

The management of tuberculosis in the United States today has led to a readjustment between hospitalization and home treatment. The need to keep patients on medication for a long period makes outpatient management increasingly important, and increases the responsibilities and work loads of health departments and their personnel, particularly public health nurses. The author explores ways of meeting these responsibilities, so that the burden of extended hospitalization can be safely reduced.

NEW RESPONSIBILITIES FOR HEALTH DEPARTMENTS AND PUBLIC HEALTH NURSES IN TUBERCULOSIS— KEEPING THE OUTPATIENT ON THERAPY

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COMPARED to the era before the introduction of effective antimicrobial drugs, the tuberculosis problem in the United States appears to be far less serious. This would suggest a decreased need for public health services in this field. Actually, the reverse is true, because of significant new knowledge about the therapy and epidemiology of tuberculosis that has come to light in the past seven or eight years.

Over the past decade, various studies have shown that when chemotherapy is properly chosen, bed-rest is unnecessary for the treatment of pulmonary tuberculosis except when the patient is febrile and "toxic."¹⁻⁴ A slightly less conclusive, but increasingly accepted, body of evidence has developed that a patient becomes noninfectious for his associates soon after he is placed on adequate chemotherapy.^{5,6} Thus, two of the major justifications for hospitalization in tuberculosis, namely, bed-rest and isolation of the patient, are no longer ade-

quate reasons for prolonged hospitalization, and a trend has developed toward shorter hospital stays in this country and elimination of hospitalization in many parts of the world.

The other major technical change of the past decade has been the continual improvement of chemotherapy to the point where it is now apparent that the successful treatment of the active patient is our major public health measure against tuberculosis.⁷ Studies indicate that over 95 per cent of patients treated for the first time can be rendered non-infectious with appropriate chemotherapy and judicious use of surgery.⁸⁻¹⁰ In reality, however, 95 per cent success is seldom achieved. One of the major reasons for this is the patient's failure to take his medication regularly as prescribed.

Human behavior in this respect differs widely, as shown in various reports in the literature. The extremes are represented by the experience with iso-

niazid in a Tunisian prophylaxis trial where only 20 per cent of the patients were shown to be taking their medication¹¹ and a chemotherapy program in Kentucky where drug consumption was shown to be from 90 to 95 per cent complete.¹² Most observers have recorded results between these two extremes¹³⁻¹⁵ and are unanimous in their opinion that this human failing is one of the critical problems in the management of tuberculosis.

Unfortunately, because of the nature of the disease, tuberculosis requires a long period of treatment—a minimum of 18 months. In view of the trend toward shorter periods of hospitalization, but no decrease in the length of therapy, outpatient management is becoming increasingly important. This, together with the known difficulties in persuading patients to follow their medical programs, is increasing the responsibilities and work loads of health departments and public health nurses. The degree to which these responsibilities are met will largely determine to what extent the burden of extended hospitalization can be lifted safely from the patient and taxpayers.

Role of the Hospital in Laying the Foundation for Outpatient Chemotherapy

Discontinuance of medication after leaving the hospital probably occurs many times because the patient fails to fully understand the necessity of continued chemotherapy, especially when he becomes symptom-free soon after he starts his medication. Education programs while the patient is in the hospital can help overcome this. In the days prior to chemotherapy, patient education properly emphasized measures to prevent the spread of infection from the patient to others, general hygienic measures such as rest and diet, and the importance of prolonged follow-up. Since

the introduction of chemotherapy, a fourth point has been added that now deserves the major emphasis of all teaching; namely, the importance of prolonged, uninterrupted drug therapy. Not only must the patient be taught to take his pills, but he needs to gain sufficient understanding of his disease and the mechanisms of chemotherapy to become convinced that this is necessary.

Evidence would seem to indicate that hospital education programs are not emphasizing this point. For instance, in a recent survey, 87 tuberculosis patients from nine different states recently discharged from a tuberculosis hospital were asked the question, "What is the most important thing you do in the next year to make sure you never again have tuberculosis." Most of the patients answered, "get lots of rest, eat good food, keep regular hours, and maintain other general hygienic measures." Sixteen per cent of the patients answered, "attend clinic regularly and follow the doctor's instructions." Only 27 per cent of them even mentioned taking medication.¹⁶ To correct this deficiency, there is an unfilled need for written materials, posters, film strips, and other audiovisual aids for patients about the importance of taking medication. Group education sessions are needed. In addition, the physician should remember that such efforts are a supplement, never a substitute, for his responsibility to instruct each patient carefully about the details of his drug regimen and the importance of continued chemotherapy.

Basic Clinic Procedures Needed to Maintain the Cooperation of Patients

Interrupted therapy may often be the result of loss of rapport between the patient and the physician or clinic staff providing his care. This is most apt to occur when the clinic staff, and especially the physician staff, is overworked and cannot spend enough time with the

patient. Equally important is the careful selection of high-quality personnel who are seriously concerned with the welfare of the patient. An increased budget to provide such personnel is usually the first step in overcoming such difficulties.

Ideally, the patient should be seen by his physician at each clinic visit. However, because of personnel limitations in most health departments, nurses are allowed to handle routine visits for refills of medication, and physician visits are restricted to periodic assessments of the patient's progress. This system is reasonably effective if the patient continues under the supervision of the same nurse and same physician, and if the physician is readily available to see the patient, even though he may be needed only for reassurance. There is a distinct advantage if the physician who cared for the patient in the hospital can assume his outpatient management. For this reason, the practice of allowing hospital physicians to devote regular time to health department clinics should be encouraged. Finally, it should be stressed that whoever sees the patient—physician or nurse—must take time to answer all his questions and give him sufficient satisfaction that he will want to return.

Another important step in maintaining patient cooperation is the proper organization and scheduling of appointments at the clinic. Too often, in the organization of the clinic, the convenience of the patient is sacrificed to the convenience of the staff. Under these circumstances, especially when the patients wait excessive periods of time, the frequent repeated visits required in the treatment of tuberculosis become a source of irritation, and marginally cooperative patients may develop into uncooperative "recalcitrants." To prevent this, it would seem reasonable to hold Saturday or evening clinics for patients who work, to establish more conveniently located clinics, to provide car-

fare, to arrange for baby sitters if necessary, and to have enough personnel, coupled with a system of planned appointments so as to keep patient waiting time at a minimum.¹⁷

Part of the misunderstanding between patients and the clinic staff may stem from differences in the social and ethnic background of the two groups. Doctors and nurses tend to come from middle-class families, while a large segment—though by no means all—of our tuberculous patients come from the economically underprivileged classes and ethnic or racial minority groups. There is certainly no perfect answer to this problem, but when possible patients should be assigned to nurses, social workers, and physicians of their own ethnic group. Study of the mores of the group from which the patient comes may reveal factors previously unrecognized which would point to clinic practices yielding greater understanding. For difficult group or individual problems, it seems reasonable to enlist the support of the local leaders of that particular ethnic group.

The final basic procedure which must be carried out by clinics is to respond promptly to any evidence that the patient has interrupted his chemotherapy. The most blatant form of interruption occurs when the patient fails to return to the clinic for refills of medication. A properly kept simple appointment book, or tickler file, readily reveals such failures. If prompt action is instituted to tactfully contact such patients by phone or home visit and, if necessary, repeated efforts made, therapy can usually be reinstated. A letter to the patient is usually less valuable but sometimes the only avenue available. In these situations, certified letters that require the patients to sign a receipt appear to be the most productive. In order that efforts to find patients are not inadvertently dropped before the slow-responding patient re-

turns to the clinic, it has been found helpful for each clinic to maintain and revise weekly a roster of all patients on therapy overdue for an appointment. This becomes, in essence, a work list that deserves the highest priority of attention.

Procedures for Dealing with the Lost Patient Problem

Ordinarily, when a health department loses contact with a patient, it means the patient has stopped taking his medication. Such loss usually occurs when the patient moves to a new address and fails to reach proper medical facilities in the new location. Not infrequently this occurs when the patient leaves the hospital. To guard against this, it is essential that careful plans be made for the patient's outpatient management prior to discharge and that the appropriate health department always be notified. Some health departments have found it advantageous for a member of their staff to visit regularly the tuberculosis hospitals serving their area and to review the plans for outpatient care for all those scheduled for discharge, as well as to interview the patients, thus forging the first link with the clinic staff.

Beginning in the days before chemotherapy and continuing until the present time, tradition in this country has been that the public health nurse makes a pre-discharge home visit to determine if the home is a suitable place for the patient to continue his therapy. The recent studies in Madras, India, have indicated that patients can be treated in crowded slum dwellings, on poor diets, and continuation of work responsibility with no impairment in therapy results, *if they take their medication*.⁴ Thus, the original reason for the pre-discharge home visit appears far less important in the light of present evidence. However, in view of the breakdown in communications which often occurs when

the patient leaves the hospital, the pre-discharge home visit should probably be continued to preclude such breakdowns, and to alert the family to the importance of prolonged, uninterrupted chemotherapy.

The changes the patient makes in his place of residence after he leaves the hospital constitute the second significant cause of the lost patient problem. To protect against this, all outpatients should be questioned about their current addresses and any anticipated moves at each clinic visit. When moves are anticipated, forwarding addresses must be established, careful plans laid for future medical care, and appropriate health officials notified. When a patient moves without leaving a forwarding address, it becomes the responsibility of the health department to find that address whenever possible. If it appears that the patient has moved to another city, it is natural for health departments to give a low priority to the often considerable work of establishing the exact address. It is obvious that if every health department were to take this responsibility seriously, all in turn would benefit. However, even when this is not the general rule, the health department losing a patient in this way must remember that not infrequently such individuals move back; and it is in their self-interest that a patient does not return as an active case of tuberculosis with drug-resistant infection because therapy was discontinued when he moved away.

An important contributing factor to the lost patient problem is the transmittal of information about patients through channels that are often clogged. When a patient moves out of state, it is frequently the practice for the notification to go from the city clinic, to the city register, to the state register, to the register in the new state, and finally to the city where the patient has moved. At any place along this chain, should the register clerk be sick, on vacation,

overburdened with work, or unavailable because the position is temporarily unfilled the transfer of information will be delayed. Thus, it is common experience for notifications to arrive many months after the patient has arrived in a new community. The obvious solution to this is for the initiating agency to send one copy of the notification through channels and a second copy directly to the health department which must assume responsibility for the patient.

Even when careful plans are made for continued medical care when the patient moves, leaves the hospital, or changes physicians, there will be patients who fail to appear for such management. This usually occurs when the patient changes his mind and does not carry through with the move. Proper use of the querying mechanism by the clerk who keeps the case register may help to protect against this possibility. Most health departments query physicians and clinics for current information about active cases and certain inactive cases on the case register every six months. Since it is recognized that patients tend to be lost to supervision when there is a change of medical supervision, it might be wise to depart from the usual time schedule in these instances and query the physician or clinic which is designated as responsible for the patient's medical management about six weeks after the move to determine whether or not the patient has initiated his outpatient management with this facility.

For the patient who is lost to supervision, there are many ways to re-establish contact. One of the most successful and extensive experiences in this area has developed out of the long-term studies of the TB Research Branch of the Communicable Disease Center of the USPHS, where they keep track of thousands of patients year after year.¹⁸

The following list of places to look

for leads to find patients is taken from material describing their program as well as suggestions from health department personnel throughout the country. Much of it should be applicable to routine health department work.

1. All persons living at the patient's last known address, and neighbors in the immediate area, as well as any family members or friends that are known.
2. Post office for patient's forwarding address.
3. Telephone directory, city directory, and voter registration offices.
4. Welfare agencies.
5. Retail credit company—a nation-wide company which for a fee can trace lost persons through credit ratings and other technics. Also, local credit bureaus.
6. Employer, or former employer, as well as friends or associates of the patient at these places of employment.
7. Other patients or staff associates of the patient who knew him while he was in the hospital.
8. Motor Vehicle Bureau.
9. Internal Revenue Service if state where return was filed is known or suspected.
10. Schools and school boards for patients with school-age children.
11. Employment agencies—public and private.
12. Police department and court records, jails, taverns, and skid-row missions for homeless males.
13. Office of Vital Statistics for birth, marriage, and divorce records to establish name changes and death records to close out cases.
14. General hospitals, tuberculosis hospitals, and the records of other health agencies in the community.
15. Veterans Administration for patient receiving veteran's benefits or carrying GI insurance.
16. Department of defense locator system for dependents of armed forces personnel.
17. Unions, professional societies, and alumni associations.
18. Neighborhood stores.
19. Clergymen, and other community leaders.
20. Gas and light companies and city water board.
21. Registers of migratory workers and immigration service.

Regulations governing the release of information from the agencies and organizations listed above vary from community to community and often appear

to be subject to considerable interpretation by responsible officials within the organization. Thus, with a little persuasion, information about addresses is often available when at first glance, regulations would seem to prohibit its release. The state of California has recently approached the "lost patient" problem by periodically circulating a list of all lost patients to the local health departments in the state.¹⁹ Such a procedure helps to clear from the lists of lost patients those who are under supervision elsewhere, thus allowing efforts at finding patients to be concentrated on those who are really lost. A regional distribution of such a list between states might also be considered.

If all these leads are used when needed, most lost patients can be found, but a considerable effort will have been expended. In order to reduce this effort, many groups who have run long-term studies of disease systematically record for each patient the names and addresses of many persons and organizations who would be likely to know of his whereabouts in the future.^{18,20} With this idea in mind, the public health officials in Denver have recently begun to establish the following information on all tuberculosis patients as a routine measure to prevent premature discontinuation of drug therapy:

1. Name, maiden name, and other names by which patient is known.
2. Address and former addresses.
3. Social Security number.
4. Name and address of:
 - a. Employer and former employers.
 - b. Mother, father, brothers, sisters, spouse, children, and three personal friends.
 - c. Church and other organizations to which he might belong.
 - d. Insurance companies, especially life insurance companies with whom he has policies.
 - e. Patient's private physician and former private physician.
 - f. Former hospital and sanatorium residences.
 - g. Persons and places visited in the past five years.

This usually takes from 15 to 20 minutes to fill out, and although long-range experience is not yet available, it is believed that it will prove very useful in quickly locating the patient who is lost to supervision. It has been found that the information is preferably collected during the first few weeks of hospitalization, when the interviewer can offer the plausible explanation to the inquisitive or reluctant patient that he wishes to identify all possible contacts of the patient, even though many persons so recorded would have had no significant exposure and not require examination. Actually, though it is probably not done with this idea in mind, many hospital charts, and especially social workers' records, often contain a considerable amount of this type of information, and a careful check of this material may prove fruitful in establishing leads to the discovery of a lost patient.

Finally, it should be remembered that the most important step in finding, or not losing a patient, is to respond promptly to the first indication that he may be lost which is usually a missed clinic visit. If he has moved, the likelihood of finding someone who knows his new address is much greater if not too much time has elapsed. If he has not moved, prompt attention to a missed clinic visit will reduce interruption of therapy to a minimum and impress upon the patient the importance of continued medical care and regular drug ingestion.

Role of the Public Health Agencies in the Self-Administration, and Supervised Outpatient Administration of Drugs

Simply keeping the health department in contact with the patient does not insure his taking medication, as the studies quoted elsewhere in this paper indicate. A complete solution to this problem probably never will be found, but many things can be done to improve

the situation considerably; they may be summarized as follows:

1. Instruction and frequent re-instruction of the patient.
2. Use of the most acceptable form of the medication.
3. Devices to remind the patient.
4. Enlistment of support from the family and/or patient's associates.
5. Surveillance in the form of periodic checks of the regularity with which the patient ingests medication.
6. Completely supervised outpatient administration of drugs.

Certainly the first step is to instruct each patient carefully and to impress upon him the importance of taking his medication faithfully and exactly according to instructions. This must be reiterated at every succeeding visit to the clinic and at every home visit. For maximum effectiveness, clinic visits should be scheduled frequently, at least once each month, even though the patient may be completely asymptomatic and may have no complications requiring medical management. It is also wise to instruct the patient's family in the importance of regular drug ingestion so that they can directly supervise the wayward patient. Some clinics, in order to gain full advantage of family supervision, instruct certain patients to take medication only in the presence of a family member or associate.¹⁵ It is thought by many, though not confirmed in one study,²¹ that patients will take medication more regularly if it is prescribed only once a day, and there is some partial evidence that this is just as valuable therapeutically, if not more so, than medication taken several times a day.^{21,22}

It is important, of course, to use the most acceptable form of medication. It is well known that PAS causes considerable gastrointestinal distress which seems to be partially related to the impurities in the medication. When it is old, it tends to darken and cause more gastrointestinal distress. The degenera-

tion of PAS can be partially slowed down if precautions are taken to avoid moisture, light, and excessive heat during storage; but the major solution to the problem is frequent purchase of small lots of PAS to insure fresh medication. Some drug companies assist health departments with this problem by allowing them to purchase PAS in large quantities at bulk rate, but to receive it in small lots which are freshly made. For the patient who has excessive trouble with PAS, this can be alleviated sometimes by changing to different PAS preparations. For the patient who still has trouble, it may be wise to reduce the dosage or discontinue PAS and continue INH alone in the latter months of therapy, since there is considerable rationale for the belief²³ and some clinical evidence⁹ that the intensity of therapy can be reduced after the patient becomes culture negative.

Some people have difficulty in swallowing pills, especially the large number of fairly large-size tablets of PAS. Powdered PAS may be used, but when it is dissolved, it has a bitter, disagreeable taste. To some extent this can be overcome by the use of flavoring agents or by giving the medication with fruit juice or milk. Another solution is to use PAS granules, which are usually easier to swallow than pills, but do not dissolve quickly to give the disagreeable taste.

Since forgetfulness is probably one of the reasons for irregular drug ingestion, it has been suggested that medication be placed physically on a calendar to hang on a wall in the patient's home.²⁴ With this arrangement, any dose of medication that is neglected or forgotten remains on the calendar to remind the patient of his error, which should help to avoid repetition by bothering his conscience. If the calendar is conspicuously displayed on the wall as instructed, the other members of the family can use it as a way of

checking on the patient and reminding him to take it if he fails to do so. Similarly, medication arranged on a calendar is easier for the nurses to check at the time of home visits. In preliminary experience with this device there appeared to be some improvement in the regularity with which patients took medication, but there was still considerable irregularity among some patients, apparently related to the inconvenience of taking a bulky calendar with them when they traveled from one place to another.²⁴ Thus, the calendar should be small enough to be portable, but large enough to be visible to all members of the family when displayed on the wall.

One approach to the problem has been to institute a system of checking on patients, on the assumption that this will improve the faithfulness with which most people take medication. The epitome of this approach was practiced by the Madras Chemotherapy Centre.⁴ In their program, every patient was required to return to the clinic once each week for refill of medication, at which time a urine test was made for the presence of drugs. Two or more home visits were made each month to check on the remaining stocks of medication to determine whether the proper amount had been taken and to collect urine specimens to be tested for the presence of medication. At least one of these home visits was a surprise visit, previously unannounced to the patient. With this type of supervision, the Madras Centre demonstrated that home therapy of tuberculosis could be as effective as hospital therapy. Such a relatively elaborate routine was instituted as part of a research program, and there is considerable doubt that all of this would need to be introduced for routine health department work. However, for the difficult patient who has left the hospital against medical advice, for the one who refuses to be hospitalized in the first place, or

for any patient who is known or suspected to be irregular in taking his medication, the institution of intensive supervision similar to that practiced in Madras might be a reasonable procedure for a health department to employ. For all patients, there is need to consider some degree of this type of supervision.

Whenever such supervision is employed, the question arises, "Will such supervision and checking sufficiently antagonize certain patients that their cooperation will be lost altogether?" Although no one can be certain that this has not occurred, a recent exhaustive review of the literature has revealed no reports to this effect.¹⁵

Another question which arises is what to tell the patient who is found not to be taking his medication. Should he be confronted with the fact that this is known? One way around this issue, to some extent, is to tell the patient's family and try to enlist their support in getting the patient to take his medication. Another indirect approach is to suggest to the patient that his medical course is not optimal, and then to question him about the regularity of his drug ingestion. For the more difficult question—whether or not to confront the patient directly—there can be no final answers, and each situation will have to be judged on its own merits and handled with considerable care and tact.

Finally, it must be pointed out that with a moderate amount of additional effort, it should usually be possible to arrange for completely supervised outpatient administration of drugs. Several authors have reported on outpatient regimens requiring daily visits of the patient to the clinic for injections and oral drug administration.^{25,26} Recently, evidence has been reported from the Chemotherapy Centre at Madras²⁷ that initial therapy with higher than average doses of isoniazid and streptomycin, both given only twice a week in a clinic, can achieve results slightly better than

isoniazid and PAS, both given twice a day, though probably not as good as daily isoniazid and daily streptomycin. Very good results have been reported with regimens of isoniazid and streptomycin, both given three times a week in a clinic.²⁸ Obviously, such intermittent regimens could be more readily adapted to completely supervised outpatient programs.

Before intermittent regimens are routinely employed, especially for the initial phase of therapy, further confirmation is needed because of the considerable body of evidence from other studies that *bi-weekly* streptomycin and *daily* isoniazid is inferior to daily streptomycin and daily isoniazid,²⁹ and also inferior to daily isoniazid and daily PAS.³⁰ However, for the latter phases of therapy when less intense regimens are probably adequate,^{9,23} such a completely supervised regimen administered in the clinic or by a visiting nurse has great advantages for the unreliable or questionably reliable individual who otherwise may be receiving little or no medication.

Despite the legitimate concern with the many patients who take their medication irregularly, one should not lose sight of the fact that there is an equal or larger number who follow instructions quite faithfully. Repeated home visits to check on these patients, after the pattern of regular drug ingestion has been confirmed, are probably unnecessary and divert personnel resources from more important tasks. With this in mind, various clinic procedures have been employed to determine, without home visits, which patients are taking medication, and which are not. These can be summarized as follows:

1. Urine tests for the presence of medication.
2. Careful records of the amount of medication dispensed, including the overfilled bottle technic.
3. Time-recording devices.

Testing urine collected in the clinic for the presence of medication, though

very useful, suffers from the obvious disadvantage that it only provides information about drug ingestion in the 18 to 24 hours preceding the clinic visit. A slightly more effective clinic procedure is to maintain careful records of the amount of medication dispensed and requests for refills. Patients requesting inadequate amounts of medication are obviously not taking the prescribed amount, unless they have another source of supply. On the other hand, the fact that the patient requests the proper amount does not mean he has taken it.

Another approach is to request that the patients return their bottles of medication at each clinic visit for checking; but since it is very easy for the patient to empty it just before he returns, this has obvious deficiencies. One way around this is to use the so-called overfilled bottle technic, in which the patient is given approximately five-weeks' supply of medication, and asked to return in four with his unused medication. With such a procedure, the patient probably will not know how much medication should remain and will less likely be able to make a correction.

Lastly, it has been suggested that radioactive material and photographic film be incorporated in a calendar-marked pill dispenser, which will determine the time at which the individual doses of medication are taken from the dispenser and thus provide reasonably good evidence that the patient is or is not taking his medication regularly.³¹ The obvious defect of such a device is that the patient could, if he wished, remove the medication regularly every day and throw it away. Since this represents a considerable amount of effort on the patient's part, it is unlikely to occur frequently. Furthermore, such deception can be minimized if the device is used primarily to identify the uncooperative patients and then other measures, such as directly administered twice-weekly streptomycin and twice-weekly

isoniazid, used to insure drug ingestion in these patients. If such a device is developed commercially, it may prove to be quite useful.

Dealing with Known Uncooperative Patients

For many years, health departments have used legal measures to force the hospitalization of uncooperative patients. There is no question that this is an effective way to remove infectious individuals from the general community, at least temporarily, and usually to initiate chemotherapy. However, the procedure has many limitations in completely solving the problem of the uncooperative patient.

The legal basis of this procedure is to protect the general public from the *known infectious* patient by forcing his isolation. On the other hand, the major problem in chemotherapy is to insure regular drug administration for extended periods of time, during most of which the patient is noninfectious. Thus, enforced hospitalization may be inapplicable in many problem cases, and when it is used to hold a patient after he has become noninfectious, it is of doubtful legality. In addition, coercion is always a two-edged sword, and its indiscriminate use can result in sufficient fear and resentment to discourage cooperation with health departments from many quarters, such as patients hiding from health officials and physicians "forgetting" to report cases.

In the past, and continuing to some extent today, some health departments and hospitals have dealt with the uncooperative patient who leaves the hospital against medical advice by denying him readmission for a period of time or denying him outpatient care with free drugs. Supposedly, these procedures decrease the number of such discharges; but in view of the fact that they enforce a period of interrupted therapy, the one

thing that should be avoided, they appear to be exceedingly ill-chosen and inappropriate deterrents.

Since both enforced hospitalization and denial of medical care are of markedly limited value in dealing with uncooperative patients, the only apparent alternative for most cases who cannot be persuaded to return to the hospital is to work with these individuals as outpatients, fully realizing that some of them will be very difficult. This group especially warrants very intense supervision with frequent clinic visits, frequent home visits, frequent conferences with the patient and his family, and, if necessary, completely supervised outpatient drug administration.

Finally, a word should be said about the notoriously difficult cases of homeless, and usually alcoholic, males. Recent experience in San Francisco, where a clinic was established at a soup kitchen on skid row, indicates that a large proportion of these patients can be kept on effective outpatient chemotherapy.³² Completely supervised arrangements, such as having the patient appear at a "soup kitchen clinic" twice a week for isoniazid and streptomycin, is another approach to this problem. One other possibility is to establish and locate the homeless male patients in reliable boarding houses, treatment centers for alcoholics, or halfway houses where the proprietor in charge can administer the medication in much the same way as a nurse on a ward; but aside from this, the patient should be given full freedom to come and go, as long as he is not infectious.

Obstacles to Implementing Such a Program

The objections frequently raised to any program that envisions supervision of outpatients to this extent are threefold: (1) It would be too expensive; (2) there are not enough medical and nurs-

ing personnel to do the job; and (3) no one wants to be a policeman. No one can deny that any program of increased supervision of outpatients would take more money and personnel, but these costs need to be weighed against the savings that could be realized by shortening hospitalization and preventing treatment failures. The average per diem cost for hospitalization for tuberculosis in the United States is three to four times the cost of a nurse's home visit. Thus, should the health department institute the extreme measure of having a visiting nurse administer medication once a day at the patient's home, it would still cost less than prolonged hospitalization. Since nothing approaching this would be required, except for the most unusual patients, the potential saving should be obvious. In addition, the retreatment of a case after failure of the original therapy is much more expensive because of greater cost of retreatment drugs and much longer periods of hospitalization required to protect the patient against the toxicity of these drugs. If such failures can be prevented by properly controlled original therapy, an additional saving will be realized.

In those instances where the public health nursing staff is greatly overworked, it may be possible to employ other types of personnel, such as well-trained and motivated lay investigators or social workers, to find lost patients and make frequent home visits to those that require supervision. New York City has recently instituted a program of this type with considerable success.³³

With reference to the concern that clinic personnel would be assuming a policeman role, it should be kept in mind that the program as outlined represents the use of neither coercion nor force. In an effort to avoid force and still achieve a noninfectious status for most so-called uncooperative patients, it is proposed that the public health nurse

engage in an intensive program of maintaining contact with the patients, encouraging or persuading them, or directly administering the medication if necessary, but at no time using legal coercive measures. If this role is still regarded as "policing," then it needs to be pointed out that such "policing" of drug administration for a patient who is otherwise free to pursue normal activities is far kinder than to interrupt his life by restraining him in a hospital, simply to insure regular drug ingestion.

Conclusion and Summary

In the management of tuberculosis in the United States today, there is a gross dichotomy in our thinking and practices. On the one hand, because we doubt the reliability of patients, there are many hospitals in the country that keep patients for long periods of time simply to insure that they take their medication. On the other hand, when they are discharged, we leave the administration of medication almost entirely up to them. Human nature, by and large, is not so bad that restraint in hospitals is required to insure administration of drugs, nor so good that all patients can be completely trusted to take medication by themselves. What is obviously needed is some intermediate approach between these two extremes. This approach can be provided by properly organized health departments, with great benefit to the patients and marked savings for the taxpayers.

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