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REGIONAL SURVEY OF LIFESTYLE RISK FACTORS FOR CANCER

INTRODUCTION

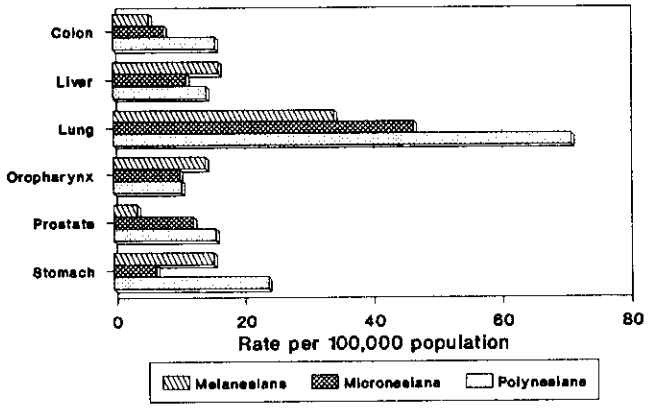
A regional collaborative survey of risk factors for cancer is presently being conducted in several Pacific Island nations by the Cancer Research Center of Hawaii (CRCH), the South Pacific Commission (SPC), the University of South California Comprehensive Cancer Center (USCCCC), and the Ministries of Health of the host countries. Included in the project are: the Cook Islands, Fiji, New Caledonia, French Polynesia and the Federated States of Micronesia. Other countries may be included in the future.

The objectives of the regional survey are:

1. To collect data on habits and customs associated with cancer (i.e. smoking, drinking of alcoholic beverages, reproductive events, physical activity, overweight and diet) in various Pacific Island populations.

2. To correlate these data with cancer incidence patterns in the Pacific, leading to a greater understanding of the causes and means for primary prevention of cancer in the region.

Incidence rates for cancer in men
South Pacific Commission Cancer Registry 1979-83



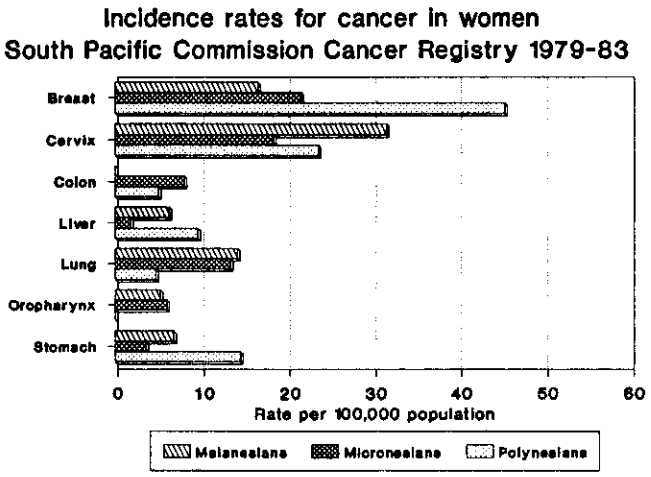
Note: Estimated age adjusted rates.
Source: Brian E. Henderson et al, Cancer incidence in the islands of the Pacific. Natl. Cancer Inst. Monogr. 69:73-81, 1985.

BACKGROUND

The South Pacific Commission, with the assistance of the USCCCC and CRCH, has been involved in cancer registration since 1979. The importance of this activity was discussed at the Eighth Regional Conference of Permanent Heads of Health Services in Apia in June 1979. The establishment of a cancer registry at the SPC was approved by the South Pacific Conference in 1980 and was inserted into the SPC work programme in 1981.

The analysis of the data collected so far by the registry shows that certain cancers, such as cervical and liver cancers, have high incidence rates almost uniformly in all countries, whereas the rates for most other cancers vary markedly among the different ethnic and country populations (See Figures 1 and 2). For example, Polynesians in Hawaii, French Polynesia, Samoa, Cook Islands, Tonga and New Zealand tend to have the same high rates of stomach, lung, breast and prostate cancer and low rate of colon cancer. In contrast, the cancer incidence among the Melanesian populations is more variable. Perhaps most remarkable is the contrast between Melanesians in New Caledonia and Fiji. The former have considerably higher rates of pharynx, oesophagus and lung cancer whereas the latter (as well as Indians living in Fiji) have particularly low rates for most cancers. These surprisingly low rates in both Indians and Melanesians in Fiji are of great interest, and were already reported almost two decades ago by Boyd and Doll.

The pattern of cancer in Micronesians is generally similar to that of the Melanesians of New Caledonia and the Polynesians, with higher rates for most smoking-related cancers (oropharynx, larynx and lung). However, unlike Polynesians, Micronesians do not have high rates of stomach, breast and prostate cancers.



Note: Estimated age adjusted rates.
Source: Brian E. Henderson et al, Cancer incidence in the islands of the Pacific. Natl. Cancer Inst. Monogr. 69: 73-81, 1985.

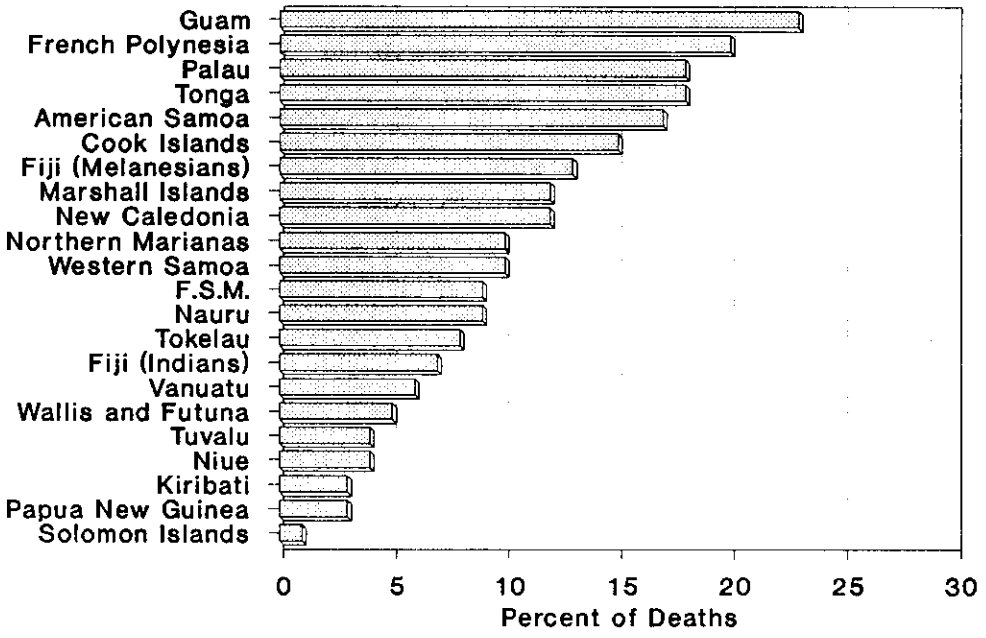
Some of these cancer patterns can at least partially be explained by known differences in personal habits among populations, such as frequency of smoking, alcohol consumption and betel nut chewing. However, other differences such as the extremely low rates of lung cancer in Fiji, the high rate of stomach and breast cancers and low rate of colon cancer in Polynesians, and the variable rates of thyroid cancer, cannot be explained at present.

The low rates of lung cancer in both Indians and Melanesians living in Fiji do not appear to be due to less smoking there. Both prevalence and intensity of smoking in Fiji are no lower than elsewhere. Indeed, a country such as the Cook Islands has fewer smokers than Fiji, yet lung cancer incidence rates are 6 to 10-fold higher. High intake of foods rich in beta-carotene (a source of Vitamin A) as well as high beta-carotene levels in the blood have consistently been shown in health surveys to be protective against lung cancer. It is, therefore, possible that the Fijian diet results in their low rates of lung cancer, and of other cancers as well. These dietary patterns, when identified, should be maintained in Fiji and could probably be exported to other Pacific countries. We know that Fijians eat many different dark green leafy vegetables; however, it is not known how much they eat compared with other Pacific Islanders. The exact composition of many of the local foods eaten in Fiji and elsewhere in the Pacific is also unknown.

Stomach cancer rates have consistently been found to be high among Polynesians, from New Zealand to Hawaii. This has been attributed to their taste for salt, as well as nitrate-containing foods. In contrast, Micronesians (with the exception of the Chamorros) who live in similar island environments appear to have lower rates for this cancer.

Breast cancer is also very common in Polynesians, more so than in Micronesians, Melanesians or, even, Europeans. Reasons for

PERCENTAGE OF ALL DEATHS FROM CANCER
SOUTH PACIFIC COMMISSION CANCER REGISTRY 1979-83



Source: SPC Information Document No. 53.

this greater risk are unclear. Differences in obesity, fat intake and oestrogen levels may play a role.

Polynesians also have low rates of colon cancer. One possibility to explain this low risk among Polynesians is that their high intake of root vegetables may be protective because of the relatively high fibre content of these foods. However, it is not clear why Hawaiians, who are now consuming much smaller quantities of root crops, have retained a low colon cancer risk.

Thyroid cancer rates vary greatly amongst Pacific Island countries. Rates are high in Hawaii, New Zealand, New Caledonia, Cook Islands and Niue, and possibly French Polynesia. They appear lower in Papua New Guinea, Fiji and among Chamorros of Guam. These differences are difficult to explain. It has been suggested that a high intake of vegetables such as Chinese cabbage, broccoli, cauliflower, turnips, etc. appears to increase risk for thyroid cancer. It is not known whether the consumption of such vegetables varies among island populations and whether it may explain the observed differences in cancer incidence.

THE RISK FACTOR SURVEYS

In 1988, the SPC cancer registry collaborators started conducting health surveys in some Pacific Island countries to collect data on certain lifestyle risk factors (principally dietary) for comparison with registry data. Thus, preference has been given to countries for which cancer incidence data are available.

The first two surveys were conducted in the Cook Islands in September 1988 and Fiji in July 1989. Both these surveys were very successful because of the good organisation of the in-country district clinics and their motivated and well-trained staff. Similar surveys are in the planning stage for New Caledonia, French Polynesia, and the Federated States of Micronesia.

In each survey, about 125 males and 125 females 50-65 years of age are sampled for each main ethnic group from semi-rural communities. Each individual is interviewed with a short questionnaire including smoking, betel chewing (where appropriate), alcohol consumption and reproductive history. Also, a 24-hour diet recall and a food-frequency questionnaire are administered. Simple measurements, including height and weight, are made and samples of blood and urine are obtained. Analyses are performed on various local foods to provide data on their nutrient contents. The blood specimens are used to measure vitamins, sex hormones, thyroid hormones, hepatitis B and HTLV-I markers for infection and the urine for sodium/creatinine ratio and continine. Standard biochemical tests are also performed. These results are given to the district clinic in order to inform the participants of their results.

These surveys will allow meaningful comparisons to be made between cancer risk factors and cancer incidence. The results will help to find new methods of cancer prevention and provide the host-countries with valuable data that can be used to plan and evaluate their public health activities and programmes.

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