

# Diabetes in Nauru: the price of economic wealth and westernization

Ruth Colagiuri and Si Thu Win Tin

While we may believe we understand the connection, Nauruans know first-hand, and perhaps better than anyone else, the bitter link between negative lifestyle change and one of its devastating consequences – type 2 diabetes. Located in the Central Pacific, 60 km south of the equator, Nauru is the smallest independent republic in the world. Its 10,000 inhabitants occupy a single coral island only 6 km long and 4 km wide. Approximately 80% of the population are indigenous Nauruans of Micronesian origin. The remainder includes people from other Pacific Islands (mainly Kiribati and Tuvalu), Chinese and Australians. The history of diabetes in Nauru closely parallels the rise and fall of its economic wealth from phosphate mining over the last half of the 20<sup>th</sup> century. Before the exploitation of phosphate, Nauruans lived in typically physically active Pacific Island style and ate a low-fat diet of fish and native fruit and vegetables. But, by the 1970s this tiny nation had become one of the wealthiest countries in the world – and with its new-found wealth and associated lifestyle changes, had also achieved one of the highest rates of diabetes in the world.

The story began in the early 1900s when Germany began mining the large phosphate reserves deposited on the island from bird droppings over hundreds of years. In 1970, shortly after becoming the world's smallest independent republic, Nauru

acquired phosphate mining rights, and with the increase in revenue, became rich overnight with one of the world's highest per capita incomes and standards of living<sup>1</sup> – a success story economically but a disaster for health.

Economic progress brings benefits in infrastructure (for healthcare and education, for example), technology, ideas, and economic growth. But there is a downside. The rapid westernization and urbanization in Nauru – and the consequent abandonment of traditional

lifestyle and culture with their protective factors against chronic diseases – which resulted from its exponential economic growth from phosphate mining also brought ill-health and bad ideas, such as smoking.

### The 1975 diabetes survey

It is not clear whether diabetes existed in Nauru prior to 1900 but it was certainly known by the mid-1900s that there were some cases of diabetes. However, the terrible magnitude of the problem was not understood until 1975, when the first diabetes survey was carried out.<sup>2</sup> This survey found that the overall prevalence of diabetes was 34.4%. That is, one in three people over the age of 15 had diabetes and a further 11.3% were at high risk of developing diabetes. Two thirds of the population aged 15 years and over were smokers (overall prevalence 66.5%) with 73% of these smoking more than 20 cigarettes per day, and 26% smoking more than 40 per day.

For those of us whose economic growth and lifestyle changes have

come about gradually over generations, it is difficult to imagine the speed and extent of the changes experienced by Nauruans. Those who are now middle-aged or older recount stories from when they were children of the halcyon days of great wealth. Now, many are without jobs and have difficulty finding and affording healthy food.

Mining has degraded the land to the extent that virtually no fresh food can be grown and most necessities have to be imported, even fresh water, which at times has to be brought in from Australia. The country is served by one airline with flights only once or twice a week. Food, fuel, equipment and materials are brought in by ship but the uncertainties associated with Nauru's open sea port threaten the regular supply of these items.

Phosphate, the only resource capable of sustaining the national economy, has been depleted beyond repair. By the end of the 20<sup>th</sup> century, the phosphate supplies had almost entirely run out, and the environmental damage

from over-mining had reached catastrophic proportions.<sup>1,3</sup> The wealth from the peak of phosphate mining had been lost through exploitation and unwise investments resulting from poor financial advice. Depletion of phosphate reserves, decreasing phosphate prices, and poor investments combined to send the national economy into collapse in the late 1990s. By the beginning of this century, Nauru was left with nothing to trade and a cruel legacy of diabetes and obesity that remain the biggest health problem facing the nation.

### The Nauru-STEPS survey

Conducted 30 years after the original Nauru prevalence survey, the Nauru-STEPS survey included 2272 Nauruans aged between 15 and 64, and provided clear evidence that although overall diabetes prevalence had fallen from 34.4% in 1975 to 16.2% in 2004, it remained alarmingly high.<sup>4</sup> For example, when the youngest age group was removed from the 2004 survey analysis, the overall prevalence for 25- to 64-year-olds was 22.7%. Diabetes prevalence increased with age to 24.1% of people aged 35 to 44, 37.4% of people aged 45 to 54 and 45.0% of people aged 55 to 64. In the 55- to 64-years age group, the prevalence of diabetes was 52.8% in women and 37.4% in men. A large proportion (82.2%) of the population was overweight or obese.

According to the Nauru-STEPS survey, smoking had decreased since 1975 but is still of the utmost concern. The overall prevalence of smoking was 52.9% among the 15- to 64-years age group in 2004. This was higher

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for females (56.0%). The average age for starting daily smoking was just under 16 years. The mean number of cigarettes smoked per day was 20.

### Complications and consequences

The wealth has been spent but its unintended legacy of diabetes is taking an ever-increasing toll on the health of Nauruans. And, in addition to the human suffering caused by these conditions, the impact on productivity, economic stability and poverty is huge – as a visit to Nauru's renal unit will illustrate, where six people at a time rotate constantly through dialysis machines to clean their blood of the toxins that their kidneys are no longer able to filter out and excrete successfully.

“**Nauru's 2002 Census reported a low overall life expectancy – to which diabetes undoubtedly contributes substantially.**”

Renal dialysis imposes a staggering emotional and economic burden on people with diabetes and their families. Extrapolating from the population size and the diabetes prevalence reported in the Nauru-STEPS survey, there are approximately 2150 people with diabetes in Nauru. Of these, according to the Nauru Ministry of Health, in 2006, 35 people had renal dialysis, of which almost 40% subsequently died. Eye complications are also common, as are amputations. In 2006, 12 people had below-knee amputation and 3 had above-knee amputations as a result of diabetes.

Nauru's 2002 Census reported an overall life expectancy of 58.2 years for females and 52.5 years for males – low figures to which diabetes undoubtedly contributes substantially.

“**Nauru may be in trouble but it is 'united for diabetes' – and something good will come from that.**”

### Where to from here

The days of wealth from phosphate mining are over and, although it is believed some small-scale mining is still in progress, Nauru now relies heavily on international aid. This tiny nation faces the same problems of economic and environmental sustainability that all contemporary societies are facing, but without resources, and with a crippling burden of diabetes along with a 'hangover' of infectious diseases that have long been eradicated or controlled in developed countries.

But there is good news too. Nauru is facing the future with purpose and courage. Its Government is acutely aware that diabetes and lifestyle-related chronic diseases problems are at crisis proportions. The Government is investing heavily and wisely in health and sustainability through programmes to make diabetes care optimally effective, and in preventing diabetes through healthy lifestyle programmes (see the article 'Stomping the Fat' in this magazine).

The Government is supportive, the public health and diabetes teams are committed and the community is engaged. Furthermore, Nauru is currently

applying for provisional membership of the International Diabetes Federation. Nauru has a unique history of conflict, foreign occupation, wealth and now extreme hardship. It may be a country in trouble but it is also a country that is 'united for diabetes' – and something good will come from that.

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