A Few Characteristics of Patients in Urban Tuberculosis Clinics

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A STUDY of tuberculosis control in an urban population seems more reminiscent of the 1890's than of the 1960's. Nevertheless, aspects of eradicating tuberculosis still pose an acute problem in urban health.

Persons in the forefront of tuberculosis work now believe that "case holding has become as important as case finding" (*1*) and that improvement in caseholding in tuberculosis control programs would result from better understanding of the social and behavioral aspects of the patients and staff in the public chest clinic system. Focused on these aspects, the following related research studies are currently underway in the United States under the sponsorship of the National Tuberculosis and Respiratory Disease Association:

1. The San Francisco municipal clinic study conducted by the University of California.
2. The St. Louis County (Mo.) clinic study, an investigation of a predominantly suburban service, conducted by the research division of the county health department.
3. The Baltimore chest clinic study conducted by the department of behavioral sciences of the Johns Hopkins University School of Hygiene and Public Health, with the cooperation of the Baltimore City Health Department.

Altliough data are still being collected and no analysis has been made, a few simple frequency distributions observed in the Baltimore study can be reported. This research note contains some of the preliminary findings in the Baltimore study.

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Description and Objectives of the Studies

Caseholding of outpatients is desirable because (*a*) chemotherapy can permanently arrest tuberculosis as a clinical illness (thereby offering nearly an equivalent of cure in terms of the patient's life) and (*b*) patients not held to continued treatment and followup tend to revert quickly to the infectious state, resulting in spreading the disease (*2–4*). Hence tuberculosis workers are understandably anxious to insure that known patients are kept under care for full term.

Relatively little is known, either systematically or empirically, about the patient's side of participation in the clinic treatment enterprise. Most of what is known and studied pertains to compliance with the therapeutic regimen and with the standard operating procedures of the treatment institutions. Usually the only inquiry in this context is: How can the patient be persuaded to comply with the procedures and stay with the treatment offered?

This management bias has been a hardy tradition in public health, both in practice and in investigative studies (*5*). Health professionals are rarely considered to have problems in their work-related behavior that might impede their adjustment to the expectations and values of the patients (*6*). While making no gross assump-

tions about the reciprocal relationship between health workers and the ambulatory patient with tuberculosis, the three chest clinic studies attempt to eliminate the traditional management bias and to approach tuberculosis control as a truly two-way process.

Thus, in addition to the usual questions, the researchers also ask the patient, the service consumer, what he thinks, observes, or believes about the clinic and the treatment he receives. Patients are interviewed about their experiences at the clinics, the chemotherapy they receive, their attitude toward tuberculosis, and other factors which may be significant in the functioning of the clinics. Characteristics of the complying patients who are thought of as regulars and who follow the prescribed treatment until their disease is rendered practically harmless are of at least equal interest as those of patients prone to noncompliance.

All three studies use essentially the same or closely comparable procedures for collecting data and follow an overall design developed in cooperation with a fourth team located at the University of North Carolina in Chapel Hill. Patients in the studies are age 16 or older, and at the time of the selection into the study group they were being treated for active or probably active tuberculosis.

Observations from the Baltimore Study

Patients in this study group had been to the clinic recently (within approximately 2 months) before their intake into the study. Such a group inevitably includes some chronic noncompliers (sometimes called delinquents) whose recent visit to the clinic was an isolated occurrence prompted by concentrated pressure, only to be followed by another extended period of disappearance from the clinic's reach. These recalcitrant patients, however, are not singled out for attention in this inquiry. As indicated, the investigators are interested in gaining and making available more empirical, documented knowledge about patients who comply and regard clinic treatment as important, useful, and worth the substantial expenditure of their own effort. By examining both the service consumers and the service provider, and the instances of both harmony and disharmony between them, the investigators hope to add to the knowledge of the essentials of caseholding.

Size of the study group. The fully accumulated study group is expected to total approximately 165 persons and is not intended to cover the entire adult, clinically active population of the Baltimore tuberculosis control system. The patients' responses discussed in this paper have been extracted from 147 interview schedules (nearly 90 percent of the anticipated total), and the data represent only a small fraction of the contents of the patient interview. While most of these patients have been interviewed in their homes, additional data are being collected from clinic records and brief questionnaires completed by clinic physicians and nurses.

Detailed, systematic statistical analyses will be presented when all the data are collected and processed.

Sex and race of patients. Male patients usually predominate in chest clinic populations in the United States. The group studied in Baltimore is no exception. Of the 147 patients studied, 96 are men and only 51 are women, a ratio of 65 to 35 percent. Nonwhite patients in this study predominate in identical percentage ratio of 65 to 35—a ratio which differs considerably from the racial ratio in the city. Nonwhite persons constitute less than 43 percent of the total population of Baltimore (*7*).

The preponderance of men is considerably higher among the white patients than among their nonwhite counterparts: 77 percent of the white patients are men, compared with 59 percent of the nonwhite patients. Thus, the race-sex components of the population of all five Baltimore city chest clinics combined occur in the following order of frequency.

Sex and race	*Percent*
Men:	
Nonwhite	38
White	27
Women:	
Nonwhite	27
White	8
Total	100

The distribution of patients by age group is not available from the manual tallies on which this discussion is based. From a smaller sample, however, it is clear that in the study

group as a whole the mean age of white patients is approximately 3 years more than that of nonwhite patients, and in both races the mean age of men is approximately 6 years more than that of women.

Cost-Benefit Relationships

Because a major objective of the three studies is to obtain indicators of how patients perceive the cost-benefit relationship in their regimen, the study group was queried about difficulty of travel to the clinics and the expenditure of their time in relation to the services and benefits they expected to receive.

Accessibility of clinics. If effective use of services can be increased by making the facilities easier to reach, geographic locations of chest clinics in large metropolitan areas and the timing of the clinic sessions are among the basic considerations in planning tuberculosis control (*8*). Apparently this aspect of the clinic system has been relatively well solved in Baltimore. Although the present study group consists of patients who are expected to come to the clinic most frequently—"actives" on double or triple chemotherapy—a large majority do not find getting to their clinic a great burden.

When asked how difficult it was for them to get to the clinic, by whatever means of transportation they were currently using, more than 82 percent of the respondents stated that it was "not hard at all," while 12 percent found it "fairly hard," and 6 percent (nine of 147 patients) claimed it was "very hard" for them to get to their clinic.

These responses came from patients who had visited the clinic fairly recently. Conceivably, patients who have not been to the clinic in a long time and thus remained outside the study population might answer differently, and possibly assign more of the blame for their failure to attend the clinic to transportation problems.

Time spent in clinic. When the patient reaches the clinic, how much time does he spend there, or more precisely in this instance, how much time does he *believe* he usually spends there? In the given group, 67 percent of the patients claimed that their most recent visit lasted 1 hour or less. More than 37 percent claimed that their visit took only 30 minutes or less of their time. A little less than one-third of the group reported visits lasting more than 1 hour, with a 3-hour stay at the clinic constituting an isolated extreme. The median time cost was between 31 and 60 minutes, pointing to three-quarters of an hour as a typical experience.

In considering this information, it should be kept in mind that it refers simply to the respondent's most recent visit before the interview and that, therefore, a considerable variety of kinds of visits as to purpose and specific service content is included. While the service received during that particular visit consisted of a streptomycin injection or of refilling a prescription and a brief interview with a clinic nurse for some patients, for others it may have involved an entire series of procedures such as an interview by a nurse, another interview and examination by a physician, a chest X-ray, and a sputum test. The aggregate of particular visits about which this information was obtained may not necessarily be representative of the total visits made by these patients during the year.

Waiting in the clinic: How reasonable? Depending on such things as by whom they were served during the particular visit and what services they received, the patients perceived a certain portion of the time spent in the clinic as waiting per se. During the interview at their homes, they were asked to recall and estimate this amount of time and also to say whether they felt that this amount of waiting (overall, not waiting for individual clinic workers specifically) was "reasonable for what was done" for them. Again, a large majority, 87 percent, expressed the feeling that their waiting was reasonable, while 11.5 percent (17 persons) felt that they had to wait "too long" considering what was done for them. Two respondents gave no usable answer to this question.

When cross tabulations are completed, it should be possible to ascertain whether there was any relationship between the reported length of the waiting in minutes and the patient's assessment of it as "too long" or "reasonable." It will also be apparent what kind of waiting, that is, for what clinic procedure or staff member, was relatively more likely to irritate as "too long," and what, if any, were the other areas of "excessive cost" felt by those patients who believed that they had been kept waiting too long.

Frequency of physicians' services. The type of visit is an important variable to control should any practical inferences from these data be attempted. For example, certain visits must be excluded if the probabilities of being seen by a physician are considered. Among these exclusions are the routine, twice-weekly visits for streptomycin injections ordinarily not requiring a physician.

Without attempting to speculate on how frequently the physician should see the patient or on the estimated reliability of the outpatients' information (for example, some patients have difficulty distinguishing between a nurse and a female physician), the Baltimore group recalls this part of their clinic experience as follows.

Seen by a physician at the clinic	*Number*	*Percent*
During last visit	35	23.8
Before, but not during last visit	85	57.8
Never	27	18.4
Total	147	100.0

Thus to the extent that these respondents' last visits to the clinic were reasonably representative or random, in approximately one-fourth of all visits by adult, active patients to the Baltimore chest clinic system (individual clinics differ on various important characteristics) the patient is seen by a physician.

Time usually spent with the physician. The 120 patients in the group who claimed having been seen by a clinic physician were also asked how long the physician actually ("usually" or "last time") spent with them. The following distribution was obtained.

Number of minutes	*Number of patients*	*Percent of patients*
5–10	47	39.2
11–15	26	21.7
16–20	17	14.7
21–30	19	16.5
Over 30	2	1.7
No answer	9	7.5
Total	120	100.0

Thus, the median period would be between 11 and 15 minutes. This information is presented, of course, without any consideration either as to the relative adequacy or inadequacy of the reported services or as to the accuracy of the patient's recall in giving this information. The respondent's perception of the time spent with the physician or any other event would be the most important datum as long as the objective is to determine the perceived cost side of the patient's clinic experience.

Taking the medicines. The large quantity and the unpalatability of some of the prescribed drugs and the difficulty in remembering to take them, as well as their real or imagined side effects, are another cost item in the patient's clinic experience. When patients were asked how hard it was to follow the medicinal part of their regimen, most tended to lump together all types of the chest drugs they were taking. For instance, they made no distinction between PAS, INH, or other medications in their evaluation. From the 128 respondents answering in this manner, the following distribution of responses was obtained.

Difficulty of taking medicine	*Number*	*Percent*
Not hard	112	87.5
Fairly hard	13	10.2
Very hard	3	2.3
Total	128	100.0

In addition to these 128 respondents, nine others (or 6.1 percent of the total group of 147) distinguished between the two or more types of medicines they were instructed to ingest. These patients found one of them "not hard" to take, and the others either "fairly hard" or "very hard." While there was a number of combinations in this small subgroup, PAS generally appeared singled out as hard to take, as could be expected.

From the rest of the group, two patients failed to offer any usable answer to this question, four claimed that no chest medication had been prescribed or issued to them, and another four had all their medication administered at the clinic under direct supervision and the question of difficulty of following the regimen was therefore not applicable to them. In any forced dichotomy of the ability to take medicine these last four patients would have to be classified with those who found the chemotherapy regimen very hard indeed.

To the specific question as to whether any of the chest chemotherapy drugs ever had any "bad effects" on them, almost two-thirds of the group answered negatively and only one patient claimed to suffer bad effects from all of the chest medicines at all times. The more detailed distribution of replies follows.

Frequency of bad effects	*Number*	*Percent*
None, ever	93	63.2
Some medicines, sometimes	43	29.3
Some medicines, all the time	3	2.0
All medicines, sometimes	1	.7
All medicines, all the time	1	.7
No answer, not applicable	6	4.1
Total	147	100.0

The bad effects were attributed most frequently to PAS. The effect usually was a digestive disturbance. However, a few patients reported a bizarre effect, for example, affecting motor function of muscles.

Regularity of taking medicines. In the home interview the question inviting the patient's self-report on his overall habits in taking the drugs was placed last in the series concerned with chemotherapy, and it was phrased in terms of intake timing: "When do you usually take your chest medicine?" The alternatives in which the patients' responses were categorized, together with the frequencies actually obtained, are shown.

Claims about taking medicine	*Number*	*Percent*
Rigidly on schedule	53	36.1
Usually on schedule, but sometimes varies	73	49.8
"When I think of it"	10	6.7
Supervised ingestion at the clinic	4	2.7
"I don't take them" (the medicines)	3	2.0
Medicines not prescribed or given	4	2.7
Total	147	100.0

The distribution may perhaps have a prima facie ring of reality. One-half of the respondents did say in effect that they were trying to follow the daily schedule, but that they did not always succeed—a situation which would seem to agree with the general observations and impressions of the clinic staffs. Moreover, some 10 percent either admitted not taking the medicines at all or attached no great importance to the regimen and claimed taking the drugs "when I think of it."

While the proportion of persons who claim to comply rigidly may perhaps seem too high to some chest clinic practitioners, it should perhaps be stressed that the study and its interviewers were presented very emphatically to the respondents as totally independent of the clinics, with an unequivocal pledge that no information traceable to a specific patient would ever be accessible to the clinic personnel. Maximum possible avoidance of the approval-disapproval connotations was also strictly maintained throughout the interview. Moreover, the interviewers were obliged to attach their evaluation of the apparent accuracy of the respondent's statements about taking medication, such evaluation to be made in relation to contextual observations as well as the apparent realism and precision of a number of other answers regarding spacial or temporal data and sensitive items of information. Cross tabulations of the compliance claim answers with some of the other data during the actual analysis presumably will be helpful in gaining a closer estimate of reliability.

Smoking habit. Questions pertaining to the patient's smoking habit conceivably prompted some unreliable answers as a consequence of the possibly presumed or implied disapproval. However, the responses obtained do not seem to indicate any significant restraint on frankness. Two-thirds of the patients reported smoking cigarettes (other forms of tobacco smoking were not specifically included in the question), and only one-third of the group, including those who reported having given up smoking during recent past, claimed to be nonsmokers.

Patients' responses	*Number*	*Percent*
Report smoking cigarettes	100	68.0
Claim to be nonsmokers	47	32.0
Total	147	100.0

Economic situation and other problems. The traditional assumption that tuberculosis tends to coincide with economic and other stresses—whichever way the actual causation operates in an individual patient—seems to be supported once again by the preliminary findings on this patient group. Two of the socioeconomic indices used in the study were tapped superficially thus far—employment status and responses to the open-ended inquiry about the nature of the patients' current "biggest problems or worries."

The information regarding the work status at the time of the interview produced another 2:1 ratio, of the nonemployed (for all reasons combined) to employed patients. More detailed tabulations will reveal approximate frequencies of inveterate unemployment in contrast to unemployment presumably for the duration of clinical disease and to retired or housewife status. Analysis of type of employment, level

of schooling, and household composition will supplement the socioeconomic profile of the study population.

When the responses to the open-ended question regarding the problems and worries are subjected to a gross content analysis, it becomes apparent that a sizeable proportion of interviewees deny having any significant problems or worries. Their denial is not an unusual response to this type of question in personal interviews, and the individual reasons range from approximate agreement with facts, that is, the person actually does not feel to be under the strain of any major problems or worries, to a culturally based requirement not to admit having any problems or worries, and finally, to the wish to block any ad hominem items encountered in the particular interview. The "deniers" constituted more than 25 percent of the respondents in this particular group. Among the responses mentioning actual problems or worries, however, financial or economic problems stand out in frequency, with health problems as such (tuberculosis or other illnesses) ranking second.

Responses about stress	*Number*	*Percent (N=147)*	*Percent (N=107)*
Refused to answer	2	1.4	----------
"No problems or worries"	38	25.9	----------
Worried about health (TB or other illnesses)	29	19.7	27.1
Economic conditions	52	35.3	48.8
Other problems (family or personal)	26	17.7	24.1
Total	147	100.0	100.0

Interestingly enough, tuberculosis generally was not the leading source of worry, even among patients who claimed health to be their biggest problem. There are many patients with multiple illnesses in this population group, and on their scales of illnesses according to their perceived importance, tuberculosis sometimes ranks low or as trivial.

Chest clinic compared with other places of medical care. The preliminary tabulations included tallies of responses to at least one inquiry in which the patient was invited to make qualitative or evaluative comments on the chest clinic. The responses to the most general question are examined here. The patient was asked, "Would you say the health department's chest clinic is better, the same, or worse than other places you have gone for medical care?" The responses, in fixed alternatives, appeared in the following distribution.

Responses	*Number*	*Percent*
Don't know; haven't been to other places	40	27.2
Don't want to compare	7	4.8
Better	29	19.7
About the same	67	45.6
Worse	4	2.7
Total	147	100.0

In considering this finding as well as some of those mentioned earlier, one probably should be aware of the fact that they originate in a project where there is a possibility of what is commonly referred to as the "Hawthorne effect." This effect is the influence, on some of the variables measured, of the very fact that a study is being conducted in the given setting. It has been suggested that in this instance, too, the fact that the three tuberculosis control agencies agreed to participate in a project of this kind may have, consciously or not, changed the attitudes of some of their staff and resulted in upgrading the services of the clinics studied. If such upgrading occurred, the data reported in this paper might reflect some of this improvement. Moreover, it was suggested, clinic directors in other urban localities conceivably might choose to interpret the Baltimore findings as indicative of adequate clinic service to comparable populations in their own areas.

There is, of course, no feasible way of ascertaining the presence or absence of this type of "Hawthorne effect" in a patient study such as this, much less of measuring or meaningfully estimating its possible magnitude. This is a nearly universal condition of any research which may have relevance for the levels of output of an operating system, particularly if that system by nature is in a constant process of change. Neither is there, of course, any control over possible inappropriate interpretation of any research findings by anyone who may wish to do so. All that can be done, it seems, is for the researchers reporting on projects of this type

to attach, almost routinely, some form of a "Hawthorne effect" warning flag to their reports as long as there is a probability that some of the users of the findings may be unaware of its possible presence.

Demurral

The reason for offering this brief look at the patient population of chest clinics is the common impatience of researchers engaged in studies requiring particularly long collection of complex data to gain an impression of the relative size of some dimensions of their study population before the field data are fully gathered and before these dimensions can be treated as true variables in a systematic analysis.

The researchers in Baltimore, like those in San Francisco and St. Louis County, anticipate numerous "narrow-gauge" findings which, precisely for their immediately empirical origin and the pragmatic motivation for this research, hopefully will be of interest and usefulness to persons responsible for the necessary adaptation of tuberculosis control programs to the realities of the contemporary urban scene. These findings will be reported as they become available, by installments, rather than in a massive summary report.

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(6) Levine, S., Scotch, N. A., and Vlasak, G. J.: Unravelling technology and culture in public health. Amer J Public Health 59: February 1969. In press.

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NICHD Center for Population Research Contract Program

An expanded contract program in population research is to be launched by the new Center for Population Research of the National Institute of Child Health and Human Development. This research effort will be directed toward the development of new contraceptive methods and population research in the social sciences and will supplement research performed in National Institutes of Health laboratories and supported by National Institutes of Health grants.

Certain critical research areas have already been identified, but research on other subjects will also be considered. In contraceptive development, special areas include maturation and fertilizing capacity of spermatozoa, oviduct function and gamete transport, corpus luteum function and implantation, and the biology of the preimplantation ovum.

Four special areas in the social sciences are trends in fertility and related variables to document changes in patterns of childbearing and fertility control; the antecedents, processes, and consequences of population structure, distribution, and change; the effects of explicit or implicit government population policies and data needed to help formulate population policies; and the effects on fertility of family structure and patterns of sexual behavior.

Advisory panels composed of outstanding scientists will be appointed to develop and oversee the programs for these topics.

Further information may be obtained from Dr. Philip A. Corfman, Director, Center for Population Research, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Md. 20014.

Federal Publications

Learning Disabilities Due to Minimal Brain Dysfunction. Hope through research. *PHS Publication No. 1646, Health Information Series No. 140; 1967; 21 pages; 20 cents.* Discusses the medical, behavioral, and educational symptoms of children with minimal brain dysfunction. Gives possible causes and prevention. Tells how it is diagnosed, who makes the diagnosis, and how the affected child can be helped. Also discusses research in learning disabilities due to minimal brain dysfunction.

Laboratory Methods in Anaerobic Bacteriology. NCDC laboratory manual. *PHS Publication No. 1803; 1968; 38 pages.* Contains procedures for isolation of anaerobes, determination of cultural and biochemical characteristics, detection of toxins, toxin neutralization tests, detection of *Clostridium botulinum* and botulinum toxins in foods and body fluids, examination of foods and feces for *Clostridium perfringens*, and storing and shipping anaerobes. Includes keys and tables for the identification of clostridia and nonsporulating anaerobes, detailed descriptions of media and tests employed in identifying anaerobes, and a bibliography.

Medical Basis for Comprehensive Community Stroke Programs. *Edited by Nemat O. Borhani and John S. Meyer; 1968; 95 pages.* Published in collaboration with the Special Task Force of the Joint Council's Subcommittee on Cerebrovascular Disease (National Heart Institute and National Institute of Neurological Diseases and Blindness), National Institutes of Health. Provides a guideline for developing comprehensive community stroke programs throughout the United States. Discusses epidemiology of stroke, patho-physiologic mechanisms, diagnostic techniques, and medical and surgical treatment. Also includes discussion on prevention of disability during acute phase, rehabilitation management and services, and prevention and control of stroke. Individual copies may be obtained by writing to Dr. Jerome G. Green, Executive Secretary, Joint Council Subcommittee on Cerebrovascular Disease, NHI–NINDB National Institutes of Health, Bethesda, Md. 20014.

Narcotics. Some questions and answers. *PHS Publication No. 1827; 1968; 8-page folder; 5 cents; $3.25 per 100.* Defines narcotic drugs. Discusses heroin addiction—its effect, who takes it, and its legal implications. Also discusses research in narcotic addiction and rehabilitation.

LSD. Some questions and answers. *PHS Publication No. 1828; 1968; 8-page folder; 5 cents, $3.25 per 100.* Discusses the physical and psychological effects of the drug. Answers questions pertaining to young users, medical uses, legal aspects, and research activities.

Marihuana. Some questions and answers. *PHS Publication No. 1829; 1968; 8-page folder; 5 cents, $3.25 per 100.* Tells about marihuana, its use, and physical and psychological effects. Discusses some of the latest findings about the drug, and some of the risks for young users.

The Up and Down Drugs. Amphetamines and barbiturates. *PHS Publication No. 1830; 1968; 8-page folder; 5 cents, $3.25 per 100.* Describes amphetamines and sedatives (the best known are barbiturates). Gives medical uses and the misuses of both. Discusses legal controls, effects of the drugs, and mentions research being done on drug addiction and abuse.

Health Statistics From the U.S. National Health Survey. National Center for Health Statistics.

COMPARABILITY OF AGE ON THE DEATH CERTIFICATE AND MATCHING CENSUS RECORD, United States, May–August 1960. *PHS Publication No. 1000, Series 2, No. 29; June 1968; 53 pages; 45 cents.*

RECENT RETARDATION OF MORTALITY TRENDS IN JAPAN. *PHS Publication No. 1000, Series 3, No. 10; June 1968; 28 pages; 35 cents.*

THE 1968 REVISION OF THE STANDARD CERTIFICATES. *PHS Publication No. 1000, Series 4, No. 8; June 1968; 47 pages; 40 cents.*

CHARACTERISTICS OF VISUALLY IMPAIRED PERSONS, United States, July 1963–June 1964. *PHS Publication No. 1000, Series 10, No. 46; August 1968; 76 pages; 50 cents.*

VISITS FOR MEDICAL AND DENTAL CARE DURING THE YEAR PRECEDING CHILDBIRTH, United States, 1963 births. *PHS Publication No. 1000, Series No. 22, No. 4; May 1968; 60 pages; 45 cents.*

MEDICAL X-RAY VISITS AND EXAMINATIONS DURING PREGNANCY. United States, 1963. *PHS Publication No. 1000, Series 22, No. 5; June 1968; 41 pages; 40 cents.*

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