The Educational Programme and Innovative Aspects of Health Care Delivery

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The establishment of a new Faculty of Medicine at McMaster University in 1965 provided an opportunity to introduce different types of educational programmes that might prove more appropriate to the health care needs of the community. The decrease in the proportion of primary care physicians from 66 to 50 per cent and the associated increase in the use of hospital emergency rooms for primary care emphasised the need for training programmes in family practice and primary and comprehensive care.

The increasing numbers and types of specialists trained were not always related to provincial and national needs. The use of the hospital as the chief site for clinical training was also questioned, since 90 per cent of all health care services were provided elsewhere. In addition, the increasing complexity of medical care and the resulting interdependence among those providing it emphasised the need to develop group and team practice settings both for education and for service.

As part of our aim to develop expanded roles for allied health professionals as members of health care teams, a one-year training programme for nurse practitioners was instituted in 1970 and the first class of 22 nurses has already graduated. In addition, a course in clinical behavioural science began in 1969 and two classes have graduated. Participants included nurses, social workers, ministers, physicians, and physical and occupational therapists. This programme's goals are to develop collaborative relationships among workers in various health-related professions and to increase their knowledge in the behavioural and emotional components of health and disease.

Since medical education as well as the delivery of health care were seen as responsibilities of the entire faculty, departments were integrated during the first three phases of the medical undergraduate programme, and teaching carried out on a subject committee basis. This interdepartmental policy was, however, different from the departmentally orientated approach that initially characterised the undergraduate clinical year. After two years
of interdisciplinary teaching, the students were assigned to clinical rotations by service (internal medicine, paediatrics, obstetrics-gynaecology, psychiatry, surgery, and family medicine). Four of these six clinical clerkships were based on a hospital, psychiatry was mixed, and family practice was entirely ambulatory. Departmental clerkships were an historic and developmental necessity during the initial undergraduate clinical year, since there were few settings in which interdepartmental clinical teaching could be undertaken.

However, it seemed more in keeping with the educational objectives for students to see patients in community settings during a greater portion of their undergraduate clinical education. When patients required hospital care, the student could be a part of the team providing it. Although the hospital gives an opportunity for training in the management of more serious illnesses, it frequently focuses on diseases rather than people, particularly when admission to hospital is an isolated event managed by a physician who has little or no relationship with the patient at other times. By contrast, experience in the community allows the trainee to see both the illness and its longer term effects on the individual and his family. For this reason, medical education with continuing responsibility for patients both in and out of the hospital could promote perspective and a clearer understanding of ill people.

Such an integrated clinical experience would, however, require a level of knowledge and ability which a clerk ordinarily does not possess at the beginning of the clinical year. During the early weeks, students require instruction and practice in medical history-taking, physical examination and the synthesis of clinical and laboratory data. The pace must be slow since the acquisition of these skills requires a great deal of time and supervision. Perhaps this is one of the reasons why undergraduate clinical training has traditionally taken place in the hospital where a slower pace can more easily be arranged.

However, as the student develops increased speed, clinical judgement and the ability to assume increased responsibility, long-term patient follow-up and an opportunity to assess patients of all kinds in the community are as essential as specialty orientated, hospital-based clinical training. The general time relationships envisaged are demonstrated in Fig. 1, which shows that, with increasing experience, more time could be spent in ambulatory-community settings and less time in the hospital. An ultimate goal is to relate the content and setting of education and training programmes to the actual content of practice. Since more than 50 per cent of all services are primary and continuing ambulatory care services, the emphasis on delivery-education models seemed appropriate. Sufficient elective time (14 weeks) is available during the clinical year to allow for differences in student interest and additional hospital-based training can be made available.
There were few university sponsored primary care settings in the community and an insufficient number of teachers, both in primary care and the specialties, who were comfortable as teachers in such community settings. Specialists were more comfortable in the hospital and within the boundaries of their specialties. However, because of an early commitment to develop training programmes for family physicians, a Department of Family Medicine had been established in 1966 and three sponsored community health centres were developed. These centres were located adjacent to the Henderson General Hospital, in a village 20 miles south-east of Hamilton, and in the McMaster University Health Sciences Centre, and were available both as teaching resources and as prototypes for additional units. The department had also developed relationships with family practitioners in the community. What remained was to organise additional community-based and university sponsored or affiliated primary comprehensive care units; to define their relationships with hospital services; and to develop educational programmes in such units.

Generally, health care delivery programmes have been developed using certain broad guidelines:

1. Ambulatory services to be personal and in no way to resemble traditional North American out-patient department services.

2. Multiple primary care settings to be established using teams composed and organised in different ways. Primary care services to be provided by family physicians, teams consisting of internists, paediatricians and psychiatrists, and by specially trained and supervised nurse practitioners and family practice nurses.

3. The role of the consultant in comprehensive ambulatory care to be expanded.

4. Relationships between primary care providers and consultant specialists to be co-ordinated so that whenever possible consultants would be housed in
the ambulatory centres and work as members of a team providing co-ordinated comprehensive care.

5. The separation between ambulatory and hospital care to be reduced wherever possible, and the same teams of students, family physicians, specialists, consultants, and other health professionals to provide care for their patients in and out of the hospital.

6. Specialty units in the hospital to be used only for those complex diagnostic and therapeutic problems that could not be adequately managed in hospital units not differentiated by specialty.

7. Regionalisation of services to be accomplished in such a fashion that each of the highly specialised services would be concentrated in only one community hospital and not duplicated at other hospitals or limited to the Health Sciences Centre.

8. All clinical services to have, as a major goal, the reduction of hospital care and an expanded use of ambulatory care.

9. Educational programmes to be developed in all the university sponsored clinical teaching units. These programmes to be used in the education of medical undergraduates, graduates, and allied health professionals.

The three McMaster sponsored community health centres were developed under these general terms of reference. All were staffed by teams consisting of family physicians, nurse practitioners and other health-related professionals. They have had differing goals, but all have provided primary and comprehensive care for groups of families. One centre has stressed education of undergraduates and family practice residents; the second, which is in a rural community, was mainly service orientated and stressed education for senior residents in family medicine; and the third at the Health Sciences Centre has emphasised the role of the nurse practitioner.

A specialty ambulatory service has also been organised. It has emphasised non-duplication of existing services, co-ordination with primary care programmes, and new uses of nurses and other allied health professionals. For example, nurses in the allergy and neurology clinics are now taking medical histories and performing physical examinations. Whenever possible, specialty services have been combined and functionally related to primary care units. The goal has been to avoid the development of independent unrelated specialty or disease orientated clinics.

While awaiting the development of additional group and team practice programmes, the departmental clinical clerkships were combined. Internal medicine was combined with surgery, paediatrics with obstetrics-gynaecology, and family medicine with psychiatry. A one-week seminar in health care delivery is now a part of the family medicine-psychiatry clerkship.
Additional health care delivery units are now being developed in response to a projected increase in the size of each new medical undergraduate class to 80 and in the total McMaster residency programme to over 300, of whom 90 will be residents in family practice. Family practice has been emphasised in an attempt to maintain the current proportion of family physicians in Canada at its present level of approximately 50 per cent.

**Emergency Services—Primary Care Unit**

There has been a marked increase in the use of emergency services in North America. In Hamilton, emergency visits have more than doubled in the past ten years, while the population has increased less than 20 per cent. Studies have indicated that one-third to a half of such visits are for non-urgent primary care problems. Patients coming to the emergency service of the Health Sciences Centre will be separated (triaged) into emergency, urgent, and non-urgent categories. Only the emergency and most serious urgent problems will be seen in the emergency unit (5 to 10 per cent emergency, 15 to 20 per cent serious urgent). The remainder (approximately 75 per cent) will be seen in another ambulatory area, where specially trained nurse clinicians and nurse practitioners, as well as physicians, will assess and manage less urgent problems such as minor trauma, lacerations, and minor infectious diseases. Whenever possible the non-urgent patients will be returned to their family physicians for continuing care. Those without family physicians will be offered an opportunity to enrol in one of the family practice units in the Health Sciences Centre.

The staff providing non-emergency services will be drawn from a Primary Care Unit. This Unit will have a team of family physicians, internists, paediatricians, nurse practitioners and psychiatrists who will provide primary care both on an episodic and continuing basis. Specialists from the team may provide primary care as well as acting as consultants. Additional specialists in surgery and obstetrics-gynaecology will be associated with the team as consultants.

**An Undifferentiated Hospital-Based Service**

To diminish the separation between ambulatory and hospital services, an undifferentiated or non-specialty hospital service is being developed at the Health Sciences Centre. This unit will be used for patients who do not require highly specialised care or procedures. It represents a logical continuation of ambulatory comprehensive primary care units, and will allow the same team to provide hospital as well as ambulatory care for their patients. The undifferentiated unit will serve as the primary hospital setting in which to
train family practitioners. Students will also have an opportunity to identify with family physician role models in the hospital as well as in ambulatory settings.

**SPECIALTY SERVICES**

Traditional specialty hospital and ambulatory services have also been established to serve as referral centres for the Health Sciences Centre and the community and as units for specialty training and clinical investigation.

Such new programmes impose on us the need to evaluate what we are doing. In addition to measuring utilisation and the satisfaction of both patients and health professionals, a number of results require evaluation. They include the effect of different organisational models on the educational process and on the subsequent careers of McMaster trainees, as well as the effect of such models on the health of patients and the community. Like education and service, evaluation is seen as a responsibility of the entire faculty and is being carried out on a programmatic and interdepartmental basis.

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**Type-casting by Osler**

Sir William Osler recognised two types of student and four classes of professor. He defined the student-lark ‘who comes to breakfast with a cheerful face, never so fit as at 6 a.m.’ in contrast to the student-owl ‘cheated by the wretched breakfast-bell of the two best hours of the day for sleep’. At night the ‘lark is in hopeless coma over his books’ while the owl ‘with bright eyes and cheery face’ is ready for anything. These are comments applicable to mankind as a whole, but Osler’s classification of professors is more specific to the class.

‘Professors may be divided into four classes. There is, first, the man who can think, but who has neither tongue nor technique. Though useless for the ordinary student, he may be the leaven of a faculty and the chief glory of his University. A second variety is the phonographic professor, who can talk, but who can neither think nor work. Under the old regime he repeated year by year the same lecture. A third is the man who has technique, but who can neither talk nor think; and a fourth is the rare professor who can do all three, think, talk, and work.’