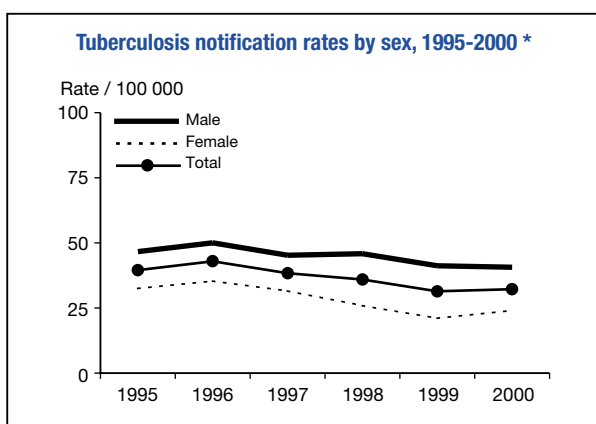
* Without Kosovo

Drug Resistance Surveillance, 2000

International proficiency testing	Yes
Geographic coverage	Belgrade region
Linkage with notification	Yes
Cases with DST results	279 / 279 (100%)
Cases resistant to INH	7 (2.5%)
Cases resistant to RMP	5 (1.8%)
MDR cases	1 (0.4%)
Cases resistant to EMB	4 (1.4%)
Cases resistant to SM	7 (2.5%)

Treatment Outcome Monitoring, 1999

Not available



* Excluding Kosovo for 1998-2000

