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PROGRESS REPORT

HEALTH MANPOWER PROJECT IN TURKEY

August 8, 1963

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**Cooperative study conducted by The Johns Hopkins University,
School of Public Health and the Ankara School of Public Health
in Turkey.**

INTRODUCTION

July 2, 1963, the Turkish Health Manpower Study was initiated as a conjoint project between the Turkish Ministry of Health, the School of Public Health in Ankara, and The Johns Hopkins School of Public Health, Division of International Health Studies.

John F. Hillard, an expert in Manpower Planning with the Ford Foundation, has emphasized the importance of manpower planning in economic development:

" . . . Since manpower planning is crucial to national development, its nature and requirements must be brought into clear focus. Manpower planning means the total process by which proper development and wise utilization of the human resources of a nation is achieved in attaining the objective to which the nation has committed itself. It involves the use of existing or the development of new institutions to produce the manpower required, at the right time, in the right quantity and of the right quality. It requires careful integration of the various institutions so that in the total of their functions they produce people with the skills and knowledge necessary to the nation's economic, technological, intellectual and spiritual growth."¹

The purpose of the Turkish Health Manpower Study is to develop feasible methods of study which will permit an assessment of total health personnel supply and development in the light of health needs and demands for health services. This project is thus a medical manpower study in the context of the ecologic circumstances of the community and the country as a whole.

In the western countries formulae and ratios for equilibrating health manpower to the health situation have been developed which have served a useful purpose for manpower planning in their context. Because there is a relatively high level of available health services, mistakes in manpower planning do not usually result in disaster. What percent of ineffective use or wastage of medical manpower occurs in these circumstances cannot be readily perceived. On the other hand, if these formulae and ratios are superimposed on the manpower resources of a developing country, the dissonance in the two sides of the equation may well lead to serious consequences.

It is not possible then to be satisfied with the existing and available patterns of medical manpower planning in a developing country - particularly where expansion of health services on a national scale are contemplated. New approaches must be sought whereby the health of the country under study obtains a proper fit with its available and potential health manpower resources.

1. Hillard, J.F.; Essentials of Manpower Planning in Economic Development, International Development Review, Vol. IV, No. 1, March, 1962

The philosophical approach espoused by the Turkish Health Manpower Project team is that bold and imaginative thinking must be employed at basic units (community level) to arrive at the ecologic balance between supply and demand for health services. Essentially the theme of our investigation is "to think little before thinking big."

Since 1961 Turkey has had a law on the nationalization of health services. This commits the nation to a health program that includes "such medical services as are connected with the control of various factors affecting human health and with the protection of the community from these factors, the treatment of sick people and the rehabilitation of the physically and mentally handicapped."² The further interpretation of the law on nationalization of health services states: ". . . The nationalization of health services signifies that in return of a premium paid by the citizens for health services and of funds allotted from budgets of such establishments as are mentioned under the Public Sector, citizens shall benefit on equal terms from all kinds of health services granted free of charge or on the basis of partially sharing expenses made by the citizen himself."

It is important to emphasize the Turkish policy on extending nationalized health services commits the program to staged expansion from a pilot program in 1961 to total health services for the whole country 15 years later.

In view of the fact that nationalized health services in Turkey consist in a comprehensive approach utilizing all preventive, curative and rehabilitative aspects, the health manpower planning must indeed be carefully structured to the health needs, health service demands, and the total socioeconomic and cultural level of the country.

The studies which are proposed in this report are aimed at establishing methods of collecting and analyzing such data on health manpower that will be useful to manpower planning. It is anticipated that the information developed will be useful to Turkey in particular but also applicable in principle and in study methodology to other countries as well. In as much as The Johns Hopkins University School of Public Health, Division of International Health, has undertaken a total of five country-wide health manpower studies, it may be expected that the total information obtained in the individual countries will be much greater than the sum of its individual parts.

2. Law on the nationalization of Health Services.

The general hypothesis which has been formulated for the health manpower planning project can be stated as follows: since the health and disease pattern in a given community is an expressive lifeway of the people, the health service demands for indigenous medical care and modern medicine are closely correlated with the inter-action of economic development and the sociocultural continuum. This concept can be expressed graphically. (See Figure I)

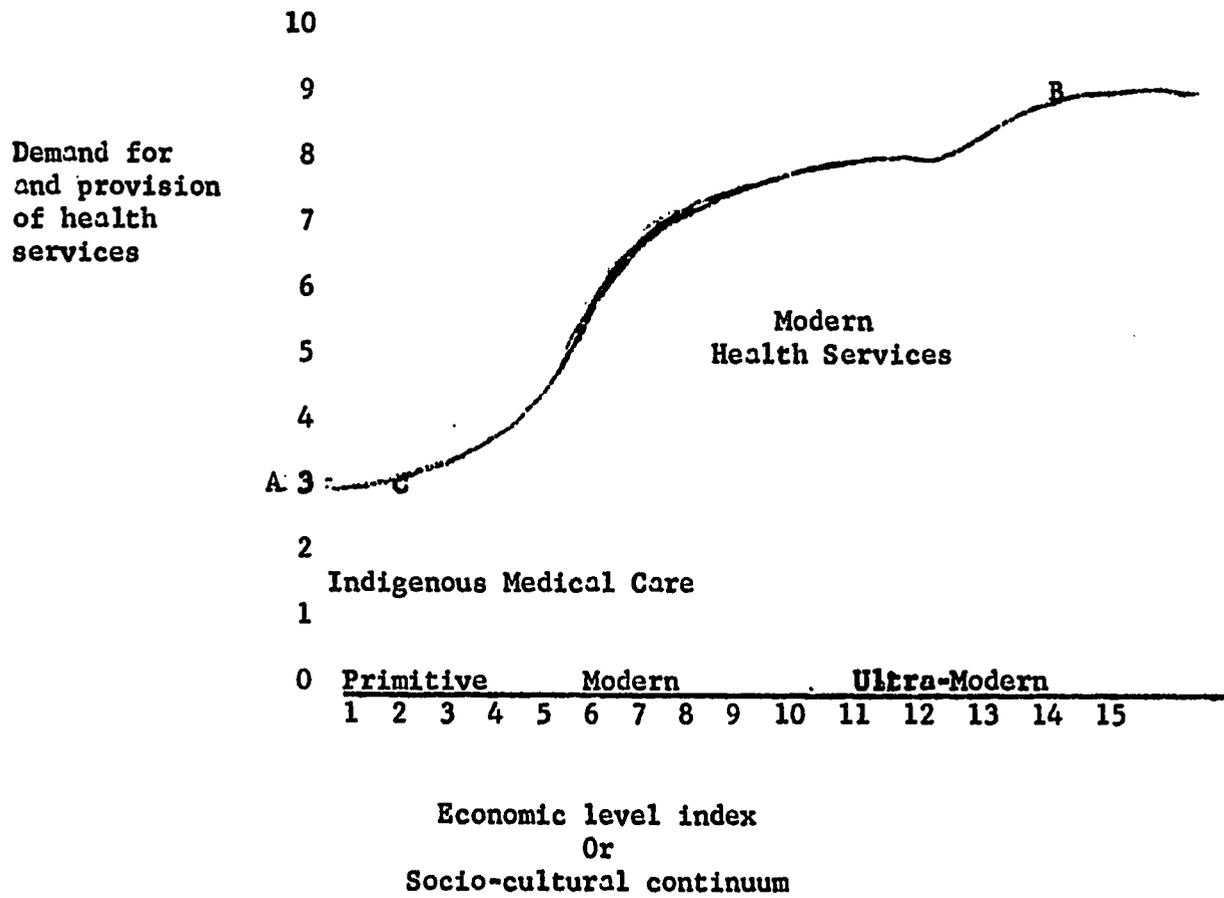
As can be seen in Figure I, an economic level index or a related socio-cultural continuum is plotted on the ordinate and the demand for and provision of health services on the abscissa. The lowest level on the economic scale would coincide with the subsistence agricultural pattern where living conditions are primitive. In these communities where modern medical services are non-existent, the self-sufficiency of the group also extends to provision of medical care by indigenous health workers. Thus, one could expect the village midwife would do all the deliveries, the bone setters would manage the bone fractures and deformities, barbers would extract teeth, blood-letters would handle chronic illnesses on occasions, and certain hojas would offer ceremonial prayers and rituals for the sick and infirm. Home remedies and the advice of the wise and the old villagers would be readily available for the common afflictions. Only the extraordinary health problems and far advanced disease might be sent out of the village to a government medical facility.

As the communities change from the extreme left on the sociocultural continuum and also concomitantly move up the economic scale, modern health services are introduced. Success with modern medical services, particularly with antibiotics and chemotherapy for infectious diseases produces a great increase in the demand for health services. Indeed, the rising expectations of the people for "miracle drugs and shots" may result in an enormous upswing in the demand for modern medicine.

However, for the most part, modern medicine does not suddenly destroy the indigenous medical practices. Indeed, often one would expect to see a curious mixture of modern medicine and indigenous practices going on simultaneously and virtually concurrently. Thus, it would not be unexpected to find a cancer patient being treated with radioactive drugs in a modern clinic and then coupling this treatment with indigenous medicine. What period of time any given community supports both an active indigenous medical care practice as well as modern medicine cannot be easily determined.

However, indigenous medicine gradually gives way to modern medicine. At this point, the demand for health services reaches a plateau. When indigenous medical care reaches a vanishing point there is a second rise in the course of medical services. Two factors in the relatively affluent

FIGURE I



sophisticated society may account for this secondary upswing. First, there is a demand for preventive services such as dental prophylaxis immunizations for minor diseases, and annual physical examinations for preventive medicine purposes. Secondly, the loss of the "magic" of indigenous health services is replaced to some extent by the ritual of modern medicine. Anxiety for minor health problems which were at one time non-existent or trusted to the wise women are now presented to the doctor. The psychosomatic problems which were once managed successfully by the hoja are now referred to the physician or psychiatrist.

In the Health Manpower Study determination of what "mix" of modern, ultra modern, and indigenous health services exist in a particular country is vitally important. For, ultimately, it will control the pattern of health personnel utilized in a community. To illustrate a point - a psychiatrist would be underutilized in a primitive community and a hoja might be underutilized in the ultra modern community. The rural midwife introduced in a primitive community often finds that the peasant women prefer to have delivery service from their trusted village (untrained) midwives. Thus, it would be poor planning if the health personnel mix were not suitably and appropriately adjusted to the medical pattern or ecology of the community to be served.

Therefore, one of the objectives of the Health Manpower Project is to develop a "biopsy" instrument for health needs and demands for a particular segment of Turkish society. If a proper fit of health personnel to health needs and demands can be established the investment of personnel, money, and facilities can be more effectively distributed.

It becomes essential then that the Health Manpower Studies go considerably beyond the mere numerical evaluation of health personnel and their characteristics, attitudes, distribution, etc. The description of the medical educational facilities, enrollments, availability of hospital beds and clinics now and projected - all these factors are important but still do not relate actual health needs and demands for a particular community to the effective combination of health personnel and facilities.

For this reason special emphasis will be given in the Turkey Health Manpower Project to the community unit as a subject of careful health manpower analysis. It is postulated that if a suitable instrument of study methods can be packaged for such a community evaluation of health manpower needs, it would be feasible to "biopsy" representative communities which fall on the economic-sociocultural continuum. Such an approach would permit the evolution of manpower formulas in health from basic units of population to country-wide applications. Obviously, country-wide statistics on health manpower can be no more precise than the individual component units which have been included in the estimates.

Following this train of thought on health manpower planning, it is conceivable that a computer model for health manpower planning could be

constructed. For purposes of discussion the ecological health manpower model would be developed from relevant indices obtained from surveys such as the population council family planning survey, from population and economic data, epidemiological studies of health and disease, etc., for all designations of community population units. Detailed information in representative communities would be obtained from the community health needs and demands biopsy technique.

A list of some of the factors which would be part of the health manpower computer input is represented below.

Ecologic Health Manpower Computer Model

1. Agricultural and industrial regions
I-IX
2. Provinces (1-67)

Village community	2,000 population or less
Towns	2,001 - 15,000
Cities	15,001 and more
Metropolitan areas	(Istanbul, Ankara, Izmir)
Sociocultural continuum	
3. Economic indices by regions, provinces, and towns, etc.
4. Education Indices

Literacy
Primary, Secondary and Lycee schools,
Colleges and Universities
5. Transportation, Communication Facilities

Railways, highways, airports, radio coverage, telephone and telegraph

6. Water Facilities
7. Sanitary Indices
8. Health and Disease Patterns
 - a. Vital Statistics: births, deaths, maternal deaths, infant mortality, 1-4 years range deaths, fertility rates.
 - b. Life expectancy
 - c. Nutrition - height/weight indices, special nutritional data

- d. Disease Patterns
 - Infectious Diseases
 - Tuberculosis
 - Tuberculin reactor rates in children
 - Active/Inactive
 - The disease rate
 - Death rate
 - Intestinal parasite indices
 - Ascaris
 - Tapeworm
 - Hookworm
 - Malaria
 - Leprosy
 - Trachoma
 - Dysentery in children
 - Typhoid
 - Diphtheria
 - Rabies
 - Non-Infectious diseases
 - Cancer
 - Accidents
 - Heart Disease

9. Health Services

Health manpower distribution includes MD's, PHN's, RN's, midwives, auxiliary nurses, dentists, pharmacists, veterinarians, sanitarians, social workers, nutrition and health education, hospital administrators, medical and x-ray technologists.

10. Health education

Schools and colleges for development of all health manpower. Present and future facilities, enrollments, and graduates.

11. General Recreation and Cultural Opportunities

Hunting, fishing, movies, etc.

GENERAL PROPOSAL FOR HEALTH MANPOWER STUDIES AND METHODS

1. Inventory of Available Information on Health Personnel

The first priority of the Health Manpower Study is the collection of all available data on existing health manpower. It is, therefore, essential that the term "health manpower" be defined. Also, the job description of each health worker must be obtained from official sources.

For the purposes of this preliminary report, the following health personnel are identified in Turkey:

- (1) Physicians
Generalists
Specialists
Teachers
Administrators
- (2) Nurses - Women
University graduates
Health Colleges - Diploma
Midwives
Practical nurses and trained nurses aides
- (3) Nurses - Men
Health Technicians
(Sanitarians)
- (4) Dentists
- (5) Laboratory technicians
(x-ray. medical)
- (6) Veterinarians
- (7) Pharmacists (Chemists)
- (8) Social Workers
- (9) Hospital Administrators
- (10) Health Educators
- (11) Sanitary Engineers
- (12) Biochemists
- (13) Microbiologists
- (14) Statisticians
- (15) Dietitians
- (16) Physiotherapists

In addition to establishing the official list of health manpower personnel and their job descriptions a special study of actual functions of the health workers will be undertaken in order to determine over and under-utilization of health personnel as well as total gaps in medical work for total patients, family and community health services.

The data which are collected on health manpower personnel will be evaluated and documented carefully as outlined in Table I.

TABLE I

INVENTORY OF AVAILABLE INFORMATION ON TURKISH HEALTH PERSONNEL

Data Available on M.D., Nurses, etc.	When Collected	Where Obtained	How Collected	Estimated Validity of Data	Special Validation Study to be Developed	Research Project for this Information	Comments

Similar tables will be required for all items listed under Supply. Change in Supply, Demand, and Change in Demand; details of this study are found in Appendix I.

2. Census of Health Personnel

A major study of fundamental importance is the current census of health personnel. Initial focus will be on the physician census since the overall numbers and cost of physician training looms as a major manpower investment. The details of the physician census have been outlined in Appendix II.

Similar detailed study methods for nurses, dentists, pharmacists, etc., census will be developed.

3. Professional Health Personnel: Leakage and Retrieval

a. Physicians leakage and retrieval study

The physicians leakage and retrieval study has been recognized as a top priority by Turkish medical officers. Moreover, the physician leakage from a developing country such as Turkey to a country with greater economic and professional opportunities such as the United States, Canada, and West Germany has been a growing problem on a global basis. Therefore, a careful analysis of all the factors involved in this problem can serve a useful purpose not only in Turkey but in other developing countries as well. If there is a possibility of physician retrieval this must be determined for it can mean the return of well-qualified and experienced physicians who might be useful in the new hospital programs, medical schools and to serve as physicians where doctors are urgently needed.

Before a thorough study of physician leakage and retrieval can be properly established it is first necessary to have an accurate census of Turkish physicians both in Turkey and outside of Turkey.

The study would have two definite aspects: first would be a general mailed questionnaire to all physicians; and, second would be a selected sample of physicians for direct interview.

A series of questions will be developed which will obtain information on the general background of each doctor, his work experience, his attitudes toward his patients, and his community, his ideas on medical education, his attitude towards the practice of medicine in rural areas, his reactions to the nationalization of Health Services, his attitudes towards nurses and his analysis of the nursing shortage problem, his social, cultural, and economic values as related to medicine, etc.

b. Nurses Leakage and Retrieval Study.

Unlike the study of doctor leakage to foreign countries, the primary focus in the nurse leakage study will be on losses of professionally trained nurses from active service in Turkey. There is considerable undocumented evidence that many nurses have left active nursing for a variety of reasons. A smaller but increasing number are leaving Turkey to work in other countries for two or more years. If the serious shortage of trained nursing personnel is to be relieved, consideration must be given to better utilization of already trained personnel as well as to increasing the supply.

This study will be concerned with the career patterns of registered professional nurses. They are considered to be the key people in the development of nursing services in the country because they are needed for training and supervision of the many auxiliary nursing personnel employed in hospitals and public health services.

The main purpose of the study is to obtain data about the factors which affect the supply of registered professional nurses. The information obtained should be useful in planning for changes in the present policies concerning nurses' functions, working conditions, and training.

Answers to the following questions will be sought:

1. Are the losses from the nursing profession a significant problem?
2. What are characteristics of those who go into nursing? Who stays in the profession, who leaves, and who returns to it? Who leaves the country?
3. What are factors which are associated with low numbers of applicants to nursing schools and with high numbers?
4. What is the average length of the professional life of registered nurses?
5. What are the main reasons for nurses staying in active nursing?

6. What are the main reasons why nurses leave the profession or leave Turkey to work in other countries?
7. What are conditions which would encourage inactive nurses to return to nursing.
8. How does nursing as a career compare with others for women?

Appendix No. 3 lists pertinent hypotheses for studying the nurse shortage problem.

A questionnaire will be based on a careful review of the results of the recent study conducted by Columbia University's Teachers College concerning the Role Images and Professional Opportunities for Nurses in Turkey together with information obtained from leading nurse educators and administrators in Turkey.

Through correspondence and direct interviews, this questionnaire will be applied to a random sample of registered nurses, representing differences in educational programs, work status, marital status, family status, age, sex, geographical location, etc.

4. Tuberculosis Surveys as Innovators of Health Service Programs in Rural Areas.

Hypothesis: The most effective and economic method for obtaining basic medical information on a modern population unit previously without modern health services is to establish a tuberculosis project as the initial health activity.

Assumptions: The health personnel equipment and general service needs for a community tuberculosis program have been well established on the basis of past experience. The expenditure of time, money, personnel, equipment and materials can be accurately predicted.

The health service achievements which can be anticipated from a tuberculosis project include:

- a. Tuberculosis case register identification and census of community.
Baseline vital statistics and demographic information.
Tuberculin skin testing data.
X-ray survey study for tuberculosis.
Sputum study for tuberculosis bacilli.

- b. Treatment and follow-up of tuberculosis cases.
Home care - Health education
Administration of INH, PAS, and streptomycin at home and in clinics.
Hospitalization - medical and surgical treatment.

There are unique advantages and benefits to be derived from the tuberculosis program as an innovating health service program in a community.

- a. Accurate census of population with age, sex, marital status, family and household information can be secured. This will permit later epidemiological surveys to be done on representative samples of this community population.
- b. Tuberculosis, as a recognized community health problem and "felt need" can be accurately defined and modern effective diagnostic treatment and preventive measures introduced to the population. Moreover, the success of treatment can be virtually guaranteed and measured from past experience on similar tuberculosis treatment campaigns.
- c. The natural history of tuberculosis is such that a continuous and enduring contact and relationship can be developed between the health team and the community served. Moreover, the health team can be oriented to the sociocultural characteristics of the population at patient, family, and community levels. Tuberculosis has been recognized as both a medical and social problem so that health services through government auspices are well accepted.
- d. Whereas tuberculosis treatment is effective it is not an example of quick and "magical" modern medicine. Because of the chronicity of this disease, continuous daily drug treatment coupled with sound hygiene and diet must be taught. Thus, modern scientific medicine is introduced in a representative and functional manner.
- e. Because the basic etiological agent of tuberculosis is mycobacterium tuberculosis hominis, the germ theory and contagiousness of this disease can be introduced. This germ concept can then be extended to the various intestinal and respiratory illnesses such as typhoid, hepatitis, diphtheria, etc.
- f. The health service demands of an effective tuberculosis program will require careful planning and use of paramedical health personnel. If and when this basic health program has been established, the total preventive and curative medical program can be developed more efficiently.

In order to document the assumptions declared above, a careful analysis of the previous tuberculosis projects can be made. This can include studies done in Ankara, Yozgat, Cankiri, and a variety of other tuberculosis projects completed in the Istanbul and Izmir areas. From these completed projects the average investment of time, money, personnel, equipment, and materials can be calculated. The "ideal" tuberculosis project for future use as an innovating health service in new regions to be covered by the nationalization of health services law can be formulated. The ideal scheme for a tuberculosis project should include some additional data collecting measures. Several attempts to obtain nutritional data, information on heart disease, family planning, and physical disability have already been attempted.

Part of this study will be to select that survey method which can obtain the most precise and complete health information most economically and effectively. Cooperation with Dr. Başkök will be invited in order to obtain the best possible tuberculosis format. The example of the Yozgat, Cankiri, and Kazan survey approaches is presented as Appendix IV.

The idealized tuberculosis survey approach which can be constructed from the above review and critical analysis should be introduced into one of the new provinces or in the Ankara area where the socialized health services are soon to be expanded. Experience with this approach should be of considerable value for future reference.

5. Attitude Studies of Health Personnel - Pre and Post Rural Assignment

There is a universal problem associated with the assignment of professional health personnel, trained in urban locations, to the remote, isolated, rural districts of a country. In the United States, for example, the problems of physician and nurse shortages are most acute in the rural areas such as found in Kentucky, West Virginia, Tennessee, and on the American Indian Reservations of the Southwest. In developing countries where most of the population may live in isolated villages, lack of educational, social, cultural and recreational opportunities exaggerate the aversion of the professional people for rural work. How can the health personnel be positively oriented and challenged for such medical assignments?

In September, 1963 the Mus area in Eastern Anatolia will be opened to national health services. Already, the medical personnel have been selected, oriented, and trained for their work. What motivated these people to accept this assignment in Mus? Was it purely financial? Was it the devotion to social responsibility and service? Was it the adventure of a new and challenging health program?

The psychological factors which effect the performance of these medical people, their attitude towards the rural people and their new community, the relationships to each other - these and many other factors should be documented and reviewed at the onset of the program in Mus and perhaps periodically (annually) thereafter.

Dr. Carl Taylor and his research group in India have developed a study which attempts to obtain an assessment of the influence of psychological and other factors on health personnel assigned to rural areas.

Revised questionnaires and tests appropriate for the Mus team will be developed and applied.

6. The Kazan Model - A Community Health Manpower Biopsy

A major segmental study of the Health Manpower Project deals with the development of an ecologic community health biopsy instrument. As discussed earlier under the heading of General Hypothesis, it is postulated that the most precise health manpower pattern must be obtained at the basic unit community level. Since the avowed purpose and policy of the Turkish government is to provide comprehensive health services, including diagnostic, curative and rehabilitation services, the implications of this commitment are enormous. Indeed, it may well be beyond the limits of presently available medical, social, economic, and related statistics to project honestly health personnel supply, change in supply, demand and change in demand with real accuracy. Perhaps there should be two fundamental approaches to the health manpower planning - the first geared to standard formulae of manpower needs and crudely but quickly calculated and projected into the future. Such a "guesstimate" would serve as a practical guide for planning, but would need to be subjected to revision based on the changing variables which are observed; the second would require a careful collection and analysis of data on a province and community basis, building the necessary facts block by block. It is with this latter concept in mind that the Kazan model has been prepared.

In order to obtain a basic understanding of the Kazan Project, the annual report of this program was reviewed.

Next, a series of visits was made to Kazan by the Health Manpower team which included Dr. Dirican, Miss Forman, Dr. Cinduruk, Dr. Aktan, and Dr. Deuschle.

The purpose of the intensive study and observation of the Kazan program was to obtain direct information on the actual health services rendered. We could also examine the various components of the Kazan program, health personnel, the functional analysis of health work done by members of the Kazan staff, a review of the tuberculosis program which has been a major medical effort in this area, a study of the cost of drugs and drug utilization, a review of actual cost of the Kazan operation, and a series of observations on health and disease patterns and clinic utilization in the Kazan program. The information obtained through this study has been prepared in tabular form with appropriate comments, and is available to those who are interested. An outline of the essential content of the study is given in Appendix IV.

On the basis of this background information it is proposed that a special study be developed at Kazan for the development of methods which could be utilized for biopsing community health needs and demands. From such data the proper "fit and mix" of health personnel commensurate with these health service needs and demands could be derived. By obtaining the formula which is appropriate for Kazan area it would be possible to apply this formula to those sectors of Turkey which are ecologically similar.

But, how can ecologically similar areas and regions in Turkey be identified? Part of the answer may come from the series of surveys conducted by the Central Statistical Institute, the Testing Bureau, and the Population Council. (These surveys are also referred to as the Frey, Angell, and Tucker surveys.)

The following suggestions are now made for the Kazan Model methodology:

a. Characterization of Kazan Area

In September, 1963, the village surveys, and the Population Council survey schedules be applied to the 24 villages included in the Kazan Project.

The suggestion has already been made that experienced interviewers from the Population Council program be employed at the end of their summer project and conduct the Kazan survey. If this cannot be arranged, these interviewers from the statistical student class may be trained for this purpose.

Mr. Garner, WHO Consultant in Environmental Sanitation, has suggested that a baseline sanitary survey be conducted in Kazan. This would provide household and village data on sanitation which is critically needed for the over-all ecologic picture.

Dr. Dirican has suggested that it may be possible to revise the record system at Kazan in such a way that the individuals, families, and households are arranged together and these appropriately arranged in village and sub-area units.

There should be photographic black and white documentation of the style of living, sanitary practices, etc., which could later be used for evaluation of change.

A series of sketches and maps should be available of Kazan areas showing total square miles, household locations, population distribution, road conditions, water supply, and other major points of health concern.

b. Evaluation of Health Needs and Health Service Demands in Kazan Area*

A 20% sample of the Kazan population (7,000) will be selected

* Suggested procedures for the survey of health needs and health service demands at Kazan are given in Appendix IV.

using the household as the basic population unit. It is anticipated that 250-300 households numbering approximately 1,500 persons will be included.

The sample will be selected randomly but proportionate to the size of the village. If there is a refusal to cooperate with the medical team an alternate household which has been predetermined will be used.

After the appropriate sample has been selected and identified the household information will be carefully checked in order to obtain accurate names, ages, sex, marital status and other vital statistical data. Baseline sanitary data will be included for each participating household.

The households will be visited by a rural midwife supervised by the public health nurse and basic data on illness of family members recorded. The schedule for recording illness will be outlined and defined in detail. The health "demand" will be entered in the record according to instructions. The number of household visits by the rural midwife will be no less than once per month and preferably every 7-10 days.

Either a total sample of the 250 households or an aliquot of this number will be initially examined clinically to ascertain medical need as viewed by a clinician.

The clinical evaluation of the Kazan population sample might include:

Physician measurements	- Height, Weight Vision Hearing
Skin testing	- Tuberculin testing Histoplasmin
Laboratory studies	- Stool for parasites and blood Urinalysis Blood sample Blood typing Hemoglobin/Hematocrit Serum protein Cholesterol
Cytology	- Cervical smears for carcinoma cervix
Chest X-rays	- 70 mm. or 14 x 17
Complete clinical history and physical examination	

It would be necessary to have considerable help from faculty of the School of Public Health, the Ankara Medical School, and other medical groups in Ankara to conduct such an intensive program. It is conceivable that DPH students at the School of Public Health, and perhaps house staff from such medical institutions as Hacettepe Children's Hospital would be avail-

able to take the clinical histories and conduct the physical examinations of the population. A series of lectures and careful instructions on the forms for noting clinical data would be required in order to get uniformity in the recording of clinical findings. A consulting pediatrician and internist should be available to check serious clinical abnormalities. Standard laboratory procedures would need to be established in the field. The serum from each individual patient should be frozen and saved for later analysis.

At least 10 cc. and if possible 20 cc. blood should be obtained for routine studies and the residual serum frozen and "banked".

Fresh urine and stool specimens should be obtained from each individual, rectal swabs may be required.

If pelvic examinations can be done, women physicians would be needed to complete this work.

All of the information should be collected in such a manner that it can be rapidly coded and punched on suitable machine cards. (IBM, Remington).

Inasmuch as future research projects are contemplated, it would be beneficial to utilize the skills and talents of such experts as Dr. Köksal in nutrition, Dr. Tural in family planning and school health, and Dr. Aktao in Mental Health. Thus, the Kazan model might be viewed as a pilot phase for the research methodology which could be more effectively introduced in this community laboratory in the future.

7. Piggy-back Studies Related to Health Manpower.

A number of studies and surveys have been undertaken this year and last year which will provide interesting information for the Health Manpower Project.

a. Turkish village survey

Dr. Frey's village studies which included over 400 villages contains useful health related data. This survey was completed last summer (1962) and it is now being analyzed and relevant information summarized. Dr. Frey has agreed to supply us with particular materials which we requested in the Spring of 1963.

b. National sample survey of family planning.

In the summer of 1963 the Population Council in conjunction with the Bureau and State Institute of Statistics, the State Planning Office and the Test Bureau of Ministry of Education and the Ministry of Health conducted a national sample survey of family planning. This survey has a further substudy aimed at getting information on fertility and mortality from a sample of over 10,000 households. It is expected that the principal tabulations should be completed by the middle of September, 1963. Miss Kathleen Gales, an advisor from the London School of Economics under CENCO Technical Assistance, has been the principal investigator on the fertility and infant mortality studies.

The data from the Population Council will be made available to the health manpower study. In addition, there are three questions which were submitted by Dr. Carl Taylor, on health subjects which were incorporated in the Family Planning Survey. This should provide us with useful background data on health service demand and illness among the households interviewed.

c. Turkish census of agriculture.

This agricultural survey designed by Mr. Joel Tucker includes information on demographic characteristics of rural population, immigration, migration, and several characteristics of water availability and environmental hygiene. The scope of the 1963 Turkish Census of Agriculture will cover the agricultural activities in villages with less than 5,000 population and also agricultural activities of state owned farms and large farms, regardless of the population of the place in which they are located.

Some of the demographic, water, and sanitation information gathered in this census will have particular relevance to the Health Manpower Project.

d. Body measurements and marketing data.

This is a study which is being planned for 1964.

Body measurements will be taken on a sample of the female population 18 to 50 years of age by population class in three main situations:

Metropolitan areas over 25,000 population
Semi-urban places with population 5,000 - 25,000
Rural places with less than 5,000 population

It would be possible to add several questions on health particularly in nutrition. Dr. Koksal should be consulted to obtain his expert opinion on appropriate and meaningful nutrition questions.

There are several other surveys pending, including a Government Personnel Manpower Study, a suggested manpower study which Dr. McVoy of AID has outlined, an AID special general manpower study in the Adana area. If one of these surveys is conducted during the next year, it is possible that relevant data for Health Manpower can be secured from the responsible agencies.

8. Medical Student "Drop-Out Study"

In discussions with medical educators in Ankara, Istanbul, and Izmir it was discouraging to learn that a high percentage of medical students entering failed to succeed in graduating. For example, at Ege University, 100 students are selected at the beginning of the first year of medicine. Unfortunately, in 1960-61 only 63 graduated and in 1961-1962 only 61 graduated. This is a serious loss of health manpower, 37 and 39 per cent respectively.

A close examination of the problem is in order so that precise data on medical student manpower loss can be documented and then analyzed. Are the student "drop-outs" the result of poor student preparation and academic deficiencies, or the lack of a sound selection program, or perhaps due to loss of interest on the part of the student, or is it the result of difficult teaching situations and poor academic facilities? Is it the result of economic factors? A better understanding of this problem must be found if an improvement in the student loss and wastage is to be achieved.

A study of this problem now is essential, not only because of its importance to the three existing medical schools, but also to the new schools recently established or to be established.

9. A Study of the Use and Possible Development of Indigenous Health People.

A careful study of the various types, distribution, and use of indigenous health personnel related to the sociocultural and economic continuum would have great value in the health manpower study.

Who are the indigenous health workers? How many are there in a given village population? How do they become identified and qualified for health work? Can the health activities of some of these workers be utilized in a modern health service program? Is it possible to train indigenous health workers in isolated rural areas?

Answers to these questions would be enormously useful in health manpower planning. In the face of serious health personnel shortages, every effort to conserve what is "good" in health work must be exploited.

10. A Study of the Low Level Health Auxiliaries in Health Program Activities: Their Potentials for Advanced Training in Community and Family Health Work.

There are a number of low level health workers who may not be producing their full potential of health effort. The identification of their current low level tasks and study of the possible development of these health personnel to carry out more effective and useful health task could be a great contribution in medical manpower.

Some examples of so-called low level manpower is listed below in the left hand column and the further health activity which might be grafted on to the person in this job category is presented in the right hand column:

Additional Health Tasks

- a. Health Clinic Janitor _____ Emergency first-aid training
Health education laboratory
work of simple variety.

Additional Health Tasks

- b. Clinic Drivers _____ Emergency first-aid training
Health education, X-ray work
of simple variety
Simple laboratory tasks
- c. Rural Midwives _____ Family health workers
Field practical nurses
- d. Malaria Surveillance Agents _____ Health Educators
Sanitary aides
- e. Army "Medics" _____ Health educators
Sanitary aides
Family health workers
Medical technicians
- f. Drug Applicators _____ Health educators
Sanitary aides
Family health workers
Medical technicians

11. Correlation Overlay Maps of Health and Related Data.

A series of maps using an overlay technique will be developed so that the essential health information can be correlated with geography, population, demographic features, social, cultural, educational, economic, and other elements in an ecologic framework.

Several excellent map series have been obtained and as this material is provided the information will be translated to the transparencies.

12. An Extensive Analysis of Economic Factors Related to Health

The relationship of economic level to health manpower is vital and must be carefully interpreted in the light of national income and national health service policy.

A series of studies will be initiated that will elucidate the

- (a) Cost of health personnel development according to present day standards of education for each category of health worker.
- (b) Cost of medical education facilities and faculty.
- (c) Cost of hospitals, clinics and health units, administrative and program activities.

- (d) Cost of health services according to the socio-economic and cultural level of patient and community.
- (e) Cost of comprehensive medical services on country-wide basis and on economic level supported basis.
- (f) Number of patients required to support private medical services.
- (g) Economic indices for determining economic level of villagers, town folk, and city dwellers.
- (h) Corrélation of health services to government economic investment in a given province.

What should be basic floor of health services and what should be ceiling when the government expenditure for a province has been established at

1	T.L.	Per Person	Per Year
10	"	"	"
50	"	"	"
100	"	"	"
200	"	"	"

- (i) What is the economic gain or loss from disease prevention, cure, rehabilitation?

Malaria
Tuberculosis
Leprosy
Syphilis
Infant Diarrhea
Nutritional Disorders, etc.

APPENDIX NO. 1

OUTLINE FOR STUDIES OF AVAILABLE DATA
ON HEALTH MANPOWER IN TURKEY

1. Supply
2. Change in Supply
3. Demand
4. Change in Demand

<u>Data Available</u>	<u>Where Obtained (Source)</u>	<u>When Collected</u>	<u>How Collected</u>	<u>Deficiency In This Information</u>	<u>Tolerance or Limitations of Data</u>	<u>Validation Study</u>	<u>New Project (Research)</u>	<u>Comments</u>	<u>Recommendations For The Future</u>
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A. Supply

I. Categories of health personnel

1. Physicians
2. Nurses
University degree or its equivalent diploma
3. Nurse auxiliaries
Practical nurse, trained
Nurses aide, untrained
Midwife, trained
Village midwife, trained
4. Health technician (male nurse)
5. Laboratory technician
6. Pharmacist
7. Hospital administrator
8. Public health administrator
9. Dentist
10. Sanitarian engineers
11. Sanitarians
12. Health educator
13. Nutritionist, dieticians
14. Vital statistics clerks
15. Veterinarians
16. Army medical corpmen
17. Social (health) workers
18. Indigenous health people (this would include bone setters, needle men, etc.)

II. The following information will be required on health personnel supply:

1. Numbers (total)
Generalists
Specialists and types
Administrators
Teachers and researchers
2. Demographic Information
Age

(Outline - Page 2)

Sex

Marital status (family size or dependents)

Birth place

Present address

3. Distribution

Geographic (province and region)

Urban - Rural

4. Education and Training

School of graduation

Additional training and education

5. Employment information

a. Employed in Health Field - Full-time Part-time Total

1) Self-Employed

Employed by private organization,
institution or agency

2) Employed by public sector,
institution or agency

a) Civilian

b) Military

b. Unemployed

c. Employed in Fields Other Than Health

6. Income (salary and benefits)

7. Cost of training or educating health personnel in
each category

Average cost per health worker

B. Change of Supply of Health Personnel

1. Number of graduates per year per category for previous
ten to fifty years

2. Estimated loss by death per year

3. Estimated loss by change in profession

4. Estimated loss by marriage and children

5. Estimated loss by migration

a. Out of the country

b. Out of province

c. Rural - urban

(Outline - Page 3)

6. Gains by migration
 - a. From other countries
7. Gains by new enrolments
 - a. Expansion of present educational facilities
 - b. Development of new educational facilities
8. Numbers of potential qualified students
9. Trends in number of applicants
10. Development of new health personnel categories

C. Demands

1. Number of health personnel desired according to public sector
 - a. Number of patients seen by a physician
 - b. Number of patients taken care of by nurses
 - c. Number of patients taken care of by other health personnel
2. Number of health personnel according to the private sector
 - a. Number of paying patients seen by a physician in full-time practice
 - b. Number of paying patients seen by a physician in part-time practice
 - c. Number of patients taken care of by nurses and nurse auxiliaries in private institutions and in private clinics
3. Optimum number of personnel in health work according to WHO standards
4. Optimum number of personnel needed according to the Ministry of Health 5 and 15 year plan
5. Hospitals and other health facilities
6. "Effective mix" for private and public sector

D. Change in Demand

1. Projection of population increase
2. Projection of per capita income
 - a. Distribution of wealth by provinces, regions, by rural-urban areas
3. Projection of educational level
4. Change in demand based on availability of medical services

(Outline - Page 4)

E. Additional Information To Be Obtained In As Much Detail As Possible

1. Population statistics including demographic information, current data, as well as projected data
2. Educational information
3. Economic
4. Political
5. Social

BLUEPRINT FOR GOVERNMENT HEALTH SERVICES

1. Rural
midwife

Health Unit for 1000 to 10,000 persons

1 Doctor

4. Rural
midwife

2. Rural
midwife

1 Nurse

2 Sanitarians

5. Rural
midwife

3. Rural
midwife

5 Subunit Rural Midwives

Health Center for 50,000 Persons

Rural Hospital (100 beds)

Director of Health of the Province

Advisors: Maternal and Child Health, Tuberculosis,
Malaria, Trachoma, Venereal Disease,
Sanitary Engineering, etc.

Regional Health Office (16)

Regional Hospital (400 - 500 beds)

Public Health Laboratory Schools for Medical Auxiliary

APPENDIX NO. 2

Determinations of Physicians - Numbers, Kinds, Present Address

It is essential for the Turkish Health Manpower Study to obtain an accurate census of doctors. Such a registry will give the necessary details for selection of physicians for the doctor questionnaire (Leakage and Retrieval Study) and permit the determination of subsampling for detailed interviews. Once the precise number and locations of doctors is established it would be possible to obtain annual data on physicians so that current facts on doctor resources can be readily ascertained.

Method of Study

1. Beginning with the year 1923 and including each year through 1963, an alphabetized list of doctors who are registered in the Ministry of Health will be developed. Graduates of Istanbul, Ankara, and Ego Medical Schools as well as foreign medical schools, will be listed in appropriate columns. The age and sex of each doctor at the time of registration will be tabulated if information is readily available from the file.
2. The doctors currently on the Ministry of Health Personnel Registry will be matched with the alphabetized list from step No. 1. Current location and position as well as professional speciality data to be added here.
3. Further matching with the doctors' alphabetical list described in step No. 1 will be done using information from personnel offices of (1) Government Workers' Insurance, (2) seaways, railways, (3) other private organizations employing physicians.
4. Final matching will be done with lists of physicians carried on file of the Turkish Medical Association, Customs - Department of Interior and death files. The Bayer Aspirin Company and other pharmaceutical companies may have information on deaths of physicians, practicing physicians and their present location, speciality, etc.
5. At the conclusion of steps 1, 2, 3, 4, there will still be a percentage of registered physicians who are unaccounted. This group will be arranged by year and school of graduation. It may then be possible to contact key physicians graduating the respected schools and have them try to identify and determine where these "missing" colleagues are.

A further method which may be necessary to obtain complete census of the physicians is to schedule a class reunion for selected years. (According to what would be most crucial for the comprehensive collection of these data.)

6. It is anticipated that in January, 1964 a conference for Provincial Health officers might be called in Ankara. The purpose of such a meeting would be to orient and instruct the health officers on a

new, accurate, and complete registration of all doctors in their provinces. Also similar information would be required for the nurses, sanitarians, dentists, midwives, medical secretaries, social workers, hospital administrators, medical technicians, veterinarians, etc.

Determination of Censuses for Nurses, Midwives, Auxiliary Nursing Personnel, "Salik Memurus" (Male health technicians)

Procedures similar to the one given above for the census of physicians will be used to determine the numbers, locations and positions of registered nurses, city midwives, saglik memurus, trained city midwives, trained rural midwives, trained auxiliary nurses in Turkey.

If a complete census of all these categories is too expensive to undertake, only those categories which represent the highest investment in their training should be selected for a census.

The following list gives some idea of the numbers of nursing and midwifery personnel which might be included in the census.

Numbers of Nursing Personnel Registered in the Ministry of Health and Social Assistance, Ankara

Professional Nurses	2517
City Midwives	2308
Rural Midwives	3871
Auxiliary Nurses	
Saglik Memurus	<u>3311</u>
Total	12,007 plus

The data on professional nurses include only those nurses who have completed the diploma programs. The few graduates of university degree programs have not registered with the Ministry of Health.

Data on auxiliary nurses have not been included because this group is not officially registered so the number was not easily obtainable from the existing records.

Job Descriptions for Nursing and Midwifery Personnel

An important aspect of this census is the development of definitions for each of the categories of nursing personnel. These definitions should include an appropriate and distinctive title or designation as well as an acceptable statement regarding the qualifications and functions of each category of nursing personnel. The following procedure is suggested for the development of these job descriptions.

1. Appoint a small technical working committee of experienced nurses who are in key administrative and teaching positions to assist the study team in reviewing existing job descriptions,

studying current utilization of nursing personnel, formulating new job descriptions, testing the applicability of the new descriptions.

2. Appoint an advisory committee which includes doctors who are directly concerned with nursing services and a representative of the State Personnel Board as well as nursing leaders who are not members of the working committee. This committee would advise the working committee in formulating the job descriptions.
3. Review the existing job descriptions for nursing personnel in Turkey, and determine in what ways they are adequate and in what ways they are inadequate as standards for good nursing.
4. Determine the current utilization of nursing personnel through a study of a sample of hospitals and public health services which employ various categories of nursing and midwifery personnel.
5. Revise the job descriptions so that statements of qualifications and functions of nursing personnel:
 - 1) are in keeping with recommended international classification;
 - 2) provide for nursing responsibilities and duties to be in keeping with training and experience;
 - 3) are appropriate to current social conditions in Turkey but at the same time provide a useful guide to improvement of nursing services in hospitals and public health agencies.
6. Test the revised job descriptions in a sample of institutions and agencies in Turkey.

APPENDIX NO. 3

NURSING IN TURKEY

A Guide for the Design of Nursing Aspects of the Health Manpower Study

The serious shortage of professional nurses in hospitals and in public health services in Turkey is obvious. This problem has been of concern to the Government of Turkey for a long time and efforts have been made to relieve the shortage. However, although the number of nurses is steadily increasing, the rate of increase is not enough to meet the demands of Turkey's rapidly expanding health services. Implementation of development plans are severely hampered by the lack of well prepared nurses. Why is there a shortage of practicing professional nurses?

Since this question is of primary concern to Turkey and other developing countries, it is necessarily an important aspect of the health manpower study. This summer during our preliminary study of nursing in Turkey documents, interviews, and observations revealed that an answer to this question may be found by testing the following "hypotheses":

1. The history of professional nursing is very recent. Before 1923 in Turkey few women were educated. Respectable women usually did not work outside their homes. Nursing in hospitals was done by volunteers and untrained illiterate persons.
2. The current public attitude toward nursing deters educated girls from going into nursing and from staying in nursing.
3. Working conditions, salaries, doctors' attitudes are not attractive to new recruits and not satisfying to those who have been trained. Some evidences:
 - a. Nurses in key administrative positions are paid approximately 500 TL per month (about \$50.00) and do not have opportunities to supplement their salaries as government doctors have.
 - b. Under-staffing of hospitals makes work unsatisfying.
 - c. 12 hour duties make it impossible for many married nurses to continue active nursing.
 - d. Nurses have little or no opportunity to choose the area of work which they prefer.
4. There are insufficient opportunities for nurses to prepare for the profession. Schools for female professional nurses are too few and small to accommodate all qualified applicants. One evidence is:

Last year the Izmir School of Nursing (Saglik Koleji) was able to admit only 50 students out of 300 qualified applicants.

Related hypotheses:

- a. Funds, facilities, and teaching staff are being used for training of doctors, health technicians, and auxiliaries in disproportionately larger numbers than for nurses.
 - b. Places for students in nursing schools are not well utilized because many students "drop-out" without completing their studies and many others remain in school for one or two years in order to repeat examinations.
5. Insufficient positions are available for professional nurses in existing health services. Some evidences:
- a. 27 new graduates of the Izmir School of Nursing (Saglik Koleji) have not been appointed. (Graduated end of July, 1963. Information received August 15).
 - b. None of the Ege University Hospital Clinics (wards) in Cocuk Hastanesi (Children's Hospital), Izmir, are staffed by fully trained nurses. New graduates of the Ege University School of Nursing cannot be appointed because there is not a "quadro" for fully trained nurses. The budget provides for only trained auxiliary nurses.
 - c. Positions for fully trained nurses are kept filled by auxiliaries because doctors prefer to have auxiliary nursing personnel. They are considered to be cheaper and more amenable to direction and control.
 - d. In a 300 bed Children's Hospital in Izmir there are 8 positions for fully trained graduate nurses. Only 3 auxiliary nurses are provided for a 40 bed children's ward over a 24 hour period.
6. Doctors traditionally carry out administrative and supervisory functions which well prepared nurses could do. There are enough doctors to do this, so nurses are not found to be necessary. Some evidence:

In the Infectious Diseases Hospital, Izmir, a ward of 25 beds had no fully trained nurse. Four resident doctors were responsible for supervising auxiliary nursing personnel - 1 trained nurses' aide and several helpers who were trained on the job. At night one doctor remained in a room on the ward.

7. Professional nurses are used for work other than nursing of patients. Some evidence:

At the new Hospital for Specialists, Ankara, the head nurse and 11 other nurses have been in the 250 bed hospital since April, 1963, although no patients have been admitted during the past four months. They have been getting the hospital arranged for admission of patients in September.

8. Training programs do not prepare nurses for the kind of work they are expected to do. There is insufficient opportunity to see good nursing done in training institutions because:
 - 1) much of the nursing care is given by auxiliaries;
 - 2) nursing instructors remain in the classroom instead of demonstrating to and supervising nursing students in wards;
 - 3) wards are inadequately equipped with linen, utensils, etc. for giving good care.
9. Job descriptions and procedure manuals for defining the responsibilities of nursing personnel and for setting standards in patient care are inadequate.
10. Many nurses are leaving Turkey to work and study in other countries because they can:
 - 1) earn more;
 - 2) gain post-basic training not available in Turkey;
 - 3) get better positions when they return to Turkey ; because they have worked in a Western country and have learned a Western language.

APPENDIX NO. 4

The Kazan Model: A Micro Study of a Village Community
for Health Manpower Analysis

A series of observations was undertaken to develop the following information:

1. Analyze demographic data
2. Analyze total pattern of disease of villager - past year and continue. Breakdown by age, sex, economic and social facts, geographic locality, etc.
3. Study total job for each health worker in terms of:
 - Technical skills
 - Practical and theoretical knowledge
 - Responsibility - Supervision
 - Education background
 - Percentage of time - closing things, seeing people, etc.
 - Records
 - Administration, etc.
 - Overutilization
 - Underutilization
4. Pattern of jobs and health workers - overlap, gaps, reinforcements
5. Reactions of patients and villagers to each worker
6. Economic analysis - cost of medical care per patient
 - Salaries
 - Drugs
 - Facilities, etc.
7. Study of effectiveness of health jobs done
8. Study of social factors related to disease
 - Study of social factors related to clinic visits
 - Study of economic factors related to clinic visits
 - Study of disease factors related to clinic visits
9. Research projects - T,B,, nutrition, records, etc.
10. Look at disease problems or health services and develop functional analysis of how health tasks get done.
 - Use examples such as:
 - Delivery
 - Pain in chest
 - Choking on piece of meat
 - Lump in breast
 - Vomiting blood
 - Loss of weight
 - High fever and convulsion
 - Tuberculosis diagnosed on x-ray
 - Severe diarrhea

**PROCEDURES FOR THE SURVEY OF HEALTH NEEDS AND
HEALTH SERVICE DEMANDS AT KAZAN**

1. The households would be selected on a random basis and approximately 20 percent of the households would be represented proportional to the village population. Suitable alternate households would be selected on a predetermined basis should the primary selection prove to be unsuitable.
2. Initially, the households would be evaluated for general hygiene and sanitation level. Social and economic information of a simple nature would be applied using all or portions of survey questionnaires used by the Village and Population Council Studies.
3. The household members would be examined initially by physicians, nurses, dentists and appropriate laboratory technicians. Records and procedures would be standardized and coded on punch cards (see clinical forms).
4. After the initial clinical examinations and diagnosis have been completed, weekly visits to the household would be made and illnesses as recognized by the family would be recorded. Action taken would be listed according to the health agents seen and health service rendered.
5. Follow-up of clinic visits by Kazan health personnel on patients from sample group would be listed according to date of visit, diagnosis and treatment.
6. Total preventive services for the sample population would be recorded at beginning of study and at end of study according to following parameters:
 - (a) basic immunizations
 - (b) health education on nutrition
 - infant diarrhea
 - respiratory disease
 - maternal care
 - tuberculosis
 - (c) environmental sanitation
7. Four total population illness surveys of Kazan area would be made according to a predetermined plan visiting households once each season of year. This would enable the investigators to compare illness, health needs, and health service demands of the original sample group with the rest of the village population (control group).

CODING OF DISEASE DIAGNOSIS AND MANAGEMENT

A. Certainty of Diagnosis

- (1) Definite
- (2) Probable
- (3) Uncertain

B. Number of Needs per Diagnosis

- (1) Stands for consultation needs by a physician other than the person doing the original examination.
- (2) Refers to the need for further laboratory work-up. This is interpreted broadly to include such things as urinalysis, blood chemistries, etc.
- (3) Stands for further x-ray studies and special diagnostic procedures like intravenous pyelograms, retrograde pyelograms, angiograms.
- (4) Stands for medications, diet, and reassurance.
- (5) For surgery whether major or minor.
- (6) For rehabilitation.

C. Urgency of Need

- (1) Urgent - needs immediate attention (within 3 months).
- (2) Semi-urgent - needs care within 3-6 months.
- (3) Elective - needs attention within six months to one year.

Example:

Acute appendicitis - Definite

Number of needs per diagnosis (5)
Urgency (1)

Personnel Requirements and Facilities for the
Kazan Sample Survey Study

1. Sample selection and initial surveys-

Dr. Dirican - Director and Coordinator

Statistical Assistants (2)
Interviewers (4)
Secretary and Clerk (2)

2. Sanitary Survey-

Mr. Garner and staff
5 Sanitarians (trainees) health technicians
1 Clerk

3. Clinical Examinations of Sample -

Estimate 20 complete exams per physician per day (75 exam days) in order to complete task in one week. This would require 15 physicians per day. (5 of these should be women). Minimum of 5 nurses, 5 technicians and 5 secretary clerks. Should have audiometer specialists to do hearing and visual exams.

4. X-ray mobile team should be available to do skin testing and repeat chest x-ray. Timing could be 1 year from original survey in order to establish tuberculin conversion rate and change in chest x-ray status. Sputum studies for acid-fast bacilli should be made according to usual indications.
5. The Kizilay (Red Crescent) should be invited to participate for venipuncture work, blood grouping, and typing and processing serum for frozen blood bank serum file.
6. Special consultants in pediatrics, internal medicine and gynecology should be available for the "examination" week.
7. Parasitologic team should be made available to do these special examinations. The Malaria Control Program has such an expert team available.
8. The weekly family illness studies on the sample families should be carried out by a special team. Assuming that one village of the total of 24 could easily be covered by one interviewer per day, this would mean 5 villages could be screened each week. Therefore, 5 interviewers would be required to do this job. In case of illness or other logistic problems of the scheduled interviewer, the rural midwife would arrange to complete the interviews.

9. At the end of each month, the material collected at Kazan would be coded and periodically (season by season) summarized.

10. The basic facilities for the Kazan Sample Survey would include:

1 or 2 cars and drivers
x-ray mobile unit and team
Kazan Clinic
Mobile laboratories
Use of school and health houses. Also, tents for
the examination week.
Bus to take health team to Kazan for the examination week.

11. Crude Estimate of Kazan Survey:

Clinical Exam Week	10,000 T.L.
Weekly illness survey	12,000 T.L.
Special coding material and secretarial work	<u>6,000 T.L.</u>
	28,000 T.L.
Contingency and Miscellaneous	<u>2,000 T.L.</u>
	30,000 T.L.

SCHEDULE FOR MEMBERS OF HOUSEHOLD TO BE ADMINISTERED

ON A WEEKLY BASIS

Name and Registration Number of Person	Illnesses (see the respondents list of illnesses)	For this illness did you see 1. Doctor 2. Nurse 3. Sani- tarian 4. Dentist 5. Midwife 6. Clerk 7. Janitor 8. Other (Specify) 9. No one	Where?	Did you see 1. Needle Man 2. Village Midwife 3. Bone setter 4. Barber 5. Blood- letter 6. Hoja 7. Wise Person 8. Other (specify) 9. No one	Where	If seen by a health agent were you given 1. Advice only 2. Medicine (oral) 3. Shots 4. Prescrip- tion 5. Manipula- tions 6. Operative Procedure 7. Prayer and Rituals 8. Hospital- ization 9. Other (specify) 10. Self- medication

**SCHEDULE FOR MEMBERS OF HOUSEHOLD TO BE ADMINISTERED
ON A WEEKLY BASIS**

Respondents List of Illnesses

1. Toothache
2. Sore eyes.
3. Unable to chew food because of sore or missing teeth.
4. Gums that often bleed.
5. Loss of appetite.
6. Feeling tired and do not know why.
7. High fever or shaking chills.
8. Running, watery or bloody ear.
9. Headaches that last a long time or happen often.
10. Pains in chest that keep coming back.
11. Cough lasting several weeks or more.
12. Cough or spitting out blood.
13. Skin rashes or itching as much as a week.
14. Severe shortness of breath after doing light work.
15. Backache lasting a long time or happening often.
16. Pains in joints that keep coming back.
17. Open or running sores that do not heal.
18. Swelling of ankles lasting a long time or happening often.
19. Vomiting for several days or more.
20. Pains in stomach lasting a long time or happening often.
21. Diarrhea lasting more than a day or happening often.
22. Trouble with bladder or in urinating.
23. (for women) Female troubles - menstruation, etc.
24. Fainting spells, fits or convulsions.
25. Has had any injuries - serious cuts, broken bones or head injury with loss of consciousness.
26. Has a lump or any kind of paralysis or a crippled condition which prevents normal play (child) or work (adult).
27. Other illness (specify).