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Arthritis as a Public Health Problem

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Arthritis, rheumatism, and related ailments qualify as a public health problem. This group of diseases is the greatest single cause of protracted illness. Their prevalence is many times greater than that of any other chronic disease. Rheumatism is close kin to poverty and the vicious circle of disability and dependency. A goodly proportion of arthritic patients are receiving no care—or poor care.

For many years, physicians interested in this problem have been convinced that expert treatment can alleviate or arrest rheumatic disorders and prevent severe disabilities. They have been convinced, too, that medical research in this field needs expansion in basic studies and clinical and epidemiologic investigations. Out of this professional concern and conviction has emerged the American Rheumatism Association to focus attention on the problem and provide a forum for discussion and interchange of experience.

The national movements against tuberculosis, venereal diseases, cancer, and heart disease began in the same way. But, despite the promise of such beginnings, progress in these fields was slow until two specific conditions had been met.

First, specific advances in research had to come, stimulating further exploration of neglected areas and encouraging wider application of existing knowledge and skill. Second, public demand for expanded research and services had to increase, bringing to bear on official and voluntary agencies inexorable pressures for action. The result was the combination of public and private effort which characterizes our American plan to solve these critical health problems.

During the past 18 months, those conditions have been largely met for a forward move against arthritis. The work of Dr. Philip S. Hench and Dr. Edward C. Kendall on cortisone and ACTH has been a precipitating event in scientific medicine which brings us to the verge of a new era in research and practice in this field. The full significance of this event will not be apparent for many years to come.

*Surgeon General, Public Health Service. From a speech delivered at a session of the American Rheumatism Association, San Francisco, Calif., June 23, 1950.

However, we can already see one result in increased demand for expanded public health action. That demand is expressed by the American people through their representatives in Congress. Two proposals are being considered by Congress at the present time. First, the House of Representatives has approved \$3,600,000¹ for the Public Health Service's 1951 program to expand research on cortisone, ACTH, and related compounds. Second, legislation is now before Congress,² and has been passed unanimously by the Senate, which would authorize the Public Health Service to establish a program of research, aid to research and professional education, and health services in arthritis, rheumatism, and other metabolic diseases.

The Public Health Service and our advisory groups of experts have given a great deal of serious thought to the entire problem. The conclusions drawn, therefore, represent the main points of agreement by many individuals, all of whom are earnestly and actively concerned with solutions of the multiple and intricate problems of arthritis. Probably none of us think that decisions of today can stand long in such a rapidly developing and changing field; but, if science and society present us with opportunity, we in turn must present an orderly and sound plan for action.

The Opportunity Is Unique

The nature of arthritis and the present status of medical knowledge about the disease offer a unique opportunity to develop, both in research and services, programs that are integrated with efforts in many other fields.

I stress this point because the experience of the Public Health Service shows that exclusive emphasis on disease categories tends to have a restrictive effect on research and to encourage the development of unbalanced services.

Fortunately, the work of Hench and Kendall, Thorn, Albright, their predecessors and their co-workers—a whole generation of effort—has made virtually impossible a narrow research program on arthritis and rheumatism. Within less than a year, sufficient evidence has accumulated to show that research in cortisone and ACTH will be research in the total field of chronic disease, as well as in mental illness and some acute diseases.

Obscure in origin and resistant to treatment, the so-called degenerative diseases—cardiovascular-renal disorders, cancer, arthritis, rheumatism, and metabolic diseases in general (an endless list!)—have challenged the best thought in research and medicine for several generations. Until last year, however, there had been no convincing

¹ This sum was subsequently reduced to \$2,500,000 as part of the total cut of \$550,000,000 in the Federal Budget, 1951, as directed by the Congress.

² Subsequently passed by the House, and approved by the President, August 15, 1950.

evidence to provide scientists with a clue to a common factor in the causation of such diverse conditions as rheumatoid arthritis, status asthmaticus, nephritis, and rheumatic fever. Diseases not previously known to be associated with hormonal imbalance must now be studied in the light of their relation to hormones. Moreover, clues to such phenomena as immunity, anaphylaxis, allergic responses, and shock await intensive exploration.

Because the new leads are promising, more scientists will be attracted to basic studies of human biology. In their study of disease states, they will search for a common cause, as contrasted with the former emphasis on specific etiology and localized pathology.

Research and scientific medicine have been moving gradually toward a new theoretical and clinical synthesis. With the advance of biochemistry and biophysics, there have been vast improvements in the methods, measurements, and instruments available to medical research. As a result, closer integration of the various scientific disciplines has occurred. Just such an interdisciplinary approach played an important part in the accomplishments of Hench, Kendall, Slocumb, and Polley.

Many scientists and the public have placed major emphasis on the search for specific causes or for cures of specific diseases. Up until now, it has been difficult to convince society that investments in basic research could yield far reaching results, not only in a single disease, such as rheumatoid arthritis, but in a variety of conditions which affect a large proportion of the world's population.

It would be a tragedy if, in our eagerness to exploit our new advantage over arthritis, we failed to develop the broadest possible research effort in biology and a wide range of diseases. The sooner we break the barriers of specialism in research, the sooner we shall find definitive answers to specialized disease problems. This is the unique opportunity which is now presented to medical scientists.

The same integrated approach is essential in the development of services for persons who suffer from arthritis and rheumatism. Specialists of the New York Postgraduate Medical School and Hospital said 10 or 12 years ago: "If a patient with acute rheumatoid arthritis . . . did have at his disposal proper hospital facilities, comparable to those for tuberculosis, where he could receive fresh air, good food, sunshine and rest, plus all the medical and physical therapy measures we know to be of value in rheumatism, it is certain that the incidence of deforming arthritis would be markedly reduced."

The same basic requirements in facilities and services are needed today—not only for the millions of arthritic cripples, but also for the additional millions crippled by accidents and by other chronic diseases. In our planning for care of the chronically ill and disabled, arthritis and rheumatism loom as a major problem. Services in that

field will be all the better, all the more effective, if they are planned as an integral part of the community's total effort for the chronically ill.

Prospects for Research

The Public Health Service has broad authority to conduct and to aid research on the physical and mental diseases and impairments of man. We do not need a special act of Congress to initiate investigations or aid in a particular field. We do, however, need adequate funds to assure a well-balanced program, and these funds often are not appropriated until the Congress creates a specific program in a particular field.

Last summer, recognizing the great importance of the first reports on cortisone and ACTH, I appointed an arthritis and rheumatism study section to advise the Public Health Service on how we could best foster research and health services in this field. Dr. Hench is the chairman of this study section which includes nine other experts—all outside the Government. Other study sections, established several years ago, also have been especially interested in arthritis and rheumatism, notably the sections on endocrinology and metabolism and gerontology.

The Public Health Service has also consulted frequently with other scientists, with other Federal research groups, and with the manufacturers of cortisone and ACTH. Throughout the year, our five National Advisory Councils—on general medical research, cancer, heart disease, mental health, and dental research—have discussed thoroughly the problems of metabolic diseases as well as of cortisone and ACTH.

In a joint meeting last February, the councils made specific recommendations to the Public Health Service for immediate action in safeguarding the research effort on these new drugs and similar compounds. At that time, medical investigators in many parts of the country had so increased their demands for cortisone and ACTH that manufacturers could no longer supply the drugs for research without cost. The advisory councils commended the manufacturers for having distributed cortisone and ACTH free of charge to qualified investigators throughout the early stages of investigation.

In the opinion of the councils, the most important single question in medical research at the present time is how to make sure that the drugs, and similar new substances, will continue to be available for investigators. The councils, therefore, urged that research be expanded in hospitals, medical schools, universities, public and private laboratories. Expanded research in hormonal compounds should be in addition to research in other important fields—not at the expense of the other programs.

During the past few months, we have awarded 102 financial grants, totaling nearly \$1 million (\$901,445) to institutions outside the Federal Government for research in cortisone and ACTH.

If 1951 appropriations to the Public Health Service permit us to increase our support of research in this particular area, we and our advisors believe that about two-thirds of the sum should go into grants for clinical studies, and the remainder into laboratory investigations.

There is an enormous job waiting to be done in the laboratory. The production of cortisone has been increased to the point where one of the manufacturers can now distribute the drug in limited quantities to the Nation's hospitals. Even so, we must continue the search for new raw materials. The supply of the present starting material for cortisone is limited in any case. So also is the source of ACTH, and this drug also requires standardization. New raw materials or short-cuts in synthesis would bring us nearer to adequate supplies for the millions of arthritic patients who might benefit from hormonal therapy, if the current research program proves their ultimate safety and value. We have not reached that goal yet. At a market price of (roughly) \$100 per gram, cortisone and ACTH still pose major problems in medical economics.

Synthesis of other steroids and related drugs is another urgent need. As the antibiotics multiplied rapidly in a few years after penicillin was first proved effective, so we should expect many new hormonal drugs which may even supplant cortisone and ACTH. Studies are already under way on several steroids that may give valuable leads.

Obviously, intensive study must be devoted to the biological effects of cortisone, ACTH, and other steroids. New substances must be screened in the laboratory to determine their physiological activity, toxicity, and relationships with other substances.

Clinical studies offer an almost endless list of promising clues. Our best thought on this aspect of research with cortisone and ACTH, however, leads us to stress the need for broad studies in human biology—as well as for study of the therapeutic effects of these substances in specific diseases.

We must, in fact, encourage scientists to use these new tools as a means of advancing knowledge of normal man and his physiological processes in health. There is, indeed, too little research on this positive line. Intensive study of steroid metabolism may uncover basic mechanics that account for the difference between health and disease. A common factor in the metabolic process, for example, may be responsible for maintaining normal functions in various organs not previously believed to be related, or some one series of chemical reactions may be essential for maintaining many substances

normally present in the body. Much fundamental study must be done before such conclusions are reached, but the possibilities are tremendous.

Major emphasis, of course, must be given to clinical studies of the effectiveness of cortisone and other hormonal substances in various diseases. Practical and humanitarian reasons dictate such an emphasis.

Cortisone and ACTH probably are here to stay. The indiscriminate use of these drugs, however, must be prevented. They cannot be prescribed or administered as safely as can aspirin, although the public has been led to believe that this is so.

With the wider distribution of cortisone, new problems will arise. Careful clinical management of patients who receive the drug in the Nation's hospitals will be a tremendous responsibility on physicians. The utmost care in noting and controlling side effects will have to be exercised by competent clinicians. All of us know—best of all the discoverers and pioneers—that our knowledge is far from complete as to the effects and the effectiveness of these new drugs.

There is so much promise and so much enthusiasm, however, that we must press on to perfect our knowledge and techniques through careful clinical investigations. Naturally, emphasis will be placed on arthritis and rheumatism in clinical studies of cortisone and ACTH. Many of the investigators who have received grants from the Public Health Service are working in that field. But others are studying the effects of the drugs on allergic hypersensitivity, chronic sinusitis, diabetes, renal function, cirrhosis, and hypertensive vascular disease.

Studies have already shown that ACTH may terminate an episode of acute rheumatic fever; and with suitable continuation therapy, in conjunction with antibacterial agents, may, in fact, stop further progress of the disease. These preliminary results lead us to stress the importance of further work in this area. If effective therapy is developed for rheumatic fever, science and society will make a tremendous forward move in child health and in the prevention of a vast amount of disabling heart disease in adults.

Other leads which need to be followed are in the fields of cancer, other heart diseases, and psychiatric disorders—as well as in a wide variety of metabolic disturbances.

Up to now, I have been dealing entirely with the prospects for research specifically related to cortisone and ACTH. I do not want to give the impression that we are not equally concerned about the development of a broad research program on the rheumatic diseases. We are deeply concerned. Discovery of new scientific principles in arthritis and rheumatism has, indeed, been so rare in the past century that until cortisone and ACTH were reported, one could scarcely call our advance in this field “progress.”

What, for example, is the status of diagnosis? What scientific data have we on the psychic components in arthritis and rheumatism? What are the relationships between rheumatism and occupation, age, climate, other environmental and social factors? Much work also remains to be done in nutrition, physical medicine, rehabilitation, and a dozen other fields related to the causes, prevention, and cure of arthritis.

In recent years, the Public Health Service has been supporting several long-term studies on some of these basic problems in arthritis and rheumatism. We feel that, generally speaking, the most valuable contribution which the Public Health Service can make to medical research is the support of investigations which require substantial financial aid over a number of years. Especially is this necessary in clinical studies of chronic diseases. Adequate series of cases must be developed and followed, since the human organism develops more slowly in both its normal and pathologic processes than do laboratory animals. Thus, in some diseases the answers may not be found until after the scientist who initiated a study, has himself succumbed to man's universal fate.

The following studies illustrate the types of research in arthritis and rheumatism that the Public Health Service is supporting. Two years ago, Dr. Paul Holbrook of the University of Arizona began a study of amino-acid metabolism of rheumatoid arthritis. We expect the project to continue two more years.

Last year, a 5-year study was launched by Dr. Walter Bauer and Dr. Jerome Gross of Massachusetts General Hospital. This is a study of derangement of mesenchymal tissues in aging and rheumatic disease. Beginning this year, supplementary grants will be made for the use of ACTH in this project.

Dr. Roland A. Davison of Stanford University is now in the second year of a project on steroid metabolism in spondyl arthritis. Dr. John H. Talbott, of the University of Buffalo is conducting a study of the pathogenesis and treatment of gout, using various drugs. Dr. Ernest D. Gardner, at Wayne University, is continuing a basic study of physiological processes in movable joints and structures.

In relation to psychic components in arthritis and rheumatism, Dr. Franz Alexander of the Chicago Institute of Psychoanalysis is conducting a 4-year study of arthritic patients at Michael Reese Hospital. The study seeks to delineate the psychodynamic pattern of arthritic patients and its relation to physiological responses.

Research and Service Goal

The goal of a program for research and health services in arthritis was defined for society very simply 2,000 years ago: That is, "to make the lame to walk and the crooked straight."

None of us can forget that goal for we have seen many examples of the crippling effects of rheumatism. We have seen, too, the almost miraculous improvements in some of the few individuals who have access to the best modern care.

At least 200,000 persons in the United States are totally and permanently disabled by arthritis and rheumatism; another 800,000 are partially disabled. And it is estimated that another 6 million have some form of rheumatism or arthritis. These estimates may be low, because there are no reliable data on the incidence of these diseases in large population groups which lack elementary medical and health services.

The Public Health Service has long been seriously concerned about this massive suffering in our midst. I have reported on some of the steps we have taken recently to deal with the basic biological and medical problems involved. I have mentioned also the proposals in Congress for expanding Federal aid to research on cortisone and ACTH, and for establishing a broad arthritis and rheumatism program.

The Public Health Service is eager to do its part. Our six institutes in the National Institutes of Health are ready and willing to collaborate in such an effort. Our Division of Chronic Disease is ready and willing to help. States and communities plan services for rheumatic sufferers. These plans might include the development of ambulatory services, home care programs, and rehabilitative services for rheumatic patients.

The Public Health Service, however, is only one small unit in the total Nation-wide effort that will be needed. We hope to be able to join with the American Rheumatism Association and with our colleagues in other voluntary agencies and institutions in a Nation-wide offensive against arthritis and rheumatism.

Multiple Screening and Specialized Programs

By JOSEPH W. MOUNTIN, M.D.*

Much of the success that public health programs have achieved in the past can be traced to the perfection and focusing of precise techniques on specific problems. Nowhere is this more apparent than in the detection and control of specific diseases. Fundamental to the control program are exact and simplified methods of case finding.

Public health is indebted particularly to the venereal disease control program for giving mass application to many valuable case-finding techniques. Following the remarkable success met by venereal disease workers in this field, others developed similar techniques or variations of them. Although they used an entirely different procedure, tuberculosis control workers incorporated many of the administrative measures developed in the venereal disease control program. Other programs followed suit; for example, a case-finding instrument was developed in diabetes control and is being put into mass use.

It is now proposed to combine these separate procedures and to bring in still others under a single mass testing program. This approach, termed multiple screening, is essentially the extension and expansion of the mass screening examination, and the application of this technique to the chronic disease field. Thus, the venereal disease and the tuberculosis control programs are being asked to integrate their case-finding activities into this larger, more comprehensive area.

The question has been posed, and quite appropriately, by venereal disease workers and others as to how the multipurpose approach is likely to affect the success of a specific program. How and when should other tests be brought into the battery? Will they contribute to or retard the progress of the individual programs? Or would the economy and over-all effectiveness of joint case finding overbalance any possible individual losses, granted that there would be some?

Although few questions in the complex and intensely human business that is public health can be answered categorically, I will try to point out some of the considerations which might make a logical decision possible. And in doing so, I will discuss some of the broad issues involved in multiple screening and their implications for other public health programs.

* Assistant Surgeon General and Associate Chief of the Bureau of State Services, Public Health Service. Consolidation of remarks made at Venereal Disease Seminars in Chicago, New York, and Washington, D. C., during the spring of 1950.

Multiple screening is a promising public health tool. Its drama, its universal appeal, its seeming simplicity and economies have captured the imagination of public health administrators and the general public alike. The demand for this procedure is growing faster than it can be met by the resources of public health organizations. In fact, there is the not inconsiderable danger that multiple screening will be adopted as routine public health practice before some basic questions are answered and before adequate safeguards are employed. While recognizing the promise of multiple screening as a case-finding instrument, we must at the same time be aware of its present limitations and weaknesses.

In theory, multiple screening should make a significant contribution to the control or stabilization of many diseases which now go unchecked. And, indeed, it will make that contribution, provided it is part of a larger and fully worked out control program. Screening is just one rung of a ladder which might be labeled chronic disease control—other rungs are diagnosis, follow-up, and treatment. Granted that screening, or case finding, is the first step; unless, however, it is part of a program that makes provision for diagnosis, follow-up, and treatment, screening by itself loses much of its potential value.

Moreover, even the practicability of multiple screening as a case-finding technique has been questioned. What tests are ready to be included in the battery and which should be withheld for further modification and perfection? What cautions have to be observed and what difficulties may we expect to encounter? And finally, what is the impact of multiple screening on such well-established and long-term programs as tuberculosis and venereal disease control?

As a starting point, it may be helpful to review briefly just what is meant by multiple screening and to trace briefly its evolution. Essentially, the multiple screening examination for adults is an attempt to carry out at one time several procedures heretofore administered separately, and to add some new ones as yet unattempted. In a limited way, its objective is that of the more extensive periodic health examination inaugurated some time ago, namely, the detection of physical impairments and chronic ailments in their incipient stages. Multiple screening is the streamlined and digest-size counterpart of the periodic health inventory.

Mass screening techniques for specific diseases, as indicated earlier, are established and effective case-finding instruments. Such devices as serologic examination for syphilis and chest X-ray examination for tuberculosis made it possible to bring together great numbers of individuals for the detection of a specific condition. It is extremely logical and tempting to say: Why conduct these tests separately at double expense and double consumption of the citizen's and health worker's time? Why not accomplish both purposes at a single clinic

or testing visit? And why not include other examinations at the same time, thus detecting many conditions which might otherwise go unchecked and contribute to chronic disability?

On the surface this seems like a golden opportunity. And, theoretically, it is a golden opportunity, for it offers the advantages of unity, economy, and better, more complete services for the people. Combining several tests at one time means a saving in administrative expense, thriftier use of personnel and equipment, and more significant results (1).

Other advantages have been cited for this technique (2). Prominent among these is its flexibility. The tests may be simple or elaborate, limited to a few examinations or including a complete battery, depending on the resources of the community which is conducting the program. Finally, multiple screening has the undeniable value of public appeal. The prospect of a "one-package" 15-minute examination for a variety of diseases or conditions which might impair health is much more enticing than facing a test for syphilis one week, tuberculosis the next, and diabetes the third week. Even more important, however, is the educational effect of multiple screening. It undoubtedly both teaches and promotes the necessity for complete periodic inventories.

From the point of view of public health practice, multiple screening makes possible a unity and integration of programs, an approach that leading public health workers have been advocating for some time. We have been trying to achieve a closer coordination of our programs within the Public Health Service; our recent reorganization was one step in this process. Other health agencies have also been subordinating the specialized and narrow approach inherent in specific disease control programs in favor of a broader, more generalized view of health. Multiple screening is one of the most dramatic measures yet advanced for making that ideal a reality.

It would be unjust, therefore, to question the soundness of the basic concepts which underly the multiple screening program as a whole. On the other hand, however, it is perfectly in order to examine some of the obstacles which face the program and to urge certain precautions before this procedure is recommended as standard practice for public health agencies. And while I advocate that mass serology for syphilis and X-ray for tuberculosis be combined with other tests, where practicable, I think it is incumbent upon those who are responsible for specific health activities to understand the implications of such a step.

Multiple screening, as I have already indicated, promises to be most useful in the chronic disease field where, in the absence of specific preventive measures, early detection and prompt diagnosis are the most important factors in the control program. The question arises as to which tests should be included in the battery. Or more specifi-

fically, which tests are ready for inclusion? Administratively, the primary considerations should be the speed, economy, and accuracy of the tests. As far as the mechanics of clinic operation are concerned, therefore, the use of auxiliary personnel and the conservation of the client's time must have priority. The group should include no test which requires more than a few minutes of clinic time, which causes any great amount of discomfort, or which requires highly technical persons in the clinic line of flow.

The examinations themselves must be considered from two standpoints: first, their inherent validity or the accuracy of the tests as indicators of need for further examination; and second, the reliability of the tests as measures of prevalence rates. The former involves mainly the so-called screening level to be used.

Systolic blood pressure is commonly included in the screening line. However, there is no general agreement among the medical profession as to the level at which the reading might be considered significant (3). Should the systolic level be set at 160? Or should some different points be adopted, depending on such factors as age, sex, and other personal characteristics, like susceptibility to the excitement that accompanies the measurement of blood pressure in a screening line?

Hemoglobin level has been used in clinical medicine for a long time. But we are still not in agreement as to the best method for hemoglobin determination nor about the readings that are really critical for persons in the general population (4).

Great advances have been made in recent years toward perfecting simplified blood sugar tests for detecting the presence or determining the likelihood of diabetes. However, there is still some doubt as to the amount of blood sugar that should be considered significant. Diabetes testing also involves the problems of food intake and the time elapsed since the last meal, factors which are difficult to control or assess in a mass screening clinic.

Thus, the specificity and sensitivity of many of the screening devices have yet to be fully established. The danger of permitting tests to be used which have not been thoroughly validated cannot be over-emphasized. One obvious result of unperfected screening operations is that too many persons are referred for definitive diagnosis when, in fact, they do not have the disease in question—the so-called false positives—and many persons who should be referred for further services are passed over—the so-called false negatives.

The implications of a large number of nonproductive responses are very significant. Public health agencies may be laid open to charges of waste and incompetence. Moreover, they may see good will turned into resentment when some persons who are screened as positive must spend time and money only to find that nothing is wrong

and when others become obviously ill shortly after a visit to a screening clinic has failed to reveal any danger signs.

Unconfirmed and borderline referrals may also cause irritation among the medical profession as well as the patient. Although the physician may at first welcome a procedure which brings patients to his office when there is still an opportunity for early and successful treatment, he may very well view with mixed feelings a parade of false positives and negatives. Early enthusiasm is likely to be dampened among physicians who see their patients losing confidence in them, or who are at least confused about the whole procedure.

Although the results of large-scale screening examinations will almost inevitably be used to cite general prevalence rates, multiple screening alone does not ordinarily provide a reliable estimate of the prevalence of the diseases under study. One reason why this is generally so is because the people who are screened rarely represent an accurate total cross section of the population. And, of course, the usual mass screening survey offers no information about people who do not take part in the survey. Because over- or understatement of prevalence rates can seriously misguide public health activities, sample studies of the entire community should be undertaken to determine the reliability of the finding of the screening process as an indicator of prevalence rates. Data should be gathered on demographic characteristics, occupational status, approximate number of nonparticipants in the study, and the reasons for their lack of participation. The studies should also provide a comparison of the disease characteristics of participants and nonparticipants and an analysis of the prevalence rates of disease and other physical characteristics, as measured by the survey techniques, for the total population. By probing into the attitudes toward the multipurpose survey and by discovering the reasons for lack of participation, the studies might also serve as guides in planning future case-finding campaigns.

There are other extremely important questions that must be answered before a case-finding technique can be said to have substantial value as a public health measure. These involve all the procedures usually included in the term "follow-up." How are positive cases confirmed and what methods are used to refer them for treatment? What medical care do they receive? How is the care financed and what is the resulting load on medical and related personnel and facilities? What differences are there in the medical care received by significant subgroups in the population, i. e., income groups, occupational groups, etc? What provisions are made for medical social services, for home care and nursing services, for rehabilitation? How adequately are comprehensive reports and records

collected and analyzed to give us a true picture of the extent of the public health problem?

Follow-up measures for the chronically ill are as yet scanty and exploratory in contrast to the well-established and smoothly functioning programs for persons with tuberculosis and venereal diseases. Nor is this a reflection on the nascent chronic disease control programs. What is involved here is a whole new set of long-term relationships with physicians, hospitals, and other community resources which must be carefully thought out and developed. But until those services do evolve and a thoroughgoing follow-up program is set in motion, multiple screening for the chronic diseases can be of only limited effectiveness, and if pursued too hastily, can bring established screening procedures into disrepute.

Before going on to further comparisons of the multipurpose process with screening for specific diseases, it might be well to mention briefly some administrative obstacles which must be carefully considered before multiple-testing programs can be widely adopted. First of all, there is the important matter of the cost of a multiple-testing clinic. Despite the claims of economy effected by a combination of several tests, the costs of multiple screening range from \$1 to \$1.50 or \$2 for each person examined, depending on the number of tests included in the battery and the amount of volunteer help that can be obtained. When we bear in mind that even today a health department which operates on a total budget of \$1.50 per capita is considered rather well supported, the financing of routine screening appears rather disproportionate. Of course, the costs to the health departments depend on the number of persons screened and the frequency of the examinations.

But there are other expenses after the initial test, such as the cost of rechecking and the \$5 to \$10 or \$50 expenditure by the patient who is referred to a physician for final determination as to significance of the findings. Thus, the costs involved in running the clinic plus the expenses entailed on the part of the patient are great. And consider the embarrassment to health agencies when all this expense merely "discovers" a great number of results that are erroneous—either on the positive or the negative side—or which are already known.

Some critics have maintained that many of the results cited for multiple-screening surveys include relatively minor defects as well as conditions already known to exist (5). They have even questioned the propriety of testing for various defects for which no public health control measures exist. If a person is informed after a visit to a screening clinic that he is obese, is he thereby helped to improve his health, or is he merely confused? Certainly, public health stands open to the accusation of waste and frivolity if it merely "uncovers" condi-

tions of doubtful public health significance, or about which little, if anything, is proposed.

We are justified in saying, I think, that it would be unfortunate to jeopardize so potentially valuable a procedure as multiple screening by pushing it prematurely. The reaction that health departments are apt to get from tests of doubtful validity, from the lack of adequate follow-up procedure, and from the paucity of remedial measures may serve to set back the chronic disease program rather than advance it. A technique with so much promise and with such far-reaching possibilities deserves careful preparation and detailed analysis before it can take its rightful place as an important tool of public health practice.

In determining the impact of multiple screening on specific programs, we must ask ourselves a fundamental question. What is the purpose of mass screening? Is it just a device to get people to attend a screening clinic for their own general information? Or is it a part of a well-planned and sustained campaign to solve a particular health problem? If it is the former, then multiple screening is probably the best answer. I do not say this disparagingly, for there are important and valuable byproducts of this type of approach. For example, from multiple screening, in conjunction with pre-survey and post-survey studies and adequate follow-up, we can get some ideas of the extent of such diseases as diabetes, hypertension, and heart disease. And we encourage the habit among large groups in the population of seeking more frequent and more regular physical examinations.

However, if our goals include the net gains for a health program, then there is much to be said for the specific approach. When a particular condition, such as syphilis, tuberculosis, or diabetes, is the object for attack, it is possible to direct our appeals to groups in the population in which such conditions are known to have the highest prevalence. These groups may be quite different in composition with respect to age, social status, or other factors. In diabetes case finding, we would look particularly for people who are over 40 years of age, who are overweight, or who are relatives of known diabetics. We would look for entirely different groups, however, if we were attempting to track down syphilis.

It should be realized that a multipurpose clinic which emphasizes the maintenance of general health (as it must, if it is to test for several unrelated conditions) is likely to attract a large proportion of people in average economic circumstances. And, if the clinic is conducted during the working hours, it probably will be attended principally by older men and women. This is, perhaps, all to the good if we are concentrating on oringing out certain conditions, such as hypertension; on the other hand, it is of extremely doubtful value for solving other health problems. When economy is claimed for multiple-testing programs, therefore, we must bear in mind that it pertains only to the

economy of the screening operation itself. Measured in terms of the beneficial results that can be expected from any specific program, multiple screening might well prove quite expensive.

Despite our goal of integration, any program must have some limitations, must be planned and evaluated against some specific objectives. Otherwise, how can we measure progress? How can we determine next steps and plan for the future? And the dragnet idea of case finding is always questionable with any given health department budget.

In popular literature multiple screening has been likened to a "shotgun hunt." This is a rather apt description, for a shotgun is a weapon that scatters its fire and is distinguished by the feature that one of its many missiles may find the mark. But is the shotgun, with its scattering, diffuse effect, the best and most economical weapon with which to attack a specific quarry? Or aren't we obliged to seek some more precise, more effective weapon if we hope to meet and conquer a specific problem? I think that the very preciseness, the very sensitivity of the techniques we have used in the past have contributed most to whatever success we have met. Let me illustrate by one example from the field of infectious diseases. We have been able virtually to conquer diphtheria by pinning down our immunization procedures and thus getting the best results. There was no need to immunize everyone to control the disease, we discovered, but only the pre-school child and the very young. By narrowing down our techniques and control measures, we were able, in this country, to solve the problem not only most effectively but also most economically.

There are many significant differences between screening for the chronic diseases and for diseases like tuberculosis and venereal disease. The most important, of course, center around the communicable nature of the latter as contrasted with the noncommunicable characteristics of the former. A one-time case-finding campaign for diseases like cancer, heart disease, or diabetes, even if 100 percent effective, has almost no effect on the number of new cases which will occur next month, next year, or in any following period. This contrasts sharply with effective screening, plus diagnosis and treatment, of venereal diseases and tuberculosis where every case found and put under surveillance removes a source of potential infection from the population.

It is this aspect of communicable disease control, in fact, that has given public health agencies widespread and complete recognition in this field. As yet, public health does not have this recognition with respect to the major chronic diseases. I do not mean to imply that this social acceptance will not come in time or that we must therefore neglect the tremendous challenge of chronic disease as a public health problem. But I do think that the wisdom of tying these separate

sets of programs together at the present time, through the exclusive medium of multiple screening, has serious implications for specific programs.

We might sum up by considering the major elements that have made case-finding programs for venereal diseases and for tuberculosis effective. There are, I think, four: (1) a specific and relatively simple test; (2) in the case of syphilis, a very effective remedy and, in the case of tuberculosis, a relative adequacy of facilities for treatment, as contrasted with the chronic diseases; (3) a body of administrative and technical experience, which has developed over a long period of years; and (4) community acceptance and recognition of the primacy of public health authorities in these fields, based on the fact that every case of tuberculosis and venereal disease which is found helps prevent the development of a new one.

Multiple screening for the chronic diseases as yet meets none of these prerequisites. The tests have not been thoroughly validated nor are they as sensitive as they should be. The machinery for long-term treatment and care of the victims of chronic disease has not been adequately developed. Health departments have only a limited experience in the field of chronic disease control. And finally, health departments lack the budgets and a clear expression of community recognition of the health department's role in chronic disease control. All these will come in due course if we proceed gradually, making sure of our ground as we go.

We must bear in mind that we are much further along in venereal disease control, for example, than in any other program. We are reaching the point, in fact, where it is possible to speak not only of syphilis control but of the eradication of syphilis. This kind of victory, which has been won against a number of the communicable diseases, is after all the kind of accomplishment to which we in public health can point with greatest pride. Although we must now address ourselves to the larger problems of chronic ailments and adult hygiene in general, I hope, in our zeal to open up these new fields, we will not sacrifice the gains we have already made. While we might incorporate as many of the new tests as possible in connection with our case-finding campaigns for syphilis and tuberculosis, we should do so without losing sight of the primary objectives—eradicating these two diseases.

We must remember, too, that we have been battling the venereal diseases for 30 years and only now is victory over syphilis in sight. While the experience and technical knowledge we have gained in venereal disease control should help us achieve a speedier control of the chronic diseases than would otherwise be possible, there is no reason to expect any overnight miracles. In fact, control of such diseases as cancer, heart disease, and diabetes, with their important

economic and social implications and their long-term nature, will probably face as long and uphill a fight as did the control of syphilis. Thus, multiple screening for the chronic diseases has a long, hard row ahead of it. It would be a mistake, in my opinion, to slow down the venereal disease program to that pace, or to lose the precision, or sacrifice the progress we have made. The same, of course, holds true for the tuberculosis control program.

Despite these reservations, I think there is a sound future ahead for multiple screening. The advantages of its broad appeal and its bright promise cannot be denied. If pursued too rapidly, multiple screening can retard the progress of already established public health programs. If it is developed carefully, with due caution and safeguards and with proper study and analysis, most of the misgivings of its critics should disappear. Only then can it become an important member of the public health family and contribute to higher levels of individual and community health.

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National Conference on Aging

By CLARK TIBBITTS*

More than 800 delegates met at the Shoreham Hotel in Washington, D. C., August 13-15, 1950, to explore the various factors in aging that have implications for the Nation; for States, localities, and families; and for the aging and aged themselves. The delegates assembled without prepared papers and with only tentative agenda for their intensive consideration of the manifold and complex problems of our progressively lengthened life span and our progressively curtailed span of working years. They came mainly to pool their observations, experience, knowledge, and suggestions for action and to return to their individual spheres of work equipped to apply the ideas and plans that developed through group discussion of varied approaches to similar or related problems.

Three main purposes in calling the Conference were (1) to identify, and obtain the cooperation of, leaders in all fields of social endeavor—education, employment, health, welfare, community planning, religion, and family life; (2) to enable participants to share their experience and knowledge and to develop methods for teamwork in services for the aging and aged; and (3) to provide means for later comprehensive and continuing action throughout the United States assuring national, local, and individual opportunities which preserve and strengthen the relatively untapped potential resources of health, productivity, and happiness within the older age groups of the population.

The mechanisms through which these purposes were approached deserve brief description to indicate the methods of bringing together the Nation's experts in many fields to focus on a problem that touches all phases of individual and social activity. The paragraphs that follow, therefore, outline the steps taken in the planning stage of the Conference, provide a brief summary of the principles developed in the discussions, and indicate the basis for hope that a start toward community action will be made throughout the Nation.

The Planning Stage

Early in 1948, the Federal Security Agency set up a Working Committee on Aging which included representatives of its major constituent units—the Public Health Service, the Social Security Adminis-

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tration, the Office of Education, and the Office of Vocational Rehabilitation. This action followed the recommendations of the National Health Assembly which had pointed out the need for consideration of the complex problems of aging that are related to, but actually distinct from, the problems of chronic illness. The Working Committee, with the aid of consultants, prepared and issued a report of its survey of the problems of aging. The response to that report from the several hundred persons who reviewed it, and requests from many others who recognized the need for Nation-wide consideration of the situation which confronts all States and localities led to plans for setting up a national exploratory forum on aging. The President, in a letter to the Federal Security Administrator, added his voice to the other appeals, requesting a prompt assessment of the implications of the increasing proportion of the aged in the population.

Though many individuals and groups in the United States had given intensive study to some aspects of aging—medical, economic, social, or philosophical—there were few who had approached the subject from all angles and who recognized the many ramifications of the problem. Identifying the people who know most about the needs of the aged in their separate fields and giving them an opportunity to talk together seemed important first steps in viewing the problem as a whole. A file of some 2,000 names of people who have been pioneers in stressing one or more problems of aging was built up. From among them certain leaders consented to assume responsibility for planning the Conference and for selecting the persons who would contribute most to the group discussions and profit most from the opportunity to learn what others thought, planned, and did about the problem of aging in other fields of activity.

Planning committees were composed solely of non-Federal experts to assure a broad representation of all parts of the country and all possible spheres of interest. Eleven such planning units were set up for:

- IA. Our aging population and research in its biological, medical, psychological, and sociological aspects.
- IB. Population changes and economic implications.
- II. Employment, employability, and rehabilitation.
- III. Income maintenance.
- IV. Health maintenance and rehabilitation.
- V. Education for an aging population.
- VI. Family life, living arrangements, and housing.
- VII. Creative and recreational activities.
- VIII. Religious programs and services.
- IX. Community organization.
- X. Professional personnel.

Sections IA and IB, originally a unit, were split into the two separate parts as planning developed the need for special concentration on research.

Each planning committee was assisted by a previously established special secretariat which handled the mechanics and clerical work involved in identifying potential delegates. The secretariat arranged for meetings of planning committees, wrote and distributed minutes of the meetings, and assembled background material.

The secretariats included representatives of several Federal offices in addition to the Federal Security Agency—the Departments of Labor, Commerce, Agriculture, and Interior, the Housing and Home Finance Agency, and the Veterans' Administration. Later, at the request of the planning committees, some 40 Federal employees were invited to participate as delegates because of the contributions they could make as individuals rather than as representatives of the departments in which they work.

The Conference Itself

Except for a luncheon meeting at the beginning of the Conference, a dinner meeting at the end of the first day's work, and a luncheon meeting which preceded the close of the assembly, the delegates met as separate sections in working sessions. These sections also followed the general plan of having preliminary, interim, and final sessions for all section members, but their major work was carried on by small subsections which explored specific aspects of the subject assigned to the section for consideration. Each section thus repeated in miniature the processes of the Conference as a whole, and each consisted of representatives of all broad fields of occupation and activity represented within the Conference. It was believed, and subsequently proved, that greater cross-fertilization of experience and knowledge and more effective patterns of subsequent teamwork would result from having each section and subsection reflect the entire Conference in composition and operation.

Both advantages and disadvantages are to be found in this approach. Meetings of large numbers of people from various fields of activity, each person equipped to throw light on some particular phase of the problems of aging, could not hope to draw up specifications or produce blueprints for comprehensive and integrated programs for the aging. On the other hand, if each section had considered only the role of some one professional group or one form of activity in improving the welfare of the aging and aged, plans for action might have been specific but would probably have lacked adequate recognition of other services and other groups in work with the aged.

Putting first things first, it seemed essential to identify the prob-

lems of the aged, measure the dimensions of those problems, and see their implications for every phase of life and activity in the United States. This experiment in group dynamics will, of course, have to prove its value later in the extent to which groups of educators, health personnel, employment counsellors, insurance experts, social workers, clergy, housing administrators, and other professions represented, recognize in their own professional groups the contribution they can make to the welfare of the aged and work with others in their community to develop plans for action that will take account of the principles and purposes developed in the Conference.

Principles Developed

Editorial committees, appointed by the delegates for each section, are preparing final reports of the work of their groups for publication in a volume for the Conference as a whole. Until these individual reports are completed and approved for each section, it is premature to give any details on the results of each section's work. Certain general statements presented by the section chairmen at the final meeting of the Conference can serve, however, to indicate the general principles and direction of discussion that characterized the forum.

The situation posed by the increasing numbers and proportions of older people in the population was recognized as so critical that the problems of aging require simultaneous and immediate attention of many groups and interests in the Nation. By 1975, our population will contain some 20 million people aged 65 or over. The decline in the birth rate over the past century is mainly responsible for the growing proportion of aged persons in the population. Improvement in health and medical care has been a contributing, though a secondary factor, but its importance with advancing medical knowledge and technique may well increase.

Technological changes, shifts in demands for labor in certain types of occupations, declining opportunities for self-employment, current employment practices, and compulsory retirement programs have lessened the chances for older people to earn their living. Only 45 percent of the men aged 65 or over are now in the labor force as compared with 68 percent in 1890.

Many delegates considered that continuing employment of older workers is essential to provide adequate financial support of the aged themselves and to meet the production needs of the country as a whole. Basic research is advocated to determine the employability of older workers, the advantages of a flexible retirement age, and the possibility of general adjustment of labor, management, and community planning to meet the economic implications of the diminishing ratio of young workers to their aged dependents.

As individuals, older persons have all the fundamental needs and desires of human beings of other age groups. As in the past, satisfaction of those needs must and should continue to be mainly a product of individual effort. That effort, however, is of little avail unless it can be exerted in a favorable environment. Aging affects not only the individual, but also his family, his community, and society as a whole. The hope of improving the environment for the aged themselves, and, in turn, the environment they create for others, rests in accumulation of wider knowledge, understanding, and acceptance of the aging process. Among the measures recognized as essential are greater effort and success in maintaining the health and functional capacity of older people and in furthering their opportunities for satisfactory living arrangements. The aged should not be considered a separate problem or population group. They should be able to maintain active participation in family and community life and satisfactory and satisfying use of leisure. A large part of the problem can be solved by promoting among the aging adequate mental, emotional, and spiritual adjustment to changes in all age groups throughout the life cycle of growth and development.

Education for aging must start early and should encompass the whole gamut of human needs and activities. Personnel who work with the aged should have clearer understanding of the needs of the aged and of the challenge and opportunities for positive achievements in helping the aged maintain satisfying and productive roles in their relations with other age groups and the community as a whole. Communities should make greater efforts to discover the needs of the aged, to foster more constructive attitudes toward the problems of aging, and to develop techniques and facilities for constructive services for and with the aged.

Results in Light of Objectives

Within its specific and clearly limited objectives, the National Conference on Aging achieved notable success, if that success can be measured by the enthusiastic participation of delegates, tireless and constructive efforts of the planning committees and their secretariats, and letters and comments on its organization and procedures. The six objectives, as defined for the program were to:

1. Provide a forum for persons concerned with aging.
2. Reevaluate the potentialities of older people toward ensuring their useful and satisfying participation in the life of the community.
3. Stimulate the exchange of ideas among persons of varied experience, with a view to solving problems of the aging through voluntary and public organizations in each State, city, and community.
4. Define the nature and extent of these problems as they affect the individual, his family, his community.

5. Promote research on aging in such fields as employment, health, education, recreation, rehabilitation, and social and psychological adjustment.

6. Transmit the findings of this Conference to interested groups, including the Federal Government, as guide lines for developing policies with regard to our older people.

Only the first four of those objectives could be accomplished within the time span of the Conference itself. The fifth will perhaps be furthered when the sixth is achieved through publication of the detailed reports of the sections as a synthesis of a Nation-wide evaluation of what the aging need and what can be done to clarify and meet those needs.

If the enthusiasm and interest created by the Conference bear fruit in each community from which the delegates were drawn, important steps seem assured in approaching the aims carried on the masthead of the *Journal of Gerontology*, "To add life to years, not just years to life."

Incidence of Disease

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

Reports From States for Week Ended September 30, 1950

New cases of acute poliomyelitis reported in the United States during the current week numbered 1,994, an 8 percent decrease from the 2,170 cases reported for the preceding week. This is the first week since May 20 that a decrease has been reported from the preceding week. The figure for this week is higher than the corresponding number (1,852) for 1949. The week of peak incidence of this disease to date occurred last week, the latest week in any year during the past 20 years, with the exception of 1932.

The cumulative total number of reported cases of poliomyelitis (20,405) for the current "disease" year was below the corresponding total (32,204) for last year, the highest on record. The "disease" year for acute poliomyelitis begins with the twelfth week of the calendar

Comparative Data for Cases of Specified Reportable Diseases: United States

[Numbers under diseases are International List numbers, 1948 revision]

Disease	Total for week ended		5-year median 1945-49	Seasonal low week	Cumulative total since seasonal low week		5-year median 1944-45 through 1948-49	Cumulative total for calendar year		5-year median 1945-49
	Sept. 30, 1950	Oct. 1, 1949			1949-50	1948-49		1950	1949	
Anthrax (062).....	1	1	(1)	(1)	(1)	(1)	(1)	33	41	(1)
Diphtheria (055).....	131	197	289	27th	1,021	1,499	1,933	4,149	5,267	8,230
Acute infectious encephalitis (082).....	28	44	32	(1)	(1)	(1)	(1)	707	577	483
Influenza (480-483).....	1,282	1,019	1,111	30th	7,852	5,827	5,827	254,111	81,694	146,798
Measles (085).....	667	509	612	35th	2,225	1,886	2,178	290,396	590,404	554,446
Meningococcal meningitis (057.0).....	62	54	54	37th	113	102	102	2,912	2,618	2,727
Pneumonia (490-493).....	689	969	(1)	(1)	(1)	(1)	(1)	64,856	60,700	60,700
Acute poliomyelitis (080).....	1,994	1,852	1,296	11th	20,405	32,204	18,035	21,537	33,119	18,502
Rocky Mountain spotted fever (104).....	1	10	10	(1)	(1)	(1)	(1)	3,422	531	505
Scarlet fever (050).....	474	586	675	32d	2,331	2,366	3,048	42,501	60,032	65,151
Smallpox (084).....	(1)	(1)	(1)	35th	(1)	2	4	26	43	149
Tularemia (059).....	13	13	13	(1)	(1)	(1)	(1)	734	918	763
Typhoid and paratyphoid fever (040,041).....	90	109	111	11th	2,168	2,596	2,596	2,678	3,084	3,084
Whooping cough (056).....	1,630	1,421	1,728	39th	118,731	56,635	101,893	97,195	46,602	75,875

¹ Not computed. ² Deduction: Alabama, weeks ended Jan. 28 and Feb. 25, 1 case each; Georgia, weeks ended Sept. 16 and 23, 1 case each. Addition, Indiana week ended Sept. 16, 10 cases. ³ Addition: Arkansas, week ended Sept. 16, 1 case. ⁴ Including cases reported as salmonellosis.

year; the cumulative total for the calendar year was 21,537, compared with the total of 33,119 for the corresponding period last year.

For the current week, reported cases of acute poliomyelitis in 5 of the total of 9 geographic divisions decreased from the preceding week. These decreases ranged from 81 (290 to 209) cases reported in the West North Central States to 4 (99 to 95) in the New England States. The increase in 3 other divisions was small, with the Middle Atlantic States showing no change.

For the current week, the States reporting the largest numbers of cases of acute poliomyelitis were: New York (331), Ohio (159), Michigan (152), Illinois (130), Pennsylvania (118), and Texas (92).

Alaska reported 11 cases of acute poliomyelitis, compared with 3 last week. The cumulative total for the calendar year was 15.

The total number of cases of infectious encephalitis reported for the week was 28 compared with 44 for the corresponding period last year. For the calendar year, a total of 707 cases was reported, the highest number in the past 5 years.

The total number of cases of whooping cough reported during the current week concludes the "disease" year with a total of 118,731. The "disease" year begins with the fortieth week in each calendar year for reported cases of whooping cough. The largest total number of cases reported for any year in the past 5 "disease" years was 146,266.

One case of anthrax was reported in Pennsylvania and no smallpox was reported in the United States. Of 37 States and the District of Columbia reporting on rabies in animals, 22 States and the District of Columbia reported no cases. The remaining 15 States reported 100 cases with the largest numbers reported in Iowa (26), New York (15), and Texas (11).

Deaths During Week Ended September 30, 1950

	<i>Week ended September 30, 1950</i>	<i>Corresponding week, 1949</i>
Data for 94 large cities of the United States:		
Total deaths.....	8, 877	8, 482
Median for 3 prior years.....	8, 544	-----
Total deaths, first 39 weeks of year.....	357, 760	357, 805
Deaths under 1 year of age.....	641	680
Median for 3 prior years.....	685	-----
Deaths under 1 year of age, first 39 weeks of year..	24, 215	25, 537
Data from industrial insurance companies:		
Policies in force.....	69, 560, 555	70, 132, 584
Number of death claims.....	11, 442	11, 844
Death claims per 1,000 policies in force, annual rate.....	8. 6	8. 8
Death claims per 1,000 policies, first 39 weeks of year, annual rate.....	9. 3	9. 2

**Reported Cases of Selected Communicable Diseases: United States,
Week Ended September 30, 1950**

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diph- theria (055)	Enceph- alitis, in- fectious (082)	Influ- enza (480-483)	Measles (085)	Manin- gitis, men- gococcal (057.0)	Pneu- monia (490-493)	Polio- myelitis (080)
United States	131	28	1,282	667	62	689	1,994
New England			2	49	4	20	95
Maine.....				1		6	13
New Hampshire.....			2				6
Vermont.....				3			1
Massachusetts.....				22	3		40
Rhode Island.....				4		2	4
Connecticut.....				10	1	12	31
Middle Atlantic	11	4	2	194	10	173	517
New York.....	7	3	(1)	56	4	127	331
New Jersey.....			2	39		18	68
Pennsylvania.....	4	1		39	6	28	118
East North Central	2	1	17	139	11	55	548
Ohio.....				10	2		159
Indiana.....	1		3	6		3	46
Illinois.....		1		33	6	38	130
Michigan.....	1			13	1	13	152
Wisconsin.....			14	77	2	1	61
West North Central	7	2	1	22	10	25	200
Minnesota.....	3		1	4	3	2	32
Iowa.....	1			1	1		86
Missouri.....				5		6	28
North Dakota.....					3	11	
South Dakota.....				4	1		10
Nebraska.....				2		1	26
Kansas.....	3	2		6	2	5	27
South Atlantic	62	1	220	23	11	79	246
Delaware.....				6			3
Maryland.....				4	1	16	47
District of Columbia.....					2	13	14
Virginia.....	2		164	7	1	27	61
West Virginia.....	9		34	5	1	2	29
North Carolina.....	31			5	3		41
South Carolina.....	6		16	1	3	3	13
Georgia.....	11	1	4	4		7	26
Florida.....	3		2	1		11	12
East South Central	17	3	38	46	6	20	71
Kentucky.....	5			26	2	6	30
Tennessee.....	1	2	17	14			28
Alabama.....	3	1	18		3	6	6
Mississippi.....	8		3	6	1	8	7
West South Central	20	3	889	92	6	226	138
Arkansas.....	4		46	9		10	16
Louisiana.....	1		1			10	12
Oklahoma.....	2		23	4		11	18
Texas.....	13	3	819	79	6	195	92
Mountain	11	1	96	56	2	29	38
Montana.....	2		11	13			2
Idaho.....	1		14	8			13
Wyoming.....						2	
Colorado.....			10	6		14	6
New Mexico.....	1			1	1	10	3
Arizona.....	7	1	61	2	1	3	5
Utah.....				26			9
Nevada.....							
Pacific	1	13	17	105	2	62	132
Washington.....			14	31		1	41
Oregon.....			1	13	1	8	26
California.....	1	13	2	61	1	53	65
Alaska.....			5				
Hawaii.....			6	3			

¹ New York City only.
Anthrax: Pennsylvania, 1 case.

**Reported Cases of Selected Communicable Diseases: United States, Week
Ended September 30, 1950—Continued**

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever ¹ (040,041)	Whooping cough (056)	Rabies in animals
United States.....	1	474	-----	13	99	1,639	100
New England.....		45			2	212	
Maine.....		4				26	
New Hampshire.....		2				30	
Vermont.....		7				27	
Massachusetts.....		26			1	57	
Rhode Island.....		2			1	50	
Connecticut.....		4				22	
Middle Atlantic.....		70			14	394	16
New York.....		33			3	133	15
New Jersey.....		11			3	87	
Pennsylvania.....		26			8	84	1
East North Central.....		87		1	6	367	15
Ohio.....		33		1	1	76	5
Indiana.....		8			2	28	
Illinois.....		16		1	1	32	3
Michigan.....		23			1	143	7
Wisconsin.....		7			1	88	
West North Central.....		19		3	10	87	26
Minnesota.....		7				12	
Iowa.....						15	26
Missouri.....		7		2	8	23	
North Dakota.....						15	
South Dakota.....						1	
Nebraska.....		1			1	4	
Kansas.....		4		1	1	17	
South Atlantic.....		96		3	11	146	12
Delaware.....							
Maryland.....		9				20	
District of Columbia.....		1				1	
Virginia.....		9		1	1	25	
West Virginia.....		6			2	15	
North Carolina.....		57		2	3	55	
South Carolina.....		6				2	5
Georgia.....		8			5	16	7
Florida.....						12	
East South Central.....		70		1	17	69	13
Kentucky.....		11			5	22	4
Tennessee.....		38			4	34	4
Alabama.....		14		1	7	25	5
Mississippi.....		7			1	8	
West South Central.....		27		2	18	202	17
Arkansas.....		4		1	7	16	2
Louisiana.....		2			4	2	
Oklahoma.....		8		1		10	4
Texas.....		13			7	174	11
Mountain.....	1	11		3	6	107	1
Montana.....		1			2	20	
Idaho.....		2				8	
Wyoming.....				1			
Colorado.....		4			2	26	
New Mexico.....		2			1	11	
Arizona.....		1			1	38	1
Utah.....	1	1		2		4	
Nevada.....							
Pacific.....		49			6	116	
Washington.....		11				28	
Oregon.....		4				12	
California.....		34			6	76	
Alaska.....		1			1		
Hawaii.....							

¹ Including cases reported as salmonellosis.

² Including cases reported as streptococcal sore throat.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended Sept. 9, 1950

Disease	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis.....					7	1	1		2		11
Chickenpox.....			4		12	100	10	15	24	14	179
Dysentery, bacillary.....					6	6	4			2	18
German measles.....			9		46			21	2	7	85
Influenza.....			8		2		5			1	16
Measles.....			3		46	115	5		2	10	181
Meningitis, meningococcal.....					3	2		1			6
Mumps.....			1	1	44	65	6	42	32	25	216
Poliomyelitis.....					1	29		5	16	6	57
Scarlet fever.....	1		1		27	15	7	2	10	5	68
Tuberculosis (all forms).....	14		6	26	146	14	7	7	1	28	249
Typhoid and paratyphoid fever.....					8				1	19	28
Veneral diseases:											
Gonorrhoea.....	3		7	7	87	59	30	123	48	86	350
Syphilis.....	3		7	10	61	18	3	126	5	4	137
Other forms.....										1	1
Whooping cough.....			10	3	98	138	24		3	29	305

¹ The total of 49 cases of venereal diseases reported in Saskatchewan Province includes 24 cases discovered as a result of a recent survey.

JAPAN

Reported Cases and Cumulative Totals of Certain Diseases and Deaths—5 Weeks Ended July 29, 1950

Disease	5 weeks ended July 29, 1950		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Anthrax.....	2		2	
Diarrhea, infectious.....	14		60	
Diphtheria.....	704	28	7,013	628
Dysentery, unspecified.....	11,919	2,412	19,046	3,757
Encephalitis, Japanese "B".....	8	3	8	3
Filariasis.....	10		57	
Influenza.....	39		20,768	
Leprosy.....	43		346	
Malaria.....	195	8	596	29
Measles.....	6,681		45,187	
Meningitis, meningococcal.....	83	25	625	173
Paratyphoid fever.....	352	8	966	42
Pneumonia.....	7,271		107,205	
Poliomyelitis.....	625		1,531	
Puerperal infection.....	78		506	
Rabies.....	4		34	
Scarlet fever.....	552	5	3,459	17
Schistosomiasis.....	119		349	
Smallpox.....	2		6	
Tetanus.....	202		1,056	
Trachoma.....	19,991		102,651	
Tsutsugamushi disease (scrub typhus).....	33		33	
Tuberculosis.....	51,929		266,575	
Typhoid fever.....	788	72	2,815	335
Typhus fever.....	33	1	928	53
Veneral diseases:				
Gonorrhoea.....	17,659		99,802	
Syphilis.....	11,859		75,332	
Whooping cough.....	18,299		84,527	

NOTE.—The above figures have been adjusted to include delayed and corrected reports.

JAMAICA

Reported Cases of Certain Diseases—4 Weeks Ended Aug. 26, 1950

Disease	Kingston ¹	Other localities ¹	Total
Chickenpox.....	6	7	17
Diphtheria.....	5	3	9
Erysipelas.....	-----	1	1
Leprosy.....	1	4	6
Ophthalmia neonatorum.....	-----	1	1
Poliomyelitis.....	1	1	3
Scarlet fever.....	-----	1	1
Tuberculosis, pulmonary.....	32	42	87
Typhoid fever.....	5	38	57
Typhus fever (murine).....	2	-----	3

¹ Figures given for "Kingston" and "Other localities" separately are for the 3 weeks ended Aug. 5, 12, and 26. Report giving these figures for week ended Aug. 19 not received.

NEW ZEALAND

Reported Cases of Certain Diseases and Deaths—4 Weeks Ended June 24, 1950, 5 Weeks Ended July 29, 1950, and 4 Weeks Ended August 26, 1950

Disease	4 weeks ended June 24, 1950		5 weeks ended July 29, 1950		4 weeks ended Aug. 26, 1950	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Actinomycosis.....	-----	-----	1	-----	1	-----
Brucellosis.....	4	-----	6	-----	3	-----
Diphtheria.....	10	-----	13	-----	9	-----
Dysentery:	-----	-----	-----	-----	-----	-----
Amebic.....	1	-----	4	-----	6	-----
Bacillary.....	10	-----	23	-----	9	-----
Erysipelas.....	10	-----	11	-----	14	-----
Food poisoning.....	40	-----	3	-----	2	-----
Influenza.....	-----	-----	-----	-----	1	1
Meningitis, meningococcal.....	6	-----	16	-----	18	-----
Ophthalmia neonatorum.....	1	-----	1	-----	-----	-----
Poliomyelitis.....	7	-----	11	-----	3	-----
Puerperal fever.....	6	-----	3	-----	1	-----
Scarlet fever.....	101	-----	127	-----	69	-----
Tetanus.....	1	1	1	-----	3	-----
Trachoma.....	-----	-----	-----	-----	1	-----
Tuberculosis (all forms).....	153	41	202	48	201	54
Typhoid fever.....	11	1	6	1	5	-----

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

The following reports include only items of unusual incidence or of special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently. A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Cholera

Burma. During August 1950, five cases of cholera (one fatal) were reported in the port of Rangoon.

India. A decided increase in the reported incidence of cholera has been noted in Madras since the week ended August 19, when 5 imported cases were reported. Reports by weeks since that date are

as follows: Weeks ended—August 26, 6 cases; September 2, 11 cases; September 9, 17 cases; September 16, 27 cases; September 23, 39 cases.

India (French). During the week ended September 9, 1950, 27 cases of cholera were reported in Pondicherry.

Plague

Belgian Congo. During the week ended September 23, 1950, one fatal case of pneumonic plague was reported in Stanleyville Province, at Wasa, northeast of Blukwa.

China. Plague has been reported in Kwangtung Province as follows: March 1–31, 1950, 141 cases, 71 deaths; April 1–30, 169 cases, 61 deaths; May 1–31, 69 cases, 10 deaths.

Union of South Africa. On August 31, 1950, one fatal case of plague was reported at Fauresmith, Orange Free State. This is a new focus of the disease in Orange Free State.

Smallpox

Belgian Congo. A mild form of epidemic smallpox has been reported in Leopoldville Province, Belgian Congo since the first of July. In Belgian Congo during July, 503 cases were reported, and 787 cases during August. Reports for September are as follows: Weeks ended—September 2, 117 cases; September 9, 170 cases; September 16, 245 cases. The highest reported incidence has been in Leopold, Lusambo, and Stanleyville Provinces.

British East Africa. According to reports recently received the incidence of smallpox in Tanganyika has apparently been high throughout the current year. Up to July 1, 1,955 cases had been reported. During July 770 cases (138 deaths) were reported including 100 cases, 15 deaths, delayed reports from the previous period. The recorded incidence for week ended August 5 was 99 cases, with 5 deaths. The majority of cases reported have occurred in Southern Province. Small numbers of cases have been reported in the port cities of Lindi and Minkindani.

Indonesia. Reported incidence of smallpox continues high in Surabaya, Java, where 155 cases were reported for the week ended September 16. During the week ended September 9, 38 cases were reported in Bandjermasin, Borneo.

Regular Corps Examination for Psychologists

Examinations for scientists (psychologist) in the Regular Commissioned Corps of the Public Health Service will be held December 11, 12, and 13 in various cities throughout the country. Completed applications must be in the Washington office by November 13.

Appointments are permanent and provide opportunities for career service in clinical psychology and research. Benefits include periodic pay raises and promotions; liberal retirement provision; medical care; annual and sick leave.

Appointments will be made in the grades of assistant and senior assistant, equivalent to Army ranks of first lieutenant and captain, respectively. Entrance pay is \$4,486.56 for assistant (with dependents) and \$5,346 for senior assistant (with dependents), including rental and subsistence allowance. Applicants must expect to receive the doctor's degree in psychology no later than September 1951.

The written professional examination will place proportionately greater emphasis on clinical psychology. Other areas of psychology, such as developmental, social, experimental, physiological, historical and theoretical, tests and measurements, etc., deemed appropriate to the training and experience of the post doctorate will be included. Some background may be required in the sciences relevant to psychology.

For application forms and additional information write to Surgeon General, Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers.
