

THE KENTUCKY EXPERIMENT IN COMMUNITY MEDICINE

KURT W. DEUSCHLE

HUGH S. FULMER

M. J. MCNAMARA

JESSE W. TAPP, JR.

This report reviews the program in Community Medicine which was initiated at the University of Kentucky in 1960. This unique departmental contribution to the College of Medicine was suggested in 1956 by the Vice-President and Dean, William R. Willard, in a memorandum¹ outlining the philosophy of medical education for the new school: "To know the health problems of the area, some members of the faculty must study them. . . . To accomplish this, the community must be utilized as a laboratory in which the medical school studies certain problems, just as the hospital ward or physiology laboratory must be utilized for the study of other problems." Commenting on the academic responsibilities of departments of preventive medicine George Wolf emphasized that "the responsibility of the medical schools and their departments at this point is to define community needs in more precise terms."²

The major objective in the Kentucky Community Medicine Experiment, which has persisted from the inception of the department, has been a clinical approach to the identification and solution of health problems of populations or communities of people.³ To effectively carry out such teaching responsibilities, faculty equipped to teach and conduct research at the clinical, laboratory,

epidemiologic, and public health level had to be recruited. The criteria for selection of such a faculty have included clinical competence (usually boards in internal medicine, pediatrics, or an equivalent experience in general practice) plus training and experience in public health. Additional teaching staff include a medical anthropologist and a public health social worker. Moreover, the Department of Behavioral Science and the traditional clinical departments provide a ready resource of medical and social science experts who give unstintingly of their time when called upon.

UNDERGRADUATE CURRICULUM

Several papers⁴⁻¹² have already been published which review in considerable detail the various curriculum components of the Community Medicine teaching program. Therefore, only the highlights of the formal and elective teaching activities will be presented in this report. The two formal teaching periods are scheduled in the second and fourth years.

The Community Medicine curriculum begins in the second year with 72 hours of teaching time: a three hour seminar each week for 24 weeks. There is ample time to study a wide variety of subjects both in infectious and chronic disease problems as related to the underlying epidemiologic principles and methodology. The emphasis is on reviewing real problems faced by communities, often those in our own state if they are relevant. In this way, the vitality and validity of the epidemiologic approach is underscored.

All the faculty in the Department of Community Medicine attend the one hour lecture sessions, from which they disperse to lead two hour seminar discussions. This allows the seminar groups to be small, a distinct advantage for intensive teaching. Each student is required to report on a carefully selected paper from the medical literature each week during the seminar period. This series of seminar exercises encourages the student to have a critical and discerning attitude towards the medical literature. He learns what constitutes an acceptable report, how data are handled, and what is involved

in proper sampling and methodology in developing the answers to questions posed by various investigators.

FOURTH YEAR CLERKSHIP

During the first two years of departmental development, experimentation for the senior year field clerkship assignment was possible by the importation of medical students from other medical schools—notably Syracuse, Pittsburgh, Western Reserve, and Edinburgh. These “borrowed” medical students for summer teaching projects made it possible to experiment with field teaching techniques, some of which proved to be effective while others proved unsuitable. Thus, there was an opportunity to make “mistakes” which would not jeopardize departmental relations with Kentucky medical students.

Each senior medical student is now assigned to the Department of Community Medicine for a six-week period. The students are sent into communities throughout the state of Kentucky. The state is regarded as a “Community Laboratory” and contacts have been made with practicing physicians and local health officers to serve as local advisors to the students.

The student thus has entree into the community as a medical participant under the day-to-day surveillance of the local physicians. However, the student is not in a preceptorship relation with the physician but rather is assigned to study the total health of the community. The student looks at the practice of medicine and analyzes how medical records are kept, and how the physician works up his patients and refers them. There is an opportunity to compare the pattern of disease as seen by general practitioners and specialists with that actually existing in the entire community. Also, the dramatic differences in disease problems in the community as contrasted to the University Hospital can be appreciated.

The students observe the functioning of a local medical society. They learn how doctors cope with the problem of continuing education. They learn about the local health department and its activities, including those of the public health nurse, sanitarian, health

educator and the like. They attend meetings where health is a matter of concern to the voluntary agencies and even to the local citizen clubs. They visit local industries and investigate occupational health problems in a wide variety of communities as shown in Table I.

COMMUNITY STUDY AND EPIDEMIOLOGIC PROJECTS

The medical students in the Community Medicine Clerkships utilize a guide prepared by the World Health Organization Expert Committee¹³ which outlines the study of a local community. Thus the students are able to write a significant report on the total health situation of their assigned communities.

In addition, and with increasing emphasis, these students are undertaking epidemiologic studies in the community. While these studies are modest, they nevertheless afford a student the opportunity to ask significant questions about the health problems in his study community. In so doing, he develops an appropriate design, obtains a proper sample, constructs questionnaires for recording, and finally conducts the study, which often includes physical examinations and special tests. Finally, he is expected to analyze the data, write a report, and defend the study before his colleagues and the faculty of the Department of Community Medicine.

These studies have already provided significant information to the state and local health department officials as well as to the practicing physicians. In some cases the information has been used to assist in developing projects requiring Public Health support for local health programs. Several papers have been edited and submitted for publication in medical journals.

ELECTIVE PROGRAM

Two senior student electives are offered by the Department of Community Medicine. The first is the so-called Kentucky elective in which a major public health area is studied in depth. Examples of such elective assignments include the study of medical care patterns in rural communities, family planning projects in east-

TABLE I. CROSS-SECTION OF COMMUNITY MEDICAL PRACTICE AND PROBLEMS SHOWING A TYPICAL SELECTION OF COMMUNITY ASSIGNMENTS

| <i>Student</i> | <i>Features of the Assigned Community</i> | <i>Medical Care Aspects</i> | <i>Typical Public Health Problems</i> | <i>Groups Available for Study</i> |
|----------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| I. | Eastern Coal Fields Area; County Seat pop. 4000; Scattered Coal Camps. | Hospital Based Group Practice; Miners' Welfare & Retirement Fund Financing Care of Some. Many Unemployed. | Water Pollution, Solid Waste Disposal, Strip Mining, and Accidents. | Miners; School Children, Consanguineous Families. |
| II. | Gumberland Plateau; County Seat pop. 500; Mountaineer Tobacco Farmers. | One Doctor in County; Minimal Diagnostic Facilities; No Hospital or Nursing Home; Kerr-Mills Financing for Many. | Smoking and Chronic Lung Disease; Intestinal Parasitism. Family Planning. | Orphanage Children, Jr. College Pop., Doctors' Practice Pop. |
| III. | Prosperous Blue Grass Farming Area; County Seat pop. 1000. | Family Doctors Joined in Small Groups; Community Hospital with No Specialist-Consultants; Out-of-Pocket Fee-for-Service Financing. | Virus Disease, Insect Vectors, and Unrecognized Epidemics; "Tenant Farmer" Poverty and Ignorance. | Populations in Mental Hospital and Aged Homes; Farm Wives Working in Textile Factories. |
| IV. | Suburban Commuting Area; County Seat pop. 10,000. | Family Doctors in Solo Practice; Consultation Available in Neighboring City; Blue Cross-Blue Shield Payment. | Air Pollution, Rapid Growth and Inadequate Urban Services; "Rootless Families." | Civic Clubs, College Students, and Retirement Homes. |
| V. | "Inner City" of Large Metropolitan Area. | Family Doctor with Part-Time Contract for Neighboring Industries; Some Poor Not Covered by Welfare Schemes. | Veneral Disease and Alcoholism, Illegitimacy, "Blighted" Neighbors. | Labor Unions, Factory Workers, A.A. Groups, Jail Pop. |
| VI. | Large Industrial Plant Population Used as a Community per se. | Occupational Medicine Specialists; Personal Care Covered by Insurance; Coordination Problems for These. | Environmental Hazards, Mental Health on Assembly Line, Industrial Waste Disposal. | Work Groups with Varied Exposures and Physical Activities. |
| VII. | Farm Service Area Center; County Seat pop. 13,000. | Large Group Practice Utilizing Community Hospital, Prepayment Plans Developing; Referral Center for Large Area. | Modernizing Public Health Services, Redefining Needs and Opportunities. | Farmers, Industrial Workforce, Patient Pop. of Group Practice. |
| VIII. | Ohio River Industrial City; pop. 35,000. | Various Types of Medical Practice Patterns Co-Existing; Rapid Social Change versus Deep South Attitudes. | Interstate Relations & Regional Health Needs Requiring Improved Health Organization; River Population. | School Children, Itinerant River Boatmen, Nuclear Power Workers. |

ern Kentucky, and a special field genetic project in isolated mountain "holler" populations.

The second and most popular elective is the cross-cultural Community Medicine Clerkship. To date 25 senior students have participated in a community medicine training program abroad. Their overseas assignments have included Jamaica, Colombia, Bolivia, Chile, Puerto Rico, Nigeria, Uganda, Iran, and Turkey.

The overseas elective provides an educational opportunity which stimulates and challenges students to apply their public health knowledge and skills in a foreign setting. Furthermore, the cross-cultural experience has highlighted the remarkable similarity of major health problems in Kentucky and in other areas of the world. Students have seen that there are health programs being developed in other countries which are applicable in Kentucky. There is a two-way street in our international exchanges. The faculty has learned from students' observations, much as international visitors are interested in the field teaching methods and studies when they have come to Kentucky. Incidentally, most of the overseas clerkship locations have developed through visits of medical faculty from those countries to Kentucky. The overseas program has very definitely recruited top-level students into professional career interests in public health.

During the past two years considerable effort has been made to draw more students into the departmental summer fellowship program. In the summer of 1965, 25 students were involved in epidemiologic projects that were under the guidance of the faculty. Students from other medical schools, and members of the incoming freshman class were invited to participate in summer fellowship experiences in the department. The summer fellowship program involves students in community health studies early in their medical education. They learn epidemiologic principles and biostatistical techniques, and are encouraged to look at medicine in broad terms.

There are two major situations with which a Department of Community Medicine must deal successfully if both the teaching and research are to be conducted effectively and efficiently: the first is the relationship with the traditional academic clinical depart-

ments, and the second is with the state and local Health Departments.

At the University of Kentucky, the Departments of Medicine, Pediatrics, and Community Medicine establish good rapport using the "inside-outside" delineation in clinical teaching. When community medicine faculty contribute time and effort to the hospital teaching program on the "inside" the clinical departments respect this effort as a contribution to their teaching program. By the same token when epidemiologic surveys are conducted on the "outside" by the Department of Community Medicine, the Department of Medicine and other clinical departments frequently offer assistance. Thus, inside-outside teaching approach stimulates and encourages collaboration and cooperation rather than competition in clinical teaching and research activities.

All ward and clinic teaching at the University Hospital is under the direction of traditional clinical departments. The physicians in Community Medicine obtain appointments with clinical departments which relate to their area of professional competence. While serving their teaching responsibilities in the hospital the community medicine faculty are under the supervision of the clinical departments. It has become evident while "rounding" on the clinical wards that it is difficult to emphasize community medicine areas except as these relate directly to the clinical problem at hand. To present more than the immediately relevant material becomes artificial and contrived.

The second major pressure point in medical relationships for the Department of Community Medicine has been with the state Health Department in Frankfort. Departmental field research and consultation have been generally welcomed but there are occasional rumors that the Department of Community Medicine is assuming state Health Department responsibilities.

However, the state Health Department as well as the individual local health departments throughout Kentucky have been, in general, quite cooperative in supporting teaching and research activities. The Commissioner of Health as well as three division heads have teaching appointments in the Department of Community

Medicine. Not only has there been help in the form of faculty contributions but also in cooperative research projects and financial assistance through contract arrangements.

In October, 1965, the Department of Community Medicine and the professional staff of the state Health Department initiated a series of "public health grand rounds" conferences. Topics are chosen to insure lively discussion and significant exchange of ideas on the theoretical problems as well as the practical side of public health.

ADVANTAGES OF THE "HOSPITAL WITHOUT WALLS" TEACHING APPROACH

It has been emphasized that the locus of community medicine clinical activity is *outside* of the hospital walls, in the community. The sites contain real patients and real families in genuine community settings. This demands that the faculty of the Department of Community Medicine relate effectively to the practicing physicians and the people in the public health departments and other related organizations. By developing a comprehensive report on the local health situation, studying a variety of community medical problems, and conducting epidemiologic projects, the students and the faculty develop much useful information about the community. Many important contributions have already been made to state and local Health Departments as well as other interested medical groups and voluntary health agencies.

Another benefit of community training has been the opportunity for Kentucky communities to become acquainted with the upcoming medical graduates of their state university. As taxpayers they have been committing funds to the development of the medical center and now may see the embryo doctor just months away from his M.D. degree. Some communities have "courted" the medical student, offering him inducements to practice there. The physicians in practice, often overburdened and seeking assistance, point out the importance of family practice and public health to the students, with the hope that some of them may return. By the same token the medical students have had their eyes opened to opportunities

of family practice and public health in a way that they could never have experienced at the medical center. They have developed a new respect for the practicing physician and for the importance of public health in the community.

The medical students in some respects have the ability to promote developmental change in the health area. Their ability to ask pointed questions about health services and unmet medical needs has sometimes precipitated discussion and action which persisted long after the students departed. Indeed, the students may be looked upon as "change agents" in a kind of University Medical Center extension service program.

PROBLEMS IN FUTURE DEVELOPMENT

There are a number of important tactical problems in continuing the teaching and research programs in Community Medicine. These include the development of a residency program, the supervision of an expanding number of medical students, and a better method of evaluating what is achieved with students in the teaching program of Community Medicine.

An experimental community medicine residency program was launched during the academic year of 1964-65.¹⁴ A resident physician was given a series of both classroom and field assignments to enable the department to measure what might be most valid for a formal residency program. The new residency will be a "clinical preventive medicine program" aimed at replicating community medicine faculty. A family practice training program is being developed by the Department of Medicine in collaboration with the Departments of Community Medicine, Pediatrics and Psychiatry. Family practice residents will be rotated through a substantial block of time in community medicine. This will be a field experience primarily.

Another major problem in teaching community medicine is the travel time involved in supervising students in the field. Although almost two-thirds of the state's population is within two hours by automobile from Lexington, there are many interesting com-

munities in the furthest reaches of eastern Kentucky and throughout the western half of the state which require long arduous drives. With increasingly improved roads the travel time has been cut significantly. Moreover, there is an increasing number of airports throughout the state which permit travel by air.

Another problem is the increasing student-faculty ratio. The first senior class (1963-64) consisted of only 32 students, but the field program is now operating with 70 and next year a full complement of 75 will be accommodated. There is discussion about expanding the entering medical student classes from 75 to 100 per year. To insure close supervision from the faculty for the field experiences which will be scattered from one end of the state to the other, experiments have begun testing the concept of the "field professorship." Currently two people who hold academic positions in the department conduct teaching, research, and service programs in their local communities.

FIELD COMMUNITY MEDICINE PROFESSORSHIPS

One such pilot program is in Morehead (Rowan County), Kentucky where the health officer is a member of the department. His basic field responsibility is that of health officer for a community of 15,000 people. He uses this county as a community laboratory. As students rotate through his program and receive day-to-day supervision from this health officer, they also have the opportunity of working in the practice of medicine in the community and developing epidemiologic projects in great detail.

A unique community teaching research program was recently established in Madisonville, Kentucky. Here, under the sponsorship of a private practice group, the state Health Department, and the Department of Community Medicine, a field Community Medicine Professorship was set up. The physician who occupies this position serves as health officer, clinical epidemiologist, and participant in private group practice. In his combined role he makes the community population accessible to medical students and later to

residents in Community Medicine. Thus a continuous study of a population is insured and solutions to community health problems are anticipated. Such field faculty can obtain expert consultation from the faculty in Community Medicine as well as staff from the entire medical center. Academic, private and public health medicine are thus amalgamated. Over the next five years it is anticipated that there will be one field faculty professorship for each twenty county area (Kentucky has 120 counties).

One can look at the field professor in the same light as perhaps the medical educator in the community hospital. The latter program is often headed by an internist or pediatrician who supervises the internship and the residency program, makes continuing education programs available and in general conducts the teaching and research programs for the community hospital. In the case of the field professorship, the 20 county area may serve as the community laboratory in which the professor would maximize the teaching and research opportunities and provide a liaison to the medical center to tap its resources for teaching, research and service.

EVALUATION

One of the most difficult problems has been an effective evaluation mechanism for determining what effect this teaching program has had on education, attitudes, and career choice. For the initial phase of the teaching experiment, enthusiastic acceptance by students, medical center administration, and faculty was deemed the most obvious and vital guide to success for the program.

The second and fourth year students are surveyed after they take the courses, to solicit constructive criticism and check their attitudes, skills, and ability to consider broader problems in epidemiology, public health and medical care. There are no ready evaluation mechanisms which can be borrowed from the clinical brethren, so the department must construct its own quantitative methods. It is anticipated that a meaningful set of methods will be produced eventually.

Although gratified by the progress of the teaching program, the faculty is cognizant of its many imperfections. Different approaches are being used and experimented with successfully by other schools which meet the objectives agreed upon by medical educators in this field. Indeed the discipline of community medicine (public health-preventive medicine) changes so rapidly that new and flexible approaches and a critical attitude towards current teaching methods should certainly be a characteristic of all departments.

SUMMARY

During the five years since the establishment of a Department of Community Medicine, constant experimentation in teaching has been in progress. The major aim of the department, to "educate students in the identification and solution of health problems in communities or population groups," has remained constant. Thus, the departmental responsibility to bridge the medical school and the state-wide community has fulfilled the original philosophical goals of the founders of the University of Kentucky College of Medicine.

In order to achieve the education objectives a public health oriented clinical faculty assembled a wide range of teaching programs including a 72 hours basic epidemiologic course in the second year, a six week community clerkship in the senior year, optional summer fellowships and three month electives in Kentucky or abroad.

The hallmark of the field teaching has been an analysis of all health information and activities in concert with the community practicing physician and public health officer but yet under the supervision of the departmental full-time faculty.

The teaching and research program in the state are being ex-

panded with outlying teaching centers under the direction of a field professor.

Finally the teaching program in Community Medicine is under constant self scrutiny, with continuing attempts being made to improve evaluation methods.

REFERENCES

- ¹ Willard, William R., et al., Philosophy of Medical Education at the University of Kentucky, 1956, Mimeographed report.
- ² Wolf, George A., The Specialty of ?, Saratoga Springs Conference on Preventive Medicine, June 10-14, 1963.
- ³ McGavran, Edward G., Scientific Diagnosis and Treatment of the Community as a Patient, *Journal of the American Medical Association*, 162, 723-727, October 20, 1956.
- ⁴ Deuschle, Kurt W., and Fulmer, Hugh S., Community Medicine: A "New" Department at the University of Kentucky College of Medicine, *Journal of Medical Education*, 37, 434-445, May, 1962.
- ⁵ Fulmer, Hugh S., Adams, Anthony C., and Deuschle, Kurt W., Medical Student Training in International Cross-Cultural Medicine, *Journal of Medical Education*, 38, 920-931, November, 1963.
- ⁶ Adams, Anthony C. I., Teaching International Community Medicine, *Archives of Environmental Health*, 10, 95-103, January, 1965.
- ⁷ Tapp, Jesse W., Teaching Community Medicine, *Journal of Kentucky State Medical Association*, 61, 512-514, June, 1963.
- ⁸ Fulmer, Hugh S., Teaching Community Medicine in Kentucky, *Harvard School of Public Health Alumni Bulletin*, 21, 2-6, July, 1964.
- ⁹ McNamara, Michael J., A Teaching Program in Community Medicine, *Archives of Environmental Health*, 9, 807-813, December, 1964.
- ¹⁰ Tapp, Jesse, and Deuschle, Kurt W., Medical Care Teaching in the Community, *Medical Care*, 2, 214-217, Oct.-Dec., 1964.
- ¹¹ Tapp, Jesse W. and Deuschle, Kurt W., Teaching Community Medicine in the "Hospital Without Walls" (manuscript submitted to AMA).
- ¹² Fulmer, Hugh S., Tapp, Jesse W., and Deuschle, Kurt W., Community Medicine as an Approach to Developmental Change in Appalachia (accepted for publication in *Human Organization*).
- ¹³ World Health Organization Technical Bulletin #194, 1960.
- ¹⁴ Sponsored by the Milbank Memorial Fund.