

## Health research in the Pacific

**Abstract:** The Pacific Island countries are geographically scattered, with contrasting environmental, social, and political systems, and in varying stages of economic development, but all are going through a rapid epidemiological transition. Processes that took place over thousands of years in Western countries have been very much compacted in time in the Pacific. These processes have produced major changes in environment and lifestyle, which have produced epidemics of non-communicable disease. While it is important to consider non-communicable diseases as a group, it is also important to conduct research into their specific causes. There has been a great deal of research into cardiovascular disease and diabetes in the Pacific, but it is only recently that the importance of cancer as a major source of mortality and morbidity in the Pacific has been recognised, even though it appears to carry a similar burden of morbidity and mortality. It is therefore important that research into the causes and control of cancer in the Pacific is conducted. However, it is also crucially important that this research both learns from the successes and avoids the mistakes of the past. In particular, it is crucial that cancer research in the Pacific is not another opportunity for “research colonialism,” but instead provides opportunities for Pacific-training of Pacific health researchers and the conduct of Pacific-led research. *Key Words:* Pacific, cancer research

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### Introduction

It has been argued that all industrializing societies undergo an “epidemiological transition,” including a change from “receding pandemics” to “degenerative and lifestyle diseases.” Continued globalization will mean that more populations in the Pacific, and throughout the world, are adopting Westernized diets and lifestyles<sup>1</sup>. The dynamics of this transition in most Polynesian South Pacific islands have been relatively unprecedented. These countries are geographically scattered, with contrasting environmental, social, and political systems, and in varying stages of economic development, but all have been going through rapid transitions. Processes that took place over thousands of years in Western countries have been compacted in time in the Pacific.

The inhabitants of the South Pacific, though small and discrete country populations, together make up a sizable population for health research. The contrasting ethnic groups; a variety of environmental and geographical settings; different stages of socio-economic development; and demographic and epidemiological stages have provided unique opportunities for “natural experiments” to deter-

mine the effects of social and environmental change on population health. This contributed to an influx of health researchers in the early 1960s. Most research projects were initiated and implemented by outside researchers with little emphasis on training of local researchers beyond the minimal *ad hoc* training required to conduct field works for specific projects. Thus, there has been little attempt to sustain and contribute to national capacity training in health research in the Pacific.

The majority of these research activities focused initially on communicable diseases such as malaria and filariasis, some of which continue to impact significantly on the region’s health burden<sup>2</sup>. However, the mid 1960s saw a gradual shift to non-communicable disease research with an emphasis on diabetes, cardiovascular diseases and related metabolic disorders. It is only recently that the importance of cancer as a major source of mortality and morbidity in the Pacific has been recognised. It is therefore important that research into the causes and control of cancer in the Pacific is conducted. However, it is also important that this research learns from the successes, and avoids the mistakes of the past. In particular, it is crucial that cancer research in the Pacific is not another opportunity for “research colonialism,” but instead provides opportunities for Pacific-led research and training of Pacific health researchers<sup>3</sup>. These authors strongly advocate regional training for cancer research and the creation of environments and infrastructures conducive for Pacific-led cancer research. Part of this strategy has included the implementation of the International Agency for Research on Cancer (IARC) training course on Cancer Epidemiology in Tonga, in May of 2004. This paper briefly reviews the history of health research in the Pacific, before discussing the health research and training needs in the Pacific for non-communicable disease (NCD) in general, and cancer in particular.

### History of research in the Pacific

The earliest health research studies of Polynesians include the 1962 - 1964 studies of Māori and Europeans in

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New Zealand and Cook Islanders in Avarua and Pukapuka, which were conducted to determine the extent of cardiovascular and related metabolic conditions in these populations<sup>4</sup>.

Other early studies included the Tokelau Island Migrant study<sup>5</sup>. This was an innovative and unique study that documented the health of virtually a whole Pacific Island state. The first survey was carried out in Tokelau in 1968. By 1970 a near complete record of all Tokelauans in New Zealand was available and the 1972-1973 survey made detailed examinations, including serum and urinary biochemical analysis, on virtually all Tokelauan adults and children living in New Zealand. In 1976, 2,200 Tokelauan adults and children in New Zealand and 1,580 in Tokelau were included in the next phase of the study<sup>5</sup>. These studies by Prior, and also by other researchers in other Pacific Islands<sup>6</sup>, clearly showed that while non-communicable diseases such as diabetes were virtually non-existent in Polynesian populations maintaining a traditional lifestyle, the reverse was true for the urbanized Polynesian populations<sup>5,7,8,9</sup>.

A second wave of health research occurred in the Pacific from the 1970s onwards. In many instances, individual health workers and social scientists, mostly from Australia, New Zealand and the United States, were involved working directly in the Pacific to conduct research for private or academic reasons. However, this new wave of research also involved international researchers who were increasingly collaborating with regional health agencies such as the South Pacific Commission and World Health Organisation. Again the emphasis was on non-communicable disease research, particularly for diabetes, cardiovascular diseases and related metabolic disorders<sup>6</sup>. These studies mainly supported or validated earlier findings on the role of social and environmental changes in the increase of non-communicable diseases in the region.

The 1990s saw Pacific Islanders, particularly Polynesians, in metropolitan centres such as Auckland in New Zealand<sup>10,11</sup> and Australia<sup>12</sup>, participating in similar surveys on diabetes and cardiovascular diseases.

## NCDs in the Pacific

The research that was conducted in the Pacific in the 1960s and 1970s clearly showed the role of increasing “westernization” in the developments of non-communicable diseases in the region<sup>13</sup>. Rather than a “transition,” we see the rise of lifestyle-related non-communicable diseases at a time when the “receding pandemics” had not yet receded<sup>14</sup>. In areas where socio-economic changes to predominantly “westernized” environments are not apparent, a

sizable representation of the population has migrated internally or regionally to metropolitan areas with a more pronounced westernized lifestyle. As a result, non-communicable diseases, including cancer, have become the major causes of morbidity and mortality and are currently at epidemic levels among Pacific people both in their traditional homelands as well as in metropolitan centres of their newly adopted Western countries<sup>15</sup>.

Thus, cardiovascular diseases, diabetes and related metabolic disorders have been the focus and emphasis of health research in the South Pacific over the last few decades<sup>16-18</sup>. Cardiovascular diseases are one of the leading causes of adult death in 32 of the Western Pacific Region’s 37 countries and territories<sup>19</sup>. In some Pacific communities they exceed rates in industrialised societies<sup>4,9</sup> and the prevalence of Type 2 or non-insulin dependent diabetes mellitus

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(NIDDM) in some of the Pacific Islands (e.g., 42% in Nauru) is among the highest in the world<sup>20</sup>. However, although there has been a great deal of research into cardiovascular disease and diabetes, there has been relatively little research into cancer in the Pacific. The rest of this paper

reviews what is known about cancer in the Pacific, before discussing future research and training needs.

## Cancer in the Pacific

As with any other non-communicable disease, the epidemiology of cancer is primarily concerned with collecting and analysing information on cancer diagnoses or cancer deaths and their characteristics and spatial temporal variations in populations. These descriptive analyses not only serve to assess the scope and nature of the problem of cancer in a population, but they also help to generate hypotheses regarding the major causes of cancer in such populations, the design of appropriate studies to test these hypotheses, and the development of prevention and control strategies. Such prevention strategies are crucial because of the high cost of cancer treatment. This is a major issue in Western countries, but is of even greater concern in the Pacific where there is very little reason to believe that the cost of treating cancer will be affordable in either the near or distant future.

Determining cancer incidence and mortality in most Pacific countries has been difficult due to a combination of logistical problems, service availability, and, more recently, because of migration. While cancer appears to be a significant and growing problem in the Pacific<sup>8,21</sup>, relatively little is known about the magnitude of the problem, the key risk factors involved or the potential for prevention. Even in wealthy Pacific Island areas such as Hawai’i, there is a lack of systematic data collection on cancer in Pacific Islanders<sup>22</sup>.

Systems for collection of cancer data in Pacific Countries are often non-standardized, making comparisons between countries difficult. Nevertheless, the existing data point to cancer as an important cause of morbidity and mortality. An analysis of available data has indicated that cancer has become one of the five leading causes of death in many of the republics and territories in the South Pacific<sup>23</sup>. Cancer is the second leading cause of death in Tonga<sup>24</sup> and the Cook Islands<sup>25</sup>. Other available estimates suggest a mixed picture with some areas, particularly in Melanesia, with a pattern typical for developing countries (e.g., high risk of cancer of the cervix in women and oral cavity in men), while in Micronesia and Polynesia cancers associated with ‘western’ lifestyle predominate (e.g. lung and colorectal in both genders, breast in women and prostate in men)<sup>26</sup>. These and other variations in site-specific cancers in the Pacific are important areas for further research<sup>27</sup>.

Despite the lack of standardized data, and the lack of diagnostic facilities, there are clear indications that the burden of cancer will increase in the Pacific due to (i) demographic transitions, (ii) increases in tobacco use, and (iii) continuing lifestyle changes including urbanization, westernization and diet.

Strategies to improve cancer data at the regional level include the establishment of the South Pacific Commission Cancer Registry, which has been operational since 1977, and reasonably complete cancer incidence rates that are avail-

able for New Caledonia, Fiji, Micronesia, the Cook Islands, and Niue<sup>27</sup>. Other attempts at improving the quality of the data through descriptive studies include those by Coyne<sup>6</sup> as well as studies of cancer in Pacific populations in New Zealand that has long indicated a disproportionate increase in incidence and mortality compared to other ethnicities<sup>28</sup>.<sup>29</sup> The ‘Imi Hale (cancer network) project for Native Hawaiians is an example of some of the increasingly visible comprehensive strategy among Pacific indigenous populations to create cancer awareness, research, and training both for researchers as well as community participation and ownership of cancer research<sup>30</sup>. The Tonga Cancer Registry has also recently been established within Tonga’s Ministry of Health in close collaboration with the International Agency for Research on Cancer (IARC) and the Centre for Public Health Research of Massey University in New Zealand.

## Issues for future research

The future development of health research for the Pacific should start with strengthening the research capacity among Pacific people, in particular those health workers committed to, and based in Pacific countries and institutions, in con-

trast to implementing more research in isolation. Such trainings should go beyond the *ad hoc* training exercises for fieldwork and incorporate formal training both locally and in collaboration with established regional and international research institutions. The Pacific Health Research Council (established in 1998 with an overall aim to assist Pacific people in developing and controlling health research for the Pacific<sup>31</sup>) again needs the support and endorsement of both governments and individual personnel of influence. The ongoing quest for “better” quality data must be complemented by recognising and building on existing work through the careful analysis and utilisation of the existing “poor” quality data.

While Pacific Islanders generally live in culturally diverse societies, most health research often fails to accommodate the perspective of “minority” ethnic groups<sup>32</sup>. It cannot be assumed that when the researched population is a majority group this will result in a culturally appropriate research paradigm if the researchers are mostly outsiders and outnumber local researchers. At the same time, however, one should not lose sight of the international relevance of research in the Pacific, and the need for maintaining standards of excellence, by burying Pacific research in a “local needs” focus.

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The imposition of a uni-cultural perspective by “outside” researchers often imposing their concepts, beliefs and explanations of relationships and values on other cultures may

lead to invalid research results<sup>32</sup>. Palafox et al<sup>33</sup> argue that the large disparity in the health problems of Pacific Islanders in the United States compared to other populations could not be solved by training more Pacific Islanders to do more “western” research. Rather, unravelling the complex situation requires indigenous models of research and an understanding of indigenous peoples’ health beliefs, knowledge, practices and science<sup>33</sup>.

Emphasis should be given to research that could realistically have a positive effect, and influence policy and improve health where it matters most. Among the areas that immediately come to mind are social determinants of health and the infrastructures for enabling research in an economically compromised region. This approach is long overdue in populations that have been continuously researched and “described” for the last four decades in research that has had only limited benefits to the populations being studied.

It is therefore stating the obvious to suggest that a comprehensive and integrated approach to health research is required.

## Summary

In summary, the dynamics of the epidemiological transition in most Polynesian South Pacific islands has been relatively unprecedented. These processes have produced major changes in environment and lifestyle, which have produced epidemics of non-communicable disease.

There are considerable advantages in addressing non-communicable diseases as a group, rather than addressing them in a piecemeal fashion. There are common methodologies (particularly epidemiology), and common causes (e.g. socio-economic factors, smoking, diet, occupation), as well as common approaches to their control. However, while it is important to consider non-communicable diseases as a group, it is also important to conduct research into their specific causes. There has been a great deal of research into cardiovascular disease and diabetes in the Pacific, but it is only recently that the importance of cancer as a major source of mortality and morbidity in the Pacific has been recognised, even though it appears to carry a similar burden of morbidity and mortality. It is therefore important that research into the causes and control of cancer in the Pacific is conducted. However, it is also crucially important that this research both learns from the successes and avoids the mistakes of the past. In particular, that cancer research in the Pacific is not another opportunity for "research colonialism," but instead provides opportunities for Pacific-training of Pacific health researchers and the conduct of Pacific-led research.

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Being big is only like many sections of bamboo.  
*Strength does not depend on one's size.*  
*Yapese proverb*