ASSIGNMENT REPORT 1

OBSERVATIONS OF THE M.D. PROGRAMME FACULTY OF HEALTH SCIENCES AT McMaster UNIVERSITY (JANUARY-JULY, 1987)

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In 1990, the M.D. Programme '90 was launched at Tokyo Women's Medical College (TWMC). This programme was composed of an integrated curriculum and tutorial system (problem-based learning, self-directed learning in a small group setting). Now we have third year students who have been educated with this system. A meeting of the Organization to Observe Educational Systems of all Japanese Medical Schools, sponsored by the Japan Medical Education Foundation, was held at TWMC in September, 1992. There are still many problems to be solved at present, most of which reflect the gap between policy and implementation. The desire to implement needed change is, to some extent, dampened by uncertainty as to whether our educational system is actually the best possible. Despite these lingering doubts, I feel that the policy underlying our present system of medical education is excellent.

The following report gives an overview of a special opportunity granted the author by the Dean of TWMC, Morimasa Yoshioka, in 1987. The core of the present report has already been submitted to him and to Professor Branda, my instructor at McMaster University. The detailed monthly reports of my activities and materials collected are now stored at the Dean's office but the only published documentation to date has been three very short reports. The author would like to document her findings and submit this report to the memorial issue of 25th anniversary of the directorship by Prof. Y. Fukuyama at the Department of Pediatrics. I feel that it is important to document my initial observations and impressions although, in retrospect, the way in which they were written in 1987 does not seem entirely satisfactory. My sincere thanks go to Professor Yukio Fukuyama and other staffs of our department who generously allowed me to go to Canada and handled my daily duties during my six months absence.

Introduction

At the time of this visit to Canada, the author was an Assistant Professor in the Department of Pediatrics, TWMC, and was a member of the Committee for the Investigation and Development Undergraduate and Postgraduate Medical Education at this institution.

The main goals of the visit to the health science faculty of McMaster University were to introduce their undergraduate medical programme to TWMC, and to address questions in the following areas:

1. Selection of students
2. Curriculum structure
   a) Tutorials
   b) Preclinical teaching
   c) Clinical teaching
3. Learning resources
4. Evaluation of student performance
5. Follow-up studies on McMaster graduates

The following specific questions were generated throughout the stay at McMaster.

1. Selection of students
   How, and by whom, are students selected?
   What is the profile of the average McMaster student?

   Do student performance in the programme and LMCC (License of the Medical Council of Canada) scores correlate with previous academic record, the autobiographical letter, simulated tutorials and/or the personal interview, i.e. what kind student is likely to do well in the McMaster system?

   Do they become the “ideal” doctor*? And, if so, which part of the admission process is effective in selecting students to achieve this goal?

2. Curriculum Structure
   1) Tutorials
      How does the tutorial system work?
      What kind of tutor enhances the student’s education?

      In what way, and for how long, do tutors prepare themselves for tutorials?

      How can a tutor without knowledge of the field (“non-expert tutor”) contribute to the tutorial?

      How do the tutors in a unit communicate with each other to maintain a consistent standard of student performance?

      How are the tutors trained?

   2) Preclinical teaching
      What is the organizational structure of each learning unit?

      How are these units determined?

      How is the absence of basic science courses compensated for?

      How much do the students discuss or learn about treatment/management of patients?

      What is the balance between diagnosis and treatment/management?

3) Clinical teaching
   What is the process for clinical teaching?

   What are the nature and duration of contacts between students and interns, residents, chief residents and professors? When do students come into contact with patients? How much and what extent are students involved in the physical examination of patients, the ordering of tests and treatment/management?

   How much time do students devote to internal medicine subspecialities? How much time is spent on pediatrics, surgical subspecialities and psychiatry?

3. Learning Resources

   Lecture** themes: What kinds of, and on what basis, are lecture themes selected?

   Learning resources: What learning resources are available to students, particularly those needed for self-directed learning, how are they produced and who is responsible for producing and updating them?

   Development of health care problems (HCP) for tutorials: How do planners select HCP suitable for teaching and strike a balance between common and rare diseases?

   How do tutors and tutorial groups provide feedback to planners about the quality of HCP?

4. Evaluation of Student Performance

   What methods are available at McMaster University for evaluation of the student’s basic knowledge, clinical skills, communication skills, attitudes, and personal characteristics?

   How frequent is re-evaluation?

   What happens when a student fails?

5. Follow-up Studies

   How many students fail the LMCC examination?

   To what degree are students satisfied with the program?

   What do the students view as the strengths and weaknesses of the programme?

The overview of activities, observations and collected information presented here focuses on

*A physician who can demonstrate the ability to identify, analyse and manage clinical problems in order to provide effective, efficient and humane care.

**Lectures for the whole class, i.e. all 100 students.
the actual process, rather than the organizational system. Please bear in mind that this report is on based limited personal experience.

Background

This study was developed because of a need felt by Morimasa Yoshioka, the Dean of TWMC, to introduce changes in the medical education system which would make it more suitable and effective in meeting the needs of medical students and to explore the feasibility of implementing the McMaster University system at TWMC by assessment of the approach used at McMaster University to educate medical students, as well as selection and admission procedures.

Our students are very industrious and compliant, so most attend almost all lectures and study hard, but they lack initiative and are, therefore, poor self-directed learners. After graduation some are found to be rather weak in integrating their knowledge, logical thinking, and in applying their knowledge and skills to the practice of medicine or to research.

The results of National Board Examinations are also of concern. The passing rate is about 85%; which is the average of Japanese medical schools, but the TWMC would like it to be 100%. The graduate who fails it is looked upon as having failed in her career, seriously jeopardizing future aspirations.

Dean Yoshioka understood that problem-based and self-directed learning, based on small group

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UNIT 2 12 weeks ELECTIVE 6 weeks UNIT 3 12 weeks HOLIDAY 4 weeks UNIT 4 12 weeks ELECTIVE 4 weeks |

CHRISTMAS BREAK

UNIT 5 12 weeks UNIT 6 12 weeks THE CLERKSHIP 52 weeks |

CHRISTMAS BREAK

UNIT 6 THE CLERKSHIP (continued) GRADUATION REVISED |

CHRISTMAS BREAK

Figure The curriculum plan

A 15-week introduction to medical studies is followed by three 12-week units organized according to body systems. Each 12-week unit emphasizes three related body systems. They are:

Unit 2: The Cardiovascular, Respiratory and Renal systems.
Unit 3: The Gastroenterologic, Hematologic and Endocrine systems.
Unit 4: The Neurologic, Behavioural and Locomotor systems (“Eraim, Behaviour and Locomotion”)

Unit 5, represents a new venture for the programme. It is a 12-week unit entitled “The Life Cycle”, which provides an opportunity for students to consolidate and expand their knowledge and skills while analyzing health care problems at various stages of the life cycle.

Unit 6, the Clerkship, occupies the final year of the programme. It involves continued learning while participating directly in the care of patients. The Clerkship consists of in-patient and ambulatory experiences, represent as 4 or 8 weeks rotations in various clinical specialties.

Throughout the programme, there are various elective opportunities, both in blocks and running concurrently with the units mentioned above.
tutorials specializing in a particular organ system and the human life cycle (Figure), were pioneered by McMaster University in 1969. At McMaster University the passing rate of the LMCC is very high, and the abilities of students with a B average can be improved such that they can achieve A class standing. Apparently the students in the McMaster system are highly motivated and have the potential to develop their abilities as doctors throughout their lifetimes. Thus, an additional objective of the author’s visit was to ascertain those factors which influence student motivation in the medical programme at McMaster University.

Activities

1. Unit 2 (January 11-March 27, 1987)
   1) Learning Sessions
      The author worked at McMaster University in capacity of a co-tutor in Unit 2 and attended some related lectures (“large group sessions”) and resource sessions (the lectures are provided to 1/3 of the students in the class and are related in content to the theme of that portion of the unit which is being studied).

      There were sessions (Anatomy and Microbiology) which were provided by a resource person at the student’s request, as a supplement of learning. There was also an additional lecture on immunology, provided by one of the students who has a Ph.D., which the author attended.

      There was no opportunity to visit the teaching sessions on clinical skills in practice so students were interviewed to collect information on such sessions and to assess the students’ attitudes towards them.

   2) Evaluation Methods
      The author was present at evaluation sessions (“triple jump exercise”) and attended tutor training sessions for evaluation, mid-unit evaluations and end of unit evaluations in the tutorial group.

In addition, information was collected on the OSCE (Objective Structures Clinical Skills Examination or “Circuit Test”) and one OSCE was observed.

Some of the Unit 2 self-assessment packages and MCQs (multiple choice questions), available at the library, and a computer simulated case were examined.

3) Learning Resources
   Various learning resources including several videotapes on anatomy and several sets of slides & tapes were studied.

2. Electives between Units 2 & 3 (April, 1987)
   In April, after completion of Unit 2, and with one of the students who had completed this unit, the author attended several sessions of an Anatomy and Radiology elective and gathered information on specific features, procedures, and teaching techniques, as well as compiling information on clinical electives available to students.

3. Clerkship (Unit 6) (May-July, 1987)
   1) Pediatrics
      Time spent in a pediatric clerkship included attendance at clinical teaching sessions, tutorials, and grand rounds, and observation of ward rounds conducted by the attending physician.

      Training sessions between the clerk and the pediatrician at the Pediatric Outpatient Clinic and at the Pediatric Emergency Clinic were also observed. Furthermore, information on the daily life of the student clerk was gathered. Observations were made on the extent to which the clerks in pediatrics are permitted to be involved in the role of a licensed practitioner, in patient management (including history taking, physical examination, progress notes and writing orders on the authorized chart).

      Moreover, information was collected on the working structure of pediatrics in order to better understand the roles of each person in the team and their function. The compilation of this information provided insight into and understanding of the student’s input to the training process.

   2) Family Medicine and Psychiatry

*Playing the role of a co-tutor is one method of training new tutors and of re-educating tutors whom the students, by means of tutor evaluations which they write up at the end of each unit, have deemed to be ineffective instructors.
Two Family Medicine tutorials were observed and information was collected on the subjects discussed as well as the timetable which showed how time is allotted.

During a visit to a private general practitioner, a McMaster graduate from whom one of the students was receiving training, some patients gave permission for the author to sit in the examining room while the student was taking a history and examining the patient.

3) Surgery & Medicine

Information was collected on surgery, medicine, psychiatry, and family medicine clerkships, which involved considerable participation by the students in the role of a licensed practitioner.

4) Observations of some aspects of clinical patient care.

The author, together with a specialist in developmental pediatrics, saw patients with Spina Bifida and observed a training session for senior residents.

A visit to an intensive care unit, which provided additional information on the pediatric section, highlighted the strong co-operative relationship between the pediatrician, the neurosurgeons, and the general surgeons.

4. Unit 3 (May-July, 1987)

Unfortunately, it was not possible to participate in Unit 3. However, one clinical teaching session in the Clinical Skills laboratory, which consisted of two parts in the Haematology Subunit, was observed. In part 1, the students are taught how to do venous puncture using a model of an arm with an artificial human vein. In part 2 the students took a case history and did a physical examination using a simulated patient.

5. Admission Policies

Selection and admission procedures were described in several papers and some other materials provided by the admission office. In addition, students were interviewed on how they prepared for admission, wrote their autobiographical letters, collected information for the group interview, and so on.

Two students and one community person who were involved in reading the autobiographical letters a community person who was involved in the personal interview and one student who was involved in the simulated tutorial were also interviewed.

6. Simulated Patients

The author learned about simulated patients from the programme assistant for the simulated patient programme and had an opportunity to meet one of the teaching associates.

7. Lectures and large group learning sessions*

Information on the large group lectures and learning sessions from Units 1 to 5 was collected, as were the list and schedule for each unit which detailed what subjects had been selected for lectures or learning sessions for that unit. In some cases the title did not fully explain the content, necessitating that students be interviewed in order to collect more detailed information about these lectures.

8. Student's Contribution

Students' contributions, in terms of both feedback in each session of the M.D. programme and admission, were sought. Such contributions are rare in Japan, especially in the field of admissions.

9. Career Choices of McMaster University Graduates

McMaster does not seem to give special preference to its own graduates when they apply to postgraduate programmes.

10. Attendance at Workshops and Symposium


2) Workshop on Health Science Education Teaching in a Clinical Setting (May 12 and 13, 1987).

3) Workshop in Health Science Education Role of the Tutor in Small Group Learning (May 19-June 22nd, 1987).

*A hundred students are divided into three large groups and each group learns the subunits in a different order.
11. Other Activities

1) The author visited Tufts University School of Medicine, in Boston, U.S.A.

2) A visit was made to the University of Calgary, School of Medicine and Alberta Children’s Hospital, in Calgary, Alberta. (Refer to Assignment Report 2)

Observation and Collected Information

1. Observation and Collected Information in Unit 2 (January 11—March 27, 1987)

1) Curriculum structure of learning sessions

(1) Rotation of student groups: Unit 2 focuses on the cardiovascular, renal, and respiratory systems and HCP related to these systems. The entire class is divided into three groups which study the same themes but in a different order. For example, A group studies the cardiovascular, renal and respiratory systems, in that order, while B group starts with the renal and C group with the respiratory system.

Many resource sessions (an informal lecture format) are held for the one third of students studying a certain theme. These include how to evaluate pulmonary function, ECG and electrolyte data during the respiratory, cardiovascular, and renal portions of the unit, respectively. This means that a preceptor should offer the same resource session, for one third of the students, three times during the entire unit. Tutorials dealing with each system are held before these resource sessions which stimulate the students interest, making them eager to attend the resource session lectures and highly receptive to the information offered in lecture format. They have already studied some concepts of the topic covered by self-directed learning, before attending the lectures, and as such are very active and not at all hesitant to ask questions; consequently, there is a great deal of interchange between students and preceptors. Giving each resource session three times, triples the preceptor’s workload but increases student-preceptor interaction.

Originally, the author assumed that a lecture on the subject to be covered should be given before the tutorial in order to provide students with an orientation to the field. After experiencing Unit 2, however, it was apparent that the lecture is more effective after the students have been stimulated by the tutorial to learn more. The partial knowledge which they have attained impresses upon the students the challenges of mastering large quantities of information as well as familiarizing them with some of the lecture’s content. Ideally, the lectures run in parallel with the tutorial sessions, being given within several hours or at most two weeks later. The lectures give a broad perspective which allows the student to assess his/her own level of mastery of the subject. The lectures give a broad perspective, integrating numerous pieces of knowledge, which allows the students to seen where they stand in terms of the entire subject. In addition, the students are given guidelines for logical and systematic scientific thinking.

(2) Daily time schedule: The main principles of the M.D. programme at McMaster are problem-based learning and self-directed learning. This means that the students should be responsible for their own training, and should know how to make the best use of the ample free time that they have during the day. Most resource session lectures begin at 8:00 or 9:30 in the morning and last until 9:30 or 10:00. In the afternoon, these sessions begin at 3:00 or 4:00 and last until 5:00 or 6:00 p.m. Students spend the rest of their time at the library, which is even open on Saturdays and Sundays until around 10:00 or 11:00 p.m, using books, video tapes, and sets of slides and tapes.

(3) Learning resources: Numerous learning resources are available to students: self-assessment packages, multiple-choice questions, simulated patients, computer patients, videotapes, sets of slides and tapes and modules which are displayed in the anatomy lab.

2) How are tutorials conducted?

(1) No. of students per tutorial: 6 (composition of students varies from unit to unit)

(2) Selection of HCP: There are lists of HCP available for each system. The students select the
HCP by themselves in a group. The number of HCP completed differed among groups.

(3) The content of an HCP: Each HCP consists of 4–6 sheets, age and chief complaints on one sheet, history on the second, physical examination on the third, laboratory data on the fourth and prognosis, etc, on the fifth. Besides these sheets, many sheets with objectives of the HCP and explanations of the patient’s condition with important points, are attached. These help the tutor.

(4) How tutorials proceed: At the beginning of the tutorial, students assess the information given on the first sheet and try to make a list of possible problems which the patient with this HCP might have. During this process students became aware of the necessity of having a good knowledge base and understanding the mechanisms underlying normal bodily functions as well as pathological conditions, how diseases affect each system, behavior and social background and on this basis, decide which issues should be studied. When the students feel that the first sheet has been adequately discussed, they proceed to the next. Further discussion prompts them to pick up the pertinent issues. At the end of each tutorial the students assess each other and the activity of the group as a whole, i.e. how they proceeded, which suggestions shed light on their discussion, etc. Tutor also gives them a feedback.

At the next tutorial they start with the issue which they picked up in the previous tutorial and solve the problem, step by step, with discussion. During this discussion new issues can be raised. If they find it is time to move on to the next sheet, they ask the tutor to make it available. The tutorial moves on as described above, providing a very important source of motivation for the students. The key is for students to grasp the significance of knowledge, which may previously have been presented merely as dry information to be memorized for tests, in such a way that their interest is sparked and they are motivated to learn more. Students try to recognize, analyze, pick up issues and integrate, applying their knowledge to problem solving. Student performance is generally rather poor at the beginning of each unit or system, but improves as they proceed and their ability to solve problems becomes better. At the beginning, they usually spend four tutorials on one HCP but by the end of the unit they finish one HCP within two tutorials.

3) Clinical teaching sessions in Unit 2

Information was gathered by interviewing students. The way in which the clinical teaching sessions were carried out differed from preceptor to preceptor, as follows.

(1) Cardiology:
① Six students are assigned to a patient. The students take the patient’s medical history and then do a physical examination. During this time the clinical preceptor is always with the students and later gives them feedback on their clinical skills. This session is held once a week and lasts 2–3 hours.
② Two students may see a patient, take the history, do a physical and then present the case to the preceptor.
③ The preceptor outlines approaches to history and physical examination for the students.

(2) Respiratory:
① Three patients are assigned to six students. The students take the patients’ medical histories and then perform physical examinations. The clinical preceptor, who is not present, arrives and discusses the cases with the students. This session is also held once a week and lasts 2–3 hours.
② The six students may go on rounds with the attending physician and visit a number of patients. The relevant findings are then noted.
③ The six students may go over radiological findings or the general exam with the preceptor.
④ A student visits the preceptor’s clinic and sees patients with him/her.
⑤ The relevant history examination are covered.

(3) Renal:
① A student visits the out-patient clinic with a preceptor and sees patients, once a week for 2–3
hours.

2 A group of six students will visit the dialysis area and/or go with a physician to see patients with pertinent problems. Approaches to history and physical examination are discussed.

4 Student opinions of the sessions

The students' opinions of these sessions vary according to which preceptor they had. Based on student interviews, the satisfaction level is not as high as that of the clinical teaching session which started with Unit 3 (May 1987).

2. Alternatives to Traditional Anatomy Courses

1) How is the absence of anatomy courses compensated for?

1) Special resource sessions requested by students

There are no traditional anatomy courses but there is one resource person, Professor Lewis, for Unit 2. Students can request learning sessions. There are 18 tutorial groups of students, such that if each group wanted to visit him once a week, he would be called upon to share 36 of his 40 hours of official working time with students. This means that the resource person could devote as much as 90% of his time to teaching.

But students do not usually visit anatomy to ask for lectures. Most of them visit anatomy only once or twice in each unit. Professor Lewis commented that the students with whom the author went to anatomy were a very special group because they visited in order to listen to his talk four times in Unit 2.

2) Videotapes as a resource

There are several videotapes, made by Professor Carr, which last about 20 minutes and are excellent. Most of the students enjoy them. One advantage of these tapes is that they can be viewed repeatedly, and part of them can be reviewed at a convenient time, whenever the students want to study. In the tapes, the points which relate to clinical facts are stressed, which increases their educational value. But the problem is, that although students were able to learn anatomy very easily by means of these tapes, without referring to textbooks or having it explained by others, the facts were difficult to remember. Although this system is convenient and flexible, some means of improving retention of the material studied should be implemented.

3) Modules in the anatomy lab

There was a tremendous number of modules and samples of cadavers in the anatomy lab. They are excellent, and many of them illustrate features which we cannot learn or see by way of ordinary dissections done in the traditional medical school. Some of the modules have related X-rays (including CT) or the patient's history. The students do not seem to realize how lucky they are to have the opportunity to learn by using modules. The author spent several days in the anatomy lab, and saw only one or two students taking advantage of the facilities.

2) Anatomy radiology elective

This is a combined elective featuring both anatomy and radiology. During the first day, the students have lectures in the morning on the anatomy of a certain system, and a radiology session on the same system in the morning of the next day. This combination is excellent, and the author experienced it with the students. The lectures were excellent; the information was conveyed in a very clear and easily understood manner, and the students felt the lecturer's enthusiasm in having the ability to apply the knowledge to problem solving. The faculty try to enhance student understanding by asking questions. However, many of the students were unable to answer these questions. Therefore, this author still questions whether these activities enabled the students to gain a proper, comprehensive understanding of anatomy. Perhaps the students were unable to follow the radiology session because many of them had not visited the anatomy lab during the Monday afternoon when there were optional sessions with either cadavers or modules. Some of the students had other electives, and some had horizontal electives so that they could not devote the time to study.

In all of the anatomy lectures the students are
confronted with excellent problems which test their knowledge, and challenge them to apply the facts that they have learned to clinical or other practical areas. Some of these problems were solved with the teacher, after which they did learn, with the assistance of some explanations. But student understanding of some of the problems was not confirmed by the faculty. When the author asked some of the students if they had finished these problems, she discovered that a few hadn’t done them. It would be desirable to provide more opportunities for checking whether the students have finished solving the problems presented to them.

3) Attractive features of the McMaster approach to learning anatomy.

Anatomy is always taught along with some fundamental concepts of embryology, so that the students can think about the body in a more meaningful and pertinent way. The professors always teach anatomy in relationship to clinical disorders or to the practical facts of the living body. For example, when they teach a muscle system, or the nerve supply to those muscles, they also teach certain functions of the muscles used in daily life. In this way, the students can consider various aspects of motor dysfunction in those structures and can correlate them with practical aspects of health care sciences.

In the McMaster system, the students can learn about the anatomical structure and its relationship to some HCP in certain systems. Therefore, the student can learn about anatomy more easily by considering its relationship to clinical problems.

4) Why Modules are not used more often by students:

When some students who had finished Unit 2 were asked by the author why the anatomy modules were not used more often the following responses were given: (1) Disorganization and incorrect numbering of the modules makes them difficult and time-consuming to find. (2) Students feel lonely when visiting the Anatomy lab alone but find it difficult to make arrangements to meet with other students. (3) Anatomy was felt to be a low priority subject, many students found it boring. (4) Learning from instructors was considered to be more efficient than with modules alone.

5) Differences in the treatment of donated bodies:

In Japan, all bodies donated to anatomy should be returned to their families after the dissection is finished, as bones. But at McMaster, in Canada, the remains of the body, after being studied in the anatomy laboratory, go to a special grave in Toronto, which is marked as the grave of people who gave their bodies to science. So, at McMaster University, they can use the bodies for a long time, but in Japan we have to finish with the cadavers within one year.

3. Evaluation Methods

The methods of evaluation in the M.D programme are totally different from ours: first, triple-jump training sessions are used to evaluate learning skills; and second, an objective structured clinical skills examination (OSCE) is set up to assess clinical skills.

1) Triple jump sessions

Each tutor is responsible for administering the triple-jump training session to six students, none of whom is from his/her own tutorial group.

These consist of 3 steps with one teacher per student. In step 1, (30 mins.), a student receives information on a patient and he/she must form a hypothesis regarding the problem. Then he/she asks the teacher for additional information on the patient’s history, and on the physical findings examination. Then the student must select several issues and explain why he/she thinks that it is important to focus on these issues. In step 2, the student must go to the library to study information on the selected issues, during an allotted time of 2–3 hours. In step 3, (30 mins.), he/she gives a presentation on the issues researched and studied.

2) OSCE for Unit 2

This was carried out on the evening of March 10. It began at 5:30 and finished at 11:00. The
students were divided into three groups and went through eight stations alone. At each station there were simulated patients, which the student received information about. The student was then informed that he/she should get the history and the physical examination data of each patient, and then provide the patient with an appropriate explanation of the specific disease (in 5 mins.), at each respective station. Immediately after completing this procedure, the student received feedback from the preceptor at each station.

The problems covered were pneumothorax, polycystic kidney, shortness of breath at night, chest pain, vascular insufficiency, and asthma. The student was evaluated according to his/her skills, attitude toward patients, and whether or not he/she did everything expected. In evaluating the student’s attitude, the following points were taken into consideration: Did he/she introduce him/herself to the patients? Did they confirm whether the patient was comfortable? Were his/her hands warm enough when he/she touched a patient? and so on. These students are in their first year of medical school and they have almost finished Unit 2, which includes the cardio-respiratory-renal-system. Exposure to clinical situations occurs very early in McMaster’s M.D. programme.

4. Clerkship (Unit 6) (May-July, 1987)

According to the author’s understanding, the students serve as members of a team of doctors while they are in the ward.

1) Pediatrics

   (1) Tutorials in Pediatrics

   The clerkship tutorials differ from those of Units 1-5, are very similar to the case studies we do in Japan, and are conducted on one case each week. But the way in which this is done differs from the approach we use here in Japan. There are no prepared printed materials; rather, a student is put in charge of presenting the chief complaints, history, physical findings, and laboratory findings which in turn leads to the generation of questions by other students. Sometimes the tutor asks the students who are not in charge to give their rationale for asking certain questions or to offer hypotheses based on the data available so far. Thus, the student in charge is responsible for studying the case and providing information to other students. Likewise, the other students should analyse and solve the patient’s problem by actively questioning the student in charge. They are obliged to think and participate actively in order to get enough information to make a diagnosis.

   (2) The training session between the clerk and the pediatrician at outpatient clinic

   This was very impressive. The session was held in the afternoon, once a week in a room with a one-way mirror (conversations are audible) at the Outpatient Clinic with the co-operation of patients who visited this special clinic. After obtaining informed consent from the patient, a clerk took the history and did a physical examination, the procedures for which were observed by the pediatrician assessing the student’s attitude toward patient and mother. Assessment included the technique used to elicit the child’s cooperation, the manner in which the physical examination was done, and whether information was gathered appropriately. The student whom I observed was very good at interacting with the child and her physical examination procedures were appropriate. After completing these procedures the clerk comes to the pediatrician, offers a hypothesis and receives feedback about any deficits in the history taking or physical examination. The clerk then returns to the patient to obtain other necessary information. Following this, the pediatrician enters the room, examines the patient again, and talks with the mother and patient. One hour is devoted to this process.

   (3) Observation of some aspects of clinical patient care

   A visit to a special clinic for spina bifida, was very impressive because of the excellent service provided to both patients and their families. Good co-operation between pediatrician, urologist, orthopedist, neurosurgeon, rehabilitation physician, occupational therapist, physiotherapist, and nutritionist was evident. These health professionals
shared approximately 1 hour (at minimum, 30 minutes) for each patient. This kind of outstanding teamwork is highly commendable.

2) Surgery clerkships

(1) Hospital Site Selection

There are four hospitals at which students can do their clerkship: Hamilton General Hospital, Henderson General Hospital, St. Joseph’s Hospital, and McMaster University Medical Center. Each hospital has a Clinical Teaching Unit (CTU), which is responsible for the clerkship. Before the clerkship starts (Unit 6), the students should indicate at which hospital they prefer to do the clerkship. The clerkship (Unit 6), in consultation with the CTU, allocates the students taking into account their preferences.

(2) Duration/Course

The total period for the clerkship is 8 weeks, divided as follows:

- 4 weeks: General Surgery
- 2 weeks: Orthopedics
- 2 weeks: A surgery related subspeciality (e.g. anesthesiology, Students may also repeat general surgery.)

In each of the hospitals, 4 to 5 students do their clerkship simultaneously. Although the arrangement varies from hospital to hospital, normally there are two surgeons who are responsible for one of the students; one in the morning, the other in the afternoon.

(3) A Typical Daily Schedule

Generally, the time schedule of one student is as follows: The student arrives at the hospital at 7:00 AM and sees his/her patients with the residents, then goes to the Operating Room to join the surgical team. The student starts by performing small tasks, such as tractioning and sutting.

After the operation, the student follows a round made by a surgeon on his/her in-patients. When this is completed the student must look after newly admitted patients, first taking their history, doing a physical examination, and then writing in the record, which should be signed by a resident.

Usually, the student leaves the hospital between 6:00 & 7:00 PM, unless he/she is on call (approximately every 4 days). When on call, he/she stays overnight at the hospital.

(4) Tutorials and Resource Sessions

Tutorials are held once every week or two, varying according to the CTU in which the clerkship is done. In the tutorials, health care problems related to surgery are discussed. In addition, there are resource sessions which focus on special topics. Unfortunately, there was no opportunity to observe one of these sessions.

(5) Evaluation

At the end of the surgery clerkship, the student takes an oral examination at the hospital, given by surgeons who have not been involved in teaching him/her. This examination is designed to test the student’s basic knowledge and its application to surgical cases.

5. Other Differences in Social Background

1) Differences between the health insurance system in Japan and that of Canada

In Japan, social insurance covers medication costs and nominal consultation fees. Which do not vary regardless of who performs the examination. The health insurance system in Canada provides for a relatively reasonable consultation charge and the patient is responsible for covering the costs of medication, except for hospitalized patients. Some health insurance plans to which individuals or corporations subscribe have different types of coverage, some of which include medications and dental expenses.

2) Differences between the payment system of McMaster University and that of TWMC

In the former, doctors have certain payment ceilings and the majority receive part of their salary from the university and part from charging the health insurance system for the patient care they provide. Some professors receive their entire salary from the university because of their involvement in education and/or research. In Japan, there is a fixed salary according to the year of graduation and it does not change, regardless of how much a physician contributes to patient care or education.
3) Relationship between doctors and the hospital

Another difference between these institutions (and perhaps between Japanese and North American institutions in general) is that in North America it is more common for doctors to move from institution to institution, improving their position (sometimes moving more than once in the same year). In the case of TWMC, most staff doctors (at least half) feel that they belong to and should contribute to the development of their own medical school.

Some of the doctors at McMaster were not sure about the effectiveness of its M.D. programme. There seems to be a gap between philosophy and practice in McMaster University. The relatively fast turnover of staff may be a factor contributing to this gap. If the faculty and programme graduates who believe in the McMaster system were to stay at the institution for long periods, they could affect the way the curriculum is implemented.

**Recommendations to McMaster University**

1. **Recommendations for the Anatomy Laboratory**

   The author would like to recommend:

   That the anatomy modules be modified on the basis of input received from students. Also, to avoid students’ frustrations, the modules should be checked regularly to assure their proper functioning.

   Students should use learning opportunities (e.g. tutorial discussions) to evaluate their knowledge of anatomy in relation to clinical problems. The author does not know if prospected material is available; this is a highly effective way of clarifying anatomy and enhancing student understanding.

   Student sensitivity should be raised regarding the significance of bodies available to them for their studies. The students should be aware of the importance of the unselfish attitude of individuals who are willing, upon their deaths, to make their bodies available to the school. Perhaps the faculty could provide discussion time to allow students to reflect upon this important contribution.

2. **Recommendations to Programme Committee**

   Circumstances were encountered which indicated that opinions on the education programme, methods and even philosophy at McMaster are not understood consistently enough by faculty members who are involved in the programme.

   The author would like to recommend that unit instructors, tutors, clinical preceptors, and hopefully lecturers, have an opportunity to receive orientation for each unit and communicate with each other sufficiently to maintain high standards in their tutorials and clinical teaching sessions and to understand the objectives of each unit clearly. These contributions to education should be evaluated as a positive career aspect for faculty.

3. **Recommendations for Evaluation Methodology**

   The author found that the Triple Jump Training session was excellent in assessing the student’s learning and integration skills, but less valuable in determining knowledge base, and that it might be carried out more effectively if the examiner has expertise in the field.

   Evaluation in the tutorial sessions was very good in assessing attitude behavior and communication skills, but of limited value in assessing knowledge, particularly outside the tutor’s area of speciality. However, in the experience (Unit 2) of the author, it was very rare for students to be critical of each other and negative points were never brought up.

   The MCQs and the self-assessment package, available at the library, are presumed to be useful for assessing the student’s knowledge base, but according to the limited experience of the author (interviewing 6 students one month after completing Unit 2), two had done almost all of them; two had done half; and two had done almost none. Detailed examination of the packages revealed that they contained subject areas not covered in the tutorials. I would therefore like to recommend
that provisions be made for the students to have some formal occasion to evaluate their knowledge base in each unit.

**Recommendations to Tokyo Women’s Medical College**

Problem based learning and self-directed learning have been shown to be very effective means of learning medicine. Unfortunately, such an approach is not efficient and implementation is very difficult. Enthusiastic and committed teachers are needed as well as students with a mature attitude and the potential for self-directed, independent learning. In addition, special learning resources are required. It is essential that students are highly motivated to acquire a good understanding of the concepts and mechanisms of health and disease.

Realistically, it is reasonable to attempt to develop a system oriented curriculum in which students can learn about clinical medicine and basic science in an integrated manner. We can start with a lecture by a clinician when students are learning basic science. And small group learning with paper or real patients might enhance student motivation.

Evaluation of student performance should be done in a way consistent with the learning approach. The evaluation should be both a learning experience and a way to give feedback to the students. In this sense an oral examination like the “triple jump training session” may be most suitable. The triple jump training session is really just a formalized approach to the kind of evaluation that most students undergo during clinical clerkships. Although instructors may not be aware of it, the skills and attitudes assessed in the triple jump training session conform rather closely to those expected of students interacting with real patients. A heightened awareness of this evaluation process would allow instructors to give more meaningful feedback to students. From the view point of breadth of knowledge, however, this form of evaluation may be less valuable. Therefore, for this purpose, written examinations (multiple choice or short essay) may be more suitable. The OSCE is a very good way to assess clinical skills and the application of knowledge is of great value. But, if we were to use the OSCE, preceptors would have to be selected very carefully.

**Specific Recommendations**

Without introducing a major change in the curriculum, some changes should be considered to encourage students to develop skills in self-directed learning, problem based learning, problem solving, and critical appraisal of evidence, as well as clinical skills.

1. Lecturers should develop techniques to improve student understanding of the topic being presented and student participation should be encouraged (e.g. asking questions to facilitate student understanding of the significance of different pieces of knowledge). We can do this easily if the lecture is provided to a small number of students, although the burden on faculty will triple.

2. Lectures provide references (books, articles) and make time for discussion periods after the students have had the opportunity to read them.

3. An interviewing skills programme, including the use of videotapes for training the students in these skills, needs to be developed. A faculty member can take the role of a simulated patient and act as this patient for history taking and for certain specific physical examinations (e.g. reflexes) for junior students.

4. Student involvement in patient care during clerkships can be increased.

5. Providing clinical clerks with opportunities to review and discuss publications relevant to particular cases, such that they enhance their critical assessment of evidence skills and learn to problem solve, would be beneficial.

6. The introduction of a horizontal clerkship, aimed primarily at 4th year students, in which a practicing physician’s clinic is visited once a week would allow students to observe the application of clinical skills. Meeting real patients early in the training process helps students focus on their
long-term goals in studying medicine and to feel more comfortable in dealing with patients.

(7) Electives should be offered in various disciplines, including the basic sciences, so that students can pursue specific interests and/or compensate for areas of weakness. In addition, these blocks of time could be utilized to make up any course which a student has failed.

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調査報告 1  McMaster 大学医学教育システム見聞録

東京女子医科大学 小児科学教室（主任：福山幸夫教授）
大澤 真  木子

カナダ、Hamilton の McMaster 大学医学部は、tutorial システムを中心の教育を実施している 3 年制の大学として有名である。同大学の tutorial は、problem based learning、self directed learning、small group learning の 3 原則に基づく（特に誤解され易いのが problem based learning であり、problem centered learning ではないことが重要である）。

著者は、東京女子医科大学吉岡守正学長の命により、1987年 1 ～ 7 月の 6 ル月間、同大学で実施中の tutorial システムの本学への導入の可否を見学目的で留学した。当時本学では、卒前卒後教育調査委員会があり、著者もそれに所属していた。見聞事項の詳細は、利点も欠点も随時委員会宛報告し、同大学で収集した資料と共に本学学長室に資料として保管されている。著者の活動の簡単な記録と、著者が見聞した Unit 2 における tutorial の実際、解剖実習がないことの代償法、学生に対する特殊な評価法、特に印象に残った臨床実習の実際などにつき述べた。

本学では、tutorial と統合カリキュラムを含む本学独自の新教育システムを、1990年入学生から実施している。新システムによる教育の全過程を修了し卒業に至った者はまだなく、本システムの良否についての結論は出せる状況にない。留学以前著者個人は McMaster 大学の tutorial システムに懷疑的であった。しかし帰国時には、実行に当って、解決すべき問題があるが、その理念・方式は素晴らしいものであると確信するに至った。現在 Harvard 大学医学部もその方式をとりいれている。日本医学教育振興財団主催の第24回国内医科大学視察の会では、本学の新教育システムが注目された。

本報告書は、1987年 7 月に学長および McMaster 大学の医学部長に提出したものに少々加筆したものである。環境や状況により考えや意見は変化し得るものであり、現在読むと内容に問題がないわけではないが、当時の感想や意見を記録に残したいと考え、また、当時小児科学教室における業務を放棄しての医学教育留学を御快諾戴いた福山幸夫教授の開講25周年記念に際し、感謝をこめて投稿した。