

Centre for International Health

The Relationship between Cultural Beliefs and Treatment-seeking Behaviour in Papua New Guinea: Implications for the Incorporation of Traditional Medicine into the Health System

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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

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ABSTRACT

Health indicators in Papua New Guinea (PNG) are poor by virtually any standards and have declined over the last 2 decades. As in other developing countries that find it impossible to achieve 'health for all' through western medical services alone, the idea of developing an integrated health system, one that incorporates traditional medicine, has been proposed as a way of addressing poor health status. The idea of developing an integrated health system in PNG is not new but only recently has it translated into action with tangible results including a draft 'National Policy on Traditional Medicine for Papua New Guinea'. Over many years researchers have bemoaned the paucity of information on cultural beliefs and treatment practices that could make the incorporation of traditional medicine into the health system, along the lines proposed in the National Policy, better informed. To date this information gap has not been filled.

The thesis includes a review of literature on traditional medicine around PNG and the results of a case study conducted by indigenous research assistants among the Nasioi speakers of Central Bougainville. An international perspective is brought to bear through a critique of theoretical models of integration and a review of practical experiences in other countries that have tried to develop various types of integrated health systems. Information from each of these sources is considered in an endeavour to address the urgent need for information to inform the implementation of the National Policy on Traditional Medicine for Papua New Guinea.

All available studies on traditional medicine in PNG were included in the literature review. Despite PNG's vast cultural diversity it became evident that some common elements exist between different cultural groups.

The case study used a focused ethnographic approach to examine treatment-seeking responses to illness and associated beliefs and decision-making criteria in relation to traditional and modern medicine. It also investigated the organization of traditional health services, attitudes towards an integrated health system and the potential for practitioners to collaborate with one another. The case study made it possible to focus on pertinent issues that had not been covered in earlier studies. The case study suggests that in areas where the organization of and attitudes toward

traditional medicine resemble those in the Nasioi area there may be great potential for a health system that incorporates traditional medicine to deliver health benefits to communities. The case study also serves as an example of research that could be replicated or adapted by provinces that need more information about their own situation before embarking on the process of incorporating traditional medicine into the local health system.

The process by which integration might proceed in PNG is considered in the context of integration experiences in other countries. Although ideologically attractive, total integration is not realistic for PNG at this stage. The informality and lack of documentation on traditional medicine as well as the lack of resources to support the development of an integrated health system mean that PNG's own version of an incorporated or collaborative model of integration is more appropriate.

It should be noted that in this thesis the term 'integrated health system' is used to cover the full range of varying degrees of integration of traditional with modern medicine and should not be taken to imply only a fully integrated system. Similarly, the terms 'integration' and 'incorporation' are normally used to refer to the process and not the outcome.

Even an incorporated health system may not be a viable proposition in all parts of PNG. Where it is feasible, incorporation would need to be progressed in a carefully considered and planned manner with a realistic and long-term approach. The process would require coordination at national level and the flexibility for provinces to participate according to their own prevailing circumstances and capacity. Incorporation should proceed slowly and will require government support including the allocation of resources. It may be possible to pilot and thus fine-tune PNG's integration model in a few places, such as the Nasioi area, before expanding to multiple provinces.

The potential benefits of an incorporated health system include strengthening of primary health care, better access to services, more affordable services, cultural relevance, a holistic approach, preservation of traditional knowledge, increased autonomy and possibly cost savings. An incorporated health system is worth pursuing because, if carefully planned and implemented, it does have the potential to improve health status in a country where health indicators desperately need to be elevated.

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GLOSSARY

Council of Elders (COE)	Local government authority with a constituency defined by geographic area. The chairman of each COE is a member of the Bougainville Provincial Assembly. There are 36 COEs in Bougainville.
Health Worker	Indigenous health worker with some form of western medical training. Health workers may be aid post orderlies (APO), community health workers (CHW), health extension officers (HEO), nurses or doctors.
Integrated Health Care System	A health system that officially recognizes and incorporates both traditional and western medicine.
Medical Pluralism	The use of two or more health systems either in concert or sequentially.
Traditional Medicine	Traditional medicine is the sum total of knowledge, skills and practices on holistic health care, which is recognized and accepted by the community for its role in the maintenance of health and the treatment of diseases. Traditional medicine is based on the theory, beliefs and experiences that are indigenous to the different cultures, and that is developed and handed down from generation to generation (WHO, 2000). The term traditional medicine is used in this thesis but indigenous medicine is a synonymous term.
Traditional Practitioner	Traditional practitioners and/or herbalists are people recognized and known in the community for their knowledge and practice of traditional remedies.
Village Clinic/Aid Post	Village-based health care facility staffed by western medical practitioner. Most village-based facilities are officially designated as aid posts. The village clinic is a slightly lower level facility than the aid post; however, in this thesis the two terms are used interchangeably.
Village Council of Chiefs (VCC)	A further subdivision of local government. Each VCC includes several villages and is represented on the COE.
Western Medical Practitioner	A health care practitioner who provides western medical health care.
Western Medicine	The medical system developed in Europe and North America after the industrial revolution and based on a scientific paradigm. The term western medicine is most often used in this paper, but biomedicine, cosmopolitan medicine and modern medicine are used interchangeably.

ABBREVIATIONS

APO	Aid Post Orderly
CCC	Clan Council of Chiefs
CHW	Community Health Worker
COE	Council of Elders
FES	Focused Ethnographic Study
GP	General Practitioner
HEO	Health Extension Officer
LLG	Local Level Government
OIC	Officer in Charge
PMV	Public Motor Vehicle
PNG	Papua New Guinea
RAP	Rapid Assessment Procedures
REA	Rapid Ethnographic Assessment
UPNG	University of Papua New Guinea
VCC	Village Council of Chiefs
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

For at least 2 decades, there has been strong interest in integrating traditional health practices and services that use a western medical orientation in Papua New Guinea (PNG) (Jenkins, 1984; Pataki-Schweizer, 1985). Despite the proclivity toward greater recognition and application of traditional medicine, for most of that time there has been scant evidence of any activities that would lead toward or achieve an integrated health system. Academics and health personnel have bemoaned the lack of attention afforded to indigenous medicine and healing (Anonymous, 2001). However, the interest in traditional medicine does not seem to have waned. In recent years several activities have been initiated, demonstrating that the desire for integration still exists and promising demonstrable progress toward that end in the years to come.

In this thesis the term 'integrated health system' is used to cover the full range of varying degrees of integration of traditional with modern medicine and should not be taken to imply only a fully integrated system. Similarly, the terms 'integration' and 'incorporation' are normally used to refer to the process and not the outcome.

Certain recent initiatives augur well for the future of an integrated health system. The current National Health Plan 2001 – 2010 includes traditional medicine as a program and states the program goal "To improve the health of Papua New Guineans by providing easy access to safe and effective forms of traditional medicine and practices." (Ministry of Health, 2000) (Volume II, Page 93). An intersectoral Traditional Medicine Taskforce exists under the auspices of the National Department of Health. As well as providing advice to government, the Taskforce coordinates activities associated with traditional medicine. The Taskforce has developed and maintains a traditional medicine database and has recently coordinated the drafting of the National Policy on Traditional Medicine for PNG (Ministry of Health, 2004). The draft policy document can be found in Appendix 15.

Interest in the integration of traditional and western medicine in PNG extends beyond the National Department of Health. The 34th National Medical Symposium included several papers on traditional medicine (Katanu, 1998; Rai and Tarur, 1998) and the Executive Dean of the Medical School of the University of Papua New Guinea (UPNG) has called for a comprehensive study to explore and document the pharmacological properties of plants that have traditionally been used for their healing properties (Anonymous, 2001).

In 2004, a collaborative research partnership between the UPNG Medical School and the University of Utah College of Pharmacy was established for the purpose of identifying plants and marine life with medicinal properties and/or therapeutic value (Gerawa, 2004). The partnership includes a 5-year agreement under which UPNG will receive K100,000. The project is seeking to identify natural resources indigenous to PNG that can assist in the treatment of priority diseases such as TB, malaria and HIV/ AIDS. It is possible that through such a project PNG's natural resources could benefit world health. The Editor of the Post Courier saw at least 3 other positive spin-offs: conservation of forests, preservation of traditional knowledge on plant remedies, and potential wealth creation for PNG (Editor, 2004).

Until these recent initiatives, however, any action toward integrating traditional and western medicine in PNG has been slow to materialize, uncoordinated and inadequate. Apart from the obvious and omnipresent financial constraints faced by the public health sector in a developing country, there may be other reasons why integration has not been more vigorously pursued. Perhaps the reason that little action has been taken, despite the long-term, sustained expression of interest in integration, lies in the difficulty and uncertainty about how to go about achieving an integrated system of health care that is functional and thus an improvement on the existing system. There is after all a tension in the ideologies of these two streams of medicine that may not be easily resolved (Pataki-Schweizer, 1985) and a dearth of information to inform the development of an integrated health system.

Why the Desire for an Integrated Health Care System

As in many developing countries, population health status in PNG is poor and resources to redress this situation are insufficient. The national health care system is dominated by a western medical paradigm and there is considerable reliance on financial and other support through health sector donor projects from developed countries. At least part of the interest in integrating traditional medicine into the national health care system stems from the potential of an integrated system to deliver better population health results while increasing PNG's autonomy and reliance on its own resources.

Population health status in PNG is poor by virtually any comparative standards and in fact has deteriorated over the last two decades (Connell, 1997; Ministry of Health, 2000). The diseases/health issues accounting for most of the nation's mortality (71%) are pneumonia, malaria, perinatal conditions, tuberculosis, meningitis, heart disease, cancer, accidents & violence, diarrhoea and anaemia (Ministry of Health, 2000). Other conditions associated with significant amounts of morbidity as measured by outpatient presentations (25%) and admissions to hospital (9%) include skin disease, simple cough and other respiratory diseases (Ministry of Health, 2000). For most of these diseases, western medicine can offer simple and effective prevention and disease treatment or management strategies that could drastically improve the disease profile and population health status in PNG. However, poor performance across a range of health indicators is testament to the fact that preventive measures are not being widely practised. So far the western medical system has not been able to solve this dilemma.

As well as access to services, disease prevention in this sense requires behaviour change, which is no simple task in any setting. However, in the context of PNG there are numerous factors that make the task even more difficult. Firstly, for many prevalent diseases, there is a pervasive and general lack of knowledge in the community about causative agents, modes of transmission, disease prevention and management strategies (Yaipupu and Agale, 2001a; Yaipupu and Agale, 2001b; Yaipupu and Agale, 2001c). Secondly, the population is widely dispersed throughout the country with an estimated 84% of the population living in rural areas (MarketSearch, 2001), many of which are isolated, remote and geographically difficult to access. Thirdly, there are reputedly

over 800 language groups in PNG and only 45% of the population is literate in at least 1 of the 3 main languages (English, Pidgin or Motu) (Ministry of Health, 2000). While the knowledge gap could theoretically be addressed by a concerted health education effort, assuming the necessary basic health services are available and functional, the demographic context of PNG makes this a slow and resource-intensive process.

Primary health care personnel such as Aid Post Orderlies (APOs) and Community Health Workers (CHWs) who are trained in and part of a western medical system of health care have been the main providers of primary health care and health education in PNG (Yaipupu, Agale and Gideon, 2001; Heywood, 2003; Macfarlane, 2003). The current distribution of primary health care personnel is such that access to their services is difficult or virtually impossible for a large proportion of the population.

While poor access to services and information sources is a problem, perhaps just as importantly the health paradigm in which many people exist is contradictory to or incompatible with scientific explanations of health and illness. A significant proportion of the population may subscribe to traditional, cultural beliefs relating to health and illness that have no basis in or apparent connection to western medical explanations or solutions. In this case traditional beliefs and attitudes will often over-ride scientific explanations and solutions which are comparatively new, alien and at odds with the wisdom passed on from generation to generation over centuries past. Many people use whatever combination of traditional and modern medicine is convenient, which usually means primarily relying on traditional medicine and turning to western medicine as a last resort if the disease condition deteriorates or fails to respond (Decock, Hiawalyer and Katz, 1997). Traditional medicine is part of the cultural heritage of Papua New Guineans and a health system that endeavours to work with rather than ignore this heritage may be more effective.

Thus, there are at least 3 significant potential benefits for population health status that could accrue from the successful integration of traditional and western medical systems.

Firstly, the primary health workforce would be greatly expanded by the recognition and inclusion of traditional healers. This means that services would become more accessible to people living in remote and isolated communities where traditional healers already reside.

Secondly, the properly integrated health system would be relevant and acceptable to people at community level as it would recognize and be consistent with their cultural beliefs and their explanations of health and illness. Health programs conceived and delivered on this basis are more likely to be embraced by communities and have a better chance of improving population health status (Nichter, 1989).

Finally, since traditional medicine operates largely in the domain of primary health care, its integration into the national health care system may contribute to a reorientation of services away from high-cost technological interventions of western medicine toward less resource-intensive solutions.

Experience in other countries such as China, India and Africa has shown that an integrated health system can be beneficial (Hogle and Prins, 1991; White, 1999; Xie, 2002). Chi (1994) argues that while western medicine is virtually universally dominant, the incentive to incorporate traditional medicine into the formally recognized health system in many developing countries arises from the realization that it is impossible to achieve 'health for all' by relying exclusively on western medical systems. This has certainly been the experience in PNG as current health indicators demonstrate.

Challenges for Integration in PNG

Many significant challenges are presented to those who would integrate traditional medical knowledge, practices and practitioners into the national health care system in PNG. Some of these concern the practicalities of integration. Others are concerned with the philosophy of integration.

There are several different models of integrated health care systems ranging from association to incorporation to full integration (Freeman and Motsei, 1992; Bodeker, 2002). The extent or level to which traditional medicine is integrated into the mainstream health care system is different under

each model. A model suited to the PNG context needs to be defined, whether this be one of the existing models, an adaptation or a model unique to PNG. Challenging issues such as endorsement of specific traditional medicines and/or treatments, recognition and authorization of traditional healers, financial rewards for traditional healers, referral systems, quality control, provision of equipment and facilities, education and training all require careful consideration, decisions and policies to be made.

A challenge lies in finding an adequate system to evaluate the efficacy of aspects of traditional medicine other than treatments prepared from plants and to ensure quality of care (Chi, 1994). Since western and traditional medicine are constructed around different philosophies and paradigms, using the same methods to evaluate both systems is probably inappropriate; however, some evaluation and the ability to compare benefits accruing from either system or an integrated system will no doubt be necessary for the integration process and future policy decisions.

At the same time as working to improve access to health services the health authorities have a responsibility to safeguard the health of the people they serve. Any national public health department has a responsibility to ensure the safety and efficacy of practices and practitioners that it endorses or sanctions. Traditional and western medicines offer quite different explanations of disease causation. The attribution of disease to sorcery or magic is completely alien to biomedical explanations of disease causation and the PNG National Health Plan states that “witchcraft, sorcery or related dangerous practices must not be recognized as part of legitimate traditional medicine and will not be incorporated into the formal health system” (Ministry of Health, 2000). Efficacious practices should be encouraged while harmful practices must be discouraged. However, in an integrated health care system this may result in a form of traditional health care that has been so sanitized and manipulated that local people no longer consider it culturally relevant or acceptable (Janes, 1999), thereby defeating one of the original reasons for integration.

Overcoming or being able to accommodate different perceptions of and attitudes toward traditional healers and western-based health workers is another challenge that will need to be faced in integrating traditional and western medical systems. Health care practitioners themselves may find it difficult to accept each other and alternative forms of health care. In fact, Welsch (1985)

suggests these issues should be carefully considered before assuming that traditional healers can play a key role in an integrated health system. Lepowsky (1990) urges that traditional healers and western medical personnel should collaborate rather than compete. She perceives this as important in achieving both an integrated health system and a successful health system. Pataki-Schweizer (1985) warns that contrasts in the constructs underlying traditional and scientific medicine and power differentials between practitioners may pose problems for integration. Because of this, Pataki-Schweizer (1985) concludes that successful integration will include premises from both paradigms.

As well as challenges such as these concerning the practicalities of establishing an integrated health system, there is an enormous challenge to gain a better understanding of the cultural constructs and belief systems that underlie traditional medicine. To date much of the focus within the push to integrate traditional and western medical systems has been on identifying and assessing the chemical properties of plants used by traditional practitioners (Rai and Tarur, 1998; Orere, 2001; William, 2001). The National Health Plan (Ministry of Health, 2000) recognizes that traditional medicine includes both biomedical and non-medical elements but it advocates for the selective integration of the herbal medicine component of traditional medicine. In so doing the National Health Plan seems to reiterate a western medical model of health care, that is, one based on the premise that illness is caused by physical or chemical imbalances that can be treated and/or cured by substances with appropriate biochemical properties. Such an approach ignores the holistic concept and important cultural factors and belief constructs that are an inherent part of traditional medicine, and which may benefit and strengthen the western medical approach. Recognition of these elements of traditional medicine may be necessary if the potential benefits of integrating traditional and western health care are to be realized.

A common thread running through the literature on traditional medicine in PNG is the perception that a better understanding of traditional beliefs and practices is vitally important to improving access to services and population health status in PNG (Sharp, 1982; Welsch, 1985). There is a paucity of ethnographic research that provides a broad and comprehensive picture of the various facets of traditional medicine (Jenkins, 1984; Pataki-Schweizer, 1985). According to Jenkins, in order to promote traditional medicine it is particularly important to gain an understanding of the

social and familial structure and ideological framework of PNG society (Jenkins, 1984). Jenkins and Kemelfield also assert that case studies of patient behaviour would allow health authorities to be better informed for policy and decision-making (Jenkins and Kemelfield, 1991).

It would seem that much work is still to be done in PNG if the type of understanding demanded by Jenkins (1984) and others is to be established. This understanding is crucial if the integration of traditional medicine into the national health system is to encompass facets of traditional medicine that are important in a social and cultural context. Events and experiences surrounding the integration of traditional and biomedical systems in other countries have drawn attention to the importance of considering more than just the biochemical properties of plant remedies and suggest that some of the broader aspects of traditional medicine should also be considered. Janes (1999) urges anthropologists and sociologists to contribute to a critique of western medicine and establish how and why traditional medicine can provide a useful adjunct. Many authors have emphasized the need for health programs to be sensitive to and operate within the cultural paradigm and belief system of target populations (Sharp, 1982; Frankel and Lehmann, 1984; Feinburg, 1990; Lepowsky, 1990). Developing a broad and in-depth understanding of traditional health belief systems and how these can be integrated with the theory and practice of western medicine is perhaps one of the most fundamental challenges for integration.

Reducing the Information Void: The Value of this Research

This research arose from the premise that the potential for the integration of traditional medicine into the national health care system in PNG to have an impact on population health status is greater if it is based on a better understanding of the knowledge and beliefs about traditional medicine that motivate treatment-seeking behaviour and on evidence about the practices that are most common when treatment is sought. The overall objective of the research was to inform the implementation of PNG's new National Policy on Traditional Medicine. The research draws together various pieces of information, some new and some existing, in an attempt to reduce the information void.

In relation to national policy on traditional medicine, WHO encourages “systematic review and a situational analysis to provide information to the government in order for it to make an informed policy decision” (World Health Organization, Western Pacific Region, 1999, page 33). PNG’s extreme cultural diversity makes it difficult to provide a comprehensive, systematic review and situational analysis on traditional medicine. However, this study provides a significant contribution to that task by reviewing the literature on traditional medicine on a province-by-province basis and identifying commonalities in beliefs, practices and factors that motivate or influence service utilization. This is the first time the literature has been drawn together in this way and the first time such an extensive review has been presented.

The research also provides in-depth information, as recommended by WHO, for the purpose of understanding health and treatment-seeking behaviour by conducting a case study among the Nasioi people of Bougainville. Using a non-experimental, cross-sectional study design this exploratory research adopted a focused ethnographic approach (Pelto and Pelto, 1997) to investigate the ways in which knowledge and belief systems about health and illness influence treatment-seeking behaviour, specifically in relation to the use of traditional and western health care systems.

The main objective for the case study component of the research was defined as:

To describe how knowledge and cultural beliefs about health and illness influence treatment-seeking behaviour and the use of traditional and western health care services for febrile illnesses and skin conditions among the Nasioi language group.

The main objective was supported by 6 sub-objectives.

- To describe information and knowledge systems for treatment-seeking decision-making in relation to febrile illnesses and skin conditions among Nasioi adults.
- To develop explanatory models for decision-making responses to febrile illnesses and skin conditions based on local knowledge, beliefs, social structures and pragmatic factors such as economic, political and material considerations.
- To describe and explain the hierarchy of treatment resort among Nasioi adults.
- To identify the extent of medical pluralism among Nasioi adults.

- To explore the potential for collaboration between traditional healers and health workers in the Nasioi area.
- To explore the main barriers to greater collaboration between traditional healers and practitioners of western medicine in the Nasioi area.

While it focuses on just 1 of PNG's many language groups, the case study is useful in 3 ways. Firstly, partly due to the commonalities between cultural groups identified in the review of PNG's ethnomedical literature, data from the case study is deemed relevant to the task of informing implementation of the national policy. Secondly, the case study results have been used to formulate recommendations for an incorporated model of health care specifically for the Nasioi area and Bougainville. Thirdly, the case study provides an example of a research method that could be used by other provinces wishing to pursue an integrated form of health care. The descriptions of rapid assessment methodology and the process of developing an explanatory model covered in Chapters 3 and 4 will be of assistance in this regard.

In an international context, the thesis examines various theoretical models of integration and the experiences of other countries that have attempted to develop integrated health systems so that PNG might benefit from the wisdom that others have already gained.

Thus information from 3 sources, the review of PNG's ethnomedical literature, findings from the case study and lessons learnt from international integration experiences, has been considered in developing recommendations for an integrated health system in PNG. While the review of PNG's ethnomedical literature is necessarily concerned with some older information, the case study provides much new information about Nasioi knowledge, beliefs, treatment-seeking practices and attitudes toward an integrated health system. It confirms that, at least among the Nasioi, some long-standing beliefs still have currency and to date many practices that might be considered traditional have not changed. In view of this, even some of the older studies included in the literature review remain relevant. The data about attitudes to integration are largely new and very insightful. The critique of various theoretical models of integration and their relevance to PNG and the practical experiences of other countries all contribute a broader dimension that is worthy of consideration when making recommendations about how PNG should proceed with integration.

The understanding of how cultural beliefs influence treatment-seeking behaviour gained through the case study has been used to inform recommendations for delivery of western medical services and the integration of traditional medicine into the formal health system with a view to providing services that people are more likely to use. Insights into concepts of illness, treatment-seeking behaviour that people are likely to adopt and why they choose certain health care options should enable service providers to capitalize on the points of convergence between traditional and western medical systems. Nichter contends this will result in more effective service delivery (Nichter, 1989).

Although yet to be ratified, PNG now has a National Policy on Traditional Medicine (Ministry of Health, 2004). This thesis provides information that can inform the implementation of some parts of that policy, and indeed makes recommendations for implementation of the policy. The integration of traditional medicine into the formal health system can be better informed than it might be in the absence of the information provided by this study.

Structure of the Thesis

The thesis incorporates various elements that are relevant to the integration of traditional medicine into PNG's formal health system. The way in which these various elements are organized in the body of the thesis is described below.

A review of the literature on traditional medicine in PNG on a province-by-province basis is followed by an explanation and critique of the rapid assessment approach that was the basis of the research methodology used in the case study. The purpose and process of developing explanatory models precedes a detailed explanation of the research methodology and instruments used for the original data collection. The results section begins with a description of the study population covering demography, morbidity and the organization of health services. The results of the original data collection are then presented in four parts. The first three parts are by geographic area: Tasipo, Bava Pirung and the entire North Nasioi area. The fourth part is a synthesis of the results from each of these three areas including an explanatory model for treatment-seeking

behaviour. Findings from the Nasioi case study are then compared with the literature on people in other parts of Bougainville and PNG. The merits of developing an integrated health system in PNG are then considered along with various ways in which integration could be progressed. This discussion relates experiences in other countries where integration has been pursued. Finally recommendations are presented. These are based on the literature review of traditional medicine in PNG, the explanatory model for treatment-seeking behaviour among Nasioi speakers and experiences in other countries. The recommendations cover developing an incorporated health system in PNG and the implementation of the National Policy on Traditional Medicine as well as incorporating traditional medicine into the formal health system in Bougainville.

CHAPTER TWO

TRADITIONAL MEDICINE IN PNG

Although little action has been taken to develop an integrated health system, some literature about traditional medical practices and beliefs in PNG is available. There are many reports on traditional medicine some of which date back to the first half of the 20th century. PNG is renowned for its cultural diversity and this is evident in the literature on traditional medicine. With regard to traditional medical practices and beliefs, there is diversity not only between provinces but also within provinces (Welsch, 1985). Notwithstanding this diversity, some uniformity in the underlying beliefs from which traditional practices stem is also evident in the literature.

Because of the cultural diversity in PNG it is difficult to summarize ideas about and attitudes toward traditional medicine for PNG as a whole. This review of literature about traditional medicine in PNG looks at accounts from as many provinces (16 out of 19) and from as many cultural groups within each province as possible. These are summarized in Table 1.

Table 1: Provinces and Language Groups

Province	Cultural Groups Studied
Bougainville	Nukumanu, Simeku, Siwai, Buin, Nissan, Petats, Tinputz
Central	Motu, Hula
East New Britain	Tolai, Gunanba Village, Maenge
East Sepik	Wosera Abelam (Miko 2 Village), Boiken, Wam
Eastern Highlands	Ommura, Simbari, Gimi, Fore, Agarabi, Gadsup, Tairora, Kamano, Morei
Enga	Enga
Madang	Amele, Didipa, Pinai-Hagahai, Rao-Breri
Manus	Manusians
Milne Bay	Tawala, Vanatinai
Oro	Maisin
Sandaun	Gnau
Simbu	Simbu, Nimai
Southern Highlands	Huli, Kaluli, Waragu
West New Britain	Lusi, Kove, Bakovi
Western	Ningerum, Gijura
Western Highlands	Maring, Melpa

Reports from Gulf, Morobe and New Ireland were not found

Although it was not possible to find reports from every province there are reports from each of PNG's four regions. It should be remembered that a description of one cultural group cannot be taken as representative of a whole province. The literature reviewed may not be exhaustive but it does provide many insights into traditional medicine in PNG. Some of the studies to which these reports refer were conducted more than several decades ago while others are more recent. The currency of reports should be taken into account when considering the customs and beliefs they describe.

This literature review attempts to bring together some of the many anthropological and other accounts of traditional medical practices and beliefs from around PNG. Starting from PNG's southernmost Province, Milne Bay, reports are reviewed by region and roughly from east to west within each region. The map of Papua New Guinea provided in Figure 1 shows the location of each province. The diversity of beliefs and practices is evident throughout the literature review. Many cultural groups adopt unique practices based on their own specific explanations of illness. In the final summation ideas and similarities in practice or perceptions that are common across a number of provinces are highlighted.

Figure 1: Map of Papua New Guinea



Southern Region

Milne Bay

Encompassing the eastern tip of the PNG mainland and over 435 islands to the southeast, Milne Bay Province was a major trading centre both before and after European contact (Lipscomb et al., 1998). The Province is very mountainous and most of the estimated 210,412 population (National Statistical Office, 2000) resides in coastal areas. The many islands are divided into 6 main groups: the Samarai group, D'Entrecasteaux group, the Trobriand Islands, Muyua (Woodlark) Island, the Conflict and Engineer groups, and the Louisiade Archipelago. There are 53 local languages (<http://www.ethnologue.com>). Europeans first came to Milne Bay as missionaries in the mid 1800s (Lipscomb et al., 1998). Today the church and cosmopolitan religion feature prominently in the lives of the people although reputedly witchcraft is still practised. Road infrastructure is poor. The main income-generating activities are forestry, mining and oil palm cultivation (Fridriksson, 1995).

In Milne Bay Province beliefs in sorcery and supernatural disease agents are strong although western medicine is available and widely used. Traditional and western medicines are both used according to convenience and beliefs about the cause of illness.

Among Tawala speakers of Milne Bay, illness is attributed to loss of a person's spirit or sorcery (Burton-Bradley, 1990). Sorcerers may be male or female although the latter are considered far more dangerous. Every woman over the age of 30 years is potentially a sorcerer. The sorcerer's tools are herbs and pieces of bone over which magic or words from another language are uttered. The bones are then directed or thrown at the person to be made ill. Tawala say that sorcery did not exist before European contact and an ensuing measles epidemic (Burton-Bradley, 1990).

Although Tawala villages have an aid post either in the village or nearby, people continue to use traditional medical practices, particularly herbal preparations. At least 4 traditional practitioners were found to be serving Tawala's population of 6000 people with a hierarchical and referral system between junior and senior practitioners (Arioka, 2002). Usually villagers initially seek treatment from traditional healers but may consult the APO as an adjunct (Arioka, 2002, Lepowsky, 1990). Village healers, who are usually male, may be called upon to identify and counter sorcery attacks (Burton-Bradley, 1990). Counter-sorcery techniques are an important part of traditional medicine although more minor complaints may be treated using plant or herbal medications (Lepowsky, 1990). Commonly used herbal remedies include contraceptives, abortifacients, and cures for colds, coughs, bloody bowels, malaria symptoms, gonorrhoea and stonefish stings. Bloodletting to relieve pain is also practised as part of traditional medicine (Lepowsky, 1990).

Lepowsky (1990) also observed medical pluralism occurring in the remote and culturally conservative Vanatinai, the largest island in the Louisiade Archipelago. Even 10 years after first contact with western health care no change in beliefs relating to the supernatural causes of serious illness and death by sorcery, witchcraft or taboo violation was evident (Lepowsky, 1990). This is consistent with observations made more recently by Arioka (2002) among the Tawala. Supernatural forces are believed to contribute to the strength of western medicine (Lepowsky, 1990).

Oro Province

Oro Province (or Northern Province as it is sometimes referred to) extends from the Owen Stanley Range to the northern coastline of the PNG mainland. The Province has a number of volcanoes and rich, fertile soil (Fridriksson, 1995). Contact between westerners and the local Orakaiva people was peaceful prior to the discovery of gold in 1895 (Lipscomb et al., 1998). Once the conflict over gold had settled several mines were established. Rubber and other types of plantations later became important revenue-generating activities (Lipscomb et al., 1998). During World War II the Kokoda Trail became infamous for the bitter fighting that took place between Japanese and Australian troops. Attempts to rebuild the Provincial infrastructure after the war were hampered by the eruption of Mt Lamington in 1951, which killed nearly 3,000 people in and around the former District headquarters, Higaturu. Today the Provincial capital is at Popondetta, a safer distance from the still mildly active Mt Lamington. The population of Oro Province is 133,065 (National Statistical Office, 2000) and 18 languages are spoken (<http://www.ethnologue.com>).

The Maisin of Collingwood Bay in Oro Province have had access to western medical services since about 1910 when the first European nurse was retained by the mission at Wanigela (Barker, 1989). The first government-funded aid post was opened in 1947. By 1960 the number of aid posts in the Tufi District had increased to 9 (Barker, 1989).

Although the Maisin use western medical services extensively they continue to believe in sorcery (Barker, 1989). Earlier attempts to rid the District of sorcery by surrendering 'magic charms' to missionaries and government officers failed. The small number of sorcerers and poisons that escaped this purge are now thought to be uncontrollable, particularly as the antidotes to the remaining medicines have been forgotten (Barker, 1989). The Maisin continue to associate health and illness with religion, morality and politics (Barker, 1989).

Like other misfortune, illness is defined first by cause, and then by symptoms. Most serious ailments are attributed to sorcerers, ghosts and bush spirits. Attacks are commonly in response to a breach of social taboo or obligation (Barker, 1989). All sickness and ailments such as cuts, bruises, sores and broken bones are categorized as '*tatam*' regardless of severity. Within the broad category of *tatami* there are two classifications for minor illnesses: '*amai tatami*' ('just

sickness') and '*tatami rati*' (little sickness). This minor illness category responds quickly to either western or indigenous medical treatment or clears up without intervention (Barker, 1989).

Another more serious illness category is '*wakki tatami*' (village sickness), which is subdivided into '*vavata tatami*' (heavy sickness) and '*tatami beiii*' (big sickness). The village sickness category is thought to originate from community conflict. Sorcerers cause village sickness through bush spirits, ancestral ghosts or, in its most serious form, poison. It is believed that the causative agents of village sickness will only respond to traditional healing techniques. The cause must be dealt with before western medicine can be of any benefit. However, afflicted persons will usually make use of the full range of curative options including western medicine (Barker, 1989). As in other Melanesian societies, the success or failure of the various treatment choices aids diagnosis by helping to identify the cause of illness (Barker, 1989). Traditional medicine is usually the first treatment resort (Barker, 1989; Taufa, 2000).

Three-quarters of Maisin adults know of some traditional medicines and healers know of many. Knowledge of traditional medicines is usually passed on from parents to children (Barker, 1989). Healers are usually elderly and may be male or female. However, all Maisin sorcerers are male and men who have knowledge about many medicines are often suspected of being sorcerers (Barker, 1989). Barker (1989) became acquainted with 6 Maisin healers during his study and found them to be confident, outspoken and convinced that they were drawing on God's power in their work. Healers may receive a small amount of money and gifts of food or tobacco as payment for their services (Barker, 1989).

In Oro Province traditional remedies are used for colds, headaches, malaria, diarrhoea and boils or sores. Treatments are commonly derived from the bark or leaves of selected trees and plants and boiled with water to be taken orally, applied as a poultice, or rubbed or sprayed over affected parts of the body (Barker, 1989; Taufa, 2000).

Central

Central Province is located on the South coast of PNG and rises sharply from sea level to the Owen Stanley mountain range. First contact with the western world was through missionaries in the 1870s (Lipscomb et al., 1998). There are several distinct cultural groups: the Motu who are a sea-going, trading people; the Koitabu who live inland and are hunters and gardeners; the fearsome Koiari in the more mountainous regions; and the Mekeo in the north-west (Lipscomb et al., 1998). There are 29 local language groups within the Province (<http://www.ethnologue.com>). Central Province has a population of 183,983 (National Statistical Office, 2000).

The Motu of Hanuabada in Central Province maintain traditional beliefs that spirits and sorcerers cause fever and other diseases (Burton-Bradley, 1990). Treatment is usually by female practitioners who identify which spirit has been angered and organize a pacifying feast to enlist the spirit's help to affect a cure. Three such practitioners were identified specializing in chest pain and suprapubic pain (Burton-Bradley, 1990). Treatment combines physical and psychological methods and involves administering extracts of leaves, bark or other substances and ritual. There are also male practitioners who treat other illnesses such as jaundice.

Some people believe headache is caused by heavy winds while others attribute headache to sorcery (Burton-Bradley, 1990). The practice of bloodletting for the relief of headache is common in Hula-speaking parts of Central Province. In Kwikila, Sarawa, Gidobada, Boregaina and Darokamana headache is treated by firing small arrows into the head. In the Kairuku District of Central Province, headache and fever are attributed to malevolent ancestral spirits (Burton-Bradley, 1990). Therapy involves a small feast with a portion of food set aside for the ancestral spirits. In the same area other illnesses are also attributed to sorcery.

Use of traditional and western medical services was studied in a Central Province village within close proximity (40 kilometres) of Port Moresby that still retains obvious elements of traditional culture (Pataki-Schweizer, 1985). At the time of the study, in 1985, the village had an aid post and some 20 traditional healers while a hospital and private clinicians were available in Port Moresby. Treatment preferences were as follows: three-quarters of the village used the aid post for minor ailments, two-thirds used the hospital for major health problems, 1 in 10 used private clinicians and

1 in 15 used traditional practitioners. However, these options were not mutually exclusive with people commonly using various combinations of the available treatment options simultaneously (Pataki-Schweizer, 1985).

Western Province

Western Province is the largest and least populated province in PNG with a population of 153,304 (National Statistical Office, 2000) and 49 languages (<http://www.ethnologue.com>). Its geography includes the Fly and Strickland Rivers, much swampland and the Star Mountains (Fridriksson, 1995). Missionaries from the London Missionary Society first came to the area in the 1880s and opposed cannibalism and headhunting, which were very much a part of the traditional culture (Fridriksson, 1995). Many of the local people have now converted to Christianity. The controversial Ok Tedi gold and copper mine started producing gold in 1984 and concerns about its environmental impact arose soon after. However, local landowners and the PNG government benefit significantly from the revenue raised through the mine (Lipscomb et al., 1998).

Despite the introduction and wide acceptance of western medicine, beliefs in sorcery persist in Western Province. Burton-Bradley (1990) touches on prevailing concepts of disease in Western Province while Welsch (1985) provides a more extensive account of the ethnomedical system of the Ningerum cultural group.

The Gijura attribute both mental and physical illness to sorcery (Burton-Bradley, 1990). The sorcerer has a troop of 6 to 8 assistants who have the ability to become invisible and thus escape retribution for inflicting illness. The sorcerer can both cause and cure illness (Burton-Bradley, 1990).

Welsch (1985) maintains that the ethnomedical system of the Ningerum is typical of other cultural groups in PNG although he acknowledges variation in form and content of the traditional medical systems of different cultural groups. Among the Ningerum illness is first diagnosed within the family who usually possess a broad knowledge of 'self-help' therapies. Family-based care includes: herbal preparations, warm baths, rest, healthful foods, stinging nettles, steam applications, and methods to stop bleeding, dress cuts and treat fainting. Minor divinations and

rituals are also within the realm of home-based care (Welsch, 1985). Traditional healers have specialized knowledge on only 1 or 2 conditions, which are usually serious or life threatening. The more dramatic forms of traditional treatment are removal of sorcery packets, divination and exorcism of spirits (Welsch, 1983).

Ningerum self-diagnose illness within the family and seek a cure rather than a diagnosis from whoever they approach for treatment. They have specific ideas about medicines that are appropriate for different conditions whether these be traditional or western treatments (Welsch, 1983). Ningerum view both traditional and western treatments as either working to reduce the severity of problem-causing agents or to strengthen the normal functioning of the body (Welsch, 1983). The causes of illness may be natural or social but the effects are always physiological (Welsch, 1983).

Since its introduction in 1963, the Ningerum have rapidly and eagerly accepted western medicine. The Ningerum have assimilated western medicine into their understanding of health and illness and see it as a valuable component of a broader health care system, which also incorporates traditional medicine (Welsch, 1985). Welsch (1985) argues that the integration of western medicine has been aided by rationalizing how it works in terms of the local traditional paradigm of health, illness and treatment.

The Ningerum use the aid post for: minor conditions such as cuts, sores, coughs, headaches, fever; more serious conditions including pneumonia, gastroenteritis, malaria and tuberculosis; and acute as well as chronic ailments. Although no single criterion other than availability was identified that correlated with exclusive use of treatments from one system or the other, there is a tendency to use aid post and customary treatment for minor conditions and traditional specialists once illnesses are perceived as serious. Particularly where conditions persist over several days with significant levels of discomfort, both aid post and traditional treatment will be sought (Welsch, 1983).

Welsch (1983) suggests that choice of treatment is largely determined by convenience and availability rather than an ordered sequence of preferences. For minor and moderately serious

illnesses and post and traditional treatments are seen as functional alternatives and either may be used depending on convenience and availability. Ghosts, spirits or sorcery are thought to be the underlying cause of more serious conditions and only traditional medicine can deal with these. However, even for more serious conditions western medicine may be used to alleviate symptoms and restore strength, thus complementing the use of traditional treatments (Welsch, 1983). For the Ningerum, western and traditional medicines are complementary parts of one medical system. In many instances they can be used sequentially although the more common practice is to use options from both treatment systems simultaneously (Welsch, 1983).

Islands Region

Bougainville

Previously known as North Solomons Province, Bougainville consists of Buka, the main island of Bougainville and many smaller atolls, with a total population of 175,160 (National Statistical Office, 2000). Bougainville is the easternmost province in PNG first settled by Europeans in the late 1800s. Control passed from Britain to Germany to Australia to Japan and back to Australia before, during and after the first and second World Wars (Lipscomb et al., 1998). There are 29 languages in the Province (<http://www.ethnologue.com>). The Province also contains the world's largest copper mine, which was at the heart of the secessionist rebellion that resulted in the Panguna mine closure in 1989. Prior to the Bougainville Crisis that ensued, the Province had the most productive economy and best education levels in PNG (Fridriksson, 1995). Much of the infrastructure in the Province was destroyed during the fighting. A fragile peace agreement is now in place although Bougainville continues to seek autonomy from the rest of PNG (Fridriksson, 1995). It is said that traditional medicine is strong in Bougainville because during the Crisis, for many people, it was the only treatment option available (Prof. John Reeder, email response to my query, 4 April 2002).

Three papers describe beliefs about disease causation and treatment in 5 areas of Bougainville (Hamnett and Connell, 1981; Feinburg, 1990; Jenkins and Kemelfield, 1991). Feinburg (1990) examines the beliefs and practices on Nukumanu, an atoll to the northeast of Bougainville, while Hamnett and Connell (1981) refer to Atamo in Central Bougainville and Siwai in South Bougainville. The study by Jenkins and Kemelfield (1991) expands the information available with

accounts from Nissan and Petats Islands, Tinputz and Buin/Siwai. Similarities, as well as some differences, in beliefs and practices are evident between locations.

Western medicine is often referred to as good magic and has been available in Bougainville since the 1960s through aid posts and mission stations. The introduction of western medicine has provided an additional treatment option; however, people continue to utilize and subscribe to traditional explanations of illness and traditional treatments (Jenkins and Kemelfield, 1991). Diagnosis is an ongoing process through the course of an illness and the cause may be pinpointed by the eventual cure (Hamnett and Connell, 1981). Illness can be attributed to either supernatural or natural causes such as bacteria or environment (Feinburg, 1990). Illness is defined by its severity and serious illness is most often attributed to supernatural causes. Hamnett and Connell (1981) found 2 main categories of illness: 'sik nating' or 'illness without cause' and 'sik bilong ples' or 'illness of the settlement'.

Illness without cause usually has only 1 specific and observable symptom, is rarely serious and never attributed to sorcery or spiritual activity (Hamnett and Connell, 1981). Illnesses of the settlement, on the other hand, are caused by sorcery or spirits seeking retribution for social transgressions and are characterized by generalized symptoms such as pain, fever, swelling, vomiting and coughing (Hamnett and Connell, 1981). Illness of the settlement is also indicated when members of a clan or residential group are afflicted with the same symptoms. A disease that affects various non-specific groups in the community would be considered illness without cause (Hamnett and Connell, 1981).

Most serious illnesses are said to be caused by supernatural forces and so are defined as illnesses of the settlement. However, western contact has resulted in some serious illnesses which were previously attributed to spiritual or supernatural activity now being classified as illnesses without cause. Western contact rather than spiritual activity is thought to be the cause of conditions such as TB, respiratory illnesses, dysentery and malaria (for which an effective western cure is available) and so these illnesses fall into the category of illness without cause (Hamnett and Connell, 1981).

In Nukumanu, Atamo and Siwai spiritual activity is a more popular explanation of serious illness than sorcery (Hamnett and Connell, 1981; Feinburg, 1990). Spirits are thought to cause illness in response to violations of social norms or obligations or breaches of taboo (Hamnett and Connell, 1981; Feinburg, 1990; Jenkins and Kemelfield, 1991) whereas living individuals who have become jealous or angry, work sorcery (Hamnett and Connell, 1981). The Nukumanu believe spirits are associated with particular locations on the island (Feinburg, 1990). Nukumanu clans are also associated with particular totems that are most often a fish but may be a bird, sea mammal or other species. Consuming one's totem can result in illness, injury or death (Feinburg, 1990).

Although the attribution of illness to sorcery, spirits or breach of taboo appears to be universal throughout Bougainville, Jenkins and Kemelfield (1991) also identified some regionally idiosyncratic beliefs about the cause of illness. On Nissan Island illness could be caused by wind from the east or water. In Tinputz illness might be attributed to unsettled social conditions in the village. In Buin and Siwai acidic water could be implicated as a cause of illness.

Individuals are flexible in their resort to treatment modalities. Medical pluralism is widely practised. Although disease aetiology and process are still conceived according to traditional explanations, this does not preclude the use of western medical services. At the same time Jenkins and Kemelfield (1991) found that traditional medicine was widely practised and used as a viable treatment option. They suggest that village healers are highly regarded by their local communities and could play an important role in the mental, emotional and psychological aspects of illness.

In Bougainville, traditional and western medical responses to illness are seen as complementary and may be invoked simultaneously (Hamnett and Connell, 1981; Feinburg, 1990; Jenkins and Kemelfield, 1991). Responses to illness are often pragmatic. In Siwai the cost of traditional treatment exceeds that of western medicine and so people consult the aid post first, unless they believe spirits or sorcery are causing the illness (Hamnett and Connell, 1981). Jenkins and Kemelfield (1991) also noted that western medicine was more often the treatment option of first resort in Buin and Siwai, although not necessarily for financial reasons. In Atamo, where charges for traditional treatment are minimal, both treatment options may be used simultaneously. On Petats Island traditional medicine is most often the first treatment resort perhaps because it is more

accessible (Jenkins and Kemelfield, 1991). On Nissan Island people were favourably disposed toward both traditional and western health care and consider both to be effective. The decision to use one type of medicine or the other depends on circumstances at the time of illness (Jenkins and Kemelfield, 1991). In some instances western medicine may be sought for the relief of symptoms while traditional methods are used to allay the root cause of the illness, which it is believed must be dealt with before symptoms will respond to treatment (Hamnett and Connell, 1981).

Aid posts are used for tropical ulcers, influenza, colds, malaria, yaws, tinea, eye infections, diarrhoea and pain. Some afflictions such as insect bites, burns and accidental wounds are not regarded as illnesses and are treated with western medicine. Western medicine is often used for infants and children. This may be at least partly explained by the logic that children are less likely to transgress social norms and so usually suffer from illness without cause (Hamnett and Connell, 1981). The aid post in Nukumanu has operated since the 1980s. APOs commonly treat infected sores, diarrhoea, gastroenteritis and fever using as appropriate, antiseptic, penicillin injections, kaolin, oral rehydration salts, quinine and chloroquine (Feinburg, 1990).

A wide array of medicinal plants and spiritual healing are also employed throughout Bougainville (Jenkins and Kemelfield, 1991). The Nukumanu use massage to relieve abdominal cramps and diarrhoea and to mend broken bones. Leaves and other plant treatments are used to treat skin complaints and diarrhoea (Feinburg, 1990). Similarly, in Bougainville traditional cures exist for diarrhoea, headaches, sores and broken bones (Hamnett and Connell, 1981). In Nissan it is common for households to use certain herbs, lime and chants to prevent illness (Jenkins and Kemelfield, 1991).

Traditional healers in Bougainville may be male or female (Jenkins and Kemelfield, 1991) although there are some regional variations. Successful traditional healers tend to be older men in Siwai but may be women in Atamo (Hamnett and Connell, 1981). In some areas practitioners are generalists while in others there may be a handful of specialists. Most adult Siwais have a good general knowledge of traditional medicine for common ailments. Most Siwai villages also have a 'general therapist' who has a good track record for curing a range of illnesses (Hamnett and Connell, 1981). Traditional medical knowledge is passed on within families (Jenkins and Kemelfield, 1991). In

most areas traditional practitioners claimed they did not set fees but would accept payment in cash or in kind at the discretion of their patients (Jenkins and Kemelfield, 1991). However, traditional healers on Petats Island do not charge for their services (Jenkins and Kemelfield, 1991). While practitioners may refer to one another or to western health care services they do not usually treat a patient who is under treatment from another practitioner because this has led to conflict in the past (Jenkins and Kemelfield, 1991). Some practitioners prefer to treat only members of their own extended family for fear of reprisal if treatment fails (Jenkins and Kemelfield, 1991).

Authorities in Bougainville have previously expressed interest in more formal recognition of traditional medicine and the possible incorporation of traditional healers into the primary health care system. Jenkins and Kemelfield (1991) suggest that traditional medicine could help to alleviate some of the limitations of the formal health sector with its current focus on western medicine, although further research would be required to inform the development of an effective, integrated health system.

East New Britain

East New Britain Province occupies the eastern half of the island of New Britain, which lies to the northeast of mainland PNG. Contact with Europeans began in 1874 when German traders settled on islands around the Gazelle Peninsula. A Methodist mission was established in 1876. In contrast to the southern end of the Province the eastern end is densely populated, and education levels and socio-economic status are high (Lipscomb et al., 1998). The population of East New Britain numbers 220,133 (National Statistical Office, 2000). Eighteen languages are spoken in the Province (<http://www.ethnologue.com>). In 1994 a volcano wreaked havoc in East New Britain destroying the Provincial capital, Rabaul. The capital has since been relocated to Kokopo.

The Maenge language group occupies the south coast of East New Britain around Jacquinot Bay and numbered about 5,000 in 1970 (Panoff, 1970). For the Maenge there is a strong association between heat and illness. Several natural or supernatural phenomena associated with heat are thought to cause almost all illness. Plants that are pungent, astringent, bitter or aromatic or have an irritant effect on the skin are classified as 'hot'. Hot plants cause minor ailments such as headaches, cough and back pain. These conditions are prevalent during the dry season when hot

plants come into flower, which is also the hottest time of year (Panoff, 1970). Minor sickness may also be attributed to earthquakes. The local volcano deity is said to shake the earth when displeased which releases heat that causes sickness. Sorcerers use plants and other 'hot' items such as scorpions, centipedes, stinging black ants, lime, bones of the dead, pork fat and seawater to induce illness. Women are thought to cause disease because their sex is considered hot. Supernatural sickness that affects youth is said to be due to the heat of plants that they touch. An exception to heat-induced illnesses is found in respiratory diseases, which are caused by sorcerers using other types of plants (Panoff, 1970).

The Maenge explain illness in terms of the state of a person's blood. Healthy people have blood that is liquid, stagnant, clean, red, not too hot and evenly distributed throughout the body. A sick person has blood that is dry, hot, dirty, black and collects in one spot causing pain. The Maenge consider the blood to be the normal dwelling place of the inner self. Changes in the blood may cause the soul to leave the body. To enable the soul to return the blood must be restored to its former condition (Panoff, 1970).

The treatment used by Maenge reflects their concept of how the blood responds to illness. The first treatment response for virtually any ailment is to chew ginger and spit the juice on the affected body part in an attempt to warm the blood. If the pain is not thus relieved massage or bloodletting may be employed in an effort to disperse the blood from the sore spot where it has accumulated (Panoff, 1970). For abdominal pain hot plants may be ingested for their purgative effect. The Maenge use many medicinal plants, often with no special preparation, for ailments including general pains, headache, sore throat, cough, swollen gums, toothache, sore eyes, dysentery, diarrhoea, constipation, intestinal parasites, wounds, burns, sores, abscesses, skin complaints and parasites (Panoff, 1970).

Medicinal plants have been identified more recently in other parts of East New Britain. Thirty-nine herbal medicines that are widely used in parts of Kokopo have been documented and botanically described by UPNG pharmacists (Rai and Tarur, 1998). Herbal medicines are used for constipation, dysentery, asthma, joint pains, sore throat, headache, allergies, fever, earache, irregular menstrual cycle, wounds and sores, nausea, inflammation and diarrhoea and to induce

labour (Rai and Tarur, 1998). Burton-Bradley (1990) reported that the Tolai of East New Britain use many plants to treat illness. Illness may be 'sik nating' (without cause), or attributed to sorcery or exposure to harsh environmental conditions. Medicinal plant compounds may be administered externally or ingested (Burton-Bradley, 1990).

A recent report by a UPNG final year pharmacy student provides considerable detail about the organization of traditional medicine in a village near Kokopo (Toban, 2001). Gunanba Village is located approximately 10 kilometres from the town of Kokopo. About three-quarters of the population are subsistence farmers or grow crops for sale. Public Motor Vehicles (PMVs) travel between the village and Kokopo every day. Despite readily available transport people generally seek treatment from traditional practitioners before traveling to town where western medical services are available (Toban, 2001). Toban (2001) contends that the reliance on traditional medicine stems from several factors: a belief that supernatural powers cause disease and the affordability and accessibility of traditional medicine.

Traditional medicine may be enjoying a renaissance in Gunanba. The local priest supports its use and basic first aid knowledge is widespread among the community. Even school children know and use a range of plants to treat their own cuts and abrasions. Toban (2001) describes medicinal herb gardens belonging to each home where those plants most needed by the family are cultivated. In Gunanba Village there are 4 types of traditional practitioners: herbalists, spiritualists, traditional birth attendants and bonesetters. The majority of the 22 traditional practitioners interviewed during the study are herbalists. Some practise more than 1 type of traditional medicine. The report documents 68 medicinal preparations based on 49 different plants and used to alleviate 40 diseases. The most common conditions for which herbal medicine is used are: malaria, diabetes, those caused by supernatural powers, aches and pains, cancer, sores, bruises, bowel problems, liver problems and sore throat (Toban, 2001). The report concludes that traditional medicine is widely used and accepted in Gunanba and should be supported and developed by the government as a legitimate form of health care (Toban, 2001).

West New Britain

The western half of New Britain comprises West New Britain Province. Compared with the other half of the island West New Britain is comparatively undeveloped although it is the country's main producer of timber and palm oil. From 1886 until 1966, Germans and then Australians administered West New Britain remotely, from Rabaul (Fridriksson, 1995). Most of the Province was little developed during the colonial period apart from scattered coconut plantations. Road infrastructure is confined to the area around Kimbe, which is now the Provincial capital. Travel to other parts of the Province is by dinghy or light aircraft (Lipscomb et al., 1998). Extinct and active volcanoes provide rich, fertile soil that is ideal for palm oil and other agriculture (Fridriksson, 1995). The employment provided by these industries has attracted many people to the Province. This combined with the high birth rate make it the fastest growing province in PNG (Lipscomb et al., 1998). At the 2000 census a population of 184,508 was recorded (National Statistical Office, 2000) and 31 languages are spoken in the Province (<http://www.ethnologue.com>).

Reports about perceptions and use of traditional and western medical services in West New Britain are available from 3 sources. Each examines a different cultural group. The Lusi and the Kove both reside in the northwest of West New Britain (Chowning, 1989; Counts and Counts, 1989). The Bakovi reside around the Provincial centre, Kimbe.

Both the Lusi and the Kove attribute serious illnesses primarily to sorcery (Chowning, 1989; Counts and Counts, 1989). Ghost and spirit attacks and breach of food or sexual taboos by one or both parents are thought to cause diseases in children (Chowning, 1989; Counts and Counts, 1989). The Lusi believe that human action, ghosts, spirits or sexual contamination can cause illness. In 'human action', the cause of most diseases, a sorcerer uses spells, incantations or other magical devices with the intent of harming his victim. Sexual contamination may occur through contact with menstrual blood or semen (Counts and Counts, 1989). Alternatively, some diseases are thought to have been introduced by Europeans or to be minor ailments (Counts and Counts, 1989).

There is some distinction between serious and minor conditions and the treatment options considered appropriate. To cure serious illness the person responsible must be identified and convinced to stop causing the sickness (Chowning, 1989). For non-life-threatening ailments

extracts from plants, animals or organic matter may be used to make medications and these are widely known among the Kove. Dietary adjustments may also be practised in response to particular ailments (Chowning, 1989). Although some older Lusi know of a range of plant medicines that could be used to treat minor injuries, their use of traditional medicine is now virtually entirely restricted to life-threatening diseases (Counts and Counts, 1989).

Western medicines have been accepted and the range of treatment options has thus expanded since contact with Europeans. The Kove use western medicine for ailments for which no traditional cure exists such as constipation, coughs, skin infections and muscular pain. If traditional remedies are ineffective they may also use western medicine for headaches or stomachaches (Chowning, 1989). The Lusi now use western medicine exclusively for first aid treatment of minor wounds and sores. Knowledge of traditional treatments is dying out among the younger generation (Counts and Counts, 1989).

Western and traditional remedies are not seen to be in competition and may be used in tandem. Generally both the Lusi and Kove are willing to try all available treatment options regardless of the perceived cause of illness (Chowning, 1989; Counts and Counts, 1989). The choice of health care is often dictated by pragmatic factors such as access, cost and distance from home as much as preference for one type of treatment over another. The Lusi have easy access to western medical services, which are usually cheaper than traditional treatments. Thus the first treatment resort for the Lusi for both minor and serious conditions is usually western medicine (Counts and Counts, 1989). If the condition responds to western treatment it is assumed sorcery was not involved and no further treatment is necessary (Counts and Counts, 1989). For Kove, access to western medical services is more difficult and several possible remedies are likely to be tried at the same time (Chowning, 1989).

Among Bakovi speakers illness is attributed to spirits, sorcerers, physical agency or no cause at all (Burton-Bradley, 1990). Illness in newborn babies or small children is thought to be due to breach of geographic or dietary taboo by the parents. One type of sorcery practised in West New Britain is the laying of traps on the path of the intended victim or tying special bundles of kunai grass around the trunks of banana trees with an appropriate invocation (Burton-Bradley, 1990). Bloodletting may

be used to treat headache. A relative, unpaid practitioner or a paid practitioner administers treatment. There are no specialists.

Manus Province

Manus Province comprises 208 islands the largest of which is Manus (Fridriksson, 1995). It is the smallest and northernmost province in PNG, bordering on the equator. Historically great mariners and traders, Manusians now export timber, copra and cocoa. Manus culture values education. Four years of secondary schooling is compulsory and a school of the air is available (Lipscomb et al., 1998). Manusians are over-represented in high government and civil service positions. There are 29 local languages in Manus (<http://www.ethnologue.com>) but English is widely spoken (Lipscomb et al., 1998). As well as being well educated, Manusians have a reputation of being self-reliant, gifted and family orientated (Fridriksson, 1995). The estimated population is 43,387 (National Statistical Office, 2000).

First contact with the western world was through the German administration from 1884 (Romanucci Schwartz, 1969). Lutheran and Catholic missions were established in the early 1900s and Seventh-Day Adventists arrived in the 1930s (Lipscomb et al., 1998). During World War II the Japanese first took Manus but it was recaptured by an American-Australian alliance. An American naval base was then established and the islanders were exposed to a level of wealth and western technology previously unimagined (Lipscomb et al., 1998). The influx of services included western medical services and antibiotics, sulfa drugs, penicillin and antimalarials became available (Romanucci Schwartz, 1969).

Two authors have reviewed explanations of disease causation and treatment choices in Manus: Romanucci Schwartz in 1969 and, two decades later, Carrier (1989).

Manusians distinguish between serious illness, which they refer to as earthly sickness, and divine sickness. Earthly sickness is thought to be caused by ancestral ghosts, spirits or sorcery and as such is considered serious (Romanucci Schwartz, 1969; Carrier, 1989). Spirits can act alone or be controlled by living sorcerers. Ancestral ghosts are the moral gatekeepers of their descendants and punish quarrelling among kin with misfortune and/or illness (Romanucci Schwartz, 1969).

Serious illness is commonly attributed to sorcery (Romanucci Schwartz, 1969; Carrier, 1989). The Christian God, on the other hand, causes divine sickness, and western medicines, which are believed to have been sent by God, are effective in treating this type of illness (Carrier, 1989). Prayer, confession and repentance can aid in the cure of divine sickness (Carrier, 1989).

Despite relatively easy access to western medical services, traditional medicine has persisted in Manus (Romanucci Schwartz, 1969; Carrier, 1989). Western medicine is used for divine sickness, injuries, childhood ailments and maternity care (Carrier, 1989). Personal circumstances and self-diagnosis of disease often dictate treatment choice (Carrier, 1989).

While Romanucci Schwartz (1969) considered that traditional and western medical systems complemented each other she also perceived that they competed with each other. Indigenous medicine was commonly the treatment of first choice for serious illnesses and perseverance with this mode of treatment, and possibly a series of traditional practitioners, delayed the seeking of western medicine for so long that very often by the time treatment was sought it was not possible to find a cure (Romanucci Schwartz, 1969). Carrier (1989) largely concurs with Romanucci Schwartz' interpretation of the Manusian paradigm of illness, but believes that Manusians conceive of one medical system of which western and traditional medicine are both legitimate parts.

Momase Region

Madang Province

The geographic terrain of Madang Province includes fertile coastal areas as well as the rugged Adelbert, Schrader and Finisterre mountain ranges and a string of active, volcanic islands (Lipscomb et al., 1998). First European contact was through the Russian biologist, Nicolai Miklouho-Maclay, who arrived in 1871 and introduced pineapples, mangoes, beans, pumpkins and other foods (Fridriksson, 1995). The German New Guinea Company operated from the Province between 1884 and 1899 (Lipscomb et al., 1998). Madang was destroyed during World War II and has been almost totally rebuilt. Agriculture, livestock, fishing and forestry are now the major industries in the Province, which has a population of 365,106 (National Statistical Office, 2000) and 167 local languages (<http://www.ethnologue.com>).

There are accounts of the way in which 3 communities in Madang Province interpret disease and utilize treatment options. These are the Amele people who reside east of Madang city in an area close to where Maclay first settled, the Didipa clan of Baitabag just north of Madang town and the Rao-Breri of the lower Ramu Valley.

Traditional Amele belief systems attribute sickness to sorcery, violation of taboo and repressed ill will (Jenkins, 1989). In the past sorcery was widespread and sorcerers learned the ability to change into animals and kill by intrusion, poisoning or beating. Clans were associated with totemic natural features such as waterfalls, caves, rocks or trees that are thought to possess spirit guardians. Trespassers into these sacred places were likely to experience sickness or injury (Jenkins, 1989). Totemic food taboos also existed. Breach of these would lead to skin disease, birth defects or obstructed labour, a weakened state or vomiting (Jenkins, 1989). Ancestral spirits were also thought to bring sickness, death and misfortune.

While the Amele retain their traditional beliefs, they now make good use of western medical services, which, by comparison to many other locations in PNG, are readily accessible. The Amele accept western medicine because they can explain it within the framework of their traditional beliefs, its introduction was sensitive to and accommodated traditional healing practices where these were not in conflict with the western medical approach, and it has proven effective (Jenkins, 1989). This acceptance and utilization of western medical services has meant a drastic reduction in resort to traditional healing techniques (Jenkins, 1989).

The Didipa clan uses a wide range of plants to treat malaria, internal disorders, injuries, skin diseases, respiratory disorders, 'woman illnesses', tooth/ gum infections and snakebites (Sander, Schlax and Mebs, 1996). Considerable knowledge of traditional medicine is retained by clan elders but is not held in high regard or being passed on to younger generations.

The Rao and Breri are 2 language groups occupying the lower Ramu Valley about 130 kilometres west of Madang. An early account of medical concepts and systems found that the understanding and management of disease was fairly consistent across the 2 language groups (Stanhope, 1968).

The Rao-Breri classify disease according to 6 categories defined by causal agent: natural causation; transgression of dietary or sexual taboos; sorcery; unprovoked attack by an evil spirit; accumulated impurity of the blood; and unexplained and infrequent catastrophes (Stanhope, 1968).

The number of people who retain traditional medical knowledge has diminished since at least 1950 and in 1968 was limited to 6 men. Only 1 of these treated a range of conditions using medicine prepared from plants. This practitioner was held in high regard and typically received a chicken or similar gift in return for treatment (Stanhope, 1968). The other 5 practitioners treated sorcery victims only, all having learnt their technique from the same man. The technique involved chewing betel nut, lime and mustard, sucking the skin of the patient and spitting into a banana leaf (Stanhope, 1968).

According to Stanhope, in 1968 traditional herbal remedies were no longer widely accepted. In 1968, the Rao-Breri were starting to respect and request western medicine, particularly for minor complaints, epidemics, obstetric difficulties and accidents. Traditional medicine was still likely to be used for vague and chronic complaints particularly where sorcery was implicated (Stanhope, 1968). Stanhope contends that the decline in the popularity of folk medicine was due to its harmful and sometimes fatal effects as witnessed by the Rao-Breri on several occasions. While a preference for western medicine for treating the symptoms of disease was starting to emerge, the Rao-Breri continued to perceive the underlying cause of disease to be discord among kin or neighbours or with supernatural beings, for which traditional therapy was required. Stanhope (1968) suggested there was scope for traditional and western practitioners to work together. He gave the example of a sorcery victim who was first treated by the local traditional practitioners. After treating the patient using the sucking technique the practitioners called for the western medical doctor to treat the symptoms (Stanhope, 1968).

East Sepik

East Sepik Province is the second largest province in terms of land area in PNG and has a population of 343,181 (National Statistical Office, 2000). There is significant cultural diversity and 89 languages within the Province (<http://www.ethnologue.com>). Although there is no road transport to the Province it attracts more tourists than any other parts of the country because of the

Sepik River (Fridriksson, 1995). East Sepik depends on subsistence agriculture with cash crops of coffee, cocoa, copra and rubber. The Provincial government has encouraged diversification by supplying seeds for chillies, pepper, nutmeg and vanilla (Fridriksson, 1995). The Province relies mainly on the Catholic Church for health and education services. Infant mortality and maternal morbidity are high even by PNG standards (Fridriksson, 1995).

A report dating from 1963 (Schofield and Parkinson, 1963) outlines concepts of illness subscribed to by the Wam people of East Sepik. All serious illness is attributed to a particular form of sorcery '*arukuinimei*' (translates to 'sanguma' in Pidgin). Illnesses that are not serious are contagious and thought to be caused by contact with insects, stones or various plants. These are treated by collecting samples of possible causative agents and holding these over the sick person. When the agent that is actually causing the illness is held over the patient, it shakes violently. Having thus identified the disease-causing agent, it is then rubbed on the affected body part in the belief that it will draw out the sickness (Schofield and Parkinson, 1963). Geographic taboos apply to pregnant women. Breach of these can result in miscarriage or stillbirth.

According to the Wam, all serious illness is perpetrated by a cult group of sanguma practitioners. These 'sanguma men' inflict illness by shooting secret medicines into the body, leaving no trace. Illness caused by sanguma is greatly feared and usually suspected when an illness appears likely to be fatal. Sanguma men can make themselves invisible using a special medicine made from the hearts and livers of newborn babies. Sanguma practitioners are called upon to diagnose illness and advise relatives of the cause and prognosis. They can also treat illness (Schofield and Parkinson, 1963). The sanguma men wield a great deal of power over the treatment options that Wam pursue. Their involvement often delays or diverts people from accessing western medical services. In 1963, Schofield and Parkinson observed that local belief systems were strong even among people who had received a formal education. Although some people were accessing hospital treatment they had not discarded their traditional beliefs. Schofield and Parkinson speculated that the best way to improve health outcomes might be to encourage collaboration between APOs and the sanguma men (Schofield and Parkinson, 1963).

More recent information about the place of traditional therapies is provided for two neighbouring cultural groups in East Sepik, the Abelam and the Boiken (Stocklin, 1986; Roscoe, 1989).

Although their definition of illness may differ, for both groups spirits and sorcery are implicated as causative agents and plant remedies have an important place in traditional treatment regimes.

Despite the availability and influence of western medicine, the Abelam continue to preserve and use their knowledge of traditional medicine. They believe that accidents and most serious diseases are due to supernatural causes and brought on by disobeying tribal laws (Stocklin, 1986). Plants are important in traditional therapies and are classified by their use: as mechanical instruments, as having primary or genuine healing power, as having secondary or induced healing power, as being capable of attracting souls and spirits, and as having a banishing effect in the spirit world (Stocklin, 1986).

The Boiken concept of illness relates to 'good' and 'bad' blood. A baby is born with good blood, which is displaced by bad blood during adolescence by the act of sexual intercourse (Stocklin, 1986; Roscoe, 1989). Illness is caused by excessive bad blood. Illness is usually attributed to pollution, water sprites, ancestral heroes, fiends or sorcery. Two categories of illness are defined: 'sik nating' and 'sik bilong ples' (Stocklin, 1986; Roscoe, 1989; Koczberski and Curry, 1999). The symptoms of illnesses in the sik nating category can be almost anything but all illnesses in this category are presumed to arise from 'trivial' causes and to be non-life-threatening. Sik nating can be readily treated with either traditional or modern medicine (Koczberski and Curry, 1999). This contrasts to sik bilong ples (village sickness), which arises from traditional causes (Stocklin, 1986; Roscoe, 1989). Sik bilong ples arises from discordant social relationships with the living, spirits of deceased relatives or other spirits (Koczberski and Curry, 1999).

The majority of illnesses are diagnosed as sik bilong ples. A diagnosis of sik nating is only reached when western medical services are successful in delivering a cure (Roscoe, 1989). Diagnosis is often a gradual process of deduction through trial and error. As various treatments prove unsuccessful certain possible diagnoses are eliminated until an eventual diagnosis is arrived at (Roscoe, 1989). Because sik nating is believed to be incapable of causing death, the more convenient traditional therapies, which are available in the village, will most likely be tried before

expending the effort required to access western medical services at a distance of several kilometres. The inconvenience to the patient caused by a delay in finding a successful remedy is outweighed by the inconvenience of getting the patient to the health centre (Roscoe, 1989).

Western and traditional medical codes are seen as compatible and part of one broad therapeutic system. The introduction of western medicine has extended the range of possible treatment options (Roscoe, 1989). Choice of treatment options depends on several factors including perceived diagnosis, the patient's status, the degree of imposition on relatives posed by the patient, age and possibly gender, severity of pain and perceived threat to life. If, as in many instances, the ill person is not the decision-maker about treatment options, the path of least resistance is likely to be chosen (Roscoe, 1989). This means traditional treatment is likely to be the first resort as it is normally available in the village (Roscoe, 1989).

Choice of treatment depends on diagnosis as well as more practical factors such as perception of cost, accessibility and efficacy of therapy. In 1989 western medical services were free while traditional services cost K2 or more. Transport is not usually available and 2 to 4 people must carry a sick person to the health centre. Thus considerable effort is required to access western medical services. Despite this, western medicine is commonly used for aches, pains, fractures, skin diseases and sores instead of or in conjunction with traditional remedies (Stocklin, 1986; Roscoe, 1989).

Sandaun Province

Formerly known as West Sepik, Sandaun Province is so named because it is on the western border of PNG. It is the most northwestern province in PNG, sharing a border with Irian Jaya, has a population of 185,741 (National Statistical Office, 2000) and has a total of 96 spoken languages (<http://www.ethnologue.com>). It is little developed although forestry and logging dominate the economy (Fridriksson, 1995). Sandaun Province has the highest infant mortality rate and lowest life expectancy in PNG (Fridriksson, 1995).

Allen (1989) provides an extensive account of disease patterns and responses to illness among people living around Dreikikir, which lies in the Torricelli foothills between Wewak and Aitape.

People continue to attribute almost all illnesses to supernatural forces. Natural and ancestral spirits and sorcery are thought to cause all but very minor illnesses. Social relationships are significant because illness, death and other misfortunes are attributed to evil magic directed by one person against another using a specialist sorcerer to work the magic (Lewis, 1976). Diagnosis involves analysing a patient's recent activities and their social position rather than symptoms.

Generally village cures are tried before resort to western medicine. Village curers are known as 'glasmen'. They are usually ex-sorcerers and supposedly have the ability to see inside a person's body to find sorcerized or other objects that may be causing illness (Allen, 1989). These objects are removed through sleight-of-hand and shown to patient and onlookers. Glasmen make house calls or may be consulted in their own homes. They also work cooperatively with western health services, referring patients and providing an after hours service at the aid post or health centre (Allen, 1989).

For minor illness in adults, illness in children and immediate relief from pain and trauma western services are the preferred and first-used treatment option (Allen, 1989). The standard treatment at an aid post regardless of diagnosis is penicillin, chloroquine and aspirin, a treatment combination which reduces the symptoms or cures most common illnesses in adults and children. Bandages and ointment, available at the aid post, are also popular because they are both convenient and decorative (Allen, 1989).

Apart from the pervasive belief in sorcery, several factors contribute to a generalized resistance to western medical treatment. People feel threatened and at risk of sorcery attack among strangers and in the alien environment of an aid post or health centre (Allen, 1989). People will often accept western treatment if it can be administered within the confines of a safe sanctuary where the patient is surrounded by relatives. Authoritarian attitudes adopted by APOs and health centre staff also deter people from using their services (Allen, 1989).

The Gnau people are another cultural group living within the vicinity of Dreikikir who also attribute most illness to sorcery or spirits (Lewis, 1976). They distinguish between evil sorcery ('sanguma' in Pidgin) and destructive magic ('poison' in Pidgin) (Lewis, 1977). Destructive magic is defined as

'techniques of power to do harm to people by using materials and spells which are blown or whispered into them' (Lewis, 1977). It may be used to protect one's property, to revenge a wrong or as an act of spite. When destructive magic is used for practical purposes such as protecting property and crops from theft or discouraging trespassing, signs of the magic are visible and its use for this purpose is approved (Lewis, 1977). Evil sorcery on the other hand is purely evil, illegitimate and antisocial. Its use is never justified. It always results in death and cannot be counteracted.

Sorcery is most often implicated as the cause when an illness results in death. It then becomes important to identify the intention to kill and the perpetrator. Blame is usually directed outside the village as this preserves village harmony. Lineage spirits may also cause illness; however, this diagnosis will be determined during an illness and can be dealt with or treated by invocation to the ancestors deemed to be causing the illness (Lewis, 1977).

The Gnao perceive health as the ability to resist illness. A person's state of health is expected to wax and wane during life with the very young and the very old least able to resist illness (Lewis, 1976). Gnao do not differentiate between sickness and other types of misfortune using the term '*wola*' which encompasses bad, evil, wretched, harmful and forbidden, powerfully dangerous and old (Lewis, 1976).

With the exception of skin disease, the Gnao do not differentiate illnesses by their symptoms. They do distinguish between sicknesses that affect the whole body and those that affect just a part of the body such as a limb, an organ or the skin. '*Neyigeg*' is the term used to describe illnesses of a body part (Lewis, 1976). These are usually internal complaints and may be accompanied by pain, fever, nausea, difficulty in breathing or bowel disorders. '*Biwola*' refers to chronic conditions, including deformities and mental illness. Diagnosis is determined by the cause of illness and the choice of treatment depends on the cause (Lewis, 1976).

Compared to other groups in PNG the Gnao are poor herbalists relying on stinging nettles as counterirritants; small cuts over sites of pain; bark, sap or silt dressings; bark poultices for painful joints; or ginger for colds and sore throats. In serious illness only nettle leaves are commonly

used. Many plants are used in healing rituals but knowledge of the complex relationship between spirits and plants is required (Lewis, 1976).

The conventional behaviour for a sick Gnau is to isolate themselves from the rest of the community, strip themselves naked and cover their body with dirt and ashes, go without food and generally appear wretched and miserable. People who are ill do not communicate with others although relatives and friends may gather and attempt to diagnose the illness and discuss treatment options. Recovery is signified by a purifying wash (Lewis, 1976). Lewis (1976) explains this behaviour as an attempt to outwit the spirits that may be causing the illness, leading them to think there is no hope for the afflicted so that they depart before the illness becomes fatal.

Highlands Region

The Highlands is the most populous and agriculturally productive region of PNG. It comprises 5 provinces: Eastern Highlands, Simbu, Western Highlands, Enga and Southern Highlands. The Highlands region is dominated by a series of rugged mountain ranges surrounding rich, fertile valleys with some of the world's largest rivers. The Highlands was the last part of PNG to experience contact with the western world. Europeans did not begin to explore the area until the 1930s and no real development occurred until the 1950s (Lipscomb et al., 1998). Clan loyalties remain strong and warfare is a regular occurrence. The women in particular are skilled gardeners. The economy of the region is based on agriculture, mainly coffee and tea, and natural resources of gold and oil.

Eastern Highlands

Eastern Highlands Province has a population of 432,972 (National Statistical Office, 2000) and 28 different language groups (<http://www.ethnologue.com>). Agriculture is the main industry with coffee, tea, citrus fruit and potatoes grown for commercial sale within PNG, and honey, which is exported to Germany. Many smaller gardens produce vegetables that are sold at local markets (Fridriksson, 1995). Women do nearly all of the agricultural work (Fridriksson, 1995).

Detailed accounts of concepts of illness and use of traditional and western treatment modalities are available for 4 cultural groups in the Eastern Highlands Province (Glick, 1967; Stocklin, 1968; Mayer, 1982; Herdt, 1989). These are the Ommura who live on the upper slopes of the Lamari River in the Dogara census division, the Sambia (more correctly the Simbari) and the Morei, two Anga groups who reside in mountainous terrain in the southeasternmost corner of the Province, and the Gimi of the isolated Labogai subdistrict. While each of these groups attribute illness and death to supernatural forces, other concepts associated with health and illness appear to be unique to each different cultural group.

Sambians believe human or spiritual agents cause all misfortunes including illness and death (Herdt, 1989). Illness is thought to be the result of sorcery, soul theft and the inheritance of spirit familiars. Sambians have a paradigm of 'atrophy' believing that the body has a limited duration, which is gradually depleted over a lifetime (Herdt, 1989).

In the past traditional treatment modalities in Sambian society included home care, magicians and shamanic healing for more serious illness (Herdt, 1989). Many traditional medicines are leaf or plant extracts that are ingested. Most people know about particular herbs to take for common ailments such as coughs or headaches. Home remedies and magicians are usually tried before resorting to a shaman, whose skills included divination, exorcism, being able to conduct individual and mass healing ceremonies and sorcery to restore health or prevent illness (Herdt, 1989). Shamans are expected to diagnose, heal and determine the cause of illness using dreams or divination. Smoking tobacco and chewing betel nut induces a shamanic trance. In this state the shaman sees inside the patient's body and can divine the cause of illness (Herdt, 1989). Shamanic powers are inherited and knowledge is developed through an apprentice-like relationship between older and younger shamans. Shamanic healing has a social nature with healing ceremonies often being public events (Herdt, 1989).

Herdt (1989) has also noted a considerable decline in the use of shamanic healing methods and a corresponding increase in use of western medical services by the Sambia. 97% of respondents indicated they used the aid post and 45% said they no longer used a shaman. Herdt (1989) suggests this may be due in part to the popularity of the Aid Post Orderly at the time of the study

but also interprets it as a real divergence from traditional treatment resorts. About half the adult population used both traditional and western medical services complementarily (Herdt, 1989). People happily used western medicine as it concurs with traditional beliefs and practices about ingesting substances to ward off illness and protect health (Herdt, 1989).

In respect to shamanic healing and divination, the Gimi medical paradigm bears some similarities to that of the Sambia. For the Gimi the most important thing in an illness episode is to identify the cause of illness and all serious illnesses are thought to involve some kind of malevolent power (Glick, 1967). Gimi distinguish between severe (*adabu*) illness and weird or peculiar (*neki*) illness. The vast majority of severe illnesses are attributed to either poison or assault sorcery. The much lesser category of peculiar illnesses is attributed to vicious little trolls called *nekina* (weird beings).

Illnesses due to poison sorcery usually have a gradual onset but are lingering and persistent, often progressing to death. Poison sorcery is worked by cooking fragments of the victim's clothing, food, hair, nails or excrement with poisonous substances. Propulsion of the disease-associated object, food poisoning or soul stealing are also tools for poison sorcery. The sorcerer is almost always male and assumed to be a resident of a neighbouring village (Glick, 1967). The act of sorcery is seen as an act of aggression by one village against another rather than directed personally against the individual victim.

Assault sorcery combines violence with magical actions leaving the victim mutilated and poisoned. Typically a group of men beset their victim in remote places and jab him with poison needles until he is dazed and senseless. The victim is left to stumble home but is unable to recall the assault. This type of sorcery is usually fatal (Glick, 1967).

Peculiar illness is caused by the *nekina* who inhabit 'weird land' or places with unusual geographic features such as ponds or swamps. Behaving disrespectfully in such places will lead to the onset of peculiar illnesses (Glick, 1967). Breaches of food, geographic or social taboos can also cause illness.

Gimi treatment involves mobilizing, negating and/or controlling the malevolent power that is causing the illness (Glick, 1967). Many substances including plant derivatives, meat, blood, fat, salt, tobacco smoke, pandanus oil and human bones are considered to have nonspecific therapeutic qualities and the power to strengthen and renew anyone who is ill. Such substances may be consumed or applied externally. Ritual retrieval of sorcery packets, disease object extraction, homeopathic procedures to neutralize demonic or weird beings and ritual injunctions may all be employed as counter-sorcery techniques. Certain men who are credited with superior healing powers will be called upon to perform these curing rituals (Glick, 1967). These men would appear to be similar to the Sambia's shamans or diviners.

It is almost always thought that fatal illness is caused by sorcery and it is incumbent upon the deceased's kinsmen to ascertain the identity of the sorcerer and exact revenge. They attempt to do this through various rituals or customs with assistance from the ghost of the deceased. If successful, the sorcerer and/or his village will be attacked. Thus illness and death are significant to the whole Gimi community and similarly diagnosis, treatment and avenging a death are community rather than individual affairs (Glick, 1967).

In contrast, the Ommura relate good health to freely flowing blood, physical attractiveness and energy levels (Mayer, 1982). They believe the state of one's social relationships is reflected in the body. Nose shape is especially important and changes according to the adequacy with which social obligations are fulfilled. 'Bad blood' is associated with ill health and may give rise to generalized aches, pains, swelling or skin rashes. Much ill health is attributed to blood becoming trapped in the nose or penis (Mayer, 1982).

The Ommura have 3 categories of illness: '*nriqa viro*' includes a broad range of temporary illnesses from minor ailments to acute incapacitation; '*vunrato afi*' is a confused state of mind; and female reproductive complaints (Mayer, 1982). Most illness is classified as *nriqa viro*. *Nriqa viro* reflects social relationships, psychological state, attributes, capacities and worth as a person. There are 5 causes of *nriqa viro*: sorcery, pollution caused by a man coming into contact with his wife's or brother's wife's menstrual blood or ingesting food or drink that she has touched, breach of certain

taboos, contact with a '*wera*' (spirit associated with foreign people and places), and contact with some form of '*akiau*' (potent natural phenomenon) (Mayer, 1982).

A warfare paradigm shapes much of the Ommura understanding of illness and the avoidance of illness is thought to reflect foresight, planning and ingenuity (Mayer, 1982). People who are ill isolate themselves from the community although friends and relatives may speculate about the causes of illness and arrange diagnostic and curing ceremonies. Emotional responses against causative agents may include wailing, and activities of warfare (Mayer, 1982).

A report by a resident medical officer based at Okapa in 1968 provides some details about concepts of illness and describes an interesting treatment modality in use by the Morei language group at that time (Stocklin, 1968). Like their neighbours, the Morei attributed much, but perhaps not all, death and disease to ancestral spirits. Local names for various ailments were usually descriptive of the most obvious signs and symptoms. Treatment may have been for symptoms and may have incorporated medicine prepared from plants. A very important medical procedure was the smoke-cure or '*kolia*', which was said to eliminate the evil spirits causing disease from the body. The ceremony was usually conducted at night and involved blowing smoke at the patient and throwing hostile glances apparently at the escaping spirits. There were only a few expert *kolia* doctors in the community in 1968 but the treatment was popular, often sought by people from neighbouring villages and occasionally effective. Stocklin also notes that the Morei seemed to be quite impressed by and accepting of western medicine mainly because of the very effective yaws campaign (Stocklin, 1968).

Four cultural groups in the Kainantu District of Eastern Highlands, the Agarabi, Gadsup, Tairora and Kamano share many beliefs about illness and death (Posala, 1969). Certain foods are taboo for children and pregnant women because they are thought to cause illness. Geographic taboos also exist, particularly on land where people have died. Belief in sorcery is prevalent. Sudden death is attributed to ancestral spirits. Various types of illness exist, as do traditional plant remedies for most illnesses. People in Kainantu generally prefer traditional remedies to treatment in hospital (Posala, 1969). Traditional medicine is preferred because hospitals are overcrowded and full of sick people, many people die in hospital and sorcerers may frequent them.

Eastern Highlands is also home to the Fore linguistic group, which is renowned for the occurrence of kuru or 'shaking disease' (Alpers, 1992). Kuru is always fatal and 200 people were dying of it each year when it was revealed to the outside world by the first administrative patrols that went into the area in the 1950s. The disease particularly affected women, and children of both sexes, causing progressive incoordination, involuntary movements and ataxia. Just as other cultural groups in Eastern Highlands attribute illness and death to supernatural forces, the Fore thought a powerful form of sorcery and the casting of spells by enemies caused kuru. However, endocannibalism of relatives, which was the usual means of disposal of the dead in the area up until the mid-1950s, was eventually identified as the mode of transmission (Lindenbaum, 1979; Alpers, 1992). The regulated manner in which the flesh of deceased relatives was distributed with women and children consuming most of the body including the internal organs and men restricting their intake to muscle explained the observed incidence of kuru. The pathological agent for kuru was prevalent in the brain and other internal organs, but not the muscle, of those who died from the disease. After European contact led to the prohibition of cannibalism the incidence of kuru declined markedly but because of the extremely long incubation period in some cases, the disease has not yet died out.

In contrast to some other cultural groups in the Highlands Region, the Fore have an abundance of land and a low population. The small size of most communities makes them vulnerable to attack from others. Consequently outsiders are often invited to join a community and given land. However, inevitably suspicions about competing loyalties arise where a community includes people originating from other areas. Lindenbaum (1972) surmises that the Fore explanation of death and disease stems from their tendency to mistrust people in or from neighbouring communities. The Fore attribute illness and death to jealous enemy sorcerers rather than the ghosts of deceased ancestors. Because of their misfortune to suffer from the frightening disease kuru the Fore were much feared throughout the Eastern Highlands as the most powerful of sorcerers.

Simbu

Simbu is a small, mountainous but heavily populated province. According to the 2000 Census the population was 259,703 (National Statistical Office, 2000). Nine languages are spoken in Simbu

(<http://www.ethnologue.com>). PNG's highest mountain, Mt Wilhelm lies on Simbu's northern border. Despite the rugged mountain terrain, steep valleys and fast flowing rivers, gardens cover virtually every Simbu hillside (Lipscomb et al., 1998). Simbus are renowned for being enterprising businessmen and competitive (Fridriksson, 1995). Clan warfare still occurs although to a lesser extent than in the past. The Highlands Highway traverses the centre of Simbu. There is a dense road network in the northern half of the province but no road access in the south. In these parts people rely on small airstrips for the delivery of all goods including medical supplies (Fridriksson, 1995).

Among information of a medical anthropological nature about Simbu people 2 interesting reports relate curious, idiosyncratic beliefs about the causes of illness.

An early study investigated some anthropological and medical features of the Simbu (Ivinskis et al., 1956). Ivinskis and colleagues conducted research among 600 Simbu subjects drawn from Kundiawa and a selection of villages throughout most of the Province. Unlike their Eastern Highlands neighbours, Simbu do not believe in death by sorcery. Simbu are convinced outsiders cannot harm them. They do, however, believe in '*kumu*', which is an evil spirit that enters the body and carries the power to harm others. *Kumu* can enter someone's soul when they are in the vicinity of a grave. The evil-spirit of *kumu* is thought to have entered the body of those affected by illness. Once it has been determined that someone is under the control of *kumu* that person will be coerced into committing suicide, usually by drowning. The most common diseases affecting Simbu in 1956 were malaria, protein malnutrition, dysentery and helminthiasis.

The Nimai are a Sinasina-speaking group numbering 2,000 in 1968 and living southeast of Kundiawa. They subscribe to a peculiar belief about a species of worm that causes illness (Hide, 1969). The particular worm known as '*aba*' is large, lives in the forest and can cause sickness by consuming items such as discarded cigarette butts, remnants of clothing or excrement that are left in the forest by unwary humans. Having sexual intercourse in the forest and going to the forest while menstruating is also thought to be dangerous. The *aba* is thought to cause serious illness with symptoms suggestive of leprosy or yaws. The afflicted person's nose and toes fall off.

Children may develop crooked limbs. Cooking a pig or a chicken on an open fire in the forest and offering it to the *aba* along with a request that body parts be returned can appease the *aba*.

Western Highlands

Lying in the Wahgi Valley and based around Mt Hagen with a population of 440,025 (National Statistical Office, 2000), Western Highlands Province is the country's leading employer in the agricultural sector. Coffee and tea plantations and a vast network of gardens are scattered throughout the Province (Fridriksson, 1995). The Highlands Highway running between Lae and Mt Hagen and beyond was completed in 1968 and created new opportunities for business and trade in Mt Hagen (Fridriksson, 1995). There are 8 language groups in the Province (<http://www.ethnologue.com>).

Telban (1988), who studied the use of medicinal plants among the Northern Melpa people, found among lay people limited knowledge and use of plants that cure. He saw that knowledge and information about medicinal plants was gained through contact with groups of people indigenous to other areas rather than from ancestors. Although Melpa professed to frequently use many plants, Telban's observation was to the contrary. A limited range of medicinal plants was used for minor ailments such as pain and skin irritations. The Melpa practice was consistent with their beliefs that most serious illness is psychosocial in nature, caused by supernatural forces, and thus requires some kind of ritual healing, which may incorporate the adjunct use of plants, and counter-magic (Telban, 1988).

A report on the Maring people of Western Highlands Province looks at their use of and attitudes to traditional and western medical systems (LiPuma, 1989). The Maring reside in the Bismarck Mountain Range that divides Western Highlands and Madang Provinces. Clans own and cultivate land in vertical strips that reach from the valley floor to the mountain top. Aid posts were established in the late 1960s and 1970s with locations planned according to population density rather than clan boundaries. In some instances this has posed a barrier to the use of western medical services (LiPuma, 1989).

Maring recognize 2 types of illness, social illness and natural illness (LiPuma, 1989). Social illness results from breach of social obligations and is induced by the attack of ancestors, sorcerers or wild spirits. Social illness is manifested in physical ailments, commonly the blockage of a body canal such as the windpipe by food or the implantation of a poisoned object in a vital organ. Natural illness, on the other hand, is associated with the natural ageing process. When illness is accepted as normal for the sufferer's stage of life there is no attempt to identify or explain the ailment in terms of social causes (LiPuma, 1989).

Acceptance of western medicine increased after it was presented in terms that could be assimilated with the Maring understanding of illness that distinguishes between natural and social illnesses (LiPuma, 1989). The Maring readily use the health centre and western medicine to treat natural illnesses. In their view the value of western medicine lies in its ability to promote the natural regenerative powers of the body. People started to see it as a stronger version of traditional treatments. Western medicine thus extends the range of treatment options but is not an alternative to traditional therapies. Western medicine is thought to be powerless against the causes of social illnesses although it may relieve the symptoms. In recent times traditional medicine is declining in popularity as more illnesses are classified as natural illnesses and fewer young men show an interest in learning traditional healing techniques (LiPuma, 1989).

Enga

Enga was created as a province in its own right as recently as 1973 from areas of land excised from the neighbouring Southern and Western Highlands Provinces (Fridriksson, 1995). The terrain is mountainous and the climate cold with more than one-third of the Province lying more than 2,000 metres above sea level. Contact with the western world did not happen until 1938 and the area remains relatively undeveloped with poor road systems. The main cash crop is coffee but the Porgera gold mine, which began producing in 1990, is by far the biggest income earner for the Province (Fridriksson, 1995). The population of Enga was recorded at 295,031 in the 2000 census (National Statistical Office, 2000). The Engan language group is the largest in PNG. There are 9 dialects of Engan in the Province (Lipscomb et al., 1998) and 3 other languages (<http://www.ethnologue.com>). Engans are reputedly fierce and aggressive and traditional customs, including clan warfare, still prevail (Fridriksson, 1995).

Traditionally Engans believed that illness and death arise from the supernatural world; spirits, ghosts and sorcerers are responsible for illness and death (Sharp, 1982). Social or moral transgressions would result in illness. It was thought that spirits resided in certain geographic locations and that trespassing into spirit habitats would result in congenital defects or other sicknesses. Even ailments such as arrow wounds that are manifestly caused by humans were thought to arise from ghostly intervention. Alternatively ghosts of the dead could cause sickness and death in the living. Spirits might also possess people who will then either die themselves or become witches and cause others to die. For Engans, magic or supernatural forces were believed to cause all serious illness and death. Sharp (1982) suggests that even as recently as 1982 these beliefs have changed little and that modern medicine has not been easily assimilated with traditional healing in Engan society.

Lindenbaum (1972) contends that Engans explain misfortune, including illness and death, in a way that complements their social structure. In Enga arable land is scarce and there is a high population density. Engans believe misfortune, including death and disease, is caused by male ancestral ghosts rather than living sorcerers. Engans can accept that disease and epidemics sent by their former kinsmen are forms of population control in their best interest (Lindenbaum, 1972).

Southern Highlands

The Southern Highlands Province is based around the town of Mendi and has the biggest population of any province in PNG. The population was recorded as 546,265 at the 2000 census (National Statistical Office, 2000) with 21 spoken languages (<http://www.ethnologue.com>). Traditional cultures continue to thrive in the Tari Basin (Lipscomb et al., 1998). It is the most isolated of the Highland provinces but rich in natural resources including oil, gas and gold.

Schiefenhoevel (1971) provides an early account of the medical system subscribed to by the Kaluli and Waragu language groups. These people reside on the northern slopes of Mt Bosavi, approximately 80 kilometres south of Tari. Among the Kaluli and Waragu almost all sickness and death is attributed to supernatural powers. The Kaluli and Waragu subscribe to a 3-tiered disease classification and treatment system. Sufferers themselves treat non-serious afflictions, often with

plant medicine. Most people, including children, have a general knowledge of plants that can be used for specific therapeutic purposes. For more serious illnesses treatment would be sought from a traditional practitioner. The traditional practitioner has more specialized knowledge as well as some magical powers and usually treats members of his extended family. The traditional practitioner never uses his magical powers to harm others (Schiefenhoevel, 1971). Where simple plant remedies and the expertise of a traditional healer have failed to relieve an illness, the services of a sorcerer are deemed necessary. The sorcerer has stronger magical powers than the traditional healer and can use these to both inflict and cure illness. Sorcerers are usually older men and knowledge is passed from father to son. People believe that sorcerers suck the blood out of their victims, which leads to death unless preventive measures are taken. The sorcerer is thought to invoke particular illnesses including high fever with headache and large tropical ulcers. Those who believe they have been struck by sorcery will try to ascertain the identity of the sorcerer and then beseech him to remove the spell. Whether for physiological or psychological reasons, removal of the spell by the sorcerer has a high success rate (Schiefenhoevel, 1971).

Kaluli and Waragu also believe that spirits of the dead can both cause and cure illness. Harmful spells befall people who have violated the rights of the spirit's clan. Schiefenhoevel identified many medicinal plants that were in common use and effective. Plants used to treat ailments such as broken bones, wounds, burns, ear infections, urinary tract infections, pain and snake-bite were identified. Pharmacological testing of some of these showed them to contain substances and properties consistent with the clinical application for which the Kaluli and Waragu engaged them (Schiefenhoevel, 1971). In 1971 Schiefenhoevel advocated for more chemical and pharmacological analysis of medicinal plants and the integration of at least some traditional treatments and traditional practitioners into the public health system. He argued that this would reduce the amount of drugs, materials and health personnel needed in remote areas. He also perceived, at a time when western medicine was relatively new, that it would be more readily accepted if it was seen to complement the traditional medical system (Schiefenhoevel, 1971).

The Huli people, also residing in the Tari Basin, have been the subject of numerous anthropological studies (Frankel and Smith, 1982; Frankel and Lehmann, 1984; Frankel, 1986; Hughes, 1991). Anthropologists have found that traditionally the Huli attributed most illness to

either contamination from women, who are considered unclean during menstruation and at most other times associated with reproduction, or contact with the non-Huli world (Hughes, 1991). Since the 1950s when the Tari Basin came under colonial administration, the Huli have been exposed to biological explanations of illness and have been able to assimilate these ideas with their traditional beliefs (Frankel, 1986).

Just as the Huli explanations of illness incorporate both supernatural and naturalistic causes, treatment responses are also pluralistic. According to Frankel and Lehmann (1984) treatment may be practical, particularly for simple illnesses, and is based on the local understanding of disease. For example, the traditional home treatment for childhood diarrhoea involved several methods that were intended to dry the stools. Fluids were withheld and firm, dry food given (Frankel and Lehmann, 1984). Spells and rituals might accompany such pragmatic treatment. Thus the western treatment of oral rehydration needed to be explained and justified with particular care in this community.

In his detailed account of Huli interpretations of illness, Frankel (1986) suggests that mundane explanations are commonplace. Frankel found that the majority of illnesses (81%) are simply diagnosed according to the physical symptoms; the diagnosis is concerned with the nature of the problem rather than the cause. In 9% of illness episodes the diagnosis was related to how the illness was thought to occur and agents included old age, changes in the body fluids, worms and dirt (Frankel, 1986). In the remaining 10% of illness episodes more elaborate explanations were invoked and these included female pollution, sorcery and gods or spirits (Frankel, 1986).

It has been suggested that the Huli's preference for naturalistic explanations of illness and treatment enables them to readily accept biomedical theories of disease causation and western treatments (Hughes, 1991). However, acceptance of new theories does not mean that traditional explanations have been entirely rejected; rather new and old are both given credence (Frankel, 1986). Western treatment may be used for all sorts of illnesses and is the preferred treatment modality where it is judged to be more efficacious than traditional therapies. This is usually the case for illnesses that are explained in terms of proximate causes (Frankel, 1986). Where social,

moral or religious factors are implicated in the diagnosis, western treatments may be used to alleviate symptoms but would not be expected to alleviate the cause of the illness (Frankel, 1986).

In Huli society western medicine has largely taken the place of traditional medicine. Although the two are generally not in conflict, the majority of illnesses are explained in simple terms and western medicine is used because it is thought to be more efficacious (Frankel, 1986). Only a few older men who have resisted Christian teachings, which condemn traditional healing, continue to practise traditional medicine. Traditional medicine is used mainly for conditions that are uniquely 'Huli' and for which no modern treatments are available (Frankel, 1986).

Summation

Despite location-specific idiosyncrasies there are a number of commonalities in concepts of health and illness, treatment-seeking behaviour and reactions to the introduction of western medicine among Papua New Guineans from different geographical areas. This summation attempts to draw out common themes, concepts and practices from the literature on traditional medicine in PNG. Since the review of the literature was not intended to be exhaustive, and, even if it were, not all groups will be represented, the omission of an association between a theme/concept/practice and a particular province may simply reflect a lack of information rather than the absence of that theme/concept/practice in that province. However, the significant similarities that this review has found across the whole country are of particular interest.

Cultural groups in many parts of PNG distinguish between illnesses on the basis of severity. Many groups use the broad illness classification system of serious and minor illnesses. Illnesses included in the minor category are those due to natural causes, contagious illnesses, illnesses that have been introduced since European contact and illnesses that affect children. Serious illnesses are distinguished by the involvement of supernatural forces. Groups in many provinces including Oro, Central, Bougainville, East New Britain, West New Britain, East Sepik, Western Highlands and Southern Highlands use this illness classification system. Manusians distinguish between earthly and divine illnesses caused by supernatural forces and the Christian God respectively, which may well correspond to the serious and minor categories used elsewhere. In Madang the classification

system is more elaborate, involving 6 categories of illness. However, these 6 include natural illnesses and 3 separate categories for illnesses caused by supernatural forces (taboo violation, sorcery, spirits).

Even more pervasive than the minor versus serious illness classification system is the belief in supernatural causes of disease. Reports from all provinces implicated spirits as disease-causing agents. Spirits may be ancestral kin, unrelated or associated with geographic features. Similarly, reports from all provinces with the exception of Simbu made reference to sorcery ('poison' in Melanesian Pidgin). Simbus probably also believe that sorcery causes illness although they do not believe sorcery results in death. However, the method by which the Simbu Nimai's *aba* (worms) are thought to inflict illness is similar to that reportedly used by sorcerers in many provinces. In most cultural groups sorcerers are thought to possess the power to both cause and cure illness.

Violation of taboos and failure to observe social obligations also featured strongly as causes of illness. In many instances these 2 causes of illness are mediated or perpetrated by spirits whose role is to preserve traditions and social harmony. A common breach of taboo is to trespass in a sacred place or on land belonging to someone else. This belief was evident in East Sepik, Madang, West New Britain, Eastern Highlands and Enga. Illness may result as a consequence of action by spirits or poison inflicted directly by a sorcerer or indirectly through the trespasser coming into contact with a poisoned object such as a tree trunk as in Eastern Highlands and West New Britain. Table 2 summarizes references in the literature to the various supernatural forces that people in different provinces believe cause illness.

Table 2: Commonly Perceived Supernatural Causes of Illness

Province	Spirits	Sorcery	Taboo Violation	Social Transgression	Witchcraft
Bougainville	✓	✓	✓	✓	
Central	✓	✓			
East New Britain	✓	✓			
East Sepik	✓	✓	✓	✓	✓
Eastern Highlands	✓	✓	✓	✓	
Enga	✓	✓	✓	✓	✓
Madang	✓	✓	✓	✓	
Manus	✓	✓	✓	✓	
Milne Bay	✓	✓	✓	✓	✓
Oro	✓	✓	✓	✓	
Sandaun	✓	✓	✓	✓	
Simbu	✓		✓		
Southern Highlands	✓	✓	✓	✓	
West New Britain	✓	✓	✓	✓	
Western	✓	✓			
Western Highlands	✓	✓	✓	✓	

Some of the less commonly expressed causes of illness include loss of soul (Milne Bay, Eastern Highlands) and contamination from women or sexual intercourse (East New Britain, West New Britain, Simbu, Southern Highlands). Natural causes of illness may be the elements such as wind or water (Central, Bougainville), earthquakes (East New Britain), pollution (East Sepik, Eastern Highlands), contagious elements such as viruses or bacteria (East Sepik, Western, Bougainville, West New Britain) or the natural ageing process (Western Highlands).

Cultural groups in several provinces share the idea that illness is related to the state of a person's blood. The Maenge of East New Britain believe that blood becomes dry, hot and accumulates in one part of the body when a person is sick. In East Sepik, the Boiken believe that good blood is gradually displaced by bad blood as a person ages and their health degenerates. Similarly, the Ommura of Eastern Highlands believe that good health is related to freely flowing blood.

Traditional medicine in PNG incorporates a range of treatment modalities. While particular rituals or practices may be unique to certain cultural groups, there is a raft of practices that are common in many provinces. A large part of traditional medicine is based on remedies or treatments made from plants or trees. In many communities there is a broad general knowledge of plant preparations that can be used for basic first aid without recourse to a traditional healer. For more specialized knowledge a traditional practitioner or a sorcerer is likely to be required. Traditional

healers are benign and open; sorcerers are malignant and usually hidden but if they offer counter-sorcery they will, at least in this role, be open. Shamans, with their professionalism, performance rituals and paraphernalia, are open; but they are not commonly found in PNG societies, with the notable exception of the Anga of the Eastern Highlands and some groups in Bougainville (Jenkins, 1992). For the purpose of the present analysis, what is important is the common theme of recourse by the sick to the traditional expertise of a local healer of some kind or another. Spiritual healing, bloodletting and massage are also components of traditional medicine. The various types of traditional treatments in common usage in each province are presented in Table 3.

Table 3: Traditional Treatment Practices

Province	Home Care	Plant Remedies	Sorcery/ Incantation	Spiritual Healing	Blood Letting	Massage
Bougainville	✓	✓	✓	✓		✓
Central	✓	✓	✓		✓	✓
East New Britain		✓	✓	✓	✓	✓
East Sepik		✓	✓		✓	
Eastern Highlands	✓	✓	✓	✓	✓	
Enga			✓			
Madang		✓	✓			
Manus	✓	✓	✓	✓		
Milne Bay		✓	✓	✓	✓	
Oro		✓	✓	✓		
Sandaun		✓	✓		✓	
Southern Highlands	✓	✓	✓	✓	✓	✓
West New Britain	✓	✓	✓		✓	
Western	✓	✓	✓			
Western Highlands		✓	✓			

Just as cultural groups from many parts of PNG have adopted the minor versus serious classification system, there are also similarities in the type of treatment deemed appropriate for particular types of illness. Serious illnesses, which are those caused by some type of supernatural force, require traditional medicine in order to be cured. The cure may incorporate plant or herbal preparations but is likely to also involve some type of ritual, which may be conducted by a traditional healer or a sorcerer. Minor illnesses, in contrast, can be treated with simple herbal or plant remedies, which may be known to the afflicted person or their family, or western medicine. Thus traditional medicine tends to be used for more serious illnesses or where supernatural forces are thought to be the cause of illness. Western medicine, usually acquired through the local aid post, is more often used for minor illnesses but may be used for symptom relief in serious illness or as an adjunct to traditional medicine. This delineation for treatment preferences was reported in

Oro, Central, Western, Bougainville, West New Britain, Manus, Madang, East Sepik, Sandaun, Western Highlands and Southern Highlands. It is worth noting that a cure of serious illness effected by western medicine in such circumstances will tend to reinforce its adjunct role in the traditional belief system.

Although there may be a preference for either western or traditional treatment modalities in particular instances in some areas, medical pluralism is evident in nearly all communities. Reports from Milne Bay, Oro, Central, Western, Bougainville, West New Britain, East Sepik, Eastern Highlands and Southern Highlands indicated that the practice of using both western and traditional medicine either simultaneously or sequentially is common. Several reports suggested that Papua New Guineans have willingly experimented and accepted western medicine while maintaining traditional treatment practices. In West New Britain, East Sepik and Western Highlands it has been reported that people see western and traditional medicine as being compatible and part of one medical system. The range of treatment options was simply expanded with the introduction of western medicine. In many instances treatment choices are pragmatic based on factors such as cost and convenience rather than a structured hierarchy of preferences. Pragmatic choice of treatment options was reported in Western Province, Bougainville, East New Britain, West New Britain, Manus and East Sepik.

While western medicine appears to have been readily assimilated there were a number of provinces where it was reported that traditional medicine was likely to be the first treatment resort. These included Milne Bay, Oro, East New Britain, Manus, Sandaun and Eastern Highlands. This preference may be driven by pragmatism or the perception that an illness is in the dominant serious category. The integration of western and traditional treatment modalities has been greater where communities have rationalized western medicine in terms of their traditional understanding of disease processes as in Western Province among the Ningerum and Madang among the Amele.

There are also some similarities in the organization of traditional medicine. It could be said that traditional medicine in PNG is characterized by its lack of formal organization and its ubiquity. In some communities in Oro, Western Province and East New Britain there is widespread general knowledge of a range of basic traditional therapies. Home care is often tried before consulting

someone with more specialized knowledge and skills unless the ailment is perceived to be serious at onset. Specialist healing knowledge and skills may be retained by a selected few healers within the community or local area. Powers of divination and counter-sorcery may be held by an even more limited number of people. Knowledge of traditional therapies is usually passed down from generation to generation within families as in Oro and Bougainville. Healers may be male or female. Often there is no set fee for traditional health care but practitioners accept a small cash payment or gift at the discretion of their patients, as is again found in Oro and Bougainville.

As the length of exposure to western medicine increases, knowledge of and interest in traditional practices appear to be waning. In some of the communities described such as Madang and Western Highlands it was noted that younger generations have little knowledge of traditional practices. However, given the underlying concepts about causes of illness and death that continue to prevail it is difficult to imagine that traditional practices will die out in the near or even medium-term future.

The common issues and themes highlighted through this review of literature on traditional medicine in PNG will be referred to again in the latter sections of this thesis. Meanwhile the research methodology and results of a case study on treatment-seeking behaviour and related beliefs among the Nasioi speakers of Bougainville will be presented. These data provide a rich account of attitudes toward western and traditional medicine and consequent treatment-seeking behaviour of another of PNG's many cultural groups. The information obtained through this original data collection is more detailed than that on any of the cultural groups included in the literature review. The original data collection also covers issues that are particularly relevant to developing a system that incorporates traditional medicine into the formal health system.

CHAPTER THREE

THE FOCUSED ETHNOGRAPHIC APPROACH

A focused ethnographic research approach was adopted in this study. The approach is explained and critiqued and its utility for this particular application is assessed in this chapter.

Development of Rapid Assessment Approaches

Focused Ethnographic Study (FES), Rapid Assessment Procedures (RAP) or Rapid Ethnographic Assessment (REA) all refer to a type of research that has been developed by anthropologists to meet the need to obtain valid and reliable data about the cultural factors underlying beliefs, attitudes and behaviours of a given population within a time frame that has utility for program implementation. Defined as “ethnographic methods for quickly gathering social, cultural and behavioural information relevant to specific health-related problems and prevention programs” (Harris et al., 1997, p375), RAP are not new. RAP were originally developed for the United Nations Research Program to improve evaluation of the implementation of the recommendations of the Alma-Ata Conference on primary health care (Scrimshaw and Hurtado, 1987). Scrimshaw and others have been progressively refining RAP since 1981.

Since Alma-Ata, many international donor agencies have initiated various primary health care programs in developing countries. Over time these agencies have come to appreciate that an intimate understanding of the local context and cultural information about the target population is imperative for program success (Scrimshaw and Hurtado, 1987; Bentley et al., 1988). Proponents of RAP argue that it is impossible to design programs that are relevant and acceptable to communities without understanding and considering the cultural factors that drive decision-making and behaviour. While traditional anthropological research would be expected to provide in-depth insights into culture, it generally takes a number of years to complete this type of research by which time the opportunity to implement a program may have passed. RAP, on the other hand, can highlight important cultural information within a much shorter time frame.

Advantages and Disadvantages of RAP

RAP are still not entirely accepted by many anthropologists. Critics of the RAP method decry its ability to generate valid and reliable data (Bentley et al., 1988). In the past information about the culture of communities or social groups has been collected through ethnographic research, which has required living in, observing, interviewing and learning from local people, often over lengthy periods of time (Brown, 1998). From this first-hand experience researchers prepare ethnographic descriptions of people's lives, cultural beliefs and behaviours including those related to health and illness. Apart from the creation of such ethnographies through participant observation, other recognized methods of obtaining ethnographic information are key informant interviews, unstructured data collection and structured data collection (Loustaunau and Sobo, 1997).

While spending lengthy periods of time living as part of the study community can have many advantages, practical constraints and immediate problems often require more immediate responses or solutions. Pelto and Pelto (1997) comment on the gulf that has often prevailed between anthropologists and health care policy makers and practitioners. Anthropologists have been frustrated by the lack of recognition for cultural beliefs and knowledge systems and policy makers and practitioners have had difficulty in applying anthropological information to specific health care situations (Pelto and Pelto, 1997). To fill this void the Focused Ethnographic Study has emerged as a methodology that provides a more practical alternative to traditional ethnographic research and yet a richer, more in-depth understanding of the forces that shape people's lives than is often possible with the quantitative survey (Pelto and Pelto, 1997).

As well as recognizing the value and utility of RAP it is also important to be cognizant of its limitations. RAP can provide basic information about perceptions, beliefs, attitudes and cultural practices regarding health, the prevention and treatment of illness and the utilization of traditional and biomedical health services (Scrimshaw and Hurtado, 1987; Bentley et al., 1988). Although Vlassof and Tanner (1992) claim "it is particularly important to refute the notion that rapid assessment generates inaccurate data or just summarises impressions", RAP are more suited to providing a broad overview and highlighting key features than a thorough analysis of local

sociocultural systems or sensitive topics (Bentley et al., 1988; Manderson and Aaby, 1992). While RAP usually analyze social and cultural elements of a program and its context (Harris et al., 1997), they do not necessarily address broader political and economic elements of the context (Manderson and Aaby, 1992).

Some of the main criticisms leveled at RAP have related to the reliability, validity and generalizability of the data these studies generate (Manderson and Aaby, 1992). Several authors have identified a range of protocols that can be incorporated into the research methodology to improve confidence in the reliability and validity of data. These include: using a multidisciplinary research team, including team members indigenous to the community being studied, ensuring gender balance among the research team, using multiple data collection methods for triangulation, randomly selecting communities and participants, having prior knowledge of the community either through reading or previous residence, being resident in the community for the duration of the study, timing the study to coincide with seasonal cycles of the disease/s being studied, designing explicit and detailed proformas for data collection, training field researchers in data collection techniques, having language fluency or working with an interpreter (Manderson and Aaby, 1992; Harris et al., 1997).

Because of the idiosyncratic nature of cultural groups, in most instances it would be naive to claim that the results of RAP reflect behaviour patterns of the wider population. Harris, Jerome and Fawcett (1997) suggest that the generalizability of conclusions derived from RAP can be gauged by conducting key informant interviews with other cultural groups. Alternatively, structured interviews might be conducted to determine the distribution of beliefs and behaviours across wider populations (Pelto and Pelto, 1997). However, focused ethnographies can provide the basis for generating hypotheses and developing survey instruments for studies among broader populations (Harris et al., 1997; Pelto and Pelto, 1997).

Notwithstanding the adoption of recommendations to improve the reliability and validity of data as part of the research methodology, to some extent there will always be a tension between the time needed to pursue in-depth enquiries and observations and the time frame in which results are required (Manderson and Aaby, 1992). As these authors point out, RAP do not allow for the

'opportunism' of traditional anthropological research. Where data collection is narrowly targeted and designed to be efficient, there simply may not be time to discover or develop the insights that characterize traditional anthropological literature. Nonetheless, along with other anthropologists who have used and reviewed RAP, Manderson and Aaby (1992) conclude that RAP are practical and useful techniques for gathering cultural information that is essential to effective and sustainable interventions (Scrimshaw and Hurtado, 1987; Bentley et al., 1988; Harris et al., 1997; Pelto and Pelto, 1997).

Methods Used in RAP

RAP use many of the same research techniques as traditional anthropological enquiry. These methods include: formal and informal interview with key informants; conversation; behavioural observation; participant observation; and focus groups (Scrimshaw and Hurtado, 1987; Harris et al., 1997). These methods assume that health issues are sociocultural issues involving social, institutional and ideational aspects (Manderson and Aaby, 1992) and allow information about the sociocultural context in which behaviour occurs to be recorded in detail for better understanding and interpretation of the behaviour (Scrimshaw and Hurtado, 1987). The techniques used in specific instances can vary and depend on the complexity of the problem, the community structure and the resources available (Harris et al., 1997). Other RAP methods cited in the literature are: personal diaries, secondary data analysis (for example, of government and health service records), interviews with naturally occurring groups, cost analysis, case control surveys, community mapping, surveys developed from interviews and hypothetical case scenarios (Harris et al., 1997). Subjects are typically drawn from a number of groups, for example community, household and health care providers. There is consensus among authors that RAP studies can usually be completed within 4 to 12 weeks (Scrimshaw and Hurtado, 1987; Bentley et al., 1988; Harris et al., 1997).

Pelto and Pelto (1997) explain the conceptual framework on which RAP or FES are based and the main features of this research method. Explanatory models for decision-making incorporating elements of the belief system as well as practicalities such as location and cost of health services are constructed and used to predict how a particular illness will be dealt with in a particular

community. In FES a specific illness is first selected. The elements of knowledge and beliefs that are relevant to this illness are then explored. From this information an explanatory model for the particular illness can be constructed. Health-seeking behaviour is explained in terms of beliefs and knowledge to which economic, material and political factors are added to provide a broad understanding of behaviour patterns. The strength of FES lies in its primary concern with how belief systems translate into actual behaviours (Pelto and Pelto, 1997). The findings of FES are thus more useful to policy makers and practitioners than either traditional ethnographies or quantitative knowledge, attitude and behaviour studies that cannot provide an integrated explanation for the way people think and act (Pelto and Pelto, 1997).

Potential and Actual Applications of RAP

Various applications for RAP have been identified in the literature. Vlassoff and Tanner (1992) suggest 5 areas in tropical disease research where RAP could be useful: obtaining better estimates of disease and infection prevalence; providing better estimates of causes of death; assessing high-risk situations and high-risk groups for particular diseases; providing an understanding of the local context where interventions are about to be introduced; monitoring and surveillance of ongoing disease control activities, community participation and other interventions. Also with an interest in tropical disease research, Manderson and Aaby (1992) perceive considerable potential for the application of RAP. Specifically they suggest the development of research aids that would ensure a minimum amount of cultural information is gathered. In the same vein Scrimshaw and Hurtado (1987) suggest that project-specific data collection instruments can be developed to collect information about beliefs and perceptions regarding health, the prevention and treatment of disease and the utilization of traditional and biomedical health resources.

Examples of applied RAP are found in reports from Mexico and PNG. Ethnographic research has been used in rural Mexico to develop a decision-making model for treating diarrhoea (Ryan and Martinez, 1996). The study looked at beliefs about causation and cure as well as environmental and financial constraints that may affect health-seeking behaviour. A model was developed based on 5 rules relating to severity of illness, perceived cause of illness, perceived efficacy of treatment

and duration of the episode of diarrhoea. Computer modeling was used to test the accuracy of the decision-making model, which was found to have 89% postdictive accuracy and 84% predictive accuracy. The authors suggest the model could inform an intervention program which would be based on the things that govern people's treatment choices and so have a greater chance of being successful (Ryan and Martinez, 1996).

FES has been used in PNG and found to be a viable research method particularly if supported by structured observations (Jenkins and Howard, 1992). A combination of focused ethnographic assessments and structured observations by nonprofessionals was used to determine behavioural risk factors for diarrhoea in the Eastern Highlands. The method was found to be practical in that it did not require long periods of full-time professional ethnographic expertise or a permanent live-in situation for rapport building and data collection. The behavioural component of the study involved spending 1 month in each study location. Structured observations using a pre-coded instrument were made over a period of approximately 17 months with 8 to 10 hours per day spent observing a total of 330 events. Jenkins and Howard (1992) suggest this type of research method should be further evaluated.

Suitability of RAP for this Investigation

The study of traditional medicine for the purpose of integration into the national health system is one area that demands research that yields information of an anthropological nature. The motivation for integrating traditional and western medicine in PNG is the desire to create a health system that better serves the needs of the population, is more accessible, is affordable and results in improved population health status (Ministry of Health, 2000). So far the debate and preparatory work for the integration of traditional medicine has focused largely on the integration of traditional plant remedies and not the broader belief constructs that form the foundation of traditional medicine. But, how can an improved integrated health system possibly be created without an understanding of the cultural beliefs and knowledge systems that motivate treatment-seeking behaviour?

Traditional medicine in PNG has been studied for over 40 years, albeit in isolated communities scattered around the country. Throughout the body of literature regarding traditional medicine in PNG runs a common thread that emphasizes the need to develop a better understanding of knowledge systems and cultural beliefs so that health services can be provided in a manner that is consistent with the cultural paradigm in which people live, work and play. RAP studies, designed for the most prevalent diseases in PNG, have the potential to elicit information that can be used to shape traditional and biomedical health services so that both are able to provide more practical and more acceptable treatment services.

Anthropological and RAP studies have the potential to make a significant contribution to the integration of traditional and western medical systems in PNG by providing information about beliefs and culture within a time frame that will allow policy makers and practitioners to make use of the results. RAP studies, supplemented by other research methodologies, provide a technique for obtaining information about the knowledge and belief systems underlying the health paradigms to which people subscribe which is of practical utility to health programs. These types of studies have the potential to provide a wealth of information that can contribute to policies and practices in an integrated health system which better serves the people of PNG and results in improved population health status.

CHAPTER FOUR

THE EXPLANATORY MODEL

A key feature of many focused ethnographic studies is the development of an explanatory model for the behaviour under investigation. Similarly, developing an explanatory model for treatment-seeking behaviour was a key feature of this focused ethnographic case study among the Nasioi people of Bougainville. The concept and process of developing an explanatory model is further explained in this chapter.

Background

Several anthropologists have discussed the development and use of explanatory models for treatment or health-seeking behaviour (Kleinman, 1975; Scrimshaw and Hurtado, 1987; World Health Organization, 1993; Pelto and Pelto, 1997). Explanatory models provide a rationale for treatment-seeking behaviour within a given sociocultural framework and have been used to predict treatment or health-seeking behaviour. Patients, practitioners and support persons, who interact during a treatment episode, may operate from different perspectives or explain the same illness episode in different ways. Kleinman (1978) suggests that congruence between the explanatory models of each of these various players is conducive to patient compliance, satisfaction and appropriate use of health care facilities. Thus Kleinman maintains that understanding and respecting the explanatory model or social and cultural paradigm within which a patient conceives an illness episode may lead to improved patient outcomes.

Explanatory Models

Explanatory models have been defined as “notions about an episode of sickness and its treatment that are employed by all those engaged in the clinical process” (Kleinman, 1980, p105). Kleinman also contends that “explanatory models can be objectively elicited as more or less formally structured coherent accounts of reality, though they may be and often are ambiguous and

changing, and they may contain contradictions and various degrees of logical development.” (Kleinman, 1975, p645).

The concept of explanatory models has been refined from one that dwelt primarily on cultural belief systems to one that incorporates sets of causal elements including environmental features, material and economic factors, political considerations and belief systems (Pelto and Pelto, 1997). As Pelto and Pelto (1997, p153) write “The explanatory model is constructed, or assembled, by the participating individuals in order to deal with and make decisions about particular, individual illness episodes. Thus elements of the general belief system, such as interpretation of symptoms, are related to pragmatic elements (eg location and costs of various health services) at a more concrete level of conceptualization.” An explanatory model consists of information about: aetiology; time and mode of onset of symptoms; pathophysiology; course or progress of the sickness (severity and type of sick role); and treatment (Kleinman, 1978; Pelto and Pelto, 1997). Even if the individuals experiencing an illness episode are not fully cognizant of the way in which these factors shape their response to the illness episode, teasing out these ideas and beliefs enables the researcher to develop an understanding of how other people, who hold similar views about that particular type of illness, will respond to it. Understanding how and why people make certain decisions about the treatment they seek for a particular illness should enable service providers to tailor services to the preferences of their clients. This in turn should lead to improved utilization of services, improved compliance with treatment regimes and improved health outcomes.

Developing an Explanatory Model

The process for developing an explanatory model has been broadly outlined by Pelto and Pelto (1997). World Health Organization (1993) and Scrimshaw and Hurtado (1987) have provided more elaborate accounts of the methods used as well as tools for use in ethnographic research of this type. The process begins by focusing on a particular class or category of illness such as respiratory infections, sexual health infections, or reproductive problems. By adopting this approach, knowledge and beliefs that are brought to bear in specific illness episodes can be explored in relation to actual behaviour rather than in the abstract.

After an illness category and a particular community or region have been decided upon, 6 to 8 key informants are interviewed to start building the explanatory model. Key informants are people who are considered experts in the area of research interest (World Health Organization, 1993). Their knowledge is of special interest to the research because of the position they hold in the local community, their level of experience with the research topic and/or their willingness to seriously consider and discuss the research topic (World Health Organization, 1993). Key informants provide the primary information from which other aspects of the study evolve. Information on all the components of the explanatory model needs to be obtained. Data gathering concentrates on local terminology for the illness, symptoms and related concepts. Various tools such as cards with illness names or symbols and procedures such as free-listing and ranking can be used to aid the solicitation of information for the explanatory model. Thus, key informants provide an emic or insider's description of the illness, which is used to construct a provisional explanatory model. Key informants can also provide information about the health care resources in the community, perceptions of cost, practical constraints and access issues (World Health Organization, 1993).

Key informants are usually interviewed several times during the study. The style of interviewing with key informants is open-ended and exploratory. Concepts, ideas and hypotheses that the researcher may develop during the course of the study can be 'checked out' or discussed with key informants. The forms and procedures to be used with people accessing health care can also be pre-tested with key informants (World Health Organization, 1993).

The 'provisional explanatory model' for the illness category under study is a preliminary description of the emic system of beliefs and practices for the community in relation to the illness category. For each of the illnesses identified as belonging to the illness category it includes information about: severity; signs and symptoms; causes; treatment; practitioners; discussion comparing and contrasting the emic illness with its closest equivalent condition as defined in western medicine; relationships or concepts of progression and causality between the various illnesses in the category. Once completed, the provisional explanatory model is checked for validity with several key informants (World Health Organization, 1993).

The next step in the development of the explanatory model is to interview and observe members of the community. The purpose of these interviews is to validate, refute or refine the provisional explanatory model and to gauge the range of diversity in ideas and behaviour among members of the same community (World Health Organization, 1993). Members of the community who should be interviewed include people who have experienced the illness or cared for someone who has experienced the illness (at least 25 households) (World Health Organization, 1993) and people accessing health care for the illness (at least 20 health care seekers) (Pelto and Pelto, 1997). The WHO protocol outlines specific data collection tools for acute respiratory illness that could be adapted to other illness categories. The tools are designed to provide information about: concepts and recognition of severity, signs and symptoms; variations in care-seeking practices and practitioner practices; and home treatment practices (World Health Organization, 1993).

Although potentially logistically cumbersome, interviewing people accessing health care is vital to the approach. This is the part of the research that provides insights into the relationship between the explanatory model and actual behaviour (Pelto and Pelto, 1997), which is an important differentiation between traditional ethnomedicine and focused ethnographic studies. These interviews can be conducted in any type of health facility (health centre, traditional healer, or other) but should be conducted before the consultation with the health care provider so that responses are not influenced by the practitioner's advice (World Health Organization, 1993). Information about how the problem was handled prior to seeking assistance, how and by whom the decision to come to a particular health care facility was made and barriers that may have prevented access to a preferred type of assistance can be obtained from people accessing health care (Pelto and Pelto, 1997).

The third and final group of people to be interviewed and observed is that of health care practitioners. This includes health care practitioners of any persuasion. The purpose of practitioner interviews is to generate information about their perceptions of community patterns of illness management and treatment-seeking behaviour. Either all or, if they number more than 8 to 10, a representative sample of practitioners should be included in the study (World Health Organization, 1993). Information about types of illness treated, types of treatment provided, attitude and style of treatment provision, perceptions of patients' knowledge of and responsiveness

to the illness and terminology used to talk about the illness can be obtained from health care practitioners. Through observation, information about the cost, clinic hours, equipment and other resources available, patient load, waiting times and physical characteristics of the health facility can be gleaned (World Health Organization, 1993). The information from practitioners provides extra detail and/or helps to complete the explanatory model.

With the information from the 3 sources, key informants, people who have or are experiencing an illness episode and health care practitioners, the researcher is equipped to begin analyzing the data and refining the provisional explanatory model. First the data need to be summarized. There are many graphic devices that can aid in this process: descriptive statistics, graphs, flow charts, taxonomies of ethnoclassifications, cognitive maps, checklists, cross tabulations and frequency tables (Scrimshaw and Hurtado, 1987). With the data summarized in this way, the analysis can commence. The data are analyzed by looking for patterns, recurring themes, contrasts, questioning plausibility, noting relationships between variables and looking for intervening variables (Scrimshaw and Hurtado, 1987). A coherent, logical chain of evidence needs to be developed that supports the generalizations and conclusions on which the explanatory model is based. Identifying variations in beliefs, knowledge and definitions within the community is an important part of the revised explanatory model (World Health Organization, 1993).

As well as defining the explanatory model, the analysis considers factors that influence choice of practitioner and factors that result in delays to receiving treatment from qualified health workers. The usual sequence of care is described. The analysis considers the influence of cognitive components (beliefs and knowledge) as well as the economic, material and political environments on treatment-seeking behaviour.

From Theory to Practice

The process for developing an explanatory model described above was closely followed in the collection of original data for this study. However, inevitably some compromises had to be made in order to accommodate the real life cultural, social and political sensitivities and preferences of those living in the area where the study was conducted. Deviations from the recommended

protocol are outlined in the next section. Although some compromises were necessary, the integrity of the process for developing an explanatory model was upheld. Without some degree of flexibility toward the theoretical approach and process it may not have been possible to collect all the data needed to develop the explanatory model.

CHAPTER FIVE

RESEARCH METHODOLOGY

Overview

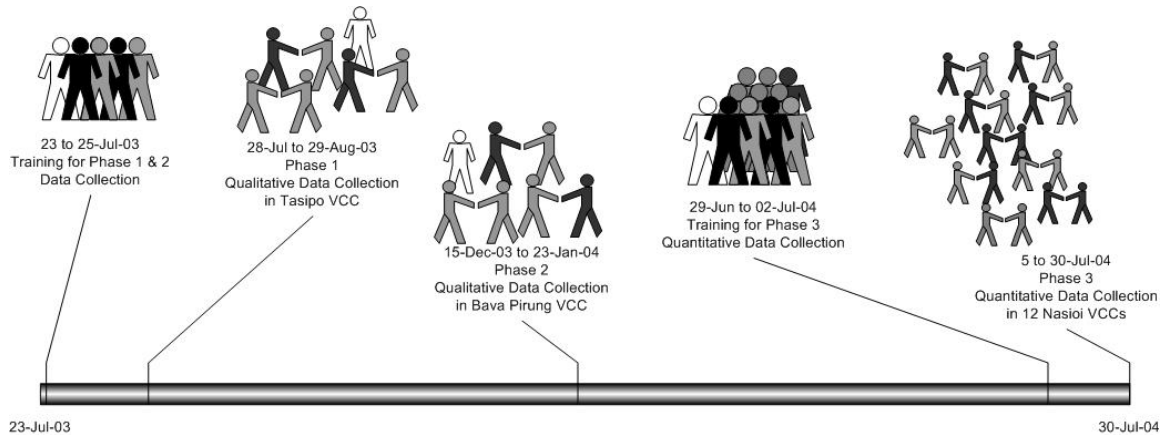
For the case study among the Nasioi language group in Bougainville a non-experimental, cross-sectional design was used to obtain information using both qualitative and quantitative data-gathering techniques. For specificity, the research focused on 2 illness categories: febrile illnesses and skin conditions. Febrile illnesses and skin conditions accounted for more presentations to outpatients in Bougainville than any other conditions between 1997 and 1999. While other measures of morbidity and mortality are available, it was appropriate to base the selection of conditions for this study on presentation to outpatients as this is the measure most likely to be comparable with presentation to traditional healers. The investigation involved 3 separate and distinct data collections with an iterative process being used throughout.

The first and second data collections were qualitative in nature and used several different methods of assessment and investigation to obtain information from a variety of sources, allowing for data verification through triangulation. A focused ethnographic approach, incorporating in-depth and semi-structured interviews was adopted. Data were collected from key informants, people who had recently experienced an illness episode, community members and practitioners. The second data collection replicated the first but was conducted in a contrasting location. The two locations were firstly the Tasipo Village Council of Chiefs (VCC) area and secondly the Bava Pirung VCC area.

Information obtained during the first and second data collections was used to construct a provisional explanatory model of treatment-seeking behaviour. This model was used to devise structured questionnaires, which aimed to assess the population distribution of beliefs and behaviours in relation to two specific categories of illness and the use of traditional and western health care services among the wider Nasioi population. The questionnaires were administered to community representatives and health care providers from throughout the North Nasioi area and

some parts of the South Nasioi area during the third data collection. Most of the information collected during the third data collection and the analysis were of a quantitative nature. The various stages of the data collection process and timeline are depicted in Figure 2.

Figure 2: Data Collection Process



Qualitative Data Collection

Selection and Training of Research Assistants

Two teams of 2 research assistants were engaged to conduct interviews for the first and second data collections. The research assistants were selected with assistance from the North Nasioi Council of Elders (COE). Each team included a male and female. All research assistants had grown up and lived in the VCC where they were to conduct interviews. They were fluent in Nasioi, had a minimum Grade 10 level of education and were adults of some standing in their local communities. Each of the research assistants had an in-depth knowledge of and was accepted by the community where they would conduct research.

Prior to the first data collection, all 4 research assistants spent 3 days learning about the research project, the FES approach and becoming familiar with the instruments they would use. At the training each research assistant was provided with a manual or field guide. The manual outlined the purpose of the project, the research method, ethics, rapport building and interviewing style, note-taking and recording interviews, sample selection, samples of question guides and other instruments and a proposed interview schedule. There were 6 separate question guides, which the

research assistants had an opportunity to practise using in mock interviews. Even though the second data collection would not be conducted until some 3 months after the training, it was decided to train all 4 research assistants at the same time in an attempt to develop a common understanding and consistency in techniques despite the reality that different people would be administering the instruments in each of the 2 VCC locations.

As the first data collection progressed it became apparent that it was proceeding too slowly to complete the entire quota of interviews within the designated 6-week time frame. This was partly due to one of the research assistants being unavailable for some of the time and partly due to the length of time taken to complete each interview. Consequently a third research assistant was recruited.

By the second data collection, the male research assistant originally selected and trained had become unavailable. Another male from the local area was selected to fill the breach together with a second female research assistant. Thus it eventuated that 3 research assistants conducted interviews in both Tasipo and Bava Pirung. Prior to each different type of interview, the principal investigator provided extensive briefing for those research assistants who had not participated in the original 3-day training.

Sample Selection

The first data collection was conducted in the Tasipo VCC and the second in the Bava Pirung VCC. The selection of these 2 VCCs was purposive rather than random. Two contrasting areas were selected that would together reflect the diversity that exists within the study area. Tasipo lies in the mountains behind the town of Arawa. Access to Arawa and services is via a combination of walking tracks and unmade roads. Arawa is at a distance of approximately 7 kilometres from Tasipo and involves over an hour's walk. Vehicles sometimes traverse the unmade road section of the journey and will pick up passengers, if they have space, for a fee of K1. Bava Pirung, on the other hand, lies along the coastline approximately 15 kilometres east of Arawa. Access to Arawa would involve walking for people from some inland villages but many villages lie along the made road that runs along the coastline. Arawa is about 30 minutes by vehicle from Bava Pirung

although travelers may wait up to an hour for a vehicle. A fairly regular public bus system services Bava Pirung and the one-way fare to Arawa is K2.

The research assistants had an intimate knowledge of their respective VCC areas and so were ideally placed to identify suitable respondents in each respondent category. Before starting to conduct interviews, each group of research assistants discussed potential key informants, community respondents and health care practitioners whom they would invite to participate in the research.

Both groups of research assistants agreed on 8 key informants comprising males, females, traditional healers and providers of western health care from different villages in Tasipo and Bava Pirung. All key informants had considerable health knowledge and were experienced in treating or managing illness. Key informants helped to identify people who could provide an illness narrative, that is, people who had experienced a recent illness episode. The research assistants identified other community respondents. Some health care practitioners were known to research assistants and others were identified during key informant interviews. A sample of health care practitioners was chosen for interview in each VCC as the total number identified was in excess of 30 in Tasipo and 15 in Bava Pirung. The samples included the better-known traditional healers as well as some lesser-known practitioners in each VCC. However, all health workers and nurses providing western health care in each VCC were included in the sample of health care practitioners.

Each potential interviewee was approached individually, provided with an explanation of the study and its purpose, given an opportunity to ask questions and then invited to participate in an interview. An 'Information Sheet', designed to assist research assistants in explaining the study, was made available to those who were approached for interview. The Information Sheet can be found in Appendix 1. In most instances a convenient time was agreed upon and the research assistant returned at the appointed time to conduct the interview. Sometimes interview times and locations were arranged through messages sent back and forth between villages with people walking through the area. The Consent Form used is found in Appendix 2.

Almost without exception, the people initially identified as potential key informants and community members were interviewed. Among people who were invited to participate in the first and second data collections only 2 declined, claiming that they were too busy. Through the COE and local chiefs some information about the study had reached residents in each VCC area before the actual data collection commenced. A few people expressed concerns about the nature of the research but once they were reassured that no information would be sought about the actual plant or other preparations used in traditional medicine people were receptive and positively inclined toward the research. Initially the chief of 1 village opposed the research. He eventually agreed to allow interviews to be conducted in his area after one of the research assistants, who is also his niece, provided a detailed explanation of the type of questions and the potential benefits of the study. The fact that all the research assistants were indigenous to the areas where they conducted interviews and familiar to respondents probably contributed to the excellent response rate.

Instruments and Respondent Groups

A series of explicit and detailed question guides and recording sheets were designed for use with various groups of respondents during the qualitative data collection. The question guides for qualitative interviews can be found in Appendices 3 to 12. The research instruments and the respondent group each was administered to are listed in Table 4. The various instruments were designed specifically for this study but were adapted from instruments used in other focused ethnographies (Scrimshaw and Hurtado, 1987; World Health Organization, 1993). Two versions of the Explanatory Model, Illness Narrative, Matching Signs & Symptoms and Severity Rating were included specific to febrile illnesses and skin conditions respectively.

Table 4: Research Instruments and Respondent Groups

Question Guide	Respondent Group
Explanatory Model for Illness	Key informants
Health Care Resources in the Community	Key informants
Illness Narrative	Community members
Matching Signs and Symptoms to Illness Names	Community members
Severity Rating	Community members
Choice of Practitioner	Community members
Inventory of Household Medicines	Community members
Household Composition and Characteristics of Residence	Community members
Interview Guide for Health Care Service Providers	Health care practitioners
Interview Guide for Treatment Seekers	Treatment seekers

The Explanatory Model question guide (Appendix 3) sought to obtain information about the most common and severe diseases in the febrile and skin condition categories. The information sought included: signs and symptoms, causes, severity, progression and relationship to other illnesses in the same category, type of treatment used and practitioners who could treat the condition. This question guide was used in interviews with key informants who were defined as people experienced or expert in illness management, culture, social interactions and typical treatment-seeking behaviours in the community. Key informants were mothers or older women with considerable experience in caring for sick people, traditional healers, health workers and village leaders.

The first 3 key informants to be interviewed in Tasipo were asked to list all the common or severe febrile illnesses and skin complaints. The list that resulted was so extensive that it was impossible to cover other aspects of the explanatory model in a reasonable interview time frame. Consequently the list was rationalized in consultation with the key informants who had helped to create it. Subsequent interviews with key informants concentrated on the 10 most common and serious conditions in each illness category. All key informants were given the opportunity to add any conditions they considered to be either very common or very serious that were not already included on the list.

In Bava Pirung all key informants were asked to list the 10 most common or serious febrile illnesses and skin conditions. The most frequently mentioned illnesses (11 febrile illnesses and 10 skin conditions) from the combined tally of all key informants became the subject of interviews with community members.

Key informants were also asked to identify and describe all the health care resources available to people in their communities. Location, access, specialty, cost, practical constraints, popularity and efficacy were all relevant aspects of the description of health care providers included in the 'Health Care Resources in the Community' question guide. The Question Guide for Health Care Resources in the Community found in Appendix 5 was designed to elicit this information.

The preliminary information provided by key informants was supplemented and verified with information obtained from ordinary people in the community (community members or community respondents) through several interview procedures, primarily Matching Signs and Symptoms (Appendix 8), Severity Rating (Appendix 9) and Choice of Practitioner (Appendix 10).

The original protocol for Matching Signs and Symptoms involved a set of cards showing individual illness names and another set of cards showing individual signs or symptoms. Respondents were to match the signs and symptoms cards with each illness card. In the event this method proved too cumbersome and time consuming. It was more practical to present names of common and severe illnesses generated by key informants to the community respondents who were then asked to simply list the signs and symptoms of each illness.

The purpose of the Severity Rating procedure was to identify perceptions of the relative severity of the various illnesses in each disease complex. In addition, questions were posed about the relationship between any conditions in the disease category and progression or the process by which an illness becomes more serious. Once again it was intended to use the set of cards displaying illness names and a pile sorting technique but this proved impractical due to the low literacy level of many respondents. Instead respondents were simply asked if each illness was mild, intermediate or severe and to comment on relationships and progression.

The Choice of Practitioner procedure was designed to yield information about the respondents' preferences for different health care providers for febrile illnesses and skin conditions. It involved a forced choice where respondents chose 1 of 2 alternative practitioners for every possible pair (15 pairs) of provider types available in the local community. All possible combinations of providers were systematically presented to respondents and then ranked according to overall popularity. Respondents were also asked to explain the reason for each of their choices.

Inventory of Household Medicines (Appendix 11) was used to gain a better understanding of the conditions that people treat at home. The definition of household medicines included plants that respondents would obtain without recourse to a traditional healer as well as medicines kept in the house.

Household Composition and Characteristics of Residence (Appendix 12) was a summary of sociodemographic information for each household where community respondents were interviewed that was completed through observation and questions at the conclusion of other interview procedures.

The Illness Narrative (Appendix 4) sought to obtain an account of the most recent febrile illness or skin condition suffered by the respondent or someone they had cared for. The question guide covered signs, symptoms, diagnosis, cause, treatment-seeking practice and decision-making, management and progression of the illness and treatment outcomes. In most cases the most recent illness episode was within the last 6 to 12 months. The temporal proximity of the last illness episode meant that recall of actual events and behaviour during the illness episode should be accurate. Although it proved difficult to obtain interviews with people who were in the act of seeking treatment, the illness narratives provided the type of accurate account of actual treatment-seeking behaviour that is considered to be one of the hallmarks of focused ethnography. The number of illness narratives obtained was more than that suggested in the FES research protocol to compensate for the paucity of treatment-seeker interviews.

The Interview Guide for Treatment Seekers (Appendix 7) was designed for use with people who were experiencing an illness episode and in the act of getting treatment at the time of interview. The interview was short and covered access to services, self-diagnosis, signs and symptoms, cause, progression, treatment-seeking practices, decision-making and practitioner preferences. As anticipated, it was difficult to interview people as they were trying to get treatment. Four such interviews were obtained in Tasipo but because this type of interview was difficult and the content of the interview was similar (but less extensive) to the Illness Narrative, data from treatment-seeker interviews were included with those from illness narratives for the purposes of analysis. Based on the experience in Tasipo the Interview Guide for Treatment Seekers was not used in Bava Pirung.

Information obtained from key informants provided a list of health care service providers practising in the study area. A representative sample of providers was interviewed in each location (13 practitioners in Tasipo and 10 in Bava Pirung). The Interview Guide for Health Care Service

Providers (Appendix 6) included questions about the provider, the way their services are organized and delivered, as well as their perceptions about how people in the community deal with fever and skin conditions. There were also questions about collaborating with other local health care practitioners and the idea of integrating traditional and western medicine.

Pre-testing of the instruments in the study area was not possible due to administrative, logistical and time limitations. Procedures were adjusted during the course of data collection as deemed necessary; however, the integrity of the original instruments was largely maintained. All qualitative data collection instruments were in English. The number and type of interviews completed in the first and second qualitative data collection phases are shown in Table 5.

Table 5: Number of Completed Interviews by VCC

Type of Interview	Tasipo		Bava Pirung	
	Febrile	Skin	Febrile	Skin
Explanatory Model for Illness	7	6	9	8
Illness Narrative	19	13	23	27
Matching Signs and Symptoms to Illness Names	10	10	9	9
Severity Rating	10	10	9	9
Health Care Resources in the Community	3		9	
Choice of Practitioner	28		34	
Inventory of Household Medicines	10		8	
Household Composition and Characteristics of Residence	10		10	
Interview Guide for Health Care Service Providers	13		10	

Note-Taking and Interview Records

Interviews were conducted in Nasioi with research assistants taking notes during the course of the interview. With the exception of illness names, all of the research assistants preferred to record their notes in English. Although proformas specific to each type of interview were provided for recording purposes, the research assistants opted to record their notes on plain notepaper. After each interview or at the end of each day, the research assistants would revise their notes and ensure that all records were legible and intelligible. The principal investigator resided in the study area with the research assistants for the duration of each data collection period and so was able to discuss interview experiences on a daily basis and collect completed interview records each day or within a day or two of completion and check them for clarity. Any points of confusion were discussed with the research assistants. In some instances research assistants were asked to

make a return visit to respondents to seek further clarification. Although not present at all interviews, the principal investigator was invited to attend a number of interviews in each of the 2 study areas. Being present during these interviews and being able to discuss experiences with the research assistants on a daily basis were ways of assuring data quality and provided evidence of the validity of both the data being collected and the process being used.

Mini tape recorders were available for research assistants to record the more open-ended style of interviews. None of the research assistants chose to make audio recordings of interviews, on the basis that respondents would find this practice suspicious and intrusive. Unfortunately, despite instructions to the contrary, all research assistants adopted the practice of recording responses in the least number of words possible. The principal investigator formed the impression that even the open-ended question guides were followed to the letter. Very little exploration or probing was apparent and very literal interpretations of questions and answers were evident in records of interviews. One respondent did agree to conduct recorded interviews during the collection of qualitative data. These interviews were conducted in Nasioi and were then translated by the Nasioi research assistant and the principal investigator. Excerpts from these interviews are included among the data presented in Chapter 9.

Data Analysis

The qualitative data collected in Tasipo and Bava Pirung were analyzed using the qualitative data analysis software package 'MAXQDA'. Interview records were transcribed into Microsoft Word and then imported into MAXQDA. A coding system was devised that matched the themes and issues indicated in the research objectives as well as others that arose during data collection. Each interview was coded and a text retrieval command used to select related text segments from groups of interviews. MAXQDA was used to facilitate the analysis of the following interview types: Explanatory Model, Illness Narratives, Health Care Practitioner and illness descriptions (characteristics and relationships between illnesses) provided by community members.

Some of the information collected in Tasipo and Bava Pirung was of a quantitative nature. The statistical package SPSS Version 10.0 was used to facilitate this data analysis. These data

included signs and symptoms of common illnesses, severity rating of common illnesses and choice of practitioners.

As part of the analysis respondents' verbatim comments illustrating ideas around key issues have been collated. Frequency distributions for the majority of quantitative variables have also been created.

Quantitative Data Collection

From the provisional explanatory model and description of treatment-seeking behaviour that emerged from the analysis of qualitative data, a structured questionnaire was developed and used to ascertain the population distribution of beliefs and behaviours among Nasioi speakers. The questionnaire can be found in Appendix 13. One of the criticisms leveled at explanatory models is that the information on which they are based is drawn from only a few cases and thus cannot be relied upon to represent the views of the broader group or community patterns of behaviour (Mathews and Hill, 1990). However, the results of focused ethnography have been found to provide a sound basis for designing structured questionnaires that measure the population distribution of beliefs and behaviours (Pelto and Pelto, 1997). For this reason and purpose the methodology for this case study included a structured questionnaire.

A similar structured questionnaire was designed for use with another important stakeholder group, health care practitioners. This questionnaire can be found in Appendix 14.

Selection and Training of Research Assistants

Ten research assistants were selected by the North Nasioi COE to conduct the quantitative data collection. All the research assistants were indigenous to the study area, were fluent in both English and Nasioi and had at least a secondary school level of education. Each research assistant was from a different VCC area. Seven of the research assistants were from VCCs in the North Nasioi area and 3 were from 2 South Nasioi VCC areas that share a border with the North Nasioi area. There were 6 male and 4 female research assistants.

A 3-day training workshop was conducted immediately prior to the quantitative data collection. All research assistants were in attendance. The workshop content covered an explanation of the study and its purpose, work already completed, the process that would be used to collect data, and familiarization and practice with the research instruments.

Research assistants were issued with an instruction sheet that clearly outlined the processes of explaining the study, obtaining consent and conducting interviews. Techniques and tips for conducting structured interviews were also discussed. Considerable time was spent going over the 'Community Members Questionnaire'. Although the questionnaire listed a range of alternative responses for the closed questions (including an 'other' category), it was made clear that unprompted responses were required.

Initially the principal investigator demonstrated different sections of the questionnaire with various workshop participants. Research assistants then practised with each other before practising with residents of the village where the training workshop was held. Research assistants also discussed the intent of each question as a group. Good and bad interviewing techniques were demonstrated and discussed through role-plays. The principal investigator also provided feedback on completed questionnaires that were used during the practice interviews.

The 'Practitioner Questionnaire' was shorter and had some questions in common with the Community Members Questionnaire. As such the research assistants found it relatively straightforward. Nonetheless ample opportunity was provided to seek any clarification that was required.

Every effort was made to ensure that research assistants were clear about and comfortable with the research instruments by the completion of the training workshop. Although the principal investigator was resident in Arawa for the duration of the data collection period and invited research assistants to make contact should they require clarification or strike any problems, the research assistants were alone in the field and without supervision while collecting data. This was unavoidable as community leaders who championed the study advised that the presence of the principal investigator during interviews would probably cause apprehension and interfere with the

process of data collection. Furthermore it would have been logistically impossible to closely supervise 10 research assistants who were working simultaneously in different locations. At least 4 of the research assistants visited the principal investigator during the data collection period to discuss the data, seek clarification on procedure or just share anecdotes about their experiences. From these discussions the principal investigator gained the impression that the research assistants had a good understanding of the methodology and procedure outlined during the training workshop and were following it as closely as possible.

Sample Selection

A sample of 200 adult Nasioi speakers was obtained for the community survey. Each research assistant was required to interview 20 community respondents from within their own VCC area. Instructions were given that the sample as a whole should be representative of the Nasioi adult population. Research assistants were therefore asked to interview 10 males and 10 females of various ages from a cross-section of villages within their VCC and of varying educational backgrounds. Sex, age, village and religion were recorded for community respondents. It was also suggested that different clan groups should be represented among the sample although this variable was not recorded. Beyond these requirements the selection of respondents was at the discretion of research assistants.

A sample of 50 health care practitioners was also obtained. For the practitioner sample, research assistants were instructed to interview all providers of western health care services in their VCC and a selection of the better-known traditional healers.

Research assistants were instructed that anyone who had participated in either of the qualitative data collections was ineligible to be included in the quantitative data collection. As the qualitative and quantitative researches were undertaken in different geographic areas this problem did not arise.

A total of 4 community members and 2 practitioners who were invited to participate in the study declined. One practitioner was too busy to be interviewed, while community members wanted to be paid or were opposed to talking about anything to do with traditional medicine. Given the size of

the community and practitioner samples these refusals are unlikely to have contributed any additional bias to either sample.

Instruments and Respondent Groups

Two instruments, both structured questionnaires, were designed for the quantitative data collection. One questionnaire was designed for community respondents and the other for health care practitioners. Issues covered in the questionnaires included: common illnesses and their perceived cause, perceptions and attitudes towards traditional and western medicine, treatment-seeking behaviour, satisfaction with current health services and attitudes towards an integrated health system. The questionnaires consisted mostly of closed questions but several open-ended questions were also included. Information on some issues was sought through several different questions allowing for verification of data through triangulation.

The Community Members Questionnaire was pre-tested in Port Moresby by the principal investigator and a Nasioi research assistant who had an intimate knowledge of the study having been part of the research team during data collection in Bava Pirung. The sample group for pre-testing included Nasioi-speakers residing in Port Moresby. Some adjustments were made to the questionnaire on the basis of the pre-testing.

The instruments were originally designed in English and had been translated into Nasioi by 2 Nasioi speakers prior to the field trip. Multiple copies of the Nasioi version of the instruments were prepared for data collection. Each research assistant was also given a single copy of the English version of each questionnaire. On viewing the questionnaires, research assistants were unanimous that the English version was easier to understand. However, it was not possible to provide multiple copies of the questionnaires in English due to the lack of copying facilities in Arawa.

Note-Taking and Interview Records

Space for recording responses was provided on the questionnaires themselves. A majority of questions simply required boxes to be ticked. There were several open-ended questions included

on each questionnaire that required a short written response. Where this was the case, responses were recorded in English.

Completed records of interview (questionnaires) were collected at a 2-day debriefing meeting that was held 3.5 weeks after the initial training workshop. At the debriefing meeting, the principal investigator went through each completed questionnaire with each research assistant, individually. Through this process errors and omissions in note-taking were corrected and the principal investigator was able to clarify any ambiguous or confusing responses. During the debriefing a discussion involving all the research assistants was held covering their experiences during data collection and their overall perceptions of respondents' treatment-seeking behaviour and attitudes toward traditional and western medicine and an integrated health system.

Although research assistants had been asked to solicit unprompted responses, in some instances responses appear to have been prompted. A relatively few records of interview indicate the respondent provided virtually all listed responses. When questioned about this anomaly the research assistants concerned related that some respondents had difficulty in formulating responses to some questions. When this happened the research assistant simply read out the listed alternatives and respondents agreed to most of them. Although a small number of respondents may have been prompted this was not the case for the majority.

In addition to the main data collection methods outlined above, one of the research assistants was able to obtain a series of recorded interviews with locally renowned traditional healers and other community members. These interviews were conducted in Nasioi and were open-ended and conversational in style. The audio-recordings were later translated by the research assistant and the principal investigator. The data from these interviews are presented with other quantitative data in Chapter 11. A note about the data collection method precedes the excerpts from interviews to ensure the reader is aware of the technique used to obtain these particular data.

Data Analysis

Analyses from both the community and practitioner samples were facilitated by the use of the statistical software package SPSS. The principal investigator designed database formats and

completed all data entry. The principal investigator was resident in Arawa during data entry and preliminary analysis, which made it possible to seek any further clarification from research assistants as needed. A combination of simple descriptive statistics (frequency distributions), respondent narratives and diagrams has been used to present the results.

Ethics

Prior approval for the conduct of the study was obtained from the Medical Research Advisory Committee of PNG (MRAC No.02.09). Protocol approval was also obtained from Curtin University's Human Research Ethics Committee (registration no. HR 110/2002).

The nature, purpose, risks and potential benefits of the study were explained to each prospective participant prior to interview. Research assistants were issued with multiple copies of an Information Sheet in both English and Nasioi (Appendix 1) for this purpose. The Information Sheet also stressed that participation was voluntary; there would be no payment or material incentives for giving an interview. Respondents were also informed they could decline to answer any questions they felt were too personal without jeopardizing the rest of the interview and were assured of confidentiality. After this explanation respondents were given an opportunity to raise any questions or issues they may have had regarding the study and then asked if they were willing to participate. All respondents were required to give written or, if not literate, oral consent before interviews were conducted. A copy of the Consent Form is provided in Appendix 2.

All data are stored in a secure location and will be retained for a period of no less than five years. Names of the study participants are not recorded on written or electronic material. No respondents have been individually identified in this report. Only the principal investigator has access to the raw data.

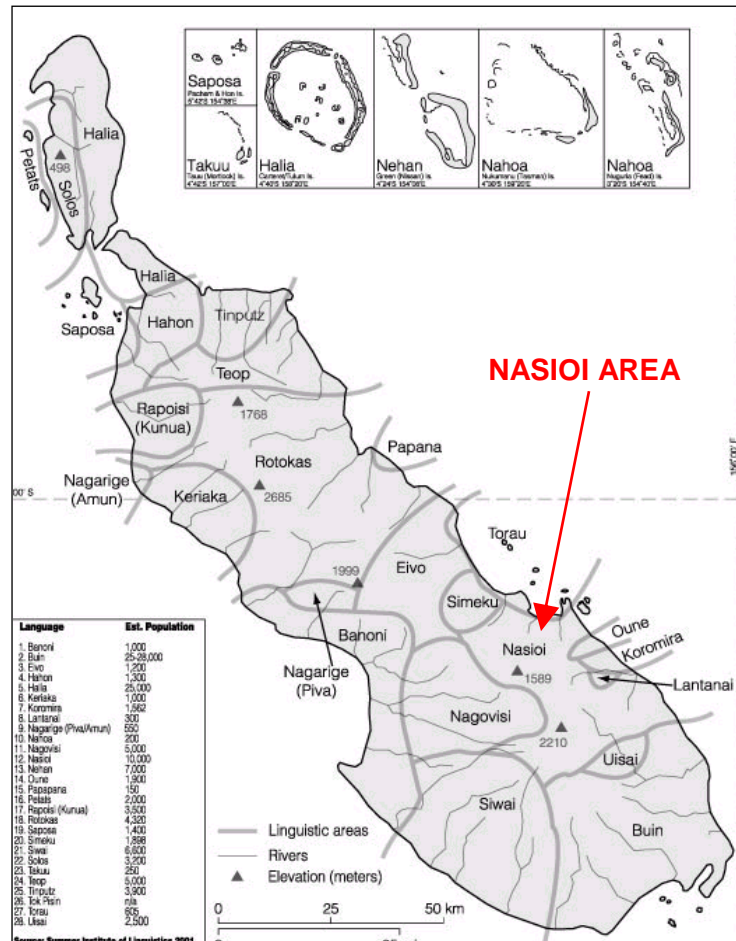
Bougainville Copper Foundation provided funding for the fieldwork components of this study. The Foundation imposed no restrictions nor directed, influenced or interfered with the study in any way.

CHAPTER SIX

NASIOI SOCIODEMOGRAPHIC FEATURES

The case study was conducted in the Nasioi area of Central Bougainville. The indigenous language of the study area is Nasioi, hence the term 'Nasioi area'. The location of the Nasioi area in relation to the rest of Bougainville is shown on the language map in Figure 3.

Figure 3: Language Map of Bougainville



For the purposes of governance, the Nasioi area is divided into North and South, each with its own local government body. The case study was predominately conducted in the North Nasioi area

and covered all parts of this region. However, the population sample also included people from the South Nasioi area. Slightly less than 30% of the population sample was drawn from South Nasioi villages.

Geography

The North Nasioi Council of Elders (COE) is a local government authority that presides over an area of approximately 240 square kilometres. The area extends from the east coast of the Central Bougainville District around the town of Arawa, to the west for 7 kilometres, to the southeast for nearly 20 kilometres and inland over steep, mountainous terrain for 10 kilometres. There are many rivers and rich, fertile soil throughout the area. Land that has not been cultivated is covered in thick, jungle vegetation.

The area includes Panguna, which was the site of one of the world's largest open-cut mines, operational in the 1970s and 80s and associated with the unrest that forced the closure of the copper mine and led to the 10-year Bougainville Crisis. Panguna remains a 'No Go Zone' where non-residents are barred from entry unless by invitation.

The North Nasioi COE comprises 8 smaller Village Council of Chiefs (VCC) areas. These are Bava Pirung, Kerei East, Kerei West, Doue, Tasipo, Konampai, Dangua and Apiatei. In addition to those VCCs in the North Nasioi area, the population sample included interviews with people in 2 VCCs from the South Nasioi COE. These were Upper Aropa and Lower Aropa, which both adjoin the North Nasioi area.

Social Structures

In the Nasioi area societies are matrilineal; land ownership is passed on through the mother's lineage. The oldest daughter inherits the largest portion of land from her mother. Other daughters receive lesser allocations of land. Land is not passed onto sons. Instead, it is customary for a young man to move to the area where his wife has inherited land. However, men do have the right to cultivate land belonging to their clan even though they cannot own the land. On request, men will be granted permission to use land belonging to their family. Sometimes agreements are

reached whereby non-landowners can acquire land. In such instances the non-landowners are required to provide a feast for the landowners.

As well as land, a Nasioi person inherits clan membership from their mother. The clan is an important organizational unit in Nasioi society. The other fundamental social unit is the family, which in Nasioi society includes the extended family.

There are 6 clans in the Nasioi area: Mantaa, Bakoringu, Kurabang, Barapang, Tangoringkan and Batuang. An animal, bird or fish totem represents each clan. It is forbidden to harm, kill or eat one's own clan totem. Each clan appoints its own chief through a democratic process. Traditionally, authority was exerted through clan chiefs and elders who were responsible for ensuring their clan members observed customary laws and maintaining peace between different clan groups (Baria, 2004). Clan chiefs are members of the Clan Council of Chiefs (CCC).

People typically live in small communities or villages based on clan and extended family relationships. A village may comprise 3 or 4 clan groups. A village chief is elected who sits on the VCC, which governs each local area. In the past the village chieftainship was likely to be inherited. More recently the chief of the most populous clan in the village may become the village chief. Sometimes the village chief is chosen because of his leadership qualities.

The governing body for the North Nasioi area is the North Nasioi COE. A representative from each of the eight constituent VCCs sits on the North Nasioi COE as well as the 6 clan chiefs. There are also positions for youth, women and church representatives on the COE. The COE is the next higher level of local government above the VCC. The Chairman of the North Nasioi COE is a member of the Bougainville Provincial Assembly along with the chairmen of 36 other COEs from around Bougainville.

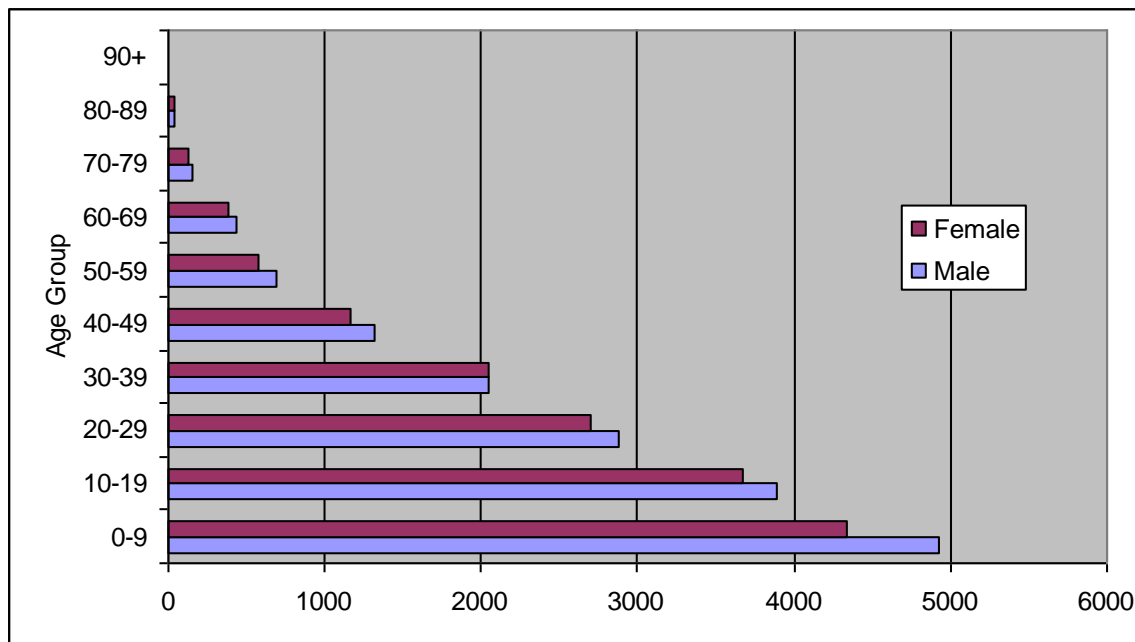
Population Size and Structure

Two different censuses have been conducted in the North Nasioi area (National Statistical Office, 2000; North Nasioi COE, personal communication, August 2004). The National Census data

indicate that a total of 5,854 persons reside in the North Nasioi area. This includes 3,078 males and 2,776 females occupying 1,316 houses. The North Nasioi COE's data suggest that the National Census data may underestimate actual population figures. The North Nasioi COE enumerated its total population at 8,725 in a census that was completed in August 2003.

A breakdown by age and sex is not available for the North Nasioi area on its own. However, the next largest government area is the Arawa Local Level Government (LLG) area for which the age and sex population breakdown is shown in Figure 4. The structure of the Arawa LLG population most likely reflects that of the North Nasioi area.

Figure 4: Population by Age and Sex, Arawa LLG, 2000



Housing

Small clusters of houses are grouped in scattered hamlets. Several groups of houses or hamlets constitute a village. The main clusters of houses are likely to include a church.

Typically there will be a mixture of village-style houses made from sago palm thatch and timber and permanent houses in a village. Houses are normally raised off the ground and contain 3 or more bedrooms and 1 additional room. The kitchen is usually located in a separate building,

adjacent to the house at ground level. The kitchen typically contains a cupboard, cooking pots, plates and cutlery. There may be a table and some chairs or form benches. Food is usually cooked on an open, earthen fire.

Most dwellings have a water supply close to or inside the house. Water is piped from nearby streams. There are a few pit toilets but using the sea or a nearby river for ablutions is more common.

People have very few possessions other than kitchen utensils and tools for gardening and perhaps a canoe if they live on the coast. Most houses have no electricity and people use kerosene or oil lamps for light in the evening. In some mountain villages makeshift hydroelectric plants have been constructed. It is common for people to have at least 3 and up to 5 garden plots, which they tend regularly.

Usually each nuclear family has a separate house. It is forbidden for a woman to live in the same house as her son-in-law. Members of the extended family live close to each other but in separate houses and many people in a village are related to each other. New hamlets spring up when people move away from the main village to reside closer to their newly cultivated gardens.

Religious Affiliation

The vast majority of Nasioi people are Catholic. Other religious groups with some following are Seventh Day Adventist and United Church. A few other religious groups have very small followings.

National census data from the year 2000 for the whole of the Central Bougainville District, a considerably broader geographic area that subsumes the North Nasioi area, show that 62% of the population was Roman Catholic, and 13% belonged to each of Seventh Day Adventist and United Church.

Literacy

70% of people aged 10 years and over in the Arawa LLG are literate in 1 language (National Statistical Office, 2000). The most common languages spoken are Nasioi, Pidgin and English.

The Rhythm of Weekly Life

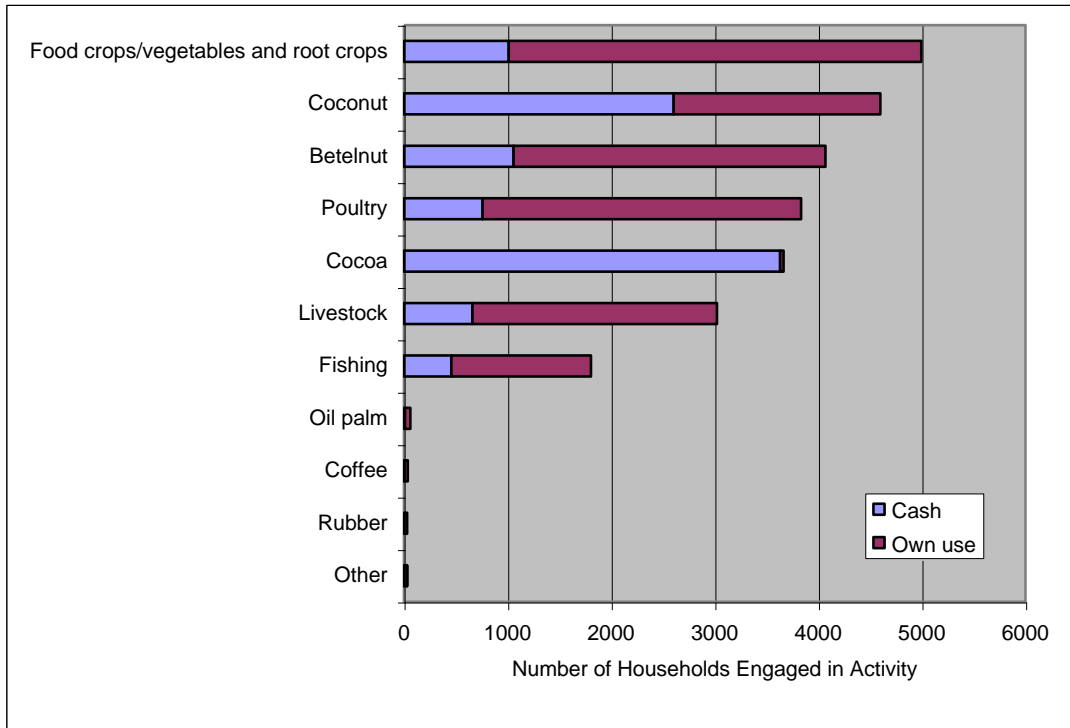
Many people adhere to a rough weekly schedule. This includes market days, community days and church days. The main market days in Arawa are Tuesday and Friday although some vendors are present almost every day of the week except Wednesday. The Friday market in particular is large. Many people from outlying villages come to Arawa on Tuesday and Friday to sell garden produce, fish, or home-baked goods at the market. Wednesday is 'community day' when all those not in paid employment are expected to participate in communal activities for the betterment of the village or local community. On Sunday most people go to church.

Organized activities in the villages include sports such as soccer and volleyball, and youth, women's and mother-care activities. Weekend sports carnivals between villages are popular with youth. Women's groups conduct sewing, cooking and handcraft activities. Some of the items made by the women's groups are sold in the village or at the market in Arawa.

Economic Activities

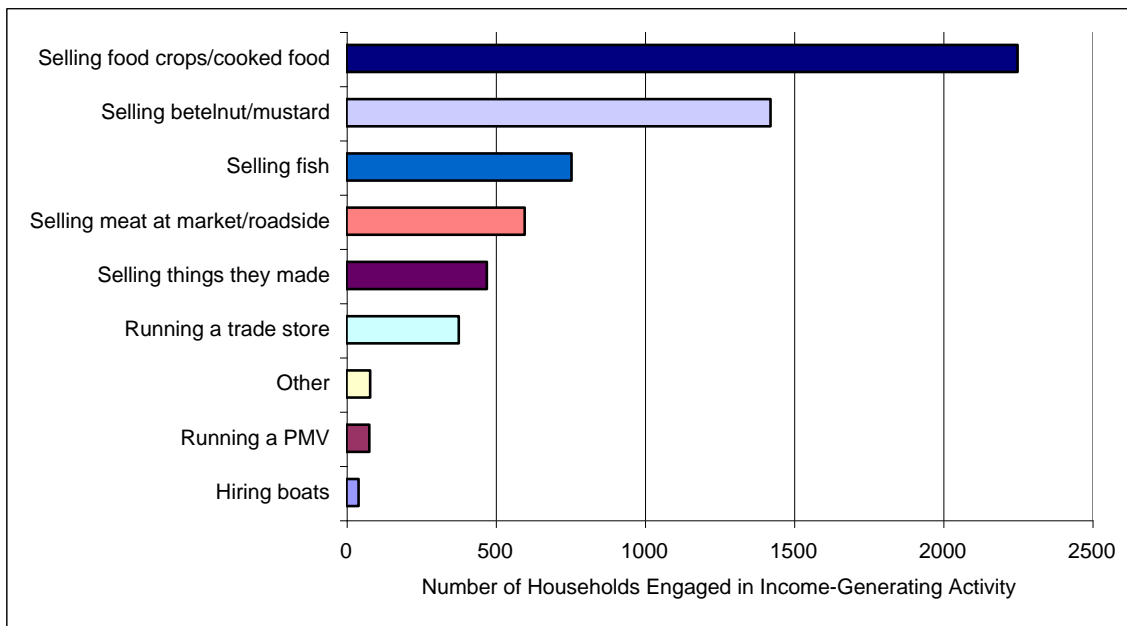
The last National Census found that 11,864 people in the Arawa LLG (or 53% of those aged 10 years or more) were economically active. The main employment category was agriculture. People were involved in various types of agriculture for both income generation and personal consumption as shown in Figure 5. Cocoa was the main cash crop. Selling produce provided an income for some families and a few people ran their own business (National Statistical Office, 2000). The number of people engaged in each of these types of activities is shown in Figure 6.

Figure 5: Type and Purpose of Agricultural Activities, Arawa LLG, 2000



For 5863 households in private dwellings headed by PNG citizen

Figure 6: Income-Generating Activities, Arawa LLG, 2000



For 5863 households in private dwellings headed by PNG citizen

The National Census data for Arawa LLG reflect information obtained from community leaders during the case study. These sources iterated that most people are self-employed and lead a subsistence lifestyle. The vast majority of economically active adults are engaged in cash cropping activities. Crops grown in the area include cocoa, copra, vanilla, garden produce and betel nut. Most income is derived from cocoa and copra. Coastal dwellers also earn an income by fishing and selling their catch. The main activities for men are cutting trees, removing debris, fishing and harvesting coconuts. Women spend their time burning, planting, weeding, digging, fishing, cooking and harvesting coconuts.

A small number of people are in paid employment in the town of Arawa in fields such as security, carpentry, building and the public service. A minority of adults are self-employed in retail businesses such as trade stores or selling fuel. An even smaller number of original residents have migrated to provincial centres such as Buka, Rabaul, Lihir and Lae for work.

Local Services

Arawa is the main urban or town centre in the Nasioi area. Some telecommunications, retail outlets, health and education services are available in Arawa including a secondary school for students in year 9 and above. The closest banking and postal facilities are located in Buka at a distance of 200 kilometres or 3 hours and K50 by public bus.

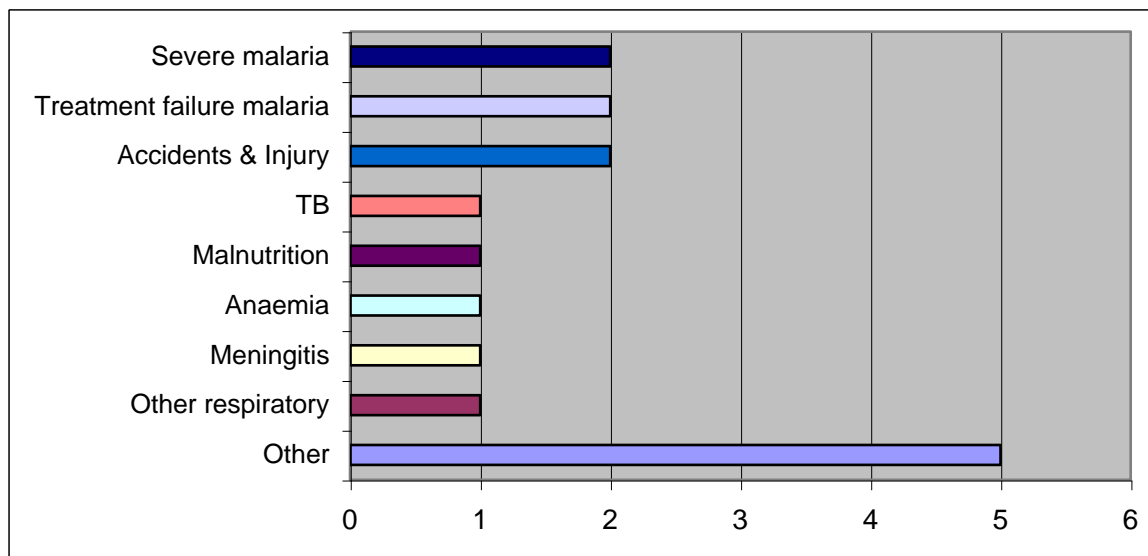
CHAPTER SEVEN

PATTERNS OF DISEASE AND DEATH

Arawa Town Health Centre is the main health facility for the Arawa LLG, one of two LLGs in Central Bougainville. According to census data collected by the National Statistical Office, the population of Arawa LLG (and thus the Arawa Town Health Centre catchment area) was 31,462 in the year 2000. However, from a comparison of census data collected by the National Statistical Office and a census completed by the North Nasioi COE in 2003, this statistic is likely to be an underestimate of the actual population size.

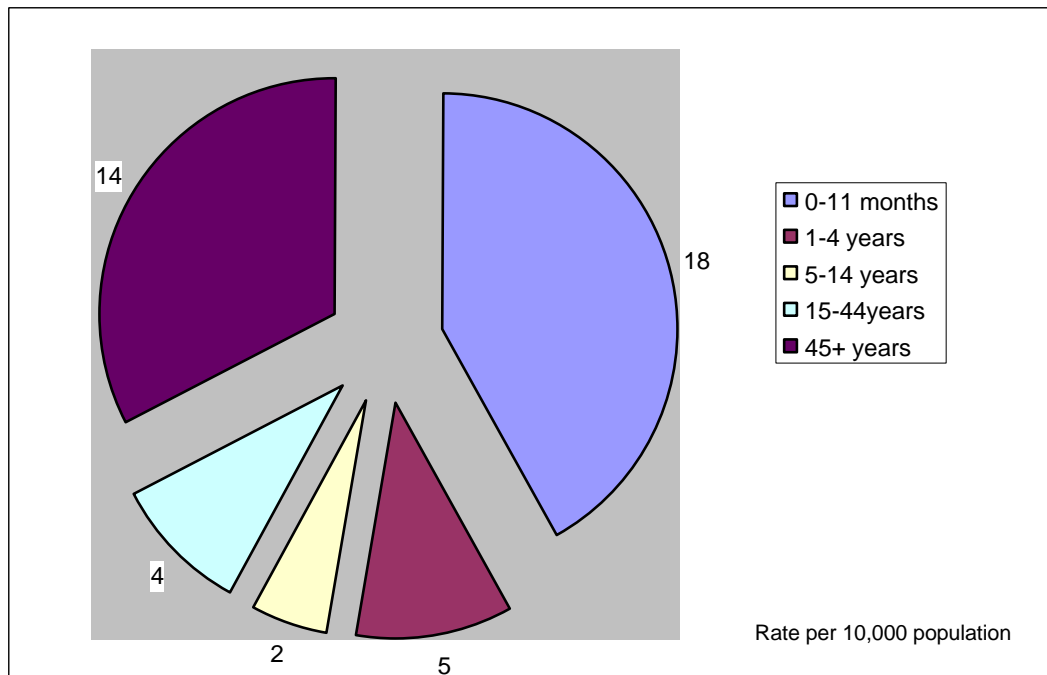
Epidemiological data for the entire population of the Arawa Town Health Centre catchment area, which includes the study population, show that malaria is not only the most common cause of death but also the most common reason for admission to hospital and presentation to outpatients. Only 16 deaths were recorded at Arawa Health Centre in 2004. Of these, 2 were caused by severe malaria and 2 by treatment failure malaria. Causes of recorded mortality are shown in Figure 7.

Figure 7: Recorded Deaths, Arawa Town HC, January – December 2004



The majority of deaths occur in babies up to the age of 11 months. In 2004 the mortality rate in the 0 to 11 month age group was 18 deaths per 10,000 babies. As shown in Figure 8 the next highest mortality rate is in the population cohort aged 45 years and older.

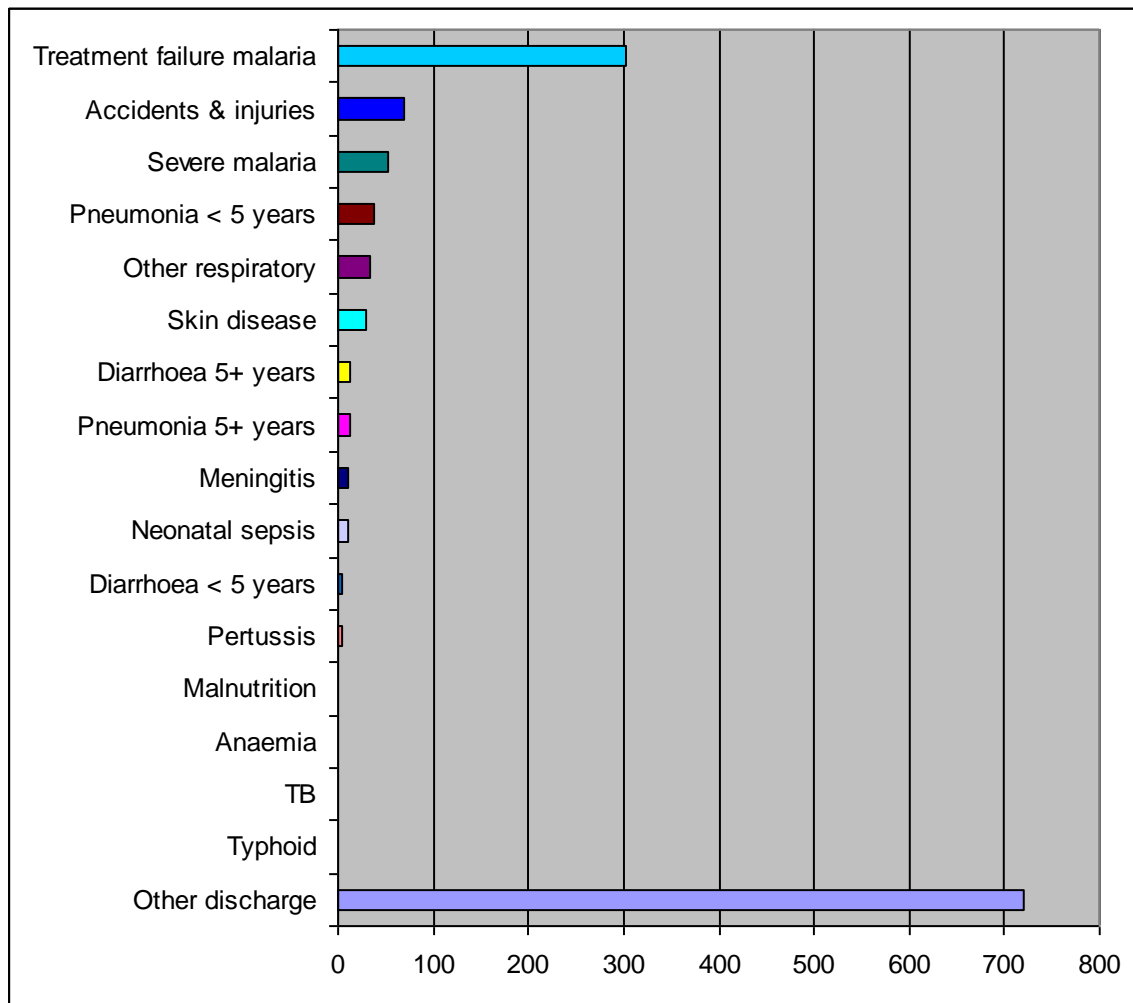
Figure 8: Mortality Rate by Age Group, Arawa Town HC, Jan – Dec 2004



Facilities at the Health Centre include a pathology laboratory where approximately 200 blood slides for malaria are examined each month. This represents about one-third to half of the outpatient presentations, discharges and deaths that are recorded as malaria. Some simple malaria cases, which comprise the bulk of malaria records, may be diagnosed on signs and symptoms but severe and treatment failure malaria are always diagnosed through blood slides.

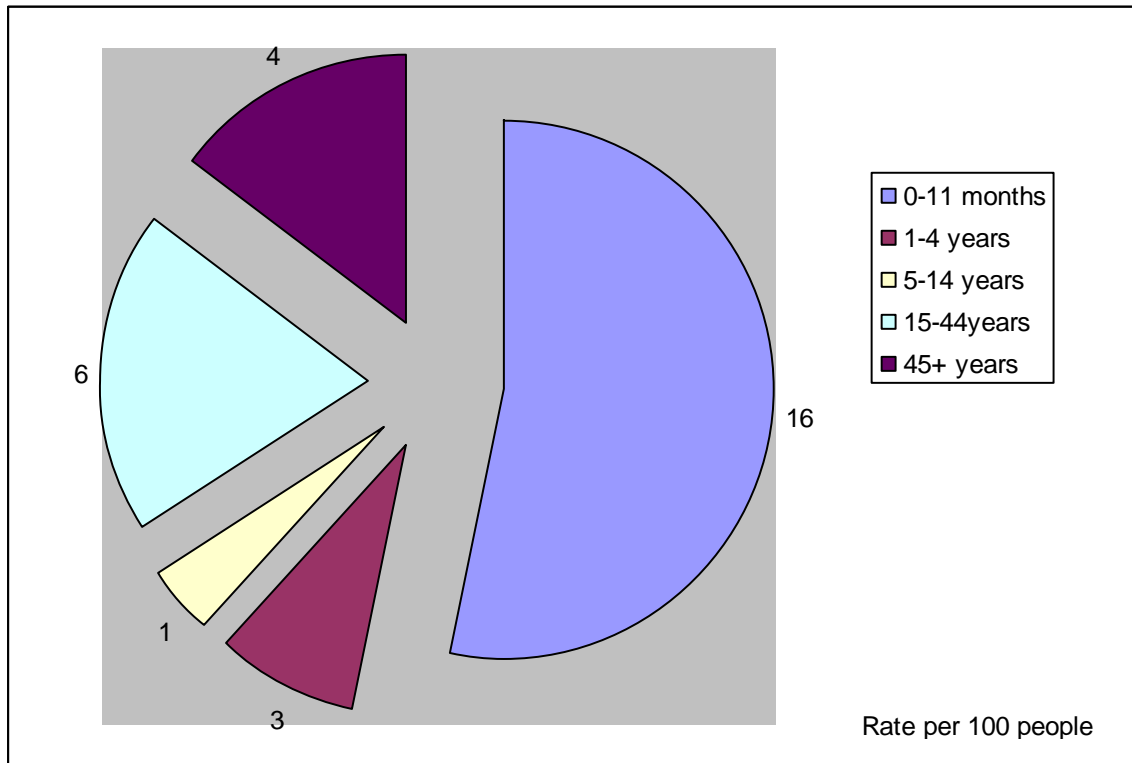
Malaria was also the most common reason for admission to Arawa Town Health Centre in 2004. Treatment failure malaria accounted for 23% of all discharges from the Health Centre and severe malaria an additional 18% of discharges. Other major disease categories resulting in inpatient stays during 2004 were accidents and injuries, respiratory illnesses and skin disease. Figure 9 lists discharges in 2004 by disease category.

Figure 9: Discharges from Arawa Town HC, January – December 2004



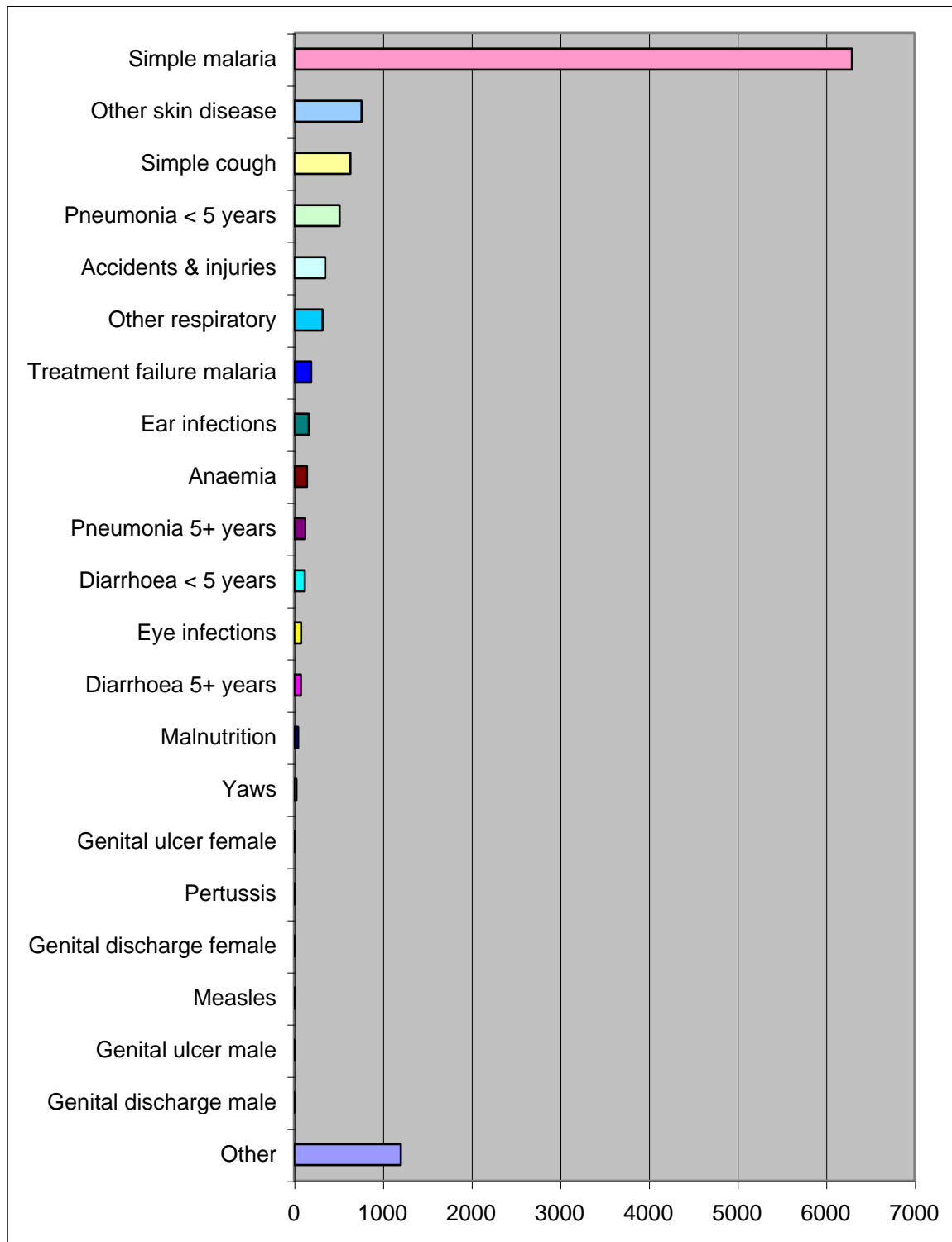
As was the case for deaths recorded in 2004, the highest discharge rates were among the 0 to 11 months age group. For every 100 babies under the age of 11 months there were 16 discharges from Arawa Health Centre in 2004. In all other age groups there were between 1 and 6 discharges for every 100 people. Discharge rates for various age groups in 2004 are depicted in Figure 10.

Figure 10: Discharge Rate by Age Group, Arawa Town HC, Jan – Dec 2004



Malaria was also the single biggest illness category among the 11,135 presentations to the outpatients department at Arawa Town Health Centre in 2004. Over half of all outpatient presentations in 2004 were for simple malaria (6,295 presentations). A further 195 presentations in that year were for treatment failure malaria. Skin conditions were the second largest illness category for which people visited the outpatients department at Arawa Town Health Centre in 2004 (763 presentations) followed by simple cough (637 presentations). Figure 11 summarizes all recorded presentations to the outpatients department at Arawa Health Centre in 2004.

Figure 11: Outpatient Presentations, Arawa Town HC, Jan – Dec 2004



CHAPTER EIGHT

ORGANIZATION OF HEALTH SERVICES

Government-Funded Western Health Care Services

Arawa Town Health Centre in the North Nasioi COE, one health subcentre at Roreinang in the South Nasioi COE and a network of aid posts and smaller clinics cater for the health needs of the study population. These are listed in Table 6. These health facilities all provide western medical care and were established and are now run under the government health system.

Table 6: Aid Posts and Clinics within the Study Area

COE	Aid Post	Clinic
North Nasioi	Tokiai Korokoro/Baratai Kupei Siae Toborai Bonamung	Poma Pokpok
South Nasioi	South Nasioi Rumba Marai Darutue	Paraiano Unabato Moranisina
Asikopan	Kopei Matana	Borumai
Ioro I	Poaru Kokore Pisinau Orami Mumurai Darenai Pirurari	
Ioro II	Mainoki Irang Daru	
Kongara I	Dunara Sianava Sipuru	

Aid posts and clinics provide basic medical care for common conditions and referral to a higher level of care, usually Arawa Town Health Centre, as required. Aid posts and clinics are located at

the community level and situated so that the furthest distance anyone in the catchment area should have to travel to reach the nearest aid post or clinic is approximately a 5-hour walk. For most people, aid posts are at a distance of between 1 and 3 hours' walk. Aid post and, to an even greater extent, clinic facilities are basic. Services may be provided from purpose-built premises (usually constructed from bush materials) but in many cases operate in the open, either adjacent to or underneath the residence of the medical attendant. These facilities typically include waiting areas with bench seating, a consultation area and little else. Many facilities lack a water supply and none have electricity. Although aid post and clinic opening hours may officially be from 0800 to 1606 pm, in reality opening hours are indeterminate. Attendants are generally available during the day but not necessarily in attendance at the facility for the whole day. People seeking treatment may have to wait until the attendant returns from the market, fishing or gardening. On the other hand the medical attendant may be called out in the evening or during the night for emergencies. The range and quantity of medication on hand in most facilities is invariably inadequate for the health needs of the community. Patients are often advised to purchase the medicine they need from one of the suppliers in Arawa. Staff in aid posts and clinics have varying levels of training. Some are community health workers, some are nurses and some may be health extension officers. Volunteers assist at some facilities.

The 2 bigger and better equipped health facilities in the study area both provide inpatient beds. Roreingang Health Subcentre, located in the South Nasioi COE area, has 6 beds and is staffed by a nursing officer and a community health worker as well as 2 or 3 volunteers.

Inpatient facilities are also available at Arawa Town Health Centre. This is the highest-level health care facility in the Central Bougainville District and is open 24 hours a day, 7 days a week. Arawa Town Health Centre comprises 5 wards with 8 beds each: postnatal ward, intensive care ward, paediatric ward, medical ward and general ward. In addition there is a TB/leprosy ward with 7 beds. Other services available at Arawa Town Health Centre include outpatients clinic, maternal and child health and antenatal clinic, dental clinic, pathology laboratory, delivery room, theatre, X-ray machine (but no technician), dispensary and an ambulance. There are a total of 35 staff positions, which are listed in Table 7.

Table 7: Number and Designation of Staff at Arawa Town Health Centre

Position	Number	Comment
Medical Officer	1	Currently filled by an Australian volunteer
Health Extension Officer	1	
Nursing Officer	10	2 x Midwives, 1 x MCH, 1 x Theatre
Community Health Worker	13	1 x Pharmacy, 1 x TB/Leprosy, 1 x Laboratory
Dental Orderly	1	
Medical Technician	1	
Clerk	2	
Cook	2	
Cleaner	3	
Driver	1	

In addition to the staff listed in Table 7 above, there are several Australian and New Zealand volunteer positions. In the recent past these included a nursing officer, midwife, pathologist and dentist. However, none of these positions was filled at the time of writing. There are also 2 positions for local staff created through the AusAID-funded Women's and Children's Health Project. These officers focus on training all levels of local health staff from health extension officer to village health volunteer. Training programs they conduct include Immunization, Safe Motherhood, Village Birth Attendant, Child Health and Community Action and Participation.

Arawa Health Centre operates a triage system whereby a nurse first sees patients for a cost of K2 per adult or K1 per child. If the nurse believes a higher level of care is warranted the patient is referred to a Health Extension Officer (HEO), which carries a charge of K3, less the fee already paid for the consultation with the nurse. If the HEO feels unable to provide a complete diagnosis and treatment the patient is referred to a doctor at a cost of K15 less those consult fees already paid. Laboratory tests cost K3 each. An inpatient stay costs K10 regardless of the length of stay and includes 2 meals a day. If people are unable to pay cash they can bring food or receive treatment on credit and pay later. The hospital has introduced charges because other sources of funding are inadequate or non-existent.

Village clinics typically charge from 20t to K2 for treatment. Payment is expected to be in cash although there is usually some consideration given to people who cannot afford to pay at the time of treatment.

Private Western Health Care Services

There is 1 general practitioner and 2 health extension officers in private practice in Arawa.

The private general practice is open from 8.00 am to 10.00 pm, 7 days a week. It has 2 consulting rooms, a waiting area, a dispensary, electricity and water supply. The practice employs 2 doctors, 4 nurses and a dispenser. The services include medical, maternity, child health, immunization, family planning, home visits and health education. A consultation with the private medical practitioner costs K25. All patients see the doctor at the beginning and end of their treatment but may receive assistance from nurses during the course of treatment. Patients are expected to pay in cash at the time of consultation although people with serious conditions who are unable to pay are not turned away.

Two health extension officers have established private practices in Arawa. One of these provides services from under his home in a residential part of the town. The other provides services from premises in the main retail shopping area of Arawa. Both are officially open Monday to Friday from about 0730 to 1630 although this may vary depending on patient demand. One HEO who was interviewed during the study indicated that the cost of consultation and treatment depends on the severity of the illness and the type of drugs required. Payment is required to be in cash.

Traditional Health Care Services

A plethora of traditional healers provide health care services to the Nasioi population. Traditional healers reside in virtually every Nasioi village although their level of traditional medical knowledge varies. Some practitioners can treat a range of conditions and are referred to as generalists. Other 'specialists' are well known for being able to treat 1 or 2 conditions. Some can treat a range of conditions but have 1 or 2 specialties. The different types of traditional practitioners include herbalists, bonesetters and spiritualists. There are also practitioners who deal with sorcery and illness thought to be caused by evil spirits. More detailed information about the distribution and organization of services among traditional healers is provided in the Results sections that follow.

Fees charged by traditional healers vary. Some traditional practitioners do not charge for their services; the majority charge from a few toea up to K2. Some practitioners leave the matter and amount of payment to the patient's discretion. Some charge K20 for a particular treatment but less for most treatments. One of the more expensive and popular traditional practitioners charges K50 for a specialized treatment. There was one report of a traditional practitioner imposing a fee of K1,000 for counter-sorcery treatment. Traditional practitioners tend to be flexible in their demand for cash payment. Most will accept payment in kind or be prepared to wait until the patient can afford to pay.

CHAPTER NINE

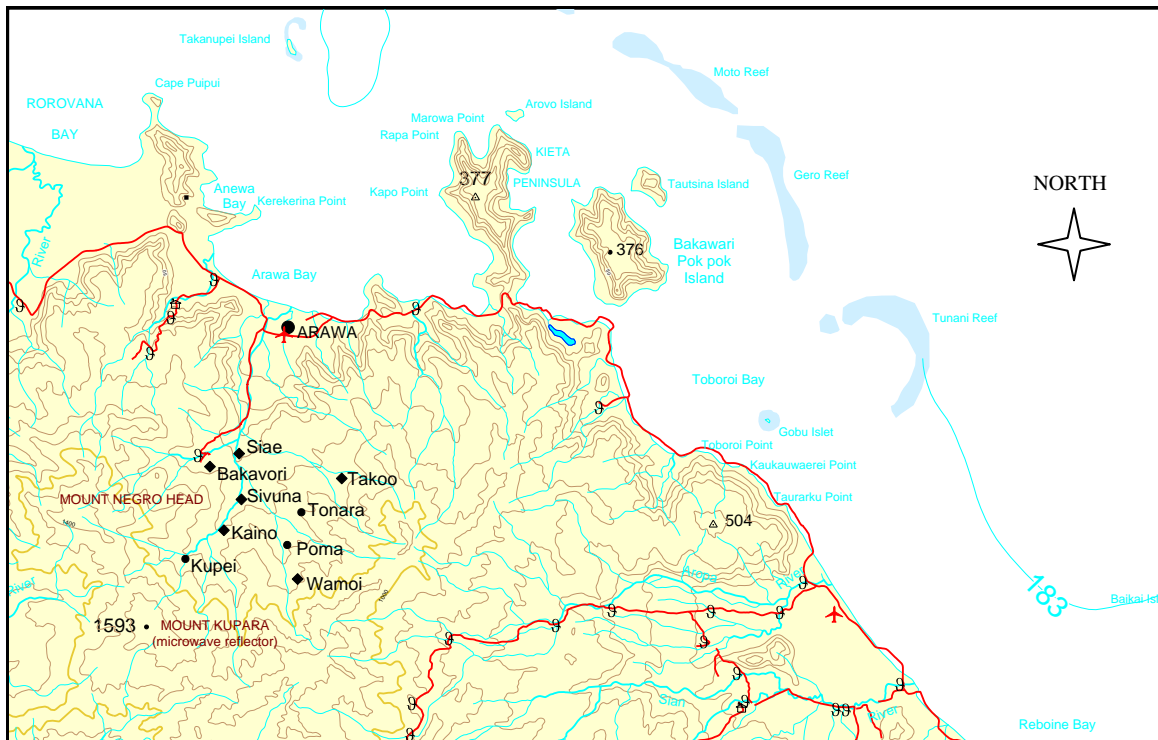
RESULTS - TASIPO

Sociodemographic Description of the Community

Geography

The Tasipo VCC area depicted in Figure 12 includes the main villages of Takoo, Siae, Sivuna, Poma and Tonara. There are also a number of smaller villages that are not separately identified in census data. This is the main area in which the first data collection was undertaken although towards the end of the fieldwork, the study area was extended to the adjacent Konampai area when some interviews were conducted with residents of Kupei, Kaino and Bakavori villages. Three-quarters of the interviews were with residents of Takoo, Poma and Kaino villages.

Figure 12: Location of Villages in the Tasipo Study Area

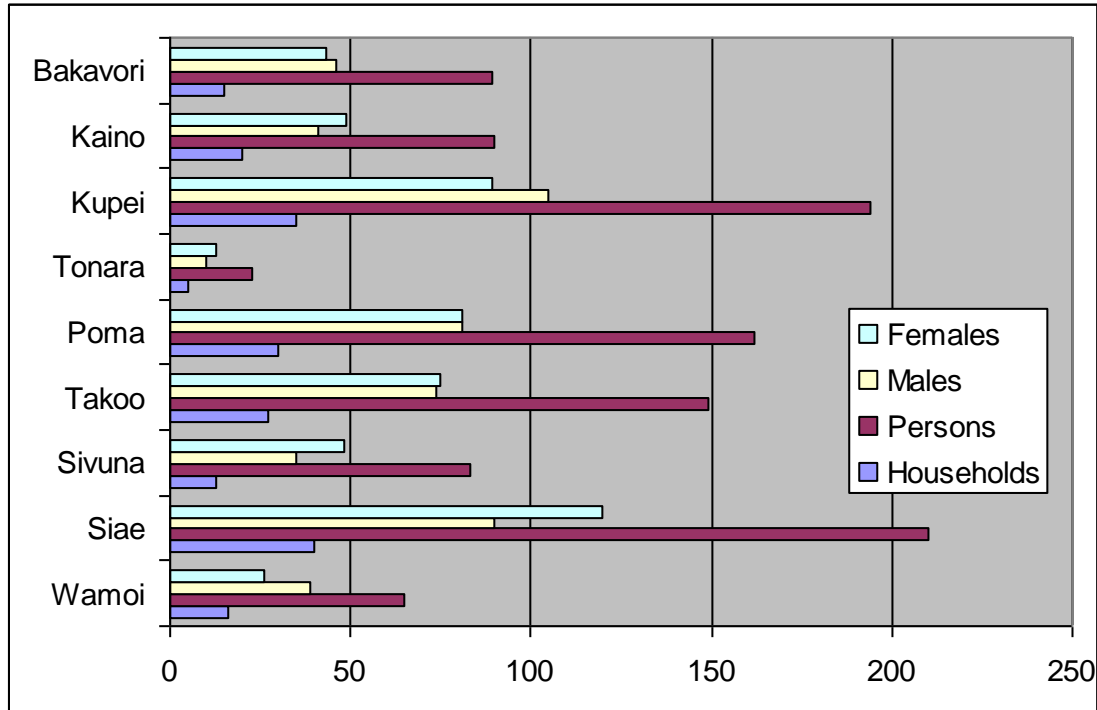


Most of Tasipo lies across valleys and ridges in the foothills of the mountainous region almost directly south and at a distance of approximately 7 kilometres from the town of Arawa. The elevation is from 400 metres at Piruana to 1000 metres at Takoo Mountain. Three large rivers, the Nkama, Boddi and Kovei, flow into the Bovo River within the Tasipo boundary. The temperature is usually between 28 and 30 degrees Celsius. Rainfall is high. The vegetation is thick tropical rainforest. It is a rural area and some of the land has been cultivated for cocoa and copra plantations. Garden crops are also grown. These are sold at market or used for domestic purposes.

Social Organization

The total recorded population of villages in the study area was 1065, comprising 521 males and 544 females, occupying 201 households (National Statistical Office, 2000 Census Data). Figure 13 shows the population sex breakdown and number of houses in each village.

Figure 13: Size of Villages Included in the Tasipo Study Area



A total of 77 interviews were conducted in Tasipo. This included 37 males and 40 females ranging in age from 17 to 83 years. Over 80% of respondents were aged 30 years or more. In terms of population size, Kupei, Poma, Takoo and Siae are the largest villages in Tasipo (Figure 13). The majority of respondents were drawn from these villages; 3 % from Kupei, 17% from Poma, 35% from Takoo and 7% from Siae, although all Tasipo villages were represented in the sample.

The vast majority, an estimated 85%, of people in the Tasipo area are Catholic. The minority are Seventh Day Adventists. Seventh Day Adventists live together in one village, Tonara, and commence preparations for their Saturday Sabbath from Friday lunchtime. The distribution of religious affiliation among respondents mirrored that of the broader Tasipo population; 91% of respondents were Catholic, 2% were Seventh Day Adventist while 7% did not state their religion.

There are elementary (prep to grade 2), primary (grades 1 to 8) and community schools (grades 1 to 6) at Piruana. The closest secondary school is in Arawa. Most of the current generation of young adults had their schooling interrupted by the Bougainville Crisis. Few people in this age group are educated beyond grade 6 level.

Organization of Health Services

Health services used by people from the Tasipo area include 1 Health Centre, 3 aid posts or village clinics, 1 general practitioner in private practice, 2 Health Extension Officers in private practices and a plethora of traditional practitioners. The Health Centre and private services are all located in Arawa. Aid posts/village clinics are situated at Poma, Siae and Korokoro. Over 30 traditional practitioners were identified during the study and it is quite likely that more than this number exist. Traditional practitioners reside in virtually every hamlet or village. Some are well known and treat many patients while others only treat members of their own family.

Most of the health care practitioners who were interviewed were born in the Tasipo area or have lived there for at least 30 years and are fluent in Nasioi. Two of the western health care providers interviewed come from other parts of Bougainville and do not speak Nasioi.

The western health care practitioners who were interviewed have attained higher levels of formal education than traditional practitioners. Most traditional practitioners have a grade 3 or less level of education whereas western health care providers have completed at least some medical training. One traditional practitioner has completed grade 10 while another is a qualified elementary school teacher and catechist.

Traditional practitioners have more years of experience in medicinal practice than western health care providers. The traditional practitioners who were interviewed have been practising traditional medicine for at least 30 years. Three of the older traditional practitioners claim to have been practising for 50 years.

Western health care services treat all or most illnesses whereas most traditional practitioners treat only a limited range of conditions. A handful of better-known traditional healers are either able to treat most conditions and/or have specialized in 1 or 2 particular conditions. For example, 1 traditional practitioner was renowned for treating diarrhoea and another for being able to mend broken bones.

Traditional practitioners work from their homes without any equipment or special facilities and do not have formal hours. Instead they operate on an ad hoc basis responding to patient demand. All traditional practitioners practise on a part-time basis. They are also engaged in subsistence agricultural activities to support themselves and their families. Of the 27 traditional practitioners identified by community respondents, 5 treat all types of illnesses. Most of the other traditional practitioners were said to treat 3 or fewer conditions. Some of the better-known traditional practitioners who can treat all conditions were also known as 'specialists' because they have cures for particular conditions.

Information and Knowledge Systems

Febrile Illnesses

Free listing with 3 key informants, who were 2 traditional healers and 1 nurse, produced a list of more than 20 febrile illnesses. This list was reduced to the 10 illnesses thought to be the most common or serious. Conditions such as earache, toothache, backache, stomachache and sore eyes were not included in the final selection because the name of the illness is self-explanatory and/or these conditions are often symptoms of other illnesses rather than illnesses in themselves. A condition referred to as *tarumate* was also excluded because it affects only pregnant women and appeared to conform to the western definition of miscarriage.

Five other key informants were then asked to provide detailed information describing each illness, which was used to develop an explanatory model for each of the illnesses. These key informants were also asked if there were any other febrile illnesses they know of that are either common or serious. To a lesser extent, the same type of information was sought in interviews with 10 community members. Community members were asked to rate each illness in terms of severity, list the signs and symptoms associated with each illness and group illnesses in any way that seemed logical. Some community members also commented on other aspects of the explanatory model and progression of febrile illnesses.

Although there was significant variation in ideas and perceptions amongst these 15 respondents, some consensus was also evident and some similarities and patterns in their responses can be identified. These are summarized in Figure 14 and Table 8.

Within the broad febrile illnesses group a majority of respondents grouped certain illnesses together. Thus there are 3 identifiable groups of illnesses within the febrile illness group: respiratory illnesses, illnesses said to affect the digestive tract and illnesses related to malaria. There are also two outliers (*pintuu* and *maana*) that were less consistently placed in a particular group or frequently placed in more than one group. As well as the malaria-related illnesses identified in Figure 14, *kubiri* was only slightly less frequently included in that group.

Figure 14: Taxonomy of Febrile Illnesses, Tasipo

FEBRILE ILLNESSES		
RESPIRATORY ILLNESSES	DIGESTIVE TRACT ILLNESSES	MALARIA-RELATED ILLNESSES
<i>Kou</i> <i>Eenu</i> <i>Domang O</i>	<i>Kubiri</i> <i>Ereng Piri</i> <i>Pintuu</i> <i>Maana</i>	<i>Malaria</i> <i>Pari</i> <i>Bore Bana</i> <i>Pintuu</i>

A few respondents indicated progression from one illness to another within the 3 febrile illness subgroups. Although there was sufficient consistency in responses to categorize most of the febrile illnesses in 1 subgroup, the quotes presented below reveal some of the variation in responses and that all respondents do not necessarily think of the 3 subgroups as being mutually exclusive.

'Kou leads to eenu and if not cured will become domang o.' Female traditional healer

'Kou, eenu, domang o, pari, maana, malaria and pintuu are all related. There is a progression of illnesses from kou through to pintuu.' Female traditional healer

'Ereng piri follows kubiri and can be fatal if not treated early.' Male community member

'Kubiri, ereng piri, maana occur in that sequence.' Female traditional healer

'Kubiri, ereng piri, pintuu develop in that sequence.' Female traditional healer

'If not treated immediately there can be a progression of illness from malaria to pari to bore baana, to kubiri, to ereng piri.' Young adult female

'Bore baana, malaria, pintuu appear in that sequence.' Female traditional healer

'Malaria, domang o, maana, pintuu, ereng piri are related illnesses, listed in order of appearance.' Young adult female

All 15 respondents (key informants and community members) were asked to describe the signs and symptoms and severity of the 10 illnesses in the febrile group. Key informants were asked for additional information about cause, seasonality, groups affected and treatment. The most common responses for each illness are presented in Table 8. Most key informants were not asked to

provide a full description of malaria. This was because the interviewers regarded *pari* to be the Nasioi term for malaria and most key informants concurred. From the data obtained in the Tasipo area all but 2 of the 33 symptoms attributed to *pari* by community members were common to malaria suggesting that they are essentially the same illness. Information collected later in Bava Pirung and quantitative interviews suggests that *pari* and *malaria* are similar but different conditions. These data are presented in Chapters 10 and 11. Furthermore it became apparent that a diagnosis of *malaria* under the emic taxonomy of illness is not the same as the western medical diagnosis of malaria. For Nasioi speakers '*malaria*' is a syndrome of signs and symptoms, characterized especially by fever, which can be caused by one of several different agents (Table 19). For this reason further references to the emic *malaria* in this thesis are notated in italics. Neither can it be assumed that any emic condition corresponds precisely to any western medical condition. In Tables 8, 9, 19 and 20 bracketed disease names beside the Nasioi illness term denote the closest western medical equivalent and should not be interpreted as an exact translation of the emic term.

Table 8: Descriptions of Febrile Illnesses, Tasipo

<i>Illness Name:</i>	<i>Kou</i> (Cough)
<i>Severity:</i>	Intermediate to serious
<i>Symptoms:</i>	Runny nose, sore throat, weight loss, chills, insomnia
<i>Cause:</i>	Dietary (eating greasy, salty, sweet or fatty foods, fruit) Climatic (exposure to cold and rain, hot sun, flowering fruit trees) Environmental (exposure to smoke, dust, aroma from drying cocoa)
<i>Seasonality:</i>	Prevalent during wet season and when fruit trees flower
<i>Groups Affected:</i>	Everyone
<i>Treatment:</i>	Traditional medicine consisting of leaves, roots and herbal teas. Western medicine may also be used.

<i>Illness Name:</i>	<i>Eenu</i> (Persistent Cough)
<i>Severity:</i>	Serious
<i>Symptoms:</i>	Insomnia, shortness of breath, weak aching body, weight loss, productive cough
<i>Cause:</i>	Dietary (eating greasy food) Climatic (exposure to rain) Environmental (smoking) Traditional belief (exposure to or interfering with human corpse, stress)
<i>Seasonality:</i>	Can occur at any time
<i>Groups Affected:</i>	More common among older people, outbreaks can affect children
<i>Treatment:</i>	Traditional or western medicine

Illness Name:	Domang O (Respiratory Conditions)
Severity:	Serious
Symptoms:	Cough, chest pain, fever, shortness of breath, insomnia, weight loss, dizziness, chills, loss of appetite
Cause:	Dietary (allergic reaction to certain medicines or food) Climatic (rain, cold weather) Physical (carrying heavy weights, excessive work load)
Seasonality:	More common during the wet season
Groups Affected:	Can affect anyone but common among older people
Treatment:	Western or traditional medicine (scraped bark, leaves and/or roots)

Illness Name:	Kubiri (Diarrhoea)
Severity:	Can range from mild to serious
Symptoms:	Weight loss, watery stools, insomnia, stomachache, loss of appetite, dehydration
Cause:	Dietary (not drinking enough water, eating acidic fruits, fatty or bad food) Physical (poor hygiene, having too many children too close together)
Seasonality:	Epidemics can occur during the wet season and fruit season
Groups Affected:	Anyone can be affected
Treatment:	Good traditional medicine is available. Some people prefer to use western medicine as a first option.

Illness Name:	Ereng Piri (Dysentery)
Severity:	Serious
Symptoms:	Weight loss, insomnia, continuous diarrhoea, bloody stools, rolling eyes, stomach cramps, dehydration
Cause:	Dietary (eating acidic fruits, raw vegetables, fatty, cold, stale or dirty food) Physical (poor hygiene particularly for food storage and preparation)
Seasonality:	More likely to occur during wet season or fruit season. Can occur as an epidemic.
Groups Affected:	Can affect anyone
Treatment:	Traditional or western medicine

Illness Name:	<i>Pari</i> (Malaria-like Fever)
Severity:	Serious
Symptoms:	Chills, fever, headache, trembling, weight loss, insomnia, disorientation, diarrhoea. Symptoms occur in the mid-afternoon.
Cause:	Climatic (warmer or coastal climates) Physical (over-exertion, tiredness, triggered by other illnesses) Traditional belief (spirits stealing the soul after someone visits sacred land, imbalance of blood and water in the body – blood gets hot due to lack of water) Malaria parasites (from 1APO)
Seasonality:	Can occur at any time
Groups Affected:	Can affect anyone
Treatment:	Traditional medicine (picking the spirits off the patient's head with leaves). Only the APO referred to western medical treatment.

Three of 5 key informants explained that *pari* arises when a person trespasses into forbidden places and the spirits of that place try to steal the person's soul. *Pari* almost always occurs in the afternoon. The spirits hold the person's soul tightly and the body shakes as they try to wrestle the soul away. All 3 also described the same remedy using wild taro leaves to 'pick' or wipe the spirits off the patient's head in a particular motion. One respondent said that the names of the sacred places the patient had trespassed into are recited at the same time.

Illness Name:	<i>Bore Bana</i> (Headache)
Severity:	Serious
Symptoms:	Splitting headache, chills, fever, trembling, insomnia, nose bleed, dizziness
Cause:	Other illnesses (<i>malaria</i> , cough, asthma, pneumonia, other aches) Dietary (allergic reaction to fruits) Climatic (exposure to heat, rain, cold) Physical (over-exertion, injury to head) Traditional belief (inhaling smoke after throwing bones on the fire, <i>malaria</i> leaving the body through the head)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional medicine (leaves), blood letting on the face, western medicine

Several respondents thought that *bore bana* was a symptom of other illnesses or triggered by other illnesses rather than an illness in its own right.

Illness Name:	<i>Pintuu</i> (Urinary Tract Infection)
Severity:	Intermediate to serious
Symptoms:	Continuous and painful urination, weight loss, insomnia, abdominal pain, blood in urine
Cause:	Dietary (eating watercress, lack of salt) Climatic (exposure to climate changes) Physical (carrying heavy weights, poor hygiene, through sexual intercourse) Other illnesses (<i>malaria</i>) Traditional belief (trespassing into forbidden locations)
Seasonality:	Responses unclear on seasonality. May occur with <i>malaria</i> .
Groups Affected:	More common among adults. Common among pregnant women.
Treatment:	Traditional medicine. (Western medicine referred to by 1 aid post orderly.)

Illness Name:	Maana (Splenomegaly)
Severity:	Serious
Symptoms:	Stomachache, bloated stomach, weight loss, yellow eyes, fingers or toes, fever
Cause:	Exposure to serious illness, may be triggered by <i>pari</i> or <i>malaria</i>
Seasonality:	Not seasonal
Groups Affected:	Anyone can be affected
Treatment:	Traditional or western medicine

Three of the 5 key informants were not familiar with *maana* and did not provide information about this condition.

Several respondents including 3 of the most respected traditional healers in the Takoo area provided additional thoughts and further insights into local explanations of febrile illnesses. The idea that all illnesses stem from a common cause was not isolated to the more elderly respondents.

'Febrile illnesses are caused by unhygienic living conditions and bad house keeping. In the old days we used to go home from the garden as early as 3.00 pm and could prepare food and eat in daylight. It was more hygienic. Now people stay in the garden until after dark and food is prepared and eaten in darkness. Our bodies lack good nutrition. Today we eat food that has been prepared in such a way as to remove the nutritional content. In the old days people cooked food with herbs and plants that combined to increase the body's defence against disease. We get sick because we overlook good practices.'

Malaria is one of two main fatal illnesses here. Malaria is the worst. The whole body will be like fire. Malaria will result in pintuu, diarrhoea and coughing. Malaria can give rise to many other diseases. Malaria can also become polio. It is all because of the heat that malaria generates that causes all these other symptoms to arise.' Male traditional healer

'All illnesses have their origins in malaria.' Male traditional healer

'All diseases are related to bad or poor blood. Bad blood is caused by heavy workloads and carrying heavy loads or by past events that have left germs, which affect people. All kinds of heavy tasks with continuous exposure to strong heat from the sun; carrying heavy loads without rest are the main causes of febrile illnesses. Mild febrile illnesses are related to poor diet and eating habits which lead to general ill health. Bad air from unclean surroundings also causes febrile illnesses.' Female traditional healer

'All illnesses are associated with or stem from malaria. The body's defence against illness may be weakened by malaria, allowing other illnesses to affect the person.' Male community member

Skin Conditions

The same approach that was used to identify serious and common febrile illnesses was adopted to find out about serious and common skin conditions. Three key informants were asked to free-list all the skin conditions they could think of. This elicited an extensive list of 22 terms. Another 4 key informants were asked to describe 14 of these in detail as well as any other skin conditions they thought were common or serious. The list was then reduced to 10 conditions for further investigation of relationships between the various conditions, severity and signs and symptoms with 10 community members.

Once again there was considerable variation in responses but nonetheless some discernible patterns. Within the broad skin condition illness category there were 3 subgroups that can be loosely classed as leprous conditions, skin irritations that result in sores and skin inflammations.

There is a clear association between *erepu* and *oramu* for all those who responded. Respondents thought these 2 conditions were related because they are both serious and capable of causing great damage and deformity. Both were thought to result from blood poisoning.

Moona and *sisisi* were also strongly associated although the reasons people thought they are related were not so well explained. Two respondents said both conditions start internally before appearing externally.

The association between conditions grouped under skin irritations or sores was looser but still identifiable. Most respondents could see an association between *kitei*, *kasikasi*, *atuatu* and *kaakepesi*. *Aaroa* and *kokosi* were more often associated with the other 4 illnesses in this group than any of the illnesses in the leprous or skin inflammation groups. The skin irritation/sores group was characterized by an initial itch or irritation leading to scratching and the eventual development of sores. All conditions in this group were said to be superficial. This information is presented schematically in Figure 15. Table 9 summarizes the most common descriptions of each illness.

Figure 15: Taxonomy of Skin Conditions, Tasipo

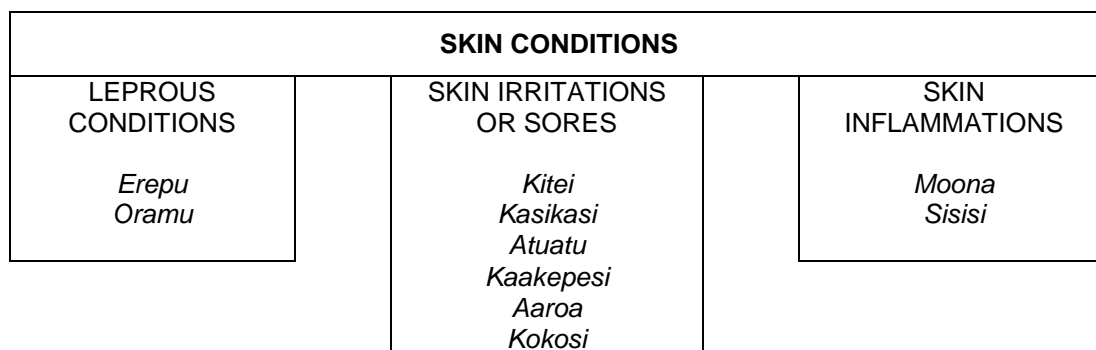


Table 9: Descriptions of Skin Conditions, Tasipo

Illness Name:	<i>Erepu</i> (Leprosy)
Severity:	Serious
Symptoms:	Aching body, insomnia, sores, eats away flesh, starts internally, develops into an itch and then painful bleeding sores
Cause:	Hereditary (blood poisoning) Traditional belief (stepping over the blood of dead relatives)
Seasonality:	Occurs rarely and only when a person is exposed to the blood of dead relatives
Groups Affected:	Can affect anyone. May affect people in the same family.
Treatment:	Traditional medicine

Several respondents were unfamiliar with and thus unable to describe *erepu*. People commented that the condition is rare these days.

Illness Name:	<i>Oramu</i> (Leprosy)
Severity:	Serious
Symptoms:	Aching body, insomnia, sores, eat away flesh, starts internally, develops into an itch and then sores, red lumpy skin, rotting flesh, wasted appearance, crippled hands and/or legs
Cause:	Hereditary, blood poisoning Physical (perspiration, exposure to heat/sun or certain grasses) Biological (stepping on urine of or sharing utensils of or living with infected people, living in or visiting places where infected people have been buried) Traditional belief (stepping over the blood of relatives)
Seasonality:	Not seasonal, can occur at any time but is becoming less common
Groups Affected:	Certain families
Treatment:	Traditional medicine including food restrictions and western medicine

Oramu is also said to be rare these days although one respondent commented that prevalence has increased since the crisis when treatment was unavailable.

Illness Name:	<i>Kitei</i> (Itchy sores on head resulting from head lice infestation)
Severity:	Mild to intermediate
Symptoms:	Sores on head, severe itch, pussy sores, watery blisters, foul odour
Cause:	Dietary (eating small fish, certain fruits, galip nuts, sweet potato, yam, banana) Climatic (exposure to severe heat, heat rash) Poor hygiene Head lice
Seasonality:	Can occur at any time
Groups Affected:	Commonly affects children
Treatment:	Self-management (cutting hair, oil, coconut with boiled leaves, salt water). Most people know the treatment and can treat themselves or their children.

Several respondents said that a ‘preventive dose’ of galip nuts administered at the same time as eating foods that cause *kitei* could protect against the condition developing.

Illness Name:	<i>Kasikasi</i> (Skin Irritation)
Severity:	Intermediate to serious
Symptoms:	Insomnia, severe itch that results in scratching and sores, watery blisters, pussy sores
Cause:	Dietary (eating meat, greasy food) Poor personal hygiene Exposure to certain grasses, sago palm odour or infected persons
Seasonality:	Not seasonal but occurs as an epidemic or outbreak and is contagious
Groups Affected:	Can affect anyone
Treatment:	Self-management (massage with boiled leaves or oil). Most people can treat themselves but traditional and western medicines are available.

Illness Name:	<i>Atuatu</i> (Sores from dirty soil)
Severity:	Mild
Symptoms:	Severe itch, rash, watery blisters, swelling affecting the toes and feet, insomnia
Cause:	Hookworm or germs from human or animal excrement in mud Stepping on rotten meat, rotten wild taro, walking in grassy areas
Seasonality:	More common during the wet season (there is more mud around)
Groups Affected:	Can affect anyone
Treatment:	Self-management or traditional medicine (stems of plants and skin of nuts)

Illness Name:	<i>Kaakepesi</i> (Eczema)
Severity:	Mild to intermediate
Symptoms:	Peeling skin on palms of hand or sole of foot, severe itch
Cause:	Passed on from pigs or dogs to humans Traditional belief (eating or holding clan totems)
Seasonality:	Seasonal but uncommon
Groups Affected:	
Treatment:	Traditional medicine (not widely known)

Key informants were not questioned about *kaakepesi* and responses from community members were less expansive.

Illness Name:	Aaroa (Ringworm)
Severity:	Mild
Symptoms:	Severe itch, flaky peeling skin, insomnia, watery blisters
Cause:	Contagious Blood poisoning
Seasonality:	
Groups Affected:	Affects certain people
Treatment:	Traditional medicine

Key informants did not provide information about *aaroa*.

Illness Name:	Kokosi (Whitespot)
Severity:	Mild to serious
Symptoms:	White dusty layer over skin, severe itch, flaky peeling skin
Cause:	Climatic (exposure to heat or sun) Exposure to certain grasses Sharing clothes with infected persons, poor personal hygiene Blood poisoning
Seasonality:	Not seasonal – can occur at any time
Groups Affected:	Can affect anyone but more common in coastal areas
Treatment:	Self-management (coconut oil and mild soap), traditional (scraped bark, lime and leaf resin) or western medicine

Illness Name:	Moona (Boil)
Severity:	Mild to intermediate
Symptoms:	Itch, pain, swelling, pus, blood, sores, insomnia
Cause:	Dietary (western or processed food, fatty food) Environmental (exposure to certain grasses) Physical (poor personal hygiene, over-exertion, carrying heavy weights) Traditional belief (poison inflicted in retaliation for stealing crops) Infected blood
Seasonality:	Responses unclear
Groups Affected:	Can affect anyone
Treatment:	Self-management, traditional or western medicine

Tamai moona is a more serious type of boil differentiated from *moona* because it has an eye.
Tamai moona is more likely to require western medicine.

Illness Name:	Sisisi (Cellulitis)
Severity:	Serious
Symptoms:	Insomnia, aches, watery blisters, pus, swelling, sores, starts internally and then appears externally, affects fingers and toes, deformed fingers and toes
Cause:	Dietary (eating or smelling greasy food) Blood infection Traditional belief (poison inflicted by someone intending to harm another or protect property from theft)
Seasonality:	Responses unclear
Groups Affected:	Can affect anyone
Treatment:	Traditional medicine (roots, leaves, betel nut). Western medicine is not effective.

Skin conditions are often attributed to poor hygiene and living conditions or exposure to irritant grasses. There appears to be limited awareness of parasitic agents. More pervasive is the perception that skin conditions are caused either by exposure to the blood of dead relatives (*oramu* and *erepu*) and intentional 'poisoning' by another person (*moona* and *sisisi*). 'Blood poisoning' also featured regularly among responses across various illnesses. However, respondents' exact meaning of the term blood poisoning is ambiguous. It may relate to a traditional belief or it may literally mean blood poisoning. Some examples of verbatim responses are provided below.

'Mostly skin conditions come when people are not looking after their bodies. When people are not washing properly. The body that is not looked after will be affected by these conditions which will lead to all sorts of other conditions.' Male traditional healer

'Before there was no soap and people were more affected by skin conditions. Today people look after themselves better and use soap so skin conditions are less prevalent. Those who are affected these days do not look after themselves properly, that is, they have poor hygiene.' Female traditional healer

'Some sores are self imposed by mishandling traditional medicine for getting a good garden harvest, not washing oneself well with soap, or if the water from plants that cause allergies comes into contact with skin. This causes itchiness and scratching which leads to big sores.' Female traditional healer

'.....can also be inflicted through 'poison trap' or sorcery by someone seeking retribution.' Female traditional healer

'.....can also be caused by someone intending to harm another person.' Female community member

'.....may be inflicted by someone seeking retribution or preventing theft of fruit crops.' Male traditional healer

'.....caused by stepping on the blood of dead relatives.' Male key informant and male community member

For the most part skin conditions were considered to be mild and curable with care and attention to hygiene and home treatment. Traditional remedies for most of these ailments are available but knowledge of these is widespread so that, unless the case is particularly serious, sufferers do not need to consult a traditional practitioner. People are also aware that western medicine is available

for skin conditions but do not usually find it necessary to resort to this treatment option. The exceptions to this are leprosy conditions for which expert assistance, either traditional or western medicine, is perceived to be required.

'Skin conditions can be treated at home and cured. If the condition is severe treatment can be obtained from Arawa Hospital.' Female traditional healer

'We can get traditional medicine as well as western medicine. The best way is for western and traditional medicine to be used together...' Male traditional healer

Treatment-Seeking Response to Illness

As well as in the information contained in the illness narratives, health care practitioners provided more general information about typical treatment-seeking responses to febrile illnesses and skin conditions. The data presented in this section are those provided by health care practitioners.

Febrile Illnesses

There was a general consensus that people seek some form of treatment for conditions or symptoms they consider to be serious. Nearly all health care practitioners, both traditional and western, identified cerebral malaria, *malaria* and *pari* as serious febrile illnesses on the basis that they cause the most deaths among the study population. According to health care practitioners, in the local explanatory model of febrile illnesses the following symptoms are considered serious: backache, headache, fever, chills, continuous vomiting, inability to walk, stargazing, rigors, joint aches, dizziness, malaise, stiff neck, yellow eyes.

'If people are really sick they will come to the hospital for malaria. If they don't think the condition is too serious or it is difficult to get to the hospital, they may try traditional medicine.' Male western health care provider

Conversely, people tend to ignore symptoms that are not serious, painful and/or incapacitating.

'Unless symptoms are serious or painful, the illness tends to be ignored.' Male traditional practitioner

'People tend to ignore symptoms when they are mild and don't incapacitate them. People ignore the fact that the symptoms can get worse and the illness might become serious.' Male traditional practitioner

People often wait to see if an illness will improve by itself before seeking treatment. They hope that the condition will resolve itself and do not seek treatment until serious symptoms are manifested. Health care practitioners recognize that failure to get treatment in the early stages of an illness can result in more serious health consequences, permanent disability or even death.

'When people ignore their illness and don't get immediate treatment (either traditional or western) they can become seriously ill and/or die.' Female traditional practitioner

'When illnesses are mild people will go to the bush or go to the garden, more or less ignoring the symptoms and assuming or hoping that they will go away. People don't realize they are sick until the symptoms become more serious or painful. They think they can withstand exposure to harsh weather conditions and hard physical work but in the weakened state of early illness they may not be able to do so.' Male traditional practitioner

'People wait longer than they should before seeking treatment. While they wait the illness becomes serious. Some people die because they wait too long to get treated.' Female traditional practitioner

There were varying perceptions among traditional practitioners about people's ability to accurately self-diagnose their illnesses.

'People are able to self-diagnose different types of fever quite accurately.' Male traditional healer

'People are good at self-diagnosing malaria and dysentery because these conditions are fairly straightforward.' Male western health care provider

'People often diagnose illness as malaria because it is a very common sickness in this area. Sometimes people think they have malaria when in fact they have something else.' Male western health care provider

'Traditional practitioners may be able to diagnose different types of fever but most other people are not good at self-diagnosis.' Female traditional practitioner

'Headache, dizziness and joint aches are not always associated with malaria and so diagnosis is often not accurate.' Male western health care provider

'If people have experienced an illness before, they can easily diagnose the fever when another episode occurs. But out of ignorance people are not good at self-diagnosis. When they misdiagnose the illness, they can go for the wrong treatment.' Male western health care provider

The ability to accurately diagnose an illness and recognize serious or potentially serious symptoms is likely to impact on morbidity if people do not seek treatment until they consider the condition has become serious. If diagnosis is inaccurate people may not avail themselves of treatment when it is required. However, when people do decide to seek treatment for febrile illnesses it is just as likely to be from a traditional healer as a western health care provider.

'People use both traditional practitioners and western medicine. If the traditional medicine does not take effect then western medicine will also be used.' Male traditional healer

'People with fever go to either traditional practitioners or Arawa Hospital.' Male traditional healer

'People usually go to either the hospital or traditional practitioners for treatment of fever.' Male traditional healer

'People who live in Arawa usually go to the hospital or a health clinic for treatment. People who live in villages are more likely to try a home remedy or traditional healer before making the effort to come into town.' Male western health care provider

Skin Conditions

Most skin conditions are not considered serious. Only the two leprous skin conditions (*oramu* and *erepu*) were said to cause death. For these serious skin conditions treatment is likely to be sought from either a traditional practitioner or Arawa Health Centre.

'Most people are aware of leaves that can be used to wash and cure skin conditions. Only for serious skin conditions like oramu and erepu is more expert help needed. For these conditions people go to either known traditional healers or Arawa Hospital.' Female traditional practitioner

Other skin conditions are considered a nuisance because of the discomfort they cause. Compared with febrile illnesses, people are more likely to treat skin conditions at home. It appears that there is widespread knowledge of traditional remedies for a variety of skin conditions. For most skin conditions it is usually only when symptoms become sufficiently aggravating and home treatment is not resolving the complaint that someone outside the family will be approached for treatment. Again, treatment may be sought from either a traditional healer or a western health care service provider.

'Those who know the treatments can treat themselves. Many people know their own treatment and so don't need to seek assistance from outside the family. People who don't know their own treatment will seek help from a traditional practitioner. Most skin conditions are treated at home. Only if the condition is particularly serious or painful are people likely to seek treatment from western health care providers.' Male traditional practitioner

'For most skin conditions, people normally use those medicines they have inherited knowledge of through their clan elders. If the family treatment fails to cure the skin condition they may seek treatment outside the family.' Male traditional practitioner

'Local bush treatments are available to treat skin conditions. People use traditional practitioners or they go to Arawa Hospital for treatment of skin conditions.' Male traditional practitioner

'People use both western and traditional medicine to treat skin conditions. People go to aid posts, to known traditional healers and also to the Arawa Hospital to get treatment for skin conditions. Some people take hot noni juice in addition to tablets for leprosy.' Male western health care provider

As with febrile illnesses mixed responses were obtained regarding people's ability to accurately self-diagnose skin conditions. Some health care providers thought that people are able to identify and diagnose various skin conditions fairly easily while others thought people are unable to distinguish between different skin complaints.

Most practitioners thought that people take too long to get treatment for skin conditions. This is consistent with the response to febrile illnesses where it was observed that unless the condition and/or the symptoms are considered to be serious, people are not inclined to seek treatment. Because the majority of skin conditions are perceived as a nuisance rather than a health threat,

people may be even slower to seek treatment. Although it may be true that most skin conditions are not life threatening, delays in getting treatment allow time for the condition to spread to other members of the community.

'People often wait too long before seeking treatment for skin conditions. However, people know that the skin condition is not likely to kill them so they don't bother to get treatment.' Female traditional practitioner

'Many people don't go for treatment and spread the skin condition to others.' Female traditional practitioner

Hierarchy of Treatment Resort

Information about use of the various health care services available to people living in the Tasipo area was collected in several ways. Twenty-eight community members were asked about past use of the 5 types of health care services that are available. The same people undertook a forced choice selection of practitioners whereby they nominated which service provider they would choose if they could only choose between 2 services. The exercise was repeated for every possible combination of pairs of health care services, including being treated at home by someone within the family. The respondents were also asked to explain the reasons for each of their selections. In addition 32 narratives of recent or current illness episodes were collected in which respondents provided details about their actual treatment-seeking responses to illness.

Use of local village clinics, traditional healers and the Arawa Health Centre at some time in the past was almost universal. 75% of respondents had also sought treatment from the only private general practitioner in Arawa. Health care services provided by 2 Health Extension Officers who have set up private practices in Arawa are less popular with just 43% of respondents having availed themselves of HEO services at some stage in the past. Table 10 shows the number of respondents from each village that reported ever having visited particular service providers.

Table 10: Ever Used Health Care Service by Village, Tasipo

Service Provider	Takoo	Poma	Siae	Kaino	Kupei	Total
Village clinic	5	4	1	17	1	28
Traditional healer	5	4	1	17	1	28
Arawa Health Centre	5	3	1	17	1	27
GP in private practice	5	3	1	11	1	21
HEO in private practice	3	1		8		12
Total number of respondents	5	4	1	17	1	28

Responses from the forced choice of practitioners exercise are presented in Table 11 and reveal very clear preferences for particular health care services. These results are consistent with respondents' past use of health care services but elaborate on that information with both the inclusion of an additional treatment option (family member) and by showing not only which services respondents have used, but also which services they prefer to use. When a respondent has a febrile illness or skin condition, they are most likely to choose to be treated by a family member. Outside the family, traditional healers are the preferred service providers. Respondents indicated that the type of illness for which they were choosing a service would make very little if any difference to their preferences for particular service providers.

Table 11: Service Provider Preferences, Tasipo

Service Provider	Choices for Service Provider
Family member	93%
Traditional healer	81%
Village clinic	75%
Arawa Health Centre	33%
Private GP	23%
Private HEO	11%

Respondents were asked to give their reasons for each forced choice of health care service. Respondents could provide more than 1 reason for choosing a service. For each possible choice of services the reasons given by all those respondents who chose the more popular service provider were collated. The results are presented in Table 12. The data show, for example, 'because the clinic is closer to home' was nominated 75 times as the reason for choosing a village clinic in preference to another service. Furthermore, across all the available health care services, proximity to home was given as the reason for choosing a service 198 times. The number of times

different reasons were given for respondents' preferences for health care services show that proximity to home and cost far outweigh any other factors that may come into play when deciding what type of treatment to use. Thus, for the Tasipo sample, treatment-seeking decisions and choices are primarily and pragmatically based on proximity to home and cost of the service. It is interesting to note that HEO was not preferred by a majority of respondents over any of the other health care services available, and thus no data are included for the HEO service provider category.

Table 12: Reasons for Service Provider Preferences, Tasipo

Reason	GP	Village Clinic	Arawa H/Centre	Tradition al Healer	Family Member	Total
Service is closer to home		75		51	72	198
Service costs less		53	37	54	53	197
Familiarity with practitioner/medicine	1	1		6	16	24
Superior medicine	12		4			16
Treatment is effective	1	1	1	5	4	12
Try first to see effect		3		4	4	11
Immediate results	3	1		5		9
Medicine is available	1					1

Figures indicate count of responses

Community members provided narratives for a variety of illnesses ranging from *malaria* to diarrhoea to ringworm to white spot to leprosy to a broken leg. Most of the conditions for which illness narratives were provided were among those listed in either the febrile illness or skin condition groups that were the subject of key informant interviews. Key informants provided information about how they think others would deal with particular illnesses. Similarly, in the forced choice of practitioner exercise community members provided information about how they believe they would respond in particular situations. Both these sources of information are somewhat hypothetical because they do not refer to actual behaviour in a specific instance. The illness narratives, on the other hand, are of particular interest because they provide insights into actual treatment-seeking behaviour and thus enable a validity check of information obtained from other sources.

Illness narratives confirm that for most people questioned (75%) the first response to illness is to try and manage or cure it at home without recourse to traditional or western practitioners. In 24 of

the 32 illness narratives, the respondent reported attempting to treat the condition at home before seeking any type of care outside the home. In half of these cases, the respondent used some kind of traditional medicine. In a further 7 instances, a simple home remedy such as soap and water or saline solution was used. Respondents with febrile illnesses were just as likely to use home treatment first as those with skin conditions.

'Before approaching any health care providers, I tried washing with lemon soap and anti-bacterial soap.' Male for whitespot

'I treated the condition with a particular ikinameeka (scraped bark) boiled in hot water. I washed my body with the liquid. My family obtained the bark from the bush. Knowledge of the curative properties of this particular tree was inherited from family elders.' Female for scabies

'The pabapabara (blisters) were first treated with a mixture of coconut oil and noni bark. The bark of the noni tree is scraped and boiled and mixed with coconut oil. The child was then washed with this mixture. Noni were obtained from friends who have noni trees in their gardens. Coconut oil is readily available – people can make it themselves.' Parents for child's skin irritation

'When I suffer from a bout of the illness, I usually drink bush medicine before seeking outside assistance. This medicine is obtained from clan elders.' Male for domang o

'Home treatment was administered and involved massaging the body and throat with heated oil. Only home treatment was used because there was no western medicine to give.' Grandmother for granddaughter's general malaise and eating disorder

As well as using known traditional remedies at home, several respondents reported treating themselves with western medicine, which was either left over from previous illness episodes or purchased at a local trade store.

'Initially I took panadol, which I obtained from a small local store in the village.' Female for malaria

Twenty-seven respondents reported using treatment services outside the home at some stage during the illness episode. The first health care service used outside the home was most often the local village clinic, followed by Arawa Health Centre and the private general practitioner in Arawa

as shown in Table 13. The 3 health care services most likely to be used by respondents as a first resort after home treatment are all providers of western medical services. Those who had first used some form of traditional medicine at home or a simple home remedy and those who had not used any home treatment were all more likely to resort to a western health care provider once the search for treatment went outside the home. Of the 3 respondents who went to a traditional healer as a first resort, 1 had used traditional medicine at home, 1 had used western medicine at home and the other had not used any home treatment.

Table 13: Health Care Service of First Resort, Tasipo

Service Provider	No. of Responses
Village clinic	10
Arawa Health Centre	6
Private GP	6
Traditional healer	3
Private HEO	2
Total	27

Worsening of the condition or failure of home treatment to resolve the condition is what usually prompts respondents to seek treatment from someone outside their immediate family and determines their choice of health care service provider. The other reason commonly cited for choosing a particular service as the first treatment resort outside the home is confidence in the treatment or service provider to resolve the complaint.

Most respondents sought treatment from the service provider of first resort on 1 occasion only. Usually this was because the treatment prescribed was effective although several respondents said they did not return because the treatment had been ineffective. Of those respondents who commented on their satisfaction most were either partially satisfied or satisfied with the treatment provided by the first health care service provider they approached outside the home. Three respondents reported being partially satisfied with the treatment received and 9 were satisfied. Those who reported being satisfied with the treatment felt it had either improved or completely resolved their condition. Six respondents were not satisfied because they felt the treatment had been ineffective. Dissatisfaction with the treatment provided was for both traditional and western remedies.

Fifteen respondents, including some who were partially satisfied with the first treatment option, reported using a second treatment option outside the home as shown in Table 14. Compared with the treatment option of first resort, there was a more even spread across the various services available for the treatment option of second resort. By the time they are looking for a second treatment option outside the home respondents are more likely to seek treatment from a traditional healer. One respondent, who was dissatisfied with the treatment provided by the 2 traditional healers who were his first treatment resort, reverted to self-management.

Table 14: Health Care Service of Second Resort, Tasipo

Service Provider	No. of Responses
Traditional healer	5
Private GP	4
Village clinic	3
Arawa Health Centre	3
Self-management	1
Total	16

Only 5 respondents explained their reason for choosing a second treatment alternative. All respondents based their decision on the failure of prior treatment to improve or cure the condition. In this instance the 5 respondents who provided information had all used a western medical service provider in their first resort to treatment outside the home.

Of the 15 respondents who resorted to a second treatment alternative outside the home, 11 were satisfied with the treatment received, 2 were partially satisfied and 2 were not satisfied. Thus, there was a higher level of satisfaction with the treatment provided by the service provider of second resort than that provided by the service provider of first resort.

Nine respondents reported using a third treatment option outside the home. Service providers used at the third resort to treatment are shown in Table 15. As was the case for the treatment option of second resort, traditional healers were the most likely treatment option of third resort.

Table 15: Health Care Service of Third Resort, Tasipo

Service Provider	No. of Responses
Traditional healer	5
Arawa Health Centre	2
Private GP	1
Village clinic	1
Total	9

The reason given for the treatment option of third resort was confidence in the ability of the service provider to get results quickly. For both respondents who chose Arawa Health Centre as their third treatment option, it was because of the availability of superior diagnostic facilities.

Six of the 9 respondents who used a third treatment option outside the home provided information about their satisfaction with the treatment received. Three were satisfied, 1 was partially satisfied and 2 were not satisfied with the treatment received. Satisfaction and dissatisfaction were expressed for both western and traditional treatment options.

Three respondents reported using 4 or more treatment options. Two of these respondents were suffering from febrile illnesses while the other had a skin condition. One respondent reported seeking treatment from 3 additional traditional healers, a witch doctor and finally Arawa Health Centre. For the other 2 respondents the health care service providers of fourth resort were traditional practitioners. For all 3 respondents, previous treatment options had failed to effect a cure and their ongoing treatment seeking reflected their intention to exhaust all possible treatment options until finding a satisfactory cure. At the time of interview, each of these respondents was happy with the most recent treatment they had received.

Respondents were asked who is normally their practitioner of first preference for the condition that was the subject of the illness narrative. The results, summarized in Table 16, are somewhat at odds with the actual treatment options of first resort as reported in illness narratives. While in both questions village clinics were nominated as the treatment option that would be chosen first by most respondents, in practice Arawa Health Centre was the second most frequent treatment option of first resort and traditional healers the fourth, whereas according to respondents' reporting of the practitioner they would normally prefer, these positions were reversed. While respondents say

they prefer traditional health services, in practice they are more likely to use western medical services once they start seeking treatment outside the home.

Table 16: Usually Preferred Service Provider, Tasipo

Service Provider	No. of Responses
Village clinic	10
Traditional healer	8
Private GP	7
Arawa Health Centre	3
Private HEO	1
Total	29

The most common reason given for not using the preferred practitioner in the illness episode that was the subject of the narrative was cost, nearly always in relation to the cost of services provided by the private GP. This does not help to explain the discrepancy noted that in practice the first treatment option used outside the family by most respondents was a village clinic followed by Arawa Health Centre whereas more respondents said that, in theory, their first treatment option outside the family would be a traditional healer. Although treatment at village clinics and Arawa Health Centre is inexpensive, fees charged by most traditional healers are similarly very low.

Perhaps the explanation for the apparent anomaly lies in the ubiquity of traditional medical knowledge. Within most extended families there is either a traditional healer or someone with considerable knowledge about traditional medicine. Managing a condition at home most often involves using some kind of traditional medicine based on the advice and/or treatment prescribed by this family member. Thus, by the time people start seeking treatment outside the home, they have already received services from a traditional healer (the preferred type of provider) and, if the condition has not been resolved, they seek the alternative type of health service (western medicine) when the search for treatment goes outside the family. If this explanation is in fact true it may blur the distinction between home management and traditional healer. The issue of distinctions between various traditional healers was further investigated in the third phase of data collection and the results are discussed in Chapter 11.

The minority of respondents who seek treatment outside the home or family without first attempting to manage their condition themselves are also more likely to resort to a western health care

provider than a traditional healer. These people may have a preference for western medicine. Thus, they do not make use of readily available traditional treatments that could be used at home but instead go straight to a western health care provider.

Three health care practitioners, 2 traditional and 1 western practitioner, made a few general comments about the hierarchy of treatment resort. Although not completely unequivocal, these comments support the finding evident from other parts of the data that most respondents seek treatment from traditional health service providers before resorting to western medicine.

'People use both traditional practitioners and western medicine. If traditional medicine does not take effect then western medicine will also be used' Traditional healer

'People often seek help from traditional healers before coming to the hospital.' Western medicine practitioner

'Most people seek village treatment first.' Traditional healer

'Some people come to me after receiving unsuccessful treatment at the hospital.' Traditional healer

Medical Pluralism

In many instances it appears that use of various treatment options is sequential but neither is it uncommon for people to obtain treatment from various different providers at the same time. Both forms of medical pluralism were reported by community members in their illness narratives as well as by both traditional and western medical practitioners.

'In addition to the private GP, two other practitioners were involved in treatment. My mother administered traditional medicine for general healing and protection against bad spirits. My father-in-law also administered some traditional medicine against poisoning in case the condition was being caused by someone trying to poison me.' Female community member for fever

'I am using septrim, chloroquine, amoxil and other western medicines which were obtained from the private GP. A local traditional practitioner is also treating me for spitting blood. The traditional practitioner prescribed ikinameeka (scraped bark) eaten in oil.' Female community member with fever

'Since returning to Arawa Hospital, my relatives have approached a respected bone-setter in the local area to provide treatment.' Male inpatient in Arawa Health Centre with a broken leg at the time of interview

'I advise patients receiving treatment from the hospital to continue taking my treatment while they are taking the hospital (western) treatment.' Male traditional practitioner

As one western medical practitioner highlighted, pluralistic use of medical services can create problems.

'Sometimes patients use both traditional and western medicine at the same time. I discourage this kind of medical pluralism as it creates confusion about which treatment has provided the cure.' Male western medical practitioner

Not only does simultaneous use of traditional and western medical services create ambiguity over which treatment is successful but also in the case of treatment being detrimental, it is impossible to know which treatment has caused the damage. Several traditional practitioners stated that they prefer people to use only one service provider at a time. If a patient gets sicker or dies while under treatment it is common for relatives to seek retribution or compensation from the practitioner who provided the treatment. If more than one practitioner is treating the patient at the time of death, one practitioner could be mistakenly blamed for another practitioner's error, if indeed the fatality was due to the medicine. Thus, some traditional healers advise against simultaneous use of traditional and western medicine as a means of self-protection.

'I don't want to be blamed for the mistakes of other traditional healers. If treatment goes wrong, the practitioner's clan or family can be held responsible and retribution can be sought through poisoning, and can even result in death.'
Female traditional healer

Summary of Treatment-Seeking Response to Illness

The data show that the typical treatment-seeking pattern in response to illness begins with seeking treatment from a family member. If this does not resolve the complaint, assistance will then be sought from outside the family. Of the health service providers available to the study community, 4 are very popular. All respondents have sought treatment from traditional healers, village clinics

and Arawa Health Centre and most have used the private western medical practitioner in Arawa at some stage. Village clinics, Arawa Health Centre and the private medical practitioner are the most popular health care providers once a respondent seeks treatment outside the family (Table 13). In theory respondents prefer village clinics and traditional healers (Table 11) but in practice they are more likely to go to a village clinic, Arawa Health Centre or the private medical practitioner in Arawa than a traditional healer. The order in which these various types of health care services are used can vary. However, respondents are likely to revert from western medical services to traditional health care services and vice versa if the treatment option of first resort does not resolve their complaint. Pluralistic use of health care services is common. This describes the typical treatment-seeking response to illness. The following section will examine data that help to explain the factors that determine or motivate this pattern of behaviour.

Explanatory Model for Treatment-Seeking Responses

The information used to build an explanatory model for treatment-seeking responses to ill health for people included in the case study was derived from several interview categories. Some community members and traditional healers shared their concept of and beliefs about illness. The health care practitioner interviews included sections on the community's knowledge of and typical response to fever and skin conditions. Community members commented on the advantages and disadvantages of the various available types of health care providers as well as identifying who made the decision about which provider to use and the reasons for any delay in obtaining treatment in specific, recent illness episodes. These various pieces of data have been analyzed collectively to create an explanatory model for treatment-seeking behaviour.

Beliefs about Aetiology of Disease

Several health care practitioners (both traditional and western) shared their general ideas about the causes of disease. This information is pertinent to understanding the motivation for treatment-seeking responses. These practitioners said that in the study area, people attribute illness to 3 main factors apart from the physiological factors normally included in a western medical epistemology of disease aetiology. According to the local understanding of ill health, sorcery,

spirituality and relationships with family or neighbours all play an important part in determining a person's health and well-being as well as impacting on the effectiveness of traditional treatments.

'Sometimes people blame death on sorcery [poison]. In the community discussions I have attended I have heard people blame deaths on the '3 minute magic'. This is a kind of poison that can kill a person in 3 minutes. Although me personally, I don't believe in that.' Male traditional healer

'Many people blame illness on sorcery and so don't seek medical help straight away.' Female traditional practitioner

'Firstly, people forget or deviate from God's laws, stop going to church, stray from the spiritual creator or become worried about many different things. People today are worried too much about things and the result is sickness because they forget to look after themselves. Therefore also praying or spiritual devotion can help to maintain good health because our ancestors also observed spiritual practices and prayed.' Male traditional healer

'People also need to lead a spiritual life and have good relationships with their community. Some people pay too much attention to their physical needs and not enough attention to their spiritual needs. Thus they have an imbalance in their life, which manifests itself as a physical illness.' Male traditional healer

'In addition people must be peace loving and avoid animosity with their neighbours. People must not forget God. They must obey his words and pray all the time.' Male traditional healer

'If the family relationships are harmonious or the family is happy, the illness will be cured. If there is discord in the family the medicine will not cure diseases. The bad spirits (or bad feelings) will cause problems in the family, which result in an illness for at least one member of the family. Harmonious relationships within the family need to be restored before the illness can be cured.' Male traditional healer

'When first approached, the bone-setter declined the request for treatment saying that there was no point until such time as I had 'made peace' with my family and relatives. After consultation I agreed to change my attitudes and pay more attention to the needs of my family. Subsequently the bone-setter agreed to provide treatment.' Male community member

'Illnesses are caused by bad blood.' Female traditional healer

As mentioned by some of the respondents, it is logical that people who believe that sorcery, spirituality or social relationships are causing their health problems will seek traditional treatment.

Some respondents recognized that western medicine does not typically adopt a holistic approach that might incorporate treatment for these types of causative factors. In contrast a person's mental health and spirituality are important considerations in the traditional epistemology of disease and so traditional treatment is the obvious choice. Herein lies at least part of the explanation for the widespread use of traditional practitioners.

'If the patient's illness is due to mental stress from conflict with others, the illness tends not to be cured because of the underlying conflict.' Female traditional practitioner/ key informant

'If the doctor can't recognize the illness it is obviously spiritual which can only be solved with traditional medicine.' Male traditional practitioner

'Many people believe that spirits, 'poison' and sorcery cause illness. People who hold these beliefs are unlikely to be completely cured by western medicine, which usually does not attempt to address these components of an illness. In these situations, western medicine may be used to alleviate or cure the symptoms while traditional medicine may be used to address the perceived underlying cause of illness.' Male western medical practitioner

Three respondents mentioned that their own or other people's beliefs about the origin of an illness determine the type of treatment they will seek. These respondents differentiated between 'village' and 'western' illnesses.

'Some people think that malaria is a 'sik bilong ples' (sickness of the village) and these people will use traditional medicine rather than coming to the hospital.' Male western health care provider

'When the clinic is not providing a cure because it is a village illness the best cure is at home.' Female community member

When asked to choose between a traditional healer and Arawa Health Centre in the forced choice of practitioner exercise, a male respondent aged 55 stated that he would seek traditional treatment for illnesses he knew could be cured but go to Arawa Health Centre for 'western' illnesses. The only example the respondent gave of a western illness was gonorrhoea. Another respondent was more expansive saying that village illnesses include *pari*, *maana* and *pintuu* and western illnesses include malaria and gonorrhoea.

Organization of Health Services

As noted earlier, convenience or proximity was one of the most important reasons for practitioner preferences. The location of health services is an important organizational factor that underpins the popularity of village clinics and traditional healers. Most community respondents, who provided information about available treatment options, live within easy walking distance of a village clinic. Traditional healers are even more ubiquitous. It appears that at least 1 traditional practitioner resides in virtually every village. More than 30 traditional practitioners were identified within the limited confines of the study area. Some were more renowned than others but all were considered to have healing abilities. The easy accessibility of village clinics and traditional healers is without doubt one of the major reasons for the popularity of these treatment options.

Use of traditional healers appears to be very localized; respondents do not travel outside their own village to avail themselves of services from a traditional practitioner. There are some traditional healers who are specialists and/or highly regarded for their general healing ability. Even these practitioners do not treat many people from outside their own village. They are, however, likely to have treated most people within their own village. For example, a bonesetter, a diarrhoea specialist and a highly revered traditional healer had treated most respondents from their own communities but few outsiders. Most other traditional practitioners had treated only a minority of respondents from their own village. Respondents will use service providers who they know can provide effective treatment and are close at hand.

The other organizational attribute that has a major bearing on treatment-seeking decisions is cost. Compared with other treatment options, village clinics and traditional healers were thought to be inexpensive. Conversely, the perception that consultations with the private practitioner in Arawa are expensive was almost universal. The cost of services provided by both the private general practitioner and the private HEOs is seen as a disadvantage by many respondents. For some respondents cost prohibits use of the more expensive health care services. Other respondents are able to afford the service of their choice.

Respondents reported paying from K1.50 to K30 to obtain treatment and/or medication from their preferred service provider. The more expensive service providers are the GP and HEOs in private

practice; however, some traditional healers also charge K20 or more. Respondents who sought treatment from the more expensive service providers were either able to afford the cost themselves or could borrow money from immediate relatives. Those respondents using the more expensive service providers believe that the importance of being healthy outweighs concerns about the cost of treatment.

'The cost of visiting a doctor is of concern although it does not stop this family from using western doctors. If a family member is ill the important thing is that they get well. Cost is less important. Despite the cost of western medicine, my family has always used it when a family member is ill. We have the financial means to meet the cost of western medicine.' Male community member

For other respondents the cost of some services is prohibitive.

'When I needed treatment in the past, cost was not an issue as cocoa prices were high before the crisis and thus treatment was affordable. During the crisis, the cocoa plantations died and I no longer have surplus financial resources at my disposal.' Married community member

'Some people delay seeking care due to lack of funds for medical costs....' Male traditional practitioner

'At other times lack of money stops people from getting treatment as quickly as they would like to.' Male traditional practitioner and key informant

'Delays in seeking treatment are usually due to the cost. People may have no money for the cost of treatment or transport to get to the health centre.' Male western health care provider

'At this stage in the current illness episode, I would like to go to Arawa to get the injection for kasikasi (skin irritations) but so far I have not been able to find the K20 needed to pay for the injection.' Female treatment seeker

'I had to borrow money from my son to pay for treatment at Arawa Hospital. There was a 3-day delay in going to the Hospital because I waited for my son to volunteer the money rather than asking him to help me.' Female community member

Other organizational aspects of health care services that respondents consider advantageous and disadvantageous are summarized in Table 17. There are several points of interest in these data. Although the GP, the HEOs and Arawa Health Centre are all located in Arawa town, the distance to

travel to the hospital was cited as a disadvantage by many more respondents than distance to any of the private clinics. The often lengthy waiting time at Arawa Health Centre is also commonly perceived as a disadvantage. The most commonly cited disadvantage for village clinics is that the practitioner may not be in attendance. Also of note is the widespread perception among respondents that there are no disadvantages associated with health care services provided by traditional healers. This is the only service provider category that elicited such a response.

Table 17: Organizational Attributes of Service Providers, Tasipo

	GP in Private Practice	HEO in Private Practice	Arawa Health Centre	Village Clinic	Traditional Healer*
ADVANTAGES					
Close proximity				25	27
Comparatively inexpensive		8	11	15	16
Continues to treat until patient is well					1
Makes home visits					1
Provides services not available elsewhere	1		5		2
Usually open				3	
DISADVANTAGES					
Attitude to patients		1	2	1	
Distance to travel	8	9	16	2	3
Expensive	27	16	8		11
Lengthy waiting time			13	2	
Limited opening hours				2	
Medicine not readily available			1	5	1
No follow-up					2
Practitioner not reliably in attendance				8	3
Return visits required		1	3	1	
No disadvantages				1	51

Total Number of Respondents = 28

Figures denote number of responses

*'Traditional Healer' column includes responses for up to 4 traditional healers per respondent

Health care service providers corroborated some of the information about organizational attributes of various health care services provided by community respondents. Some health care service providers commented on proximity or convenience, confidence in the availability of drugs and practitioner attitudes toward patients. One health care service provider mentioned that language might be a barrier or disadvantage to services provided at Arawa Health Centre. Traditional healers and village clinic attendants are indigenous to the study area and speak Nasioi. This may not be the case with all staff at Arawa Health Centre.

'People living in Arawa usually go to the hospital or health clinic for treatment. Those who live in villages are more likely to try a home remedy or traditional healer before making the effort to come into town.' Male western health care provider

'Sometimes the health centre does not have drugs on hand. People are reluctant to spend money on transport to get to the health centre, only to find there is no supply of the drugs they might need.' Male western health care provider

'People normally go to the traditional practitioner or health worker they feel most comfortable with.' Female traditional practitioner

'Some people may delay seeking care because they cannot speak English or Tok Pisin which may be the languages spoken at Arawa Hospital. They may be too shy to approach the hospital staff.' Male traditional practitioner

Decision-Making and Social Organization

Depending on the age and degree of infirmity suffered, the person experiencing an illness episode or their immediate relatives nearly always decide which treatment options to pursue. Relatives often made treatment-seeking decisions for very young, very old and very sick respondents. In some instances, particularly for the less accessible services, the relative will actually describe the illness to the practitioner and receive medication in lieu of a consultation with the afflicted person. Other respondents made their own decisions.

The relationship between the illness sufferer and the person who makes the decision about which type of treatment should be sought may not make any great difference to treatment-seeking. In most instances when a relative made a decision on behalf of the sick person, there appeared to be no disagreement or concern over the treatment option selected. In many cases there appeared to be some collaboration. In only 1 instance was there evidence of conflict.

'The grandmother decided to take the children to the clinic while their father was away from the village. However, the father is a staunch believer in traditional medicine and insists that the children should be treated with traditional medicine.' Female community member

Two further comments related to social customs and characteristics that may sometimes influence treatment-seeking decisions.

'In addition customs prevent brothers or sisters from taking each other to hospital.' Female traditional practitioner

'There are various reasons for delays in seeking treatment including: low socio-economic standard, lack of education, tendency to ignore symptoms, cost of treatment, lack of confidence in the service provided by Arawa Hospital particularly when there is no resident doctor.' Male western health care provider

Efficacy

Logically, the perceived efficacy of different treatment options will have a major impact on treatment-seeking decisions. The data presented in Table 18 suggest that both traditional and western treatment options are seen to be efficacious by respondents. Three providers of western medical services are seen as providing very effective treatment. In particular, treatment provided by the private general practitioner is thought to be highly effective. The treatment provided by traditional practitioners is well regarded because it has an immediate effect rather than because it is better treatment. It would appear that there is little confidence in treatment provided by village clinics. In view of the popularity of village clinics among respondents perhaps convenience outweighs efficacy in treatment-seeking decisions.

Table 18: Perceived Efficacy of Service Providers, Tasipo

	GP in Private Practice	HEO in Private Practice	Arawa Health Centre	Village Clinic	Traditional Healer*
ADVANTAGES					
Immediate relief/effect	11	3			33
Superior treatment	20	14	13	1	7
DISADVANTAGES					
Ineffective treatment		3	2	10	
Treatment is painful					10
Treatment slow to take effect			1		
Uses too many drugs	1				

Total number of respondents = 28

Figures denote number of responses

*'Traditional Healer' column includes responses for up to 4 traditional healers per respondent

Health care providers also recognize that perceived efficacy is important in treatment-seeking decisions. They supported the efficacy of both traditional and western medicine. Traditional healers believe their popularity lies in the known efficacy of their treatments. As well as believing in

the effectiveness of his own stream of medicine, one western health care provider vouched for the efficacy of some traditional treatments. If a western health care provider holds this view, it is likely to be widespread amongst the community.

'People come to Arawa Hospital for malaria treatment because they know that laboratory tests are available to show whether or not they really have malaria. An Australian volunteer did some education on the importance of blood tests to verify malaria and this seems to have had some positive effects.' Male western health care provider

'People usually go to the local private practitioner for febrile illnesses because his treatments provide instant cures.' Female key informant and traditional practitioner

'There are some plants that can cure malaria, for example the kanu tree.' Male western health care provider

'There are traditional cures for all illnesses.' Female traditional healer

'Over the next week the condition became more serious. I developed kubiri (diarrhoea), which I ended up having for a week. Ten days after the onset of illness, I visited a traditional healer who is renowned for his treatment for diarrhoea. I took this practitioner's treatment for 3 days and completely recovered from the illness.' Female community member

'I have personally experienced effective traditional treatment for broken ribs and have seen traditional healers provide effective pain relief.' Male western health care provider

'People come to me for treatment because they know the cures/treatment I provide are effective.' Male traditional healer

'Some traditional practitioners are really effective and have some kind of healing gift or talent.' Male western health care provider

Summary: Explanatory Model for Treatment-Seeking Responses

Several factors that are important in treatment-seeking decisions have been identified. The epistemology of disease among the study population incorporates spiritual and social elements. Relationships with family and neighbours are believed to have an impact on health as does leading a spiritual life. A lot of illness is attributed to sorcery which may also be a means of social control

by providing a negative incentive to respect customs and other people. All these beliefs about the aetiology of disease mean that traditional medicine is an important part of the local health paradigm.

Some respondents differentiated between *sik bilong ples* and western illnesses. If others share this concept, it would help to explain the widespread use of both traditional and western health care services. It is evident that both traditional and western treatments are thought to be effective. This would also explain the use of both treatment options.

The over-riding factors in treatment-seeking responses to illness may be extremely pragmatic: cost and convenience. All other things aside, the services that are most popular among respondents are the ones that are cheap and easy to get to. Village clinics and traditional healers best meet both these criteria.

Potential for Integration of Traditional and Western Medicine

Twelve health care practitioners were asked about their thoughts on collaboration between and integration of traditional and western medicine. This included 5 western health care providers and 7 traditional healers. Their ages ranged from 29 to 76 years. The youngest traditional healer was aged 55 and 4 of the traditional healers were over 70 years of age. All western health care providers were male whereas 3 of the traditional healers were female.

Apparently some degree of collaboration between practitioners, including between traditional and western practitioners, is currently occurring. Ten health care practitioners said they collaborate with and refer patients to other practitioners. Only 1 respondent said he works in isolation. Most practitioners collaborate with and refer to other practitioners who they consider to be specialists in certain fields or when they feel unable to assist a patient themselves. There was limited support for more collaboration between traditional and western practitioners. Five practitioners (2 western and 3 traditional) thought the amount of collaboration occurring at the moment is sufficient. Three practitioners thought there should be more collaboration. One traditional healer provided an interesting comment.

'The amount of collaboration between traditional practitioners and health workers currently taking place is sufficient for the time being but it should be increased when the autonomous government is established.' Male traditional practitioner

When asked if they would like to see traditional medicine formally recognized as a part of the government's health care system, health care practitioners of both persuasions were more effusive in their support. Nine health care practitioners answered this question and the affirmative response was unanimous. Further insights into their ideas are revealed by the following comments.

'The two types of medicine are no different from each other. God has given white man some good ideas about how to turn plants into medicine. But we also have these plants that we can use as medicine. All medicine comes from plants originally. For example quinine or medicine for malaria comes from a tree and when you go to the hospital you get it in a tablet. But we know that this tree here that God has given us can also be used to treat malaria. God has given us our way and white man another way. Both are God-given so they should be operating side-by-side. With the spiritual knowledge given by God, white man developed the quinine tablet. Maybe we will one day make that tree into a quinine tablet. What we eat here we get from the jungle. We grow it and eat it.' Male traditional healer

'The government should recognize traditional medicine as part of the government health care system. By the government recognizing traditional practitioners it will help to validate our medicines and it will be recognized that we have cures for particular illnesses. The most important thing is that the two sides (western and traditional) work together, 'side-by-side, as brothers' for the health service to be widely available so that people in the villages have better access to services.' Male traditional practitioner

'There is a high cost of living in Bougainville. In the event that there is collaboration between traditional practitioners and health workers, with better allocation of resources and recognition of the traditional practices (including financial rewards), traditional practitioners could be encouraged to work alongside health workers for an improved standard of living.' Male traditional practitioner

'If the government doesn't recognize traditional healers, the knowledge and practice will be lost and we will end up with western medicine only. The government should recognize us and our own people should recognize us so that we are protected and all kinds of talk will not be able to threaten or jeopardize our position because the government recognizes us. We should not be operating

in secrecy. We should be operating just the same as the hospitals are operating, in public and in full view of society.’ Male traditional practitioner

Health care practitioners identified a range of specific benefits that would accrue from a health care system in which traditional and western medicine are integrated. Many practitioners could see that services would be more accessible, affordable, broader and more effective. Some practitioners also believed that recognition of traditional medicine could have benefits at the psychological and spiritual levels.

‘Formally recognizing and integrating traditional medicine into the government health care system would enable more people to access health services in the village rather than having to travel to hospital. Effective traditional medicines could be more widely used. If the hospital does not have a supply of medicine there may be some medicines that can be provided by traditional practitioners.’
Male western health care provider

‘The benefits of formal recognition being that people can easily access treatment if the hospital is far away from where they live. The cost of treatment might become more affordable because for any given complaint one treatment option or the other might be cheaper – thus if cost was an issue people can use the more affordable option.’ Male western health care provider

‘ it would reduce the number of patients needing to seek treatment at hospitals and clinics. It would also reduce the cost of medical treatment.’ Female traditional practitioner

‘A system that encompassed both traditional and western medicine would have more success in providing a broader range of effective cures. Traditional practitioners are more likely to know a patient’s family background and history of illness than western practitioners. Sharing this knowledge would provide a better background to the illness and a greater chance of providing effective treatment.’
Male traditional practitioner

‘The benefits of formal recognition and collaboration would be an improved health service. If all health providers collaborate the health services will reach further and wider and it will be a better health service.’ Male traditional practitioner

‘Traditional medicine can play a role in the psychological components of illness. Many people believe that spirits, poison and sorcery cause illness. People who hold these beliefs are unlikely to be completely cured by western medicine, which usually does not attempt to address these components of an illness. In these situations western medicine may be used to alleviate/cure the symptoms while

traditional medicine may be used to address the perceived underlying cause of illness. ' Male western health care provider

Although support for recognition and integration of traditional medicine was universal and many real benefits were volunteered, practitioners were cognizant of some obstacles that would need to be overcome if an integrated system is to be achieved. These related to the tendency to blame and seek retribution when a patient fails to recover, the imprecision and lack of scientific verification surrounding traditional medicine and the possible reluctance of some practitioners to reveal information about their treatments.

Healers would need to be restricted to practising within their own village or COE boundary. If a healer were treating a patient in the hospital they would need to be from the same place as the patient. If a healer treated someone from a different area and the treatment was unsuccessful or the patient died, the family may accuse the healer of poisoning the patient and demand compensation or seek retribution. To avoid this sort of blaming, chiefs would need to have a role in authorizing traditional healers and who they could treat under an integrated system. ' Male western health care provider

Measured doses for various treatment would need to be established. Usually prescriptions for traditional medicine are very imprecise. There would need to be some assurance that none of the ingredients are poisonous. ' Male western health care provider

The problems of overdose or death by prescribing of unmeasured amounts of herbal medicine would need to be overcome first. ' Male western health care provider

Another problem that may need to be overcome is to ensure traditional healers have complete 'recipes' for traditional treatments. Very often old people are the custodians of traditional medical knowledge and although they may pass the information onto younger people, often the information is incomplete. The traditional healer will often keep a small detail of the treatment secret until they are on their deathbed. Thus, although the younger generation may think they know the traditional cures they may not be in possession of the complete knowledge. This may be why some traditional treatments are not effective. ' Male western health care provider

I am not sure how much information about my traditional medicine I would be willing to make available to authorities. ' Female traditional practitioner

'Traditional practitioners need to realize their limitations. They should not make unsubstantiated claims about the efficacy of the treatment they use. Traditional practitioners must be honest about what they can and cannot treat and refer to western practitioners as required.' Male western health care provider

Various suggestions as to how an integrated health care system that recognizes both traditional and western medicine could be introduced were elicited from practitioners. In fact 5 steps to integration could be identified within the responses.

Firstly, there was a broad consensus that the services that health workers and traditional healers can each provide need to be better understood. This included acknowledging the contribution that different types of practitioners can make to the health system and understanding more about what is involved in each type of health care so that referrals can be made confidently.

'However, it is a good idea for the government to recognize traditional medicine and for a better understanding between traditional and western medicine practitioners to be developed.' Female traditional practitioner

Secondly, practitioners thought all the different practitioners in the area and their respective areas of specialization should be identified and a registry of practitioners and the illnesses each can treat created. This information could then be made available to health care practitioners and the public alike.

'Identifying the different practitioners and areas of specialization would assist traditional practitioners and health workers to work alongside each other.' Male traditional practitioner

'Then local people with an interest in traditional medicine or health care service provision must register and be authorized to treat illnesses with those medicines that have been tested.' Male traditional practitioner

Thirdly, both traditional and western practitioners thought that in order to be recognized, traditional medicine needs to be scientifically tested and the curative properties verified. Accurate, measured doses would need to be established and possible side-effects made known. Some respondents thought that the National Department of Health would need to endorse traditional medicines before they could be formally recognized.

'More needs to be known about traditional medicine before it can be recognized. The really good practitioners and treatments need to be identified. The chemical constituents of treatments then need to be analyzed in a laboratory and the curative properties verified. Accurate measurement/dosages need to be ascertained. Potential side-effects also need to be identified.' Male western health care provider

'A prerequisite for recognition would be to have accurate measurements for the medicines prescribed by traditional practitioners.' Male traditional practitioner

'Traditional treatments would need to be endorsed by the Department of Health before they could be recognized. Measured doses for various treatments would need to be established. Usually prescriptions for traditional medicine are very imprecise. There would need to be some assurance that none of the ingredients are poisonous.' Male western health care provider

Fourthly, 3 respondents thought it would be worthwhile to issue licenses or certificates of registration to traditional practitioners. One respondent also thought registered traditional practitioners could form an association.

'To give formal recognition to traditional practitioners, licenses could be issued to practitioners who meet a set of criteria. Assessment of the practitioners against the criteria and the issuing of licenses would have to be done objectively.' Male western health care provider

'We suffer the consequences of our lack of registration or certificates in the practice of traditional medicine. With no certificates we will find it difficult. The government has to recognize us and give us a certificate to operate as traditional healers. Without that we will find it very difficult to operate in the modern way.' Male traditional practitioner

'There is an example of a man from near Toborai who had asked me to provide a certificate of authorization for his traditional medical practices. The man told me that an HEO had previously provided such a certificate but that it had been lost or destroyed and he wanted a replacement. I think that the HEO is still practising in Arawa and suggested the man try to find him.' Male western health care provider

'Through the Council of Elders, traditional healers and their treatments and the condition they treat could be identified and an association formed.' Male western health care provider

Finally, practitioners were able to suggest several models under which an integrated health care system could function. The models included co-location of services either at the hospital or another location, referral systems or simply publicizing all the available services and allowing patients to choose. Co-location seemed to be the most popular model.

'Traditional medicine could be made available both in the villages and in the hospitals and clinics.' Male traditional practitioner

'Arawa Health Centre would allow traditional healers to come and treat patients in the hospital. If the doctor thinks a patient's prognosis is poor and is unable to help the patient, traditional healers could try to help. I would like to see traditional healers and western health workers working side-by-side.' Western health care provider

'There is another example of a ward being set up in a hospital and dedicated to traditional practitioners. Depending on patient preference and progress, patients could be admitted to the traditional medical ward or the western medical ward and transferred between the two.' Western health care provider

'An arrangement could be put in place for traditional practitioners to be housed in a building either near the hospital or in the local community area. This would allow the traditional practitioners to work and collaborate with health workers.' Female traditional practitioner

'There could be an office provided where the traditional and western practitioners can work in the one location with a coordinator who can organize individual practitioners with complementary treatments to work together.' Male traditional practitioner

'If health centres cannot find a cure there should be an understanding whereby a particular traditional practitioner, specializing in a particular illness, can be called upon to treat the patient and vice versa. With collaboration from both sides, we may be able to help those not able to access certain types of cures through one particular practitioner.' Male traditional practitioner

'If health workers were willing to work with traditional practitioners they could be allowed to work in their specialized areas. Alternatively, arrangements could be made so that traditional practitioners give treatments for certain diseases while other diseases could be dealt with by health workers. A referral system could be arranged between the two for cases where a treatment is not successful or the patient is not responding.' Female traditional practitioner

'If the effectiveness of traditional treatments could be verified, the two systems could exist independently and patients could make their own choice about which

alternative they use. Chronic and terminal patients often prefer traditional treatments. ' Male western health care provider

Two respondents went further in stating that traditional healers could fulfill a primary health care role in the village. These respondents thought that, with some training, traditional healers could provide a valuable and effective service that is acceptable by western medical standards.

'From the villages it is very difficult to go to the hospital. That is why I am saying that the traditional medicine man should be the first aid person or primary health care provider in the village. He can send those who need to go to the hospital after he has administered some traditional medicine.' Male traditional practitioner

'Part of the purpose of integrating or recognizing traditional medicine should be to educate traditional practitioners so that they are useful to the health care system and that their practice is safe and sterile. Traditional practitioners may be used as primary health care providers but need to be instructed and taught to refer conditions they are not qualified to handle to western health care providers.' Male western health care provider

Respondents picked up several other themes. There is great potential to overcome some of the barriers to integration and capitalize on the potential for greater collaboration between traditional healers and western health care providers. This would contribute to a better health care service to communities. Comments from traditional practitioners of all ages and western health care providers suggest that there is considerable interest in gaining a better understanding of the alternative field of medicine. Eight practitioners, including both traditional and western practitioners, indicated they were interested in knowing more about the alternative field of medicine. Four practitioners did not comment.

'I would like to have a better understanding of traditional medicine, because all medicine comes from leaves and herbs....' Male western health care provider

'I am getting older but I think it is very important that the next generation of traditional practitioners have a better understanding of western medicine. This would complement their understanding of traditional medicine and assist their work on the illnesses they already treat and other illnesses.' Male traditional healer

It was also evident that traditional practitioners are already playing a primary health care role by advising patients on home management and prevention of disease. The responses from several traditional practitioners suggest that it might be fairly easy for traditional practitioners to incorporate a greater primary health care role, as envisaged by the 2 respondents above, into their current practice. For many practitioners a formal primary health care role may be only a small addition to the range of services they already provide.

'I tell patients to prevent illness by taking care of their environment and ensuring good sanitation and hygiene. My big idea is about the cleanliness of our village – toilets, how we live in our houses, what food we eat: if we sleep well in a clean house, eat a balanced diet, use a hygienic and sanitary toilet then we will be able to avoid many sicknesses.' Male traditional healer

'People should avoid being exposed to rain. They should drink plenty of water when it is hot and sunny. They should keep their homes clean. The kitchen especially must be kept clean. Care must be taken to wash hands before food preparation and eating. People must look after their body in terms of washing properly and eat a healthy, balanced diet.' Male traditional practitioner

'People should look after themselves well to avoid getting sick. They should also look after the areas around their homes and keep the house clean, grass cut and maintain good standards of hygiene and cleanliness in the kitchen and when preparing food and eating.' Female traditional practitioner

'To prevent ill health people should have a good diet with greens and vegetables, drink plenty of water, avoid sweet foods, eat a variety of foods and vegetables – especially bitter foods. People should also wash themselves properly.' Female traditional healer

'Houses should be kept clean and windows opened to allow sunlight into the house. Clothes should be hung in the sunlight. People need to eat a healthy diet to keep the condition of their skin healthy and resistant to diseases.' Male traditional practitioner

The excerpts from interview transcripts that have been used as examples of the ideas of health care practitioners in the study area reveal a wealth of insight and thoughtfulness. It also became apparent during the course of the study that some prior work of a similar nature had been undertaken which perhaps explains why so many respondents had such worthwhile ideas and opinions on the subject of integration. Two respondents talked about this earlier work.

'Previously there was an attempt to organize and register traditional healers in the area. It was intended to form an association of traditional healers. All traditional healers were called to a meeting using Radio Bougainville. It was intended that traditional healers would identify themselves, what conditions they can treat and what they used for treatment. The plans were interrupted by the Crisis.' Male western health care provider

'Before the Crisis there was a move to identify, assess and sanction the use of traditional treatments. The World Health Organization provided a grant of K3000 to perform this work and a committee existed for about one year. The committee included some of the more famous traditional healers from around Bougainville. These people were seeking recognition and so were willing to divulge information about the plants, how they were prepared and which ailments they could be used for. The committee established a nursery or botanical garden of medicinal plants at the University Centre in Arawa.

Traditional practitioners were told that if they wanted to be recognized they would have to provide information about the treatments they use. The scientifically trained medical doctors, who dominated the positions of authority in the health system, could not be expected to sanction traditional treatments if they had not been laboratory-tested and verified. The authorities needed to ensure that none of the treatments they sanctioned would cause harm to patients. Because the traditional practitioners were seeking recognition and wanted to be allowed to work in hospitals alongside doctors, they were willing to reveal information about their treatments.' Male western health care provider

Perhaps the eagerness to see an integrated health care system that is now evident among health care providers is partly due to this prior work and the expectations it created that were not realized because of social and political events that ensued with the Bougainville Crisis. One final comment deserves to be included in this report.

'We can recognize our own traditional medicine but we should also strive to recognize what is being offered by western medicine. These questions you are asking me are helping us to value what is ours (traditional medicine). I can dream of good things happening because we are asking ourselves these type of questions. We should recognize our side and we should also recognize the white man's side. We must understand both these types of medicine, western and traditional. We must know everything from white people and also from our ancestors. Everything starts from the bottom and then slowly grows up from there so we can learn to live better in our own places.' Male traditional healer

CHAPTER TEN

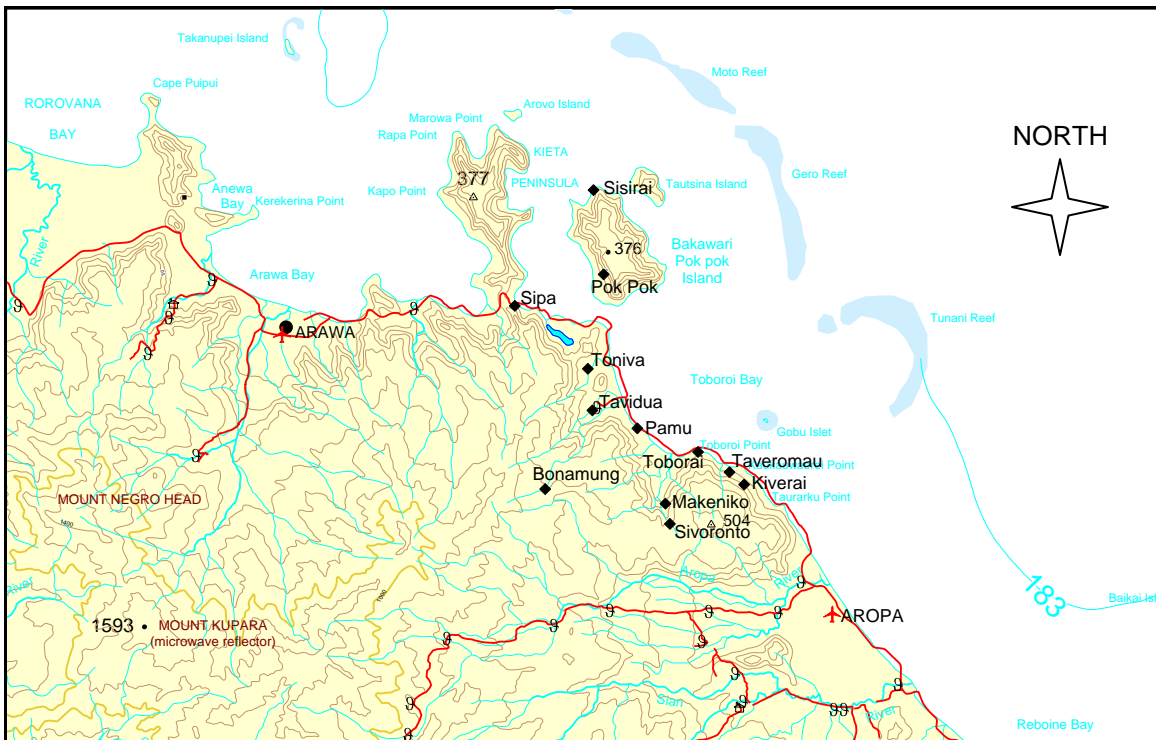
RESULTS - BAVA PIRUNG

Sociodemographic Description of the Community

Geography

The Bava Pirung VCC area shown in Figure 16 includes the main villages of Sisirai, Pok Pok, Sipa, Tavidua, Toborai, Taveromau, Bonamung, Makeniko and Sivoronto. There are also a number of smaller villages (Toniva, Pamu and Kiverai) that are not separately identified in census data. Interviews were conducted with people living in most of these villages. The majority (over 60%) of the interviews were conducted with people living in most of these villages. The majority (over 60%) of the interviews were conducted with residents of 3 villages: Pamu, Tavidua and Toborai.

Figure 16: Location of Villages in the Bava Pirung Study Area

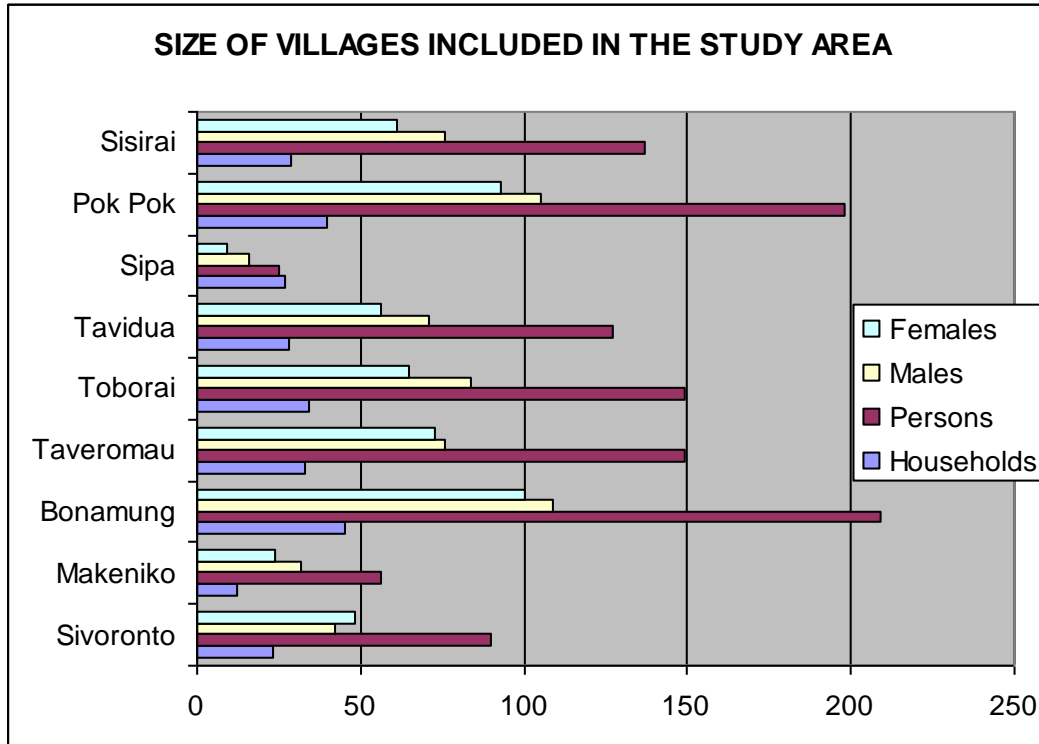


The Bava Pirung VCC area is located 15 kilometres east of the town of Arawa. Bava Pirung occupies both coastal areas and mountainous terrain. The mountains are immediately adjacent to the coast and all but a thin coastal strip is covered in thick tropical rainforest. Several rivers drain into the sea within Bava Pirung including the Tavidua River. It is a rural area where much of the land has been cultivated for cash crops, being mainly cocoa and copra plantations, and gardens. Garden produce includes yams, bananas, taro, tapioca (cassava) and greens and is either sold at market or used for domestic purposes.

Social Organization

The sizes of villages in the Bava Pirung area are shown in Figure 17 and range from 23 to 45 households. The total recorded population of villages in the study area was 922, comprising 487 males and 435 females, occupying 201 households (National Statistical Office, 2000 Census Data).

Figure 17: Size of Villages Included in the Bava Pirung Study Area



No information available for Toniva, Pamu or Kiverai

A total of 95 interviews were conducted in Bava Pirung. This included 33 males and 62 females ranging in age from 16 to 84 years. Over 80% of respondents were aged 30 years or more. Most of the larger villages in Bava Pirung were well represented in the sample of respondents; 17% of respondents were drawn from each of Tavidua and Toborai, 12 % of respondents were from Pok Pok. 27% of respondents came from Pamu and 4% of respondents were residents of Bonamung.

There are 2 community schools and 2 primary schools in Bava Pirung. Community schools, which include grades 1 to 6, are located in Bonamung and Uruna on Pok Pok Island. Primary schools, which include grades 1 to 8, are located at Toborai and what was formerly the town of Kieta, on Kieta Harbour. The closest high school, for those wishing to pursue their education to year 9 and beyond, is in Arawa.

The distribution of religious affiliation among respondents from Bava Pirung is similar to that among the broader Nasioi population. 75% of Bava Pirung respondents were Catholic. Other religions represented among the study population include Christian Life Church (13%), Uniting Church (6%), Seventh Day Adventist (4%) and Gospel Ministry (2%).

Public buses run between Arawa and Toborai 3 to 4 times a day but follow no set schedule. The 1-way fare from Toborai to Arawa is K2.

Organization of Health Services

Established health services in the Bava Pirung area include a government aid post at Toborai and a privately run health centre at Toniva. In addition people from Bava Pirung sometimes travel to Arawa to seek health services from the Health Centre, private GP and either of 2 HEOs in private practice. There are also a number of people with traditional medical knowledge in Bava Pirung. Thirteen traditional practitioners were identified during the study although it is possible that more than this number exist. However, none of these traditional practitioners were widely known or used by the study population. The maximum number of respondents who had visited most traditional practitioners was 2. The study results suggest that use of traditional practitioners is very localized:

generally people do not travel beyond their own village to get treatment from traditional practitioners.

Ten health care practitioners were interviewed during the study. Six practise traditional medicine, 2 practise western medicine and 2 combine both traditional and western medicine. All are Nasioi speakers having been born in the North Nasioi area. Most practitioners have lived in the Bava Pirung area for at least 30 years and have been providing health services for between 15 and 40 years. One traditional practitioner is a relative newcomer having been practising for only 3 years.

One traditional practitioner reported having no formal education while 3 had completed grade 3. Two traditional practitioners had completed grade 10. The 2 western practitioners had completed further training, 1 as an HEO and the other as a nurse. Two traditional practitioners reported being taught traditional medicine by their clan elders.

The 2 providers of western health care services treat all or most illnesses whereas most traditional practitioners treat only a limited number of conditions. The 3 best known traditional healers are either able to treat several related conditions or have a particular specialty, for example bonesetting. Among those practising traditional medicine, there were 2 bonesetters, 1 cellulitis specialist, a specialist for diarrhoea, dysentery and urinary tract infections, and 1 spiritual healer.

Both the private HEO practice and Toborai Aid Post have fixed opening hours, 0730 to 1630 Monday to Friday. One practitioner who combined both traditional and western medicine also advertised formal opening hours of 0700 to 0900 and 1500 to 1700 Monday to Saturday. In contrast, most traditional practitioners work part-time on an ad hoc basis responding to patient demand. They are more likely to be sole practitioners and are often also engaged in subsistence agriculture or cash-cropping. Spouses or relatives assist some practitioners in a voluntary capacity.

The service providers with fixed opening hours were the only health care service providers interviewed as part of the study who worked from established premises with waiting areas, consulting rooms, running water and medical equipment. The practitioner who could provide both

western and traditional medicine had a permanent distillery set up adjacent to his consulting room, which he used to extract vapours and prepare solutions from medicinal plants. This enabled him to keep a permanent stock of traditional medicine on hand thus reducing the need to harvest fresh plants every time a patient presents. Traditional practitioners usually work from underneath the family home. All health care facilities are rudimentary and without water supply or electricity.

Fees for health services range from free for family and non-family members to K20. Most traditional practitioners do not charge for their services. However, several of the more recognized or specialist traditional practitioners have a sliding fee scale that is proportional to the severity or complexity of the illness. Practitioners who used this type of fee structure were reluctant to provide details. At Toborai Aid Post an adult consultation costs K2 while a child consultation is half that price. Although the aid post theoretically requires payment to be in cash, several respondents reported that consideration is given to people who cannot afford to pay at the time of consultation. Traditional practitioners who do charge for their services are also likely to accept in-kind payments if patients cannot pay cash. Information about fees charged by the private HEO is not available.

Information and Knowledge Systems

Febrile Illnesses

Nine key informants (3 traditional healers, 1 nurse and 5 knowledgeable members of the local community) were asked to describe the 10 most common or serious febrile illnesses that affect people in their villages. Combining the ideas of all key informants produced a list of 33 febrile illnesses. This extensive list was reduced to 11 illnesses, which are thought to be the most common or serious for people in the local area, by selecting the most frequently nominated illnesses across all key informants. All 9 key informants nominated *malaria* and *kubiri* as common or serious febrile illnesses. The least frequently nominated febrile illnesses, *navi*, *pari* and *eenu*, were each nominated by 3 key informants.

The detailed information describing each illness provided by key informants was used to develop an explanatory model for each of the illnesses. The descriptions provided by key informants were supplemented with information provided by community members. Nine community members rated

each illness in terms of severity, listed the signs and symptoms associated with each illness and grouped illnesses in any way that seemed logical. Some community members also commented on other aspects of the explanatory model and progression within subgroups of febrile illnesses. This information also contributed to the explanatory model for febrile illnesses.

Although there was some variation in ideas and perceptions amongst these 18 respondents, some similarities in responses were evident and clear patterns discernable. These are summarized in Figure 18 and Table 19.

Within the broad febrile illnesses group there were some very clear subgroups. A majority of respondents grouped certain illnesses together. The associations were particularly strong for illnesses affecting the respiratory and reproductive systems. All community members said that *kou*, *eenu* and *domang o* are related illnesses. Eight out of 9 community members thought that *pintuu* and *navi* are related. The descriptions of *malaria* and *pari* suggest they are thought of as distinct conditions. *Malaria* was consistently grouped with *pari*, *bore bana* and *maana*. However, neither *kubiri* nor *ming sipa* were consistently grouped with any other illnesses.

Figure 18: Taxonomy of Febrile Illnesses, Bava Pirung

FEBRILE ILLNESSES			
RESPIRATORY SYSTEM	DIGESTIVE TRACT	MALARIA- RELATED	REPRODUCTIVE SYSTEM
<i>Kou</i> <i>Eenu</i> <i>Domang O</i>	<i>Kubiri</i>	<i>Malaria</i> <i>Pari</i> <i>Bore Bana</i> <i>Maana</i>	<i>Pintuu</i> <i>Navi</i>
	<i>Ming Sipa</i>		

It was also evident that many respondents shared similar ideas about progression from one illness to another within some of the febrile illness subgroups. Six respondents said that *kou* could progress to *eenu*, which can progress to *domang o*. Similarly 4 respondents said that *malaria* causes *maana*. Two respondents thought *malaria* causes *bore bana*. The most commonly recognized causal relationship was between *pintuu* and *navi*: 7 respondents said that *navi* is caused by *pintuu*.

'Kou leads to eenu which leads to domang o'. Female community member

'Malaria or pari can cause borebana, kubiri, ming sipa or pintuu.' Male community member

'Anyone who has malaria may end up with maana.' Female community member

'Pintuu and navi are related. Anyone who gets pintuu may end up getting navi.' Female community member

'The first stage is pintuu, which progresses to naringken (urine with blood). The second stage is tarumate (miscarriage) and the third stage is navi (cancer and when pus develops).' Male traditional healer

All 18 respondents including both key informants and community members were asked to describe the signs and symptoms and severity of the 11 febrile illnesses identified as being the most common and/or serious. Key informants were asked for additional information about cause, seasonality, groups affected and treatment of these illnesses. The most common responses for each illness are presented in Table 19.

Table 19: Descriptions of Febrile Illnesses, Bava Pirung

<i>Illness Name:</i>	<i>Kou</i> (Cough)
<i>Severity:</i>	Mild
<i>Symptoms:</i>	Runny nose, sore throat, sneezing, watery eyes, headache, coughing, fever
<i>Cause:</i>	Dietary (eating store food especially sweet or greasy foods, fruit) Climatic (exposure to cold and rain, flowering fruit trees) Biological (bacteria, contagious)
<i>Seasonality:</i>	Prevalent during wet season and when fruit trees flower
<i>Groups Affected:</i>	Everyone
<i>Treatment:</i>	Traditional and western medicine. Traditional treatment consisting of leaves and water is faster acting than western medicine but using both types of treatment simultaneously is the most effective. Families often treat themselves.

Illness Name:	Eenu (Persistent Cough)
Severity:	Intermediate to serious
Symptoms:	Continuous deep chesty productive cough, shortness of breath, weakness, weight loss, fever
Cause:	Biological (contagious, often develops from cough or flu, progresses to TB) Climatic (exposure to cold weather)
Seasonality:	Can occur at any time
Groups Affected:	More common among older people, outbreaks can affect children
Treatment:	Traditional or western medicine. Traditional treatment is cheaper and easier to obtain so may be the first treatment resort. If condition does not improve may try western medicine.

Illness Name:	Domang O (Respiratory Conditions)
Severity:	Serious (can be fatal)
Symptoms:	Cough, chest pain, fever, shortness of breath, difficulty in breathing, insomnia, weight loss, difficulty in walking, lethargy
Cause:	Dietary (certain foods, excess alcohol consumption) Biological (develops from untreated cough) Physical (blow to chest)
Seasonality:	Can occur at any time
Groups Affected:	Can affect anyone depending on diet and exposure to environmental risks
Treatment:	Western or traditional medicine

Illness Name:	Kubiri/Piripiri (Diarrhoea)
Severity:	Serious to intermediate
Symptoms:	Continuous defaecation, abdominal pain, weakness, lethargy, weight loss, watery frothy or bloody stool, loss of appetite, sunken eyes, dehydration
Cause:	Dietary (fatty meat, foods that don't agree with an individual eg, mango or galip nuts) Biological (raw food, food contaminated by flies, worms or germs, contaminated water, poor personal hygiene, unhygienic food preparation)
Seasonality:	Can occur at any time but more common in <i>devaung</i> (season when food may be in short supply which falls in March and April)
Groups Affected:	Anyone can be affected
Treatment:	Traditional or western medicine. Families usually treat themselves. Traditional treatment is readily available and may be the first treatment resort. Western medicine cures fast but is not available locally. Both traditional and western treatments may be used simultaneously.

Illness Name:	Ming Sipa (Arthritis or Knee Pain)
Severity:	Mild to intermediate
Symptoms:	Swollen painful stiff knees, difficulty in walking up or down hills, painful when rising to a standing position or when squatting
Cause:	Physical (carrying heavy loads especially at a young age) Traditional belief (coming into contact with blood of own clan members, walking over poisoned objects*, sitting too close to burning coconut shells) Hereditary (marriage within clan can result in <i>ming sipa</i> in offspring)
Seasonality:	Can occur at any time
Groups Affected:	Adults
Treatment:	Traditional (coconut oil, bandage) and western medicine (injection, tablets, ointment)

*Refers to an object over which a spell has been cast.

Illness Name:	Malaria (Fever or Malaise)
Severity:	Serious
Symptoms:	Headache, joint pain, chills, shivering, fever, vomiting, high temperature but person feels cold
Cause:	Biological (mosquitoes and malaria parasites) Dietary (protein deficiency) Traditional belief (spirits)
Seasonality:	Can occur at any time but is more prevalent during the wet season
Groups Affected:	Anyone can be affected
Treatment:	Traditional and western medicine

Illness Name:	Pari (Malaria-like Fever)
Severity:	Intermediate
Symptoms:	Chills, shivering, fever, paranoia (afflicted feels like someone or something is standing beside them), headache. Symptoms are similar to <i>malaria</i> and usually occur in the afternoon.
Cause:	Traditional belief (If a person passes through sacred land and the spirits do not recognize that person but hear their name for the first time, the spirits steal the person's soul, which is manifested in <i>pari</i>)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional medicine (wild taro or <i>kirua</i> leaves)

Illness Name:	Bore Bana (Headache)
Severity:	Intermediate to serious
Symptoms:	Headache, fever, tired eyes, dizziness
Cause:	Other illnesses (<i>malaria</i> , cough and sneezing) Climatic (prolonged exposure to sun) Psychological (stress or unsolved problems)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional (<i>toro/kirua/bawa</i> leaves, vine, <i>sipasipa</i> fern) or western medicine. Western medicine is faster acting.

Illness Name:	Maana (Splénomegaly)
Severity:	Serious to intermediate (can be fatal)
Symptoms:	Stomachache, bloated stomach, weight loss, yellow eyes, fingers, toes, urine or stools, fever, lethargy, nausea, increased appetite, tender spleen
Cause:	May develop from <i>malaria</i> Dietary (eating only yellow food, unbalanced diet)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional or western medicine. May be cured faster with traditional medicine.

Illness Name:	Pintuu (Urinary Tract Infection)
Severity:	Serious (can be fatal)
Symptoms:	Continuous and painful urination, weight loss, insomnia, abdominal pain, blood in urine, nausea, weakness, can pass only small amount of urine, yellow urine and eyes
Cause:	Dietary (not drinking enough, drinking polluted water, excess sugar intake) Physical (carrying heavy weights, ignoring the urge to urinate) Traditional belief (trespassing in forbidden gardens, harvesting fruit from protected trees, violating taboos, walking over liquid excreted by an insect that lives in the <i>taman</i> tree)
Seasonality:	Can occur at any time
Groups Affected:	Adult men and women
Treatment:	Traditional medicine is more readily available and more effective.

Illness Name:	Navi (Cancer or Growth)
Severity:	Serious (can be fatal or make young girls sterile)
Symptoms:	Abdominal pain, sore develops internally, weight loss, lethargy, constant urge to urinate, blood in urine, foul odour, wasted appearance, may develop from <i>pintuu</i>
Cause:	Dietary (eating same type of food, chewing betel nut with lime) Physical (bearing too many children, carrying heavy loads while pregnant) Biological (multiple sex partners, smoking) Traditional belief (stepping on a forbidden object [<i>para</i>], sorcery)
Seasonality:	Can occur at any time
Groups Affected:	Adults aged 40 to 50 years, particularly women
Treatment:	Traditional and western medicine.

As can be seen from the table above, the research identified a mixture of beliefs regarding the aetiology of febrile illnesses. While there was some understanding of biomedical explanations for illness, for nearly all the febrile illnesses that were the subject of questioning, people referred to traditional beliefs about causation. Some respondents gave both biological and traditional explanations for an illness. The various causal explanations given for *malaria* indicate that conditions referred to as *malaria* by Nasioi-speakers may include some that are not caused by

malaria parasites. Some of the more common traditional beliefs related to sorcery (including *nenura*), coming into contact with the blood of a fellow clan member, ignoring taboos and spirits.

Bacteria, pollen, cold weather and sweet foods were thought to cause the respiratory illnesses *kou*, *eenu* and *domang o*; however, some respondents also held traditional beliefs about the cause of these illnesses.

'Kou is inflicted by someone who performs some sort of traditional or customary practice to intentionally harm another person.' Female key informant

Respondents attributed *ming sipa* to either carrying heavy loads, poisoning and/or coming into contact with the blood of clan members.

'It can happen to people who carried heavy loads when they were young. Children are told not to sit close to burning coconut shells because the knees might be affected. Ming sipa can also be caused by walking over poisoned objects.' Male traditional healer

'Ming sipa can be caused by stepping on the blood of one's own clan member or assisting a clan member during childbirth.' Female key informant

There appeared to be a widespread understanding among key informants that mosquitoes are responsible for *malaria* with 7 out of 9 key informants implicating mosquitoes in the spread of *malaria*. However, 1 key informant commented that ".....people believe that spirits make them sick with *malaria*". Among community members, *malaria* was more often attributed to exposure to rain, cold or sun or over-exertion than mosquitoes.

On the other hand, respondents were unanimous in thinking that *pari* is caused by spirits. The following explanation for *pari* was universal among respondents.

'It [pari] is caused by devils or spirits of sacred places. Spirits cause it when a person is walking through a sacred or unknown place. People believe that the spirits take or steal the person's soul.' Female key informant

A mixture of biological and traditional beliefs relating to the causes of *pintuu* and *navi* were evident.

'There are some traditional beliefs that pintuu can be caused by: trespassing on forbidden land or into forbidden areas; harvesting fruits with taboos on them (betel nuts, chestnuts, mustard, etc); walking over the place where an insect that lives in the taman tree has dropped liquid.' Male traditional healer

'Navi can be caused by having children every year or one after the other, or carrying heavy loads during pregnancy.' Female key informant

'It is believed that navi is caused by stepping over a forbidden object (para). Navi can also arise due to sorcery inflicted by another person.' Female key informant

Kubiri was an exceptional case. The explanations given for *kubiri* were exclusively biological. *Kubiri* was attributed to poor hygiene, either personal or in food storage and preparation, or a poor or unbalanced diet. None of the respondents mentioned traditional beliefs surrounding the cause of *kubiri*.

'Kubiri is caused by eating without washing hands, eating food that has been contaminated by flies, drinking water that has been contaminated by pigs' waste.'
Female key informant

Thus it appears that while Nasioi speakers have accepted some parts of the western medical paradigm, traditional explanations continue to pervade perceptions of illness in Bava Pirung. Those biological explanations for illness that have been adopted do not necessarily correlate with accepted explanations for particular illnesses in western medicine. At least 1 febrile illness, *pari*, has no explanation or place within the western medical paradigm. There is sufficient ambiguity around some illnesses to cloud direct correlation to a specific western medically defined illness.

Skin Conditions

The same approach that was used to identify serious and common febrile illnesses was adopted to find out about serious and common skin conditions. Eight key informants provided an extensive list of 21 skin conditions which was reduced to 10 by selecting those conditions most frequently nominated across all key informants. Between 7 and 3 key informants nominated each of the conditions that were included in the final list of 10 serious and common skin conditions. *Kasi kasi* was nominated by 7 of the 8 key informants while *sikeni bokisi*, *poneng poneng*, *sisisi*, *penta*

pankaing and *tudaa* were each nominated by 3 key informants. The descriptions for the 10 skin conditions most frequently nominated by key informants were supplemented with information obtained from 9 community members about severity, signs and symptoms and relationships between various skin conditions.

Fewer respondents recognized relationships between various skin conditions than between febrile illnesses. Nonetheless some patterns were discernable. Respondents grouped skin conditions on the basis of signs and symptoms.

The 2 most widely recognized associations were between *kokosi* and *aaroa* and *tudaa* and *penta pankaing*. *Kasikasi* was more often associated with *kokosi* and *aaroa* than any other group of conditions. These conditions were said to be related because they are characterized by itching and all affect just the surface of the skin.

'*Kokosi, aaroa, kasikasi all affect the surface of the skin.*' Male community member

'*Kasikasi,.....kokosi, aaroa are all characterized by itching and scratching.*' Female community member

Moona and *sisisi* were often grouped with *tudaa* and *penta pankaing*. *Kitei* was more often thought to be associated with this group of conditions than any other group. The similarity between skin conditions in this group is that they are characterized by sores, penetrate internally and are more difficult to cure.

'*Moona, kitei, tudaa, penta pankaing are all characterized by sores.*' Female community member

'*Tudaa, sisisi and penta pankaing are all more severe. They dig into the flesh and are not easy to cure.*' Male community member

A majority of respondents thought that *sikeni bokisi* and *poneng poneng* were associated because both are superficial and are associated with itching.

‘Sikeni bokisi, ..., poneng poneng are characterized by itching and scratching.’
Female community member

Only a few respondents referred to *oramu* or *erepu*; however, 2 respondents said that *erepu* and *ereng koing* were related in some way.

‘Walking around the area where a clan member has been murdered can cause *ereng koing*. If the blood is from one’s own clan member *erepu* will develop. If the blood is from members of another clan *ereng koing* develops.’ Male traditional healer

Unlike febrile illnesses, respondents did not seem to consider that one skin condition typically progressed or developed into another related condition. Signs and symptoms rather than progression were the basis on which skin conditions were grouped together.

The relationships between various skin conditions are depicted schematically in Figure 19. A description of each of the 10 most commonly cited conditions across all respondents is provided in Table 20. *Oramu*, *erepu* and *ereng koing* are included in Figure 19 because respondents thought they were serious and related conditions. These conditions are not included in Table 20 because they are rarely seen.

Figure 19: Taxonomy of Skin Conditions, Bava Pirung

SKIN CONDITIONS			
FUNGAL INFECTIONS <i>Kokosi</i> <i>Aaroa</i> <i>Kasikasi</i>	SORES OR SKIN IRRITATIONS <i>Tudaa</i> <i>Penta Pankaing</i> <i>Moona</i> <i>Sisisi</i> <i>Kitei</i>	VIRAL INFECTIONS <i>Sikeni Bokisi</i> <i>Poneng Poneng</i>	LEPROUS CONDITIONS <i>Oramu</i> <i>Erepu</i> <i>Ereng Koing</i>

Table 20: Descriptions of Skin Conditions, Bava Pirung

Illness Name:	Kokosi (Whitespot)
Severity:	Mild
Symptoms:	White dusty layer over skin, itchy when sweating or exposed to sun, affected patches of skin turn white, yellow or red
Cause:	Biological (germs, bacteria, worms, hereditary, sweating and not washing) Climatic (caused by the weather) Traditional belief (spitting at relatives especially family members of the opposite gender)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional (<i>damuu</i> and <i>matari</i> shrubs) or western medicine. People know how to treat themselves.

Illness Name:	Aaroa (Ringworm)
Severity:	Mild to intermediate
Symptoms:	Constantly itchy, small sores or blisters, circular spots spread to all parts of the body, dirty or dusty skin, peeling or scaly skin, foul odour, itchy when wet
Cause:	Biological (bacteria, contaminated water, small parasites or worms, fungus, contagious, poor personal hygiene, hereditary)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional or western medicine. Traditional medicine is used to contain the spread but western medicine is needed for a complete cure. Most families know how to treat themselves using traditional remedies (<i>popo</i> or <i>wara</i> leaves).

Illness Name:	Kasikasi (Skin Irritation)
Severity:	Mild to serious
Symptoms:	Severe itch, sores develop from scratching, watery blisters burst and become sores, small pimple-like boils between fingers, toes or buttocks or covering whole body
Cause:	Biological (small parasites or worms, contagious, washing in contaminated water, poor personal hygiene) Exposure to certain grasses (<i>iriri</i>)
Seasonality:	Can occur at any time
Groups Affected:	More common among children but can also affect adults
Treatment:	Traditional and western medicine. Families treat themselves. Western medicine may cure faster.

Illness Name:	<i>Tudaa</i> (Yaws or Warts)
Severity:	Serious
Symptoms:	Small hard lumps on soles of feet, superficially appears to be a small sore but penetrates deep inside, painful to walk barefoot, impedes gait
Cause:	Dietary (eating cockatoo meat [cockatoos also carry <i>tudaa</i>]) Biological (contagious through sharing of footwear) Traditional belief (stepping on the blood of a deceased person)
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional medicine

Illness Name:	<i>Penta Pankaing</i> (Big Sore or Tropical Ulcer)
Severity:	Serious
Symptoms:	Deep painful bleeding sore that grows larger, pus, discharge, pain
Cause:	Biological (develops from untreated sores or cuts) Traditional belief (violating food taboos, placing poison [a spell] in a person's footprint, taking a fragment of person's clothing or food scrap and placing it in the stem of a wild Singapore taro)
Seasonality:	Can occur at any time
Groups Affected:	Commonly affects children but can also affect adults
Treatment:	Traditional and western medicine. (One respondent said there was no western medicine and that a <i>nankai</i> [spiritual healer] had to determine the location of the poison before traditional treatment could commence.)

Illness Name:	<i>Moona</i> (Boil)
Severity:	Intermediate to serious
Symptoms:	Begins with feeling itching, swelling develops with a hard centre, bursts and exudes pus, infected area is painful, fever
Cause:	Physical (puncture wound) Dietary (high protein diet, eggplant [<i>kamiaa</i>], fish [<i>isi</i> , <i>tamoai</i> , <i>munasi</i>], corn beef) Biological (stepping in mud, bathing in dirty rivers) Traditional belief (violating taboos on fruit trees [<i>nenura</i>])
Seasonality:	Can occur at any time
Groups Affected:	Anyone can be affected
Treatment:	Traditional or western medicine. People know various traditional remedies and can treat themselves although this may take longer to effect a cure than western medicine.

Nenura is the poison or spell used to protect betel nut or other fruit trees from marauders. The crop owner will place something soaked in *nenura* at the base or around the trunk of the trees.

Illness Name:	Sisisi (Cellulitis)
Severity:	Serious
Symptoms:	Painful sores between fingers and toes, itchiness, swelling, pussy abscesses, sleep disturbed by pain, infection spreads to the bones and misshapes them
Cause:	Biological (starts from a puncture wound or sore, which becomes infected) Traditional belief (violating taboos on fruit trees [<i>nenura</i>])
Seasonality:	Can occur at any time but may be more prevalent during hot weather
Groups Affected:	Adolescents through to adults
Treatment:	Traditional medicine (vine leaves placed on top of sores, roots [<i>siara</i>] or bark chewed with betel nut and spat onto affected area).

Illness Name:	Kitei (Itchy sores on head resulting from head lice infestation)
Severity:	Mild to intermediate
Symptoms:	Sores on head, severe itch, sores with pus, watery blisters, foul odour, weight loss, swollen glands on neck
Cause:	Climatic (exposure to rain and not drying hair) Biological (head lice)
Seasonality:	Can occur at any time
Groups Affected:	Commonly affects young children
Treatment:	Self-management (cut hair and rub with coconut oil)

Illness Name:	Sikeni Bokisi (Chicken Pox)
Severity:	Intermediate
Symptoms:	Itchiness, small painful blisters or sores all over the body, fever, blisters burst and are painful especially when wet, lethargy
Cause:	Biological (worms, contagious, a viral infection)
Seasonality:	Can occur at any time
Groups Affected:	Mostly affects children and babies. Adults very seldom get it.
Treatment:	Traditional and western medicine. Home remedies are used but western medicine is required to really cure the condition.

Illness Name:	Poneng Poneng (Measles)
Severity:	Mild to intermediate
Symptoms:	Small blisters cover the whole body, fever, constant itch, sores develop from scratching, sore mouth and eyes, cough, lethargy
Cause:	Biological (spread by animals, sand flies, irritant plants, a viral infection) Climatic (getting caught in the rain)
Seasonality:	Can occur at any time
Groups Affected:	Children
Treatment:	Traditional or western medicine. Many people manage the condition at home.

As was the case for febrile illnesses, respondents believed that the causal pathway for skin conditions could be both biological and supernatural. Parasites, mites, worms, germs or bacteria and poor personal hygiene were identified by many respondents as causes of skin conditions.

Allergies, irritant grasses, flies, pigs or other animals also featured in explanations for skin conditions. Traditional beliefs about the cause of skin conditions included ignoring dietary taboos, spitting on relatives, sorcery and coming into contact with the blood of a dead person. Sorcery (*nenura*), blood contact and ignoring dietary taboos are thought to cause a number of different conditions. Once again, for nearly all skin conditions that were the subject of questioning, cause was explained using both a biological pathway and traditional beliefs.

'Washing in dirty water probably caused the condition (aaroa). Where I live there is only a small stream for washing and pigs wash in the same stream, upriver.'
Female community member

'I think the condition is scabies. I probably caught it from my small sister who also had scabies. Or I may have got it from coming in contact with certain plants or grasses that cause itchiness [iriri].' Female community member

'I had scabies which I think is cause by mites. I developed the condition after sleeping in other people's beds.' Female community member

'Eating a certain type of fish [isi] or eating fruit from protected trees causes boils.' Male traditional healer

'Sisisi usually results from trespassing into forbidden places or harvesting the fruit of trees that have been protected by their owner.' Female traditional healer

*'Some people use poison to mark their betel or other fruit trees to indicate that other people shouldn't touch them. If a person comes into contact with the *nenura* (poison) they can develop sisisi.'* Female key informant

Several respondents indicated that some people attribute a particular skin condition to events that took place during the Bougainville Crisis. The condition is said to resemble scabies, but not to be scabies. No name was given for this condition.

*'I am not completely sure of the origin of the skin condition (similar to *kasikasi*) but I think that it may have stemmed from gunpowder used during the Bougainville Crisis. Many people have had skin problems after returning to their villages (from bush camps) after the peace agreement was signed. The skin complaint is somewhat similar but different to scabies. People attribute it to the powder that was used in guns and cannons getting into the drinking water supply, being inhaled or coming into contact with skin. In 1995 many shots and cannons or bombs were fired from Aropa airport into the Kongara area (adjacent to the*

airport), which was a BRA base or stronghold. There was residue from explosives lying about on the ground. People think the gunpowder could have been washed into streams that are used for drinking water or become air-borne and blown into areas where people live where it is inhaled or comes into contact with skin. This sickness did not exist before the Crisis. Many people who live inland are affected. Female community member

Treatment-Seeking Response to Illness

As well as in the information contained in illness narratives, health care practitioners provided more general information about typical treatment-seeking responses to febrile illnesses and skin conditions. The data presented in this section are those provided by health care practitioners.

Febrile Illnesses

Fever is usually referred to as *uiipari* (hot), *urunge tabuing* (burning with fever) or *malaria*. A term used to describe all kinds of febrile illnesses is *amutemuri sipa*.

Practitioners identified 2 febrile illnesses that cause death in their local communities. Most practitioners identified *malaria* as a cause of death and 1 practitioner thought that *domang o* (respiratory conditions) causes death. The practitioners thought that people generally recognize symptoms associated with illnesses that cause death as being serious. This includes high temperature, shivering, vomiting and severe headache. Dizziness, lethargy and feeling weak were also referred to as serious symptoms although by fewer practitioners. Some practitioners thought that people recognize symptoms associated with respiratory illnesses as being serious. These symptoms included shortness of breath, coughing, weight loss, swollen legs and difficulty in walking.

Practitioners reported some ignorance or confusion about symptoms of febrile illnesses that are indicative of serious illness. People do not always realize that someone who is shivering may also have a fever. Western health care providers and traditional practitioners alike agreed that people are not good at self-diagnosing different febrile illnesses. As in other parts of PNG people classify most fevers as *malaria*.

'People are not able to accurately diagnose different types of fever. Usually people think fever is caused by malaria but this is not always the case.' Female western health care provider

Practitioners thought that people's understanding of febrile illness, as well as other practical factors, affects their treatment-seeking behaviour. There was a general consensus among practitioners that people with fever usually try to treat themselves at home before approaching anyone else for assistance. People typically respond to fever by bathing or sponging continuously with cold water to cool the body. Some practitioners thought that home treatment would incorporate traditional remedies known to the family while others thought people are more likely to use some western medicine stored in the house such as aspirin or panadol. If the condition does not improve with this home treatment people will seek assistance from either Toborai Aid Post or Arawa Health Centre or a traditional practitioner.

'Some people try to treat fever themselves with either western medicine they have in the house or whatever traditional medicine they may know before approaching anyone outside the family for help. If the illness does not improve people then seek assistance from either western or traditional practitioners, depending on their preference.' Male traditional practitioner

'When they get fever, most people treat themselves by using traditional herbs and washing with cold water. People get traditional herbs from the bush. If the fever is not reduced by using traditional treatment, people then resort to western medicine.' Male western health care provider

One practitioner commented that people use home management to treat the symptoms rather than the cause.

'They usually treat the symptoms such as trying to cool themselves down when they have a fever instead of trying to treat the cause.' Male western health care provider

There was no clear consensus on timeliness of treatment-seeking. Some practitioners thought that people wait too long before seeking treatment. Other practitioners thought that people seek treatment for febrile illnesses in a timely fashion.

'Quite frequently people delay seeking treatment for fever for longer than they should. The delay can be caused by ignorance, environmental conditions (rain etc) or customary beliefs. If people attribute fever to spirits or other supernatural forces, they are unlikely to seek western medicine as a first treatment resort.'
Male western health care provider

'Generally people do not wait too long before seeking treatment. They may wait for up to 2 days in the hope that the illness will resolve itself but generally seek treatment within 2 days of getting sick if the condition has not improved.' Male traditional healer

In summary, consistent with the available morbidity data for local health services, health care practitioners (both western and traditional) identified *malaria* as the febrile illness most commonly causing death in the Bava Pirung area. They thought that people are usually unable to accurately diagnose febrile illnesses themselves, although there is some recognition that the symptoms associated with *malaria* are serious. The typical response to febrile illness is to first try and manage the condition at home by cool sponge baths and using whatever medicine (traditional or western) is on hand. If the condition does not respond to home management people will then seek expert assistance from either a health worker or traditional practitioner.

Skin Conditions

The collective term for skin conditions in Nasioi is *dopa kong sipa*.

Practitioners identified leprosy as the only skin condition likely to be fatal but suggested that it rarely affects anyone in Bava Pirung. Nonetheless the symptoms associated with leprosy, such as numbness, loss of function and deformity, are taken seriously. People tend to be less concerned about other symptoms of skin conditions unless the symptoms become particularly painful or irritating.

Practitioners agreed that people are knowledgeable about a variety of common skin conditions and able to diagnose many conditions themselves.

'People are able to self-diagnose many skin conditions accurately. People can recognize scabies, fungal and leprosy conditions.' Male western health care provider

However, perhaps because they are not life threatening, people do not become overly concerned about most common skin conditions. There was consensus among practitioners that in the first instance people will usually try to treat skin conditions at home using plants.

'People usually try to manage skin conditions at home. They use leaves mixed with lime and apply this mixture to the infected area of skin. People also bathe in guava leaves. If a skin condition doesn't respond to home treatment, people usually seek treatment from an aid post, clinic or the hospital.' Male traditional practitioner

Although practitioners seemed to think that people do not ignore skin conditions, comments from some practitioners suggest that a somewhat complacent attitude toward skin conditions may impact on the spread of contagious conditions in communities.

'Sometimes people ignore the possibility of contagious skin conditions being passed from one person to another. They continue to share clothes and towels with infected persons and ignore the need to wash thoroughly.' Male traditional practitioner

There were different opinions among practitioners about whether or not people put off seeking treatment for skin conditions for too long. Some practitioners thought that people seek treatment promptly while others thought they wait too long.

'People normally seek treatment during the early stages of a skin condition. They do not usually wait too long before seeking care.' Male traditional practitioner

'People often delay getting treatment for skin conditions because they are painless and because getting to a practitioner may require some effort or inconvenience which outweighs the inconvenience caused by the skin condition.' Male western health care provider

Thus, practitioners thought that people are more knowledgeable about and better at diagnosing skin conditions than febrile illnesses but less inclined to seek treatment for them outside the home. Most skin conditions are not perceived as life threatening or serious and people usually attempt to manage them using traditional plant remedies that they know about and which are easy to acquire.

Hierarchy of Treatment Resort

Information about use of the various health care services available to people living in the Bava Pirung area was collected in several ways. Thirty-four community members were asked about past use of the 5 types of health care services that are available. The same people undertook a forced choice selection of practitioners exercise whereby they nominated which service provider they would choose if they could only choose between 2 services. The exercise was repeated for every possible combination of pairs of health care services, including being treated at home by someone within the family. The respondents were also asked to explain the reasons for each of their selections. In addition 50 narratives of recent or current illness episodes were collected in which respondents provided details about their actual treatment-seeking responses to illness.

Arawa Health Centre appears to be the most widely used health service by people who were interviewed. 80% of the study population has used the services provided at Arawa Health Centre at some stage in the past. However, it is reasonable to exclude Pok Pok residents from this component of the analysis because after they reach the mainland it is just as easy (if not easier) for them to travel into Arawa as to travel to Toborai; both trips would usually require a vehicle for transport. When respondents from Pok Pok Island are excluded from the sample, the results for Toborai Aid Post are equivalent to those for Arawa Health Centre. 80% of respondents from other parts of Bava Pirung have sought treatment at Toborai Aid Post. Traditional healers are also popular among interviewees and have been used by 56% of the study population. The 2 different types of private providers of western health care services located in Arawa are the least popular. Just under one-quarter of the study population have sought treatment from either of the HEOs in private practice in Arawa. The private GP in Arawa is a little more widely used with 44% of respondents having used this service at some stage in the past. Table 21 summarizes past use of health care services by respondents from different parts of Bava Pirung.

Table 21: Ever Used Health Care Service by Village, Bava Pirung

Service Provider	Sivor- onto	Pamu	Tavidua	Tave- romau	Toborai	Pok Pok	Total
Arawa Health Centre	2	5	7	3	1	9	27
Toborai Aid Post	2	5	8	2	2	2	21
Traditional healer	1	5	4	3	1	5	19
Private GP	3	3	2	1		6	15
Private HEO		2	4	1	1		8
Total Respondents	3	7	8	4	2	10	34

Responses from the forced choice of practitioners exercise are presented in Table 22 and reflect the services respondents think they would use as opposed to which services they have actually used. The results are generally consistent with respondents' past use of health care services but elaborate on that information with the inclusion of an additional treatment option of family member. When a respondent has a febrile illness or skin condition, they are most likely to seek treatment from Arawa Health Centre or Toborai Aid Post. Getting treatment from within the family is also a popular treatment option for the sample group. The private providers of western health care services located in Arawa are used less frequently than government-run services by respondents. Respondents' hypothetical preference for traditional healers was lower than expected from their past use of health care services. When asked to choose between traditional healers and other types of service providers, few respondents said they would go to a traditional healer. It may be that people would prefer to use another type of health service but in practice go to traditional healers for various circumstantial reasons. Responses showed that the type of illness (febrile illness or skin condition) would make very little if any difference to preferences for particular services.

Table 22: Service Provider Preferences, Bava Pirung

Service Provider	Choices for Service Provider
Arawa Health Centre	71%
Village clinic	65%
Family member	60%
Private GP	44%
Private HEO	31%
Traditional healer	29%

Respondents were asked to give their reasons for each forced choice of service provider. Respondents could provide more than one reason for choosing a service. For each possible choice of services, the reasons given by all those respondents who chose the more popular service provider were collated. The responses from all those respondents who chose the more popular service for the same reason were added together. Thus the data presented in Table 23 show, for example, 'because the service costs less' was nominated 42 times as the reason for choosing a village clinic in preference to another service. Furthermore, across all the available health care services, 'costs less' was given as the reason for choosing a service 136 times. The number of times different reasons were given for respondents' preferences for health care services show that for people included in the sample, cost is the over-riding factor when deciding what type of treatment to use. Proximity to home is also an important factor. All other factors seem to be much less important when deciding what type of service to use. Thus, for these respondents, treatment-seeking decisions and choices are primarily based on cost of the service and proximity to home. It is interesting to note that HEO was not preferred by a majority of respondents over any of the other health care services.

Table 23: Reasons for Service Provider Preferences, Bava Pirung

Reason	GP	Village Clinic	Arawa H/Centre	Tradition al Healer	Family Member	Total
Service costs less		42	61	5	28	136
Service is closer to home		49	4	13	33	99
Superior medicine	12	10	10		1	33
Treatment is effective	4	2	13		10	29
Immediate results	15	1	9			25
More experienced or highly trained	17		2			19
Try first to see effect			1		12	13
Familiarity with practitioner/medicine	1			1	7	9
Medicine is available	1	1	6			8

Figures indicate count of responses

Community members provided narratives for a variety of illnesses, both acute and chronic, ranging from *malaria* to swollen limbs to scabies to whitespot. Most of the conditions for which illness narratives were provided were among those listed in either the febrile illness or skin condition groups that were the subject of key informant interviews. Key informants provided information about how they think others would deal with particular illnesses. Similarly in the forced choice of

practitioner exercise, community members provided information about how they believe they would respond in particular situations. Both these sources of information are somewhat hypothetical because they do not refer to actual behaviour in a specific instance. The illness narratives on the other hand are of particular interest because they provide insights into actual, recent treatment-seeking behaviour and thus enable a validity check of information obtained from other sources.

Despite stated preferences for the various available health care service providers, illness narratives confirm that, in reality, for most respondents (84%) the first response to illness is to try and manage or cure it at home without recourse to traditional or western practitioners. In 16 of the 23 illness narratives for febrile illnesses (70%), respondents reported attempting to treat the condition at home before seeking any type of care outside the home. The percentage of respondents attempting to treat skin conditions at home before seeking any type of care outside the home was even higher. Twenty-six of the 27 respondents (96%) who provided illness narratives for skin conditions tried home management first.

Respondents who tried to manage febrile illnesses at home were more likely to use western medicine purchased from a store or left over from a previous illness episode than a traditional remedy. However, in some instances home management did involve a traditional remedy including solutions made from leaves and bloodletting. Sometimes people use a combination of western and traditional medicine in trying to manage a febrile illness at home.

'After our sister had been hallucinating for a day, the family administered some western medicine (chloroquine) that we had in the house. The medicine was originally obtained from Toborai Village Clinic. No assistance outside the family was sought on this occasion.' Female community member talking about her sister who had a febrile illness

'I treated my daughter's febrile illness myself, at home. At first I bathed her with cool water. I also gave her infant camoquine and liquid panadol with a quinine injection. I had these medicines in the house, left over from the last time she was sick. At that time the nursing sister advised us to use this western medicine when she gets malaria and to buy a mosquito net. We did buy one mosquito net and my daughter and I use it. This time we didn't go to anyone for treatment.' Female community member talking about her daughter who had a febrile illness

'At first I used my own traditional medicine which I collected myself from the bush. The plant grows wild in the area around my house. I didn't use any western medicine and I didn't seek treatment from outside the family. After taking the traditional medicine I didn't eat or drink anything so that the medicine would circulate through my body. I am still taking the traditional medicine.' Male community member with a febrile illness

'When the headache comes on, I get my mother to make small cuts on my forehead with a new, clean razor blade to drain the infected blood. The blood that comes out is black and that's how I know it is infected. Sometimes I also take panadol which I get from the shop.' Male community member who suffers from recurring headaches

'I tried to manage the illness at home by taking chloroquine in combination with a solution made from leaves.' Female community member with a febrile illness

Most people who treated skin conditions at home used traditional remedies. The most common form of home management for skin conditions was to bathe in solutions made from different types of leaves. *Popo*, guava, *bantu* and lime leaves were commonly used. Sometimes juice extracted from leaves would be mixed with lime and rubbed onto the affected area of skin.

'When I got tired of the discomfort and the rash started to spread around my neck, I started to use special leaves from the popo tree to treat it. I boiled the leaves, mixed them with lime and rubbed this compound onto my skin on a daily basis. The popo tree grows at the back of my mother's house and so the leaves are easy to obtain.' Female community member with a skin condition

'Initially the family used a home remedy, which consisted of washing with water in which guava and lemon leaves had been boiled. The guava and lemon trees grow close to our house and so the leaves were easy to obtain.' Female community member whose whole family recently had a skin condition

'I boiled guava leaves in water and used the solution to bathe my son. I washed him with this solution every day and stopped him from swimming in the sea so often. I started to use this treatment when the itchiness increased in severity and the sores started to develop. This was the only form of treatment we used.' Female community member talking about her son who had a skin condition

'Both traditional and western medicines have been used at home to treat the condition.' Male community member with a skin condition

Thirty respondents (60%) reported using treatment services outside the home at some stage during the illness episode as shown in Table 24. The first health care service outside the home was most often Toborai Aid Post. About twice as many respondents had gone to Toborai Aid Post as Arawa Health Centre as their first treatment resort. Similar numbers of respondents had sought treatment from Arawa Health Centre and a traditional healer when initially seeking treatment outside the family. Only 1 respondent had gone to any of the private providers of western health care services located in Arawa as a first treatment option. The 2 health care services most likely to be used as a first resort after home treatment both provide western medical services.

Table 24: Health Care Service of First Resort, Bava Pirung

Service Provider	No. of Responses
Village clinic	15
Arawa Health Centre	8
Traditional healer	6
Private HEO	1
Private GP	0
Total	30

Worsening of the condition, development of more serious symptoms or failure of home treatment to resolve the condition is what usually prompts respondents to seek treatment from someone outside their immediate family. Cost and proximity of services determines respondent's choice of service provider. The other reason commonly cited for choosing a particular service as the first treatment resort outside the home is confidence in the treatment or service provider to resolve the complaint.

Most respondents sought treatment from the service provider of first resort on one occasion only. Only 2 respondents reported repeat visits to the service provider of first resort. Most respondents (21) were satisfied with the treatment provided by the first health care service provider they approached outside the home. Those who reported being satisfied with the treatment felt it had either improved or completely resolved their condition. One respondent who sought treatment from a traditional healer reported being partially satisfied with the treatment received. Five of the 7 respondents who were not satisfied with the treatment received from the health care service provider of first resort had obtained treatment at Arawa Health Centre. They were not satisfied because they felt the treatment had been ineffective. One respondent did not comment on the level of his/her satisfaction with treatment received from the service provider first approached.

Respondents expressed satisfaction with traditional healers as well as various western health care service providers. Many of those who expressed satisfaction with their treatment results had used a home or traditional remedy in combination with western medicine.

'My husband's condition improved after he got an injection at Toborai Aid Post. The fever subsided and the headache disappeared. Within 2 days of getting the western medicine he was able to go fishing again. The traditional treatment I gave him did not help but the western medicine cured him.' Female community member whose husband had a febrile illness

'I was extremely satisfied with the treatment I received from the traditional practitioner. I felt fully recovered just a day after taking his treatment. I think he gave me the right treatment for pari.' Female community member with a febrile illness

'I am satisfied with my son's recovery. I think he made a good recovery because we treated him with both traditional herbs and western medicine.' Female community member whose son had a skin condition

'I am satisfied with the treatment and advice I got from both my grandmother and the nursing sister. I think the combination of antibiotics and coconut oil helped me to get better.' Female community member with a skin condition

Just 8 respondents reported using a second treatment option outside the home. The services used as a second resort are shown in Table 25. Other than 1 respondent who was referred to a second service provider, these were people who were not fully satisfied with the treatment received at the health care service provider of first resort. Of these 7 respondents, 4 had previously received treatment at Arawa Health Centre, 1 had been to the village clinic and 2 had seen a traditional healer. Although dissatisfied with the treatment option of first resort, 1 respondent who had been treated at Arawa Health Centre did not seek further treatment.

Table 25: Health Care Service of Second Resort, Bava Pirung

Service Provider	No. of Responses
Traditional healer	3
Private GP	2
Arawa Health Centre	2
Private HEO	1
Total	8

For most respondents the choice of a second health care service provider was based on confidence in the practitioner to provide a cure where previous treatment had failed. Six out of 8 respondents were satisfied with the treatment they received from their health care service of second resort. This is a similar proportion of respondents that expressed satisfaction with the first health care service they used.

Only 1 respondent reported using a third treatment option outside the home. This respondent had a long history of illness and had previously approached a traditional healer and doctors at Arawa Health Centre. The health care service provider of third resort for this respondent was the private GP in Arawa. The respondent is still receiving treatment from the private GP and continues to visit him when the symptoms become acute but the respondent is satisfied with the treatment she is receiving.

Respondents were asked how or who they normally prefer to treat the condition that was the subject of the illness narrative. The results are consistent with the tendency for respondents to first try and manage the condition at home. After home management, public providers of western health care services are normally preferred (as well as actually used) as the treatment option of first resort. Traditional healers and private providers of western health care services are least preferred and used less often as a first treatment option. These results are summarized in Table 26.

Table 26: Usually Preferred Service Provider, Bava Pirung

Service Provider/Option	No. of Responses
Home management	19
Village clinic	11
Arawa Health Centre	11
Western medicine	3
Traditional healer	3
Private GP	2
Total	49

Several respondents did not use their preferred practitioner in the illness episode that was the subject of the narrative. Some respondents had been able to successfully manage the problem at home and others were still in the process of administering treatment at home. Other reasons cited

for not seeking treatment from the preferred practitioner were cost, distance and the non-availability of western health care services during the Bougainville Crisis. One respondent prefers to treat skin conditions at home using traditional remedies but refrained from doing so in order to comply with instructions from the church.

'The family went to Toborai Aid Post because our church [Christian Life Centre] does not allow the use of traditional medicine. External use may be permitted but drinking [ingesting] traditional medicines is not allowed.' Female community member whose family had a skin condition

Most people who sought treatment outside the home or family without first attempting to manage their condition themselves had febrile illnesses and approached a provider of western health care services. Only 1 of these respondents went to a traditional healer. This is consistent with the observed preference for western health care services when respondents start seeking treatment outside the home and for febrile illnesses.

Several health care practitioners and some community members made comments about the hierarchy of treatment resort. Their comments support the finding that usually respondents first try to manage a condition at home using whatever medicine is available (usually starting with traditional medicine and then, if necessary, obtaining western medicine or using a combination of western and traditional medicine) and then approach a provider of western health care services when they start to seek treatment outside the home.

'At first I used a traditional treatment consisting of scraped bark from the kapiak (breadfruit) tree, which I squeezed into a cup and gave to my son to drink. This remedy made no difference to his condition. He continued to complain of stomachache. Then I gave him panadol for the stomachache. We have used panadol on previous occasions when the children had stomachache. We bought the panadol from a store in Arawa because it's cheaper than any of the private medical clinics. His stomachache was cured after he took panadol but the diarrhoea continued. Then my husband's cousin sister, who lives in our village, suggested some other traditional herbs that we could use to treat the diarrhoea. The cousin sister came to visit the family because she heard that [child's name] was suffering from diarrhoea. The treatment she suggested was prepared by mixing together bark and leaves from a particular tree and squeezing them into a cup. The child drank this solution.' Female community member talking about her son who had stomachache and diarrhoea

'Initially I tried to manage the condition at home by boiling guava and lemon leaves in water and using the liquid to wash and clean the sores. This remedy is something I learnt from my mother. I also tried to make sure the sores were dried properly and applied coconut oil and a mixture of coconut oil and noni roots. I made the mixture by squeezing and boiling the noni roots in water and mixing the liquid with coconut oil. After a while the sores became infected and my son developed a fever. I used a thermometer to take his temperature and it was 38 degrees. So I went to Arawa and bought some chloramphenicol capsules from one of the local shops. The capsules are a lot cheaper in the local store than at the pharmacy.' Female community member talking about her son who had sores and developed a fever

'When they get fever, most people treat themselves using traditional herbs and washing with cold water. People get traditional herbs from the bush. If the fever is not reduced by using traditional treatment, people then resort to western medicine.' Male western medicine provider

'If a skin condition doesn't respond to home treatment, people usually seek treatment from an aid post, clinic or hospital.' Male traditional healer

'People usually try to treat skin conditions themselves with medicines that are known to them. When people seek treatment outside the family for skin conditions they usually go to Arawa Hospital.' Male traditional healer

Medical Pluralism

Although there appears to be a preference for western health care services among people in the study population for treating febrile illnesses and when they seek treatment outside the home, it is also common for people to use their own traditional treatment at the same time as western medicine. This is a form of medical pluralism. Using a combination of traditional and western medicine appears to be widespread and was reported by many community members in their illness narratives. People were very satisfied with and had great confidence in the efficacy of pluralistic use of medicine.

'At first I tried to manage the condition by taking chloroquine in combination with a solution made from leaves.' Female community member with febrile illness (*maana*)

'Both traditional and western medicines have been used at home to treat the condition.' Male community member with skin condition (*tudaa*)

'I continued to treat the sores with both betel nut skin and the anti-itch cream. After a month my son recovered completely.' Female community member whose son had a skin condition

'After the condition had been evident for about 3 weeks, we took our daughter to [the nursing sister] at Toborai Clinic. She prescribed some tablets. At the same time we tried using our own traditional remedy involving special leaves from the bush. We decided to use both western and traditional medicine at the same time because we were afraid the condition might get worse. We wanted to give our daughter the best possible chance to recover.' Female community member whose daughter had a febrile illness

'I think using the traditional treatment and the medicine from Toborai Clinic minimized the cost of treatment that might be incurred through using western medicine alone. I like to use a combination of traditional and western medicine.' Female community member whose daughter had a skin condition

'I think my son got better because of the combination of traditional and western medicine we used to treat him. The traditional medicine healed the sores and the western medicine cured the fever.' Female community member talking about her son who had infected sores

Summary of Treatment-Seeking Response to Illness

The data from illness narratives show that the typical treatment-seeking pattern in response to illness begins with trying to manage the condition at home. For febrile illnesses this is likely to be by using western medicine or a combination of traditional and western medicine. Almost everyone in the study population first tried to manage skin conditions at home using traditional remedies. If home management fails to resolve the complaint (either febrile illness or skin condition), assistance will usually be sought from a provider of western health care services.

In practice, as described in illness narratives, Toborai Aid Post was most often the treatment option of first resort when seeking treatment outside the home. Arawa Health Centre was the second most common treatment option of first resort. Combining the data from illness narratives, past use of health care services, choice of practitioners exercise and the usually preferred practitioner question provides a strong indication that, overall, publicly provided western health care services are the most popular type of health care service once respondents start to seek treatment outside the home.

About one-fifth of respondents reported using traditional healers as the treatment option of first resort. However, a little over half the study population reported having sought treatment from a traditional healer at some stage. While traditional healers appear to be less popular and less frequently used than western health care services, it should be remembered that home management, which was the first response to illness for most respondents, very often involves a traditional remedy. In addition, people often used a home or traditional remedy in combination with western medicine.

Respondents may have distinguished between the treatment options of 'home management' and 'traditional healer' by the location and cost of the treatment and their familiarity with the traditional healer. Traditional remedies that were obtained from someone the respondent knew well, who lived in the same village and did not charge for services, such as a family member, may have been classified as home management rather than traditional healer. This would help to explain the differences in the order of popularity of various treatment options obtained through different data collection procedures.

Respondents' inclination to use particular services is based primarily on cost with some consideration given to the distance they have to travel to get to the service. Respondents were mostly satisfied with the first treatment they obtained outside the home and did not pursue further treatment. However, a number of respondents were not satisfied with the treatment they received from Arawa Health Centre.

The above describes the typical treatment-seeking response to illness among the Bava Pirung study population. The following section will examine data that help to explain the factors that determine or motivate this pattern of behaviour.

Explanatory Model for Treatment-Seeking Responses

The information used to build an explanatory model for treatment-seeking responses to ill health for people included in the study sample was derived from several interview categories. Some

community members and traditional healers shared their concept of and beliefs about illness. The health care practitioner interviews included sections on the community's knowledge of and typical responses to fever and skin conditions. Community members commented on the advantages and disadvantages of the various available types of health care providers as well as identifying who made the decision about which provider to use and the reasons for any delay in obtaining treatment in specific, recent illness episodes. These various pieces of data have been analyzed collectively to create an explanatory model for treatment-seeking behaviour.

Beliefs about Aetiology of Disease

As previously noted there was fairly widespread recognition of biological explanations for illness although many respondents used a mixture of biology and traditional beliefs to explain illness. Several traditional practitioners made reference to spiritual forces in relation to their healing abilities.

'As well as providing maternal health services, I treat leprosy, appendicitis and cancer. I also exorcise evil spirits.' Male traditional practitioner

'[The practitioner] is referred to as the Doctor of the Holy Spirit because he receives messages or prophecies from a deceased priest.' Male traditional practitioner

Another traditional practitioner said that harmonious relationships as well as his own spirituality had an impact on his ability to heal people.

'I can also cure patients with no family or relationship problems faster than those who have problems. I cure people with prayer by asking God to help heal the patient.' Male traditional practitioner

One practitioner saw a relationship between people's beliefs about the aetiology of disease and their treatment-seeking response to illness.

'If people attribute fever to spirits or other supernatural forces, they are unlikely to seek western medicine as a first treatment resort.' Male western medicine practitioner

A comment from one community member shows that his first response was based on the premise that the illness was due to biological causes but that he had not excluded the possibility that supernatural forces may also be involved.

'If western medicine failed to cure the illness I would then know or assume that it was caused by a sorcerer rather than natural causes.' Male community member

Respondent's treatment-seeking response to illness is largely consistent with their beliefs about the cause of illness. Whether their explanation for illness is accurate or not many people think that diet, climate, parasites and other biological factors cause illness. This understanding of disease causation is consistent with the popularity and widespread use of western medicine. At the same time, there is an indication that respondents continue to maintain beliefs that spirits, sorcery and breaches of taboos can result in illness. People who hold these views are likely to use traditional medicine. Many respondents subscribe to both biological and traditional explanations for disease, which may explain the widespread practice of medical pluralism, particularly during the early stages when people are trying to manage the illness at home.

Organization of Health Services

As well as having several sets of beliefs, respondents are pragmatic. The most important reason for choosing one practitioner or type of service over another for Bava Pirung respondents was cost. Arawa Health Centre and the Toborai Aid Post were considered to be inexpensive compared with other treatment options. The GP and HEOs in private practice were considered expensive. Most respondents said that they were able to afford the cost of their preferred treatment option. Only 2 respondents cited cost as a barrier to getting treatment from their preferred providers (private GP in one instance and Arawa Health Centre in the other). Several respondents commented that consideration is given when people cannot afford to pay the normal fees at Toborai Aid Post.

'On some occasions when we are unable to afford the cost of treatment, [the nursing sister] lets us have treatment without paying. She feels sorry for some families who cannot afford the cost of treatment.' Female community member

In fact the cost of services at Toborai Aid Post and Arawa Health Centre is comparatively cheap but these are not necessarily the cheapest services available. Many traditional healers said that they do not charge for services, although there may be an expectation to pay at a later time. When traditional healers provide services to members of their own family they usually do not charge. The relative cost of services shown in Table 27 explains the popularity of Toborai Aid Post and Arawa Health Centre but does not explain why the majority of traditional healers who do not charge, or charge a minimum fee, are not equally popular.

Table 27: Cost of Available Health Care Services

Service Provider	Cost of Services
Toborai Aid Post	K1 children, K2 adults for nurse consult
Arawa Health Centre	K1 children, K2 adults for nurse consult, K3 for HEO consult, K15 for doctor consult
Traditional healer	Free for family member and up to K20 for non family members
Private GP	K25 for doctor consult
Private HEO	Information not available

The other main factor that determines respondents' choice of health care services is convenience or proximity. With the exception of people living on Pok Pok Island, Toborai Aid Post is within easy walking distance for most of the study population. Proximity was one of the perceived advantages of Toborai Aid Post. Some respondents cited distance to services as a disincentive to getting treatment early.

'On this occasion I tried to manage the condition at home for a month before seeking assistance because of the distance from where I live to Arawa, where my preferred services are available. Pok Pok Island is located about 8 kilometres from Arawa. Transportation would require a canoe or banana boat and vehicle.' Female community member with a febrile illness

'My husband waited for a week to see if the condition would improve with traditional medicine and delayed getting treatment from Toborai Village Clinic because of the cost involved and difficulty in getting to the clinic.' Female community member whose husband had a febrile illness

Community members identified 13 traditional healers during the course of the study. The majority of these traditional healers were not widely known, treat only 1 or 2 conditions and rarely treat people outside their own family. Use of traditional healers appears to be very localized; respondents rarely travel outside their own village to avail themselves of services from a traditional

practitioner. Although 1 traditional healer commented that most villages have at least a couple of traditional healers there were only 2 or 3 practitioners who were widely known among the study population. In Bava Pirung, it appears that people with traditional medical knowledge mainly treat members of their own family. This may underlie the apparent lack of popularity of traditional healers as a treatment option in contrast to home management among the study population. Usually traditional healers treat or provide advice and remedies to people in their own family which respondents may have classified as home management rather than seeking treatment from a traditional healer.

These and other organizational aspects of health care services that respondents consider advantageous and disadvantageous are summarized in Table 28. There are several points of interest in these data. Although the GP, the HEOs and Arawa Health Centre are all located in Arawa town, the distance to travel to the hospital was cited as a disadvantage by many more respondents than distance to any of the private clinics. The most commonly cited disadvantage for village clinics is that medicine is not always available.

Table 28: Organizational Attributes of Service Providers, Bava Pirung

	GP in Private Practice	HEO in Private Practice	Arawa Health Centre	Village Clinic	Traditional Healer*
ADVANTAGES					
Close proximity				12	6
Comparatively inexpensive		2	16	13	4
Continues to treat until patient is well			1		
Makes home visits					1
Provides services not available elsewhere			1		
DISADVANTAGES					
Distance to travel	7	5	15	1	3
Expensive	18	10	8		1
Lengthy waiting time		1	5	4	
Medicine not readily available		1	8	12	
Practitioner not reliably in attendance			1	4	6
No disadvantages					4

Total number of respondents = 34

Figures denote number of responses

*'Traditional Healer' column includes responses for up to 2 traditional healers per respondent

Health care service providers attributed the popularity of various health care services to 2 organizational factors: the range of illnesses a service is able to treat and the accessibility of the

service. There is thus some variation between the advantages of popular services cited by members of the community and the perceptions of health care practitioners. Practitioners do agree that Toborai Aid Post is the most popular health care facility in Bava Pirung.

'Toborai Aid Post is the busiest service provider because they have treatment for all types of illnesses.' Male traditional healer

Toborai Aid Post is the busiest health facility in Bava Pirung because a variety of drugs are available for the treatment of a wide range of illnesses. Access to Toborai Health Centre is convenient for most people because it is located on the main road.' Male traditional healer

'My popularity is due to three factors: easy access, being just a short distance from the main road and on a sealed road; the provision of both western and traditional medicine; effective treatment – after receiving my treatment people recover quickly.' Male traditional healer

Decision-Making and Social Organization

Depending on the age and degree of infirmity suffered, the person experiencing an illness episode or their immediate relatives decide which treatment options to pursue. Adult respondents who are not seriously incapacitated by an illness make their own treatment-seeking decisions. One or both parents or the whole family are likely to make treatment-seeking decisions for very young, very old and very sick people. In most instances when a relative made the treatment-seeking decision it was the parent/s of a young child who made the decision. Respondents often share information about illness and treatment or recommended practitioners and get advice from friends and neighbours but the final decision rests with the individual.

'I made the decision about what type of treatment to use in consultation with my neighbour, who is a close friend, and her husband. This couple often help me because my mother is old and my father has already died.' Young adult female community member

'I made my own decision to approach the traditional practitioner after friends advised me that he may be able to assist with pari.' Female community member

'The child's father made the decision to take our son to the clinic. At the time the child became ill, I was away from home selling fish at the market so the father made the decision on his own.' Female community member, mother of the child

Efficacy

Efficacy of treatment may be of less importance to the Bava Pirung study population than cost and proximity when making treatment-seeking decisions. The data shown in Table 29 suggest that the private GP, Arawa Health Centre and traditional healers are all thought to provide a high standard of treatment. It would appear that there is less confidence in treatment provided by Toborai Aid Post (Village Clinic). In view of the usage patterns of the Aid Post and the private GP, perhaps convenience and cost outweigh efficacy in treatment-seeking decisions.

Table 29: Perceived Efficacy of Service Providers, Bava Pirung

	GP in Private Practice	HEO in Private Practice	Arawa Health Centre	Village Clinic	Traditional Healer*
ADVANTAGES					
Immediate relief/effect	9	5	8	4	10
Superior treatment	15	5	15	8	9
DISADVANTAGES					
Ineffective treatment			1		2
Treatment is painful			1		
Treatment slow to take effect			1		1

Total number of respondents = 34

Figures denote number of responses

*'Traditional Healer' column includes responses for up to 2 traditional healers per respondent

Health care providers may rate efficacy as a more important factor in treatment-seeking decisions than community members do. Several traditional healers thought people come to them for treatment because of the known efficacy of their treatments. The comments below were made by 5 traditional practitioners when they were asked why people come for treatment.

'I have a reputation for providing effective treatment. Previous patients pass the word around about the effectiveness of the treatment they have received at [practitioner location] which in turn prompts other people to use the service.'
Male traditional healer

'People want my treatment because they trust me and have confidence in the effectiveness of the treatment I provide.' Male traditional healer

'People seek my treatment because they have had positive results in the past and are confident of my ability to provide a fast and effective cure. Satisfied patients

tell others of my healing abilities and the reputation spreads. ' Male traditional healer

'I am busy and popular because people know my treatment is effective and patients get well.' Male traditional healer

'I am the only specialist for pintuu, ereng piri and kubiri. I have a reputation for providing effective treatment for these conditions and so my services are sought after. I believe my treatment for these conditions is more effective than that provided by other traditional healers.' Male traditional healer

Summary of the Explanatory Model for Treatment-Seeking Responses

Several factors that are important in treatment-seeking decisions have been identified. Respondents' understanding of illness pathways includes both biological causative factors and traditional beliefs. Some diseases (*pari*) are explained entirely by the action of supernatural forces and others entirely by biological factors (diarrhoea). However, most respondents attribute most illnesses to a combination of biological and supernatural factors. Respondents placed considerable emphasis on biological causes of illness but did not discount the possibility of spiritual involvement or sorcery. With this understanding of disease it is logical that people would resort to both western and traditional health services for treatment. Western medicine and traditional remedies are used when trying to manage a condition at home but when respondents start to seek treatment outside the home they are more likely to approach someone who provides western medical services, reflecting the belief in biological causes of illness.

The over-riding factor in treatment-seeking responses to illness for people in the Bava Pirung study population appears to be cost, followed by proximity to home or convenience. The services that are most popular provide western health care services, are cheap and easy to get to. Toborai Aid Post fits all these criteria and in actual practice (illness narratives) was more often the treatment option of first resort than any other service. Arawa Health Centre, also popular, is cheap but not as accessible for people from Bava Pirung.

There is an apparent anomaly between the low use of traditional healers and the importance of cost and proximity in treatment-seeking decisions. Many traditional healers do not charge high fees and provide services in the villages where respondents live. However, traditional healers

were the treatment option of first resort for only one-fifth of the study population. In addition, rank ordering of preferences for the available service providers or treatment options suggested traditional healers are the least preferred.

There was good evidence that people in the study population maintain their traditional beliefs and subscribe to dual theories of disease causation, so the western medical epistemology of disease must be well entrenched in people's minds. This and the low cost and close proximity of Toborai Aid Post explain much of the treatment-seeking response to illness seen in Bava Pirung. Two other factors contribute to the widespread use of western medicine. Respondents also subscribe to dual theories of religious belief, and Christianity is linked to western medicine so the ubiquity of medical pluralism is hardly surprising. In particular, the Christian Life Centre church encourages its members to use western rather than traditional medicine, and 8 of the 50 community respondents were of this denomination; however, the phenomenon goes deeper than that. Finally, some respondents find western medicine itself, rather than the location of the service, more convenient.

'Although I know another traditional remedy for fever, it is easier to obtain and administer capsules than collect and prepare the traditional remedy.' Female community member whose son had a febrile illness

'I found it difficult to treat the child's skin condition with the traditional treatment [either because it didn't seem to relieve the irritation or it was too much effort to gather and boil the leaves] and so, after about 3 weeks, I resorted to western medicine. I purchased some antibiotic cream from a shop in Arawa.' Female community member whose daughter had a skin condition

Potential for Integration of Traditional and Western Medicine

Nine health care practitioners were asked about their thoughts on collaboration between and integration of traditional and western medicine. This included 2 providers of western health care services and 7 traditional healers. Their ages ranged from 36 to 84 years. One practitioner was female. All traditional healers were male. The health care practitioners were drawn from various villages in Bava Pirung: Pamu, Pok Pok Island, Toborai and Toniva, and from the town of Arawa itself. Their religious affiliations included Catholic, Christian Life Centre and Seventh Day Adventist.

Although there is only limited collaboration between practitioners at present, most of the practitioners interviewed would like to see more collaboration take place. Some practitioners refer patients to Arawa Health Centre. Two of the traditional practitioners are partners although most of the time they work in different villages. They collaborate with each other and incorporate spirituality, traditional herbal treatment and western medicine in their practice.

'I only collaborate with [partner's name]. We share the same philosophy or ideology on health, religion and spirituality. We are both members of the local reformed Catholic Church. I don't collaborate with other practitioners because I think their beliefs about the causes of illness may be different to mine.' Male traditional healer

Two traditional healers have been approached to collaborate in the provision of services at Arawa Health Centre. Their comments below highlight their willingness to collaborate with people providing western medical services as well as the need for adequate recognition.

'I was asked to assist at Arawa Hospital. But I felt uncomfortable because there were lots of people in the area where they wanted me to work. I willingly collaborate with other practitioners when I am invited to do so.' Male traditional healer

'I have collaborated with Arawa Hospital in the past. The previous OIC of Arawa Hospital invited me to treat patients in the TB ward who were not improving under a western TB treatment regime. They gave me an allowance for the service I provided. Recently the allowance has stopped so I don't go anymore. I am willing to collaborate with other service providers but I wait to be invited rather than initiating anything myself.' Male traditional healer

Two-thirds of the practitioners interviewed would like to see more collaboration between traditional healers and health workers. Traditional healers and practitioners who provide western health care services expressed this view.

'I think there should be more collaboration between traditional healers and health workers. If the Department of Health recognized traditional healers there could be more collaboration.' Female western medicine practitioner

'I think that the amount of collaboration between traditional practitioners and health workers taking place at present is adequate but that it should increase under the autonomous government. I think that if both can work together as recognized institutions there would be much more likelihood of providing a better health care service.' Male traditional healer

However, not all those practitioners interviewed want to collaborate with others. Sometimes this is because they prefer to provide treatment just to their own family members. Often it is because traditional practitioners are reluctant to share information about their medicine with others.

'I do not collaborate with other health care practitioners. The general public do not know I am a healer and I prefer to provide treatment to people within my immediate family.' Male traditional healer

'I do not collaborate with other traditional practitioners. Each practitioner has their own special herbs and generally doesn't want to reveal these to others. Each individual has his own beliefs and ideas about various illnesses and treatments and so each works in isolation.' Male traditional healer

When asked if they would like to see traditional medicine formally recognized as a part of the government's health care system, all 9 health care practitioners answered affirmatively. It was perceived that a range of specific benefits that would accrue from a health care system in which traditional and western medicine are integrated were identified. Many practitioners thought that an integrated service would be more effective than one in which each stream of medicine operates independently. Some thought it would make health care more accessible and affordable. A number of practitioners also believed that recognition of traditional medicine would result in financial benefits for service providers.

'I think that if traditional healers and health workers worked together, shared ideas and exchanged information they would be providing a better health service for the community.' Male traditional healer

'I would like to see traditional medicine formally recognized as part of the government's health care system. I think that the combination of western and traditional treatment is superior to either one on its own. A patient receiving both types of treatment is more likely to be cured.' Male traditional healer

'I would like to see traditional medicine formally recognized as part of the government's health care system. I believe that traditional practitioners can

assist some patients where western medicine is unable to assist. For example if someone has been subjected to sorcery the hospital would not be able to cure the illness. From my own experience I think that bonesetters provide a valuable and effective treatment and they should be recognized. There are other traditional healers who are specialists for particular illnesses or conditions and they should also be recognized and integrated into the health care system.' Male western medicine practitioner

'I would like to see traditional medicine recognized as part of the health care system. The benefits of formal recognition would include reduced costs and easier access to various health care practitioners.' Male traditional practitioner

'Another advantage is that an allowance could be paid to health care providers. Traditional practitioners do not currently receive any allowance from government for the services they provide.' Male traditional healer

'I can see benefits for traditional practitioners arising from formal recognition. These would be financial benefits through increased funding flowing to traditional practitioners for buildings, facilities and drugs and increased revenue from patient fees.' Male traditional healer

Two respondents thought that if traditional medicine was formally recognized as part of the government's health care system it would become better organized. This could be advantageous in terms of processing supplies of traditional medicine and preserving traditional medical knowledge.

'Another advantage might be that funding would be made available to improve traditional medicine. Funds could be made available to manufacture traditional medicine. For example an herb garden could be established close to the health centre and equipment provided to process the raw materials into ready-to-consume medicine. Some herbs are hard to find at the time a patient comes for treatment. With a medicinal herb garden and processing facilities all medicines could be continuously available. Thus a better service would be available to the community.' Male traditional healer

'One of the advantages of formally recognizing traditional medicine would be the preservation of traditional knowledge. At the moment traditional medical knowledge is lost when practitioners die unless they pass it on. If traditional medicine were to be formally recognized the 'recipes' for treatment would be recorded and preserved forever.' Male traditional healer

Although support for recognition and integration of traditional medicine was universal, practitioners could also foresee some barriers that would need to be overcome if an integrated system is to be achieved. These related to lack of understanding and trust, the reluctance of some practitioners to reveal information about their treatments, disparity in education levels of different types of practitioners, and the number of traditional practitioners that exist.

'There is a mutual lack of understanding. Currently many western practitioners distrust traditional medicine and traditional practitioners distrust western medicine. This distrust needs to be overcome before traditional medicine can be effectively integrated into the health care system.' Male western medicine practitioner

'When people revert from traditional medicine to western medicine and vice versa, they may end up distrusting one or both types of medicine. This is a problem that would need to be overcome if traditional medicine is to be formally recognized.' Female western medicine practitioner

'However, if an integrated health care system is to be created, traditional practitioners will need to overcome their reluctance to share information about their treatments. At present, some traditional practitioners will not reveal information about their medicine to others and will not allow others to prepare the medicine. More transparency would be required for an integrated system to come into being.' Male traditional healer

'A barrier to formal recognition would be the disparity in education levels of traditional practitioners and doctors, nurses and health extension officers.' Male traditional healer

'However, it may be difficult for the two streams of medicine to work together because there could be a division among the two different types of practitioners depending on their level of education, experience, religious beliefs, cultural beliefs.' Male traditional healer

'Many traditional practitioners exist. Not all want to collaborate – some prefer to operate as individuals. If all traditional practitioners were to be formally recognized there may be more than the system could cope with or afford to pay. It may be better to recognize only those specialists who are willing to share information about their medicine.' Male traditional healer

Various constructive suggestions as to how an integrated health care system that recognizes both traditional and western medicine could be created were elicited from practitioners. There was

agreement that the services that health workers and traditional healers can each provide need to be better understood.

'Traditional healers and health workers need to develop a mutual understanding and trust.' Male traditional healer

'There are differences in the practice and philosophies of traditional practitioners and health workers. Traditional practitioners often attribute illness to psychological or spiritual influences whereas health workers are more likely to consider physical causes. A better understanding between traditional practitioners and health workers needs to be developed before the two could work together.' Male western medicine practitioner

Developing a better understanding between traditional practitioners and those who provide western health care services could be achieved by providing basic training in western medicine for traditional practitioners and basic training in traditional medicine for people who provide western health care services. Responses indicated that such courses would be popular. Eight out of 9 traditional practitioners said they would like to increase their understanding of western medicine. Similarly both practitioners who provide western health care services said they would like to have a better understanding of traditional medicine.

'There could be a course designed for traditional healers that covered the basics of western medicine. Similarly a course for western health care practitioners that covered the basics of traditional medicine could be designed.' Male traditional healer

One respondent thought that, in the interests of working together, practitioners should focus on what they have in common rather than how they differ. This may also help traditional practitioners to overcome their reluctance to share information about their medicine, which would be a prerequisite for an integrated system.

'If traditional healers and health workers could focus on their common objective, that is to help and cure people, they would be able to overcome the differences in their beliefs.' Male traditional healer

'Traditional practitioners would need to be prepared to expose their medicines to other healers if an integrated system is to be achieved.' Male traditional healer

Finally, one practitioner commented that in an integrated system traditional medicine would need to be given equal recognition and not simply subsumed by western medicine.

'Under an integrated system, it would be important that the government recognize traditional healers and not simply allow western health care to take over.' Male traditional healer

Respondents could envisage an integrated health care system where traditional and western health care services are co-located. Most practitioners thought that separate rooms would be required for practitioners to be able to operate in comfort. Several respondents also suggested establishing a traditional medicine section within Arawa Health Centre. It was suggested that meetings between leaders of each stream of medicine be held to work out how integration could proceed.

'A building could be provided that housed both traditional and western practitioners. The building would need to have a separate room for traditional healers because they may not feel comfortable practising in front of western health care practitioners.' Male traditional healer

'The provision of a separate treatment room for traditional practitioners at Arawa Hospital would facilitate collaboration between the two types of treatment. I would also like to see traditional practitioners on the Arawa Hospital pay roll with approval from Bougainvilleans.' Male traditional healer

'To facilitate a more collaborative working relationship between traditional healers and health workers, a meeting could be held to work out how each stream of medicine can best assist patients.' Male traditional healer

Private practice for some traditional practitioners was also seen as a viable alternative to including them all on the government pay roll. However, the government would need to provide some type of registration for authorized traditional practitioners.

'To overcome this problem [high number of traditional practitioners] some traditional practitioners may be able to set themselves up in private practice rather than trying to accommodate all of them within the government system. There would need to be some way of registering private practitioners who are to be recognized by the government.' Male traditional healer

In summary, there appears to be considerable support for the concept of a health care system where traditional and western medicine are integrated. Respondents thought an integrated health system would mean better services for the community and preservation of important cultural knowledge on traditional medicine. It was also perceived that traditional healers would benefit financially under an integrated system.

In order for an integrated health care system to be established open, trusting and equal relationships would need to be developed between traditional practitioners and providers of western health care services. Mutual understanding and respect should be the basis of these relationships and would pave the way for integration. Providing basic training courses in each stream of medicine could help to build this type of understanding and respect. Practitioners favoured a model of service delivery under an integrated system where traditional and western health care services are co-located in one building with separate areas for each type of medicine.

CHAPTER ELEVEN

RESULTS - POPULATION SAMPLE

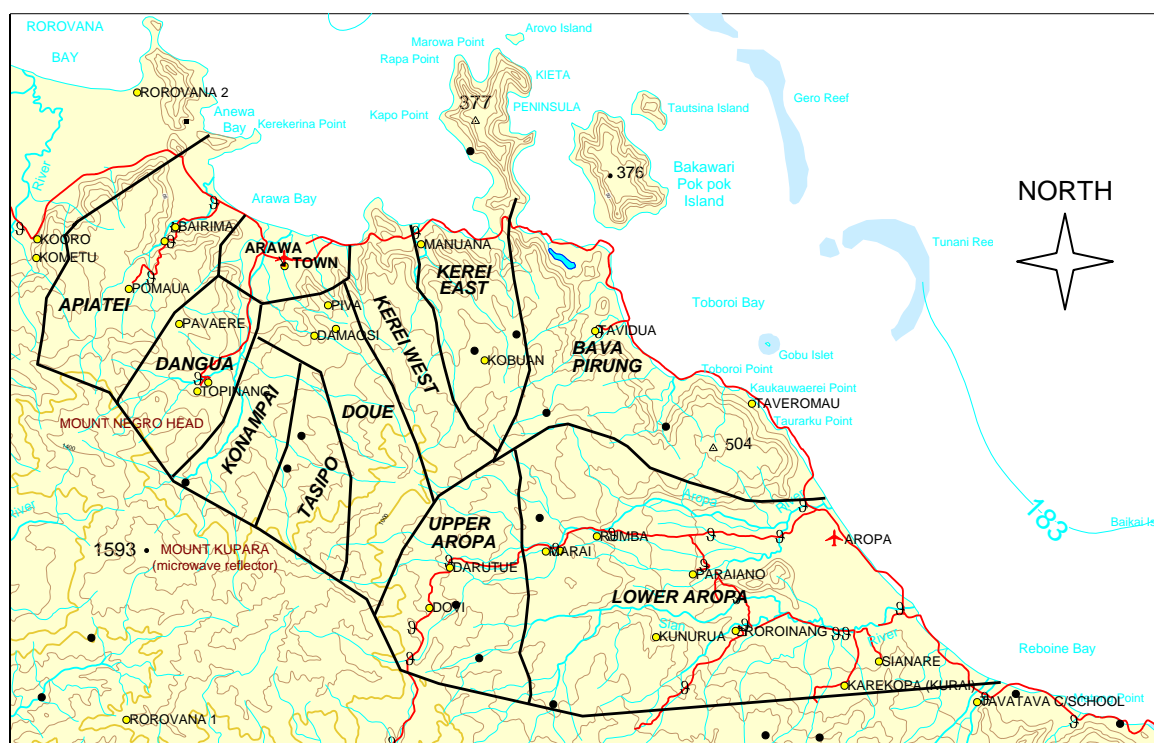
Demographic Characteristics

Ten research assistants each interviewed 20 ordinary people living in either the same village as the research assistant or a nearby village within the same VCC area. Thus a total of 200 community members were interviewed and comprise the population sample which approximates the broader Nasioi population distribution for the variables of gender, age, VCC and religion.

The population sample included 103 males (51.5%) and 97 females (48.5%). The Arawa LLG population proportions are 52% for males and 48% for females. All respondents in the population sample were adults. Their ages ranged from 18 to 70 years. Slightly over 60% of respondents were aged between 30 and 50 years inclusive. This compares with 43% of 18 to 70 year olds residing in Arawa LLG who are aged between 30 and 50 years.

The population sample was drawn from all 6 VCCs in the North Nasioi COE area (Apiatei, Dangua, Konampai, Doue, Kerei West, Kerei East) where in-depth interviewing had not been conducted in the first or second stages of data collection (that is excluding the Tasipo and Bava Pirung VCCs) as well as Arawa Town and 2 VCCs in the South Nasioi area (Upper Aropa and Lower Aropa). Ten interviews were conducted in COEs that adjoin the Nasioi area. The geographic area from which the population sample was drawn and the North and South Nasioi VCCs where interviewing was conducted are shown in Figure 20. The 3 COEs where interviews were conducted that are not part of the Nasioi area are not shown in Figure 20. Ioro COE is located immediately west of Apiatei. Kongara 1 and Kokoda COEs lie immediately south of Upper Aropa and Lower Aropa respectively. Although technically outside the Nasioi boundary, the villages in these 3 COEs where interviews were conducted are only a short distance from the Nasioi area. The language used for all interviews was Nasioi.

Figure 20: Approximate Boundaries of VCCs in the Nasioi Area



Respondents came from 97 different villages. For the most part fewer than 4 respondents were interviewed from each village. The maximum number of respondents interviewed from any one village was 9, from Dinguna in Kerei West. The number of respondents interviewed from each VCC is shown in Table 30. The distribution of the sample across North Nasioi VCCs approximates the population distribution across North Nasioi VCCs according to census data compiled by the North Nasioi COE in 2003. It is therefore reasonable to state that, geographically, the sample is a broad cross-section of the North Nasioi COE area (excluding 2 North Nasioi VCCs that were not included in this sample) with significant representation from the South Nasioi COE area.

Table 30: Number of Respondents by COE and VCC, Population Sample

North Nasioi COE		South Nasioi COE	
VCC	No.	VCC	No.
Apiatei	32	Lower Arope	18
Konampai	14	Upper Arope	41
Dangua	11		
Doe	26	COEs Adjoining the Nasioi Area	No.
Kerei East	21	Iro	8
Kerei West	20	Kongara 1	1
Arawa Town	7	Kokoda	1

As in the broader Nasioi population the majority (72.5%) of respondents were Catholic. Seventh Day Adventist and Christian Life Centre were other religious denominations represented among respondents (17% and 5.5% respectively). In comparison with the broader population, United Church affiliates were somewhat under-represented in the population sample. The religious affiliation of respondents is summarized in Table 31.

Table 31: Religious Affiliation

Religious Denomination	Frequency	Percent
Catholic	145	72.5
Seventh Day Adventist	34	17.0
Christian Life Centre	11	5.5
Marian Mercy	3	1.5
United Church	2	1.0
Pentecostal	1	0.5
New Faith Revival	1	0.5
No Religion	2	1.0
No Response	1	0.5
Total	200	100

Using a separate questionnaire the research assistants also interviewed 50 health care practitioners. These were 25 females and 25 males with an age range of 24 to 80 years. 54% of the practitioners were aged 50 or more. The practitioner sample was drawn from the town of Arawa (5 practitioners) and 41 villages in 9 VCC areas. The distribution of practitioners across various religions was similar to that of the community sample with the majority being Catholic. Forty-one traditional practitioners and 9 practitioners who provide western health care were interviewed.

Most of the results presented in this chapter were obtained from the interviews with community members who are referred to as 'respondents'. Data from the community interviews are supplemented, where appropriate, with information obtained during health care practitioner interviews. Where the data presented were obtained from practitioner interviews, the source is denoted by the term 'practitioners'.

Knowledge of Disease

Respondents were asked to nominate illnesses that commonly affect people in their village. Each respondent could nominate up to 8 common illnesses. Respondents identified a total of 60 illnesses and the 12 most frequently cited are listed in Table 32. Of these fever (*malaria*), cough and diarrhoea were nominated by a majority of respondents. Other frequently nominated conditions were headache, *pintuu* (urinary tract infections), *domang o* (respiratory conditions), scabies, stomachache, enlarged spleen, cuts or sores, leprosy and skin irritations (which could include scabies as well as other specific conditions under a western medical epistemology). A condition known as *ereng koing* (characterized by a racing pulse or high blood pressure) and boils were also among those conditions thought to be common.

Table 32: Most Common Illnesses

Illness	Frequency
Fever (<i>malaria</i>)	166
Cough (<i>kou</i>)	129
Diarrhoea (<i>kubiri</i>)	102
Headache (<i>bore bana</i>)	58
Urinary tract infection (<i>pintuu</i>)	52
Respiratory conditions and shortness of breath (<i>domang o</i>)	45
Scabies	38
Stomachache (<i>bakeng sisikera</i>)	29
Enlarged spleen (<i>maana</i>)	28
Sores and cuts (<i>penta</i>)	24
Leprosy (<i>oramu</i>)	23
Skin irritations (<i>kasikasi</i>)	22

Respondents' perceptions of which illnesses are most common are confirmed by data about the last illness they had suffered as shown in Table 33. Eighty-three respondents reported that the most recent illness they had suffered was *malaria*. Cough, headache and diarrhoea were also common among the conditions that respondents had recently suffered. Of the other 8 conditions that respondents thought were common, *bakeng sisikera*, *domang o*, *pintuu* and *penta* were among those that at least several respondents had suffered most recently.

Table 33: Last Illness Suffered

Illness	Frequency	Percent
Fever (<i>malaria</i>)	83	41.5
Cough (<i>kou</i>)	20	10
Headache (<i>bore bana</i>)	14	7
Diarrhoea (<i>kubiri</i>)	12	6
Stomachache (<i>bakeng sisikera</i>)	6	3
Aching body (<i>mono sisikera</i>)	6	3
Respiratory conditions and shortness of breath (<i>domang o</i>)	5	2.5
Backache (<i>pinsing sipa</i>)	5	2.5
Urinary tract infection (<i>pintuu</i>)	5	2.5
Appendix	4	2
Toothache	4	2
Sores or cuts (<i>penta</i>)	3	1.5

Respondents were also asked what they thought causes each of the conditions that commonly affect people in their local community. The results presented in Table 34 are causes for the 12 most frequently nominated common illnesses.

Table 34: Perceived Causes of Common Illnesses

Fever (<i>malaria</i>)	Frequency	Percent of Respondents
Mosquitoes or parasites that live in mosquitoes	157	94.6
Exposure to cold, rain	52	31.3
Unclean village environment	36	21.7
Contagious	19	11.4
Drinking dirty water	19	11.4
Exposure to sun, heat	18	10.8
Poor personal hygiene	17	10.2
Develops from or caused by another illness	16	9.6

166 respondents

Cough (<i>kou</i>)	Frequency	Percent of Respondents
Exposure to cold, rain	91	70.5
Flowering trees, pollen	63	48.8
Eating too much of the wrong kind of food	57	44.2
Exposure to smoke, dust or fumes from drying copra	48	37.2
Contagious	42	32.6
Eating processed food	24	18.6
Exposure to sun, heat	21	16.3
Drinking dirty water	17	13.2

129 respondents

Diarrhoea (<i>kubiri</i>)	Frequency	Percent of Respondents
Drinking dirty water	56	55.4
Eating too much of the wrong kind of food	48	47.5
Contagious	47	46.5
Unhygienic food preparation and/or storage	45	44.6
Germs/bacteria	36	35.6
Poor personal hygiene	36	35.6
Eating processed food	21	20.8
Unclean village environment	17	16.8
101 respondents		

Headache (<i>bore bana</i>)	Frequency	Percent of Respondents
Exposure to sun, heat	39	68.4
Mental stress	24	42.1
Exposure to cold, rain	19	33.3
Develops from or caused by another illness	15	26.3
Exposure to smoke, dust or fumes from drying copra	5	8.8
Exposure to environmental toxins/pesticides	4	7.0
Mosquitoes or parasites that live in mosquitoes	3	5.3
Other	3	5.3
57 respondents		

Urinary Tract Infections (<i>pintuu</i>)	Frequency	Percent of Respondents
Contagious	24	46.2
Eating too much of the wrong kind of food (watercress)	16	30.8
Drinking dirty water	13	25.0
Other	10	19.2
Germs/bacteria	9	17.3
Develops from or caused by another illness	8	15.4
Breach of dietary taboo	7	13.5
Breach of geographic taboo	7	13.5
Washing in dirty or contaminated water	7	13.5
52 respondents		

Respiratory Conditions (<i>domang o</i>)	Frequency	Percent of Respondents
Exposure to cold, rain	34	75.6
Exposure to smoke, dust or fumes from drying copra	13	28.9
Develops from or caused by another illness	11	24.4
Eating too much of the wrong kind of food	10	22.2
Contagious	7	15.6
Flowering trees, pollen	7	15.6
Eating processed food	5	11.1
Exposure to sun, heat	5	11.1
Poor personal hygiene	5	11.1

45 respondents

Scabies	Frequency	Percent of Respondents
Contagious	24	63.2
Exposure to irritant grass (<i>iriri</i>)	24	63.2
Poor personal hygiene	15	39.5
Washing in dirty or contaminated water	15	39.5
Germs/bacteria	13	34.2
Small insects, worms	11	28.9
Eating processed food	5	13.2
Eating too much of the wrong kind of food	5	13.2

38 respondents

Stomachache (<i>bakeng sisikera</i>)	Frequency	Percent of Respondents
Unhygienic food preparation and/or storage	13	44.8
Develops from or caused by another illness	10	34.5
Drinking dirty water	10	34.5
Eating processed food	9	31.0
Eating too much of the wrong kind of food	9	31.0
Poor personal hygiene	8	27.6
Other	5	17.2
Germs/bacteria	4	13.8
Breach of dietary taboo	4	13.8

29 respondents

Enlarged Spleen (<i>maana</i>)	Frequency	Percent of Respondents
Develops from or caused by another illness	15	53.6
Eating too much of the wrong kind of food	14	50.0
Eating processed food	8	28.6
Other	4	14.3
Exposure to sun, heat	3	10.7
Breach of dietary taboo	3	10.7

28 respondents

Sores and Cuts (<i>penta</i>)	Frequency	Percent of Respondents
Exposure to irritant grass (<i>iriri</i>)	15	62.5
Walking in dirty soil or mud	12	50.0
Poor personal hygiene	11	45.8
Other	8	33.3
Sorcery	4	16.7
Washing in dirty or contaminated water	4	16.7
24 respondents		

Leprosy (<i>oramu</i>)	Frequency	Percent of Respondents
Exposure to relative's blood	18	81.8
Contagious	10	45.5
Develops from or caused by another illness	5	22.7
Washing in dirty or contaminated water	3	13.6
Other	3	13.6
22 respondents		

Skin Irritations (<i>kasikasi</i>)	Frequency	Percent of Respondents
Exposure to irritant grass (<i>iriri</i>)	13	59.1
Contagious	7	31.8
Poor personal hygiene	7	31.8
Walking in dirty soil or mud	6	27.3
Washing in dirty or contaminated water	6	27.3
Germs/bacteria	4	18.2
22 respondents		

There is a discrepancy between the number of respondents who nominated diarrhoea, headache and leprosy as common illnesses and the number of respondents on whom data in this table are based because one respondent did not identify any cause for these three conditions.

Many of the perceived causes of disease conform to the western medical aetiology for the corresponding illness. For example, almost 95% of respondents who cited *malaria* as a common illness associated it with mosquitoes. Similarly over 70% of respondents who said cough was a common ailment attributed it to being exposed to cold weather and/or rain. Most of the commonly held perceptions about what causes diarrhoea concur with the western medical aetiology.

Other ideas about illness causation may or may not conform to western medical explanations. It is commonly thought that scabies and other skin irritations (*kasikasi*) as well as cuts and sores (*penta*) can result from exposure to a particular type of grass. Many respondents said that eating too much watercress leads to urinary tract infections (*pintuu*) and that urinary tract infection is contagious.

Supernatural forces do not feature among the most commonly cited perceived causes of illness. Of the 12 common conditions, leprosy (*oramu*) is the only one for which there appears to be a widespread traditional belief about the cause, in this instance, exposure to relative's blood. This is not to say that the study population does not retain traditional beliefs about illness causation. When 'cause of illness' is analyzed in a general sense for all illnesses rather than by specific illness, it is apparent that many people think that, in addition to exposure to relative's blood, sorcery, breach of dietary or geographic taboos and spirits are perceived to cause illness on a not infrequent basis. Table 35 lists supernatural causes of illness in general.

Table 35: Supernatural Causes of Illness in General

Cause	Frequency	Percent of Responses
Sorcery	54	2.2
Exposure to relative's blood	47	1.9
Breach of dietary taboo	37	1.5
Breach of geographic taboo	32	1.3
Spirits	23	0.9

It appears that general knowledge of disease causation in the study population may have been influenced by the introduction of western medical services. There is a widespread understanding of disease causation for the most frequently cited common conditions of *malaria*, cough, diarrhoea, headache, respiratory conditions and stomachache that closely conforms to the western medical explanation for these illnesses. It should be noted, however, that for *malaria* and cough there are also some divergent views that are quite widespread among the study population. For conditions such as scabies, skin irritations, enlarged spleen, cuts and sores there is a mixture of perceived causes. Some of these conform to a western medical understanding while others do not. Urinary tract infections (*pintuu*) and leprosy (*oramu*) are two conditions for which the most popular causal explanations differ from the western medical understanding.

One research assistant recorded open-ended conversational style interviews with several respondents. Excerpts from these interviews are more revealing in regard to the traditional concepts of illness causation, poison and spirits. These accounts suggest that belief in supernatural causes of illness may be more widespread than indicated by the quantitative data alone.

'There are two types of dopaa [poison]. One you ingest it by drinking or eating it with something. The other one is by touching the dopaa with any part of your body. The dopaa that works by touch is usually placed on the tracks in the bush. There are always small vines crossing bush paths. The dopaa will be placed or wrapped in these vines and when someone walks over it and kicks the vine they become affected by the dopaa. The people responsible for this dopaa used to wait on the road and see who is coming from some distance. Then they prepare the dopaa and put it on the road when their victim is approaching. There IS dopaa but how it is prepared and processed – I wouldn't know about that. But I strongly believe that there is dopaa and some people are using it. There are still people arguing over dopaa today. But I look more on the preventive or curing side of dopaa. You can cure people using dopaa. There was another incident in one of the hamlets around here. Somebody died in this hamlet about 2 or 3 months ago. There is now an argument that this person died because someone worked dopaa on him.' Male traditional healer

'Since the Crisis, dopaa is a bigger threat on this island. People have more arguments with each other and use dopaa. I am against this idea and I am doing the job of curing people – mainly those who are affected by dopaa. Most of my healing is done by the power of the spirit. If you have been poisoned, my spirit can remove it and also with the help of God. I am against the people who make dopaa. My medicine is very powerful and it can cure any type of dopaa. When I advise the patients I tell them to be a good family member without fights or cross feelings towards anyone in their family. If the patient is at peace with his or her family then the treatment I give will be effective and cure their illness.' Male traditional healer

'When people are doing dopaa they use spirits that live in the rivers ('manang'). Because they are using these spirits the patients can't get better. When the patient is being treated, the treatment doesn't work because the manang's influence is stronger and the treatment can't overcome the manang. The practitioner may try to treat a patient but the actual cause of illness is something different. So when you want to treat the patient you have to do something about the manang that lives in the river.' 40-year-old male from Eivo

'There was a case when I treated one young girl. She got sick and people believed this sick was like a pintuu. But it wasn't pintuu. A spirit caused her illness. The girl's grandfather used to worship a snake spirit who lived in the river. The grandfather started worshipping this spirit because on a trip to visit relations in the No Go Zone he happened to come across a big snake on the path. He was trying to jump over or get around the snake, but the snake kept stopping him from getting past. So he invited the snake to follow him. And he started to worship the snake. Sometimes the grandfather would lose his mind – this was when the snake spirit entered his body. When the spirit was in him this man could carry very heavy loads like six big trees at one time all the way to the village.'

This particular tree that he carried is a heavy tree, which they plant between the cocoa trees. The trees are still here in the village. The grandfather has since died. It was the manang (snake spirit) that the grandfather used to worship that caused the girl's illness. I was approached by the girl's mother to treat her daughter. I treated the girl and she was better after just 2 days.' Male traditional practitioner

Treatment-Seeking Response to Illness

Respondents were questioned about their actual treatment-seeking behaviour during their most recent illness episode. 77% of respondents had experienced their most recent illness episode in the 13 months prior to interview that is, between June 2003 and June 2004. Recall of events relating to the most recent illness episode is therefore likely to be accurate.

Home Management

For three-quarters (75.5%) of respondents the first response to illness was to attempt to manage the condition at home without assistance from anyone outside the immediate family (defined as grandparent, parent, spouse or children). Most often the afflicted person tried to treat her or himself. If a member of the family assisted in trying to manage or treat the condition, it was more likely to be a female relative. Table 36 shows the main person responsible for managing or treating the condition at home.

Table 36: Person Administering Home Management

Person	Frequency	Percent of Respondents
Self	60	39.7
Wife	26	17.2
Mother	22	14.6
Daughter	13	8.6
Husband	13	8.6
Father	7	4.6
Grandfather	5	3.3
Grandmother	3	2.0
Son	2	1.3

151 respondents

Lack of medical knowledge does not appear to be a deterrent to attempting home management of illness: 68% of those who tried to manage illness at home purported to have only limited medical knowledge. Less than 3% of those who managed conditions at home had extensive medical

knowledge. The type of medical knowledge possessed by those who provided home management did not seem to affect the likelihood of trying to treat the condition at home: of those who attempted home management 50% had knowledge of traditional medicine and 40% had knowledge of western medicine. Table 37 shows the frequency with which various techniques for managing illness at home were used. Symptom relief and drinking water were the most common forms of home management practised. Home management was typically a short-term response to illness either because it was successful (one-third of those who managed or treated their condition at home thought it led to their recovery) or because it was decided that more expert assistance from outside the family was required. The majority (60%) of respondents treated or managed the condition at home for 4 days or less. Only 8% of respondents persisted with home management for more than 2 weeks. However, 1 respondent continued to manage her respiratory condition at home for 2 years.

Table 37: Home Management Methods

Type of Home Management	Frequency	Percent of Respondents
Tried to relieve symptoms	64	42.7
Drank a lot of water	59	39.3
Administered traditional medicine	51	34.0
Massage	41	27.3
Prayer	26	17.3
Purchased western medicine	24	16.0
Western medicine already in the house	23	15.3
Other	21	14.0

150 respondents

About two-thirds of those who tried to treat or manage their condition at home also sought assistance from someone outside their immediate family. In addition almost one-quarter of the study population sought expert assistance as an initial treatment-seeking response to illness without first attempting to treat the condition themselves. Thus, in total a little over three-quarters of the study population sought assistance from a health care provider who was not a member of their immediate family.

Most respondents approached someone outside the family for treatment fairly soon after they became ill. Over 60% of respondents who approached a health care provider outside their immediate family for treatment did so within 4 days of getting sick. 85% of respondents had approached an expert within 1 week of falling ill. Generally respondents were able to get treatment

promptly once they decided that they wanted assistance. The most common reasons given for not seeking treatment earlier were that the condition was not serious or that respondents waited to see if the treatment they administered at home, without recourse to health care providers, would successfully resolve the problem. About one-third of respondents stated that access or economic barriers prevented them from getting treatment as soon as they may have liked. The reasons that respondents delayed seeking treatment are shown in Table 38.

Table 38: Causes of Delay in Seeking Treatment

Reason	Frequency	Percent of Respondents
Didn't feel the need or condition not serious	94	63.5
Waiting for condition to respond to home management	71	48.0
Unable to walk or reach practitioner	26	17.6
Didn't have money to pay practitioner	18	12.2
Too busy or had more important things to do	11	7.4
Other	4	2.7

148 respondents

Respondents typically decided to seek treatment from someone outside the family because their symptoms worsened (61%) or the condition was not responding to home management (38%). Some respondents said they were motivated by the desire for a faster cure (41%) or confidence in the abilities of a particular health care provider (24%).

During their most recent illness episode the first type of health care provider that most respondents approached (first treatment resort) was a traditional healer, either living in the same village as the respondent or from another village. Arawa Health Centre was the second most frequently used treatment option of first resort. Respondents' first treatment resorts are shown in Table 39.

Table 39: Health Care Service of First Resort, Population Sample

Health Care Provider	Frequency	Percent of Respondents
Traditional Healer	62	40.5
- from another village	34	22.2
- local, from same village	28	18.3
Arawa Health Centre	46	30.1
Village clinic or aid post	21	13.7
Private GP in Arawa	9	5.9
Private HEO in Arawa	9	5.9
Other	6	3.9

153 respondents

Various reasons were given for choosing particular service providers at the first resort to treatment as shown in Table 40. For most respondents the choice of first treatment resort was based on confidence in a particular service provider or practitioner's ability to deliver a fast and effective cure. This was expressed in various ways: 'gets a fast result', 'practitioner is an expert', 'treatment is superior'. For some respondents relationship to the practitioner was the determining factor. Practical considerations such as proximity of the service to home, cost and availability of medicine were important to a lesser number of respondents.

Table 40: Reason for Selecting Health Care Option of First Resort

Reason	Frequency	Percent of Respondents
Gets immediate or quick results	65	43.0
Practitioner is a friend or relative (not immediate family)	60	39.7
Practitioner is an expert in curing the condition	44	29.1
Treatment is superior to other treatments	42	27.8
Proximity of service to home	41	27.2
Availability of diagnostic and testing facilities	37	24.5
Cost of service	35	23.2
Medicine is usually available at that practitioner	31	20.5
Church discourages use of traditional practitioners	1	0.7
Other	8	5.3
151 respondents		

Once they decided to seek treatment from someone outside their immediate family, many respondents went to their preferred provider as the first treatment resort. The data presented in Table 41 allows a comparison of preferred providers with the actual service provider used as a first resort. Most of those respondents who indicated a preference for traditional healers and Arawa Health Centre did, in the actual event of illness, approach these service providers as the first treatment resort. However, among those respondents who indicated their preferred provider was the local clinic or aid post, the private GP and the private HEO in Arawa, more respondents first sought treatment from a provider other than their preferred provider. This suggests that at the time they decided to seek treatment outside the family, something prevented them from getting treatment from their preferred provider. Barriers arose more often among respondents whose preferred provider was the local clinic or aid post, the private GP or the private HEO.

Table 41: Preferred Provider by Health Care Option of First Resort

Preferred Health Care Provider	First Treatment Resort						
	Local traditional healer	Other traditional healer	Village clinic or aid post	Arawa Health Centre	Private GP	Private HEO	Other
Traditional healer	15	15	6	3	2	2	2
Village clinic or aid post	3	6	11	4		1	1
Arawa Health Centre	8	6	1	31	1	2	1
Private GP		2		4	3		1
Private HEO	2	4	3	3	2	4	
Other		1		1			1

Most, but not all respondents were satisfied with the treatment they received from the first health care service provider approached. Of the 153 respondents who approached someone outside the family for treatment, 67 (44%) approached more than one practitioner, that is, after their first treatment resort they approached another health care provider for treatment or resorted to a second treatment option. A little less than half of those who resorted to a second treatment option (30/67 or 45%) approached yet another health care provider or went to a treatment option of third resort.

As for the treatment option of first resort, traditional healers, either in the same village as the respondent or another village, were also the most popular treatment option of second resort. By the time they had decided to seek treatment from a second health care provider, comparatively more respondents were inclined to travel outside their own village to get treatment from a traditional healer. Western health care services, whether provided at Arawa Health Centre or village clinics or aid posts, were used as the treatment option of second resort less often than traditional practitioners. Table 42 shows the second health care service used on the treatment-seeking pathway.

Table 42: Health Care Option of Second Resort, Population Sample

Health Care Provider	Frequency	Percent of Respondents
Traditional Healer	28	41.7
- from another village	21	31.3
- local, from same village	7	10.4
Arawa Health Centre	21	31.3
Village clinic or aid post	11	16.4
Private GP in Arawa	4	6.0
Other	2	3.0
Private HEO in Arawa	1	1.5

67 respondents

Only a relatively small number of respondents (15% of the total study population) found it necessary to resort to 3 or more treatment options. By the time respondents had decided to approach a third health care provider for treatment, they were more likely to seek treatment from Arawa Health Centre or a western style service located close to their village, than a traditional healer. Table 43 shows the third health care service used on the treatment-seeking pathway.

Table 43: Health Care Option of Third Resort, Population Sample

Health Care Provider	Frequency	Percent of Respondents
Arawa Health Centre	9	30.0
Village clinic or aid post	7	23.3
Traditional Healer	6	20.0
- from another village	4	13.3
- local, from same village	2	6.7
Private GP in Arawa	4	13.3
Other	3	10.0
Private HEO in Arawa	1	3.3

30 respondents

Table 44 shows the pattern of successive treatment resorts. There are no clear trends or preferences for one type of treatment over another, even after previous treatment had failed to resolve the condition. It appears that respondents were just as likely to choose either a higher level of the same type of care or the alternative type of treatment with each successive health care provider from whom they sought treatment. Most of those whose first treatment resort was the local clinic or aid post continued in their quest for western treatment but for their second treatment resort were prepared to travel to the Arawa Health Centre, where a higher level of western health care is available than at the local clinics. Of those whose first treatment resort was the Arawa Health Centre, half sought further western health care from either the private GP or a hospital that provides a higher level of care (Buka Hospital) and half sought treatment from traditional healers as their second treatment resort. Among those who sought treatment from a traditional healer in the first instance, roughly equal numbers opted for further traditional treatment and western health care for their second treatment resort. More respondents appear to have been willing to travel outside their own village for the second treatment resort perhaps because they believed this was necessary in order to obtain better treatment, whether from a traditional healer or a provider of western health care services.

Table 44: First and Second Treatment Resorts

First Treatment Resort	Second Treatment Resort						
	Local traditional healer	Traditional healer from another village	Village clinic or aid post	Arawa Health Centre	GP	HEO	Other
Local traditional healer		6	5	6			
Traditional healer from another village	4	7	6	3		1	
Village clinic or aid post		1		10	1		
Arawa Health Centre	1	4			3		2
Private GP in Arawa		1		1			
Private HEO in Arawa	1	2		1			
Other	1						
Total	7	21	11	21	4	1	2

67 respondents

A similar spread across the available treatment options was evident at the third treatment resort. That is, those whose second treatment resort was the village clinic sought a higher level of western health care at their third treatment resort (at Arawa Health Centre or the private GP). Some of those who had already been to Arawa Health Centre sought treatment from other providers of western health care (private GP, Buka or Port Moresby General Hospitals) while others went to traditional healers at their third treatment resort. Those who had previously approached a traditional healer were more likely to seek western health care at the third treatment resort (village clinic or Arawa Health Centre). These results are summarized in Table 45.

Table 45: Second and Third Treatment Resorts

Second Treatment Resort	Third Treatment Resort						
	Local traditional healer	Traditional healer from another village	Village clinic or aid post	Arawa Health Centre	GP	HEO	Other
Local traditional healer			3		1		
Traditional healer from another village		1	3	2			1
Village clinic or aid post				7	1		
Arawa Health Centre	2	1	1		2		2
Private GP in Arawa		2				1	
Total	2	4	7	9	4	1	3

30 respondents

Three weeks after the onset of their last illness over 75% of respondents had made a full recovery. Table 46 shows the treatment resort to which respondents attributed their recovery. Nearly one-third of respondents were able to resolve their complaint with treatment administered at home,

without recourse to any 'expert' health care providers. However, more respondents recovered with their treatment option of first resort than either home management or subsequent treatment. Half of those who sought treatment from a health care provider outside their immediate family attributed their recovery to the treatment they received from the first provider approached. It should be noted that 22 respondents attributed their recovery to the combination of treatments they used and a further 9 respondents attributed their recovery to something other than the treatment they used.

Table 46: Treatment Resort Resulting in Recovery

Treatment Resort	Frequency	Number of respondents who recovered	Percent of those using resort who recovered
Home Management	151	48	31.8
First Treatment Resort	153	76	49.7
Second Treatment Resort	67	26	38.8
Third Treatment Resort	30	19	63.3

The level of satisfaction with various treatment options, shown in Table 47, generally reflects the treatment option to which respondents attributed their recovery. Home management was the only treatment option where more respondents expressed some level of dissatisfaction than satisfaction. More respondents were satisfied with the treatment they received from health care providers outside the family, both traditional and western 'experts', than home management. The percentage of respondents using a particular treatment resort who were completely satisfied increased with successive treatment resorts.

Table 47: Satisfaction with Successive Treatment Resorts

Treatment Resort	Level of Satisfaction*				
	Not at all	Partly	Neutral	Mostly	Completely
Home Management	35.9	21.6	0.7	12.4	29.4
First Treatment Resort	11.1	24.2	1.3	15.0	48.4
Second Treatment Resort	7.5	29.9	0.0	10.4	52.2
Third Treatment Resort	0.0	13.3	3.3	13.3	70.0

*Expressed as a percentage of respondents using each treatment option

Table 48 shows the actual service provider to which respondents attributed their recovery. Consistent with its 'most preferred provider' status (even though by a very slim margin) (see Table 51), the majority of respondents attributed their recovery to treatment received at Arawa Health Centre. Home management was also successful for many respondents. However, the efficacy of traditional healers cannot be dismissed: a considerable number of respondents (20%) attributed

their recovery to treatment received from a traditional healer. Although relatively few respondents went to the private doctor in Arawa for treatment at any stage on their treatment pathway, a high percentage of those who did (over 80%) thought the treatment provided led to their recovery. The efficacy of treatment received at Arawa Health Centre and from traditional practitioners was also high. Over 70% of respondents who sought treatment at Arawa Health Centre at some stage during their most recent illness attributed their recovery to treatment received at the Health Centre. 55% of respondents who received treatment from a traditional practitioner living in a different village to that of the respondent attributed their recovery to that treatment.

Table 48: Service Provider Whose Treatment Led to Recovery

Service Provider	Frequency	Percent of Respondents Using Provider
Arawa Health Centre	54	71.1
Home Management	51	33.8
Traditional healer located in another village	28	54.9
Village clinic or aid post	14	37.8
Private GP in Arawa	14	82.4
Combination of Treatments	13	
Local traditional healer (located in respondent's village)	12	33.3
Other	5	45.5
Private HEO in Arawa	4	36.4
Has not yet recovered	4	
Spiritual healing or prayer	1	

Medical Pluralism

Most respondents use either traditional or western medicine rather than using both at the same time. 86% of respondents said they had never used traditional and western medicine at the same time although they may have used them sequentially. The minority of respondents who had used traditional and western medicine at the same time thought that using both types of treatment at the same time was more effective and would lead to a faster recovery. Some of these respondents said that each type of treatment works on a different aspect of the illness. They thought that traditional medicine could be used to resolve social and psychological factors that may be causing or contributing to an illness while western medicine could be used to treat and cure the symptoms.

Explanatory Model for Treatment-Seeking Responses

The vast majority of respondents think that both traditional and western medicine are effective and are happy to use either. 66% of respondents stated they have no preference for one type of medicine over the other. 19.5% of respondents prefer western medicine while 14.5% prefer traditional medicine. Among those who prefer western medicine one of the main attractions is that it has been scientifically tested. Traditional medicine is popular because it is cheaper. A rapid cure is another important factor underlying preference for either type of medicine. However, this was not a determining factor in popularity rating as respondents said that both traditional and western medicine could cure disease rapidly.

Because most respondents are comfortable using either traditional or western medicine the service provider from whom treatment is sought will probably be determined by the practical circumstances surrounding a particular illness episode. The data presented in Table 49 indicate the type of practicalities respondents consider when choosing between western and traditional medicine. Practical factors such as availability of ready cash, medicine and transport at the time illness strikes are the most important factors influencing initial choice of practitioner. Perceived severity of illness is another important factor in the decision-making process. If an illness has failed to improve with one type of treatment, respondents would usually revert to the other type of treatment.

Table 49: Circumstances Surrounding Treatment Choices

Traditional Medicine	Frequency	Western Medicine	Frequency
Illness does not respond to western medicine	72	Illness does not respond to traditional medicine	97
Money is short	52	Money is available	37
Western drugs are unavailable	51	Traditional medicine or practitioner is unavailable	29
At onset of illness	40	At onset of illness	44
Transport is unavailable	31	Transport is available	19
Illness is not serious	8	Illness is serious	20
188 respondents		192 respondents	

Whether or not respondents had a clear preference for either traditional or western medicine, they were asked to list the advantages and disadvantages of each type of medicine. The main advantages of traditional medicine were that it is relatively inexpensive and available close to home

and includes treatment for conditions that cannot be treated with western medicine. The main advantages of western medicine were that it has been scientifically tested, doses are precise and specified and it includes treatment for conditions that cannot be treated with traditional medicine. Strong, effective and fast-acting were advantages attributed to both traditional and western medicine. Many respondents also thought that traditional medicine is effective because it is fresh and natural rather than processed.

Conversely the most commonly cited disadvantage of traditional medicine was that it has not been scientifically tested. There were several disadvantages attributed to western medicine by a majority of respondents. Western medicine is almost universally thought to be expensive (87% of respondents) and inaccessible, being available only at a considerable distance from where most people live. 50% of respondents thought that western medical treatment is painful or unpalatable.

Although traditional medicine has not been scientifically tested, many respondents had confidence in it because it has stood the test of time and they have personally experienced its therapeutic benefits.

'During the Crisis while we were in the bush we drank traditional medicine only but there were not many sicknesses at that time.' 26-year-old female from Upper Aropa

'The older men and women have used traditional medicine for many years and therefore proven its effectiveness.' 49-year-old male from Apiatei

When questions about treatment preferences were posed in a different manner, responses reflected a somewhat different picture. As well as being asked, perhaps somewhat hypothetically, whether they prefer traditional or western medicine, respondents were also asked to nominate their preferred health care provider. As shown in Table 50 almost 70% of respondents prefer providers who deliver western health care services.

Table 50: Type of Treatment Provided by Preferred Provider

Type of Treatment	Frequency	Percent of Respondents
Western	138	69.3
Traditional	56	28.1
Both traditional and western	3	1.5
Other	2	1.0

199 respondents

Table 51 shows a more even spread of preferences across the actual providers that respondents prefer, but the majority of the preferred providers deliver western health care services. The 2 most popular providers are Arawa Health Centre and traditional healers (as a service delivery group). Arawa Health Centre slightly exceeds traditional healers in popularity.

Table 51: Preferred Health Care Provider, Population Sample

Provider	Frequency	Percent of Respondents
Arawa Health Centre	62	31.2
Traditional healer	59	29.6
Village clinic or aid post	36	18.1
Private HEO in Arawa	22	11.1
Private GP in Arawa	15	7.5
Other	5	2.5

199 respondents

Respondents were also asked to explain the reason behind their preference for a particular service provider. These data, presented in Table 52, give an indication of the characteristics of a health service that the community considers to be most important. As far as respondents are concerned efficacy and cost are the two most important attributes of a health care service. These data are consistent with respondents' views about the advantages and disadvantages of traditional and western medicine. The main barriers to getting treatment from a preferred provider are the cost of treatment and the distance and cost of transport. However, 30% of respondents said there were no barriers or difficulties in getting treatment from their preferred provider.

Table 52: Reasons for Service Provider Preferences, Population Sample

Reason	Frequency	Percent of Responses
Medicine is effective	53	27.5
Less expensive	49	25.4
Practitioner is an expert	27	14.0
Rapid recovery	26	13.5
Superior treatment available	24	12.4

193 respondents

An attempt was made to elicit views about illnesses that respond better to either traditional or western medicine. However, the responses to these questions suggest some misunderstanding of the intent of the questions. The questions may have been interpreted as ‘*are there some illnesses that respond well (rather than better) to traditional/western medicine?*’. Respondents were almost unanimous that traditional medicine works better (or well) for some illnesses (96.5% of respondents) and that similarly western medicine is better (or good) for some illnesses (97% of respondents). But when asked to identify those particular illnesses that respond better to each type of treatment, the same respondent cited many of the same illnesses for both traditional and western medicine. Responses for the 12 conditions thought to be most common are presented in Table 53. These results indicate that the perception that both traditional and western medicine are effective in treating common ailments is widespread among respondents and that, for most conditions, respondents do not have a clear preference for either traditional or western medicine. Rather they may choose to use either type of medicine depending on the circumstances surrounding a particular illness episode.

Table 53: Community Perceptions of Treatment Efficacy

Illness	Traditional Medicine	Western Medicine
	Frequency	Frequency
Fever (<i>malaria</i>)	62	157
Cough (<i>kou</i>)	89	106
Diarrhoea (<i>kubiri</i>)	102	71
Headache (<i>bore bana</i>)	38	44
Urinary tract infection (<i>pintuu</i>)	51	12
Respiratory conditions (<i>domang o</i>)	21	45
Scabies	6	18
Stomachache (<i>bakeng sisikera</i>)	12	12
Enlarged spleen (<i>maana</i>)	39	17
Sores and cuts (<i>penta</i>)	17	25
Leprosy (<i>oramu</i>)	18	18
Skin irritations (<i>kasikasi</i>)	3	5
Number of respondents	193	194

Although respondents do not distinguish between the efficacy of traditional and western medicine for many of the most common ailments, there were a few conditions that respondents thought could only be treated by traditional medicine. A condition characterized by a racing pulse or high blood pressure (*ereng koing*), a type of leprosy (*erepu*), a type of cancer or growth (*navi*), illnesses caused by sorcery and spirits, swollen testicles and miscarriage (*tarumate*) were all cited by 3 or

more respondents as conditions that respond better to treatment with traditional medicine. No respondents thought any of these conditions respond better to treatment with western medicine.

Both traditional and western practitioners expressed views similar to those of community respondents about the efficacy of traditional and western medicine. 94% of practitioners said that some illnesses respond better to traditional medicine. 84% said that western medicine works better for some illnesses. Eight (16%) traditional practitioners said that no illnesses respond better to western medicine.

Again reflecting the views of community respondents, for most of the conditions that commonly affect people in the study area, roughly equal numbers of practitioners thought that both traditional and western medicine work well. However, more practitioners thought that traditional medicine is better for urinary tract infections (*pintuu*) and enlarged spleen (*maana*). Several practitioners said that the cancer or growth known as *navi* responds better to traditional medicine while none thought this condition responds to western medicine. More practitioners thought that *malaria* and respiratory conditions respond better to western medicine. Responses from practitioners regarding which illnesses respond better to traditional and western medicine are presented in Table 54.

Table 54: Practitioner Perceptions of Treatment Efficacy

Illness	Frequency	
	Traditional Medicine	Western Medicine
Fever (<i>malaria</i>)	15	36
Cough (<i>kou</i>)	16	18
Diarrhoea (<i>kubiri</i>)	18	20
Headache (<i>bore bana</i>)	5	4
Urinary tract infection (<i>pintuu</i>)	19	6
Respiratory conditions (<i>domang o</i>)	2	12
Scabies	2	2
Stomachache (<i>bakeng sisikera</i>)	3	2
Enlarged spleen (<i>maana</i>)	6	1
Sores and cuts (<i>penta</i>)	3	3
Leprosy (<i>oramu</i>)	7	7
Skin irritations (<i>kasikasi</i>)	1	0
Number of Practitioners	47	42

Practitioners perceive that both traditional and western medicines are strong and effective.

Although western medicine has been proven through scientific testing, traditional medicine has

stood the test of time. Another advantage of western medicine mentioned by several practitioners was that doses are specified.

Organization of Health Care Services

A range of health care services is available to residents of the study area. Western medical services are available through Arawa Health Centre, village clinics and aid posts, a general practitioner in private practice in Arawa and two HEOs in private practice in Arawa. Western medicine can also be purchased from several pharmacies or general stores that conduct retail businesses in Arawa. Many traditional healers, some with particular specialties and others who can treat most conditions, also provide health care services throughout the study area. Over 240 traditional healers were identified during the study, residing and practising in every village where interviews were conducted.

Although there is someone in virtually every village who is recognized for their knowledge of traditional medicine, the vast majority of village people reportedly know little about traditional medicine. Three-quarters of respondents thought that only a very few people in each village have traditional medical knowledge. Respondents appeared to distinguish between a basic knowledge of home remedies that might be applied externally and 'real' traditional medicine that involves specific recipes and is usually ingested. Most households may possess knowledge of basic home remedies but specialist knowledge is limited to 'experts' in traditional medicine. 85% of respondents knew of 2 to 4 people who were widely recognized for their traditional medical expertise and who lived either in their own village or a nearby village. Most practitioners were known only locally: fewer than 50 of the 242 traditional healers were identified by 3 or more respondents.

Among the many traditional practitioners who were identified by respondents a handful were more widely known than others. There were 11 practitioners who were identified by 10 or more respondents. Eight of these practitioners could treat most illnesses (respondents referred to them as general practitioners), 5 were bonesetters, 2 specialized in treating urinary tract infections (*pintuu*), and there was a specialist for each of cancer, enlarged spleen (*maana*), venereal

diseases and sorcery. Some of these practitioners had multiple specialties while others were general practitioners with 1 or 2 specialties. The 11 best-known traditional practitioners were from 7 different VCC areas suggesting a good geographic spread of the more widely recognized traditional practitioners.

The 41 traditional practitioners who responded stated that they could collectively treat 48 different conditions. The numbers of traditional practitioners who treat various ailments are shown in Table 55. Multiple traditional practitioners could treat most of the common ailments affecting people in the study area. Only 1 traditional practitioner said they were able to treat skin irritations and none reported treating scabies or cuts and sores, which were all amongst the most common ailments identified by community respondents. This is surprising given that previous data collected in this study showed that traditional practitioners often treated these conditions.

Table 55: Conditions Treated by Multiple Traditional Practitioners

Illness	Number of Practitioners
Urinary tract infection (<i>pintuu</i>)	20
Fever (<i>malaria</i>)	16
Diarrhoea (<i>kubiri</i>)	15
Cough (<i>kou</i>)	13
Racing pulse or high blood pressure (<i>ereng koing</i>)	11
Enlarged spleen (<i>maana</i>)	10
Leprosy (<i>oramu</i>)	9
Headache (<i>bore bana</i>)	7
Broken bones	7
A type of cancer or growth (<i>navi</i>)	6
Sorcery	6
Cellulitis (<i>sisisi</i>)	6
Miscarriage (<i>tarumate</i>)	6
Boil (<i>moona</i>)	6
Stomachache (<i>bakeng sisikera</i>)	5
Cancer	5
41 traditional practitioners	

One traditional healer described the organization of traditional healers in the past. This model may now have changed to include more generalists today.

'Historically in the Apiatei area, there may have been about one or two healers who each specialized in one illness. The older people had a communication link between the villages. They used to send messages back and forth between the villages when they needed a healer for a specific illness. Whatever the illness, there were one or two healers who could treat it. If one healer wasn't successful in curing the illness, another healer would be called upon. It was on a bit of a trial basis this way.' Male traditional healer

Traditional practitioners generally have a lighter patient load than practitioners of western medicine. The modal patient load for traditional practitioners was 10 clients per week. Twenty-five traditional practitioners reported seeing between 5 and 12 patients a week and the maximum number of patients seen in a week by a traditional practitioner was 20. Western practitioners working in village aid posts usually see 10 or fewer patients in a week. However, western practitioners in private practice in Arawa or working at Arawa Health Centre see upwards of 60 patients a week. One nurse working in the outpatient clinic at Arawa Health Centre claims to see 700 or more patients each week.

There is some collaboration occurring between health care providers. However, most of the collaboration is intra- rather than inter-medical stream. Those practising western medicine are more likely to collaborate with each other than traditional practitioners. Two-thirds of the western practitioners interviewed said they collaborate compared with less than half of the traditional practitioners.

Among the sample of traditional practitioners there were two exceptions who collaborate with the private general practitioner in Arawa. One of the best-known traditional practitioners has an official arrangement with the private general practitioner in Arawa. The traditional practitioner is able to treat most conditions and has specialized in bonesetting. He collaborates with the western medical doctor and provides services from the doctor's premises several days a week.

One traditional practitioner recounted another example of inter-medical stream collaboration.

'Three women were referred to me by the HEO [private HEO in Arawa] earlier this week. All three ladies had miscarried and were losing plenty of blood. Without my treatment the women would have died. The HEO is well aware that I can help in these situations.' Male traditional practitioner

One respondent (also a practitioner who collaborates with his brothers) described the typical referral process as follows.

‘Traditional treatment is equivalent to the modern injection because the response is quick. If there is no sign of improvement the traditional healer refers the patient to another traditional healer. If they fail, the next place is Arawa Hospital.’ 29-year-old male from Konampai

Practitioners collaborate for a variety of reasons but most often when a patient is referred from another practitioner or when a patient’s condition is serious. A close and respectful relationship is important for traditional practitioners who collaborate with others. The more common circumstances that prompt practitioners to collaborate with each other are listed in Table 56.

Table 56: Practitioner Collaboration

Circumstances Leading to Collaboration	Frequency
On referral from another practitioner	10
When condition is serious	8
When patient's condition doesn't improve	5
When workload is too great	3
For particular illnesses	3
When medicine is unavailable	1
When a colleague cannot travel	1

25 respondents

Reluctance to collaborate appears to stem largely from the secrecy and lack of trust between practitioners that has historically been associated with traditional medicine. Many traditional healers believe that they each have their own particular medicine and do not want to interfere with another practitioner’s treatment or share information about their own treatment with others. Some believe that God has bestowed the gift of healing on them and so they can work autonomously. Others want to avoid being blamed for another practitioner’s ineffective treatment. Another disincentive to collaborate is the disparity in fees charged by different practitioners.

50% of practitioners felt that there should be more collaboration between traditional practitioners and those who practise western medicine. However, 48% of practitioners thought that the current level of collaboration is adequate.

Attitudes to Health Care Services

Respondents consider that residents of the study area use all the various categories of available health care services on a frequent basis, although most respondents believe that Arawa Health Centre and traditional healers treat more people than other service providers. 82% of respondents said they were satisfied with the available health care services.

Respondents identified a range of things that people like about each of the different health services and these are presented in Table 57. The 3 most frequently identified attributes were: affordability, effectiveness of the medicine and proximity to home. These positive attributes were more often assigned to traditional healers than to other health care services.

Table 57: Positive Attributes of Existing Health Care Services

Attribute of Service	Traditional Healers	Arawa H/Centre	Private GP	Private HEO	Village Clinic	Pharmacy or Store	Total
Less expensive	102	57		45	29	12	245
Medicine is effective	80	39	53	22	3	13	210
Close to home	44	15	10	6	44	8	127
Drugs are usually available	5	24	25	19	6	25	104
Rapid recovery	53	11	14	6	2	12	98
Specialist	60						60
Can treat most illnesses	36	4		1	1		42
Superior treatment available	8	16	12	1			37
Practitioner is an expert	22	2	8	4			36
Good facilities		33					33
Trained/qualified staff		17	5	3	5		30
Service includes spiritual healing	25						25
Diagnostic services available		25					25
Friendly practitioner	8	2		6		1	17
Practitioner is usually on duty	4	5	1	1		6	17
Immediate consult, no waiting time	3		4	3	3		13
Provides home or hospital visits	11	1	1				13
Doses are specified		8			1		9
Service includes massage	7						7
Practitioner is a relative	6			1			7
Good for minor illness						7	7
Motivated/committed staff	4			1			5
24-hour service		1	3			1	5
Number of respondents	171	154	95	76	66	65	

Improving Health Care Services

Respondents were asked to describe their 'ideal' health care service. The most frequently occurring descriptors included: affordable, accessible, and a regular supply of a broad range of medicines. Many respondents would like to see further development of traditional medicine and to have a health care service that incorporates both traditional and western medicine. Some respondents said they would like these services to be co-located. Many of the other responses related to raising the standard of buildings, facilities and staff training and accountability in the existing western health care facilities. Some respondents would like to see existing health care facilities upgraded and re-located to a more central location within each VCC. One respondent remarked on the importance of cost and convenience in treatment-seeking decisions and the need to re-locate some facilities.

'Our choice of practitioners has always been the same for a very long time, depending on cost and distance to the service. Our government should take a close look to change the distribution of services inland and also to reduce the cost up in the highlands where there is very little source of income.' 27-year-old male from Konampai

Respondents were also asked to list and rank their priority requirements of a health care service. Research assistants suggested that most respondents thought about the existing health care service rather than imagining a different kind of health care service when they answered the questions about priority requirements. Table 58 presents the responses in totality, that is, without reference to the rank afforded to the requirements. A constant supply of a good range of medicines was the most frequently cited requirement followed by improved buildings, facilities and equipment and better-trained staff. Affordability and accessibility were also considered to be priority requirements. Other priorities included diagnostic equipment, ambulance service, health education, outreach services, more accountability and professionalism among staff. Many respondents also said that the development of an integrated health system was a priority and that traditional healers should be trained to provide primary health care. Some respondents thought that the development of an integrated health care system could involve a standardized fee scale and co-location of traditional and western health care services.

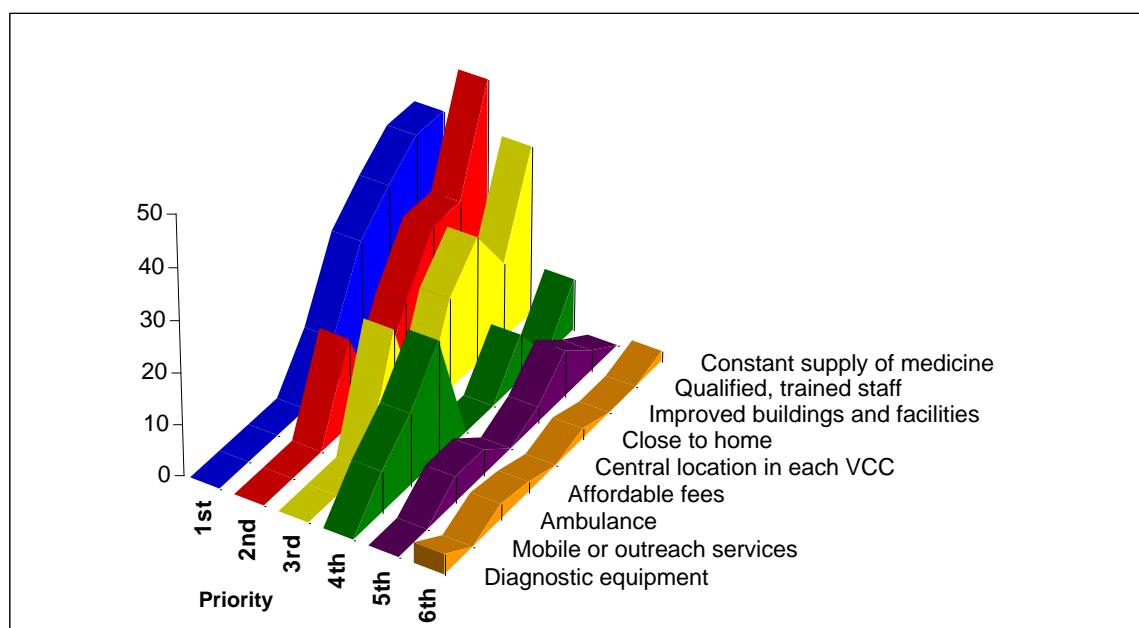
Table 58: Top Five Requirements of a Health Care Service

Requirement	Frequency	Percent of Respondents
Constant supply of a good range of medicine	123	65.8
Improved buildings and facilities	97	51.9
Qualified, trained staff	81	43.3
Affordable fees	72	38.5
Close to home	67	35.8

187 respondents

Health service requirements can also be viewed according to the actual priority afforded to the most frequently cited requirements. Most respondents afforded highest priority to a constant supply of a good range of medicine, qualified staff, improved buildings and facilities and proximity to home. Most of these requirements were also assigned the second and third highest priority ranking by a majority of respondents. However, affordability emerged as an important health service requirement among the set of requirements frequently nominated as second and third priorities. Affordability was the most frequently nominated requirement among the fourth level of priority requirements. New requirements introduced at the fourth level of priority were an ambulance service and mobile or outreach services. Fewer respondents were able to list 5 or more priority requirements. The only additional priority introduced at the sixth level of priority was diagnostic equipment. Figure 21 illustrates the top 5 requirements of a health service at each level of priority.

Figure 21: Priority Requirements of a Health Service



Attitudes Towards an Integrated Health Care System

An integrated health care system was defined as one that officially recognizes and incorporates both traditional and western medicine. The majority of respondents were positive about integrating traditional medicine into the formal health care system. 87% of respondents thought an integrated health care system would be better than the existing system. Only 2.5% thought it would be worse and the remainder either thought it would be neither better nor worse or did not express an opinion. Similarly, 82% of the practitioners interviewed favoured an integrated health care system. 6% of practitioners thought it would be worse and 12% either thought it would be no better or worse or had no opinion.

Community respondents and practitioners could imagine a range of benefits that would accrue from an integrated health care system. These included easier access to services and more appropriate treatment for specific illnesses and other benefits listed in Table 59.

Table 59: Benefits of an Integrated Health Care System

Benefit	Frequency	
	Respondents	Practitioners
Easier access to services	95	23
More appropriate treatment for specific illnesses	94	32
More health care options/choices	86	22
More affordable services	85	20
Traditional healers can provide primary health care and referral	64	22
More holistic health care service	58	17
Preservation of traditional cultural knowledge	42	11
Other	2	5
Number of community respondents or practitioners	160	44

One aid post orderly commented that life expectancy would increase with an integrated system because people would have better access to health care.

‘There are good treatments with our traditional healers and with the integrated system people could recognize the traditional healers because there are plenty of them all over Bougainville, out-numbering our few modern practitioners.’ Female western medicine practitioner

‘There are many people in the village who know how to treat illness. If there is a plan for an integrated health care system I would very much appreciate to see it happen because people from the isolated villages will benefit by getting treatment closer.’ 32-year-old female from Apiatei

Despite a majority of respondents and practitioners expressing a positive attitude toward an integrated health care system, they also realized that there might be some disadvantages or difficulties that would need to be overcome in developing such a system. The main difficulty that both community respondents and practitioners foresaw was that it might be difficult for practitioners of different streams of medicine to work together. Historically there has been a lack of understanding and trust between practitioners that would need to be overcome if an integrated system is to work. The disparity in education levels between many traditional practitioners and western practitioners may have contributed to a lack of trust. Another concern expressed by both interview groups was that it would be difficult to know how each medicine was affecting a patient if more than one type of medicine was being used. Some respondents and practitioners were concerned that an integrated health care system might be more expensive than the current system. Respondents and practitioners recognized that some difficulties might arise in establishing an

integrated health care system but most suggested ways in which these could be overcome. When asked how an integrated health care system should be established only 3.5% of community respondents and 1.3% of practitioners explicitly stated that they were against the idea of an integrated health care system. When the question posed was about whether an integrated health care system should be established, more community members (3.5% vs 2.5%) but fewer practitioners (1.3% vs 6%) expressed opposition to the concept of an integrated system than when asked how an integrated system would compare with the existing system (page 232).

The majority (80%) of practitioners said they would like to be part of an integrated health care system. However, only a little over half (52%) of the practitioners said they would be willing to share information about the treatment they use. 42% of practitioners said they would not be willing to share information about their treatment and 6% were unsure.

Traditional and western practitioners alike were keen to develop a better understanding of the alternative stream of medicine. 77% of western practitioners wanted to improve their knowledge of traditional medicine and 63% of traditional practitioners wanted to improve their knowledge of western medicine. The most common suggestion for achieving a better understanding of the alternative stream of medicine was to run training courses followed by arranging for practitioners to work with each other.

Respondents and practitioners identified a number of factors that the government could address in order to build the foundation for an integrated health care system. These are listed in Table 60. If the government were able to facilitate a better understanding between practitioners, develop systems and test and endorse safe and effective traditional medicines respondents would feel more confident about using an integrated health care system. Improving the understanding between practitioners could be achieved through basic training for practitioners of both persuasions in the alternative form of medicine. The development of systems included developing a registry of practitioners and referral systems, authorization or licensing of traditional healers and providing some form of payment for traditional healers. Respondents also thought space should be provided within existing health facilities for traditional practitioners. Biochemical analysis of traditional medicines could be used to confirm that medicines are not harmful as well as to specify

appropriate doses and possible side-effects. Respondents would feel confident about using traditional medicine that had been endorsed by the government.

'Nowadays and even before village people prefer traditional medicine. It would be better if these medicines are tested and used at the health centres.' 70-year-old male community respondent from Apiatei

Table 60: Foundations for an Integrated Health Care Service

Issues Needing to be Addressed	Frequency	
	Respondents	Practitioners
Train traditional healers in basic western medicine	124	26
Establish better understanding between practitioners	121	25
Train western practitioners in basic traditional medicine	110	24
Develop referral system	102	24
Provide payment for recognized traditional healers	90	26
Undertake biochemical analysis & endorse safe traditional medicines	89	23
Create a registry of practitioners and illnesses each can treat	79	20
Provide space at existing health facilities for traditional healers	77	23
Issue licenses to traditional healers	70	23
Define doses and side-effects of traditional medicine	56	12
Other	8	6
Don't know	6	1
Number of community respondents or practitioners	199	50

Several respondents suggested structured processes for developing an integrated health care system including the inclusion of traditional medicine in the curriculum for medical students, a process for manufacturing traditional medicine, provision of facilities for traditional healers to work from, promotion of traditional specialists and payment for traditional practitioners.

'Maybe the government could establish an institution where student doctors could learn about modern and traditional medicine. If a single doctor holds both treatments, he knows which is the best for which illnesses.' 32-year-old female from Konampai

'The government should set up places where traditional medicine can be produced into a product. We must support the government and the elders to develop an integrated health care system.' 41-year-old male from Apiatei

In western medicine there are different types of specialists for bones and eyes etc. We should establish traditional medicine along the same line as western medicine has been established. In the villages we also have specialists, for example bonesetters, specialists for illnesses related to spirits. Traditional healers in the

villages should be located in one area, which is set up with a building and wards so that all the traditional practitioners of various specialties can work together. If the government could support this type of service it would be easier for people to use the health services. If the traditional practitioners were in one location, everyone would know where to go to get treatment and which practitioners can treat certain illnesses. The problem arising now, while this system is not in place, is that when someone gets sick people go all over the place to look for the traditional practitioner who can assist with the particular illness. If the practitioners are in one place it will be easier for people. Also the medicines should be kept in one place and with enough stock on hand ready for people to use when they come for treatment.

If the government recognizes us we can do our job publicly. At the moment I work only with those practitioners who know me because my work is not recognized by any authorities. The job itself is not that easy and it is difficult to do it with no payment because I also need to get food for my family and look after my family. I spend a fair bit of time in the bush looking for the medicine for patients. If the authorities could recognize my work and make some payment available, it would be better for me.’ Male traditional practitioner

In many cases both respondents and practitioners had the interests of the community at heart and felt that an integrated health care system would better serve the community and result in better health.

‘Better understanding amongst the practitioners will for sure benefit people. It has been proven (through personal experience) that both types of medicine working together cure fast and effectively. So an integrated health care system would be better.’ 38-year-old male from Apiatei

‘In terms of living in a healthy home with a healthy life, we need two types of medicine working together.’ 25-year-old male from Apiatei

‘An integrated health care system will help practitioners understand each other and will benefit future generations in terms of getting treatment and staying healthy.’ Female traditional healer

CHAPTER TWELVE

SYNTHESIS OF RESULTS

In this section, the results from each phase of data collection will be compared and contrasted with an attempt made to explain anomalies and draw a coherent picture of typical treatment-seeking behaviour among the study population. Each of the defined sub-objectives of the case study will be addressed and some of the implications for health care service delivery in the Nasioi area highlighted.

This analysis indicates that the style of interviewing may affect results. Being asked to list, as in the quantitative data collection, rather than being invited to elaborate on, as in the qualitative data collection, information about illness appears to elicit a different response. The inclusion of both types of interviewing in this study is one of its strengths. It provides both detailed insights into Nasioi emic concepts of illness as well as a broader population-based perspective. However, where the luxury of conducting both qualitative and quantitative data collection is not available, the nature of the information sought and purpose for which it will be used should be considered when deciding on the research methodology. Also, in this study there was little difference functionally in the analytical outcomes, since the quantitative data set was not large or representative enough for elaborate statistical treatment and the qualitative data provided useful ranking information.

Since respondents were not randomly selected it cannot be claimed that the results reflect the broader Nasioi population. On the other hand, there is nothing to suggest that the study's sample population is not representative of the broader Nasioi population. Although probability sampling was not used to select respondents the study population does approximate the broader Nasioi population in terms of gender, age, religion and distribution across VCCs. Some discrepancies in results are evident. This could be due to the sampling methodology or it may reflect that, as would be expected for most populations, divergent views exist within the Nasioi population. More importantly than any apparent discrepancies, the case study provides a range of behavioural

indicators and descriptive information that is useful background for developing informed policy recommendations.

Information and Knowledge Systems

Key informants in Tasipo and Bava Pirung had very similar ideas about which febrile illnesses are the most common and serious. Most of the illnesses included in the short list of 10 common and serious febrile illnesses (11 in Bava Pirung) were identified in both areas. These illnesses included cough (*kou*), deep and persistent cough (*eenu*), respiratory conditions (*domang o*), diarrhoea (*kubiri*), urinary tract infection (*pintuu*), enlarged spleen (*maana*), fever (*malaria*), malaria-like fever (*pari*) and headache (*bore bana*). The relationships between and descriptions of each of these illnesses provided by people from both locations were also very similar suggesting that people from different parts of the Nasioi area share a common understanding of everyday and more serious febrile illnesses.

Similarly there was a high level of concurrence between people in Tasipo and Bava Pirung regarding the most common and/or serious skin conditions. Key informants in both locations identified leprosy (*oramu* and *erepu*), sores from head lice (*kitei*), skin irritations (*kasikasi*), ringworm (*aaroa*), whitespot (*kokosi*), boils (*moonna*) and cellulitis (*sisisi*) as being among the most common types of skin conditions affecting local communities. Descriptions of each of these conditions were also very similar among respondents from both Tasipo and Bava Pirung. Thus, the core of common knowledge and understanding of illnesses among respondents from Tasipo and Bava Pirung extends to skin conditions.

Results from the population sample confirmed the list of common illnesses generated by key informants in Tasipo and Bava Pirung. Each respondent in the population sample was asked to identify up to 8 common (but not necessarily serious) illnesses, whether febrile, skin or other types of conditions. The 12 most frequently nominated common conditions included 8 febrile illnesses and 3 skin conditions, all of which had already been identified by key informants in both or at least one of Tasipo and Bava Pirung. Stomachache was the only condition among the 12 common illnesses cited by the population sample that had not been included among the common illnesses

identified by key informants. This was simply a matter of classification: for the purposes of the in-depth research stomachache was considered to be self-explanatory and often a symptom of other conditions and therefore excluded from the list of common and serious conditions.

The accuracy of perceptions about which illnesses are most common was confirmed by accounts of the last illness suffered by each respondent in the population sample. The 4 illnesses or conditions thought to be most common in Nasioi communities were *malaria*, cough, diarrhoea and headache. These were also the 4 most prevalent conditions among those last suffered by members of the population sample. *Malaria* was the last illness reportedly suffered by over 40% of the population sample. This concurs with Arawa Health Centre morbidity data for 2003. Since malaria is preventable, a single focus on reducing the incidence of malaria by public health authorities has the potential to drastically improve health indicators in the Nasioi area.

There was considerable conformity in the causes of various illnesses described in qualitative interviewing and those listed by the population sample. In Bava Pirung and across other Nasioi VCCs respondents are aware that mosquitoes are responsible for malaria. In all areas respondents thought exposure to adverse environmental conditions, trees in flower and diet can cause cough. In both Bava Pirung and the broader North Nasioi area, diarrhoea was attributed to poor personal or environmental hygiene or dietary causes. Data from the population sample also confirmed that respondents share similar ideas about the causes of headache, urinary tract infections, respiratory conditions and enlarged spleen. There was one anomaly regarding the communicability of urinary tract conditions: the population sample suggested urinary tract infections are contagious but key informants and other respondents in Tasipo and Bava Pirung did not share this view.

Hygiene was implicated as an important factor in scabies and for other skin irritations. There was lesser recognition of the relationship between parasitic agents and skin conditions in both Tasipo and areas where quantitative data were collected for skin irritations other than scabies. Traditional beliefs about the causes of illness were more evident for skin conditions than febrile illnesses. Respondents from all areas thought cuts and sores, including tropical ulcers, can result from sorcery and that leprosy arises after exposure to a relative's blood. Key informants in both Tasipo

and Bava Pirung provided details of sorcery in which poison is tied to tree-trunks to protect crops from theft or delineate a sacred boundary. The poison can cause not only sores but also boils, inflamed skin and even urinary tract infections or cancer. One of the reasons that traditional beliefs seemed less prominent in the population sample may have been that 8 of the common illnesses they identified were febrile and only 4 were skin conditions.

Another reason that the population sample referred to traditional beliefs less often than key informants could have been the interview technique. Respondents who were questioned in a more open-ended conversational manner were more inclined to talk about their traditional beliefs in relation to illness causation. During the qualitative data collection the principal investigator formed the impression that although illness causation was often explained in biological terms, a belief that supernatural agents, including ancestral and other spirits and sorcery, cause certain illnesses was fairly common among the study population. Informal conversations with research assistants during the course of qualitative data collection confirmed this view. However, results from the population sample reflected a different picture. Among the population sample, most of the common illnesses belonged to the febrile category and were perceived to have a biological pathway. At least in part, the causes of these illnesses were explained in much the same way as they would be explained in western medicine.

The understanding of disease causation reflected by the population sample augurs well for local health authorities that seek to promote health and prevent disease. For example, an overwhelming majority of respondents already know that mosquitoes spread malaria. It may not be necessary to teach or convince the community that preventing mosquito bites will reduce malaria. Instead health promotion should focus on making malaria prevention a priority in the minds of the community and the means to prevent mosquitoes from biting (mosquito nets) accessible and affordable. Similarly respondents are well informed about the causes of diarrhoea and headache but need to be persuaded or enabled to act on this knowledge.

Despite the apparent general conformity between the study population's understanding of disease causation and a western medical epistemology, alternative explanations of illness still abound. It may be necessary to further explore and/or dispel some of the more commonly held seemingly

unfounded notions about illness causation in order to promote better health. Misconceptions about the cause of illness have the potential to detract from the success of initiatives that could conceivably reduce the prevalence of illness. For example, the belief that eating too much of the wrong kind of food causes cough was quite common among the population sample. Regulating food intake rather than avoiding exposure to cold, rain or flu germs may not help to prevent cough. The perception that the most common types of skin conditions including scabies, sores and cuts and skin irritations result from exposure to irritant grasses was also prevalent in Tasipo, Bava Pirung and among the population sample. This should be investigated.

With the exceptions that exposure to the blood of deceased relatives can cause leprosy, breach of taboo can cause urinary tract infection and sorcery can cause sores and cuts (Table 34), results from the population sample do not suggest that beliefs about supernatural causes of illness are common among people in the Nasioi area. As mentioned, this is at odds with the impression of distribution of beliefs about illness causation gained from in-depth interviewing with key informants. In-depth interviewing and quantitative data collection were conducted in different VCC areas within the Nasioi area. However, it is more likely that the interviewing technique or style influenced results rather than the VCC where respondents live. Open-ended questions posed in a conversational style to people living in areas where quantitative data were collected induced people to talk freely about their traditional beliefs about illness causation. When questioned in this manner several respondents from the areas where quantitative data collection took place told how spirits and sorcery can cause illness. This, combined with the analysis of population sample results for 'cause of illness in general', which highlighted 5 supernatural or traditional beliefs about illness causation (Table 35) suggests that many people do maintain beliefs that sorcery, violation of taboo and spirits can cause illness. Supernatural agents may cause more skin conditions than febrile illnesses and people may not talk about supernatural agents unless open-ended questions are posed.

It became evident from population sample interviews that translations of illness names from Nasioi to English obtained during qualitative data collection were not necessarily accurate. Some respondents in the population sample cited both scabies and *kasikasi* as common conditions suggesting that they are not one and the same. Further clarification was sought from a doctor,

trained in western medicine, who spent his formative years among the Nasioi people and was thus fluent in the local language. This enquiry revealed a degree of ambiguity around several of the common conditions. As is the case in western medical nosology, some local illness names appear to be descriptive of a group of symptoms rather than specific illness names. Thus the previous translation of scabies for *kasikasi* was revised to the more general skin irritations or rash. *Pintuu* and *domang o* are the local names of two other common conditions. *Pintuu* and *domang o* describe symptoms that could correspond to one of several conditions under a western medical taxonomy of illness. According to the Nasioi-speaking western medical doctor *pintuu* refers to urine and *domang o* translates as shortness of breath.

It is also likely that some of the common conditions in the Nasioi illness taxonomy do not have direct correlates under a western medical classification system. Although only a few respondents in the population sample mentioned *pari*, key informants in both Tasipo and Bava Pirung identified it as a common illness. For the most part, the signs and symptoms of *pari* are the same as those of malaria. However, time of onset, cause and treatment for *pari* distinguish it from malaria. Another example is *pintuu*. The perceptions that *pintuu* is contagious and often caused by eating too much watercress or trespassing into forbidden places are widespread. Neither was the translation of *pintuu* unambiguous. *Pintuu* relates to urine but it may be different to other urinary tract infections. Both *pari* and *pintuu* are said to respond better to treatment with traditional medicine than western medicine. A Tasipo respondent classified *pari*, *pintuu* and *maana* as village illnesses, which further supports the suggestion that these conditions are specific to the Nasioi concept of illness.

Treatment-Seeking Response to Illness and Hierarchy of Treatment Resort

The general treatment-seeking response to illness was the same for respondents from Tasipo, Bava Pirung and other parts of the Nasioi-speaking area. In roughly 75% of illness episodes people initially try to manage the condition at home. The type of illness does not appear to affect the likelihood of attempting home management although severity does. Respondents are more likely to seek assistance from outside the home or family for illnesses they think are serious.

In typical home management, an attempt is made to relieve symptoms and either traditional or western medicine (or a combination of the two) is self-administered. Respondents typically wait to see if their condition responds to home management or until they perceive the condition to be serious before seeking treatment from outside the family (Table 38). Health care practitioners were not confident in people's knowledge of illness or ability to accurately diagnose febrile illnesses. However, lack of any real medical knowledge does not discourage respondents from attempting to manage their illnesses at home. Home management was reportedly effective in one-third of illness episodes. In the other two-thirds of illness episodes home management did not lead to recovery and probably delayed getting treatment from more expert health care providers.

Home management is a common initial response to illness the world over; however, some gains in health status in the Nasioi area might be achieved by ensuring that basic first aid knowledge, either traditional or western, and the ability to recognize signs and symptoms of common ailments as well as serious illnesses become more widespread. Health care practitioners said that people often wait too long and allow their condition to deteriorate before seeking treatment. Encouraging early presentation to a health care service provider may also help to improve health status. Traditional healers may be able to play a role in making home management more effective and encouraging early presentation to an appropriate health care provider.

Respondents have confidence in both western and traditional medicine (Tables 11 and 51). Among the population sample Arawa Health Centre and traditional healers were almost equally popular. Although both types of treatment are generally well regarded, once a person goes outside the home for health care they are more likely to seek treatment from someone who provides western medicine. The village clinic was the treatment option of first resort for most respondents in Tasipo and Bava Pirung (Tables 13 and 24). In the population sample more people went to traditional healers than any other service provider (Table 39); however, the other service providers (as categorized for this study) available to people in the Nasioi area all provide western medical services. Collectively, these western health care services attracted 60% of first treatment resort clientele (Table 39).

Differences between the type of treatment provided by the hypothetically preferred provider and the treatment option of first resort in Tasipo suggest that, in actual fact, many respondents do not have a strong preference for either traditional or western medicine. Indeed, this sentiment was expressed by 60% of the population sample. Practical circumstances surrounding an episode of illness determine what type of treatment is sought because people consider both traditional and western medicine to be effective (Tables 18, 29 and 51). The ready accessibility and high standard of care available at Toborai Aid Post may explain the expressed and apparent preference for western medicine in Bava Pirung (Tables 22, 24 and 26). Although respondents perceive the scientific rigour and precision that surround western medicine as desirable, traditional medicine is more affordable and readily available to the majority of the population who live in rural areas. Because both types of medicine are seen to be effective, the cost and convenience of traditional medicine mean it is often the treatment option of first resort, particularly in more remote areas (Table 39).

Most of the population sample were able to get treatment from their preferred provider (Table 41). Barriers to getting treatment arose more often if the preferred provider was a private GP or HEO or the local clinic or aid post. The barriers were probably cost-related in the case of private practitioners. The most likely barriers to getting treatment at an aid post were non-attendance by staff or nil stock of medicine. Patient load at some aid posts is minimal and it is reported that staff do not always attend work. Doubt about being able to get treatment seems to entice some people who say the aid post is their preferred provider to seek treatment elsewhere. In Tasipo, Bava Pirung, Upper Aropa and Konampai VCCs the aid post is among the more popular treatment options. In other areas the government may need to consider a more rational staffing and distribution of aid posts or other ways to improve health services. One way of improving the services available at aid posts would be to ensure that each one has a continuous and adequate supply of medicine to treat basic problems, such as through a direct ordering system (which operated successfully in the past). If aid posts are not being well patronized and not providing effective services they are a waste of scarce resources.

Choice of health care provider at first, second and third treatment resorts in actual illness episodes does not reveal any clear preferences for traditional over western health care services among the

study population (Tables 14, 15, 25, 42 and 43). Instead it appears that both traditional and western medicine are popular and effective treatment options. In terms of efficacy (percentage of respondents using a provider who attributed their recovery to that provider), which was one of the most important criteria governing choice of service provider, the private GP in Arawa, Arawa Health Centre and a traditional practitioner located in another village rated most highly (Table 48). Results from the population sample indicated that efficacy is a more important criterion in treatment choices than originally thought based on the research in Tasipo and Bava Pirung, where cost and convenience appeared to be the over-riding factors. Perceived efficacy of service providers is very important but obviously not the only consideration in choosing a health care service provider as only a relatively few patients seek treatment from the private GP. Even though his treatment is widely regarded as effective, cost discourages many people from accessing the private GP service. Because of the cost barrier more respondents actually get treatment from Arawa Health Centre and traditional healers than the private GP. In terms of pure numbers, Arawa Health Centre and traditional practitioners provide more care that leads to recovery than other service providers (Table 48). More respondents use these services, because they meet the criteria of accessibility and affordability, and report that the services are effective.

Medical Pluralism

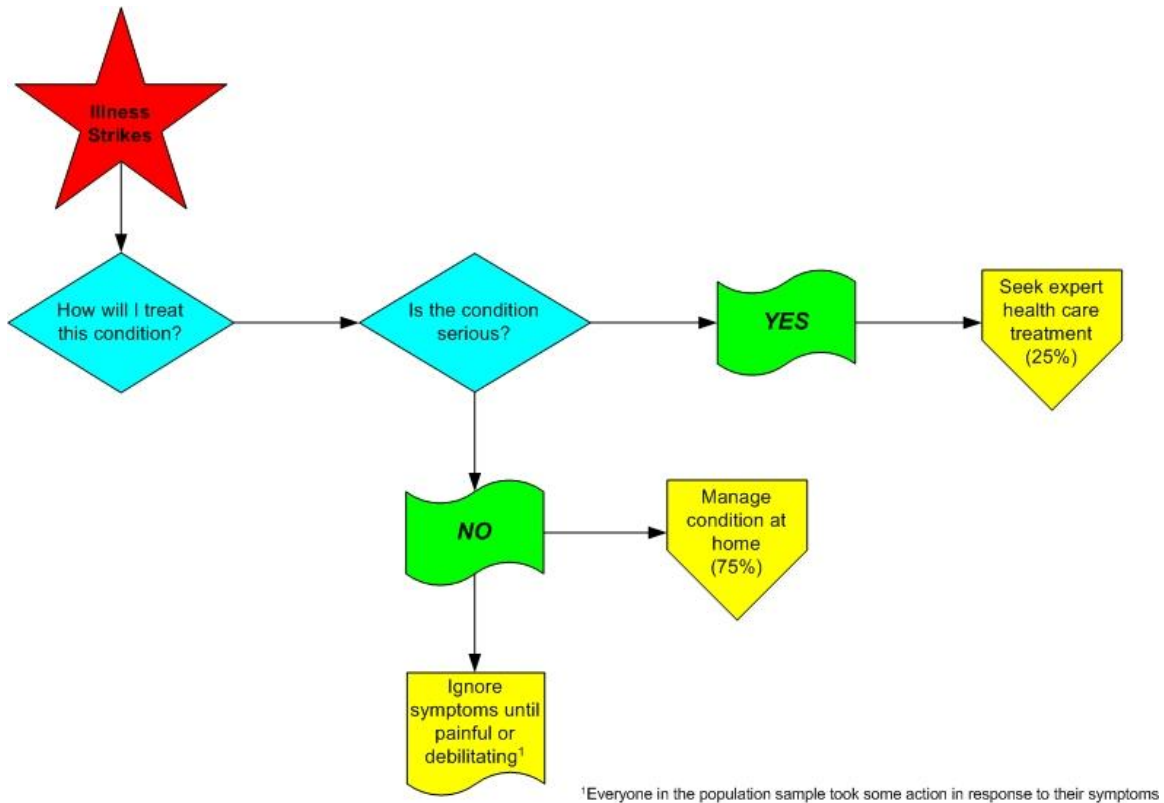
Medical pluralism was reportedly not uncommon in Tasipo and widespread in Bava Pirung. Nevertheless, only a minority of the population sample reported using traditional and western medicine at the same time. Most people refrained from taking both types of medicine together for fear of overdose or confusing the effect of each treatment. However, many respondents did report reverting from traditional to western medicine and sometimes back to traditional medicine during the same illness episode. The sequential pattern of treatment resort reflects confidence in both traditional and western medicine. Confidence in both treatment modalities was reflected in various data including attitudes to and advantages of traditional and western medicine (Tables 18, 53 and 54), positive attributes of existing health care services (Table 57) and treatment-seeking responses in an actual illness episode across the entire study population.

Explanatory Model for Treatment-Seeking Responses

The following explanation for treatment-seeking responses to illness is based on a synthesis of the 3 data sources, Tasipo, Bava Pirung and the population sample. In Tasipo and Bava Pirung it seemed as though cost and proximity were the most important factors governing treatment choice. In the population sample it became apparent that the effectiveness of treatment received much greater consideration than previously thought. In addition to cost, the population sample identified 4 factors pertaining to the efficacy of treatment among the 5 most important reasons for their provider preferences (Table 52). These data suggest that perceived efficacy may be the single most important factor on which treatment-seeking responses to illness are based.

In their responses to illness, people in the study population seek to minimize cost and inconvenience and maximize their chance of recovery. Figure 22 illustrates that severity is the first thing to be considered in deciding how to respond to illness. The perceived severity will determine whether the condition is managed at home in the first instance or treatment is sought from someone outside the immediate family. In three-quarters of illness episodes an attempt is made to manage the condition at home. Even for minor illnesses, most respondents take some action aimed at relieving their ailment rather than simply ignoring the symptoms. The most common first response to illness, home management, is the easiest and most convenient option.

Figure 22: Typical Nasioi Decision-Making in Response to Illness



The illness response pathway for the population sample as a whole is depicted in Figure 23. The next 4 paragraphs describe the illness response pathway as depicted in Figure 23. The percentages cited in the home management and treatment resort boxes are derived from tables in Chapter 11; Home Management relates to Table 37, 1st Treatment Resort relates to Table 39, 2nd Treatment Resort relates to Table 42 and 3rd Treatment Resort relates to Table 43. Percentages cited for ‘Condition cured’ are derived from data presented in Table 46.

Home management proves effective for approximately one-third of the 75% of the population sample who try it. For those who do not recover using home remedies, a little more effort is required in order to find an effective cure. At this point people seek assistance from someone who is recognized for their health expertise, the first treatment resort. Another set of treatment-seekers (25% of the population sample) arrives at their first treatment resort without having first attempted to manage the condition at home. 68% of those who attempt home management (51% of the population sample) and 25% of the population sample together make up the treatment-seekers at

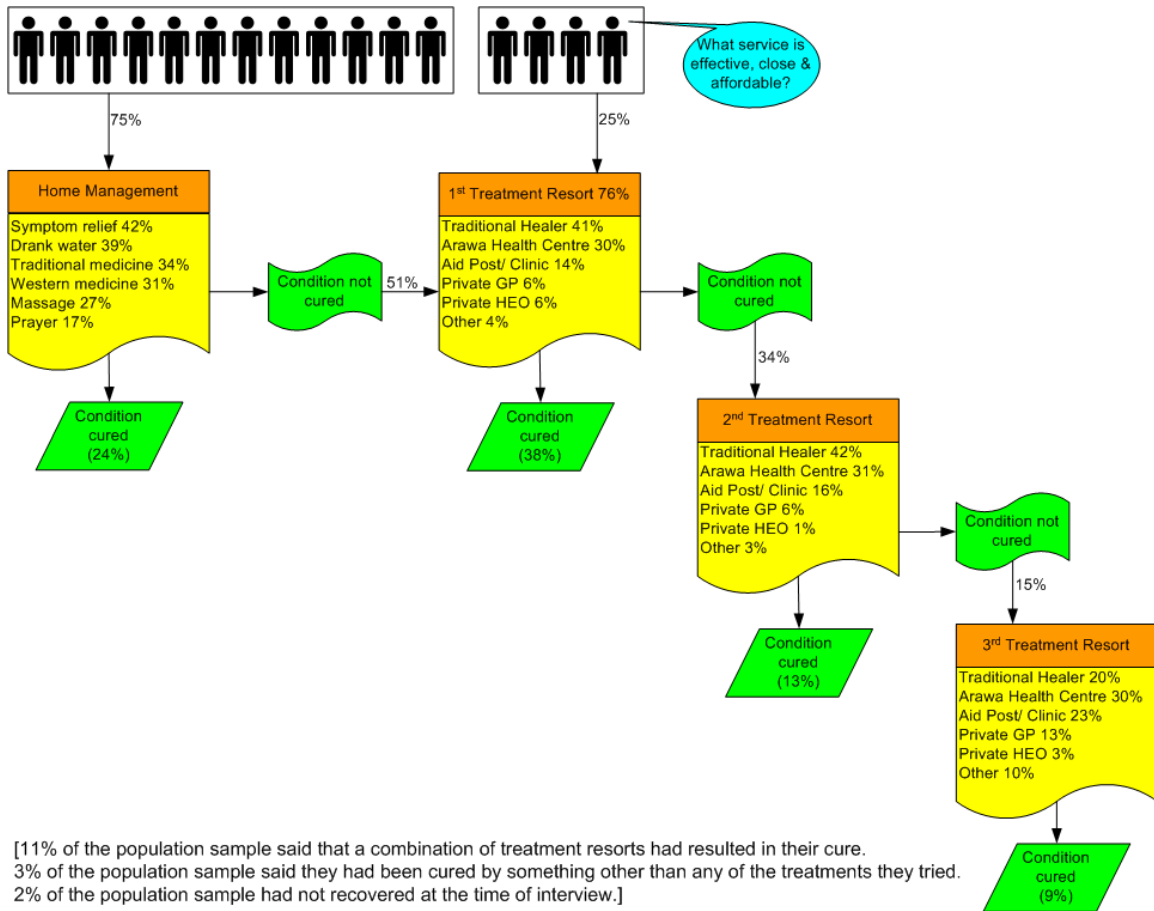
the first treatment resort. Thus, 76% of the total population sample approaches at least one service provider outside the immediate family.

In choosing between the available treatment options it becomes necessary to weigh up the available alternatives in terms of cost and inconvenience and likelihood that treatment will lead to recovery. Once again the path of least resistance and likely efficacy is followed. The first treatment resort for people in the Nasioi area is most likely to be a traditional healer followed by Arawa Health Centre. These providers are both effective and low cost. Traditional healers may be closer to where people live than Arawa Health Centre but accessibility/convenience seems to be slightly less important than the perceived effectiveness of the service and cost in choosing a treatment option.

Half of those who seek assistance from a health care provider (38% of the population sample) recover thanks to the treatment provided. For those who do not recover, most continue to look for relief and seek assistance from another health care provider. Forced to approach a second health care provider, people are prepared to travel a little further. Accessibility and convenience have assumed lesser importance in comparison to finding an effective cure. Cost is still a consideration. The second treatment resort is also likely to be a traditional healer, possibly from another village, or Arawa Health Centre.

Almost 40% of those who approach a second health care provider (13% of the population sample) find relief and make a full recovery. Nearly all of those who do not recover continue in their quest for treatment. Having failed to find a cure thus far on the treatment pathway, people are now more likely to travel to Arawa for treatment. The third treatment option is usually Arawa Health Centre. By the time people find it necessary to approach a third health care provider the importance of finding a cure has become paramount, outweighing inconvenience. The most popular treatment option of third resort is Arawa Health Centre because cost is still a factor. Very few people find it necessary to seek treatment from more than 3 health care providers.

Figure 23: General Illness Response Pathway



Illness response pathways are similar once people embark on seeking treatment from someone outside the family whether or not home management was their initial response to illness. These alternative treatment-response pathways are illustrated in Figures 24 and 25. Both figures are based on analysis of data from the population sample that is not presented elsewhere. For those who initially try home management and those whose first response is to seek treatment from someone outside the family, both the first and second treatment resorts are most likely to be a traditional healer, according to the data from the quantitative study. For both types of treatment seekers Arawa Health Centre is the second most likely service provider at the first and second resorts to treatment. For the minority of people who find it necessary to seek treatment from a third service provider, a provider of western medical services is more likely to be chosen. The most likely treatment option of third resort for those who tried home management when they first got sick is the local aid post or health centre. Among those whose initial response to illness was to seek treatment outside the family, the third treatment resort is most likely to be Arawa Health Centre.

Figure 24: Home Management Illness Response Pathway

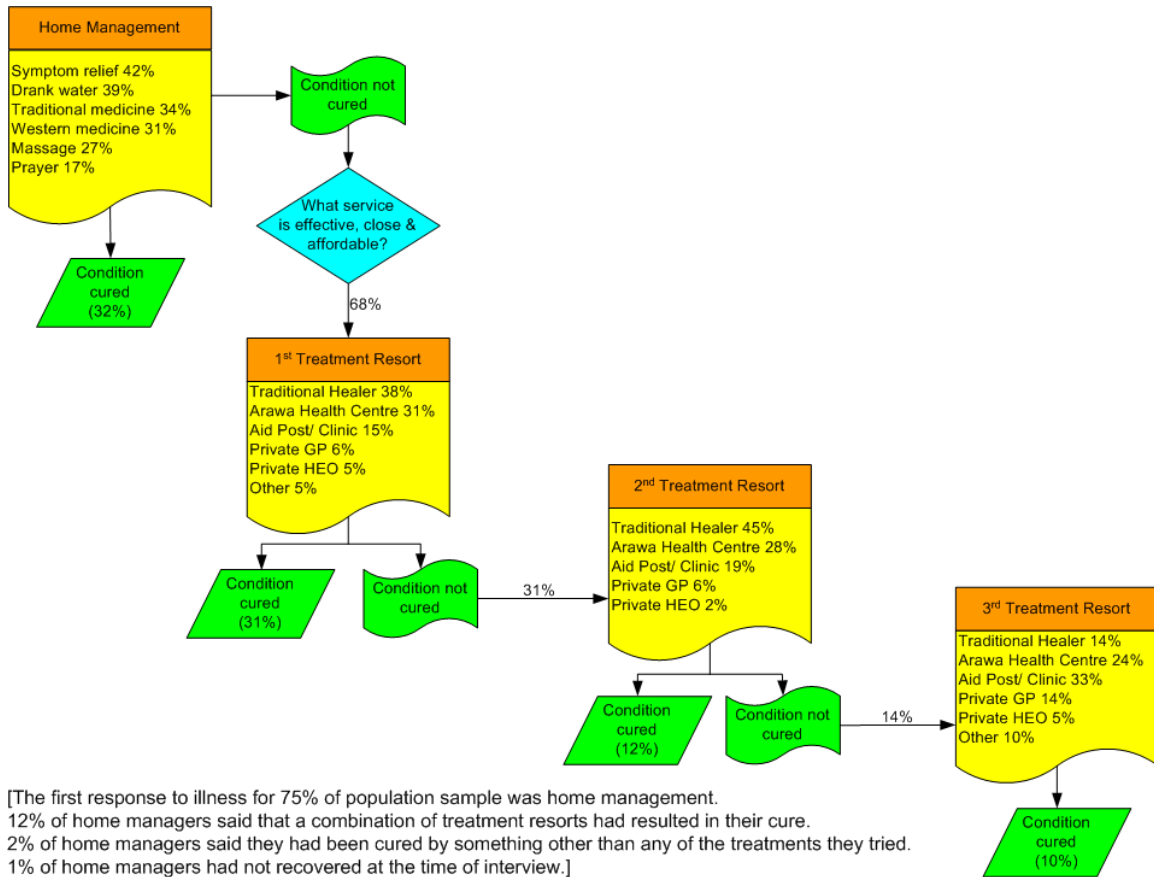
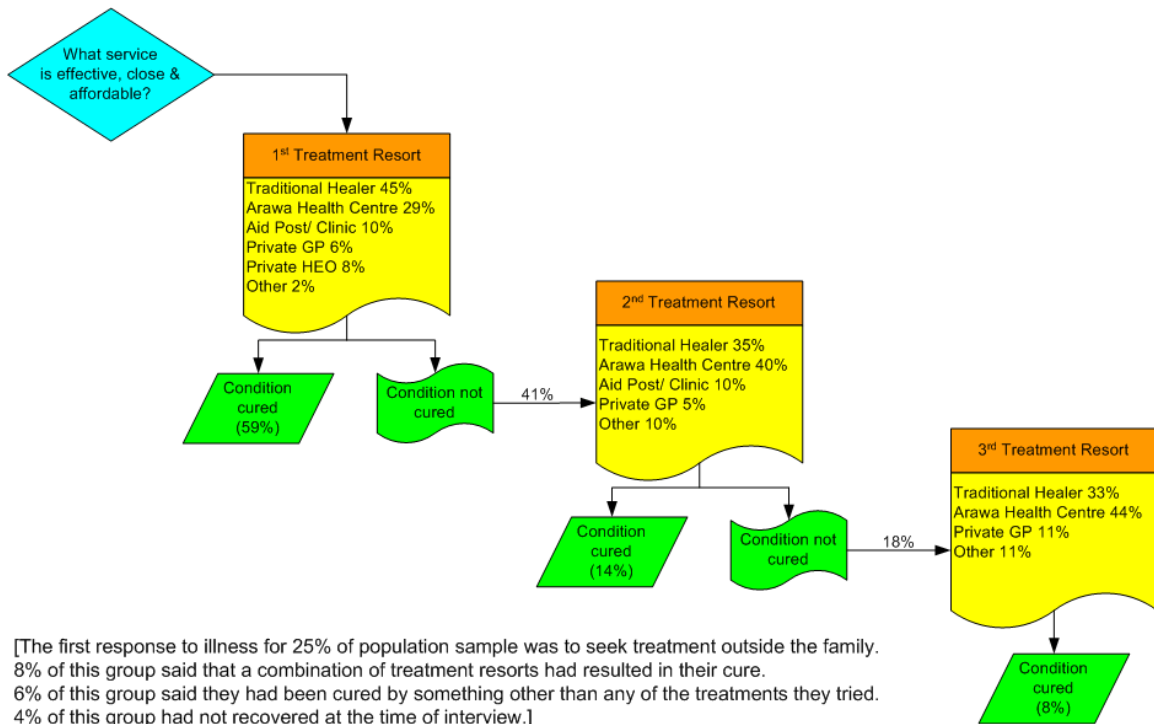


Figure 25: Health Care Practitioner Illness Response Pathway



Thus to a large extent, treatment-seeking responses to illness in the study population can be explained in terms of 3 factors: efficacy of the treatment, cost and accessibility. Of the available treatment options traditional healers and Arawa Health Centre best meet these criteria and so are the most popular service providers. Two-thirds of the population sample was happy using either traditional or western medicine, which is reflected in the treatment modalities of the two most popular service providers.

In Tasipo and Bava Pirung, where the qualitative data were obtained, cost and proximity seemed to be more important than treatment efficacy in choosing among the available treatment options. In both these areas the most popular treatment option of first resort during actual illness episodes was the local aid post (Tables 13 and 24). Staff employed at these particular aid posts are trained nurses and thus can provide a higher level of care than less qualified staff who are employed at some other aid posts in the study area. The service at the aid posts in Tasipo and Bava Pirung is reliable as well as being cheap and close to home. The treatment at the aid post may also be considered more effective than that provided by traditional healers. This would explain why the aid post is more popular even though traditional healers are also low cost and presumably accessible.

Although treatment-seeking response to illness can largely be explained in terms of efficacy, cost and accessibility, at certain times other factors may come into play. The perceived severity of an illness may influence treatment response: western medicine is preferred for serious illnesses. The perceived cause of illness may also influence treatment response. While biological explanations for illness are common, beliefs in supernatural causative agents are equally common. If spirits, sorcery or other supernatural agents are implicated as causes of an illness a traditional healer will almost certainly be approached for treatment. The supernatural and spiritual elements of illness were much talked about in Tasipo.

The type of illness may also influence treatment-seeking response. It was said in Tasipo that urinary tract infections, enlarged spleen and *pari* were 'village illnesses' and therefore better treated with traditional medicine. More of the population sample thought that diarrhoea, urinary tract infections and enlarged spleen respond better to traditional treatment. Health care

practitioners shared this view at least for the latter 2 conditions. In-depth interviewing in Tasipo and Bava Pirung provided more information about skin conditions than did the population sample. Here it was said that there are many traditional remedies that can be used to treat skin conditions.

Potential for Integration of Traditional and Western Medicine

The extent of support for an integrated health care system expressed by members of the community and health care practitioners suggests there is considerable potential for this type of system to be developed in the Nasioi area. Not only did people say they are in favour of an integrated health care system, but service utilization data support this claim.

- Common to all areas where qualitative and quantitative data were collected was the view that an integrated health care system would be more effective, accessible and affordable.
- Respondents from Tasipo also thought a broader approach to health care incorporating spiritual and psychological elements would be available under an integrated system.
- In Bava Pirung respondents hoped that an integrated system would bring better organization to traditional health care services resulting in some financial reward for traditional practitioners and the production of traditional medicine.
- Bava Pirung respondents thought that traditional medical knowledge was more likely to be preserved with the introduction of an integrated health care system.
- The population sample thought an integrated system would be advantageous because it would allow a broader range of health care options and more appropriate treatment for particular illnesses.
- The population sample also thought that traditional practitioners could be fruitfully engaged to provide a primary health care and referral role in communities.

At the same time respondents from all areas recognized a range of barriers that would need to be overcome before an integrated health care system could be developed.

- There is perceived to be a lack of understanding and trust that would make it difficult for traditional and western practitioners to work together.

- There has typically been a good deal of secrecy around traditional medicine with practitioners jealously guarding their recipes for herbal medicine.
- Differences in levels of education and the fear of being blamed and punished when a treatment fails increase the potential for difficulties to arise under an integrated health care system.
- In Bava Pirung respondents realized that the vast number of traditional practitioners would make it difficult for health authorities to recognize or incorporate them all into the health care system.
- Among the population sample there was a concern that an integrated health care system might be more expensive than the current system.

Various ideas were proffered for progressing towards an integrated health care system. Once again there was a high level of concurrence between respondents from different VCC areas. The in-depth interviewing in Tasipo elicited a clear 5-step approach to integration.

1. Improve the understanding between traditional and western practitioners.
2. Create a registry of practitioners and conditions each can treat.
3. Conduct biochemical analysis of traditional medicine.
4. Issue licenses to traditional practitioners.
5. Provide space within existing facilities for traditional practitioners to work from.

In Bava Pirung and other VCC areas respondents thought the best way to facilitate a better understanding between the different types of practitioners was to provide reciprocal basic training in western medicine for traditional practitioners and in traditional medicine for western health care practitioners (point 3, page 295 and point 7, page 296). Developing a registry of practitioners and conditions they could each treat would serve the dual purpose of facilitating referrals between practitioners and allowing the public to make their own informed choice of practitioner (point 10, page 296). In both Tasipo and population sample VCCs, respondents thought that verifying the chemical properties of traditional medicine would enable health authorities to sanction the use of at least some medicines. The public would feel more confident in using traditional medicine that had been endorsed by health authorities (point 6, page 296). Similarly the public would like health

authorities to introduce quality standards for traditional health care and issue licenses to traditional practitioners who meet those standards (point 9, page 296). Respondents from across the Nasioi area thought that co-located services would be the most convenient and an improvement on the existing health care system.

CHAPTER THIRTEEN

NASIOI IDIOSYNCRACIES AND HOMOGENEITY

Previous reference has been made to the cultural diversity in PNG. The literature on traditional medicine in PNG that was reviewed in Chapter 2 of this study revealed some regional idiosyncrasies but also a number of similarities in beliefs and practices that are common to many different cultural groups across PNG. In this chapter the results of the original data collected for the case study will be compared and contrasted with information presented in the literature review. The Nasioi will be compared firstly with other cultural groups from Bougainville and then with cultural groups from other parts of PNG. These comparisons are made cautiously and with the caveat that probability sampling was not used to select respondents for the case study.

Nasioi and Other Parts of Bougainville

Although individual cultural groups may vary in specific particulars, there are many similarities in the health beliefs and treatment-seeking practices of the study population (Nasioi speakers) and people from other parts of Bougainville. The commonalities extend to the organization or structure of traditional medicine in different parts of Bougainville.

Studies within Bougainville but from as far afield as Buin and Siwai, Atamo, the Atolls and Tinputz all found that traditional medicine is widely used and traditional explanations of illness have not been superseded with the introduction of western medicine (Hamnet and Connell, 1981; Jenkins and Kemelfield, 1991). Like the Nasioi, people in other parts of Bougainville perceive both traditional and western medicine as viable and effective forms of treatment. Medical pluralism is widespread in the Nasioi area and other parts of Bougainville.

In the Nasioi and other parts of Bougainville illness may be attributed to either natural or supernatural causes. Classification of illness according to perceived severity is also common to many parts of Bougainville. Many people in Bougainville believe that supernatural forces cause

serious illness. This belief is definitely shared by Nasioi speakers for certain illnesses although the case study did not determine whether Nasioi speakers believe that serious illness in general is caused by supernatural forces.

Although sorcery was not frequently implicated as a cause of illness by the Nasioi population sample, qualitative anecdotes suggest that many Nasioi believe that illness is caused by sorcery. Coming into contact with *nenura* (poisoned object) as happens when Nasioi people breach geographic taboos or violate social expectations is a type of sorcery and results in illness. People from other parts of Bougainville also subscribe to sorcery as a cause of illness.

In other parts of Bougainville spiritual activity was a more common explanation of illness than sorcery. Violation of social norms, breach of taboos or failure to meet social obligations are the type of misconduct that might prompt spirits to inflict illness. This concurs with the Nasioi belief that *pari* (malaria-like fever) arises when spirits steal the soul of people who trespass or breach geographic taboos. Discordant social relationships were also mentioned as a cause of ill health in the Nasioi VCC of Tasipo as well as other parts of Bougainville.

As in Tasipo, people in other parts of Bougainville also distinguish between 'sik bilong ples' and 'sik nating'. Some illnesses are thought to have been introduced since western contact and these are more likely to be treated with western medicine. In Bougainville it is common to use traditional medicine for diarrhoea, skin complaints and broken bones.

Bougainvilleans are universally pragmatic when it comes to treatment choices. Cost and ease of access are primary considerations as well as practical circumstances at the time of illness. Nasioi and other Bougainvilleans see traditional and western treatment modalities as complementary and are flexible in their resort to treatment.

The structure of traditional medicine in the Nasioi area is replicated in other parts of Bougainville. Practitioners may be male or female and specialists or generalists. In both the Nasioi area and Siwai many people have a basic general knowledge of common remedies but a few traditional healers have superior knowledge and expertise. Mostly traditional healers do not have set fees

although they may expect some form of payment. The reluctance to treat anyone who is already under treatment from another practitioner is not unique to the Nasioi area. It is indeed part of the practice of western medicine. Conflict has also arisen in other parts of Bougainville where this code of practice has been breached.

Nasioi and Other Parts of PNG

As well as similarities between the Nasioi sample and other Bougainvilleans there are a number of health beliefs and treatment-seeking practices that are common to the Nasioi and people from other parts of PNG. A comparison of the results of the original data collected for this study and the summation of traditional medicine in PNG at the end of Chapter 2 elucidated the following common features.

The illness classification system into minor and severe is common to cultural groups in many parts of PNG. This study found that the Nasioi distinguish between minor and severe illnesses and their treatment-seeking response to illness is based on severity. Depending on how severe they perceive an illness to be the Nasioi will either attempt to manage the condition at home or resort to an expert health professional, either a traditional or western practitioner. In many parts of PNG homecare or home management is often tried before seeking treatment from someone with more specialized medical knowledge. 75% of the study population tried to manage the last illness suffered at home before seeking assistance from an expert.

Some beliefs about the causes of illness are also common across provinces. In most parts of PNG including the Nasioi area, people believe that supernatural forces cause illness. Supernatural forces include sorcery and spirits. Violation of social expectations or breaches of taboos are also thought to result in illness. The soul theft associated with *pari* (malaria-like fever) in the Nasioi area may be similar to the loss of soul described in Milne Bay and Eastern Highlands. The form of sorcery known as *nenura* in Nasioi is reportedly also practised in other provinces including Eastern Highlands and West New Britain. At least one respondent in Tasipo claimed that all illness stems from bad blood. The idea that illness relates to the state of a person's blood was also noted in East New Britain, East Sepik and Eastern Highlands.

Medical pluralism was evident throughout PNG and in the Nasioi area. People have accepted western medicine while retaining traditional treatment practices. The introduction of western medicine has simply expanded the range of available treatment options. The case study found that both traditional and western medicine are considered effective in the Nasioi area and both are widely used. Results from the population sample suggested that traditional and western medicine are more often used sequentially than in tandem in the Nasioi area. In many parts of PNG, including the Nasioi area, treatment choices are flexible, pragmatic and determined by circumstances at the time illness strikes. As in other parts of PNG, cost and convenience are important considerations when deciding between various treatment options in the Nasioi area.

There are also some similarities in the distribution of traditional medical knowledge and the organization of traditional medicine. There is a widespread general knowledge of a range of basic home remedies in Nasioi communities with a relatively few people being considered expert traditional healers. This pattern of knowledge distribution was also seen in Oro, Western and East New Britain. In the Nasioi area and most provinces traditional practitioners can be either male or female and fees are largely at the discretion of patients. This contrasts with some other areas, where high fees charged by traditional practitioners (Jenkins, 1992) discourage frequent and early recourse to their treatments.

Generalizing Beyond the Nasioi Area

Without diminishing the notion that PNG is culturally diverse and that the beliefs and practices of each cultural group are individual if not unique, this study has discovered a core of health beliefs and treatment-seeking practices that are common to at least a handful of cultural groups. Given that there are more than 800 cultural groups in PNG and that the literature review covered only a few groups in each province, the common core of beliefs and practices may be more widespread than this study has been able to ascertain. Some beliefs and practices may be common to a significant number of different cultural groups even though each group is also likely to retain a set of distinct and unique beliefs and practices. Although caution should be observed when generalizing the results of this study beyond the study population and each cultural group or

province should be considered on an individual basis, the commonalities that have been identified support the premise that it is reasonable to use the results of the case study, along with information from other sources, to develop recommendations for the development of an integrated health system that might be relevant in not only the Nasioi area but also in other parts of PNG. There is sufficient similarity in health beliefs and treatment-seeking practices between the study population and other cultural groups to indicate that the findings and recommendations, which are based on the results of the case study, may be more broadly applicable.

CHAPTER FOURTEEN

THE CASE FOR INTEGRATION

The original data presented in this thesis have shown convincingly that traditional medicine remains popular and is well utilized by the case study population. This was also found to be the case more broadly across PNG in the review of literature on traditional medicine from most provinces. But does the fact that people continue to use traditional medicine, despite its exclusion from the formal health sector, provide sufficient justification for an integrated health system? If the status quo is maintained traditional medicine will no doubt continue to exist on an informal basis at least for the foreseeable future. People will continue to seek treatment from traditional healers. Depending on the extent to which integration is embraced there are likely to be associated costs. In a resource-constrained developing country such as PNG there must be sound justification for expenditure of public monies, especially on new initiatives. The anticipated benefits of an integrated health system must outweigh the development and opportunity costs.

In the literature a range of benefits is touted as likely to accrue from an integrated health system.

Nasioi respondents identified many of these including:

- Strengthening of primary health care services at village level;
- Improved effectiveness, affordability and access to health services;
- Production and thus greater availability of plant medicine;
- More appropriate treatment for particular conditions;
- A more holistic service;
- A broader range of health care options;
- Preservation of traditional medical knowledge;
- Better organization and facilities; and
- Financial rewards for traditional healers.

Experience in other countries and experts from around the globe suggest that most of these things are indeed possible. Some examples from other countries and arguments supporting the claim that benefits such as those identified by Nasioi respondents can materialize through an integrated health care system are considered herewith.

A large part of the impetus for integration has arisen from the inability of under-funded western-style health services to meet population health needs in developing countries. As part of the 30th World Health Assembly at Alma Ata in 1977, the World Health Organization (WHO) officially recognized the key role that primary health care can play in alleviating disease and suffering in many of the world's developing countries. The 'barefoot doctor' program that had been so successful in rural China provided the model and inspiration for international public health specialists who formulated the Declaration of Alma Ata on Primary Health Care (White, 1999). The value and potential of traditional medicine as a crucial component of primary health care services was officially recognized in the Declaration of Alma Ata (World Health Organization, 1978).

More recently WHO has again drawn attention to the potential for traditional medicine to improve people's health and wellbeing, particularly in developing countries, where many people do not have access to essential medicine. The First Global Strategy on Traditional and Alternative Medicine states that "the provision of safe and effective traditional or complementary/alternative medicine therapies could become a critical tool to increase access to health care" (World Health Organization, 2002). WHO also perceives that formal integration of traditional medicine would minimize the risks of people using unproven remedies or misusing traditional medicine (World Health Organization, 2002). Some level of formalization should result in improved standards of quality and safety (Bodeker, 2002). In addition practitioners who collaborate are more likely to be aware of and able to avoid conflicting treatments.

In Africa, the AIDS epidemic has tested health services to the limit and traditional healers have been called upon to assist. The South African Government has trained traditional healers to recognize and refer people with symptoms of AIDS (Du Venage, 2003). Patients receive both western style care and traditional treatment. In 2003 about 6,000 traditional healers had been trained to disseminate information about AIDS transmission and prevention in their communities

(Du Venage, 2003). Including traditional healers in the fight against AIDS has greatly expanded the workforce in Africa and given AIDS sufferers access to better treatment and palliative care.

As in Africa and other developing countries, traditional healers are dispersed throughout villages in Bougainville and probably most other parts of PNG, already enjoy respected status and are influential members of their communities. 80% of the traditional healers interviewed in this study indicated they would like to be part of an integrated health care system. Their inclusion in the system would expand the primary health care workforce and greatly improve access to services.

Integration of traditional medicine can improve the availability of traditional medicine and reduce expenditure on therapeutic drugs. Chi (1994) argues that effective integration can allow a more efficient use of domestic medical services in developing countries and thus greater self-sufficiency rather than reliance on western donors. In the Solomon Islands traditional medicine is an integral part of the cultural heritage, although less widely used now than in the past. Maenu'u (1979) asserts that, in view of the high cost and limited supply of western medicine, traditional medicine practices should be supported and encouraged. Maenu'u suggests that using traditional medicine for diseases that can be effectively treated with traditional medicine would result in savings to the health budget. In a program aimed at reviving traditional healing systems in Ladakh, 3 or more medicinal plants were cultivated at each of 22 traditional health centres. Excess quantities of plants were exchanged between health centres (Doogue, 2004). This approach ensured an affordable supply of traditional medicine for common ailments at health centres throughout Ladakh. Another example is antimalarials. The world's poorest countries are those most affected by malaria. Many people in developing countries use herbal medicine to treat malaria. Traditional antimalarials are often more available and affordable than western medicine (Willcox and Bodeker, 2004). Though their efficacy may be partial, this may be sufficient in endemic areas where most people, except the very young, are semi-immune to malaria.

The benefits to be gained from formal integration include acknowledging the validity and value of local cultures and offering a holistic approach (Kennedy and Olsson, 1996). Several authors have drawn attention to the importance of the holistic approach of traditional medicine that conceives the individual as not just a physical entity but a combination of body, mind and soul with physical,

emotional and spiritual needs (Pataki-Schweizer, 1985; Janes, 1999; McGrath, 1999). The holistic concept of illness is part of the cultural appeal of traditional medicine for many people. Respondents in Tasipo also recognized and valued this aspect of traditional medicine.

Janes (1999) and McGrath (1999) consider the importance of placing health care within the relevant social and cultural context. People's understandings of disease aetiologies are rooted in their cultural heritage, which is generally resistant to change and new ideas. Thus, understanding the culture of the target population is crucial to the success of any health program (Posala, 1969). Numerous studies in PNG and other developing countries have highlighted the importance of culture. The Huli accepted and responded to a family planning project that was designed around their beliefs on sexuality and reproduction (Frankel, 1985). Jenkins (1995) found that where water systems were installed with respect for village social structures and cultural practices, they were managed responsibly. In Fiji a smoking cessation and relapse prevention program based on indigenous values of sharing, group solidarity, respect for authority and incorporating traditional ceremonies proved successful where other programs had failed (Groth-Marnat, Leslie and Renneker, 1996). Another study of child mortality in Cameroon found that programs that rely on scientific explanations of disease aetiology and fail to consider values and beliefs that affect people's attitudes are unlikely to succeed (Azevedo, Prater and Lantum, 1991). Traditional healers operate within the same cultural paradigm as their fellow community members and usually share their customs, beliefs and explanations of illness. Traditional healers are therefore ideally placed to explain illness and health management practices in culturally relevant terms.

In many places people require both traditional and western medicine in order to feel satisfied that they have received the total treatment necessary. Many instances are cited where a combination of traditional and western medical treatment are required. Steen and Mazonde (1999) observed that patients may use modern medicine for symptom relief of TB but would seek traditional medicine to treat what they consider to be the cause of the disease. Traditional belief systems attribute disease to supernatural forces such as gods, spirits, ancestors, witchcraft and pollution, which arises from contravening taboos (Steen and Mazonde, 1999). Thus both traditional and western treatments are needed: traditional medicine addresses the underlying causes of disease while biomedicine treats the symptoms and the proximal cause. In Nepal, people believe that

western medicine is good for certain illnesses whereas only a shaman can cure other illnesses. Shamans may encourage people to seek western treatment for certain illnesses but will first take care of other 'influences' that may be troubling a person (Pigg, 1995a). Similarly Sri Lankans use cosmopolitan medicine for acute and life-threatening diseases or when a child seems seriously ill. Traditional medicine is preferred for some chronic and psychosomatic diseases (Wolfers, 1988; Janes, 1999). Solomon Islanders use western medicine to treat malaria but rely on traditional modalities for prevention (Dulhunty et al., 2000).

An expanded workforce, improved quality and safety, better access to health care services and medicine and culturally relevant health care are all good reasons to pursue an integrated health care system. However, the strongest argument for integrated health care is that it leads to improvements in health indicators. There is evidence that incorporating traditional healers into the health system can lead to improvements in health indicators. Over the last 50 years China has made startling gains in all significant health indicators (Janes, 1999). This has coincided with China's focus on rural health policy and efforts to integrate traditional Chinese medicine and western medicine. In several African countries health-enhancing practices, which are precursors to improvements in health indicators, improved after traditional healers received practical training on relevant topics (Hogle and Prins, 1991). Healers made more use of oral rehydration therapy, treated fevers and malnutrition more effectively, practised better hygiene and referred more people to western medical facilities. In Swaziland and Brazil improved diarrhoea management by mothers at home, increased vaccination coverage, intensified community-level education and disease-prevention efforts ensued after relevant training for traditional healers was conducted (Hogle and Prins, 1991). Such findings in countries other than China are encouraging, since China with its long tradition of highly systematized traditional medicine provides inspiration but little practical guidance for integration in other societies.

There are also potential cost savings associated with the integration of traditional medicine into the formal health care system. Five areas in which using traditional medicine could result in cost savings are: cost of drugs, visits to a doctor, secondary referral, adverse events arising from conventional therapies, prevention of future disease (Bodeker, 2002). A recent study found a traditionally used herbal remedy for mild to moderate depression was therapeutically equivalent to

a commonly prescribed pharmaceutical (imipramine) but better tolerated by patients and much cheaper (Bodeker, 2002). The Indian government recently included 10 Ayurvedic and Unani medicines into a package for its national family welfare program in an attempt to overcome the high cost and poor availability of western medicine. The traditional medicines for common pregnancy-related problems were made available in 4 cities. The initiative is still to be evaluated (Bodeker, 2002).

While there is compelling evidence supporting the benefits of integrated health systems, it would be naive to imagine that no opposing arguments exist. Opposition to the idea of an integrated health system is rooted in both philosophical differences and the practical difficulties of developing an integrated system.

Some traditional medicines or practices may have harmful effects. This has been observed in South Africa and Swaziland where enemas are used to treat diarrhoea, vomiting is sometimes induced in patients with weak hearts, vaccinations are done with unsterilized equipment and the medicine itself may be harmful (Freeman and Motsei, 1992). Aside from any harmful effects some antagonists to integration condemn traditional medicine for its lack of scientific foundation. Many western practitioners find it difficult to accept explanations of illness that fall outside the laws of natural science (Freeman and Motsei, 1992).

As well as many western practitioners, some traditional healers are not in favour of integration. For traditional healers, integration can threaten their autonomy and even undermine the basic tenets of their practice (Freeman and Motsei, 1992). In some situations, integration has meant the subjugation of traditional medicine by western medicine (Green, 1988). Traditional healers may also feel that their power, status and level of remuneration will be eroded if they are forced to comply with the western medical hierarchy (Asuni, 1979).

In addition to the arguments against integration outlined above are the myriad practical difficulties that would arise in developing an integrated health system. In PNG as in other developing countries traditional medicine is very informal. There are no written records or materia medica for traditional healing. On the contrary, it is typically surrounded by secrecy. There is probably a

multitude of traditional practitioners in PNG but no organization, registration or accreditation guidelines. Traditional healers operate independently without quality control or standards of practice. Furthermore, integrating traditional practitioners into the health care system may mean that the state becomes responsible for their remuneration whereas until now a user-pays system has obviated the government from financial responsibility. The practicalities of financing large numbers of traditional healers in addition to the western health service may prove insurmountable.

Bodeker (2002) has recommended that development of an integrated system needs to include policy, regulation, accreditation, service development, standards of practice, training and research. The development of an effective integrated health service would require significant investment so that standards of practice and products are not compromised and this has to be considered in the context of a lack of resources for health and other basic services in PNG.

There are thus many issues surrounding the development of an integrated health system that deserve serious consideration. Deciding to integrate traditional and western medicine is not a decision to be taken lightly. The anticipated benefits of an integrated health system need to be measured against the potential less desirable effects. However, the health crisis in PNG and many other developing countries warrants some kind of remedial action. The PNG Ministry of Health has already taken the decision to pursue some form of integration by incorporating safe and effective forms of traditional medicine into the formal health system as part of primary health care and a way of trying to improve the health of people living in rural areas. What remains to be determined is the exact manner in which this integration should proceed and the form of the integrated health service that will evolve.

CHAPTER FIFTEEN

INTERNATIONAL PERSPECTIVES

Over the past quarter century many countries have become interested in integrating traditional medicine into their national health care system (Chi, 1994). Some of these countries have made considerable progress toward integration. Other attempts have been less successful (Janes, 1999). During the course of attempts to develop integrated systems of health care, various models of integration have emerged. These various models and experiences provide valuable insights for other developing countries that may wish to develop an integrated health system, such as PNG. By considering a suitable integration model and examining the process and results of integration in other developing countries, PNG may avoid repeating mistakes that have already been made elsewhere and have more chance of developing an integrated system of health care that actually works.

Models of Integration

Several different models of integration have been outlined (Freeman and Motsei, 1992; World Health Organization, 2000; Bodeker, 2002). These are named according to the degree of integration each entails. Bodeker (2002) refers to four types of relationship between western and traditional medicine: monopolistic, tolerance or coexistence, parallel existence and fully integrated (Bodeker, 2002). In a monopolistic system western medicine is the only recognized system. Under coexistence traditional practitioners are tolerated and allowed to practise unofficially but not formally recognized. In a parallel or dual health service traditional and western medicine are two recognized but separate parts of the national health system. In an integrated health system traditional and western medicine are integrated at the level of medical education and practice (Bodeker, 2002). Bodeker uses the term 'formalization' to refer to the latter 2 models of integration on the basis that both involve a degree of formal recognition.

There are some similarities and differences between the models defined by Bodeker and the 3 integration models described by Freeman and Motsei and WHO. Freeman and Motsei refer to incorporation, cooperation/collaboration and total integration. WHO categorizes models of integration under incorporation, integration at the level of medical practice and total integration.

Under incorporation (Freeman and Motsei, 1992) traditional healers are integrated into the health care system as first-line practitioners within a primary health care approach. Their functions include curative, preventive and promotive health care and they are usually co-opted to work within the western medical paradigm. This may be akin to a combination of Bodeker's monopolistic and coexistence models. Traditional medicine is not really recognized but traditional practitioners are tolerated and encouraged to perform functions at the behest of the western medical hierarchy. They are controlled by the dominant western medical system and traditional practices perceived as dangerous may be banned.

The World Health Organization puts a different slant on 'incorporation'. According to WHO, incorporation refers to a model whereby the government officially recognizes traditional medicine and its use is incorporated into the formal health system.

Under the cooperative/collaborative model of Freeman and Motsei, although the two systems remain autonomous and operate independently, there is mutual recognition of the importance and value of both systems. This is most often manifested in mutual referral or collaborative dual treatment of the same patient (Freeman and Motsei, 1992). The collaborative approach corresponds to Bodeker's dual or parallel model. WHO also recognizes a collaborative model of integration but suggests that this can refer not only to the two systems working side-by-side but also to integration at the level of medical practice. Where western medical practitioners have sufficient knowledge of traditional medicine they may use traditional remedies as part of their daily work (World Health Organization, 2000).

Total integration allows the evolution of a new hybrid health care system that blends elements of both traditional and western medicine (Freeman and Motsei, 1992). For total integration traditional and western medicine must be perceived as equally valid and important. One practitioner is able

to provide both traditional and western treatments. Total integration would thus require curricula for traditional medicine to be developed and included in medical education and traditional and western practitioners to work together as colleagues. Total integration (Freeman and Motsei, 1992) and full integration (Bodeker, 2002) may be regarded as synonymous. WHO also recognizes a model of integration where traditional and western branches of medicine have been synthesized to form a new type of medical science that incorporates elements of both but suggests that this type of integration is difficult to achieve.

WHO acknowledges that various countries have adopted different integration models. Each model has merit and may be appropriate at different stages during the process of developing an integrated health system or moving toward a fully integrated system. Whatever model is decided upon, a long-term approach is advisable. In some countries, such as China, achieving a fully integrated health care system has been a work in progress over the last 50 or more years (Xie, 2002). At least initially, what may be more important than the model of integration is the attitude toward integration. WHO asserts that the 'harmonization of traditional and modern medicine' is dependent on mutual respect between practitioners based on a sound understanding of each other's practice. Mutual respect is a prerequisite for any form of integrated health care to be effective (World Health Organization, 2000).

The Historical Context of Integration

Following the Declaration of Alma Ata on Primary Health Care of 1977 WHO and its member countries began to promote the integration of traditional medicine into national health care delivery systems (Chi, 1994). However, even in countries such as China, Taiwan, Nepal and Tibet, where traditional medical systems were already well established, sanctioned by governments and widely practised, the transition to an officially integrated health care system has not been smooth (Chi, 1994; Pigg, 1995b; Janes, 1999; White, 1999). Perhaps the major impediment to integration has been the tendency for western biomedical models to assume supremacy over traditional systems. Various authors have traced historical attempts to develop integrated medical systems in different countries, identified problems and formulated recommendations for a smoother process of integration.

Integrated Medical Systems in China

China's integrated health care system is one of the world's most esteemed and also one that most closely resembles total integration (Jingfeng, 1988; Xie, 2002). Jingfeng claims China is the only example of an integrated health care system where traditional and western medicine enjoy equality in economic, political, legal, training and status terms. The integration of western medicine into the traditional medical system has allowed both to flourish and grow resulting in a potentially better blended system (Jingfeng, 1988).

Both White (1999) and Xie (2002) reflect on policies and historical events that have shaped integrated medicine in China since its inception by Chairman Mao during the Cultural Revolution up until the present day. Integrated medicine was originally conceived as a new and scientific synthesis of the best parts of both traditional Chinese medicine and western medicine. As early as 1965, integrated medicine was being promoted by the state in the People's Republic of China as a grassroots-based, culturally appropriate solution to the enormous challenge of meeting the health care needs of rural China (White, 1999).

White (1999) paints a picture of health care and the health system in China as integration developed. Among the elements of traditional Chinese medicine that were incorporated into the integrated medicine system were herbal pharmaceuticals, which were heavily emphasized, and therapeutic techniques such as reading pulses, acupuncture, cupping, massage, moxibustion and folk treatments. Western medicine contributed terminology and concepts from anatomy and physiology, basic biomedical diagnostic and intervention techniques, public health principles of hygiene and sanitation, vaccinations, surgical techniques, injections and intravenous infusions. The medical text of the day was 'A Barefoot Doctor's Manual' (first published in 1970 and still widely used by practitioners in rural China, many of whom were formerly barefoot doctors), which recommends that the various elements of traditional Chinese and western medicine be used in conjunction with each other. The Manual provides explanations for disease aetiologies that are usually drawn from western medicine but incorporate traditional Chinese medical concepts (White, 1999).

During the Cultural Revolution, integrated medicine was practised through brigade-based clinics providing primary health care services in rural China. The brigade was an administrative unit consisting of about 500 families or 2000 individuals. Staff for the clinics were drawn from a mixture of sources including medically trained practitioners and young men with no or minimal qualifications who were selected by the brigade to become 'barefoot doctors'. Initially barefoot doctors underwent an intensive 2-month training course in integrated medicine and continued to learn through experience, sharing their knowledge and experiences with other clinic staff, who all strove to practise integrated medicine.

Political upheavals affected the integrated medicine system so that by the early 1980s the division of labour between traditional Chinese medicine and western medicine was reinstated at least in urban areas. The brigade clinics were dismantled and barefoot doctors and other health care practitioners were redesignated as 'village doctors'. A national examination system was introduced in 1982 and 1983 that resulted in doctors being categorized as either 'traditional Chinese medicine' or 'western medicine' specialists. Despite these state-imposed divisions most rural practitioners continue to practise integrated medicine (White, 1999). White asserts that integrated medicine has been able to withstand coercive political forces at different stages of China's history because it was already embedded in the popular culture (White, 1999).

Xie (2002) describes the processes by which the Chinese government has achieved an integrated health system. The longevity of traditional Chinese medicine is attributed to 4 factors: people had personal experience of its therapeutic benefits; traditional remedies were simple, convenient, affordable and had fewer side-effects; people could relate to the philosophy of traditional medicine; and practitioners of western medicine were not available in rural areas. The Chinese government has implemented a series of measures to facilitate the integration of traditional and modern medicine since the 1950s.

A policy that supported uniting traditional and western medicine was developed and publicly promoted by political leaders including Mao Zedong, Deng Xiaoping and Jiang Zemin (Xie, 2002).

Opportunities for practitioners to work together were created. Traditional medical doctors were incorporated into the staff of modern medical hospitals. Traditional Chinese medical departments were established in most modern hospitals and hospitals for traditional Chinese medicine were also established. This facilitated the exchange of ideas between doctors of each discipline and over time mutual respect started to develop (Xie, 2002).

Working together also gave practitioners an opportunity to observe first-hand the effects of each type of medicine. Modern practitioners working in integrated hospitals became convinced of the efficacy of traditional Chinese medicine and realized the need for scientific validation. With support from doctors trained in western medicine, clinical trials were conducted in the 1950s, firstly of the treatment of chronic diseases but later of a range of conditions (Xie, 2002).

Once it was decided that traditional Chinese medicine should be developed an urgent need to elevate the status of relevant training schools was recognized. Four colleges were established in 1956. An educational system was developed for the training of traditional medical personnel and in 1995 the number of colleges had increased to 30. The duration of training is from 5 to 7 years depending on specialty (Xie, 2002). Historically, traditional Chinese medicine has been documented and in 1958 the Ministry of Health compiled a set of standard textbooks, which have since been updated 6 times.

In the 1990s a national standard 'Classification and Coding of Diseases and Syndromes in Traditional Chinese Medicine' along with criteria for diagnosis and efficacy evaluation were promoted, strengthening the legal basis of traditional medicine practice. A licensing and accreditation system for traditional Chinese medical practitioners has also been instituted (Xie, 2002).

Research into traditional medicine has been integral to its integration. Scientific institutions for conducting research and evaluating traditional medicine have proliferated in China since the 1950s. Two associations have been set up to facilitate the exchange of information among researchers. Each sponsors a national journal where research findings are published. There are

many other journals in the fields of traditional and integrated medicine. Research is able to quantify the efficacy of traditional medicine as well as investigate how and why it works (Xie, 2002).

Xie (2002) defines modernization as the application of modern scientific theories, knowledge and methodologies and integration as discovering common points between theories of the two systems and combining the best elements of each to establish a new system of medicine. He asserts that modernization and integration take harmonization further and that for this to happen both types of practitioners need to learn about the other discipline (Xie, 2002). Many western-trained doctors have learnt traditional medicine and have been instrumental in progressing integration in China. However, the opportunity and inclination to study traditional medicine may not have existed had other measures taken by the Chinese government not been in place. Fundamental to the success of developing an integrated health system in China is the extent to which traditional Chinese medicine was an established system prior to the introduction of western medicine. Prior to the introduction of western medicine in China traditional Chinese medicine was already highly developed, had existed since before the beginning of the Christian era and was well documented (Jingfeng, 1988).

The success of integrated medicine and more particularly barefoot doctor programs in rural China prompted the call for integration of traditional and modern medical systems on a broader scale by showing that traditional medicine could be useful in primary health care (Janes, 1999). However, despite the initial success of the barefoot doctor program there have since been many failures in integration attempts. Janes (1999) attributes these to a host of 'conceptual and practical barriers'.

The Taiwan Experience

The next account of an attempt to integrate traditional and modern medical systems is that of integrating Chinese medicine into Taiwan's health care system since the end of World War II. An examination of this experience highlights some problems and raises questions about the real meaning of integration if the traditional medical system continues to be subordinate to biomedicine (Chi, 1994). There is evidence that traditional medicine is not seen to be as creditable as western medicine in the limited role of traditional practitioners in policy-making and public health programs,

the lack of resources allocated to training, research and practice, and the deregulated licensing system for traditional practitioners. In contrast to this actuality, Chi (1994) asserts that true integration of traditional and western medicine implies the sharing of power and control of medical resources between practitioners from both systems.

Early approaches to integrating traditional Chinese medicine into the modern health care system in Taiwan centred on providing scientific explanations for the efficacy of traditional treatment modalities, such as acupuncture, and using scientific methods to refine herbal medicine. Chinese medicine was severely suppressed during the Japanese occupation of Taiwan and the subsequent Taiwanese Nationalist government demonstrated ambivalence by endorsing western medicine but relaxing regulations on Chinese medicine in the 1960s (Chi, 1994). Attempts to establish a training program for traditional practitioners were undermined by lack of financial support and the prestige and income afforded to practitioners of western medicine. A licensing system that did not require practitioners of Chinese medicine to have any formal medical training predictably led to a lack of prestige and a lack of public confidence in Chinese medical practitioners (Chi, 1994).

Although Chinese medical practitioners are relatively unpopular in Taiwan, Chinese pharmaceuticals are widely used (Chi, 1994). This is attributed to both the research that has been conducted on extracting, identifying and processing ingredients for Chinese pharmaceuticals as well as the fact that Chinese medicine has long been and continues to be part of the popular culture in Taiwan. In the past knowledge of Chinese medicine was not restricted to physicians or pharmacists. Many families possessed knowledge about different plant remedies passed down from their ancestors and it was, and still is, common for people to seek advice and remedies from friends and relatives (Chi, 1994).

Chi argues that, unlike China, Taiwan had no real need for traditional medicine since there was an abundance of western medical resources. So while officially endorsing western medicine the government had no clear position or policy on traditional medicine. The loose licensing system and restrictive policies on the mode of practising Chinese medicine served to render Chinese medicine as inferior to western medicine (Chi, 1994).

As a result of his analysis of the Taiwanese experience, Chi provides specific recommendations regarding the integration of traditional and modern western medicine (Chi, 1994). Through a critical examination of the integration process in Taiwan, Chi has identified many important factors relating to the rationale, strategies and processes of integration and suggests that countries interested in integrating traditional medicine may benefit from adopting an approach that encompasses his recommendations or similar constructs. Chi highlights complex issues that need to be addressed through the integration process including: the government's role in the education, training, licensing and regulation of health care providers; evaluation of the theory and efficacy of traditional medicine and development of licensing criteria and guidelines for practice and quality standards; the allocation of medical resources; and the dependence on western medicines and other medical resources. From his appraisal of the integration of Chinese medicine into the Taiwanese health care system Chi (1994, p318-319) proposes 6 tenets that should underlie the integration of traditional medicine into the national health care system in any country.

1. Promote communication and mutual understanding among different medical systems that exist in a society.
2. Evaluate traditional medicine in its totality.
3. Integrate at the theoretical and the practical level.
4. Distribute resources equitably between traditional and modern western medicine.
5. Provide an integrated training and education program for both traditional and modern western medicine.
6. Adopt a national drug policy that includes traditional drugs.

In summary Chi (1994) calls for a dialogue between traditional and modern medical systems through which a mutual understanding can develop and may lead to cooperation between systems. Full integration can progress when this cooperation is evidenced in training, education, research and practice.

The Health Transition in Tibet

Janes (1999) analyzes the integration process in Tibet. Since the Chinese Communist Party took control of Tibet, health care policy has included the incorporation of indigenous Tibetan medicine

into primary health care (Janes, 1999). Although Tibetan medicine has suffered during the Cultural Revolution it has always maintained its state sanction. Tibetan medicine is still supported by significant infrastructure such as hospitals and training programs and there are many practising physicians. Negative consequences have arisen from attempts to integrate Tibetan and biomedicine because of a 'highly materialist discourse on the body' and the incorporation of Tibetan medical training within the government health bureaucracy (Janes, 1999).

Despite these impediments Tibetan medicine remains popular and plays an important role in the treatment of chronic disease, particularly for adults suffering chronic diseases that the family diagnose as 'Tibetan'. Like many developing countries, Tibet has no capacity to provide long-term hospitalization for terminally ill patients. These people are usually cared for by their family and they rely heavily on traditional medicine (Janes, 1999).

Because of continual changes in health policy, the integration of biomedicine and traditional Tibetan medicine has never been fully accomplished. However, Tibetan medicine continues to play two very important roles for Tibetans. Because it has managed to escape state intervention, Tibetan medicine is regarded as an institution that embodies the genius of Tibetan culture and beliefs about body-mind and social ethics. Tibetan medicine also offers an outlet for the expression of the loss of cultural identity, rapid economic modernization and ethnic/racial discrimination (Janes, 1999). Despite this central position in the Tibetan psyche, Janes perceives that Tibetan medicine is under threat from the domination of biomedicine and a requirement to be justified according to scientific principles. Tibetan medicine is under constant pressure to modernize if it is to maintain its official standing.

Janes argues that the failure of western medicine to control the physical, psychological, social and economic suffering caused by the many chronic diseases produced by the epidemiological transition in population and mortality dictates the necessity of maintaining and valuing the broader components of traditional medicine rather than just its herbal remedies. The value-adding contribution of traditional medicine lies in its potential to enhance quality of life for people suffering from chronic and degenerative diseases that arise with the health transition as populations age. Traditional medicine fulfills this need by providing diagnostic explanations and treatments that are

concordant with centrally important cultural principles as well as providing a real and cost-effective alternative in the face of ever increasing dissatisfaction with western medicine (Janes, 1999).

To overcome the risk of compromising traditional medicine and its potential contribution to improving and strengthening health services, Janes argues that certain constructs should be built into the integration process that ensure true integration occurs rather than incorporation or coexistence where traditional medicine continues to have a subordinate role and be dominated by western medicine (Janes, 1999). The richness that traditional medicine has to offer to a health system lies in the features of diagnosis, treatment and care that may provide the greatest benefit and are likely to be lost in the westernization of traditional medicine. Janes calls for anthropologists and sociologists to participate in discourses that serve to remind governments of the failures of biomedicine and the reasons why traditional medical systems can provide a desirable alternative for at least some afflictions (Janes, 1999).

Lessons from Integration in Nepal

The picture of integration that has emerged thus far is one where western medicine usually dominates traditional medicine. Traditional medicine is required to justify itself according to the rational, scientific paradigm of western medicine. Selective integration of those aspects of traditional medicine that can be understood and justified within a scientific paradigm may occur but in its totality traditional medicine is not recognized and struggles to gain access to resources and influence in the sphere of public health policy. Pigg (1995b) further illuminates this picture with her analysis of the international development initiatives that seek to integrate traditional and modern medical systems.

Using Nepalese case studies, Pigg (1995b) argues that the language and practical implementation of integration by international development agencies serves to undermine traditional medicine. Perhaps not even consciously, one knowledge system is considered superior to the other. This is manifested in large chunks of the knowledge base and cultural attributes of traditional medical systems being ignored. In her analysis of the cyclic nature of events in international development Pigg perceives that the push for integration of traditional medical systems arose from a lack of

modern health resources in developing countries. By enlisting the services of traditional healers an inadequate primary health workforce could be expanded and trained traditional healers, who were already accepted and respected within their communities, could be expected to provide legitimacy for western medical concepts. The rhetoric of international development extols the virtues of culturally sensitive programs and the notion of integrating traditional healers within the primary health care system is at least symbolically attractive; however, in reality very few countries or programs have developed initiatives that establish close working relationships based on mutual respect with traditional healers (Pigg, 1995b).

In Nepal integration programs have courted 2 different types of traditional healers: traditional birth attendants and faith healers, each with varied outcomes (Pigg, 1995b). Over a period of 20 years, traditional birth attendants have become an institutionalized part of the primary health care system with a standard curriculum and central coordination. On the other hand, some of the earlier integration programs for faith healers have been discontinued and none have been expanded on the scale of the traditional birth attendant programs.

Pigg attributes these different outcomes to underlying differences in the way training programs have been developed and conducted. Those selected for training programs need to have a pre-existing role and recognition in the local community. Training programs need to acknowledge existing knowledge and should not seek to replace traditional knowledge and beliefs with medical knowledge. Dialogue and debate should be encouraged with a view to establishing connections between indigenous and western medical explanations and practices. The envisaged benefits of a training program that was not conducted in accordance with these recommendations failed to materialize (Pigg, 1995b).

Finally, Pigg (1995b) argues that the existence of training programs in western medicine without equivalent programs in traditional medicine communicates a message of superiority to trainees. Training produces modern-sounding trainees who then become further removed from the communities they serve (Pigg, 1995b). Training is invariably based around western medical theories of disease causation and the separation of physical, social, emotional and spiritual concerns, concepts that are at odds with the traditional medical paradigm. Traditional practitioners

are required to redefine their model of medicine while western medicine goes unchallenged (Pigg, 1995b). All these factors demonstrate the underlying but usually unexpressed premise, held by many who sing the praises of integration, that western medicine is superior to traditional medicine.

The integration experience described by Pigg appears to bear characteristics of the incorporation model of Freeman and Motsei (1992). Pigg (1995b) contends that the underlying attitude that western medicine is superior undermines real integration with the attributes described by Chi (1994).

Revitalizing Traditional Medicine in Ladakh

A project aimed at revitalizing traditional Tibetan medicine in Ladakh (Amchi medicine) was seen as important not only for its anticipated health benefits but also for preserving social life in rural villages (Doogue, 2004). Compared with the process of integration that has taken place in some other countries, the project is fairly simple and relies on donor funds. However, it has been tailored to preserve the traditional medical system and make it viable in a rapidly modernizing environment.

The project used a range of strategies that make Amchi medicine accessible and protect its longevity. These include establishing 22 Amchi health centres in remote parts of Ladakh; providing a 4-year residential training course including 1 year of practical training; a medicinal plant exchange system where selected plants are grown at each health centre and excess quantities exchanged for other types of medicinal plants grown at other health centres; creating forums for information and knowledge exchange including a magazine and annual seminars for traditional healers (Doogue, 2004). An independent association, the 'Ladakh Society for Traditional Medicines' has been formed and provides a voice and vehicle for self-regulation by healers.

Older Amchi practitioners continue to practise but training young students ensures that traditional medical knowledge will not be lost as modernization fragments village life and alters the old ways of doing things (Doogue, 2004). Villages select their own trainees often in consultation with local monasteries. A gender balance stipulation has been introduced for trainees because traditionally Amchi healers were more often male than female. It is hoped female Amchi healers will be able to

contribute to a reduction in Ladakh's high infant mortality (Doogue, 2004). The training and certification of Amchi practitioners was seen as essential if Amchi and western practitioners are to be afforded equal recognition.

Although apparently simple, 6 years after inception the program was deemed to be a success and the Nepalese government was considering duplicating it (Doogue, 2004). The program appears to have found a way to preserve the traditional medical system by making it relevant in a modernizing society.

Collaborating with Traditional Healers in Africa

A study of collaboration in 4 African countries (Ghana, Swaziland, Nigeria and Kenya) found traditional healers eager to be involved in primary health care (Hogle and Prins, 1991). The study evaluated a training program that was particularly concerned with child health care and diarrhoeal diseases although the findings are probably also relevant to other disease categories.

A range of successful outcomes was observed. After training, healers made greater use of oral rehydration therapy and less use of dangerous traditional treatments. Better hygiene was practised and a vaccination program introduced in Nigeria (Hogle and Prins, 1991). Fevers and malnutrition were being more effectively treated and traditional healers were referring more patients to western health care facilities. Relationships between traditional and biomedical personnel were seen to have improved and western practitioners had a better appreciation of traditional beliefs and practices that influence patient behaviour (Hogle and Prins, 1991).

The study identifies elements that contributed to the success of the training programs. Training programs should be based on a sound understanding of traditional practices informed by qualitative, ethnographic data. A variety of community leaders and health care practitioners, including traditional healers, should be consulted and contribute to the planning, design and implementation of the training program (Hogle and Prins, 1991). A better understanding and mutual respect can start to develop through dialogue and consultation from the outset. Course content should be specific and practical and cover a limited number of topics, and training should

be through participatory techniques. Where possible concepts should be explained in culturally relevant terms (Hogle and Prins, 1991). The study also found that training courses should be funded in accordance with local custom, which in Africa is that the user pays or at least contributes to the cost.

The study recommends that integration should start small, possibly with pilot projects, and expand over time (Hogle and Prins, 1991). Other useful practical recommendations include starting integration projects where pre-existing conditions are favourable and collaboration between traditional and western medical sectors has already commenced; consulting traditional healers about the content of training workshops and focusing on upgrading practical skills; and developing a policy that addresses the concerns of western medical practitioners regarding the safety of some traditional practices and medicines (Hogle and Prins, 1991).

The report on this study gives the impression that traditional healers may have been co-opted into the western medical primary health care system as in the incorporation model of integration (Freeman and Motsei, 1992). The benefits of the training program seem to be considered only from the western medical viewpoint intimating that this is the only view that matters. However, at least the importance of developing mutual respect and understanding between practitioners as a foundation for integration is emphasized (Hogle and Prins, 1991).

Summary of International Integration Experiences

This examination of experiences in various countries that have tried to integrate traditional and biomedical systems has provided several key insights into the processes that govern integration and highlighted factors that contribute to and pose a threat to successful integration. Several authors have commented that being part of the popular culture facilitates the process of integrating traditional medicine into a western medical system (Chi, 1994; Janes, 1999; White, 1999). The need for mutual understanding and respect between practitioners and a sharing of power at the political level have also been highlighted (Jingfeng, 1988; Chi, 1994; Janes, 1999; Xie, 2002).

Although they are less ambitious than Chi's (1994) recommendations for total integration, where integration has been more successful some or all of the following measures have been taken.

- Traditional medicine and an integrated health system have received government support. A policy on integration has been developed. Political leaders have vocalized their support and committed financial and other resources to developing traditional medicine.
- Opportunities have been provided for traditional and western health practitioners to converse, consult with one another and work together. This has allowed a mutual understanding and appreciation to develop over time.
- The integrity of traditional medicine has been maintained. Respect for the value of traditional medicine has been identified as critical to integration.
- Traditional medicine has been documented and training programs established. In some cases traditional medicine has been included in the content of existing training programs for health personnel. Traditional practitioners who obtain a qualification can be accredited or issued with a license to practise traditional medicine.
- The efficacy of particular traditional medicines has been established through scientific testing. Funding has been allocated for research on traditional medicine. This has also made it possible to introduce quality standards and for governments to sanction the use of certain medicines.
- Information about traditional medicine is made public and shared. Research findings are published in journals and opportunities created for information exchange between practitioners in written or oral form.
- Power and resources are shared between traditional and western medicine. Traditional practitioners are involved in policy formulation and the management of public health programs.

By definition traditional medicine predates modern or biomedicine. In the countries discussed in this review the promotion and acceptance of a biomedical model has arisen from political influences and perhaps economic pressures associated with development. Where traditional medicine was once the mainstay of the health care system, biomedicine has attracted political support and a disproportionate share of health resources. However, it has gradually been

recognized that biomedicine is neither the panacea for all ills nor capable of catering for all the health care needs of people in resource-poor developing countries. Consequently there has been a resurgence of interest in traditional medicine, and the concept of an integrated health system incorporating both traditional and biomedicine has been promoted as a solution to meeting the demand for health services.

Accounts of the integration experiences from various countries have provided an indication of the different levels of success integration has met with. The accounts relating experiences in Taiwan, Tibet and Nepal are all critical of the limited extent to which integration has been embraced. Each of these countries has attempted to introduce an incorporation model of integration but the result has been that traditional medicine is dominated and sometimes exploited by the western medicine system. Although the account from Africa also indicates that the incorporation model of integration was adopted, the behavioural changes that resulted from training programs for traditional healers were seen as positive and expected to improve health status. In Ladakh, a coexistence model has the potential to preserve traditional medical knowledge, improve access to health services and ensure that traditional medicine remains relevant in contemporary society. In China, perseverance over many years has resulted in an integrated health system that conforms to the total integration model. The Chinese integrated health system blends elements from both traditional and western medicine. China is justifiably proud of its integrated health system that provides access to culturally sensitive, effective and affordable services for people throughout the country.

The reports have shown that in many instances where traditional and western medical systems coexist the biomedical model dominates. A power imbalance results from the underlying assumption that western medicine is more valid (Pataki-Schweizer, 1985). In comparison to traditional medicine, biomedicine typically enjoys political and financial advantages that lead to supporting infrastructure. Because of the dominance of biomedicine, the process of integration in some Asian countries has seen well-organized traditional medical systems subsumed by the western medical epistemology of disease causation and reduced to not much more than a set of herbal remedies (Janes, 1999).

In seeking to promote traditional medicine and an integrated health system, governments that officially support a western health care system have often tried to substantiate traditional medicine so that it too can be officially recognized and supported. However, caution is advised in attempting to legitimize traditional medicine according to a scientific paradigm (Janes, 1999). The mechanistic western medical paradigm could decimate traditional medicine by discarding some of its most beneficial holistic elements that are in fact complementary to western medicine. A requirement for scientific justification threatens central tenets of the traditional medicine epistemology such as the relationship to family, kinship group, society and the cosmos.

On the other hand, governments do have a responsibility to ensure that services provided for their constituencies are safe and effective. If governments are to advocate the use of specific traditional remedies they must confirm that they are at least safe and seem to be effective (Bodeker, 2002). In some instances practices associated with traditional medical systems are difficult to understand and/or may be demonstrably harmful to those who subscribe to traditional beliefs and utilize traditional remedies. Resolving these difficult issues and the dichotomy between traditional and biomedical epistemologies is one of the greatest challenges posed to those who seek to establish a national health system that incorporates traditional medicine and biomedicine as equally valid and legitimate parts of the system.

CHAPTER SIXTEEN

RECOMMENDATIONS FOR INTEGRATION IN PNG

Papua New Guinea has already embarked on the process of incorporating traditional medicine into the formal health system. The government of PNG has officially embraced the idea of incorporating traditional medicine into primary health care as part of the national health system. This is documented in the National Health Plan 2001-2010, which contains a program on traditional medicine with the objective *to improve the health of Papua New Guineans by providing easy access to safe and effective forms of traditional medicines and practices* (Ministry of Health, 2000, Volume II, page 93). In accordance with the National Health Plan, a 'National Policy on Traditional Medicine for Papua New Guinea' was drafted in 2004. As yet the integration process has only just begun and progress may be smoother if the experiences of other countries as well as knowledge about traditional medicine in PNG are acknowledged and acted upon accordingly.

Based on the data collected and literature reviewed in this study, the health status of Papua New Guineans, the quality of health care and the ability of the health system to meet demand for services could all benefit from the creation of a health system that incorporates both traditional and modern medicine. Exactly which model of integration is appropriate for PNG and how integration should proceed are fundamental issues that need to be carefully considered in order for the potential benefits of integration to be realized. While perhaps ideologically attractive, a fully integrated health system will not be practical or feasible in PNG in the short or medium terms. There are a number of critical factors highlighted in this study which have implications for the implementation of the Policy and these should be considered as integration proceeds in PNG.

Of the various models of integration described in the previous chapter none seem to be wholly suitable for PNG. Total integration has only been achieved where traditional medicine was already a highly evolved and organized system of medicine. The World Health Organization (2000) recognizes that total integration is difficult to achieve. Lesser models of integration such as coexistence and some types of incorporation do not afford the respect to traditional medicine that is

necessary to ensure that its potential benefits remain intact. The collaborative model of integration affords greater recognition and value to traditional medicine but may also be difficult to implement given the current status of traditional medicine in PNG.

A model for the integration of traditional medicine into PNG's national health system that is consistent with the recently defined Policy goal and objectives and at the same time cognizant of the integration experiences in other countries needs to be defined. The model and its implementation need to be realistic in terms of the varied status and organization of traditional medicine in different parts of PNG and the resource constraints faced by the public health system. The model that is appropriate for PNG may be a hybrid that combines elements from several of the integration models described in the previous chapter.

The National Policy on Traditional Medicine for PNG (Ministry of Health, 2004, page 7) (Appendix 15, page 359) defines its goal thus:

...to improve the health of Papua New Guineans by providing easy access to safe and effective forms of traditional medicine and practices as part of the national health care system.

The objectives of the Policy are to:

- To improve the quality and delivery of health services to the people of Papua New Guinea
- To further develop traditional medicine
- To incorporate traditional medicine into the primary health care

It is clear that the specific Policy objectives are to develop traditional medicine and incorporate it into primary health care. The Policy goal and third objective intimate that traditional medicine will be officially recognized and used to supplement primary health care. In fact the Policy vision states that "Traditional medicine shall complement or supplement the official health delivery system and will be specifically targeted to meet the health needs of rural communities" (Ministry of Health, 2004, page 8) (Appendix 15, page 360).

PNG is poised to develop a health system that incorporates traditional medicine. Strictly speaking it may be more accurate to use the terminology 'incorporated' and 'incorporation' in reference to this new health system rather than 'integrated' and 'integration' but throughout this thesis these terms have been used to describe the general process, across the spectrum of varying modes of integration. Although incorporation is accepted as one model of integration, referring to PNG's health system as incorporated will not immediately make clear the type of integrated health system that PNG intends to create. Having chosen to develop a health system that incorporates traditional medicine, PNG health authorities need to explicitly define the characteristics of their incorporated health system and the process by which incorporation will proceed. Within the confines of the goals and objectives that have been defined in the Policy there is still scope and a need to sculpt a PNG version of incorporation. In the process of developing this combined health system caution should be exercised to avoid the pitfalls that critics of the incorporated model of integration have warned against.

The model that is appropriate in PNG could be a blend of the Freeman and Motsei and WHO incorporation models (Freeman and Motsei, 1992; World Health Organization, 2000). According to Freeman and Motsei the incorporation model of integration results in the type of imbalance between traditional and western medicine that many authors have warned against (Chi, 1994; Pigg, 1995b; Janes, 1999); however, the Policy goal makes it clear that traditional medicine will be officially recognized and part of the formal health system. In this respect the incorporation of traditional medicine into PNG's health system more closely resembles that described by WHO (2000) than that described by Freeman and Motsei.

The incorporation model of integration proposed for PNG in the Policy could be enhanced by the addition of some elements from the collaborative integration model. The danger of the incorporation model is that traditional medicine will be dominated and controlled by western medicine and so lose some of the very things that make it attractive to consumers. To safeguard against this opportunities for western and traditional practitioners to interact need to be created. Creating opportunities for practitioners to work together should encourage collaboration between practitioners. Ideally practitioners would be able to work alongside each other within the same facility. Mutual referral between traditional and western practitioners and joint treatment of patients

could be built into the incorporated health system in PNG. Where a practitioner possesses expertise in both traditional and western medicine, patients could legitimately receive both types of treatment from the one practitioner.

Defining the exact nature of the incorporation model to be adopted in PNG is useful for focusing attention and facilitating a common understanding between interested parties. However, no matter what form incorporation takes it should commence on a small scale, possibly with pilot projects where conditions are favourable and/or collaboration between practitioners is already occurring (Hogle and Prins, 1991). A realistic approach and long-term outlook are required. Sufficient flexibility needs to be built into the model to allow it to be tailored to the needs and prevailing circumstances of each province. Provinces should be able to decide the extent to which they will participate in the incorporated health system.

With regard for these caveats there are a number of salient principles to be gleaned from experiences in other countries that should guide the implementation of the National Policy on Traditional Medicine for PNG. Nasioi respondents who were asked how integration could be progressed also identified several of these principles. The principles and ways in which each might be achieved in the short to medium term are outlined below.

- The concept of an incorporated health system needs political support. This can be achieved through political endorsement of the Policy and advocacy for traditional medicine. It must translate into the allocation of resources to traditional medicine and the inclusion of traditional practitioner representatives in policy development and planning forums.
- The value of traditional medicine must be recognized and the integrity of its holistic approach preserved. Western medicine must not be allowed to dominate or undermine traditional medicine. This might also be achieved through the inclusion of traditional practitioner representatives in policy development and planning forums.

- Incorporation must be based on mutual respect for each medical system. Practitioners need to develop a sound understanding of each other's practice. This might initially be achieved through reciprocal training courses for both types of practitioners.
- Opportunities for practitioners to collaborate and work together will increase their understanding and appreciation of each system and should be created. In the first instance this could be achieved through creating positions for traditional practitioners in hospitals and health facilities. A further innovation could be the creation of traditional medical departments within hospitals or health facilities devoted to traditional medicine.
- Traditional medicine in PNG needs to be documented. This has already commenced with the creation of a database on traditional medicine, medicinal plants and traditional practitioners. This work needs to continue with a view to eventually developing a curriculum for education and training in traditional medicine.
- Licensing and accreditation standards for traditional practitioners need to be developed. This could commence through developing a set of key competencies for traditional practitioners and developing these skills through basic training courses. In the longer term an accredited training course might be developed. Since the policy is to involve traditional practitioners in primary health care, specific training for this purpose will be required and mechanisms of referral established.
- Research on traditional medicine needs to be conducted. Work on drug discovery would be valuable. This has already been initiated at the University of Papua New Guinea. As also proposed by the Papua New Guinea Institute of Medical Research, a Natural Products Unit would combine laboratory research on screening products from natural plant and marine sources with social science research on the way these plants are used in traditional healing. Promising products would have to be developed by companies overseas but the traditional knowledge and value-added studies conducted in PNG would give a significant national stake in the intellectual property of these products. However, bringing such products to clinical trial is a long, laborious and expensive process.

Furthermore, such products, though they began in traditional medicine, would ultimately be used globally as a treatment in western medicine. Another research approach is therefore needed for more immediate results. This will require innovative research devised to evaluate well-documented traditional healing in a way that incorporates its holistic qualities within its local context of illness and provides evidence of safety and indications of efficacy. Such healing methods, if accepted, could be taught to others, including western medical practitioners. This may allow the government to eventually endorse the use of certain medicines and healing methods and encourage small-scale cultivation of safe and effective medicinal plants, especially where they have been widely used over long periods of time to treat the conditions that cause the greatest burden of disease in PNG.

- Opportunities for information exchange between traditional practitioners should be created. This could be achieved through the creation of an association, regular seminars and newsletters.

These recommendations endeavour not to be over-ambitious but rather achievable. The Policy is largely in accord with these recommendations although there is some suggestion of taking incorporation further, which may be difficult to achieve in the near future.

The Policy indicates that most of the main concerns for integration highlighted by those who have witnessed the process in other developing countries have been considered. The Policy makes reference variously to standards, legislation and a code of ethics; ensuring respect for the value system of traditional medicine; the formation of professional societies for traditional practitioners; strengthening cooperation between traditional practitioners and health workers in the primary health care environment; research into the development of herbal medicine; techniques for evaluating safety, efficacy and quality of herbal medicines; development of training materials for traditional healers; registration and quality assurance of herbal medicine; and cultivation of plants used for herbal medicine (Ministry of Health, 2004). The Policy implementation plan includes training for health workers in the use of safe traditional medicines; publication of reports, pamphlets and booklets for the dissemination of information on traditional medicine; and increased utilization by the population of scientifically proven traditional medicine (Ministry of Health, 2004).

The Policy designates the responsibility to government for providing funding and resources for the development of a health system that incorporates traditional medicine. Developing a combined health care system and promoting traditional medicine will require the allocation of financial and other resources (Bodeker, 2002). As a minimum, funding will be required for data collection and research into herbal medicines, developing training materials and conducting training courses. Compensating an expanded workforce if traditional healers are formally included in the primary health care workforce may be an additional cost. Certainly an equitable and affordable mechanism of financing practitioners within an incorporated health care system will need to be devised. Because of these requirements and the restricted health budget in PNG it is realistic to expect that incorporation will proceed gradually. However, the government must make a financial allocation if incorporation is to proceed at all.

The Policy has been drafted but leaders are yet to publicly voice support for traditional medicine. Until such time as the efficacy of some traditional medicines has been assessed it may only be possible to support and promote the use of traditional medicine in a general sense. Acceptance of the policy by the National Executive Committee will provide an opportunity to announce the government support for an incorporated health system and start advocating for the use of traditional medicine and collaboration between practitioners.

As soon as possible opportunities need to be created for traditional practitioners and health workers to exchange ideas and work collaboratively. This is vital to allow the mutual understanding and respect that is so important for incorporation to begin to develop (Hogle and Prins, 1991; Xie, 2002). Traditional healers should be consulted and included on decision-making forums at all stages of incorporation (Bodeker, 2002).

As incorporation proceeds, the attributes that make traditional medicine attractive to consumers must be left intact (Bodeker, 2002). Traditional medicine must remain affordable, accessible and effective. There is a need for research and/or scientific validation but this must not be allowed to reduce traditional medicine to an inferior version of western medicine. The spiritual and holistic elements of traditional medicine are important to consumers and are not offered by western

medicine. These elements of traditional medicine need to be preserved as well as effective herbal medicines (Janes, 1999).

The intention to make traditional medicine part of the primary health care is supported by the results of this study and augurs well for population health status providing it is carefully planned and implemented in provinces that demonstrate readiness and the capacity to adopt this approach. The goal of developing a health service that incorporates traditional medicine is to improve access to safe and effective traditional medicines. Early presentation for treatment and treatment compliance are typically poor in PNG (Jenkins, 1992; Koczberski and Curry, 1999). By developing traditional medicine and taking culturally relevant health services closer to where people live, it is hoped that people will make better use of promotive, preventive and curative health services. This in turn is expected to lead to improvements in population health status.

The recommendations made in this chapter will not be applicable to every province. In some provinces traditional medicine is fragmented and lacks any semblance of organization. The national incorporated health system needs to be flexible enough to allow provinces where traditional medicine is better organized to participate. Participation should be through choice rather than enforcement. There may need to be some delineation between responsibilities for provincial health authorities and the National Department of Health. Regardless of how many provinces participate the incorporation process needs to be coordinated at a national level and the Traditional Medicine Unit, National Department of Health, should assume functions such as research, standards, quality assurance, training and accreditation.

The Policy has not adopted total integration with a blending of the best elements of both traditional and western medicine into a new and unique integrated health system for PNG even as a longer-term goal. Accounts from China where total integration has been achieved suggest that this is the most successful type of integration. It would, however, be a particularly long-term process for PNG to achieve a totally integrated health system given the diversity and informality of traditional medicine at present. The approach in PNG needs to be long-term but realistic and with a series of short-term goals.

Though full integration is not appropriate for PNG at this stage and even an incorporated model of integration may be unrealistic where traditional medicine is poorly organized, at least in some provinces traditional medicine is sufficiently well established that it should be possible to take firm steps toward developing a combined health system. This may include conducting research of a similar nature to the case study on traditional medicine among Nasioi speakers to ascertain current beliefs, practices and attitudes towards traditional medicine and its incorporation into the local health system. This would enable provinces to see how they can relate to and complement the National Policy on Traditional Medicine. If this does occur it will be another way in which the case study contributes to the roll out of the national policy. It is necessary to be realistic and initially aim for an achievable goal in developing an incorporated health system rather than aim for a model of integration that is not feasible. By necessity progress will be limited by the availability of resources. However, if the goal is thought to be worth pursuing slow progress is better than no progress. Some steps can be taken that require minimal resources.

With a focused, coordinated and sustained effort, a health system that incorporates both traditional and western medicine has the potential to improve health status. At such time in the future as an incorporated health system has become established and successful in various parts of PNG, and traditional medicine is better organized and has been documented and evaluated, the level of integration that is appropriate might shift closer to full integration and a new model of integration can be defined accordingly.

CHAPTER SEVENTEEN

RECOMMENDATIONS FOR INCORPORATION IN THE NASIOI AREA AND BOUGAINVILLE

The cultural diversity within PNG is widely acknowledged. There is diversity between provinces and even between different cultural groups living in the same district (Posala, 1969). Because of this diversity the results of this study are strictly applicable only to the Nasioi area. Nonetheless there may be similarities in other parts of Bougainville and even other parts of PNG. The literature review of traditional medicine in PNG identified a number of beliefs and practices that were common to various provinces. It may therefore be possible to apply information gathered in the Nasioi area to other areas. It is a matter for provincial, district and local health authorities to assess the extent to which their communities share similarities with or differ from Nasioi speakers but, for the purposes of this part of the report, it will be assumed that Nasioi speakers are broadly representative of Bougainvilleans.

While an incorporated health system may not be feasible in all parts of PNG, a system that incorporates both traditional and western medicine appears to be possible in Bougainville. Traditional medicine is still widely used and perceived as an effective treatment option. Traditional practitioners reside in villages throughout the province and provide a more accessible and affordable service than the formal health system. Both the community and practitioners are supportive of some form of integrated health system. Furthermore, some level of collaboration is already occurring. Bougainville may be an ideal location to pilot an incorporated health system model.

The case study has highlighted features of health care services that the Nasioi population considers desirable and important. People want and will use services that are effective, affordable and close to where they live. Service utilization data show that Nasioi people perceive the attributes of traditional health care services to match the features of a health care service they

consider important. The population sample voiced widespread support for an integrated health care system in the Nasioi area. If health authorities are able to incorporate traditional healers into the formal health care system they may be able to capitalize on the things people like about traditional health care services and provide a service that keeps people healthier.

National and Provincial health authorities should collaborate in the implementation of an incorporated health system pilot project in Bougainville. Although the new Autonomous Bougainville Government has the autonomy to make its own decisions, at least at the outset it will probably have even fewer resources at its disposal than the Government of PNG. Furthermore, until such time as Bougainville becomes an independent state, it should allow the national government to coordinate the development of a health system that incorporates traditional medicine and to assume certain functions in that process. The national government should be responsible for setting policy and quality standards, developing curricula and establishing training schools, licensing and accreditation of practitioners and research into traditional medicine. There are, however, a number of functions that can be more usefully performed at provincial level to complement those initiatives being undertaken at national level. The Bougainville Division of Health can implement several initiatives, which would contribute to the process of integration nationally as well as being the start of Bougainville developing its own incorporated health care system.

Reflecting incorporation for PNG as a whole, the pilot project should start small and proceed slowly. It could commence in parts of Bougainville where anthropological data have already been gathered and conditions are favourable. Data gathered during the case study provide information about the organization of traditional medicine and show that people would welcome a combined health service in the Nasioi area.

In line with recommendations for integration from Africa (Hogle and Prins, 1991), consultation and decision-making for a health service that incorporates traditional medicine should involve a broad range of interested parties. This should include representatives of government, western medicine and traditional medicine as well as community, religious and political leaders. Both private and public health practitioners should be involved. Women should be represented. Interested parties

might be invited to participate in a forum where they can discuss the idea of developing an incorporated health service. The results of this study might be presented for the purpose of informing and stimulating discussion as part of such a forum in the Nasioi area. The forum should then consider what small-scale activities could be undertaken to progress incorporation and map out a plan of action. They might consider and select from the recommendations listed below.

Based on experiences in other developing countries and Nasioi responses about increasing consumer confidence in an integrated health care system, over a period of time various measures could be taken that would progress the development of a health care system that incorporates traditional and western medicine.

1. Develop a policy on traditional medicine or incorporated health care clearly outlining what a combined health system is expected to achieve. The policy should complement the National Policy on Traditional Medicine for PNG.
2. Identify those reputable traditional healers who would like to be part of an incorporated health care system. Using local communication networks invite practitioners to register their interest or attend a workshop/meeting where they can find out more about plans for an incorporated health system and decide what their involvement might be.
3. Facilitate a better understanding between western and traditional practitioners. Although there is already a minimal level of collaboration occurring between traditional and western health care practitioners in the Nasioi area, it is mostly informal and has been intermittent. More opportunities for practitioners to engage in dialogue and work together need to be created. This could be achieved through meetings, workshops and training courses. Encourage aid post orderlies and community health workers to collaborate with traditional practitioners in their catchment area. Work placements for both traditional and western practitioners should be explored. Traditional practitioners might accompany health workers on outreach patrols or be allocated sessions and/or space at health centres and aid posts. Practitioners should be encouraged and given opportunities to share information about their practices.

4. Elected leaders, health authorities and community leaders need to vocalize support for traditional medicine, without endorsing any particular treatments, as opportunities arise in public forums and through the media.
5. Provide training in basic first aid and the principles of primary health care for traditional practitioners to enable them to fulfill a village-based primary health care and referral role.
6. Make arrangements with the Traditional Medicine Unit (National Department of Health) for research and testing to be conducted on selected traditional medicines. Begin testing treatments for those common conditions that the population believes are more effectively treated with traditional medicine. Over time, expand the range of medicines that are tested. In consultation with the Traditional Medicine Unit formulate a list of safe and effective traditional treatments that have become established, have been used for a long period of time and can be found locally.
7. Start to document traditional medicines and practices. Conduct training for health workers in the use of safe and effective traditional medicines. Use materials provided by the Traditional Medicine Unit combined with local information about traditional medicines and practices.
8. Provide information on safe and effective traditional medicine, medicinal plants and traditional practitioners of Bougainville to the Traditional Medicine Unit for inclusion in the electronic database on traditional medicine.
9. Encourage and support traditional practitioners to seek accreditation from the Traditional Medicine Unit.
10. Develop a list of accredited traditional practitioners and the conditions they can each treat. Publicize this information. Encourage cross-referral between traditional and western practitioners.

11. Conduct a cost-benefit analysis of producing and distributing commonly used traditional medicines that have been found to be safe and effective through long-term use.
12. Establish gardens for the cultivation of plants for commonly used, cost-effective traditional medicines. Install processing equipment for large-scale production of these traditional medicines (from plant to product). Distribute these traditional medicines to aid posts, health centres and hospitals in Bougainville.
13. Encourage traditional practitioners to form an association and contribute to local health service planning and management.
14. Within each annual autonomous region health budget, allocate funds for traditional medicine. Remunerate traditional practitioners according to the standard fee schedule (to be set either in Bougainville or at national level).

Some barriers will need to be overcome if incorporation is to proceed in Bougainville. Although a majority of Nasioi practitioners said they would like to be part of an integrated system, only slightly more than half thought they would be willing to divulge information about their treatment practices. Sharing of information about traditional medicines and practices would be a necessity for scientific testing to be conducted or any type of recognition of validity. Treatments cannot be promoted as safe and effective without some type of systematic documentation. Public health authorities should only endorse specific medicines that have been found to be safe and effective through documented, long-term use or other acceptable means.

Another commonly cited barrier to integration was that of fee disparity within the ranks of traditional practitioners and between traditional and western practitioners. Considerable disparity in the fees charged by traditional practitioners was reported. The issue of payment for traditional practitioners, and financing services they provide as part of the formal health care system, needs careful consideration and policy formulation at a national level. Formal incorporation would require the issue of a standardized fee structure for traditional practitioners to be carefully addressed.

Practitioners who are not willing to conform to the set fee structure would automatically exclude themselves from the incorporated health care system.

In other countries where integration or incorporation has been embraced, traditional medical systems have been more formalized and developed at the outset than the traditional medical system is in PNG. The lack of documentation is another barrier to incorporation that needs to be overcome. Documentation is important for preserving traditional medical knowledge, developing training materials and consistency in the application of treatments. The Traditional Medicine Unit in the National Department of Health is addressing the lack of documentation on traditional medicine through developing a database, which includes traditional medicines, medicinal plants and practitioners. Along with other provinces that wish to pursue incorporation, Bougainville should contribute information to the database.

In developing an incorporated health system, local health service planners should consider the main criteria for choosing between available health care providers. Services need to be effective, affordable and accessible. This study found that Nasioi people consider both traditional and western medicine to be effective. Some traditional healers charge high fees but most are affordable. Western medicine was considered expensive by a majority of respondents. Traditional healers are dispersed throughout villages in the Nasioi area. The service or supply of medicine at some aid posts is not reliable which means that for many people the closest western health care is in Arawa. Altering the balance of these three criteria for treatment choices could mean that more people get appropriate health care as an early response to illness.

Based on original data collected during the case study in the Nasioi area and earlier reports on the status of traditional medicine in other parts of Bougainville, there would appear to be considerable potential to develop a health system that incorporates traditional medicine in Bougainville. The National Department of Health has provided a broad outline of an incorporated health system for PNG in the National Policy on Traditional Medicine. Much advice can be found in the international literature relating to the integration of traditional medicine into formal health systems, which should inform the development of an incorporated health system for PNG. For national health authorities, a collaborative pilot project in Bougainville could illuminate more and less successful incorporation

strategies as it endeavours to develop an incorporated health system. Bougainville would also stand to benefit from a pilot project by developing a health system that is more effective, affordable, accessible and culturally relevant to its people, which in turn should lead to better health.

APPENDICES

Appendix 1: Information Sheet

Information Sheet

This research is being conducted on behalf of Joan Macfarlane who is a PhD student at Curtin University, Western Australia. The Medical Research Advisory Committee of the PNG National Department of Health has approved this research project.

The research team is interested in finding out how people think about certain illnesses and how they decide between various treatment options, including traditional and other health services, available in this area. The study is being undertaken in many villages in the North Nasioi area. This work can help the North Nasioi Council of Elders to develop a plan for local health services under the Bougainville Autonomous Government. It may also help the government to develop a policy for the integration of traditional and Western medicine.

I would like to ask you a few questions about some illnesses and the health services you use. There are no correct answers to these questions. I am just interested in finding out how you manage sickness and what you think about various health care services. I will take notes as we talk. The interview should take approximately 1 hour.

Participating in this study will not cause you any harm or any problems. Neither are any of the questions particularly intrusive. However, if you are uncomfortable with a question you should not feel that you have to answer. If you do not want to discuss any of the issues, just let me know and we will move onto another question.

On the other hand, if you do wish to share your personal experiences and ideas, the research team ensures absolute confidentiality. Your name will not be recorded and will not be mentioned in any report. Nobody outside the research team will be able to trace anything we discuss back to you.

Your participation in this study may benefit you and other people in Bougainville and Papua New Guinea in the future. However, before being interviewed, please understand that your participation is voluntary. You will not receive payment for being interviewed. If you do not wish to be interviewed, that is your choice. Just say that you do not wish to be interviewed. If you wish to stop the interview at any time, that is also okay. Just say that you do not wish to continue.

After our talk we can discuss any questions you may have about the issues discussed. If at any time after this interview you have any questions or would like to speak to someone about the study, please feel free to contact me or Joan Macfarlane who will be in Arawa until September 2004.

Appendix 2: Consent Form

Consent Form

Do you have any questions?

Do you agree to participate in the study?

[If written consent.]

I (*name of participant*) agree to participate in the study. I know the researchers shall not discuss the direct findings with anyone outside the research team. I can withdraw this permission at any time during the interview.

Signature:

Date:

[If **verbal consent**, read out the same words and seek the participant's agreement.]

Do you (*name of participant*) agree to being interviewed today? You understand that the researchers shall not discuss the direct findings with anyone outside the research team. You can withdraw your permission to be interviewed at any time during the interview.

Verbal consent given.

Researcher's name.....

Researcher's signature:

Date:

Appendix 3: Explanatory Models for Febrile Illnesses and Skin Conditions

KEY INFORMANT –EXPLANATORY MODEL FOR FEBRILE ILLNESSES

1. Can you tell me the names of the most common illnesses that affect people here in Takoo/ Toborai?

2. I know about some **febrile illnesses** like malaria and infections (using local terminology). Could you add some names to the list of febrile illnesses? (Probe: Can you think of any other illnesses that I should add to this list? I would like to know the names of all the different kinds of **fever**?)

3. (*Using index cards*) Here I have cards showing the names of the different kinds of **fever** you have mentioned. Can you tell me which illnesses are serious, which are mild and which are in between? (*Ask the respondent to sort the cards into 3 piles.*)

4. Can you tell me all the signs or symptoms that go with 'Febrile Illness 1'? (Probe: How is 'Illness 1' different to the other febrile illnesses?)

5. What causes 'Febrile Illness 1'?

6. Is 'Febrile Illness 1' more common at a certain time of year?
 - 6.1 If so, at which time of year does it occur most?

7. Which groups of people seem to suffer most from 'Febrile Illness 1'?

8. How would 'Febrile Illness 1' be treated? (Probe: You said that X and Y are ways to treat 'Febrile Illness 1' – what are the other ways of treating this problem?)

9. Who are the practitioners here in Takoo/ Toborai that can treat 'Febrile Illness 1'? (Probe: Anyone else?)

REPEAT QUESTIONS 4 TO 9 FOR EACH ILLNESS/ CARD.

KEY INFORMANT –EXPLANATORY MODEL FOR SKIN CONDITIONS

1. I am also interested in **skin conditions**. Can you tell me the names of all the different kinds of **skin conditions** that affect people here in Takoo/ Toborai?

2. (*Using index cards*) Again I have cards with the names of the different kinds of **skin conditions** we have talked about. Can you tell me which illnesses are serious, which are mild and which are in between? (*Ask the respondent to sort the cards into 3 piles.*)

3. Can you tell me all the signs or symptoms that go with ‘*Skin Condition 1*’? (Probe: How is ‘Illness 1’ different to the other skin conditions?)

4. What causes ‘*Skin Condition 1*’?

5. Is ‘*Skin Condition 1*’ more common at a certain time of year?
 - 5.1 If so, at which time of year does it occur most?

6. Which groups of people seem to suffer most from ‘*Skin Condition 1*’?

7. How would ‘*Skin Condition 1*’ be treated? (Probe: You said that X and Y are ways to treat ‘*Skin Condition 1*’ – what are the other ways of treating this problem?)

8. Who are the practitioners here in Takoo/ Toborai that can treat ‘*Skin Condition 1*’? (Probe: Anyone else?)

REPEAT QUESTIONS 3 TO 8 FOR EACH ILLNESS/ CARD.

Appendix 4: Illness Narratives for Febrile Illness and Skin Conditions

**KEY INFORMANT (OR COMMUNITY MEMBER):
ILLNESS NARRATIVE FOR FEBRILE ILLNESS**

*I would like to understand more about **fever** and how people deal with it here in Takoo/ Taborai. I am especially interested in serious illnesses associated with **fever**.*

A Onset of the Illness

- 1 Have you or anyone in your household recently had a serious illness associated with **fever** like malaria, pneumonia, diarrhea etc?
- 2 Who had a **serious fever**?
- 3 When did the illness occur?
- 4 What were the signs of the illness?
- 5 What symptoms did the person complain of?
- 6 What was the name of the illness?
- 7 What caused or contributed to the illness?

B Treatment Seeking Practice and Decision-Making

- 1 What home practices were used prior to seeking care?
- 2 If any medicines were used at home, where were they obtained?
- 3 What outside help did the person first use for this illness?
- 4 What were the signs and symptoms that prompted seeking outside help?
- 5 How long were these signs and symptoms evident prior to seeking outside help?
- 6 Who was involved in making the decision to seek outside help?
- 7 Why was it decided to seek that particular type of care?
- 8 For this type of illness, who is normally your practitioner of first choice?
- 9 Why?

- 10 If this was not the practitioner seen, what stopped you getting care from your preferred practitioner?
- 11 For the practitioner you went to, were there any special financial arrangements necessary (eg borrowing money)?
- 12 Were you able to go for treatment as soon as you wanted to or did you have to wait?
 - 12.1 If you had to wait what caused the delay?

C Management and Progression of the Illness

- 1 What treatment and advice were given at the first consultation?
- 2 Were there any changes in the illness (improvement or worsening) after the first treatment?
- 3 What were the changes?
- 4 After the first treatment did you go back to the same practitioner?
- 5 Were any other practitioners approached?
- 6 Which practitioners?

For each of the other practitioners:

- 7 Why did the family go to this practitioner?
- 8 What treatment was given by this practitioner?

D Treatment Outcomes

- 1 How satisfied were you/ the family with the care received from each of these practitioners including the practitioner you went to first?
- 2 Did the sick person recover completely?
 - 2.1 If so, what was the main cause of recovery?
 - 2.2 If not, what are the residual signs of illness?
- 3 How long did it take for the sick person to recover?

**KEY INFORMANT (OR COMMUNITY MEMBER):
ILLNESS NARRATIVE FOR SKIN CONDITIONS**

*I would like to understand more about **skin conditions** and how people deal with it here in Takoo/ Taborai. I am especially interested in serious **skin conditions**.*

A Onset of the Illness

- 1 Have you or anyone in your household recently had a serious illness associated with **skin conditions** like scabies, tinea, impetigo etc?
- 2 Who had a **serious skin conditions**?
- 3 When did the condition occur?
- 4 What were the signs of the condition?
- 5 What symptoms did the person complain of?
- 6 What was the name of the condition?
- 7 What caused or contributed to the condition?

B Treatment Seeking Practice and Decision-Making

- 1 What home practices were used prior to seeking care?
- 2 If any medicines were used at home, where were they obtained?
- 3 What outside help did the person first use for this illness?
- 4 What were the signs and symptoms that prompted seeking outside help?
- 5 How long were these signs and symptoms evident prior to seeking outside help?
- 6 Who was involved in making the decision to seek outside help?
- 7 Why was it decided to seek that particular type of care?
- 8 For this type of illness, who is normally your practitioner of first choice?
- 9 Why?

- 10 If this was not the practitioner seen, what stopped you getting care from your preferred practitioner?
- 11 For the practitioner you went to, were there any special financial arrangements necessary (eg borrowing money)?
- 12 Were you able to go for treatment as soon as you wanted to or did you have to wait?
 - 12.1 If you had to wait what caused the delay?

C Management and Progression of the Illness

- 1 What treatment and advice were given at the first consultation?
- 2 Were there any changes in the condition (improvement or worsening) after the first treatment?
- 3 What were the changes?
- 4 After the first treatment did you go back to the same practitioner?
- 5 Were any other practitioners approached?
- 6 Which practitioners?

For each of the other practitioners:

- 7 Why did the family go to this practitioner?
- 8 What treatment was given by this practitioner?

D Treatment Outcomes

- 1 How satisfied were you/ the family with the care received from each of these practitioners including the practitioner you went to first?
- 2 Did the sick person recover completely?
 - 2.1 If so, what was the main cause of recovery?
 - 2.2 If not, what are the residual signs of illness?
- 3 How long did it take for the sick person to recover?

Appendix 5: Health Care Resources in the Community

KEY INFORMANT – HEALTH CARE RESOURCES IN THE COMMUNITY

I would like to find out about the health care resources (practitioners) that are available to people living in Takoo/ Toborai.

1. What health care resources do people living in Takoo/ Toborai use? (Probe: Please list all the health care providers that people use including traditional healers, community health workers and any others.)

For each practitioner ask:

2. Where is the practitioner located?
3. How would people who live here get to the practitioner?
4. How far is that from here? (traveling time and distance)
5. How much would the transport cost?
6. What types of illnesses do they treat?
7. What type of treatment do they provide?
8. How are they compensated for the service they provide?
9. Other than cost, is there anything that stops people from using their services?
10. Why do people like to use that practitioner?
11. How would you rate the services they provide? (effective/ ineffective)
12. How many people would they treat each day?
13. How would you rank them in terms of popularity/ preferred source of health care?

Appendix 6: Question Guide for Health Care Service Providers

INTERVIEW GUIDE – HEALTH CARE SERVICE PROVIDER

A INFORMATION ABOUT THE PRACTITIONER & THE CLINIC

Community Name: _____

Practitioner Name: _____

Type of Practitioner: _____

Gender: Male/ Female (circle) **Age:** _____ **Religion:** _____

Place & Province of origin: _____

How long lived in community where service is located: _____

Speaks language/s of community: Yes/ No (circle)

Level of education: _____

Professional qualifications: _____

Number of years as health care practitioner: _____

Full time or Part time practitioner: Full time/ part time (circle)

Other duties: _____

Clinic hours: _____

Number & designation of staff: _____

Services offered: curative, preventive, maternal and child health, immunization, home visits, family planning, laboratory examination, health education, dental services, ambulance, environmental sanitation, (circle), other, (specify)

Equipment, medicine etc available: Light, water, toilet, electricity, microscope, fridge, (circle), other, (specify)

Physical characteristics of the facility: Waiting area: age, hygiene, chairs, shade, light, activities, interactions, noise level, visual aids, IEC resources, (circle), other, (specify)

Cost of service to patients:

Method of payment:

Now I would like to talk to you about your experiences with *fever* and *skin conditions*?

B COMMUNITY RESPONSE TO FEVER

1. What are the local terms for *fever*?
2. What do people usually do when they get a *fever*? How do they treat *fever*?
3. Where do people usually go for treatment of *fever*?
4. In this community, what types of *fever* cause death?
5. What are the main symptoms of *fever* that people pay attention to?
6. Which symptoms do they consider serious?
7. Are there any important symptoms of *fever* that people tend to ignore?
8. How accurate are people at self-diagnosing different types of *fever*?
9. Do you think people sometimes wait too long before seeking care?
 - 9.1 How often does this happen?
 - 9.2 What do you think causes or contributes to the delay?

C PRACTITIONER'S TREATMENT OF FEVER

1. What types of illnesses do you treat?
2. How frequently do people come to you for treatment of *febrile illnesses*?

3. What types of *fever* do you see most often?
4. How do you usually treat *fever*?
5. What medicine do you prescribe for *fever*?
6. What instructions do you give for home management of *fever*?
7. Do you refer patients with *fever* to other service providers?
 - 7.1 If so, under what circumstances?
 - 7.2 To which other practitioners do you refer?
8. What do you think could be done to reduce the amount of sickness and number of deaths from *fever*?

D COMMUNITY RESPONSE TO SKIN CONDITIONS

1. What are the local terms for *skin conditions*?
2. What do people usually do when they get a *skin condition*? How do they treat *skin conditions*?
3. Where do people usually go for treatment of *skin conditions*?
4. In this community, what types of *skin conditions* cause death?
5. What are the main symptoms of *skin conditions* that people pay attention to?
6. Which symptoms do they consider serious?
7. Are there any important symptoms of *skin conditions* that people tend to ignore?

8. How good are people at self-diagnosing different *skin conditions*?
9. Do you think people sometimes wait too long before seeking care?
 - 9.1 How often does this happen?
 - 9.2 What do you think causes or contributes to the delay?

E PRACTITIONER'S TREATMENT OF SKIN CONDITIONS

1. How frequently do people come to you for treatment of *skin conditions*?
2. What types of *skin conditions* do you see most often?
3. How do you usually treat *skin conditions*?
4. What sort of medicine do you prescribe for *skin conditions*?
5. What instructions do you give for home management of *skin conditions*?
6. Do you refer patients with *skin conditions* to other service providers?
 - 6.1 If so, under what circumstances?
 - 6.2 To which other practitioners do you refer?
7. What do you think could be done to reduce the amount of sickness due to *skin conditions*?

F COLLABORATION WITH OTHER HEALTH CARE PROVIDERS

- 1 What other health care providers can be found in this community?
- 2 Which practitioners are the busiest or treat more patients?
- 3 What do you think are the reasons for this?
- 4 Why do you think people come to you for treatment of *fever* and/ or *skin conditions*?
- 5 Do you collaborate/ work with other local health care practitioners?
 - 5.1 If not, why not?
 - 5.2 If so, under what circumstances?
 - 5.3 And, about what illnesses/ problems/ other issues?
 - 5.4 Why do you work with some practitioners and not others?
- 6 What do you think about the amount of collaboration between traditional healers and health workers? (*not enough/ adequate/ too much*)
- 7 How do you think traditional healers and health workers could work together to provide a better health service for the community?
- 8 What structures/ arrangements could be put in place to facilitate this?
- 9 Would you like to have a better understanding of traditional/ Western medicine?
 - 9.1 If so, how could this be achieved?
- 10 Would you like to see traditional medicine formally recognized as part of the government's health care system?
 - 10.1 If so, what do you think would be the benefits?
 - 10.2 What obstacles or problems might need to be overcome?

Appendix 7: Question Guide for Treatment Seekers

QUESTION GUIDE - TREATMENT SEEKER

I am trying to learn more about how people here in Takoo/ Toborai manage illness. I would like to talk to you about what has made you come here today before you see the practitioner. Is that OK?

1. Where do you come from?
2. How far have you traveled to get here?
3. How did you get here? (boat, PMV, on foot)
4. What complaints (symptoms) do you have today?
5. What do **you** think the illness is for which you are seeking treatment?
6. What do you think has caused this illness?
7. When did the illness start?
8. How did the illness start?
9. How did the illness develop after that?
10. What things have you already done to get better?
11. What effect has this had?
12. Are you still taking this other treatment/ therapy for this illness?
13. Who has been involved in making the decisions about when and where to seek care?
14. Why did you choose to come here to this practitioner?
15. What other practitioners have you already tried?
16. Why did you go to that/ those other practitioners before coming here?
17. Who is normally your practitioner of first preference?
18. Why?
19. If you didn't go to your preferred practitioner first, why not?
20. Were you able to get treatment as soon as you wanted to?
21. If you had to wait, what factors contributed to the delay?

Appendix 8: Matching Signs and Symptoms to Illness Names

MATCHING SIGNS & SYMPTOMS TO ILLNESS NAMES

*In order to help me understand more about **fever** and **skin conditions**, I would like you to tell me which signs and symptoms go with different illnesses. I will read the name of each problem/ illness and I would like you to tell me all the signs and symptoms that normally go with that illness.*

Illness Name:	
Signs & Symptoms	Signs & Symptoms

What are the signs and symptoms that usually accompany this illness?

Illness Name:	
Signs & Symptoms	Signs & Symptoms

What are the signs and symptoms that usually accompany this illness?

REPEAT FOR ALL COMMON &/OR SERIOUS ILLNESSES

Appendix 9: Severity Rating

COMMUNITY MEMBER/ HOUSEHOLD – SEVERITY RATING

I would like to try and understand how you think about different types of fever/ skin conditions. I would like to know which fevers/ skin conditions are related, how are they related and which are more serious. Look at these illness names and put them into any groups that you think exist. What is the relationship between each illness in the group? Why did you put those illnesses in the same group? (Repeat for each group.) Now I would like you to tell me, for each illness, whether it is serious, intermediate or mild?

Illness/ Term	Severity Rating			Relationships/ Comments
	Severe	Inter-mediate	Mild	

Do any of the mild illnesses (or signs) tend to progress to moderate or severe illnesses?

Appendix 10: Choice of Practitioner

COMMUNITY MEMBER/ HOUSEHOLD – CHOICE OF PRACTITIONER

From my discussions with people in Takoo/ Toborai, I understand there are a number of different health care services and practitioners available. I would like to understand a bit more about when and why people use certain services.

Name of Practitioner	Known for which illnesses	Ever Used	Advantages of service	Disadvantages of service

If you or someone in your family had **fever** and you could only go to practitioner A or practitioner B, who would you go to? Why would you go to A instead of B?

Practitioner Names and Type	Reason for Choosing Practitioner
A – Private Doctor B – Private HEO	
A – Private Doctor C – Arawa Hospital	
A – Private Doctor D – Village Clinic	
A – Private Doctor E – Traditional Healer	
A – Private Doctor F – Family Member	
B – Private HEO C – Arawa Hospital	
B – Private HEO D – Village Clinic	
B – Private HEO E – Traditional Healer	
B – Private HEO F – Family Member	
C – Arawa Hospital D – Village Clinic	
C – Arawa Hospital E – Traditional Healer	
C – Arawa Hospital F – Family Member	
D – Village Clinic E – Traditional Healer	
D – Village Clinic F – Family Member	
E – Traditional Healer F – Family Member	

If you or someone in your family had a **skin condition** and you could only go to practitioner A or practitioner B, who would you go to? Why would you go to A instead of B?

Practitioner Names and Type	Reason for Choosing Practitioner
A – Private Doctor B – Private HEO	
A – Private Doctor C – Arawa Hospital	
A – Private Doctor D – Village Clinic	
A – Private Doctor E – Traditional Healer	
A – Private Doctor F – Family Member	
B – Private HEO C – Arawa Hospital	
B – Private HEO D – Village Clinic	
B – Private HEO E – Traditional Healer	
B – Private HEO F – Family Member	
C – Arawa Hospital D – Village Clinic	
C – Arawa Hospital E – Traditional Healer	
C – Arawa Hospital F – Family Member	
D – Village Clinic E – Traditional Healer	
D – Village Clinic F – Family Member	
E – Traditional Healer F – Family Member	

Appendix 11: Inventory of Household Medicines

COMMUNITY MEMBER/ HOUSEHOLD – INVENTORY OF HOUSEHOLD MEDICINES

People often have some medicines and other treatments in the house in case someone gets sick. Do you have any medicines or other things to treat or prevent illness in the house now? May I see them? Are there any plant medicines you use without consulting a health care practitioner? Can you tell me about these?

Medicine	Used for which conditions	Used for which family members	Obtained from where	Cost	When last used

Appendix 12: Composition of Household and Characteristics of Residence

COMPOSITION OF HOUSEHOLD & CHARACTERISTICS OF RESIDENCE

Now I would like to ask you some information about who lives in the house etc.

Head of household						
Informant						
Number of usual occupants						
	Name	Age	Sex	Yrs in School	Occupation	Income
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Description of residence

Owned/ Rented	
Construction/ materials	
Number of rooms	
Number of bedrooms	
Condition	
Kitchen facilities	
Food storage	
Toilet	
Water source	
Electricity	
Key possessions	
Garden	

Appendix 13: Structured Questionnaire for Community Members

Respondent's Sex M F

Questionnaire Number

Respondent's Age

Interviewer ID

Respondent's Religion _____

Date _____

Respondent's Village _____

HEALTH & HEALTH SERVICES, COMMUNITY MEMBERS QUESTIONNAIRE

Section One: Illnesses in this Village

1 What illnesses are common in this village?

a _____ b _____ c _____ d _____

e _____ f _____ g _____ h _____

2 What causes each of these illnesses? TICK ALL RESPONSES FOR ILLNESSES a THROUGH TO h

a	b	c	d	e	f	g	h	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[1] Develops from/ caused by another illness
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[2] Contagious
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[3] Germs/ bacteria
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[4] Virus
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[5] Mosquitoes/ parasites that live in mosquito
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[6] Small insects, worms
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[7] Eating processed food
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[8] Eating too much of the wrong kind of food (sweet or greasy)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[9] Drinking dirty water
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[10] Flowering trees, pollen
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[11] Exposure to cold, rain
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[12] Exposure to sun, heat
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[13] Walking in dirty soil or mud
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[14] Exposure to irritant grass (<i>iriri</i>)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[15] Exposure to smoke, dust or fumes from drying copra
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[16] Exposure to environmental toxins/ pesticide/ chemical
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[17] Poor personal hygiene
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[18] Washing in dirty/ contaminated water
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[19] Unhygienic food preparation and/ or storage
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[20] Unclean village environment
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[21] Mental stress
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[22] Spirits
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[23] Poison (sorcery)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[24] Breach of dietary taboo
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[25] Breach of geographic taboo
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[26] Exposure to relative's blood
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[27] Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[28] Don't know

- 3 Do you think some illnesses respond better to treatment with traditional medicine? [1] Yes GO TO 3a & 3b
 [2] No GO TO 4

3a What are these illnesses?

3b Why do you think traditional medicine works better for these illnesses?

- 4 Do you think some illnesses respond better to treatment with Western medicine? [1] Yes GO TO 4a & 4b
 [2] No GO TO SECTION 2

4a What are these illnesses?

4b Why do you think Western medicine works better for these illnesses?

Section Two: Comparing Traditional and Western Medicine

- 1 Do you prefer traditional or Western medicine? [1] Traditional Medicine GO TO 1a
 [2] Western Medicine GO TO 1a
 [3] No preference GO TO 2

1a Why do you prefer traditional/ Western medicine?

Thinking about the traditional and Western medical services that are available to you here.....

2 What do you think are the advantages of traditional medicine?

- [1] Service is closer to home
- [2] Service costs less
- [3] Medicine is stronger/ more effective
- [4] Medicine works faster/ gets immediate results
- [5] Medicine is readily available
- [6] Practitioner is well known to respondent
- [7] Practitioner makes home visits
- [8] Treatment available for conditions that cannot be treated with Western medicine
- [9] Efficacy reinforced by cultural beliefs
- [10] Other SPECIFY _____

- [11] No advantages

3 What do you think are the disadvantages of traditional medicine?

- [1] Cost/ expensive
- [2] Long distance to travel
- [3] Practitioners have negative attitude toward patients
- [4] Lengthy waiting time
- [5] Medicine is not readily available
- [6] Practitioner is not reliably in attendance
- [7] Return visits required
- [8] Treatment is not effective
- [9] Treatment is painful
- [10] May take a long time to take effect/ cure the illness
- [11] May not be effective for serious illnesses
- [12] Has not been scientifically tested
- [13] Doses are imprecise
- [14] Lengthy preparation time
- [15] Other SPECIFY _____

- [16] No disadvantages

4 What do you think are the advantages of Western medicine?

- [1] Service is closer to home
- [2] Service costs less
- [3] Medicine is stronger/ more effective
- [4] Medicine works faster/ gets immediate results
- [5] Medicine is readily available
- [6] Has been scientifically tested
- [7] Doses are precise and specified
- [8] Side effects are known
- [9] Practitioner is well known to respondent
- [10] Practitioner makes home visits
- [11] Treatment available for conditions that cannot be treated with traditional medicine
- [12] No preparation required - its convenient
- [13] Other SPECIFY _____

- [14] No advantages

5 What do you think are the disadvantages of Western medicine?

- [1] Cost/ expensive
- [2] Long distance to travel
- [3] Practitioners have negative attitude toward patients
- [4] Lengthy waiting time
- [5] Medicine is not readily available
- [6] Practitioner is not reliably in attendance
- [7] Return visits required
- [8] Treatment is not effective
- [9] Treatment is painful
- [10] Other SPECIFY _____

- [11] No disadvantages

6 When do you use traditional medicine?

7 When do you use Western medicine?

8 Have you ever used traditional and Western medicine at the same time, during the same illness episode?

[1] Yes GO TO 8a & 8b

[2] No GO TO 9

8a Why did you use both types of medicine for the same illness? What were the circumstances?

8b What do you think are the advantages of using both types of medicine together?

9 Who is your preferred health care provider? _____

9a What type of treatment do they provide? [1] Traditional [2] Western [3] Other

9b Why do you like that health care provider? _____

10 Is there anything that makes it difficult or prevents you from getting treatment from your preferred health care practitioner when you are sick?

[1] Cost of treatment [4] Practitioner is not always available

[2] Distance to travel [5] Other SPECIFY _____

[3] Cost of transport [6] No difficulty

Section Three: The Last Time You Were Sick

1 When was the last time you were sick? _____

2 What illness did you have? _____

In treating this illness/ condition.....

3 Did you yourself, or one of your immediate family members try to treat/ manage the condition at home? (immediate family = grandparent, parent, spouse or children)?

[1] Yes GO TO 3a to 3e

[2] No GO TO 4

3a Who was the main person who treated/ managed the condition?

[1] Yourself

[4] Mother

[7] Husband

[2] Grandmother

[5] Father

[8] Daughter

[3] Grandfather

[6] Wife

[9] Son

3b What type of medical knowledge does this person have?

[1] Traditional

[2] Western

[3] Knows how to treat certain conditions SPECIFY _____

[4] Other SPECIFY _____

3c What level of medical knowledge would you say this person has?

[1] Limited

[2] Moderate

[3] Extensive

3d What did you use or how did you treat the condition at home?

[1] Tried to relieve symptoms (sponge, cool bath, kept warm etc)

[2] Traditional medicine

[3] Western medicine - took medicine that was in the house left over from a previous illness

[4] Purchased medicine from store, pharmacy or chemist

[5] Drank a lot of water

[6] Massage

[7] Prayer

[8] Other SPECIFY _____

3e How long did you use home treatment for? _____

4 Did you seek assistance or treatment from anyone outside your immediate family?

[1] Yes GO TO 4a to 4e

[2] No GO TO 5

4a How long did you have the illness/ condition before approaching someone outside your immediate family for assistance? _____

4a.1 Why did you wait that long before seeking this assistance?

- [1] Didn't feel the need/ condition wasn't serious
- [2] Waiting for condition to respond to home management
- [3] Unable to walk/ reach practitioner
- [4] Didn't have money to pay practitioner
- [5] Too busy/ had more important things to do
- [6] Other SPECIFY _____

4b What prompted you go outside the family for treatment?

- [1] Condition was not responding to home management
- [2] Symptoms got worse
- [3] Wanted a faster cure
- [4] Confident that practitioner could cure the condition
- [5] Other SPECIFY _____

4c Who did you approach for treatment?

- [1] Local traditional healer (same village)
- [2] Traditional healer located in another village
- [3] Village clinic/ aid post
- [4] Arawa Hospital
- [5] Private GP in Arawa
- [6] Private HEO in Arawa
- [7] Other SPECIFY _____

4d Why did you choose to approach this practitioner or service provider (rather than someone else)?

- [1] Cost of service
- [2] Proximity of service to home
- [3] Practitioner is a friend or relative (but not immediate family)
- [4] Gets immediate or quick results
- [5] Treatment is superior to other treatments
- [6] Practitioner is an expert in curing the condition
- [7] Medicine is usually available at that practitioner
- [8] Availability of diagnostic and testing facilities
- [9] Church discourages use of traditional practitioners
- [10] Other SPECIFY _____

4e Was this the only practitioner outside the family you went to for treatment?

[1] Yes GO TO 5

[2] No GO TO 4e.1

4e.1 Who else (outside the family) did you seek treatment from?

SHOW TREATMENT SEQUENCE BY NUMBERING BOXES

[1] Local traditional healer (same village)

[2] Traditional healer located in another village

[3] Village clinic/ aid post

[4] Arawa Hospital

[5] Private GP in Arawa

[6] Private HEO in Arawa

[7] Other SPECIFY _____

5 How satisfied were you with each type of treatment you used/ received?

SPECIFY FIRST, SECOND & THIRD TREATMENT RESORT FROM 4c AND 4e.1

Home Management

[1] Not at all satisfied

[2] Partly satisfied

[3] Not satisfied or dissatisfied

[4] Mostly satisfied

[5] Completely satisfied

First Treatment Resort _____

[1] Not at all satisfied

[2] Partly satisfied

[3] Not satisfied or dissatisfied

[4] Mostly satisfied

[5] Completely satisfied

Second Treatment Resort _____ Third Treatment Resort _____

[1] Not at all satisfied

[2] Partly satisfied

[3] Not satisfied or dissatisfied

[4] Mostly satisfied

[5] Completely satisfied

[1] Not at all satisfied

[2] Partly satisfied

[3] Not satisfied or dissatisfied

[4] Mostly satisfied

[5] Completely satisfied

6 From the time you first got sick, how long did it take to recover? _____

7 To what do you attribute your recovery - what was it that made you get better?

[1] Home Management

[2] First Treatment Resort (SPECIFY) _____

[3] Second Treatment Resort (SPECIFY) _____

[4] Third Treatment Resort (SPECIFY) _____

[5] Combination of Treatments (SPECIFY) _____

[6] Other (SPECIFY) _____

Section Four: Local Health Care Services

1 Who are the health care service providers that people in this village usually go to?

- [1] Local traditional healer/s (same village)
- [2] Traditional healer/s located in another village
- [3] Pharmacy, chemist or store that sells medicine
- [4] Village clinic/ aid post
- [5] Arawa Hospital
- [6] Private GP in Arawa
- [7] Private HEO in Arawa
- [8] Other (specify) _____

2 How many people in this village have at least some traditional medical knowledge?

- [1] All = 100%
- [2] Most = 75%
- [3] Half = 50%
- [4] A few = 25%
- [5] Not many = less than 15%

3 Are some people in this village or close by villages regarded as more expert or more widely recognized for their traditional medical knowledge?

- [1] Yes GO TO 3a to 3d
- [2] No GO TO 4
- [3] Don't know GO TO 4

COMPLETE THE TABLE BELOW FOR RESPONSES TO 3A, 3B & 3C

3a Who are these 'traditional medicine experts'? PROVIDE NAMES IF POSSIBLE OR INITIALS

3b What conditions can they each treat?

3c Where does each one provide their service? SPECIFY VILLAGE

	EXPERT'S NAME/ INITIALS	CONDITIONS TREATED	VILLAGE
1	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>
5	<input type="text"/>	<input type="text"/>	<input type="text"/>

3d Which of these 'experts' do people in this village usually go to? _____

- 4 Now tell me how you would rank the health care service providers that are commonly used by people in this village in terms of how frequently they are used. FROM 1 AND 3d

NUMBER BOXES EG. 1 = MOST FREQUENTLY USED, 2 = 2ND MOST FREQUENTLY USED, ETC

- [1] Traditional healer 1 SPECIFY _____
- [2] Traditional healer 2 SPECIFY _____
- [3] Traditional healer 3 SPECIFY _____
- [4] Traditional healer 4 SPECIFY _____
- [5] Village clinic/ aid post
- [6] Pharmacy, chemist or store that sells medicine
- [7] Arawa Hospital
- [8] Private GP in Arawa
- [9] Private HEO in Arawa
- [10] Other SPECIFY _____

- 4a What is the main thing that people like about each service provider?

MAIN THING ABOUT SERVICE PROVIDER THAT PEOPLE LIKE

Traditional healer 1	
Traditional healer 2	
Traditional healer 3	
Traditional healer 4	
Village clinic/ aid post	
Pharmacy/ store	
Arawa Hospital	
Private GP in Arawa	
Private HEO in Arawa	
Other	

- 5 Are you satisfied with the health care services that are available to you?

- [1] Yes
- [2] No
- [3] Don't know

- 6 If you could have any type of health care service you wanted, what would it be like?

7 What are the main things you really need or want from your health care service?

7a Which of these things is most important - how would you prioritize these needs or desires?

MAIN THINGS HEALTH SERVICE SHOULD PROVIDE	RANK	NUMBER BOXES 1 = MOST IMPORTANT, TO 6 = LEAST IMPORTANT
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

An integrated health care system is one that officially recognizes and incorporates both traditional and Western medicine.....

8 Do you think an integrated health care system would be better or worse than the existing government health care system that recognizes only Western medicine?

- [1] Better
- [2] Worse
- [3] Not better or worse - the same
- [4] No opinion

9 Do you think there would be any benefits to an integrated health care system?

- [1] Yes GO TO 9a
- [2] No GO TO 10
- [3] Don't know GO TO 10

9a In terms of getting treatment and staying healthy, what would the benefits be?

- [1] Easier access to services
- [2] More affordable services
- [3] More appropriate treatment for specific illnesses
- [4] More health care options/ choices
- [5] A more holistic health care service
- [6] Preservation of traditional cultural knowledge
- [7] Traditional healers could provide a primary health care and referral role in villages
- [8] Other SPECIFY _____

10 Do you think there would be any disadvantages to an integrated health care system?

- [1] Yes GO TO 10a
- [2] No GO TO 11
- [3] Don't know GO TO 11

10a What would the disadvantages be?

- [1] The effect of each medicine would be unclear
- [2] Practitioners may find it difficult to work together and trust each other
- [3] Less choice for the patient once in the system
- [4] Too complicated and bureaucratic
- [5] More expensive
- [6] Other SPECIFY _____

11 If the government was setting up an integrated health care system where traditional and Western medicine work together, is there anything they could do that would make you feel confident and eager to use the services? What systems, relationships and/ or facilities, do you think would need to be put in place or what obstacles might need to be overcome?

- [1] Establish better understanding between practitioners
- [2] Create a registry of practitioners and the illness each can treat
- [3] NDoH endorsement of safe traditional medicines (validated by chemical analysis)
- [4] Definition of doses and side effects
- [5] Issue licenses to traditional healers who meet set criteria
- [6] Provide treatment rooms within existing health facilities for traditional healers
- [7] Run training courses for traditional healers in the basics of Western medicine
- [8] Run training courses for Western practitioners in the basics of traditional medicine
- [9] Develop a referral system between Western and traditional practitioners
- [10] Provide payment for recognized traditional healers
- [11] Other SPECIFY _____
- [12] Don't know
- [13] Don't think an integrated system should be established

12 These are all the questions I have, but is there anything else you want to tell me about health care services in this area or traditional medicine? Or, is there anything we haven't talked about that you think is important?

THANK YOU FOR YOUR TIME AND FOR THE INFORMATION YOU HAVE PROVIDED

Appendix 14: Structured Questionnaire for Health Care Practitioners

Respondent's Sex M F
Respondent's Age
Respondent's Religion _____
Respondent's Village _____
Type of Practitioner [1] Traditional
 [2] Western
 [3] Other SPECIFY

Questionnaire Number

Interviewer ID

Date _____

HEALTH & HEALTH SERVICES, PRACTITIONER QUESTIONNAIRE

1 What illnesses do you treat? SPECIFY ILLNESSES

a _____ b _____ c _____ d _____
e _____ f _____ g _____ h _____

2 On average, how many patients do you treat each week?

3 Do you collaborate with other local health care practitioners? [1] Yes GO TO 3a to 3d
 [2] No GO TO 4

3a When do you collaborate with other practitioners?

3b About which illnesses do you collaborate?

3c Which practitioners do you collaborate with?

3d Why do you work with some practitioners and not others? GO TO 5

4 Why don't you collaborate with other practitioners?

- 5 Do you think some illnesses respond better to treatment with traditional medicine? [1] Yes GO TO 5a & 5b
 [2] No GO TO 6

5a What are these illnesses?

5b Why do you think traditional medicine works better for these illnesses?

- 6 Do you think some illnesses respond better to treatment with Western medicine? [1] Yes GO TO 6a & 6b
 [2] No GO TO 7

6a What are these illnesses?

6b Why do you think Western medicine works better for these illnesses?

- 7 What do you think about the amount of collaboration between traditional practitioners and those who provide Western health care services?

[1] Not enough [2] Adequate [3] Too much

An integrated health care system is one that officially recognizes and incorporates both traditional and Western medicine.....

- 8 Do you think an integrated health care system would be better or worse than the existing government health care system that recognizes only Western medicine?

[1] Better
 [2] Worse
 [3] Not better or worse - the same
 [4] No opinion

9 Do you think there would be any benefits to an integrated health care system?

- Yes GO TO 9a
- No GO TO 10
- Don't know GO TO 10

9a In terms of people getting treatment and staying healthy, what would the benefits be?

- [1] Easier access to services
- [2] More affordable services
- [3] More appropriate treatment for specific illnesses
- [4] More health care options/ choices
- [5] A more holistic health care service
- [6] Preservation of traditional cultural knowledge
- [7] Traditional healers could provide a primary health care and referral role in villages
- [8] Other SPECIFY _____

10 Do you think there would be any disadvantages to an integrated health care system?

- [1] Yes GO TO 10a
- [2] No GO TO 11
- [3] Don't know GO TO 11

10a What would the disadvantages be?

- [1] The effect of each medicine would be unclear
- [2] Practitioners may find it difficult to work together and trust each other
- [3] Less choice for the patient once in the system
- [4] Too complicated and bureaucratic
- [5] More expensive
- [6] Other SPECIFY _____

11 Would you like to be part of an integrated health care system?

- [1] Yes
- [2] No
- [3] Don't know

12 Would you be willing to share information about the treatment you provide with other practitioners and/ or health care authorities?

- [1] Yes
- [2] No
- [3] Don't know

13 How could the government set up an integrated health care system where traditional and Western medicine work together? What systems, relationships and/ or facilities, do you think would need to be put in place? Or what obstacles might need to be overcome?

- [1] Establish better understanding between practitioners
- [2] Create a registry of practitioners and the illness each can treat
- [3] NDoH endorsement of safe traditional medicines (validated by chemical analysis)
- [4] Definition of doses and side effects
- [5] Issue licenses to traditional healers who meet set criteria
- [6] Provide treatment rooms within existing health facilities for traditional healers
- [7] Run training courses for traditional healers in the basics of Western medicine
- [8] Run training courses for Western practitioners in the basics of traditional medicine
- [9] Develop a referral system between Western and traditional practitioners
- [10] Provide payment for recognized traditional healers
- [11] Other SPECIFY _____
- [12] Don't know
- [13] Don't think an integrated system should be established

14 Would you like to have a better understanding of Western medicine? (or if talking to a Western health care provider, traditional medicine) [1] Yes GO TO 14a [2] No GO TO 15

14a How could this be achieved?

15 These are all the questions I have, but is there anything else you want to tell me about health care services in this area or traditional medicine? Or, is there anything we haven't talked about that you think is important?

THANK YOU FOR YOUR TIME AND FOR THE INFORMATION YOU HAVE PROVIDED

Appendix 15: Draft National Policy on Traditional Medicine for Papua New Guinea



MINISTRY OF HEALTH

National Policy On Traditional Medicine

For

Papua New Guinea

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Foreword

It is with great pleasure that I introduce this new National Policy on Traditional Medicine for Papua New Guinea, which the government has approved for implementation. This is the first time Papua New Guinea has had a comprehensive national policy on traditional medicine.

The goal of our National Health Plan is to improve the health of all Papua New Guineans through the development of a health system that is responsive, effective, affordable, acceptable and accessible to majority of the people. The National Policy on Traditional Medicine will contribute to achieving this goal by promoting improved access to safe and effective traditional medicine by 2010.

Traditional medicine can be an important component of our primary health care system. Primary health care requires the utilization of all appropriate and available local resources, including traditional medicine and its practitioners. Traditional healers represent a valuable human resource. The role of these practitioners and their integration as primary health care providers needs to be explored.

Before the advent of western medicine, this country sustained its health on local herbs and other forms of curatives. These resources still exist but have unfortunately been relegated to the background in deference to modern medicine and imported modern drugs. We must closely inspect our traditional medical knowledge. Our traditional medicine practices may lack scientific approach. But I believe that some of these traditional practices can be uplifted and integrated in a credible form in the national health care system. This requires research and development efforts in our traditional medicine, particularly medicinal plants. Such efforts have reduced the health bill in other countries and can do the same in PNG.

We have entered the new millennium with many prevailing health challenges but these challenges provide an opportunity for the nation to look closely and harness its own resources. We must not lose what we have but instead build and improve on it. Traditional medicine is part of our culture, tradition and a wider belief system. Not all elements of our traditional medicine may be beneficial. Some in fact may be harmful. This is why a critical examination is needed, and selection of only safe, effective and proven medicines is called for. I believe that traditional medicine, as part of the primary health care program, will provide a positive impact and wider health coverage for our population.

MELCHIOR PEP MP
Minister for Health

Acknowledgement

It would not have been possible to develop the National Policy on Traditional Medicine without the involvement and enthusiasm of the various interest groups including traditional medicine practitioners, manufacturers of herbal products, academics, students, administrators, planners, and other stakeholders who met to consider how our own indigenous knowledge could be used for treating diseases and maintaining health during a 3 day workshop in July 2004.

The Department of Health especially wishes to thank Dr Prem Rai for his untiring commitment and tremendous contribution to the development of this policy.

Special thanks are also due to Senior Executive Management of the Department of Health for their technical input, advice and guidance.

Definition Of Traditional Medicine

Traditional medicine refers to pre-Western health practices, approaches, knowledge and beliefs incorporating plants, animals and mineral based medicines, including spiritual therapies, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. Traditional medicine is a cultural heritage of the people of Papua New Guinea and it employs practices that are passed on verbally from generation to generation of healer in the family. Its acceptance by people receiving care is also inherited from generation to generation. Herbal medicine constitutes the major part of traditional medicine.

CHAPTER 1

BACKGROUND

Traditional medicine (TRM) is widely used and of rapid growing economic importance globally. The use of TRM is popular and very much part of the lives of local communities throughout Papua New Guinea (PNG). Although no official data exist it is estimated that TRM accounts for almost half of all health care delivered in the country. It is the only form of health care available in some remote parts of the country. The knowledge of traditional medicine is passed on from many generations verbally, and mostly to family members. Some traditional medicine practices are unique and of cultural significance. There is need to safeguard it, as it is a national heritage. In some areas TRM knowledge is still kept secret and cannot be released or shared easily. In general, there is good awareness but there is also a strong perception that TRM is not being utilized to its full potential.

1.1 Regional and Historical Context

The World Health Organisation (WHO) has addressed the importance of traditional medicine within the health care system of Member States via various resolutions. At the regional level, Pacific Island countries have reiterated and reaffirmed their support of the use of TRM. The Apia Action Plan on Traditional Medicine for Pacific Island Countries (Apia Action Plan 2000), of which PNG is a signatory, covers a wide range of issues relevant to TRM, including a call for national policy and provides various options for meeting the different health care situations of Pacific island countries. As many as 14 countries in the Western Pacific Region have national policy on traditional medicine and have achieved improved health care systems.

1.2 Need For And Intent Of Policy

While the potential of traditional medical practices to complement health care is acknowledged, it is important that major challenges facing the development of TRM in PNG are addressed as priority. These challenges include insufficient documentation of traditional medicines and practices, lack of national policy and legislation, lack of relevant and coordinated research into herbal medicine and therapeutic benefits, and lack of public information about traditional medicine.

In a highly significant move, the Government of Papua New Guinea has included traditional medicine as a program activity in its current National Health Plan (2001-2010) and a number of measures have already been initiated. Still there is need to ensure sustained government commitment in the direction, action and provision of financial and other resources. Promulgation and enactment of a national policy on traditional medicine is thus timely. Such a policy would provide a sound basis for defining the role of traditional medicine in national health care delivery, ensuring that the necessary regulatory and legal mechanisms are created for promoting, maintaining and development of TRM, and that the authenticity, safety, efficacy, quality and rational use of therapies are assured. Besides enabling wider health coverage, introduction of TRM into primary health care will reduce government medical expenditures. This is important at a time of severe financial constraints the country is facing, particularly in terms of the funds available for purchase of modern drugs and medical supplies, and for providing human resources to health centres and aid posts.

The policy on traditional medicine has sought to identify challenges, priorities, policies, and strategic actions necessary to achieve the primary objective of providing improved access to safe and effective traditional medicine and practices to a majority of people in PNG.

1.3 Audience

This policy is intended to guide the development and use of traditional medicine throughout Papua New Guinea. It is anticipated that not only government but also partners (traditional medicine practitioners, manufacturers of herbal products, academics, students, and other stakeholders) who are involved in TRM and health service delivery will uphold the principles outlined in this policy. This includes both government and non-government sectors at national, provincial, district and community levels.

CHAPTER 2

POLICY CONTEXT AND DIRECTION

2.1 Core Government Commitments and Policies

This policy is in line with the following core Government commitments and policies:

- *PNG Constitution* (1975)
- *Organic Law for Provincial and Local Level Governments* (Department of Provincial and Local Level Government Affairs, November 1998)
- *National Health Plan 2001 – 2010*, (Ministry of Health, August 2000)
- *Minimum Standards for Districts Health Services in Papua New Guinea*, (Ministry of Health, May 2001)
- *Draft Policy on Partnerships in Health*, (Ministry of Health, 2002)
- *Village Health Volunteers Policy*, (National Department of Health, July 2000)

2.2 Policy Goal

The goal of this Traditional Medicine Policy is to improve the health of Papua New Guineans by providing easy access to safe and effective forms of traditional medicine and practices as part of the national health care system.

2.3 Policy Objective

The objectives of the Traditional Medicine Policy are to:

1. To improve the quality and delivery of health services to the people of Papua New Guinea
2. To further develop traditional medicine
3. To incorporate traditional medicine into the **primary health care**

2.4 Policy Principles

The Government recognises the role of traditional medicine as an essential and valuable component of the peoples' cultures, beliefs and knowledge and is committed to improving the health of Papua New Guineans by promoting, developing and providing easy access to safe and effective forms of traditional medicine and practices.

TRM is already contributing to the health care in a significant way. Traditional medicine shall complement or supplement the official health delivery system and will be specifically targeted to meet the health needs of rural communities. It is envisioned that the implementation of the national policy on TRM, shall contribute positively to an improvement in health standards of people of Papua New Guinea. Furthermore, integration of traditional medicine into the national health system will enable the two systems to work effectively together, to the benefit of the government, providers, patients and consumers.

Witchcraft, sorcery or related dangerous and evasive practices will not be recognised as part of legitimate traditional medicine and will not be incorporated into the formal health care system.

CHAPTER 3

STRATEGIES

3.1 Roles of Government

- 3.1.1 Establish a Traditional Medicine Task Force to co-ordinate, promote and oversee activities associated with traditional medicine.
- 3.1.2 Establish a unit or a centre for traditional medicine to serve as a national focal point, coordinating and leading body for traditional medicine in the country.
- 3.1.3 Develop national policies, action plans, standards and legislation for traditional medicine particularly for its use in primary health care delivery system.
- 3.1.4 Develop relevant capacity in the Department of Health for the effective implementation of the Policy on Traditional Medicine.
- 3.1.5 Provide funding and resources for the sustained development and implementation of the action plan on traditional medicine.
- 3.1.6 Monitor and evaluate regularly the performance and achievements of the National Policy on Traditional Medicine through updating of legislation.
- 3.1.7 Ensure full implementation of the TRM Policy through appropriate legislation.

3.2 Traditional medicine advocacy

- 3.2.1 Raise public awareness on traditional medicine by education and information dissemination.
- 3.2.2 Promulgate a nationwide campaign to boost support for the realization of objectives of this Policy and encourage and seek participation of non-government organizations in traditional health care and health-related projects.
- 3.2.3 Establish measures that will ensure a respect of the value system of traditional medicine and enhance the profile of traditional medicine practitioners and the profession.

3.3 Documentation and inventory

- 3.3.1 Undertake a nationwide survey and documentation of traditional medicines and remedies.
- 3.3.2 Establish a national electronic database on traditional medicine, commonly used herbal remedies, and medicinal plants.

3.4 Traditional medicine practitioners

- 3.4.1 Develop a database on traditional practitioners.
- 3.4.2 Encourage TMPs to form professional societies or associations in their respective districts and provinces in order to provide for effective liaison with Government and other bodies as well as professional and personal interactions within and outside and to work as lobby groups.
- 3.4.3 Enact measures to recognise, accept and integrate TMPs as members of the primary health care providers and strengthen cooperation between TMPs and other community health workers.
- 3.4.4 Mobilise TMPs as community health providers where appropriate.

3.5 Code of ethics and /or practices

- 3.5.1 Formulate a code of ethics and standards for the practice of traditional medicine for approval and adoption by the appropriate professional and government agencies.

3.6 Research, education and training

- 3.6.1 Promote and monitor research into development of herbal medicine.
- 3.6.2 Develop guidelines and training materials for traditional healers in basic medical techniques and procedures, and improve traditional healers' knowledge of and skills in primary health care.
- 3.6.3 Identify and select a group of herbal medicines for promotion and use based on the sound evidence of safety, efficacy and cost-effectiveness.
- 3.6.4 Develop educational and information materials on traditional medicine for use as self-care by consumers.

3.7 Quality control and regulatory measures

- 3.7.1 Establish regulatory systems for registration and quality assurance of finished herbal medicines. This exercise is to be carried out in cooperation and partnership with Medical and Pharmaceutical Supplies of the National Department of Health.
- 3.7.2 Establish technical guidelines for ensuring the safety, efficacy and quality control for traditional herbal medicines, materials and products and mechanism for its implementation.

3.8 Conservation and cultivation of medicinal plants

- 3.8.1 Identify and initiate measures for conservation of endangered medicinal plants including cultivation of the wild-crafted and other species that are most commonly used and have been proven for their effectiveness in traditional medicine in PNG.

3.9 Intellectual property rights

It is recognized that traditional medicine knowledge is the property of individuals and communities where that knowledge originated. It shall be the policy of the State to seek a legally workable basis by which indigenous societies and traditional medicine practitioners (TMPs) would own their knowledge of traditional medicine. When outsiders use such knowledge, the indigenous communities and TMPs can require the permitted users to acknowledge its source and can demand a share of any financial return that may come from its authorized commercial use.

Therefore, the Policy seeks to:

- 3.9.1 Develop measures for protection of intellectual property rights (IPR) of practitioners, indigenous knowledge and sustainable use of medicinal plants and natural products.

CHAPTER 4

IMPLEMENTATION PLAN

- Program Priorities:
- ❑ Develop policies, standards and legislation
 - ❑ Establish a national electronic database on traditional medicine and medicinal plants
 - ❑ Improve public awareness
 - ❑ Promote research into and development of traditional herbal medicine
 - ❑ Improve staff knowledge and skills
 - ❑ Improve traditional healers' knowledge of and skills in primary health care

Objective	Strategy & Action	Indicators and Expected Outcomes
1.1 To integrate traditional medicine into primary health care of the National Health Care System.	<p>Establish a traditional medicine task force to coordinate, promote and oversee activities associated with traditional medicine.</p> <p>Task force to initiate and undertake measures necessary to achieve the primary objective.</p>	<p>Formation of task force.</p> <p>Officer designated to lead the task force.</p> <p>Functioning task force.</p>
1.2 To develop a national policy on traditional medicine.	<p>Systematic review on the status of traditional medicine in the country.</p> <p>Draft the policy.</p> <p>Policy revision.</p> <p>Develop national policy and legislation</p>	<p>The Government accepts the proposal to develop a National Policy on TRM.</p> <p>Review done based on TRM survey reports from different parts of the country.</p> <p>A Government policy on traditional medicine is formulated.</p> <p>Completion of review policies.</p> <p>Standards, legislation.</p> <p>Increased government support for TRM through comprehensive national policies on TRM.</p>
1.3 To implement the National Policy on traditional medicine.	Social & Mental Health Division (NDOH) assigned the responsibility for implementation of the policy.	<p>Funds allocation for TRM program.</p> <p>Detailed action plan developed to ensure TRM is used properly and makes its contribution to national health goals through implementation of the policy on traditional medicine.</p>

Objective	Strategy & Action	Indicators and Expected Outcomes
	<p>Allocation of funds.</p> <p>Implementation action.</p>	
<p>1.4 To create a traditional medicine unit/centre in the Ministry of Health.</p>	<p>Establish a traditional medicine unit to serve as a national focal point, coordinating and leading body for traditional medicine in the country.</p>	<p>Unit set up.</p> <p>Staff designated to manage the unit.</p> <p>Serving as information and documentation centre and providing service to TMPs, health workers, public, stakeholders and other users.</p> <p>Regular reports.</p>
<p>1.5. To have improved access to safe and effective traditional medicine and practices.</p>	<p>Conduct survey on traditional medicine practice throughout the country.</p> <p>Conduct workshop and consultancy.</p> <p>Develop and support implementation of technical guidelines for ensuring the safety, efficacy and quality control of herbal medicines.</p>	<p>Development of questionnaire and modalities of conducting survey on TRM.</p> <p>Number of surveys completed.</p> <p>Number of traditional practices officially recognised and promoted as safe and effective.</p> <p>Proportion of practitioners trained in the use of safe and effective traditional herbal remedies.</p> <p>Number of workshops completed.</p> <p>Reports from workshop & consultant.</p> <p>Survey completed in time.</p> <p>Availability of electronic database on traditional medicine.</p> <p>Technical guidelines for evaluating safety, efficacy, and quality of herbal medicines ready and being promoted.</p>
<p>1.6 To develop an electronic database on traditional medicine, medicinal plants and traditional practitioners.</p>	<p>Availability of continuously updated database with data from students, foreign researchers and national institutions (FRI, NRI, NARI, DEC, IMR etc.)</p>	<p>Reports/</p>

Objective	Strategy & Action	Indicators and Expected Outcomes
1.7 To develop guidelines and training materials for traditional healers in basic medical techniques and procedures required in primary health care delivery.	<p>Guideline developed.</p> <p>Developed training materials.</p> <p>Recruit participants.</p> <p>Conduct the training.</p> <p>Follow up after completion of training</p> <p>Develop guidelines for health workers.</p>	<p>Number of workshops, continuing education sessions, or consultations held with funding from NGOs, government, private or international organizations.</p> <p>Certification of training</p> <p>Increased standards of practice.</p> <p>Number of traditional healers trained in basic medical techniques and procedures.</p>
1.8 To develop guidelines and training materials for Health Workers to use safe traditional and herbal remedies and to promote their safe use.	<p>Develop training material for health workers in the safe use of traditional herbal medicine.</p> <p>Training the health workers in the safe use of traditional herbal medicine.</p>	<p>Training sessions</p> <p>Workshops</p> <p>Number of health workers trained.</p>
1.9 To promote safe traditional medicine practice.	<p>Health Promotion Branch (NDOH) increases public awareness about TRM and in the safe and unsafe TRM practices through pamphlets, posters and other means.</p>	<p>Reports, pamphlets and information booklets published and distributed.</p>
1.10 To explore potential contribution of scientifically proven traditional herbal medicine.	<p>Using existing scientific information and research outcomes.</p> <p>Information exchange.</p> <p>Promoting research on traditional herbal medicine.</p>	<p>Increased awareness and utilization by the population of scientifically proven traditional medicine.</p> <p>Holding exhibits or conferences in TRM.</p> <p>Reports.</p> <p>Existing linkages with academic institutions and continuing research projects on traditional herbal medicine.</p>
1.11 To establish monitoring and evaluation system.	<p>Development of framework for monitoring and evaluation of TRM program.</p> <p>Review policies, Standards and legislation.</p>	<p>Reports.</p> <p>Review.</p> <p>Completion of review of policies, standards and legislation.</p>

Appendix 16: Nasioi Dictionary of Illnesses and Related Terms

NASIOI DICTIONARY OF ILLNESSES & RELATED TERMS

Febrile Illnesses

BORE BANA	<i>Headache</i>
DOMAANG O	<i>Asthma/Pneumonia</i>
DUTA SIIPA	<i>Sore Eyes</i>
EENU	<i>Bronchitis/whooping cough</i>
ERENG PIRI	<i>Dysentery</i>
KEERA	<i>Tuberculosis</i>
KEDE SIIPA	<i>Stomach Ache</i>
KOU	<i>Cough</i>
KUBIRI	<i>Diarrhoea</i>
MAANA	<i>Splenomegaly/Appendicitis</i>
MALARIA	<i>Malaria</i>
MOOMOO	<i>Swollen Glands</i>
PARI	<i>Malaria</i>
KOPINI/ PINSING SIIPA	<i>Back Ache</i>
PINTU	<i>Pelvic Inflammation/ UTI</i>
PUNKANG SIIPA	<i>Ear Ache</i>
SIIRA SIIPA	<i>Tooth Ache</i>
TARUMATE	<i>Miscarriage/haemorrhage</i>
UIEE	<i>More Serious Malaria</i>

Skin Conditions

AAROA	<i>Grille/ringworm</i>
ATUATU	<i>Tinea (sores from dirty soil or mud)</i>
BIRENG KA KA RA	<i>Colourless/pale/white nails</i>
BOROBORO/ BIRUUTO	<i>Wart</i>
DATOO	<i>Cuts</i>
ERENG KOING	<i>High blood pressure</i>
EREPU	<i>Leprosy</i>
KAAKEPESI	<i>Eczema</i>
KANEMOOTA	<i>Rash/itch/allergy</i>
KASI KASI	<i>Scabies</i>
KITEI	<i>Sores caused by head lice</i>
KOKOSI	<i>White spot</i>
MAMATA	<i>White wart</i>
MOONA	<i>Boil</i>
NANAKA	<i>Ulcer</i>
NEEMUKUURI	<i>Rash/itch/allergy</i>
ORAMU	<i>Leprosy</i>
PENTA	<i>Sores</i>
PI SI	<i>Cracked heels</i>
SISISI	<i>Cellulitis</i>
TAMAI MOONA	<i>Boil with a head</i>
TURAA	<i>Wart/ papilloma</i>

Signs and Symptoms

A

AANA MASIKAA SISIKEERA
AANA UIPAARII
AASI DEEA/ AASI PAA
AMO DORENG

Severe pain
High temperature/ fever
Sleeplessness/ insomnia
Swollen cheek/ mumps

B

BABANG
BABANG ERENG NINGKA
BABANG TUBUNANG
BABANG TUVUI OTO
BAKENG KAPANG
BAKENG KEMPO
BAKENG KURURUU
BAKENG MERAA
BAKENG SISIKEERA
BAKENG TAITAI
BANANG DEA
BANANGKO PORE
BANANG PAA
BABATORI/ BANKOVANKO
BARIUMAUNG PISIKE TARAA
OMAING
BEEA DETO NANU PAA
BEEAE DETO NANUKO DOMANG
APUKA
BERUU MERAA
BERENGKO MEU PENTA
BERUKO PORE/ BERUKO PAA
BETU SISIKEERA
BIIOMAUNG
BIIO MAAUMAUNG
BIRENG KABA'ARAMAUNG
BIRENG KABAA UMAUNG
BIRENG MERAA MERAA
BIRENG OTOAUKANUNG
BISI SISIKEERA
BOKI TOKAA
BORE KANUKANU
BORE MANGKI
BORE PISI PINA MANTONG
BORE SISIKEERA
BORE TUU

Pus
Pus with blood
Exuding pus
Exuding pus continuously
Hard stomach
Bloated stomach
Rumbling stomach
Yellow stomach on outside
Stomach ache
Burning stomach
Cannot sit because of boil
Cannot sit
Cannot sit
Speaking incoherently
Swollen stomach bursts

Difficulty in walking up hills
Shortness of breath when walking up hills

Yellow lips
Sores between the fingers
Difficult to lie down
Joint pain
Eats away the skin
Eating away the flesh
Peeling fingernails
Fingernails fall off
Yellow finger nails
Fingernails disappear
Painful bottom
Bitter taste in throat
Temporarily psychologically affected
Heavy head
Head feels like it will break
Head ache
Head sticking up

D

DAAKO PORE	<i>Unable or difficult to rise or wake up</i>
DAMONG DAMONG	<i>Dirty/smoky appearance</i>
DANKU-RANKU	<i>Shaking/shivering</i>
DAUNA DOPAKO INGKOARAMAUNG	<i>Appears in layers</i>
DOMAANG DETO NARI/ AANA DUA	<i>Heavy breathing</i>
DOMAANG DUA PAA	<i>Shortness of breath/difficult to breathe</i>
DOMAANG KAROMANG	<i>Chesty cough</i>
DOMAANG PINKA-PINKA	<i>Stitch/ cramp or abdominal pain</i>
DOMAANG TAI-TAI SISIKEERA	<i>Stomach cramps</i>
DOMANG O	<i>Pneumonia/asthma</i>
DONGKONG PAA	<i>Cannot stand</i>
DOOVANG	<i>Epidemic (also refers to rainy season)</i>
DOPA PISIPISI	<i>Cracked skin</i>
DOPA TENG TENG	<i>Grille (ringworm)</i>
DOPA BABANG/ PABAA	<i>Pus in the skin</i>
DOPA ERENG	<i>Skin becomes red</i>
DOPA KAKARA	<i>White skin</i>
DORENG	<i>Swelling</i>
DORI ARI OTO	<i>Continuous itching/ scratching</i>
DORI DORI	<i>Severe itch</i>
DORI PIA	<i>Urge to scratch</i>
DORI PIA BOI OTO	<i>Continual urge to scratch</i>
DUA KE SISI	<i>Cannot withstand glare from sun</i>
DUPURUPUU	<i>Throbbing</i>
DUTA KABANG	<i>Pokes out the eyes</i>
DUTA KORO KORO	<i>Rolling eyes/ unable to focus/ dizziness</i>
DUTA MERA	<i>Yellow eyes</i>
DUTA PANTAING	<i>Sleep (in eyes)</i>
DUTA SIIPA	<i>Sore eyes</i>

E

EEUU	<i>Wheezing</i>
EREANA ARI OTO	<i>Irritable (small children)</i>
ERENG DUPU RUPU	<i>Feeling of high blood pressure</i>
ERENG KAU	<i>Racing blood flow</i>
ERENG KOING	<i>High blood pressure</i>
ERENG KOU NINGKA	<i>Cough with blood</i>
ERENG KURING	<i>Vomiting blood</i>
ERENG NINGKA URUBIAANG	<i>Watery liquid with blood</i>
ERENG OTO ENANG/ PING ERENG	<i>Blood in urine</i>
PONUNG	
ERENG TUBUNANG/ ERENG	<i>Exuding blood/ scratch to point of</i>
TABOKUNANG	<i>bleeding</i>

I

IRIRI

*Itchy/grass that causes an itch***K**

KAAKAPA

Scaly

KAAKEPESI/ TENGTENG

Peeling Skin

KA' APE ARAMAUNG

Scaly/peeling/peels off

KABEKAABE

Scaly skin

KABORORI TAVOKUNANG

Tender lymph nodes

KAMAARI

Cold

KAMPE ARAMAUNG/ KAKAN

Crawling

NUMAUNG

KAMUNO SIIPA

Sick in the afternoon

KANEMOOTA

Bruise/lump

KANTE SISIKEERA

Pain in the waist/hips

KARA TOTO-TOTO

Disjointed speech/incoherent

KARU TOTO PUING

Broken veins

KATE KATE

Burning sensation

KAU ABE

Crippled/twisted/bent legs

KAU ARUARU

Weak legs

KAU DORENG

Swollen legs

KAU KAI PAA

Unable to bend legs

KAU MARE

Twisted legs

KAU OKINA/ KAUINSI

Wasted legs

KAU KONG BIRENG PANTAI

Toes stuck together with pus

PAKEPAKE

KAU SISIKEERA

Pain in the legs

KAU TARUA

Weak legs

KAU TOTO

Cut legs

KEDEE ARAMAUNG

Peeling

KEERA DENGPARAMAUNG

TB/becomes TB

KENI RONG/ NUANG EREMPOING

Blood nose

KEDE KEMPO/ POURII

Swollen stomach

KEDE KURURI

Rumbling stomach

KEDE ORARUKUI

Stomach upset

KEDE POOVANG

Swollen or distended abdomen

KEDE SISIKEERA

Stomach ache

KEDE SISIKEERA ERENG PIRI UMA

Stomach ache while excreting blood

KEDE SISIKEERA TAMANG NUMA

Stomach pain while eating

KEDE TAI-TAI

Stomach cramps

KING KING KO MAKOTUA

Cannot bend down

KO BASI UINAUNG/ ARING

Dislocated bones

KO BASI UKOO (PRESENT TENSE)

Dislocated bones

KO BASI UMAING

Eats into the flesh and exposes the bone, separates the bones

KO BASIKE	<i>Eats into the flesh and exposes the bone</i>
KO SIIPA	<i>Arthritis/aching bones</i>
KO SISIKEERA	<i>Aching bones</i>
KO TANGKAUMANG	<i>Skeletal</i>
KOOKA KO BAVANG OTONG	<i>Pus in genitalia</i>
KOOKA SISIKEERA	<i>Pain in the genitalia</i>
KOU	<i>Cough</i>
KOU AARI OTO	<i>Continuous coughing</i>
KOU ERENG PONUNG	<i>Cough with blood</i>
KOU MERA	<i>Yellow sputum</i>
KOUKO EETO	<i>Unable to cough/expectorate</i>
KUBIRI	<i>Diarrhoea</i>
KUBIRI KETA ERENG PIRI/ KUBIRI	<i>Diarrhoea with blood</i>
ERENG NING/ ERENG PIRI	
KUBIRI NTONG NTONG	<i>Watery stool</i>
KUBIRI OI OTO	<i>Continuous diarrhoea</i>
KUNG NAROKE TAI	<i>Eats from the inside</i>
KUNG PENTA	<i>Internal sore</i>
KUREE MAKUKAU	<i>Head/ scalp peels</i>
KURINA	<i>Vomiting</i>
KURING PINA DENG POMAATOONANG	<i>Nauseous</i>
KUUROORO/ PURORO	<i>Dizzy/ disoriented</i>

M

MAAKO PIABOAUKA/ MONO TEE OTOI	<i>Not interested in good food (retarded growth)</i>
MAANA	<i>Swollen spleen/appendix</i>
MAANG ERENG NARUNG	<i>Bloody stool</i>
MAANG ERENG PONUNG	<i>Blood in stool</i>
MAANG MERA	<i>Yellow stool</i>
MAANG NINKA ERENG	<i>Blood in stool</i>
MAANG NTONG NTONG	<i>Watery stool</i>
MAANG OKINA PIRIUNANG	<i>Excreting small stools</i>
MAANG PETE PETE	<i>Watery stool</i>
MAINANG SISIKERA	<i>Heart burn</i>
MATODANG SISIKEERA	<i>Pain in one side associated with pneumonia or spleen</i>
MEMENG	<i>Runny nose</i>
MEMENG NINGKA	<i>With phlegm</i>
MING KAI PAA	<i>Difficulty in bending knees</i>
MING SISIKEERA	<i>Knee pain/arthritis</i>
MINIMINING	<i>Wrinkles</i>
MINTUNG PENTA	<i>Intestinal sores</i>
MONO ARANAUG	<i>Pale body</i>
MONO ARUARU	<i>Weak body</i>
MONO DORENG	<i>Swollen body</i>

MONO ETO	<i>Jerking body back and forth</i>
MONO NSI	<i>Weight loss</i>
MONO KAI	<i>Inwardly curled body</i>
MONO KAIANTA/ KAINI	<i>Curled/crippled body</i>
MONO KAI DUNANG [FUTURE TENSE]	<i>Curled/crippled body</i>
MONO KAIANTA	<i>Curled/crippled fingers</i>
MONO KORERE	<i>Lethargy</i>
MONO KURAKUURA	<i>Loss of appetite</i>
MONO MIMINGKI ORAKA ORO	<i>Unsightly weight loss/skeletal appearance</i>
MONO MINI	<i>Crippled/twisted body</i>
MONO OKINA ANTA	<i>Loss of weight</i>
MONO OKINAPARANANG	<i>Body atrophies</i>
MONO ORAKA MANTONG	<i>Body feels unwell</i>
MONO ORAKA ORO	<i>Ugly body/unsightly appearance</i>
MONO PENTA E TAI	<i>Eats up the body/sores eat up the body</i>
MONO SIPUKAU	<i>Dusty body</i>
MONO SISIKEERA	<i>Aching body</i>
MONO TAMPA ORO DEEA	<i>Sickly looking</i>
MONO TOTO DUPEU	<i>Part of body falls off/ cuts part of body</i>
MONO-INSI	<i>Weight loss</i>
MOOMOO	<i>Swollen glands in neck</i>
MOOSIING	<i>Pimple</i>
N	
NAMUKE POO	<i>Satisfied with small amounts of food</i>
NANU PAA	<i>Unable to walk</i>
NERAKA-SIRA DUPUMA SISIKERA	<i>Pain from teething</i>
NONANG KEVE	<i>Severe heart burn</i>
NTAAKO, DUAKO OTOI OTO PIA	<i>Wants to stay near the fire/in the sun</i>
NTONG NAIUI OTO	<i>Thirstiness/continuously drinking water</i>
NUANG MAAUNANG	<i>Eats out the nose</i>
NUKING NUKING SISIKERA	<i>Chest pain</i>
NUMPONG	<i>Smell/odour</i>
NUNG PONG PONG/ NUMPONG	<i>Foul odour</i>
NUMPONG	
NURAA	<i>Smell</i>
O	
OING ORAKA ORO	<i>Sickly looking/ugly face</i>
OING SIPUNG	<i>Dusty/ fungus on the face</i>
OKINA BORU-KIKI	<i>Little snakes/germs</i>
ORAKA KAMI	<i>Bad/ nasty smell</i>
ORAKA MONO MANTONG	<i>Unwell</i>
ORAKA NURAA	<i>Bad odour</i>
ORAKA OTOANTA	<i>To make it look ugly/bad</i>

P

PABA BOBANG PUMA	<i>Exuding pus</i>
PABAPABARA	<i>Blisters</i>
PANSI PENTA KO BEROMA	<i>Lice eat out sores (refers to kitei)</i>
MADAMAMTOONANG	
PANTAI KEMEUMANG	<i>Split toes from sores</i>
PENTA	<i>Sore</i>
PENTA ANTA/ TAVOANTA	<i>Sores develop from scratching</i>
DORIARAMA	
PENTA ERENG PONG KARUETA	<i>Open sore squirting out blood from arteries</i>
SIKIRIRI UMAUNG	<i>Bloody sore</i>
PENTA ERENG PONUNG	<i>Big sore</i>
PENTA PANKAING	<i>Sores open and exude pus</i>
PENTA TARAPARAMA	<i>Internal sores/cancer</i>
PENTA KUNGE	<i>Burning when urinating</i>
PING OTOUMA KATEKATE OAING	<i>Yellow urine</i>
PING MERAA	<i>Blood in urine</i>
PING NINGKA ERENG OTO	<i>Continuous urinating</i>
PING OTOU I OTO/ PINTUU	<i>Burning sensation when urinating</i>
PING OTOUMA SISIKEERA	<i>Anal pain</i>
PIRIKUU SISIKEERA E	<i>Cracked skin</i>
PISI PISI	<i>Pimple</i>
PONIPONI	<i>Little sores</i>
PONTO PONTOBAA	<i>Unable to do anything due to illness</i>
PONTUNG	<i>Numbness</i>
PORURU	<i>Bumpy</i>
POSIPOSI	<i>Seasonal fever from flowering fruit trees</i>
PUARA-KONG SIIPA	<i>Swollen ear</i>
PUNKANG-NAA DORENG	

S

SIKENG	<i>Sneezing</i>
SISIKERA	<i>Pain</i>
SISIKERA KOPINIKOO/ KOPINI	<i>Back ache</i>
SISIKERA	
SISKEERA MANTONG DEA	<i>Cannot feel pain/numbness</i>

T

TAMANG NAI PAA	<i>Loss of appetite</i>
TAMANG TAMPA NAI DEA	<i>Not eating properly</i>
TAMANG KERENG	<i>Abstain from certain foods</i>
TAMPA MINGKU DEA	<i>Stutter</i>
TANGKA KAI	<i>Bent or twisted hands</i>
TANGKA MARE	<i>Twists hands</i>
TANGKA MERAA	<i>Yellow hands/arms</i>

TANGKA TOBORO PAA	<i>Unable to stretch hands/arms</i>
TANGKA TOTO	<i>Amputated hands/arms</i>
TARING TARING MUNGA/ TADINUI DA	<i>Wake up in sudden fright</i>
TARUMATE	<i>Haemorrhaging</i>
TENGTENG ARAMAUNG	<i>Flaky</i>
TOTO ONKOARAKO	<i>Morning sickness</i>
TURUNG KERERE	<i>Stiffness</i>
TUNSI KERERE	<i>Hoarse</i>
TUNSI PENTA	<i>Sore throat</i>
TUTUPAA	<i>Spitting</i>
TUTUPAA ERENG PONUNG	<i>Spitting blood</i>
TUTUPAA NARUNGKO	<i>Constant spitting</i>
OTOMATOONANG	

U

UAANG DERAKE/ DERA	<i>Bad breath</i>
UIPAARI IONTA	<i>Hot and sweaty</i>
UIPAARII	<i>Hot</i>
URU BIAANG	<i>Watery blister</i>
URUBIANG TUVUI OTO	<i>Continuous watery blister</i>

W

WAKA PAA	<i>Unable to perform physical work</i>
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Y

MONO IONTA	<i>Heavy sweating</i>
MONO IONTA OI OTO	<i>Continuous sweating</i>

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