Tuberculosis Casefinding, 1961

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LONG AGO we accepted the idea that tuberculosis casefinding would become more difficult when there were fewer cases to be found. What the greater difficulty would be, however, did not get much attention. If we thought about it at all, probably most of us assumed that we would simply have to work harder at what we were already doing, which was getting as many people X-rayed as we possibly could—and if they were X-rayed every year, so much the better.

Then, 6 or 7 years ago, it began to be apparent that programs trying to X-ray whole communities were finding fewer and fewer cases. Recommendations began to be made, by the Public Health Service and others, for focusing tuberculosis casefinding attention on the parts of the population in which the incidence of tuberculosis was known to be, or could reasonably be expected to be, higher than average. The object of casefinding surveys, it was pointed out, was to find cases. Tuberculosis control facilities were limited. Therefore, when cases were not being found, programs would need to be cut down or redirected, if they were really to contribute to hastening the downward trend of tuberculosis rates.

This suggestion was received with little enthusiasm, partly, I believe, because many workers in tuberculosis control were sincerely convinced that the more chest X-rays taken the better and that any cutback would surely be quitting too soon. They were committed to the idea that all cases of tuberculosis should be discovered through organized casefinding, even though casefinding activities had never actually found all the cases in any sizable area. It was truly impossible for them to believe that they could do better casefinding if they took fewer X-rays. Furthermore, a great deal of effort had been put into education campaigns promoting annual chest X-rays for all adults.

How could one retreat from that position? The embarrassment of such retreat was perhaps more acute because usually the very parts of the population which had come to accept the virtues of annual X-rays—the most "reachable" part—were those with the lowest yield from X-ray surveys. These people probably would be the least likely candidates for survey if the recommendations were followed, and yet, if there was a demand for chest X-rays, it was from this group. It is not surprising, therefore, that relatively little change came about, and that chest X-ray buses continued to do business at suburban shopping centers.

Then, in 1957, the Public Health Service added to its recommendation for selective chest X-ray casefinding a caution about the importance of using X-ray judiciously, weighing the potential benefits against the potential radiation hazard. The statement issued at that time gave examples of the populations which might be considered "high prevalence" groups, pointed out the importance of complete follow-up, and suggested consideration of tuberculin testing as a first step, with X-ray only for reactors, in low-prevalence groups.

The 1957 statement on X-ray casefinding also emphasized the need for proper use of X-ray machinery and careful monitoring to reduce unnecessary radiation exposure. On this point, the statement had a very desirable

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result; in most parts of the country the safety of photofluorographic equipment has been improved.

Otherwise, however, many interpretations of the 1957 statement added to the confusion about tuberculosis casefinding. In spite of its flat declaration that "mass radiography of the chest, operated under competent auspices, is a fundamental technique in tuberculosis control," the statement was interpreted by many to have sounded a great alarm about the danger of chest X-rays and was reported in the press in some areas as almost a ban on chest X-rays. After the first furor had settled down, we were chagrined to hear that many people understood that the Public Health Service's major recommendation in tuberculosis casefinding was tuberculin testing in low-prevalence areas. We even heard that we were recommending "substituting" the tuberculin test for the chest X-ray. By then it was too late to go back and add "when communities are in a position to do tuberculosis casefinding in low-prevalence groups" to the recommendation that "consideration should be given to the tuberculin test as an initial screening device in low-prevalence groups." It was too late, also, to italicize "initial" in that sentence or otherwise emphasize the need for X-ray of reactors.

In the past few years, mass tuberculin testing programs have been undertaken in many communities and have to a great extent replaced, in expenditure of casefinding effort, "community-wide" chest X-ray surveys. The majority of these programs are done in schools, where the problem of the 2-day lapse between testing and reading is minimal. Since children aged 5–14 years have the lowest rates of tuberculosis, it is a little hard to understand the enthusiasm for testing of school children—all school children, every year—that one encounters in many areas. The fact that no cases are being found in many such programs does not discourage some enthusiasts. They are no more receptive to the idea of selective school tuberculin testing than the advocates of communitywide chest X-ray surveys were receptive to the idea of selective X-ray casefinding.

In some school programs, little or no effort is made to have reactors X-rayed, and in many the possibility of finding cases by examining family associates of young reactors is disregarded. The rationale behind these activities seems to be that they provide a means to observe trends in infection rates. This is no doubt true, but selective tuberculin testing at intervals of 3 to 5 years would accomplish the same end, and perhaps could free personnel for other work that might actually affect the trends. Observing trends, important as it is, does not interfere with the spread of infection and therefore cannot in itself have any effect on trends.

We in the Public Health Service again find ourselves in the position of questioning the wisdom of a casefinding procedure that is widely accepted. While it is impossible for us to draw a universally applicable blueprint for tuberculosis screening activities, it seems important to state some positive principles for consideration in planning casefinding programs.

Part of Total Tuberculosis Control

To begin with, it seems to me that efficient and effective tuberculosis casefinding must be a part of a total tuberculosis control program. Often, I have observed, casefinding is treated as though it were entirely independent of services to known patients or even, amazingly, entirely separate from examination of contacts of known cases. (As a matter of fact, contact examination is often not considered casefinding.) This is an artificial separation, if only because effective casefinding calls for the same kind of professional skills and the same kind of facilities as other tuberculosis control activities. Services to known patients and their contacts require the attention of physicians and nurses, and X-ray and laboratory work. So does casefinding, if it includes the followup without which cases will not be found. Often the same people on the health department staff do both. If their time is already fully occupied with services to patients and their families, a casefinding program may demand time they do not have. Then either patients and contacts will be neglected or casefinding followup will not be done.

The obvious solution is planning all casefinding programs as a part of the total tuberculosis control program, so that staff time will be available for followup. Since in many areas the tuberculosis association undertakes at least

the first step in casefinding, the health department may have to make a special effort to interpret to the voluntary agency the effect of unexpected followup work on the total tuberculosis control program, and solicit coordination of plans. Perhaps, in some instances, the department may have to resist pressure to undertake or participate in casefinding projects until they can be done properly and without jeopardizing other important activities.

This is not a negative position but a positive one, based on a firm intention to control tuberculosis. It can help to insure good quality in all tuberculosis control activities, including casefinding. Often, I believe, the dissatisfaction of health departments and tuberculosis associations with each other—the feeling of the association that the health department is not fulfilling its casefinding obligations and that of the health department that the association is nagging it to do more than can reasonably be expected—can be attributed to failure to discuss and explain the whole tuberculosis control program. One of the most useful effects of the Arden House Conference on Tuberculosis can be observed in communities in which, to follow through on conference recommendations, health departments and tuberculosis associations have sat down together to assess their total tuberculosis control situation. When it is quite clear to all that there are in the community so many known patients with active tuberculosis who need services, so many contacts who should be examined and suspects whose condition has not been fully assessed, and on the other hand, only so many physicians, nurses, laboratory workers, and other staff to perform these services (and usually services in other aspects of public health as well), it is easier to plan casefinding that can be undertaken with reasonable expectation of doing it well. I believe this is true whether casefinding is to be done by the health department, the tuberculosis association, or the two jointly.

Quality in Casefinding

The second principle I should like to bring up is the principle of excellence. Whatever casefinding projects are undertaken should be done as well as they possibly can be done. This excellence, it seems to me, must include the thoroughness and promptness implied in the standards recommended by the ad hoc Committee on Goals and Standards in Tuberculosis Control and in the evaluation indexes suggested by the ad hoc Committee on Evaluation of Case Detection Programs. But if high standards are to be reached, judgment and imagination are required, for which standards cannot be set and which no index can measure. However, the measureable results of programs founded upon good judgment and creative thinking will reflect these qualities.

Perhaps some examples will illustrate what I have in mind. Contact examination is carried on by every tuberculosis control program, and yet it is a procedure for which complete and rigid rules are singularly difficult to define. Success cannot be measured in terms of the number of contacts per patient, since a great many contacts could be examined and still those at greatest risk could be missed. Furthermore, generalization is difficult in defining contacts. Suppose that the definition were restricted to persons living in the same household as the patient. This would include a roomer who worked all day and did not eat with the family or socialize with them, but it would exclude a steady boy friend of a young woman patient. The procedure, therefore, must begin with a careful interview of the patient. The interview must be based on knowledge of how tuberculosis is transmitted and conducted with tact and understanding that will not put the patient on the defensive but will encourage his cooperation in deciding who his close contacts are. (One would hope, for instance, that an interviewer would not startle a young woman with the direct question, "Do you have a boy friend?") From our experience and observation, we are convinced that most tuberculosis patients have deep concern about their contacts.

Arrangements for examining contacts have to be made with a sense of concern and urgency, but without creating undue alarm or any threat of punishment. More people will respond if they are given a definite appointment as promptly as possible, but at their convenience, than if a more casual arrangement is made which allows them to conclude that the examination is not important enough to be worth

the inconvenience. As time elapses, persuasion becomes more difficult.

Behind good practice in contact followup, of course, are operations that make definite and prompt appointments possible and administrative decisions that encourage the exercise of professional judgment. However, the extra quality of excellence depends upon the thoughtfulness and affirmative attitude of all the staff.

The same high quality is needed for all casefinding work, of course. Consider the X-ray survey of a high-prevalence population, for instance, and suppose that this population has been carefully defined, on the basis of reported morbidity, as the residents of a particular square mile in a big city slum. All appropriate techniques are applied to mobilize the community, including door-to-door canvassing before the X-ray bus moves around in the area on schedule. And then, when the survey is over, the discouraging fact comes to light that it reached a pitifully low proportion of the high-prevalence group toward which the project was aimed.

At this point, a high-quality program does not falter or give up. The next step, I think, would be a careful review of what had been done to encourage people to be X-rayed in order to find out whether the approach had fitted the population, whether the natural leaders in the community had been brought in, whether hours of operation had been convenient and the locations the best. Then consideration should be given to other ways of reaching this population. If a public hospital or outpatient clinic in the area is generally used by many of the people, a truly thorough admissions X-ray program might find a high proportion of the unknown cases. Perhaps, if there is enough staff time for the purpose, the definition of contacts of new cases in this particular area could be broadened to include a larger number of persons associated with each patient. Tuberculin testing of children who enter school in this neighborhood and of children seen in well-child clinics or conferences, and followup of the families and other close associates of the reactors, would no doubt help. In some areas welfare recipients are receiving chest X-rays, and this might be considered.

Excellence in tuberculosis casefinding today requires adaptation of methods to fit particular situations. Many of the tried and true methods of previous times no longer fit present situations, and innovation may often be a necessary part of conscientious professional skill. The examples given have been concerned with first steps, but the principle applies all the way through to final diagnosis and to arrangements for treatment.

Realistic Planning

From the days of the first "Early Discovery—Early Recovery" campaigns in the 1920's, the idea that all cases of tuberculosis should be discovered by some means of organized casefinding has been commonly accepted by tuberculosis control workers. It seems time to recognize, however, that this idea is inconsistent with the idea that casefinding projects should have a high yield. Obviously, if casefinding is done only where the yield is high, some cases occurring in low-incidence areas or populations will not be found by casefinding but will turn up when people present themselves to a clinic or physician because they have symptoms or when a physician suspects tuberculosis when he sees a patient for some other ailment. Most communities are therefore faced with the dilemma: Should casefinding efforts be concentrated in the high-incidence groups and the rest of the community ignored? Or should attempts be made to cover the whole community, even though this means that high-incidence groups get meager attention?

Most public health people would choose the first alternative and concentrate on high-yield casefinding, with the thought that such efforts can have a greater total impact on the problem. However, the conscience of those who truly believe that all cases should be found before they find themselves deserves thoughtful attention.

The most realistic way of looking for an answer to the question of what casefinding should be done in low-incidence populations, it seems to me, begins with recognition that the day will come when the incidence in all or most of the country will have reached so low a level that specific tuberculosis control programs will no longer be justified in relation to the total public health needs of communities. A few communi-

ties may already have reached that point, and as others approach it, larger segments of their populations will fall into the low-incidence group. Since it is unreasonable to think that communities will continue to support special tuberculosis casefinding projects until the last case is found, perhaps the present situation should be looked upon as an opportunity to see how successfully areas of low incidence can incorporate tuberculosis casefinding in other programs that can be expected to endure.

First we should consider the facilities and services that are necessary now and that will continue to be necessary as long as there is any tuberculosis at all. All communities need to have a place where people can go on their own initiative or on referral by their physicians, to have chest X-rays and tuberculin tests. In a low-incidence area or in a small community, this may be a local general hospital or general outpatient clinic or a particular physician's office. But it should be known in the community, and should be available to all. In areas of higher incidence or of greater density of population, this service may now be specialized for tuberculosis only.

The second service that can be expected to continue is examination of contacts of new cases and of family associates of young children who react to tuberculin. All health departments carry on this type of epidemiologic work as part of communicable disease control, and in the future, as the infected proportion of our population becomes smaller, it may be the only casefinding that is necessary. Today, followup of contacts is essential in both the low-incidence parts of communities and in the real strongholds of tuberculosis.

Other than these two services, tuberculosis casefinding in low-incidence areas must increasingly become a part of routine examinations for other purposes. One possibility, of course, is the examination in the physician's office. Although relatively few people have regular physical examinations, the availability of a place to which physicians can refer patients for tuberculosis screening tests may help to encourage periodic referral of patients seen for other purposes.

Employee health programs are another possibility, although only about 30 percent of employed workers are in establishments with such programs. In low-incidence areas, I think we must begin to discard the concept that chest X-ray (or tuberculin testing) surveys should be conducted annually in industries. Instead, I think it more sensible to do one survey, a tuberculin test for all employees and X-ray of reactors, and after that tests for new employees when they are hired and periodic X-rays for employees who are reactors, especially those in high-risk age groups. In large plants and organizations with complete employee health services, these procedures could be a part of the routine. For smaller groups of employees, referrals could be made to the screening facility.

In schools, colleges, and other institutions in low-incidence areas, a tuberculin test could be part of entrance health examinations. It should be kept in mind, however, that in communities where health department staff must do whatever tuberculin testing is done in the schools, any extensive school testing must be planned in terms of other tuberculosis control and general health program activities. As a matter of fact, all of these activities for which the health department must take on followup responsibility should be planned as a part of the total program.

Realistic planning does not necessarily mean abandoning all tuberculosis casefinding in low-incidence populations, but it does mean abandoning the "everybody every year" concept that was appropriate when tuberculosis could be found at significant levels in all segments of the population. Those who defend broad-scale low-yield casefinding because of its "educational value" should consider also the evidence that some persons who are subjected to or who observe repeated screening programs in which no one is found to have disease are becoming disillusioned with the "educational" message, and are therefore not only unwilling to participate, but disinclined to support tuberculosis control activities that are necessary to protect the public health.

Consideration of People

In a previous paper (*1*), the statement was made that "Chemotherapy applied as a public

health measure requires a system of providing services in a way that does not place the patient on one side and the community on the other." The same general idea applies in casefinding activities, which should not place the people we want to screen on one side and the community, as represented by the health department or the tuberculosis association, on the other. To keep them on our side requires telling the truth, without either exaggerating risk (Everyone is in danger of tuberculosis) or promising exemption (Have a chest X-ray to make sure you don't have TB). It seems worth mentioning, incidentally, that when a community's provisions for treating tuberculosis patients are of good quality, that community can truthfully be more optimistic in its casefinding messages.

The people we want to reach in casefinding do not have the concern about tuberculosis that we have. There is no reason to think they are difficult or unintelligent if they do not put themselves out to be screened. When the manner in which casefinding is conducted conveys clearly the idea that the workers who are carrying it out think it is important, this idea is communicated to the public. For instance, when notifications about results of chest X-rays are sent out promptly, the procedure seems a great deal more important than when weeks or months go by without any word. Screening operations carried on in evening hours not only make participation more convenient for people who work during the day, but are worth many words in declaring that the sponsors of the operation think these people should be screened. Specific clinic appointments for contacts or for followup of screening suspects have the same effect; so does time taken to explain procedures and to make sure the explanation is understood.

As the patterns of tuberculosis in communities become more spotty, the mass appeal has less usefulness, and individual encounters become more important. Our experience in the Public Health Service prophylaxis trials has been that most people will take pills every day for a year if they are made to feel that somebody thinks it is important that they do so. I believe the same thing applies in many areas of casefinding.

Summary

Tuberculosis casefinding is certainly more difficult now than it used to be. Because it is and because we have to work harder to find every case, we must tighten up activities so that every effort counts. To summarize, I think first that casefinding must be considered, and must actually be, a part of a total tuberculosis control program, and not separate from other activities. It must have high quality, resulting from thoughtful application of the best skill of everyone involved. It must be realistic in terms of the size of the problem, so that we will not suddenly find ground lost because we have refused to change our ways. It must be done for people, not to them, and in a spirit of concern and sympathy.

REFERENCE

(*1*) Blomquist, E. T.: Chemotherapy as a public health measure against tuberculosis. Pub. Health Rep. 75: 1069–1076, November 1960.

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