The health crisis in the US associated Pacific islands: moving forward

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VIEWPOINTS AND PERSPECTIVES

Introduction

There are 440,000 people who live in six US associated island nations dotted along the western Pacific between Hawaii and the Philippines. The modern history of each of these nations is closely linked to United States (US) military history and occupation following World War II. In part, due to this relationship, the present day health situation among the indigenous populations reflects several decades of transition from self-sufficient traditional fishing cultures to more urban island communities which depend on US financial assistance for imported materials and food.

With proper planning and technical assistance, the living conditions in US Associated Pacific Islands can actually improve in the next decade even with decreasing financial aid. This is especially true of health, where most of the afflictions are preventable through education and training.

There are many humanistic reasons for focusing on health in this region including: the high proportion of children in the population, the sacrifices of these island inhabitants during World War II, the suffering of the Marshallese through atomic testing, and the political sovereignty that these people have yielded to the US in exchange for a better way of life. There are also compelling reasons that are in the self-interest of the United States.

Epidemiologically, the Pacific have become a springboard for tropical diseases making their way eastward from Asia to the US. Infectious diseases, like tuberculosis and human papilloma virus, can develop on the islands and remain undetected until they reach epidemic proportions. The constant migration of island populations and of military personnel stationed in the islands and in nearby Hawaii heighten the potential for serious consequences to the mainland US.

These island nations also offer our government a unique staging ground for developing new systems of health delivery over a widespread area in a physically challenging environment. These islands are ideal locations for developing computer systems to provide on-the-spot medical and technical assistance to health dispensaries since they already have inextricable ties with the US and an easily trainable English-speaking population.

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Economically, these islands cannot be underestimated. They represent a growing English-speaking labor supply of workers who have at least a half century of ties with the United States. While present US aid packages support much of the government activity in each jurisdiction, the amount of dollars returned through imports is a sizable percentage of each nation's trade balance.

Finally, the types of initiatives and programs recommended in this paper are cost-effective when measured in terms of their potential for preventing diseases, maintaining stability, and securing regional economic growth. This is especially true if preventive education and primary care become the focus of future economic assistance programs of the US Health and Human Service and the US Department of the Interior.

As a physician in New York City, I regularly see ailing children and I am continually reminded of the faces of countless boys and girls I met when I first arrived in Pohnpei State in the Federated States of Micronesia (FSM). For me, they are reasons enough to urge policy-makers to rethink our health-related assistance worldwide. We know better than to rubber-stamp programs which fail to address the epidemic proportions for Vitamin A deficiency among islands filled with coconuts. Similarly, we know now that nations with the

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highest rate of sexually transmitted disease have a dire need for AIDS education. We also understand that although sugar products were crucial in swaying a reluctant population to trust Americans during World War II, we have a responsibility today to help local physicians educate their children and reduce the highest rates of diabetes and tooth decay in the world.

In the end, the US is made better by choosing more effective health prevention programs. With the current trends to curb excessive spending, we will begin to satisfy the most budget conscious government restrictions while still helping those whose misfortunes force them to turn in our direction. I earnestly hope that the following paper offers a clear understanding of the health situation in this region of the world and that it will encourage policy makers to "rethink" in the appropriate manner. I hope it will also be useful for physicians facing similar obstacles in other regions of our country and the world.

The following is a brief overview of the salient features of each of these jurisdictions which will set the context for a discussion on issues that local governments face in delivering adequate healthcare to their populations.

Politics. The US Associated Pacific consist of more than two thousand one hundred islands that are spread over three million square miles of ocean. The islands, are divided into six political entities: American Samoa, Guam, the Commonwealth of the Northern Mariana Islands (CNMI), the FSM, the Republic of the Marshall Islands (RMI), and the Republic of Palau (ROP).

American Samoa, Guam and the CNMI are US territories that hold territorial or commonwealth status with the US. They are treated much like States with respect to their eligibility for and compliance to Federal programs.

The FSM, RMI and the ROP are "Freely Associated States". As such, they are completely self-governing nations which have abdicated authority for their defense to the US through a "compact". Prior to signing the Compacts, they were UN Trust Territories administered by the US and they were entitled to participate in US federal programs. Today, the extent of their eligibility for these programs has been limited by terms set up in their Compacts, and their funding for many programs will likely decrease significantly when their Compacts expire.

Geography. In total, the islands in all six jurisdictions have a total land mass of 919 square miles. They are spread out over an area of ocean as large as the continental US.

Table 1. Population of US Associated Pacific, 1994

Jurisdiction	Population
Guam	149,620
Federated States of Micronesia	120,347
American Samoa	54,760
The Marshall Islands	54,031
Northern Mariana Islands	49,799
Palau	16,366
Total	**426,923**

With the exception of Guam and American Samoa, most of the island entities are themselves distributed over large areas of ocean. This fragmentation has obvious implications on the ability of local governments to provide health care to its more remote populations. The RMI is perhaps the most dramatic example. Its total land area of 70 square miles is spread out over 750,000 square miles of ocean. The FSM consists of 271 square miles of land extending 1800 miles from east to west. ROP, which has a somewhat compact archipelago of main islands, nonetheless has jurisdiction over six smaller islands that reach 370 miles southward; and the CNMI stretch 400 miles from north to south.

Population. The population of the US Associated Pacific is estimated at 426,923 with a breakdown as seen on Table 1. Two particular features of the population are noteworthy. First, despite the large number of islands, most of the population in each jurisdiction live in urban centers which mimic the same crowding conditions as in any other developing country. In fact, the tiny island of Ebeye, in the Marshall Islands, is one of the most densely populated land masses in the world with the equivalent of 59,457 people per square mile (or four times that of Hong Kong).[2,3] In Palau, 70% of the people live in the capital city of Koror[3,4] and 90% of the population of the CNMI is concentrated on the island of Saipan.[4,5] This trend toward urbanization has been responsible for a number of health and social concerns including poor sanitation, inadequate housing, unstable food supply and substance abuse.

Second, in each of the jurisdictions, a near majority of the population are children (under 18 years of age). A rapid transition from subsistent agricultural and fishing societies to a more urban lifestyle has contributed to a breakdown in traditional family structures. The resultant increase in teenage pregnancy has led to high birthrates. In the Marshall Islands, 57% of the population are under 19 years of age[2]; in American Samoa, 44%[6]; and in the Northern Marianas, 36%[7]. The median age of Chamorros, the indigenous people of Guam, is 22.5[8]. And, in Micronesia, the majority of the population are under the age of fifteen.[4] In part due to their sheer numbers, children have become easy targets for medical and social neglect.

Culture. Though all the people share either Melanesian or Southeast Asian ancestry, there are several distinct cultures across the region which possess their own language and customs. While some of these cultures may stretch across

islands thousands of miles apart, the mere one hundred miles to the next island might lead to an entirely different culture and language. In some cases, cultural and linguistic differences even occur on the same island.

Most Pacific people until recently evolved in relative isolation with a common set of values based on the clan. Land ownership was passed down through a common ancestor. During the nineteenth and twentieth centuries, islanders were converted to Christian faiths brought to them by Western missionaries. With increased urbanization, the clan and the extended family are showing signs of disintegrating. In some extreme cases, like Ebeye, the Western churches today serve as the only center through which native culture is preserved.

History. Much of the information about early island society has been lost since most of the culture was carried down through oral tradition. Colonialism brought with it the gamut of European explorers, beginning with Magellan in 1521, and followed by the Russians, French, Germans and eventually the Japanese. During World War II, many of the Pacific Islands were the sites of some of the most dramatic and hard-fought battles. In the battle to take Kwajalein Atoll, in the Marshall Islands, the US dropped more munitions per square mile than in any other battle of the Pacific. An entire fleet of Japanese ships were sunk into the lagoon in Chuuk (the remains of which now serve as major source of tourist revenues from divers). From there, the US fleet took the CNMI, retook Guam (which was captured earlier in the war by the Japanese), and moved on to Palau. By 1945, the occupying forces of all of these islands had suddenly become American instead of Japanese.

Besides their role during the war, one set of these islands gained considerable notoriety for their role after the war. On July 1, 1946, "Operation Crossroads" began with the dropping of the first nuclear bomb on Bikini Atoll. For the next 12 years, 66 nuclear tests on Bikini and Enewetok, in the Marshall Islands, would leave many of the nearby inhabitants victims of radiation poisoning. While the contents of this report will focus on health concerns that are general to the entire region, the case of Bikini exemplifies the presence of some problems that are unique to a given region.

US Role in Healthcare. For the decades following the war, the US role as administrator over the islands had direct consequences on present-day services. While the US has been instrumental in building facilities, improving health infrastructure, and executing immunization programs, many of these goals were carried out under a policy that promoted dependence rather than self-sufficiency. This policy has left the indigenous population with little training, resources, or income-producing activity to continue beyond the duration set up by specific block grants. Since the focus of many of these grants is targeted to meet specific objectives established by federal guidelines in Washington, adherence to them has contributed to a drain of resources away from more comprehensive planning and primary health care.

Today, the health capacity in each of the jurisdictions varies with the extent of its political relationship with the US. Guam is the most advanced with facilities which include a modern hospital, a mental health facility, several health centers and group medical clinics. In the CNMI, the situation is more of a mixture with facilities similar to Guam but with less modern dispensaries. Palau has just completed building a new medical facility which should improve their capacity for providing adequate healthcare, yet many parts of the nation outside of the capital of Koror will continue to rely on older and more decrepit dispensaries. In America Samoa, the hospital is very rundown and under-supplied. In the FSM and the RMI, hospitals are generally old and overburdened with shortages in staff and supplies[10].

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Despite the disparities, the health situation across the US Associated Pacific need attention in general. With phenomenal population growth, geographic disparity, large proportions of children, financial burden, the threat of easily spread epidemics, and an imminent decrease in US support, island leaders feel a deep-seeded commitment toward projects that foster collaboration and ward off potential healthcare problems.

The situation of healthcare in the US Associated Pacific merits the description, "crisis", because large numbers of island residents, particularly children, run abnormally high risk of contracting diseases which will dramatically shorten their lives. This situation will worsen as the present health system confronts continued financial problems, staffing shortages, inadequate facilities, and a lack of long-term integrated planning. Any appropriate discussion of the present crisis must begin with an analysis of each of these dilemmas and their relevance to the region.

Financial. Despite a population that will double in the next twenty years, little real growth in health care expenditure is expected across the region[10]. In the jurisdictions with com-

pact funds from the US, the per capita spending might even decrease in the near future. In addition to the financial loss, there is a constant loss of productivity due to the time and energy that must be spent identifying or reapplying for grants under the latest federal provisions. The health ministers have almost unanimously expressed a need for technical assistance in filing applications for programs currently classified under Section 330 statutes of the US Public Health Service to their new designation as Section 301 programs. They also relayed their concerns that many of the funding statutes, in general, contain requirements established in Washington that do not adequately address jurisdictional needs.

Even for the three entities that are currently eligible for Medicare and Medicaid programs — the CNMI, American Samoa and Guam — the federal government has imposed a ceiling for their share of the reimbursements. As a result, as much as 85% of the total costs of these programs has fallen back on the shoulders of the local governments.

Thus, it is safe to conclude that the annual per capita health budget of each of the jurisdictions in Table 2 will not change dramatically in the future.[9]

Table 2. Annual per capita health expenditure, by jurisdiction

Jurisdiction	Health expenditure, per capita
Northern Mariana Islands	$581
Guam	$409
American Samoa	$258
Palau	$244
The Marshall Islands	$160
Federated States of Micronesia	$59
Average	**$285**

A further reason that the financial situation is so overburdening across the US Associated Pacific Islands is the lack of insurance coverage and private cost sharing by local employers. In some areas, as much as 70% of the adult population is employed by the local government. Much of the reasons for the widespread dependency on local entitlement programs are tied to the US role of cultivating this dependency through categorical and block grants over the past four decades. Consequently, elected leaders do not want to be in the position of being spoilers by revamping a highly popular feature of their welfare state. This point is, perhaps, best illustrated by the American Samoa Government. With a legally binding commitment to universal access to healthcare for residents and non-residents at a cost as low as $7.50 per day for inpatient care, the government-run hospital has incurred a debt of 4 million dollars from off-island medical referrals[11]. Still, proposals calling for more cost sharing and revenue-generating activities have not even received public debate by elected government leaders.

Another financial burden for the islands is their reliance upon medical evacuations and off-island referrals. Because laboratory support is poor in all of the entities other than Guam and the CNMI, many referrals stem from the simple need to get an accurate diagnosis. In 1991, the American Samoa Government spent 22% of its health budget to send 1% of its population to facilities in Guam and Hawaii[12]. The burden posed by travel is no less taxing within a jurisdiction. For example, a severe medical emergency in Ujelang atoll in the Marshall Islands necessitates travel to the government hospital 750 miles away in Majuro.

In summary, even in the general acute care hospital in Guam, the region's most advanced island, there are severe financial restraints. By statute, Guam's hospital must treat any person regardless of their ability to pay. Even with a widespread insurance program that covers 70% of the population, government subsidies still account for 20% of the hospital's budget[8]. This problem is compounded further by the hospital's unique status in the region; an increasing number of patients are coming to Guam from other neighboring jurisdictions in search of better healthcare. Thus, in the long-run, the failure of neighboring countries to more adequately meet local health needs will serve only to exacerbate this trend and its economic implications for the health budget in Guam.

Staffing. The shortage of staffing does not simply comprise the need for more physicians. Throughout the US Associated Pacific, there is need for hospital administrators, nurses, pharmacists, laboratory technicians, and anesthesiologists. Because of the heavy burdens posed on present healthcare workers, staffing shortages have contributed to the inability of regions to successfully launch curative and preventive medical services, the failure of islands to curb epidemics, and the ongoing reliance on off-island referrals. In the Marshall Islands, there are only 20 physicians and 1 registered nurse (RN). In American Samoa, the hospital is short by 10 physicians and 40 RN's and has been forced to rely on health workers contracted from the US. In Guam, where the physician to patient ratio is 1:2940, the waiting time at most public health clinics is 4 weeks. Without the Pacific Basin Medical Officer Training Program (PBMOTP) providing trained health care workers a large portion of the population's health needs in these jurisdictions would go unattended.

What staff do exist range in expertise from high school graduates to indigenous medical staff trained in the US. For the most part, these nations find it difficult to persuade the trained staff to return to their homelands, so their numbers are few. PBMOTP will graduate about 70 doctors and community health physicians in 1997. Yet, there are no follow-up programs for Medical Officers to become specialized and there are no graduate training programs for nurses in the region. In addition, the lack of a uniform licensure procedure for staff is clearly retarding the ability of hospitals to maintain

even basic quality control. Fortunately, there has been some effort in postgraduate training and licensure.

The staffing situation is further complicated by a lack of specialists. The inability of primary care physicians and nurses to respond to certain illnesses furthers their reliance on costly off-island referrals. Despite the specialty services that are offered in Guam's largest hospital, referrals must still be made for cardiovascular, neurological, gastrointestinal and respiratory disorders. In many cases, even the laboratory samples must be referred to Hawaii for analysis. This delay is often costly in terms of the efficacy of the eventual treatment and the ability to curb the spread of disease. Recent efforts, including the Association of State and Territorial Public Health Laboratory Directors Project (ASTPHLD) have helped to train technicians, but the islands remain deficient in staff who are competent in pathologic detection and oversight. In addition to these staff shortages, the islands are in dire need of equipment for testing at local laboratories[24].

Facilities. Facilities suffer from either a lack of upkeep, a lack of standards, or their inaccessibility to large segments of the population. The Lyndon B. Johnson Hospital in American Samoa has not met significant health and safety standards and is currently receiving technical assistance for management training from the Department of the Interior. Several other regional hospitals are in poor condition; most notably the hospitals in the Marshall Islands, and in the states of Chuuk, Pohnpei and Kosrae, in the FSM. In many of the healthcare facilities, supplies go unordered due to a lack of supervision or finances. The most auspicious efforts to date have been made by hospital administrators in Guam, who are currently making improvements in order to comply with Health Care Finance Administration regulations and become accredited by the Joint Commission on Accreditation of Hospitals.

Even with quality control standards, half of the population of the Marshall Islands and American Samoa will still remain outside of the reach of major healthcare facilities.[16] In Palau and the FSM, almost 30% of the population do not have access to major facilities. The Marshall Islands, Palau, and FSM have tried to solve some of these problems by establishing dispensaries in the outer islands. The conditions and capabilities of these dispensaries varies. In many of them, the under-trained staff are not well-equipped or supplied, and they must rely on short-wave radio assistance when confronted with difficult cases.

Planning. Every category above points to the need for regional planning, yet a sufficient mechanism for such planning is not in place. This has been especially true with the termination of the more formal role of the US in the region. Under trusteeship with the US, the islands depended on the US Public Health Service to identify needs and then provide financial and technical assistance. Despite their distances, Washington established itself as a locus for planning which has since fragmented into several regional health departments (Center for Disease Control, Organization for Territorial and Insular Affairs, Public Health Services Region IX, etc.) that are unable to project overall needs, goals, and developmental directions.

In the future, more adequate planning that is indigenously based will serve as the starting point for reversing the unfavorable trends listed above. Comprehensive long-term planning would provide islands with technical assistance to reform healthcare systems toward greater accessibility and cost-effectiveness. It would help regions to balance the increasing demand for specialists with the ongoing need for primary care workers. Health Ministers could also use planning to assess and target personnel recruitment efforts across the region and to incorporate more professional development and training opportunities for healthcare professionals. Finally, regional planning and resource-sharing would enable hospital administrators to establish a uniform system of accreditation for their facilities and workers. It is not surprising that Health Ministers have unanimously called for a rotating technical conference on an annual basis to begin to address these needs.

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Common health problems

The need for more comprehensive planning holds especially true when one reviews the common health problems for the region, a great number of which could be avoided with education and prevention programs. While the severity of these problems might vary from island to island, what is more remarkable is that the degree of such variance is usually small. In fact, the afflictions listed below are occurring with an almost characteristically high prevalence across the entire US Associated Pacific. While exact statistics are difficult to obtain due to underdeveloped reporting systems in each of the jurisdictions, the examples which follow should serve to alert concerned policy-makers and health care professionals of the severity of the health crisis across the region.

Overpopulation. The fertility rates across the region are high with the population in most of American Samoa, the FSM and the Marshall Islands expected to double in the next twenty years and the CNMI in just fourteen years. Overpopulation places a serious strain on available resources for education, housing, sanitation, and water supply. In addition,

there are severe health consequences of high population growth for maternal reproductive health, child neglect, the spread of STD, and substance abuse. The local governments have placed population control as a priority, with the Marshall Islands most recently creating a task force to study effective policies for slowing the growth rates.[2] Effective population control will need to be culturally sensitive and take into consideration psycho-sexual norms. The overall population's attitude towards sex makes it difficult to address birth control and "safe" sexual practice among men and women. Reproductive health programs aimed at women are particularly difficult to launch with males compromising a strong majority of the health care workers in the region.

Infectious Diseases. At any given moment, an epidemic can break out in the Pacific that might remain undetected until a laboratory result returns from Hawaii several days later. By then, the highly transient population might have carried the disease to the population centers or a tourist might have carried it back to Hawaii or the US mainland.

With 10.7% of all deaths in the region due to infectious disease, the situation with regard to disease control deserves serious attention.[10] In particular, measles, tuberculosis, hepatitis B, leprosy and STD are either persistent threats or make periodic assaults on the population. This situation is exacerbated further by several factors that characterize the region: there are no systems in place for quick analysis, reporting, and collecting of data on communicable diseases; there are no deployable epidemiological surveillance and investigative capacities; the agencies which do exist often provide conflicting technical assistance; and epidemiological information is not shared between regions in a timely manner.[10]

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Examples of the consequences of these diseases for the island populations and their potential for further disaster if carried abroad are manifold:

Measles. In Guam, a recent outbreak of measles resulted in 300 reported cases, 3 deaths and a costly effort by health officials to try and curb the spread of the disease. Despite a major campaign on Guam and repeated warnings to travelers to and from neighboring jurisdictions, the measles were carried by air-travel to Chuuk, in the FSM[13]. A separate measles epidemic occurred in Palau in 1994 forcing the government into an emergency immunization campaign.

Tuberculosis. In Guam the tuberculosis incidence rate is seven times higher than the US rate. In Palau, the incidence of tuberculosis continues to rise, in part due to increasing numbers of foreigners moving to the main island. Tuberculosis outbreaks have occurred in every region of the Pacific, despite recent screening efforts.

Hepatitis B. Hepatitis B is still hyperendemic despite several immunization efforts aimed at newborns. In part, the reasons for continued prevalence are the failure of vaccination programs to reach outer island families.

Other Diseases. In October 1990, an outbreak of encephalitis occurred in Saipan. Ten cases were reported and a later study showed antibody prevalence in 4.2% of the population. It was the first known occurrence of Japanese encephalitis in US territory since 1947[14].

More recently, in Palau, poor sanitation contributed to another outbreak of dengue fever in 1994.[4] The last outbreak, in 1991, traveled from Palau to Yap, in Micronesia, and finally Guam, before health officials were able to identify the epidemic.

Sexually Transmitted Diseases. STD pose a further threat to the region. When the number of reported cases of syphilis in the Marshall Islands increased from none in 1983 to more than 600 by 1989, a group from the Center of Disease Prevention conducted a study of seroprevalence. Their results showed an 11.5% seroprevalence for syphilis, with this rate as high as 20% for the 15-25 year-old group. The study suggests that by the time health officials were even able to identify the epidemic, it had already came and passed.[15] The consequences of such poor detection are foreboding not just for the locals but for US military personnel in Kwajalein in the Marshall Islands who have unrestricted access to the nearby nightlife on Ebeye.

Gonorrhea is an equally persistent threat. It has an incidence rate as high as 28 per 10,000 in the FSM, and this rate is believed to be even higher in the Marshall Islands. Still, both governments, whose current funding base forces them to choose among several priorities, have initiated little by way of preventive activity to reduce the risky behavior associated with these diseases.

In addition, the incidence rate of HPV (Human Papilloma Virus) is more than 38 per 10,000 in the Marshall Islands. The fact that HPV is associated with cervical cancer over time is cause for great concern in that jurisdiction.

At present, the US Associated Pacific have a low rate of incidence for HIV/AIDS. Yet, the tales of outbreaks of the above diseases indicates that HIV prevention must remain a top priority for the governments in the future.

Pre/Post Natal Care. High fertility rates combined with an almost universal lack of pre- and post-natal care in all of the islands (except Guam and American Samoa) have had grave consequences for infant mortality. In Saipan, the CNMI, recent initiatives to provide prenatal care, while a step in the right direction, have not yet produced a noticeable change in the high infant mortality. In Palau, despite the rise of preventive health outreach, first trimester pregnancy visits to the clinics were reported to be around 10%[4]. This figure differs markedly from the 75% of pregnant women in the US who have had first trimester visits[16]. Across the region, respiratory infections, malnutrition and prematurity account for half of all deaths for children under five (see Table 4).

In most of the nations, low birth weights are not just common but on the rise due to the failure of preventive programs to reach the increasing population. In Guam, low birth weight rates increased by 12% to 8.2 per 1000 live births between 1990 and 1993[8]. More than 11% of children under five in the Marshall Islands have been found to suffer from exceptionally low weight (in the fifth percentile)[2]. The only notable exception across the region is American Samoa, where despite the presence of negative factors that are associated with low birth rate — low socioeconomic status, low education, young or old maternal age, lack of prenatal care and poor nutrition — the percentage of low birth weights remains small. It is not really known whether this phenomenon in American Samoa is due to genetic or some other influences that outweigh the negative socioeconomic factors. Ironically, newborns in American Samoa are more likely to have higher birth weights than lower weights, with the nation's overall percentage of high birth weights (more than 4000 grams) twice the US national average[19]. High birth weights are also an indicator of poor health as they are associated with hypertension, cardiac disease and diabetes later in life[19].

Poor nutrition leaves infants more susceptible to a host of infectious diseases, such as pneumonia and diarrhea. Immunization programs have been effective in ameliorating the situation with regard to measles and tuberculosis, yet immunization rates remain low due to lack of resources, poor outreach, and low prioritization (see Table 5).

The increase in teen pregnancies as these cultures make a transition to more urban lifestyles has contributed to inadequate prenatal care. Between 1989-1994, teen mothers delivered 12% of all births in Guam. Yet, 57% of the infant deaths in 1994 were to those born by Chamorros (the indigenous Guamanian population) teen mothers[8]. Teen pregnancy is also widespread in the CNMI, FSM, and the Marshall Islands.

There has also been a notable rise in maternal deaths. These appear to be the result of the early and older ages at which mothers have given birth, the narrowly spaced birth intervals, and lack of prenatal care[10].

Malnutrition/Dietary Problems. Since World War II, the Pacific peoples have developed a taste for non-nutritious sugary imported foods. Such foods have caused an extreme shift in diets away from highly nutritious fish, coconuts, breadfruit, pandanus, taro and bananas, and towards imported canned fruits, canned meats, canned fish, donuts, candy and soft drinks. As a result of this transition in diet, diarrheal and gastrointestinal diseases from poor nutrition are the leading causes of hospitalization across all jurisdictions. In the Marshall Islands, malnutrition is the number one killer of young children; 20% of all pre-schoolers suffer from malnutrition and 38% are anemic. During a two year period in the late eighties, 13% of the population under five were admitted to the hospital in Majuro due to a lack of protein in their diet[2].

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Malnutrition is also widely considered to be the single most preventable category of disease in the US Associated Pacific Islands. Yet, prevention programs remain relatively scarce and these disorders continue to rise taking their largest toll on children under five. The rise of several conditions that are associated with poor nutrition is particularly noteworthy:

Diabetes Mellitus. Health officials in American Samoa consider non-insulin dependent diabetes the health problem of greatest threat to the American Samoans. It is the third biggest cause of death for Chamorros in Guam with a crude death rate of 49.4 per 100,000.[8] In the Marshall Islands, 30% of the populations over 15 years of age suffer from diabetes[16]. And, it is considered one of the five biggest threats to the health of Palauans as well. In addition, the rise of maternal gestational diabetes is increasingly crippling unborn children throughout the region.

Vitamin A Deficiency. In the FSM, an alarming 50% of the children suffer from vitamin A deficiency despite the abundance of coconuts all around them. 25% of the children are underweight[13]. Vitamin A deficiency is widely reported in other jurisdictions as well.

Obesity. Obesity disproportionally affects the older populations, particularly women, making them highly prone to hypertension and cardiovascular diseases. When combined with diabetes mellitus, obesity makes women across the region a high risk for renal failure and glaucoma. In a study in the Marshall Islands, more than half of all women were found to be overweight[2]. In a similar study in Guam, 38.6% of Chamorros were classified overweight[13].

Mental Health. As in many cultures, modern and traditional, mental health is sometimes the last category of health to receive attention. The rapid transition to a more urban lifestyle and the breakdown of the extended family have allowed unbridled growth in substance abuse, spousal and child abuse, and suicide without any concerted government efforts to combat them. The World Health Organization (WHO), in a survey of American Samoa, estimated that smoking may have contributed to 55% of the total deaths in the territory in 1992, yet there are no public funds currently available for smoking prevention activities[22]. The situation of alcohol abuse is equally widespread with teenagers and old alike consuming imported beer and liquor. Yet, there are few efforts to moderate alcohol consumption or prevent alcohol abuse in most of the jurisdictions.

Table 3. Average annual population growth rate, by jurisdiction

Jurisdiction	Average annual growth rate
Northern Marianas	5
American Samoa	4.5
The Marshall Islands	3.9
Federated States of Micronesia	3.5
Palau	2.1
Guam	2.5
US	1

The islands are not without their native grown drugs either. Sakau, extracted from the pepper plant, is a mild narcotic readily available on Pohnpei, in the Federated States of Micronesia, where sakau bars outnumber alcohol bars two to one[4]. Betel nut is chewed in Yap, in the FSM, and Palau, where natives are addicted to the mild high it produces. In both cases, government efforts have been noticeably lax in preventing the recreational use of these drugs, and people remain uninformed about the consequences of their use to their mental and physical health.

Children are particularly prone to smoke, consume alcohol or use recreational drugs. Many of them do not attend schools and roam the islands freely without recreational outlets, role models, and adult supervision. The suicide rate among the Pacific teenagers and young adults is alarmingly high and is one of the leading causes of death in the region[13].

Unintentional Injuries. Accidents are unfortunately common in the islands. They stem from the rising tide in drunk driving as well as the rapid influx of modernization which has brought untrained people into contact with complicated and dangerous machinery. In Guam, unintentional injuries are the fifth leading cause of death among Chamorros[8]. For children 14 years and younger, the motor vehicle crash death rate for Chamorros is 33% higher than that for American youth. In American Samoa, accidents are the fifth leading cause of death[6]. During the past decade, motor vehicle and other accidents have become commonplace in the FSM and the Marshall Islands whereas prior to 1985 they were virtually nonexistent[4].

Dental Health. There has been a growing demand among Pacific health officials for more attention to dental health in all of the jurisdictions. While dental disease (along with malnutrition) is one of the most preventable of health afflictions, oral care has by necessity remained one of the lowest priorities. Tooth decay and gum disease are compounded by the rapid influx of refined Western food; the lack of preventive education; the lack of fluoridation of the water; the lack of readily available fluoride rinses, sealants and topically applied tooth pastes; and the chronic lack of dental health practitioners across the region (in FSM, there are none). Many older Pacific people lose their teeth early to decay, and, children often withstand quite a bit of pain before their guardian seeks proper dental attention. The result is often infection and sometimes even hospitalization.

Isolated Problems. While the above are commonly shared problems and afflictions across the region, there are several isolated problems that are particular to one region.

One example is the thyroid lesions that are disproportionately high in the Marshall Islands. Since these have been attributed to nuclear testing in the region, the US Government has attempted to settle monetary claims with afflicted families as well as the local government.

Another situation is that of the Brown Tree Snake in Guam. The snake which is indigenous to the Solomon Islands accidentally arrived on Guam through military cargo ships in the 1940's. Today, thousands of these snakes, which may grow up to eight feet long, live in Guam without natural predators. They are responsible for the loss of 9 of the islands' endemic bird species, and they have caused destruction of power lines throughout the island. As in the case of infectious diseases which skip from island to island, the Brown Tree Snake has already been discovered in the CNMI and Hawaii where its potential for further destruction is being closely monitored.

Recommendations

While the statistics and examples in this report paint a very bleak picture of healthcare in the US Associated Pacific, the

future of healthcare in the region is certainly not hopeless. The US Government, the Department of the Interior, and Health and Human Services can reverse the situations described in this report if they provided more flexibility for their public servants to rethink the strategies that have made this "at-risk" population entirely too dependent on government-provided health care. The present system of Washington-based categorical funding simply does not meet many of the needs of indigenous cultures that are more than 10,000 miles away from the center of US government. Even those needs which are presently met will soon be jeopardized when Washington agencies find themselves in the uncomfortable position of having to reduce aid packages in the years ahead. With the ongoing threats of infectious diseases, the lack of preventive healthcare, the deteriorating facilities, and under-trained staff, the results of these cuts without sufficient forewarning and planning will be increased morbidity and mortality across the region. Even the most indifferent politician would find this hard to accept as the endgame of five decades of American hegemony in the region. Besides turning our back on an island population that has looked to the US for leadership, such abandonment would have serious consequences to our own shores as infectious diseases would continue to threaten Hawaii and the US mainland.

Table 4. Infant mortality, by jurisdiction

Jurisdiction	Infant mortality per 1000 live births
Marshall Islands	49.3
Northern Marianas	38
Federated States of Micronesia	37.2
Palau	25.1
Guam	15.2 (for Chamorros)
American Samoa	9.7
US	7.9

Table 5. Infant immunization rates, by jurisdiction

Jurisdiction	Immunization rates of infants (< 2 y.o.)
Palau	92.40%
Federated States of Micronesia	72.20%
American Samoa	<60.0%
Guam	57.00%
Northern Marianas	56.40%
Marshall Islands	49.00%
U.S.	63.00%

There is an alternative: it is time to prepare Pacific people for finally assuming the responsibility that was stripped from them hundreds of years ago by the first colonizers. Island leaders already know that loss of US funding is inevitable, yet they remain without the tools to assume greater responsibility for planning and financing healthcare. Health providers across the region also know that their funding is diminishing, yet they remain strapped by present dollars which are earmarked for programs that are costly or culturally insensitive.

The US Government and its branches must use this period to enact a comprehensive strategy on how to prepare leaders of the health sectors in these countries to maintain viable programs. Through education, preventive medicine, technical assistance, and staff development, they can both empower local leaders and lessen the negative impact of reduced funding. All of the recommendations which follow ask that the government overcome its largest obstacle, inertia, and accomplish these goals. This will by necessity demand new and creative thinking on the use of block grants and program priorities that have been the modus operandi for several decades.

Before making these recommendations, I feel compelled to briefly add a personal note on my convictions as a healthcare provider. Simply put, I do not like to see any reductions in funding for health either domestically or abroad. Yet, my recent experience as a White House Fellow with the Department of the Interior at the Office of Territorial and International Affairs, now Office of Insular Affairs, has forced me to be more pragmatic. It is within this framework that I make the following recommendations:

The US Government and its agencies need to rethink their strategy for providing technical and financial resources in the US Associated Pacific Islands.

The present system of categorical funding to health administrators in the region is failing for the following reasons:

- It is not adequately reversing the negative trends impacting health in the region. The proof is in endless statistics which demonstrate the continued threat of infectious and non-infectious diseases to the inhabitants of the region.
- It does not provide flexibility for local authorities to prioritize programs and find the proper balance between preventive and curative care. Health problems receive attention based on either the dictates of the funding statute, or through costly procedures like medical off-island referrals to Hawaii.

- It has encouraged a system of dependence on the US for both strategy and funding, thereby, inhibiting the development of any grassroots collaborative efforts among Pacific Islanders, themselves.
- It has produced a health care model that is not sensitive to the cultural norms. The "system" is controlled externally without community participation leaving other actors, like local traditional leaders, more reluctant to get involved. In addition, women are not participating in programs focused on their betterment because of a reluctance to seek attention from a predominantly male medical cadre.
- It tends to be focused on urban centers, leaving large portions of the population outside of the system. This is the case despite the increase in dispensaries being built in some outer islands.
- It has not prepared local governments and healthcare workers for the tremendous task of assuming responsibility for healthcare in the wake of declining US financial and technical involvement.

A redefined strategy will overcome these deficiencies by heeding the following recommendations:

1. **Future funding should target culturally sensitive education and prevention programs.**

Prevention programs will have the greatest impact in changing the dynamics of health across the region. An all out assault must be conducted using every possible resource to teach Pacific people the causative links of risky behavior to physical and mental disorders. Unconventional groups (traditional leaders, women, teenagers, religious leaders) should be involved in the design, implementation, and ultimately the management of education programs. The campaigns should incorporate every possible medium including TV, videos, radio, music, posters, churches and schools. During my visit to several of the islands, I was surprised how informational posters for nutrition and STD were either handmade or simply nonexistent.

" The sooner healthcare costs are addressed among the islands, the better prepared the jurisdictions will be for the day when the US dollars are no longer available. "

Table 6 demonstrates the potential impact educational and preventive programs can have in combating nearly every health problem in the region.

2. **US Government agencies should invest in the start-up of more programs by youth, women, and other non-traditional participants in healthcare.**

Women must be encouraged to get involved in maternal health issues. Religious leaders should be brought together to discuss nutritional programs, recreational activities and daycare. Traditional leaders should be united to discuss the population growth and to share ideas for restoring the disruption caused by the breakdown of the traditional family. Youth groups, like the Youth for Youth in Health in the Marshall Islands[25], should be encouraged to form and spread culturally sensitive information on healthcare.

The Youth Partnership Conference organized by the Department of Interior's Office of Territorial and International Affairs and the Region IX Public Health Service is one example of the positive role a US agency can have in providing young people across the region with the opportunity to develop ideas and exchange strategies. Ultimately, the organization of conferences like these should fall under the supervision of a regionally-based health organization.

3. **US Agencies should emphasize increased primary care delivery and the development of human resources trained in primary care.**

Without the primary health care approach, it will be impossible to sustain levels of present health care in the future. Together with preventive education, primary health care will have the greatest impact in affecting the risky behavior associated with the problems above[26]. Future training of primary health care workers in the region must focus on integrating Pacific world views and values into the health care system.

The PBMOTP is perhaps one of the most successful examples in the world of a medical training program that is psycho-socially sensitive to its surroundings. The program, which trained about 70 young men and women, in primary care has had profound effects, and, in several of the jurisdictions. Yet, Palau and American Samoa continue to experience personnel shortages at crisis levels. With the increasing need for specialists in the region and the dependence of these two jurisdictions on expensive contracted laborers, a review should be conducted to determine if the PBMOTP should be renewed sooner than later. In addition, steps should be taken to insure that the management of the PBMOTP is integrated into a regional facility like the University of Guam or the medical school at Fiji. Local governments should be encouraged to develop scholarship funds which enable the cyclical development of a cadre of medical officers in the future. In addition, post-graduate medical education must be assured for the graduates so that they may maintain acquired skills while learning newer, more appropriate ones.

In the short-term period of severe staff shortages, additional emphasis should be placed on recruitment and training of patient care assistants, nurses aids, and other less technical and more affordable positions.

Table 6. Health problems and potential education and preventive programs

Health problem	Involve	Subject
Overpopulation	Teens / women / men	birth control
Teen Pregnancy	teens / parents	birth control effects of early pregnancy
Pre/Post Natal Care	women / Medical Officers / nurses / teens	nutritional information spacing of births breast feeding infant care
Malnutrition/Dietary Problems	women / teens / Medical Officers / nurses / religious leaders / traditional leaders	nutrition diet vitamin A harm from sugar products
Mental Health	teens / young men / women / men / traditional leaders / religious leaders	alcohol smoking spousal/child abuse depression
STDs	Medical Officers / nurses/ teens / women / young men	AIDS prevention other STDs use of condoms
Unintentional Injuries	teens / young men	drunk driving occupational therapy
Dental Health	Medical Officers / nurses / women	oral care diet sealants/fluoride supplements

4. **US Agencies should provide ongoing follow-up training programs including annual conferences for health workers in the Pacific.**

It is crucial that the present generation of primary care workers are provided opportunities for furthering their training so that they will be in a better position to become mentors for the next generation of workers. These opportunities should include annual conferences which bring together healthcare providers, hospital administrators, nurses, and medical officers to exchange ideas and receive up-to-date information on the latest service delivery breakthroughs. Ideally, these conferences would rotate among the islands, rather than be centered in Hawaii, in order to promote a more indigenous atmosphere. In addition, medical personnel, including certain specific groups, like the medical officers, should be provided field trips, seminars, and even short-term internships and residencies in hospitals in the US. Nurses should be given the opportunity to attend graduate programs in nursing. Currently, there is no graduate program for nurses anywhere in the region.

Providing training does not have to be a long-term commitment by US agencies; ultimately, local governments should develop the capacity to develop relationships with hospitals outside of the region and recruit trainers for seminars in local clinics. In the short-run, the fledgling staff in the Pacific must know that they are recognized and supported by the US

5. **US agencies should provide the technical resources for developing localized strategies to shift costs in healthcare and to build the appropriate indigenous legislative support for cost sharing.**

This report has indicated how the present government-sponsored healthcare will face serious financial problems in the years ahead. Present US resources must be directed toward lifting the financial strain of healthcare from local island governments by promoting cost-sharing with local employers and the development of insurance programs. This is no easy task with healthcare in the islands widely viewed as a natural right of the people, but, given the alternative, it is imperative that the US begin to help local leaders with this transition. Specifically, the US must provide the technical assistance to develop actuarial bases for the implementation of insurance programs in the jurisdictions. Part of this strategy must involve training local legislators about the consequences of the present path in order to secure necessary government support for reform. The sooner healthcare costs are addressed among the islands, the better prepared the jurisdictions will be for the day when the US dollars are no longer available.

6. **US agencies should promote the development of a regional umbrella agency to collaborate and share technical data across the US Associated Pacific.**

This cooperative organization will not just assist in the transition away from US dependence, but it will be crucial for gathering information on epidemics and developing rapid response programs for their containment. In addition, this group will ultimately have the responsibility for maintaining many of the functions currently served by Public Health Service, Department of the Interior, and the Center for Disease Control.

Currently, there are three major groups which have focused on region-wide collaboration. The Pacific Island Health Officers Association (PIHOA) was established in 1986 to facilitate collaboration in the region but it suffers from a lack of autonomy (it relies heavily on the University of Hawaii for institutional support), a small staff (the Executive Director and Health Specialist are both part time), and low funding. As one of the first umbrella groups to be established in the region, it has also confronted problems of poor communication within its membership.

The Interagency Working Group For Health in the US Associated Jurisdictions was established in 1995 by the Department of Health and Human Services "to explore the potential for a coordinated strategic approach in the US Associated Jurisdictions"[23]. While this group has only assembled once, its success in bringing together representatives from all the governments and healthcare facilities in the region demonstrates the continued dependence on Washington-based initiatives for cooperative planning.

Finally, the Governor's Pacific Health Promotion and Development Center sponsored by the Governor of Hawaii offers technical and financial support across the region, in part, because of an obvious need for Hawaii to stay involved in epidemiological surveillance.

While it is certainly in the interest of Washington and Hawaii to maintain their own epidemiological surveillance of the region, there will continue to be a lack of detection, ongoing delays in analysis, and reliance on costly evacuative procedures until one Pacific based agency is developed. To this end, the US Government should provide financial and technical resources to develop the PIHOA. This group, which is already committed to cost-effective health promotion in the region and respect of local autonomy, should be relocated within the US Associated Pacific and funding should be provided for the hiring of full-time staff members. US consultants should help the group to develop realizable short-term goals and long-term planning. Part of this training should include a focus on identifying financial resources available through different US and U.N agencies so that this group can ultimately assume this responsibility that is presently under the rubric of US agency representatives. PIHOA will face some obstacles in their maturity as an organization; however, all of these can be overcome if the US provides legitimacy to the agency.

"... US Agencies should work with regional health ministers and PIHOA to develop a long-term strategy to put lab centers on the islands that are most susceptible to disease breakouts."

7. US agencies should develop laboratory capacity and training in the region.

While Guam and Saipan are fortunate to have some laboratory capacity, fully equipped laboratories with qualified staff cannot be established in the short-term due to limited economic, technical, and human resources. Yet, impact can be made if medical personnel (including doctors and nurses) are included in annual training sessions within the jurisdictions to reemphasize basic skills in microbiology, clinical chemistry, hematology and serology, as well as to receive updates on latest laboratory techniques. The recent workshops held by the Association of State and Territorial Public Health Laboratory Directors were instrumental in providing training and establishing guidelines for lab technicians[24]. This type of training should be continued and expanded.

In addition, US Agencies should work with regional health ministers and PIHOA to develop a long-term strategy to put lab centers on the islands that are most susceptible to disease breakouts. As part of their development, there needs to be a uniform system by which samples can be transited to these lab centers from neighboring jurisdictions and outer islands. Even the short-term goal of developing one comprehensive lab clinic among these islands could save countless lives and dollars in the long-run.

8. US should provide technical support that will link these island nations with telecommunicative surveillance systems so that they can rapidly communicate on issues of health, the spread of disease, and crisis prevention.

The benefits of such a system will be positive for both the US and the US Associated Pacific. It provides a forum for the US to conduct experiments on the efficacy of using new telecommunications technology to link healthcare across distant and fragmented populations. At the same time, it provides a cadre of eager medical personnel who already speak English with the ability to receive on-the-spot training. The costs would involve securing and placing equipment in trial locations throughout the region and recruiting computer technicians willing to conduct training seminars. The hospital under construction in the densely populated island of Ebeye in the Marshall Islands might be an ideal location for a pilot telecommunication program. It has the advantage of being close to the US military healthcare facilities on Kwajalein where telecommunication links are already established with Tripler Army Medical Center in Hawaii. In addition, there is already a history of mutual cooperation between Kwajalein and Ebeye. The highly trained military and civilian population on Kwajalein have repeatedly shown their willingness to volunteer their services on behalf of their island neighbors. Their technicians and medical staff could train and monitor from both sites, thus insuring that unforeseen obstacles are overcome. In addition, a trial test here could provide an early indication as to the cost-effectiveness of the program that can be validated by both US and Marshallese officials.

9. The U.S Agencies should promote quality control of health facilities in the islands by providing a system of licensure for medical personnel and accreditation for facilities.

Without quality control, present investments in healthcare will result in band-aid solutions which will disappear with lessening of US involvement. In terms of infectious disease, a lack of quality control could ultimately lead to continued flaws in detection and surveillance. By providing health administrators across the region with a model for licensing their medical personnel and accrediting their facilities, quality control management can be a recognizable goal in the short-run and a minimum standard for the future.

10. US should provide technical assistance and funding for the development of safe water supplies and solid waste disposal in the heavily populated islands of the region.

These provisions should include systems of chlorinating and water filtration when possible to help prevent the spread of harmful bacteria. In addition, water supplies should have built-in fluoridation systems to improve oral hygiene, especially in light of the total lack of oral healthcare across the region. Technicians on solid waste disposal should work with island officials to develop systems of collection and disposal to ward off the potential outbreak of diseases like leprosy, dengue fever and leptospirosis. Lastly, the development of a system of local standards and regulations for waste management will be crucial for insuring the maintenance of this program in the future.

Conclusion

The situation in the US Associated Pacific is in "crisis" with regard to healthcare. With the phasing out of US government support (e.g. compact money, grant dollars and technical assistance funds), the islands of the Pacific are once again at a "crossroads". Similar to the last "Crossroads"—the code name the US used for its testing of nuclear weapons in the Marshall Islands in the 1950's—the Pacific people will face an uncertain future that may place them at a greater risk for increased health problems and morbidity. But, there are choices that can be made now which will lessen this uncertainty and reduce this risk. These solutions start with careful planning by local island healthcare providers and the US agencies which service them.

" Enacting these recommendations does not necessarily require more money from the US government, rather it necessitates a new methodology for distributing presently available funds. "

In this report, I have made the following recommendations and I cannot overemphasize the immediacy with which they should be enacted as part of the overall strategy of government agencies working for the US-Associated Pacific:

- Target education and prevention programs
- Encourage new programs that include women, youth, traditional leaders and religious leaders in the health process
- Emphasize primary care and develop the appropriately trained staff
- Provide ongoing staff development for present healthcare workers including opportunities for specialization in pediatrics, internal medicine, obstetric and gynaecology, surgery and family practice
- Assist local governments in developing strategies that share healthcare costs with employers and create insurance systems
- Provide resources for the development of the Pacific Island Health Officers Association as a cooperative planning group for the region
- Develop the capacity of local lab technicians and lab facilities
- Develop a telecommunication system that links the regions healthcare workers
- Promote the development of facilities accreditation and medical licensing
- Develop a basic system of environmental and sanitary modernization

Enacting these recommendations does not necessarily require more money from the US government, rather it necessitates a new methodology for distributing presently available funds. This paper has demonstrated how the current categorical grants are not affording the flexibility or sensitivity to meet local concerns. In addition, block grants tend to dissuade responsibility from the local leaders of the jurisdictions to the funders in Washington DC In the future, the US Congress should consider bundling the current categorical funds from the various US agencies working in the region into one or two larger "partnership" grants. These new grants could allow the jurisdictions more responsibility for proposing their own solutions to specific localized problems while at the same time insuring that US maintains oversight over those directives which are important to its own national interests. Redefining future projects under the rubric of partnership will also instill more accountability to local leaders for the future of health care in the region.

By enacting these recommendations, the US Government and its agencies will be able to realize their goals of reducing the financial and technical involvement in the area and, at the same time, decreasing the vulnerability of these populations to a wide range of health disorders. Given that financial resources will be made less available in the future, I believe this is the only responsible choice for our government.

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