

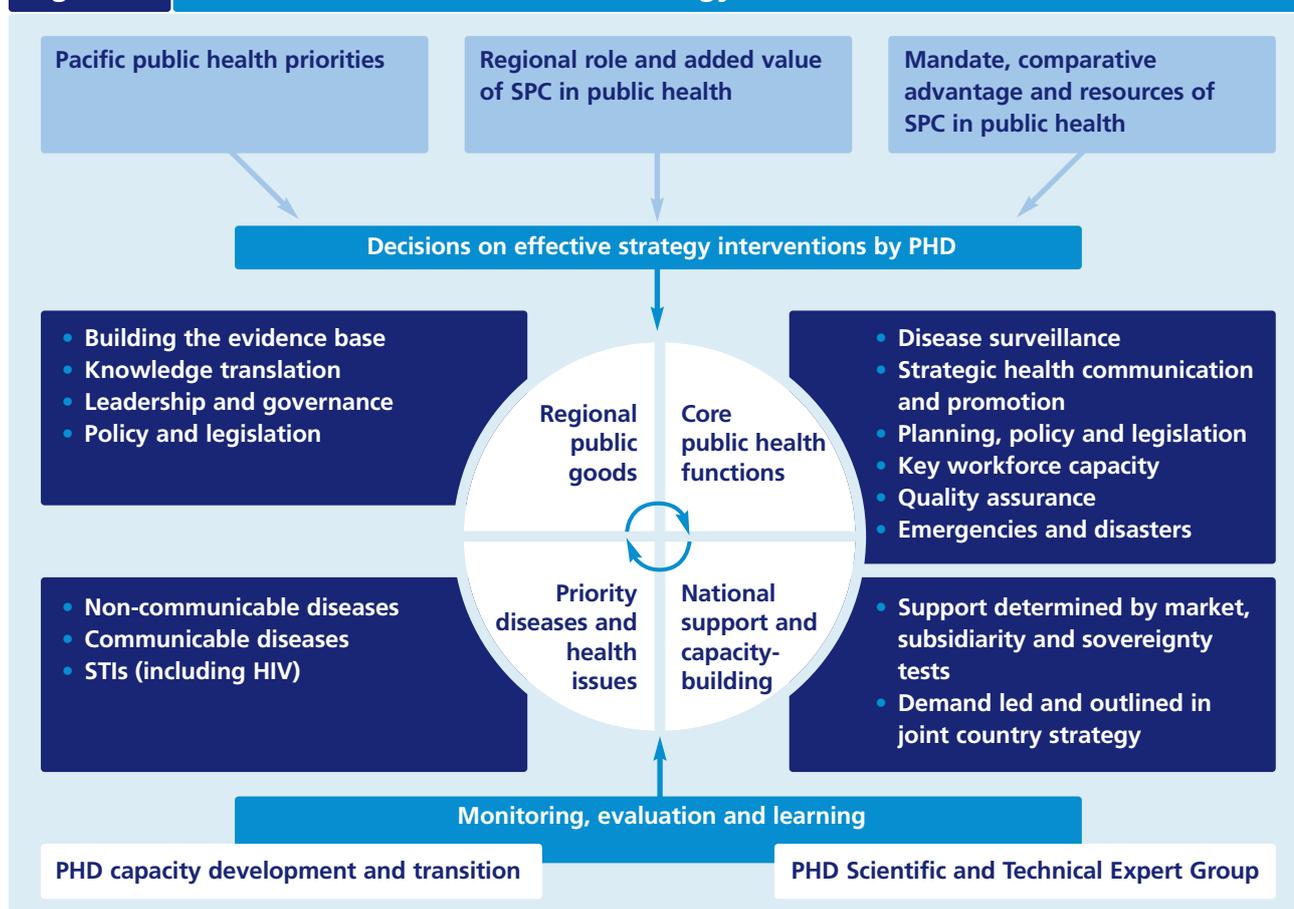
# Burden of TB in the Pacific: Strategic planning and public health action

## Secretariat of the Pacific Community\*

In the Pacific islands region, a number of regional and international organisations are working with Pacific island ministries of health to reduce the burden of communicable disease on Pacific island populations. The Secretariat of the Pacific Community (SPC) works in close collaboration with the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) to provide technical assistance and other services to member states in the area of population health and communicable disease control. Alongside this, the same organisations are working in the area of non-communicable disease control. In many Pacific island countries and territories a double burden of communicable and non-communicable diseases exists and innovative approaches to public health are required to deal with this.

In 2013, SPC's Public Health Division (PHD) released its strategic plan, which outlines the Division's work over the next ten years. The document titled *Healthy Islands, Healthy People: SPC Public Health Division Strategy 2013–22* outlines the PHD's strategic directions, priorities and outcomes, and how it intends to achieve them. The strategy contributes to and is aligned to SPC's Corporate Strategic Plan 2013–15 and is influenced by the Healthy Islands Vision captured in the Yanuca Declaration. It responds to the contemporary issues facing the health sector and developments outside the health sector that impact population health and well-being in the region. A schematic representation of the strategy is outlined in Figure 1.

**Figure 1** Public Health Division (PHD) strategy, SPC



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The primary goal for all PHD activities is to promote population health and well-being, prevent disease and injury, restore health and reduce inequalities in health. The strategy focuses on a number of key conditions in recognition of the fact that there are specific diseases and risk factors that create a high burden of disease in the region. These are usually diseases and risk factors for which SPC has the ability to provide high-quality scientific and technical assistance to our members. Communicable diseases remain a priority area, both through the work of the Pacific Public Health Surveillance Network and through direct technical assistance and policy advice to countries. Tuberculosis (TB) – an airborne infectious disease – has long been a focus of SPC's work in communicable diseases. SPC assists Pacific island ministries of health in the areas of TB-related strategic planning, surveillance, operational research, funding, technical assistance, monitoring, evaluation and policy advice. This assistance is aligned to the goals and objectives of the Regional Strategy to Stop TB in the Western Pacific 2011–15.

All Pacific island countries and territories have a dedicated national TB programme that is responsible for all aspects of TB prevention, diagnosis, care and management. These programmes are striving towards a number of internationally recommended targets as part of achieving TB elimination by the year 2025. Millennium Development Goal 6 aims to halt TB incidence and reverse it by 2015. Linked to the MDGs, the Stop TB Partnership targets

outlined in the Stop TB Strategy are to reduce TB prevalence and mortality by 50 per cent by the year 2015, relative to the levels in 1990, and to eliminate TB as a public health problem by 2050. The Regional Strategic Plan to Stop TB in the Western Pacific: 2011–15 targets aim to halve TB prevalence and mortality by 2015, relative to the levels in 2000, with the eventual goal of the elimination of TB as a public health problem.

### What is the burden of TB in the Pacific?

The 22 Pacific island countries and territories report around 20,000 cases of TB per annum, at a rate of approximately 200 cases per 100,000 people. In 2012 – the latest year for which we have verified information available – the region notified a total of 22,130 cases of TB, of which 93 per cent were in Papua New Guinea, the most populous Pacific island nation. The highest rates reported were for Kiribati, Papua New Guinea and the Republic of the Marshall Islands at 331, 292 and 252 cases per 100,000 people, respectively. All three rates are above the regional average of 200 per 100,000 people, with Kiribati recording the highest rate in the Western Pacific region.

It was estimated that approximately 79 per cent of all TB cases were detected, indicating that 21 per cent were undetected by health services in the region. In 2012, 19 per cent of all patients diagnosed with TB received a test for HIV and were made aware of

the result; just over eight per cent tested positive. In 2012, a total of 65 TB patients were diagnosed with multi-drug resistant TB (MDR-TB): 58 in Papua New Guinea, three each in Republic of the Marshall Islands and Federated States of Micronesia, and one in Tuvalu. This figure falls very short of the estimate of 1,141 patients with MDR-TB, provided by WHO. After starting a course of TB treatment, approximately 88 per cent of all patients had a successful treatment outcome. This figure is lower in Papua New Guinea, where approximately 80 per cent of all TB patients have a successful treatment outcome.

Since the year 2000 – when standardised TB definitions were introduced throughout the Pacific – the rate of TB has been increasing. In the year 2000, the rate of reported TB cases was 146.1 per 100,000 people; in 2012 it was 217 per 100,000. Other observations were recorded as follows:

- The highest increase has been in the sub-region of Micronesia, where rates have doubled, from 103 to 237 per 100,000

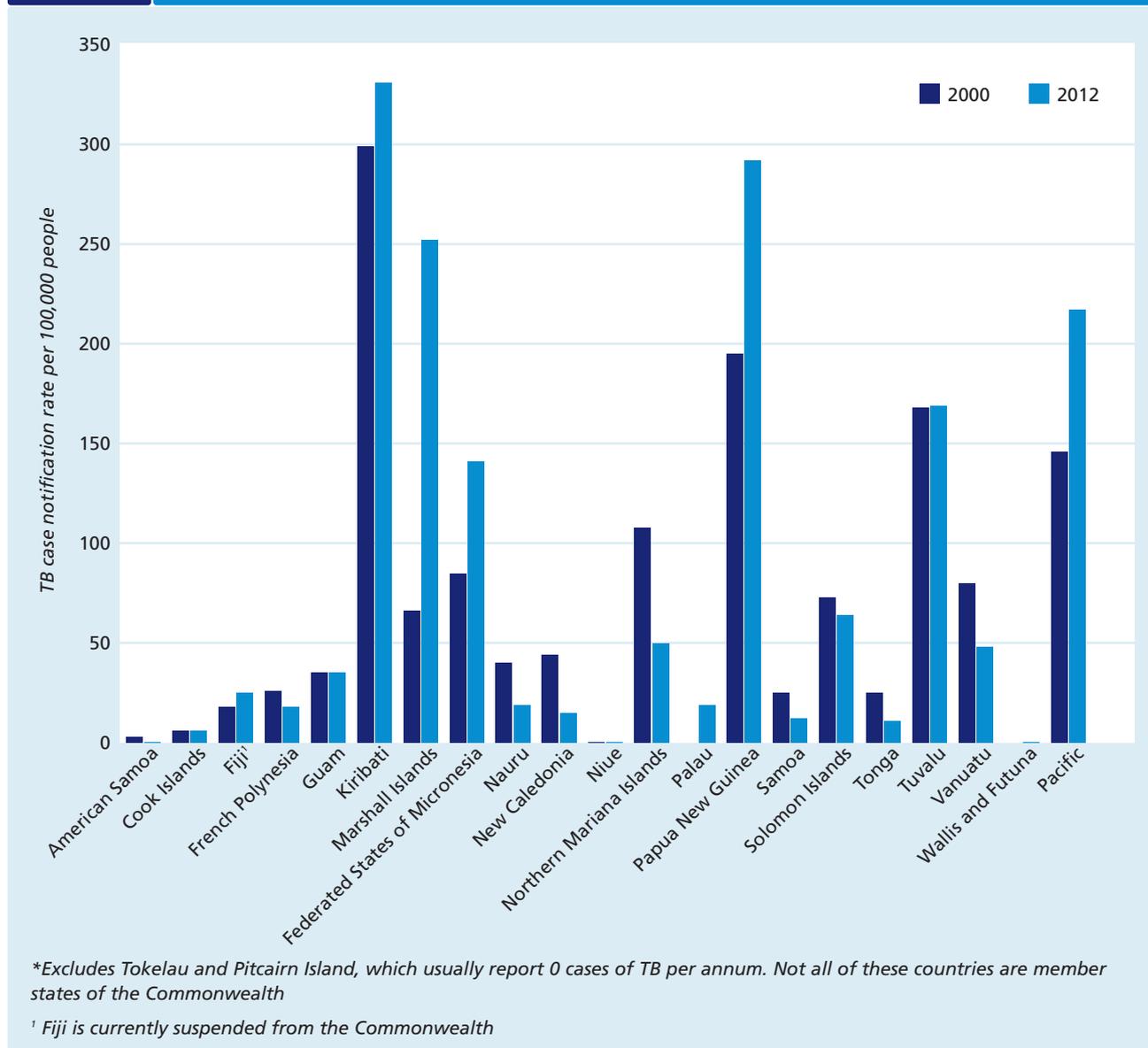
- New Caledonia has seen the largest decrease, with rates declining by two-thirds as a result of wider socioeconomic changes and strict disease control measures
- The Commonwealth of the Northern Mariana Islands has also reported an impressive decline of 54 per cent
- Rates of reported TB cases increased substantially in Papua New Guinea, Federated States of Micronesia, the Republic of the Marshall Islands and Kiribati

The rates of reported cases of TB in Pacific island countries and territories for the years 2000 and 2012 are presented in Figure 2.

### What is driving TB in the Pacific?

TB-related risk factors and social determinants are a complex combination of socioeconomic, biological and environmental factors. These factors comprise upstream social determinants, such as the income status, health system and poverty status of the

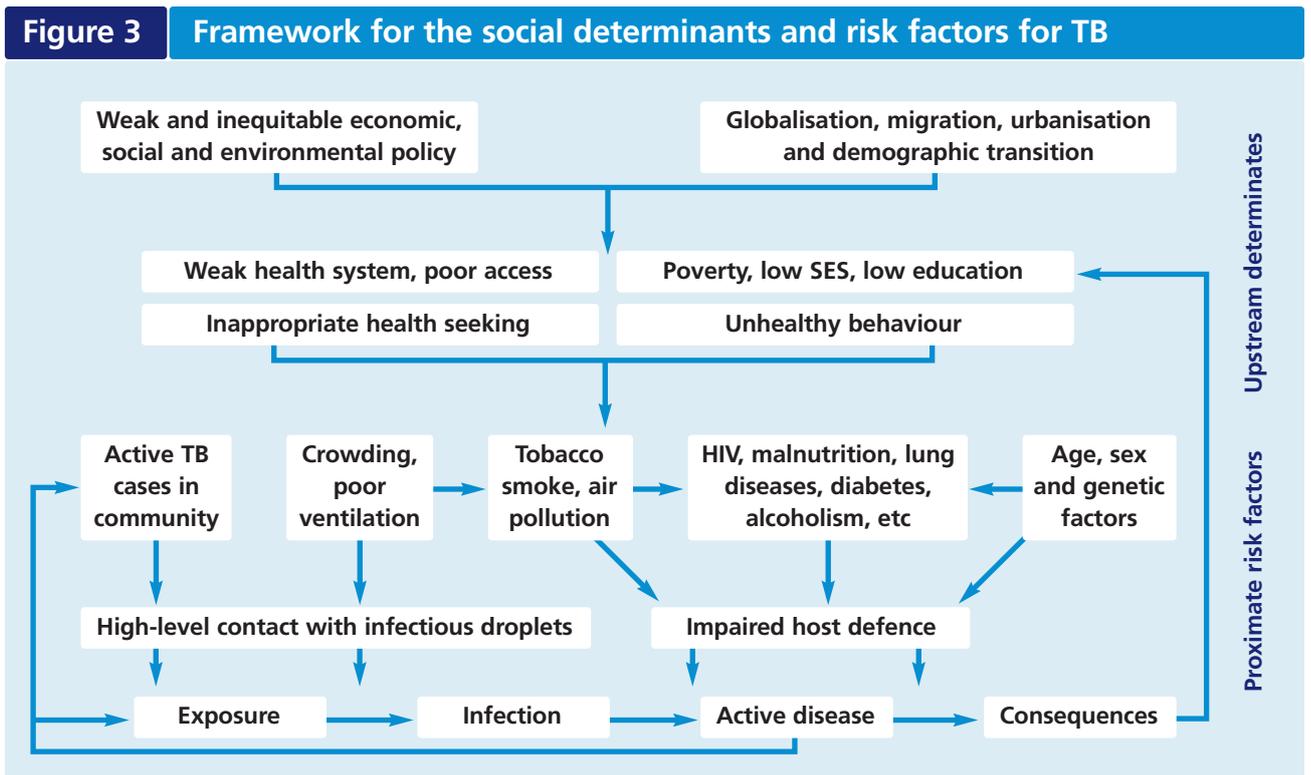
**Figure 2** TB reported case rates\*, 2000 and 2012





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Mele K Vi, a nurse at Tonga's Vaiola Hospital





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*The primary goal for the Public Health Division of the Secretariat of the Pacific Community is to promote health and well-being*

country, and proximate factors related to biological mechanisms and the immediate environment (Figure 3).

The reasons behind the increase of TB in the Pacific are complex and vary from country to country. Some of the increase may be due to better case detection, which indicates the proportion of TB patients who are detected by the health system – for example, the case detection rate in the Republic of the Marshall Islands was 25 per cent in the year 2000; this increased to 48 per cent in the year 2012. Other factors such as increasing urbanisation, high rates of cigarette smoking, household overcrowding and diabetes mellitus are important contributing factors. Recent studies on 22 countries with a high burden of TB globally have estimated that approximately 50 per cent of TB cases is attributable to malnutrition and smoking, with a further 25 per cent attributable to HIV and diabetes mellitus (Lönnroth et al., 2009). While there have not been detailed epidemiological studies of these risk factors and social determinants in the Pacific, a recent study conducted in Kiribati estimated that approximately 25 per cent of all cases of TB

in adults were attributable to diabetes mellitus, with other important risk factors comprising smoking, urbanisation and household overcrowding.

As evidenced by the information available to us, HIV is not thought to be a driver of TB in the Pacific. However, it is important to acknowledge that TB-HIV co-infection is an important clinical and public health issue. Basic epidemiological research on the role and contribution of risk factors for TB in the Pacific is required and could potentially inform TB management strategies in the future.

### Major threats to TB management

Despite the fact that reported TB rates have increased in the Pacific over the last 13 years, there have been some notable successes in TB management, including an improved case detection rate and – for many countries – high TB treatment success rates. However, there exist very real threats to TB control that may adversely affect population health and hamper progress towards regional and

international TB-related targets. MDR-TB is difficult and costly to treat and has so far been reported in a total of 11 Pacific island countries and territories. Failure to control MDR-TB may result in drug resistant strains becoming predominant, which would have disastrous effects on the health care system. The prevalence of diabetes mellitus is also increasing in the region and this may further contribute towards higher TB case reports and poorer TB treatment outcomes. In addition, there is a need to better understand the epidemiology of TB at the national and regional levels, and to tailor interventions accordingly so that we can reach the goal of TB elimination.

## How do we reduce the burden of TB?

There are a number of ways to reduce the burden of TB in the Pacific, however, more detailed information on the epidemiology of TB at the national level would be useful to guide tailored interventions. The mainstay of TB care remains adequate, however, timely case detection, diagnosis and effective treatment of TB should be strengthened wherever possible. National TB programmes should aim to reach out to high-risk and vulnerable groups so that people in these groups can be diagnosed and treated in a timely way, so as to minimise ongoing transmission of TB in the community.

National TB programmes can also collaborate with other health programmes to contribute towards prevention efforts for the most commonly reported TB risk factors in the Pacific, such as diabetes mellitus and smoking. National governments and partners in the

region should aim to modify the social determinants of TB, many of which lie outside of the health sector. This is a more challenging call to action but likely to result in significant improvements in public health across populations for many diseases, including TB.

Lastly, special attention should be given to high-burden TB countries in the Pacific – most notably Papua New Guinea, Kiribati and the Republic of the Marshall Islands – to provide support to implement and evaluate evidence-based public health interventions to reduce the burden of TB. These interventions should be implemented urgently, especially in countries with a high burden of MDR-TB.

## References

Lönnroth, K., Jaramillo, E., Williams, B. G., Dye, C. and Raviglione, M., 2009. 'Drivers of tuberculosis epidemics: The role of risk factors and social determinants'. *Social Science and Medicine*, 68, pp. 2240–2246.

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