

COMPREHENSIVE HEALTH PLAN FOR THE TERRITORY OF GUAM

GUAM
P.O. BOX 2943
AGANA, GUAM 96910



HEALTH PROBLEMS AND GOALS OF GUAM:
(Second and Third Components) *I*

BUREAU OF PLANNING
GOVERNMENT OF GUAM
P.O. BOX 2980
AGANA, GUAM 96910

Health Problems and Goals of Guam:
(Second and Third Components)
Comprehensive Health Plan for the
Territory of Guam

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(Second and Third Components)

Comprehensive Health Plan for the
Territory of Guam

August 1972

Prepared by the Office of Comprehensive Health Planning
Department of Public Health and Social Services
Agana, Guam

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Glossary

Health Services and Resources Map

(See back cover)



TERRITORY OF GUAM
OFFICE OF THE GOVERNOR
AGAÑA, GUAM 96910
U.S.A.

CARLOS G. CAMACHO
GOVERNOR

To the people of Guam:

As part of the continuing effort to provide current and relevant data for the people of Guam, I have called for second and third components of our Comprehensive Health Plan.

The second component is timely and important. It deals with the medical care delivery system on the island. At a time when we are experiencing a period of social change and growth in all areas, it is essential that we maintain health services to sustain the health and well-being of everyone.

Complementing the second part of the plan, and expanding on many of the health problems outlined in the first component, part three contains an expanded discussion of means, goals and objectives in solving health problems.

As with the publication of the first component, I am sure that this new addition will help us increase the availability of reliable information and that it will be a useful tool -- attuned to the requirements and realities of Guam's health needs and resources.

To The People Of Guam:

Inherently associated with the health status of a population is the system of delivering medical care. It is one thing to accurately point out the health problems in an area. It is yet another to develop a system which can adequately provide for the medical needs of a population which the above problems create.

In an effort to help develop such a system, the second component as presented herein builds for the reader a visualization of Guam's present medical care delivery system, how it operates, its physical and human resources, its associated problem areas and some recommendations for the future.

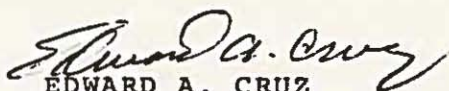
Also included at this time is another very important part of the overall Comprehensive Health Plan for the Territory of Guam. The third component is an in depth follow up of the first component. It is a combination of two parts. The first deals with priority setting for health problems, and goals and objectives for moving towards solution of those problems. The second part offers in depth discussion and analysis of critical and important problem areas. The reader should be reminded that as more of these in depth studies are completed, they will be forwarded to the holders of the Plan.

I would like to reiterate a very important point which was emphasized in the first component by my predecessor, Mr. Pedro L. G. Roberto. He stated, "Since decisions on health policy are being made everyday on the basis of existing knowledge, any degree of improvement in health information will better enable leaders to make wiser decisions. Nevertheless, it is most important for planners to recognize the limits of reliability of the various sources of health information being used."

The reader should be cautioned not to make inferences from the information presented herein when there is no factual substantiation. Also all statistical material must be taken within its qualified limitations.

In closing, I would like to explain that in the narrowest sense the first, second, and third components do not comprise a "plan" per se. They are however, part of a dynamic instrument which will be continually growing and changing to meet the needs of current and future situations in Guam. It does not offer pat answers to very complex questions. In the final analysis it does provide insights into the severity of various health problems, provides for much base line data heretofore unavailable, and does modestly offer suggestions and recommendations for action.

To the people of Guam, we present another chapter in the growing body of information so vitally needed to insure a level of good health deserved as a right by every individual living in Guam.

A handwritten signature in dark ink, appearing to read "Edward A. Cruz", with a stylized flourish at the end.

EDWARD A. CRUZ

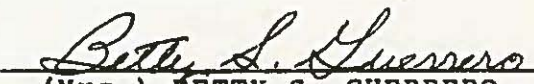
Chairman, Planning Council
for the Coordination of
Health and Social Services

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Guam's health providers including the military, the CHP task forces, and health related organizations and individuals have generously given of their time to the development of the Second and Third Components of the Comprehensive Health Plan.

The CHP planners, Robert Nickel, Flora Forbes, Teresita Tenorio, and Adelina Fejeran, as well as the office staff, Bertha Quenga and Rosita Rosario, provided the health research data and typing and proofreading of the manuscript.

I would like to express my gratitude to the above group and individuals for their support and cooperation.


(Mrs.) BETTY S. GUERRERO
Administrator, Comprehensive
Health Planning

I N T R O D U C T I O N

Medical Care Delivery System in Guam

Introduction

Since the post Spanish years, the U.S. Naval Government has been the traditional provider of medical care services in Guam. The passage of the Organic Act of Guam in 1950, however, shifted the responsibility of providing civilian medical care initially to the local government.

The original care of the civilian medical care delivery system consisted of U.S. Navy trained local nurses and medical officers, and a handful of contract "displaced" physicians from various countries. From this modest beginning, the Department of Medical Services emerged which is the seed of the two present government organizations, the Guam Memorial Hospital and the Department of Public Health and Social Services.

Through the years since 1950, private medical practice gradually developed and medical groups, physician groupings, and solo practitioners began to establish themselves. Of course, auxiliary medical service organizations such as pharmacies, optometry dispensaries, etc. also developed concurrently, and out of all of these, Guam's present system emerged. Today, then, the medical care delivery system in Guam is a composite of the military system and the civilian one which can be further divided into the governmental sector and the non-governmental or private sector.

In the following pages we would like to take a closer look at the entire system in relation to the services that it provides, the population that it services, how the services are generally financed, and the health manpower situation. As a major vehicle for further exploring the system, the different categories of medical care personnel with their physical and organizational distribution will be utilized. By taking a look at the services which they perform and who they are generally employed by, we should be able to gather a fairly good idea of how the present medical care delivery system functions. In addition, certain areas, either because of their importance or nature, will be specifically mentioned and discussed. Finally, a comprehensive and current index of health services and resources will be included.

It is hoped that the material presented will provide a foundation from which future plans can be developed to improve the system, thereby making available to the people of Guam the best medical care services possible.

An Overview of the System

Guam's "medical care delivery system" today can be considered a microcosm of any system encountered anywhere within the United States. Generally speaking, Guam has a pluralistic system with all of the same elements as could be found in any similar community. Private individual physicians and dentists, multi-specialty medical groups, government health programs, private pharmacies and optometrists, a military system of hospital and feeder outpatient facilities, profit and non-profit agencies, a government hospital, volunteer groups, and both private and government medical care financing programs all exist in Guam.

It is a system or one might refer to it as a non-system which provides medical care to the people of Guam in the same manner as, say, the people in Des Moines, Iowa probably receive theirs. The benefits derived are similar and problem areas are those that can also be found anywhere else.

Guam's system of medical care is not a particularly unique one. It does, however, exhibit some characteristics which differentiate it from other communities. Foremost among these would be the fact that Guam is an isolated area surrounded by hundreds, even thousands of miles of ocean. It must rely on its own resources, however limited they might be.

It also is a relatively new system. Although this might be equated by some with a low experience level, it also means

that Guam can learn and profit from mistakes already made in other geographical locations. Additionally, it means that the system in Guam is not an entrenched one and, therefore, is probably more open to new ideas and innovations as they might be applied in providing for the growing medical needs of the people here.

Finally, Guam's total system is a dual one. It can be divided into two separate population groups almost equal in size and each generally seeking services in its own sector of medical care services. Of course, we're referring to the U.S. military medical care system and the civilian system. Reference will be made in a later section to the difficulties in trying to establish a definite line between the two. For now, let us just say that there are about 50,000 persons here on Guam eligible to receive some services within the military system, and anywhere from 35,000 to 55,000 persons who receive the majority of their medical care within the civilian system. (1)

Within the civilian system, there are two separate components operating. In actuality, they usually function together on a more or less complementary basis and in generally defined areas of responsibility. This is not to say, however, that all

(1) Military eligible population based on Eligibility Records - U.S. Naval Hospital, June 1971.

Civilian estimates based on 1970 United States Census of total population of Guam, 84,996 persons, Guam Profile, March 1972, and 1971 total population, 105,900 persons, Population Projection for Guam, May 13, 1970, Economic Research Center, Department of Commerce, Government of Guam.

elements are frozen in their present positions. This is just a statement of the situation as it exists today.

Generally speaking, the Government of Guam provides those services needed on a community-wide basis. Specifically, it operates the only civilian inpatient facility in Guam, the Guam Memorial Hospital. It is a 242 bed, general, acute care, short-stay hospital providing, in addition to the normal services associated with such a facility, the following: both inpatient and outpatient mental health services, medical outpatient services, and extended care in such areas as tuberculosis treatment and geriatrics.

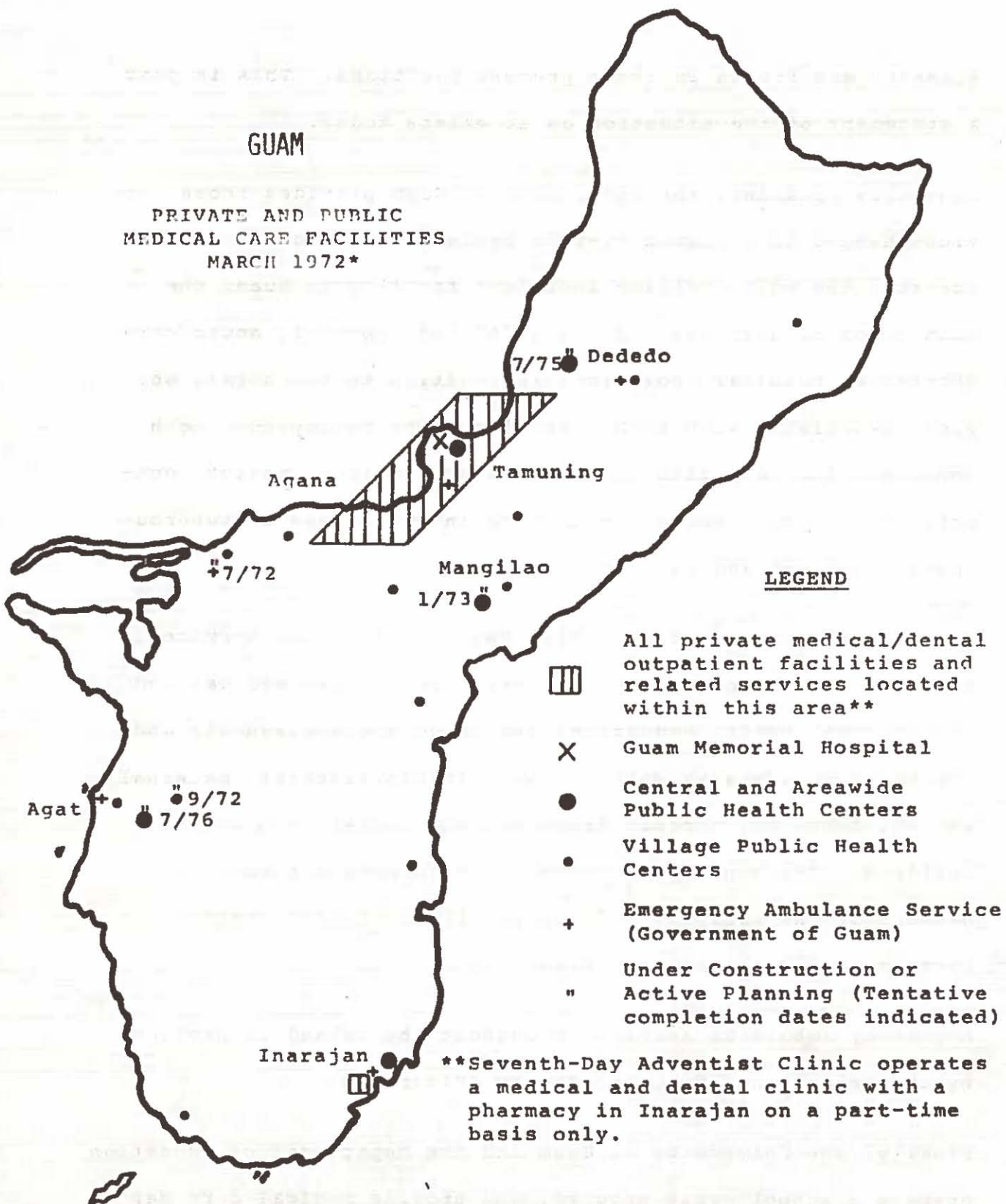
Through the Department of Public Health and Social Services, the government provides for general preventative medical and dental care, health education, and large scale diagnosis and treatment programs as well in communicable diseases, maternal and child health, chronic diseases, and dental problems of children. The Department conducts its programs through a network of one areawide and twelve village health centers located around the island (Figure 1).

Emergency ambulance service throughout the island is provided by the Department of Public Safety (Figure 1).

Finally, the University of Guam and the Department of Education operate a school nurse program, and provide medical care manpower training and various rehabilitative programs respectively.

GUAM

PRIVATE AND PUBLIC MEDICAL CARE FACILITIES MARCH 1972*



*Information compiled by the Office of Comprehensive Health Planning, Department of Public Health and Social Services, Government of Guam, March 1972.

FIGURE 1

On the other hand, the private sector caters more to the individual needs of the community providing, on a one to one basis, outpatient medical and dental care, optometric services and pharmaceuticals.

Presently offering outpatient services in Guam are two multi-specialty medical/dental group practices, one specialty medical group practice, two multi-specialty physician/dentist groupings, and ten individual (solo practice) physicians and dentists. In addition, auxiliary services are provided by the thirteen pharmacies and four optical retailers operating within the community. (1)

In terms of sponsorship and financial motives of the above organizations and individuals, with the exception of the two religious sponsored, non-profit multi-specialty groups, all of the rest are privately owned and operated for profit.

The two components of the civilian system can also be easily differentiated by comparing the physical distribution of facilities and services of the two throughout Guam. From Figure 1 it is most obvious that the private sector, for the most part, confines itself to the Agana, Tamuning, Harmon "medical care" corridor. The Government of Guam, however, operates its programs on an island-wide basis.

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

One more factor should be mentioned that tends to characterize the two segments even further. This is the area of financing medical care. The Government's services, of course, are either "free" or highly subsidized allowing for extremely low rates to be charged. With the exception of Guam Memorial Hospital which partially operates on a "fee for service" basis, all of the Government of Guam's medical care services are provided on a budgetary basis and financed through general revenue taxes, local and/or Federal. The private sector, not being fortunate enough to have available the General Fund of Guam, must charge for its services. Charges within the private area are based entirely on the "fee for service" concept. There are no private medical care services on Guam being offered on a "prepaid service" basis at this time.

From the consumer/patient point of view, there is a large number of financing programs that he may qualify for to seek the services which he needs. As an employee of the Federal Government, Government of Guam, or of a private firm, he may be covered by a private indemnity health insurance program. Or, because of his low income, he may qualify for participation in the Medicaid program. If he is above 65 years of age, he would be eligible to receive some or all of the Medicare medical care benefits. Of course, there is Workman's Compensation for on-the-job injuries; school children receive free care for accidents that occur during school hours; there are several Government programs that provide free care for certain

categories of illness such as tuberculosis, ALS and Parkinson's disease, and diabetes. The Government, as mentioned before, provides free services through the Department of Public Health and Social Services; and anyone seeking care who cannot qualify for one of the above programs and who cannot afford to pay for his needed services would definitely not be refused service at the Guam Memorial Hospital.

Briefly, the military system is a comparatively unified one consisting of the U.S. Naval Hospital, a general, acute care, short-stay facility providing also outpatient services; various medical and dental outpatient facilities; and emergency ambulances and air/sea rescue units located throughout the island (Figure 2).

Unlike its civilian counterpart, it does not operate community-wide programs per se. It does, however, incorporate many of these types of programs into its general system of medical care, thereby alleviating the need for operating separate programs. The military system also is able to draw on the resources of a world-wide system in terms of manpower, etc.

Except for certain categories of eligible civilians, there are no charges for services within the military system. The services provided are financed through Federal general revenue taxes.

For those who must seek services outside of the military system, the military provides a medical insurance program,

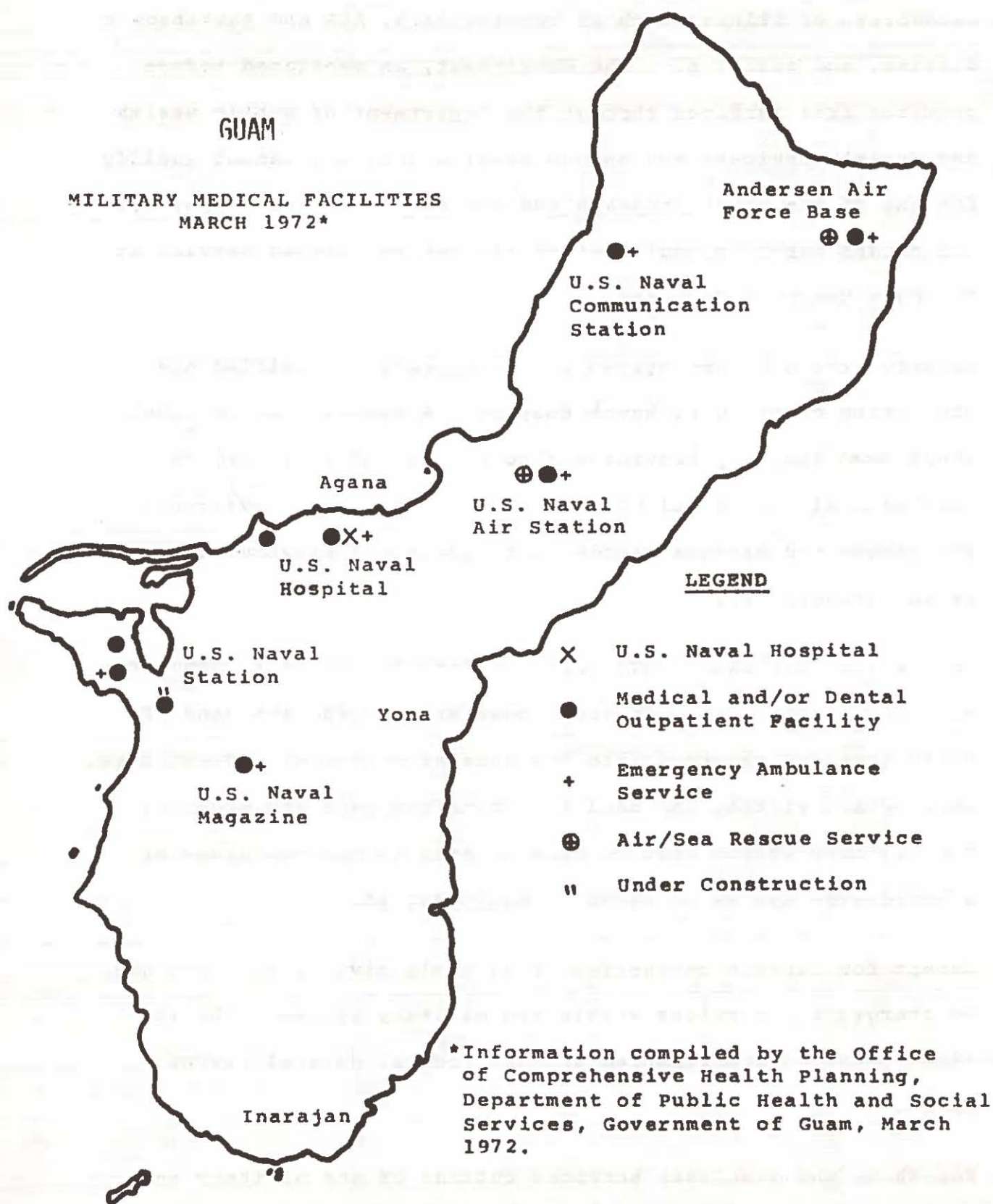


FIGURE 2

Civilian Health and Medical Program of Uniformed Services (CHAMPUS), which reimburses the civilian provider for services utilized by military eligible personnel.

Although it is usually widely known that veterans with service connected disabilities can receive treatment in military facilities where no Veteran's Administration facilities are available, it is also a fact that indigent and even medically indigent veterans without service connected disabilities may obtain services without charge.

This, then, generally is the medical care delivery system in Guam. In this brief overview, only the most skeletal view can be hoped to be achieved. The system in reality is not a clearly defined set of elements, all coordinated and functioning smoothly. It is one which is highly complex and very difficult to understand. It is one that puts before the consumer/patient a vast array of organizations, services and personnel. It is one that can be bewildering and often times even frustrating to the person trying to seek medical care services that he so vitally needs.

MEDICAL CARE MANPOWER

General

It must be pointed out from the beginning that comparing Guam and its medical manpower needs to other areas in the United States is almost like comparing apples and oranges. All areas have their own peculiarities which uniquely differentiate them from any other area. They then, of course, have their own needs.

Unfortunately, we have no other way, and the best that we can hope for in utilizing such a method is a general idea of whether Guam compares either favorably or unfavorably to other areas.

Any comparison that takes place must have some common denominator upon which to relate the data. The usual method is to use population as the common base. There are inherent dangers for it goes without saying that if the population base figures are incorrect then naturally, the rates for comparison will be distorted. For purposes of this study, the 1971 civilian population of 72,900 as estimated by the Economic Research Center, Department of Commerce, Government of Guam, will be used.

Again computing rates on this data base will not necessarily give a true indication of the actual situation here in Guam. It only allows us then to compare Guam with some other area that uses a civilian population base for computation.

Guam, as everyone knows, has an extensive military medical care system. One must also keep in mind that this system provides services to a large number of civilians as well, further distorting the true picture. Even though the civilian system does treat some military personnel and related others, the ratio is probably in favor of more civilians being treated in military facilities than the reverse. Regardless, however, there is much overlapping and the data presented cannot be taken to be conclusive by any means.

One other factor enters the picture. Many of the military personnel, especially physicians, offer their services to the civilian system on a part-time basis. Many of them providing needed specialties otherwise unattainable. Although some only practice on an on-call basis, others actually have set up private practices within the community. They definitely are an asset to the civilian community.

However, in order that the data presented be compatible with data from other areas within the United States, the military personnel practicing within the civilian system have been excluded in the computation of manpower rates.

For purpose of this study then, only non military medical personnel were considered in the computation of manpower rates, and only those persons who were actively involved in patient care whether on a full time or part-time basis. Where appropriate, differentiation will be made, and to the extent possible, duplication has been avoided.

The manpower needs of any system are, of course, highly dependent on the efficiency of that system. One that is very efficient will most likely need less manpower, and probably better utilize the manpower that it has.

To determine the needs of the medical care system today and then project the needs for the future, one must know what kind of a system will be operating in the future. The medical care delivery system in the United States is slowly changing. What is necessarily a desirable number of personnel per 100,000 population today will not necessarily be the same for the future.

One of the methods of delivering medical care today that is gaining in acceptance requires usually much less physician personnel and more para-professional personnel than the traditional system. This is the prepaid group service plan method, and an example is the Kaiser Health Plan organization.

In 1969 for example, the overall system in California including a relatively small number of Kaiser physicians utilized an average of 161 physicians per 100,000 population for both the northern and southern areas respectively. On the other hand, when the Kaiser medical care system is separated from the total, their physician utilization rate was 102 physicians per 100,000 population for Northern California and 90 physicians per 100,000 population for Southern California. This does not say that there are 102 Kaiser physicians in Northern California and only 59 physicians comprising the rest of the overall medical care

system of Northern California. It, however, points out that in Northern California, the Kaiser system uses 102 physicians for every 100,000 people they serve, and taking a composite 100,000 people, the overall system uses 161 physicians which is 59 physicians more than the Kaiser system. And in Hawaii of the same year, the state average was 133 physicians per 100,000 population while Kaiser's rate was 83.⁽¹⁾

If the system as a whole moves along the lines of the Kaiser philosophy of medical care or any other for that matter, needs will not remain constant.

To analyze the following medical manpower data and determine conclusively that Guam is either deficient or not cannot truly be done. Many factors must be taken into consideration. Those that have been presented above as well as others outside the scope of this study such as quality considerations of medical care must be taken into consideration. However, the process of planning cannot afford the luxury of waiting for each minute detail to become crystal clear. Plans must be made so that orderly progress can proceed, and unfortunately, plans must be based on the available but incomplete data at hand. Such data, however, are not without value.

(1) Greer Williams, "Kaiser," Modern Hospital, February 1971, page 83.

Physicians

Since 1953 when the licensing of physicians and dentists came under the jurisdiction of the Government of Guam, approximately 270 physicians and dentists have been issued licenses to practice medicine and dentistry in Guam. (1) This great number of licensed physicians and dentists can be attributed to the large turnover of both military and contract hire personnel.

As of this writing, there are presently in Guam 74 licensed physicians and dentists. (2) Of these 18 are dentists and the remaining 56 are physicians. It is to this latter group with which we are now concerned.

Not all of these are actively engaged in patient care on a full-time basis and 17 are military physicians. Of the 39 non-military physicians, 35 practice full time, 3 are in administrative positions with 1 of these also practicing part time, and 1 is employed on a strictly part-time basis only. In total, then, 37 physicians are providing active patient care for the medical care delivery system in Guam.

How then does Guam compare to the United States in general and to various specific areas. Unfortunately not very well. Guam has a present rate of 51 physicians per 100,000 population (Table 1). Expressed in a population to physician ratio, this

(1) Department of Revenue and Taxation, Division of Licensure and Registration, March 1971.

(2) Commission on Licensure to Practice the Healing Art in Guam as updated by the Office of Comprehensive Health Planning, June 1971.

Table 1

Selected Locations in the United States of Practice for Active Non-Federal Physicians
in Patient Care (Includes Military Physicians on Guam) ⁽¹⁾

LOCATION	POPULATION	AREA IN SQUARE MILES ⁽²⁾	PHYSICIANS	PHYSICIANS PER 100,000	PHYSICIAN TO POPULATION RATIO ⁽³⁾
New York, 1967	18,303,000	47,869	36,499	199	1:501
California, 1967	18,793,000	156,537	30,345	161	1:619
Vermont, 1967	416,000	9,274	621	149	1:670
Island of Oahu, 1970 ⁽⁴⁾	612,969	598	867	141	1:707
State of Hawaii, 1970 ⁽⁴⁾	748,673	6,424	989	132	1:757
United States, 1967	198,649,000	3,628,150	260,296	131	1:763
Military-Guam 1971 ⁽⁵⁾	50,000	-----	54	108	1:925
Wyoming, 1967	311,000	97,281	297	95	1:1047
Island of Hawaii, 1970 ⁽⁴⁾	61,560	4,021	57	93	1:1080
United States Outlying Areas, 1967 ⁽⁶⁾	296,000	9,504	181	61	1:1635
Guam, 1971 ⁽⁷⁾	72,900	212	37	51	1:1970

NOTE: Footnotes on following page.

Table 1

Footnotes

- (1) Health Manpower -- United States 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, pages 17-18.
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) Excepting Hawaii and parts thereof, all ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (4) Statistical Report -- 1969, Department of Health, State of Hawaii. Includes all licensed physicians within the State of Hawaii.

The State of Hawaii is made up of six major islands. Included for comparison here are the Island of Hawaii and the Island of Oahu. The Island of Hawaii should not be confused with the State of Hawaii of which it is only a part.

- (5) Military population approximation based on eligibility records of the U.S. Naval Hospital and includes active military personnel and their dependents, retired military personnel and their dependents, eligible veterans, U.S. Civil Service stateside hire employees, and specified other civilians.

Physician Source Data - All U.S. Naval and Air Force Medical Facilities, June 1971.

- (6) Includes areas other than the 50 states and Puerto Rico.
- (7) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Physician data based on information from the Commission on Licensure to Practice the Healing Art in Guam as updated by the Office of Comprehensive Health Planning. All rates computed by the Office of Comprehensive Health Planning, June 1971.

means that there are 1970 persons for every physician. Of the selected data available for comparison, this is the lowest by far. Only Alaska and other outlying U.S. possessions (excluding Puerto Rico) come close with 69 and 61 physicians per 100,000 population respectively. The 1967 U.S. national average exceeds that of Guam by almost three times and such a state as New York has a physician ratio almost four times greater than Guam. In terms of comparable population sizes, the island of Hawaii in 1970 had a physician to population ratio of almost twice as great as Guam. Getting very close to home, the military here on Guam has 1 physician for every 925 eligible persons while Guam has 1 physician available for every 1970 persons.

As pointed out earlier, many factors must be taken into consideration when trying to determine the adequacy of actual manpower numbers. However, it is plain that Guam suffers when it comes to the number of physicians that are presently practicing here on Guam, and any increase will be beneficial to this situation which seems to be somewhat critical.

What probably prevents a breakdown in the system or rather what allows the system to provide a reasonable amount of medical care for the people of Guam is a combination of things. The people here probably do not seek medical care as often as their counterparts on the mainland U.S., a very extensive Public Health system exists staffed mainly by nurses, Guam does not

yet have the environmental problems to the extent being experienced in the United States, no large ghetto areas exist here, the military facilities and services are more readily available in Guam to the civilian population when needed than in the United States, and many of the physicians here put in more hours than do their stateside counterparts.

Speaking of the physicians, it should be pointed out that in addition to their regular hours of practice or employment, many of these 37 also put in extra hours within the system. The Guam Memorial Hospital provides a good example in that it contracts with private physicians for needed services within the hospital which the full-time staff is unable to provide. In all, including many duplications of the same physicians, 39 part-time positions are being filled by the 37 active civilian physicians as well as the 17 licensed military physicians.

Taking a closer look at all of these figures, we find that 23 physicians are engaged in some form of full time private practice, 9 are full-time employees of the Guam Memorial Hospital, 5 including 3 in administrative capacities are located in the Department of Public Health and Social Services and 1 works in the National Institute of Neurological Disease and Stroke (NINDS) Research Center. The Department of Public Health and Social Services also employs one strictly part-time physician who does not practice anywhere else.

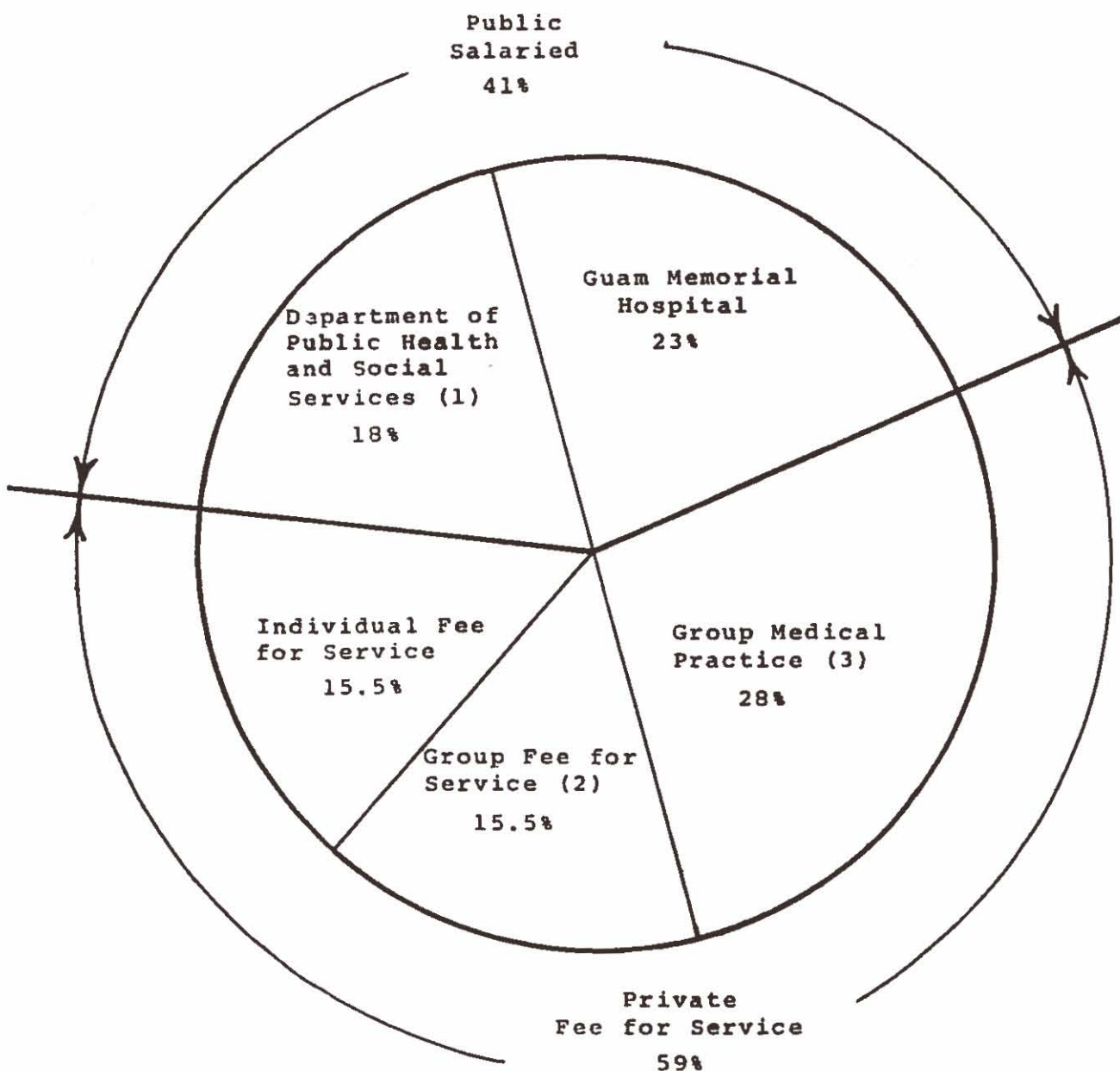
In regards to the part-time positions as filled by various physicians including the licensed military physicians, Guam Memorial Hospital employs the bulk with 21, the Department of Public Health and Social Services is second with 12, 4 are in private practice, and 1 each works at the National Institute of Neurological Disease and Stroke Research Center and the Brodie Memorial School for the mentally retarded. It should be kept in mind that part time as defined in this study means anything other than would be considered full-time employment or private practice. For a given period of time there could be as little as one hour or fraction thereof up to the limitations imposed by one's full time major position.

Percentage wise fee for service private practice employs almost 59% of all the active practicing physicians. The remaining 41% are salaried physicians divided among the Guam Memorial Hospital, the Department of Public Health and Social Services, and the National Institute of Neurological Disease and Stroke Research Center (Figure 3).

Within the private sector, "group medical practice" as defined by the American Medical Association employs a little less than half of the physicians. Individual (solo) fee for service physicians comprise the other half of the private sector and represent about 15.5% each of the entire system (Figure 3). In general when compared with the United States, the physician

Physician's Major Areas of Practice

Guam - June 1971



- (1) Includes the National Institute of Neurological Disease and Stroke Research Center.
- (2) Includes Doctor's Clinic and the Medical Arts Center.
- (3) Includes Catholic Medical Center, Guam Medical Clinic, and Seventh-Day Adventist Clinic.

FIGURE 3

distribution in all forms of non-solo practice exceeds that of the United States (Table 2)

Table 2
Physicians' Major Areas of Practice
Guam and the United States

LOCATION	FORMAL GROUP MEDICAL PRACTICE	HOSPITAL BASED (1)	TOTAL SELF EMPLOYED NON SOLO PRACTI- TIONER	ALL FORMS OF COMBINED PRACTICE (2)
GUAM - 1971	28%	41%	43.5%	84.5%
U.S. - 1965-67 (3)	11%	31%	39.0%	70.0% (4)

(1) Guam data includes Public Health active physicians.

(2) Excludes only private solo practitioners.

(3) United States data - Anne R. Somers, Health care in transition: direction for the future, (Chicago, Illinois: Hospital Research and Educational Trust, 1971), page 9.

(4) Figure corrected from 60% to 70% by the Office of Comprehensive Health Planning.

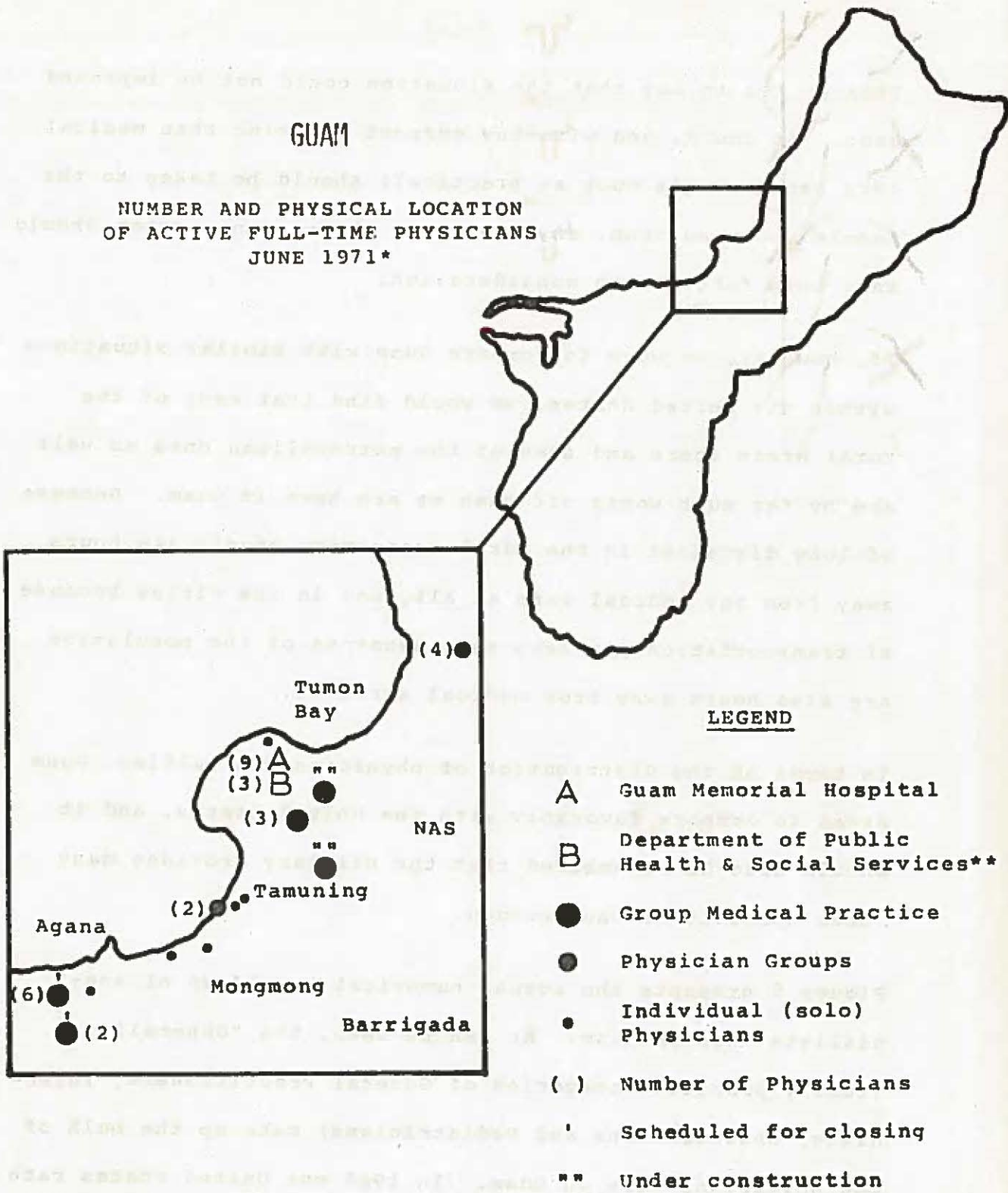
It is generally felt that moving from a "cottage type industry" of solo physician practitioners to a more systemized and progressive system of group practitioners will increase both the efficiency and quality of medical care. In this light, Guam seems to be moving in the right direction if the present trend does continue. From conversations with many of the local physicians, more and more of them will be developing formal medical groups within the near future. One area, however, where Guam is lacking completely in physician participation is in "prepaid direct service plans." Prepaid direct service

plan is a plan which provides medical care through the use of a formal medical group of physicians usually hospital based, but not necessarily. For a prepaid periodic fee, specified services are provided to the patient usually without further charge. The services are for the most part comprehensive and emphasize prevention, and early diagnosis and treatment of illness. The main underlying philosophy of this type of program is that it stresses "keeping people healthy" and removes the financial barrier in seeking medical care when the need arises. None exist in Guam today. All private medical care and in some cases public is provided only on a fee for service basis.

Regarding physical distribution of Guam's physician manpower, with the exception of one full-time Public Health physician located in Inarajan and several other part-time Public Health physicians who move around from clinic to clinic, all others are located in the Agana, Tamuning, Harmon corridor (Figure 4). At a first glance, this might seem to represent a very inequitable distribution of physicians leaving the more rural areas of the island without any physicians whatsoever, and in terms of emergency medical care, it does present a problem. It should be remembered, however, that the farthest part of the island is only at a maximum 45 minutes away and most other areas can reach this area in anywhere from 10 minutes to a half an hour.

GUAM

NUMBER AND PHYSICAL LOCATION
OF ACTIVE FULL-TIME PHYSICIANS
JUNE 1971*



*As compiled by the Office of Comprehensive Health Planning,
June 1971.

••One Public Health physician to be assigned full time to the Inarajan Areawide Health Center. Also includes one National Institute of Neurological Disease and Stroke physician.

FIGURE 4

This is not to say that the situation could not be improved upon. It could, and with the current thinking that medical care services (as much as practical) should be taken to the people who need them, any change in the present system should take this factor into consideration.

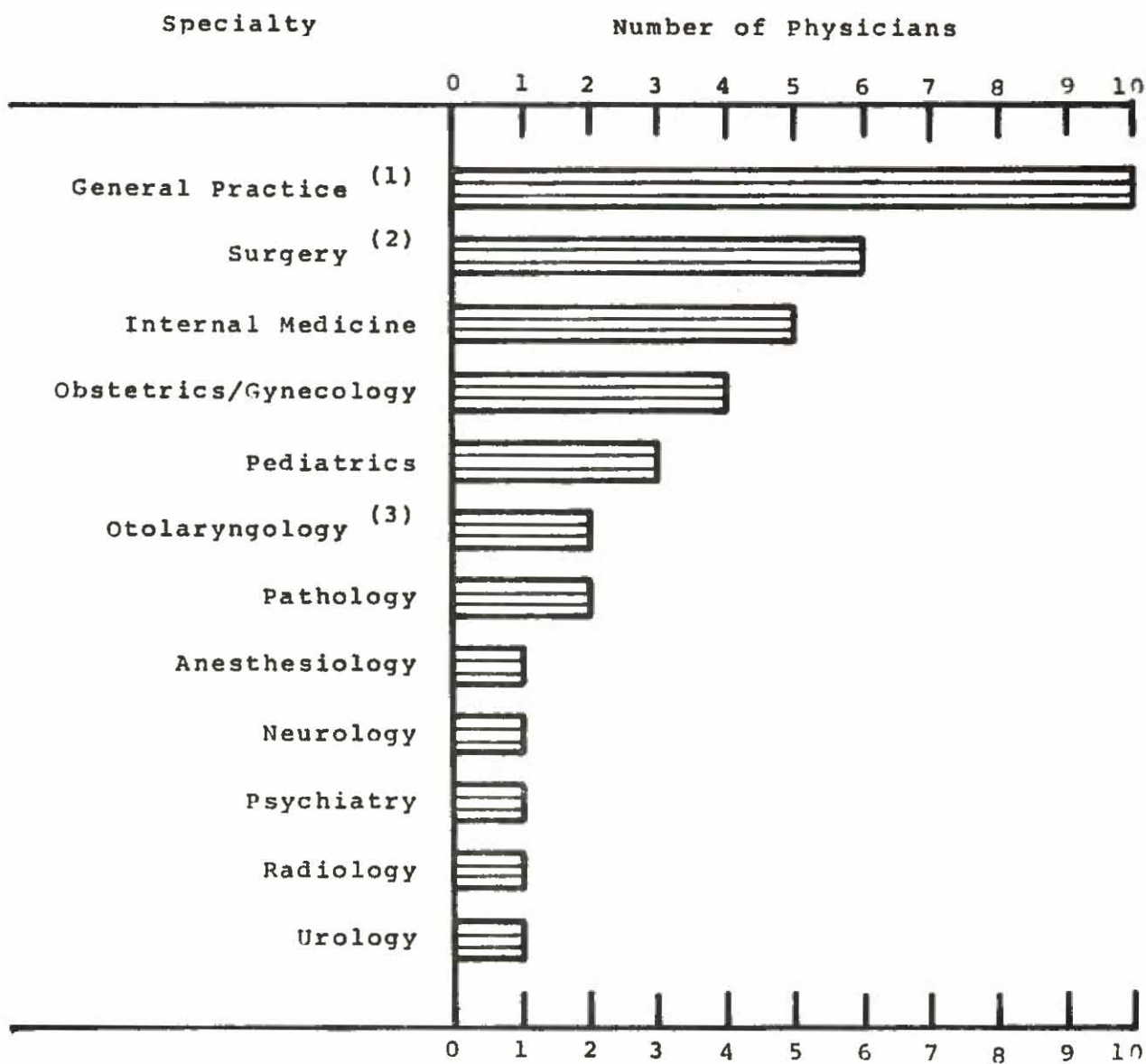
If, however, we were to compare Guam with similar situations within the United States, we would find that many of the rural areas there and some of the metropolitan ones as well are by far much worse off than we are here in Guam. Because of long distances in the rural areas many people are hours away from any medical care at all, and in the cities because of transportation problems some segments of the population are also hours away from medical services.

In terms of the distribution of physician specialties, Guam seems to compare favorably with the United States, and it should also be remembered that the Military provides many other specialties when needed.

Figure 5 presents the actual numerical breakdown of specialists here on Guam. As can be seen, the "Generalists" (family practice categories of General Practitioners, Internists, Obstetricians and Pediatricians) make up the bulk of the physicians here on Guam. In 1965 the United States rate for this grouping was 50 physicians/100,000 population. (1)

(1) Anne R. Somers, Health care in transition: direction for the future, (Chicago, Illinois: Hospital Research and Educational Trust, 1971), page 7.

PRIMARY SPECIALTIES OF ACTIVE NON-MILITARY PHYSICIANS
GUAM - JUNE 1971



(1) Recognized by the American Medical Association as a specialty.

(2) Includes orthopedic surgery.

(3) Includes one Eye, Ear, Nose and Throat physician.

FIGURE 5

In Guam today it is 30 physicians per 100,000 population or expressing it in another way, for every physician in this group, there are 3,313 persons. (1)

Although the percentage distribution of specialties approximates that of the U.S., the physician rates per 100,000 population fall far below those in the United States in most categories (Table 3). This is, of course, a resultant of Guam's very low overall physician to population ratio as previously pointed out. However, this is probably one area where it would be advantageous for Guam not to approximate the United States average. As will be discussed later and as can be seen in Table 3, the military makes much more use of the general practitioner than the civilian system.

Until recently, the general practice physician has always been considered a non specialist. Because of the drastic reduction of these physicians from a rate of 76/100,000 in 1950 to 50/100,000 in 1965, and a final realization of the importance and need of this type of physician, in 1969 the general practice category was designated as a specialty in "Family Medicine." (2) Hopefully, this will encourage more young physicians to enter this new specialty.

(1) Rates computed by the Office of Comprehensive Health Planning.

(2) Anne R. Somers, Health care in transition: direction for the future, (Chicago, Illinois: Hospital Research and Educational Trust, 1971), page 7.

Table 3

Selected Physician Specialties (1)

United States - 1966, Guam - 1971, United States Military on Guam - 1971

SPECIALTIES	UNITED STATES (2)		GUAM (3)		MILITARY-GUAM (4)	
	PHYSICIANS PER 100,000	PERCENT OF TOTAL PHYSICIANS (5)	PHYSICIANS PER 100,000	PERCENT OF TOTAL PHYSICIANS (5)	PHYSICIANS PER 100,000	PERCENT OF TOTAL PHYSICIANS (5)
General Practice	35	26%	14	27%	44	41%
All Others	99	74%	37	73%	64	59%
Surgery (6)	24	18%	8	16%	-	-
Internal Medicine	18	14%	7	14%	-	-
Obstetrics/Gynecology	9	6%	5	11%	-	-
Pediatrics	8	6%	4	8%	-	-

NOTE: Footnotes on following page.

Table 3

Footnotes

- (1) All rates computed by the Office of Comprehensive Health Planning.
- (2) Source Data - Health Manpower -- United States 1965-1967, United States Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 19.
- (3) Source Data - The Commission on Licensure to Practice the Healing Art in Guam as updated by the Office of Comprehensive Health Planning, June 1971.
- (4) Source Data - All U.S. Naval and Air Force Medical Facilities, June 1971.
- (5) Percent expressed as a percentage of active patient care specialists in relation to the total number of physicians.
- (6) United States rates computed including certain surgical specialties to approximate in nature the surgery category of Guam.

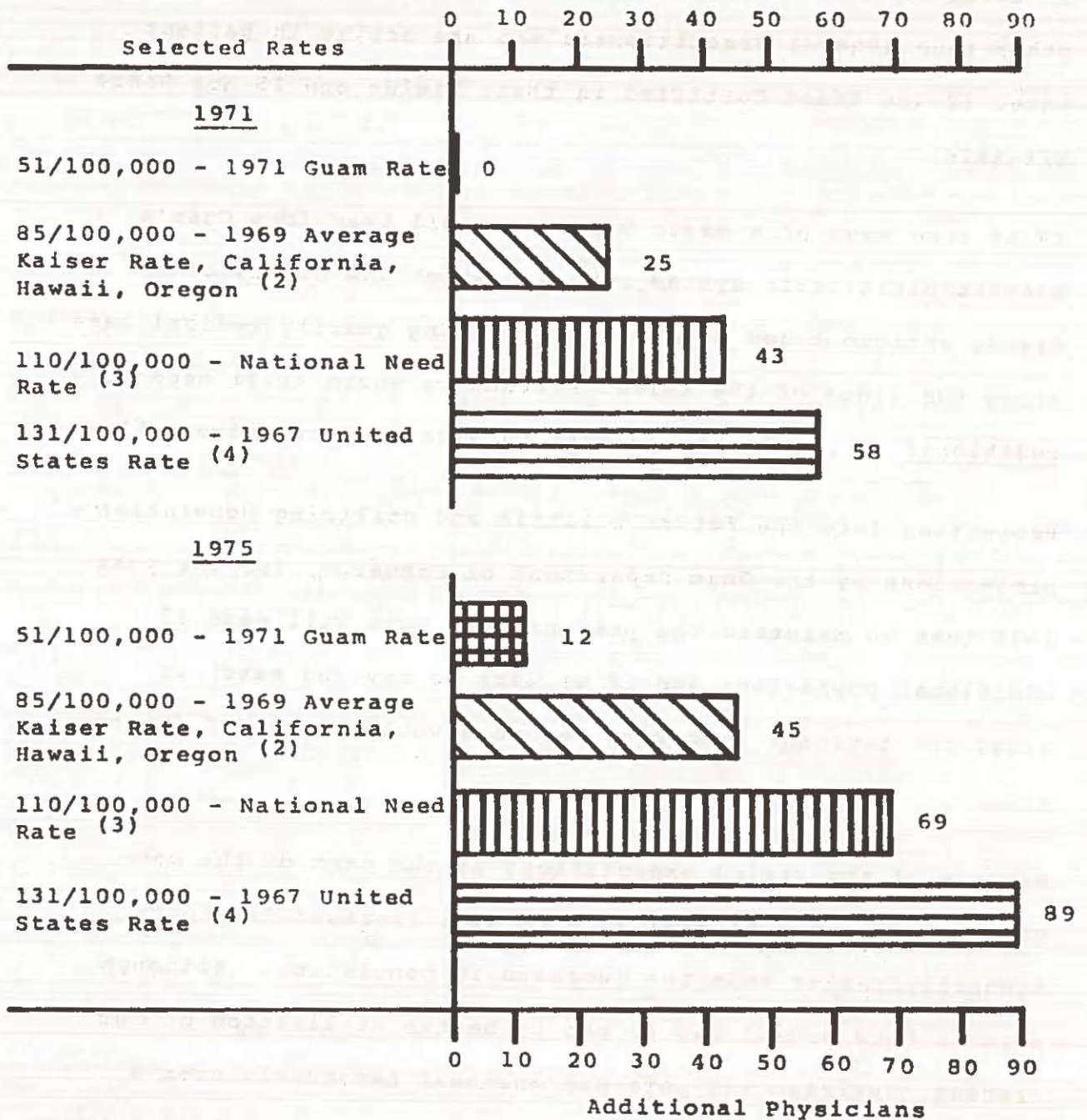
In terms of the training and qualifications of the specialists other than general practitioners who are active in patient care, 12 are Board Certified in their fields and 15 are Board Eligible.

If by some wave of a magic wand, we could transform Guam's present pluralistic system into one which was highly organized, efficient and capable of providing quality medical care along the lines of the Kaiser system, we would still need an additional 25 physicians to what we already have (Figure 6).

Projecting into the future a little and utilizing population projections by the Guam Department of Commerce, for the year 1975 just to maintain the present rate Guam will need 12 additional physicians and if we were to try and match at least the national need rate, 69 more would be needed (Figure 6).

Because of the rising expectations on the part of the consumer, demand for medical service will increase disproportionately faster than the increase in population. Although part of this demand may be met by better utilization of our present physician and para-professional personnel, even a drastic change in the system will require a substantial increase in the number of physicians needed. Continuing Guam's present system of delivering medical care then, will require even greater numbers of additional physicians to meet the demand.

**Additional Physicians Needed to
Attain Selected Physician Rates,
Per 100,000 Population in Guam (1)**



- (1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.
- (2) Greer Williams, "Kaiser," Modern Hospital, February 1971, page 83.
- (3) Newsletter, Volume IV, Number 13, Northwest Arkansas Development District, June 1971.
- (4) Health Manpower, United States 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 17.

FIGURE 6

The questions then are, can Guam accelerate the present changing of the system from an inefficient "cottage industry" type system based on a fee for service concept to one that is highly organized around the large physician group model which delegates more responsibilities to the para professional, and one that is ever increasingly based on a prepaid service plan concept; and can Guam obtain the necessary physician personnel to staff such a system or any system for that matter?

With the national shortage of physicians combined with the maldistribution and incorrect utilization of these personnel as now exists in the United States, it does not seem reasonable that Guam will be able to obtain the needed physician manpower solely from stateside sources. As Guam already relies heavily on foreign trained physicians to supply its needs, it will probably have to continue to do so in the near future.

However, reliance on this source is not the ultimate answer for Guam nor is it fair to the countries from which these physicians come.

A better solution would be for Guam to embark on the following course of action.

1. Encourage more young local people to enter the study of medicine especially in the area of general practice.

2. Restructure the present system of medical care in Guam to increase the productivity of the physician as well as quality of care provided.

3. Increase the utilization of para-professional personnel to free the physician from menial tasks that he now must perform.

From all that has been presented, there is a physician shortage here in Guam. Although as previously mentioned that need is not presently felt to any large extent. Most persons are able to see a doctor when they are in need, and to date there has not been any large expression of dissatisfaction on the part of the consumer/patient.

Experience has shown, however, that in any area of economic growth and development along with increased consumer affluence comes a demand for more and increased quality of medical services. There is no reason to believe that Guam will be any different.

How soon will that day arrive and how severe will the crisis be? Much of course depends on the type of system that will be in use.

Presently for Guam to bring itself up to the national average we would need 58 new physicians immediately (Figure 6).

In using a "National Need Rate" of 85/100,000 as put forth by the Northwest Arkansas Economic Development District, Guam would require an additional 43 new physicians. These rates, of course, reflect a system that is still predominantly a solo practitioner one, and one with many inequities in physician distribution and utilization as well as quality of medical care.

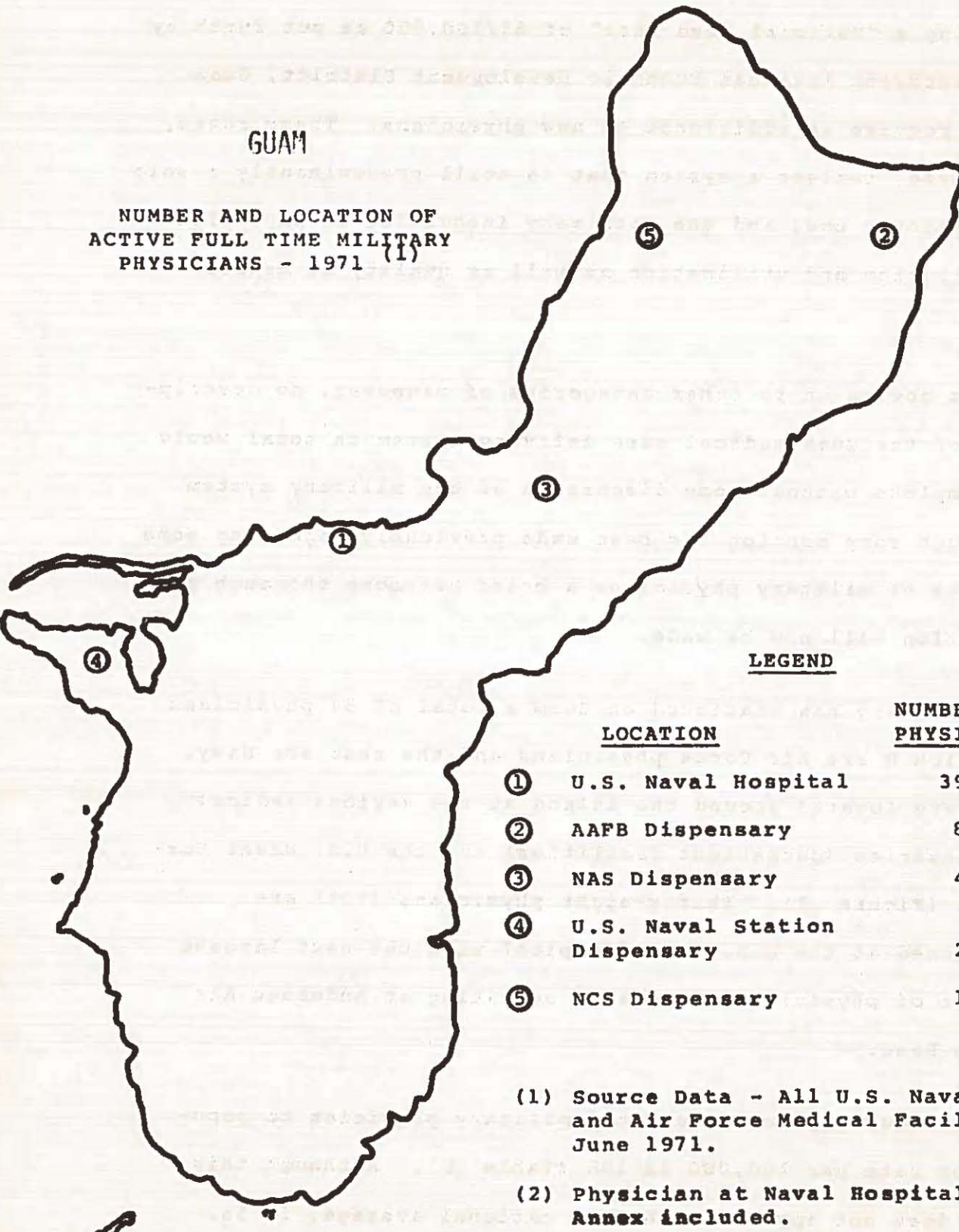
Before moving on to other categories of manpower, no description of the Guam medical care delivery system in total would be complete without some discussion of the military system. Although some mention has been made previously regarding some aspects of military physicians a brief but more thorough presentation will now be made.

The military has stationed on Guam a total of 54 physicians of which 8 are Air Force physicians and the rest are Navy. They are located around the island at the various medical dispensaries (outpatient facilities) and the U.S. Naval Hospital (Figure 7). Thirty-eight physicians (70%) are stationed at the U.S. Naval Hospital with the next largest number of physicians, 8 in all, operating at Andersen Air Force Base.

As previously pointed out, the military physician to population rate per 100,000 is 108 (Table 1). Although this rate does not approach the U.S. national average, it is, however, twice that of the present Guam rate. It should be

GUAM

NUMBER AND LOCATION OF
ACTIVE FULL TIME MILITARY
PHYSICIANS - 1971 (1)



LEGEND

<u>LOCATION</u>		<u>NUMBER OF PHYSICIANS</u>
①	U.S. Naval Hospital	39 (2)
②	AAFB Dispensary	8
③	NAS Dispensary	4
④	U.S. Naval Station Dispensary	2
⑤	NCS Dispensary	1

(1) Source Data - All U.S. Naval and Air Force Medical Facilities, June 1971.

(2) Physician at Naval Hospital Annex included.

FIGURE 7

remembered too, that the military system is a highly organized one which relies heavily on the services of the para professional.

Although no specific specialty breakdown was requested from the military installations, we do know that they use 22 general practitioners and 32 specialists. Of these specialists, 11 are Board Certified and 21 are Board Eligible.

As can be seen, the military makes much greater use of the general practitioner than the civilian system, whether on Guam or in the United States (Table 3). Most all of the specialists are hospital based with the general practitioner staffing the various outlying dispensaries.

The military system employs a type of physician group model which resembles in some respects (or some would probably say vice versa) the Kaiser model of medical care delivery. They use their general practitioners and para-professional personnel as the primary point of entry for the patient with referrals being made to specialists as necessary. Of course, the advantages of this concept are that (1) the specialists are not used for normal patient care and (2) by centralizing them, they are more highly utilized for their particular specialties.

The military system on Guam, as well as other such organized systems throughout the United States, should provide some very good examples for reorganizing the present medical care delivery system here in Guam.

Dentists

As previously mentioned, there are 18 dentists currently licensed to practice dentistry in Guam. Of these 14 (78%) are actively engaged in patient care, 2 are instructors in the University of Guam's dental auxiliary program, 1 is the Department of Public Health and Social Services' administrator for dental health and the last one is employed by the Guam Memorial Hospital as an anesthetist. (1) Among those actively providing dental care, 11 are in private practice with the remaining 3 being employed by the Department of Public Health and Social Services. Unlike the physicians who were almost split evenly between private and public practice, 79% of the dentists active in patient care are in private practice. Just briefly, it should be mentioned at this time that the Department of Public Health and Social Services has plans to increase its staff quite substantially with the opening of the new Areawide Health Center in Inarajan.

Unfortunately, as with the physicians, the number of dentists practicing in Guam does not compare favorably with any of the selected areas in the United States. As can be seen from Table 4, the 1967 U.S. rate for dentists for 100,000 population is almost 2.5 times greater than that of Guam's present rate, and many of the States have an even higher rate. The Island of Hawaii with a somewhat comparable population

(1) Compiled by the Office of Comprehensive Health Planning, June 1971.

Table 4

Selected Locations of Practice in the United States for Active Non-Federal Dentists
(1)
in Patient Care (Includes Military Dentists on Guam)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	DENTISTS	DENTIST PER 100,000	DENTIST TO POPULATION RATIO (3)
Island of (4) Oahu, 1969	557,560	598	397	71	1:1404
State of (4) Hawaii, 1969	692,358	6,424	467	67	1:1482
New York, 1967	18,303,000	47,869	12,237	67	1:1495
Military- (5) Guam, 1971	50,000	-----	28	56	1:1786
California, 1967	18,793,000	156,537	10,245	55	1:1834
Island of (4) Hawaii, 1969	60,668	4,021	31	51	1:1957
United States, 1967	195,669,000	3,628,151	90,716	46	1:2156
Wyoming, 1967	311,000	97,281	132	42	1:2356
Vermont, 1967	416,000	9,274	173	42	1:2404
Alaska, 1967	238,000	566,432	79	33	1:3012
Guam, 1971 (6)	72,900	212	14	19	1:5207

NOTE: Footnotes on following page.

Table 4

Footnotes

- (1) Health Manpower -- United States 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 32.
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) All ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (4) Statistical Report -- 1969, Department of Health, State of Hawaii, page 2. Dentist data, October 1969. Includes all licensed dentists within the State of Hawaii. The State of Hawaii Data Book -- 1971, Department of Planning and Economic Development, page 23. All computations by the Office of Comprehensive Health Planning, June 1971.

The State of Hawaii is made up of six major islands. Included for comparison here are the Island of Hawaii and the Island of Oahu. The Island of Hawaii should not be confused with the State of Hawaii of which it is only a part.
- (5) Military population approximation based on eligibility records of the U.S. Naval Hospital and includes active military personnel and their dependents, retired military personnel and their dependents, eligible veterans, U.S. Civil Service stateside hire employees, and specified other civilians. Dentist data - June 1971. All U.S. Naval and Air Force Dental Facilities. Compiled by the Office of Comprehensive Health Planning.
- (6) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Dentist data compiled and rates computed by the Office of Comprehensive Health Planning, June 1971.

size had a population to dentist ratio for 1969 of 1:1957, while presently Guam has one of 1:5207 (Table 4).

Of course as everyone is most likely aware of, the physical distribution of dentists parallels that of the physicians, namely the Agana, Tamuning, Harmon corridor (Figure 8).

There are two exceptions, however, and those are the Seventh-Day Adventist dental facility located in Inarajan and the Department of Public Health and Social Services Areawide Health Center in Inarajan also.

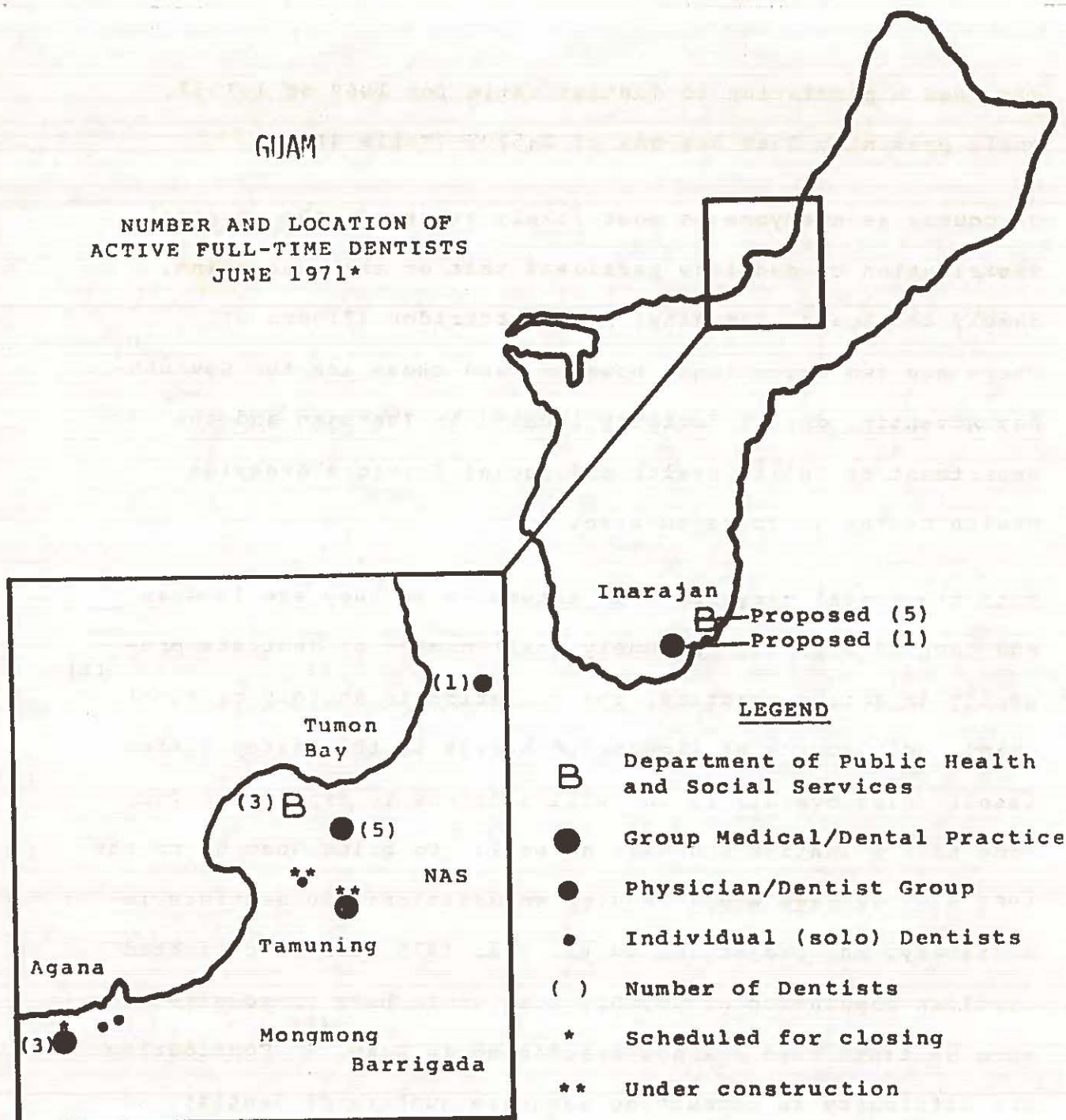
With the dental care needs as extensive as they are in Guam and coupled with the extremely small number of dentists presently in active practice, the situation is acutely critical. (1) Guam's only source of licensed dentists is the United States itself which overall is and will continue to experience for some time a dentist shortage as well. To bring Guam up to the 1967 U.S. average would require an additional 20 dentists immediately, and projecting to the year 1975 with an estimated civilian population of 96,000, Guam would have to acquire 30 (2) more dentists than are now practicing in Guam. Considering the difficulty in recruiting adequate numbers of dentists in the past, it does not seem feasible that the situation will be significantly altered in the future.

(1) "Dental Health," Comprehensive Health Plan for the Territory of Guam, Office of Comprehensive Health Planning, Department of Public Health and Social Services, February 1971, pages 110-115.

(2) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

GUAM

NUMBER AND LOCATION OF ACTIVE FULL-TIME DENTISTS JUNE 1971*



*Compiled by the Office of Comprehensive Health Planning, June 1971.

FIGURE 8

The Department of Public Health and Social Services has embarked upon a program of utilizing specially trained dental auxiliaries to help eliminate the dentist shortage, at least as far as the Department is concerned. Accordingly, the correct use of the dental auxiliary should increase the productivity of the dentist substantially depending on the number of auxiliaries utilized. In the new facility at Inarajan, they plan on making use of four dental auxiliaries for every dentist. At a minimum these dentists should be able to handle three times their normal patient load and with practice even more.

Provided that this new approach proves to be fairly successful, and if all dentists in Guam were to utilize these dental auxiliaries as trained, the deficiency would definitely not be as great as it now is. There is of course a quality consideration which is very important and which will have to be evaluated thoroughly before there is widespread acceptance of these types of personnel. Assuming, however, that there would be universal acceptance and use, the effective rate per 100,000 population of the 14 presently active dentists utilizing four dental auxiliaries each would be 58 per 100,000.

Of course it is a little unrealistic to expect that the approach can be fully realized immediately. It is not, however, too far fetched to believe that it might be more universally accepted and in operation in 1975. If this were indeed the case, assuming that Guam's supply of dentists had not increased

above our present number of 14, assuming that a sufficient number of trained dental auxiliaries were available (at least 56 or four per dentist), assuming that they would be utilized as trained, Guam could expect an effective rate of dentists per 100,000 population of 44 (14 dentists with an increased productivity of three times their normal rate providing services in 1975 for a population of 96,000 persons). Although still below the 1967 U.S. rate of 46 per 100,000, this would represent a vast improvement over the present Guam rate of 19 per 100,000.

There are many who will argue that the use of dental auxiliaries is not the answer, that we should concentrate on bringing more fully qualified dentists to the island while also emphasizing the preventative aspects of dental care among Guam's populace. Emphasizing prevention is of course an essential part of any medical or dental program and should be stressed. Recruiting new dentists is more desirable than relying entirely on the utilization of dental auxiliaries. However, if the supply of dentists is not sufficient to meet the dental needs of the people, then such an innovative program as the dental auxiliary one will have to be utilized to its maximum potential without sacrificing quality care.

There are, presently, many advances in dental care being made. It may be possible someday to even eliminate the need for dentists or at least reduce what we now consider an adequate number within a given population. Until that day arrives, how-

ever, we cannot afford to not plan ahead and do all that is possible to provide for the dental care needs of the people of Guam.

It is interesting to note at this time the number of military dentists presently located on Guam. Compared with the civilian system, they have almost twice as many, utilizing a total of 28 active dentists. From Table 4 it can be seen that they even have a higher rate than the U.S. average with a dentist to population ratio of 1:1786 while the U.S. ratio is 1:2156.

The military system distributes its manpower where the needs are. The U.S. Naval Station has at its dental clinic ten dentists, the Andersen Air Force Base uses ten dentists at the clinic there, four dentists are located at the Naval Air Station, and two dentists each are stationed at the U.S. Naval Hospital and the Naval Communication Station respectively (Figure 9). Two things should be kept in mind if one is to compare Guam's military system with its civilian one.

First the military dentists not only serve the eligible population here on Guam, but also must provide services to other personnel stationed at sea or other places and temporarily assigned here. The other thing is that although the need for dental services is probably proportionately smaller than that of Guam's civilian population, the demand for services is most likely substantially greater.

GUAM

NUMBER AND LOCATION OF ACTIVE FULL TIME MILITARY DENTISTS - 1971*

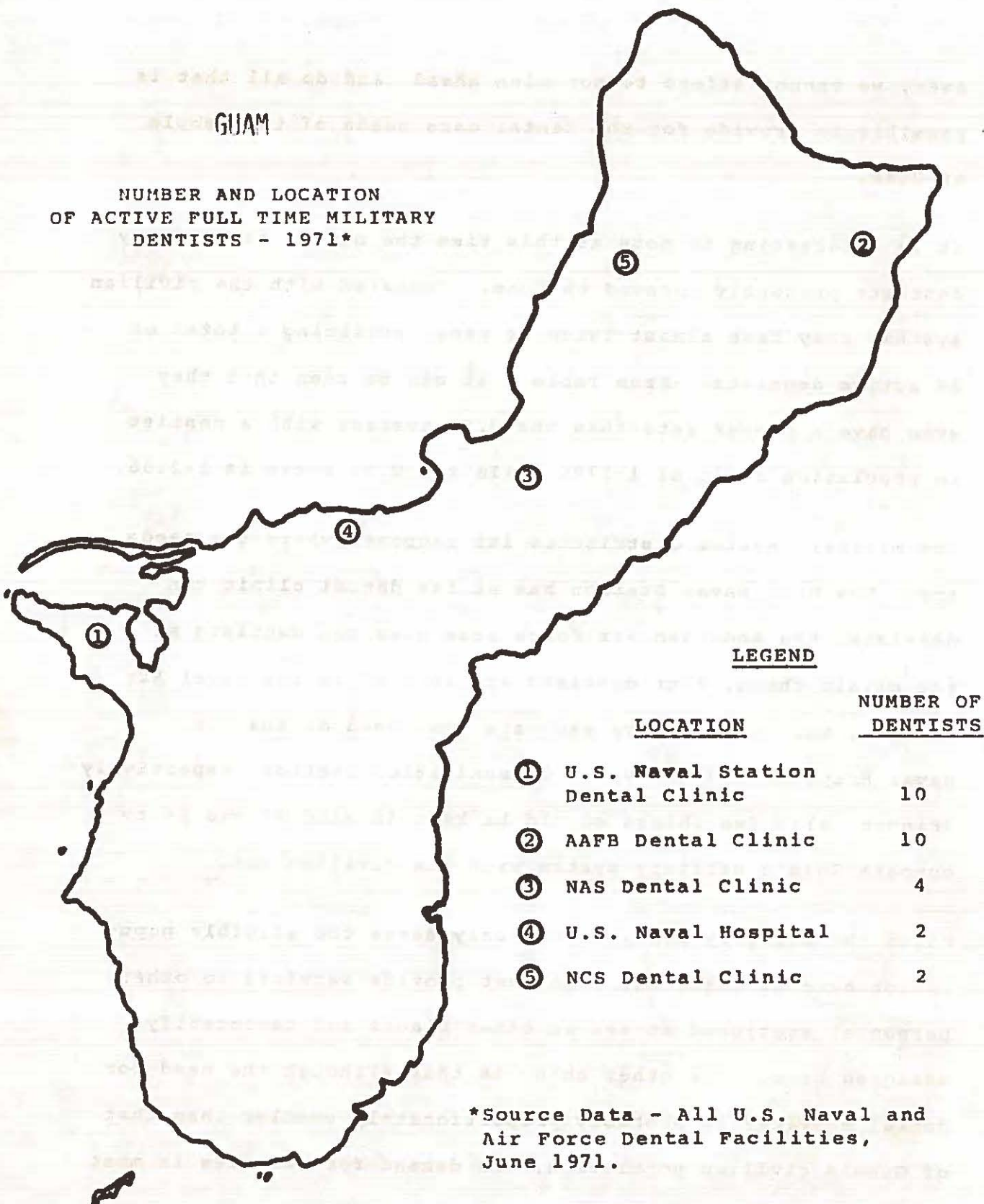


FIGURE 9

This is not a justification of the civilian system's low dentist rate. It is only meant to point out that regardless of need, there must also be a demand for services on the part of the consumer. A demand which can only come about if the patient is aware of his dental problems and the importance in having them taken care of.

As was pointed out earlier, Guam's rapid economic development will bring with it an affluence and an awareness level which will not only increase the demand for medical services, but dental services as well. The need for more dental services is already here; the demand for them will be following shortly.

Registered Nurses (R.N.)

For the fiscal year 1971 a total of 278 nurses were licensed (1) to practice as registered nurses (R.N.) in Guam. Of this number 195 were actively engaged in either full time or part-time practice of their profession. The remaining 83 nurses were either practicing in another area of the United States or were not working, but living here on Guam. In discussions with several of the nurses, it seems to be the practice to keep their licenses current in several locations for which they have been previously licensed, regardless of whether or not they are out of the area or just temporarily not working. It is interesting to note that of the 59 nurses listed as off island but retaining their current Guam license, all of them were classified as permanent residents of Guam (regard Guam as their home).

Educationally, the bulk of the registered nurses received their training in nursing schools both in the United States and abroad. Approximately 75% of the nurses licensed as R.N.'s here in Guam have diplomas from the above schools. The remaining 25% received their training in either a community college offering a two-year program or a university providing baccalaureate and advanced degree programs. Of these 15% have bachelor's degrees (B.S.), 9% have associate

(1) Source Data - The Guam Board of Nurse Examiners, May 1, 1971.

degrees (A.A.), and 1% have master's degrees (M.S.).⁽¹⁾ Although not comparable in the strictest sense, the distribution of degrees and diplomas for graduate nursing schools and college degree programs in the United States for the academic year 1967-1968 was somewhat similar to that of Guam's working nurses. Out of the total nurses graduated, 65% received nursing diplomas, 20% graduated with bachelor's degrees, 11% received associate degrees and 4% received master's degrees or higher.⁽²⁾ Regarding the schools from which these nurses received their training, 42% of the active nurses here received their training from foreign schools, 48% of the nurses studied in United States nursing schools and colleges, and the remaining 10% were trained by the United States Navy prior to the Organic Act of Guam.⁽³⁾

As with the previous categories of health manpower, Guam again finds itself somewhat on the bottom of the list when compared with those areas selected for comparison. As of June 1, 1971, the Office of Comprehensive Health Planning, Guam, calculated that 190 registered nurses were currently

(1) Source Data - The Guam Board of Nurse Examiners, May 1, 1971. All computations by the Office of Comprehensive Health Planning, June 1971.

(2) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 140. Percentages computed by the Office of Comprehensive Health Planning, June 1971.

(3) Source Data - The Guam Board of Nurse Examiners, May 1, 1971. All computations by the Office of Comprehensive Health Planning, June 1971.

practicing nursing in Guam. As personnel turnover is frequent, the difference between this figure and the previously reported one of 195, may be attributed to the reporting procedure in regards to the activity status of the individual nurses. As can be seen from Table 5, Guam has a nurse (R.N.) rate of 261 per 100,000 population compared with the number one in the table, the Island of Oahu, which had a rate of 471 per 100,000 in 1969.⁽¹⁾ It should also be noticed, however, that in spite of its low position, Guam is in fact only 16.6% below the 1966 U.S. national average. Although not apparent in Table 5, Guam's nursing rate exceeds that of many of the States in the U.S. This is a much better showing than either physicians or dentists, and Guam can be thankful that it does have such a comparatively high rate of nurses to carry the load in substituting for manpower shortages in other categories.

In terms of employment representation, 63% of the working registered nurses are employed by the Guam Memorial Hospital, a rate which is very comparable to that of the United States in general (Table 6). Where Guam does differ significantly, however, is in the percentage of nurses practicing in public health and the public schools. Guam's rate is over three times that of the U.S. average (Table 6). The reader should

(1) Data compiled by the Office of Comprehensive Health Planning, June 1971. As pointed out previously, a slight difference exists between these figures and the Guam Board of Nurse Examiners.

Table 5

Selected Locations of Practice in the United States for Employed Registered Nurses (RN)

(Includes Military Registered Nurses in Guam) (1)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	NURSES	NURSES PER 100,000	NURSE TO POPULATION RATIO (3)
Island of Oahu, 1969 (4)	557,560	598	2,625	471	1:212
Vermont, 1969	411,210	9,274	1,834	446	1:224
State of Hawaii, 1969 (4)	692,358	6,424	3,078	445	1:225
New York, 1966	18,207,353	47,869	74,286	408	1:245
Wyoming, 1966	318,997	97,281	1,209	379	1:264
Island of Hawaii, 1969 (4)	60,668	4,021	205	338	1:296
United States, 1966	195,909,904	3,628,150	613,198	313	1:319
California, 1966	18,808,654	156,537	58,683	312	1:320
Guam, 1971 (5)	72,900	212	190	261	1:384
Alaska, 1966	264,732	566,432	593	224	1:446
Military- Guam, 1971 (6)	50,000	-----	51	102	1:980

NOTE: Footnotes on following page.

Table 5

Footnotes

- (1) Data represent adjusted figures for employed nurses. Health Manpower -- United States 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 39. (Hawaii rate includes all active registered nurses.)
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) All ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (4) Statistical Report -- 1969, Department of Health, State of Hawaii, page 2. Nursing data, October 1969. The State of Hawaii Data Book -- 1971, Department of Planning and Economic Development, page 23. All computations by the Office of Comprehensive Health Planning, June 1971.

The State of Hawaii is made up of six major islands. Included for comparison here are the Island of Hawaii and the Island of Oahu. The Island of Hawaii should not be confused with the State of Hawaii of which it is only a part.

- (5) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Nursing data compiled and rates computed by the Office of Comprehensive Health Planning, June 1971. Includes 26 registered nurses in administrative and educational positions.
- (6) Military population approximation based on eligibility records of the U.S. Naval Hospital and includes active military personnel and their dependents, retired military personnel and their dependents, eligible veterans, U.S. Civil Service stateside hire employees, and specified other civilians. Nursing data - June 1971. All U.S. Naval and Air Force Medical Facilities. Compiled by the Office of Comprehensive Health Planning.

Table 6

Areas of Practice of Registered Nurses

U.S. - Guam

AREA OF PRACTICE	(1) GUAM - 1971		(2) U.S. 1967 % OF TOTAL
	TOTAL	% OF TOTAL	
Inpatient Facilities	120	63%	67%
Private Clinics, Offices, & Practices	19	10%	19%
Public Health/Schools	45	24%	7%
Nursing Education	6	3%	4%
Occupational Health	---	---	3%
TOTAL	190	100%	100%

(1) Data compiled and percentages computed by the Office of Comprehensive Health Planning, June 1971. Includes 26 RN's in administrative, supervisory and educational positions.

(2) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 138.

note, however, that this high rate is attributable to the large number of nurses in public health, and not to the public schools here in Guam. The number of nursing personnel within the schools is definitely inadequate (Table 7). Because of the Public Health clinics and programs as well as the public schools, the nurses unlike their colleagues, the physicians, are physically distributed more generously throughout the island (Figure 10). Only those working at Guam Memorial Hospital and the private clinics find themselves located in the Agana, Tamuning, Harmon "medical care" corridor (Figures 10 & 11).

The military as can be seen from Table 5 utilizes a much smaller number of registered nurses. They are able to accomplish this by making use of large numbers of corpsmen in the general nursing area as well as the medical, technical specialties. On Guam, the military has 51 registered nurses with 48 of these working at the U.S. Naval Hospital and the other three practicing at the Andersen Air Force Base Medical Dispensary.⁽¹⁾

Although Guam's present and future needs for registered nurses do not seem to be as critical as some of the other manpower categories, it is significant to note that Guam still has a long way to go in equaling many of the rates within the United States, and may have an even more difficult time in the future.

(1) Source - All U.S. Military Medical Facilities in Guam. Data compiled by the Office of Comprehensive Health Planning, June 1971.

Table 7

Distribution of Registered and
Practical Nurses (RN/LPN) Employed
in Government of Guam Agencies - June 1971 (1)
(Number in Brackets)

A. Department of Education School Health Counselors		[9]
1. Agat Junior High	[1]	
2. Barrigada Junior High	[1]	
3. Brodie Memorial	[1]	
4. Dededo Junior High	[1]	
5. George Washington Junior High	[1]	
6. George Washington Senior High	[1]	
7. Inarajan Junior High	[1]	
8. John F. Kennedy Senior High	[1]	
9. Vocational Technical High	[1]	
B. Department of Public Health and Social Services		[40]
1. Central Facility including Tamuning Village Clinic	[18]	(2)
2. Inarajan Areawide Health Center	[2]	
3. Village Health Centers		
a. Agat	[2]	
b. Asan	[1]	
c. Barrigada/Mongmong-Toto-Maite	[3]	
d. Dededo	[2]	
e. Mangilao/Chalan Pago-Ordot	[3]	
f. Merizo/Umatac	[1]	
g. Piti/Santa Rita	[2]	
h. Sinajana/Agana Heights	[2]	
i. Talofofo	[1]	
j. Yigo	[1]	
k. Yona	[2]	
C. Guam Memorial Hospital	[140]	(3)
D. University of Guam	[6]	(4)

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

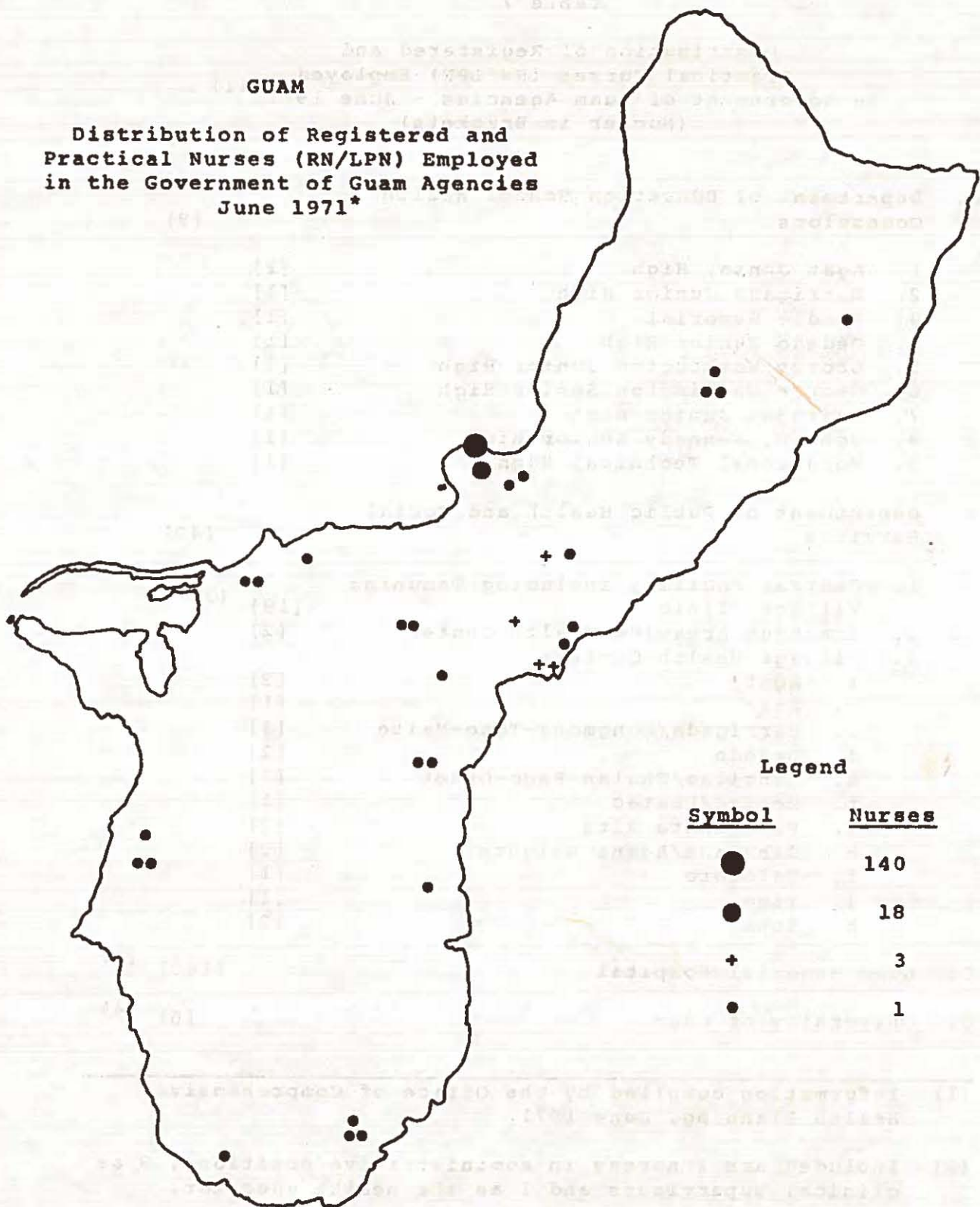
(2) Included are 2 nurses in administrative positions, 9 as clinical supervisors and 1 as the health educator.

(3) Included are 8 nurses involved in administrative activities.

(4) Included are 5 nurses as instructors in the University of Guam's Nursing Program and 1 administrative director.

GUAM

**Distribution of Registered and
Practical Nurses (RN/LPN) Employed
in the Government of Guam Agencies
June 1971***



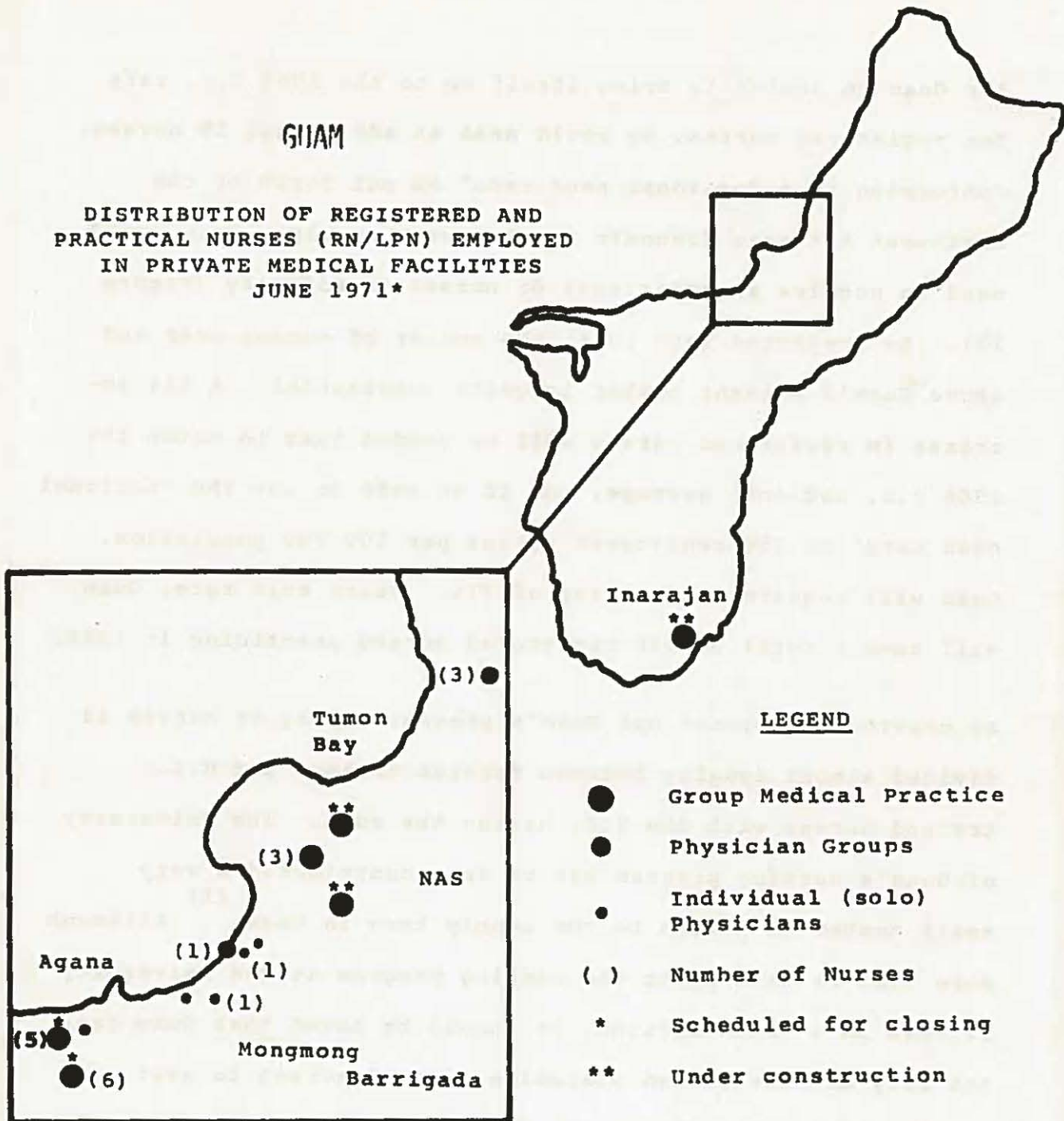
Legend	
<u>Symbol</u>	<u>Nurses</u>
●	140
●	18
+	3
●	1

* Data compiled by the Office of Comprehensive Health Planning.

Figure 10

GUAM

DISTRIBUTION OF REGISTERED AND
PRACTICAL NURSES (RN/LPN) EMPLOYED
IN PRIVATE MEDICAL FACILITIES
JUNE 1971*



*Information compiled by the Office of Comprehensive Health Planning, June 1971.

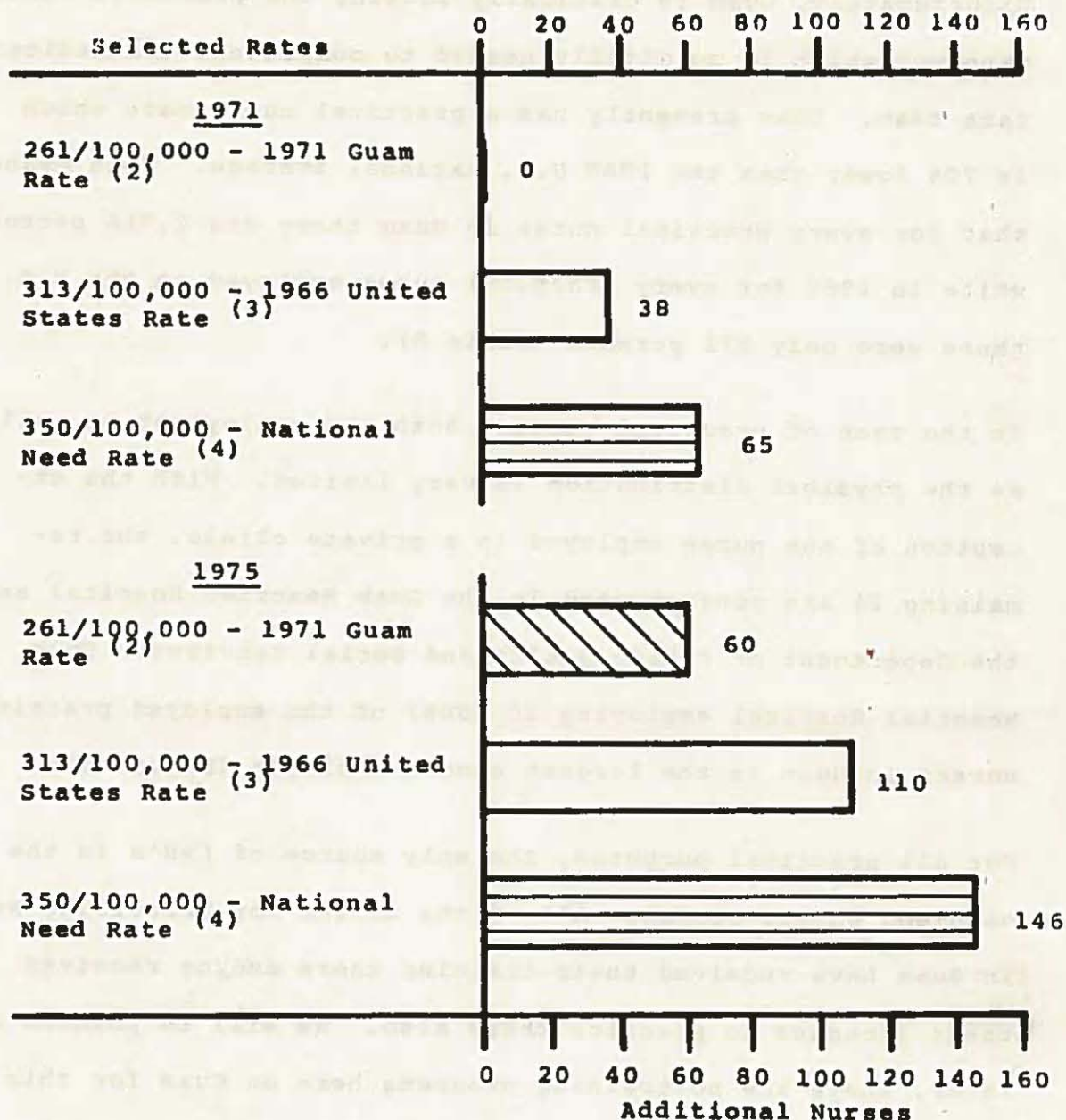
FIGURE 11

For Guam to presently bring itself up to the 1966 U.S. rate for registered nurses, we would need an additional 38 nurses. Conforming to a "national need rate" as put forth by the Northwest Arkansas Economic Development District, Guam would need to acquire an additional 65 nurses immediately (Figure 12). As projected into 1975, the number of nurses over and above Guam's present number is quite substantial. A 58% increase in registered nurses will be needed just to match the 1966 U.S. national average, and if we were to use the "national need rate" of 350 registered nurses per 100,000 population, Guam will require an increase of 77%. Using this rate, Guam will need a total of 336 registered nurses practicing in 1975.

As previously pointed out Guam's present supply of nurses is divided almost equally between foreign trained and U.S. trained nurses with the U.S. having the edge. The University of Guam's nursing program has to date contributed a very small number of nurses to the supply here in Guam. (1) Although more will be said about the nursing program at the University of Guam in a later section, it should be noted that Guam cannot rely on foreign and stateside trained nurses to meet its nursing manpower needs in the future. The University is going to have to supply a more substantial number. As in all health manpower categories a more concerted effort will have to be made to recruit young local candidates into the nursing program.

(1) Annual Report - Calendar Year 1970, Guam Board of Nurse Examiners, February 3, 1971.

**Additional Registered Nurses (Practicing) Needed
To Attain Selected Nurse Rates
Per 100,000 Population in Guam (1)**



- (1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.
- (2) Data compiled by the Office of Comprehensive Health Planning, June 1971.
- (3) Health Manpower, United States -- 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 39.
- (4) Newsletter, Volume IV, Number 13, June 1971, Northwest Arkansas Development District.

FIGURE 12

Licensed Practical Nurses (LPN/LVN)

Unfortunately, Guam is critically lacking the practical nurse manpower which is so vitally needed to complement the medical care team. Guam presently has a practical nurse rate which is 70% lower than the 1960 U.S. national average. This means that for every practical nurse in Guam there are 2,916 persons, while in 1960 for every practical nurse employed in the U.S. there were only 871 persons (Table 8).

In the case of practical nurses, both the employment as well as the physical distribution is very limited. With the exception of one nurse employed in a private clinic, the remaining 24 are concentrated in the Guam Memorial Hospital and the Department of Public Health and Social Services. Guam Memorial Hospital employing 20 (80%) of the employed practical nurses in Guam is the largest single employer (Figure 10).

For all practical purposes, the only source of LPN's is the mainland United States. All of the nurses now practicing here in Guam have received their training there and/or received their licenses to practice there also. As will be pointed out later, there are no training programs here on Guam for this particular category, and there is no mechanism for testing licensed practical nurse candidates who either come to Guam from foreign sources or are graduate nurses who for some reason are unable to pass the registered nurse exam, but would most likely be able to pass the licensed practical nurse exam.

Table 8

Selected Locations of Practice in the United States for Employed
Practical Nurses (LPN/LVN) (1)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	NURSES	NURSES PER 100,000	NURSE TO POPULATION RATIO (3)
Vermont, 1960	390,000	9,274	679	174	1:574
Hawaii, 1960	633,000	6,424	952	150	1:665
California, 1960	15,717,000	156,537	18,619	118	1:844
United States, 1960	179,323,000	3,628,150	205,974	115	1:871
New York, 1960	16,782,000	47,869	15,191	91	1:1105
Wyoming, 1960	330,000	97,281	245	74	1:1347
Alaska, 1960	226,000	566,432	118	52	1:1915
Guam, 1971 (4)	72,900	212	25	34	1:2916

(1) Health Resources Statistics -- 1968, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 142.

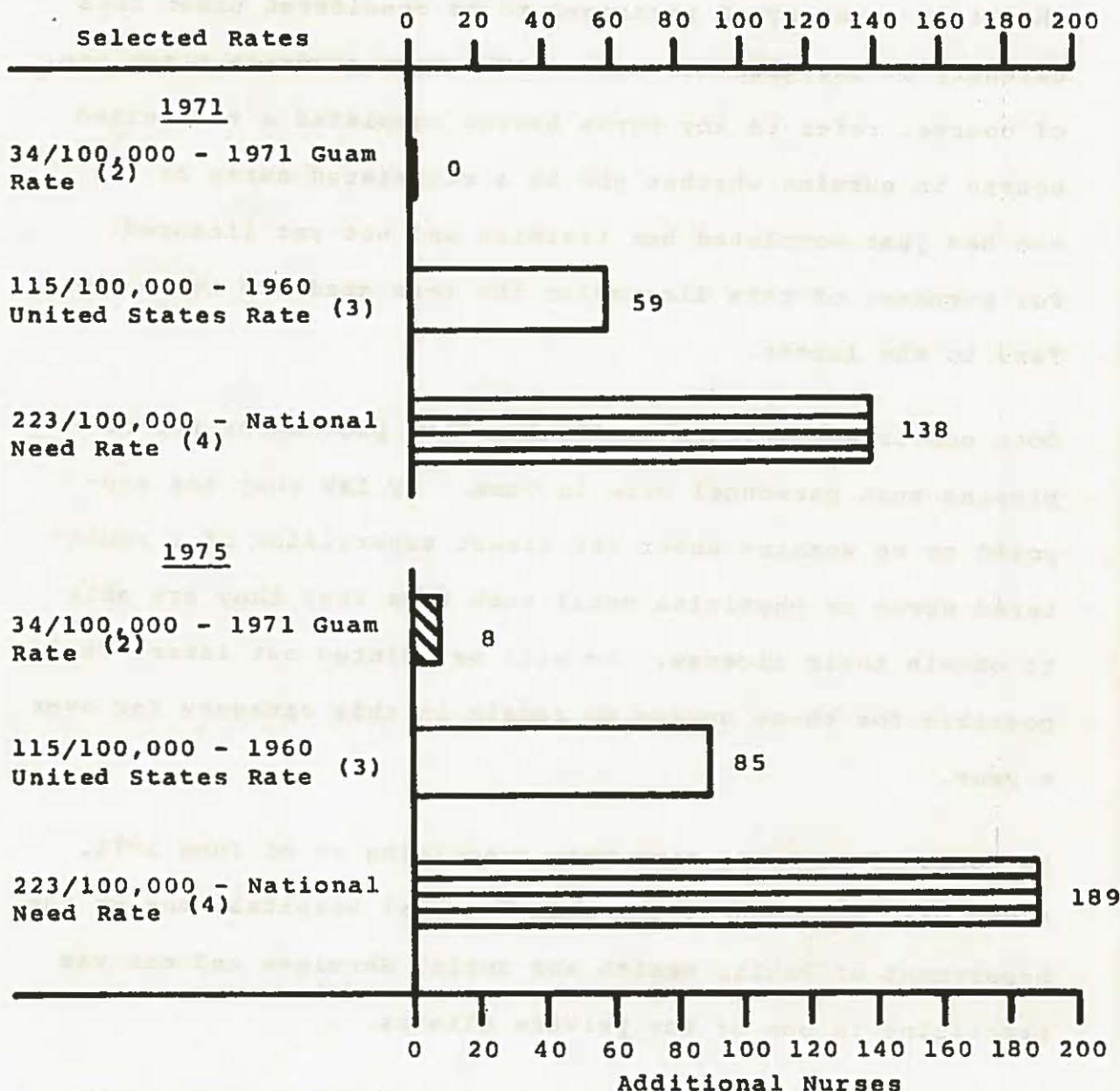
(2) Luman H. Long ed., The World Almanac -- 1970.

(3) All ratios computed by the Office of Comprehensive Health Planning, June 1971.

(4) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Nursing data compiled and rates computed by the Office of Comprehensive Health Planning, June 1971.

To match the 1960 U.S. rate of 115 practical nurses per 100,000 population, Guam would need an immediate increase of 59 nurses (Figure 13). From Figure 13 it is very evident that in the future and a not too distant one at that, Guam's needs for practical nurses will be even more critical. It should be remembered that this projected need is based on the present system of medical care delivery. Any change in the system emphasizing the increased utilization of para-medical personnel, such as these, can only increase the need for practical nurses further.

**Additional Licensed Practical Nurses (Practicing)
Needed to Attain Selected Nurse
Rates per 100,000 Population in Guam (1)**



- (1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.
- (2) Data compiled by the Office of Comprehensive Health Planning, June 1971.
- (3) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 142.
- (4) Newsletter, Volume IV, Number 13, June 1971, Northwest Arkansas Development District.

FIGURE 13

Associated Nursing Personnel

The first category of personnel to be considered under this category is the graduate nurse. The term graduate nurse can, of course, refer to any nurse having completed a recognized course in nursing whether she be a registered nurse or one who has just completed her training and not yet licensed. For purposes of this discussion the term graduate nurse refers to the latter.

Both public and private facilities have provisions for employing such personnel here in Guam. By law they are supposed to be working under the direct supervision of a registered nurse or physician until such time that they are able to obtain their license. As will be pointed out later, it is possible for these nurses to remain in this category for over a year.

In terms of numbers, nine were practicing as of June 1971. Seven were employed by the Guam Memorial Hospital, one by the Department of Public Health and Social Services and one was practicing in one of the private clinics.⁽¹⁾

A much larger component within the associated nursing personnel category is that which combines several sub categories, namely nursing aides/attendants/orderlies. These personnel play a very vital role in providing medical care.

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

They are responsible for those areas which require a minimum of training, but which does not lessen their importance. The registered nurse and even the licensed practical nurse would find themselves unable to accomplish the tasks for which they were trained without the assistance of these personnel. Most of the training and education of the manpower in this category is accomplished within the facilities and institutions which employ them through informal training programs.

Nationally in 1968 there were approximately 1.21 nursing aides/orderlies/attendants for every registered nurse.⁽¹⁾ In comparison, Guam now utilizes only .54 per registered nurse.⁽²⁾ From a different point of view as can be seen in Table 9 , Guam's 1971 rate is 44.2% below the 1966 U.S. rate. Again, although not conclusive by any means in determining manpower needs, Guam finds itself close to the bottom of those areas chosen for comparison. Distribution wise, for all practical purposes Guam Memorial Hospital employs all of the 102 nursing aides and hospital attendants in Guam. Of these, 67 are nursing aides which also includes five emergency room technicians and 34 are hospital attendants.

(1) Health Resources Statistics -- 1968, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, pages 137-138. Ratio computed by the Office of Comprehensive Health Planning, June 1971.

(2) Ratio computed by the Office of Comprehensive Health Planning, June 1971.

Table 9

Selected Locations of Practice in the United States for Employed
Nursing Aides/Attendants/Orderlies (Includes Military Corpsmen on Guam) (1)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	PERSONNEL	PERSONNEL PER 100,000 (3)	PERSONNEL TO POPULATION RATIO (4)
New York, 1966	18,187,637	47,869	66,203	364	1:275
Alaska, 1966	264,686	566,432	802	303	1:330
United States, 1966	196,018,725	3,628,150	492,007	251	1:398
California, 1966	17,160,976	156,537	42,216	246	1:407
Vermont, 1966	410,390	9,274	948	231	1:433
Guam, 1971 (5)	72,900	212	102	140	1:715
Hawaii, 1966	723,864	6,424	637	88	1:1136
Military- Guam, 1971 (6)	50,000	-----	131	262	1:382

NOTE: Footnotes on following page.

Table 9

Footnotes

- (1) Health Resources Statistics -- 1968, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 144.
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) Rates have been rounded off.
- (4) All ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (5) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Nursing Aides/Attendants/Orderlies data compiled and rates computed by the Office of Comprehensive Health Planning, June 1971.
- (6) Military population approximation based on eligibility records of the U.S. Naval Hospital and includes active military personnel and their dependents, retired military personnel and their dependents, eligible veterans, U.S. Civil Service stateside hire employees, and specified other civilians - June 1971. All U.S. Naval and Air Force Medical Facilities. Compiled by the Office of Comprehensive Health Planning.

The military as noted earlier, relies heavily on the services of the medical corpsman to complement and sometimes substitute for the medical professional. Depending on the level of training, the corpsman might function as a nursing aide/orderly/attendant or as a highly specialized technician or even as a physician's assistant.

The number of corpsmen as represented in Table 9 is not all inclusive of all corpsmen in Guam. It represents only those which are associated mainly with nursing services and not specifically designated, for example, as an X-Ray technician, a laboratory technician and so forth. These specifically designated personnel will be discussed in a following section. This does not mean, however, that some of these 131 corpsmen are not also used from time to time in some specific category. Because of their versatility in training and experience, this is indeed sometimes the case.

Of these 131 corpsmen 90 (69%) are located at the U.S. Naval Hospital. Andersen Air Force Base Medical Dispensary utilizes 14 of them, the U.S. Naval Station employs 9 corpsmen, and the rest are distributed as follows: the Naval Seabees have 7, NCS has 6, NAS uses 4 and the Naval Magazine has 1
(1)
stationed there.

(1) Source Data - All U.S. Military Medical Facilities on Guam. Compiled by the Office of Comprehensive Health Planning, June 1971.

The need for these kinds of personnel will continue to increase as more emphasis is placed on their utilization. Although we are unable to project adequately what that need will be, a rough approximation based on the 1968 average ratio of 1.21 nursing aides/orderlies/attendants per registered nurse would mean that in 1975, Guam will need anywhere from 300 to 400 of these types of personnel and possibly even more.
(1)

(1) Refer back to projected needs for registered nurses in Guam, 1975.

Optometrists, Opticians, Pharmacists
and Pharmacy Aides

Optometrists/Opticians

Because of the retailing nature of these two categories of health manpower, we have taken the liberty of combining them within one section.

Presently, Guam has four retailing establishments for glasses. (1)
They employ three optometrists and two opticians. Optometrists are required to be licensed in all of the States, but Guam has no specific requirement. Opticians, on the other hand, are only required to be licensed in a few of the States; again Guam is excluded.

Unfortunately, Guam again ranks very low when compared to other areas in the United States. Guam's rate of 4 optometrists per 100,000 population is over 63% below that of the U.S. 1967 average rate (Table 10). Alone, this low rate might not seem to be critical, however, it should be remembered that with the exception of one eye, ear, nose, and throat physician in the community, there is no one else except the optometrists offering some amount of vision care. The problem is even more critical when looked at in the context of the prevalence of vision problems in Guam. As reported in the Comprehensive Health Plan for Guam (First Component), 210 persons were

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

Table 10

Selected Locations of Practice in the United States for Licensed Optometrists

(Includes Military Optometrists on Guam) (1)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	OPTOMETRISTS	OPTOMETRISTS PER 100,000 (3)	OPTOMETRIST TO POPULATION RATIO (4)
California, 1967	18,793,000	156,537	2,512	13	1:7481
Wyoming, 1967	311,000	97,281	40	13	1:7775
United States, 1967	195,669,000	3,628,150	20,565	11	1:9515
New York, 1967	18,303,000	47,869	1,858	10	1:9851
Vermont, 1967	416,000	9,274	37	9	1:11243
Guam, 1971 (5)	72,900	212	3	4	1:24300
Military- Guam, 1971 (6)	50,000	-----	2	4	1:25000

NOTE: Footnotes on following page.

Table 10

Footnotes

- (1) Health Resources Statistics -- 1968, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, population data, page 125, optometrist data, page 201.
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) All rates computed by the Office of Comprehensive Health Planning, June 1971.
- (4) All ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (5) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Optometrist data compiled by the Office of Comprehensive Health Planning, June 1971. License not presently required on Guam.
- (6) Number of optometrists reflect only those in active military service. Military exchanges were not included in the original survey of medical facilities. Therefore, the military and associated military population actually have more optometrists to service them than indicated. (Exchange employees also have access to these services.)

considered to be blind in 1968 and 1,052 persons were found to be suffering from "eye problems" that were not corrected with glasses. One can really only guess at the true extent of the problem, for neither the Department of Public Health and Social Services, the Guam Memorial Hospital nor the private practicing physicians seem to be very active in the testing and care of the various vision problems.

Opticians are to the optometrist, what the pharmacist is to the physician. It should be fairly evident then, that opticians, although not in the same quantities, are almost as important as the optometrist.

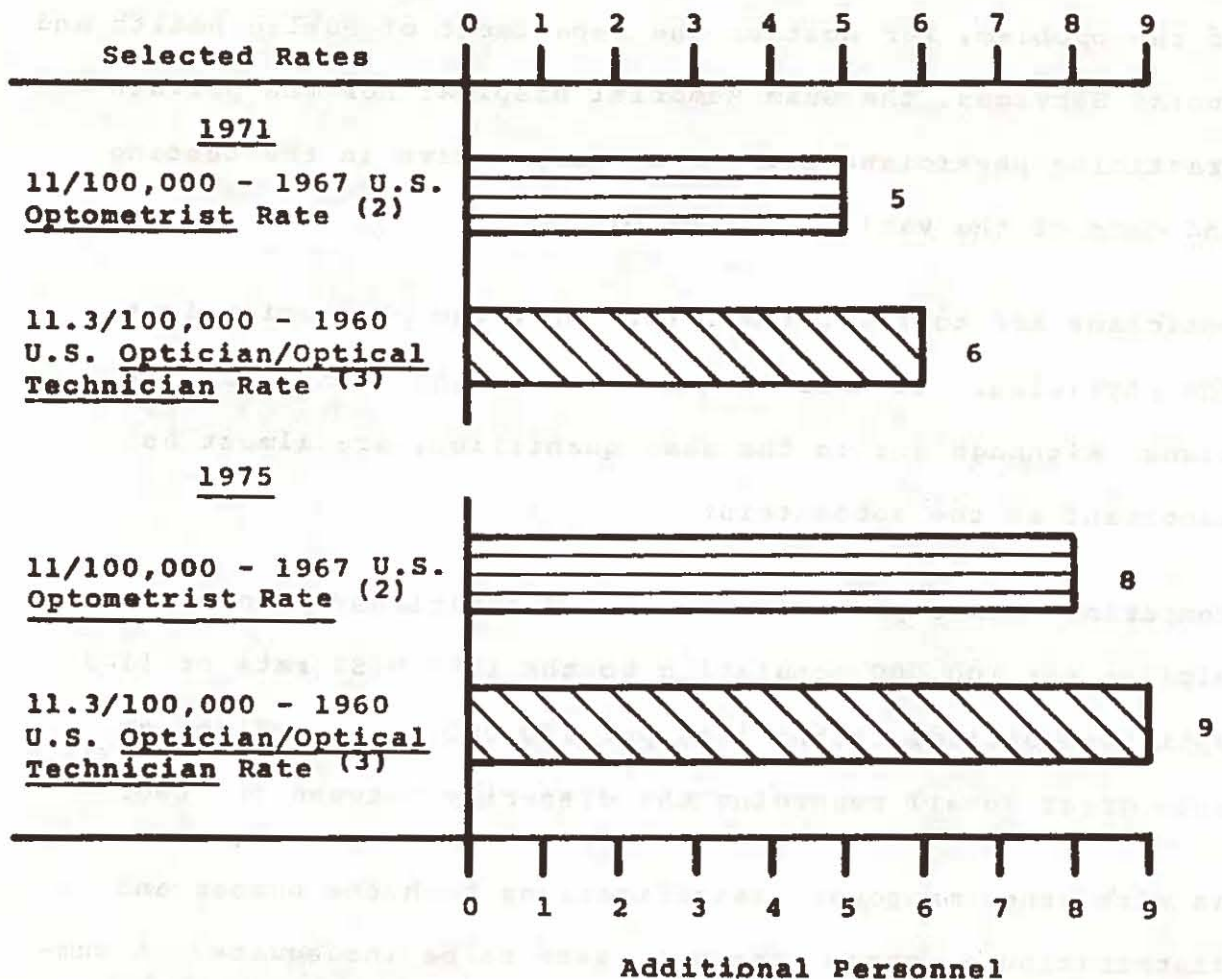
Comparing Guam's present rate of 2.7 opticians/optical technicians per 100,000 population to the 1960 U.S. rate of 11.3 opticians/optical technicians per 100,000, one need not go (1) into great detail regarding the disparity between the two.

As with other manpower classifications both the number and distribution of these personnel seem to be inadequate. A summary of the present and projected needs for optometrists and opticians/optical technicians is indicated by Figure 14. These rates have been determined by using previous U.S. averages as desirable levels of manpower. It could very well be possible

(1) Guam's rate computed by the Office of Comprehensive Health Planning, June 1971.

U.S. 1960 Rate - Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 203.

**Additional Optometrists and Opticians/
Optical Technicians Needed to Attain Selected
Rates per 100,000 Population in Guam (1)**



- (1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.
- (2) Health Resources Statistics -- 1968, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 201.
- (3) Ibid., page 203.

FIGURE 14

that they are not applicable. However, some reference point must be used as a base, and this is the best that we presently have available.

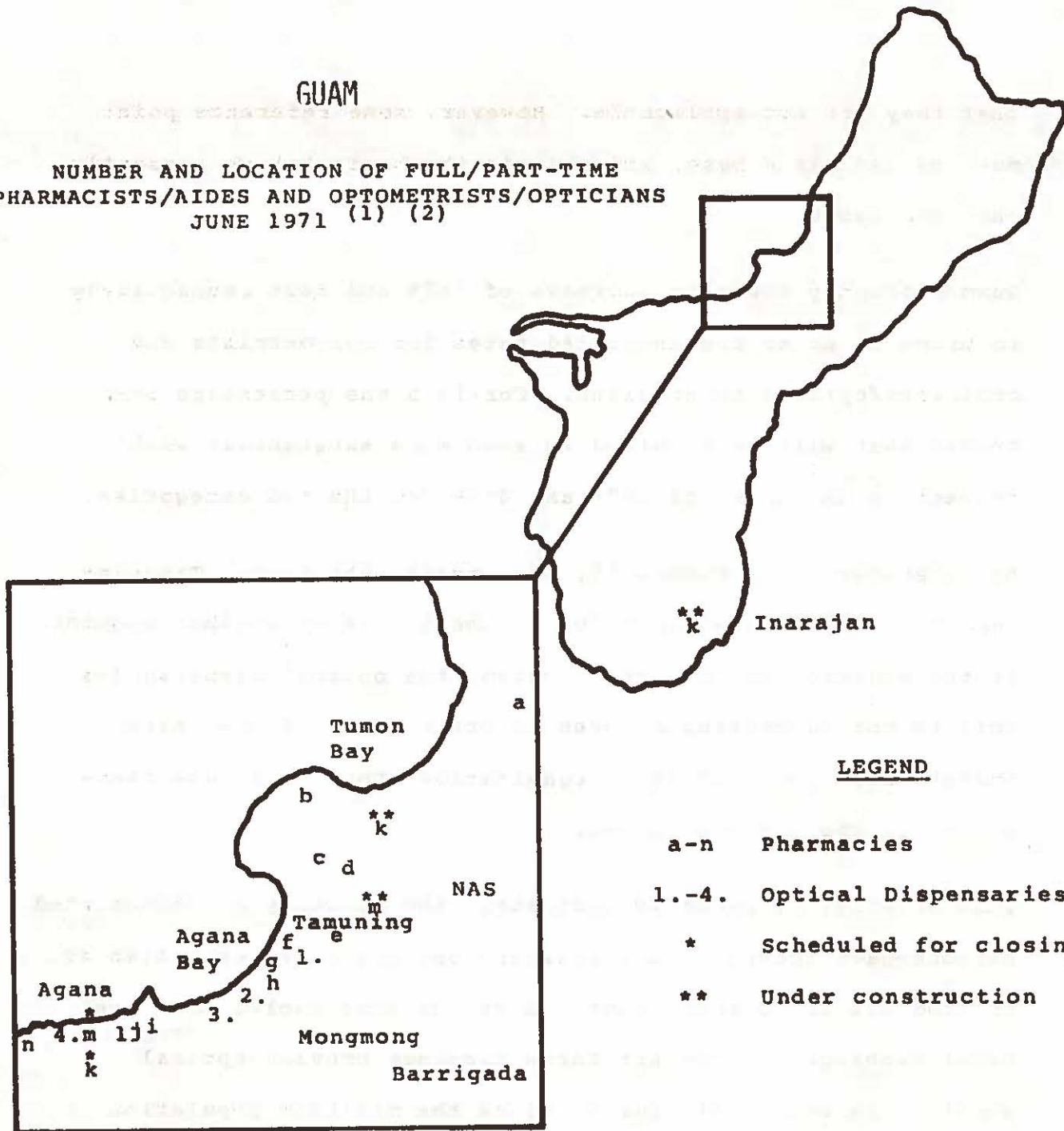
Guam presently needs an increase of 167% and 300% respectively to bring it up to the indicated rates for optometrists and opticians/optical technicians. For 1975 the percentage increase that will be required is even more substantial with respective increases of 267% and 450% for the two categories.

As is evident from Figure 15, once again, the Agana, Tamuning, Harmon "medical care" corridor is the locale of another segment of the medical care delivery system, the optical dispensaries. This is not surprising, as even in other parts of the United States, these types of care organizations tend to locate themselves in the business areas.

Just briefly, as Table 10 indicates, the military and associated persons have access to the military optical services. Also as pointed out in footnote number 6 of the same Table, both the Naval Exchange and the Air Force Exchange provide optical services as well. Of course, since the military population is able to also use the civilian facilities, the supply of optical care personnel seems to be very adequate for them.

GUAM

NUMBER AND LOCATION OF FULL/PART-TIME PHARMACISTS/AIDES AND OPTOMETRISTS/OPTICIANS JUNE 1971 (1) (2)



(1) Compiled by the Office of Comprehensive Health Planning.

(2) Index of facilities and number of personnel on following page.

FIGURE 15

Index for Figure 15

<u>LOCATION</u>	<u>PHARMACIES</u>	<u>PHARMACISTS</u>	<u>AIDES</u>
a	Doctor's Clinic	2	--
b	Guam Memorial Hospital	3	6
c	Island Drugs (Pharmaceutical International, Inc.)	1	--
d	Guam Medical Clinic	1	2
e	Guam Rexall Drugs	1	1
f	Dr. Ortiz's Office	1	--
g	Medical Arts Center	1	--
h	Marianas Pharmacy	2	--
i	Guam Drugs (1)	1	1
j	Moylan Co.	3	2
k	Seventh-Day Adventist Clinic	1	--
l	Island Drugs (Pharmaceutical International, Inc.)	1	--
m	Catholic Medical Center	3	--
n	Mark's Walgreen	1	--
	(Pharmaceutical International, Inc.) (2)		

	<u>OPTICAL DISPENSARIES</u>	<u>OPTOMETRISTS</u>	<u>OPTICIANS</u>
1.	Marianas Optical	--	1
2.	Guam Optical	1	1
3.	Mayo Optical	1	--
4.	Panes Optical	1	--

(1) Both wholesale and retail operations.

(2) Wholesale operations (Not included in original survey).

Pharmacists/Pharmacy Aides

Unfortunately, the pharmacist manpower situation in Guam does not provide any exception to the already established pattern of low health manpower rates. Guam's 22 full and part-time pharmacists expressed as a rate per 100,000 population is less than half that of the 1967 United States average (Table 11).⁽¹⁾ Although Guam just barely exceeds the rate for the State of Hawaii, it finds itself on the bottom of the list. It is very evident from Table 11, however, that a great disparity even exists from state to state, and if one were to examine the individual states, this same disparity would occur when comparing rural with urban areas. This only points out the difficulty in trying to determine adequate manpower rates by using the comparison method.

Of the 22 active pharmacists in Guam, 19 of them are practicing on a full-time basis. In terms of the area of practice, 86% of the pharmacists are either employees or owners of non-institutional pharmacies. The terminology, non-institutional pharmacy, excludes only Guam Memorial Hospital as far as Guam is concerned. In 1967 across the United States, almost the same percentage of pharmacists (85.7%) as Guam were located similarly in non-institutional pharmacies.⁽²⁾

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

(2) Health Manpower -- United States, 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 47.

Table 11

Selected Locations of Practice in the United States for Active Pharmacists

(Includes Military Pharmacists on Guam) (1)

LOCATION	POPULATION	AREA IN SQUARE MILES (2)	PHARMACISTS	PHARMACISTS PER 100,000 (3)	PHARMACIST TO POPULATION RATIO (4)
Wyoming, 1967	318,390	97,281	277	87	1:1149
New York, 1967	18,297,333	47,869	13,723	75	1:1333
United States, 1967	197,453,000	3,628,150	122,421	62	1:1613
California, 1967	18,807,000	156,537	10,720	57	1:1754
Vermont, 1967	410,204	9,274	201	49	1:2041
Island of Oahu, 1969 (5)	557,560	598	179	32	1:3115
Alaska, 1967	268,750	566,432	86	32	1:3125
Guam, 1971 (6)	72,900	212	22	30	1:3314
State of Hawaii, 1969 (5)	692,354	6,424	205	30	1:3377
Island of Hawaii, 1969 (5)	60,668	4,021	11	18	1:5515
Military- Guam, 1971 (7)	50,000	-----	3	6	1:16666

NOTE: Footnotes on following page.

Table 11

Footnotes

- (1) Health Manpower -- United States 1965-1967, U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 14, Number 1, page 44.
- (2) Luman H. Long ed., The World Almanac -- 1970.
- (3) Rates have been rounded off.
- (4) All ratios computed by the Office of Comprehensive Health Planning, June 1971.
- (5) Statistical Report -- 1969, Department of Health, State of Hawaii, page 2. Pharmacist data, October 1969. Includes all licensed pharmacists within the State of Hawaii. The State of Hawaii Data Book -- 1971, Department of Planning and Economic Development, page 23. All computations by the Office of Comprehensive Health Planning, June 1971.
- (6) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. Pharmacist data compiled and rates computed by the Office of Comprehensive Health Planning, June 1971.
- (7) Military population approximation based on eligibility records of the U.S. Naval Hospital and includes active military personnel and their dependents, retired military personnel and their dependents, eligible veterans, U.S. Civil Service stateside hire employees, and specified other civilians. Pharmacists data, June 1971. All U.S. Naval and Air Force Medical Facilities. Compiled by the Office of Comprehensive Health Planning, June 1971.

As almost expected by now and with the lone exception of the Seventh-Day Adventist pharmacy in Inarajan, all of the pharmacists are located in the Agana, Tamuning, Harmon "medical care" corridor as indicated in Figure 15. This also includes all of the pharmacy aides which in Guam number 10 full time and two part-time personnel.⁽¹⁾

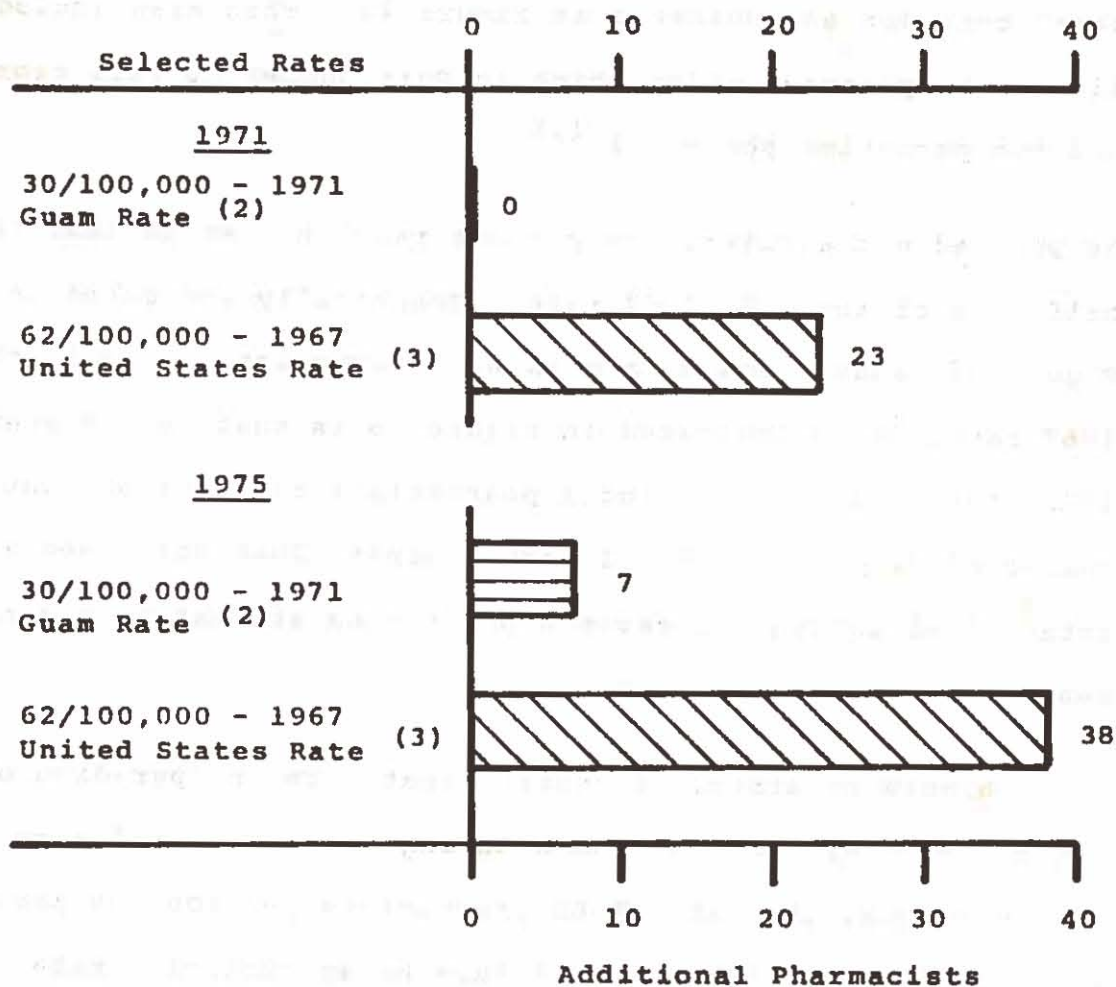
As pointed out earlier, the present rate in Guam is less than half that of the U.S. 1967 rate. Graphically indicated in Figure 16, Guam needs 23 additional pharmacists to equal that 1967 rate. Also indicated in Figure 16 is that by the year 1975, the need for additional pharmacists over the present number of 22 will be 38. In other words, Guam will need a total of 60 active pharmacists practicing at that time representing an increase of 172%.

It is highly possible, of course, that with an upgrading of the pharmacy aide and a restructuring of the medical care delivery system, the rate of 62 pharmacists per 100,000 population may at some time in the future be an excessive rate. As previously mentioned, all projections are based on what we now feel to be adequate rates in the context of our present system.

The military facilities on Guam, as in other areas of manpower utilization, place much more emphasis on the use of well trained para professionals to carry the bulk of the ordinary workload.

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

**Additional Pharmacists Needed to Obtain
Selected Rates per 100,000 Population in Guam (1)**



(1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

(2) See Table 11.

(3) Ibid., United States.

FIGURE 16

This is very evident when viewing their pharmacy personnel. In total they make use of only three pharmacists, while relying heavily on the services of 25 full and part time pharmacy aide corpsmen. (1) If one was to rely strictly on their low rate of 6 pharmacists per 100,000 as an indicator, one could readily assume that they are very deficient in this area of health manpower. However, as in all cases of manpower statistics, one must look further including the type of secondary personnel utilization as well as the type of system.

(1) Source Data - All military medical facilities on Guam. Compiled by the Office of Comprehensive Health Planning, June 1971.

Miscellaneous Medical Care Manpower

The inclusion of the remaining categories of medical manpower under this one section is in no way meant to demean or express a lack of importance of these personnel in their contribution to the operation of the medical care delivery system. They are all vitally needed and play a very important role in the delivery of medical care services.

Their numbers, however, are usually much smaller than all of the previous categories of medical personnel, and their utilization as indicators of manpower resources is generally not widespread. Many of these personnel also represent areas of medical care which can be considered auxiliary services, providing supportive services for basic primary medical care. They are sometimes overlooked completely, as many of us when talking about medical care think only of "doctors and nurses."

As in previous areas of medical care personnel, Guam compares unfavorably with the number available throughout the United States. Although we are not going to attempt to develop comparisons for all of the remaining categories, Table 12 should give the reader some idea of the types and numbers currently employed in both the civilian and military systems in Guam. The reader should not try to make comparisons between the civilian and the military systems. As explained before, they are two completely different types of systems serving different populations both in size and characteristics.

The first category that we would like to look at in a little more detail is the combination audiologist/speech pathologist one. There are presently two people in this field now working in Guam and as indicated in Table 12, they are both civilians. As the military system has none of these personnel, they rely entirely on the civilian system for these services.

The 1967 U.S. rate for audiologists/speech pathologists was 8 per 100,000 population.⁽¹⁾ Guam's 1971 rate using only the civilian population as a base is 2.7 per 100,000.⁽²⁾ When the military population is also included, the rate is even much lower.

Considering that "The incidence of hearing loss in Guamanian school children is four times that of school children in the mainland U.S.,"⁽³⁾ that many speech problems exist as discussed in the First Component of the Comprehensive Health Plan for the Territory of Guam, and that both the civilian and military systems utilize the same personnel, this low

(1) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 191. Rate computed by the Office of Comprehensive Health Planning, June 1971.

(2) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

(3) Comprehensive Health Plan for the Territory of Guam (First Component), Office of Comprehensive Health Planning, February 1971.

Table 12

Miscellaneous Full/Part Time Medical
Care Personnel, Guam - June 1971(1)

PERSONNEL CLASSIFICATION	CIVILIAN	MILITARY
Ambulance Driver/Attendants(2)	63	35
Anesthetist	2	1
Audiologist	1	0
Clinical Chemist	0	2
Dental Assistant	12	51
Dental Auxiliary	11	0
Dental Hygienist	4	6
Dental Laboratory Technician	6	10
Dietary Aide	0	4
Dietician	2	0
Electroencephalograph Technician	1	1
Electrocardiograph Technician	1	5
Inhalation Therapy Technician	0	4
Medical Laboratory Assistant	2	16
Medical Laboratory Technician	21	19
Medical Laboratory Technologist	12	2
Medical Record Librarian	2	1
Medical Record Library Technician	1	2
Medical Social Worker	3	0
Morgue Attendant	2	3

PERSONNEL CLASSIFICATION	CIVILIAN	MILITARY
Occupational Therapist	1	0
Occupational Therapy Assistant	1	1
Operating Room Technician	3	18
Physical Therapist	1	1
Physical Therapy Assistant	2	2
Psychiatric Social Worker	3	0
Psychologist	1	1
Radiological Technologist	6	2
Radiological Technician	6	20
Speech Pathologist	1	0

(1) Information compiled by the Office of Comprehensive Health Planning, June 1971.

(2) Both the civilian and military number of ambulance drivers/attendants represent the total number of personnel available for duty, and not the actual number continuously working in this area.

level of specialized manpower contributes even further to an already critical situation.

Applying the 1967 U.S. rate of 8 audiologists/speech pathologists per 100,000 to the total 1971 Guam population, (1) Guam needs an additional 6 audiologists/speech pathologists personnel to match the above rate now. By 1975, provided that the military system is still utilizing the service of the civilian system in this area, eight additional personnel over and above the two that are now providing services will be needed.

Moving down in alphabetical order on Table 12, we would next like to consider some of the various dental categories. The 1971 Guam rate for dental assistants is 16 per 100,000 and the military rate for the same year is 102 per 100,000. (2) In contrast the 1967 U.S. rate was 48 assistants per 100,000 population. (3) Since the number of dental assistants is usually dependent on the number of dentists available, it stands to reason that Guam with its low number of dentists would have a low number of assistants, and conversely the military with its high rate of dentists should be expected

(1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

(2) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

(3) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 61. Rate computed by the Office of Comprehensive Health Planning, June 1971.

to have a high number of assistants. This high rate of military dental assistants can also partially be attributed to the utilization of a large number of part-time assistants. Nineteen of the 51 dental assistants practice on a part-time basis.

Another closely related member within the dental area is the dental hygienist. Here, the rates in Guam are a little more favorable when comparing them to U.S. rates, but still considering the gravity of the dental problems here, they are also inadequate. Also, only one of the four hygienists as listed in Table 12 is practicing on a full-time basis.

In 1967, there were approximately 7.5 hygienists practicing per 100,000 population within the United States,⁽¹⁾ while in Guam the rates for 1971 are 5 per 100,000 population and 8 per 100,000 population for the civilian and military system respectively.⁽²⁾

As indicated in the section on Dentist Manpower, Guam is also in the process of developing a new category of personnel to help offset the shortages in the dental assistant, hygienist and dentist categories. This is the dental auxiliary. This para professional is capable of performing the services of

(1) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 60. Rate computed by the Office of Comprehensive Health Planning, June 1971.

(2) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

a dental assistant and the hygienist, and some of the procedures previously practiced only by a qualified dentist. As this is an experimental program, no comparisons can be made with other programs in the United States. The Guam Department of Public Health and Social Services presently has 11 dental auxiliaries working for them (Table 12). Soon that number will be increased substantially and yearly, from now on, more trained dental auxiliaries will be available for utilization within the entire system.

As the dental auxiliary can provide many of the services previously only provided by individual categories of dental personnel, it is extremely difficult to project need figures based on U.S. averages for the various categories whose responsibilities are similar in nature.

For purposes of this discussion, however, let us assume that an equivalency of dentists and present para professionals to dentists and auxiliaries can be established. As indicated in the Dentist Manpower section, one dentist working with four auxiliaries should be able to increase his productivity by three times. If we assume that with the possible addition of one more auxiliary, he can also handle his dental hygiene responsibilities, then we should be able to equate a team of one dentist and four or five auxiliaries to three individual dentists utilizing their necessary assistant and dental hygiene personnel.

A dental team then includes one dentist and four or five dental auxiliaries whose output or productivity is at least three times that of a solo dentist practicing under normal conditions. In a group situation where there are several dentists utilizing the same facility and equipment, a ratio of four auxiliaries to one dentist would definitely be sufficient to obtain the same productivity. The four or five to one ratio, however, makes it more plausible in integrating the team concept into the present individual or solo practice system and is done only for purposes of comparison and projection.

Utilizing the 1967 U.S. rate for dentists of 46 per 100,000 population (Table 4), Guam's actual need for 1971 would be approximately 33 dentists. Converting this into dental team needs as explained previously, Guam would need 11 teams, each one being capable of producing an output of three times that of the above individual dentists. Utilizing 11 teams with 4 or 5 dental auxiliaries each gives us a total of 44 to 55 auxiliaries. Projecting into 1975 utilizing the above method, Guam will need 44 dentists or the equivalent of approximately 15 dental teams which would require a total of 60 to 75 dental auxiliaries.

The reader must be cautioned that this discussion is very hypothetical and much depends on the success of the present experimental dental auxiliary program, and also on the general

acceptance of their use among the dentists and the community at large. These two factors must be considered in depth before we can definitely project actual needs of this new category of dental personnel.

One area where Guam seems to compare very favorably with the United States in regards to manpower rates is the medical laboratory. Here Guam's 1971 rate for medical laboratory technologists is 16 technologists per 100,000 population⁽¹⁾ while the 1967 United States average was approximately 20 per 100,000.⁽²⁾ In the combined medical laboratory technician/assistant category, Guam even exceeds the United States average. The rate per 100,000 population of laboratory technicians/assistants was 28 in 1967 throughout the United States.⁽³⁾ Guam in 1971 experienced a rate of 31 of these personnel per 100,000 population.⁽⁴⁾

The military while having a comparatively small rate of technologists, 4 per 100,000, does utilize approximately three times the number of technicians/assistants as are working

(1) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

(2) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, page 54. Rate computed by the Office of Comprehensive Health Planning, June 1971.

(3) Ibid., page 55.

(4) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

throughout the United States. Their 1971 rate is 68 personnel per 100,000 population and is generally in keeping with the military's high utilization of para professionals.

There is a note of importance that the reader should be made aware of here. As stated many times before, numbers alone do not provide a complete indication of actual needs. Here, we think, is a fairly good example.

Although Guam seems to have a somewhat adequate supply of laboratory personnel in comparison to the United States, still thousands of dollars of laboratory tests are sent off island each month to stateside mail order laboratories for analysis. In discussions with several of the medical care providers here, they indicated that although some sophisticated services were not available here in Guam, most of what they sent could be done here. However, due to unreliability of some test results and slow processing time, it was necessary for them to utilize off-island laboratories.

The last category on Table 12 to be considered in any detail is again a combination one. The radiological technologist/technician category is one in which Guam compares quite unfavorably with the U.S. rates. Guam's 12 personnel, 6 technologists and 6 technicians, are equivalent to a rate of 16 per 100,000 population.⁽¹⁾ The 1967 U.S. rate was approxi-

(1) Information compiled and rate computed by the Office of Comprehensive Health Planning, June 1971.

mately 38 to 50 per 100,000 which is about three times the
(1)
Guam rate.

The military on the other hand are just about equal to the
above U.S. rate with 44 technologists/technicians per
(2)
100,000. From Table 12 you can see that as usual the mili-
tary relies heavily on the lower level of personnel to pro-
vide its services utilizing only 2 technologists and 20
technicians.

Looking down Table 12 the reader can see that there are many
categories which are numerically small and for some of these,
this represents a deficiency. For others, this may not
necessarily be the case.

Not represented in this table and not discussed anywhere else
in the general area of health/medical manpower are numerous
other categories of support personnel which we would like to
at least mention and impress upon the reader the importance
of these people as well.

Large medical and health care programs as well as facilities
need sufficient and well trained administrators, business
management personnel, clerical staff, all varieties of main-

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- (1) Health Resources Statistics, U.S. Department of Health,
Education, and Welfare, Public Health Service, HSMHA,
National Center for Health Statistics, December 1968,
page 171. Rate computed by the Office of Comprehensive
Health Planning, June 1971.
- (2) Information compiled and rate computed by the Office of
Comprehensive Health Planning, June 1971.

tenance people, laundry workers, kitchen staff, supply and warehouse personnel, drivers, grounds keepers, etc. Professional and para professional medical personnel would not be able to operate effectively without the support that the above manpower provides.

Of special importance in an effective medical care delivery system is the role of the administrator. Whether it be in directing a program, operating a facility, coordinating community services or whatever it might be, if the person in this position does not provide the capable leadership and administrative ability that such a position requires, the system or part thereof is doomed to failure. This does not mean that operations will cease to exist; on the contrary, they will probably continue from day to day. However, the services to be provided will be lacking in both quality and quantity, and the cost of providing them will undoubtedly be much greater than warranted.

The ultimate receiver of the services rendered, the consumer, will feel the final effect of an incapable administrator regardless of the quality of medical personnel serving under him.

Although factually very difficult to substantiate, from a general observation of the medical care delivery system Guam definitely is experiencing a shortage of qualified health/medical administrators along with the rest of the health/

medical manpower shortages. This particular shortage could prove out to be more critical for the people of Guam than all of the rest.

Additional Comments and Recommendations

It seems to be evident from the preceding sections that there exists in most all categories of health manpower in Guam some degree of shortage. As explained earlier, however, so many variables are involved in determining actual needs that only a general picture can be ascertained.

Although not yet recognized officially here in Guam, the recent 1970 U.S. Census figures for Guam have been made available. Using them in conjunction with the eligibility figures of the U.S. Naval Hospital produce an even more convincing picture of the health manpower shortages as alluded to in the above. This same combination of figures also may indicate that a much smaller proportion of the population is dependent on the civilian medical care system than anyone had previously imagined.

Recently released figures of the 1970 U.S. Census indicated that Guam's total population as of April 1, 1970, was 84,996 persons.⁽¹⁾ For the most part, this includes all those who generally consider Guam as their usual place of residence including members of the Armed Forces stationed or home ported in Guam and their dependents.

(1) 1970 Census of Population, Number of Inhabitants - Guam, U.S. Department of Commerce, Bureau of the Census, PC(1)-A54, Guam.

From previous discussions, the number of persons eligible for services from the U.S. Naval Hospital is approximately 50,000. And, for purposes of this exercise let us take the liberty of using 85,000 persons for the total population of Guam. It is immediately apparent from these figures that only approximately 35,000 persons are dependent on the civilian system for most of their health care. As mentioned several times before, there is much crossover between the military system and the civilian one. Many of those who are in fact eligible for services at the U.S. Naval Hospital probably seek their services in the civilian system. At the same time many civilians receive emergency and humanitarian treatment in the military system.

However, for purposes of stressing the health manpower shortage situation here in Guam, let us use the 35,000 figure and recalculate several of the manpower rates that were previously based on the 1971 estimate of 72,900 civilians. The results, although not statistically comparable to any previous figures, should be interesting.

It is only natural that by decreasing the base by about one half, the resultant rates will approximately double. From Table 13 which presents several of the manpower rates from previous sections as well as the refigured rates, it is evident that with the exception of registered nurses, Guam still does not really compare favorably with the U.S. rates.

Table 13

**Selected Manpower Rates for Comparison
Utilizing Two Different Population Bases**

PERSONNEL CATEGORY	RATES PER 100,000 AS PREVIOUSLY INDICATED			RECALCULATED RATES FOR GUAM ⁽²⁾
	GUAM	U.S. ⁽¹⁾	MILITARY	
Physicians	51	131	108	106
Dentists	19	46	52	40
RN's	261	313	102	543
LPN's	34	115	---	71
Optometrists	4	11	4	9
Pharmacists	30	62	6	63

(1) All U.S. rates except for LPN's as of 1967; LPN rate as of 1960.

(2) Rates calculated using a base population of 35,000 persons by the Office of Comprehensive Health Planning, December 1971.

Although several of the Guam rates do approach them, it should be kept in mind that the U.S. levels represent what the situation was four years ago and in relation to the LPN's, over ten years ago.

The health manpower shortages that exist in Guam must, of course, be taken in context of the present system of delivery of health/medical care services. Any proposed solutions to these shortages must be considered from not only the point of view of just increasing the supply, but must also take into account the possibility of increasing the efficiency and subsequent productivity of the system thereby reducing the need for certain categories of health manpower. It is also possible that by reorganizing the system certain categories of manpower will have to be increased above what is now felt to be needed. It should also be evident from the material presented, that although one may have the resources necessary to supply the needed health manpower, the goal of sufficient personnel may not be realized. The resources are, of course, human, financial and material, all of which Guam presently possesses. The problem, however, is one of combining them in such a way as to produce the desired results. This is not presently being done.

In order to continually ascertain the manpower needs of the health system and to provide adequate numbers of personnel to supply those needs, we would like to recommend that a specific

organization, agency or committee, whether it be governmental, private or combination thereof, be established with its sole responsibility being one of accomplishing the above. More explicitly this organization should:

1. Monitor the total health manpower needs of the entire system on an ongoing basis. Develop both short and long range projections of needed personnel.
2. Review all health manpower training and financial aid programs available in Guam, and make recommendations for and coordinate the implementation of needed programs. Coordinate on-island programs with off-island ones to insure an adequate supply.
3. Actively engage in the recruitment of local personnel for employment within the health system as well as for recruitment into the various training programs. Insure that all programs are utilized to their fullest. For those needs that cannot be met by utilizing local residents, coordinate the recruitment of off-island health personnel.
4. Continually review the licensing and regulation procedures for health manpower and make recommendations to insure:
 - (a) that the quality of personnel practicing in Guam is the highest possible,
 - (b) that the various categories of manpower are utilized to their highest potential,

(c) that upward mobility within the system is a definite possibility,

(d) that flexibility and innovation are integral parts of the regulation procedures, recognizing Guam's uniqueness in relation to its needs.

5. Encourage changes within the system to insure that all medical care personnel are utilized in the most efficient and effective manner in providing quality services to the consumer.

TRAINING AND FINANCIAL AID
PROGRAMS IN GUAM

Training Programs

There are established and operating here in Guam two formal ongoing medical/health manpower training programs. These are the Nursing and Dental Auxiliary programs being operated by the University of Guam.

The Nursing Program is the better established of the two having been started in 1966. It is a two-year program which leads the student to an Associate Degree in Nursing. In very basic terms, it is supposed to provide the prospective nurse candidate with the minimum amount of training necessary to qualify her for the role of a registered nurse. Successful completion of the program, however, does not automatically assure the nurse that she will be licensed as a Registered Nurse. She must pass a national exam administered by the local Board of Nurse Examiners before she is licensed. From the available information, this is either an extremely difficult examination or the potential nurses have not received an adequate amount of training. Of course there are many variables involved and we are not qualified to determine exactly what the problem is. We only hope to emphasize to those who are qualified (and by the way who are very aware of the situation as it presently exists) the need to re-examine the current training program and/or the licensing procedures.

While being acutely aware that statistics do not always provide a clear picture of the situation, they do, however, offer some indication of the degree of the problems. Since the inception of the program in 1966 with its first graduating class in 1968, the following data seem to be quite revealing (Table 14).

Table 14

University of Guam Nursing Students Enrolled,
(1)
Graduated, and Passing Registered Nurse Examination

GRADUATION YEAR	ORIGINALLY ENROLLED	GRADUATED	NUMBER EXAMINED	NUMBER PASSING EXAM/1ST TIME
1968	27	19	19	3
1969	18	10	8	4
1970	21	6	5	1
1971	<u>33</u>	<u>9</u>	<u>9</u>	<u>3</u>
TOTAL	99	44	41	11

Briefly, in the four graduating classes to date 44% of the original enrollees have succeeded in obtaining their Associate Degrees in Nursing. Of those who took the national exam for registered nursing immediately upon completion of their training, about 27% were able to pass the exam on their first try. It should be remembered that this figure is an average of the

(1) Source Data - School of Nursing, University of Guam, December 1971.

four graduating classes, and that many of those who were not able to pass the exam the first time have since retaken it and qualified themselves as a registered nurse. As can be seen from Table 15 , to date 55% of the total graduates have at one time or another received their licenses to practice as registered nurses. However, only 19 are now licensed as 5 did not renew their licenses for fiscal year 1972. It should also be noted that nine are presently working on temporary licenses while their license applications and examinations are being evaluated. If they succeed in obtaining their licenses, the total percentage of nurses graduating from the University of Guam and becoming licensed to practice in Guam will be 75%. It would seem that practical work experience after the Associate Degree has enabled many of the nurses to finally pass the examination and become registered nurses. One last final note concerning the 25% who have never received their licenses should be made. Although unknown to us, it is possible that some of these nurses have either proceeded to another area and become licensed, or that some of them may have entered advanced training somewhere else in the United States and will at some later date return to Guam and become licensed.

Table 15

University of Guam Graduate Nurses
(1)
Licensing Status in Guam - December 1971

GRADUATION YEAR	NEVER LICENSED	LICENSE PRESENTLY PENDING	PRESENTLY AND/OR PREVIOUSLY LICENSED	TOTAL GRADU- ATES	% OF CLASSES LICENSED TO DATE
1968	6	0	13	19	68%
1969	2	0	8	10	80%
1970	2	3	1	6	17%
1971	1	6	2	9	22%
TOTAL	11	9	24	44	--
% of Total Graduates	25%	20%	55%	100%	--

(1) Source Data - School of Nursing, University of Guam and the Guam Board of Nurse Examiners, December 1971.

The dental auxiliary program is a comparatively new program graduating only one class to date. In reality, this is an experimental program and offers only a certificate of completion. Although the first class received only about nine months of training, the following classes will receive a full year of training.⁽¹⁾ Unlike any other program in the United States, the participants are trained not only in dental hygiene and in dental assistance, but also are trained to perform limited dental procedures under the supervision of a dentist. Out of the first class of eight auxiliaries, five are now working for the Department of Public Health and Social Services and the remaining two have chosen to seek employment with private dentists.⁽²⁾ It is too early to even begin to judge the training program and more time will be needed to properly evaluate its effectiveness. There is presently another class of dental auxiliaries in training and hopefully this will become an ongoing program as is the nursing program. Because in view of the shortage of dental manpower as explained in an earlier section as well as the dental needs of the community itself, this program if proved to be successful can make a substantial contribution in helping to solve a very important aspect of the dental care problem in Guam.

(1) Source Data - Dental Division, Department of Public Health and Social Services, December 1971.

(2) One dental auxiliary departed from the island.

The University also offers programs in the associated medical sciences such as biology and zoology with specialized programs for the student interested in pre-medicine, pre-dentistry, pre-pharmacy, and pre-veterinary.

There is also under discussion at the University at this time, the establishment of a School of Medicine and Health Technology within the College of Business and Applied Technology.

Within this new School would be included the already ongoing Nursing and Dental Auxiliary programs, and such new programs as Licensed Practical Nurse, Nursing Aide, and an advanced Nursing Program geared to Associate Degree nurses who, having been employed for a period of time, want to return to school for updating and advanced nursing courses. This latter program might possibly offer the graduate a Bachelor's Degree.

Other areas where the school might involve itself in the future could be in the training of laboratory, radiological and other such para professionals as required to provide for the needs of Guam.

To the extent that the proposed School would offer a method of upward mobility for the person interested in moving up the career ladder, this approach in medical/health manpower training is a radical but appropriate one. It has been a long time coming in the United States medical/health education system, and should prove very effective in meeting and stabilizing the trained personnel needs in the health field.

The proposal for this new program would seem to offer a controlled and rational approach in developing the training programs necessary to meet at least some of the medical/health manpower needs of Guam now and in the future.

It should also be noted at this time that several of the medical care facilities from time to time conduct their own informal and sometimes semiformal programs for the training of health manpower. More specifically Guam Memorial Hospital conducts classes for the training of nursing aides, and gives advanced first aid training to the Department of Public Safety - Fire Division personnel who staff the various ambulances throughout Guam.

The Department of Public Health and Social Services has conducted a specialized year long course in Cytotechnology within its laboratory and will, in the future, most likely conduct another one. They are also, in conjunction with the University of Guam and the Manpower Development Training Act agency here in Guam, operating an environmental technician training program. Of course, some of the dentists train their own assistants, and several of the clinics and Government of Guam agencies offer some amount of on-the-job training for various categories of technical personnel.

A word of caution should probably be expressed at this time. We must all keep in mind that in operating and developing new

training programs to meet the needs of Guam, that we be acutely aware that Guam is a closed system. In our concern for producing qualified personnel, we must not allow ourselves to overproduce, and thereby provide a supply that is greater than the demand. This would not only be unfair to the personnel being trained, but it would also constitute a misuse and a misallocation of resources, human and otherwise.

Financial Aid Programs

Any of the medical manpower shortages as previously outlined are definitely not due to the lack of financing programs available to prospective students. From only a cursory review of the current applicable laws, it is evident that Guam probably has one of the finest and definitely most liberal scholarship and loan programs available anywhere in the United States. And, augmenting the Government of Guam's programs are the Federal "Work Study Program" and the locally administered "Manpower Development Training" program.

Going back only to 1965, one of the most current scholarship programs offers recipients up to \$5000 per year to cover the cost of tuition and books, room and board, and other necessities plus transportation to the place of study and return upon successful completion of the program. These scholarships are applicable to any university in the United States. This is the scholarship program available under Subchapter C of Title XII, Chapter IX of the Government Code of Guam and is referred to as the subchapter on Professional and Technical Scholarships. Specifically as it relates to health manpower, it authorizes (since 1965) scholarships for the following:

1. Five medical students per year.
2. Two pharmacology students per year.
3. Two veterinary students per year.
4. Two entomology students per year.

5. Three dental students per year.
6. Twelve nursing students per year.
7. Twenty-five general scholarships per year which could be awarded to students in other areas of the health field.

This is impressive to say the least. There are also many other scholarships available which are not specifically designated for any one particular field, but which could definitely contribute to training health and medical personnel if the recipient students were encouraged accordingly.

Naturally prospective candidates must meet basic academic requirements to be eligible, and must agree to return to Guam upon completion of their studies and work for an equivalent number of years in Guam within their profession whether it be for the Government of Guam or otherwise.

In light of Guam's present needs for health manpower, the number of students taking advantage of this outstanding program is not impressive at all. Since 1965 and not including the present operating program only three have received scholarships in nursing, three in pre-medicine, two in medical technology, one in medicine and one in dietetics. (1) The present program shows a marked increase and one would hope that

(1) Source - The Financial Aids Office, University of Guam, December 1971.

this is the trend for the future. Presently, seven students are receiving scholarships in pre-medicine, two in medicine (one of these will be entering upon completion of his pre-medicine training), four are receiving nursing scholarships, one in pharmacy, and one is in dental hygiene.

Still, we don't seem to be getting the participation level befitting of the available program. The reasons could be varied ranging from lack of qualified students to a lack of general knowledge regarding the existence of such a scholarship program. It would seem that the latter would most probably be the case. Although information of the scholarship program is distributed to all of the local high school counselors, no concerted effort seems to be made in directly informing students. In most cases, including the university setting, the student himself must initiate the process of seeking out what various programs are available.

Another fine program available to financially aid students in all areas of post high school education, is the Government of Guam's student loan program. Students in financial need may borrow up to \$4000 per year to assist them in defraying the costs of tuition, room and board, and transportation for study in any university or trade school within the United States. The beauty of this program is that although the student has the option of repaying his loan over a long period of time at very low interest, he may also choose to return and work for

the Government of Guam which in effect will then retire his initial loan on a year for year basis without regard to the amount.⁽¹⁾

Through these two programs the Government has chosen to invest in human resources for the future development of Guam. Unfortunately as with the scholarship the number of students that have seen fit to utilize them is relatively low especially in the area of health manpower. In the past only 22 students have been granted loans for studies in nursing. Six have received loans to study in pre-medicine, four in the medical technology field and one in dietetics. As for the current situation, only three nursing students and two pre-medicine students are presently financing their education by use of the loan program.⁽²⁾

The Federal Government has several student aid programs also. The University of Guam presently, however, only participates in one of these, namely the "Work Study Program." Although providing only a limited amount of financial aid to students, it does, however, provide one more avenue of assistance to the student in need. The range of Federal programs is of course available to students from Guam while attending universities and other schools throughout the United States.

(1) Government Code of Guam - 1970, Title XII, Chapter IX, Subchapter D, "Student Loans," Volume I with 1970 Cumulative Pocket Supplement.

(2) Source - Financial Aids Office, University of Guam, December 1971.

These include loan programs, U.S. Public Health traineeships, nursing and physician professional grants and loans, and a host of others. There are, of course, also available a tremendous number of other non-governmental scholarships, grants and loan programs.

The key to all of these programs as a means of increasing the level of health manpower, is information. Prospective students must be made aware of their existence and also encouraged to apply. This cannot be a passive information program of informing only those students who are already motivated enough to seek assistance, but it must be a dynamic one of informing all students regardless of their motivation and/or intent. It seems to be such a waste to have these programs, but not to utilize them to their maximum, especially when the need for trained manpower is so great.

Without going into too much detail, the Government of Guam also has available an in-service assistance program for its employees which could also be utilized to upgrade personnel in the health field. It, again, is a very liberal one, allowing up to one year of training (with an extension if needed) at full pay plus other benefits. Upon completion of training the recipient must agree to return to Government employment for a period of time four times the length of his/her training program.

Also available in Guam, as throughout the United States, another program exists not only for assisting financially needy students, but also for setting up and/or financing training programs in those areas where a definite need for more trained manpower exists. This is the Manpower Development Training Act (MDTA) program. It is a locally administered program, but one which is 90% federally funded. (1)

Besides offering services in initiating and operating training programs within a community, it also provides individual student assistance. The program will provide participants with a basic stipend of \$54.00 per week plus an allowance for dependents as well as \$25 for fees and book allowance per semester. Although the program is geared mainly for the low income groups and unemployed, it is possible for others who may not entirely meet all of the requirements to receive assistance.

The two areas in Guam where this program has provided student assistance as well as program financing are the Dental Auxiliary Training Program at the University of Guam and the Nursing Aide Training Program at Guam Memorial Hospital. It is the latter where actual program costs were provided by the program. From the first class of dental auxiliaries six students were receiving some amount of financial assistance. In

(1) Source Data - All information regarding this program obtained from the Manpower Development Training Act Office, Department of Education - Guam, December 1971.

the present class, eight students are enrolled in the program and are receiving assistance. Two classes of nursing aides comprising 15 students in all have been trained at Guam Memorial Hospital and a third class is now in the planning stages. Another area where the MDTA program is participating in the health manpower field is the training of environmental technicians for the Department of Public Health and Social Services. The program is presently being conducted at the University of Guam.

The MDTA seems to offer much flexibility in setting up and operating training programs for health manpower, especially in the para professional and technical categories. Much attention should be given to this area by the various so-called "health (medical) care providers" in terms of developing adequate training programs for local personnel in all of these technical and para-professional categories. A substantial savings could be realized in utilizing locally trained personnel and not having to depend on outside sources.

In fact the health care industry as well as the community at large here in Guam should take a very active role in publicizing the various assistance programs available and encourage all potential students to take advantage of them to either receive initial training or to upgrade themselves by seeking advanced education and training. As long as the need exists for trained health manpower, no program should go by year

after year at the low levels of participation as is now the case. As mentioned before, a passive information program is not sufficient. A dynamic one must be instituted and maintained.

PROFESSIONAL LICENSURE AND REGISTRATION LAWS
WITHIN THE "MEDICAL FIELD"

General

Presently, there are laws requiring the licensure of physicians, dentists, nurses, midwives, and pharmacists. All other medical professionals and para professionals such as psychologists, optometrists, podiatrists, ambulance and emergency attendants, opticians, medical technologists including electronic, laboratory and x-ray personnel, dental hygienists, dental assistants, dental auxiliaries, physician's assistants, corpsmen, physical and occupational therapists, audio and speech therapists, pharmacy aides, and other para-professional personnel, are not covered under any of the licensure laws, and are subject to specific educational and training requirements only as required by their place of employment. (See Appendix for licensing in other states.)

Physicians and Dentists

In regards to physicians, dentists, nurses, and midwives, Title XXVIII of the Government Code of Guam, Territory of Guam defines the procedures, qualifications, and requirements for licensure.

For physicians and dentists, the Commission on Licensure to Practice the Healing Art in Guam is responsible for certifying the qualifications of an applicant to the Department of Administration who in turn is responsible for issuing the

licenses and recording thereof. (The Department of Revenue and Taxation has now been given this responsibility.)

The Commission is composed of five members appointed by the Governor of Guam. The Director of the Department of Public Health and Social Services is a member, and by law is supposed to be the Secretary of the Commission and provide the facilities and services for the Commission's operations. These two responsibilities, however, are now being undertaken by the Administrator of Guam Memorial Hospital who is also a member. Other members of the Commission include the Director of the Department of Education, two physicians and one dentist. As only the Directors of Public Health and Social Services and Education, and additionally a doctor of medicine or dentistry are actually required by law to be included in the Commission, it is unfortunate that there is no representative of the average consumer of medical services present on the Commission. All of the present members can be considered to be professionals.

The Commission is responsible for establishing minimum standards of training and education, and for the examination and certification of prospective candidates. To carry out the examinations, the Commission is empowered to appoint boards of examiners for the following:

1. Basic sciences
2. Medicine and osteopathy
3. Chiropractic

4. Dentistry
5. Midwifery
6. Drugless healing

By law, physicians and dentists, provided they meet the minimum educational and training requirements, and certain other general requirements, can be licensed by either the reciprocity method or examination.

Presently, the only way that an American doctor or dentist can be licensed is by reciprocity. No examinations are offered. He must have been licensed previously in one of the states or territories of the United States.

Foreign physicians having been licensed and established in their own country may be licensed in Guam by passing the Educational Council Foreign Medical Graduate Examination and then proceeding to the United States for further education and/or training. Upon successful completion of their training, they may return to Guam and receive a license without being first licensed in one of the states or territories of the United States.

In talking with several physicians in the community, this policy regarding foreign doctors has been adopted in order to

1. insure that physicians coming from a wide variety of backgrounds and training receive adequate indoctrination as to American philosophies regarding medical care, and to insure a level of competency

equal to that of U.S. doctors, and

2. to restrict the flow of physicians from underdeveloped countries to Guam, thereby helping to stem the so called "brain drain" of these countries.

Although agreeing with the above reasoning as to intent, it would seem, however, that the control of foreign physicians entering the United States should be the responsibility of the United States Department of Immigration and Naturalization. For those physicians who are admitted to the United States, some other method for licensing such as a combination examination and proctorship (apprenticeship) program be established, or it might even be feasible to establish an intern program within the Guam Memorial Hospital and/or the Department of Public Health and Social Services, so that those qualified physicians can be utilized in supplying the vital manpower needs of Guam.

Under the present situation, the people of Guam lose the valuable services of the foreign physician for a year or more while he is in the mainland United States receiving his training. This loss can also be reflected in dollars and cents, as the physician in a training program is being reimbursed for his services at a much lower level than the practicing physician would normally receive.

In relation to the actual granting of licenses to qualified physicians whether they be American or foreign, the examining

boards and the Commission control the final determination as to whether the license is to be issued or not. In talking with several local physicians and medical program administrators, it was brought out, that it is possible for qualified physicians to be denied licensure and that the possible intent of such denials might be control of the supply of physicians practicing in Guam. We definitely hope that this has not occurred or that it will not occur in the future, and that all qualified physicians are granted licenses to practice on Guam.

Although not directly related to licensing procedures, there is another method by which physicians can effectively be restricted as to their practice of medicine. We are referring to the policy of Guam Memorial Hospital in granting hospital privileges, to various physicians. Most physicians will not practice in a community when they are unable to obtain hospital privileges.

Presently to obtain staff privileges, a physician must be currently licensed to practice in Guam, provide certification of qualification for privileges requested and submit a completed application to the Credentials Committee. This committee then makes its recommendations to the Executive Committee of the Hospital which in turn submits its findings to the Board of Trustees for final approval.

It would again be very unfortunate for the people of Guam, if qualified physicians were being denied their privileges for

the sole purpose of controlling the supply of physicians within the community.

Regarding foreign dentists, there is presently no way for them to become licensed to practice in Guam other than already having been licensed in one of the states or territories of the United States and issued a license by reciprocity.

As with the physicians, the same reasoning in regards to licensing foreign dentists prevails, and we understand that the quality considerations are even more critical. Again, however, it would seem reasonable that some procedure could be worked out for adequately determining those dentists who are qualified.

Tenure for licensure of both physicians and dentists is for life except as revocation is provided for in the law. There is no provision for periodic relicensing or even registration. Those that have not practiced on Guam for years or possibly even those that are deceased are still licensed to practice. This is not unique, however, only on Guam. Only recently has the requirement for periodic renewal of license begun to be incorporated into other states' laws. The idea of even some form of reexamination periodically has begun to gain acceptance.

The advantages of periodic review of licenses should be evident, but to name only a few: current data on practicing and available physicians and dentists would be available for planning; to prevent misuse, deceased physicians and those no

longer living or practicing in Guam would have their licenses invalidated; and some type of reexamination and/or review of qualifications could help to insure that in our ever expanding medical technology, doctors and dentists are keeping abreast.

Midwives

Unknown to many, midwives may be licensed to practice here in Guam. Applicants who meet the requirements as set down in Chapter II and Chapter IV of Title XXVIII of the Government Code of Guam may be issued a license by the Department of Public Health and Social Services. Annual renewal of this license is required.

Nurses

Although the licensure of nurses is covered under the same basic law as physicians, dentists and midwives, the licensing procedure itself is completely separate.

The nurses have their own autonomous board of examiners which examines prospective applicants, certifies them, and issues the licenses themselves.

The Guam Board of Nurse Examiners as established under Chapter III of the above title consists of not less than three registered professional nurses as appointed by the Governor of Guam.

There are two categories for which licenses to practice nursing are given. They are the registered nurse and the licensed practical nurse. Applicants for the registered nurse title may, after meeting the basic requirements as stated in the law,

be licensed by either the reciprocity method or by sitting for the State National Board Test Pool examination. At this time there are no examinations given for the licensed practical nurse, and all those wishing to be licensed must have been previously licensed in a state or territory of the United States. The Board is presently negotiating with the American Nurses Association for a contract to proctor examinations for practical nurses here in Guam. This would allow those applicants who have failed the examination repeatedly for registered nurses to become licensed practical nurses if they so desire. This seems a very good attempt to salvage trained personnel who might otherwise not have the opportunity to utilize their skills.

Prior to passing the examination for registered nurses, three-month work permits are issued. If the prospective candidate is unable to pass the examination, her work permit is extended for an additional three months to allow her time to prepare for the next examination. She can repeat this procedure up to four times after which she must then return to school and retake those subject areas in which she is weak. This work permit procedure allows an applicant to work for one year without ever having passed the examination or part thereof. The time that an applicant for registered nurse can work without ever having passed the examination seems a little excessive. In fact, the question might arise of whether or not she should be allowed to work at all. The intent, of course, is to qualify personnel

so that they may be licensed; therefore, as long as the nurse continues to work under the direct supervision of a registered nurse the present policy seems to be adequate. We would question, however, the advisability of allowing a graduate nurse to remain in the category indefinitely without ever obtaining a license. A very strong effort should be made to help the applicant qualify.

Foreign nurses, unlike physicians and dentists are allowed to sit for the examinations, and if found to be qualified, licensed accordingly.

Pharmacists

The certifying and licensing of pharmacists fall under the jurisdiction of the Director of Public Health and Social Services as outlined in Title X Chapter V of the Government Code of Guam. Presently, however, the Commission on Licensure to Practice the Healing Art has assumed the responsibility of certifying qualified applicants to practice pharmacy, and issuing licenses.

In the past, pharmacists have been licensed for life with no provision for periodic renewal or registration. The new Uniformed Control Dangerous Substances Act as contained in Title XV Chapter I of the Penal Code of the Territory of Guam now, however, requires annual registration for all those dispensing "any controlled dangerous substance within Guam."

By Executive Order, the Director of Public Health and Social Services has been designated as the responsible authority for carrying out this yearly registration of pharmacists as well as others as defined in the "Controlled Dangerous Substances Act."

Others

As stated earlier optometrists and podiatrists are not specifically required to be licensed. However, within Title XXVIII, these two professions are defined explicitly and limits as to what services they can render are very specific.

Comments

Although it was not the intent of this study to ascertain whether or not the licensure laws were being respected, we cannot help but wonder if the pharmacies with extensive hours of operation have a registered pharmacist on duty at all times, and whether or not many of the nursing personnel are fully qualified and licensed.

In regards to nursing, we know that a person working under direct supervision of a physician or dentist need not be licensed, but we wonder how many of the patients are explicitly aware of this fact.

The philosophies of licensing vary greatly, and in many areas what may be required in one is not required in another. However, basically, the intent of licensing is to help insure a

reasonable and uniform standard of quality for medical personnel. The patient can, without being highly sophisticated in the art of medical science, be somewhat assured that if the medical personnel who are treating him are licensed, they are reasonably qualified to do the job which they are performing.

Recommendations

It would seem that Guam is in an ideal position to construct a "Medical Licensure Act" that is both progressive and truly comprehensive in nature. One that would allow for the needed para professionals, and one that would include all categories of professional medical personnel. The idea of licensing medical/health care organizations in lieu of the individuals who are employed by these organizations, should also be explored. Piecemeal legislation for each separate category should not even be entertained.

We would recommend that a government agency be designated as the licensing body for all medical, dental, and medically related professions, and that appropriate definitions, requirements and qualifications be established with appropriate boards acting as the examining bodies for the particular professions and certifying qualified candidate and/or organizations to the licensing agency. We would also like to recommend that an advisory committee on licensure be established and avail itself to the licensing agency and the examining boards for consultation.

The boards, as well as the advisory committee, should have some consumer representation. The day when only the professional defines his profession, makes rules and regulations for it, and then decides who may and may not be admitted is out of date. The consumer, the ultimate receiver of the professional's services, must have a voice also.

With all licensure, annual renewal should be a requirement. All professionals and/or organizations should also be required to undergo periodic review or even reexamination to determine their continuing qualifications to practice in their particular category.

All licensure with its definitions, requirements and qualifications should provide for the upward mobility for those qualified, and not be a set of rigid rules and regulations that stymies instead of encourages personnel to rise to their highest potentials. To this end, innovative programs as they fit the needs of Guam should be allowed within the definitions of the legislation.

In terms of providing services to the people, the legislation should be broad enough and flexible enough to allow the implementation of specific programs for reaching high risk groups within the community. One such program might be in the area of venereal disease and in providing treatment for teenagers without their parent's knowledge.

The legislation must also provide for the protection of the professionals and para professionals in the conduct of their

licensed skills. While protecting the patient against obvious negligence, the legislation must insulate the professionals against undue malpractice suits. The proliferation of these suits throughout the country has had a very detrimental effect on the delivery of medical care.

Finally, any comprehensive type of legislation cannot hope to become a reality unless all interested parties, professional organizations, government agencies, and consumer groups are involved from the very beginning in drafting such legislation.

APPENDIX

(1)

State Licensing of Health Occupations

(2)

<u>Occupation</u>	<u>Number of States</u>
Dental Hygienists.	51
Dentists	51
(3)	
Professional (Health) Engineers.	51
Practical Nurses	51
Professional Nurses.	51
Optometrists	51
Pharmacists.	51
Physicians (M.D. and D.O.)	51
Podiatrists.	51
(4)	
Veterinarians.	51
Chiropractors.	49
Physical Therapists.	49
Psychologists.	36
Sanitarians.	30
Midwives	23
Opticians.	17
Clinical Laboratory Directors.	13
Other Clinical Laboratory Personnel.	10
Naturopaths.	8
Social Workers	5
(5)	
Nursing Home Administrators	2

<u>Occupation</u>	<u>Number of States</u>
Hospital Administrators	1
Health Department Administrators.	1
Radiologic Technologists.	1

- (1) State licensing of Health Occupations, United States Department of Health, Education, and Welfare, Public Health Service Publication Number 1758, October 1967.
- (2) Includes District of Columbia but excludes all other United States Territories.
- (3) Under Title XLIII Chapter I of the Government Code of Guam, all engineers must be certified and registered before practicing in Guam.
- (4) In Guam, Veterinarians must receive certification by the Director of Public Health and Social Services as to qualifications to practice Veterinary Medicine before a business license as covered under Title XVII Chapter III of the Government Code of Guam is issued.
- (5) Recently legislation was passed in Guam requiring the licensure of Nursing Home Administrators. It is to be included as another chapter in the Medical Practices Act, Title XXVIII of the Government Code of Guam.

CIVILIAN AND MILITARY EMERGENCY VEHICLE
(AMBULANCE) USE AND COORDINATION

General

This report is written as a part of an overall study of the "Medical Care Delivery System" and is meant only to be a preliminary report. Hopefully, it will generate the interest of all those concerned with emergency services in Guam to conduct a more detailed study with a resultant design and implementation of an adequate system to meet the emergency needs of the people of Guam.

The report is limited only to a discussion of the present system of emergency vehicle (ambulance) use, location, manpower, communication, travel time, coordination and utilization (where data is available), and some recommendations for future actions. It should in no way be construed as a commentary on the quality of service now provided.

Presently, the system is made up of two components: the civilian ambulances operated by the Department of Public Safety, Government of Guam, and the military ambulances operated by the U.S. Navy and the U.S. Air Force.

Civilian Ambulances

Location and Coverage

The Department of Public Safety presently operates three ambulances which are located in Agat, Inarajan, and Tamuning. The area of responsibilities as shown on the map are as follows (Figure 17).

The area of coverage by the Agat ambulance extends from Tenjo Vista down to the junction of Route 17 and Route 4A and from Tenjo Vista down Route 2 to the Village of Umatac, (Santa Rita, Agat, Umatac and part of Piti). The Inarajan ambulance is responsible for the area from Umatac up along Routes 4, 4A, and 17 to Ylig Bay, (Merizo, Inarajan, Talofofu and part of Yona),

Populations Served

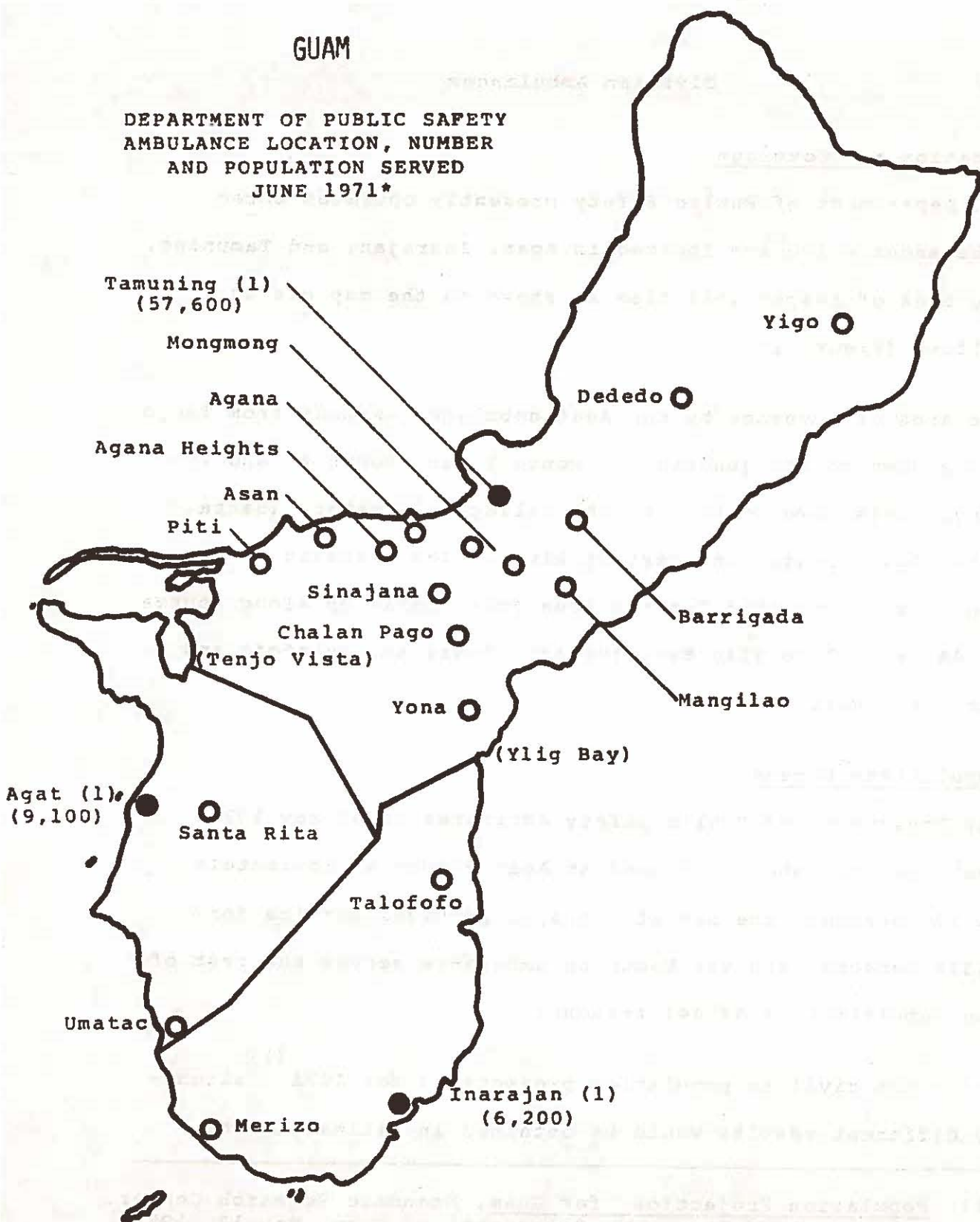
The Department of Public Safety estimates as of May 1971, that the ambulance stationed at Agat serves approximately 15,276 persons, the one at Inarajan provides service for 6,312 persons, and the Tamuning ambulance serves the rest of the population of 67,441 persons.

Using the civilian population projections for 1971 ⁽¹⁾ slightly different results would be obtained in estimating the

(1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

GUAM

DEPARTMENT OF PUBLIC SAFETY
AMBULANCE LOCATION, NUMBER
AND POPULATION SERVED
JUNE 1971*



*Populations served estimated by the Office of Comprehensive Health Planning. Source Data - Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

FIGURE 17

(1)
population served by each of the ambulances. The Agat ambulance provides service for approximately 9,100 persons, while the one stationed at Inarajan serves 6,200 persons, and the Tamuning ambulance provides coverage for the remaining (57,600) (Figure 18).

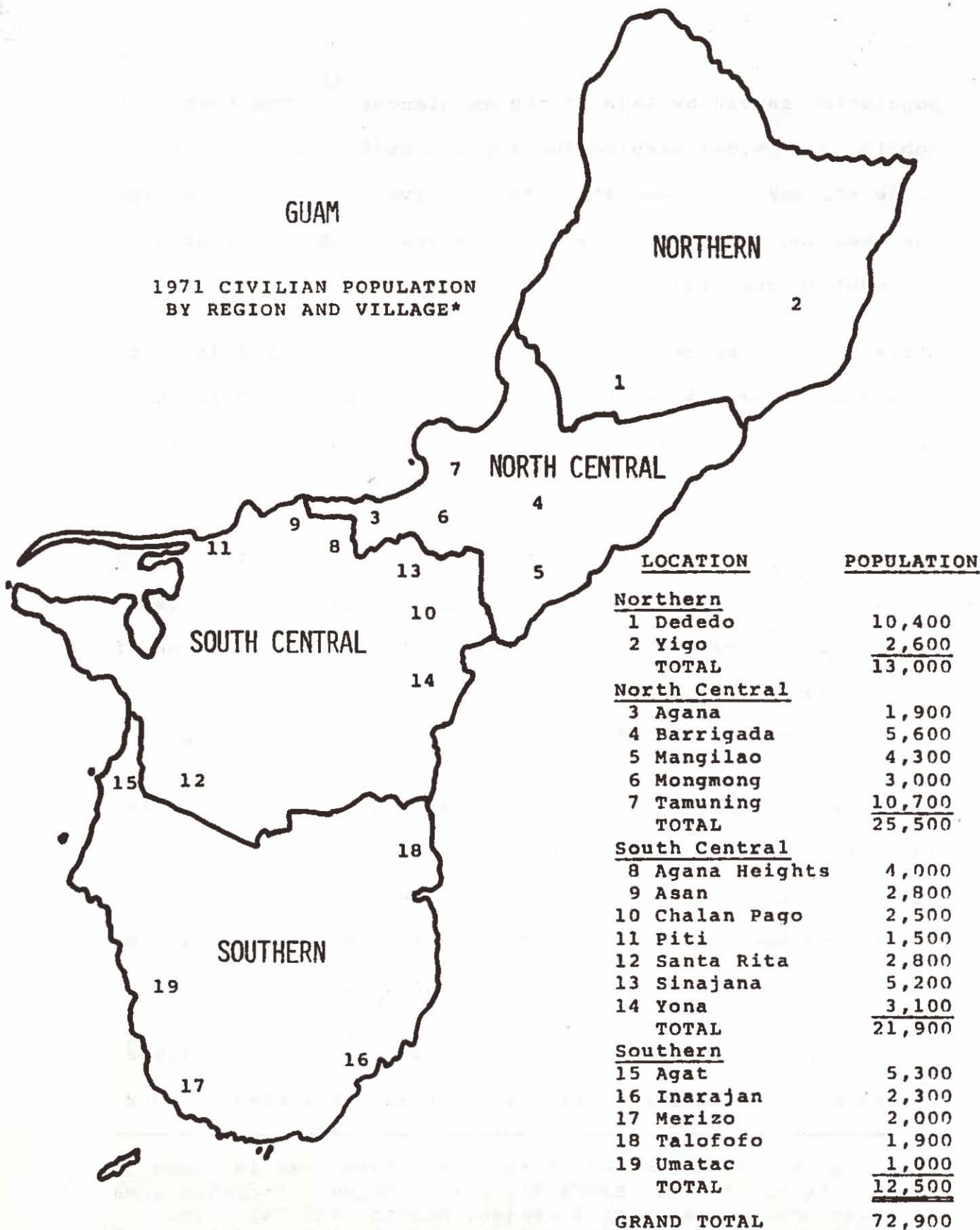
While the differences do not seem to be that significant, it should nevertheless point out the difficulties in trying to accurately estimate the populations served by the various ambulances.

Looking at these figures a little closer one might come to the conclusion that there is some disparity existing. Totaled, the two ambulances in Agat and Inarajan serve a population of only 15,300 while the Tamuning ambulance is left to provide services for the rest of the population 57,600 (Figure 18).

Three factors must be taken into consideration here. One is the distribution and availability of military ambulances, another is the distance to available emergency medical facilities and services, and the third is the respective utilization rates of the three civilian ambulances.

As the subject of military ambulances will be taken up later, let us now concern ourselves only with the remaining factors.

(1) Populations estimated as follows: Agat area includes villages of Agat, Santa Rita, and Umatac. Inarajan area includes villages of Inarajan, Merizo, and Talofofo. Tamuning area includes the rest of the island (Figure 17).



*Source Data - Population Projection for Guam, Economic Research Center, Department of Commerce, ~~Government~~ of Guam, May 13, 1970.

FIGURE 18

Distances to Emergency Facilities

For all practical purposes, the only emergency medical facilities are the Guam Memorial Hospital and the U.S. Naval Hospital. Both of these, in terms of emergency ambulance travel time, are quite a distance from the southern end of the island. As examples, the ambulance based in Agat responding to a call in Umatac would require a travel time⁽¹⁾ of approximately 50 to 60 minutes to reach Guam Memorial Hospital⁽²⁾ (Figure 19). The Inarajan ambulance, in responding to an emergency call in Merizo, would take even longer to deliver its patient to Guam Memorial Hospital: 60 to 70 minutes is the average time. Without the two ambulances serving this part of the island, the travel time would be even greater than it already is.

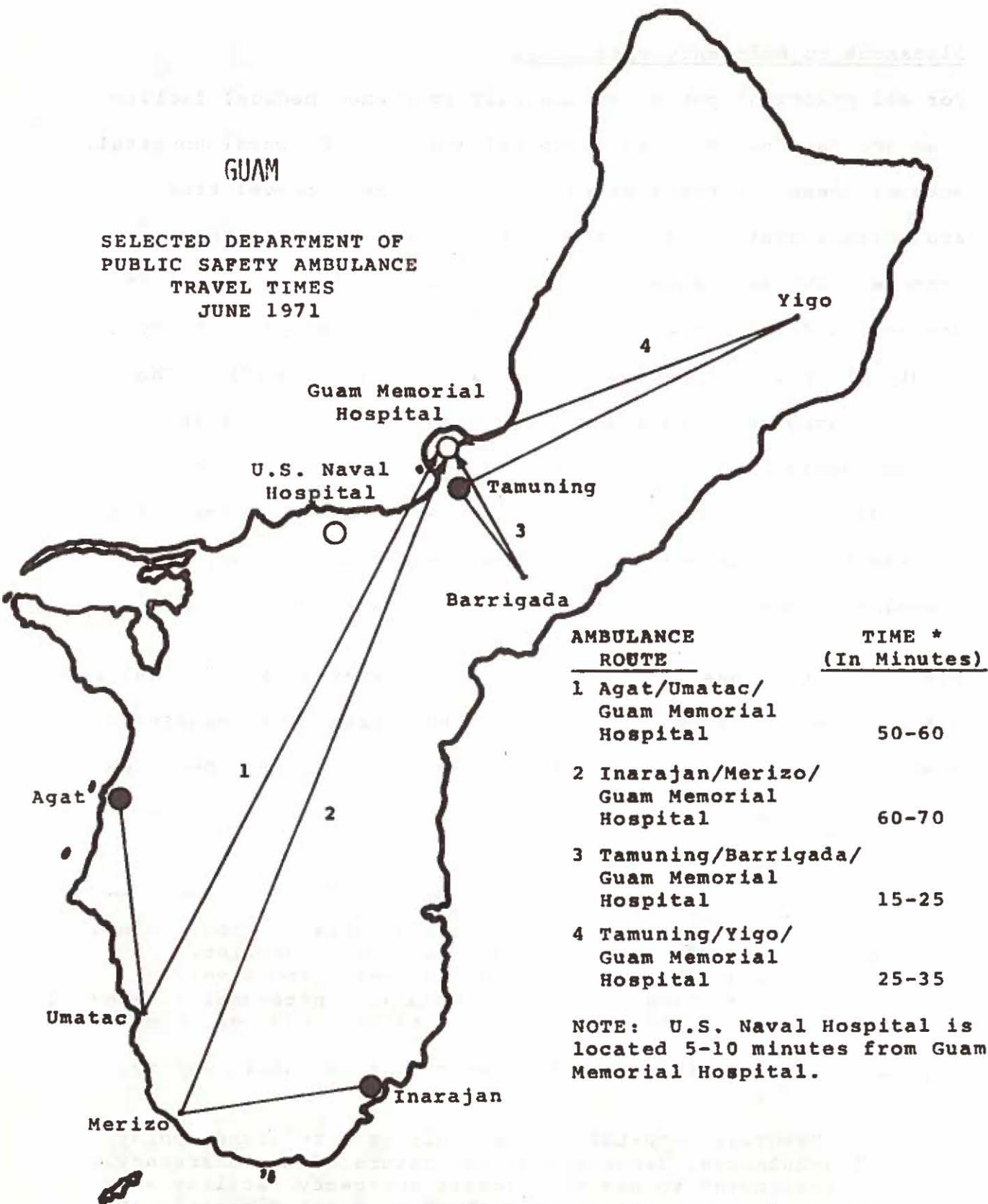
Presently, when one of the ambulances is experiencing mechanical difficulties, this is a problem for their area of responsibility must then be covered by one of the other ambulances. One wonders if even two ambulances are enough to sufficiently cover the southern end of the island.

-
- (1) All time estimates are based on actual travel time. (This does not include time spent at the pickup location.) A range is indicated because many variables are involved such as: (1) Time of day, (2) Ambulance personnel driving habits, (3) Patient's condition, and (4) Road conditions.
- (2) Estimates obtained from the Department of Public Safety, June 1971.

Guam Memorial Hospital is used only as a reference point. All ambulances, depending on the nature of the emergency, are instructed to use the closest emergency facility when the situation requires. For the U.S. Naval Hospital, all times can be adjusted accordingly by either adding or subtracting 5 to 10 minutes.

GUAM

SELECTED DEPARTMENT OF PUBLIC SAFETY AMBULANCE TRAVEL TIMES JUNE 1971



*Time Estimates provided by the Department of Public Safety.

FIGURE 19

Utilization

In terms of utilization of the three ambulances, the data is divided into emergency and non-emergency calls.

Non-emergency calls, as defined by the Department of Public Safety, are those that are requested for the transportation of non-ambulatory patients from one place to another. They do not involve emergency treatment of any kind.

As indicated in Table 16 the Tamuning ambulance is by far the most utilized. For the Year 1970, it transported 665 emergency cases to one of the two emergency facilities and was involved in 411 non-emergency runs. Totaling out at 1076 runs, this is an average of approximately 3 per day. By comparison, however, the Inarajan ambulance averages about one run every 1.8 days and the Agat vehicle averages a little more than once per day.

Table 16

Department of Public Safety Ambulance Runs
For Years 1968, 1969, 1970*

AMBULANCE RUNS	TAMUNING			AGAT			INARAJAN		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
Emergency	465	400	665	146	101	124	82	56	78
Non-emergency	455	504	411	205	229	283	141	126	125
TOTAL	920	904	1076	351	330	407	223	182	203

* Source Data - Department of Public Safety, June 1971

Relating this data to a common denominator of vehicle runs per 1,000 population, a comparison of utilization data for the three ambulances reveals the following. Although the Tamuning ambulance far exceeds the other two in absolute numbers of calls, both the Inarajan and the Agat vehicles make more trips per 1,000 population than the Tamuning ambulance (Table 17). A very interesting observation which is depicted in Table 17 is that the non-emergency calls/1000 population for the southern end of the island exceed those of the northern by a far greater margin than the emergency calls.

In 1970 the ambulance in Agat recorded 328% more non-emergency calls/1000 population than the one in Tamuning, and the Inarajan

Table 17

Department of Public Safety Ambulance Utilization
Rate Per 1000 Civilian Population 1969, 1970⁽¹⁾

UTILIZATION PER 1000 POPULATION	TAMUNING		AGAT			INARAJAN		
	1969	1970	1969	1970	(2)	1969	1970	(2)
Emergency	7.9	12.1	11.2	13.9	1.5%	8.6	12.5	.3%
Non-emergency	10.0	7.4	25.5	31.7	328.0%	18.6	20.1	172.0%
TOTAL	17.9	19.5	36.7	45.6	133.8%	27.2	32.6	67.2%

(1) 1969 Population - Island Wide Census, June 30, 1969, Office of the Chief Commissioner.

1970 Population - Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

(2) Percentage greater than Tamuning for 1970.

vehicle made 172% more non-emergency trips/1000 population than the Tamuning ambulance (Table 17).

The emergency call, on the other hand, for the same year indicates a difference of only 1.5% and .3% respectively for Agat and Tamuning, and Inarajan and Tamuning (Table 17).

One can only conclude that the distance to medical facilities from the southern end of the island and the lack of adequate transportation for non-ambulatory patients are the underlying causes for this large difference in non-emergency utilization rates.

It should also be noted that in responding to non-emergency requests, the area is then temporarily without an ambulance for any emergency calls that might arise. This is very undesirable.

Manpower

In terms of manpower, the Department of Public Safety draws upon its pool of firemen to act as ambulance attendants and drivers. They are assigned specific duty on the ambulance and are rotated periodically. Every shift has two men designated as ambulance driver and attendant, and ambulance service is provided on a 24 hour, 7 days a week basis.

All firemen initially receive training in advanced first aid from personnel at the Guam Memorial Hospital, as there is no specifically designed course for training ambulance attendants and drivers available in Guam. The firemen do not receive any

training in the handling of mental problems, and feel very inadequate when called upon to deal with such cases.

Vehicles and Equipment

Presently the Department of Public Safety operates three van-type ambulances. All of them are equipped with only a minimal amount of first aid equipment. The condition of the ambulances are such that when a mechanical failure is experienced, the down time (or repair time) is usually quite lengthy. The vehicles are equipped with two-way radios which are operated as part of the island wide Police and Fire Radio System.

Three new ambulances have been ordered and are in the process of being shipped to Guam. Upon arrival they will be used to replace two of the older vehicles and make it possible for the Department of Public Safety to station a fourth ambulance in Dededo. July 1, 1971, was the scheduled date of service, but because of the present shipping strike, this date will have to be revised.

There is a proposal for a fifth ambulance to be stationed in Piti as of July 1, 1972.

Communications

The Department of Public Safety utilizes the local telephone system, a direct line from the Tamuning Station to Guam Memorial Hospital, and a two-way radio system as communications for ambulance service and coordination.

Civilian ambulance service can be requested by using one of the following numbers:

(1) Civilian Ambulance Numbers	
Agat area	745-5186
Inarajan area	772-6114
Tamuning and all other areas	746-3801 746-3802

- (1) Guam Telephone Directory, March 31, 1971 (Revised to February 15, 1971); Joint Military Telephone Directory, Guam, April 1971.

The direct line to Guam Memorial Hospital is used when the ambulance is enroute to the hospital, and the attendant deems it necessary to forewarn the emergency room of their arrival and/or possible condition of the patient. The ambulance calls the Tamuning Station by two-way radio, who in turn uses the direct line to the emergency room and relays the message.

The two-way radio system is used for communications between central dispatch at Tamuning and the ambulances.

There is no direct two-way radio communications among the stations at Agat, Inarajan, and Tamuning. The local telephone system must be used to establish contact. There is a plan for installing radio receivers at the various stations. This would allow them to monitor all radio calls, and when necessary, the vehicle two-way radio could be utilized for return communications. It is rather cumbersome to say the least.

Although the radio system employed by the ambulances is part of the Island Wide Police and Fire System, they have no communications whatsoever with the military ambulances and facilities including the U.S. Naval Hospital.

Military Ambulances

Location and Coverage

Military ambulances are operated by the various Naval and Air Force commands throughout the island. Collectively, the military operates nine ambulances in Guam.

The term ambulance here is used to denote the type of emergency vehicle that would be used for both on and off base emergency calls. It does not include disaster, rescue or "boonie" type of emergency vehicles.

There are three stationed at the U.S. Naval Hospital, two at the U.S. Naval Station, one at the Naval Magazine, one located at the Naval Air Station, the Naval Communication Station has one vehicle, and one ambulance is based at the Andersen Air Force Base (Figure 20).

Previously there was a joint military communique designating various areas of coverage for the above mentioned ambulances, but it has since been rescinded.

Even though presently there is no formal instruction, the ambulances still respond to calls where needed, and it is usually in somewhat close proximity to where they are stationed.

Populations Served

The Military ambulances provide emergency service to military personnel and their dependents on the bases where they are

located and surrounding areas. On a humanitarian basis they also respond to calls where civilians are in need of emergency transportation. It would be almost impossible to try and estimate the individual populations that each of the various commands is primarily responsible for. However, totally the nine ambulances might be said to be directly responsible for serving approximately 50,000 persons.⁽¹⁾ This would include military personnel and their dependents, retired military and their dependents, and certain eligible civilians. Of course, since the ambulances respond to all calls, the actual number that they serve is far greater.

Distances to Emergency Facilities

Except for the U.S. Naval Hospital ambulances, most of the other vehicles are located in such a manner as to make it unnecessary to back track while responding to a call and making delivery to one of the two emergency facilities (Figure 20). This is a big factor in reducing actual travel time. Although no exact times were solicited from the military, some reasonable estimates can be made based on the experience of the Department of Public Safety Ambulances.

(1) Estimations based on U.S. Naval Hospital eligibility records, 1971, and policy of providing emergency care to civilian personnel working for the military.

The Andersen Air Force Base ambulance responding to a call somewhere between the base and Guam Memorial Hospital,⁽¹⁾ would probably require approximately 15 to 25 minutes⁽²⁾ to deliver its patient to the emergency room. From the other end of the island, the vehicles located at the U.S. Naval Station would need about 30 to 40 minutes to accomplish a pickup and delivery somewhere in the area ranging from the U.S. Naval Station to Guam Memorial Hospital (Figure 20).

Utilization

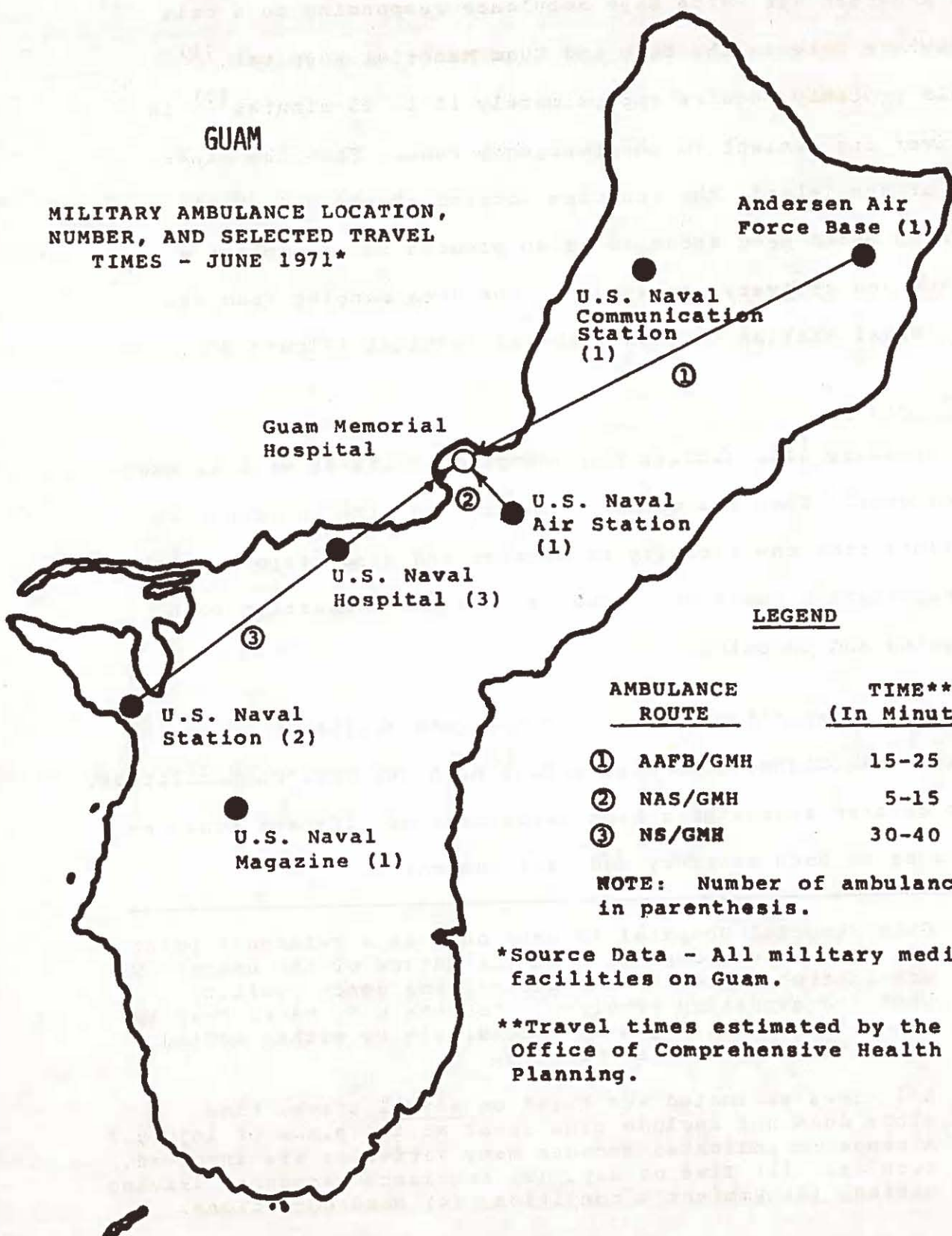
The military also handles non-emergency calls as well as emergency ones. They are called from time to time to transport patients from one facility to another and also respond to the transportation needs regarding medical air evacuation both outgoing and incoming.

Although no specific utilization data was available regarding military ambulances, in discussions with the various facilities, most of them indicated a high percentage of off-base runs responding to both military and civilian calls.

-
- (1) Guam Memorial Hospital is used only as a reference point. All ambulances, depending on the nature of the emergency are instructed to use the closest emergency facility when the situation requires. For the U.S. Naval Hospital, all times can be adjusted accordingly by either adding or subtracting 5 to 10 minutes.
 - (2) All times estimated are based on actual travel time. (This does not include time spent at the place of injury.) A range is indicated because many variables are involved, such as: (1) Time of day, (2) Ambulance personnel driving habits, (3) Patient's condition, (4) Road conditions.

GUAM

MILITARY AMBULANCE LOCATION,
NUMBER, AND SELECTED TRAVEL
TIMES - JUNE 1971*



LEGEND

AMBULANCE ROUTE	TIME** (In Minutes)
① AAFB/GMH	15-25
② NAS/GMH	5-15
③ NS/GMH	30-40

NOTE: Number of ambulances
in parenthesis.

*Source Data - All military medical
facilities on Guam.

**Travel times estimated by the
Office of Comprehensive Health
Planning.

FIGURE 20

Manpower

All facilities utilize trained corpsmen as drivers and attendants to operate their ambulances. Usually two-man shifts per ambulance provide service round the clock. The corpsmen are not familiar, however, with Guam, and have been known to get lost on occasions as well as not being able to find Guam Memorial Hospital.

Equipment

Both the Navy and the Air Force use the standard sedan type ambulance which are fairly well equipped, including two-way radios.

Communications

The military also utilizes the local phone system as well as two-way radio communications in providing ambulance service. One quick glance at the following will reveal an even greater proliferation of telephone numbers for ambulance service than the Department of Public Safety.

(1)

Military Ambulance Numbers

Andersen Air Force Base	362-2239
Naval Air Station	344-6141
Naval Communication Station	355-5223
Naval Hospital	344-9356 344-9351
Naval Station	322-2111

- (1) Guam Telephone Directory, March 31, 1971 (Revised to February 15, 1971); Joint Military Telephone Directory, Guam, April 1971.

As indicated before, all ambulances as well as facilities are equipped for two-way radio communications. Although there is no central communication or dispatch center, the ambulances can communicate with one another and the U.S. Naval Hospital emergency area. They don't, however, have the capability of two-way radio communication with Guam Memorial Hospital or the Department of Public Safety including the police and the civilian ambulances.

Comments and Recommendations

The System in Total

The people of Guam are relatively fortunate to have such an emergency ambulance system when compared to many areas in the United States. The system operated by both the civilian and military communities provides a total of 12 ambulances for a combined population of 105,900 people.⁽¹⁾ Charles A.

Eisenhardt, Jr., president of the Ambulance Manufacturers Association has estimated that it takes a population of 10,000 persons to generate one ambulance trip per day.⁽²⁾ At that rate it would hardly be profitable for a private company to operate an ambulance service here, and the coverage could not possibly compare to the present system.

This is not to say that there are no problems within the present system. There are definitely areas which require improvement and even changes.

As a means of isolating the specific problem areas and formulating solutions with implementation plans, we recommend that a joint committee of all parties involved be formed. On this committee at a minimum, the following personnel and/or agencies should be represented.

(1) Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970. (Military and civilian.)

(2) Ambulance Service is Moving, Charles A. Eisenhardt, Jr.

1. The Department of Public Safety - Fire Division and the Police Division.
2. The various military commands operating emergency vehicles (ambulances).
3. The Guam Memorial Hospital (emergency facility).
4. The United States Naval Hospital (emergency facility).
5. Representatives of the consumers of Guam.
6. The American Red Cross of Guam.
7. The Civil Defense Department.
8. The various military commands involved in air, land, and sea rescue.
9. The Department of Public Health and Social Services.
10. The Guam Medical Society.

Although the committee should not be limited as to the range of areas to be considered, at this point in time they should probably concentrate on everyday emergency ambulance services and not on the emergency services needed to deal with major disasters. These could be taken up at a later date.

The committee should in all its deliberations make contact with and seek assistance from the U.S. Department of Transportation and the U.S. Department of Health, Education, and Welfare regarding emergency health services. Both valuable information and financial assistance are available for providing and developing emergency health services from these

(1)
two agencies.

Based on what we have been able to ascertain through survey and discussions with the various parties involved in providing ambulance services in Guam, we would like to recommend the following areas for serious consideration by the committee.

A. Coordination of military and civilian ambulances and emergency treatment facilities by formal agreement.

1. Establishment of a joint control and dispatch center for emergency vehicles including provisions for air, sea, and land rescue coordination.
2. Designation of primary areas of ambulance responsibility with emphasis on providing emergency service to those outlying areas where no other medical care is available as well as large population centers.
3. Consideration of establishing mixed (civilian and military) ambulance teams.

B. Communications

1. Installation of compatible two-way radio communication equipment in military and civilian emergency and

-
- (1) Emergency health services development and operation should be in accord with the minimum requirements as set forth by a nationally recognized authority on emergency services such as the Committee on Emergency Medical Services - Division of Medical Services, National Academy of Sciences, National Research Council; the Committee on Trauma - American College of Surgeons; or the Division of Emergency Medical Programs, National Highway Safety Bureau.

police vehicles and stations, and emergency areas of both hospitals.

2. Establishment of one emergency telephone number for all islandwide ambulance services.
3. Installation of emergency call boxes at various outlying areas around the island.

C. Services

1. Providing for the transportation of non-emergency cases by other than emergency vehicles.
2. Substitution of single ambulances when in need of repairs by others within the system.
3. Coordination of ambulances with emergency treatment centers.

D. Training of Personnel

1. Establishment of joint ambulance attendant training course including training dealing with the handling of mental problems.
2. Conduct islandwide familiarization courses for state-side personnel.

E. Charges - Development of a uniform rate for ambulance services to be charged by both the military and civilian sectors (Note: Presently the Department of Public Safety charges \$12 per trip and the military provides free ambulance service.)

ADDITIONAL CONSIDERATIONS AND FINAL RECOMMENDATIONS

General

In any study of this nature, it is almost impossible to cover all facets in great depth. We would, however, like to point out at this time a few more important aspects regarding the medical care delivery system here in Guam that have not been brought out in previous sections. We would also like to take the opportunity to make a few general recommendations for improving the delivery of medical care services to the people of Guam.

Availability of Services

From Table 18 it can readily be seen that there are not many services that are not actually available. With the possible exception of some very sophisticated surgical or treatment services, extensive specialized care, and long term psychiatric inpatient care, it would be safe to say that by utilizing both the civilian and military systems most needed medical care services are offered. Of course, as was discussed in a previous section, Guam is experiencing a definite shortage of medical care manpower which definitely affects the quantity of available services. In addition, the physical distribution of our present health care personnel and facilities also plays an important part in the delivery of these same services.

Keeping in mind that these are extremely important considerations in determining the effectiveness of the delivery of

Table 18

Distribution of Medical Care Services in Guam
by Type of Organization - June 1971*

TYPE OF SERVICE	NON-GOVERNMENT				GOVERNMENT	
	MEDICAL/ DENTAL GROUP	PHYSICIAN GROUPING	SOLO PHYSICIAN/ DENTIST	PRIVATE BUSINESS	GUAM	UNITED STATES
A. Diagnostic Treatment						
a) EEG	--	--	--	--	--	2
b) EKG	2	1	--	--	1	4
c) Electromyography	--	1	--	--	--	1
d) Inhalation Therapy	--	--	--	--	1	1
B. Inpatient Obstetrical Service						
a) Delivery	2	--	1	--	1	1
b) Newborn Nursery	--	--	--	--	1	1
c) Premature Nursery	--	--	--	--	1	1
d) Suspect Nursery	--	--	--	--	1	1
C. Laboratory Services						
a) Autopsy	--	--	--	--	1	1
b) Bacteriology	2	--	--	--	2	3
c) Biochemistry	--	--	--	--	2	2
d) Blood Bank	--	--	--	--	1	1
e) Hematology	2	--	1	--	2	5
f) Histology	--	--	--	--	2	1
g) Parasitology	1	--	--	--	2	3
h) Serology	2	--	--	--	2	5
i) Dental Laboratory	2	--	--	--	1	4

TYPE OF SERVICE	NON-GOVERNMENT				GOVERNMENT	
	MEDICAL/ DENTAL GROUP	PHYSICIAN GROUPING	SOLO PHYSICIAN/ DENTIST	PRIVATE BUSINESS	GUAM	UNITED STATES
D. Nursing Service						
a) Medical	1	--	--	--	15	2
b) Surgical	1	--	--	--	1	2
c) Prenatal & Post-partum	1	--	--	--	14	1
d) Pediatrics	2	--	--	--	15	1
e) Chronic Disease	1	--	--	--	15	--
f) Geriatric	1	--	--	--	15	--
g) Psychiatric	1	--	--	--	1	1
h) Contagious Disease	1	--	--	--	15	--
i) Cardiac Care	1	--	--	--	15	--
E. Other Services						
a) Emergency Care	1	2	1	--	14	7
b) Emergency Transportation	--	--	--	--	4	6
c) Health Education	1	--	--	--	14	2
d) Optometry	--	--	--	4	--	2
e) Pharmacy	3	2	1	7	1	6
F. Outpatient Services						
a) Chest	2	--	--	--	--	--
b) Dental	2	1	2	--	1	6
1) Examination	2	1	2	--	1	6
2) Restoration	2	1	2	--	1	6
3) Removal	2	1	2	--	1	6
4) Prophylaxis	2	1	2	--	1	6
5) Orthodontics	1	--	--	--	--	2
c) Dermatological	1	--	2	--	--	2
d) Diabetic	1	1	1	--	15	1
e) EENT	1	1	1	--	15	1
f) Epileptic	1	1	--	--	--	2
g) Gynecological	3	--	2	--	1	1

TYPE OF SERVICE	NON-GOVERNMENT				GOVERNMENT	
	MEDICAL/ DENTAL GROUP	PHYSICIAN GROUPING	SOLO PHYSICIAN/ DENTIST	PRIVATE BUSINESS	GUAM	UNITED STATES
h) Heart	1	1	1	--	15	1
i) Inoculation	3	3	3	--	15	7
j) Medical Diagnostic	2	3	2	--	15	4
k) Mental Health	--	--	--	--	1	2
l) Orthopedic	1	1	1	--	14	1
m) Physical Medicine	1	--	--	--	1	2
n) Prenatal	3	--	1	--	14	3
o) Rheumatological	2	--	--	--	--	--
p) Surgical	2	3	2	--	1	1
q) Tumor	--	--	1	--	future	--
r) Venereal Disease	2	2	2	--	14	2
s) Well Baby	3	2	2	--	14	3
G. Physical Medicine						
a) Occupational Therapy	--	--	--	--	1	--
b) Physical Medicine	--	--	--	--	2	2
H. Progressive Care						
a) Intensive Care	--	--	--	--	1	1
b) Intermediate Care	--	--	--	--	--	--
c) Extended Care	--	--	--	--	1	--
d) Self Care	1	--	--	--	1	1
e) Home Care	1	--	--	--	1	1
I. Radiologic Services						
a) Diagnostic X Ray	2	--	--	--	2	6
b) Flouroscopy	--	--	--	--	--	1
c) Therapy	--	--	--	--	--	1
J. Social Service						
a) Patient Counseling	2	1	--	--	13	2
b) Family Planning	2	--	--	--	14	1

TYPE OF SERVICE	NON-GOVERNMENT				GOVERNMENT	
	MEDICAL/ DENTAL GROUP	PHYSICIAN GROUPING	SOLO PHYSICIAN/ DENTIST	PRIVATE BUSINESS	GUAM	UNITED STATES
K. Surgical Services						
a) Artificial Kidney	1	--	--	--	--	--
b) Cardiac Monitoring	1	--	--	--	--	1
c) Cranial	1	--	--	--	--	1
d) Cystocopy	1	--	--	--	1	1
e) Dental	1	1	--	--	1	4
f) Eye	1	1	--	--	1	1
g) General	1	1	2	--	1	1

* Information compiled by the Office of Comprehensive Health Planning - June 1971. (Generally high numbers indicate inclusion of separate counting of public health village clinics. Services as enumerated in some categories of providers may be an indication of competency to perform such service, but does not necessarily mean service is actually provided at the location of practice.)

medical care services, we would also like to introduce another factor that is equally important. We are referring to the scheduling of days and hours when medical care services are provided for the people who need them. (1) It is one thing to offer care. It is another to offer it at a time convenient for those utilizing the services.

Generally speaking, within the private sector, the medical and/or dental group practices are the primary ones operating on what could be considered as normal business days of operation and hours. The outpatient offices of these medical/dental groups all open from Mondays through Fridays with their hours of operation varying slightly. The Seventh-Day Adventist Clinic opens from 8:00 a.m. to 5:00 p.m. Mondays thru Thursdays and 8:00 a.m. to 12:00 p.m. on Fridays. The Seventh-Day Adventist Dental Clinic opens from 7:30 a.m. to 3:30 p.m. Mondays thru Thursdays and Fridays from 7:45 a.m. to 11:00 a.m. The Catholic Medical Center on the other hand is open from 8:00 a.m. to 5:00 p.m. Mondays thru Saturdays, but physician hours are 10:00 a.m. to 12:00 p.m. and 2:00 p.m. to 5:00 p.m. The Guam Medical Clinic is open from 9:00 a.m. to 12:00 p.m. and 2:00 p.m. to 6:00 p.m. Mondays thru Fridays and 9:00 a.m. to 12:00 p.m. on Saturdays.

Physicians who belong to physician and/or dentist groupings, namely the Doctor's Clinic and the Medical Arts Center, have

(1) Information on the following material compiled by the Office of Comprehensive Health Planning, June 1971.

clinics from Monday to Sunday mornings. However, the days of normal operation and hours varies by individual physicians. Within these, there are two physicians and a dentist who are open within the hours of 9:00 a.m. to 12:00 p.m. Mondays through Saturdays. Of these same two physicians and dentist, one of the physicians does not maintain afternoon hours during Mondays through Fridays but is the only physician in private practice offering service on Sundays during the hours of 10:30 a.m. to 12:00 p.m. The other physician and dentist reopen at 2:00 p.m. to 6:00 p.m. Mondays through Fridays. Other physicians within the physician and/or dental groupings category vary considerably in their hours of operation. Some of the varied hours of operation may be from 3:00 to 6:00 p.m. or 5:00 p.m. to 7:00 p.m. Mondays through Fridays or varied hours even during the week so that it's difficult to summarize them. However, one notable observation about physician and/or dental groupings as a whole is the fact that there is no physician available during the hours of 8:00 a.m. to 8:55 a.m., 12:00 p.m. to 1:55 p.m., and anytime after 7:00 p.m.

Within the individual (solo) practitioners category, the varied days of normal operations and hours is further magnified in that very little summary can be made about the days and hours of operations of solo practitioners. One dentist maintains a full schedule of office operations, opening from 9:00 a.m. to 5:00 p.m. Mondays through Fridays and 9:00 a.m. to 12:00 p.m. on Saturdays. Two physicians are open within the hours of

10:00 a.m. to 6:00 p.m., one for a six-day period, the other four days a week with a 9:00 a.m. to 12:00 p.m. hours of operation on Wednesdays and Saturdays. One physician opens from 2:00 p.m. to 7:00 p.m. on Mondays, Tuesdays, Thursdays, and Fridays and 9:00 a.m. to 12:00 p.m. on Saturdays. Another opens by appointment only and still another for three hours twice a week. The other dentist in private solo practice opens 8:00 a.m. to 10:30 a.m. Mondays through Saturdays and 1:00 p.m. to 3:00 p.m. Mondays, Wednesdays, and Fridays.

In the broad category of government services the following is the situation. The Guam Memorial Hospital is open on a 24-hour basis for inpatient and emergency outpatient services. However, specific outpatient clinics are held only during certain days and specific hours of operation. The Minor Surgery Clinic is open from 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m. Mondays through Fridays. The Cardiovascular Clinic is held 1:00 p.m. to 5:00 p.m. on Mondays and Thursdays. The Diabetic Clinic is held from 1:00 p.m. to 5:00 p.m. on Tuesdays, Wednesdays, and Fridays. The Pediatric Clinic is held 1:00 p.m. to 5:00 p.m. on Mondays and Fridays. Special surgical and medical problems are seen 1:00 p.m. to 5:00 p.m. Mondays through Fridays.

On the whole, the Department of Public Health and Social Services facilities and clinics are only open from 8:00 a.m. to 4:30 p.m. Mondays through Fridays. Clinics found in Public Health centers are open during days and hours physicians are

available to conduct such clinics. Public Health clinic schedules are changed and prepared on a monthly basis then distributed to the health centers.

Medical services in the previously indicated schools are provided by school nurses and are available only during the normal school hours, Mondays thru Fridays from 8 a.m. to 4 p.m.

The military operates the following schedules. The U.S. Naval Hospital is open 24 hours a day on a 7 day a week basis. The various military outpatient facilities are open Mondays thru Fridays within the hours of 7:30 a.m. to 4:30 p.m. Two of the military facilities, the U.S. Naval Station Medical Dispensary and the U.S. Navy MCB5 (Mobile Construction Battalion) Asan Annex Medical Dispensary are open up to 5:00 p.m. The Asan facility is the only one providing Saturday service during the hours of 7:00 a.m. to 12:00 p.m.

The only Federal, non-military facility, the National Institute for Neurological Disease and Stroke, is open regularly from 8:00 a.m. to 5:00 p.m. Mondays thru Fridays.

In summary, all that can be said is that most of the outpatient services are provided sometime between the hours of 9:00 a.m. to 5:00 p.m., Mondays thru Fridays with very few being offered on Saturdays, Sundays, and during early evening hours. The catch, however, is that you must know the exact hours of operation and services offered. Combined with the

poor quality of telephone service, it makes it almost impossible to be assured of receiving services at any particular time. The resultants, of course, are long waiting periods, return visits, referrals, and possibly even postponement of needed medical care. Even within the Department of Public Health and Social Services, a service agency of the Government of Guam, you cannot depend on times that services are available. And, of course, to utilize Guam Memorial Hospital's outpatient clinics one has to have the correct ailment at the correct time.

From the above, it is obvious that most of the medical care services are offered at times when most of the population or at least the heads of the households are normally working. In other words, the services are convenient for those providing them, but not for those seeking them (the patient/consumer). From the outpatient department of Guam Memorial Hospital, one hears that the people don't utilize it at the correct hours; that they come in after hours and call everything an emergency. This should say something to Guam Memorial Hospital as well as to every other provider of medical services on the island. If the medical care delivery system is indeed a service industry, then because of the importance of the services that it provides, it must offer those services at times convenient for those who need them.

Until our work patterns are changed, it would make much more sense to offer more medical care services during the evening

hours and on both Saturdays and Sundays. This would not only allow for those working during the hours of 9:00 a.m. to 5:00 p.m. Mondays thru Fridays to seek services more easily, but it would also insure that their families would also be able to receive the care that they need.

Emergency services cannot be confined to any specific days or hours. We do feel, however, that if regular services were provided at more convenient times, the number of so called emergencies now being dealt with would be reduced dramatically.

Although most all organizations and personnel now providing medical care services indicated that emergency care is also available on a 24 hour, 7 day a week basis, it is nevertheless a fact that the Guam Memorial Hospital and the U.S. Naval Hospital probably handle most of the critical emergencies. The point to be made here, and as pointed out in a previous section, is the importance of an effective emergency island wide transportation system. Along with this, alternate emergency treatment centers located in some of the more isolated areas of the island might indeed be desirable.

Inpatient Facilities (Short Stay)

With the spiraling costs of medical care throughout the United States, more and more attention has been focused on controlling the utilization of inpatient facilities (a comparatively high cost service) and emphasizing treatment on an outpatient basis (a comparatively low cost service).

In Guam although the individual consumer/patient does not directly experience the high cost of hospitalization, the Government of Guam which heavily subsidizes Guam Memorial Hospital does. Also, presently Guam is in the process of planning for a new facility and the future utilization of inpatient services should be a major concern.

Through very harsh experience, many communities in the United States have realized that they have allowed too many beds to be built which must of necessity be kept filled to financially remain in the black. Coupled with this, the fact that up until just recently most medical insurance programs provided for mainly inpatient service benefits, and you have a situation which has definitely led to the over utilization of hospitals. Even Medicare and Medicaid have fanned the fires of this trend. Guam cannot afford to make the same mistakes.

Much discussion lately has been focused on Health Maintenance Organizations (HMO) as a method of reversing the past and present situations. These models of delivering medical care stress such areas as prevention, health maintenance, and early diagnosis

and treatment of diseases and injuries on an ambulatory basis. This concept is nothing new. It is, however, just recently gaining acceptance. Such organizations as the Kaiser Foundation Health Plan, Group Health Cooperative of Puget Sound, Health Insurance Plan of Greater New York, among others, have been operating successfully for a number of years. They have, indeed, shown that the utilization rates of inpatient services can be substantially reduced with a definite cost savings.

In Table 19 the reader should be able to discern the differences easily. The Blue Cross/Blue Shield and Indemnity (AFIA in Guam is an indemnity insurance plan) classifications are the regular indemnity health insurance plans. The Group Practice and Individual Practice classifications are general categories for different types of prepaid service plans (HMO types). The number of hospital days per 1,000 covered persons for the indemnity plans is approximately double that of the prepaid service plans. The Guam Memorial Hospital's 1971 rate of 980 hospital days per 1,000 estimated civilian population is more than double the prepaid service plans. Of course, the United States average for 1967 was 1,241.0, but remember this is exactly what we would like to reduce.

There are also two other Guam rates for hospital days per 1,000 covered population. These are even substantially higher than the previous one. In order to make a little more valid comparison with the indemnity insurance and prepaid service plans,

Table 19

Comparison of Inpatient Service Rates
for Selected Geographical Areas and
(1)
Medical Insurance/Service Plans

AREAS AND PLANS	INPATIENT DAYS/1000 POPULATION	AVERAGE LENGTH OF STAY/ INPATIENT	BEDS/1000 POPULATION
<u>1967</u>			
Hawaii	(2) 657.0	NA	(4) 2.8
United States	(2) 1,241.0	(3) 8.1	(4) 4.6
<u>1968</u>			
Blue Cross/ (5) Blue Shield	878.6	9.2	NA
Indemnity (5) (Aetna)	884.5	10.5	NA
Group Practice (5)	418.7	8.7	NA
Individual Practice (5)	472.3	7.3	NA
<u>1970</u>			
Group Health Cooperative of Puget Sound (6)	420.0	4.7	NA
<u>FY 1971</u>			
Guam (35,000) (7)	1,887.6	8.9	6.9
Guam (55,000) (7)	1,201.2	8.9	4.4
Guam (72,900) (8)	980.1	7.6	3.3

NOTE: NA means not available. Footnotes on following page.

Table 19

Footnotes

- (1) Information compiled by the Office of Comprehensive Health Planning, June 1971.
- (2) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 230. Rate computed by the Office of Comprehensive Health Planning, June 1971.
- (3) Utilization of Short-Stay Hospitals, Summary of Non-medical Statistics, United States - 1966, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, September 1971, page 16.
- (4) Health Resources Statistics, U.S. Department of Health, Education, and Welfare, Public Health Service, HSMHA, National Center for Health Statistics, December 1968, page 230.
- (5) George S. Perrot, The Federal Employees Health Benefits Program, Enrollment and Utilization of Health Services, 1961-1968, U.S. Department of Health, Education, and Welfare, HSMHA, Office of Group Practice Development, May 1971, pages 25 and 26.
- (6) National Health Insurance, Hearings before the Committee on Finance, United States Senate, 92nd Congress, April 26, 27, and 28, 1971, pages 236 and 237. Data does not specifically exclude maternal inpatient services.
- (7) Annual Report, 1970-1971, Guam Memorial Hospital, page 12. Data corrected to reflect estimated covered populations and non-inclusion of maternal inpatient services, and rates computed by the Office of Comprehensive Health Planning, June 1971.
- (8) Ibid. Inpatient days per 1000 population rate based on 1971 estimated civilian population and rate computed by the Office of Comprehensive Health Planning, June 1971.

Guam's rate had to be corrected. The two rates reflect an estimated range of population which is dependent on Guam Memorial Hospital for services (covered population).⁽¹⁾ The rate of 980 was based on a total civilian population estimate, and as you will notice, the indemnity insurance and prepaid service plan rates are based on covered population not total civilian population. Guam's rates have also been corrected to reflect the nonmaternal service characteristics of the rest.

These rates, substantially higher as they are, probably reflect two things. Because of the higher level of health and medical problems found here as compared to the covered populations of the indicated insurance and group practice plans, Guam is in more need of inpatient services. The second reason is definitely over utilization.

Table 19 also includes the average length of stay, and although they seem to be fairly consistent, it is possible to detect a one to two day difference between the indemnity insurance and group practice plans. Guam compares much more favorably in this respect, and it might be a resultant of a cultural feeling of not wanting to be away from the family for great lengths of time, especially in the hospital. The exceptionally low Group Health Cooperative of Puget Sound

(1) The estimated civilian populations dependent on Guam's civilian medical care delivery system were previously indicated in the section, "An Overview of the System."

average length of stay rate can possibly be attributed to the inclusion of short duration maternal services.

One more rate is present in Table 19 and that is the number of beds per 1,000 civilian population. The reader should remember that the high United States rate is not necessarily a desirable one, and as mentioned before is a resultant of over construction of inpatient facilities in the past. On the other hand, Hawaii's low rate of 2.8 beds per 1,000 population seems to be sufficient to provide adequate services to its population. It is generally accepted that for prepaid service plans (HMO types), a rate of about 2.5 beds per 1,000 covered population (not total civilian population) is sufficient.

We are not going to project bed needs for Guam. The whole process of determination of the optimum number of beds requires much more consideration. This discussion, however, is meant to make the reader aware of the need for utilization control, and that the type of medical care delivery system employed plays a major role in not only controlling high cost inpatient services, but also in the determination of what facilities are required to meet the needs of the people.

Financing Medical/Health Care Services

As previously mentioned, the United States is experiencing a spiraling of costs in the health care industry at an ever increasing rate. Today the industry is a \$70 billion industry, and it is projected that by 1975, it will reach \$100 billion. More than ever before, people are searching for ways to reverse this trend or at least to slow it down. It is felt that the consumer/patient/taxpayer isn't getting his dollar's worth when it comes to health services.

There is no particular evidence to the contrary that Guam is any different. In fact with Guam's comparatively high cost of living and low level of per capita income, the situation⁽¹⁾ is even compounded further. For the average man in the street, the basic necessities of life, food and housing, become the most important thing. Good medical/health care becomes a luxury.

Applying an estimated per capita expenditures for health services and supplies figure of \$335 to the 1971 estimated civilian population, of 72,900, we find the size of Guam's

(1) John D. Gilliam, Chief Economist, Economic Research Center, Department of Commerce, Government of Guam, November 1, 1971. Attachment to the State Plan, Developmental Disabilities Services and Facilities Construction Act of 1970, P.L. 91-517, Guam.

(1)
health care industry approximating \$24 million. However, because of the extensive military medical care system, this figure probably is greatly inflated. A more realistic total would more likely be somewhere between \$15 million and \$20 million. Regardless, however, the figure is still quite substantial.

Because of the way that Guam's present system developed and in light of the above will most likely continue in the future, the Government of Guam is the undisputed largest provider of medical/health care services in Guam. It should then go without saying that, with some help from the Federal government, it is the largest single financier of all medical/health care services as well. The Government in 1971 spent approximately \$6.5 to \$7 million in providing medical/health care services to the people of Guam.

(2)

-
- (1) Barbara S. Cooper and Mary F. McGee, Compendium of National Health Expenditures Data, Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics (in process), Table I-2. Per capita expenditure for 1971 approximated from 1950-1969 data by the Office of Comprehensive Health Planning, June 1971.

Civilian population estimate: Population Projection for Guam, Economic Research Center, Department of Commerce, Government of Guam, May 13, 1970.

- (2) Department of Public Health and Social Services 1971 fiscal year budget, Guam Memorial Hospital Final Closing Statement of Income and Expense, June 30, 1971, and Division of Personnel Services, Department of Administration, Government of Guam, May 1971. Amount estimated by the Office of Comprehensive Health Planning June 1971 (does not include medical facilities construction, related studies, and research).

Of course, these services are provided mainly through the Department of Public Health and Social Services and the Guam Memorial Hospital, but such other areas as the Government of Guam employee health insurance program, the school nurse program, the vocational rehabilitation program, the Department of Public Safety's emergency ambulance service, etc. all contributed their share.

It might be very worthwhile to take a brief look at the various medical/health care services and programs operated by the Government of Guam along with the costs of these programs and funding sources where appropriate.

The Public Health Division and Medicaid Section of the Department of Public Health and Social Services were budgeted in fiscal year 1971 about \$2.5 million to operate their programs. Of this amount over half was provided by the Federal Government through various program grants. With the exception of the Home Health Services program, all of the Department's services are provided free of charge. The Home Health Services program is operated mainly for Medicare patients who receive their services free also, but the Department in turn charges the Medicare program and receives reimbursement for the cost of services rendered.

The Medicaid program here in Guam provides medical payments to the providers of medical care on behalf of indigent and medically indigent persons as well. The program for

fiscal year 1971 was budgeted for \$240,000, one half of which was supplied by the Federal government as pursuant to the federal law allowing funding on a 50% matching basis.

Other programs operated by the Department include the Dental Services program for children, the Chronic Disease program, the T.B. control program, Crippled Children's Services, Health Education and Accident Prevention, the Zoonosis program and various environmental health programs. Within the 1971 fiscal year budget, the lion's share for these programs was budgeted for the various Maternal and Child Health services and Crippled Children's Services programs, approximately \$750,000. On the other end of the spectrum, the smallest budget, about \$19,000 was allotted for the Health Education and Accident Prevention program.

For the fiscal year ending June 30, 1971, Guam Memorial Hospital's total operating expenses were \$5,673,887.⁽¹⁾ At the same time a total revenue of \$2,196,787 was experienced and this, of course, left a deficit of \$3,477,100. When \$121,935 for off-island services was also included, the total amount subsidized by the Government of Guam was \$3,599,035.

This could indicate several things. The charges are not high enough to meet the actual costs and/or there are a great number of people not paying for their hospitalization. Both of these

(1) Guam Memorial Hospital Final Closing Statement of Income and Expenses, June 30, 1971.

are in fact the case. There is however, another aspect that must be considered.

The Government of Guam by law provides a number of services which are provided free of charge to the people. (1) School children injured while in school are treated free at Guam Memorial Hospital. All tuberculosis, ALS and Parkinson's disease patients are provided care free of charge. Persons in need of mental health services, both in and outpatient, also receive free care. Generally, diabetics may receive their insulin injections at no cost. Finally, all Government of Guam employees can be treated without charge for injuries sustained while on the job. (2)

The Guam Memorial Hospital also provides services to other Government of Guam agencies at no charge. For example, the Guam Penitentiary and the Department of Public Safety receive needed medical care for prisoners from Guam Memorial Hospital. Together these two areas account for a loss in revenue charges to GMH of \$266,100. If we were to consider the average cost for providing these services, the amount would be \$687,337. (3)

(1) Paragraphs 11411, 49008, 49010, 49225, and 49010.2 Government Code of Guam, Territory of Guam.

(2) Department of Labor, Government of Guam, July 1971.

(3) Estimated by the Office of Comprehensive Health Planning, June 1971, utilizing an average cost percentage of 258.3% of revenues charged.

Returning for a brief moment to the area of nonpayment of bills, we would like to apply the above methodology so that we may get an idea of that problem as it exists. The hospital, pursuant to law, abated \$118,284 in revenue charges. Expressed in average cost figures, this equals \$305,528. The amount of uncollected charges or bad debts was \$430,000, and estimating the average cost, amounts to \$1,110,690. Totaling these two provides a grand total of unpaid average costs for the above utilized services of \$1,416,218.

Rounding off some of our previous figures and putting them together, we come up with the following. The government provided medical care services through Guam Memorial Hospital to non-paying individuals and/or other Government of Guam agencies in the amount of approximately \$2.1 million in average cost figures. With the total deficit running approximately \$3.5 million, this means that the Government of Guam subsidized the paying patients in the amount of only \$1.4 million.

While bringing the charges in line with the actual costs would definitely help to alleviate the above \$1.4 million deficit for paying patients, it would do nothing to eradicate the \$2.1 million in abatements, bad debts and free services. And, it might also happen that those who previously paid for their services, would then fall into either the abated or bad debt category. Coupled with this, an accompanying increase in the local health insurance industry's premiums in order to offset

the increased charges, the Government of Guam might not experience any net change in expenditures at all.

Referring back to the previous section, a better alternative might be in the development of an effective review and utilization control program. As the figures in Table 19 show, the utilization rates can be reduced dramatically. As a further indication of what effective utilization control can do, within the Federal Health Benefits Program for the year 1966, group practice service plans greatly surpassed Blue Shield (an indemnity insurance plan) in reducing the rate of surgical procedures per covered population. ⁽¹⁾ Totally, group practice plans had a rate of 31 procedures per 1000 covered population while Blue Shield's rate was 73. In the area of Tonsillectomies and/or Adenoidectomies, Blue Shield's rate was over four times that of the group practice plans (8.4 per 1000 vs. 1.9 per 1000). In appendectomy procedures, the group practice plans experience a rate of 1.1 per 1000 to Blue Shield's rate of 2.2 per 1000. Again, the point here is not which plan is better, but the fact that the over utilization of services and facilities can be controlled. In the case of Guam Memorial Hospital, this would definitely mean less subsidy by the Government of Guam.

(1) National Health Insurance, Hearing before the Committee on Finance, United States Senate, 92nd Congress, April 26, 27, and 28, 1971, page 248. Data excludes maternal inpatient services.

It would seem that with the large number of unpaid and abated accounts at Guam Memorial Hospital and the delinquent accounts in the private sector which average around 20%, a great need exists in the area of financing medical care other than by government subsidy. ⁽¹⁾ An accurate count of the number of people covered under private health insurance programs, government health financing programs, and military medical care programs is difficult to ascertain. There is a high degree of duplication of coverage of different programs. For example, a military dependent normally eligible for services within the military system might also be covered by a private health insurance program by virtue of his or her employment in a private business or for the Government of Guam. By the same token many of the federal employees who are covered under one of the Federal Government's health insurance programs might also be eligible for medical care services within the military system.

Table 20 presents estimates of participation in the various indicated medical care financing and service programs. There has been no effort to correct duplications, and the total coverage will undoubtedly be greatly distorted. These figures are meant only to give the reader an appreciation of the coverage and scope of benefits of the various programs in Guam. As previously mentioned, it is almost impossible to estimate an

(1) Information on delinquent accounts in the private sector compiled by the Office of Comprehensive Health Planning, June 1971.

accurate coverage figure for Guam, and the reader is reminded once again that the total in Table 20 is completely worthless for this purpose.

Evidenced by the high amount of government subsidy in providing medical care services and a relatively large percentage of delinquent accounts in the private sector, one or more of the following might be the case. There still remains a large reservoir of the population uncovered by any form of health insurance. This could be due to non-availability of such programs (highly unlikely) or a feeling that participation in such programs is unnecessary because the Government of Guam will provide the services when needed. Another might be that there is indeed a high percentage of the population covered by some form of health insurance, but for one reason or another, they are not utilizing these programs to pay for their medical care services. In conjunction with this, it may also be that due to the inadequacy of benefit coverage of a specific health insurance plan, an individual must pay for the needed services out of his own pocket. Many outpatient services are not covered under most existing plans.

In the utilization of any health insurance program, there is a certain level of knowledge required about the use and benefits before the insured patient can fully realize the benefits that may be derived. Without proper orientation and encouragement, individuals may find it easier not to use their health insurance at all.

Table 20

Medical Care Financing and Service
Programs in Guam, 1971 (1)

PROGRAM	ESTIMATED COVERAGE, 1971	GENERAL SCOPE OF BENEFITS PROVIDED
AFIA (2)	35,000	Hospital including maternity, and limited medical on an outpatient basis.
Federal Employees Health Benefits Program (3)	6,400	Various combinations of hospital, medical in/outpatient, maternity, major medical, etc.
Medicaid (4)	3,000	Comprehensive medical care.
Medicare (5)	1,400	Hospital including medical - universal coverage. Medical outpatient - voluntary coverage.
U.S. Military System (6)	-----	Comprehensive medical care.
Active Military	19,000	
Military Dependents	20,500	
Retirees and Dependents	4,000	
Eligible Civilians	5,000	
TOTAL	94,300	

NOTE: Workman's Compensation covers all those employed in organizations with five or more employees. The benefits pertain only to injuries sustained while working. No figures are available on total number covered. (7)

Footnotes on following page.

Table 20

Footnotes

- (1) Information compiled and certain coverage figures estimated by the Office of Comprehensive Health Planning, June 1971.
- (2) AFIA health insurance organization represents, almost entirely, the private health insurance industry in Guam. Coverage figure here is based on 1970 actual figure of 32,000 covered persons and includes Government of Guam employees and their dependents. Source: Great American Insurance Company, AFIA agents on Guam, June 1971.
- (3) Federal Employees Health Benefits Program is represented by several large private insurance and employee organization such as Blue Cross/Blue Shield, Aetna, American Federation of Government Employees, and the United Federation Postal Clerks Plan. U.S. Civil Service Commission, Consolidated Industrial Relations Office, Guam, May 1971. Estimates based on number of full time federal employees. Source: Guam 1970 - An Economy In Transition, Department of Commerce, Government of Guam, February 1971, page 42.
- (4) Estimate based on 1970 estimate of 2,500 individual recipients of medical assistance payment. Medicaid section, Department of Public Health and Social Services, May 1971.
- (5) Estimate based on enrollment in both Parts A and B of 1,372 persons for the period ending July 1, 1969. Health Insurance Statistics, U.S. Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics. H.I.-32, Table 1.
- (6) Data obtained from U.S. Naval Hospital Eligibility Records, June 1971 (authorized for publication April 21, 1972).
- (7) Department of Labor, Government of Guam, July 1971.

It would seem from the above discussion that, until our present system involving a variety of health insurance schemes and plans is unified and for the most part universal, the providers of medical care, especially the Government agencies, should make every effort to ascertain whether or not their patients are in fact participants in one medical care financing program or another. If they are not, then an additional effort should be made to get the person enrolled in a program for which he qualifies. This whole process is one of education, and it would behoove all who are involved in patient care to help in these areas as described above.

Within the Guam Memorial Hospital and the Department of Public Health and Social Services, the Government of Guam is losing additional revenues from federal, military and private insurance sources because of the no charge services that these two agencies provide. Such programs as Medicaid, the Civilian Health and Medical Program of Uniformed Services (CHAMPUS) and many private health insurers will not reimburse the above two agencies for such services which are provided free on a community wide basis. Many of these services could be charged for with an appropriate sliding scale of charges for those without any type of health insurance or program coverage. This is another area which would allow the Government of Guam to reduce the amount of its subsidy to the medical care delivery system.

The whole spectrum of medical care financing is one that requires careful consideration. It is as important as the actual delivery of medical care itself.

Guam's present modes of financing medical care, as throughout the United States, are not adequately doing the job. They tend to emphasize the more expensive types of care (inpatient), they do not encourage early use of medical care services in order to prevent more costly treatment at a later date, they provide no controls regarding the over utilization of services and facilities, and like the pricing structure itself (fee for service), they reward treatment of illness and injury, but not prevention and health maintenance.

Final Comments and Recommendations

There are many more facets within Guam's present medical care delivery system that could be explored. Even the few that have been discussed, have not been exhaustively detailed. However, from the material presented, the reader should now have a better appreciation of how the system operates and basically what are a few of the problem areas.

As was stated in the beginning, Guam is a microcosm of the United States, but differentiated by its own unique characteristics. Many of the ideas regarding the delivery of medical/health care services, and the various financing schemes now being debated on a national level, may or may not be appropriate for Guam. We do feel, however, that all of them warrant careful consideration.

Guam's medical care delivery system, when compared to others throughout the United States, is still in its infancy. The mistakes that have been made in other areas do not have to be repeated here. Valuable lessons can be learned, and a system can be developed to provide the people of Guam with the best medical/health care possible.

There is room for both the private and public concerns to be adequately represented. The key to building an effective system is cooperation and coordination. All parties also must keep in mind at all times the importance of the needs of the people and the fact that a medical care delivery system is a service oriented system.

In light of the rapid economic growth being experienced by Guam, the medical care delivery system must also expand accordingly to provide the necessary services. It is presently doing just that, but in a most uncoordinated fashion. The Department of Public Health and Social Services is expanding its services and programs, planning is under way for a new Guam Memorial Hospital, and the private sector is busy constructing new outpatient facilities and planning for new inpatient facilities as well. This type of activity is exactly indicative of the mistakes that have already been made elsewhere throughout the United States. We repeat, Guam does not have to be a follower.

It is time for all parties concerned to sit down together and chart a coordinated course of development for Guam's medical care delivery system. Without such an agreed upon "game plan" Guam will experience the same chaotic situation of uncoordinated medical/health care services as can be found in many areas throughout the United States.

We would, therefore, like to recommend, as we have in previous sections, that a special high powered commission or committee be formed to consider this very important question. To give it the necessary prestige and power, the Governor should appoint the members and require a written report of all findings and recommendations. This commission should convene as soon as possible for the gravity of the situation warrants an immediate "game plan." It should include, but not be limited to the following groups and organizations:

1. Representatives of all providers of medical/health care services, both public and private.
2. Representatives of the medical/health professional organizations.
3. Representatives of the three branches of the Government of Guam.
4. Representatives of the United States military medical system.
5. Representatives of the medical/health manpower development organizations.
6. Representatives of the consumers of Guam.
7. Representatives of the voluntary health agencies.

We would hope that the number of representatives would reflect the relative size of each particular group. Of course, the consumer's group would definitely be the largest, and rightly so for they are the receivers of all services provided by the system.

Additionally, we would like to recommend that the commission focus its attention on, but not be limited to the following:

1. The organization and coordination of the entire system in order to provide comprehensive medical/health care services to the people of Guam.
2. The various roles or areas of responsibility of each of the providers within the system.
3. The overall financing mechanism of all services provided by the system.

4. The military system and its relationship to the civilian system.
5. The resources both human and material necessary to sustain the system.
6. The required legislation affecting all areas of concern.

It is hoped that such a commission working within a framework of cooperation and common purpose can resolve many of these areas of importance so that the people of Guam may receive the kind of medical/health care which they rightly deserve.

**HEALTH SERVICES
AND RESOURCES INDEX OF GUAM**

MAY 1972

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	Health Services and Resources Map	(See back cover)

NOTE: To be used in conjunction with the Health Services and Resources Map. (See back cover for map.)

INDEX

SYMBOL

ORGANIZATION - SERVICE/RESOURCE

A Allied Environmental Health (Non-Military)

- A-1 Department of Public Health and Social Services
Central Facility (location to be phased out) -
Operates the following environmental health pro-
grams throughout the island: Zoonosis, Vector
Control, General Environmental Health, Water
Pollution Control, and Air Pollution Control.
- A-2 Department of Agriculture - Animal Quarantine
Station
- A-3 Department of Public Health and Social Services -
Dog Pound, Zoonosis Program
- A-4 Department of Public Health and Social Services
Central Facility (under construction) - See A-1
for details.

C School Health Counselors

The Department of Education operates a school nurse program providing registered nurses at the indicated elementary and secondary schools. The University of Guam operates its own program providing student health services, also utilizing a registered nurse.

- C-1 John F. Kennedy Senior High
- C-2 Brodie Memorial
- C-3 Tamuning Elementary
- C-4 Andersen Elementary
- C-5 Yigo Elementary
- C-6 Ulloa Elementary
- C-7 Dededo Junior High
- C-8 Harmon Loop Elementary
- C-9 Carbullido Elementary
- C-10 Barrigada Junior High
- C-11 Price Elementary
- C-12 Vocational Technical High

SYMBOLORGANIZATION - SERVICE/RESOURCECSchool Health Counselors

C-13 George Washington Senior High
C-14 University of Guam
C-15 George Washington Junior High
C-16 Taitano Elementary
C-17 Agana Heights Elementary
C-18 Old Piti Elementary
C-19 New Piti Elementary
C-20 Agat Junior High
C-21 Talofofo Elementary
C-22 Inarajan Junior High
C-23 Inarajan Elementary

DDental

D-1 Doctor's Clinic - General dental services
D-2 Seventh-Day Adventist Clinic - General dental services
D-3 Department of Public Health and Social Services Central Facility (Tamuning, location to be phased out) - Provides children's dental services in education, prophylaxis, restoration and extraction.
D-4 Poly Clinic (under construction) - General dental services
D-5 Orthodontist's Clinic - Specializing in orthodontics.
D-6 Catholic Medical Center (under construction) - General dental services
D-7 Dental Clinic - General dental services
D-8 Dr. T. Morgan - General dental services
D-9 Dr. H. Kiyuna - General dental services

SYMBOLORGANIZATION - SERVICE/RESOURCEDDental

D-10 Catholic Medical Center (location to be phased out) - General dental services

D-11 U.S. Naval Hospital Dental Clinic - General dental services

D-12 Andersen Air Force Base Dental Clinic - General dental services

D-13 U.S. Naval Communication Station Dental Clinic - General dental services

D-14 U.S. Naval Air Station Dental Clinic - General dental services

D-15 University of Guam Dental Auxiliary Training Program Dental Clinic - Provides limited dental services for students and is operated as a clinical training facility for dental auxiliaries.

D-16 Department of Public Health and Social Services Central Facility (Mangilao, under construction) - See D-3 for details.

D-17 Dr. J. Yeomans - General dental services

D-18 U.S. Navy MCB5 (Mobile Construction Battalion) Asan Annex Medical Dispensary (location to be phased out) - General dental services

D-19 U.S. Navy MCB5 (Mobile Construction Battalion) Medical Dispensary (under construction) - General dental services

D-20 U.S. Naval Station Dental Clinic - General dental services

D-21 Department of Public Health and Social Services Inarajan Areawide Health Center - See D-3 for details.

D-22 Seventh-Day Adventist Clinic - General dental services

EEmergency/Air-Sea Rescue/Disaster

E-1 Department of Public Safety, Tamuning Fire Division (Central Facility) - Emergency Ambulance

SYMBOLORGANIZATION - SERVICE/RESOURCEEEmergency/Air-Sea Rescue/Disaster

E-2 Department of Public Safety Central Facility, Office of Civil Defense - Disaster Coordination

E-3 U.S. Naval Hospital - Emergency Ambulance

E-4 Andersen Air Force Base Medical Dispensary - Emergency Ambulance

E-5 Andersen Air Force Base, Rescue Control Center - Air-Sea Rescue

E-6 U.S. Naval Communication Station Medical Dispensary - Emergency Ambulance

E-7 Department of Public Safety, Dededo Fire Division - Emergency Ambulance

E-8 U.S. Naval Air Station Medical Dispensary - Emergency Ambulance

E-9 U.S. Naval Air Station, Coast Guard - Air-Sea Rescue

E-10 U.S. Naval Air Station, Navy - Air-Sea Rescue

E-11 Department of Public Safety, Piti Fire Division - Emergency Ambulance (Proposed July 1972)

E-12 Commercial Port of Guam - Emergency Ambulance

E-13 U.S. Naval Station Medical Dispensary - Emergency Ambulance

E-14 U.S. Naval Magazine - Emergency Ambulance

E-15 Department of Public Safety, Agat Fire Division - Emergency Ambulance

E-16 Department of Public Safety, Inarajan Fire Division - Emergency Ambulance

HMental Health (In/Outpatient)

H-1 Guam Memorial Hospital - Inpatient and outpatient mental health services

H-2 Department of Public Health and Social Services
Inarajan Areawide Health Center - Part time outpatient mental health services

SYMBOLORGANIZATION - SERVICE/RESOURCEIMedical Inpatient

- I-1 Guam Memorial Hospital, a 242 bed, general short-stay, acute care hospital. Extended care and therapy services available.
- I-2 U.S. Naval Hospital, a general, short-stay, acute care hospital operating 370 beds.
- Guam Convalescent and Nursing Home Center, providing extended and general nursing home care including physical and occupational therapy. (under planning, not indicated on map)
- Catholic Hospital (under planning, not indicated on map)

LLaboratory

- L-1 Guam Memorial Hospital - Medical
- L-2 Department of Public Health and Social Services Central Facility, (Tamuning, location to be phased out) - Medical
- L-3 Seventh-Day Adventist Clinic - Medical
- L-4 Seventh-Day Adventist Clinic - Dental
- L-5 Physician's Diagnostic Laboratory (under construction) - Medical
- L-6 Poly Clinic (under construction) - Dental
- L-7 Poly Clinic (under construction) - Medical
- L-8 Catholic Medical Center (under construction) - Medical
- L-9 Catholic Medical Center (under construction) - Dental
- L-10 Catholic Medical Center (location to be phased out) - Medical
- L-11 Catholic Medical Center (location to be phased out) - Dental
- L-12 U.S. Naval Hospital - Medical

SYMBOLORGANIZATION - SERVICE/RESOURCELLaboratory

L-13 Andersen Air Force Base Medical Dispensary - Medical

L-14 Andersen Air Force Base Dental Clinic - Dental

L-15 U.S. Naval Communication Station Medical Dispensary - Medical

L-16 U.S. Naval Air Station Dental Clinic - Dental

L-17 Department of Public Health and Social Services
Central Facility (Mangilao, under construction) - Medical

L-18 Dr. J. Yeomans - Dental

L-19 U.S. Navy MCB5 (Mobile Construction Battalion) Asan
Annex Medical Dispensary (location to be phased out) - Medical

L-20 U.S. Navy MCB5 (Mobile Construction Battalion) Medical
Dispensary (under construction) - Medical

L-21 U.S. Naval Station Dental Clinic - Dental

L-22 U.S. Naval Station Medical Dispensary - Medical

L-23 Department of Public Health and Social Services
Inarajan Areawide Health Center - Medical

MMedical Outpatient

M-1 Doctor's Clinic - Multi-specialty physician grouping

M-2 Seventh-Day Adventist Clinic - Group medical practice
utilizing mainly general practice (family medicine)
physicians.

M-3 Department of Public Health and Social Services
Central Facility (location to be phased out; Tamuning
Clinic to remain) - Multi-service organization pro-
viding care through a system of island wide village
health centers. Operates such programs as Maternal
and Child Health, Crippled Children's Services,
Communicable Disease Control, Chronic Disease Program,
Public Health Nursing, Home Health Services and Health
Education, Nutrition and Accident Prevention.

SYMBOLORGANIZATION - SERVICE/RESOURCEM Medical Outpatient

- M-4 Guam Memorial Hospital Outpatient Department - General and specialty medical care on an outpatient basis. Emergency care available continuously.
- M-5 National Institute for Neurological Disease and Stroke - A United States Public Health Service research center providing specialized medical care in such areas as ALS, Parkinson's Disease and other neurological disorders.
- M-6 Dr. L. Espaldon - Anesthesiology
- M-7 Guam Medical Clinic - Group medical practice specializing in obstetrics and gynecology
- M-8 Poly Clinic (under construction) - Multi-specialty physician grouping
- M-9 Catholic Medical Center (under construction) - Multi-specialty group medical practice
- M-10 Dr. E. A. Ortiz (location to be phased out) - Surgery
- M-11 Medical Arts Center - Multi-specialty physician grouping
- M-12 Dr. G. Macaraeg - Surgery
 Dr. F. Chang - Obstetrics and Gynecology
- M-13 Dr. E. Falks - General Practice
- M-14 Dr. T. A. Darling - General Practice
- M-15 Dr. G. Sagisi (location to be phased out) - Obstetrics and Gynecology
- M-16 Dr. O. Cruz - Internal Medicine
- M-17 Dr. R. Sablan - Dermatology
- M-18 Catholic Medical Center (location to be phased out) - Multi-specialty group medical practice
- M-19 U.S. Naval Hospital Outpatient Clinic - General and specialty medical care. Emergency care continuously.
- M-20 Andersen Air Force Base Medical Dispensary - General and specialty medical care. Emergency care continuously.

SYMBOLORGANIZATION - SERVICE/RESOURCEMMedical Outpatient

M-21	Department of Public Health and Social Services Yigo Health Center - See M-3 for details.
M-22	U.S. Naval Communication Station Medical Dispensary - General medical care. Emergency care continuously.
M-23	Department of Public Health and Social Services Dededo Health Center - See M-3 for details.
M-24	U.S. Naval Air Station Medical Dispensary - General medical care. Emergency care continuously.
M-25	Department of Public Health and Social Services Barrigada Health Center - See M-3 for details.
M-26	Department of Public Health and Social Services Mangilao Health Center - See M-3 for details.
M-27	Department of Public Health and Social Services Central Facility (Mangilao, under construction) - See M-3 for details.
M-28	Department of Public Health and Social Services Sinajana Health Center - See M-3 for details.
M-29	Department of Public Health and Social Services Asan Health Center - See M-3 for details.
M-30	U.S. Navy MCB5 (Mobile Construction Battalion) Asan Annex Medical Dispensary (location to be phased out) - General medical care. Emergency care continuously.
M-31	Department of Public Health and Social Services Piti Health Center - See M-3 for details.
M-32	U.S. Navy MCB5 (Mobile Construction Battalion) Medical Dispensary (under construction) - General medical care. Emergency care continuously.
M-33	U.S. Naval Station Medical Dispensary - General medical care. Emergency care continuously.
M-34	Department of Public Health and Social Services Santa Rita Health Center, (under construction) - See M-3 for details.
M-35	Department of Public Health and Social Services Agat Health Center - See M-3 for details.

SYMBOL**ORGANIZATION - SERVICE/RESOURCE****M****Medical Outpatient**

- M-36 U.S. Naval Magazine Medical Dispensary - Limited medical care.
- M-37 Department of Public Health and Social Services Yona Health Center - See M-3 for details.
- M-38 Department of Public Health and Social Services Talofofo Health Center - See M-3 for details.
- M-39 Department of Public Health and Social Services Inarajan Areawide Health Center - See M-3 for details.
- M-40 Department of Public Health and Social Services Merizo Health Center - See M-3 for details.
- M-41 Department of Public Health and Social Services Umatac Health Center (under construction) - See M-3 for details.
- Department of Public Health and Social Services Agat Areawide Health Center (under planning, not indicated on map) - See M-3 for details.
- Department of Public Health and Social Services Dededo Areawide Health Center (under planning, not indicated on map) - See M-3 for details.

O**Optometry**

- O-1 American Optical Co. (Guam), Inc.
- O-2 Marianas Optical (under construction)
- O-3 Guam Optical
- O-4 Mayo Optical
- O-5 Panes Optical and Retail Store
- O-6 U.S. Navy Exchange, U.S. Naval Hospital
- O-7 Andersen Air Force Base Exchange

P**Pharmacy**

- P-1 Doctor's Clinic
- P-2 Seventh-Day Adventist Clinic (Tumon)

SYMBOLORGANIZATION - SERVICE/RESOURCEPPharmacy

P-3	Guam Memorial Hospital
P-4	Island Drugs (Tamuning)
P-5	Guam Medical Clinic
P-6	Poly Clinic (under construction)
P-7	Catholic Medical Center (under construction)
P-8	Guam Rexall Drugs
P-9	Dr. Ortiz's Office (location to be phased out)
P-10	Medical Arts Center
P-11	The Drugstore
P-12	Guam Drugs
P-13	Moylan's Drugs
P-14	Island Drugs (Julale)
P-15	Mark's Walgreen
P-16	Catholic Medical Center (location to be phased out)
P-17	U.S. Naval Hospital
P-18	Andersen Air Force Base Medical Dispensary
P-19	U.S. Naval Communication Station Medical Dispensary
P-20	U.S. Naval Air Station Medical Dispensary
P-21	Department of Public Health and Social Services Central Facility (Mangilao, under construction)
P-22	U.S. Navy MCB5 (Mobile Construction Battalion) Asan Annex Medical Dispensary (location to be phased out)
P-23	U.S. Navy MCB5 (Mobile Construction Battalion) Medical Dispensary (under construction)
P-24	U.S. Naval Station Medical Dispensary

SYMBOL**ORGANIZATION - SERVICE/RESOURCE****P****Pharmacy**

- P-25 Department of Public Health and Social Services
Inarajan Areawide Health Center
- P-26 Seventh-Day Adventist Clinic (Inarajan)

R**Rehabilitative**

- R-1 Guam Rehabilitation and Workshop Center, Inc.
- R-2 Brodie Memorial School for the Mentally Handicapped
- R-3 Department of Public Health and Social Services
Central Facility, Speech and Hearing Section
(Tamuning, location to be phased out)
- R-4 Guam Memorial Hospital - Physical and Occupational
Therapy
- R-5 Department of Education, Vocational Rehabilitation
Division, Administrative Central Office
- R-6 U.S. Naval Hospital - Physical Therapy
- R-7 Andersen Air Force Base Medical Dispensary - Physical
Therapy
- R-8 Department of Public Health and Social Services
Central Facility - Speech and Hearing Section -
(Mangilao, under construction)
- R-9 New Piti School for the Deaf and Blind

S**Social Services**

- S-1 Department of Public Health and Social Services,
Social Services Office (location to be phased out) -
Full range of social service and assistance programs
including Medicaid.
- S-2 U.S. Department of Health, Education, and Welfare,
Social Security Administration - Various federal
benefit programs including Medicare.
- S-3 Guam Veteran's Affairs Office - Various veteran's
benefit programs including medical and dental
services for eligible veterans.

SYMBOL**ORGANIZATION - SERVICE/RESOURCE****S****Social Services**

- S-4 Family Assistance Center, Andersen Air Force Base - Offering social services to Air Force personnel and their families.
- S-5 Department of Public Health and Social Services Food Commodity Program
- S-6 Guam Homemakers Service - Provides homemaker services to elderly individuals. Funded through the Department of Public Health and Social Services.
- S-7 Department of Public Health and Social Services Central Facility (Mangilao, under construction) - See S-1 for details.
- S-8 Navy Relief Society, Central Office, U.S. Naval Station - Offering social services to Navy personnel and their families. Services available at most stations through Chaplain's offices.
- S-9 Department of Public Health and Social Services Inarajan Areawide Health Center - See S-1 for details.

T**Training (Health Manpower/Non-Military)**

- T-1 Guam Memorial Hospital - Nurse's Aide Training Program, Emergency Ambulance Attendant Training Course, clinical training facility for the University of Guam Nursing Program.
- T-2 Department of Public Health and Social Services Central Facility - All facilities utilized as clinical training facilities for the University of Guam Nursing Program; Laboratory Cytotechnologist Training Program; Environmental Health Technician Program (operated in conjunction with the University of Guam); central and Inarajan facilities utilized as clinical training facilities for the University of Guam Dental Auxiliary Training Program.
- T-3 Department of Education, Manpower Development Training Act (MDTA) Agency - Provides Manpower training funds and develops training programs.
- T-4 U.S. Naval Hospital - Clinical training facility for the University of Guam Nursing Program.

SYMBOLORGANIZATION - SERVICE/RESOURCET Training (Health Manpower/Non-Military)

- T-5 Department of Public Health and Social Services
Central Facility (Mangilao, under construction) -
See T-2 for details.
- T-6 University of Guam - Associate Degree Nursing Program,
Certificate Dental Auxiliary Training Program,
Licensed Practical Nurse Training Program (proposed),
Nurse's Aide Training Program (proposed), Environ-
mental Health Technician Training Program (operated
in conjunction with the Department of Public Health
and Social Services), Related Biological Science
Degree Programs which can be utilized for pre-Medi-
cine/Dentistry/Veterinary Programs, and Scholarship
and Loan Program for Training Financing.
- T-7 Department of Public Health and Social Services
Inarajan Areawide Health Center - Clinical facility
for Dental Auxiliary Training Program - See T-2 for
further details.

V Voluntary Agencies

- V-1 Guam Memorial Hospital Volunteers
- V-2 Marianas Association for Retarded Children
- V-3 American Cancer Society
- V-4 American Red Cross - Guam Office
- V-5 American Red Cross - U.S. Naval Hospital
- V-6 American Red Cross - Andersen Air Force Base
- V-7 American Red Cross - U.S. Naval Air Station
- V-8 Guam Tuberculosis and Respiratory Disease Association
- V-9 American Red Cross - U.S. Naval Station
- Alcoholics Anonymous (not indicated on map)
- Guam Chapter Muscular Dystrophy Association of
America (not indicated on map)

X X Ray

- X-1 Guam Memorial Hospital

SYMBOLORGANIZATION - SERVICE/RESOURCEXX Ray

X-2	Department of Public Health and Social Services Central Facility (Tamuning, location to be phased out)
X-3	Seventh-Day Adventist Clinic
X-4	Catholic Medical Center (under construction)
X-5	Catholic Medical Center (location to be phased out)
X-6	U.S. Naval Hospital
X-7	Andersen Air Force Base Medical Dispensary
X-8	U.S. Naval Communication Station Medical Dispensary
X-9	U.S. Naval Air Station Medical Dispensary
X-10	Department of Public Health and Social Services Central Facility (Mangilao, under construction)
X-11	U.S. Navy MCB5 (Mobile Construction Battalion) Asan Annex Medical Dispensary (location to be phased out)
X-12	U.S. Navy MCB5 (Mobile Construction Battalion) Medical Dispensary (under construction)
X-13	U.S. Naval Station Medical Dispensary
X-14	Department of Public Health and Social Services Inarajan Areawide Health Center

HEALTH RELATED ORGANIZATIONS

(Not indicated on map)

Advisory Committee on Immunization Practice

Air Pollution Control Commission

Commission on Licensure to Practice the Healing Art in Guam

Council for Exceptional Children

Department of Public Health and Social Services - Licensing agency for certain categories of health manpower and health related facilities and services. The Department also acts as the agency for the recording and maintenance of all vital records in the Territory of Guam.

Drug Education Committee

Emergency Medical Care Community Council

Governor's Committee on Problem of the Aging

Guam Board of Nurse Examiners

Guam Dental Study Group

Guam Hospital and Medical Facilities Survey and Construction Advisory Council

Guam Medical Society

Guam Memorial Hospital Board of Trustees

Guam Memorial Hospital Medical Staff

Guam Nurses Association

Guam Philippine Nurses Association

Guam Society for Professionals in Food Service and Nutrition

Guam Student Nurses Association

Guam Veterinary Medicine Association

Parent Teachers Association for the Deaf and Blind

Planning Council for the Coordination of Health and Social Services (Includes advisory committees for Comprehensive Health Planning, Medicaid, and Vocational Rehabilitation.)

Rabies Advisory Committee

Water Pollution Control Commission

T H I R D C O M P O N E N T
GUIDE FOR HEALTH POLICY AND ACTION

GOALS

The overall goal for Comprehensive Health Planning is to assure "the highest level of health attainable for every person" in the Territory of Guam, "in an environment which contributes positively to healthful individual and family living."

A. Total Environment

To assure every person in the Territory of Guam of a healthful environment free of pollutants that are harmful and hazardous. To assure every person of comfortable, safe and wholesome living conditions. To assure every person of the quality of food, drugs, and other products sold within the Territory of Guam.

B. Accidents

To effectively reduce and control the occurrence of accidents through improved standards of safety for the highway and home as well as for work and recreation.

C. Communicable Diseases

To reduce the occurrence of communicable diseases through effective control and treatment of such diseases, and to establish effective programs for the implementation of communicable disease control measures.

D. Chronic Diseases

To reduce, to a negligible degree, the occurrence of chronic diseases and to provide for the proper care and

treatment of those already afflicted with chronic diseases.

E. Mental Health and Social Adaptation

To assure every person in the Territory of Guam of favorable living conditions such as those relating to housing, employment, schools, recreation, law enforcement, and health so as to provide an environment that is conducive to social well being and good mental health.

F. Dental Health

To assure every person of the opportunity to obtain good dental care so as to effectively reduce the incidence of dental caries and other dental diseases below that of the U.S. national average. To provide effective educational programs within the schools and the community for the purpose of instilling the desire in every person to strive for prevention of dental diseases and to develop good dental habits.

G. Physical and Mental Impairment

To assure the availability of services and programs for the physically and mentally impaired in the Territory of Guam.

H. Reproduction and Human Development

To assure every existing or unborn individual in the Territory of Guam of the best possible opportunity for normal birth, growth and development and the fullest enjoyment

of health and well-being throughout his lifetime in a total environment which contributes positively to the maintenance of those qualities.

I. Nutrition

To assure the continual fulfillment of the optimal nutritional requirements of every person.

J. Health Education

To provide an effective health education program for the promotion of good health habits and for the understanding of basic health needs and to provide everyone with an awareness to attain the "highest possible level of good health."

LIST OF PRIORITY HEALTH PROBLEMS

The Total Environment

Priority ranking of problem areas.

1. Water
2. Consumer Protection
3. Waste
4. Air Pollution

Water

The section on Environmental Health covers a variety of problems. The priority ranking, however, will take into consideration the most severe of these problems. As presented in the first component, water pollution seems to be the number one environmental health problem for Guam.

Because of the health hazard implications, immediate action should be taken to improve the water qualities of our beaches, rivers, and bay areas. Such immediate actions could include the enforcement of existing laws, and where necessary, the amendment of existing laws and/or the enactment of new laws. Runoff to the water bodies is one of the main causes of ground water pollution. An effective program should be developed to minimize pollution from runoffs.

Consumer Products

One of the environmental problems is that of consumer products or consumer protection. U.S. meats and canned foods are

certified by the United States Food and Drug Administration. However, Guam also imports many of its food items (frozen, fresh and canned) from foreign countries such as Japan, Australia, and New Zealand. Some food stuff are also imported from the Philippines. Since there is no local program of inspection, there is no way of ascertaining that these products do meet the safety standards. What little there is of consumer protection on Guam is scattered among different agencies. There is a great and apparent need for some form of consumer protection agency. Another great need in the area of consumer protection is the enactment of adequate laws. Some of the Federal laws are applicable on Guam but for some reason, the enforcement aspect has not been very successful.

One of the problems confronting the Environmental Health Section of the Department of Public Health and Social Services is its shortage of manpower. Because of the lack of manpower, the regular inspection of eating establishments and plants are not well enforced. Aside from regular inspections, there should also be follow ups to make sure that these establishments are maintaining good standards of sanitation, and appropriate actions should be taken against those who fail to meet these standards.

Waste

Gradually, the residents of Guam are converting to smaller sized waste containers with fitted lids. However, this is just part of the problem of waste collection and disposal on Guam. Many

people abandon automobiles and other large appliances thus creating more problems. Clean-up campaigns have helped greatly in removing such things. Regulations could possibly be set up to control the situation. Another problem is the habitual littering of roadsides, public places and beaches. It is not only unsanitary but very unsightly and uninviting. Better enforcement of the anti-litter law is imperative.

An educational program is needed to make everyone aware that it is the responsibility of every person in Guam to keep our island clean. Awareness is not the whole answer; we must want to keep Guam clean. Good habits must be formed. Children can easily be taught to dispose of trash and garbage in proper receptacles, but it is, however, disappointing to see adults negligently throw trash out of a moving vehicle or on the beach.

Air Pollution

As was mentioned in the First Component of the Plan under Total Environment, air pollution, at the present time is more of the nuisance type. It is, however, very important that necessary measures be taken to insure that these nuisances do not become real health problems.

Accidents

Priority ranking of problem areas.

1. Motor vehicle accidents
2. Drowning

Motor Vehicle Accidents

One of the major areas of concern is that of motor vehicle accidents. Motor vehicle accidental deaths alone comprised 63.3% of all accidents in 1968 as reflected on page 50 of the First Component. Accidental deaths are not only tragic, but also quite costly. Page 51 of the First Component states that motor vehicle accidents in Guam with both deaths and injuries, represented a "loss to the public of over three and one-half million dollars." The assessment of accidents showed that accidents occur more in the younger age group and especially among males.

As a measure against accidental injuries and death, major emphasis must be placed on education. Education not only in the classrooms but also through news media. The public must be made aware and concerned of the hazards on Guam and how to deal with these hazards. Because of the fact that most of our tourists are from Japan, some means must be established to educate these people of the driving practices on Guam, of what the traffic signs mean, and how to drive defensively. Defensive driving is a must for every driver on Guam, especially in line with the slippery road conditions and other hazardous conditions.

Guam's roads are naturally slippery because of the coral rocks used for road construction. Aside from the slippery conditions, our roads imperatively need improvement. The number of motor vehicles on the island has increased tremendously. There is an apparent need for a workable form of public transportation system to stem the increase in the number of motor vehicles, thereby alleviating many of our traffic congestions and heavy traffic hazardous conditions.

Drowning

Drowning is the second cause of accidental deaths in Guam, and predominantly occurs among males. A problem that faces Guam is the fact that many local people do not know how to swim. Many people are also unaware of the dangers of the water and some of those who consider themselves swimmers are not knowledgeable of water safety. Many of the beaches and shallow waters around Guam have broken bottles and other sharp objects such as rocks and rusty cans that are hazardous to beachcombers and waders. There are also undercurrents which could prove fatal to the inexperienced swimmer and especially if he is alone. Guam's waters have many beautiful but deadly cone shells and other poisonous sea life. All swimmers and waders must be made aware of the dangers of the water.

There are various swimming classes on Guam. The Department of Education provides a portable swimming pool that rotates around the various elementary schools. The University of Guam

requires all students seeking degrees to take a semester of swimming lessons. The USO, from time to time, conducts free swimming lessons. In addition to teaching the people how to swim and providing water safety lessons, various improvements could be made of our swimming facilities. We need adequate lifeguard personnel and life saving equipment at all public beaches and swimming pools.

Communicable Disease Concerns

Priority ranking of problem areas.

1. Tuberculosis
2. Venereal disease
3. Immunization
4. Vector control program

Tuberculosis

Despite the continued reduction of the incidence of tuberculosis from a rate of 96/100,000 population in 1968 to 80/100,000 population in 1970, it is still a high ranking priority among the health problems. The present tuberculosis rate is unfortunately high with regards to the maximum desired level of eradication which is a rate of 5/100,000 population. This data shows that tuberculosis will remain a problem in the island in the years to come because of its high incidence.

Inadequate nutrition plays a considerable part in the high incidence of tuberculosis. It is a fact that no formal program has been carried out to improve nutrition in the island.

Due to the fact that Guam has a high number of alien laborers, it is vitally important that an effective control program be established to screen these laborers as they enter the island. A screening program is especially important for laborers coming from a country where tuberculosis is predominant. Training sessions may be established to educate airport check-in

personnel in reading x-ray films as such films are required of aliens for entry into U.S. territories.

Sanitation and the general improvement of living conditions are also contributing factors in the high incidence of tuberculosis. Poor sanitation serves as a good breeding place for disease carriers. It has to be noted that there has been clean-up campaigns going on in every village. To assure the continuity of the effectiveness of this program, appropriation of funds is highly recommended.

Venereal Disease

Next in line is the problem on venereal diseases (VD). There has been an increasing number of cases reported each year in which the military accounted for the greatest number of cases. As of this writing, the problem on venereal disease is making tremendous head way on the indigenous population especially among the teenagers, which can also be attributed to the fast changing world they live in. More effective educational programs in the junior and senior high levels must be implemented to make these teenagers aware of the health implications of venereal disease.

Immunization

It has been shown that approximately 80% of elementary school children have attained immunity levels on the immunization of diphtheria, tetanus, polio, measles, and rubella. However, the need for the "full compliment of shots" to protect against

these diseases demands also the continued support and funding of this program.

Vector Control Program

Another important area within communicable diseases is vector control. In view of the fact that Guam has the vectors for such diseases as malaria, dengue, encephalitis, and filariasis, an effective program must be established, if not already, to prevent the onset of epidemics resulting from these diseases.

Chronic Diseases

Priority ranking of problem areas.

1. Diseases of the heart and blood vessels
2. Cancer
3. Diabetes
4. Amyotrophic Lateral Sclerosis and Parkinsonism-dementia

Diseases of the heart and blood vessels

Heart diseases have taken the number one position among the leading causes of death in Guam as well as in the United States. The majority of the deaths occur among the older age groups and more prevalently among men. Guam's population is very young; that is, in 1960 "over sixty percent of Guam's stable population were under 20 years of age, while only 13.1 percent were 45 or older."⁽¹⁾ If the present heart disease mortality trend continues, in 20 years the incidence rate of heart disease mortality will be even higher. To prevent this from occurring, much effort must be directed to the younger age group and especially so because of the large number of people in the younger age groups.

There are various types of heart diseases. Among them are arteriosclerotic heart disease, hypertensive heart disease (high blood pressure) and rheumatic heart disease. These, however, are only a few. The first two usually occur in the

(1) Comprehensive Health Plan for the Territory of Guam
(First Component), Office of Comprehensive Health Plan-
ning, February 1971, page 75.

older age groups, while rheumatic heart disease is more prevalent among children and youth.

It is evident that the prevention and treatment of heart diseases should be of great priority for Guam. This importance cannot be stressed enough.

Cancer

Cancer has also gained a very high position among the leading causes of death. Research is still going on to find the cause of cancer, but there is no single answer yet. Until such time that the disease causing organism or organisms are isolated, this disease is still considered a major threat to everyone. Cancer strikes at all ages and both sexes. The major weapon against cancer is early detection. This must be emphasized and reemphasized to everyone. Most forms of cancer are curable if detected and treated in the early stages.

Diabetes

Diabetes is another major health problem in Guam. Diabetes although not confined to the older age groups, is more prevalent in the older age groups and especially among females. It is a fact that obesity is associated with diabetes. Obesity increases the chances of one becoming a diabetic especially if there has been a history of diabetes in the family. Although a more in depth analysis of diabetes must be made, it is apparent that there is a high number of diabetes cases on Guam. (1) For example, in 1967 over 230 diabetics were hospitalized.

(1) Comprehensive Health Plan for the Territory of Guam (First Component), Office of Comprehensive Health Planning, February 1971, page 73.

Amyotrophic Lateral Sclerosis and Parkinsonism-dementia

Amyotrophic Lateral Sclerosis (ALS) and Parkinsonism-dementia (PD) are diseases of the nervous system. Much research and surveillance are being conducted on Guam to find the cause of these diseases especially because of the high number of cases prevalent on Guam as compared to the United States. Guam's incidence rate for ALS is approximately 40/100,000 per year as compared to the U.S. incidence rate of 1.5/100,000 per year.

Mental Health and Social Adaptation

The rapid acculturation and changing employment, school, and social environment are tremendous stress producing situations for the indigenous population.

These conflicts are manifested through overt acts of social disfunction such as juvenile delinquency, drug abuse, and other forms of what society may define as unacceptable behavior.

Juvenile delinquency offenses are increasing annually and an examination of juvenile offenses shows that the four major offenses committed by youths are burglary, incorrigibility, larceny, and curfew violations. Two of these offenses are what can be described as being of a noncriminal nature. In fact, among female youths the two highest single offenses committed are "incorrigibility" and "curfew violations."

The deficiency of services in the community for youths in trouble add to the existing problem of delinquency. Over 98% of juvenile offenders recorded on police statistics as of August 1971 are recidivists. Over 54% of those were in their third involvement with the law and 44% were in their second involvement with the law. Among the offenses committed by adults, the highest were the offense of assault, disorderly conduct and liquor law violations.

Drug abuse offenses, at least those reported by law enforcement authorities, seem to be on the increase, though one still

cannot readily ascertain the actual prevalence of drug usage in the population. There is currently an average of one drug interception every two weeks by customs officials who reported 98 drug interceptions during July 1, 1970 - June 30, 1971. Police data also showed a total of 55 drug violations in 1970 among adults. There were three drug offenses reported among youth offenders.

From the data presented above and those stated in the inventory assessment entitled Mental Health and Social Adaptation, one can see that the adequate provision of services in the diagnosis, the treatment, the rehabilitation, and the prevention of mental illness must necessarily be a high priority concern in the community.

Since most of the mental health services currently available are in their primary stages of development, effective planning and coordination of existing services are of the utmost importance to assure that adequate programs are established to cope with the impending and developing increase of mental health problems.

One can see from the various community data that prevention emphasis should aptly again concentrate on health education efforts in the schools. The local youth offenses reflect a serious need for social counseling services, such as those which can be provided by child guidance clinics. Most of the crimes committed by youths are of a noncriminal nature which

suggest that alternative actions for resolving juvenile delinquency problems must be sought.

Offenses for liquor violations appear to be of significant number among adults. More widespread knowledge about Alcoholics Anonymous need to be known by the community. Health education, public health wise and school health education should also cover the subject of alcoholism and drug abuse adequately especially in the light of interest in gambling casinos. The possible dangers inherent in widespread drug usage among youths is a looming danger sign for the community. We need not only to treat addicts, but to learn what may be some of the predisposing factors in the community which are causal in nature.

Though divorce rates on Guam has remained constant at 55/100,000 population since 1967, there is a need for marriage counseling services since there is a general lack of community services for people with emotional problems.

Dental Health

The prevalence rate for dental caries among preschool and elementary school children was 98-99 percent as reflected in a 1964 survey, with an average of 8.3 carious teeth per child. (1) Dental caries, as far as could be determined without an in depth assessment, constitute the major portion of dental problems in Guam. The extent of gingival inflammation and orthodontal problems have not yet been determined. Like other diseases, the best fight against dental diseases is prevention. Education again plays an important part in the prevention of dental diseases as well as many other diseases. Effective education in the proper care and treatment of the teeth and the proper nutrition needed to promote healthy teeth and gum is most needed.

(1) Comprehensive Health Plan for the Territory of Guam
(First Component), Office of Comprehensive Health Planning, February 1971, page 112.

Physical and Mental Impairment

The problems identified by the Physical and Mental Impairment health inventory are chiefly in visual, hearing, and mental retardation impairments.

The statistical series compiled by the Children's Bureau on "Conditions Reported Under The Crippled Children's Program" showed an inordinately high number of diseases of the eye, ear, and mastoid process on Guam. A comparison of reported conditions for Guam, Hawaii and 54 state jurisdictions ⁽¹⁾ show the following:

TYPE OF CONDITION	PERCENTAGE OF TOTAL CONDITIONS		
	GUAM	HAWAII	54 STATE JURISDICTIONS
Diseases of the Eye	19.5	3.0	4.7
Diseases of the Ear and Mastoid Process	15.2	7.5	3.2

The above cannot be considered as incidence or prevalence data on physical impairments, but they do reflect one aspect of physical impairment problems on Guam.

Guam is also higher percentage wise in diseases of the circulatory system, a percentage of 6.5 versus a 54 state jurisdiction percentage of 2.4. Of such Circulatory Conditions, Guam is higher for Rheumatic fever and Chronic Rheumatic Heart Disease.

(1) The state jurisdiction includes all States, Guam, Puerto Rico, the Virgin Islands, and the District of Columbia.

Guam is also high in diseases of the respiratory system with a percentage of 2.1 versus one of 1.0 for 54 state jurisdictions.

In mental, psychoneurotic, and personality disorders, Guam is slightly higher with a percentage of 4.9 versus a percentage of 4.7 for 54 state jurisdictions. Guam has the same percentage for Mongolism as the other state jurisdictions and a slightly higher percentage for those classified under other mental deficiency.

For all other conditions, the local territory shows a lower percentage.

The inventory seems to point to the eye, ear, and mental retardation problems as the priority areas of concern.

One of the concerns should also focus in the area of health manpower availability. There is only one physician currently specializing in ear, nose, and throat problems, but none for eye problems alone as a specialty.

There is no day care facility for the mentally retarded and other handicapped people not covered by Vocational Rehabilitation and not enrolled at Brodie Memorial School.

One also wonders if there are adequate screening procedures in the community and schools for the early diagnosis of these conditions.

Though the schools by law require a medical examination for a child before his enrollment in school, schools appear lax about enforcing this law. Many parents are also inclined to delay seeking medical examinations for their children until they are required to do so by law.

There is only a limited number of optometrists and optical companies on the island. Eye glasses are generally expensive and as a result, people are not highly motivated to have annual eye check ups.

There seems to be some need for better and more effective coordination of government agencies having related responsibilities for the physically and mentally impaired.

Reproduction and Development

Various mortality data and conditions discussed in the First Component of the Comprehensive Health Plan for Guam indicate the existence of problems in reproduction and development.

The high percentage of teenage unwed mothers, the higher combined infant and fetal mortality rate among babies of unmarried women plus the reluctance of this group to seek prenatal and postnatal care pinpoint this group as a priority group for maternal and child care education.

Other women, too, especially those who have exceeded their desired number of children and who have consistently not been able to have children within their desired pregnancy interval, also need maternal health education, especially instructions in family planning and spacing.

The lower average birthweights of Guamanian babies may be genetic in nature, but if this lower birthweight is due to nutritional deficiencies then it is of some concern in that the lowered birthweight may be a significant difference in achieving good health.

Guamanian women seem to be receptive to family planning services despite a highly Catholic population. On the other hand, there seems to be some reluctance among certain physicians to provide consultation on family planning, and with the hospital having a predominantly Catholic outlook in this area, it is

doubtful that much information on family planning is known community wide. Hence, little recourse is left for indigent women who desire abortion since abortion is illegal. So very likely these women will have their children, wanted or not.

The high incidence of iron deficiency anemia, dental caries and intestinal parasitism may reflect to some degree parental neglect, lack of knowledge, or genuine concern about the health status of their children, or a barrier of values where the mother considers these conditions a natural state of affairs which doesn't warrant her personal and economic investment in. So some health education is greatly needed in this area.

Ear infections and hearing losses are frequently found among school age children, again here the stress is on health education, not merely from a community standpoint, but one calling for a major emphasis of such education in the schools. Since Public Health can help identify the priority areas of health, the responsibility for developing a school health curriculum should be a joint responsibility between the Department of Public Health and Social Services and the Department of Education.

The consideration of genetic factors though seemingly less of a priority concern among the various problems should perhaps be considered for study by other appropriate bodies. Guam has been a fairly isolated population for a long time and has witnessed many intra-related marriages.

There is a high incidence of Amyotrophic Lateral Sclerosis, Parkinsonism-dementia, and Diabetes Mellitus here on Guam.

There is no requirement for blood test or venereal disease examination for couples desiring to marry. There are also no marriage counseling services or physicians interested in genetic counseling. Thus again, services in the above areas might be desirable in the community.

Nutrition

A number of health problems in the community such as the high tuberculosis incidence rate, the high incidence of iron deficiency anemia, dental diseases, the large number of obese females in the early and middle ages and the low average birth weight of Guamanian infants are indicative of problems which are associated with nutrition.

In all of the health problems enumerated above, nutrition is an important factor. Good nutrition is essential to the well-being of the tubercular patient. In many countries where this disease is prevalent such as in the Philippines where 1.3 million cases and 35,000 deaths are reported annually, the lack of good nutrition is a contributing factor.

Iron deficiency anemia is nutrition related. The body needs certain body intake of iron to function properly. In dental diseases, excessive sweets, candies and soda pop are major contributory sources of dental decays among children.

Obesity also is largely a problem of the excess intake of foods or the poor choice of food though some of it may be attributed to other body malfunctions or are physiologic in nature.

Nutrition as it relates to the low average birthweight of Guamanian infants is important. A number of mothers do not seek prenatal care until they are well past their third month.

Unwed mothers often deliver prematurely and are reluctant to seek prenatal care. Many women are also careless about eating regimented and nutritionally balanced meals during their pregnancy. Improving the average birthweight of infants is important in that ounces above or below the average birthweight could be a significant difference between ill health or good health of that infant where bad nutrition is the factor accounting for its low birthweight.

Besides the health problems stated here, there are other conditions affecting nutrition which add to the general effects of this problem within the island territory.

The high cost of living and the scarcity of an enticing variety of vegetables and fruits do not present an environment where good nutrition habits can be easily formed.

Thus a well directed public health based nutrition program is important. The establishment of a nutrition program with its own complement of staff and a separate budget is long forthcoming within the health department. For too long now, Public Health has operated without a nutritionist on its staff and without a well defined nutrition program. Some of the functions of this nutrition unit may be seen in coordinating effectively government and private nutrition related activities and serving as a catalyst in the development of existing and new nutrition education and demonstration programs.

It seems reasonable that the priority in nutrition should be to improve the general programs in nutrition especially those affecting children and mothers.

A S S E S S M E N T O F H E A L T H P R O B L E M S

Diabetes

Prevalence

(U.S.) - The estimated number of known diabetic persons in the U.S. as of 1964 was around 2,000,000. The estimated number of persons with existing but undiagnosed diabetes was approximately 1,400,000 for the same year. The prevalence ⁽¹⁾ rate of known diabetes as of 1964 was 10.7/1000 persons in the population. It is estimated that over 5,500,000 persons in the U.S. population will eventually become diabetic.

(Guam) - The prevalence rate of diabetes in Guam, as determined by a Vocational Rehabilitation Program household survey in May 1968, was 13.2/1000 persons of the civilian population. ⁽²⁾ If the U.S. ratio of known to unknown diabetics also applies in Guam then, as of 1970, out of every 1000 persons in the civilian population there would be expected to be approximately 13 known diabetics, another 9 diabetic persons who didn't know they had diabetes and another 36 predisposed persons who would eventually become diabetic.

Mortality

(Guam) - The Guam crude death rate among the stable population in 1969 was 12.8/100,000.

(1) "Fact Sheet on Diabetes," American Diabetes Association, August 31, 1964.

(2) "Final Report," Comprehensive Statewide Planning for Vocational Rehabilitation Service, May 1, 1969.

Crude Death Rate from Diabetes in the U.S.
Per 100,000
(1957-1959)

	TOTAL	WHITE		NONWHITE	
		MALE	FEMALE	MALE	FEMALE
Crude rate	15.9	13.0	18.7	11.3	20.9

Of the 17 deaths occurring among diabetic patients in 1969, there were 9 deaths listed with diabetes as a contributing factor but not as an underlying cause of death. Only those deaths with diabetes as the primary or underlying cause of death were included in the calculation of the crude death rate.

Under the present procedures of classifying causes of death, only about half of the deaths of diabetic patients are ascribed to the disease.

Since diabetes is generally a disease of the older age group, a comparison of the U.S. and Guamanian crude death rates do not give a true picture of the relative importance of diabetes deaths in Guam. The age adjusted death rate for Guam would be considerably higher than the age adjusted death rate (1) for diabetes in the U.S.

Trends

(U.S.) - The actual number of people having diabetes has increased because of the substantial increase in the total

(1) See page 17, Section I of the First Component for a comparison of the age composition of the mainland U.S. and the Guamanian population.

population and longer duration of life of diabetic individuals. The prevalence rate probably has increased also. However, since the actual rate of prevalence of diabetes is so inexact, we cannot be sure of its trend.

The trend of age adjusted and of most age specific death rates from diabetes is downward over the 20-year period ending in 1959, the improvement being generally greatest among white women.

(Guam) - Available data on the prevalence and mortality rates over time in Guam is insufficient to risk a statement of the trend at this time.

High Risk Groups

It is wrong to think of diabetes only when glycosuria (sugar in the urine) and hyperglycemia (excessive blood sugar level) are present. It is a disorder that means much more and goes back much further, even into the womb. In this light, a person should be considered to be diabetic when he has the genetic abnormality which predisposes him to the overt symptoms of the disease. Even though he may never become clinically diabetic in his lifetime, the risk is always present.

Those persons who are most likely to become clinical diabetics have been recognized as belonging to certain high risk groups. These include:

1. the very obese
2. those over the age of 40 (especially females)

3. those with a family history of diabetes
4. those women who have borne very large (over 10 lbs.) babies or have had large stillbirths

More than 80% of all diabetics are or have been overweight.

More than 80% of all diabetics are 45 years of age or older.

Those persons at highest risk of death from diabetes are non-white females, 65-69 years of age. In the middle and later ages where most deaths from diabetes occur, the rates for females far exceed those for males.

Married men at most ages and married women under 45 experience lower death rates from diabetes than do single men and women. For women, the situation is reversed after age 45.

Of all the Guamanian deaths among diabetic persons in 1968 and 1969, 3% were at ages less than forty, 13% at ages 41-50, 22% at ages 51-60, and 62% at ages over 60. Of these same deaths, 38% were male and 62% were female.

Family and Personal Costs

Diabetes can be controlled and with proper treatment and strict attention to a good health regimen, the diabetic person can expect to lead a fairly normal life. However, serious complications can occur with diabetes that can drain the family resources and cause extensive disability.

U.S. health statistics show that for the year June 1969 to June 1970, there were 58.8 workdays lost/1,000 employed per-

sons in the under \$4,000 a year income bracket and 24.2 work-days lost/1,000 employed persons in the over \$4,000 a year bracket because of the disease.

A person who develops diabetes may be required to alter his "style of living." This change might include the necessity for a change of occupation. Such a change for a bread winner in mid career could result in a distinct economic disadvantage.

(Guam) - In Guam, in 1967, there were 230 persons hospitalized at the Guam Memorial Hospital with a primary or associated diagnosis of diabetes mellitus. The total days in hospital for the group amounted to 8,810 days. The average length of stay per patient was 38.3 days. ⁽¹⁾ At an average cost per patient day of \$49 ⁽²⁾ the total hospital charges alone as the result of this disease in 1967 amounted to \$431,690.

Prevention

Diabetes is one of the many chronic diseases for which the cause or causes are not yet fully understood.

Primary prevention involves the early discovery and attempts to deny or delay the onset of overt diabetes. Primary prevention is, however, seldom feasible at the program level.

(1) Inpatient Discharge Records, Guam Memorial Hospital, 1967.

(2) The rate for 1967. Cost per patient day is an approximate figure by Guam Memorial Hospital, April 1972.

Secondary prevention is the effective management of the diabetic in an attempt to minimize complications. Of course, prerequisite to secondary prevention is the discovery that a person is indeed diabetic. This implies some sort of an early detection scheme.

Primary prevention - It has been recognized for centuries that diabetes "runs in families." The modern concept is that the predisposition for diabetes is inherited. Physicians in general would not advise two known diabetics to marry each other, nor is it felt desirable for a diabetic to marry into a family which has a diabetic tendency.

The hereditary aspects of the disease indicate that (a) relatives of diabetics should be tested periodically, and (b) relatives of diabetics should be encouraged to maintain normal weight, as a preventive measure.

Obesity is implicated as a precipitating factor, especially where there is an inherited tendency toward the disease. Between 70 and 90 percent of diagnosed diabetics are estimated to have a history of obesity.

(1) Some investigators believe that in a predisposed individual, pregnancy acts as a stress that may precipitate clinical diabetes, or that provokes a temporary disturbance in metabolism

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- (1) A predisposed individual means here one with a diabetic trait, or a latent weakness of insulin production.

that may result in diabetes at some later time. It is suggested that these women may be found in the group who show constant or intermittent glycosuria (high sugar level in the urine) during pregnancy. It has been suggested that insulin therapy during pregnancy for certain of these women might delay the onset, or even prevent the later development of diabetes in the treated women and their children.

Secondary prevention - The early complications of diabetes can be prevented. Furthermore, when diabetes is diagnosed early and adequately treated, some of the later complications may be avoided or postponed. This requires that the disease be kept under constant control. The patient needs the constant guidance of his physician.

Roughly half the cases of diabetes in adults can be controlled without insulin. Reduction of excess weight by a diabetic may result in improvement in his condition. Complications of diabetes, such as acidosis, coma, and gangrene, as well as many prolonged illnesses, may often be prevented by (1) protection against infection and accidental injury, (2) alertness when conditions favoring such occurrences are present, (3) a routine of sound health practices, and (4) continuous control of diabetes.

Avoidance of undue stress may prevent or postpone complications of diabetes.

Treatment

Treatment in general consists of those things mentioned above under secondary prevention and the prudent use of insulin or oral medication when required. More than any other disease, the diabetic must assume responsibility for his own treatment (under his doctor's supervision) and his education needs are correspondingly greater than normal.

Patient and family education are vital matters when dealing with a disease like diabetes, where so much depends upon the patient's understanding of his condition and upon family cooperation.

Resources

Private physicians are usually the first to encounter the diabetic as he presents himself with some complaint related to the disease.

There is no coordinated program for the detection, prevention, treatment and education of the diabetic.

There is at present no voluntary community diabetes organization such as those existing for cancer or tuberculosis.

There is no specific education program directed at the diabetic and his family.

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There is at present no voluntary community diabetes organization such as those existing for cancer or tuberculosis.

There is no specific education program directed at the diabetic and his family.

Problem: Diabetes

Significance: Diabetes ranks very high as a major cause of illness and death and causes great social and economic loss to the people of Guam. It is estimated that of every 1000 civilians in the population, there would be found 13 persons with known diabetes, 9 persons with diabetes who were not aware of it, and another 36 persons who would, at some time during their lifetime become diabetic. There were over 230 diabetics hospitalized in 1967. The average time per patient spent in the hospital in that year was 38.3 days.

Subgoal: To identify unknown and latent diabetics and control the disease in known diabetics so as to minimize the occurrence of complications and allow them to live active normal lives.

Objectives:

1. Detection of unknown diabetics.
2. Optimum management of diabetes in known diabetics.
 - a) Utilization of latest technology and knowledge in the treatment of diabetes and its sequelae.
 - b) Maximum participation and cooperation of the patient and his family in the control of his disease.
3. Collection of ongoing data on the incidence and prevalence of diabetes in Guam.

Action: Alternative means of accomplishing the stated objectives would ultimately be expected to lead to the selection of recommendations to the agencies, groups of individuals most likely to be able to implement the action recommended and specific target dates for specified actions.

Alternative means of achieving the stated objectives of the problem of diabetes might include recommendations by the Planning Council:

1. a) That the Comprehensive Health Planning Program of Guam sponsor a public meeting for all persons with a special interest in diabetes, for the purpose of getting the wheels turning for the creation of a voluntary community Diabetes Association, and;
b) that a guest speaker who is an expert in diabetes, preferably a physician from Hawaii or the mainland be invited to speak at this meeting.
2. a) That the Director of Public Health and Social Services take steps to assure the Chronic Disease Program outlines in the 1970 State Plan for Comprehensive Health Services become a real functional program within the Department of Public Health and Social Services, and;
b) that the detection and referral of undiagnosed

diabetics be a major and early component of that program, and;

c) that this action be implemented beginning with fiscal year 1973.

3. a) That the Comprehensive Health Planning Program host a meeting of physicians, health facility administrators and public health officials to discuss the possibility of organizing a post-graduate continuing education course including the latest techniques and knowledge of the diagnosis and treatment of diabetes education program for diabetic patients and families, and;

b) that this meeting be timed to coincide with the visit of the diabetes expert mentioned earlier so that he may be utilized as a resource person at this meeting.

4. That the Department of Public Health and Social Services develop and maintain a register of known diabetics, their families and individuals identified by physicians as suspected latent diabetics.

Evaluation: The number of new cases of diabetes detected and referred for treatment should rise abruptly at first and then eventually decline if the detection program is effective.

The number of hospital inpatient admissions for diabetic

complications should show a steady decline if there is an improvement in the management of the disease as a result of improved techniques and knowledge on the part of physicians and patients.

The three-year average death rate for diabetic complications among diabetics should also begin to show a decline after a few years if the programs are successful.

Leprosy

Leprosy is a chronic infection that usually affects the skin and peripheral nerves. Its mode of transmission is not specifically established, but it is presumed to be transmitted by a prolonged and direct skin-to-skin contact. It gains entrance to the body through the skin or respiratory tracts from skin lesions or discharges of infectious patients. It is only mildly communicable and it usually is not fatal.

There are two principal types of leprosy: the lepromatous type which mainly affects the subcutaneous (meaning situated (1) or occurring beneath the skin) tissues and the upper respiratory mucosa while the other type, tuberculoid, involves the nerves and skin. There are also two subtypes of leprosy. They are the indeterminate which is the early stage of leprosy showing pale or red spots on the skin with anesthesia, often found in children; and the dimorphous which is the intermediate stage of leprosy infection.

The organism which causes leprosy is called *Mycobacterium leprae* which develops mainly in the cooler tissues of the body. Leprosy infection progresses very slowly and it can cause severe disfigurement and deformity if untreated. The infection can be prevented from spreading throughout the body by adequate treatment while still in the early stage of infection.

(1) Dorland's Illustrated Medical Dictionary, 24th Edition, W.B. Saunders Co., 1965.

Hansen's disease (another name for leprosy) is a very old ailment. For thousands of years people would die from it due to the lack of proper treatment, or they would simply fall into a deep social and mental depression because of the unpleasant physical changes on the skin which can create adverse attitudes from other persons. Today, however, though treatment is still a slow process, there is hope for recovery.

Incidence and Prevalence

Leprosy, a chronic and infectious disease known to have existed in the world as early as 1400 B.C., is still afflicting hundreds today in the United States and millions elsewhere in the world.

In the official report of the American Public Health Association, there were at least 2600 known Hansen cases living in the U.S. in 1970. Of the estimated world total of 12 to 20 million cases for that same year, India and China together (1) had about one half of that grand total.

Prevalence rates of five cases per 1000 persons could be found in the tropics and subtropics in 1970 while an estimated rate of one for every 1000 persons was accounted for in a few countries with temperate climates.

(1) Abram S. Benenson, Control of Communicable Disease in Man, 11th Edition, American Public Health Association, 1970, page 130.

The incidence rate for Guam in 1968 was 1.99 per 100,000 persons in the civilian population.⁽¹⁾ This rate ranks Guam as number two among the 13 states that reported leprosy in the U.S. for that year. Hawaii with 2.56/100,000 persons rated the highest followed third by Texas with 0.36/100,000 persons in the population. Table 21 lists the 13 states plus Guam that reported cases of leprosy in 1968, according to rank.

Hansen's disease is one of the communicable diseases with the least number of cases being reported in the nation. In 1968 the incidence rate per 100,000 population for leprosy in the U.S. as a whole was 0.06.⁽²⁾ The ratio of the Guam rate to the U.S. for that year was 33.17 to one. In other words, Guam rated approximately 33 times higher than the overall U.S. rate for 1968.

Leprosy is not a leading cause for illness or death in Guam. However, it does create some degree of social and/or psychological distress upon its people due to the stigma the disease represents. The incidence rates for Guam for a ten-year period from 1962 to 1971 show an average of 2.8 new cases being recorded each year.

(1) Chest Clinic of the Communicable Disease Control Section, Department of Public Health and Social Services, February 1972.

(2) "A Study of Selected Communicable Diseases in Texas," Office of Comprehensive Health Planning, Austin, Texas, October 1970.

Table 21

Reported Cases of Leprosy
United States and Guam - 1968

RANK	LOCATION	NUMBER OF NEW CASES	INCIDENCE RATE
1	Hawaii	20	2.56
2	Guam	2	1.99
3	Texas	40	0.36
4	California	36	0.19
5	Florida	11	0.18
6	Louisiana	4	0.11
7	Kansas	2	0.09
8	Connecticut	2	0.07
9	Maryland	2	0.05
10	South Carolina	1	0.04
11	Minnesota	1	0.03
12	Massachusetts	1	0.02
13	New Jersey	1	0.01
14	New York	2	0.01

SOURCE: "A Study of Selected Communicable Diseases in Texas," Office of Comprehensive Health Planning, Austin, Texas, October 1970.

Table 22

Morbidity In Guam
1962 to 1971

YEAR	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
NUMBER OF NEW CASES	1	--	6	10	3	5	2	3	3	1

Table 22 shows the local incidence rates for that ten-year period. The year with the most number of cases recorded was 1965. That was the year when leprosy patients, who were transferred to the Tinian leper colony, were called back for reevaluation. The total number of morbidity, then, does not represent the total number of new cases for that year. Following that period, however, the number of new cases dropped and remained moderately the same thereafter.

Mortality

Death from leprosy is almost unheard-of nowadays. Since the advent of the latest medication against leprosy infection, the sulfone drugs, serious complications have been controlled. The death of a leprosy patient now is usually due to other complications which may not necessarily be of any relation to leprosy itself.

Trends and High Risk Groups

It would be reassuring, for most people, to say that only persons who come from a family with a history of leprosy infection would be likely to contract the disease. This

hypothesis may very well be correct, but it definitely does not hold the disease to a selected few. Although leprosy can be contacted by any susceptible individual, the risk of becoming infected is greater for a person who has been exposed to it. Most of the new cases in 1969 were contacts of previous cases.

Children are more susceptible to leprosy than adults. Of the active cases in clinic now being followed, 8.8% acquired the disease while below the age of 10. Most of the other cases were stricken while either between the ages of 10-19 (17.6%) or ages 40-49 (20.6%).

Majority of the patients are between the ages of 10 to 59. Not one patient is below the age of 10, but there are several (11.8%) who are 60 years of age and above.

It is interesting to note that the age group in Guam affected by the disease is relative to the age group afflicted in Hawaii. As of January 1969, 70 percent of those living in Kalaupapa (a Hansen's Disease Treatment Center in Hawaii) were between the productive ages of 30-59 years of age and 30 percent were of retirement age (age 60 and above).

Majority of the 34 cases here are Guamanians; only 26.5% are Filipinos or are from the neighboring Micronesian islands. Although there is a high number of immigrants entering Guam and there is a fixed percentage of Hansen cases of foreign

ancestry, there is no screening procedure at this time to detect the disease in persons entering the island.

Personal Consequences

Unlike most other diseased persons, leprosy patients tend to suffer a greater degree of physical, mental, or social depression during their ordeal. For the most part, they feel apprehensive due to the physical changes on the body which have been associated with leprosy for thousands of years.

The most difficult part of coping with the disease is probably accepting the physical deformities and disfigurement which come with it. Such conditions, however, can be controlled with proper technical care and the patient can learn to adjust and live a fairly normal life.

The leprosy patient may encounter some discomforts which may be the development of aggravating skin lesions, bodily weakness, neuralgia, and anesthesia. Because of these unfavorable developments, a patient may be required to alter his working conditions. If a person is a wage earner for a family and suffers the foregoing discomforts, a change in occupation may result in an economic impediment.

Prevention and Control

Since the advent of the sulfone drugs for the treatment of leprosy, the method of control for this disease has altered to a degree that the previous control schemes seem so absurd

and unreal today. Therapeutic measures with DDS can show some clinical improvements after about three months of continuous use. DDS, a very toxic oral medication (given in tablet form to leprosy patients), is used to curb the spread of the disease within the body and has proven to be so effective that complete isolation, once considered as the best means of control, is no longer being done. Instead, early detection and treatment of infectious cases are being handled and a strict surveillance of close contacts are being enforced.

Although leprosy patients today are ambulatory cases (meaning, they are seen in outpatient facilities), hospital accommodations are being made available for whenever such a service is indicated. No special isolation procedures, however, are established for hospitalized cases.

Although leprosy implies a very unpleasant picture of an infected person, newer drugs today prevent some kind of disfigurement and surgical techniques are now possible to correct others.

The Department of Public Health and Social Services, the local agency which treats leprosy cases, also administers physical examinations for all immediate contacts of patients which will determine loss of sensitivity.

Those whose physical examinations prove positive are treated with DDS, the accepted medication for leprosy patients, and

are required to visit the clinic for routine observation which includes a hemoglobin check up every three months and annual eye examination and chest X ray. Eye examination is necessary to detect any direct ocular involvement which could lead to blindness.

Treatment and Rehabilitation

The sulfone drugs are now the chosen chemotherapy of leprosy. Small doses are indicated for the initial treatment and gradually increased to the required therapeutic dosage in later periods. This therapy should be made up to several years for tuberculoid patients and preferably for life for lepromatous cases.

For effective control of the disease, treatment must be maintained until skin lesions and other affects are virtually healed. This may take at least two to three years in new cases and to as long as six or eight years, if not for life, for more involved cases.

Since patients are not confined in the hospital and are not seen constantly by medical practitioners, they should feel responsible for meeting medical appointments whereby they will undergo necessary therapy.

More so than any other chronic infection, the leprosy patient and his family need an understanding therapist or physician who can calmly and sympathetically explain the nature of the

disease. Because we have modern techniques today to control the disease from becoming too serious, social and psychological rehabilitation are not altogether too difficult anymore.

Resources

The Department of Public Health and Social Services is the local agency which treats leprosy cases and does a follow up on all household and other immediate contacts of the patients. Patients whose infections have grown more involved and require more intensive care, however, are sent to the U.S. Public Health Service leprasorium at Carville, Louisiana.

Sending patients to Carville need not be indicated. However, since there is no facility here to handle intensive cases, since there is a shortage of manpower, and since financial matters are handled under the Communicable Disease Control budget, seeking medical assistance at Carville has become imperative.

Problem: Hansen's Disease (leprosy)

Significance: Although Hansen's disease is considered by many as an ailment of long ago, it is still afflicting thousands in the world today. The incidence rate for Guam in 1968 was 1.99 per 100,000 persons, ranking Guam as second among all the states that reported leprosy for that year. In 1969 most of the new cases recorded were contacts of previous cases. The local rates for a ten-year period, 1962 to 1971, show an average of 2.8 new cases being recorded each year.

Subgoal: To enforce a surveillance program to control Hansen's disease in known cases and to identify unknown contacts in order to minimize and gradually eliminate the occurrence of infection.

Objectives:

1. To assure optimum management of the disease with the use of the latest medical techniques.
2. To insure close surveillance of contacts through an effective follow-up program.
3. To assure that the patient and his family, as well as the general public, develop a vivid understanding of the disease.

Action: In making recommendations as to what proper steps must be taken to effectively achieve the foregoing

objectives, the Comprehensive Health Planning Council might consider the following courses of action:

1. That the Department of Public Health and Social Services make the necessary planning to initiate an effective leprosy control program.
2. That this program be arranged to enforce a more strict surveillance or follow up on active cases and their contacts.
3. That the above Department provide the needed resources and materials to implement such a program so as to control and gradually eliminate the number of new infections.

Venereal Disease

Venereal disease (also known as VD) is a contagious and serious disease acquired through skin-to-skin contact, usually through sexual intercourse. It can be transmitted from a man to a woman or vice versa or it can be between two persons of the same sex. VD germs live for only a few seconds outside the body, so it is almost impossible to contract the disease from toilet seats, eating utensils, or other articles. VD exists considerably throughout the nation and around the world and it also prevails in Guam. The incidence rate of known cases of syphilis in Guam for 1970 was 5.8 per 100,000 population while the rate for gonorrhea for that same year was 224.3 per 100,000 persons.

Too many people speculate that venereal disease is spread only by prostitutes. Studies have revealed, however, that only 5% to 10% (1965) of the new cases of these infectious diseases are dispersed by such persons. ⁽¹⁾ The morbidity rate is most prevalent among teenagers and young adults (between the ages of 15 to 30), the most sexually active people.

There are five recognized types of venereal diseases. However, although they are similar in their manner of spread (chiefly by sexual contact), they vary in origination and appearance. These infectious diseases include chancroid

(1) Lindsay R. Curtis, VD America's Growing Threat, Tane-Press, 1965.

(shang'kroid), granuloma inguinale, gonorrhea, lympho-granuloma venereum and syphilis. A person can contract two or more of these diseases at the same time.

Syphilis is by far the most dreaded of these diseases because, if not treated in the early stages, it can cause heart disease, mental disorder, paralysis, or any other form of incapacitation, or death. There are two distinctive forms of syphilis - venereal, which is transmitted through sexual contact, and nonvenereal which occurs primarily among children. Nonvenereal syphilis is contacted through articles infected with early skin lesions. It is usually without any initial sore, but it affects the coloration of the skin and can develop baldness if untreated.

The germ which causes syphilis is called a spirochete (spy-ro-keet), a corkscrew bacterium that is easily recognizable.

One of the diseases which appears fairly similar to syphilis is yaws. Yaws is also an infectious disease characterized by open sores that is caused by very small spiral parasites. Like nonvenereal syphilis, it is usually transmitted to children by flies or by contact with articles contaminated with the discharges from the sores. The sores usually appear like scratches or bruises anywhere on the body and normally becomes chronic unless combatted with suitable treatment such as penicillin.

Yaws was once quite prevalent in Guam. In the Sanitary Report for the island of Guam for 1913, it was estimated that 90% of all the natives living in the smaller communities had yaws in childhood. In 1923, only 40 new cases were uncovered and were treated at the local hospital. (1)

Today active cases of yaws are no longer found. However, positive serological reactions are still frequently found among the indigenous Guamanians. A study of a three-year period (1955, 1956, 1957) conducted by Dr. Niels H. Poulsen disclosed that patients afflicted with yaws may remain positive reactors indefinitely after healed yaws and for several years after repeated treatment. (2)

Venereal syphilis is considered more dangerous than yaws or nonvenereal syphilis for it attacks some of the most vital organs such as the heart, brain, bones, liver, or any of the tissues. It is characterized by developmental stages, each with distinctive symptoms and signs. It is generally found among young adults.

The primary and secondary stages are the most contagious periods of venereal syphilis. Within the first three months of infection (primary stage), a "chancre sore" will appear usually at the exposed area (however, it may be anywhere on

(1) Surgeon E.U. Reed, "Health Notes," The Guam Recorder, page 5.

(2) Dr. Niels H. Poulsen, "The Clinical Interpretation of Serological Reactions in Venereal and Endemic Treponematosi," Reprinted from American Journal of Public Health, Volume 48, No. 12, December 1958.

the body). The sore is painless and will disappear without treatment, but the person is still infected. After about six months, the person moves into the secondary stage and he may develop a fever, sore throat, rash, loss of hair or sores at moist spots. These symptoms and signs may come and go for a year, but the person is still infected and will remain so until treated.

During the latent and late latent periods, the disease is no longer infectious. At this time severe physical and/or mental damage is done to the infected which can lead to insanity, heart failure, blindness, crippling, or death. A mother who has syphilis during pregnancy and is not treated can transmit what is called congenital syphilis to an unborn child through childbirth. She may lose her baby in miscarriage or the baby may be stillborn. If the baby should survive, he is likely to be born with serious defects such as blindness, deafness, deformity, and will be diseased until treated.

The other most prevalent venereal disease and most commonly reported of the communicable diseases is gonorrhea. It is caused by a germ called gonococcus which attacks most especially the mucous membranes of the eyes and genitals. It develops in the body within an average of three to four days following contact. It can become quite severe if untreated and can persist for five or more years gradually becoming

chronic and resistant to treatment. Its infectious period can run through for months or years. Symptoms are quite evident in the male for he can have a persistent discharge from the sex organ and/or painful urination. The female has the same early symptoms, but they are either so slight to be unrecognizable or they may not appear at all.

If untreated, the male can become sterile and arthritic, the female can develop infertility or an acute infection in her abdominal cavity, and the baby, if born by an infected mother, can become blind. Other serious complications can come to be if the infected does not receive proper treatment.

The other three of the venereal diseases, namely chancroid, granuloma inguinale, and lymphogranuloma venereum, are not as widespread and frequent as syphilis and gonorrhea. They are confined to specific areas most especially in the tropical and subtropical regions.

Chancroid is an infection caused by the bacteria *Haemophilus ducreyi*. It develops as a sore following an incubation period. It grows for awhile until it finally breaks down and begins discharging pus. It is infectious only when the bacteria persists, which is in most instances a matter of weeks.

The other venereal disease of tropical, subtropical, and temperate areas is the nonfatal, usually chronic, and mildly

communicable granuloma inguinale. Its development and infectiousness and its mode of transmission are still indistinct, but it is characterized by deep ulcerations of the skin of the external genitals. It is most common among dark-skinned people.

The last of the serious venereal diseases is lymphogranuloma venereum which is caused by a virus usually accompanied by fever, chills, headache, and joint pains during its development. Its growth is slow and it may create some severe discomforts but it generally is not fatal. It is contacted not only through direct sexual contact with open lesions, but also indirectly with articles contaminated by the discharges.

All these five venereal diseases are both highly unhealthy and can create serious effects. No one person is immune to these diseases and so far no immunity has been found. VD incidence can be controlled through contact investigation and proper medical treatment.

Many people may have been exposed to VD and not know it. Only the individual who is infected or suspects to be infected can lead the way to the control of venereal disease. It can be cured, but it can cause damage to tissues that cannot be repaired. Personal cleanliness alone will not prevent the disease from infecting.

An estimated number of 200,000 new cases of infectious syphilis and about two million of the highly catching gonor-

rheal disease were believed to have occurred in 1970 in the U.S. However, the number of reported cases of venereal disease is hardly the actual number of infected persons.

Several reasons can explain this inconsistency: (1) attending physicians fail to report cases; (2) symptoms are often so slight and sometimes unnoticed, especially in the female, that the diseased is unaware of such a health hazard and does not seek treatment; and (3) even when symptoms appear, the diseased is somewhat reluctant to seek medical aid due to some cultural inhibitions.

Only blood tests and/or darkfield examinations diagnosed by a qualified medical personnel can prove the presence of VD. There is no immunity to the disease, but there is a suitable and acceptable treatment - penicillin. There are other equally effective antibiotics, however, that can be used should the patient be allergic or immune to penicillin.

Incidence and Prevalence

The rate of the venereal diseases has been continually rising for over 400 years that the disease is now at a peak where it is considered to be the number one of the communicable diseases. Gonorrhea and syphilis are the two most widespread of these diseases. The other three (chancroid, granuloma inguinale and lymphogranuloma venereum) are also contagious but are not as widespread as the first two.

In the fiscal year 1970 the number of cases of primary and secondary syphilis reported to health departments in the U.S. increased by 8.1% (1,507 in number) while gonorrhea intensified to 16.0% (78,973 cases) as compared to the previous year (Table 23).⁽¹⁾ These figures, however, may not represent the actual incidence in that not all cases are diagnosed and not all diagnosed cases are reported.

In Hawaii alone, it is feared that should the rate of VD continue to increase, "gonorrhea may soon be as prevalent as the common cold." The present rate is significantly lower than in the nation as a whole, but it is rising quite rapidly particularly within the 15 to 24 age group. In 1970 a total of 1,494 cases of gonorrhea (of which more than 1,200 were of the civilian community) was reported in the state. Additionally, nine cases of syphilis were reported from the

(1) "VD Fact Sheet - 1970," U.S. Department of Health, Education, and Welfare, Public Health Service, 27th Edition, page 2.

Table 23

Cases of Primary and Secondary
Syphilis and Gonorrhea, U.S.
1957, 1963-1970

FISCAL YEAR	NO. OF CASES		RATE/100,000	
	P & S SYPHILIS	GONORRHEA	P & S SYPHILIS	GONORRHEA
1957	6,251	216,476	3.8	129.8
1963	22,045	270,076	11.9	145.7
1964	22,733	290,603	12.1	154.5
1965	23,250	310,155	12.3	163.8
1966	22,473	334,949	11.6	173.6
1967	21,090	375,606	10.8	193.0
1968	20,182	431,380	10.3	219.2
1969	18,679	494,227	9.3	245.9
1970	20,186	573,200	10.0	285.2

Source: "Today's VD Control Problem - 1971," Public Health Service, American Social Health Association.

civilian population while 16 were reported from the military.
(1)

The local problem is somewhat small also as compared to the populated U.S. In 1968, 17 cases of syphilis of unspecified stages and 98 gonorrheal cases were reported in Guam. (2) In the following year 254 new cases of the gonorrheal infection and 11 cases of syphilis, nine of which were in their infectious stages, were reported.

The morbidity report of 1971 for gonorrhea, as listed in the following table, is only a fraction of the total number of cases for that year. By the end of the year, however, a total of 197 cases were reported to the Department of Public Health and Social Services, an increase of 39.6%. This total, as compared to the totals of the preceding two years, may imply that VD incidence in Guam is dropping. This is far from being accurate, however.

The nonreporting of VD cases by attending clinics stands as a major reason for the low incidence. Unawareness of VD infection by the patient, especially the female, and the refusal to receive medical treatment by some persons due to various reasons also contribute to this drop in number of reported cases.

(1) "Hawaii Health Messenger," Hawaii State Health Department, Vol. 34, No. 3, May-June 1971, page 2.

(2) "Annual Report," Department of Public Health and Social Services, 1968.

Table 24

Syphilis and Gonorrhea Morbidity in Guam

1969-1971

REPORTING AGENCY	1969		1970		1971*	
	SYPHILIS**	GONORRHEA	SYPHILIS**	GONORRHEA	SYPHILIS**	GONORRHEA
Private Medicine	2	19	1	9		3
Military	1	227		198		115
Public Health Clinic	8	8	5	24	2	1
TOTAL	11	254	6	231	2	119

* Data as of October 16, 1971

** All stages of syphilis

SOURCE: Total Yearly Morbidity Report, Communicable Disease Control Section, Department of Public Health and Social Services.

Among all the 50 states that reported gonorrhea in 1968, Guam ranked as number 41 with 97.9 cases per 100,000 persons. It surpassed the incidence rates for Utah, 91.1/100,000; Minnesota, 85.7/100,000; Hawaii, 80.8/100,000; North Dakota, 79.0/100,000; and six other states. In the reporting of syphilis the morbidity rate for Guam, 17.0/100,000, was higher than twelve states, including Hawaii with 12.1/100,000 and Washington with a rate of 5.5/100,000 (Table 25).

A great number of medical officials believe that the major underlying causes of the continual rise of VD are summarized by the "three P's": the Pill, promiscuity, and permissiveness.⁽¹⁾ The Pill, as argued, does remove the fear of pregnancy but at the same time it eases the use of any protective device (such as condoms) and, therefore, VD infection is more easily generated. One other factor which could be considered as a causative agent for the increase is the tendency of VD patients not to seek treatment.

(1) Matt Clark, "VD: The Epidemic," Newsweek, January 24, 1972, page 41.

Table 25

Reported Cases, Incidence Rates,
and Ranking of Guam Among Selected States
for Gonorrhea and Syphilis - 1968

GONORRHEA				SYPHILIS			
RANK	STATE	CASES	RATE*	RANK	STATE	CASES	RATE*
1	Georgia	19,819	433.9	1	Maryland	3,209	85.5
2	California	72,482	375.6	2	New York	15,005	83.0
3	Texas	33,667	306.7	3	Florida	3,615	58.8
4	Maryland	9,497	253.0	4	Texas	6,208	56.6
5	New York	45,190	249.9	5	Georgia	2,477	54.2
6	Florida	14,335	233.1	6	California	10,343	53.6
7	Idaho	936	133.1	7	Guam	17	17.0
8	Guam	98	97.9	8	Wyoming	50	15.9
9	Hawaii	630	80.8	9	Hawaii	94	12.1
10	Wyoming	154	48.9	10	Idaho	12	1.7

*Rates per 100,000 population

SOURCE: (Data for the nine states) "A Study of Selected Communicable Diseases in Texas," Office of Comprehensive Health Planning, Austin, Texas, October 1970.

(Data for Guam) "Annual Report," Department of Public Health and Social Services, 1968.

(1) Estimated total population as of July 1, 1968. "Population Estimates," U.S. Department of Commerce, Bureau of the Census, Series P-25, No. 423, May 28, 1969.

Trends and High Risk Groups

Studies of the reported venereal disease cases indicate that morbidity is most common among young persons between the ages of 15-30 years. VD infection is now becoming quite serious on high school premises and college campuses. In some areas, the rate of infection has reached high proportions where it can create epidemics.

In a single U.S. high school in February 1970, the physical exam of a fourteen-year-old boy which revealed the "early latent" stage of syphilis led to the contact investigation of at least 66 other students. Of those contacted and examined, a total of 14 cases were in the infectious stages, 27 were given medication, and 25 were fortunate enough not to be infected.⁽¹⁾

The morbidity rate in Hawaii is particularly among the 20-24 age group. In 1970, more than 500 persons of the civilian community in this age category contracted gonorrhea.⁽²⁾ In California within a short period from 1960 to 1964, the reported gonorrheal cases increased by 16,464.⁽³⁾ An estimated 6,000 persons in the state of Oregon between 15-19 years of

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- (1) "Today's VD Control Problem - 1971," American Social Health Association.
 - (2) "Hawaii Health Messenger," Hawaii State Health Department, Vol. 34, No. 3, May-June 1971.
 - (3) Control of Communicable Disease in California, California State Department of Public Health, 1966, page 142.

age had gonorrhea in 1969. This number had doubled since the
(1)
previous two years.

A specific comparison between the present VD situation in Guam to other areas cannot be made due to insufficient data. Only 35.4% of the cases reported in 1969 have case records available; they were reported by the various agencies that treat VD cases. Of this rate, 66.7% were between 17-29 years of age and 77.8% were males.

Family and Personal Consequences

The family and personal consequences acquired through VD infection of a family member will not always be the same in every group. The issue of VD infection is considered according to each individual's personal and emotional attitudes.

The presence of VD in a mother can result in the passing of the disease to the baby in childbirth. This transmission can cause deafness, blindness, defective teeth or other abnormality in the child or it may result in death at or soon after birth.

Venereal infection in the adult, or young adult for that matter, can create major mental or physical complications. Since this disease attacks most favorably the vital organs

(1) "Venereal Disease Program," Oregon State Board of Health.

such as the heart, bones, brain or blood vessels, the patient will most likely become blind, sterile, arthritic, or develop heart disease and possibly die.

The male patient can be considered lucky since he can recognize most of the symptoms and can seek treatment immediately. The female, on the other hand, has an asymptomatic nature (which means having no symptoms) and can have the disease without even knowing it. Furthermore, even though VD can be spotted by a sore which normally develops after contact, it is usually in a concealed part of the female's body making her even less aware of the presence of the disease.

The infected person may face some form and/or degree of rejection from his family and friends. On the whole, the infected individual can affect any or all aspects of his personal health and social condition.

Prevention and Control

There are numerous measures that can be followed to control and probably prevent the present trends of VD from getting too far out of hand. One of the suggested means is to broaden health and sex education in the school curricula, emphasizing the seriousness of venereal disease.

The Department of Education, Government of Guam, is enforcing a requirement that students in Grades 7, 9, and 11 enroll in a health class where lessons inclusive of information con-

cerning communicable diseases such as VD are being made. The class is scheduled daily for one semester, either on the first or the second half of the school term. At least 25 classes are being taught in Grades Seven and Nine each, and (1) 25 to 30 classes in Grade 11.

To supplement the endeavors of the Department to reach the students, the staff members of Communicable Disease Control Section, Department of Public Health and Social Services are offering to speak to the students at special lectures re- (2) garding VD.

Regular physical examinations are also advised as control measures. Premarital examination, which is presently not a local requirement, and prenatal examination including blood serology are both equally important as parts of general physical examination. Teaching the people through all the media the basic methods to personal treatment that can be applied before, during, and after exposure to VD could also stand as an effective control device.

Condom (or rubbers) is a good preventive measure especially against gonorrhea, but it does not give absolute protection at all times. Basic hygiene is an excellent precaution

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- (1) Information were gathered from a verbal conversation with Mr. Richard Bothmer, Physical Education Consultant, Department of Education, January 13, 1972.
 - (2) Information were acquired through an interview with Dr. Abdiel Angeles, Chief, Communicable Disease Control Section, Department of Public Health and Social Services, January 17, 1972.

also, but it has to be done immediately after every intercourse. These and probably a few other measures could prevent serious effects, but there is really no full guarantee of protection for the sexually active person. There is no immunity against VD. Anyone who has been cured of gonorrhea or syphilis can get one or both again whenever there is further contact with an infected person.

Other means to control the expansion of VD cases are to open free diagnostic clinics where teenagers can also receive treatment without parental consent. Another means is to implement extensive case finding programs. In order to successfully eradicate VD, which is a completely social disease, attempts must be made to locate the contacts of the infected person. This can be done by interviewing the diseased and hoping to get truthful answers from him. This type of investigation will be strictly confidential.

Locating contacts is not an easy task, but it is the best means to find and treat the cases and to avert any new cases and possible reinfections.

Treatment

Gonorrhea and syphilis infections can be cleared up completely within a relatively short period. But only a qualified medical personnel can tell whether or not a person has VD and, if so, what medication to take. A person who has or even suspects to have the disease should see any practicing

doctor or visit any Public Health facility for professional diagnosis and treatment.

Both diseases are most effectively treated with penicillin. Patients who are sensitive to this drug, however, are given other equally effective antibiotic compounds such as tetracycline or erythromycin. The longer the patient waits to get treatment, the more chance there is of any complications or permanent damage from the disease.

Any person afflicted with VD can seek treatment at the Public Health clinic or at any private clinic. The Public Health center tests for infection and treats accordingly, free of charge. The services at the center at this time, however, are unfortunately inadequate. There is no follow-up program on the cases being treated due to lack of manpower and limited budget. It is only hoped that anyone who has or suspects to have the disease will seek treatment as early as possible.

Resources

The local private medical clinics are the best agencies to contact for venereal disease incidence reports. The reason for this is that they are the first place a person would visit for even the slightest aches and pains. However, these clinics do not report all cases even though VD is reportable by law.

As generalized by the Chief of Communicable Disease Control Section, Department of Public Health and Social Services, one reason why the private medics fail to report cases is that they consider it a lot of unnecessary paper work. There is one obvious reason why they are not being pressed to report cases: it is believed that the actual number of cases is greater than the near 200 cases that were reported at the end of 1971. It is felt that as long as cases are being treated, it is satisfactory. It is only hoped that patients are made aware of the seriousness of VD infection and would resolve to avoid further contact with an infected person.

The Communicable Disease Control Section of the Department of Public Health and Social Services is the local agency where data on the incidence rates are compiled and control measures are implemented. This office assesses the civilian health problems and also receives comparable data from the military.

Problem: Venereal Disease

Significance: The morbidity rate of venereal disease is moderately high in Guam. The age groups most frequently affected are the teenagers and young adults. Unfortunately, of the 254 cases reported in 1969, only 35.4% have case records available of which 66.7% are between 17 to 29 years of age and 77.8% are males. It is believed that there are at least twice as many other active cases on the island that are either not reported by attending physicians, or are not being treated due to various reasons. If a feasible control program is not implemented soon, this social disease will continue to infect and morbidity will rise significantly.

Subgoal: To implement an effective control program in order to minimize the occurrence of new cases and reinfections and hopefully to eradicate the existence of the disease entirely.

Objectives:

1. To establish a broad teaching of disease concepts, particularly VD and other communicable diseases, under the school health education curriculum primarily in the secondary levels.
2. To assure maximum management of the disease and to make available medical treatment for all VD patients, including minors.

3. To make printed information regarding VD available to the public through the private clinics and other health centers and the local schools.
4. To insure a general public awareness of the seriousness of VD infection and the need for achieving an effective control program.
5. To collect and compile ongoing data on the incidence and prevalence of VD on Guam.

Action: In making recommendations as to what proper action must be taken to meet a specified target date, the Comprehensive Health Planning Council might be inclined to consider the following alternative means of achieving the stated objectives.

1. That the staff of concern from the Department of Public Health and Social Services converge with physicians of other attending agencies to coordinate VD control plans and to come to an agreement to report all cases for epidemiological purposes.
2. That this same group of members from the Department of Public Health and Social Services meet with the Physical Education Consultant of public schools to discuss measures to expand the school health curriculum to include the study of venereal disease in most, if not in all, of the grade levels.
3. That this same staff submit a request to the Guam Legislature to consider the subject relative to

the medical treatment of minors for venereal disease.

4. That the Department of Public Health and Social Services keep a record of all VD cases being treated at the clinic and possibly all other cases that are being treated elsewhere.
5. That the Department of Public Health and Social Services create measures to provide the necessary facility, manpower, and funds for the implementation of such a program which will diminish the number of infection and hopefully to eradicate VD entirely.

Health Education, A Special Concern

No discussion of health problems, concerns, and priorities, and the delivery of medical care to a population would be complete without briefly mentioning the importance of health education. It is an area that greatly affects all facets of medical/health care, and is one without which no other program can hope to succeed in reaching the ultimate goal of the "highest possible level of good health" for everyone.

Throughout history it can be fairly well documented that it has not been the advances in medical technology which have raised the general health status of a population. It is generally conceded that what enabled man to emerge from a constant fear of disease and death was an increased awareness and improvement of such areas as environmental conditions, sanitation and nutrition. Of course, improvements in these areas were brought about by dramatically increasing standards of living and not specifically by a conscious effort based on factual evidence.

Today, however, it is to our advantage to make use of this knowledge and develop programs capable of reaching great numbers of people so that there is indeed a conscious effort to improve the general health status from the level at which it is today. Basic knowledge of sanitation and nutrition can be coupled with the now known general nature of diseases

and their causes, the tremendously advanced medical technology presently available, and the organized systems of delivering medical care to provide the general population with an awareness and means never before present in the history of man to attain the "highest possible level of good health."

It is indeed ironic that the lessons of history have gone unheeded, for today the major portion of available resources in medical/health care are directed at treating diseases and injuries and not at informing and educating the general public as to the best means of preventing and avoiding them respectively. Generally it might be said that treatment usually brings immediate and tangible results, while health education and information programs require long term efforts in informing and attitude changing with no immediate nor tangible results. Therefore, while usually recognizing the need for health education, this area does not receive the priority which it should.

From our observations here in Guam, it can definitely be stated that there is a vast need for increased health education and information activities. The people should be informed and a general awareness of the importance of health concerns must be instilled within them. This is a long term affair that must begin at an early age, carried on throughout the school years, and practiced and passed on to others continually throughout life.

All segments of society must increase their efforts in health education. The Department of Public Health and Social Services should reassess its priority ranking of program areas and assign the Health Education and Accident Prevention Program, including nutrition a very high priority.

The Department of Education must establish a mandatory and/or improve its health education curriculum which will continually expose the student throughout his education to all of the various aspects of good health.

Various civic and voluntary groups, health related or otherwise, should increase their involvement in the area of health education. It should be remembered that a healthy community is a very good foundation for a prosperous one.

And last but not least, the private providers of medical care should stress the importance of health awareness to all of their patients, and encourage them to become informed and to practice good health habits.

Health education is everyone's job. It is a vitally important part of maintaining a healthy society. None of us can afford to have an ill or injured neighbor. Ultimately his health, as does everyone else's, affects us all.

GLOSSARY

(Terms as they are used in this document.)

Ambulance Driver: A person who is trained in basic emergency care and acts as an ambulance driver.

Ambulance Attendant: A person who is trained in basic and advanced emergency care usually having attended a recognized training course and upon completion is certified as an emergency attendant.

Ambulatory: A term used to denote an outpatient facility, service or patient. Literally it means that the patient is able to walk, and does not require confinement within an inpatient facility. The facility and services within that facility are geared to treating patients on an outpatient basis. (See Outpatient Facility)

Blue Cross: An independent, nonprofit membership health insurance corporation providing indemnity protection against the costs of hospital care.

Blue Shield: An independent, nonprofit membership health insurance association providing indemnity protection against the costs of surgery and other items of medical care.

Board Certified: A physician who has been certified by the American Medical Association as having met all of its specialty training, residency, internship requirements,

and examinations when applicable in a specific area of medicine i.e. pediatrics, surgery, etc.

Board Eligible: A physician who is eligible to take the examinations given by the American Medical Association in order to qualify as board certified in a specific area of medicine i.e. internal medicine, obstetrics, etc.

Co-Insurance: A policy provision, frequently found in major medical insurance, by which both the insured person and the insurer share in a specified ratio of hospital and medical expenses resulting from an illness or injury.

Comprehensive Major Medical Insurance: A policy designed to give the protection offered by both a basic and a major medical health insurance policy. It is characterized by a low deductible amount, a co-insurance feature, and high maximum benefits, usually \$5,000 to \$25,000 or higher.

Cottage Industry: The term cottage industry is usually applied to those industries which are characterized by the following:

1. Small operation; usually singly or family operated. Never more than only a few outside employees.
2. Inefficient in terms of productivity and usually considerably higher in cost of operation.
3. Limited capacity in providing quantity output, and quality is not standardized on an industry basis.

As applied to the health/medical care delivery system, the term refers to the high dependence on the individual/solo practitioner to provide the needed health/medical services.

Deductible: A term used, mainly in major medical insurance plans, referring to that portion of covered hospital and medical charges which an insured person must pay before his policy's benefits begin.

Dental Assistant: A person who assists the dentist at the chairside including preparing the patient for treatment, keeping the operating field clear, mixing filling materials, passing instruments, exposing and processing films, sterilizing instruments, assisting with laboratory work and the handling of office records and ordering supplies.

Dental Auxiliaries: Term used to refer to dental hygienists, assistants, technicians and aides who assist the dentist in the performance of certain duties.

These auxiliaries, depending on their training and degree of competency, may perform prophylaxes, process dental X-ray films, apply flouride solutions to teeth, instruct patients in toothbrushing techniques and proper diet as related to the teeth, and perform limited dental procedures and other duties in conformity with their training.

Dental Hygienist: A person with two year college training or certificate qualifying him with a license to perform various procedures and techniques and dental treatment under the direction of a licensed dentist and is generally utilized to do prophylaxes and dental health education.

Dental Laboratory Technician: A person who performs many tasks involved in the construction of complete and partial dentures, fixes bridgework, crowns, and other dental restorations and appliances.

Dermatology: Branch of medicine concerned with the diagnosis and treatment of diseases of the skin.

Dietitian: A person who plans and directs food service programs in hospitals, schools and other public or private institutions. His work includes the planning of menus and diets that meet nutritional requirements for health or medical treatment, directing the personnel who prepare and serve the meals, managing purchases and accounts, and providing guidance on the application of principles of nutrition to the selection of foods.

Electrocardiograph Technician: A person trained in the use and operation of an electrocardiograph machine which is used in the diagnosis and treatment of diseases of the heart.

Electroencephalograph Technician: A person trained in using an electroencephalograph machine which is used in the

diagnosis and treatment of neurological disorders.

Group Fee for Service: A group of physicians and/or dentists operating as a formalized group sharing facilities, personnel, equipment, centralized billing, and utilizing a predetermined revenue sharing mechanism, who in turn bill their patients for each of the individual services rendered and not on a periodic basis for a predetermined range of services.

Geriatrics: A branch of medicine that deals with the problems and diseases of old age and aging people.

Group Insurance: A policy protecting a specified minimum number of persons usually having the same employer.

Group Medical Practice: The American Medical Association has defined "group medical practice" as an association of three or more physicians working as employees or in partnership, in an income sharing arrangement and jointly using equipment and technical personnel, and with a centralized administration and financial organization. Dentists may also be included as part of the group.

Group Practice Plan: A medical service plan that provides direct medical care, both inpatient and outpatient services, with emphasis on outpatient care (prevention, health maintenance, early diagnosis and treatment of disease). Enrollees for a periodic predetermined fee

receive all of their medical care by or through the service plan (medical group) within the limits as prescribed. These plans are generally more comprehensive than indemnity plans.

Gynecology: Branch of medicine which treats of diseases of the genital tract in women.

Health Insurance: A general term applying to all types of insurance indemnifying or reimbursing for costs of hospital and medical care or lost income arising from an illness or injury. Sometimes it is called Accident and Health Insurance or Disability Insurance.

Hospital Administrator: A person who serves as the chief executive officer of the hospital and is responsible for the administration and coordination of all hospital activities within the general policies established by a governing board. The hospital administrator also has among his responsibilities the maintenance of facilities, equipment and assistance in order that the patient may be restored to health.

Hospital Assistant: A person who assists the hospital administrator in the performance of his duties.

Hospital Benefits: Benefits provided under a health insurance policy for hospital charges incurred by an insured person because of an illness or injury.

Hospital-Medical Insurance: A term used to indicate protection which provides benefits toward the cost of any or all of the numerous health care services normally covered under various health insurance plans.

Indemnity: A benefit paid by an insurer for a loss insured under a policy.

Indemnity Medical Insurance Plan: An insurance plan that reimburses on a fee for service basis medical services rendered to the insured. Plans usually have deductibles, limits, co-insurance features, and various restrictions. Most indemnity plans heavily emphasize hospitalization, surgery, and major medical coverage. They are just beginning to shift their emphasis to outpatient services.

Individual Fee for Service: A solo physician or dentist operating either alone or in a physician and/or dentist grouping which only shares facilities and nothing else, who provides services to individual patients and bills them accordingly for each of the services rendered, and not on a periodic basis for a predetermined range of services.

Individual Insurance: Policies which provide protection to the policyholder and/or his family (as distinct from group and blanket insurance). Sometimes called Personal Insurance.

Inpatient Facility: This term refers to a facility which treats either medical and/or mental patients, and as part of their treatment requires the patient to live in the facility on a 24 hour a day basis. Inpatient facilities may incorporate outpatient services as well. Common examples of inpatient facilities are hospitals, nursing homes, etc.

Inhalation Therapist: A person especially trained in the skill and the use of equipment for the restoration of the respiratory system to its normal function.

Internal Medicine: Branch of medicine dealing especially with the diagnosis and medical treatment of disease and disorders of the internal structures of the body.

Laboratory Technician: A person who works under the supervision of a laboratory technologist and performs the simpler laboratory task and procedures.

Laboratory Technologist: A person with a bachelor's degree in chemistry or biological science and who is qualified to engage in the making of chemical, microscopic, and bacteriologic tests.

Licensed Practical Nurse: As defined in the Nurse Practice Act, Chapter III of Title XXVII of the Government Code of Guam, the "practice of practical nursing means the performance for compensation of selected acts in the

care of the ill, injured, or infirm under the direction of a registered professional nurse or a licensed physician or a licensed dentist; and not requiring the substantial specialized skill, judgment and knowledge required in professional nursing."

Long-Stay Inpatient Facility: A facility whose discharged patients had an average stay of more than 30 days during the year.

Major Medical Expense Insurance: Policies especially designed to help offset the heavy medical expenses resulting from catastrophic or prolonged illness or injury. They provide benefit payments for 75% to 80% of all types of medical expenses above a deductible paid by the insured person. The maximum amount provided by the policy is usually \$5,000 to \$25,000 or higher.

Medical Care Delivery System: By definition, system, according to Webster's Dictionary means among other things, "a regularly interacting or interdependent group of items forming a unified whole" as for example, "a group of devices or artificial objects or an organization forming a network especially for distributing something or serving a common purpose." Medical care as used here includes all medical, mental and dental care provided by established professional individuals, groups, agencies or organizations whether it be curative or preventative

in nature. In its broadest sense then, the delivery of medical care does make up a system as defined above.

In summary, medical care delivery system is that system which delivers diagnostic, preventative and curative medical care to a population. Generally, it consists of hospitals, private medical/dental practices (solo or group), public health care agencies, mental health care facilities, emergency services, pharmacies/drug stores, nursing homes, home health care agencies, optical businesses, medical/dental laboratories, and medical care payment mechanisms.

Medical Record Librarian: A person who graduated from a school for medical record librarians approved by the American Medical Association and is responsible for the maintenance, organization, and supervision of medical records.

Medical Record Technician: A person who assists medical record librarians in carrying out technical work and who has completed a formal course in medical library science at the technician level and is certified as an accredited record librarian.

Medicare: The hospital insurance system and the supplementary medical insurance for the aged created by the 1965 Amendments to the Social Security Act and operated under the provisions of the Act. There are two provisions within

this Act. One, part A provides for universal coverage of those who are eligible for inpatient services. The other, part B, provides for voluntary coverage for outpatient medical services. Part A is entirely financed by Social Security funds while there is a premium charged for part B. There are also deductibles and limits on services included.

Morbidity: A term used for sickness. A Morbidity Table shows the average number of illness befalling a large group of persons. It indicates the incidence of sickness the way a mortality table shows the incidence of death.

Neurology: Branch of medicine which deals with the nervous system, both normal and in disease.

Occupational Therapist: A person who holds a bachelor's degree in a program aimed at treatment in the rehabilitation of persons with emotional or physical disability.

Occupational Therapy Assistant/Aide: A person who assists in carrying out the program of rehabilitating patients in a hospital or health care facility. The assistant's duties include direct participation in the patient's activities.

Ophthalmology: Branch of medicine which deals with the eye and its diseases.

Optician: An optician makes and fits eyeglasses prescribed by an optometrist or a physician eye specialist (ophthalmologist). Included sometimes in this category is the optical technician who is specifically trained in the mechanical grinding and polishing of the lenses.

Optometrist: An optometrist is trained to detect vision impairments, eye diseases, vision malfunctions, and prescribes lenses or other optical aids accordingly.

Orthopedics: Branch of surgery concerned with the preservation and restoration of the function of the skeletal system, its articulations and associated structures.

Otolaryngology: Branch of medicine which has to do with the ear, throat, pharynx, larynx, nasopharynx, and tracheo-bronchial tree.

Outpatient Facility: Sometimes also referred to as an ambulatory facility, patients either medical, mental or dental are treated on a basis other than that required in inpatient facilities. Patients are not required to live in on a 24 hour a day basis, but there are occasions when patients are confined to bed for a short period only. Outpatient facilities may be a physician's office, a clinic, a community health care center or even a department of an inpatient facility.

Para Professional: In the health/medical field the para professionals are usually those personnel who have had

less than at least baccalaureate training and act in the capacity of assistants, aides, orderlies, attendants and technicians.

Pathology: Branch of medicine which treats of the essential nature of disease, especially of the structural and functional changes in tissues and organs of the body which are caused by disease.

Pediatrics: Branch of medicine dealing with children, their development and care, and their diseases and treatment.

Pharmacist: A person licensed to practice within a state (or territory) who is concerned with the preparation and distribution of medicinal products and has had at least five years of college study with a subsequent pharmacy degree.

Pharmacy Assistant/Aide: A person who works under the direction of a pharmacist, fills prescriptions, and performs certain duties under the supervision of a pharmacist.

Physical Therapist: A person trained in the restoration of function and the prevention of disability following disease, injury, or loss of a bodily part.

Physical Therapist Aide: A person who works under the supervision of a physical therapist in carrying out a program of rehabilitating patients.

Physician and/or Dentist Grouping: Two or more physicians and/or dentists sharing the same facilities, but operating as individual fee for service practitioners. There is no sharing of equipment or personnel, and there is no central administration, financial organization or any revenue sharing mechanisms.

Pluralistic System: One of Webster's definitions for pluralism is as follows: "A state of society in which members of diverse ethnic, racial, religious, or social groups maintain an autonomous participation in and development of their traditional culture or special interest within the confines of a common civilization." Although this definition explicitly applies to people it can very easily be applied to a system especially the present health/medical care delivery system. In other words, a pluralistic health/medical care delivery system is one in which there is no unified or single model within which all entities must conform. It is one in which all types of models, whether they be public or private, individual or group, indemnity insurance, health service plans or government finance plans, can operate to provide health/medical care to a total population.

Prepaid Direct Service Plan: A plan which provides medical care through the use of a formal medical group of physicians usually hospital based, but not necessarily.

For a prepaid periodic fee, specified services are provided to the patient usually without further charge.

The services are, for the most part, comprehensive and emphasize prevention and early diagnosis and treatment of illness. The main underlying philosophy of this type of program is that it stresses "keeping people healthy" and removes the financial barrier in seeking medical care when the need arises.

Radiologic Assistants: Persons who assist radiologic technologists in the operation of specialized equipment that traces or measures radioactivity.

Rate: A term used to express a quantity or degree of something per unit of something. For example: The situation where 50 nurses are serving in a community of 50,000 population could be expressed as a nurse per population rate of one nurse per 1000 population or 100 nurses per 100,000 population.

Ratio: A term used to express a relationship in quantity between two or more things. For example: The situation where 50 nurses are serving in a community containing 10 physicians could be expressed as a nurse to physician ratio of 5 to 1 (5:1).

Registered Nurse: A graduate of an approved school of nursing in a two, three, or four year nursing program and who has successfully passed a nursing board examination. The

practice of nursing shall include the following responsibilities: The performance for compensation of any act in the observation, care, and counsel of the ill, injured, or infirm, the prevention of illness in others, the administration of treatment as prescribed by a physician or licensed dentist, and skill and knowledge about the application of principles of biological, physical, and social science.

Regular Medical Expense Insurance: Coverage which provides benefits toward the cost of such services as doctor fees for nonsurgical care in the hospital, at home, or in a physician's office; and X rays or laboratory tests performed outside of the hospital.

School of Nursing: Schools of nursing are institutions specifically offering training in nursing, usually of three or four years in length. They are sometimes attached to a hospital, and the majority of nurses now practicing have received their training in these schools.

Shared Resource Facilities: This terminology is used in reference to a common or shared core of facilities, equipment and/or services which might be used by various medical care providers in order to increase efficiency and reduce costs of delivering medical care to a population. Utilizing only one piece of expensive equipment by various organizations when only one is needed

to serve them all, bulk ordering of common supplies, and making better use of highly trained personnel by sharing them with all, are examples of this type of facility.

Short-Stay Inpatient Facility: A facility whose discharged patients had an average stay of 30 days or less during the year.

Social Worker: A person with a bachelor's degree who works in various types of services concerned with the social problem of individuals and families. Medical social workers work with patients and families in helping them to cope with problems related to severe or long illness, recovery and rehabilitation. They also contribute an understanding of social and emotional factors related to a patient's health problems and assist in the evaluation and treatment of the individual.

Social Worker Aide: A person who performs certain social work duties under the direct supervision of a qualified social worker.

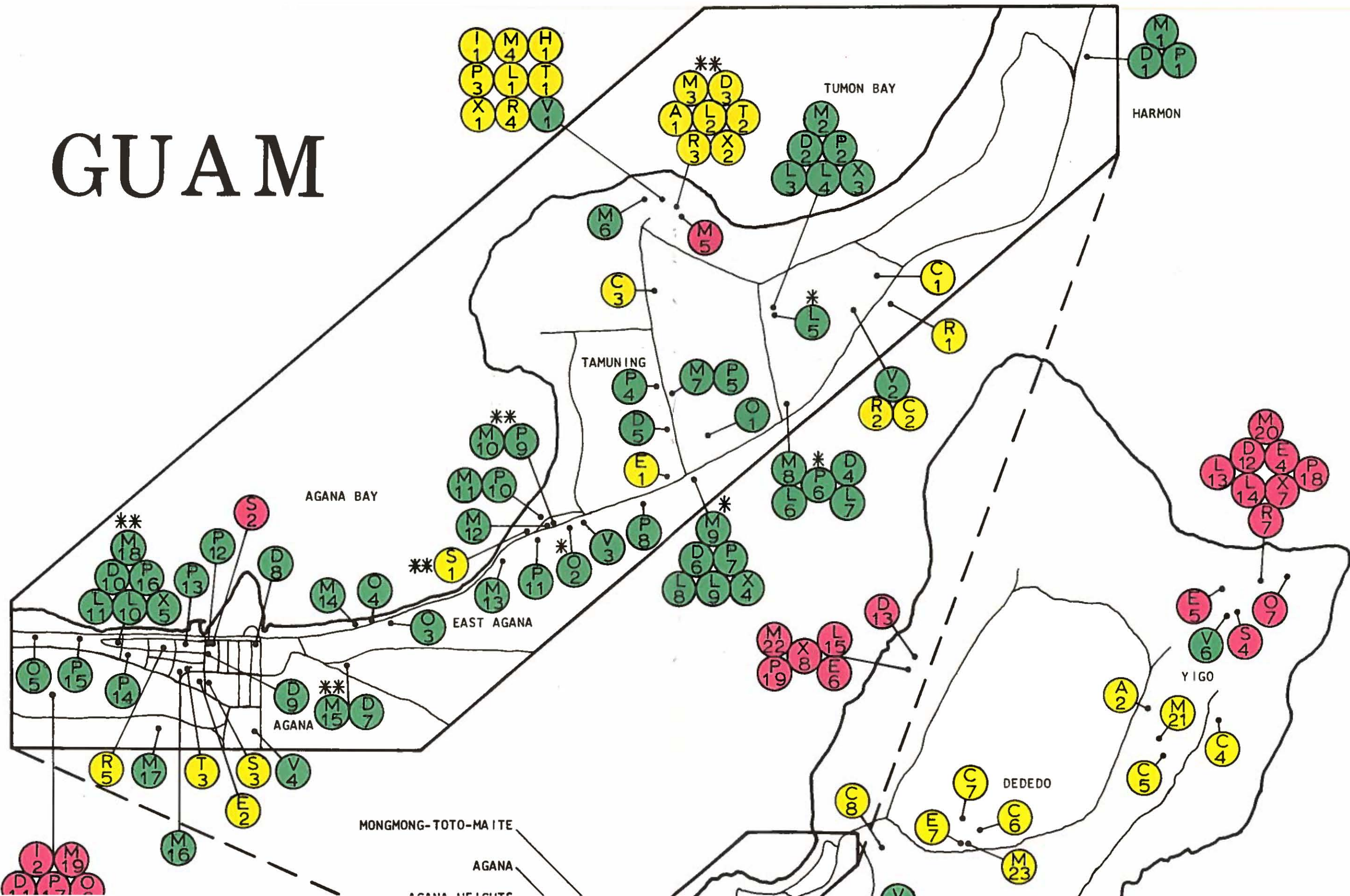
Surgical Aide or Operating Room Technician: A person other than a nurse who assists physicians and nurses in the care of patients in the operating or delivery room and in the care, preparation, and maintenance of sterile and unsterile supplies and equipment.

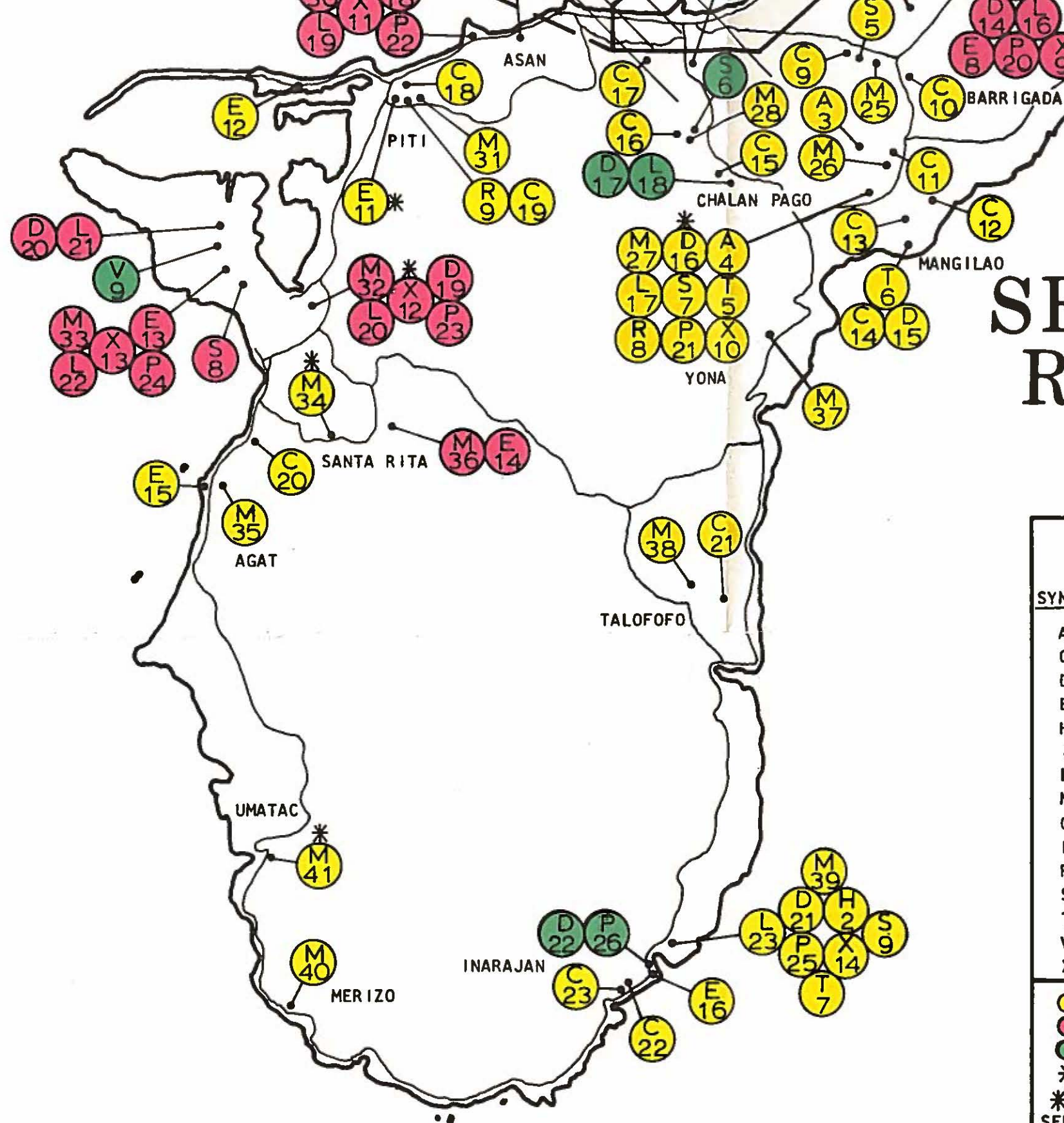
Urology: Branch of medicine which concerns itself with

the urinary tract in both the male and female and with the genital organs in the male.

X-Ray Technician: A person who assists the X-ray technologist in the performance of the latter's duties.

GUAM





HEALTH SERVICES & RESOURCES

LEGEND

SYMBOL	SERVICES
A	ALLIED ENVIRONMENTAL HEALTH
C	SCHOOL HEALTH COUNSELORS
D	DENTAL
E	EMERGENCY/AIR-SEA RESCUE/DISASTER
H	MENTAL HEALTH (IN/OUTPATIENT)
I	MEDICAL INPATIENT
L	LABORATORY
M	MEDICAL OUTPATIENT
O	OPTOMETRY
P	PHARMACY
R	REHABILITATIVE
S	SOCIAL SERVICES
T	TRAINING (HEALTH MANPOWER)
V	VOLUNTARY AGENCIES
X	X RAY

●	GOVERNMENT OF GUAM
●	UNITED STATES GOVERNMENT
●	NON-GOVERNMENTAL
*	UNDER CONSTRUCTION/PLANNING
**	TO BE PHASED OUT
SEE ACCOMPANYING INDEX FOR DETAILED LIST OF SERVICES AND RESOURCES.	