

A CRITICAL APPRAISAL OF THE NAVAJO HEALTH CARE SYSTEM

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SUMMARY

The purpose of this study is to assess the health needs of the Navajo Indians of North America, and the appropriateness of the health care services provided by the Navajo Health Care System with respect to these health needs. Our study is based on the analysis of the secondary socioeconomic and health related data collected and compiled in the Navajo area, and on the interviews conducted among health care professionals and administrators working in the Area. The 'Q index' was used for priority ranking of the most prevalent diseases. Appraisal is based on the holistic health concept components. Navajo Indians have not yet reached the health status of the general US population. In spite of the fact that the Indian Health Services has decreased the disparity between the Indians and the US population in general, especially regarding communicable diseases, other more complex health problems created by biculturalism and the on-going acculturation exceed the limits of the Navajo Health Care System which is basically oriented toward medical care. Alcoholism and alcohol abuse, inadequate nutrition and lack of geographic and socio-organizational accessibility are the main risk factors in the Area. This situation is further aggravated by economic problems and the high unemployment rate of the Navajo Indians.

KEY WORDS: Health care; Navajo; Evaluation

INTRODUCTION

In the United States, Indians have a unique legal and historical relationship with the federal government. They are considered as a special minority group in terms of their social, cultural, economic and politico-administrative characteristics and their health status (Adair and Deuschle, 1970).

The federal government has had the responsibility for the socio-economic development of Indians since the eighteenth century. The Indian Health Services, (IHS) has been in charge of the health component of this assistance. Since 1975, following the enactment of the 'Indian Self Determination and Education and Assistance Act' (Public Law No. 93-641), Indian tribes have been given the option of taking the responsibility and being accountable for their own health care services (US Congress, 1986). This transfer is still far from being complete, and seems to be slower and more difficult than comparable transfers of responsibility in other domains (e.g., education, interior affairs).

In 1980, there were 278 Indian reservations and 209 villages in Alaska accounting for almost 1.4 million of the autochthonous people in the United States. The Navajo area is the biggest reservation in terms of its surface area and population (25,516 sq. mi. and 166,665 inhabitants in 1985) (US Congress, 1986).

Navajo Indians have not yet reached the level of health status enjoyed by the general US population. To some extent IHS has been able to decrease this disparity, especially with regard to communicable diseases (NHSA, 1985a). However, other more complex health problems, apparently created by biculturalism and the ongoing acculturation, seem to exceed the limits of the Navajo Health Care System (NHCS). This situation is further aggravated by economic problems and a high unemployment rate (NN, 1985a; DHSS, 1986). We believe that a critical appraisal of the experience of the Navajo area with respect to their changing health care needs in this unique socioeconomic environment could be useful to both health care providers and health planners working in similar environments.

The purpose of this study is to examine the health status of the Navajo Indians and the Navajo Health Care System. Specifically, the objectives of the study are:

1. to describe NHCS in terms of its objectives, resources and services;
2. to assess the health needs of the Navajo nation;
3. to identify and prioritize health problems; and,
4. to evaluate the adequacy of the relationship between health needs and objectives, and resources and services of the NHCS with respect to these health needs.

METHODS

Two different methods were used for data collection. The first method involved collecting existing sociodemographic and health related data, including mortality and morbidity statistics, and data on health resources and services. Raw data were compiled into indicators and indices. The second method of data collection consisted of gathering subjective data by interviewing professionals and administrators who are responsible for the delivery and administration of programs and services for the Navajo Indians.

In this study, three main organizations were studied, and analysis was carried out on the pooled data, as if there were one system with different services provided by different divisions. Each service and agency was also studied separately, but conclusions are drawn for the NHCS as a whole in order to provide a better understanding of the health care system.

At present, two health services, the Navajo Area Indian Health Services (NAIHS) and the Division of Health Improvement Services (DHIS), and one agency, the Navajo Health Systems Agency (NHSA), are operating in the Area and are responsible for the planning, administration and delivery of health care services to the Navajo Indians. The NAIHS is divided into 8 administrative

service units. Each service unit is responsible for the delivery of in patient and ambulatory health care services to service unit residents in their own facilities. In addition, non-profit, private and non-governmental organizations (NGOs) serve the Area. Their contribution, however, is relatively small in scale. The two services (NAIHS and DHIS) and the agency (NHSA) were the organizations examined in this study.

RESULTS

1. Demographic, Social and Economic Characteristics

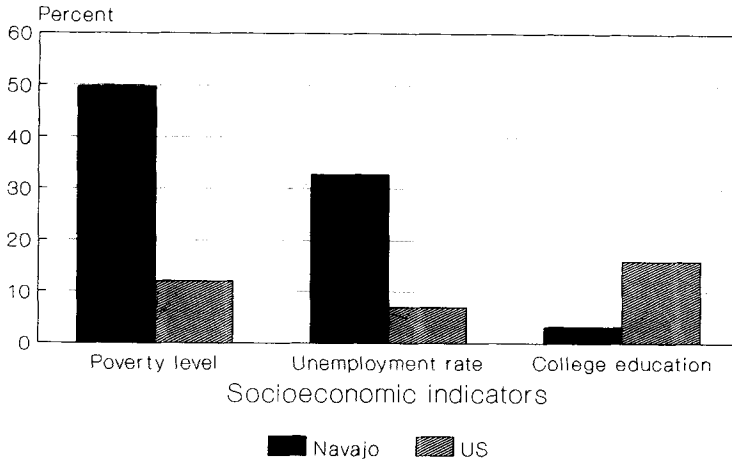
The Navajo nation differs demographically from the US population in many respects. The nation is still in the second phase of a demographic transition which is characterized by a high birth rate, a low death rate and a high rate of population growth (NN, 1985a; DHHS,1986). Hence, the Navajo population is clearly a young one with a median age of 18.8 years and a small percentage (4.6 per cent) of people over 65 years of age (see Table 1).

Table 1. Demographic Indicators Navajo Nation vs. US (1985)

	Navajo	US
Crude birth rate	27.8/1000	15.5/100
Crude death rate	5.7/1000	8.7/100
Population growth rate	2.5/100	0.7/100
Median age	18.8 y	30 y
Age distribution (%)		
0-15	37.2	22.7
16-64	58.2	66.0
65+	4.6	11.3

Source: NHSA 1985a.

According to the 1980 census, there are striking differences between the Navajo Indians and the general US population in terms of income and employment status. Low income, a high percentage of people with an income below poverty level, a high unemployment rate and a low level of high school and college education are the principal characteristics of the Area (see Figure 1). The Navajo economy, which is basically a producer of services, heavily dependent on federal government as the largest employer, is not capable of providing a dynamic and productive environment for the Navajo Indians and, therefore, of creating job opportunities (NHSA, 1985a; NN, 1985a). Housing in the Area is extremely scarce relative to the needs of the Navajo population. Moreover, they lack the basic utilities fully enjoyed by the general US population and therefore the Area cannot be considered fit for settlement. Table 2 provides some of the housing indicators for the Navajo and the US populations.



Source: DHHS 1986

Figure 1. Socioeconomic Indicators Navajo Nation vs. US (1980)

Table 2. Housing Indicators Navajo Nation vs. US (1980)

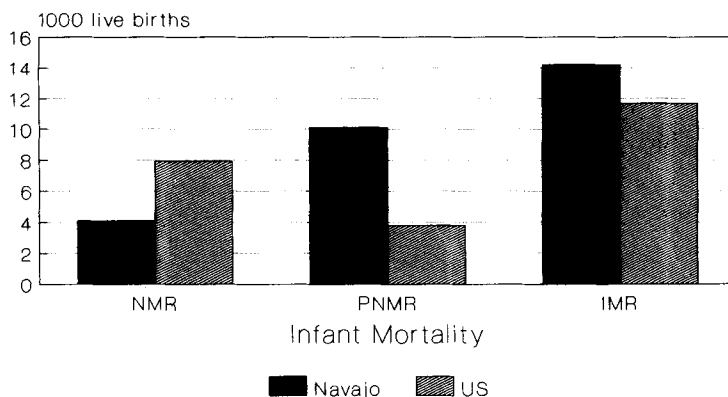
	Navajo	US
Plumbing (%)	44.7	97.3
Sewage disposal (%)	51.8	98.8
Telephone (%)	25.4	91.7
Motor vehicle (%)	75.2	87.1
Overcrowded households (%)	64.9	7.2
Median number of room	2.7	4.9

Source: NN 1985a.

2. Health status

2.1. Mortality The health status of the Navajo Nation has improved considerably over the last three decades since the inception of the IHS. Between 1972 and 1982, the Navajo area experienced a 31.2 per cent decline in the crude death rate. The overall crude death rate for the Area was 5.7 per 1000 population in 1980, which is lower than the general US rate (8.7 per 1000 pop.). However, when adjusted for age, the Navajo death rate still exceeds that of the general US rate (6.6 vs. 5.7 per 1000 pop.). The ratio of male to female deaths was 1.8:1 that year, higher than that of 1.3:1 in the US (NHSA, 1985a).

Navajo infant mortality rate has declined considerably over the last fifteen years and now exceeds that of the general US by only a small margin (Figure



NMR: Neonatal Mortality Rate
 PNMR: Post Neonatal Mortality Rate
 IMR: Infant Mortality Rate

Figure 2. Infant Mortality Navajo Nation vs. (1981)

2). In 1981, the neonatal mortality rate, an indicator of the availability of prenatal services, was lower in the Navajo Area than in the US (4.1 vs. 7.9 neonatal deaths per 1000 livebirths). However, the post-neonatal mortality rate, an indicator of the impact of socioeconomic factors, is twice as high as that of the US (10.1 vs. 3.8 post-neonatal deaths per 1000 livebirths) (NHSA, 1985a; DHHS, 1986). Gastrointestinal diseases, birth injuries and pneumonia account for most of the infant deaths, especially in the post-neonatal period (NHSA, 1985b).

Life expectancy is shorter for Navajo Indians than for the average US citizen, particularly for males, and there is a high mortality rate in all age groups except in the elderly. This is especially true for the 0-44 years age group, which accounts for 45 per cent of all deaths, with an age adjusted Navajo/US ratio of 2.1 (NHSA, 1985b).

The analysis of the causes of death shows that, in 1981, accidents poisoning and violence (A/P/V), were the main killers of the Navajo people. They accounted for 33 per cent of all deaths, particularly in the 5-44 years age group, with a 4.4 male/female ratio (US Congress, 1986). The analysis of geographic distribution of deaths according to service units of residence shows that Crownpoint, Gallup and Shiprock have the highest rates which by far exceed the average death rate for the whole area, as a result of the higher age specific death rate for 5-44 years age group and the disease specific mortality rate for A/P/V category in these Units (NAIHS, 1984).

2.2 Morbidity The morbidity data, although extensive, were not comprehensive since data on disability and care requiring conditions were not available. In addition, the measurement of morbidity is based on the frequency of episodes of care and not on the episodes of illness, therefore precluding a valid estimation

of the incidence and prevalence rates of leading diseases. Moreover, the information was biased toward those living in urban areas and close to the roads (NHSA, 1985b). In addition, a comparison of outpatient morbidity with that of the general US population proved to be difficult to carry out because of differences between the coding procedures used by the IHS and the National Health Corps (US Congress, 1986). Nevertheless, some morbidity data were used for the estimation of the Q index (Miller, 1970) for ranking leading health problems.

3. Assessment of health needs

On average, a Navajo man lives 12 years less than an average US male citizen, and a Navajo woman's life expectancy is 8 years lower than that of her American counterpart. This fact alone suggests greater health needs for the Navajo people. According to the analysis of social and health indicators compiled by Wallace (Wallace *et al.*, 1967) for the measurement of all aspects of health (used here as an index of the measurement of health needs), the Navajo area has a low score, especially as far as social indicators are concerned (see Figure 1). However, the analysis of mortality data and other social and health indicators alone does not allow us to prioritize health problems. An index developed by IHS for determining the relative importance of disease categories, the Q index, takes into account mortality, morbidity and average lost years of life as well as the amenability of the diseases to prevention or reduction (Wallace *et al.*, 1967). This is accomplished by means of a comparison to a reference population and is, therefore, a more valid measure for determining priorities than the index discussed above. According to the ranking by Q index, accidents are the most important health problem followed by the pneumonia/influenza and liver diseases/cirrhosis categories (Table 3). However, the Q index is by no means the only measure for determining priorities, and it does not take into account the intensity and duration of morbidity, the consequences of the diseases or their impact on society.

Diseases in the leading category, identified by the Q index, were studied in terms of their risk factors. Furthermore, their breakdown by holistic health concept components, i.e., lifestyle, environment, human biology and health care delivery system, made possible the assessment of the detectability, alterability, technical feasibility and the magnitude of the impact of a potential intervention (Baris, 1987).

The results of the analysis show that risk factors originating from environmental conditions and lifestyle are responsible for the occurrence of most health problems. Alcoholism and alcohol abuse are the most important risk factors. They are mainly affected by lifestyle, health care delivery system and also by the environment. Accessibility to health care is the second risk factor which is affected mainly by lifestyle, the health care delivery system and by environmental conditions ('accessibility' refers mainly to socio-organizational and geographic accessibility and not merely to the availability of resources). Diet and inadequate nutrition together are ranked in the third place and are affected

Table 3. Priority rankings by the Q Index¹ and by crude mortality rate (1981)

Causes of death ²	The values of components of the Q index						Priority Ranks	
	M	D	P ³	N (274)	B ⁴ N (91.3)	By Q Index	By Mortality	
Accidents	3.4	12.4	33	18.5	26.0	1	1	
Diseases of the Heart	0.9	41.1	3	3.1	1.3	9	3	
Malignant Neoplasm	0.7	44.9	10	2.3	0.6	7	2	
Pneumonia/Influenza	2.2	26.2	30	9.9	4.5	2	5	
Liver Disease/Cirrhosis	4.2	27.5	15	0.3	0.0	3	4	
Cerebrovascular Diseases	0.9	14.7	5	1.1	3.1	10	7	
Homicide/Legal Intervention	2.0	15.4	31	—	—	4	6	
Diabetes Mellitus	2.8	9.0	10	1.6	8.0	8	10	
Renal diseases	2.8	12.4	10	2.9	0.3	6	8	
Suicide	1.7	12.1	29	—	—	5	9	

$$^1 Q \text{ index} = M.D.P. + \frac{A}{N}(274) + \frac{B}{N}(91.3)$$

$$M = \frac{M_t}{M_r} = \frac{\text{age adjusted death rate, target population (Navajo)}}{\text{age adjusted death rate, reference population (US)}}$$

$$D = \text{crude mortality rate per 100,000 population (Navajo)}$$

P = average lost years of life due to death

$$\frac{A}{N}(274) = \frac{\# \text{ of inpatient days}}{\text{population (Navajo)}} \times \frac{100,000}{365}$$

$$\frac{B}{N}(91.3) = \frac{\# \text{ of outpatient visits}}{\text{population (Navajo)}} \times \frac{274}{3} \quad (3 \text{ is the conversion factor to inpatient days})$$

² Ranked according to age adjusted death rates.

³ Estimate figures.

⁴ 1983 figures.

by lifestyle and environment. Inadequate sanitation and overcrowding are ranked in the fourth place.

4. *Strategic analysis*

The purpose of the strategic analysis is to determine the adequacy of the match between the intervention(s) and the problem(s) to be solved. The questions to be answered by the analysis are : (1) is it appropriate to intervene for this (these) problem(s)? (2) is it appropriate to intervene in this manner?, and (3) is it appropriate for the provider to intervene in this manner (Battista *et al.*, 1985)?

The first question focuses on the identification of all health problems, the determination of priorities among all selected problems, the psychosocial and political will of the community to resolve the problem(s) and an analysis of their feasibility. The second question relates to the appropriateness of a specific intervention. The third question deals with the appropriateness of the provider selected to administer the intervention.

In the case of the problem of *alcoholism* and *alcohol abuse*, the relevant questions would concern the etiology, the scope of the problem, its consequences and the intervention strategies directed toward it. In fact, very little is known about the answers to these questions. The etiology of alcoholism may be related to the attitudes expressed in the statement 'the lack of confidence in being able to pursue a good life within the context of being Navajo' (Schoepfle, 1983). The extent of the problem is not known and the only relevant data available are mortality and morbidity data based on estimations for Arizona state or for all Indians across the US. It is estimated that 40 per cent of the population are involved in some way in alcoholism, alcohol abuse and their consequences (NN, 1985b)

In 1985, intervention strategies were mainly oriented to curative and rehabilitative care and accounted for 29.5 and 44.9 per cent of the service load, respectively (NAIHS, 1985a). However, lack of resources limits all alcoholism related interventions. During the same year, only 3.6 per cent of the overall health care budget was devoted to alcoholism. The Navajo Alcoholism Program (NAP) received 8 per cent of the DHIS budget and employed 16.4 per cent of the total DHIS staff in order to provide comprehensive services which range from screening to rehabilitative care (NN, 1986a). NAIHS allocated 1.85 per cent of its budget to alcoholism for detoxification and treatment (NN, 1986b). It was estimated that NAP was underfunded by 75 per cent and understaffed by 83 per cent (NN, 1985b). The lack of skilled professionals administrating interventions is another handicap to the program. Alcoholism is recognized by the tribal government as the most important health problem of the Navajo Nation (NN, 1985c). However, it is not dealt with accordingly and it is not clear that the existing program is economically and organizationally feasible. Moreover, the etiologic explanations of alcoholism and alcohol abuse suggest that the success of any program which is confined to the health care system is unlikely. The problem is very complicated and entrenched in the Navajo

culture. Its solution would seem to extend beyond the capacity of the NHCS alone.

With respect to the problem of inadequate *nutrition* it is difficult to estimate the effectiveness of programs. However, it seems that the interventions proposed are more successful than those designed to deal with alcoholism. They are almost entirely preventive in nature, and in addition to continuous food distribution, they also provide technical assistance for the promotion of balanced diet and self-sufficiency by means of food production (NHSA, 1982a). Moreover, all these services are provided by Navajo personnel and are therefore more likely to be accepted by the Navajo people.

In 1985, the Food and Nutrition Services received 17.3 per cent of the overall budget of the Navajo Health Care System. They accounted for 63 per cent of the DHIS budget and employed 23.5 per cent of the total DHIS staff (NN, 1986a). The services appear to reach all eligible high risk groups identified by the application of valid criteria and norms. The programs are highly financed, motivated and effective, and there is a strong commitment from the Tribe to carry out these programs and a high level of appraisal by the community. These factors together make the programs highly feasible to carry out in the Navajo Nation.

Limitations on socio-organizational and geographic *accessibility* have been considered as risk factors since they hinder the utilization of health services and therefore affect the health status of the population. Our analysis of the limitations, however, is different than the treatment of other risk factors above because we are dealing with resources rather than risk factors *per se*.

Accessibility to health care has two aspects: socio-organizational accessibility and geographical accessibility. The former refers to the availability, accommodation, affordability and accessibility of health care services, the latter refers to the spatial distribution of resources (Pineault and Daveluy, 1986).

Availability refers to the mere existence of resources. In this sense, the Navajo area does not have shortages compared to the IHS and to the US in general. Although the Area has lower health care expenditures per capita than the US in general (\$848 vs \$1580 in US in 1985) (US Congress, 1986), this figure does not indicate that underfunding exists. Health care services in the US may not be funded adequately, and the organizational context of such funding is very different from funding for the Navajo area.

In terms of human resources, the Navajo area has almost the same ratio of physicians and dentists compared to human resources in rural areas of the US. Moreover, these ratios compare favourably to those of the IHS in general across the US. As far as primary care physicians are concerned, the Area has a much better ratio than the US. However, there is a shortage of specialists and registered nurses (US Congress, 1986).

In 1985, there were 3 acute care beds per 1000 population in the Navajo area. This figure is low compared to the standard 3.7 beds (based on a 80 per cent occupancy ratio). However, only 30.2 per cent of the available beds were utilized (NHSA, 1982b). It is difficult therefore to say that more acute care beds are needed. However, there is a substantial need for additional

extended care facilities. According to the Navajo Master Health Plan, only 24 per cent of the need is met. This need is evident in the long waiting lists, high occupancy ratio and the number of people served in off-reservation facilities (NHSA, 1982b).

Affordability refers to a patient's ability to pay for services, and it does not apply to the Navajo context since health care is free. *Accommodation* relates to the congruence between the working hours of a facility and the patient's ability to obtain care during these hours. Although it is difficult to assess accommodation, it is possible that the limitations of the health centers and health stations in terms of their opening hours could be one of the factors that directs patients toward hospitals, because 16.2 per cent of all outpatient visits occur during evenings, night time and on weekends (NAIHS, 1985a; NHSA, 1981).

Acceptability refers to the congruence between patients' and providers' socio-cultural characteristics. Acceptability is especially relevant in the Navajo context since, in most cases, providers and patients belong to different subcultures. Although 66.1 per cent of all providers were Navajo in 1985, they were mostly para-professionals. In 1985, only 2.7 per cent of physicians, 2.2 per cent of dentists and 29.2 per cent of the clinical nurses were Navajo (US Congress, 1986). This factor might hinder accessibility despite the fact that non-Navajo professionals are generally given some kind of training with respect to Navajo culture. A high physician turnover rate suggests that there are problems regarding acceptability, although these problems may not be necessarily linked to cultural factors but to other professional aspirations or personal characteristics.

Geographical accessibility is a major problem in the Area. There are no inpatient facilities in Kayenta or Winslow. The Shiprock service unit has only 1.4 beds per 1000 population and therefore not surprisingly, the highest occupancy ratio (NAIHS, 1985b). The analysis of the inpatient services utilization pattern shows that the relevance index, which shows the dependency of a population in a given area on the facilities available in that area (Dever, 1980), is very low for the Chinle service unit and moderate for the Crownpoint and Fort Defiance service units (Baris, 1987). The commitment index, which shows the dependency of a facility in a given area on the residents of that area (Dever 1980), shows that the Fort Defiance hospital has the lowest index after reference hospitals are excluded (Baris, 1987). These results reveal the inadequate match between the inpatient care needs of the population and the location of the hospitals or the services provided in these hospitals. Higher mortality rates and lower discharge rates than those of the general US population support this point.

A discrepancy also exists between the resources and services available. Hospitals are the main outpatient centers in the Area since 67.9 per cent of all outpatient visits are held in hospital outpatient departments despite the availability of health centers and stations across the Area (NHSA, 1981). This is not surprising since 69.6 per cent of all hospital visits are made by physicians compared to 32.1 per cent in other settings (NHSA 1981). These results show that although physical resources are dispersed throughout the Area, the necessary professional manpower is not. Typically, a patient goes to hospital to seek care, sees a

doctor, gets his prescription and returns home, and a follow-up visit is very unlikely. The Shiprock service unit sets a good example. The Unit has the highest number of outpatient facilities and the lowest number of visits per capita. This is not due to the fact that people attending outpatient facilities in this Unit are healthier than the rest of the population in the Area because they have the highest IMR and death rates (NHSA, 1985b; NAIHS, 1985b). This also shows the lack of validity of mortality and morbidity statistics in the assessment of health status because the utilization of services, and therefore the information available, is biased toward those living along roads and closer to care. This is especially true during winter and spring when road conditions are poorer and communication with rural areas is almost non-existent.

CONCLUSION

The Navajo area is underdeveloped with basic socioeconomic characteristics similar to those of developing countries. However, it can be considered as a developed nation in terms of the availability of health resources. This discrepancy is clearly reflected in the health status of the Navajo Indians. The neonatal mortality is lower than that of the US in general and this may be explained by the availability of health services. The postneonatal mortality, however, exceeds that of the US, and this reflects the socioeconomic underdevelopment of the Area. Many diseases endemic in developing countries are rarely seen in the Navajo area as a result of the infrastructure of the health services. However, this infrastructure cannot prevent the infrequent occurrence of diseases such as trachoma and plague (NHSA, 1985b) which have been eliminated in developed countries. Other diseases which originate from inadequate sanitation and housing are prevalent in the Area. Diseases such as pneumonia, influenza, gastroenteritis and otitis media (NHSA, 1985b) are more severe when the host state is weak.

Other problems are most evident when countries move from underdevelopment to full development. During such transitions, many commodities become available to the population, but people have not yet acquired adequate knowledge and preparation to make good use of these commodities. As industry expands, home appliances, utilities, motorized vehicles are more easily acquired. However, the infrastructure, legislation and education necessary to utilize such commodities are absent or ignored. In these countries accidents are a major health problem. If this transition brings about changes in the social values and societal traditions, hence affecting the very foundation of the community's culture, one could expect an increase in behavioral and mental health problems such as alcoholism, delinquency, homicide, suicide and legal intervention. Indeed, the Navajo Nation has all these problems evident in the higher mortality rates across all young age groups, especially in the male population.

Accessibility to health care is a major problem for the Navajo Nation despite the availability of resources, because of their inadequate location and because of problems of accommodation and acceptability. Such problems arise usually

as a consequence of sociocultural differences between the providers and consumers.

It is quite clear that solutions to the problems discussed here can only be found over the long term. The improvement of sanitation, road and work conditions as well as the accessibility to the health care system will undoubtedly promote the health status of the Navajo people and help them to reach the level of health state that their 'anglo' counterparts have enjoyed for a long time. The increasing responsibility given to DHIS or to the future Navajo Nation Health Department, managed by Navajo health professionals under the authority of the Navajo Tribal Council, will certainly contribute to the better understanding of Navajo health and social problems and therefore facilitate their solutions in the Navajo way.

ACKNOWLEDGEMENT

This project was supported in part by the World Health Organization. The material in this publication does not represent, however, the expression of any opinion on the part of the World Health Organization. The authors alone are responsible for the views expressed in this article. The authors acknowledge the support and assistance of Dr Kurt W. Deuschle, MD in carrying out this study. An earlier version of this article was presented at the 116th Annual Meeting of the American Public Health Association in Boston, Massachusetts, November 16, 1988.

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