

### Introduction

Tuberculosis (TB) is a global emergency. The World Health Organization (WHO) estimates 8 million new cases and 2 million deaths occur each year from this treatable disease. This emergency exists for various reasons including: the reduction in health services dealing with the control and treatment of TB; poverty and conflict; migration (both in-country and between-country); the emergence of HIV/AIDS; and the rise of multi-drug resistant (MDR) TB. If control is not further strengthened WHO predicts that between the years 2000 and 2020, nearly one billion people will be newly infected with TB, 200 million people will get sick, and 35 million will die from TB.<sup>1</sup>

Australia has one of the lowest rates of TB in the world. However, specific subgroups, such as Indigenous people and persons born overseas, have rates many times those of non-Indigenous Australian-born persons. The present rates in Australia can be attributed to the improved socio-economic circumstances that occurred over the last century and the success of the post-World War II National TB Campaign. The low rate has been maintained in the presence of large-scale migration from countries with higher

TB rates than Australia, largely because of effective pre-migration screening and the activities of specialised, multi-disciplinary TB services in the States and Territories.

Recent difficulties in TB control in other industrialised nations, the lack of a defined national TB structure and a perceived decline in TB expertise within Australia, have highlighted the need for vigilance and continued action. Therefore, in 1999 the Communicable Disease Network Australia (CDNA) endorsed the formation of the National TB Advisory Committee (NTAC) which has representation from each jurisdiction and the Commonwealth. NTAC has two terms of reference:

1. To provide strategic, expert advice to CDNA on a co-ordinated national and international approach to TB control.
2. To develop and review nationally agreed strategic and implementation plans for the control of TB in Australia.

### Recommendations

The key recommendations of the National Strategic Plan for TB control are to:

1. Maintain and enhance national surveillance of important epidemiological TB control indices including; disease incidence, drug resistance and treatment outcomes.
2. Ensure all States and Territories:
  - Have programs that are consistent with national TB guidelines.
  - Maintain a close working relationship among public health practitioners, laboratory services and clinical activities in the delivery of TB services.
3. Ensure there continues to be no financial barrier to achieving diagnosis, management and treatment of TB.
4. Continue the commitment of the Department of Health and Ageing to:
  - National TB surveillance.
  - Support NTAC.
  - Liaise with national and international bodies involved in TB control.
  - Ensure that NTAC is consulted by any national body considering issues that may impact on TB control.
5. Co-ordinate screening programs for people from high-risk countries and high-risk groups.
6. Improve awareness-raising of TB among health care workers in order to promote early detection.
7. Maintain a national advisory committee for TB that includes representatives with expertise in TB control from each of the States and Territories and the Commonwealth Mycobacteriology Reference Laboratory Network, and which reports to the Communicable Disease Network Australia.
8. Liaise with regional partners to assist TB control programs in neighbouring countries.

## TB control in Australia

The most important issues that currently affect the control of TB in Australia are increased migration from countries with very high rates of TB and socio-economic inequalities within Australia. Despite the impact on global TB control of the HIV/AIDS epidemic and the emergence of MDR-TB, to date these factors have had a limited effect on TB control in Australia.

WHO recommends the 5-point strategy known as Directly Observed Treatments - Short Course (DOTS) to control TB world-wide. This strategy is implemented for TB control in Australia with suitable modifications for a low incidence industrialised country. The continued success of the National TB Control Program requires States, Territories and the Commonwealth to work together to ensure that their complementary roles are successfully undertaken and that Australia remains a country with one of the lowest rates of TB in the world.

Currently, States and Territories have responsibility for the provision and management of TB services in Australia and for ensuring a close working relationship between public health, laboratories, clinicians and TB services. TB reference laboratories have a range of responsibilities including the undertaking of antibiotic susceptibility testing. The Commonwealth monitors the incidence and prevalence of TB on a national basis using information provided by State and Territory health authorities and laboratory services.

The Department of Health and Ageing needs to continue to maintain national TB surveillance and to liaise with national bodies considering issues which will impact on TB control, by referring them to NTAC for review.

Given that the natural history and transmission of TB predates against the elimination of TB in a single geographical area, it is important that Australia has a vision for TB control globally and a commitment to be involved and assist in reducing the regional burden of TB.

### AIM

The aim of the TB control program in Australia is to minimise the burden and human impact of TB and prevent the transmission of TB through early detection and treatment.

### GOALS

The goals of the National TB control program are to:

- Eliminate the transmission of TB in Australia.
- Reduce the incidence of TB in the Indigenous Australian population to that of the Australian-born non-Indigenous population.
- Reduce the burden of disease from TB in overseas-born persons and other high-risk groups.

- Maintain the current low level of drug resistance in Australia.
- Foster research and development in TB control.
- Strengthen partnerships that contribute to the global control of TB with particular emphasis on regional countries.
- Appropriate use of diagnostic molecular methods.
- Appropriate treatment of latent TB infection.
- Use of BCG vaccination in specific subgroups.
- Education and training of health care workers and other key stakeholders.

### STRATEGIES

The three key strategies to advance the goals of the National TB control program are:

- Active and passive case finding that allows the early and accurate diagnosis of persons with TB through effective clinical and laboratory services.
- Prompt and effective free treatment of persons with active TB in supervised programs.
- Timely surveillance and reporting of disease incidence, drug resistance and treatment outcomes nationally to inform program evaluation.
- Increasing the awareness of TB through education and empowerment of high-risk groups and their families/carers.
- Advocacy for social and economic issues.
- Advocacy for and an active role in assisting TB control programs in countries in our region including programs to monitor MDR-TB.
- Undertaking research and development consistent with the goals of the TB control program.

### PERFORMANCE INDICATORS

National TB performance indicators have been developed and need to be regularly reviewed at both the State and National level. States and Territories may need to develop other indicators by which to assess additional aspects of their TB control programs, such as delays in diagnosis and quality of public health response.

All indicators can be measured as part of the expanded data collection for TB.

Other important strategies that assist in achieving the goals are:

- Effective contact tracing.
- Pre-migration screening and treatment.
- Targeted screening of high-risk groups.
- Appropriate mycobacteriological investigations, which includes susceptibility testing from all cases of TB.

## ANNUAL INCIDENCE OF TB IN:

- General population.
- Overseas-born persons.
- Australian-born persons.
- Indigenous Australians.
- Relapse cases initially treated in Australia.
- Children less than 15 years of age analysed by risk group.
- HIV sero-positive persons.

## LABORATORY SURVEILLANCE MEASURES (PERCENTAGE OF):

- Pulmonary cases which are sputum-smear positive.
- Total notifications where laboratory culture of sputum was attempted.
- Total notifications confirmed by culture.
- Culture-confirmed cases for which susceptibility testing has been performed.
- Culture-confirmed cases with drug resistance strains including MDR organisms.
- Sputum-smear positive cases that are sputum negative by the third month of treatment.

## TREATMENT OUTCOME MEASURES (PERCENTAGE OF):

- Cases evaluated for outcomes.
- Cases that have had treatment completed and are cured.
- Cases recorded as treatment failures.

**Completed incident, laboratory and outcome data provided by all States and Territories by September of the following year.**

**Publication of the TB annual report including disease incidence, outcome measures and drug-resistance testing by December of the following year.**

## TB DATA PROVIDED TO WHO ANNUALLY OR AS REQUIRED.

- Annual reporting on regional/global TB activities.

## Epidemiology

Prior to 1950 the incidence of active TB in Australia was over 45 notified cases per 100,000 population. During the period of the National TB Campaign from 1950 to 1976 there was a rapid and sustained decline in the notification rate of new cases<sup>2</sup> despite continued large-scale migration from countries with higher TB rates than Australia.<sup>3,4</sup>

Since 1986, there has been a slowing in the rate of decline to plateau at 4.9 to 5.7 new notifications per 100,000 population. These low rates compare favourably with other developed countries.<sup>5</sup> Over the same period the mortality from TB has declined substantially from 10 per 100,000 population in 1954 to 0.2 per 100,000 population in 1999.<sup>2,5</sup>

Of the 1,159 new cases notified in 1999, 18 percent were in Australian-born persons (1.2 per 100,000 population) and 82 per cent were in overseas-born persons (20.6 per 100,000 overseas-born population) predominately from south-east Asian countries.<sup>6</sup> TB notifications in the overseas-born population occurred equally in males and females and across all age groups peaking in early adulthood. The rates were much higher than those of the Australian-born population across all age groups.

The rate of TB in Indigenous Australians is higher than in non-Indigenous Australians. In 1999 the rate was estimated to be approximately 8.3 per 100,000 population,<sup>6</sup> ie eight times greater than in non-Indigenous Australians. Indigenous Australians have higher rates of infection, disease, hospitalisation and mortality from TB than non-Indigenous Australians.<sup>7</sup> These data should be interpreted recognising that the numbers are small and Indigenous status reporting is incomplete. The overall rate in Indigenous Australians also masks significant geographic variability in the incidence of TB amongst Indigenous Australians, e.g. in Far North Queensland the rate in Indigenous Australians is 16 times that of non-Indigenous Australians in that region.<sup>8</sup>

In 1999, 767 (66%) of the notifications were pulmonary disease and 37 per cent of these were sputum-smear positive. Notification rates of new extra-pulmonary disease have declined since the 1980s, although there has been a slowing in the rate of decline similar to that seen in pulmonary disease.<sup>2,6</sup>

Although high rates of drug resistant TB have been reported overseas, drug resistance in Australia has remained low. Between 1989 and 1992 average annual resistance rates of 14 per cent were recorded for all isolates tested including 8 per cent to isoniazid alone or in combination, 1.9 per cent to rifampicin alone or in combination and 0.8 per cent to both isoniazid and rifampicin in combination.<sup>9</sup> Published data for 1993 to 1998 show no notable changes in the prevalence of drug-resistant strains in Australia, and the average proportion of MDR isolates (defined as resistance to both

isoniazid and rifampicin) has remained below one per cent.<sup>10</sup>

HIV/AIDS is becoming increasingly recognised as an important co-factor for TB. Internationally, TB is one of the major causes of death amongst people infected with HIV.

However, several studies concerning HIV/AIDS and TB in Australia show that while the risk of TB is high for people infected with HIV, the absolute numbers remain small.<sup>11,12,13</sup> As such, while it is expected the numbers of TB/HIV co-infection would remain low in view of the low rates of both HIV and TB, this needs to be closely monitored as the increased potential exists in certain TB risk groups with adverse social, economic and environmental conditions.

In summary, Australia currently has an enviable position with low rates of disease, low rates of MDR-TB and relatively little overlap between the TB infected communities and the HIV community. However, continued vigilance and effective control programs are required to reduce the human impact of TB in the sub-groups of the population who are particularly at risk of this disease, and to quell the possible slow emergence of drug resistance.

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<http://www.health.gov.au/pubhlth/cdi/pubs/tb-plan.htm>