THE PUERTO RICO MASTER SAMPLE SURVEY OF HEALTH AND WELFARE

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Two decades ago the acute health problems of Puerto Rico were so overwhelming that almost any health service provided anywhere was bound to have an obvious effect. Half of all deaths were attributed to diarrhea and enteritis, tuberculosis, pneumonia and malaria. Today, malaria has been completely eradicated and great progress has been made in the control of other infectious diseases so that today less than one-fifth of all deaths are attributed to these causes.

Currently, chronic diseases are the dominant disablers and killers in Puerto Rico. Prevention and control of chronic diseases and efforts toward the organization of care for the chronically ill have increased in priority in Puerto Rico. A substantial proportion of the Puerto Rico Department of Health and Welfare's budget is geared toward the prevention and control of chronic diseases and to the care and maintenance of the chronically ill. Still, funds are scarce in relation to the magnitude of the emerging problems and difficult decisions need to be made as to priorities of how wisely to appropriate scarce funds for massive problems.

Traditional Data

The information traditionally available to the Secretary of Health and Welfare in which to ground such decisions include: conventional statistics on mortality and population growth and change; registries of reportable diseases such as cancer and tuberculosis; and operational statistics from the various bureaus and agencies particularly charged with selective aspects of the overall program. These data are important but fail to provide the basic intelligence badly needed to keep abreast of the total chronic illness picture. What is needed, then, is systematic information which can:

1) characterize the Island-wide population, not a small portion of it,

2) reveal the dimensions and magnitudes of the chronic illness and other health problems of the island as a whole,

3) indicate the net effect of the various programs created to deal with these problems in the way of prevention, control and care, and

4) characterize the effects of chronic illness on family units as well as on individuals.

To develop information of this sort a "Master Sample Survey for Puerto Rico" was initiated as a Community Health Service Project. The subject matter areas with which the Master Sample Survey is primarily concerned are the chronically ill and aged in the context of family health and welfare.

Survey Objectives

The specific objectives of the "Master Sample Health Survey" are four-fold.

1) As an aid in overall planning, evaluation and assesment of priorities by providing quantitative Island-wide information. The data collected and analyzed will point out, and place in perspective, needs and gaps in health and welfare services for the chronically ill and aged.

2) As an opportunity and method for directors of health and welfare department programs concerned with various aspects of chronic illness and aging to insert key questions into the Master Sample Survey.

3) As a way for the Secretary of Health and his staff members to identify areas of health and welfare needs not adequately met by current programs.

4) As a procedure for the planning and conduct of certain kinds of epidemiologic and social research investigations on chronic conditions and related health and welfare programs.

Sampling [1/]

A multistage stratified area probability sample was designed in such a way as to permit a series of representative samples of the population to be drawn. Demolition of slum areas and new construction were taken into account. Advice on optimal sampling designs was sought from Dr. Ira H.

1/ Marks, Eli, Ira H. Cisin, and Jack Elinson. Recommendations on Sample Design for the Master Sample Survey of Health and Welfare.- Mimeographed.

Cisin and Dr. Eli S. Marks, Statistical Consultants for the survey. The basic source of the sample is the labor force master sample of the Puerto Rico Department of Labor recently revised under the technical Direction of the U.S. Bureau of the Census. The population under study is the non-institutionalized people residing in the island. A sample of approximately 3,000 families was interviewed in 1958 in conection with the "Study of Medical and and Hospital Care in Puerto Rico"* conducted in collaboration with the staff of the School of Public Health and Administrative Medicine of Columbia University. It was decided to devise a sampling design which would incorporate roughly half of those 1958 households into an integrated current sample with 1964 households. The rationale backing this decision lies in the definite advantage of both measuring internal longitudinal and cross-sectional changes. The final design allows for annual reinterviewing of half of the households after the completion in 1964 of the original 1958 households. The design calls for quarterly subsamples of around 800 households which can be treated as individual samples or added for joint analysis.

Field Operations

A carefully selected field staff of college graduates was thoroughly trained in interviewing technics for health survey and given a field trial in a pilot survey conducted in the municipality of Guaynabo, of the North-eastern Region for Health and Welfare of Puerto Rico. The purpose of the pilot survey was threefold: 1) pretest a preliminary questionnaire designed for obtaining basic data on illness experience of the survey population; 2) provide actual field experience for training, evaluation and final selection of the interviewing staff; 3) obtain needed data based on a household approach to compare with the operational statistics and records of the Guaynabo Health Center.

Survey Instruments

The questionnaire used in the pilot survey was basically similar to the one used in the 1958 household survey conducted as part of the "Study of Medical and Hospital Care of Puerto Rico". Additionally several questions were included intended to measure the extent of use of the individual clinical and hospital services of the Guaynabo Health Center and some general information of the disabling effects of both acute and chronic illness.

The final questionnaire used during the first year (1964) included, besides the basic illness questionnaire just mentioned, three additional sections: 1) one dedicated to a thorough exploration of chronic conditions, the medical care sought and received, the disabling consequences of the illness, and it's economic effects; 2) another section concerned with a thorough exploration of some specific problem area of health: dengue, mental illness, cancer, prenatal care, including awareness of symptoms, knowledge of facilities and resources and actual utilization and experiences, and 3) a section on areas of social concern such as migration, public assistance, health insurance, etc.

Presented below in chronological outline are the general subject matter covered and the nature of the population queried in each of the quarterly samples of the first year of field operations.

First Year (1964)

First Quarter	Questionnaires	Sample Unit
November	Core Health	Entire household
December	Disability	Head of family
January	Mental Health	Random adult
	Migration	Entire household
Second Quarter	**Questionnaires**	**Sample Unit**
February	Core Health	Entire household
March	Disability	Head of family
April	Dengue	Any adult
	Pub. Assistance	Entire household
	Migration	Entire household
Third Quarter	**Questionnaires**	**Sample Unit**
May	Core Health	Entire household
June	Disability	Random adult
July	Cancer	Random adult
	Health Insurance	Entire household
	Pub. Assistance	Entire household
	Migration	Entire household
Fourth Quarter	**Questionnaires**	**Sample Unit**
August	Core Health	Entire household
September	Disability	Random adult
October	Migration	Entire household
	Pub. Assistance	Random adult
	Mental Health	Random adult

* Medical and Hospital Care in Puerto Rico,- A Report by the School of Public Health and Administrative Medicine of Columbia University and the Department of Health of Puerto Rico, 1962.

Rationale for the questionnaires

The core health questionnaire which is intended as the central portion of essentially every field interviewing operation is familiar in content to health surveyors. Resemblances will be seen to the current U.S.National Health Interview Survey, the current Health Survey in New York City, and other local surveys both past and ongoing, viz: California, Hunterdon, Baltimore, Washington Heights, Hawaii, etc. The core health questionnaire is in some ways similar also to the Island-wide Puerto Rican household interview survey conducted during 1958, in order to see what changes have taken place in the past five years. The opportunity to do quarterly surveys in 1963-64 as against a one-shot survey covering a year's period as was done in 1958, has made it possible to reduce the memory burden for the respondent and presumably to increase the accuracy of the data obtained.

It has been the philosophy of the Project from the beginning to involve program planners and directors in the Department of Health and Welfare in the determination of subject matter content for the supplementary quarterly surveys. A meeting was held of the Advisory Committee on January 23, 1964 at which priorities for subject matter to be included in the surveys were discussed. It was essentially on the basis of this and subsequent meetings that the subjects of the ensueing quarterly surveys, cancer, mental health, immunization, were chosen. Subsequently, discussions were held by the Project Consultant, and the Project Director, with the Head of the Division of Cancer Control, and the Chief Cancer Epidemiologist, where suitable specific objectives and subject matter for the cancer questionnaire were developed, and a questionnaire constructed adapting some past efforts in this regard (in particular, the Makover, Kutner and Crocetti study of Delay in Cancer in New York City).

The supplementary questionnaire dealing with mental illness and mental health services was worked out in consultation with the medical director of the Psychiatric Hospital and the Medical Consultant to the Project. The Project Consultant had been engaged in a parallel investigation on this subject at Columbia University in cooperation with the New York City Community Mental Health Board and supported by the Health Research Council of the City of New York. Interesting comparisons of conceptions of mental health and perceptions of community mental health services among Puerto Rican living in New York and in San Juan are becoming available, probably for the first time, as a consequence of these two surveys.

The second quarterly supplementary questionnaire came about as a reaction to the epidemic of dengue which hit the island in the summer-fall of 1963. The Secretary of Health and Welfare, Dr. Guillermo Arbona, requested that knowledge of dengue prevention be included in the next wave of interviewing to complement the epidemiologic investigations being carried out by a special team from the Public Health Service's Communicable Disease Center in Atlanta. The use of the Master Sample Survey in this way illustrates its quick adaptability in meeting needs for immediate health intelligence on topical questions as well as for coverage of longer term objectives. An intensive educational and operational campaign is currently underway to eliminate the dengue mosquito, also financed by Federal funds.

Inquiries have been received from a variety of sources as to the possibilities of inclusion of health-welfare relevant questions in the Master Sample Survey. Among them, for example, is a request from the Population Council (letter dated June 12, 1964) about the possibility of learning something about the "Enko" program through the Master Sample Survey. A request was received from the Director of the Division of Economic and Social Analysis of the Puerto Rican Planning Board as to the possibility of adding some questions to the next quarter sample on the subject of problems of older people, such as housing, etc. Discussions of these and other requests are underway.

Preliminary data from the Master Sample Survey on cigarette smoking were requested by and furnished to the Cardiovascular Research Group at the School of Medicine.

Sample Outcome - First Quarter

The table below shows the sample outcome for the first quarter. It is clear that respondent cooperation to health interview surveys appears to be less a problem in Puerto Rico than in some cities and States and compares favorably in this regard with experience of the U.S. National Health Interview Survey. The 97% completion rate is actually conservative. An additional one percent could not be located and therefore a determination could not be made as to eligibility; they have nevertheless been included here as eligible, but not obtained. Only four out of 863 families refused to be interviewed and in four families no mentally competent adult could be found to answer the questionnaire.

It was sometimes necessary to interview personally as many as three different individuals in a household in the first quarter: a household respondent, the head of the house if under 65 and a randomly selected adult between the ages of 20-64. Sometimes, by chance, the three designated respondents were the same person.

Evaluation

The first comprehensive evaluation of the Master Sample Survey was completed in February 1965 by Louis Moss, Director of the Social Survey Division of the Central Office of Information in

England and Theodore Woolsey, Deputy Director, National Center for Health Statistics, U.S. Public Health Service. The evaluation team recommended the incorporation of the Survey into the regular activities of the Department of Health; the strengthening of the resources for data analysis and reporting and the reinforcement of the continuing contacts with the users of the Survey results.

These main recommendations are at present in the process of instrumentations with particular emphasis on the one referring to data analysis and reporting. The Survey is converting to computer processing and two additional persons have been recruited for report writing. An effort is now under way to alter the basic concepts and analytic methods slightly to make them more consistent with those in the U. S. Health Interview Survey. There will be great added value if the statistics can be made comparable with those in the U. S. Survey.

The evaluators had some reservations about the feature of the plan that calls for devoting a half of the sample in any one quarter to re-interviewing at addresses where there was an interview the year before and following up certain of these families that have moved. The question of whether this procedure is worth the extra cost and complexity depends upon how the Survey results will chiefly be used. The staff is currently planing to re-examine this feature of the design to decide whether it will pay for itself in additional useful data.

The Secretary of Health has officially endorsed the Master Sample as a regular function of the Department and has under way the financial arrangements for its support. To date, two official reports have been published on illness data and three special ones are about to be released: dengue, cancer and mental health. Forthcoming reports will deal with conditions, public and private medical care, health insurance costs, and immunization.

TABLES

Sample Outcome -- First Quarter

A. Units eligible for interview among household units drawn:

TOTAL UNITS	NUMBER	PER CENT
Drawn in sample	988	100.0
Eligible for interview	863	87.4
Ineligible units	125	12.6

B. Reasons for ineligibility of household units

	NUMBER	PER CENT
Total Ineligible Units	125	100.0
Moved to U.S.	20	16.0
Moved to other area	29	23.2
Unoccupied	28	22.4
Building destroyed	14	11.2
Head deceased	13	10.4
Occupied by ineligible head	18	6.4
Vacant lot	4	3.2
House under construction	2	1.6
House moved	2	1.6
Two houses converted into one	2	1.6
Converted to business	2	1.6
No longer head of family	1	0.8

C. Household interviews completed

	NUMBER	PER CENT
Total Eligible Household Units	863	100.0
Household interviews completed	840	97.3
Household interviews not completed	23	2.7
Could not locate	9	1.1
Could not contact family	6	0.7
Refused	4	0.5
Mentally incompetent	4	0.5

D. Household heads interviewed

	NUMBER		PER CENT
Household Interviews Completed	840		
Ineligible heads (i.e. 65 and over or under 20)	157*		
Eligible heads		683	100.0
Interviewed		662	96.6
Not interviewed		21	3.4

* 155 family heads were 65 years or over; and 2 were under 20 years.

E. Reasons for non-interview of heads of household

Not found	12
Refusal	2
Absent	2
Died	1
Seriously ill	1
Spouse of head interviewed	1
Not determined	2
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F. Random adults interviewed with supplementary questionnaire

	NUMBER		PER CENT
Household interviews completed	840		
Total adults (19 and over)	1,997		
Total eligible adults (20-64)	1,657		
Eligible adults in sample (one per household)		778*	100.0
Interviewed		741	95.2
Not interviewed		37	4.8

* 62 household had no adults 20-64 years.

G. Reasons for non-interview of random adults

Not found		16
Mentally incompetent		11
Deaf and/or dumb		2
Institutionalized		3
a) prison	2	
b) hospitalized	1	
Other		5
a) refusal	1	
b) continental	1	
c) wrong selection of adult	2	
d) absent from Puerto Rico	1	
		37

While certainly not typical, the degree of cooperation is illustrated by the granting of an interview by a respondent whom an interviewer had difficulty locating since he was known only by the cognomen of "El Gran Brujo" (The Great Sorcerer). He was finally located on an obscure mountain cliff by the field supervisor (Félix Cotto González) who was asked by the respondent as to whether he carried any guns. The respondent at first refused to talk since he feared Sr. Cotto represented the police. But when Cotto explained he was from the School of Medicine and was interested in conducting a health interview, the man assented. His occupations included gambling, selling liquor, and running a prostitute service. He paid his girls $35.00 weekly. It was necessary for Sr. Cotto to return to complete the interview since he did not carry a sufficient number of hospitalization forms with him.