

# Tuberculosis in Italy during the period 1992-1994: an analysis of the individual case-report forms.

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## Summary

The Authors have drafted the epidemiological trend of tuberculosis in Italy as resulting from the analysis of 13,639 individual case-report forms.

For the first time it has been possible to present data resulting from the National Communicable Diseases Reporting System started in 1991.

A comparison between the cases of TB in general population and the cases of TB in AIDS patients has been made.

The Authors also tried to assess the incidence of TB among foreigners in Italy.

The Italian trend of tuberculosis shows a resurgence of the illness in the last years, in particular of the extrapulmonary forms and associations, involving mainly age groups 25-39 and 60-75 years for men and 20-35 and 60-80 years for women (ratio M/F 2/1).

## INTRODUCTION

During the last decade the epidemiological trend of tuberculosis in the industrialized countries has been marked by an increase of incidence which has stopped the downward trend of the 1960s.

The causes of this inversion are manifold and, probably, they are linked to an underreporting of the "tuberculosis risk", with the consequent decay of TB control measures.

Also the appearance and diffusion of drug-resistant strains of *M. tuberculosis* represents one of the main reasons of the present epidemiological pattern. Moreover, a substantial role has been played by the present demographic increase of traditionally highly endemic countries in which, in addition, frequent socio-economic upsets have diverted most of the economic resources dedicated to public health towards other sectors. Last, but not the least, the HIV pandemic has greatly contributed to the spread of TB and has influenced the frequency of disease by atypical mycobacteria and the selection of drug-resistant strains as well. At the present moment, W.H.O. estimates that about 8 million people contract the disease, and this number seems destined to rise. It has been assessed that more than 30 million people died of TB in the last decade. (8)

Also in Italy, the tuberculosis showed a slow decrease between 1960s and 1980s, but in the last ten years has been observed an inversion of trend, with incidence rates shifting from 5.8 per 100 000 population of 1980 to 9.6 per 100 000 population of 1994 (5).

Therefore, the mycobacterial disease of the respiratory tract represents again a public health concern either for the epidemiological and clinical prominence, and, for this reason, TB has been included among the diseases of the Class III of the National Communicable Diseases Reporting System, regulated by the Ministerial Decree 15 december 1990.

The informative flow for class III foresees the reporting by the assisting physician to the Local Health Unit in whose territory the diagnosis has been made, and from this to the Regional Health Authority; the Region afterward forwards the reports to the Ministry of Health and to the National Institute of Statistic. (4)

To the Ministry of Health are also sent the results of the epidemiological investigations carried out locally for the implementation of the prevention and control procedures by the territorial health authorities.

This work presents the figures of pulmonary and extra-pulmonary TB reported to the Ministry of Health during the period 1992-94.

## MATERIALS AND METHODS

The data deriving from the analysis of 13.639 individual case-report forms have been examined.

The case-report form, distinct for each of the 4 diseases of class III, consists of two parts, the first of which, demographic, contains relevant information for the accomplishment of public health measures, whereas the second one contains information regarding the infectious agent, the diagnostic criteria, the anatomical localization of the disease.

For the extra-pulmonary localization, the IX revision ICD-IX of the international classification of diseases has been used.

Some Italian Regions have lately or partially enforced the present reporting system in force since January 1991. Therefore, in order to eliminate potential confounding factors, the informations from Campania, Calabria and Lazio, for the part regarding the demographic aspect, have been discarded.

We have deemed appropriate to determine the trend of the incidence of pulmonary and extra-pulmonary TB from 1978 till 1990. The linear regression analysis has been used assuming, as independent variable values, the years from 1978 to 1990; afterwards, the incidence rates expected for the next 4 years have been extrapolated. (6)

The elaboration of the records has been performed with the statistic software pack EPI-INFO, specific for epidemiological analysis, and the statistic pack SPSS for windows 26.0.

## RESULTS

The trend of TB in Italy from 1978 to 1994 shows a tendency to the decrease of incidence until the year 1987, followed by a resurgence of the disease, lasting until 1994.

During the years 1991-1994, there was an excess of 3.602 reported cases, compared with the number predicted based on the trend for the period 1978-90. The lowest incidence rate has been observed in 1983 (4.9x100 000 population) and the highest in 1994, with 9.6 cases x 100 000 population ([Fig. 1](#)).

The analysis of the distribution of the cases reported by different Italian areas shows that the highest number of cases has been notified by Regions: Piedmont, Venetia, Lombardy, Friuli and Trentino- South Tirol, with morbidity ranging from 10 to 20 cases per 100 000 persons.

In Central Italy Regions has been observed a morbidity ranging from 6 to 9 cases per 100 000 persons, whereas in Southern Italy the morbidity has been lower than 5 cases per 100 000.

Therefore, the incidence rates of TB in our Country has shifted from 8.2 x 100 000 population of 1992 to 9.6 x 100 000 population of 1994, with a gross increase of 17% in the period under examination ([Tab. 1](#)).

A relevant figure, in our opinion, is that derived by the observation that the various forms of tuberculosis do not show a similar increase, but rather a strongly different trend.

As a matter of fact, in the period under examination, pulmonary TB increase is 13%, whilst extrapulmonary TB increased 35% and associations increased 45% ([Tab. 2](#)).

Regarding age, sex, nationality of patients and localizations of TB, the data provided by Regions examined, show that males represents about 2/3 of the total of patients ([Tab. 3](#)). The age distribution evidences, for each year, a greater involvement of the age groups 20-35 years and 60-80 years for women ([Fig. 2](#)).

We consider useful to underline the substantially overlap of the age and sex distributions of the cases of TB, as resulting by the general reporting system, and the cases of TB in AIDS patients ([Fig. 3](#)).

Such comparison has been possible only between the reports of the period ranging from the second half of 1993 on, when in Italy pulmonary TB has been included among the criteria for the case definition of AIDS. (2)

Extrapulmonary TB, on the other hand, affected mainly juvenile and elder age groups, with prevailing pleural, osteoarthicular, renal and lymphatic localizations ([Tab.4](#)).

Moreover, the analysis of the data desumed by the case-report forms has allowed to determine the distribution by nationality of the patients affected by TB. This information has become more and more reliable during the period 1992-1994, since the omission of the indication is fallen from 4.12% of 1992 to 1.42% of 1994 ([Fig. 4](#)).

Our data show that, in the year 1994, pulmonary and extrapulmonary TB affected in 89.37% Italians and, in little more than 9% foreign-born people; among these, 58% of the cases is represented by Africans, 15% by Asiatics, 11% by non U.E. Europeans, 10% by South-American citizens ([Tab. 5](#)).

We have also tried to assess the incidence of tuberculosis among foreigners using, as denominator, the figures provided by the Ministry of the Interior, which fix in 922 706 the number of documented immigrants; this figure has been integrated by the estimated number of undocumented immigrants who, in the same year and according to the charitable organization "Caritas", could amount to about 350 000. (3) Therefore, the incidence rate of TB in foreign-born persons for the year 1994, could be assessed in  $34 \times 100.000$ .

No comparison has been made among Italian population and the migrant one since this latter is generally formed, for the reasons which characterize the migratory phenomenon, prevalently by young males. (1)

## DISCUSSION

From the analysis of our data, it appears that the Italian trend of tuberculosis, protagonist of several epidemics in the past, is undergoing an inversion of tendency, with increasing incidence in the last decade as in other European countries like Sweden, Denmark, United Kingdom, Portugal (5).

The increase in the different age groups is, however, consistent with a reduced environmental circulation of the mycobacteria, witnessed by the almost non-existent infantile tuberculosis, by the appearance of the disease in the juvenile years, particularly in the second and third decade of life, and finally by the recrudescence in the elder ages. The greater incidence observed in the juvenile age, in our opinion, may be connected to HIV infection, whereas the recrudescence of TB in the elder age groups could be ascribed to several factors like the impairment of immunity defences, the reactivation of primary infections and the occurrence of other illnesses enhancing the onset of the disease.

Moreover, the recrudescence of TB in the elder age groups prompts the need for epidemiological field investigations to assess the real social dimensions of the "problem tuberculosis".

Indeed, the susceptibility to tuberculosis is linked to two conditions: the risk of infection and the risk to develop the clinical illness. The first factor is proportional to the frequency of active disease in the population, to overcrowding and congregation, to environmental deterioration, and to low socio-economic standards. The second partly depends on diet unbalance, immune status, concomitant illness and individual factors conditioning the host resistance.

The urbanization, the migratory flows from developing Countries have re-established, in short time and apart from nationality, low-income groups of population more susceptible to mycobacterial infection.

The greater incidence of TB reported by the Northern Regions is, in our opinion, greatly influenced by their long-date attention to the disease, witnessed by the fact that, in the same Regions, ad hoc surveillance systems have been implemented from long time.

On the other hand, it is as true that in the same Regions drug abuse and the incidence of AIDS show a parallel trend to that of TB. The greater number of cases demonstrates that Italian Public Health must commit itself to a sustained preventive and therapeutical effort, tailoring anew also the present strategy for the control of TB and preparing, in addition, standards which make a neat separation between health interventions and police measures; this will make possible, furthermore, to control the phenomenon of TB among immigrants.

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