Public Health Reports

Vol. 64 • JUNE 17, 1949 • *No.* 24

Professional Education for Cancer Control

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Some 2,000 years ago the Roman physician Celsus taught that cancer could be recognized by the fact that when removed by surgery, it invariably grew back. And the great teacher Galen, in the second century A. D., urged the importance of early diagnosis in cancer, but could offer only palliative therapy.

Although cancer is a disease older than the human race, it has been only in the past 75 years, with the advent of modern methods of surgical and radiation therapy, that actual progress has been made possible in cancer control. Today, the physician can offer not only diagnosis, but also curative treatment.

Progress in cancer control thus depends on the physician, dentist, or nurse, and particularly on the first person in these professions who has an opportunity to observe and suspect the existence of malignant growth. For this reason, professional cancer education has become an urgent public health problem. The physician and allied professions must be provided with information that will permit them to suspect or recognize possible early signs of cancer.

The four articles appearing in this issue of Public Health Reports provide a survey of the National Cancer Institute program for cancer information. Annual grants to medical schools aid the coordination of cancer subjects and improvement in cancer teaching through increased use of visual aids, clinical observation, and other methods. Through annual grants to dental schools, corresponding efforts are being made to equip undergraduate dentists with a better understanding of cancer and a sound background in oral diagnosis. Federal funds also provide a limited number of clinical traineeships which are granted to aid physicians in the acquisition of knowledge and experience in cancer care. And, finally, the National Cancer Institute is developing a series of teaching tools, including films, slides, manuals, pamphlets and articles, designed for use in professional information programs throughout the country.

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National Cancer Institute Program of Postgraduate Training for Physicians

By R. R. Spencer, M. D.*

Medical and other groups concerned with the cancer problem have long been aware of the need for more training for physicians in this field of medicine. To help meet this need, the Public Health Service was given authority in the National Cancer Institute Act of 1937 to conduct a postgraduate education program in cancer diagnosis and treatment.

This program, initiated in 1938, has been carried out through postgraduate clinical traineeships, of which a limited number are awarded annually to young physicians. Appointments are made for 1 year, with the opportunity for yearly renewals for two additional years. The stipend has been increased from $6 per day in the early years of the program to $10 at the present time, in conformance with changing economic conditions. The actual training is provided by cooperating medical schools and hospitals. The applicant is required to make his own arrangements with an acceptable institution before the traineeship is granted. This provision permits the trainee to select his own training center and the institution to select its own trainees.

The number of appointments, including renewals, has ranged from 3 in the fiscal year 1938 to 85 in the fiscal year 1948. Restricted at first by the size of the Institute's appropriation, then by the limited number of suitable applicants available during the war years, the program has expanded considerably since 1946.

Nearly 10 years have elapsed since the program was started, and enough experience has been accumulated to warrant a review of its accomplishments. In the spring of 1948, questionnaires were sent to all trainees who had ended their training before April 1, 1948. Information contained in this report summarizes the status of former trainees at the time of their replies, which were made during April–July 1948.

Scope of the Study

The data included in this study represent the experience of 111 former trainees, 110 men and 1 woman. The first trainee was appointed in January 1938 and served for 1 year. Thus the period of time elapsed from the end of traineeship to the date of reply to this questionnaire ranges from 9 years to only a few months.[1]

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[1] Up to April 1, 1948, the total number of appointments was 201. Seventy-four were still in training Four did not reply to the questionnaire. The remaining 12 were not included in the study because of death or early discontinuance of training for special reasons such as military service.

Qualifications of Trainees

The minimum qualifications of applicants for traineeships are graduation from an approved medical school and at least 1-year rotating internship. Of the 111 trainees, 107 offered experience exceeding these minimum requirements. Eight appointees had only 1 to 3 years' postgraduate experience, but 49 had 3 to 5 years and 50 had 5 or more years of postgraduate training and experience.

Length of Traineeship

The general policy has been to appoint trainees for not less than 1 year, and to continue appointments for not more than 3 years. In some cases, trainees ended their appointments previous to the expiration date. However, only 26, or approximately one-fourth of the group, were in training less than 1 year. Nearly half of these were offered positions before the end of their appointment and five were called into military service; others had wanted only a short period of training or had been forced to resign because of personal circumstances In only one case did there appear to be dissatisfaction with the course. Eighty-five appointments were extended for a second year, and 43 were extended for a third year. In one exceptional case, an appointment was extended beyond the 3-year period.

Obviously the length of the traineeship alone does not give the complete story of the trainee's postgraduate work, but must be considered in conjunction with his pretraineeship experience. In some instances, those who spent short periods of time in the National Cancer Institute traineeship had already gone through long periods of training. The study shows that 91, or more than four-fifths of the trainees, had 5 or more years of postgraduate training at the time that they terminated their traineeships, and that 15 had 10 or more years of training. Of the 20 who had less than 5 years, 7 reported that they were continuing their training after the expiration of the National Cancer Institute appointment.

Institutions Providing Training

The program of clinical training in cancer diagnosis and treatment would not have been possible without the cooperation of medical educators and heads of teaching institutions. The institutions which have provided the training for the 111 persons included in this study are shown in the list below. Ninety-six physicians took all of their training under this program at a single institution; 15 attended two or more institutions.

Institution providing training	Number of Trainees	
	All of training	Part of training
American Oncologic Hospital, Philadelphia, Pa	1	------
Barnard Free Skin and Cancer Hospital, St. Louis, Mo	4	------
Bellevue Hospital, New York, N. Y	7	2
Cincinnati General Hospital, Cincinnati, Ohio	1	1
Chicago Tumor Institute, Chicago, Ill	2	2
Cook County Hospital, Chicago, Ill	-----	1
Duke Hospital, Durham, N. C	4	1
Ellis Fischel State Cancer Hospital, Columbia, Mo	1	------
Hospital of the University of Pennsylvania, Philadelphia, Pa	4	1
Jeanes Hospital, Philadelphia, Pa	-----	1
Johns Hopkins Hospital, Baltimore, Md	-----	1
Lahey Clinic, Boston, Mass	-----	2
Massachusetts Eye and Ear Infirmary, Boston, Mass	1	------
Massachusetts General Hospital, Boston, Mass	2	------
Massachusetts Memorial Hospital, Boston, Mass	2	1
Mayo Clinic, Rochester, Minn	-----	1
Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, N. Y	31	7
Michael Reese Hospital, Chicago, Ill	2	------
Mt. Sinai Hospital, New York, N. Y	1	2
New England Deaconess Hospital, Boston, Mass	-----	1
New Haven Hospital, New Haven, Conn	3	------
Palmer Memorial Hospital, Boston, Mass	-----	1
Pondville Hospital, Wrentham, Mass	-----	1
Presbyterian Hospital, New York, N. Y	1	1
Strong Memorial Hospital, Rochester, N. Y	1	------
State Institute for the Study of Malignant Disease (now The Roswell Park Memorial Hospital), Buffalo, N. Y	-----	2
University of California Hospital, San Francisco, Calif	2	1
University of Illinois College of Medicine, Chicago, Ill	-----	1
University of Maryland, Baltimore, Md	1	1
University of Michigan, Ann Arbor, Mich	11	1
University of Minnesota Hospitals, Minneapolis, Minn	12	1
University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa	-----	1
Veterans Administration Hospital, Hines, Ill	-----	2
Warwick Memorial Clinic for Cancer and Allied Diseases, Washington, D. C	1	------
Wayne University Medical School, Detroit, Mich	1	------

Other institutions that have in the past or are now cooperating in the program are: Allentown General Hospital, Allentown, Pa.; Emory University Hospital, Emory University, Ga.; Freedmen's Hospital, Hospital, Washington, D. C., Georgetown University Medical School, Washington, D. C.; Huntington Memorial Hospital, Boston, Mass.; Iowa University College of Medicine, Iowa City, Iowa; Nix Hospital, San Antonio, Tex.; North Carolina Baptist Hospital (Bowman-Gray Medical School), Winston-Salem, N. C.; Norton Memorial Infirmary, Louisville, Ky.; Philadelphia General Hospital, Philadelphia, Pa.; Provident Hospital and Training School, Chicago, Ill.; Swedish Hospital, Seattle, Wash.; University of Tennessee College of Medicine, Memphis, Tenn.; and Washington University Medical School, St. Louis, Mo.

Results of the Program

The ultimate goal of the program of postgraduate education in cancer must be the provision of better care for the patient. Although the persons appointed to these traineeships indicated their intention to engage in some phase of cancer work when their training was completed, they were not required to sign any agreement to this effect. It is encouraging to learn, therefore, that they seem to be carrying out their original intentions as far as circumstances will permit. A large proportion of the trainees have demonstrated their competence in those branches of medicine which at present provide the major part of the services for the cancer patient, and most have established themselves in a type of practice or in positions where their special training is of benefit to the cancer patient, either directly or indirectly.

Diplomates of Specialty Boards

Seventy-three of the 111 trainees reported that they had completed board examinations in branches of medicine where they will probably be called upon to treat large numbers of cancer patients.

33 are diplomates in radiology.
32 are diplomates in surgery (one of these is also a diplomate in neurosurgery).
5 are diplomates in pathology.
2 are diplomates in obstetrics and gynecology.
1 is a diplomate in oral surgery.

Thirty-three others were either planning to take the board examinations in their specialties or had already passed part of the examinations. The specialties are as follows: 20 in surgery, 7 in radiology, and 1 each in pathology, otolaryngology, ophthalmology, internal medicine, physical medicine, and orthopedic surgery.[2]

Teaching Positions

Twenty-eight trainees reported that they were engaged in teaching at medical and dental schools. Three were professors, 2 were associate professors, 7 were assistant professors, and 12 were instructors. Four did not state what positions they held. It seems probable that many other trainees, by virtue of positions held in hospitals and clinics, have many opportunities for teaching.

Hospital Positions

All but a few of the trainees were on the staff of at least one hospital, and a large number held several staff positions. One was director of the tumor, research, and educational hospitals of a State university medical school, and another was director of a city hospital. Sixteen were section chiefs, directors, or chairmen of hospital departments. Ten were consultants in their specialty. Others listed such positions as director of laboratories, surgeon, pathologist, radiologist, oncologist, or associate in one of these specialties. A few held positions in group practice.

Positions in Cancer Clinics

Forty-seven trainees were on the staff of a cancer diagnostic clinic, 55 were on the staff of a cancer clinic, and 27 were on the staff of a cancer detection center. Six trainees were directors of clinics, two were acting or associate directors. There is duplication in these figures, as many of the men were on the staff of more than one type of cancer service, but a total of 69 were active in one or more such services.

The remaining 42 were not on the staff of any type of cancer clinic. Of these, two were in the Army, five were continuing their training, some had only recently entered practice, and others were located in areas where cancer clinics had not yet been organized.

[2] Information on this point was not obtained from one trainee who is still in military service. Of the remaining four responding to the questionnaire, one is a fellow of the American College of Surgeons, one is a fellow of the International College of Surgeons, one is in general practice, and one was forced by personal circumstances to terminate his traineeship at the end of a few months.

Time Devoted to Cancer Work

The fact that so many trainees were on the staffs of cancer clinics and services is a partial index of how the traineeship program aids the cancer patient. Further information on this point was obtained through the trainees' estimates of the percentage of their time now devoted to work with cancer patients.

Ten trainees reported that they were devoting all of their time to cancer work. Thirty-three trainees spent at least half of their time on cancer patients, while 28 spent a quarter to a half of their time on such work, and 29 spent less than 25 percent of their time on cancer. In 11 cases, the trainees were still training, serving in the armed forces, or engaged in other types of work.

Location of Trainees by States

The trainees are distributed over 29 States and the District of Columbia. As might be expected, New York had attracted the largest number. Thirteen trainees who served their traineeships in New York City hospitals had located in New York State, all but one in or near New York City. California ranked second with 9 trainees, none of whom trained in that State. Minnesota was third with eight trainees, all of whom received their training at the University of Minnesota.

Trainees' Comments and Suggestions

Physicians who have had the experience of serving in National Cancer Institute traineeships and of putting this training into practical use are probably in the best position to know the merits and shortcomings of the program. Accordingly, the questionnaire asked trainees to offer comments and to make suggestions for future improvement. The consensus was that training received under the program had been excellent and highly valuable to the trainees in their professional careers. Several said that, without this financial aid, they would not have been able to continue specialist training.

Among the suggestions made by trainees were the following: Surgeons working in the cancer field should have basic training in cancer pathology and in radiation therapy; more extensive training in surgery should be a prerequisite for a traineeship; a part of the training period should be devoted to cancer research.

One physician suggested that training should include "the problem of the so-called terminal case in order to encourage any and all specialists who accept responsibility for definitive cancer care to accept also the same responsibility for the terminal care of the same patients if treatment is unsuccessful"; and that preference be given to training programs in centers with active cancer services where a

large number of cases are handled by a small, capable, and experienced group.

Two suggestions call for greater participation by departments of internal medicine in the study and teaching of cancer diagnosis and therapy.[3] One trainee suggested broadening the training program to include chemotherapy, "which often falls within the department of medicine." Another suggested that training in the diagnosis and treatment of cancer be given to men specializing in internal medicine in order to encourage the study of cancer as a systemic disease.

Trainees also proposed that a certificate be issued as evidence of successful completion of the training period;[4] that assistance be given in placing trainees in suitable locations; that trainees be sent a semi-annual circular summarizing the latest developments in clinical cancer research; and that an annual refresher course be given for former trainees.

The need for a larger number of adequately trained physicians in the cancer field was mentioned in many replies. A few commented upon the dearth of such persons in some of the less urbanized areas.

Present Status of Program

As of February 1, 1949, the National Cancer Institute had made 231 trainee appointments since the inception of the program; 68 of these were still active. In the current fiscal year 1949, the Institute could grant appointments to only about one-fourth of the applicants, many of whom were well qualified. An encouraging development, which will help fill this demand for postgraduate training in cancer, was the recent establishment by the American Cancer Society of 40 training fellowships, similar to those of the National Cancer Institute.

Conclusion

This analysis provides a basis for evaluating, to some degree, the program of postgraduate education carried on by the National Cancer Institute and cooperating institutions during the period 1938 to 1948. During approximately 8 years of this period, war conditions interfered seriously with the normal conduct of medical education and with this program. The type of training, the quality of the training, the facilities and clinical material, and the teaching ability of the various staffs, have, of necessity, varied in the 31 institutions that accepted trainees. In spite of these factors, we believe that the program has been suc-

[3] These suggestions are in harmony with ideas already advanced by many physicians working with cancer patients and by medical educators. See "Cancer in the medical school curriculum," a report by the National Advisory Cancer Council, J. Nat. Can. Inst. 8: 3 (1947).

[4] This suggestion has now been put into effect.

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cessful in achieving its objective—the provision of better cancer services and a more intelligent management of the cancer patient.

Physicians who have completed these traineeships have received special clinical training in the diagnosis and treatment of cancer. They have become more proficient in dealing with this disease in their own patients, and are better qualified to teach other physicians.

Data obtained from 111 trainees indicate that they have generally demonstrated a high degree of proficiency in their work. Seventy-three had become diplomates of one of the specialty boards, and 33 were planning to take qualifying examinations at the time of the questionnaire. Most of these specialists are in the fields of surgery, radiology, and pathology.

Nearly one-fourth of the trainees are devoting 75 to 100 percent of their time to work with the cancer patient. Nearly two-thirds are serving on the staffs of cancer clinics or detection centers. Many trainees hold important positions on hospital staffs. More than one-fourth are now teaching in medical or dental schools.

Those who may be considered permanently located have settled in 29 States and the District of Columbia, thus providing service to cancer patients in many different sections of the country.

As a result of their experience, both as trainees and as practicing physicians, those answering the questionnaire have made a number of suggestions which merit the serious consideration of medical educators.

The fact that such a large proportion of the trainees have qualified or plan to qualify as diplomates in surgery, radiology, or pathology suggests the need for a new development in this educational program, i. e., the provision of postgraduate training in cancer for the internist. There is a growing recognition of the role the internist could and should take in the management of the cancer case. He is the person who should be prepared to provide systemic treatment for the patient during and following surgical and radiological treatment; he is also the logical person to provide care for the case which is only temporarily arrested. There is evident need, therefore, to expand the post-graduate education in cancer to include special training for physicians who expect to devote themselves to the practice of internal medicine.

The need for better training in the cancer field is generally recognized. The postgraduate training program of the National Cancer Institute has assisted many physicians in taking such training. It is hoped that such programs may be expanded and that cooperating institutions will continue to improve their own programs for specialized training in the management of cancer cases.

Cancer Teaching in Medical Schools

By Raymond F. Kaiser, M. D.*

Cancer claims more American lives every year than any disease except heart disease. The mortality rate from cancer might be lowered by 30 percent if the people were more alert for signs and symptoms of the disease, and if physicians were better prepared to discover and give earlier treatment to potentially curable cancers.

During the year, most physicians, however, see about three or four cases of cancer. The likelihood of increasing his familiarity with the disease by postgraduate study is limited by the shortage of facilities for such study. This places an exceptionally heavy responsibility on medical schools to give undergraduate students thorough cancer instruction and an appreciation of clinical research, and to bring to them the latest methods of diagnosis and therapy.

It was against this background that the 6 members of the National Advisory Cancer Council of the National Cancer Institute met in 1946 with 22 medical school deans and educators to discuss the problem of cancer teaching. They agreed that substantial improvements could be made. The conferees recommended that: (1) the deans and faculties of medical schools survey their teaching of cancer; (2) consider introducing integrated courses in the disease; (3) stimulate cancer research in their schools, not only for itself, but as an aid to teaching and a stimulant to student interest, and (4) that the Public Health Service find a way to provide financial assistance to improve cancer instruction in the schools.

To support these recommendations, Congress made available $1,500,000 to the National Cancer Institute in the fiscal year 1947–1948 for grants to coordinate the teaching of cancer in medical schools. These funds were increased to $2,250,000 in the fiscal year 1948–1949.

Since the first funds were allocated in June 1947, all but six of the medical schools in the United States have applied for and received grants ranging to $25,000 a year. Today, 73 schools of medicine are participating in this grant-in-aid program.

In this short space of time, there is indication that the schools using this financial assistance have been able to develop and enhance their teaching programs. Although the subject of cancer is old, organization and teaching of the subject are still in the process of development, with many critical studies being conducted in teaching techniques and methods.

In making application for a renewal of a Federal grant, the medical school describes what it is doing, and what it intends to accomplish in

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developing its curricula. From current applications, there emerges a panorama of this frontier in medical education.

The Starting Point

The initial problem springs out of the unique character of cancer itself. The disease, a protean one, may arise in any part of the body. Therefore, it does not fall completely within the province of gynecology, surgery, or any other single department of the usual medical school organization. The first problem, then, is whether to teach the subject "horizontally" (by simply expanding and strengthening the teaching of cancer as it occurs within the context of traditional subjects) or "vertically" (by making cancer itself the subject of a separate course of instruction).

Horizontal Teaching

By far the more common solution is to adopt the horizontal method. It least disturbs existing curricula and departmental organization, and makes the least demand for new teaching manpower.

The task of providing a new accent on cancer in the teaching of traditional subjects is often entrusted to a single faculty member. He may be called a professor of oncology, a director or a coordinator of cancer activities. Frequently he has the status of a full professor, and has the same security in his position as other members of the faculty.

With his over-all perspective of the problem, the coordinator can help insure that the cancer instruction in the various departments is complete and well balanced, and that it proceeds during the teaching year in logical and orderly fashion. He also can serve as a link between departments to see, for instance, that clinicians are aware of developments in basic science departments that might apply to clinical problems, and vice versa.

However, the cancer coordinator usually gives most of his time to the department with which he is officially affiliated. Accordingly, some schools have set up committees to coordinate the teaching of cancer within the various departments. Such a system, with the chairman serving as the cancer coordinator, has been adopted at the University of Cincinnati, the University of St. Louis, Stanford University, and the University of Maryland.

These committees are composed of representatives of the departments most concerned with cancer. They are more able than the single coordinator to integrate instruction in all departments, and to relate it to teaching in tumor and detection clinics. Obviously, too, the committee members have a more detailed knowledge of what is being taught in their departments and how it might be developed; they also can enlist the cooperation of their departments more easily.

Vertical Teaching

The establishment of a single department or section for the teaching of cancer recognizes the systemic character of the disease. It brings to the medical student a coherent and complete picture of cancer as an entity, and not merely as a topic that occurs in other branches of medicine such as surgery and gynecology. Among the schools that use the vertical plan are Hahnemann Medical College, Cornell Medical College, the University of Utah, and Georgetown University Medical Center.

The vertical plan apparently fits best into the fourth-year curriculum. Here the student has a basic science background, some clinical experience and greater familiarity with medicine in general—all essentials for understanding the complexities of cancer. Beyond that, the student in his last year, is able to draw together the fragments of cancer knowledge acquired during the earlier years of medical school.

Other Methods

Some medical schools offer interesting blends of the horizontal and vertical systems. The University of Southern California, for example, uses what it calls a "symposium" technique. It has organized a single course on cancer, which is taught, however, by instructors from the traditional departments of the school. At Columbia University's College of Physicians and Surgeons, where this blend is also in use, it is referred to as an "oblique" teaching method incorporating demonstrations rather than symposia.

At the University of Colorado, a similar method is in operation. From the vertical standpoint, an oncologist, with the rank of assistant professor of surgery, directs the program which is located in the department of surgery. As executive director of the department of oncology, he is responsible for administration of the program, direction of the weekly tumor conference, instruction to students and participation in treatment and follow-up of cancer patients.

Horizontally, the Colorado medical school adheres to the policy of departmental autonomy in the care and treatment of cancer patients. That is, the tumor clinic has no patients of its own. To illustrate: a case of carcinoma of the bladder would be cared for by the genitourinary department, including therapy and follow-up. For this purpose, each department is assigned specific days in the tumor clinic.

There are many other variations which blend some of the features of both horizontal and vertical teaching. The cancer teaching program at Tufts College Medical School was set up as a cancer research and cancer control unit in the department of surgery, and directed by a

research professor of medicine. Establishment of a full-time cancer research unit was thought to be a necessary prerequisite to stimulate cancer teaching, and such a unit was set up followed closely by initiation of the teaching program. Vertically, the program has a single director in a single department; but instruction is horizontally applied from many departments concentrated in an 8-day course for fourth-year students.

Curriculum Content

The amount of time devoted to cancer instruction varies greatly from one medical school to the next and so, to a lesser extent, does the content and style of the teaching itself. Since cancer is a phenomenon of growth, however, it is not uncommon to begin classroom consideration of the subject—as at Hahnemann—within the field of biology. From there instruction may go on to consider the special problems the disease may present to the gynecologist, the pathologist, the radiologist, the surgeon, and so on. A suggested minimum course in cancer, drawn up at the University of California, is presented in the following summary outlined.

I. General Introductory
   - *a.* Epidemiology: incidence of cancer; cancer research.
   - *b.* General biologic phenomena of cancer, including metastases.
   - *c.* Metabolism of the cancer patient.
   - *d.* Diagnostic methods; biopsy, cytological, biochemical, X-ray and radioactive tracers.
   - *e.* Pre-cancerous lesions.
   - *f.* Principles of radiotherapy of cancer; isotopes.
   - *g.* Principles of surgery.
   - *h.* Principles of chemotherapy.

II. Pathology of cancer.
III. Tumors of all organs and systems.
IV. Tumors in children.
V. Rare tumors; glomus tumors.

Tumor Clinics

Cancer instruction is not complete without clinical teaching. Tumor clinics, where the student may see actual cancer patients, are a prime aid, used by nearly all of the medical schools receiving financial assistance.

Basically, the procedure of clinical instruction gives the students an opportunity to follow the instructor through each detail of an individual case, taking history, thorough examination of the lesion, performing routine and special laboratory tests, roentgen studies and biopsies. After the patient is dismissed, the case is discussed with the students. Diagnosis and therapy are determined by joint decision of the surgeon, the radiologist, the pathologist and consultants

from the medical school department most appropriate to the case. For example, a dermatologist may be called in a skin cancer case, or a gynecologist in a cervical cancer case.

While their emphasis is on instruction in diagnostic and curative measures, most clinics also offer training in the terminal and palliative care of advanced cancer patients, with special attention to the problems of alleviating pain by the administration of drugs. Follow-up services maintained by the clinics also help acquaint the student with the need for continued observation of treated cases, serving primarily to return patients to the clinic in an effort to uncover recurrences.

Students in most schools spend only a short period of their third and fourth years in the tumor clinic. To enable them to follow clinical procedures closely, the "small group" method of instruction is generally practiced. Clinic sessions are usually limited to 6 to 10 students at a time, enabling intimate association with the care of patients and with diagnostic and therapeutic techniques.

A few schools have made the tumor clinic the focal point of their cancer instruction. They include George Washington University, the University of Georgia, New York University, the University of Arkansas, and the University of Colorado.

The Yale Method

A good example is offered by Yale University. The tumor clinic at New Haven has been in operation since 1929. The 10-year-old tumor registry includes records of New Haven Hospital cases over the past 25 years. Yale has largely abandoned instruction by formal lecture; its medical faculty is convinced that "the most effective form of teaching is that which demands a large measure of participation and initiative on the part of the student." [1] Clinical instruction at Yale is patterned on this principle.

While serving clerkships (third and fourth years) in surgery or its specialized branches, the students see cancer cases of all types in the clinic. Because a relatively large number of cancer patients are admitted to the general surgical service, they have been concentrated in a separate tumor subdivision, supervised by the cancer coordinator. This subdivision provides a major source of cancer instruction. One teaching period each week is devoted to study of malignant tumors by small groups of clerks in general surgery.

The clinical clerk in general surgery serves one week in the tumor and detection clinic. Here the student sees about 100 ambulatory patients in all stages of malignant disease and learns detection methods of cancer.

[1] Syllabus: Cancer Teaching Facilities at the Yale University School of Medicine, January 1949.

A tumor conference is held weekly—open to students—and reviews diagnostic and therapeutic problems. Staff members of the radiology, surgery, or surgical pathology departments analyze each case. The conferees discuss each case, explaining how and why certain diagnosis and therapy recommendations are made.

Detection Centers

Possibly, the most recent major device in cancer instruction is the detection center. Standards for this type of clinic were first formulated by the American College of Surgeons in 1946. At such a center, the medical student participates in examining persons not known to have cancer. Here he may learn vital lessons about how to discover cancer.

Among medical schools that use detection clinics are the Universities of Illinois and Minnesota. The experience of these schools attests that detection centers increase the student's regard for thorough examinations, help him better to understand why cancer should be sought even when no obvious symptom of the disease is apparent, and increase his knowledge of modern discovery methods. In terms of actual medical practice, this means better physical examinations and an increased awareness on the part of the student to the fact that unless cancer is looked for specifically, it frequently goes undiscovered for a period of time.

Third and fourth year curricula seem best able to incorporate this training. Much the same teaching procedure is used as in the tumor clinics.

Other Teaching Aids

Additional methods of improving cancer education include periodic cancer conferences and seminars, visual aids and cancer libraries. At least 27 schools offer postgraduate training, and about 40 schools maintain some type of statistics on observed cancer cases. In this group are follow-up services, tumor registries and statistical studies covering incidence and prevalence rates, types and sites of cancer, etc.

Cancer research conducted in more than 25 schools encourages student participation and stimulates interest in cancer research careers.

Basic Sciences

Long before he is qualified to study cancer as a complete subject, the student should be impressed with the significance of the disease and the foundation should be prepared for intensified training in the field in his later years at medical school. During the pre-clinical instruction given in the basic sciences—anatomy, physiology, biochemistry, pathology, etc.—most schools attempt to emphasize

their relationship to cancer. The student is particularly well instructed in histopathology and biological growth and development processes, since cancer is essentially a growth without organization or any adult processes common to normal growth. In some schools, as a new departure in teaching, second-year students are given an opportunity to apply their academic work in pathology to clinical material through correlation conferences. To add to the student's interest in the disease, lecture material on cancer biology often includes references to current research projects.

Evaluation and Review

Many schools recognize the importance of planning the growth of cancer instruction. Most of them began their expanded teaching programs only after careful planning and many discussions between department heads and clinicians to determine how the school's services and facilities could best be mobilized to meet the problem. In some cases, the schools have adopted fairly elaborate methods for checking on the soundness and effectiveness of the teaching that has since developed. The University of California, for example, has a program of review using the following devices:

1. Tests to determine how much a student retains of cancer instruction he took a year earlier.

2. Tests to determine how well a student's knowledge of cancer applies to the situations he is likely to meet in practice: to find out if he is learning too much about rare and not enough about common problems.

3. Regular faculty critiques of instruction on the basis of written versions of the lectures being presented, of voice recordings of class instruction, or of actual attendance at clinics and classes.

4. Faculty conferences for exchange of advice and suggestions about new problems, attendant to development of the instruction program.

5. Preparation of an annual summary of cancer teaching techniques, to serve as a stock-taking device and as a basis for plans for the next year.

The National Cancer Institute recognizes that Federal grants, averaging less than $25,000 a year for each of the participating medical schools, are a relatively small supplement to the considerable resources of time, money, and skill that the schools themselves are beginning to apply—and in some cases have long applied—to cancer instruction. Federal funds are intended to be a stimulant to the teaching of cancer, and not to be the sole or even major support for that teaching.

During its first year and a half, Federal assistance plainly has added to the resources of the medical schools; but more important than that, it may have given school administrators occasion to think hard and

profitably about the most efficient use of their own facilities for cancer instruction.

The goals of that instruction are to improve the physician's ability to discover and treat cancer and to reduce the dreadful mortality from that disease. Since the Federal program has not yet been in effect for even one 4-year "generation" of medical school students, it is too early to measure the progress made toward those goals. It is not too early to say, however, that the advances made to date on this new frontier of medical education seem to hold great promise for the future.

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Cancer Teaching in Dental Schools

By Raymond F. Kaiser, M. D.*

After the National Cancer Institute initiated in 1946 its program for improved cancer teaching in medical schools, a similar system of teaching grants was extended to dental schools. This program, started at the end of 1947 with the approval of the National Advisory Cancer Council, has met with enthusiastic response among members of the dental profession. Thirty-six of the Nation's 40 dental schools have taken advantage of the dental teaching grants to give their students a better grounding in cancer pathology, recognition of early lesions, and principles of cancer diagnosis and treatment. Most of the grants have been for the maximum amount allowable, $5,000.

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Twelve percent of all cancer arises in the oral cavity or on the skin of the head and neck. The dentist, whose patients come for examination and treatment at regular intervals, has an excellent opportunity to observe such lesions in their early stages and make certain that the patient obtains prompt diagnosis and treatment. The dentist's ability as a case finder, however, will depend on whether he is constantly on the watch for signs of malignancy and whether he has been trained to recognize possible cancerous lesions.

Good oral hygiene is considered an important factor in the prevention of oral cancer. Irritation by malformed or broken teeth, chronic ulceration or infection, leukoplakia, and other unhealthy conditions may predispose the mouth tissues toward malignancy. Correction of such conditions is an important service that the dentist can give his patient.

The importance of the dentist in cancer detection is recognized in the plan for dental teaching grants. A letter sent to deans of all dental schools, January 7, 1948, outlines the plan as follows:

"The National Advisory Cancer Council has recommended to the Surgeon General of the Public Health Service that block grants of from $2,000 to $5,000 be made annually to dental schools for the purpose of improving the teaching of cancer. A grant-in-aid for a similar purpose has been offered to medical schools.

"The Council has specifically recommended:

"(1) that the dean and faculty of each dental school be asked to review the present method of teaching cancer in their school.

"(2) that, if an integrated course in cancer is not already given, the school consider a program of instruction preferably in the senior year in which the pathology, physiology, and biochemistry of cancer are correlated with a weekly clinic devoted to the presentation of cancer and that, whenever possible, advantage be taken of integrating the cancer teaching program of the dental school with that of the medical school.

"(3) that they undertake to stimulate cancer research in their school since it is recognized that research improves teaching and stimulates student interest.

"It is recognized that the most effective method for improving cancer teaching will vary from school to school, and there is no desire on the part of the National Advisory Cancer Council to suggest a uniform plan. Hence it is suggested that it would be most desirable for you and your faculty to review how best to improve your teaching of cancer and how best to stimulate interest (research and training) in cancer in your dental school. You may then submit to us, for consideration by the National Advisory Cancer Council, a program showing the additional expense involved for which assistance is needed.

"The Council considers that this program will provide an important contribution toward the control of cancer. The Council on Dental Education of the American Dental Association, whose members have been consulted and have approved the program, has also agreed that this program is important. To render the program most effective the National Advisory Cancer Council and National Cancer Institute will attempt to provide maximum assurance of continuity. Accordingly, it will be our policy initially to approve grants for the first 2 years' operation of the program and to provide funds now for the first year. Funds for the second year will be set aside so that you may be assured of their availability. Applications for continuation for a third year will be considered early in the second year. A similar policy will be followed in the years beyond the third year."

In 1947, when the program was proposed, courses in oral diagnosis were possibly one of the weakest aspects of dental training. Cancer received inadequate attention in most schools, and the young graduate went out to practice dentistry equipped with relatively little information about the nature of the disease or how to recognize it in his patients.

Judging from the budgets proposed by the schools, dental educators believed that this situation could best be corrected by (1) enlargment of the teaching staff for cancer instruction, and (2) additional and improved visual teaching aids. The major part of the requested funds was to be used for salaries of teaching staffs and visiting lecturers, and the remainder for preparation and use of slides, photographs, gross specimens, movies, and other visual aids. The need for visual aids was so urgent at one school that the entire grant was devoted to preparation of slides.

More than half of the dental schools proposed to establish a program of lectures on cancer as the backbone of their cancer training program. Tufts College Dental School, for example, outlined the following four basic lectures by members of the staff:

1. Classification and histopathology of tumors.
2. Etiology and pathogenesis: extrinsic factors that can be controlled by the dentist (preventive measures).
3. Early diagnosis, including the value and technique of biopsy, and recognition of metastases to regional lymph nodes.
4. General principles of treatment: the implications of surgical and X-ray therapy.

Three programs to be given by guest lecturers would emphasize clinical cancer problems. These lectures were to be supplemented by laboratory sessions, clinical observation, and student participation in the microscopic diagnostic service.

Nine schools proposed to introduce or expand regular oral cancer courses for third or fourth year students. The required course in

oral cancer proposed by the Temple University School of Dentistry included:

1. The general cancer problem: background and development (2 hours).
2. Pathology (12 hours).
3. Early diagnosis—its importance (5 hours plus clinic).
4. Causative factors, and pre-cancerous lesions and conditions (3 hours plus clinic).
5. The biopsy (4 hours plus clinic).
6. Teeth as complicating factors in oral malignancy. Osteonecrosis. (The management of teeth in patients with oral malignancy before, during, and after treatment.) (4 hours).
7. Principles of therapy (4 hours).
8. General care of the patient, including nutrition, control of infections, chemotherapy, mental hygiene, etc. (3 hours).
9. Follow-up period—its importance (2 hours).
10. Role of the dentist in a tumor clinic (3 hours).
11. The ideal cancer control program for oral malignancy—a review (3 hours).

Clinical cancer experience is an important element in most proposed cancer programs. In some cases, this experience is given in the dental clinic where, except in very large clinics, opportunities to observe malignancies is limited. Thirteen schools report that students observe and work in a tumor clinic, usually one connected with a university medical school. Eight schools have, or intend to establish, oral cancer clinics. New York University College of Dentistry plans to use grant funds to set up a cancer teaching clinic which would use selected material from the 20,000 patients coming annually to the university dental clinic.

Most of the schools emphasize four subjects: the nature and causes of cancer, prevention, recognition of early cancer, and principles of diagnosis and therapy. Some schools go more deeply into certain aspects. In Michigan, for example, where State laws permit cancer treatment by oral surgeons, more emphasis may be placed upon therapy. In some schools, the actual technique of biopsy is taught, as well as the value and principles of this diagnostic method. At the University of Texas, the proposed program includes instruction in reconstruction and prosthesis following surgical treatment of cancer, using clinical material from the M. D. Anderson Memorial Hospital.

For what seems to be a well-rounded proposal, we cite the program submitted by the University of Louisville School of Dentistry:

1. Regularly scheduled lectures on cancer prevention, diagnosis and treatment.

2. Regularly scheduled cancer clinics for senior students.

3. Demonstrations of pre-cancerous and cancerous lesions in course of routine work at the dental school general clinic.

4. Seminar and discussion groups for seniors on case reports and histories, cancer research, and general cancer problems.

5. Expansion of regularly scheduled lectures for juniors and seniors to place more emphasis on cancer problems.

6. Improvement in correlation between basic science and clinical courses.

7. Expansion of laboratory courses to allow more study of cancer pathology and pre-cancerous lesions.

8. Improvement in laboratory and photographic facilities for better preparation and use of visual teaching aids.

9. Main emphasis: causes, prevention, and early diagnosis of cancer.

Year-end progress reports are received from dental schools when they apply for renewal grants. These reports indicate continued enthusiasm for the program and a high degree of success in working out the proposed teaching projects.

Emphasis seems to be well placed, chiefly on early recognition of cancer and correction of pre-cancerous conditions. Through expansion of clinical cancer experience, particularly in the senior year, students are apparently receiving wider first-hand cancer experience. By developing their collections of slides and other visual aids, the dental schools are able to provide better illustrative materials for lectures and for laboratory study. In many cases these visual aids are also being used in information work for practicing dentists.

These dental teaching grants are obviously inadequate to permit the expansion in cancer teaching that is actually needed. It is clear from the submitted budgets that most of the schools are contributing just as much, or more, to the expansion of cancer teaching from their regular funds. Even with these contributions from both sources, most dental schools are able to make only a good beginning toward a well-rounded cancer program. It is hoped that these efforts will encourage other sources, possibly voluntary societies or educational foundations, to contribute additional funds for cancer teaching in dental schools.

The enthusiastic response of the dental educators and the evident progress that has been made with limited funds prove that the National Advisory Cancer Council was correct in judging the need for such a program. It may be true that the dentist is effective as a case finder only for a limited proportion of cancers, but it is these types, the malignancies of skin and mouth, that are often most susceptible to treatment. Here, early case-finding efforts show the most fruitful results.

New Tools for Professional Cancer Education

CANCER REPORTS SECTION, NATIONAL CANCER INSTITUTE

Professional education is perhaps the crux of any cancer program. It tries first of all to raise the "index of suspicion" among members of the medical and allied professions for signs of cancer. If more cases are found earlier, diagnosed earlier, and treated earlier, cancer mortality rates can be materially reduced. Lay education has made many people aware of early cancer symptoms and brings many into the doctor's office while the possibility of successful treatment is still favorable. The real responsibility for early case finding, however, rests with the first physician, dentist, or nurse who sees the patient and has an opportunity to observe signs of disease.

An information program can also help the medical, and allied professions keep up to date on developments in cancer diagnosis and treatment. It can promote use of the cytologic test as a case finding and diagnostic aid, and the wider use of biopsy as a tool for accurate diagnosis. It can make sure that physicians, dentists, and nurses know about the facilities and services for cancer care available in their own communities. It can help instruct nurses in home and bedside care for the patient.

The National Cancer Institute provides aid both directly and indirectly for professional education. Cancer control grants-in-aid to State health departments are used in part for information work and professional training.

Traineeships are provided to a limited number of qualified physicians for specialized training in the various professional categories dealing with clinical cancer. Grants to medical and dental schools are used to improve cancer teaching for undergraduates. The Yale and Harvard Schools of Public Health now offer regular courses in cancer control with the aid of special Institute grants.

Professional education projects need not only funds, but also teaching materials. One good film may do more to drive home the importance of early diagnosis than a whole series of lectures. Slides can show the dentist exactly what type of oral lesions may be signs of serious trouble. A comprehensive handbook of cancer nursing may substitute for many hours of lecturing and provide a convenient reference source for the busy visiting nurse.

Films

A new approach to medical films is made in a series of six films being produced by the National Cancer Institute jointly with the American Cancer Society. Presenting the thesis that early diagnosis can reduce cancer mortality, these films are designed for showing before groups of practicing physicians, medical students, and the allied professions. "Cancer: The Problem of Early Diagnosis," the first of the series, is already being distributed. It is general in scope, while each of the succeeding five films will deal with cancer diagnosis of a specific site—oral, breast, uterine, lung, and gastro-intestinal cancer. They will run from 20 to 40 minutes. The first film, which runs 30 minutes, may be shown alone, or may serve later as an introduction to the entire series.

"Cancer: The Problem of Early Diagnosis" opens with a dramatic and historically accurate scene showing the first successful operation for gastric cancer as performed in 1881 by Dr. Theodor Billroth at the Vienna General Hospital. At that time, the diagnosis of cancer was usually a death sentence. In his pioneering operation, Dr. Billroth gave proof that even gastric cancer could be operable. Thus opened a new era in cancer treatment.

From this introduction, the film considers the cure of early cancer through use of modern techniques of surgical and radiation therapy. Taking cancer of the breast, stomach, rectum, cervix, and lung, the film indicates clues to early diagnosis and shows the probability of survival when the patient receives prompt treatment, as contrasted with experience in cases found and treated late. Using color photography of examination procedures and close-up views of surgical operations, combined with animated medical drawings and diagrams, the film presents an effective argument for constant vigilance on the part of the practitioner.

Since the first showing in December 1948, "Cancer: The Problem of Early Diagnosis" has received endorsement from medical, scientific, and educational authorities. Using techniques developed by modern documentary film makers, it makes its point forcefully through a combination of well-directed photography, careful cutting, skillful blending of sight and sound, and technical accuracy.

The film may be presented by itself, or may supplement a lecture or discussion program. A 16-page pamphlet, distributed with each print, suggests how to make the most of this teaching aid. A 4-page leaflet is also available for promoting the use of this film among local professional groups.

In an effort to test reaction to the first film of the series, a penny post card questionnaire was printed and has been enclosed with "prints" of the film sent out to professional groups. Returns—from hospitals, medical schools, and county and local medical societies—virtually unanimously endorsed the teaching and content value of the film.

The next film of this series, on breast cancer, will be released in the fall.

Specifications and directions for obtaining the first film follow:

CANCER: THE PROBLEM OF EARLY DIAGNOSIS

Audience: Hospital staffs, medical societies, medical schools, and other gatherings of physicians.
Specifications: 16 millimeter sound film in color.
Running time: 30 minutes.

Borrow from

Association Films regional depots:
347 Madison Avenue, New York 17, N. Y.
206 South Michigan Avenue, Chicago 3, Ill.
3012 Maple Avenue, Dallas 4, Tex.
351 Turk Street, San Francisco 2, Calif.
State Health Departments
State Cancer Societies

(The film may be borrowed from these sources without cost except for shipping charges and possibly a small service charge.)

Buy from

Audio Productions, Inc., 630 Ninth Avenue, New York 19, N. Y.
Cost: $150. (Audio will send a print for preview without charge).

The National Cancer Institute is also interested in aiding in the distribution of films made by other groups which can contribute to cancer control. Copies of such films will be purchased and placed in regional Federal Security Agency offices where they will be available on loan.

"Pre-Cancer Diagnosis of the Cervix by Cytology" is available for professional audiences. This film was produced by Dr. J. Ernest Ayre of McGill University in Montreal to demonstrate the advantages and limitations of the cytologic technique in case finding and diagnosis. Dr. Ayre, a leading exponent of the cytologic test, has designed this film to illustrate for practitioners and for third- and fourth-year medical students how indications of cancer in situ may be found before the patient is aware of any symptoms.

The film shows the method of obtaining cervical smears and scrapings; color microphotographs of the various types of cells found in normal, cancerous, and pre-cancerous conditions; and comparison of the clinical picture of cervical cancer with the cytologic picture.

PRE-CANCER DIAGNOSIS OF THE CERVIX BY CYTOLOGY

Audience: Hospital staffs, medical societies, medical schools, and other gatherings of physicians.

Specifications: 16 millimeter sound film in color.

Running time: 30 minutes.

Borrow from

Medical Director, Federal Security Regional Offices:
Region 2—42 Broadway, New York 4, N. Y.
Region 6—1539 Jackson Avenue, New Orleans 15, La.
Region 7—Room 2200 Fidelity Building, Kansas City 6, Mo.
Region 10—Room 441 Federal Office Building, San Francisco 2, Calif.
National Cancer Institute, Public Health Service, Bethesda 14, Md.
Public Health Service Medical Center, Hot Springs, Ark.

(The film may be borrowed from these sources without cost except for shipping charges.)

Buy from

Cytology Institute, 135 East Sixty-fifth Street, New York, N. Y.
Cost: $175.

Slides

The lantern slide provides illustrative material for the lecturer or instructor, thus serving a different purpose than the film, which usually tells a complete story by itself. Individual slides may be studied as long or as often as necessary, and the material may be arranged to suit the specific needs of the audience.

Recognition of cancerous and pre-cancerous conditions is one of the most important aspects of professional education. The average physician sees only three or four cancer cases annually and has no opportunity in ordinary practice to study more than a few different types of cancer.

A series of 108 medical cancer slides is now available from the National Cancer Institute to demonstrate the appearance of various types of cancer lesions. These slides show gross lesions and X-ray photographs of diagnosed cancers of the most important sites. Most of the slides were prepared under the direction of Drs. John E. Wirth and Ralph S. Lloyd at the United States Marine Hospital in Baltimore, Md.

Accompanying each set of slides is a booklet giving for each slide the chief complaint mentioned by the patient, a brief case history, and physical findings.

MEDICAL CANCER SLIDE SERIES

Audience: Physicians and medical students.

Specifications: Set of 108 slides, some in color, measuring 2 by 2 inches.

Borrow from

Medical Director, Federal Security Regional Offices.

This slide series is not yet available for purchase.

Twenty-two of these medical slides show lesions of the oral cavity and skin of head and neck and are available separately for use by dental groups. Dentists, who are showing increased interest in cancer control, can learn to recognize lesions which may be cancer and recommend that the patient seek prompt diagnosis and treatment. Dentistry is a promising field for cancer prevention efforts. By correction of chronic infections and irritated conditions, the dentist may prevent so-called pre-cancerous conditions from developing into cancer lesions. These 22 slides show selected types of benign and malignant lesions for study by dental society, clinic, or undergraduate group. A booklet accompanies each set giving the chief complaint of the patient, a brief case history, and physical findings for each lesion shown.

ORAL CANCER SLIDE SERIES

Audience: Dentists and dental students.

Specifications: Set of 22 color slides measuring 2 by 2 inches.

Borrow from

Medical or Dental Director, Federal Security Regional Offices.

Buy through

Dr. R. S. Lloyd, United States Marine Hospital, Baltimore, Md.

Cost: $4.40 per set. Make checks payable to Eastman Kodak Co

Cancer patients often have special nursing needs. By learning how to care for the post-operative patient and how to help the patient care for himself, the nurse can contribute greatly to his comfort and successful convalescence. This instruction is particularly important for the public health nurse or visiting nurse who is called upon to give home care.

A series of 100 slides has been assembled by the National Cancer Institute for use in nurse instruction. Most of these slides are devoted to care of the post-operative cancer patient. They show many special procedures including nasal and gastrostomy feeding; dressings and care of tracheostomy, laryngectomy, mastectomy, colostomy, cystostomy, limb amputations, and other surgical operations; giving transfusions in the home; and handling radium and radon seeds. Also included are slides showing how to teach the correct procedure for self examination of the breast. Statistical charts show cancer incidence and survival rates. These slides were prepared by the United States Marine Hospital in Baltimore, and in cooperation with Montefiore Hospital in New York City and the New York Visiting Nurse Service, and by the staff of the National Cancer Institute.

A booklet describing each slide accompanies the series.

CANCER NURSING SLIDES

Audience: Graduate and student nurses.

Specifications: Set of 100 black-and-white slides in two sizes. (See below.)

Borrow from

Medical Director, Federal Security Regional Offices.

Size: 3¼ by 4 inches and 2 by 2 inches.

Buy from

Creative Arts Studio, 1223 Connecticut Avenue, Washington, D. C.

Size: 2 by 2 inches.

Cost: $35 per set.

Manuals

Although cancer is now regarded as a public health problem, this is a comparatively recent development. Relatively few public health workers have had training or experience in cancer control. The National Cancer Institute is attempting to meet this need in several ways: by financial aid for cancer control courses at schools of public health; by consultant services for health agencies; by loan of personnel for teaching purposes; and by providing manuals on control methods.

The manual, "Cancer Nursing" is being prepared by the National Cancer Institute, jointly with the New York State Department of Health, to instruct the public health nurse in bedside and home care of the cancer patient. A chapter on food and diet will help the nurse teach the family how to prepare meals that will give the patient optimum nutrition. Emphasis is placed on instructing the family in home care methods and on rehabilitating the convalescent patient through use of prostheses, mental hygiene aid, and vocational readjustment whenever possible. A comprehensive chart of cancer symptoms is included to help the nurse recognize conditions demanding medical attention when she observes these in the course of her clinic work or home visits.

As soon as this manual is published it will be available from the National Cancer Institute for distribution throughout the country.

A cancer manual for public health officers is also being prepared jointly with the New York State Department of Health and will be ready for distribution by the end of the year. It is intended as a compact guide to the health administrator in setting up a community cancer control program. The manual will outline basic programs including lay and professional education, cancer reporting and records, cancer prevention, case-finding methods, and cancer care services. Practical suggestions will be included on how to establish a well-rounded program, how the various groups and agencies in the community can participate, lists of source materials, and available education aids.

Pharmacy Program

If the neighborhood pharmacist is on the alert and has learned to suspect possible cancer signs, he can often refer to the doctor's office customers who come to him for a symptomatic remedy. The American Pharmaceutical Association has joined with the National Cancer Institute in a program of cancer education for pharmacists and pharmacy patrons, described in an earlier issue of this journal (August 27, 1948). Essentially, it is preparation of articles on common cancer symptoms for pharmacy journals, and mailing to pharmacists a series of sheets giving brief descriptions of early cancer signs of various sites to be posted in the prescription room. Supplementing the education program for pharmacists is a series of counter cards calling the customer's attention to early cancer signs.

Articles and Pamphlets

The staff of the National Cancer Institute has prepared numerous pamphlets and articles on aspects of cancer control. Copies of these are available from the Cancer Reports Section for use in developing professional information programs and other types of control activities. They cover such subjects as the work of the Institute; the role of the dentist, nurse, or pharmacist in cancer control; and cytologic test methods. Studies of environmental cancer, cancer epidemiology, special control projects, and other subjects may be of interest to State and local health workers, and others. A list of some of these materials is given below.

ARTICLES AND PAMPHLETS ON CANCER CONTROL

Copies are available from Cancer Reports Section, National Cancer Institute, Bethesda 14, Md.

The U. S. Fights Cancer. The Cancer Program of the National Cancer Institute, 19 pages, 1948.

Program of the National Cancer Institute. *Public Health Reports* **63:** 501–517, April 16, 1948. Reprints available.

Austin V. Deibert, M. D. Recent Developments in Cancer Control. *Journal of the American Public Health Association* **38:** 191–201, February 1948.

Services and Facilities for Cancer Control in the United States, January 1948. *Public Health Reports*, Supplement No. 208, 87 pages, June 1948.

Marion Ferguson, R. N. The Public Health Nurse and the Cancer Program, *Public Health Nursing* **40:** 343, July 1948. Reprints available.

Elizabeth Walker, R. N. Cytologic Test for Cancer. *American Journal of Nursing* **49:** 43–45, January 1949.

Ralph S. Lloyd, M. D. Role of the Dentist in Oral Cancer Detection. *Public Health Reports* **63:** 805–812, June 18, 1948.

Raymond F. Kaiser, M. D. The Pharmacist's Place in Cancer Control. *Public Health Reports* **63:** 1111-1113, August 27, 1948.

W. C. Hueper, M. D. Environmental Cancer, 19 pages, 1948.

W. C. Hueper, M. D. Environmental and Occupational Cancer. *Public Health Reports*, Supplement No. 209, 69 pages, 1948.

Allen N. Koplin, M. D. Objectives and Program of the Arkansas Cancer Detection Project. *Public Health Reports* **63**: 813–821, June 18, 1948. Reprints available.

In addition to these professional cancer information materials, a series of six pamphlets, each one on cancer of a special site—breast, genito-urinary, respiratory, female generative organs, intestinal, and oral cancer—have been written especially for the public. They are being published jointly by the National Cancer Institute and the American Cancer Society and will soon be available from both organizations.

* * * * * * *

An increasing number of excellent films, bulletins, and manuals are being issued by various professional societies, State and local health agencies, and voluntary organizations, notably the American Cancer Society and its affiliated State groups. Medical and dental schools, with the aid of National Cancer Institute teaching grants, are constantly improving their teaching materials, particularly their study collections of microscopic slides and other visual aids. The National Cancer Institute, able to draw on resources from all over the country, attempts to supplement these efforts by furnishing at minimal cost materials which local or State groups might not be able to prepare themselves.

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 MAY 28, 1949

A total of 155 cases of poliomyelitis was reported, as compared with 101 last week, 138 for the corresponding week last year, and a 5-year (1944–48) median of 44. Increases of more than 3 cases were reported in only 5 States, as follows: Texas, from 42 cases last week to 72, California 11 to 18, Arkansas 2 to 9, Florida and Oklahoma, each, 3 to 7. No other State reported more than 4 cases except Louisiana (5). A total of 696 cases has been reported since March 19, the average date of lowest weekly seasonal incidence, as compared with 729 for the corresponding period in 1948 and a 5-year median of 343 reported in 1945.

The incidence of measles declined from a total of 23,635 cases last week to 19,834 currently. The total for the corresponding week last year was 26,409, and the corresponding 5-year median 17,935.

Of 20 cases of Rocky Mountain spotted fever reported (last week 26, 5-year median 13), 6 occurred in the Middle Atlantic area, 6 in the South Atlantic, 5 in the Central States, and 3 in the Mountain area. Only New Jersey (with 4 cases), and Maryland (3 cases), reported more than 2 cases each for the week. The total to date is 103. The largest corresponding figure of the past 5 years was 65 cases.

Of current figures for the other 9 diseases listed in the following tables, only that for diphtheria (102 cases, last week 96, 5-year median 189) is above last week's figure, and only that for infectious encephalitis (13, last week 19), is above the 5-year median (9).

One case of anthrax was reported currently, in New York, and 4 cases of smallpox were reported, 2 in Michigan, and 1 case each in Kansas and Oklahoma.

Deaths recorded during the week in 94 large cities in the United States totaled 9,008 as compared with 8,871 last week, 9,013 and 8,163, respectively, for the corresponding weeks of 1948 and 1947, and a 3-year (1946–48) median of 8,324. The total for the year to date is 202,313 as compared with 206,415 for the corresponding period last year. Infant deaths for the week totaled 661, last week 592, 3-year median 675. The cumulative figure is 13,731, as compared with 14,437 for the corresponding period last year.

Telegraphic case reports from State health officers for week ended May 28, 1949

[Leaders indicate that no cases were reported]

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Poliomyelitis	Rocky Mountain spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine				161		2			5				9	
New Hampshire			1	15					3				1	
Vermont				98	1				1				5	
Massachusetts	14			408	1		2		142			3	111	
Rhode Island				42		6			6				2	
Connecticut			1	832		29			30				12	
MIDDLE ATLANTIC														
New York	9	1	(c)	1,999	3	183	4	1	[d] 119			1	119	5
New Jersey			1	1,594	2	40		4	67			1	81	1
Pennsylvania	6		(c)	1,615	4		2	1	123		1	2	77	8
EAST NORTH CENTRAL														
Ohio	11			1,738	5	67		1	161			4	51	13
Indiana	2			44			1	1	61			1	2	20
Illinois		2		209	4	42	4		58		1	1	68	11
Michigan	2	2	1	835		44	1		255	2			40	2
Wisconsin			1	1,983	2	3			30				44	
WEST NORTH CENTRAL														
Minnesota				82	1	4			16			1	1	
Iowa				114	1	1			10				1	4
Missouri			1	147	2	19			16				5	
North Dakota			5	53	1				3					
South Dakota				58			1	1						
Nebraska				113					3					
Kansas				289		13			7	1			8	
SOUTH ATLANTIC														
Delaware				25			1		5					
Maryland	3		1	135		42		3	[d] 33				19	
District of Columbia	1			40		10			1					
Virginia			65	603	1	30			7			1	14	
West Virginia	1		4	147	1	1			5			1	15	

North Carolina	9	1		742	2		2	1	9			1	36	
South Carolina	1	1	187	414		91			7			1	18	6
Georgia			7	308		20	2	2	7			4	12	8
Florida	2	1	2	136	1	12	7		4			3	3	1
EAST SOUTH CENTRAL														
Kentucky	3			188	1	20	3		8	(1)		3	16	11
Tennessee	1	1	6	420	1	39			7			1	29	
Alabama	3		7	211	7	28	2		6		1	2	44	11
Mississippi •	1	1	11	66	1	26	2		2				5	
WEST SOUTH CENTRAL														
Arkansas			16	255	2	23	9	1			13	1	10	3
Louisiana			2	18	1	45	5	1				1	1	
Oklahoma				206		12	7		2	1			5	4
Texas	17	3	499	921	9	204	72		16		1	7	141	15
MOUNTAIN														
Montana			3	362	1	8		1	2				2	
Idaho			6	107			1		‡ 14				2	
Wyoming	2		1	19		1		2	2					
Colorado			8	130		8	1		3					
New Mexico	1			50		13			4				2	
Arizona	3		29	84		7	1		10				15	
Utah •				138		3	3		5		3		19	
Nevada														
PACIFIC														
Washington	3			490	2	4	1		16				12	
Oregon	2		1	194		22	3		8				24	
California	5		5	996	1	19	18		‡ 59	(1)		4	58	5
Total	102	13	871	19,834	58	1,141	155	20	1,358	4	20	44	1,139	
Median, 1944–48	189	9	884	17,935	121		44	13	2,892	7	20	88	1,914	
Year to date, 21 weeks	3,214	200	70,721	501,334	1,726	44,883	1,619	103	52,357	[1] 45	498	943	21,430	
Median, 1944–48	5,392	177	185,224	419,563	3,500		888	63	72,816	211	376	1,094	43,471	
	(27th)		(30th)	(35th)	(37th)		(11th)		(32nd)	(35th)		(11th)	(39th)	
Seasonal low week ends	July 10		July 31	Sept. 4	Sept. 18		Mar. 19		Aug. 14	Sept. 4		Mar. 19	Oct. 2	
Since seasonal low week	8,328		106,991	553,727	2,570		696		75,055	[1] 60		483	31,463	
Median, 1943–48 ♭	12,958		328,818	454,509	5,004		343		111,387	292		618	74,439	

• Period ended earlier than Saturday.

♭ The median of the 5 preceding corresponding periods; for poliomyelitis and typhoid fever the corresponding periods are 1944–45 to 1948–49, inclusive.

• New York City and Philadelphia only, respectively.

‡ Including cases reported as streptococcal infection and septic sore throat.

• Including paratyphoid fever; reported separately, as follows: New Jersey 1, Louisiana 1, Texas 2, California 2. One case of salmonella infection (not included) was reported in Maryland.

[1] The case of smallpox reported in California for the week ended May 7, 1949, was an imported case, occurring in a seaman, who acquired the infection in the Orient and arrived at San Diego on May 4. One case reported as smallpox in Kentucky for the week ended Apr. 30, was later reported not to be smallpox. Both cases have been deducted from cumulative totals.

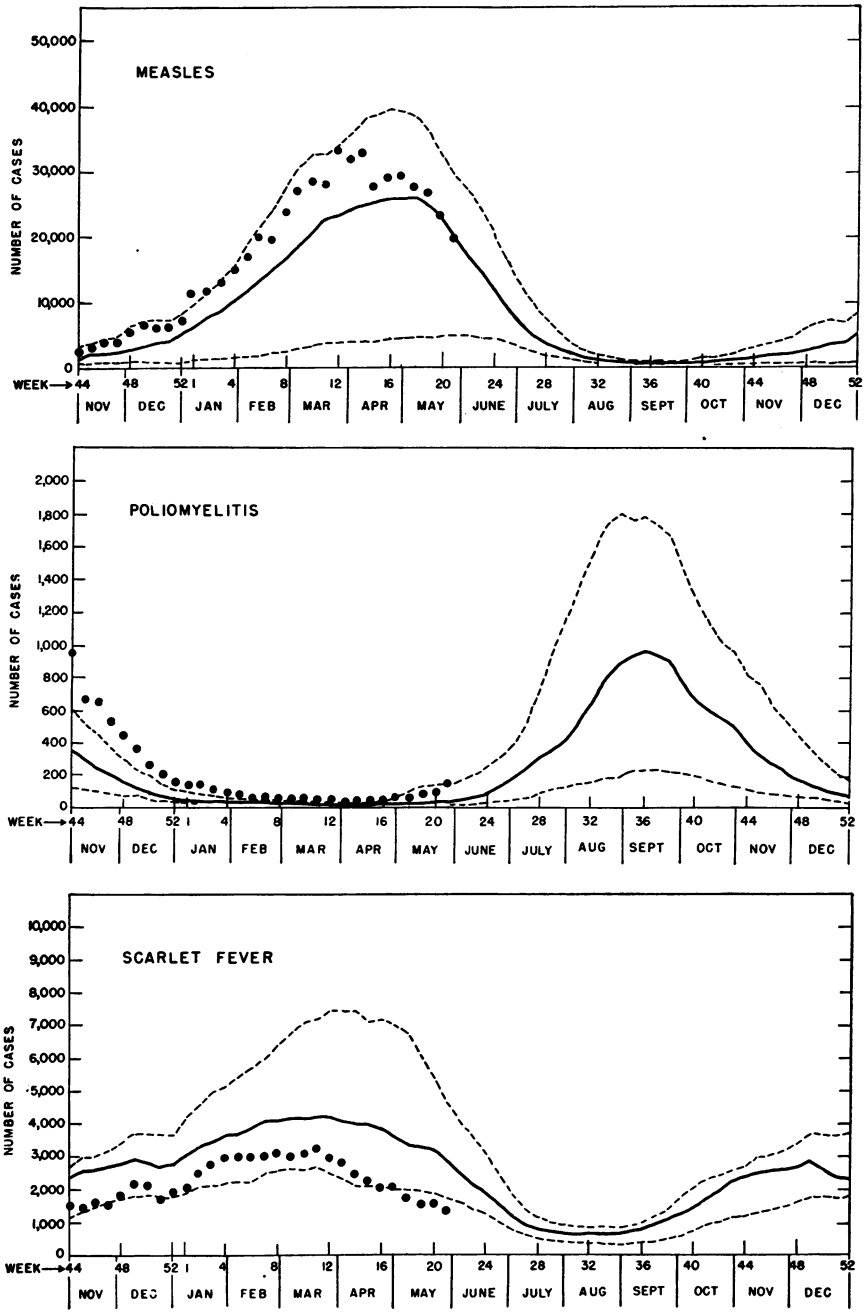
Anthrax: New York 1.

Alaska: No cases reported.

Hawaii Territory: Diphtheria 1; measles 62; whooping cough 1.

Communicable Disease Charts

All reporting States, November 1948 through May 28, 1949



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 7 preceding years. The solid line is a median figure for the 7 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks of 1949.

PLAGUE INFECTION IN COLORADO AND NEW MEXICO

Under date of May 23, 1949, plague infection was reported proved in pools of fleas from rodents collected in Park County, Colo., and Colfax and McKinley Counties, N. Mex., as follows:

COLORADO

Park County.—A pool of 43 fleas from 2 prairie dogs, *Cynomys gunnisoni*, shot 13 miles southeast of Hartsel on May 6.

NEW MEXICO

Colfax County.—Collected on May 3, a pool of 83 fleas from 8 prairie dogs, *Cynomys gunnisoni*, and 8 burrows in an area extending 5 miles south from Eagle Nest along United States Highway No. 64, and a pool of 23 fleas from 10 burrows of prairie dogs (same species) taken 7 miles north of Eagle Nest along State Highway 38.

McKinley County.—Collected 20 miles east of Gallup along United States Highway No. 66 on May 3, 4 pools of fleas, as follows: 18 fleas from 10 wood rats, *Neotoma albigula;* 13 fleas from 46 white-footed mice, *Peromyscus truei;* 13 fleas from 60 white-footed mice, *Peromyscus boylii;* 2 fleas from 7 harvest mice, *Reithrodontomys* sp. A pool of 20 fleas from 107 white-footed mice, *Peromyscus maniculatus*, trapped 1 mile west of the Zuni River on May 13.

DEATHS DURING WEEK ENDED MAY 21, 1949

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended May 21, 1949	Corresponding week, 1948
Data for 94 large cities of the United States:		
Total deaths	8,871	8,781
Median for 3 prior years	8,894	
Total deaths, first 20 weeks of year	193,305	197,402
Deaths under 1 year of age	592	590
Median for 3 prior years	639	
Deaths under 1 year of age, first 20 weeks of year	13,070	13,762
Data from industrial insurance companies:		
Policies in force	70,403,458	71,081,927
Number of death claims	12,276	13,486
Death claims per 1,000 policies in force, annual rate	9.1	9.9
Death claims per 1,000 policies, first 20 weeks of year, annual rate	9.7	10.3

FOREIGN REPORTS

CANADA

Provinces—Notifiable diseases—Week ended May 7, 1949.—During the week ended May 7, 1949, cases of certain notifiable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		14	1	216	478	28	45	33	148	963
Diphtheria		3		1	1				2	7
Dysentery, bacillary				3					7	10
Encephalitis, infectious				1	1					2
German measles		6		401	42	2	93	30	15	589
Influenza		62			5	2	1			70
Measles		120	19	177	246	148	207	348	309	1,574
Meningitis, meningococcal									1	1
Mumps		46		131	318	16	10	6	111	638
Poliomyelitis		1				2				3
Scarlet fever		7	2	82	62	2		5	12	172
Tuberculosis (all forms)		3	21	101	50	20	9		59	263
Typhoid and paratyphoid fever			1	6	1			1	1	10
Undulant fever									1	1
Venereal diseases:										
Gonorrhea		2	11	80	73	26	16	31	71	310
Syphilis		4	9	82	37	10	13	2	14	171
Whooping cough		12		97	36	3	1			149

JAPAN

Notifiable diseases—5 weeks ended April 30, 1949, and accumulated totals for the year to date.—For the 5 weeks ended April 30, 1949, and for the year to date, certain notifiable diseases have been reported in Japan as follows:

	5 weeks ended Apr. 30, 1949		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Diphtheria	1,588	175	6,545	689
Dysentery, unspecified	310	75	820	215
Encephalitis, Japanese "B"			1	
Gonorrhea	18,110		61,478	
Influenza	580		1,213	
Malaria	206	6	515	14
Measles	28,384		59,953	
Meningitis, epidemic	189	52	569	146
Paratyphoid fever	118	9	546	22
Pneumonia	20,107		66,592	
Scarlet fever	441	5	1,597	24
Smallpox	24	4	39	5
Syphilis	20,173		69,688	
Tuberculosis	46,767		142,099	
Typhoid fever	330	55	1,485	193
Typhus fever	14	1	75	3
Whooping cough	7,649		24,783	

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

CUBA

Habana—Notifiable diseases—5 weeks ended April 30, 1949.—During the 5 weeks ended April 30, 1949, certain notifiable diseases were reported in Habana, Cuba, as follows:

	Cases	Deaths		Cases	Deaths
Chickenpox	68		Smallpox	1	
Diphtheria	20		Tuberculosis	4	1
Malaria	13		Typhoid fever	14	3
Measles	20		Typhus fever (murine)	1	
Scarlet fever	2				

Provinces—Notifiable diseases—5 weeks ended April 30, 1949.—During the 5 weeks ended April 30, 1949, 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
Cancer	2	18	19	15	1	11	66
Chickenpox	5	77	45	6	26	205	364
Diphtheria	2	26	1	1	2	2	34
Leprosy		5		2	1		8
Malaria		4	1	1	2	8	16
Measles	1	30	3	8	5	9	56
Poliomyelitis					1		1
Scarlet fever	1	2	4				7
Smallpox		1					1
Tetanus		1			1		2
Tuberculosis	6	18	22	11	23	20	100
Typhoid fever	9	22	3	9	11	47	101
Typhus fever (murine)		1					1
Undulant fever					1	5	6
Whooping cough		11					11

[1] Includes the city of Habana.

NEW ZEALAND

Gilbert Islands—Butaritari (Makin)—Influenza—Correction.—The item published on page 586 of the Public Health Reports for May 6, 1949, on the epidemic of influenza on the atoll of Butaritari (Makin) in the Gilbert Islands, should have been under the heading "Gilbert and Ellice Islands" (a British Crown Colony) instead of "New Zealand" (a Dominion).

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.

Smallpox

Great Britain—England and Wales.—During the period May 20–27, 1949, one additional case of smallpox was reported in England, stated to be a contact of the original case that developed on May 7 in a patient residing in a village several miles distant from Liskeard in Cornwall. (See PUBLIC HEALTH REPORTS for June 10, 1949, p. 747.)

India.—During the week ended May 14, 1949, smallpox was reported in certain cities in India as follows: Bombay 70 cases, 18 deaths; Madras 17 cases, 3 deaths; New Delhi 61 cases, 30 deaths.

Nigeria.—Smallpox has been reported in Nigeria as follows: Week ended March 19, 1949, 605 cases, 63 deaths; week ended March 26, 1949, 528 cases, 83 deaths.

Typhus Fever

Egypt.—During the 5 weeks ended April 30, 1949, 87 cases of typhus fever, with 7 deaths, were reported in Egypt. Fifty of these cases were reported from El Dakahliya Province.

Yellow Fever

No reports of yellow fever were received during the current week.