Teaching family medicine in the United States

A British general practitioner's experience

Medical Director, Family Medicine Group, University of Rochester, New York, U.S.A.

In 1965 there were no departments of family practice in the United States of America. The general practitioner's disappearance from the scene was imminent and welcome. The medical schools would solve the nation's health care by producing more and more specialists, who would, as well as caring more expertly for the sick, exercise preventive medicine by doing regular well-person checks on all their patients.

In 1971 it is generally agreed that the medical schools have failed to solve the health care crisis, that specialists congregate around large hospitals, leaving small towns denuded of doctors, and that the cult of the complete physical has made no appreciable inroads on the incidence of disease. There are, now, 20 departments of family medicine in medical schools, another 40 at various stages of planning, and over 50 operating or planned in community hospitals offering training at intern-resident level.

Until the last two years, the number of medical students choosing to enter family practice was less than two per cent. Now there are reports from many medical schools of 12 to 18 per cent of third-year students choosing family medicine. I have had the pleasure and excitement, while on leave from the National Health Service for two years, of participating in this remarkable development.

History
The family medicine programme of the University of Rochester (New York) school of medicine and dentistry was conceived jointly by Dr John Romano, Chairman of Psychiatry and Dr Robert Haggerty, Chairman of Paediatrics, because they felt that the doctors they were training would work with family disease as much as with individual illness.

In 1966 they recruited Dr Lawrence Young, Chairman of internal medicine, whose thinking about primary care had already been clearly set down.\(^1\) In 1967 they appointed Dr Eugene S. Farley, Jr. to head a family medicine programme, which was to be a division of the departments of internal medicine, paediatrics, and preventive medicine.

Dr Farley, after two years as a family doctor on the Navajo reservation, had been in practice in a small town in New York State for seven years. He had formed very clear ideas of the knowledge, skills, and attitudes needed in family practice, and appreciated the deficiencies in these areas in the training in most medical schools. As there were no training programmes in family medicine at that time, he went to Johns Hopkins medical school and took a master's degree in public health. It was from here that he was recruited to start the family medicine programme at Rochester.

It had already been decided that the scheme should be based on a private group practice, and that it should be sited, not in the teaching hospital, but in a nearby private, non-profit, community hospital about two miles away. This was Highland Hospital, whose Chief of internal medicine, Dr Jacob Holler,\(^2\) and the Board and administrator...
were becoming increasingly interested in entering the ambulatory care field (a new and courageous attitude in 1967)!

Dr Farley wrote a grant request, outlining the concept of preceptive teaching and primary care research based on a private group practice, and received a federal demonstration grant (no research monies were included in that grant). The arrangement was, and is, that Highland Hospital will pay the excess of the total running costs over the annual grant plus the income earned from patient care.

The reward for the hospital, as well as kudos, was twofold: an enlarged patient population, nearly all of whose hospital care, laboratory work, and radiology would be in Highland; and, very important, recruitment of high quality American trained house staff who would rotate through the inpatient services. American non-teaching hospitals, like British ones, have to rely heavily on foreign graduates for their house staff. The practice opened its doors, in temporary premises in the hospital, with Dr Farley and one other doctor whom he had recruited, one nurse and one secretary in July, 1968.

Present position

The programme now has four faculty members, with a fifth joining in October, 1971. There are six first-year interns, six second, and seven third-year residents. The group practice staff consists of five nurses (two registered nurses, one licensed practical nurse, and two health assistants); a receptionist, bookkeeper, insurance clerk, four team secretaries and an office supervisor. The secretarial staff of the academic section consists of two secretaries and a typist.

There are about 7,000 patients whose age, sex, and social status are broadly proportional to the population of Rochester as a whole (table I and table II). Sixty per cent of the patients belong to families or households every member of which are at risk to the practice, while 40 per cent come from households who use a variety of routes into care.

The morbidity, judging by the results of the first half year’s ‘E’ book recording, is typical of most primary care morbidity (table III). From these studies we feel that our students, interns and residents are offered involvement in a valid experience of primary, continuing, comprehensive care.

<table>
<thead>
<tr>
<th>TABLE I</th>
<th>PERCENTAGE AGE STRUCTURE OF THE PRACTICE POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family medicine programme</td>
<td>0-9</td>
</tr>
<tr>
<td>...</td>
<td>24.7</td>
</tr>
<tr>
<td>U.S. population</td>
<td>20.3</td>
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</table>

<table>
<thead>
<tr>
<th>TABLE II</th>
<th>PERCENTAGE SOCIAL CLASS DISTRIBUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family medicine programme</td>
<td>I</td>
</tr>
<tr>
<td>...</td>
<td>20</td>
</tr>
<tr>
<td>Rochester, New York</td>
<td>...</td>
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</table>
### TABLE III
Classification of conditions (percentages)

<table>
<thead>
<tr>
<th>I</th>
<th>Communicable</th>
<th>Family Medical programme 5,000 visits</th>
<th>Massachusetts 12,000 visits</th>
<th>Hodgkin</th>
<th>Royal College of General Practitioners</th>
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</thead>
<tbody>
<tr>
<td>II</td>
<td>Neoplastic</td>
<td>0.9</td>
<td>2.8</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>III</td>
<td>Allergic, metabolic and endocrine</td>
<td>9.5</td>
<td>5.7</td>
<td>4.5</td>
<td>6.7</td>
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<tr>
<td>IV</td>
<td>Blood</td>
<td>1.5</td>
<td>1.4</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>V</td>
<td>Psychological</td>
<td>8.6</td>
<td>4.0</td>
<td>13.1</td>
<td>9.8</td>
</tr>
<tr>
<td>VI</td>
<td>CNS and sense organs</td>
<td>8.2</td>
<td>5.2</td>
<td>10.0</td>
<td>8.7</td>
</tr>
<tr>
<td>VII</td>
<td>Circulatory</td>
<td>7.9</td>
<td>10.1</td>
<td>4.8</td>
<td>9.0</td>
</tr>
<tr>
<td>VIII</td>
<td>Respiratory</td>
<td>11.3</td>
<td>10.5</td>
<td>26.5</td>
<td>15.1</td>
</tr>
<tr>
<td>IX</td>
<td>Digestive</td>
<td>6.6</td>
<td>6.0</td>
<td>9.5</td>
<td>7.6</td>
</tr>
<tr>
<td>X</td>
<td>Genito-urinary</td>
<td>11.0</td>
<td>3.8</td>
<td>4.6</td>
<td>5.9</td>
</tr>
<tr>
<td>XI</td>
<td>Pregnancy</td>
<td>1.0</td>
<td>1.3</td>
<td>—</td>
<td>4.0</td>
</tr>
<tr>
<td>XII</td>
<td>Skin</td>
<td>5.6</td>
<td>7.6</td>
<td>7.6</td>
<td>7.6</td>
</tr>
<tr>
<td>XIII</td>
<td>Musculo-skeletal</td>
<td>4.6</td>
<td>7.6</td>
<td>5.8</td>
<td>8.2</td>
</tr>
<tr>
<td>XIV</td>
<td>Congenital</td>
<td>0.4</td>
<td>0.3</td>
<td>1.5</td>
<td>0.2</td>
</tr>
<tr>
<td>XV</td>
<td>Perinatal</td>
<td>0.2</td>
<td>0.3</td>
<td>—</td>
<td>0.1</td>
</tr>
<tr>
<td>XVI</td>
<td>Symptoms and ill-defined</td>
<td>0.8</td>
<td>3.3</td>
<td>—</td>
<td>1.2</td>
</tr>
<tr>
<td>XVII</td>
<td>Accidents and trauma</td>
<td>3.9</td>
<td>10.2</td>
<td>6.3</td>
<td>5.1</td>
</tr>
<tr>
<td>XVIII</td>
<td>Prophylactic</td>
<td>15.7</td>
<td>24.9</td>
<td>—</td>
<td>6.2</td>
</tr>
</tbody>
</table>

The training programme

It was originally planned to train three groups of people: nursing staff to become physician assistants; medical students in continuing, rather than episodic care; and interns and residents to become competent family doctors.

1. **Nursing staff**

   So far we have failed to develop our nurse training as planned, partly due to shortage of time and staff, and partly because there are inherent difficulties in trying to train physician assistants and interns in the same practice. A new approach, using physician assistants trained elsewhere, who will work in teams with the residents, is being designed.

2. **Medical students**

   We have Rochester medical students in their first, second and fourth year of their four year course. The first two are groups of students doing family medicine as a preclinical elective, and our objective is to familiarise them with patients as people and
show them the doctor-patient relationship in the family practice setting. They are taught history taking and simple clinical procedures, and then rotate half a day a week for three months through the offices of several different and differing family doctors in the area. They spend a day with a public health nurse, a day in a neighbourhood health centre, and make visits to other health facilities such as a country hospital and a rehabilitation centre. At the end of the elective their experiences are discussed in a seminar with many of the participating doctors present.

The fourth year students use the family medicine practice for what is called their continuity experience. Some of the fourth-year students are attached for one half-day a week to private doctors' offices, some to outpatient clinics, and ten (two each day) to our group practice. Here each student has his 'own' practice population of 30 to 40 families who are scheduled whenever possible to attend when that student is seeing his patients. He also sees other doctors' patients when possible. His clinical work is supervised, with a closeness appropriate to his developing confidence, and his records, very closely, by his faculty member who has two students, and who is at risk to those patients when their students are not available.

Further electives, and Summer fellowships are offered to medical students from other years, and from other medical schools including British. These are tailored to the individual student's needs, and usually balance clinical experience with a simple observational research study. Work is done in the group and with outside family doctors. One elective being designed gives the student an E book, and some epidemiological instruction at the beginning of his first year, and encourages him to record all the diseases he encounters in his four years to provide his tutors and advisers with some hard data about his clinical experience. We might even discover another Hodgkin.

3. Interns and Residents
In the current pattern of medical education in the United States, the student leaves high school at the age of 18 and goes to a college or university for four years 'premedical' education. This may be concentrated on chemistry, physics and biology, with some work in sociology and psychology, or may be entirely used in liberal arts studies. The student has no guarantee of entering one of the 113 medical schools, which have an average yearly intake (class) of about 100. At most medical schools there are two years of preclinical training, much as in the United Kingdom, and two years of clinical training. There are strong exponents of the idea of abolishing the second clinical year, and substituting a lengthier internship (the equivalent of the British pre-registration year).

Few students get scholarships or grants, so medical students are predominantly from upper middle class families. Even so, they usually owe thousands of dollars by the time they qualify. Earlier qualification and financial independence might attract a socially more broadly based profession, and in the short term, help the medical manpower situation. Such changes are resisted by the more conservative medical schools. My own observations suggest that the American medical graduate is more technically competent, and reads his journals more than his British counterpart, but has less practical experience of clinical care.

There are many 'rotating internships,' employing the newly qualified doctor in inpatient care in medicine, surgery, and obstetrics for a year, usually with some paediatrics, which used to be designed to train general practitioners.

With the start of specialist boards in family practice (the analogue of M.R.C.G.P.) residency programmes (registrarships) had to be created, since only doctors with three years of postgraduate training are eligible for their boards, and these residencies have to be inspected and approved by the American Medical Association. There are now many training programmes in the United States which have grafted residency years onto a rotating internship; the residency is then predominantly family medicine experience in a central teaching group practice, or satellite service practices.
The Rochester scheme combines the internship and two residency years in one planned training programme in which carefully selected inpatient services are combined with continuing responsibility for a defined patient population. Whatever inpatient service the intern or resident is on, it is guaranteed that he is released on at least two half-days a week to see his own patients in the group practice.

The normal working team in American hospitals is one intern supervised by one resident. To allow them to be released to function as family doctors, it is necessary to place the residents as pairs, so that cover is maintained. Their inpatient teaching is given by full-time medical staff, reinforced by staff from the university departments who conduct teaching rounds or conferences on each inpatient service. It is not far from the experience they will have when they enter practice, partly because patients are admitted to the hospital here for investigations that would be done as an outpatient in Britain, and partly, because they will be looking after their patients in the hospital too. The rotations are shown in figure 1.

The teaching in the group practice is primarily by 'preception.', i.e. a supervised apprenticeship. The interns have about 39 families each, the second year men 100, and
the third year men up to 150. Our average is 2·4 persons per household or family. An intern with 30 families, therefore, will have about 72 patients; a first year resident will have about 240; and a third year resident somewhere in the nature of 300 to 350 people.

They are scheduled to see their patients' new episodes of illness, long-term care of chronic illness, and return visits of acute episodes originally seen by other doctors, and usually see eight to 12 patients each session. While they are seeing their patients, they can get help and advice at any level they want, from the two members of the faculty who are on duty as 'preceptors'. This can vary from getting a physical sign confirmed, or a quick query about which investigation to do and when, to involving the preceptor in a counselling situation or a detailed tutorial. If they are confident about the patient's problem they need not use the preceptor at all. A study of preceptor utilization is being carried out.

This teaching is supported by chart review. It is legally required that all interns' patient visits are countersigned by one of the faculty: in fact, they are audited for quality of care on the audit shown as appendix A. The reason that this is a very effective form of teaching (since the reviewed record is returned to the intern or resident for his perusal) is that the record is written in the problem oriented format described by Lawrence Weed. While all intern records are thus reviewed, residents' records are randomly reviewed from time to time.

While caring for patients in the group practice, they have the standing of associate attending physicians to the hospital: in other words, they are like the other general practitioners, family doctors, and interns in the city who have admitting privileges to Highland Hospital. When they admit a patient for non-surgical care, they supervise his care like an attending physician, themselves being supervised by their faculty preceptor.

The main teaching method, therefore, is precept of patient care. In addition, there are three formal sessions a month, two devoted to didactic teaching by specialists selected by the senior residents, and one to a group presentation by one of the teams. These consist of a review of the literature of the management of some common but important condition, together with a cohort review (by E book retrieval) of the appropriate patients in the group practice with regard to how closely their management compared to the ideal culled from the literature. These sessions have great impact. The academic lesson is reinforced by practical application; and patient care improved immediately by education.

In addition, the residents run a monthly journal club, and there are monthly seminars on practice organisation, business methods, and research technique, designed to help the resident choose a good practice, or create a good one when he leaves.

**The team concept**

In a practice run, in effect, by 22 part-timers, it is important to maintain the concept of the personal physician with continuing responsibility, both for the patient and for the doctor. For all non-urgent new conditions, and follow-ups, the patient is scheduled to see his or her 'own' physician.

Obviously, patients with acute new problems cannot always see their 'own' doctor. By dividing the medical staff into teams consisting of one faculty member, four interns and residents and two students, it is possible to keep any given patient's care within a group of seven doctors, all of whom the patient has a chance of getting to know as time goes on.

The key person is the team secretary, who acts as the co-ordinator of the whole team, and a constant point of contact for the patient. This works excellently from the
patients’ point of view, but as can be seen from the staff list, is expensive. We are
beginning to think of a nurse practitioner being the contact point for each team. The
team is a useful unit for tutorial teaching, monthly presentation projects, and social
activities, and will be the ideal way of deploying trained physician assistants.

Research
There is as yet no strong tradition of research in family medicine in the United States,
and no counterpart to the Research Foundation or the Research Units of the College.
Most of the research from family medicine programmes has been educational, and
therefore, affects the manner but not the matter of the medical teaching. The Rochester
scheme has used its own patient population for basic studies on utilization, morbidity,
referral patterns and admission rates. A retrospective study of morbidity provided the
basis for a North American modification of the Royal College of General Practitioners
classification of disease which also takes into account the demands of problem oriented
medical records.

Our main research now is to see whether an audit of problem oriented records
can be validated as an audit of quality of care by comparing it with critical event outcome
studies, or assays of chronic care. We are also beginning to examine health care costs
for our patients. We have recruited ten local doctors to join an ‘E’ book team, which
will allow us to study a population (albeit difficult to define) of about 50,000 patients.
Twelve other teaching schemes are now using or have ordered ‘E’ books, being delighted
by its potential. Until we demonstrated its capabilities, research here had always meant
computers and nothing less.

Discussion
This is a very exciting and rewarding experience. The interns and residents are
impressively knowledgeable, and I am often uncertain who is teaching whom! It is
fascinating to see how the problems which we, the faculty, recognised in our own
practices provide the direction and priorities in teaching. My own involvement is
extensive: I have my own patient population of about 150 families, and have three half-
days a week to look after them. I am on duty four half-days a week as a preceptor.
The remaining three half-days are spent in a mixture of administration, research and
liaison. My primary responsibility is being Medical Director of the group practice.
With a staff of 13 ancillaries and turnover this year of $180,000 this is quite a change
from my single doctor surgery in the East Riding of Yorkshire. My secondary responsi-
bility is to create and run the data retrieval system and the co-ordinated research work.

Teaching the scientia and caritas in good family medicine will always be difficult.
Those who recognise the educational value of caring for and getting to know patients
in the long-term, clash with those who insist on the importance of a sound basis of
scientific hospital experience. Most of the training schemes in operation or planned
in the United Kingdom fail to expose the pre-registration doctor to family medicine,
and when he is registered, alternate him between the surgery and the hospital, which
makes it difficult for him to reap much benefit in the way of continuity experience.

The Rochester model seems to be a valid answer to the dilemma which deserves
study in Britain, despite the differences in the medical care systems. To be effective
in the United Kingdom, it would require some alteration in the rules which govern what
a pre-registration doctor can do and where he can do it. It would also require that
consultants in medicine, surgery, paediatrics, obstetrics and psychiatry should be
prepared to accept house officers for two month periods rather than six months, and
be prepared to offer them a cohesive teaching course. It could well be, however, that
such a course, based on a district general hospital and a closely related group practice,
could attract the graduates of British medical schools away from the teaching hospitals,
since increasing numbers seem to be motivated toward family medicine. It would be
interesting to calculate the economics of such a scheme remembering how much less secretarial work there is in a ‘bureaucratized socialised group practice’ than in a ‘free entrepreneurial fee for item of service’ practice.

Summary

One of the oldest, largest and most successful of the teaching programmes for family practice in the United States is described. The part played in it by a British general practitioner on leave for two years is explained. Some ideas which might be relevant elsewhere are discussed.

APPENDIX A

CHECK LIST FOR AUDIT OF FAMILY MEDICINE RECORDS

<table>
<thead>
<tr>
<th>Date</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

As a record:
1. Is demographic data complete? ... ... ... ... ... Yes No Yes No
2. Is family history (household history) complete? ... ... ... ... Yes No Yes No
3. If No, is there evidence that the information was unavailable? ... ... Yes No Yes No
4. Is there a family tree drawn? ... ... ... ... ... Yes No Yes No

For each patient in the family:
5. Is the past medical history recorded? ... ... ... ... ... Yes No Yes No
6. Is a social and occupational or growth and development history recorded? ... Yes No Yes No
7. Is there a note about the patient as a person (patient profile)? ... ... Yes No Yes No
8. Is there a note about allergies? ... ... ... ... ... Yes No Yes No
9. Is there an immunization data recorded? ... ... ... ... ... Yes No Yes No
10. Have appropriate screening procedures been done (Hct, Ht., Wt., Bld.)? ... Yes No Yes No
11. Is there a numbered, dated and titled problem list? ... ... Yes No Yes No
12. Is there evidence of a systematic historical screening data base (review of systems, health questionnaire, Cornell medical index)? ... ... Yes No Yes No
13. Is there evidence of an appropriate laboratory screening data base? ... Yes No Yes No
14. Are problems followed by numbered and/or titled progress notes in record of office visits? ... ... ... ... ... Yes No Yes No

As a reflection of medical care:
1. Is reason for patient’s visit, or chief complaint, stated? ... Yes No Yes No
2. Is there substantial and convincing evidence for each diagnosis made? ... Yes No Yes No
3. Are ‘significant negatives’ included? ... ... ... ... ... Yes No Yes No
4. Are all significant facts in patient’s record explained by diagnosis recorded or listed as problems? ... ... ... ... ... Yes No Yes No
5. Was an appropriate physical examination done when indicated? ... ... Yes No Yes No
6. Were abnormal physical findings recorded in detail? ... ... Yes No Yes No
7. Does the record show that, over a period of several weeks, or periodically, the patient receives a ‘complete physical examination’? ... ... Yes No Yes No
8. Were appropriate laboratory tests or x-rays ordered when indicated? ... Yes No Yes No
9. Were all abnormal laboratory tests or x-rays followed up or explained? ... Yes No Yes No
10. Is there a logical plan for diagnosis of each illness? ... ... ... Yes No Yes No
11. Is there a logical plan for treatment of each illness? ... ... ... Yes No Yes No
12. Is there a clear plan for adequate follow-up? ... ... ... ... ... Yes No Yes No
13. Were consultations or referrals sought where appropriate? ... ... Yes No Yes No
14. Is there evidence of an effort to use paramedical personnel appropriately? ... Yes No Yes No
15. Is there evidence that broken appointments or ‘no shows’ received appropriate attention? ... ... ... ... ... Yes No Yes No

Preceptor’s opinion: Unsatisfactory............Fair...........Good...........Excellent............

Comments:
TEACHING FACULTY:

Head of Family Medicine: Rank of Associate Professor. Could be full Professor but feels great advantages in being part of, therefore backed by, departments of Internal Medicine, Pediatrics, and Preventive Medicine.

Chairman of Residency Programme: Rank of Assistant Professor. Responsible for planning and arranging residents' rotations, timetables, and curriculum.

Director of Medical Students: Rank of Assistant Professor. Responsible for arranging all student attachments at all levels of their training.

Medical Director/Research Director: (The Author) Assistant Professor. Responsible for organisation and running of the group practice, which he does through his three heads of departments: business manager, head nurse, and secretarial supervisor. Also responsible for creating and running data collection, E-Book, for group practice, for starting and running, with staff of four, a network of family doctors around Rochester using E-Books, and the computer analysis of their data.

Community Faculty: No academic rank as yet, but these are carefully selected practising family doctors who give half a day a week acting as preceptors in the family medicine programme and have students in their practices, and use E-Books to collect morbidity data.

REFERENCES


PRACTICE EQUIPMENT

Altogether the practice has invested some £1,500 on audiotyping equipment and it has been money well spent. We have two audiotypists typing the consultations and visits. We find that it takes a typist a maximum of 45 minutes to type each consultation session. Letters are done at the same time. We have two manual typewriters, an I.B.M. electric typewriter and three Phillips office dictating machines".