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A Method of Home Care for Prolonged Illness

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Caring for a patient in his home is, of course, not at all a new practice. Patients with various clinical conditions have always received some degree of medical attention in their homes. Some programs have been devised for giving home care to indigent patients as a supplement to hospital care (1).

Home care, as it has been developed at Montefiore Hospital and as proposed in recommendations here and abroad for more effective and economical care of patients, is a term used with a specific meaning. It connotes uninterrupted medical supervision and treatment through "extramural" services from the hospital when the patient can return to his own home and obtain as much or even more benefit from treatment than if he continued to occupy a hospital bed.

This concept of home care appeals to the public for many reasons. The most important, perhaps, is the need for a change in emphasis in medical practice to provide adequately for our aging population. The infectious diseases have only recently lost their preeminence as causes of death. Advances in medical technology have enabled most patients to survive at least their first encounter with the more common diseases. Consequently, effort is being directed to the possible solutions of the growing problems of long-term illness.

The costs of facilities and personnel necessary to hospitalize all these patients are rapidly becoming prohibitive. There appears to be no practical alternative to hospitalization other than some form of home care. Furthermore, it has been estimated that about 70 percent of those afflicted with a long-term illness can best be cared for at home, provided adequate supervision and assistance are available (2). A practical demonstration of a home-care program in Montefiore Hospital has been hailed as a partial solution to these growing problems and appears at first glance simple and universally applicable. In the words of the editorial staff of the *American Journal of Public Health* (3), this effort is an example of the concept of home

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care as a hospital function which "has perhaps never been developed with such completeness and success."

The purpose of this report is in part to dispel the impression that the method is extremely simple in its execution and therefore to question its indiscriminate use, except where conditions are fairly ideal. "It is essential, however, to remember that its successful application depends on a high degree of hospital development in the fields of medical staff, social service, nursing, physical and occupational therapy. It would be most unfortunate if so fruitful a concept were to be discredited by wholesale displacement of patients by hospitals which lack the facilities to carry the program out successfully." (3)

This brief summary will not attempt to outline all the work and philosophy that went into the development of the program as it now operates. Invaluable material to aid in understanding the basic concepts can be found in the writings of Dr. E. M. Bluestone, Director of Montefiore Hospital (4, 5, 6, 7) and Dr. Martin Cherkasky, Home Care Executive (8, 9, 10), through whose kind cooperation the following observations were made possible (11).

Summary of Underlying Philosophy

The rationale of caring for long-term illness in the home as well as in a hospital bed is based on many considerations—medical, social, and economic.

Medical Considerations

Many patients with long-term illnesses require the facilities of the present day hospital for only a small part of the time spent in the hospital bed. Too frequently patients who have had an adequate "work-up" become "maximum benefit" cases because of the present limitations of medical technology. These patients frequently occupy a hospital bed that is sorely needed by the community, and are too often neglected in the general hospital because of the greater demand for active care of the "acute" patients in other beds. To free the bed, a chronically ill patient may be sent home without provision for any after-care that may be needed. As a result, the patient is readmitted to the hospital when the family, unaided, cannot provide adequately for such after-care. Often the patient is much too ill to return for treatment in the out-patient department. Since this treatment is frequently the only care available, a patient may undergo great hardship to keep up his visits to the out-patient department for a brief period, and later falls back onto his own resources which are usually inadequate. These observations are not to be construed as criticism of either present in-patient or out-patient practices but merely points out a situation which exists in spite of the best care to be obtained in either of these facilities.

The points are raised to indicate a possible redefinition of the true position of the hospital as a center where patients must go when they need the immobile facilities for diagnosis and treatment available only in such a place. Patients should not occupy the resident facilities of the hospital when the medical and allied services can be easily transferred to an "extramural" setting.

Medically, then, the consideration motivating a system of home care is one of providing care to a patient during illness by utilizing the bed already available in his home, and the care which the family can give if shown the way. Furthermore, during a home visit from the hospital staff, the patient gets undivided attention. He does not have to compete with other patients as he does in the hospital or the out-patient department if he can visit the latter. In his home, the emotional factors contributing to his illness can be better evaluated and more appropriately solved. Instead of being separated from the environment in which he became ill, as is the case during hospitalization, the patient can be treated within his natural environment, and the influences of the latter on the illness can be viewed as accurately as any other finding. Home care, then, is not a replacement for either hospitalization or out-patient care, but bridges the gap between them. It serves the patient who cannot or should not get the treatment he needs in either of those services.

From the medical standpoint, a patient is suitable for home care when he meets the following conditions:

1. He must have had a complete medical evaluation of his disease, which is usually but not necessarily accomplished in a prior period of hospitalization.

2. His condition must be such that the therapy necessary for good medical care can be applied in the home. It is obvious that the patient's condition must also be such that out-patient care would not be satisfactory.

The limited knowledge presently available concerning home care makes outlining of more specific indications or criteria impractical. The staff's experience in caring for these patients in the home develops in them the judgment necessary to choose the appropriate case, judgment which is comparable to that necessary for the prescription of any medical or surgical technique.

For the first 2 years of operation at Montefiore, 261 patients have received home care. Of these, 177 had carcinoma and 84 had non-neoplastic illnesses. In the carcinoma group—which had some preference because of source of funds, accounting somewhat for the preponderance of cases—the type of lesions were: Breast, 46; lung, 25; rectum, 19; stomach, 16; cervix, 12; colon, 6; leukemia, 5; gall bladder, 4; laryngopharynx, 4; kidney, 3; uterus, 3; ovary, 2; tongue, 2; skin, 2; pancreas, 2; liver, 2; parotid, multiple myeloma, testis, bladder,

thyroid, 1 each. In 19, the primary sites were uncommon or could not be accurately determined.

Of the non-neoplastic illnesses, there were 30 cases of cardiovascular disease, either arteriosclerotic or hypertensive, or both; 15 neurological lesions of various descriptions; 8 diabetes; 6 peripheral vascular disease; 5 rheumatic heart disease (now a separate program); 4 pulmonary tuberculosis; 3 arthritis; 3 ulcerative colitis; 2 bronchiectasis; 2 aortic aneurism; and 6 miscellaneous conditions.

Social Considerations

The patient at home "has not only the comfort of his own bed and the freedom of his own household regime; but a more personalized medical service when a doctor visits two or three times in his home than can be involved in the routine of ward rounds where attention is inevitably focused on new and critical cases." (3) He is spared contact with the misfortunes of others in adjoining beds in the hospital. He is once more a member of the family, participating in the operation of the household, in the family's social life, or in the plans for educating the children, rather than a mere patient in a numbered bed, waiting for his family to visit, frequently feeling rejected. Although he may have a relatively brief period of life expectancy, he can to a large extent maintain his customary family position at home—an all but impossible achievement while within the hospital walls.

Hence, in addition to the medical indications for home care, certain social conditions must also be fulfilled if the theoretical considerations are also to be practicable.

1. He must have a home with certain physical facilities—such as accessible bathroom, suitable bed space—which will make it possible for him to receive the care that may be necessary.

2. His family must be ready and able to assume the burden of care at home and must in many cases receive instruction on methods of making the home environment suitable. An attitude of discouragement within the home may be more devastating emotionally than dispassionate neglect in the hospital.

3. The patient must prefer to be at home and want to maintain his place as a member of his family group.

4. The patient and family must be able to establish reasonable rapport with the medical social worker or comparable person who is to help the family with its socio-economic problems.

When the criteria of the preceding section are combined with those stated above, it appears that the patient must be suitable for this type of care from both the social and medical standpoints. Home care is more than merely a means of emptying hospital beds; it is a specific method of care for a specific type of patient who, for optimal

results, can best be cared for in the home. When the program operates effectively, no amount of hospital care could substitute for the personalized home care these patients receive.

Economic Considerations

Home-care programs now operating (9, 12, 13) have demonstrated that the actual cost of caring for a patient at home is one-third to one-fifth the cost of keeping the patient in the hospital. These studies are not complete, for adequate figures can be obtained only when full-scale programs are launched and adequate control series are available for comparison. At present, we can merely compare the average cost of hospitalization per patient-day and the average cost of home care per patient-day. It would be well also to study the actual cost of hospitalizing patients suitable for home care, readmission rates, periods when no hospitalization is given, and the like, to find the true cost of this method of providing long-term care. The relative length of time that home care is given these patients is one important factor that has not been studied adequately because the experiment, although successful, is not old enough for such conclusions.

Two significant items account for the probable difference between the costs of home care and hospitalization. One is the initial cost of facilities; the other is maintenance. Without some alternative method of caring for these patients, an expensive bed in an expensive hospital must be built, and nursing and maintenance personnel provided to operate this expensive facility. Housekeeping services, linen, laundry, food, etc., and the personnel who provide them are costly items. The cost of nursing care is reduced appreciably in home care although not eliminated. All these factors tend to indicate where the actual saving lies. Detailed cost break-downs must await comprehensive studies of all these factors, as well as extension of home care to an entire community, demonstrating its universal applicability.

Modus Operandi

Referral and Selection of the Patient

Since the first criterion for a patient to be acceptable for home care is a complete medical evaluation, the attending physician must initiate home care. If, in the opinion of the physicians responsible for in-patient care, the patient can no longer benefit from remaining in the hospital, the usual procedure is to have the pertinent information concerning the patient's medical condition presented to the physician in charge of the home-care program. These data are usually recorded

on a standard referral form which includes such information as complete description of the diagnosis, the present status of the patient's capacity for attending to his own needs, and a statement of the medication received. After review of this information, the physician in charge sees the patient and reevaluates the medical condition in the light of his experience with the type of patient found to be suitable for home care. Should the medical condition warrant, a social service evaluation of the patient is then undertaken, using the criteria outlined previously.

If the patient meets the necessary social conditions and is accepted for home care, the house physician makes available a complete summary of the patient's illness (history, physical condition, laboratory findings, course in hospital, etc.) which becomes the basis on which the home-care chart is developed. The patient receives for use at home a supply of the medication he was receiving at the hospital. Discharge from the hospital is then arranged in the usual manner.

First Home Visit

Within 24 to 48 hours after discharge, the patient is visited by the physician in charge and the social worker, who view the patient within his home situation and thus have more conclusive impressions than those gained from seeing the patient and his home as detached entities. Problems which first appear at this point may require attention to make the patient actually "feel at home."

The physician then, already aware of the medical condition of the patient, checks his physical condition and prescribes the medication that will be necessary.

The needs for nursing care, housekeeping aid, dietitians, special equipment, physical therapy, and occupational therapy are evaluated, and appropriate services are arranged for the patient on recommendation of the home-care physician.

Subsequent Visits by Physicians

The physicians working on the program are then scheduled to see the patient at least once a week, sometimes more frequently, just as rounds are conducted in the hospital. Physical and laboratory examinations are made as may be deemed necessary by the visiting physician, and medications are prescribed. Consultations are recommended when necessary, utilizing the specialist staff at the hospital and paralleling procedures in the ward routine. One morning a week is usually devoted to "rounds" on problem cases by an attending staff physician. After each visit, a clinical note is made in the patient's chart, thus making the record readily available to the other home-care physicians and to the house physicians if and when readmission to the hospital is considered advisable.

On recommendation of the visiting physicians, the patient may be returned to the hospital on a priority basis for a short stay for staff conference, special laboratory studies, and the like. While receiving home care, the patient is considered to be in an "extramural" hospital bed with all the hospital's facilities readily available to him.

Visits to the patients are scheduled so that the physicians on the program see each patient periodically. If the patient prefers a particular physician, his wishes are complied with so far as practicable. A physician in rotation is always available for emergency call.

Visits of Auxiliary Personnel

On recommendation of the physician, a visiting nurse (either from the public health department or a voluntary agency such as Visiting Nurse Service) visits the patient. She gives bedside care, bed baths, enemas, and parenteral medication, and helps with such procedures as paracentesis, transfusion, and the like, in addition to dressings and any other nursing procedures deemed necessary. Probably one of the most important functions of the nurse is to educate a responsible member of the family to give the patient the care needed between visits. The nurse thus helps the family gain the understanding of the patient's condition that is essential to intelligent management of the case. She also has an opportunity to demonstrate the value of available community health services for other members of the family when conditions warrant.

The physical therapist and the occupational therapist apply their efforts to improving the patient's ability to care for himself physically and economically, in selected cases, on recommendation of the physician who evaluates the patient's ability to receive such services. Housekeeping aid is also arranged for if necessary to improve the patient's ability to care for himself or the family's ability to care for the patient.

The social service worker makes regular periodic visits to help with any problems which may arise.

In this manner, all resources available are placed at the disposal of the patient, necessitating, of course, close interagency working relationships.

Subsequent Status of the Patient

In the course of home care, the patient's condition may result in the following changes, though he may remain on home care with little change for long periods of time:

1. Hospitalization may be necessary at any time for special tests, therapies, conferences, and any number of other valid reasons.
2. The patient may improve sufficiently to receive care in the outpatient department and is then discharged from home care. Ultimately

he may recover sufficiently to require a minimum of follow-up care.

3. He, of course, may die at home or may be readmitted to the hospital before death.

Ideally the patient stays on home care only so long as he needs and can benefit from the home-care services.

Medical Records

A short description of the way in which the medical chart of the patient is kept will round out the discussion of the manner in which this program operates. It seems needless to discuss the many reasons why good records must be kept. However, as will appear from the following details as to what goes into the home-care patient's record, these charts resemble hospital records in all but minor details, and lend themselves to the same uses.

For the purpose of record keeping, the home-care record is a separate entity, while the patient's chart kept during his stay at the hospital is returned either to the record library or is retained in the file of the home-care department where it is available for ready reference. The hospital chart is summarized and a typewritten copy which contains as much pertinent information as is possible constitutes the main link between the hospital and the home insofar as continuity of care is concerned.

The referral form mentioned in the section on Referral and Selection of Patient is also in the home-care chart and is valuable in that it carries the recommendation of the attending physicians as to the extent of activity, type of medication, and the like, that the patient is tolerating, and is a guide to the type of regime on which the patient can be expected to continue. Since it also carries the initial general evaluation of the patient's condition by the supervising physician, it can be of value as a guide for future management.

After the first home visit, the physician starts his notes with an extensive statement similar to the admission note of a hospital patient. Subsequent physician's visits are followed by the usual type of progress note.

Social service evaluation and subsequent case work appear on a special social service form and contain all the pertinent information that will be necessary for an understanding of the social problems involved.

Nurses' notes are not made after each visit as is the custom in hospital charts where notes are entered many times a day. All cases on home care have an initial nurses' evaluation which is a complete description of the existing nursing problems with recommendations as to future care. For those cases which require extended

nursing care, monthly evaluations are usually made on a standard interagency referral form in use in New York City for all similar "referrals."

Reports of laboratory work and X-ray studies are made on the forms in use in the hospital.

The patient has, then, a chart which resembles an out-patient department record or hospital ward record (except for the nurse's notes). These charts are kept in the home-care office, as they might be kept in the nurse's station, rather than at the patient's bedside. The charts may be carried with the visiting physician if he so desires on his visits but are returned at the end of each day for notes to be entered. All notes are dictated to a stenographer who types all the records, including the progress notes.

These records are made available to the hospital personnel when the patient is readmitted. They are returned to the home-care file when hospital activity on the individual patient ceases.

In addition, individual cards are kept on active cases. They carry a summary of the number of visits (and dates) of the various types of personnel, the equipment and transportation used, and similar data for use in cost accounting, etc.

Conclusions

"The philosophy behind the home-care movement is based on the fact that many chronically ill patients are now residing in general hospitals at considerable expense to themselves or the community when there is no real need for their remaining in the hospital. They remain there because no provision has been made in most communities to make conditions in the home acceptable for their continued care outside the hospital, nor has any provision been made to bring into the home some of the few hospital type of services that are needed for the continued care of the patient.

"Care in the home involves the assumption on the part of the patient's family of all of the domiciliary functions and costs, as well as a large percentage of the nursing functions and costs. It is in these categories that much of the savings occur.

"In addition to the economic advantages of the home-care plan, there are advantages that accrue to the patient from the very fact that he is convalescing in an environment with which he is familiar. Many of these home-care patients are well along in years. They have become accustomed to the home environment. They miss the home when they are ill. They feel better and do better when they are again permitted to return home." (14)

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Ideological Barriers to Effective Teaching By Health Workers

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Much of the emphasis in the past in health education has been on overcoming obstacles to learning on the part of the learner. These barriers, as evidenced by the number of articles written on motivation, selling, and knowing your community, are generally listed as language difficulties, illiteracy, customs, superstitions, and poorly organized communities.

Health workers, of course, should be constantly aware of these external barriers, but there are other barriers too that stand in the way of effective health teaching. These might be thought of as internal barriers, or when limited to the realm of ideas or concepts, ideological. It is, accordingly, with a few of those barriers that this article will deal. They are not the only internal barriers, nor are they necessarily the worst, but they are the ones that the health education consultant often observes in untrained persons trying their hand at the intricate job of teaching.

BARRIER 1: *The belief that most people's living habits cannot be changed by educational means.* Health workers are, by no means, the only people who occasionally express the belief that mankind generally does not have sufficient intelligence to profit from teaching. School teachers also have been heard to complain that many of their pupils are "too dumb to learn."

The belief seems plausible enough when we recall the people we once knew in school who have since "fallen by the wayside." Does not the fact that only a few of those who started school with us in the first grade went to college prove that there will always be the uneducated many and the educated few? Don't intelligence tests bear out the conclusion that many people lack adequate capacity for learning?

Actually, intelligence tests classify only 1 percent of the people as "feeble-minded," and only 6 percent as "dull or feeble-minded." Nor is failure in school necessarily proof of inability to learn. Responsibility for nonlearning, it must be emphasized, rests upon the teacher fully as much as or more than upon the learner. The fact that a child in school does not learn may merely mean that he is not interested in learning at that time what some other person wishes him to learn.

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This same situation may occur also when health workers attempt to educate adults who are not ready to learn. Learner goals and readiness to learn are important aspects of the learning process for all learners, both young and old.

We frequently brand the person who has difficulty in memorizing isolated bits of knowledge and truths as a person unable to learn. Rote memory, however, has very little bearing on "ability to see situations clearly and act intelligently upon the information presented"—the only types of learning in health that are likely to lead to improved health practices.

Learning can, of course, be affected in a number of ways, but learning that stays with us is practically never isolated information memorized without understanding. If what we learn is to stay with us, we are told, it must be accompanied by a strong sense impression or emotional response; it must fit in with something we already know a little about; and it must satisfy a basic need that we ourselves recognize. Health workers should set the stage for this type of learning and should guide learners in understanding modern health concepts and in applying them to personal needs and community health goals.

Educators have recently come to recognize also the importance of emotional set in the learning process. Anything that disturbs the child's equilibrium, such as threat to security, desire for recognition or response, curtailment of experiences, can aid as well as interfere with his learning. Adults, too, can be disturbed by threats to their security and accordingly will change their habits "only when they can emotionally accept new beliefs and practices as psychologically equivalent to their old habits." (1)

But finding such psychological equivalents is no simple matter. It is tantamount to changing a whole cultural pattern (2), and it involves the acceptance of a new set of values which is likely to meet resistance if there is any suggestion of force.

Lewin suggests that new psychological equivalents will be accepted if the individual can be encouraged to belong to a group which accepts the new system of values and beliefs, or if the group to which he belongs accepts the new values. This feat can best be accomplished, he says, by encouraging the group to discover the facts themselves as a group. This is the basic principle underlying the community organization movement so strongly advocated by some health workers.

Learning may fail for a number of other reasons too. The teaching may be over the learner's head; it may be improperly motivated; and it may appear to be useless to the learner. Or the learner may have an emotional set or possess certain cultural traditions that block his ready acceptance of new ideas. Or again, the learner may not

be ready to learn; he may lack the necessary experiential background. Until we have tried every conceivable way of helping him to help himself we cannot truthfully say that the learner, as an individual or group, is unable to profit from health education.

BARRIER 2: *The belief that anyone who knows his subject can teach it.* This belief is commonly held by college professors who cannot conceive that anyone who knows as much about a subject as they do cannot teach it. Teaching, to them, of course, means sharing with others what they know about the subject, and they usually view sharing as telling or lecturing.

It is not difficult to see how this belief persists in the schools of higher learning, for colleges, when they hire a new instructor, seldom ask whether he knows how to teach. The courses he has taken, the degrees he holds, and the articles he has written are the criteria used by most college executives. The need to stimulate learner interest, to provide incentives to thinking, to diagnose learning difficulties, to allow for individual differences is seldom considered by most college teachers; to them subject matter is the important thing, seldom the learner.

Most college students acquire considerable knowledge in spite of the "take it or leave it" attitude so prevalent in most colleges, but we cannot expect as much of the average adult. Health workers must do much more than peddle information; they must consider the average individual's problems and must have some idea of what takes place in his mind and in his emotional framework if they are to help him reach a higher level of healthful living.

Understanding the learning process and knowing how to guide it are by no means simple skills. Like medicine, surgery, engineering, or public relations, teaching is an art which can be acquired only through tedious, painstaking practice over a period of years. A teacher must have, as one writer says (§), "a facile and thorough knowledge of the materials of instruction. He must know equally the nature and importance of learners' interests, how the mind works in acquiring new materials; the effect of emotional states; effect of reproof, praise, and of a hundred other items dealing with teaching procedures." Such a view of teaching encompasses far more than the mere dissemination of facts. It recognizes also the importance of understanding the learner and the procedures for directing the learning process, two abilities that do not come automatically to those who merely know their subject matter, no matter how gifted they may be.

BARRIER 3: *The belief that the chief business of teaching is imparting information.* This belief is a corollary of barrier two. Those who

"know their subject" think that they can teach it because they view teaching chiefly as a matter of imparting information. To them, the goal of learning is acquisition of knowledge. To know a lot is to be educated, they believe.

Melvin (4) says that "the break-down of education is the result of regarding knowledge as the goal of learning." He advises that "all learners, young and old, should be taught to act, to secure knowledge as they go."

Far too many schools still regard imparting knowledge as their chief goal. In such schools teaching is based on the assumption that people should learn the correct way to do things now so that when the occasion arises, they will be able to act appropriately. The weakness of this line of reasoning, however, is that the facts supposedly taught are not likely to be remembered when the time comes for their use, since they were presented as isolated fragments which are seldom remembered.

Psychologists tell us that we learn not what we see or hear alone but chiefly our responses to what we see or hear. It is therefore not to be expected that people will learn from information thrown at them. Assuredly, most people are unprepared to respond to much of the health information being broadcast indiscriminately for their acceptance.

Psychologists also tell us that learners must be ready to learn. Accordingly, indiscriminate dissemination of information is like sowing seed upon ground that has not been prepared to receive it. Also, if people fail to understand, or can see no use for, the information they hear, they will not respond to it or accept it and hence will not learn. Since the generally accepted primary goal of health education is to improve health practices, not merely to increase health knowledge, it is easy to see why the returns on certain publicity campaigns in the past have so often been disappointing.

Closely akin to disseminating health information is the practice of answering health questions or teaching "health principles." Even though health experts know what is good for the other fellow, the mere statements of health principles or of solutions to health problems cannot be expected to fit the other fellow's needs. Principles should be the outgrowth of experience and hence should be derived by the learner himself. One person's principles cannot be another's unless the latter, too, has weighed the evidence, gone through the same experience, and come up with the same reactions or conclusions. The aim of health teaching should be the same as for all good teaching—to help the learner discover material that he can adapt to his own needs, not the mere giving of ready-made answers. Subject matter, or more specifically health information, will be useful and meaningful only when it can serve the learner's need or purpose.

BARRIER 4: *The belief that teaching is mainly a matter of persuading people to do things which experts have decided are best for them.* Since many people have so long considered teaching as a manipulative process, where the teacher's job is to do something to or for the learner, many will be unable to understand why supersalesmanship should be viewed as a barrier to effective teaching. At times, of course, good salesmanship will be necessary to win support for some essential health measures. In some situations, persuasion and appeal to authority may have to preclude the learner's free choice of action. One should clearly recognize, however, that this is indoctrination, or propaganda as the case may be, and not education.

Progressive educators agree that the aim of education should be to help people develop independence in using source materials and in making decisions. Appeals to prejudice, tradition, emotion, or authority deprive learners of the opportunity to grow. In the absence of opportunity for and practice in thinking for themselves, they forfeit the chance to make increasingly more intelligent choices in their everyday living.

In teaching, Bode says (5) one must "help the learner cultivate the habit of relying on the foresight of consequences rather than on authority in guidance of conduct." If such is our goal, our task in health education is to help people see the connection between what they do and the good or bad health that results. Our job is to teach people to rely on themselves—rather than solely upon the say-so of the health expert. Ours is the job of emancipating people from a slavish reliance upon what the expert says and of helping them to make intelligent decisions, each in keeping with his ability, yet each within the permissive atmosphere of a free society.

Education, it must be admitted, is often a discouragingly slow process for getting many of the jobs of a health department done. But since the best in our society exalts the place of the common man over that of mere efficiency, it must of necessity frown upon practices in which, it is implied, the few have mastery over the many. For any continuous program of public health there can be no substitute for freedom of inquiry and independence in decision making.

BARRIER 5: *The belief that there is a one best method of teaching.* It is not difficult to see why people expect to find a single one best method of teaching, for we in America are always on the lookout for simpler ways to do our disagreeable chores. We have reduced much of what we do to push-button control. Why not teaching too? Why not a simple rule of thumb, or at least a set of simple rules? Or a bag of tricks? But, unfortunately, there is no formula by which health workers can teach and teach effectively without studying education. "Learning is not a simple, isolated, discrete process, and

desirable learning cannot be achieved by the ABC procedure, rules, regulations that masquerade in its name." (6) Teaching cannot be reduced to a rule of thumb for the simple reason that learning is not a simple process.

It is, of course, a letdown to be told that teaching is like every other art, a complicated process which takes time and much effort to acquire. "But why," one might ask, "should there not be a best way to teach when we know that there is a best way of swabbing plates, taking water samples, sterilizing milk bottles, and laying out pictorial displays?" We may, of course, question whether there really is only one best way to do each of these tasks, but in each of these cases the performer manipulates an inanimate object or objects—something that stays put, that does not change its behavior pattern during the performance. In other words, it is entirely possible to develop a one best method for performing a task if the materials manipulated are static. Learners and the learning process, however, are dynamic. People are not the same at different times and places, and hence need a variety of approaches.

Teaching must of necessity always be a highly varied performance. The learner, in the first place, is seldom the same at different times, for he is an emotional as well as an intellectual creature. How many of us have emotions that never vary? Similarly the situation itself will vary from place to place and from time to time. Can we say that teaching a mother in a home is the same as teaching her at a clinic or in a prenatal class? Are the requirements of the person-to-person type of education the same as the classroom presentation or demonstration? Does the restaurant worker react the same way at the place of work as in a food handlers class? Do people react the same in groups as they do singly? Nor can the teacher claim to be unchangeable, for no matter how great the control she may think she has over her moods, she as well as her students change with different teaching situations.

There are many types of learning processes, and for that reason alone different methods should be used for each of the types. One writer lists them as perceptual, sensori-motor, problem solving, memorization, and appreciation (3). Health workers are chiefly interested in solving problems and in improving attitudes. Their efforts, accordingly, should be directed toward understanding the processes which will affect such learning.

"Half the errors of teaching," Melvin writes (4), "are due to the treatment of all activities by the same teaching procedure, or to the use of a teaching technique suitable for one kind of activity to direct another." Health workers often ride hobby horses too, as evidenced by those who would do all their educational work through community organizations, or by those who would gain their objectives by following

the advertising fraternity and repeating and repeating continuously until the concept has become a commonplace.

Since the situation, the learner, and the teacher are never the same, teaching must of necessity be an art in which the ability "to adapt boldly, to invent and to create procedures to meet these ever-changing situations" (§) most needs cultivation. As in all other arts, proficiency comes not by imitating others but through experimenting with methods until the right one is found that fits the situation and can be expected to work again in similar circumstances.

BARRIER 6: *The belief that an adequate measure of teaching is what the learners know about the subject.* One who has not given much thought to the matter is likely to assume that if a person has succeeded in learning what is good for him he certainly will put the knowledge to use and hence improve his health practices. Workers in the field, however, especially doctors and nurses, often observe situations in which patients know the correct thing to do, yet do not act in accordance with what they know. In such instances, a test of knowledge assuredly does not tell us what action we may expect.

Advertisers have long known that people do not act upon knowledge alone and accordingly have compiled lists of what they consider to be the springs of human action. An appeal to any of them, they point out, will result in increased sales. They also say that whether people will do something or not is the result of one or more emotional drives,¹ whereas how they will do it will be determined by what they have learned about the way to do it. Thus, if the goal of some health activity is to get people to do something, we must recognize that people act, as one writer puts it, largely to satisfy needs, reduce tensions, or maintain equilibrium. Accordingly, teaching must attempt, while imparting concepts, to reach these springs of action (7).

The goal of the typical American school of the past has been limited to imparting knowledge, ideas, and principles and to developing certain skills and habits for future use. Examinations given in such schools have usually succeeded fairly well in determining the results of this rather limited goal. Modern schools, however, have taken a wider view of the learning process and have broken away from sole reliance upon examinations as a measure of learning. They include in their list of learning products at least three kinds: (a) facts, knowledge, understanding, ideas, methods, principles, causes; (b) skills and habits; and (c) attitudes and appreciations. Most of these products, it is easy to see, cannot be measured adequately by the traditional examination.

To measure these additional products of learning, so as to obtain

¹ Dr. Shaffer points out that people do not act upon reason so much as sentiments, tensions, drives, motives and habits.—Laurance Shaffer, *Psychology of Adjustment*, Houghton Mifflin Co., 1936.

qualitative data about the learner and what he has learned, progressive educators have turned to such descriptive measures as anecdotal records, inventories, scales, interviews, diaries, and so forth. Health workers, however, will probably not need such a wide variety of evaluation tools, but if our objectives² are to be broader than the mere imparting of authentic health information, we too will need to think in terms of evaluating more of the results that we achieve. Certainly no simple measure of the health concepts imparted can tell us about an individual's appreciation of the community's health services, about his understanding of the causes of disease, and his attitude toward the health agencies that operate in his community.

It should be clear by now that any evaluation of teaching should be based on the initial objectives of the teaching activity. If, for instance, one of our goals is "the stimulation of public action and individual participation in preventive health activities" (8), then an adequate measure of the results achieved, it would seem, should be an appraisal of how much individual participation in preventive health activities is now going on in the community as a result of our educational leadership. Or, on the other hand, if we think of health education as principally a process of growth in an individual by means of which he alters his behavior or changes his attitude toward health practices as a result of new experiences he has had (9), then our measuring rod should attempt to tell us whether behavior or attitudes have changed and how much.

Assuming that the goal of a specific health project is to have expectant mothers see a doctor early in pregnancy, it will make little or no difference whether a mother knows she should go to the doctor early if she doesn't actually go. Similarly, if the health worker's goal is to alter the behavior of a food handler or change a prominent citizen's attitude toward the health program, success in imparting information will not fulfill entirely the objectives set. The only truly adequate measure of health teaching is not what a person knows or is able to do but what he actually does. To state the matter in a more colorful manner, as one writer once did (10), "the real test of health education is not how attractive are the hook and worm, but how many fish are caught; not how varied or fancy the sales techniques, but how many people bought the product for themselves, and are so satisfied that they tell their neighbors the good news."

There is danger, however, that, in our insistence on performance as the only adequate measure of successful teaching, we may lose sight of the fact that health workers are seldom in a position to measure

² "What Is Health Education" (symposium in the June 1947 issue of *American Journal of Public Health*) indicates among others the following objectives given by 14 leading health educators in the country: altered behavior, changed attitudes, increased citizen participation, public support, social action, radiant health, greater understanding, provision for learning experiences, dissemination of authentic information, better personal habits, utilization of the benefits of modern medicine;

the end product. Much of what is done in health work blossoms forth only at some later date. The success of a chest X-ray campaign, for instance, is not solely the result of the present educational drive, but the culmination of years of continued and consistent publicity and education.

We must recognize, therefore, that much of the evaluation of health teaching must be of a symptomatic or presumptive sort, like that of a sanitarian when he samples the city's water supply. The sanitarian presumes—and the rest of us are willing to accept his presumption—that all the water we drink from a given source is as pure as, or differs only slightly from, the sample taken. Health education needs a sampling system too!

The final proof of successful education, it would seem, must be based on a number of evidences of learning, all of which can be determined, as Nyswander (9) has pointed out, by studying current records, through self-evaluation schedules, inventories, polls, and surveys. And although no one test of the end product of educational endeavor is an adequate measure of the quality of teaching, the nearest approach to an adequate measure will probably always be an evaluation of success in extending opportunities for growth among those who are being taught.

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Rapid Measurement of Carbohydrate in Blood

—Preliminary Report—

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Measurement of the blood sugar is a frequent procedure in clinical laboratories but, from the standpoint of accuracy, perhaps one of the least satisfying to the clinical chemist. The fact that no known specific reaction is suitable for routine quantitative measurement of glucose necessitates the use of the nonspecific property of reduction. Since considerable amounts of noncarbohydrate material contribute to the reducing capacity of blood filtrates as they are frequently prepared (1, 2), there have been many attempts to increase the specificity of method. These attempts have logically taken two directions: (1) Investigation of deproteinizing agents which should remove from the blood filtrate most or all of the interfering substances (3, 4); (2) search for a chemical which will react only with glucose and be unaffected by other reducing materials present (5). The latter approach has resulted in an unusually simple blood sugar method which will be described.

Anthrone has long been used as an analytical reagent for glycerol with which it forms a reddish-orange complex. Dreywood (6), in 1946, found that a highly specific color reaction was produced by anthrone in sulfuric acid with carbohydrate solutions and suggested it as a qualitative test for carbohydrate material. He examined 18 carbohydrates and found that all of them gave a positive test. They included cellulose, starch, dextrin, glucose, arabinose, gum arabic, ethyl cellulose, and cellulose acetate. Negative tests were obtained for a large group of noncarbohydrates, including a variety of organic acids, aldehydes, ketones, phenols, fats, proteins, and synthetic non-cellulose resins. The only noncarbohydrate tested which gave the reaction was furfural, but its behavior was not typical since the green color was rapidly replaced by the formation of a brown precipitate. Dreywood found the anthrone reagent to be about 40 times more sensitive than iodine in the detection of starch. As little as 1 part of starch in 900,000 parts of water was reported to produce the characteristic color.

Morris (7) adapted the anthrone reaction to the quantitative deter-

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mination of carbohydrates, using a 0.2 percent solution in 95 percent sulfuric acid. The addition of two volumes of reagent to one volume of a carbohydrate solution produced a green color which, after standing 10 minutes, could be read in a photoelectric colorimeter provided with a 620 millimicron light filter. A straight-line relationship was found between intensity of resulting colors and increasing amounts of glucose.

We found this simple reaction applicable to the determination of blood sugar.

Reagents and Apparatus

1. Reagents:

(a) Deproteinizing reagents such as N/12 sulfuric acid and 10 percent sodium tungstate (1), or 5 percent trichloroacetic acid, or others (3, 4).

(b) Anthrone reagent: 0.2 percent anthrone in 95 percent sulfuric acid.¹

(c) Standard solutions of glucose ranging between 5 and 20 mg. percent.

2. Apparatus:

(a) Standard equipment for making blood filtrates (flasks, funnels, filter paper, etc.; or centrifuge).

(b) 25 x 250 mm. pyrex test tubes, or Evelyn photoelectric colorimeter tubes.

(c) Glass stopcock burette, 50 to 100 ml. capacity, with a large orifice (broken tip) for delivery of anthrone reagent (high viscosity).

(d) Spectrophotometer or photoelectric colorimeter provided with a 620 millimicron filter (Evelyn was used by the authors).

Procedure

Five milliliters of a blood filtrate representing a fiftyfold dilution of blood (e. g., 1 ml. of Folin-Wu filtrate plus 4 ml. of water) are placed in a pyrex test tube (or Evelyn tube); 10 ml. of anthrone reagent are added from the burette. The contents of the tube are mixed by swirling, and allowed to stand 15 minutes or more. A blank containing distilled water instead of blood filtrate, and at least one glucose standard (containing 0.1 mg. of glucose in 5 ml. of water) are prepared at the same time. Colorimetric reading by the usual technique follows.

The volume of unknown solution (diluted filtrate) employed may be varied to suit any particular measuring instrument. The single requirement is that no less than twice the volume of anthrone reagent

¹ Anthrone may be purchased commercially (National Biochemical Company, 3106 Lake Street, Chicago 12, Ill.) or prepared by the method of Meyer (3). Ninety-five percent sulfuric acid is prepared by cautious addition of 950 ml. of pure concentrated sulfuric acid to 50 ml. of distilled water. The anthrone reagent tends to darken on standing. Hence, it should be prepared in rather small batches, about one liter at a time, kept in the refrigerator, and one or more standards should be run with each group of unknowns. The purer the sulfuric acid used, the less color the reagent has initially, and the better it will keep.

be added; otherwise turbidity may occur due to precipitation of anthrone. Since the addition of anthrone reagent to aqueous solutions results in the generation of considerable heat, the test tubes employed for the reaction should be large enough to offer a cold upper portion to grasp for shaking, and should be of hard glass.

Following the 15-minute period of color development, the color is stable for many days, as checked spectrophotometrically, provided the solutions are stoppered and refrigerated. Solutions which have been shaken in contact with rubber are much less stable.

Caution is imperative for the operator in handling the anthrone reagent because of the concentrated sulfuric acid in it. Disposal of the latter may be accomplished by diluting it with large amounts of water and flushing it down the drain. Even when many determinations are carried out as in a screening project, the same procedure can be followed successfully with the use of a lead-lined sink in which to effect the dilution. An attempt to reduce the acid concentration by means of marble chips placed in the lead-lined sink proved to be unsuccessful because the carbonate particles soon became coated with calcium sulfate and thus inactivated.

Results

In exploring the feasibility of this procedure, it was necessary to study the influence of the common deproteinizing agents on the anthrone reaction. It was readily determined that filtrates prepared by the use of trichloroacetic acid (four volumes of a 5 percent solution to one volume of blood), of tungstic acid (1, 2), or of a barium hydroxide-zinc chloride combination (3) yielded essentially the same glucose value when subjected to the anthrone procedure as outlined, suggesting that noncarbohydrate reducing substances play no role in the color reaction.

The accuracy of the method was tested in two ways, by means of recovery experiments and by correlation with a standard procedure:

1. Varying but known amounts of glucose were added to several aliquots of blood except to one which served as the control.

Blood Glucose Recovery Experiments

<i>Tube</i>	<i>Glucose added (mg.)</i>	<i>Glucose recovered (percent)</i>
1-----	0	-----
2-----	20	101.35
3-----	40	98.43
4-----	60	99.00
5-----	80	97.94

The last column in the table represents an average from 6 series of recovery experiments, each determination in which was run in duplicate.

2. A series of 125 blood samples was analyzed both by the Nelson-Somogyi (3) technique and by the anthrone procedure. Averages for the entire series were as follows:

Nelson-Somogyi	Mg. per 100 ml.	Anthrone
116.6 ± 3.82*		118.4 ± 3.59*

*Standard error of the mean.

Thus the proposed method fulfills at least two criteria for an acceptable quantitative procedure: It allows the practically complete recovery of glucose added to blood specimens; and it gives results comparable with those obtained by the use of a standard and generally accepted method.

Comment and Conclusions

It has been suggested (9) that color formation in this procedure depends on the intermediate formation of furfural. We concur to the extent that we believe only those compounds which in the presence of concentrated sulfuric acid give rise to furfural or a substituted furfural yield the color reaction. Such carbohydrate derivatives as glucosamine and glucuronic acid produce no color. Experimental evidence in support of the above statement, as well as of the dependability of the method, will be summarized elsewhere.

The following advantages appear to be obvious:

1. Following deproteination, a single easily prepared reagent is used.
2. A minimum of equipment is required and there is no period of heating (necessary in all routine blood sugar methods).
3. Sufficient blood can readily be obtained by fingertip puncture.
4. The reaction is unaffected by noncarbohydrate materials occurring in blood.
5. The results obtained are in close agreement with an accepted method.

Disadvantages lie in the handling and disposal of concentrated sulfuric acid and in the sensitivity of the color reaction. If glassware is not kept scrupulously free from contaminating carbohydrates such as lint, dust, and filter-paper fibers, erroneously high figures may be obtained. The fact that anthrone reacts with carbohydrates other than glucose would seem to be of little importance in view of the satisfactory correlation with the Nelson-Somogyi procedure.

On the whole, the described method represents a rare combination of ease and rapidity of operation with high precision in results. This should make it uniquely suitable not only for many clinical and experimental purposes, but especially for large-scale screening projects in which speed and economy are of major importance.

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Erratum

Q Fever Studies in Southern California. IX. Isolation of Q fever from parturient placentas of naturally infected dairy cows. *Public Health Reports* **65**: 541 (April 21) 1950.

The first sentence should read: "Epidemiological studies of Q fever infections in southern California among dairy and other live-stock workers and residents near dairies have shown that factors other than the personal or household use of raw milk are required to explain these infections."

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 APRIL 29, 1950

Influenza

For the sixth consecutive week reported cases of influenza in the Nation decreased from the preceding week. There were 5,548 cases reported for this week as compared with 7,395 for the preceding week. For the corresponding week last year 2,074 cases were reported. The 5-year (1945-49) median is 1,594. The cumulative total of influenza cases reported during the first 17 weeks of this year is 230,411 cases as compared with 65,397 for the corresponding period last year and the 5-year median of 129,178. Of the total cases of influenza reported this year, 100,153 were reported in Texas and 45,822 in Virginia.

For the current week reported cases of influenza decreased over the preceding week in all geographic divisions, with one exception. In the East North Central division, reported cases increased from 208 for the preceding week to 389. Of the five States in this division, Wisconsin reported the largest increase, from 194 to 350 cases.

Other Reportable Communicable Diseases

Reported cases of whooping cough totaled 2,984 for the current week as compared with the 2,841 cases reported the preceding week. The 5-year median is 1,913 cases. For the first 17 weeks of this year a cumulative total of 44,419 cases has been reported as compared with 16,961 reported for the corresponding period of 1949. The corresponding 5-year median is 36,738 cases.

A total of 1,468 cases of scarlet fever was reported for the week as compared with 1,425 last week, 1,988 for the corresponding period last year, and a 5-year median of 2,080. The cumulative total of scarlet fever cases for 17 weeks of this year is 29,288.

No cases of anthrax or smallpox were reported in the United States. There were 161 cases of rabies in animals reported in 20 States with the largest number of cases reported in Texas (31), New York (25), and Indiana (16). The cumulative total for 17 weeks of the year is 2,645 as compared with 2,249 for the corresponding period of 1949.

Telegraphic case reports from State health officers for week ended April 29, 1950

[Leaders indicate that no cases were reported]

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Polio-myelitis	Rocky Mt. spotted fever	Scarlet fever	Small-pox	Tularemia	Typhoid and paratyphoid fever	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine.....			19	24	2	31			8				32	
New Hampshire.....			4	2		2			4					
Vermont.....				673	1				161			5	32	
Massachusetts.....	7		1	19	1	7			9				174	
Rhode Island.....	1		5	105		44	1		28			1	49	
Connecticut.....													93	
MIDDLE ATLANTIC														
New York.....	6	3	23	1,545	8	307	2		141			2	151	25
New Jersey.....			5	1,150	1	79			40				131	
Pennsylvania.....	10			638	3	97	3		115			1	162	1
EAST NORTH CENTRAL														
Ohio.....	4		14	491	4	123			211			1	232	9
Indiana.....	23		7	135	1	23			18				21	16
Illinois.....			3	780	4	78			53		1	1	70	1
Michigan.....	2	1	15	1,266	2	52			121			2	176	9
Wisconsin.....			350	735	3	18			61				147	
WEST NORTH CENTRAL														
Minnesota.....			5	221		7	1		15				50	
Iowa.....				482	1	5			2				11	5
Missouri.....	1		55	57	6	33			19				21	
North Dakota.....			28	10	1				14				3	
South Dakota.....	1			22		1			3				10	
Nebraska.....				243			3		17			1	6	
Kansas.....	1		1	63		9	1		25				11	
SOUTH ATLANTIC														
Delaware.....				8					8				26	
Maryland.....	2		6	50	3	30			26			1	51	
District of Columbia.....				61		123			8				5	
Virginia.....	4		918	138	1	76	1		12			2	69	6
West Virginia.....	4		236	287	3	24	1		11				106	5
North Carolina.....	3		177	177	5	24	1		23				48	5
South Carolina.....	3		33	100	2	16			4				15	4
Georgia.....	1		90	48	1	10			4				7	6
Florida.....			13	131	1	8	1		2			1	11	

EAST SOUTH CENTRAL										
Kentucky.....	3	104	390	1	29	1	19	1	62	8
Tennessee.....	1	39	234	2	59	3	16	3	64	1
Alabama.....	4	352	81	3	38	3	4	2	29	8
Mississippi.....	8	53	110	1	38	3	4	1	4	4
WEST SOUTH CENTRAL										
Arkansas.....	2	628	246	4	26	1	3	1	120	5
Louisiana.....	1	1	13	2	31	1	5	1	2	2
Oklahoma.....	1	135	25	1	30	2	12	1	16	6
Texas.....	11	2,077	1,068	4	473	31	36	6	375	31
MOUNTAIN										
Montana.....		57	122				12		1	1
Idaho.....		34	39			1	1		26	
Wyoming.....		2	32		6		1		3	
Colorado.....	3	26	87	1	10	1	14		16	3
New Mexico.....			39		10		2		14	
Arizona.....		170	63		23	2	22		43	
Utah.....		8	331		3		1		14	
Nevada.....			2							
PACIFIC										
Washington.....	1	29	128	3	4		35		39	
Oregon.....		24	19	1	46		12		30	
California.....	9	8	573	1	28	11	112		228	
Total.....	116	5,548	13,293	82	2,048	69	1,468	2	2,984	161
Median, 1945-49.....	201	1,594	28,420	92		47	2,080	6	1,913	
Year to date 17 weeks.....	2,459	† 230,411	146,364	1,617	42,002	1,518	20,288	18	† 44,419	2,645
Median, 1945-49.....	4,633	124,178	306,597	1,517		1,649	45,714	18	36,738	
Seasonal low week ends.....	July 9	(30th)	(36th)	(37th)		(11th)	(32d)		(11th)	
Since seasonal low week.....	July 9	July 30	Sept. 3	Sept. 17		Mar. 18	Aug. 13		Mar. 16	
Median, 1944-45 to 1948-49.....	12,199	† 280,941	165,494	3,530		380	45,727	41	† 65,955	
		172,736	341,543	2,489		183	71,646	156	64,127	

† Including cases reported as salmonellosis.

‡ New York City only.

§ Including cases reported as streptococcal sore throat.

¶ Including 40,200 cases estimated by county health officers to have occurred in Kentucky during the period Jan. 1 to Apr. 8, 1950, and 4,000 cases estimated to have occurred in Jones County, Iowa.

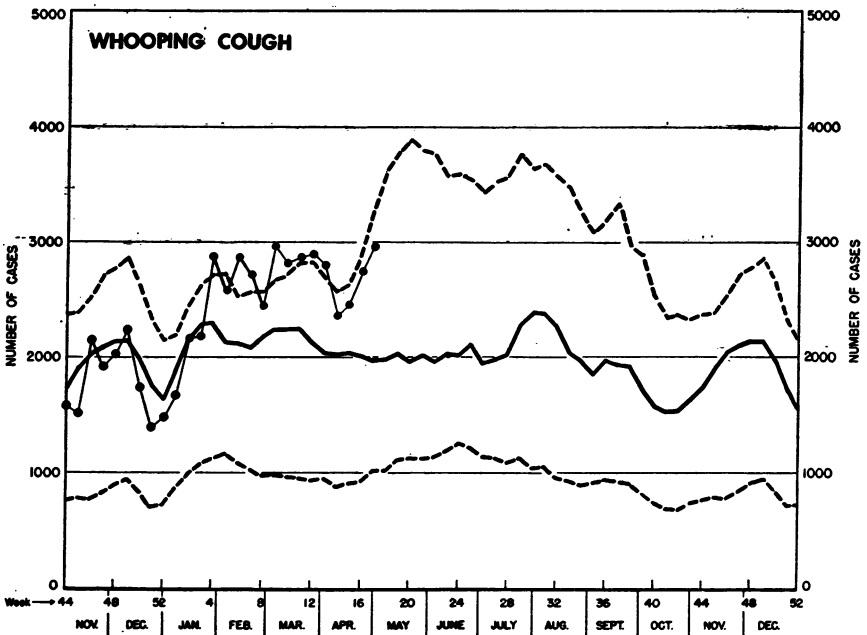
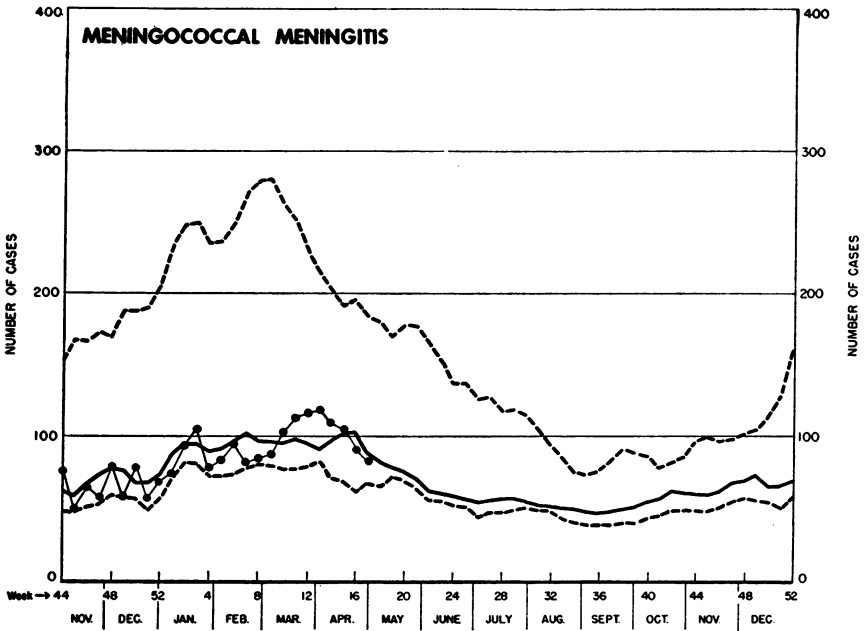
‡ Deducted; Tennessee, week ended April 22, 91 cases.

Alaska: Influenza 6, pneumonia 4, scarlet fever 1.

Hawaii: Scarlet fever 1.

Communicable Disease Charts

All reporting States, November 1949 through April 29, 1950



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 5 preceding years. The solid line is a median figure for the 5 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks, 1949-50

DEATHS DURING WEEK ENDED APRIL 29, 1950

	Week ended Apr. 29, 1950	Corresponding week, 1949
Data for 93 large cities of the United States:		
Total deaths.....	9,478	9,512
Median for 3 prior years.....	9,057	-----
Total deaths, first 17 weeks of year.....	167,635	166,039
Deaths under 1 year of age.....	627	661
Median for 3 prior years.....	686	-----
Deaths under 1 year of age, first 17 weeks of year.....	10,668	11,198
Data from industrial insurance companies:		
Policies in force.....	69,829,528	70,463,032
Number of death claims.....	14,784	14,126
Death claims per 1,000 policies in force, annual rate.....	11.0	10.5
Death claims per 1,000 policies, first 17 weeks of year, annual rate.....	10.0	9.7

FOREIGN REPORTS

ANGLO-EGYPTIAN SUDAN

Meningococcal meningitis.—The incidence of meningococcal meningitis continues to be high in Anglo-Egyptian Sudan. During the week ended April 15, 1950, 542 cases (64 deaths) were reported. The outbreak apparently is centered chiefly in Darfur Province, where 470 cases, 46 deaths, were reported for the week. Four hundred sixty-three cases with 69 deaths were reported in that Province during the preceding week.

CANADA

Provinces—Notifiable diseases—Weeks ended April 8 and 15, 1950.—Cases of certain notifiable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Week ended April 8, 1950

Disease	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis.....									1		1
Chickenpox.....	5		4		143	236	15	13	19	76	511
Diphtheria.....					4						5
Dysentery, bacillary.....						1				4	5
German measles.....			93		14	514	1	46	92	295	1,055
Influenza.....			15			27	2				44
Measles.....			2	9	313	588	25	56	34	135	1,162
Meningitis, meningococcal.....									1		1
Mumps.....			98		122	457	7	45	109	252	1,090
Poliomyelitis.....							1		1	1	3
Scarlet fever.....	4		2		54	18	5	3	47		133
Tuberculosis (all forms).....	11		6	24	65	22	14	6			148
Typhoid and paratyphoid fever.....				3	3					3	9
Venereal diseases:											
Gonorrhoea.....	4		8	11	87	41	22	15	33	39	260
Syphilis.....	4		3	2	71	22	1	9	2	10	124
Whooping cough.....	1		16	1	51	48	6	1		48	172

CANADA—Continued

Week ended April 15, 1950

Disease	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis.....							2	1			3
Chickenpox.....			12		270	226	57	11	27	110	713
Diphtheria.....					8	1	1	1	1		12
Dysentery, bacillary.....						1				1	2
Encephalitis, infectious.....						1					1
German measles.....			38		22	792		20	117	122	1,111
Influenza.....			6			60	8				74
Measles.....	1		1	8	646	547	93	20	31	94	1,441
Meningitis, meningococcal.....						1					1
Mumps.....			65		240	467	9	64	104	214	1,163
Scarlet fever.....	3		7		88	29	13	17	45	13	215
Tuberculosis (all forms).....	11		4	27	95	40	30	7	99	48	361
Typhoid and paratyphoid fever.....	1		1		7	1				1	11
Venereal diseases:											
Gonorrhoea.....			7	6	74	61	27	12	37	47	271
Syphilis.....	8		4	9	37	28	6	3	3	5	103
Whooping cough.....			3		132	71	3			10	219

CUBA

Habana—Notifiable diseases—4 weeks ended February 25, 1950.—
 Certain notifiable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chickenpox.....	4		Measles.....	2	
Diphtheria.....	12		Tuberculosis.....	12	1
Malaria.....	3		Typhoid fever.....	6	

Provinces—Notifiable diseases—4 weeks ended February 25, 1950.—
 Cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana ¹	Matanzas	Santa Clara	Camaguey	Oriente	Total
Brucellosis.....				1			1
Cancer.....	5	14	17	21	1	16	74
Chickenpox.....		4	2	2	3		11
Diphtheria.....	2	14	2	1			19
Leprosy.....		4		1			5
Malaria.....		3		1	4	25	33
Measles.....		3		17	1	11	32
Poliomylitis.....		2		1	2	1	6
Scarlet fever.....						1	1
Tuberculosis.....	3	18	8	8	19	16	72
Typhoid fever.....	5	11	7	5	7	9	44
Whooping cough.....		20	2				22

¹ Includes the city of Habana.

EGYPT

Meningococcal meningitis.—For the period March 26 to April 15, 1950, 184 cases of meningococcal meningitis with 21 deaths were re-

ported in Cairo, Egypt. A total of 70 cases (15 deaths) was reported in the rest of the country during the week ended April 8.

GERMANY (AMERICAN ZONE)

Q fever.—A new outbreak of Queensland fever (Q fever) has been reported in the American Occupied Zone of Germany. During the week ended March 18, 1950, 40 cases were reported in the Wurtemberg-Baden area.

INDOCHINA

Poliomyelitis.—During the month of March and the early part of April 1950, an outbreak of poliomyelitis was reported in the State of Tonkin, North Viet Nam, Indochina. Reported cases totaled 191 as of April 12. One hundred fifty-seven cases occurred in the port of Hanoi, and small numbers were reported in Haiduong, Hongay, and Haiphong. Only 11 deaths from the disease were reported during the period.

ISRAEL

Poliomyelitis.—A noticeable increase in the incidence of poliomyelitis has been reported in Israel. It is stated that between July 1948 and April 1949, the monthly notifications were at no time more than 3 cases, while during the period October 1949 to March 1950 the monthly figure rose from 15 to 39 cases.

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

Note.—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

India.—During the week ended April 22, 1950, 777 cases of cholera were reported in Calcutta.

Pakistan.—During the week ended April 15, 1950, 34 cases of cholera were reported in the port of Dacca.

Plague

Burma.—During the week ended March 25, 1950, one case of plague was reported in the seaport of Myaungmya.

China.—During the month of January 1950, 51 cases of plague with 23 deaths were reported in Fukien Province, and 17 cases, 15 deaths, were reported for the month of February.

Indochina.—During the week ended April 22, 1950, 4 cases of plague were reported in Phanthiet, Viet Nam, Indochina.

Smallpox

Chile.—In the current outbreak of smallpox in Chile, 1,904 cases had been reported up to April 18, 1950. The provinces reporting the largest numbers of cases are as follows: Malleco 836, Concepcion 409, Talca 365, Cautin 152. During the week ended April 15, 26 cases were reported in the city of Santiago.

China.—During the period March 19–April 22, 1950, 68 cases of smallpox were reported in Shanghai. Fifteen of these cases were reported for the week ended April 22.

Gold Coast.—According to information dated April 20, 1950, 20 cases of smallpox, with 4 deaths, had been reported in the port of Accra, and the outbreak was considered to be under control.

Indonesia.—During the week ended April 8, 1950, 38 cases of smallpox were reported in Jogjakarta, Java.

Palestine.—During the month of March 1950, 16 cases of smallpox were reported in Palestine, including 13 cases in Jericho, and one fatal case in Jerusalem.