AN ADVANCED CARDIAC CARE NURSING PROGRAMME

AN ADVANCED CARDIAC CARE NURSING PROGRAMME

BY

LESLIE PATRICIA GAUTHIER, B.Sc.N.

A Project

Submitted to the School of Graduate Studies

in Partial Fulfilment of the Requirements

for the Degree

Master of Science (Teaching)

McMaster University

August 1987

MASTER OF SCIENCE (TEACHING) (1987)
(Health Care Practice)

McMASTER UNIVERSITY
Hamilton, Ontario.

TITLE: AN ADVANCED CARDIAC CARE NURSING PROGRAMME

AUTHOR: Leslie Patricia Gauthier, B.Sc.N. (McMaster University)
M.Sc.(T) (McMaster University)

SUPERVISORS: Dr. C. Beattie, Dr. D. Holder

NUMBER OF PAGES: vi, 179

ABSTRACT

This project describes the development of a curriculum for a certificate programme in Advanced Cardiac Care for Registered Nurses, developed for implementation at a large urban community college. The author describes the process of curriculum development undertaken and presents the actual curriculum designed. The implementation of one module is presented to demonstrate that the teaching of factual knowledge and skills can be integrated with the higher level skills of problem solving. An evaluation of the implementation of the module is also presented. Throughout this project emphasis is placed on educational theory and on the practising health professional as the learner.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to the following individuals:

To my supervisors, Dr. C. Beattie and Dr. D. Holder, for their recommendations to the content and writing of this project.

To Kate Kemp, Chairman - Part Time Studies - Mohawk College, for allowing me the opportunity to pursue this project and her continual support.

Finally, to my family members, especially my husband Joe, whose continued support and encouragement contributed to the completion of this project.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

INTRODUCTION - AN HISTORICAL PERSPECTIVE

Upon completion of a basic nursing programme[1] and the Ontario College of Nurses' Registration examinations, the nurse receives a Certificate of Competency. A nurse is then said to be competent in providing safe nursing care to patients and their families. One must recognize the limitations of this certification. In basic undergraduate programmes, the nurse has been taught how to provide care for the acutely ill or rehabilitating patient, but one has not been instructed in the care of the critically ill patient which involves advanced levels of knowledge and technological skills. This situation creates a major educational problem for hospitals.

The remainder of this introduction describes, in chronological sequence, the efforts of an urban community's nurse managers[2] and the community college serving this specific geographic area to meet this educational need of the nurses. Initially the needs of critical care nurses in general were addressed and then four years later, the even more specialized needs of Cardiac Care nurses were considered.

Thus, in March 1980, nurse managers identified the need to offer a certificate programme in Critical Care Nursing in the Hamilton area. The lack of experienced and/or specially trained nurses to work in critical care areas was identified as a major problem confronting the area's hospitals. This problem was magnified by the high staff turnover rates in critical care.

A steering committee respresenting all of the Hamilton area hospitals and Mohawk College of Applied Arts and Technology was formed. By February 1981, this committee had prepared a proposal for submission to the Ministry of Colleges and Universities outlining a programme in Critical Care Nursing. This programme was organized as six modules (Introductory, Respiratory, Cardiovascular, Neurosurgical, Gastrointestinal and Genitourinary, and Psychosocial). Each module was to require one semester to complete, including approximately thirty hours of classroom time and, also, a clinical component. In the spring of 1981, the Ministry of Colleges and Universities granted approval for a certificate to be awarded to those enrolled upon satisfactory programme completion. By the fall of 1986, all of the modules combined had been offered a total of forty-one times. Two hundred and fifty Registered Nurses have to date enrolled in the programme. There have been fifty-two graduates of all six modules to date, receiving a Certificate in Critical Care Nursing.

By the fall of 1984, the nurse managers and educators from the Coronary Care Units in the Hamilton hospitals were identifying the need for further specialization. Whereas, the Critical Care Programme offered a broad overview of critical care nursing, the vast amount of knowledge and the many skills for the specialty of Cardiac Care Nursing were becoming too extensive to accommodate within the existing programme. Coronary artery disease was recognized as the number one cause of mortality in our society.[3] The advances in cardiac care nursing and medicine are rapid and as a result the nurse requires a means by which to learn the advanced

knowledge and skills not taught in the basic nursing programmes. Further, a means by which to update his/her knowledge and skills on a regular basis is needed.

As the nurse managers and educators attempted to provide a rationale for an Advanced Cardiac Care Programme, factors to be considered in developing it were noted. Hospitals lack the educational and financial resources to update their staff regularly through continuing education. Inservice programmes offered by nurse managers and/or educators during working days were usually poorly attended. This was attributed to the demanding nature of critical care nursing and the inability to anticipate unit crises which could occur during planned sessions. This problem was compounded by staffing shortages. Those continuing education programmes offered by educational companies[4] are sporadic, often expensive, and without a guarantee as to how well they meet the learners' needs. With respect to high turnover rates, the hospitals are confronted with the need to conduct extensive orientation programmes for new staff. Amongst the Hamilton hospitals, these programmes varied from two to six weeks in duration. The cost of orientating one new staff person varied from approximately one thousand two hundred dollars to four thousand dollars, excluding the cost of the teacher.

The agencies involved recognized that a programme in Cardiac Care Nursing would not eliminate the need for orientation. The Ontario College of Nurses and the Royal College of Physicians and Surgeons[5] clearly identifies knowledge and skills that are not to be included in basic

nursing programmes, but for which individual agencies and/or physicians must train and approve their Registered Nurses according to agency policy and procedures. An Advanced Cardiac Care Programme would, it was anticipated, facilitate the hospital's orientation of new staff members by reducing the amount of knowledge and skill a new orientee would require. It was also believed that if a new orientee had taken the Advanced Cardiac Care Programme, his/her adjustment to the work environment would be facilitated by reducing the learner's stress related to an overwhelming lack of knowledge and skill.

When the Provincial Government originally formed the Community Colleges, it was stated at that time that the Community College has an obligation to respond to the community's identified educational needs.[6] As a result, the Directors of Nursing of all the Hamilton area hospitals were invited by Mohawk College to send representatives from their Coronary Care Units and Critical Care Nurse Educators to determine if indeed there was a need to develop a programme in Advanced Cardiac Care Nursing and, if so, to assist in the development of a proposal for a Certificate Programme in Advanced Cardiac Care Nursing for submission to the Ontario Ministry of Colleges and Universities. The professional health care community's response was most positive. All six hospitals geographically located within Mohawk College's region sent at least one representative to the inital meeting held in March, 1985. Unanimously, the group agreed there was a definite educational need to provide an Advanced Cardiac Care Programme and that a curriculum for it should be developed.

In Part 1 of this project I will describe the discussions of the subcommittee during the curriculum's development. The curriculum itself is presented in Part 2.

REFERENCES - INTRODUCTION

1. A basic nursing programme consist of a three-year programme at a Community College or a four-year University programme.

2. The term "nurse manager" refers to the management nurse directly responsible for the supervision of nursing staff and patient care on assigned ward area. Individual agencies may employ the term head nurse, charge nurse, patient care co-ordinator or nursing supervisor.

3. Heart and Stroke Foundation of Ontario, Basic Rescuer Manual, (Heart and Stroke Foundation of Ontario, 1987), p. 4.

4. The term "educational companies" refers to private organizations or businesses that offer educational events for a monetary fee.

5. College of Nurses of Ontario, Standards of Nursing Practice for Registered Nurses and Registered Nursing Assistants, (College of Nurses of Ontario, January 1987), p. 43.

6. S. Patricia Filer, Mohawk College The Years to 1985, (Hamilton: Mohawk College of Applied Arts and Technology, 1985), p. 19.

PART I - THE PROCESS OF CURRICULUM DEVELOPMENT

PART I - THE PROCESS OF CURRICULUM DEVELOPMENT

INTRODUCTION

How does one begin to develop a curriculum? What is a curriculum? What ought to be and what ought not to be included in a curriculum? Lawrence Stenhouse, a curriculum theorist, offers the following definition:

> A curriculum is an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice.[1]

The purpose of Part I is to describe the discussions underlying the development of a curriculum for an Advanced Cardiac Care Programme. It is organized in three sections. In section 1, I describe the subcommittee's development of a curriculum philosophy, and outline those elements the group felt essential to include. The process by which the content to be included in the curriculum was determined and organized is described in section 2. The final section is an account of the subcommittee's recommendations for teaching-learning activities and evaluation.

The subcommittee consisted of five nurse managers, three nurse educators and the programme manager from Mohawk College. These subcommittee members represented a range of hospitals, from the smaller community non-teaching hospital[2] to the large urban teaching hospital which

is a regional referral center for cardiology. In essence, this subcommittee was composed of many experts in the field of cardiac care nursing. Tyler, a curriculum theorist, identified the subject specialists as a primary resource in the process of curriculum development.[3] Whereas he acknowledges that some individuals criticize the use of subject specialists for a more generalized programme, one must recognize that the ultimate goal of this sub-committee was to provide a very "specialized" programme.

I myself was a member of and brought a unique perspective to the subcommittee. While employed as a Critical Care Clinical Instructor in a large teaching hospital, I have also been actively involved in the implementation of the Cardiovascular Module in the Critical Care Nursing Programme. As an experienced teacher of cardiac nursing in two different settings, I believe I possess a critical awareness of students' needs and learning abilities and the strengths and weaknesses of the educational programmes presently in place. My presence on the subcommittee was also unique inasmuch as I wanted to be involved in both the curriculum development and in the implementation as a classroom teacher, a combination of roles strongly advocated by Stenhouse.[4]

At the group's initial meeting, my role within the group was negotiated. I would be responsible for drafting proposals, which would then be brought to the subcommittee as a document "open to critical scrutiny".[5] Acknowledging their eagerness to have the programme in place quickly and their very busy schedules, the group quickly agreed to the arrangement.

I - DEVELOPING A PHILOSOPHY

Accepting Stenhouse's definition of a curriculum, curriculum developers must consider all the essential information to be communicated. Initially the subcommittee became preoccupied with designing content lists and objectives. However, they quickly recognized that other factors had to be considered. They acknowledged that curriculum decisions would be directly influenced by how they viewed the learner, the teacher and the teaching-learning process. Freda Scales, a nursing curriculum theorist, describes a curriculum's philosophy as a statement of beliefs about the nature of nursing, the learner, the educational process and the ultimate aims of the programme.[6] This subcommittee viewed the philosophy as a means of communicating such beliefs, that otherwise might be left unsaid, and therefore, inaccessible for effective translation into practice.

In developing a curriculum philosophy, it seemed essential to include a philosophy of adult learning. The programme to be offered was not a mandatory programme, it was being developed to meet the continuing education needs of registered nurses. The management nurses believed that the hospitals involved would not be prepared to offer extrinsic rewards for completing the programme. The desire to work in a cardiac clinical area, to be more competent in performing their work and/or to be self-directed in meeting their own individual learning needs, all of which are intrinsic

factors, were hypothesized as sufficient motivating factors for the potential student. In a research project on adult learning principles, prepared for the Ontario Ministry of Education, Brundage and Mackeracher identify these motivational factors as sources for increasing self-esteem and self-actualizing tendencies.[7] Such motivation is described as a drive for positive personal growth.

Before proceeding any further with the philosophy, the sub-committee strongly believed that the motivated nurse, who puts forth the time and effort to complete the programme, should receive some form of extrinsic reward. The issuing of a certificate upon programme completion was seen as a means by which the professional health care community could formally recognize the achievements of the learner.

Knowles acknowledges that the adult learner differs from the child, in that the adult brings a lifetime of experiences to the classroom.[8] With respect to the practising health professional, the experiences, knowledge and skills of one nurse may be of great value to a colleague with different personal learning needs. Acknowledging the varying backgrounds and learning needs of potential students, the subcommittee viewed this variance as potentially enhancing the programme.

Accepting the student as both a clinical expert with valuable experiences to share and a learner with specific learning needs, the sub-committee discussed how they perceived the role of the teacher. The group viewed the teacher not as the "ultimate expert" but rather as a facilitator, one whose role was to assist the students in meeting their own

learning needs. Inherent in this role definition were two important issues. First, most of the responsibility for learning was viewed as the learners'. Secondly, the emphasis was on the act of learning, the self-activity of the learner, a means by which the learner meets his/her own learning needs.

The initial proposal, reflecting the above ideas, was presented to the subcommittee. Whereas the group agreed with the principles of adult learning presented, they felt the need to set prerequisites for admission to the programme. In the past, the Critical Care Programme admitted any registered nurse. Individual backgrounds varied greatly from those doing community and geriatric nursing to those already employed in critical care nursing. It was believed that the skills and knowledge levels of the nurse not practising in an active care setting were too diversified for effective learning of the knowledge and skills related to critical care. Members argued that the level of instruction should be appropriate for individuals who are presently employed in an acute care setting. They also felt strongly that such a prerequisite must not only be evident in the admission requirements, but also in the philosophy. Thus the teacher would not be attempting to meet too diversified a range of needs, at the expense of quality learning for the majority of students.

In the final revision, the subcommittee discussed the issue of whose needs the programme was ultimately to meet. Initially the group believed the goal was to train nurses to provide high quality care to the cardiac patient. With further discussion, the group recommended that the patient's family also be recognized as receivers of health care. In 1985,

the Ontario College of Nurses developed a framework for nursing practice.[9] Recommended in this framework was the use of the word "client" to be substituted for "patient". The College's viewpoint was that the term "patient" indicated a state of illness and implied a sense of helplessness. This sub-committee debated the specific image they wanted portrayed. Initially, they felt the programme should address the needs of the critically and acutely ill "patient". However, after discussing the scope of the community's needs to be met, the group agreed to be consistent with the College of Nurses' terminology. They decided that the programme should aim to meet the spectrum of needs from the critically ill "patient" to the rehabilitating patient adapting to a cardiac condition. Thus, the subcommittee determined the programme's ultimate goal was to provide high quality nursing care to the cardiac client and his family.

In creating a philosophy, the subcommittee had stated those beliefs they felt essential to communicate about the nature of cardiac care nursing, the learner, the teaching-learning process and the ultimate aims of the programme. This philosophy (presented in Part II), was to provide a belief system upon which future curriculum decisions were to be made.

II - CONTENT DEVELOPMENT

The subcommittee believed that essential to attempting to resolve the educational needs of cardiac care nurses described earlier, was the development of the curriculum's content outlining the knowledge and skills to be acquired. Whereas Alspach,[10] a critical care nurse educator, identifies the critical care nurse as the primary source for assessing educational needs and the secondary sources as related professional literature, area schools and an advisory committee, this specific task force weighted the sources in the reverse order, with critical care nurses consulted only after a draft document had been prepared. Recognizing the subcommittee itself was composed of many practising subject experts, the group drafted a comprehensive outline of what they believed essential for cardiac care nurses to know in order to deliver safe care.

In an attempt to refine and organize this list, I then referred to Alspach's list of secondary sources. A review of the nursing literature published in journals failed to identify a comprehensive content outline. It did, however, enlighten the author about the scope of material potentially of interest to the cardiac care nurse. In 1984, the American Association of Critical Care Nurses published the revised Core Curriculum for Critical Care Nursing.[11] This reference and the curriculum outlines presented in Alspach's book, The Educational Process in Critical Care

Nursing,[12] provided a compendium of essential knowledge for the generalist in critical care nursing. Guided by the subcommittee's outline and these two sources, I then was able to select the content specific to cardiac care.

A further source for determining content was a review of other curricula presently being taught in other settings. Copies of critical care orientation outlines from the area's hospitals were obtained. The Ontario Ministry of Colleges and Universities recognized only one other programme for cardiac care, a programme currently being offered at Humber College in Toronto. The course outlines from this programme were obtained. These outlines were useful in as much as they validated the comprehensiveness of our list and stimulated our thoughts as to the actual organization of the content, as will be discussed later.

By utilizing these resources, I had actually reviewed a number of "reports" from subject specialists as recommended by Tyler.[13] Accordingly, a content proposal was then developed and taken back to the subcommittee. The subcommittee was then confronted with two tasks - to determine if they agreed that the content outline adequately covered the educational needs, and secondly to begin to organize the curriculum content into specific courses or modules.

One of the initial discussions regarding the content organization was whether the Cardiovascular Module of the Critical Care Programme should be a prerequisite for the Advanced Cardiac Care Programme. Such an organization would be proceeding from a very general overview with

some attention focusing on detail, to material that was at a much more advanced level. This would result in repetition of content in later modules. The group believed that the classroom time could be used more effectively if such repetition never occurred. As a result, it was decided that the Advanced Cardiac Care Programme would be organized independently of the Critical Care Programme, and would not require any other course as a prerequisite.

A second organizational issue was that of how do you weight classroom and clinical teaching components. The programme from Humber College offered one course that was strictly a clinical course of one week's duration. The feasibility of a purely clinical course was analyzed in terms of clinical placements, clinical teachers' availability and the flexibility of the potential students' timetables. Unanimously, the nurse managers agreed that they could not provide a valuable learning experience for more than two students on their units at a time. Thus, in a city the size of Hamilton, there would not be sufficient clinical placements for a purely clinical course. Clinical experiences would have to be integrated throughout the courses. This decision was also expected to facilitate the transfer of the student's classroom knowledge to the clinical setting (This issue will be discussed further in Chapter 3.)

Two general principles underlay the organization of the curriculum's content. Initial emphasis was to be placed on studying the normal anatomy and physiology of the heart, followed by the abnormal. Such a principle would appear most logical to the student, for all basic nursing

curricula teach the normal cardiovascular system. The second principle was that the material should be organized on a competency basis. The nurse managers wanted to facilitate the new cardiac care staff nurses' orientation to their clinical area. They anticipated that on completing the first two of the four modules the staff nurse would be minimally competent to function in a cardiac care unit. By "minimally competent" one means the nurse could provide safe care to the patient free of complications - to those patients not requiring multiple technological interventions. The third module was seen to provide more advanced, but still essential skills. An example would be the skills needed to treat a patient who developed complications requiring a lot of technological interventions. This type of patient assignment, ideally, would only be given to the staff nurse after she had worked in the area for a specific length of time and felt comfortable and knowledgeable with the technology. Ultimately each cardiac care nurse in the large urban hospitals will require the knowledge and skills of Module 3. The smaller hospitals often would transfer the patient described in Module 3 to an urban hospital for more advanced care. The final module was seen as containing the content that would be beyond what was expected of the cardiac care staff nurse. It would contain subject matter of interest to the motivated nurse but not required of the nurse. Such content may include future technologies and/or procedures not offered in this urban area. An advanced level study of medical procedures is also included in Module 4.

In determining these principles, the subcommittee had organized the entire programme into four modules, each module consisting of between thirty and forty hours of classroom time. The exact number of classroom hours and the types of clinical experiences were to be determined at a later date when the specific content was assigned to a given module.

The initial content proposal was presented to the subcommittee for "critical scrutiny". At this time, each member was to obtain feedback on the proposals from whomever they felt appropriate. The opinions of cardiac and intensive care nurses, students in the Critical Care Programme, potential cardiac care nurses (those nurses employed on a medical floor), nurse educators, resident physicians and cardiologists, were sought.

It was at this time in the process that the committee recognized the practising cardiac care nurse as a "subject expert". Initially, the sub-committee had perceived only themselves as "practising subject experts". Recognizing the staff nurses themselves as the most valid subject expert is a concept strongly supported by Alspach.[14] Although he does not refer to the learner as an "expert", Tyler also advocates studying the learner to determine their educational needs and/or interests.[15] The staff nurses provided valuable opinions from the learner's perspective as to the basic content they felt essential to know upon entering the specialty and the content they desired to learn more about after they were established as a cardiac care nurse.

The subcommittee found the potential cardiac care nurse, the nurse working on an acute medical floor but with no critical care

experience, of little value in assessing the proposal. Their lack of knowledge of cardiac care was so significant that they were unable to comprehend the curriculum outlines and therefore were totally unable to critique the proposals. Such individuals said that they didn't know enough to know what they didn't know.

In returning with their feedback on the content proposals, the subcommittee's diversity became most apparent. Those from the regional referral hospital for cardiology felt the need for more emphasis on technological skills and advances, such as an intra-aortic balloon pump, a machine used very infrequently and only on the most critically ill cardiac patients. Those members from smaller agencies were not always knowledgeable about such technology and consequently were not convinced of the merit in allotting a large amount of classroom time to such a topic. The non-teaching hospitals strongly believed there was a need to develop excellent physical asssessment skills for their nurses, as in-house physicians were not always available. By contrast, the teaching hospitals were less dependent on the nurses' assessment skills and more dependent on their abilities to maintain technological skills.

Individual content topics were then assigned to a module on the basis of the organizational principles previously defined. The sub-committee then determined an allotment of hours for the individual topics. In determining the number of hours allotted, the educators' previous experience in the instruction of specific content and the group's views on the relevance of the content were considered. For example, each nurse

educator described the amount of time she spent instructing staff on dysrhythmia recognition. Although there were individual variances, the group decided the material could be covered in twelve hours. The group had aimed at each module consisting of ten, three-hours classes. This is the usual length of an evening course at Mohawk College. However, given the volume of content organized into Module 2, the group felt it necessary to add six additional classroom hours to allow sufficient time to cover the content. Thus, the four modules vary in the length of classroom hours.

Having determined content and its organization, the sub-committee's next task was to develop learning objectives. Three levels of objectives or goals were developed. For each module overall global objectives or goals were stated. Specific behavioural objectives were developed as a basis for determining learning activities and assessing the learner's performance. Terminal goals for the learner upon programme completion were also stated.

Initially, the subcommittee constructed behavioural objectives for the specific content in a given module. These objectives basically described the learner's performance. Conditions, describing the circumstances under which the performance must be demonstrated, and criteria of success were only stated if the group felt it necessary to explicitly communicate such information. Consistent with Gronlund's[14] approach, the group developed a clinical skills list from the general behavioural objective, to specifically identify learned behaviours the nurse was to demonstrate upon completion of a module.

The group felt it necessary to state global objectives or goals for each module. The intent of such goals was to identify the overall purpose or purposes that each module was intended to accomplish. From these goals, terminal goals were developed for the entire programme. In formulating these terminal goals, the subcommittee believed they were communicating the critical educational aims of the entire programme.

III - TEACHING-LEARNING ACTIVITIES

The subcommittee recognized that the most crucial factor in resolving the educational needs previously defined would be in the implementation of the curriculum. The cardiac care educator and nurse were both viewed as individuals with unique clinical backgrounds and strengths. As a result, it was not felt necessary to state in the curriculum proposal individual teaching-learning activities that must be strictly adhered to in the classroom. For the majority of content topics, the lecture format augmented by audiovisual aids such as slides and/or overheads was suggested as a means to provide the learner with a concise, accurate description of the material to be learned.[15] Such a "lecture" was anticipated to include an open exchange of questions and ideas amongst the students and/or teacher. Additional suggestions for teaching-learning approaches were outlined, but not considered mandatory. The actual strategies used were left to the discretion of the cardiac care nurse educator. However, in discussing teaching-learning approaches a very real educational problem became evident. Teaching must prepare the student in two areas: knowledge of the subject and the ability to apply this information in the care of patients. Historically, the inability to transfer classroom knowledge to the clinical situation has been a common problem in nursing.[16] This was a

major concern of the subcommittee. The major goal of the programme was for the nurse to provide quality care to the cardiac client and his/her family, not solely to increase the nurses' theoretical knowledge.

The subcommittee strongly believed that the student should be given the opportunity to observe and/or participate in the clinical experiences directly related to the classroom content. Such experiences, it was hoped, would reinforce that classroom content is of clinical value while also providing the student with the opportunity to apply content to varying situations. As a result, the subcommittee listed specific clinical experiences relevant to the content of each module.

A number of difficulties had arisen from earlier clinical placements in the Critical Care Programme. A clinical teacher was not provided and as a result the staff nurse had to assume additional responsibility for the learners; often the staff nurse was unaware of the learners' goals; and the teaching skills and interest in teaching of the staff nurse varied. Given this feedback, the Advanced Cardiac Care Subcommittee recommended that a clinical teacher be hired to facilitate the transfer of classroom knowledge to the clinical setting. It was also recommended that the clinical teacher be a practising cardiac care nurse in the same agency as the one in which she would instruct clinical students. In such a situation, the teacher would be familiar with unit policies and procedures, and the informal communication channels to best facilitate the students' learning. The credibility of the teacher would be enhanced as he/she would be viewed as someone who "practises what they preach". For

the units' staff, the teacher would not be an intruder, but rather a colleague. The subcommittee strongly believed there were a number of practising clinicians who would be able to negotiate their work time so as to teach and or monitor the students in the clinical setting. Thus the proposal for a clinical teacher to be present in the clinical setting became a distinguishing feature in the Advanced Cardiac Care Programme.

CONCLUSIONS

The subcommittee met five times, for a total of eighteen hours, to review and discuss curriculum proposals. These meeting times do not include the numerous hours spent by this author drafting proposals, nor the subcommittee's time in reviewing the proposals with their "content experts". It must be mentioned that the group did not always assign equal relevance to each part of the proposal. Determining a philosophy, broad goals, and objectives, were recognized as essential elements, but viewed as more of a theoretical exercise than a practical necessity. By contrast, the subcommittee enthusiastically developed and organized content lists and discussed their very real educational and service problems of facilitating the transfer of classroom knowledge to clinical practise. The diversity in the group with respect to the patient populations their agencies serve, the scope of technological interventions practised, and the resultant nursing and educational implications, enhanced discussions. Each agency's representatives had to identify those needs relevant to the total group and not just those specific to their setting, as well as the clinical experiences each agency had to offer and the limitations of a continuing education programme to meet all of the agencies' needs. Specifically, the subcommittee had to recognize that such a programme would not train nurses to function competently as staff without further training from the agency regarding specific technological procedures.

In addition, the educators and the nurse managers both brought a different and not always complementary perspective to the task of resolving the identified educational needs. This diversity is exemplified in differences over the time to be spanned by the course. The nurse managers wanted the modules to span five weeks in order to teach nurses "faster" and therefore meet the staffing shortage confronting cardiac care units. By contrast, the nurse educators wanted more time for the course to ensure the retention of the information. Thus the educational needs of the learners versus the educational needs of the agencies were in conflict.

What follows in Chapter II is the curriculum proposal for an Advanced Cardiac Care Programme. It is believed that this educational proposal is "open to critical scrutiny and capable of effective translation into practice".[17] I will outline my approach to the implementation of one module in Chapter III.

REFERENCES - PART I

1. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (London: Richard Clay Ltd., 1981), p. 4.

2. A non-teaching hospital refers to an agency that is not serviced by medical residents and/or students. Nurses employed in this setting often function alone without the physical presence of physicians.

3. Ralph Tyler, Basic Principles of Curriculum and Instruction, (Chicago: University of Chicago Press, 1949), p. 25.

4. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (London: Richard Clay Ltd., 1981), p. 223.

5. Ibid., p. 4.

6. Freda Scales, Nursing Curriculum: Development, Structure, Function, (Norwalk: Appleton - Century - Crofts, 1985), p. 11.

7. Donald Brundage and Dorothy Mackeracher, Adult Learning Principles and Their Application to Program Planning, (Ontario: Ministry of Education, 1980), p. 37.

8. Malcolm Knowles, The Modern Practice of Adult Education: Andragogy verus Pedagogy, (New York: Association Press, 1970), pp. 38-39.

9. College of Nurses of Ontario, The Standards and Levels of Nursing Practice including the Assumptive Base, (College of Nurses of Ontario, May 1985).

10. JoAnn Alspach, The Education Process in Critical Care Nursing, (Toronto: C.V. Mosby, 1982), p. 17.

11. JoAnn Alspach and C. Williams, Core Curriculum for Critical Care Nursing, (Toronto: W.B. Saunders, 1985).

REFERENCES.....cont'd

12. JoAnn Alspach, The Educational Process in Critical Care Nursing, (Toronto: C.V. Mosby, 1982).

13. Ralph Tyler, Basic Principles of Curriculum and Instruction, (Chicago: University of Chicago Press, 1949), p. 15.

14. N.E. Gronlund, Stating Behavioral Objectives for Classroom Instruction, (New York: Macmillan, Inc., 1978), p. 63.

15. N.L. Gage and David Berliner, Educational Psychology, (Boston: Houghton Mifflin Company, 1975), p. 444.

16. Julia Wong, "The Inability to Transfer Classroom Learning to Clinical Nursing Practice: A Learning Problem and Its Remedial Plan", Journal of Advanced Nursing, 4, September 1978, p. 161.

17. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (London: Richard Clay Ltd., 1981), p. 4.

PART II - AN ADVANCED CARDIAC CARE PROGRAMME

PART II: AN ADVANCED CARDIAC CARE PROGRAMME

PHILOSOPHY

We believe cardiac care nursing is both an art and a science. A programme in cardiac care nursing provides the motivated Registered Nurse practising in an active care setting, the opportunity to learn the cognitive, psychomotor and affective skills required in caring for the cardiac client and his/her family.

Such skills are not taught, but rather learned. Learning is recognized as a self-activity of the learner, whereby each adult learner brings a unique perspective to the classroom and clinical area to share with colleagues and to build upon.

It is the role of the cardiac care nurse educator to facilitate the learner's achievement of both the programme's goals and their own individual learning goals. Throughout the learning process, the educator must maintain respect for the learner as a practising professional and also as an adult learner with multiple responsibilities.

The cardiac care nurse has the professional right to learn both the art and the science through continuing education, in order to provide the highest possible standard of nursing care to the clients, their families and the community at large.

GOALS

At the successful completion of the programme in Cardiac Care Nursing, the Registered Nurse will be able to demonstrate the knowledge and ability required for managing nursing care of clients with cardiovascular system dysfunction based on a valid data base and rationale for care.

The nurse will be able to:

1) effectively use the nursing process in caring for clients with cardiovascular system dysfunction by:
   a) utilizing advanced initial and ongoing assessment skills, resulting in identification of health needs.
   b) developing and modifying a nursing care plan considering the priorities of needs, goals for care and prescribed medical regime.
   c) implementing this plan, and
   d) evaluating continuously the effectiveness of the care given according to established goals.

2) apply advanced knowledge of physiology, pathophysiology and psychology in utilizing the nursing process.

3) demonstrate special knowledge and skills in implementing current modes of care including specialized equipment and procedures.

4) participate in an interdisciplinary approach to client care.

5) demonstrate an increased knowledge of the main ethical-legal issues related to cardiac care.

6) function at an advanced level of decision-making and self-direction within the guidelines established by the College of Nurses of Ontario and the employing agency.

MODULE 1 AN INTRODUCTION TO ADVANCED CARDIAC CARE

GOALS:

1. to understand the normal cardiovascular anatomy and physiology at an advanced level
2. to perform a systematic physical assessment of the cardiac patient, distinguishing normal from abnormal findings.

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALLOTMENT OF CLASSROOM
1. to describe the functional anatomy of the cardiovascular system at an advanced level.	- Anatomy of the Heart - Systemic Circulation - Pulmonary Circulation - Coronary Arteries - Conduction System.	- lecture	3
2. to describe the principles of electrochemical physiology.	- action potential - role of calcium; (Na-K pump) - fast and slow channel cells - concepts of automaticity; refractoriness, conductivity.	- lecture	3
3. to describe the principles of cardiovascular physiology at an advanced level.	- Regulatory mechanisms in maintenance of fluid and electrolyte and acid base balance - regulation of cardiac function - factors affecting cardiac output, preload, afterload - contractility-Starling's Law - role of calcium - myocardial oxygenation demands.	- lecture	6

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALLOTMENT OF CLASSROOM
4. to identify basic cardiac dysrhythmias.	- Normal Sinus Rhythm - Dysrhythmias of the: a) SA node b) atrial c) AV junction d) ventricular e) AV blocks - For each dysrhythmia describe: a) mechanism b) potential causes c) medical and nursing management.	- lecture - practice ECG strips - film: Disorders of the Heart Beat - ECG simulator.	12
5. to describe the pharmacological action of common antiarrhythmic agents and the related nursing implications.	- Class I-IV Antiarrhythmics.	- lecture	3
6. to perform a systematic clinical assessment of the cardiac patient.	- skills of interviewing inspection palpation contemplation - blood pressure - arterial pulses - venous pressure - S_1 and S_2 - PMI - vesicular, broncho-vesicular and bronchial breathe sounds - extremities: colour, clubbing, temperature, hair distribution.	- lecture and demonstration - simulated patients.	3

MODULE 2 THE PATIENT WITH CORONARY ARTERY DISEASE

GOALS: 1. to provide advanced nursing care for the patient with coronary artery disease.

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALLOTMENT OF CLASSROOM
1. to describe the pathophysiology of vascular disease.	- atherosclerotic process - cerebral vascular disease - coronary artery disease - peripheral vascular disease.	- lecture	3
2. to describe the pathophysiology of coronary artery disease at an advanced level.	- stable angina - unstable angina - myocardial infarction - sudden cardiac death.	- lecture	3
3. to collect and analyze objective and subjective data in the assessment of the patient with coronary artery disease.	- subjective history - serum enzymes - 12 lead ECG interpretation a) site of MI b) evolutionary pattern of MI.	- lecture - case study - 12 lead ECG exercises.	6
4. to describe the diagnostic tests for coronary artery disease.	- serum enzymes - exercise stress testing - coronary angiography - echocardiography - nuclear imagery - DSA.	- lecture - observational experience (clinical) - case study.	3 + clinical experience

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALOTMENT OF CLASSROOM
5. to describe the modes of medical therapy available for the patient with coronary artery disease.	1, Pharmacological - beta blockers - calcium channel blockers - vaso and veno-dilators - thrombolytic agents 2, Mechanical - CABG - PCTA - IABP.	- lecture - observational experience - case study - video on CABG.	6 + clinical experience
6. to describe the complications of coronary artery disease and resultant medical and nursing management.	- dysrhythmias (cardiopulmonary arrest) - LV and RV failure - Pericarditis and Dressler's Syndrome - Ventricular Aneurysm - Ventricular Septal Rupture - Papillary Muscle Rupture - Thromboembolism.	- lecture	3
7. to describe the modes of artificial cardiac pacing and related nursing implications.	a) atrial b) ventricular c) AV sequential d) temporary e) permanent f) transthoracic g) esophageal h) external i) malfunctioning pacemakers.	- lecture - tours of Medtronic Plant.	3

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALLOTMENT OF CLASSROOM
8. to differentiate between the rationale, techniques and nursing implications of cardioversion and those of defibrillation.	a) electrical safety b) cardioversion c) defibrillation d) ACLS	- lecture - demonstration - mock arrest (lab situation).	2 + 1 hour lab session

9. to formulate a plan of care for the short and long term management of the patient with coronary artery disease.	- salvaging ischemic myocardium
	- problems specific to MI site
	- psychological response to MI
	- crisis theory - patient and family
	- rehabilitation
	  - exercise programmes
	  - risk factor reduction
	  - sexual counselling
	- adaptation to chronic illness.
		- lecture
		- case study
		
		- guest lecturer
			6

MODULE 3 THE PATIENT WITH LEFT VENTRICULAR DYSFUNCTION

GOAL: 1. to provide advanced nursing care for the patient with left ventricular dysfunction.

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALLOTMENT OF CLASSROOM
1. to describe the pathophysiology of CHF and cardiogenic shock.	a) RV failure b) LV failure c) Cardiogenic shock	- lecture	6
2. to collect and analyze subjective and objective data in the assessment of the patient with LV dysfunction.	- S_3 and S_4 heart sounds - murmurs - friction rubs - crackles - pulse alternans and paradoxus - hemodynamic parameters (MAP; PAP; PCWP; CVP; CO; CI; SVR; PVR) - Forrester classification of LV dysfunction	- lecture	6
3. to describe the modes of medical therapy available for the patient with left ventricular dysfunction and related nursing implications.	a) rotating tourniquets b) Phlebotomy c) Pharmacological Agents - Inotropic Agents - Vasodilators - Venodilators - Diuretics d) IABP e) Respiratory Management - mechanical ventilation - PEEP f) nutritional support.	- lecture	7.5

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALOTMENT OF CLASSROOM
4. to formulate a plan of care for the short and long term nursing management of the patient with left ventricular dysfunction.	- minimizing 02 demands - care of the mechanically ventilated patient - hemodynamic monitoring - nutritional support.	- lecture	7.5
5. to describe the moral/ethical and legal issues involved in caring for the cardiac patient.	DNRO - cessation of treatment - moral ethical theories - beneficience - normalificience - autonomy - justice - paternalism.	- lecture - guest speaker - lawyer - case study	3

GOALS; 1. to understand advanced concepts in cardiac nursing.

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALOTMENT OF CLASSROOM
1. to analyze a 12 lead ECG with respect to cardiac axis, hemiblocks and hypertrophies.	12 lead ECG interpretation a) vector, triaxial, hexaxial reference system b) cardiac axis c) cardiac axis deviations d) L and R ventricular hypertrophy and atrial enlargement e) BBB and hemiblocks.	- lecture - practice 12 lead ECG's	7.5
2. to identify ECG phenomena of mixed origin.	- aberrancy vs LV and RV ectopy - parasystoles - reentry - fusion - pre-excitation syndrome.	- lecture - practice ECG's	7.5
3. to identify advanced hemodynamic waveforms.	- pulse alternans and parodoxus - mitral regurgitation.	- lecture - practice waveform interpretation	3
4. to describe the pathology/pathophysiology and modes of therapy for patients with valvular disease, congenital heart disease, cardiomyopathies.	1. Valvular Disease a) mitral valve prolapse b) mitral regurgitation c) mitral stenosis d) aortic regurgitation e) aortic stenosis.	- observational clinical experience - lecture by cardiovascular surgeon and/or cardiovascular nurse associates.	6

COURSE OBJECTIVE	CONTENT	SUGGESTED TEACHING-LEARNING APPROACHES	TOTAL ALOTMENT OF CLASSROOM
5. to describe the medical and nursing management of the cardiac trauma patient.	- myocardial contusion - vessel rupture - flail chest	- lecture	3
6. to describe future technological and pharmacological trends in cardiac care medicine and nursing.	1. antiventricular agents. 2. implantable defibrillators and cardioverters.	- lecture - review of the literature.	3

COURSE	HOURS			CLINICAL PRACTICE
	THEORY	LABORATORY	CLINICAL	
MODULE 1	30	-	24	- CCU experience
MODULE 2	35	1	40	- CCU experience - (16 hours) - diagnostic experience - (8 hours) - CABG and ICU experience - (8 hours) - Rehab/Public Health - (8 hours)
MODULE 3	30	3	36	- CCU/ICU experience
MODULE 4	30	-	32	- ICU experience at HGH for valvular surgery. - EPS at HGH.
TOTALS:	**125**	**4**	**132**	

CLINICAL SKILLS FOR ADVANCED CARDIAC CARE PROGRAMME

1. To admit a patient to C.C.U., explaining the rationale for each element in C.C.U. routine.

2. To attach a cardiac monitor to a patient.

   a) To place and secure electrodes on patient's chest.

   b) To set initial monitor settings for alarm limits.

   c) To obtain clear ECG pattern.

   d) To demonstrate how to change and identify lead being monitored.

   e) To take appropriate actions to remove causes of ECG pattern interference.

   f) To explain the reason for each settings and the indicator on bedside monitor.

3. To obtain hourly ECG rhythm strips.

   a) To obtain clear ECG pattern on strip.

   b) To determine and record atrial and ventricular rates, P-R interval, QRS duration and Q-T interval from the rhythm strip.

   c) To identify ECG rhythm.

   d) To state characteristics of normal P wave, P-R interval, and QRS duration.

   e) To demonstrate how to adjust "gain" as necessary for wave differentiation.

   f) To demonstrate how to change a roll of ECG paper at the desk console.

4) To record a 12-lead ECG and mark (patient's name, date, time and leads) accordingly.

   a) To change a roll of paper on ECG machine.

   b) To demonstrate correct technique for standardization.

5. To demonstrate skills of basic cardiac life support for:
   i) one-rescuer technique
   ii) two-rescuer technique
   iii) monitored arrest procedure
   iv) obstructed airway technique.

6. To perform a check of the code cart.

7. To assist with defibrillation/cardioversion.

   a. To set up for emergency defibrillation.

   b. To test cardioverter output.

   c. To demonstrate appropriate paddle placements as used for different types of paddle systems.

   d. To explain procedure for or assist with cardioversion.

   e. To explain procedure for or assist with defibrillation.

8. To use a pacemaker cart.

   a. To explain different types and purposes of cables.

   b. To demonstrate how to connect cables to an external pulse generator.

   c. To demonstrate how to change batteries in an external pulse generator.

9. To care for a patient with a transvenous pacemaker.

   a. To perform/describe care of dressing site.

   b. To explain precautions taken for electrical safety.

   c. To explain function of each setting on pacemaker unit.

   d. To assess from monitor and ECG strip, whether pacemaker is
      i) functioning correctly
      ii) failing to sense
      iii) failing to capture.

   e. To assist with or observe procedure for assisting with insertion of temporary transvenous pacemaker.

   f. To describe nursing care of a patient with permanent pacemaker.

   g. To explain purpose and procedure of magnet use in testing pacemaker.

10. To implement a telemetry system.

   a. To explain rationale for this system.

   b. To attach patient electrodes for monitoring.

10. cont'd

    c. To demonstrate how to change batteries.

11. To implement C.V.P. monitoring.

    a. To assist or describe procedure for assisting with C.V.P. line insertion.

    b. To demonstrate how to set up C.V.P. manometer.

    c. To demonstrate dressing change technique.

    d. To demonstrate how to level C.V.P. for readings.

    e. To demonstrate how to obtain and record C.V.P. reading.

12. To care for a patient with an arterial line.

    a. To demonstrate how to set up, balance and calibrate transducer.

    b. To demonstrate nursing care of insertion site: taping and dressing.

    c. To demonstrate how to immobilize extremity.

    d. To demonstrate how to take B.P. readings (systolic, diastolic and mean arterial pressure).

    e. To assist with insertion of arterial catheter.

13. To care for a patient with pulmonary artery (Swan-Ganz) catheter monitoring.

    a. To provide or explain how to assist with insertion of a PA catheter.

    b. To demonstrate how to interconnect and prime all equipment and lines.

    c. To demonstrate how to set up, balance and calibrate transducer.

    d. To obtain and record the following:

        i) PA systolic and diastolic pressures
        ii) Mean PAP
        iii) PAWP.

    e. To identify the features of a normal arterial wave.

13. cont'd

    f. To demonstrate or explain how to look for:

        i) Dampened wave
        ii) Loss of tracing
        iii) Inability to obtain wedge tracing
        iv) Inappropriate wedge tracing
        v) RV tracing
        vi) Overinflation.

    g. To provide dressing change at catheter insertion site.

14. To set up equipment for cardiac output determinations by thermodilution technique.

    a. To describe or demonstrate procedure for determining CO measurements.

    b. To record results of CO determinations.

15. To demonstrate use of Doppler unit for B.P.'s.

16. To set up and demonstrate use of rotating tourniquets.

17. To assist with pericardiocentesis.

18. To perform and accurately record an assessment of CV system by:

        i) Inspection
        ii) Palpation
        iii) Percussion
        iv) Auscultation
        v) Contemplation.

19. To identify pulmonary system functions that are lost through by-passing with artificial airways.

20. To locate and name the accessory muscles of respiration.

21. To perform and record a clinical assessment of the pulmonary system by:

        i) Inspection
        ii) Palpation
        iii) Auscultation.

22. To determine the prescence and quality of the four airway reflexes:

        i) sneeze
        ii) gag
        iii) cough
        iv) swallow.

23. To locate appropriate borders of pulmonary lobes.

24. To locate and identify:

    i) Bronchial (tubular) breath sounds
    ii) Bronchovesicular breath sounds
    iii) Vesicular breath sounds
    iv) Diminished breath sounds
    v) Fine and coarse rales
    vi) Rhonchi
    vii) Wheezes/asthmatic sounds.

25. To state normal arterial blood gas values.

26. To interpret three arterial blood gas reports in terms of the patient's:

    i) Primary acid-base disturbance
    ii) Origin of the disturbance (respiratory, metabolic, mixed)
    iii) Degree of compensation
    iv) Chronic vs. acute processes
    v) Alveolar ventilation
    vi) Oxygenation.

27. To demonstrate measures to prevent complications of suctioning procedure.

28. To perform sterile nasotracheal suctioning of secretions from:

    i) Non-intubated patients
    ii) Intubated patients.

29. To perform sterile endotracheal suctioning.

30. To perform oropharyngeal suctioning.

31. To care for a patient on a ventilator.

    a) To explain rationale for PEEP.

    b) To describe complications of artificial ventilation and PEEP.

    c) To identify PEEP pressure used.

32. To wean a patient from mechanical ventilation.

    a) To identify criteria for initiating weaning.

    b) To describe how patient's tolerance for weaning procedure can be evaluated.

32. cont'd

    c) To identify indications that patient is not tolerating weaning procedure.

33. To insert and remove the following artificial airways in manikin practice:

    a) Oropharyngeal

    b) Nasopharyngeal.

34. To apply O_2 mask.

35. To apply O_2 Ventimask.

36. To insert nasal O_2 cannula.

37. To insert nasal O_2 catheter.

38. To insert and adjust flow rate on wall O_2 unit.

39. To set up and use portable O_2 tank.

40. To communicate effectively with intubated patient.

41. To prepare setup for waterseal chest drainage and verify proper functioning of the system.

42. To mark and record amount of Pleur-evac chest drainage.

43. To assist physician with:

    i) Thoracostomy or thoracentesis
    ii) Chest tube removal
    iii) Chest tube dressing change
    iv) Endo-(naso-) tracheal intubation.

44. To identify normal bowel sounds.

45. To assess a patient by palpation of the abdomen.

46. To demonstrate how to test and interpret NG drainage, emesis, or stool for occult blood.

47. To determine the degree of normality in a patient's reported:

    i) Urinalysis
    ii) Urine electrolytes

47. cont'd

iii) Serum electrolyte
iv) Serum BUN, creatinine, uric acid
v) Serum osmolarity
vi) Urine osmolarity.

48. To identify clinical and laboratory data that signifies renal dysfunction.

49. To measure and record a patient's intake and output.

50. To determine urine specific gravity with a urometer or refractometer.

51. To assess a patient's neurological status, including:

i) Orientation to time, place and self
ii) Respiratory pattern
iii) Pupil size
iv) Pupil reaction - to direct light, to consensual light, to ciliospinal reflex
v) Level of consciousness
vi) Spontaneous motor responses
vii) Strength of motor responses
viii) Evidence of decorticate posturing
ix) Evidence of decerebrate posturing
x) Seizure Activity.

52. To assess a patient for the relative presence of:

i) Hyperglycemia
ii) Hypoglycemia.

REFERENCE:

JoAnn Alspach, The Educational Process in Critical Care Nursing, (Toronto: C.V. Mosby, 1982), pp. 394-412

EVALUATION OF PROGRAMME

Ongoing documentation will be done to include:

1. course description
2. methods of evaluation of students
3. number and qualifications of faculty
4. number of students entrolled
5. number of students completing each module successfully
6. characteristics of students - education, place of employment.

There will be both formative and summative evaluation of the programme. Formative evaluation will be done through:

1. collection of opinions from students - both midterm and the end of the term
2. collection of appraisal of student performance in clinical placement
3. scrutiny of test performance and other methods of evaluation of learning
4. faculty evaluation of content and methodology.

Evaluation will also be done after the entire programme has been offered once through:

1. follow-up evaluation done of graduates of programme three months after completion of programme
2. compilation of formative evaluation
3. re-convening of the subcommittee which developed the programme.

PART III - IMPLEMENTATION OF MODULE 2

PART III - IMPLEMENTATION OF MODULE 2

In January 1986, the curriculum plans for the Advanced Cardiac Care Programme presented in Part II, were put into practice. To the nurse managers, this signified the near completion of their task as curriculum developers, the task of providing for the continuing education of their staff. For the staff nurses, the programme represented a means by which to update their knowledge and skills and receive formal recognition for their achievements. To myself, the implementation of the programme was a challenge and an opportunity to assist the cardiac care nurse in attaining the goals of the curriculum.

Part III of this project is an account of the implementation of Module 2, The Patient with Coronary Artery Disease. The actual implementation of the module is described with reference to content organization, teaching strategies and methods of programme evaluation. The term "implementation" refers only to my, the teacher's, plans for putting the curriculum into practice in the classroom. It does not include an evaluation of the outcomes. Descriptive data regarding the outcomes of the implementation will be presented in Part IV.

Module 2 was selected for discussion for a number of reasons. Of primary importance was my interest, as the teacher of the content. For the most part, the curriculum focused on knowledge and skills. However, from an educational perspective, the challenge lay in the module's goal "to provide advanced nursing care for the patient with coronary artery

disease". This application of knowledge to actual patients requires a higher level of thought than the mere retention of information. In considering the programme's philosophy, I viewed the knowledge and skills as the "science" of cardiac nursing and the nurses' ability to problem solve and individualize nursing care to specific patients as the "art". Therefore, the implementation of Module II provided me with the challenge of teaching both the science and the art.

The initial tasks in the implementation of the module were:

1) to organize the allotted thirty-six hours of content into a meaningful and logical sequence; and,
2) to develop specific objectives for each session.

An overall course schedule was developed by organizing the content in a sequence consistent with an approach which one would actually use in caring for a cardiac patient.

Joyce and Weil describe four types of educational goals for the learners that a curriculum may be designed to achieve: conditional behaviours, information-processing behaviours, social interaction behaviors and personal awareness behaviours.[1] They propose that specific models of teaching should be selected depending upon the category of the educational goal the curriculum is attempting to achieve. Throughout the implementation of this module, the learners' behavioural objectives were developed and categorized according to Joyce and Weil's four categories. This model provided me with an organizational tool from which to plan specific teaching strategies.

From the overall class schedule of topics specific conditional behavioural objectives and prerequisite reading assignments were developed for each class. Appendix A contains the course outlines distributed to the students. The objectives stated describe specific psychomotor skills to be performed and information to be retained. Those in opposition to the behavioural objective model might view these as "undemocratic" because one predetermines the learners' outcome behaviours. I believe that on the contrary, such a process was essential to ensuring the "minimal competency" of the learner and therefore protective of the rights of the health care consumer as advocated in the Public Hospitals Act. Stenhouse himself, a critic of the behavioural objectives model, acknowledges the applicability of the model in the "training" of skills and in the "instruction" of information.[2]

Consideration of the learner as an adult had major implications for providing the learner with a list of stated conditional behavioural objectives. Alspach acknowledges that the past experience of the adult learner needs more consideration than is needed for the child. In addition, the adult's learning speed may be slower than the child's.[3] By providing the students with a prerequisite reading assignment, I hoped to facilitate all the students reviewing the same information, at their own pace, dependent upon their previous knowledge levels and time commitments. Recognizing that the majority of the students would be working rotating shifts, the reading assignments would clearly delineate the minimal expectations in the event one was unable to attend class. Thus the

utilization of conditional behavioural objectives would incorporate those elements of the programme's philosophy referring to the learner's achievement of the "science" of Module II.

When one compares the objectives determined for the weekly reading assignments with the terminal objectives for the modules, a major deficit seems to exist. The ability of the nurse to formulate a plan of care for the patient with coronary artery disease involves such behaviours as the ability to problem solve, think critically, anticipate outcomes, evaluate and synthesize knowledge. Referring to Joyce and Weil's model, one would identify these behaviours as information - processing behaviours.[4] Specific teaching strategies to develop these skills will be discussed later.

Freda Scales identifies behaviours that Joyce and Weil have categorized as social interaction and personal awareness behaviours.[5] Leadership, group interactions, empathy, self-awareness, self-responsibility and flexibility are examples of such behaviours. In further analyzing the stated terminal objectives for the module with respect to Joyce and Weil's model of educational goals, I realized that such behaviours were never planned for in the curriculum's development.

If one planned teaching activities for only those objectives stated in the curriculum plans presented in Part II, the value of any "unexpected outcomes" would not be acknowledged. One could imagine the "unplanned" learning a nurse could experience by observing the patients' reactions as he/she experiences a cardiac catheterization or open heart

surgery; as one observes the interactions between a critically ill patient and his family, or as one observes the dynamics of the health care team members and how they interact and impact upon the patient and family. Such experiences may teach the student much more than the curriculum developers would have ever planned. The inability of the behavioural objectives model to account for such unexpected outcomes at any level of learning is a major shortcoming of the model which I believed must be overcome in the implementation of the module. Specific strategies to overcome this will be described later.

Three strategies to bring about specific learning experiences were used with the intent of developing the students' information processing, social interactions and personal awareness behaviours. These strategies include the actual classroom instruction and discussion, the clinical sessions and final case study assignments. These will now be discussed in detail.

Specific classroom strategies became relevant in my mind as I analyzed the course objectives in terms of Joyce and Weil's model for teaching. Each session was organized with an initial lecture with discussion format to review and/or elaborate upon the skills and/or information from the reading assignment. The lecture format provided a means of efficiently providing the learner with a large amount of factual information. Individual lectures were augmented by the use of audio-visual aids such as overheads and slides to facilitate the learners' retention of information. The sessions were not in fact lectures in the traditional

sense of that term. The approach was Socratic. Questions were continuously posed to the learners, to actively involve them in their acquisition of information. The learners' questions were welcomed at any time. Thus, the initial hour to hour and a half of class time focused primarily on the conditional behaviours.

The second hour of the class focused on learning activities aimed at promoting information processing behaviours. Specific teaching strategies involved small group discussions, problem solving sessions, inquiry training, and the use of simulated patients. Actual case studies were often incorporated into these strategies to make the activities more meaningful to the learner. Appendix B outlines the information processing activities utilized throughout the module. Freda Scales notes that the activities utilized for information processing require little use of memory other than that required for "the basis of analysis, synthesis and evaluation involved in client care".[6]

The final half hour of class was allotted for "open discussion". I asked the class during the first session if they felt it would be worthwhile to allot a segment of class time to discuss anything they felt a desire to share with the class and/or any issues related to the course. As a group, they decided to allot half an hour. I viewed this session as an opportunity for the learners to develop and/or express some of the programme's "unplanned" outcomes.

In order to enhance the reader's understanding of how specific teaching strategies were selected, dependent upon the category of behavioural objective to be attained, the class materials from Week 4

(on 12-lead Electrocardiogram Interpretation) are presented in Appendix C. The interpretation of a 12-lead is a cognitive skill. The lecture component of the class involved the giving and/or clarification of factual material as outlined in the handout. The class were given a diagnostic tool for their use. As a class, we practiced the skill of interpreting the 12-lead ECG's included in the handouts.

The teaching strategies for the information processing behaviours involved the group assignments included in Appendix C. The class was divided into four groups of four to five individuals. Each group was to discuss the case studies amongst themselves and then to present one of the case studies to the class for further discussion. In addition to promoting information processing behaviours, the above strategy reinforces principles of adult education. Value is being credited to the student as a skilled practitioner, the adult is being encouraged to share with his colleagues and differences in opinions and interpretations are being encouraged. The case study situation should have direct relevance to the students in their work situation.

During the open discussion that followed, the following issues were addressed:

1) who can record 12-lead ECG's in specific hospitals (role clarification).
2) the impact of computerized 12-lead ECG recorders.
3) how some individuals can become too concerned with the electrocardiogram and ignore the patient.

4) how different the nurses's roles are in a teaching and non-teaching hospital with respect to 12-lead interpretation.

These issues are examples of social interaction and personal behaviours.

The classroom experience is just one component of the implementation of Module 2. In addition, the subcommittee identified four clinical experiences as outlined in Appendix D. In the application of adult principles of education, the learner could request an exemption from any or all of the experiences, on the form included in Appendix D, if he/she believed they had significant previous experience. Exemptions were considered on an individual basis considering the nurses' rationale. For example, a nurse employed in the C.C.U. could obtain an exemption from the coronary care unit experience, but not the open heart surgical experience. If a nurse observes echocardiograms performed on a daily basis she could receive an exemption from this experience. By contrast, the learner who requests an exemption because she observed an echocardiogram being performed five years ago would be denied an exemption. Students not exempt from clinical experiences were then asked to self schedule their clinical experiences on a master calendar, ensuring they had attended the appropriate session prior to the scheduled class discussion.

The learner's clinical experiences were also organized in light of Joyce and Weil's models of teaching. With respect to the coronary care unit experience, the planning committee had identified specific skills to be mastered upon programme completion. From this overall list, a specific

skill list for conditional learning behaviours was developed (Appendix D). These skills were to be mastered through practice in the clinical area under the supervision of a clinical teacher. It is interesting to note that the clinical teacher for this particular course was so concerned with the transfer of classroom knowledge to the clinical, that she attended classroom sessions on her own time in order to achieve consistency in her approach to the knowledge and skills. Learning objectives to be achieved were given to the students only for the C.C.U. experience. Objectives for the other three expriences were intentionally not given to the learner. The learner was instructed to "observe" the procedure and return to class prepared to discuss their observations. Whereas it was anticipated that such an experience would reinforce the information presented in the prerequisite reading, I also hypothesized that many "unplanned" outcomes might result.

By implementing the reading assignments, specific classroom and clinical experiences, it was planned that the student would be learning new knowledge and skills. What remained to be addressed was the integration of the course's content in its entirety. The final case study assignment presented in Appendix E was designed to attain such integration and synthesis. The assignment was intentionally left very flexible. It was not to be solely a means to measure the learners' achievement of the conditional behavioural objectives, but was also to indicate the learners' ability to process information guided by their understanding of the subject matter. This assignment was to be submitted the final night of class. The

marked assignment with constructive feedback would be returned to the student through the mail.

Although for the most part, this module's implementation has been based on the behavioural objectives model, definite shortcomings exist in utilizing this model as an evaluation tool. Tyler and Popham believe that the success of a curriculum should be judged by the extent to which the behavioural objectives are met.[7] Congruent with this model, student performance was assessed through weekly quizzes on the previous week's lecture and required readings and two examinations (Appendix F); a demonstration of skills and the completion of a written case study. However, such an evaluation of the curriculum is incomplete if one accepts Stenhouse's definition of a curriculum presented in Part I of this project.[8] The evaluation should scrutinize not only the learner's performance, but also all those essential principles and features of the educational programme - including the teacher, the teaching-learning strategies and the school. Evaluation of this module followed Cronbach's guidelines of evaluation for course improvement, administrative regulation and decisions about individual students.[9] Appendix G presents the course evaluation required by Mohawk College and an evaluation tool designed by this author.

It is the purpose of the final part of this project, Part IV, to evaluate the implementation of Module 2. The data collected and the implications for future use of the module will be examined.

REFERENCES - PART III

1. Bruce Joyce and Marsha Weil, Models of Teaching, (New Jersey: Prentice-Hall, 1972), p. 342.

2. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (Great Britain: Richard Clay Ltd., 1981), p. 81.

3. JoAnn Alspach, The Educational Process in Critical Care Nursing, (Toronto: C.V. Mosby, 1982), p. 113.

4. Bruce Joyce and Marsha Weil, Models of Teaching, (New Jersey: Prentice-Hall, 1972), p. 342.

5. Freda S. Scales, Nursing Curriculum Development, Structure, Function, (Norwalk: Appleton-Century-Crofts, 1985), p. 46.

6. Idem., p. 72.

7. Ralph Tyler, Basic Principles of Curriculum and Instruction, (Chicago: The University of Chicago Press, 1949), p. 105.

8. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (Great Britain: Richard Clay Ltd., 1981), p. 4.

9. Ibid., p. 98.

PART IV - EVALUATION

PART IV - EVALUATION

The final section of this project, Part IV, is devoted to the topic of evaluation. As previously stated, the evaluation of this programme was done in order to improve the course and to make decisions about administrative regulation and the students. This section is organized into two main components; an evaluation of the implementation of Module 2, and a concluding discussion addressing the major educational issues that have surfaced during all phases of this project.

I

In the evaluation of Module 2, a description of the learners and the learners' performance are discussed. Sources of evaluation data include: the learners themselves, the clinical teacher, a cardiac care nurse educator who was involved in the teaching of Module 1 and attended Module 2's classes as an observer, and the subjective perceptions of myself, the classroom teacher. A significant outcome of implementation of Module 2 is the development of the classroom teacher, not only as a curriculum designer but also as a curriculum researcher. Stenhouse strongly advocates such a role, acknowledging that one of the teacher's goals is to better understand his/her classroom.[1] I will now proceed to

describe the data obtained and the decisions for improvement in the course that have resulted.

In January 1987, twenty-five students registered for Module 2. By the second week of classes, four students had withdrawn. One of these students was employed in a post-anaesthetic recovery room. The other three ladies resigned from their workplace in a coronary care unit, to work in different speciality areas. Each of these ladies stated that they had felt pressured from their head nurse to attend this course. Two additional students withdrew in the final weeks of the course. One student, employed on a surgical ward, had missed three weeks due to vacation and a family member's death. The other student decided to leave the coronary care unit in which she was employed and she stated she was no longer motivated to put forth the amount of commitment necessary to complete the module. In summary, all of the six students who withdrew from the programme were either not employed in an intensive or coronary care unit or they resigned from a coronary care unit. This data supports the principle that in general adults' learning needs are related to their current life situations.[2] The remainder of the discussion of the learners is concerned with those individuals who completed the course.

TABLE 1: - LEARNERS' CLINICAL AREAS OF EMPLOYMENT

NUMBER OF STUDENTS	EMPLOYMENT AREA
11	Staff R.N.'s in Coronary Care Units.
1	Staff R.N. in an Intensive/Coronary Care Unit.
2	Staff R.N. I.C.U./C.C.U./P.A.R.R.
2	Critical Care Instructors
1	Staff R.N. - Cardiac Catheterization Laboratory.
1	Staff R.N. - Medical Floor
1	R.N. Supervisor - Non-teaching Hospital.

Table 1 outlines the clinical areas of employment of the nineteen students who completed Module 2. Ninety percent of the students who completed the module were directly involved in caring for critically ill cardiac patients on a daily basis. Sixty-five percent of the students were employed in the hospital that is the region's cardiovascular referral center.

In designing the Advanced Cardiac Care Programme, the subcommittee had initially believed the programme would be of interest to nurses who desired to obtain employment in a cardiac care unit. Table 1 reveals that only two of the individuals who registered were not at the time involved in the care of acute cardiac patients. These two nurses, both from a community non-teaching hospital, stated that they were taking the course for interest only.

Andrea O'Connor conducted a study of 843 nurses to determine why nurses participate in continuing education.[3] This study revealed that the number one motivating factor was the desire to increase one's professional knowledge. Thus, I would hypothesize that the desire to update and/or increase their knowledge levels in their area of employment was a major motivating factor for attending this module.

I will now focus on the evaluation of the clinical experiences. In Part II of this project, the reader was provided with the subcommittee's rationale for the organization of the curriculum's content into modules. It was noted that the subcommittee put into Modules 1 and 2 the basic content and skills that the beginning nurse in an intensive or coronary care unit should posssess to safely care for a cardiac patient who does not require a lot of advanced level skills. In evaluating the learner's rationale for exemption from the clinical component of Module 2, the programme manager from the college and myself considered whether the student was currently employed in an I.C.U./C.C.U. Those so employed were exempted. Students were not excluded if they had the requisite experience but felt that they would like to learn from a C.C.U. experience with a clinical teacher present. However, every student employed in an I.C.U. and/or C.C.U. requested an exemption.

There were only three students who were required to complete the C.C.U. clinical experience. One of these ladies was employed in a cardiac catheterization laboratory. In a discussion with this student, we reviewed the clinical skills list for this experience and together

determined that this student practised a large number of the skills on a daily basis in her work environment. The student still needed, however, to gain insight into the Coronary Care Unit protocols and to observe patients in this environment. As a result, I negotiated with this student a requirement of only eight of the twenty-four hours of clinical experience. This situation is an example of the practising of adult education principles, whereby the past experience of the adult is acknowledged. The decision to conduct an individual assessment of the learner is recommended in the literature.[4]

All three of these students who participated in the I.C.U. experience stated that they did not really enjoy the experience. In follow-up discussions with the students, they all stated that the unit was very quiet on the days they attended and they were hoping to see more excitement. The students felt they spent most of their day observing other nurses perform skills they were not permitted to perform.
By hospital policies only those nurses employed, trained and tested by the hospital programme can perform Added Nursing Skills and Sanctioned Medical Acts. The students acknowledged that they were, however, able to complete the clinical skills listed for Module 2.

The clinical teacher confirmed the learners' statements. The unit was exceptionally quiet and all the patients were stable during the clinical experience. This situation was magnified for the C.C.U. was also orientating new staff during the same time. The C.C.U. orientees were assigned to the most critically ill patients.

In terms of programme revisions, one could not plan for the level of patient acuity in a clinical area. However, we recommended that students from the Advanced Cardiac Care Programme not be scheduled for clinical on the same days as new staff on orientation. Both the clinical teacher and I commented on the unplanned learning that occurred out of these quiet experiences. Whereas the students desired excitement, they were faced with the reality that there are quiet days in a Coronary Care Unit.

One of the subcommittee's major concerns was the transfer of classroom knowledge to the clinical areas. I had the opportunity to observe the clinical teacher teaching, for the coronary care unit utilized for this experience was at the hospital where I am employed. From my observations and discussions with the clinical teacher and students, I felt this goal was attained. Specifically, the clinical teacher used such classroom handouts as the diagnostic tool for 12-lead E.C.G interpretation and the outline for physical assessment of the chest pain patient, during the clinical. A large majority of the clinical experience was to focus on patient problems and the nursing interventions. On a number of occasions, I overheard the clinical teacher asking the students "Now what did you hear about this in class?". The clinical teacher also borrowed my classroom audiovisual aids to review specific content encountered during clinical sessions. I would conclude that this particular clinical teacher strove to attain consistency. However, I must address a number of factors I feel contributed to this success. Firstly, I, the classroom teacher,

recommended the clinical teacher. Obviously, I would suggest an individual who I believed "practiced what I preached". Secondly, we were both employed by the same hospital in which the clinical experiences occurred. My final comment is to again make the reader aware of the high motivational level demonstrated by the clinical teacher. She attended class sessions on her own time to familiarize herself with the content emphasis and the learners' knowledge levels. One must recognize that each of these factors contributed to the success of the clinical teacher's role.

The students unanimously stated that they found the Open Heart Surgery and Cardiac Catheterization experiences to be most worthwhile and exciting. During the class discussions, they commented on how beneficial and unforgettable they found it to actually see a heart and the coronary arteries. I believe these experiences promoted learning and retention, and as I had anticipated, the students experienced a great deal of unplanned learning. Specifically, they commented on the perceived expense of the procedures, cost benefit analysis of the procedure of coronary artery bypass grafting, the team work involved in the procedures, and the role of the heart lung perfusionist. In addition, one particular student commented that a cardiologist had spoken very positively about the Advanced Cardiac Care programme during a catheterization. Thus I would conclude that a great deal of unplanned learning occurred during these procedures for everyone involved.

In discussing the students' other diagnostic experiences, a major difficulty that occurred with all the clinical placements became

evident. There were major communication problems between the college and clinical areas in arranging and confirming the clinical placements. Students were to schedule their clinical placements prior to January 20, 1987. I then submitted these dates to the programme manager who was to confirm them with the agencies involved. The students were all instructed to call the day prior to their open heart surgery experience, just in case the procedure was cancelled. On many occasions, the liaison person for this experience did not know the student was coming. Aware of the programme, however, the liaison person always accommodated the student. For the diagnostic procedures, students were only to arrive at the scheduled time. On many occasions, the clinical area was unaware of the students' scheduled time. Whereas they always permitted the student to observe the diagnostic test, both the agency and the student were left with negative impressions. In addition, the nurse from the cardiac catheterization laboratory stated that they were never informed of students who withdrew from the programme and the resultant cancellation of their clinical experience.

These scheduling problems have major implications for future organization of coronary care unit experience. The nurse manager from the coronary care unit must be notified in writing of the students and scheduled dates prior to the experience. This arrangement had been previously negotiated with the college and the agency in order to protect the patients from a potential "student imposter". I realized on the Friday prior to a Monday, when a clinical experience was scheduled, that the head

nurse had not been notified. The programme manager was positive the memo had been sent in the mail. The implications for the student were significant. This particular student had to take a leave of absence without pay from her employer to attend the clinical. I recognized the C.C.U. nurse manager would refuse the student unless arrangements were made. The programme manager from Mohawk College spoke with the nurse manager on the Friday evening and the student was accommodated. However, at this time, it was realized that orientees would also be on the unit at the same time and their learning would be the priority.

Why then was such vital communication a problem? I believe two main factors contributed to the situations. First of all, not all the students were able to submit clinical dates by the specified deadline. For those working shifts, their work schedules were only posted six weeks in advance; for others, there were babysitting arrangements to be made and/or negotiations with one's employer for time off work during the day. A second major problem was the conditions in the college. The chairperson for Part-Time Studies was terminally ill and passed away just prior to the implementation of Module 2. As a result, the programme manager assumed all these additional responsibilities without any increase in staff. This situation has just now been rectified.

For future implementations of this course, I would design a handout on clinical placements for distribution to the students prior to the first night of class. Students would be given specific scheduling restrictions as previously determined by the clinical agencies (for

example, schedule percutaneous transluminal coronary angioplasty on Tuesdays only). The students would be requested to come to class the first night prepared to schedule their clinical experiences. I recognize this could not occur without the co-operation of the nurse managers in scheduling the learners' work time. I believe this could be accomplished by the programme manager asking the nurse managers involved to show their support for the programme in accommodating their staff's schedules.

With a list of names and dates fixed early in the course, the College could then send each agency involved their respective lists. Each student would receive a confirmation letter of experiences, dates, times, the name of a liaison person and a telephone number. Communication with the clinical agencies would also be enhanced by an increase in the frequency of communication between the college and the agencies.

The final clinical experience to be evaluated was the McMaster Turtles Rehabilitative Programme. The learners were to observe a patient during an exercise prescription and then to observe a small group discussion for cardiac patients and their spouses. The students' feedback was very positive. Many commented that by working in critical care they had a very narrow view of the problems facing the cardiac patients as they returned home.

The scheduling of this experience was not a problem for the students. On the first night of class, the students were provided with a list of group discussion topics and dates, and the students selected a date to attend. The co-ordinator of Turtles' Programme received a list of dates

and names by the second week of class. However, the problem that became evident during my discussion with the Turtles' programme co-ordinator was that not all of the students attended the session. Since the programme co-ordinator had not been requested to keep attendance records, she could not provide me with a list of specific individuals. I myself did not learn this until after the course's completion. This feedback also made me question whether in fact all the students attended the other clinical experiences.

Why then did individuals not attend clinical sessions? If in fact they had previously observed the experience, they could have been exempted from an experience. I hypothesize that the lack of attendance was perhaps directly related to those factors which motivated the nurse to attend the programme in the first place. One must recognize that the adult with multiple responsbilities is a very busy, time conscious individual who would determine which of the clinical experiences were the most important to attend. I believe that by not assigning any grade on these parts of the course, the learner may have attributed them to little worth. In future courses, I would have the students have a list signed for each of the clinical experiences, signifying their attendance. In addition, I would construct test questions for the appropriate weekly quiz that would require the learners' reflection on what they observed during a specific clinical session.

Brundage and Mackeracher say that when adults are forced to attend an educational event, they will behave as if they were non-voluntary

learners.[5] Poor motivation and attendance may result. These authors caution against becoming more restrictive about attendance, suggesting that the learner should be made to feel more like a voluntary learner. On the contrary, I believe that for this programme the college has the responsibility to ensure all students experience the clinical sessions designated mandatory by the subcommittee, unless the learner can provide sufficient rationale for exemption.

Throughout the evaluation of the clinical experiences, communication between the learner, classroom teacher, programme manager, and the agencies involved was identified as a major problem. This problem will only be intensified as the number of students enrolled in the programme, and the number of modules being offered simultaneously, grows. This problem was discussed in detail with the programme manager who believes that a programme manager specific for the Advanced Cardiac Care Programme will be required. This role will be discussed in greater detail in the conclusion of this project.

We shall now focus on the evaluation of the classroom experiences. Appendix H summarizes the Student Report on Instruction Questionnaire (SRI) for Module 2. Consistently, the students responded positively to all the categories. A "dissatisfied" response was given from one student for the category "provided written outline of course". I cannot interpret this comment since every student was given the material (see Appendix A). Eighteen students also completed the open-ended questionnaire included in Appendix G.

The first night of class, a major problem in the course's organization became evident. Whereas, the curriculum proposal allotted thirty-six hours for classroom time, the college incorrectly advertised and registered students for a thirty hour course. For the learner, extending the course by two additional weeks interfered with vacation plans of six students (the March break for parents of school aged children) and work schedules for another four. With the programme manager from Mohawk College present, we compromised with the students, to add one three hour session for a total of thirty-three hours and to make individual appointments for the final examination if the students were unable to attend.

In spite of this initial difficulty, the students commented that the course was well organized and the content relevant. However, consistently they commented upon the large amount of content covered and its high level of difficulty. They felt the need to increase the course's hours. Unanimously, they commented that the content was very applicable to their on-the-job assignments. This is not surprising given the majority of the class were employed in Critical Care areas and in some cases in the region's major referral for cardiology (see Table 1).

Whereas no student commented negatively on the SRI Questionnaire with respect to the course's workload, variations in the students' behaviour were evident in the classroom during the implementation. During the lecture portion of the class, I found the majority of students unable to answer factual questions. On a number of occasions, I found myself asking the classroom observer and/or the clinical

teacher present if my questions "made sense". I also noted the tendency of students to write down exactly the material on my overheads even though the material was usually obtained from their reading assignments. This desire to make notes was confirmed on the open ended questionnaire where nine students requested detailed notes of my lecture material as handouts.

As a result of the students' inability to answer questions and their concern for note taking, I found myself short on time. The utilization of time progressively became a greater problem, for as each week passed, the students were requesting more and more of a review of the previous week's material. By the week of mid-term, I found myself almost duplicating the previous week's material in a review session. Initially, as previously stated, I questioned my ability to question the students. However, both the classroom observers and the students identified my ability to question as a teaching strength. I then questioned my expectations of the learners with respect to content retention and levels of difficulty. In a discussion with the classroom observer, a cardiac care nurse educator, she acknowledged that the content level was appropriate. Together we concluded that the majority of students were not coming to class prepared.

I confronted the class with my observations during the mid-term course evaluations. I also told them that I had anticipated that the content level may have been more advanced because the majority of students had clinical backgrounds. At this time, three students stated that they never did their reading assignments, four stated they consistently

completed the prerequisite reading, and the majority of the class stated that they never had time to complete the required readings. Table II outlines the hours the students reported reading and studying. Unanimously, however, every student identified the purpose of the prerequisite reading as to prepare them for the lecture.

TABLE II - REPORTED HOURS SPENT STUDYING AND READING

	Reading	Studying
0-1	3	4
1-2	2	6
2-3	5	1
3-4	4	4
4-5	1	1
5-6	1	-
6-7	-	-
7-8	2	1
No Response	-	1

If one accepts the notion that the purpose of evaluation is decision-making on course revisions, then the above data indicates a conflict between expectations and reality. Three individuals clearly stated during a class discussion, "you get out of a course what you put into it" and "after all we are not children needing to be spoon fed". However, the majority of students did not want a prerequisite reading assignment, they viewed my role as the content expert who would provide them with the essential information.

In an attempt to analyze the above situation, motivational levels became an important consideration. Brundage and Mackeracher[6] describe two types of needs for which the adult seeks educational experiences: career oriented needs and affiliation needs. Those motivated by career oriented needs strive to become more knowledgeable and skilled, whereas those motivated by affiliation needs seek to be socially accepted by the group. If one analyzes the demographic data on the learners, fifty percent of these learners were from one specific coronary care unit. One should also consider that although these students were voluntary learners, as contrasted with children, they may have felt external pressure to attend the programme. Andrea O'Connor's study, previously mentioned, identified compliance with authority as a contributing motivational factor.[7] Motivation to fulfill acceptance needs and/or comply with authority would promote dependent behaviour in the adult learner. My observations of the class supported the above conjecture: the most dependent behaviours exhibited were from those learners employed in the same coronary care unit. It is important to mention here that the classroom observer independently validated my observation.

In addition to the learners' motivational needs, I hypothesized that the educational background of the learner and their developmental stage influenced their dependency behaviours in the class. Five of the students obtained their Bachelor of Science in Nursing from the same university. Consistently these students came to class well prepared and able to apply the material during the information processing exercises.

By contrast, the majority of students who came to class ill-prepared were diploma nursing graduates from a community college or a hospital school of nursing. I hypothesize that the university prepared students were more self-directed in their learning as a result of their university training.

In an article on andragogy, Tibbles[8] proposes that the primary determinant of an adult's readiness to learn is the developmental stage of the individual. My observation of the learners' performance supports this view. Two of the three oldest students in the class with older children were consistently well prepared for class. According to Havinghurst,[9] these students would have more energy to re-invest in their self-development. However, the majority of the students were in their twenties, and mothers of young children. One can identify with the multiple commitments these students face in addition to their professional development. One might hypothesize that an evening out at class might truly be "socially" motivated for such an individual.

Given the above discussions, how does one modify the implementation of the module? In evaluting my role as the classroom teacher, I believe my major shortcoming was in fostering dependent behaviour. Out of concern for students' learning, I increasingly allotted more time for review of factual information. In retrospect, I believe I would have supported the curriculum's philosophy, that learning is a self-activity of the learner, if I had referred students to specific references as opposed to providing them with the "expert's answer". In all fairness to the learner, Module 1's classes were very much information-

giving sessions. At the start of Module 2, I believe I could have been more decisive about the purpose of the reading assignments and my expectation of the learner to come to class prepared, having done the required readings. Perhaps I needed to clarify that all the readings given were not required, only those specifically identified as "required readings". I then needed to be consistent in the implementation of the module.

The students' lack of preparation for class greatly affected the information processing exercises. Those students who used the lecture portion of the class to clarify factual material they were uncertain of, and to reinforce their previous learning, did very well at these exercises.

However, those who were unfamiliar with the content had greater difficulty in applying the theory to a case study, or in attempting to "run" a cardiac arrest, or in troubleshooting a pacemaker. As previously stated, time became a precious commodity as the students requested more review sessions, and I inappropriately sacrificed time from the information processing exercises to answer all the "content" questions.

The final aspect of the implementation of Module 2 to be evaluated is the students' performance. Table III outlines the students' attendance and grades as determined by the weekly quizzes, examinations and the final case study assignment. Tyler, identifies the need to pretest individuals prior to the course's implementation in order to determine the extent of learning that occurred.[10] This was intentionally not done with this module because of time constraints and a concern that the students

TABLE III - SUMMARY OF STUDENTS' GRADES

STUDENT	ATTENDANCE	QUIZ #1	QUIZ #2	QUIZ #3	MID-TERM EXAM	QUIZ #4	QUIZ #5	QUIZ #6	FINAL EXAM	CASE STUDY ASSIGNMENT
1	10/12	60%	76%	67%	75%	57%	40%	90%	72%	60%
2	11/12	91%	89%	95%	80%	84%	86%	67%	80%	60%
3	12/12	96%	89%	95%	87%	94%	85%	97%	89%	70%
4	11/12	94%	97%	90%	78%	81%	72%	63%	73%	not done
5	12/12	84%	89%	95%	89%	90%	85%	87%	86%	90%
6	11/12	96%	100%	95%	92%	93%	91%	88%	91%	80%
7	11/12	86%	92%	95%	78%	53%	46%	77%	80%	80%
8	12/12	67%	87%	87%	62%	68%	69%	80%	50%	60%
9	10/12	86%	84%	82%	66%	74%	44%	73%	75%	70%
10	8/12	98%	100%	85%	86%	86%	90%	83%	85%	70%
11	12/12	92%	89%	82%	75%	70%	57%	50%	68%	60%
12	12/12	97%	97%	100%	92%	100%	95%	85%	77%	80%
13	11/12	94%	100%	92%	87%	80%	82%	83%	75%	60%
14	11/12	95%	95%	95%	92%	86%	86%	80%	80%	60%
15	12/12	86%	97%	90%	82%	71%	54%	45%	70%	60%
16	9/12	98%	100%	60%	63%	90%	67%	75%	92%	not done
17	9/12	73%	87%	90%	66%	54%	50%	90%	69%	70%
18	11/12	90%	100%	97%	91%	97%	92%	100%	95%	90%
19	11/12	90%	100%	70%	87%	91%	89%	65%	85%	60%
AVERAGE MARKS:		88%	93%	87%	80%	80%	73%	77%	78%	69%

attain the terminal objectives independently of their knowledge and skill level prior to implementation. The students' marks did in fact demonstrate that those individuals who did not directly apply the knowledge in their work situation performed the poorest in a criteria-referenced evaluation. All nineteen students successfully completed the module by obtaining a grade of at least sixty percent and by completing the skills list when required.

In analyzing the quiz and examination marks, I have two specific comments. First of all, I question the validity of the quizzes as an indicator of long term retention of knowledge, especially in light of the longer review sessions that the learners were requesting at the beginning of the class. Whereas such reviews reinforced content, I believe they also enhanced performance on the quizzes. Secondly, the lowest marks attained were for the quiz on pacemakers. A guest speaker lectured on this topic and the class almost unanimously expressed dissatisfaction with his content level and delivery. I believe the learners' lack of preparation for class, as previously discussed, contributed to this problem.

Seventeen students completed the case study assignment. The two students who did not complete the assignment stated that they felt for ten marks the assignment was not worth their time and effort. Of the seventeen who completed the assignment, one student designed her own case study, four completed Case Study #1 and thirteen completed Case Study #2 (Appendix E). A most interesting aspect to the case study was analyzing what component of the patient problem the learners developed. Almost half

the learners chose a patient problem which they do not encounter on a daily basis in their workplace. Specifically, a nurse from a smaller, less invasive coronary care unit discussed patient problems related to intra-aortic balloon pumping, a procedure which she observed during her clinical experience, but which she will not see in her present workplace. Another nurse from the cardiac catheterization laboratory described patient problems encountered during the coronary care unit phase of a client's/family's illness; and a C.C.U. nurse discussed patient problems related to coronary artery bypass grafting, a procedure for which patients in her hospital would be transferred to the regional referral center.

The other half of the group wrote on patient problems they would see on a daily basis. Again the majority of this group were from one C.C.U. and wrote on the client experiencing acute chest pain. To my initial surprise, these assignments did not indicate higher levels of integration in comparison with the assignments of those who did not frequently encounter the patient problems in their work. If one considers the previous discussion of lower motivational levels, such an observation appears more reasonable.

Table IV summarizes the students' feedback about the case study assignment. Based on the students' feedback and my observations in marking, I believe that the use of case studies throughout the module and this final case study did meet the objective to promote integration and synthesis of material. However, this objective might have been more fully evident if more than ten marks had been allotted to the assignment. In

retrospect, I hoped to accomplish a great deal with the assignment and I didn't assign it a weighting appropriate to its perceived value.

TABLE IV STUDENT FEEDBACK ON FINAL CASE STUDY ASSIGNMENT

Comment	Number of Responses
1. Helped pull the content together.	4
2. Difficult.	1
3. Time Consuming.	2
4. Needed more patient data.	2
5. Liked the option of selecting my own patient.	2
6. Too much work for 10 marks.	2
7. Okay.	1
8. No comment.	4

I believe the students' comments regarding the degree of difficulty and time commitment involved indicate that they share my judgement.

In attempting to be flexible to meet the needs of adult learners and respect their additional commitments, I was very flexible about the submission date for this assignment. Eight students were granted extensions for the assignment. In view of this, I was unable to discuss the assignments with the total class. Individual assignments were graded and comments given. They were then returned through the mail to students. Whereas such flexibility is in accordance with the principles of adult

education, it definitely excluded the learning that might have occurred if the entire class had discussed their specific case studies. In any future implementation of the module, I would increase the value of the assignment to 25 marks, equal as a proportion of the final grade to each examination and all of the quizzes. The value of the quizzes, which are more of an evaluator of short term retention, would therefore be reduced. I would again be flexible with the adult learner regarding submission dates, at the expense of maximizing the information processing potential of the case study assignment.

In summary, I believe that the implementation of Module 2 was successful in terms of the learners' achievement of the planned cognitive and information-processing behavioural objectives. Personal awareness and social interaction behavioural objectives were also achieved. I have hypothesized that the extent to which individual learners achieved these objectives through prerequisite reading assignments, and classroom and clinical experiences, was directly related to the individual's motivational levels, educational background and developmental stage. In analyzing the workplace of the learners who completed Module 2, it seems apparent that the major motivating factor was the nurses' desire to increase his/her professional knowledge. There was also in my opinion evidence to suggest compliance with authority may have been a contributing factor.

Specific suggestions for course improvement have been discussed throughout this evaluation. With repect to myself, the teacher, specific feedback was very positive. However, I strongly believe I could have

better facilitated learning by promoting self directed learning behaviours and by formally assigning an appropriate mark for the completion of each aspect of the course.

The third purpose of evaluation according to Cronbach is decision making for administrative regulation. The major weakness revealed in the implementation of Module 2 was the communication problem among the college, clinical agencies and the adult learner. This specific problem has major implications for the entire programme. I view the college's role is essentially to maintain positive relationships with the clinical agencies and the adult learner. Whereas I believe all the parties involved have accepted Module 2's problems as "growing pains", I do not believe we can afford to experience the same comunication problems in the future. At present, the health care community is most supportive of the programme - the medical director of the regional hospital for cardiology's C.C.U. has written the college to praise the programme's development. Community hospitals are requesting that components of the programme be offered in their community, and I have entertained numerous requests for information about the programme from staff nurses. I believe that the community college has a responsibility to respond to this positive reaction and strive to achieve effective communication with all involved. Currently, the college is considering creating the position of a programme manager for the Advanced Cardiac Care Programme. Such a person would negotiate clinical experiences, respond to programme inquiries, and enhance the health care community's understanding of the programme's goals and objectives.

II

I will turn now to a discussion of two major educational issues that have surfaced during this project. The first is the issue of challenge examinations and the second is a conflict that has emerged between the educational needs of the hospitals and those of the learners.

Following the implementation of Module 1 in 1986, the curriculum subcommittee reconvened. During this meeting, one particular nurse manager expressed the concerns of her staff that they were unable to write a "challenge"[11] examination and upon successful completion of such an examination, obtain credit for the module. The majority of the subcommittee strongly agreed that practising cardiac care nurses should be given the opportunity to challenge. Personally, I disagree with this proposal. I believe these "experienced" cardiac care nurses would be better able to attain the higher level skills of problem solving and critical appraisal than the inexperienced nurses who, in addition, would have to attain the factual knowledge and skills. I discussed the idea of challenge examinations with students during Module 1 and 2's implementation. The majority of students who might potentially be eligible for a challenge examination stated that they felt they learned a great deal by attending class. They also stated that they felt their retention of material would be enhanced by the connections with past experiences.

Both I and the cardiac care nurse educator who co-taught Module 1 were opposed to challenge examinations. However, by democratic process,

the subcommittee agreed to implement a challenge examination. Potential students were given the opportunity to Challenge Module 1 for admission to Module 2. Only one student attempted the examination and she was unsuccessful. I believe the challenge examination will become an important feature of the programme to monitor. One must await further studies by teacher-researchers, to adequately evaluate this programme decision.

During this same meeting of the subcommittee, the nurse manager from the regional referral hospital for cardiology commented that the programme had to be offered at a faster pace. Suggestions were made to condense the classroom experience into a shorter time period by offering six consecutive six-hour day classes or by offering a six-week course consisting of one six-hour class per week. As an educator, such a suggestion seemed to me totally unrealistic. After completing Module 2 and observing the learners' difficulty with the reading assignments and scheduling clinicals, such a suggestion appears even more unrealistic. I believe that the adult learner with multiple responsibilities would have difficulty preparing for such classes. In addition, as Brundage and Mackeracher point out, adults do not learn well when they are under severe time restraints and stress.

The nurse manager who was requesting this consolidation was faced with a very high staff turnover and a fairly inexperienced staff. I believe that such a consolidation would assist her in attempting to provide her staff with the educational opportunities required to meet the needs of her particular unit. However, if the college responded to the request, I

believed they would only apparently be meeting the hospital's needs, and would in fact reduce the quality of student learning.

This dilemma brought me back full circle to the initial educational problem that this project had attempted to solve. The Advanced Cardiac Care Programme was designed to meet the educational needs of the cardiac care nurses and ultimately the service obligations of the hospitals. I had assumed throughout this project that the needs of the nurses and the hospital were the same.

The objectives and content of the programme do, in fact, I believe, meet the needs of both. As an experienced classroom teacher, I believe that the needs of the hospital can only be attained by assisting the learner, the nurse, to attain his/her learning goals. I believe that the classroom teacher has a responsibility to be the students' advocate and stress the signficance of principles of adult education for curriculum decisions. If one were only concerned with meeting the hospitals' needs of designing and offering the programme, the adult learners' needs could unfortunately be forgotten. But this would be no guarantee of effective learning.

CONCLUSION

It has been the purpose of this project to describe the development of the Advanced Cardiac Care Programme. The implementation and evaluation of Module 2, The Patient With Coronary Artery Disease, has been presented in detail. What has been described is the role of the classroom teacher as a curriculum developer and researcher. I would like to conclude this project by suggesting that the role of the classroom teacher-researcher is a unique characteristic of this programme.

Unexpectedly, I now recognize how essential the role of the classroom teacher is as a student advocate. I believe the classroom teacher, unlike the nurse manager, focuses upon assisting the adult learners to attain the programme goals in a way which acknowledges their individuality. If the educational experiences are successful, then the programme in its entirety has achieved its goal of meeting the educational needs of the community's hospitals and ultimately providing excellence in patient care.

From the preliminary experiences, I believe the Advanced Cardiac Care Programme is successfully attaining its goals. This September, Modules 1, 2 and 3 will be offered to registered nurses. In addition, the role of a programme manager is in the preliminary stage of development. Such a role, I believe, will further facilitate the attainment of the programme's goals.

Two major research questions remain to be explored. The first is, what are the implications of the challenge examination? The second research question is how effective would consolidated sessions (six weeks of one six-hour day session per week, as opposed to twelve weeks of one three-hour session) be? The subcommittee has recommended that the two formats be offered simultaneously by the same classroom teacher. Learner performance and feedback would then be compared upon completion of the module. This is tentatively to take place next semester.

Whereas we acknowledge that the cardiac care client is deserving of the highest possible standard of care, I believe this can only be accomplished by providing the nurse who does the caring with an equally excellent learning opportunity. Through my role as classroom teacher, curriculum developer and researcher, this project has also proved an excellent learning opportunity for myself. I have learned more than I had ever anticipated through my interactions with the subcommittee members, my teaching colleagues and most importantly from the students. In conclusion, I believe teaching, like cardiac care nursing, is both an art and a science.

REFERENCES - PART IV

1. Lawrence Stenhouse, An Introduction to Curriculum Research and Development, (Great Britain: Richard Clay Ltd., 1981), p. 157.

2. Donald Brundage and Dorothy Mackeracher, Adult Learning Principles and Their Application to Program Planning, (Ontario Ministry of Education, 1980), p. 12.

3. Andrea O'Connor, "Reasons Nurses Participate in Continuing Education", Nursing Research, Vol. 28, No. 6, November-December 1979, pp. 354-359.

4. Donald Brundage and Dorothy Mackeracher, op.cit., p. 35.

5. Idem., p. 19.

6. Idem., p. 38.

7. Andrea O'Connor, "Reasons Nurses Participate in Continuing Education", Nursing Research, Vol. 28, No. 6, November-December 1979, p. 356.

8. L. Tibbles, "Theories of Adult Education: Implications for Developing a Philosophy for Continuing Education in Nursing", Journal of Continuing Education in Nursing, Volume 8, July-August, 1977, p. 25.

9. Ibid.

10. Ralph Tyler, Basic Principles of Curriculum and Instruction, (Chicago: The University of Chicago Press, 1949), p. 106.

11. A "challenge examination" is a written examination the learner writes prior to the implementation of a course. The examination questions are developed from the course's terminal learners' objectives. If the learner obtains seventy percent on the examination, he/she can obtain credit for the module. Presently, the college allows potential students of the Perinatal Nursing Programme to write challenge examinations.

BIBLIOGRAPHY

Alspach, JoAnn. The Educational Process in Critical Care Nursing. Toronto: C.V. Mosby, 1982.

Alspach, JoAnn and Williams, C. Core Curriculum for Critical Care Nursing. Toronto: W.B. Saunders, 1985.

American Heart Association. "Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC)", Journal of American Medical Association, 255:21, June, 1986, pp. 2905-2992.

Andreoli, K. et al. Comprehensive Cardiac Care. Toronto: C.V. Mosby, 1983.

Brundage, Donald and Mackeracher, Dorothy. Adult Learning Principles and Their Application to Program Planning. Ontario Ministry of Education, 1980.

Cass Principal Investigators and Their Associates. "Coronary Artery Surgery Study (CASS): A Randomized Trial of Coronary Artery Bypass Surgery - Quality of Life in Patients Randomly Assigned to Treatment Groups", Circulation, 63:5, 1983, pp. 951-960.

————. "Coronary Artery Surgery Study (CASS): A Randomized Trial of Coronary Artery Bypass Surgery - Survival Data", Circulation, 63:5, 1983, pp. 939-950.

College of Nurses. The Standards and Levels of Nursing Practice Including the Assumptive Base. College of Nurses of Ontario, May, 1985.

————. Standards of Nursing Practice for Registered Nurses and Registered Nursing Assistants. College of Nurses of Ontario, January, 1987.

Filer, Patricia S. Mohawk College of Years to 1985. Hamilton: Mohawk College of Applied Arts and Technology, 1985.

Gage, N.L. and Berliner, David. Educational Psychology. Boston: Houghton Mifflin Co., 1975.

Gronlund, N.E. Stating Behavioral Objectives for Classroom Instruction. New York: MacMillan Inc., 1978.

Heart and Stroke Foundation of Ontario. Basic Rescuer Manual. Heart and Stroke Foundation of Ontario, 1987.

Joyce, Bruce and Weil, Marsha. Models of Teaching. New Jersey: Prentice-Hall, 1972.

Kellys, T. and Ryan, T. "Randomized Trials in Coronary Bypass Surgery", Circulation, 71:3, 1985, pp. 418-421.

Klones, R., ed. The Guide to Cardiology. Toronto: John Wiley and Sons, 1984.

Knowles, Malcolm. The Modern Practice of Adult Education: Androgogy versus Pedagogy. New York: Association Press, 1970.

O'Connor, Andrea. "Reasons Nurses Participate in Continuing Education", Nursing Research, 28:6, November-December, 1979, pp. 354-359.

Scales, Freda S. Nursing Curriculum Developments, Structure, Function. Norwalk: Appleton-Century-Crofts, 1985.

Schroder, R. et al. "A Prospective Placebo-Controlled Double-Blind Multicenter Trial of Intravenous Streptokinase in Acute Myocardial Infarction (ISAM): Long-Term Mortality and Morbidity", Journal of the American College of Cardiology, 9:1, January, 1987, pp. 197-203.

Stenhouse, Lawrence. An Introduction to Curriculum Research and Development. Great Britain: Richard Clay Ltd., 1981.

Summers, C. "Sudden Cardiac Death", Critical Care Quarterly, September, 1984, pp. 1-7.

Tibbles, L. "Theories of Adult Education: Implications for Developing a Philosophy for Continuing Education in Nursing", Journal of Continuing Education in Nursing, 8, July-August, 1977, pp. 22-29.

Tyler, Ralph. Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1949.

Underhill, S. et al. Cardiac Nursing. Philadelphia: J.B. Lippincott, 1982.

University of Washington Critical Care Unit. "Nursing Care Plan for MI Patients", Critical Care Nurse, July-August, 1982, pp. 78-84.

Vinsant, M. and Spence, M. Commonsense Approach to Coronary Care. Toronto: C.V. Mosby, 1985.

Wescott, B. "Tissue Plasminogen Activator: A New Advancement in Fibrinolytic Therapy", Focus on Critical Care, 13:6, December, 1986, pp. 22-26.

Wong, Julia. "The Inability to Transfer Classroom Learning to Clinical Nursing Practice: A Learning Problem and Its Remedial Plan", Journal of Advanced Nursing, 4, September, 1978, pp. 161-167.

APPENDICES

APPENDIX A

ADVANCED CARDIAC CARE PROGRAMME - MODULE 2: CLASS OUTLINES

APPENDIX A

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

PART-TIME STUDIES - HEALTH SCIENCES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - THE PATIENT WITH CORONARY ARTERY DISEASE

A. PROGRAMME GOALS AND OBJECTIVES:

Goals: To provide advanced nursing care for the patient with coronary artery disease.

Course Objectives:

At the completion of this module, the participant will be able:

1. To describe the pathophysiology of vascular disease.
2. To describe the pathophysiology of coronary artery disease at an advanced level.
3. To collect and analyze objective and subjective data in the assessment of the patient with coronary artery disease.
4. To describe the diagnostic tests for coronary artery disease.
5. To describe the modes of medical therapy available for the patient with coronary artery disease.
6. To describe the complications of coronary artery disease and the resultant medical and nursing management.
7. To describe the modes of artificial cardiac pacing and related nursing implications.
8. To differentiate between the rationale, techniques and nursing implications of cardioversion and those of defibrillation.
9. To formulate a plan of care for the short and long term management of the patient with coronary artery disease.

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

PART-TIME STUDIES - HEALTH SCIENCES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - GENERAL INFORMATION

B. COURSE SCHEDULE:

WEEK	DATE	TOPICS
1	January 6, 1987	Course Overview Vascular Disease
2	January 13, 1987	Coronary Artery Disease
3	January 20, 1987	Quiz #1 Assessment of the Patient with CAD (i) Subjective Data (ii) Blood Work
4	January 27, 1987	Quiz #2 (iii) 12 Lead ECG Interpretation
5	February 3, 1987	Quiz #3 Pharmacological Management
	February 10, 1987	No Class
6	February 17, 1987	MIDTERM EXAMINATION Diagnostic Tests
7	February 24, 1987	Quiz #4 Surgical Management PCTA 1ABP
8	March 3, 1987	Quiz #5 Complication of CAD
9	March 10, 1987	Quiz #6 Cardiac Resuscitation
10	March 17, 1987	Quiz #7 Pacemakers
11	March 24, 1987	Quiz #8 Rehabilitation of the Cardiac Patient
12	March 31, 1987	Case Study Assignment Due FINAL EXAMINATION Course Evaluation

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

C. WEEKLY ASSIGNMENT:

Week 1 - VASCULAR DISEASE

Objectives:

At the completion of these sessions, the participant will be able to:

1. Define atherosclerosis and arteriosclerosis.
2. Describe the incidence of cardiovascular disease and associated mortality rates.
3. Describe the morphology of atherosclerosis.
4. Describe the response to injury and monoclonal hypotheses about the pathogenesis of atherosclerosis.
5. Identify unavoidable and modifiable risk factors to the development of CAD.
6. Suggest interventions to decrease a patient's modifiable risk factors.

Suggested References:

1. Andreoli, K., et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 10-33.

* 2. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 103-110.

* Required Reading.

Week 2 - CORONARY CARE DISEASE

Objectives:

At the completion of this session, the participant will be able to:

1. Define the following terms: myocardial infarction, angina, selective myocardial cell necrosis, sudden cardiac death (SCD), coronary spasm.

2. Describe the alterations in coronary blood blow patterns with ischemia and infarction.

3. Describe the mechanism responsible for pain sensations with angina.

4. Describe the physiological changes with ischemia/necrosis with respect to:
   a) metabolic events
   b) mechanical alterations
   c) electrical alterations.

5. Describe the nonspecific systemic stress response to myocardial ischemia.

6. Describe the pathology related to sudden cardiac death.

7. Describe interventions to reduce the incidence of SCD.

Suggested References:

1. Andreoli, K. et al. Comprehensive Cardiac Care (Toronto: C.V. Mosby), 1983, pp. 334-357.

2. Summers, C., "Sudden Cardiac Death", Critical Care Quarterly, September 1984, pp. 1-7.

* 3. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 111-129.

* Required Reading

Week 3 - ASSESSMENT OF THE PATIENT WITH CHEST PAIN

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the components of an assessment of a patient presenting with chest pain.
2. Describe the subjective data to obtain from the cardiac patient.
3. Define a cardiac enzyme and isoenzyme.
4. Describe the patterns of enzyme elevation in the presence of an acute myocardial infarction.
5. Describe important nursing interventions when obtaining blood for cardiac enzymes.
6. Describe additional laboratory data examined in the assessment of a cardiac patient.

Suggested References:

1. Alspach, J. and C. Williams, Core Curriculum for Critical Care Nursing, (Toronto: W.B. Saunders), 1985, pp. 164-165.
2. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 72-73, 92-94.
3. Underhill, S., et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 173-185.
* 4. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 160-169.

* Required reading.

Week 4 - 12 LEAD ECG INTERPRETATION

Objectives:

At the completion of this session, the participant will be able to:

1. Identify the presence of myocardial infarction/ischemia on a 12 Lead ECG.
2. Identify the location and relative age of a myocardial infarction.
3. Describe nursing interventions in caring for a cardiac patient with an inferioposterior, anterioseptal and/or anteriolateral myocardial infarction.

Suggested References:

1. Alspach, J. and C. Williams, Core Curriculum for Critical Care Nursing, (Toronto: W.B. Saunders), 1985, pp. 168-172.
2. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 123-135.
3. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 196-206.

* 4. University of Washington Critical Care Unit, "Nursing Care Plan for MI Patients", Critical Care Nurse, July/August 1982, pp. 78-84.

* 5. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 169-184.

* Required readings.

Week 5 - PHARMACOLOGICAL MANAGEMENT

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the pharmacological action, indications/contraindications in the management of CAD and the related nursing implications for each of the following classifications of drugs:

    a) Narcotic analgesics
    b) Nitrates
    c) Beta Blockers
    d) Calcium Antagonists
    e) Antithrombotic Agents.

Suggested References:

1. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 377-386.

2. Klones, R. (editor), The Guide to Cardiology, (Toronto: John Wiley and Sons), 1984, pp. 194-203.

* 3. Schroder, R. et al., "A Prospective Placebo- Controlled Double - Blind Multicenter Trial of Intravenous Streptokinase in Acute Myocardial Infarction (ISAM): Long-Term Mortality and Morbidity", JACC, Volume 9, No. 1, January 1987, pp. 197-203.

4. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 431-441, 478-483, 503-516.

* 5. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 443-481.

6. Wescott, B., "Tissue Plasminogen Activator: A New Advancement in Fibrinolytic Therapy", Focus on Critical Care, Volume 13, Number 6, December 1986, pp. 22-26.

* Required readings.

Week 6 - DIAGNOSTIC TESTS

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the indications for, the procedure of and related nursing implications for each of the following diagnostic tests:

    a) maximal and submaximal exercise testing
    b) cardiac catheterization
    c) echocardiogram
    d) cardiac radioisotope studies.

Suggested References:

1. Alspach, J. and C. Williams, Core Curriculum for Critical Care Nursing, (Toronto: W.B. Saunders), 1985, pp. 166-168.

2. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 377-386.

3. Klones, R. (editor), The Guide to Cardiology, (Toronto: John Wiley and Sons), 1984, pp. 111-179.

4. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 184-204.

* 5. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 248-287.

* Required reading.

Week 7 - MEDICAL/SURGICAL MANAGEMENT OF CAD

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the indications for each of the following procedures in the management of CAD:

    a) myocardial revascularization
    b) cardiac transplantation
    c) percutaneous transluminal coronary angioplasty
    d) intra-aortic balloon pump.

2. Describe each of the procedures listed above.

3. Describe the pre and post-operative nursing management of the cardiac patient for each of the above procedures.

4. Describe the controversy revealed in the research of medical versus surgical management of CAD.

Required References:

1. Cass Principal Investigators and Their Associates, "Coronary Artery Surgery Study (CASS): A Randomized Trial of Coronary Artery Bypass Surgery - Survival Data", Circulation, 1983, Vol. 68, No. 5, pp. 939-950.

* 2. Cass Principal Investigators and Their Associates, "Coronary Artery Surgery Study (CASS): A Randomized Trial of Coronary Artery Bypass Surgery - Quality of Life in Patients Randomly Assigned to Treatment Groups", Circulation, 1983, Vol. 63, No. 5, pp. 951-960.

3. Kellys, T. and T. Ryan, "Randomized Trials in Coronary Bypass Surgery" Circulation, 1985, Vol. 71, No. 3, pp. 418-421.

* 4. Underhill, S., et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 338-361.

* Required readings.

WEEK 8 - COMPLICATIONS OF CAD

Objectives:

At the completion of this session, the participant will be able to:

1. Briefly describe the major complications of CAD pertaining to:

    a) dysrhythmias
    b) heart failure
    c) thromboembolic complications
    d) heart structures.

2. For each of these complications, describe the medical and nursing management.

Suggested References:

1. Klones, R. (editor), The Guide to Cardiology, (Toronto: John Wiley and Sons), 1984, pp. 203-247.

2. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 345-359.

* 3. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 363-410.

* Required reading.

WEEK 9 - CARDIOPULMONARY RESUSCITATION

Objectives:

At the end of this session, the participant will be able to:

a) Describe the standards and guidelines for cardiopulmonary resuscitation as outlined in JAMA, Volume 255, No. 1, June 6, 1986.

b) Discuss the rationale for the changes in the standards.

c) Describe the criteria for a well organized cardiopulmonary resuscitation.

Suggested References:

* 1. "Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC)", JAMA, Volume 255, No. 21, June 6, 1986, pp. 2905-2992.

* 2. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 371-376.

* Required readings.

WEEK 10 - PACEMAKERS

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the components of a pacemaker system.
2. Describe the International Pacemaker Classification System.
3. Describe the four modes of pacing.
4. Describe the indications for permanent and temporary pacing.
5. Describe the relevant information to teach the patient with a permanent pacemaker.

Suggested References:

1. Alspach, J. and C. Williams, Core Curriculum for Critical Care Nursing, (Toronto: W.B. Saunders), 1985, pp. 174-178.
2. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 400-436.
3. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: 1982, pp. 518-541.
* 4. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott), 1982, pp. 518-541.

* Required reading.

WEEK 11 - REHABILITATION OF THE CARDIAC PATIENT

Objectives:

At the completion of this session, the participant will be able to:

1. Describe the goals of a cardiac rehabilitation programme.
2. Describe the lifestyle adjustments a patient may experience following an MI.
4. Describe the behavioural responses of patients and spouses following MI.
5. Describe the effects of an MI on a patient's sexuality and the resultant nursing implications.

Suggested References:

1. Andreoli, K. et al., Comprehensive Cardiac Care, (Toronto: C.V. Mosby), 1983, pp. 485-517.
2. Vinsant, M. and M. Spence, Commonsense Approach to Coronary Care, (Toronto: C.V. Mosby), 1985, pp. 214-238.

* 3. Underhill, S. et al., Cardiac Nursing, (Philadelphia: J.B. Lippincott 1), 1982, pp. 551-597.

* Required reading.

D. GRADES:

A mark will be assigned as follows:

8-weekly quizzes for 5 marks each	-	40
Midterm Examination	-	20
Final Examination	-	30
Case Study Assignment	-	10
		100 marks

Grade 4 - 80-100

3 - 70-79

2 - 60-69

0 - below 60

I - Incomplete

* A current B.C.L.S. Certificate (obtained with the last year) must be shown to obtain credit for this course.

APPENDIX B

INFORMATION-PROCESSING STRATEGIES

APPENDIX B

INFORMATION-PROCESSING STRATEGIES

	CLASS TOPICS	INFORMATION-PROCESSING STRATEGIES
1.	Vascular Disease	- self administered tests of personal stress inventories and CAD risk factors.
2.	Coronary Artery Disease	- review of the literature reports on sudden cardiac death - group exercises at interpreting research data.
3.	Assessment of the Patient with CAD.	- simulated patients and case studies.
4.	12 Lead ECG Interpretation	- case studies in groups.
5.	Pharmacological Management	- case study presentation.
6.	Diagnostic Tests	- risk stratification exercises in small groups.
7.	Surgical Management	- case study presentation by students - video of procedures.
8.	Complication of CAD	- case study presentation.
9.	Cardiac Resuscitation	- "mock" cardiac arrests.
10.	Pacemakers	- hands on session with pacemakers and rhythm simulator - troubleshooting session.
11.	Cardiac Rehabilitation	- guest lecturer presented a case study involving small group exercises.

APPENDIX C

CLASS HANDOUTS FOR 12-LEAD ECG INTERPRETATION CLASS

APPENDIX C

MOHAWK COLLEGE - PART-TIME STUDIES

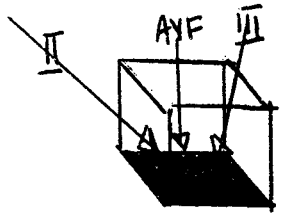
ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

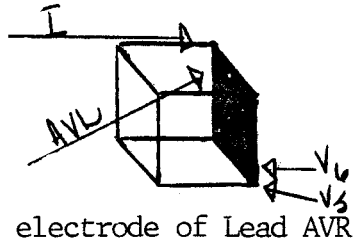
12-LEAD INTERPRETATION TO DETERMINE THE PRESENCE OF A MYOCARDIAL INFARCTION

C. Electrical Walls of the left Ventricle:

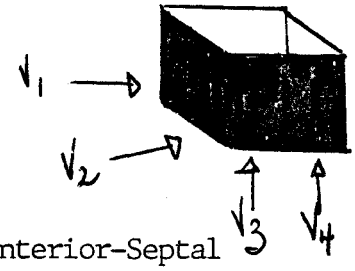
Inferior



Lateral



Anterior-Septal

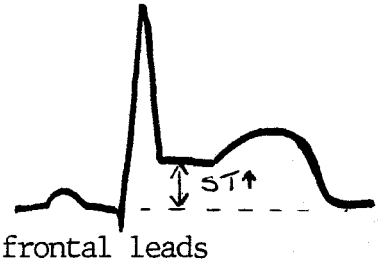


NOTE: The positive electrode of Lead AVR does not face the LV.

D. Evolution of a Myocardial Infarction:

ECG ABNORMALITY	SIGNIFICANCE	ONSET	DISAPPEARANCE
ST Elevation	Injury	Immediately	1 - 6 weeks
Q waves (pathological)	Necrosis	Immediately or in several days	Years to never
T wave inversion	Ischemia	6 - 24 hours	Months to years

1. ST Elevation:



- 1 mm in the frontal leads
- 2 mm in the precordial leads
- measure from the J point.

NOTE:

a) persistent ST elevation six weeks post infarction may be indicative of a ventricular aneurysm

b) chest pain with ST elevation that returns to baseline within minutes is indicative of coronary spasm and is called PRINZMETAL'S ANGINA.

2. Pathological Q Waves:

a) measure 0.04 seconds or greater

b) greater than 4 mm deep

c) greater than 25% of the R Wave

NOTE:

a) the "Q" wave is always the first negative deflection before the "R" Wave.

b) loss of "R" wave progression in the V leads is just as important as a pathological "Q" wave.

E. Reciprocal Changes:

PRIMARY CHANGE	RECIPROCAL CHANGE
T wave inversion	Increased amplitude of T wave
ST Elevation	ST Depression
Pathological Q wave	Increased amplitude of R wave

NOTE: A true posterior wall MI is diagnosed by the presence of reciprocal change in the anterior leads.

F. Determining the Relative Age of an MI:

ACUTE	AGE INDETERMINANT	OLD
Pathological Q	Pathological Q	Pathological Q
ST Elevation	T wave Inversion	
T wave Inversion (may or may not be present)		

DIAGNOSTIC TOOL

MI SITE	PRIMARY CHANGES			RECIPROCAL CHANGES		
	Pathological Q	ST Elevation	T Wave Inversion	↑ R	ST Depression	T Wave
INFERIOR LEADS II						
III						
AVF						
LATERIAL LEADS I						
AVL						
V_5						
V_6						
ANTERO-SEPTAL LEADS V_1						
V_2						
V_3						
V_4						

MYOCARDIAL INFARCTION SITES

MI	CORONARY ARTERY INVOLVED	ECG CHANGES IN LEADS	COMPLICATIONS	NURSING IMPLICATIONS
1. Anterior Wall				
2. Antero-septal Wall				
3. Lateral Wall				
4. Inferio-posterior Wall				
5. Posterior Wall - in the absence of inferior MI				

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

12-LEAD ECG INTERPRETATION - GROUP ASSIGNMENT

CASE STUDY #1

Mr. P is a 71 year old gentleman who presented in the Emergency Department with chest pain radiating to his arms and neck. His 12-lead ECG is attached.

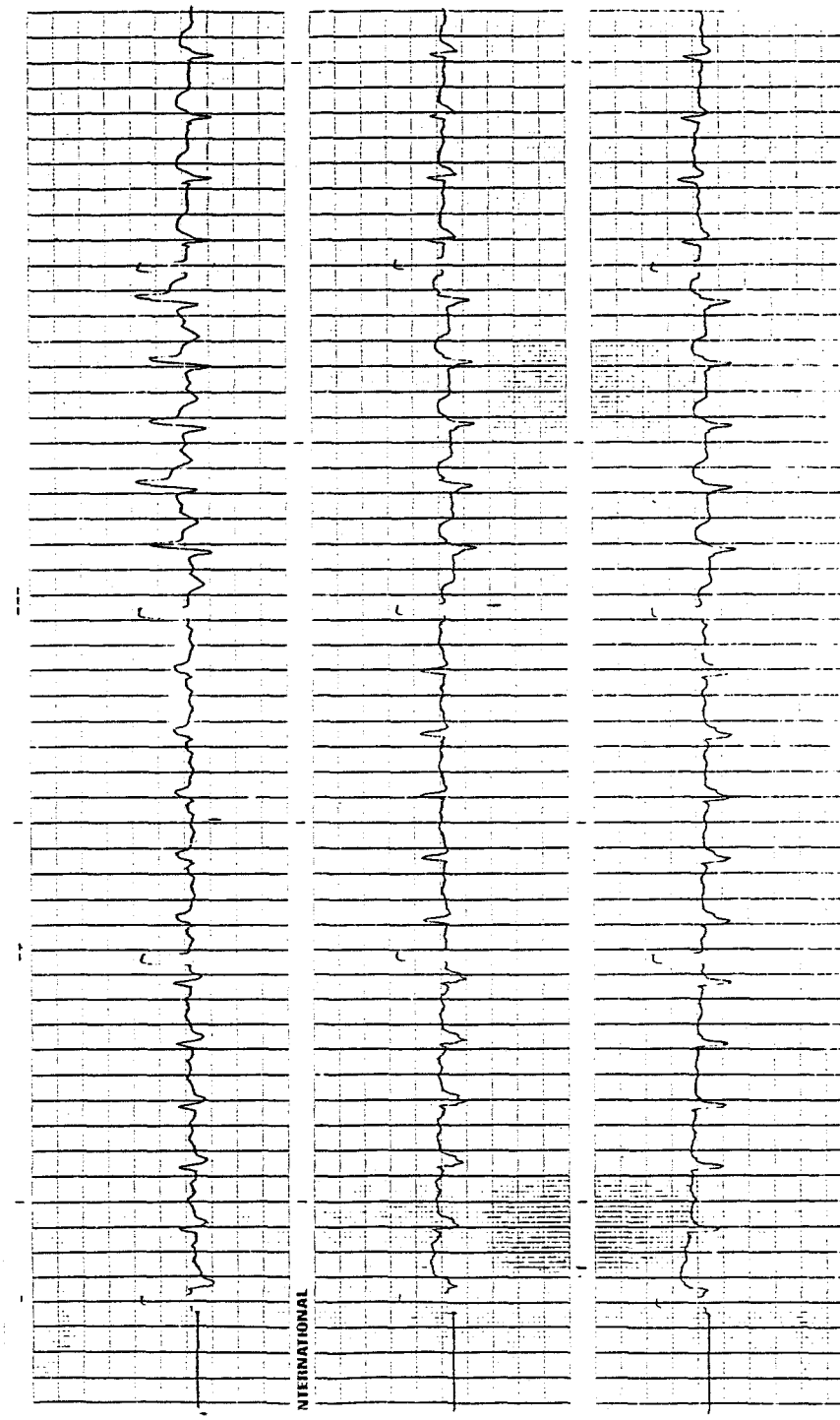
a) Interpret the 12-lead.

b) What might be the cause(s) of this patient's heart rate?

c) For each cause, list appropriate nursing assessments and interventions.

Throughout the evening (since admission), Mr. P's blood pressure remains at 90 systolic. He is conscious and speaking although confused at times. His son informs you that the patient is occassionally "senile".

d) Do you have any concerns at this time? If so, please list them.


NTERNATIONAL

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

12-LEAD ECG INTERPRETATION - GROUP ASSIGNMENT

CASE STUDY #2

Mrs. W is a 47 year old housewife who collapsed at home. She recovered almost instantly and was brought to hospital by the paramedics. Her 12-lead ECG is attached.

a) Interpret the 12-Lead.

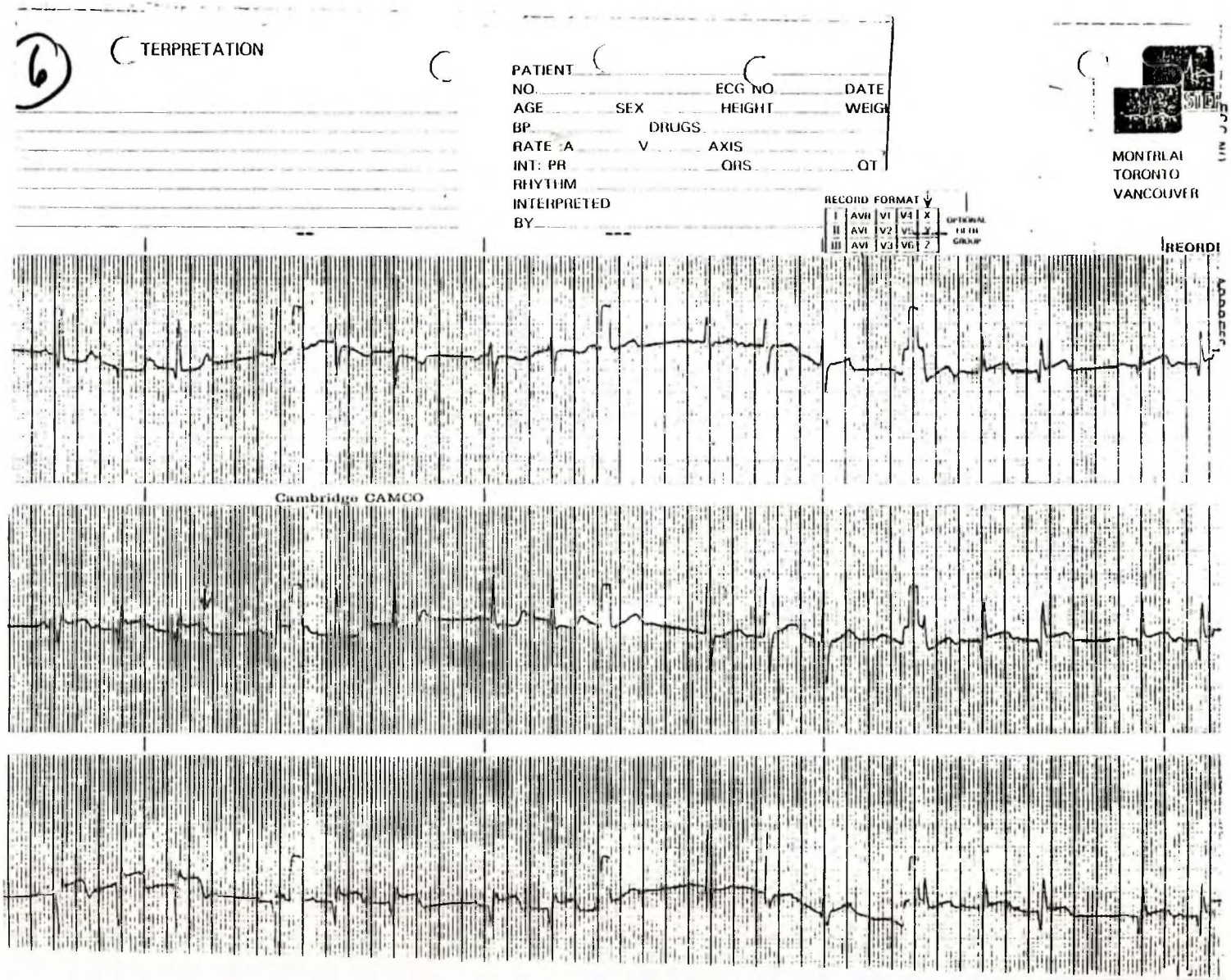
b) Identify the dysrhythmia.

c) Would you have anticipated this dysrhythmia in this situation? Explain your answer.

d) What other dysrhythmias might you anticipate in this situation?

Mrs. W becomes very nauseated and begins to vomit.

e) Do you have any concerns at this time?
If so, please list them.


6
TERPRETATION
PATIENT
NO
ECG NO
DATE
AGE
SEX
HEIGHT
WEIGH
BP
DRUGS
RATE A
V
AXIS
INT: PR
QRS
QT
RHYTHM
INTERPRETED
BY
RECORD FORMAT
I AVR V1 V4 X
II AVL V2 V5 Y
III AVF V3 V6 Z
OPTIONAL 16TH GROUP
MONTREAL
TORONTO
VANCOUVER
Cambridge CAMCO

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

12-LEAD ECG INTERPRETATION - GROUP ASSIGNMENT

CASE STUDY #3

Mr. T is a 48 year old executive who on the basis of his history and 12-lead ECG has experienced an anteroseptal myocardial infarction. His ECG rhythm is Mobitz II with ventricular rate of 40.

a) Would you expect this dysrhythmia in this situation? Explain your answer.

b) The dysrhythmia does not respond to 1.0 mgm of Atropine. Would you expect this? Explain your answer.

c) Do you have any concerns at this time? If so, please give your rationale.

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

12-LEAD INTERPRETATION - GROUP ASSIGNMENT

CASE STUDY #4

Miss W is a 64 year old retired librarian who has sustained an inferioposterior MI. Her admission ECG rhythm is sinus bradycardia with a HR of fifty-two.

a) Would you expect this dysrhythmia in this situation? Explain your answer.

b) One hour later, she develops 12 multifocal PVC's in a minute. Does this concern you? Explain your answer.

c) How might this dysrhythmia be treated?

Miss W becomes hypotensive (90/62) and markedly bradycardic (HR-42). A temporary pacemaker is inserted into the (R) ventricle but it is not capturing the ventricle.

d) What might be happening to this patient? Explain your answer.

APPENDIX D

CLINICAL PLACEMENTS - MODULE 2

APPENDIX D

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY
PART-TIME STUDIES - HEALTH SCIENCE

ADVANCED CARDIAC CARE PROGRAMME

CLINICAL PLACEMENTS - MODULE 2

A. The following clinical expriences are required for Module 2.

1. Coronary Care Unit Experience (16 hours).

A clinical teacher will be provided for this experience during the month of April. Specific dates will be negotiated during February with the clinical teacher involved.

A skills list for this experience is attached.

2. Diagnostic Experiences (8 hours).

a) Exercise Test.
b) Echocardiogram.
c) Coronary Angiography.
d) Cardiac Radioisotope Studies.

3. Coronary Artery Bypass Grafting Surgery and Intensive Care Unit follow-through (8 hours).

4. Coronary Rehabilitation/Public Health (8 hours).

This schedule distributed to patients for the McMaster "Turtles" Patient Education Series is attached. You will be observing an actual patient group session.

5. Percutaneous Transluminal Coronary Angioplasty (optional).

B. EXEMPTIONS:

If you believe you are eligible for an exemption from any of the above experiences, please identify the experience and your rationale on the attached forms.

C. SCHEDULING:

Clinical experiences are to be scheduled from Monday to Friday. Please sign the Master Schedule no later than January 20, 1987. Clinical experiences must be completed prior to the scheduled class.

McMASTER TURTLES

THE EDUCATION SERIES

We invite you and your spouse to attend a series of informal classes designed to provide you with information on risk factors and lifestyle motivation for coronary heart disease patients. This series provides you the opportunity to ask questions and get answers.

TOPIC	MONDAY/WEDNESDAY	TUESDAY/THURSDAY	TIME
Exercise - It's Never Too Late	January 19/21	January 20/22	6:45 to 7:30
Nutrition for Heart Patients	January 26/28	January 27/29	5:30 to 6:15
Smoking and Second Hand Smoke	February 2/4	February 3/5	6:45 to 7:30
Sex and the Heart Patient	February 9/11	February 12/14	6:45 to 7:30
Medications	February 16/18	February 19/21	6:45 to 7:30
Cardio-Pulmonary Resuscitation	February 23/25 and March 2/4		7:00 to 9:30
Stress and Relaxation	March 9/11	March 10/12	6:45 to 7:30

Juice or coffee is provided at the classes. Those interested in the Cardiopulmonary Resuscitation course must pick up reading material before the classes. Attendance at both classes is required for certification.

I hope to see you at the sessions. If there are any special topics you would like discussed with the exercise group, please let me know. The education series is to help you to meet your needs.

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY
PART-TIME STUDIES - HEALTH SCIENCE

ADVANCED CARDIAC CARE PROGRAMME

CLINICAL EXPERIENCE - MODULE 2

NAME: _____

HOSPITAL EMPLOYED: _____

CLINICAL AREA EMPLOYMENT: _____

DATE: _____

1. Experience(s) to be exempted:

2. Rationale for exemption(s):

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY
PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

CLINICAL SKILLS LIST

STUDENT'S NAME: _____

CLINICAL PLACEMENT: _____

DATE(S): _____

The above named student has successfully demonstrated the following skills:

1. To admit a patient to C.C.U., explaining the rationale for each element in the C.C.U. routine.

2. To attach a cardiac monitor to a patient.

   a. To place and secure electrodes on patient's chest.

   b. To set initial monitor settings for alarm limits.

   c. To obtain clear ECG pattern.

   d. To demonstrate how to change and identify lead being monitored.

   e. To take appropriate actions to remove causes of ECG pattern interference.

   f. To explain reason for each setting and indicator on bedside monitor.

3. To obtain hourly ECG rhythm strips.

   a. To obtain clear ECG pattern on strip.

   b. To determine and record atrial and ventricular rates, P-R interval, QRS duration, Q-T interval from rhythm strip.

   c. To identify ECG rhythm.

   d. To state characteristics of normal P wave, P-R interval and QRS duration.

   e. To demonstrate how to adjust "gain" as necessary for wave differentiation.

   f. To demonstrate how to change roll of ECG paper at desk console.

4. To record a 12-lead ECG and mark (patient's name, date, time, leads) accordingly.

   a. To change roll of paper on ECG machine.

   b. To demonstrate correct technique for standardization.

   c. To identify the presence of myocardial ischemia and/or necrosis.

   d. To identify the relative age and location of myocardial ischemia and/or necrosis.

5. To interpret normal from abnormal cardiac enzyme results.

6. To perform a check of the code cart.

7. To assist with defibrillation/cardioversion.

   a. To set up for emergency defibrillation.

   b. To test cardioverter output.

   c. To demonstrate appropriate paddle placements used for different types of paddle systems.

   d. To explain procedure for or assist with cardioversion.

   e. To explain procedure for or assist with defibrillation.

8. To use a pacemaker cart.

   a. To explain different types and purposes of cables.

   b. To demonstrate how to connect cables to an external pulse generator.

   c. To demonstrate how to change batteries in an external pulse generator.

9. To care for a patient with a transvenous pacemaker.

   a. To perform/describe care of dressing site.

   b. To explain precautions taken for electrical safety.

   c. To explain function of each setting on pacemaker unit.

   d. To assess from monitor and ECG strip, whether pacemaker is
      i) functioning correctly
      ii) failing to sense
      iii) failing to capture.

9. To care for a patient with a transvenous pacemaker...cont'd

   e. To assist with or observe procedure for assisting with insertion of temporary transvenous pacemaker.

   f. To describe nursing care of a patient with permanent pacemaker.

   g. To explain purpose and procedure of magnet use in testing pacemaker.

10. To implement a telemetry system.

   a. To explain rationale for this system.

   b. To attach patient electrodes for monitoring.

   c. To demonstrate how to change batteries.

11. To administer cardiac medications as ordered (except for those to be given intravenously).

   a. To state the indication for the medication.

   b. To identify potential complications.

   c. To monitor the patient appropriately.

SIGNATURE OF CLINICAL TEACHER

SIGNATURE OF ADVANCED CARDIAC CARE STUDENT

APPENDIX E

FINAL CASE STUDY ASSIGNMENT

APPENDIX E

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - FINAL CASE STUDY ASSIGNMENT

INSTRUCTIONS:

1. Select either Case Study #1 or Case Study #2 for analysis.
2. You may develop your own case study if negotiated with myself prior to the submission date.

DISCUSSION QUESTIONS:

1. Interpret the 12 Lead ECG's and laboratory data presented.
2. Explain the possible rationale for the patient's medical treatments (i.e. goals of therapies).
3. What diagnostic tests might be included/excluded on the last admission? Give rationale for your choices.

NURSING CARE PLAN:

1. Develop a nursing care plan for the patient at any one stage of the illness.
2. Include actual and potential patient problems, nursing interventions, relevant patient/family teaching and expected patient outcomes.
3. To not submit a Standard Nursing Care Plan used in your hospital.

ADDITIONAL INSTRUCTIONS:

1. This assignment is to enable you to demonstrate an "Advanced" level of knowledge and integration of the course material.
2. Whenever appropriate, document your references appropriately.
3. This assignment is to be neatly written or typed double spaced.
4. Length not to exceed 10 pages.

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

CARDIAC CASE STUDY #1

On July 31, a 55 year old man presented to hospital with a history of intermittent chest pain for one month. He stated the pain would be initiated with emotional upset or at rest; it lasted 2 to 3 minutes (occasionally up to 1 hour) and he graded the pain as a "5" on a scale from 1 to 10. He denied any radiation, nausea, diaphoresis or SOB. He stated he occasionally experienced lightheadness while walking. His BP was 110/80 in both arms with postural hypotension.

PAST MEDICAL HISTORY:

- "Asthma" for 8 years
- smoked for 25 pack years
- August 1982
  - syncope ----- sinus bradycardia HR of 40
  - exercised and developed ventricular tachycardia and chest pain
  - permanent pacemaker inserted.

January 30, 1983
- anterior chest discomfort, retrosternal, radiating to throat, shoulder and elbows
- continued to have 4-5 minute episodes of pain
- cardiac enzymes:

	DAY 1	DAY 2	DAY 3
SGOT	16	13	15
CPK	72	53	113
LDH	121	136	124

- given Isordil 10 mgm QID
  Metroprolol 50 mgm BID

February 15, 1983
- unstable angina persisting
- cardiac catheterization results:
  - hypokinesis of anterolateral segment and apex
  - LCA - no significant stenosis
  - complete occulusion of circumflex
  - significant stenotic lesions of RCA
  - borderline stenotic lesions of LAD
- cardiovascular surgeons in Hamilton felt his disease inoperable.

Module 2 - Cardiac Care Study #1....cont'd

February 19, 1983 - discharged home
- medications:
  - Isodil 45 mgm QID
  - Metroprolol 50 mgm TID
  - Nifedipine 10 mgm TID
  - Verapamil 120 mgm TID

April 10, 1983 - underwent CABG x 5 at Toronto General Hospital

- post-operative tamponade —— returned to surgery

- discharged April 20 on no medication

SOCIAL HISTORY:
- married - no children from this marriage
- two teenage daughters from previous marriage
- supervisor for an aircraft manufacturing company - states his work is "stressful".

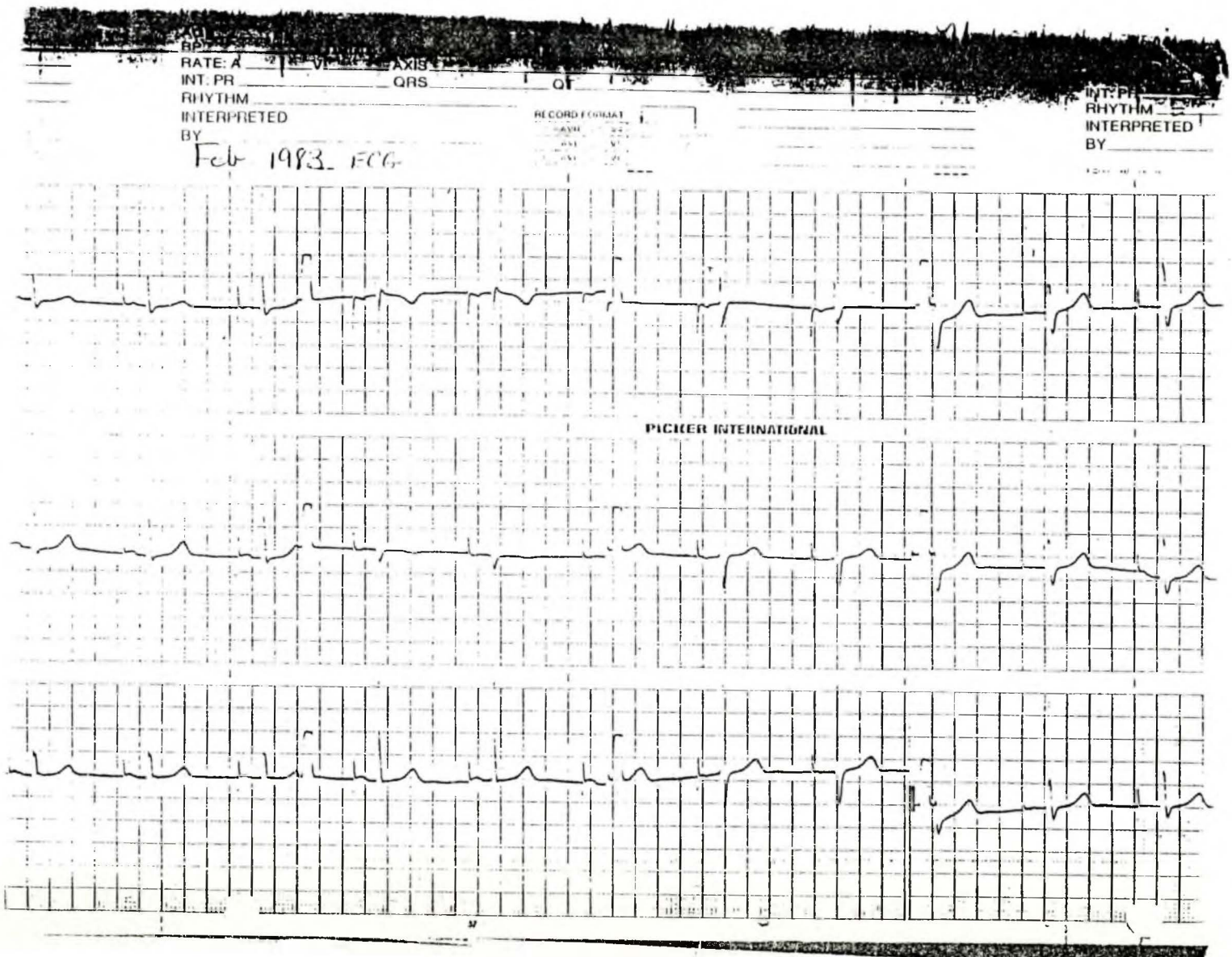
THIS ADMISSION

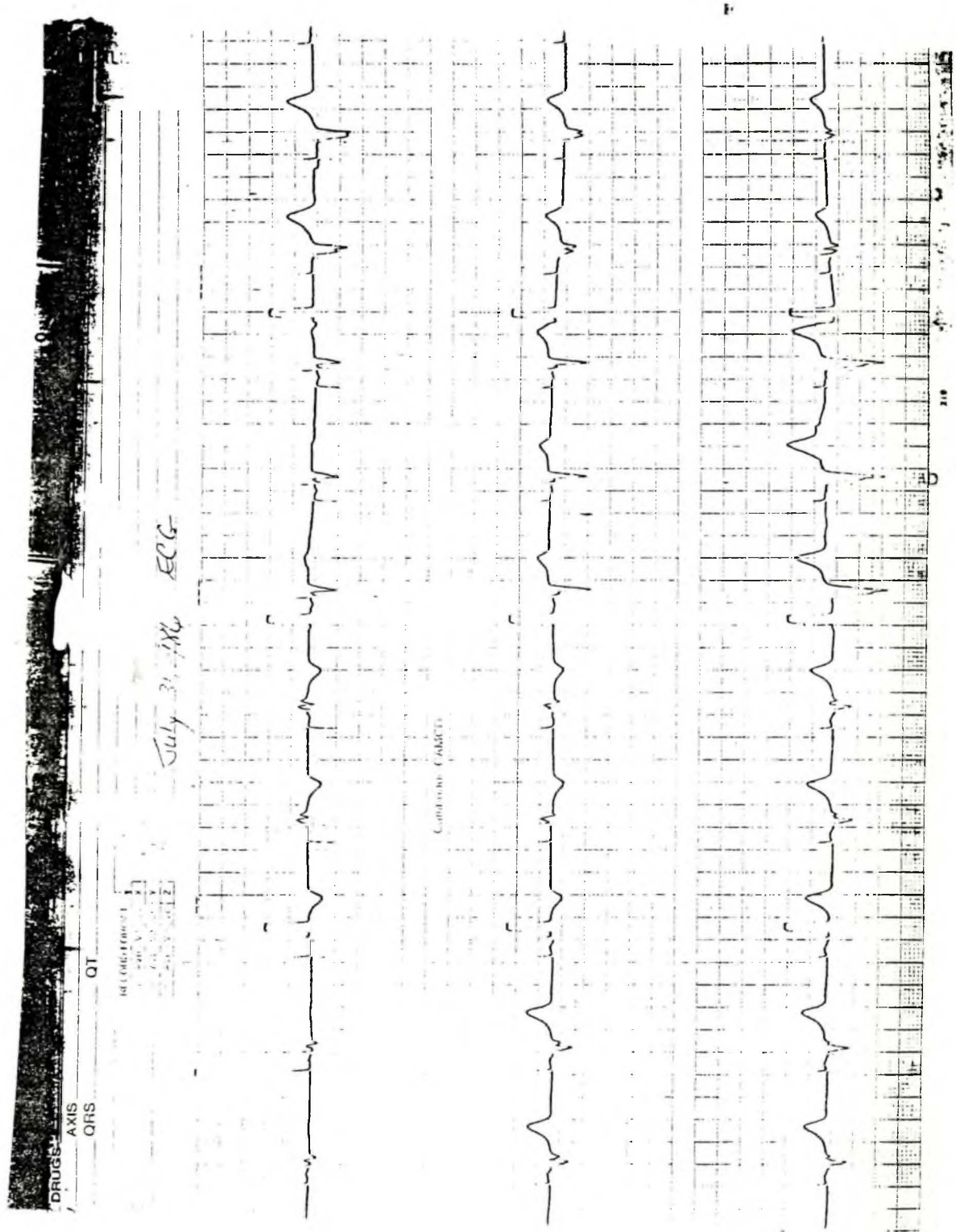
1. The 12 Lead ECG is attached.

2. Cardiac Enzymes Results:

	July 31 1900 hrs.	July 31 0317 hrs.	July 31 1000 hrs.	Aug. 01 0800 hrs.
LDH	86	97	98	105
SGOT	15	13	17	16
CK	71	67	58	80

3. Placed on Cardizem 90 mg po. The plan is to add Nitrates if necessary.


BP
RATE: A
INT. PR
QRS
QT
AXIS
RHYTHM
INTERPRETED
BY
Feb 1983 ECG
RECORD FORMAT
INT. PR
RHYTHM
INTERPRETED
BY
PICKER INTERNATIONAL


DRUGS
AXIS
QRS
QT
July 31 1990 ECG

MOHAWK COLLEGE - PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2

CARDIAC CASE STUDY #2

A 38 year old fireman collapsed playing racquetball. When he collapsed, he became markedly diaphoretic and pale. On arrival in ER, the patient's BP was 80 systolic. MAST pants were inflated and Dopamine initiated. 2 mgm morphine was given.

Upon arrival in the C.C.U., the patient's BP was 130/80, HR 50. The ECG monitored sinus bradycardia then a junctional rhythm to 3^{o} AV block with a junctional escape rhythm. The patient experienced runs of ventricular tachycardia. A Xylocaine bolus and infusion was initiated. The bradycardia was unresponsive to 2.0 mgm Atropine. A temporary pacemaker was inserted. The patient then sustained numerous cardiac arrests for ventricular fibrillation and ventricular tachycardia. The patient was alert and talking following the arrests.

PAST MEDICAL HISTORY:

- unremarkable
- ^{o} DM
- ^{o} BP

SOCIAL HISTORY:

- married
- 2 young children (6 years and 11 years) - daughter's birthday today.
- minimal alcohol intake
- smoker x 20 pack years

CCU ADMISSION ORDERS:

1. clear fluids
2. IV - N/S at 50 cc/hr
3. morphine 2 mgm IV prn
4. O_2 - 40% by mask
5. cardiac enzymes q 8h x 3
6. EKG daily x 3
7. chest x-ray OD x 3
8. CBC, lytes, BUN, Crt, BS OD x 3
9. nitroglycerine drip T amp/500 cc D5W to start at 10 mg.
10. ABG's q 6 h
11. Isuprel at bedside
12. Bretylium 350 mgm IV x 2 boluses
13. Bretylium drip 1 gm/250 D5W at 2 mcg/min.
14. Gravol 25 mgm IV STAT
15. Arterial line - 250u Heparin/250 cc N/S
16. Temporary pacer - Rate 90 MA 3
17. Streptokinase as per ISIS-2 study.

Module 2 - Cardiac Case Study #2 ....cont'd

LAB DATA:

	Nov. 24	Nov. 25	Nov. 26
Urea	5.6	5.4	6.3
Na^+	141	140	136
K^+	3.7	4.5	4.2
Cl^-	106	110	106
Bicarb	24	21	25
Gluc.	6.7	6.9	6.6
Crt	114	96	102
PT	12	13	13
PTT	27	32	31

	Nov. 24 1553 hrs.	Nov. 24 2400 hrs.	Nov. 25 0706 hrs.	Nov. 25 1400 hrs.	Nov. 26 0437 hrs.	Nov. 26 1641 hrs.
LDH	15	-	1,513	1,792	-	-
SGOT	32	696	831	886	-	-
CK	219	14,840	17,770	18,470	11,990	16,050
CK-MB	3	936	840	512	108	322

12 LEAD ECG's

Attached.

SUBSEQUENTIAL COURSE OF HOSPITALIZATIONS:

- The patient was stabilized with intravenous nitroglycerin. Two days later he developed more ischemic pain and LV failure. He was transferred to the HGH for a cardiac catheterization.
- The cardiac catheterization showed a significant lesion of the RCA but no lesions of the LAD.
- The RCA was successfully dilated by coronary angioplasty.
- The patient was assisted on the intra-aortic balloon pump for 2 days.
- An echocardiogram 9 days post - admission revealed:
    - hypokinesis of inferior posterior wall
    - abnormal motion of proximal ventricular septum
    - dilatation of RV and RA

Module 2 - Cardiac Case Study #2....cont'd

- A nuclear scan 14 days post-admission revealed:
  - RV dilated - marked hypokinesis
  - inferior wall-akinesis
  - LV ejection fraction - 48% (N 50)
  - RV ejection fraction - 23% (N 40)
- The patient was discharged twenty days post-admission on Diltiazem 60 mgm QID and sublingual Nitro prn.
- The patient was exercised post-discharge. He exercised for 10 minutes to a maximum HR of 130. There was no evidence of ischemia nor chest pain. Ventricular begiminy at reast and with exercise was present. Biquin was started.
- 10 weeks post-admission - Holter monitor revealed runs of ventricular tachycardia. Biquin was discontinued and Procainamide 500 mgm QID started.
- Patient readmitted this week (12 weeks post initial admission) with (L) shoulder and arm pain, nausea and palpitations. The patient had taken 3 Nitro's with no relief. He was very anxious.

LAB DATA:

K^+	3.1	BUN	9.8	Hgb	148	PT	13
Na^+	141	Crt	128	Plat.	367	PTT	30
Cl^-	103	Glucose	6.6	WBC	8.7		
Bicarb	21						

	Feb. 19 - 0048 hours	Feb. 19 - 0858 hours
LDH		160
SGOT	16	24
CK	133	101
CK-MB	3 u/l	1 u/l

12 LEAD ECG

Attached.

Module 2 - Cardiac Case Study #2.....cont'd

Admission orders included:

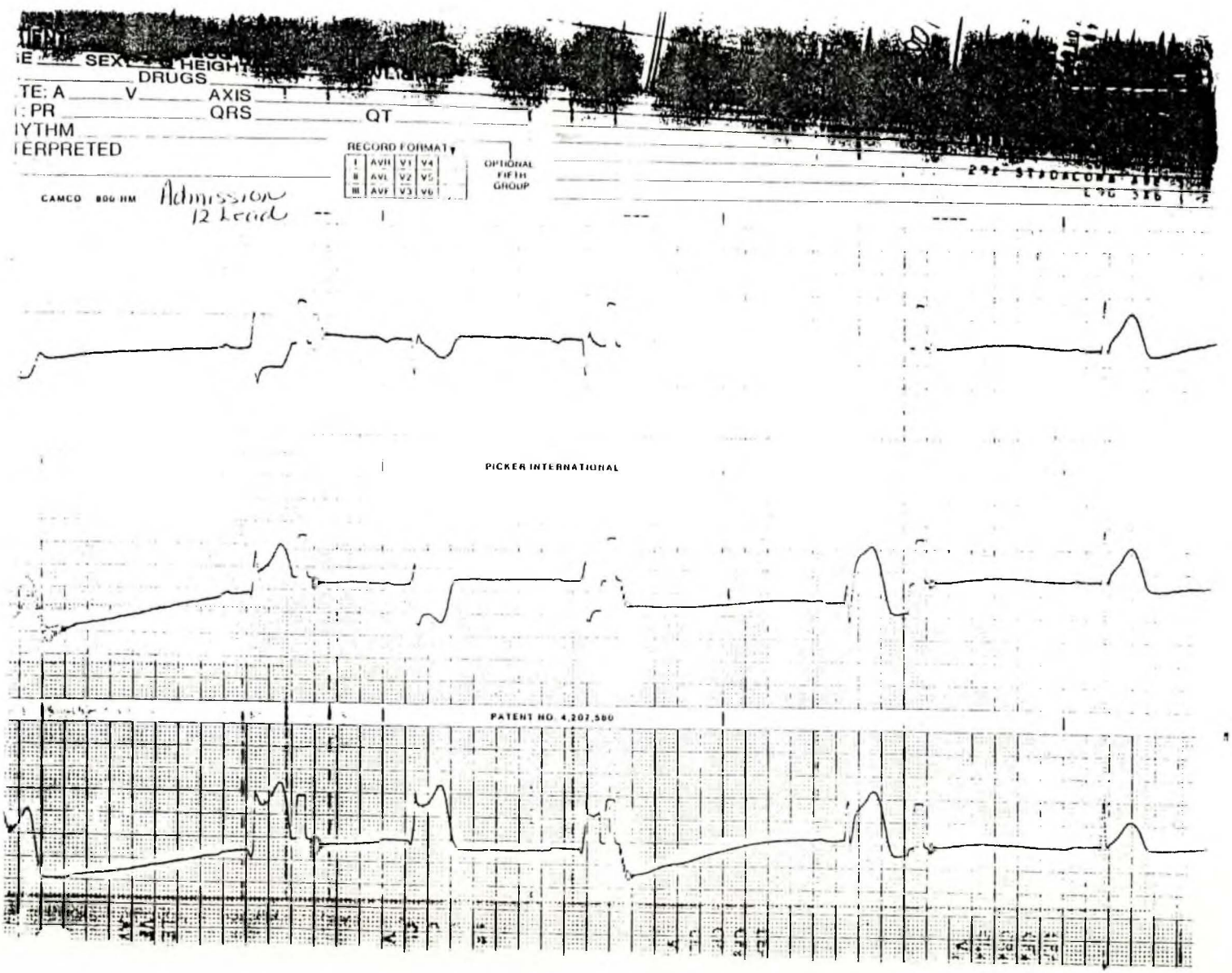
Amiodarone 200 mgm po QID

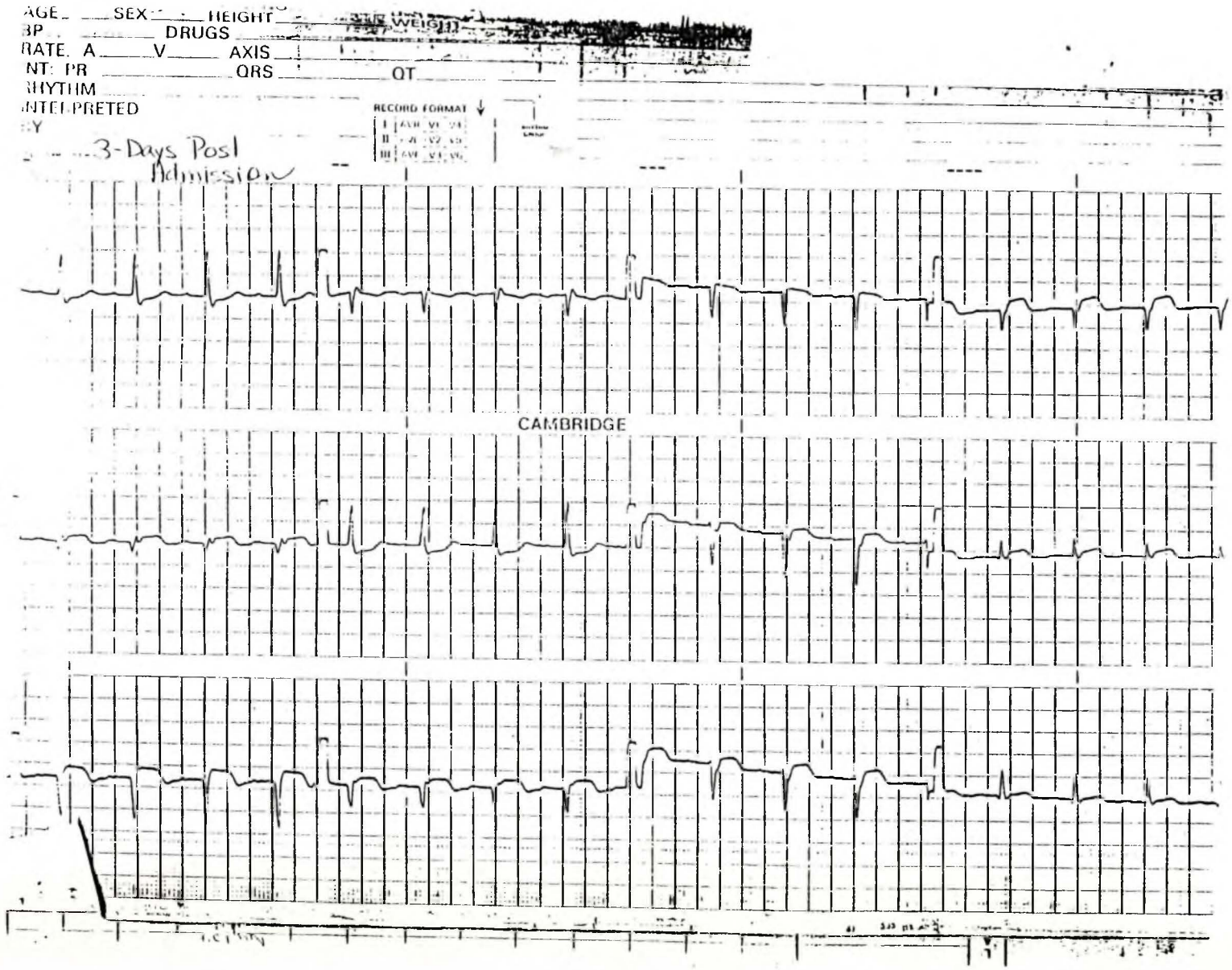
NTP 1" Q 6H

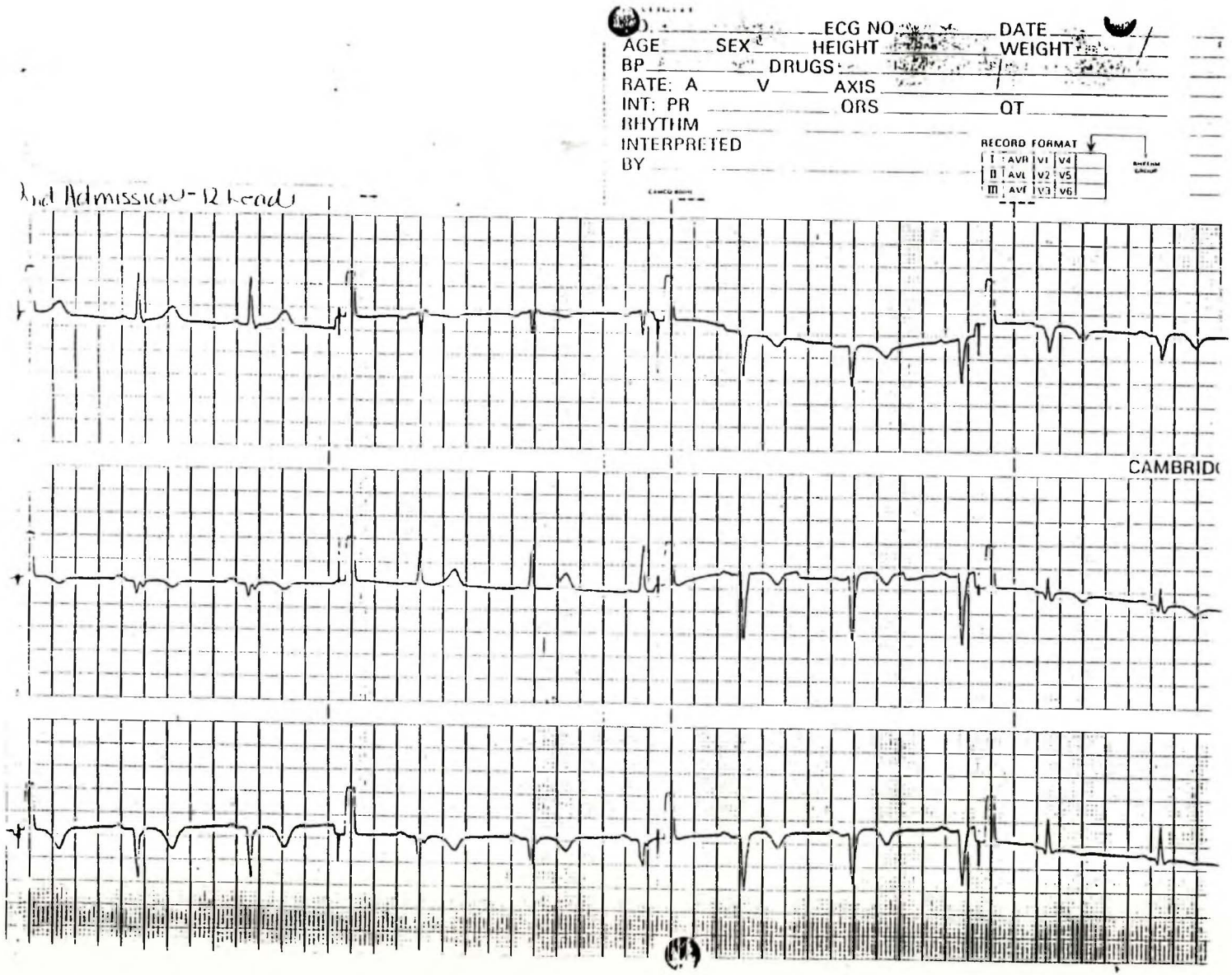
K-lyte 20 meq po + 20 meq/1 IV

Ativan 2 mg sl Q 6H

Diltiazem 60 mgm po Q ID


SEX
DRUGS
AXIS
QRS
QT
RECORD FORMAT
OPTIONAL FIFTH GROUP
CAMCO 800 HM
Admission
12 Lead
PICKER INTERNATIONAL
PATENT NO. 4,207,580


AGE SEX HEIGHT
BP DRUGS
RATE A V AXIS
NT: PR QRS QT
RHYTHM
NTERPRETED
Y
3-Days Post
Admission
RECORD FORMAT
CAMBRIDGE


ECG NO
DATE
AGE
SEX
HEIGHT
WEIGHT
BP
DRUGS
RATE: A
V
AXIS
INT: PR
QRS
QT
RHYTHM
INTERPRETED
BY
RECORD FORMAT
I
II
III
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
2nd Admission - 12 lead
CAMBRID

APPENDIX F

MODULE 2 - SAMPLE QUIZ AND EXAMINATIONS

APPENDIX F

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - QUIZ #3 *

Name:
Date:
Mark: /

MARKS

(5) 1. State the significance of:

A. ST Elevation: _____

_____

B. T Wave Inversion: _____

_____

C. ST Depression: _____

_____

D. Pathological Q Waves: _____

_____

E. Increased Amplitude of the R Wave: _____

_____

(4) 2. List the electrocardiographic criteria for:

A. an acute MI: _____

_____

B. a subacute MI: _____

_____

C. an old MI: _____

_____

* Quiz #3 has been selected as an example of all the weekly quizzes.

MARKS

2. ...cont'd

D. a ventricular aneurysm: _____

_____

(2) 3. List two major medical complications of an anterior septal MI.

(a) _____

(b) _____

(4) 4. List four important nursing interventions when caring for a patient with an inferior wall MI.

(a) _____

(b) _____

(c) _____

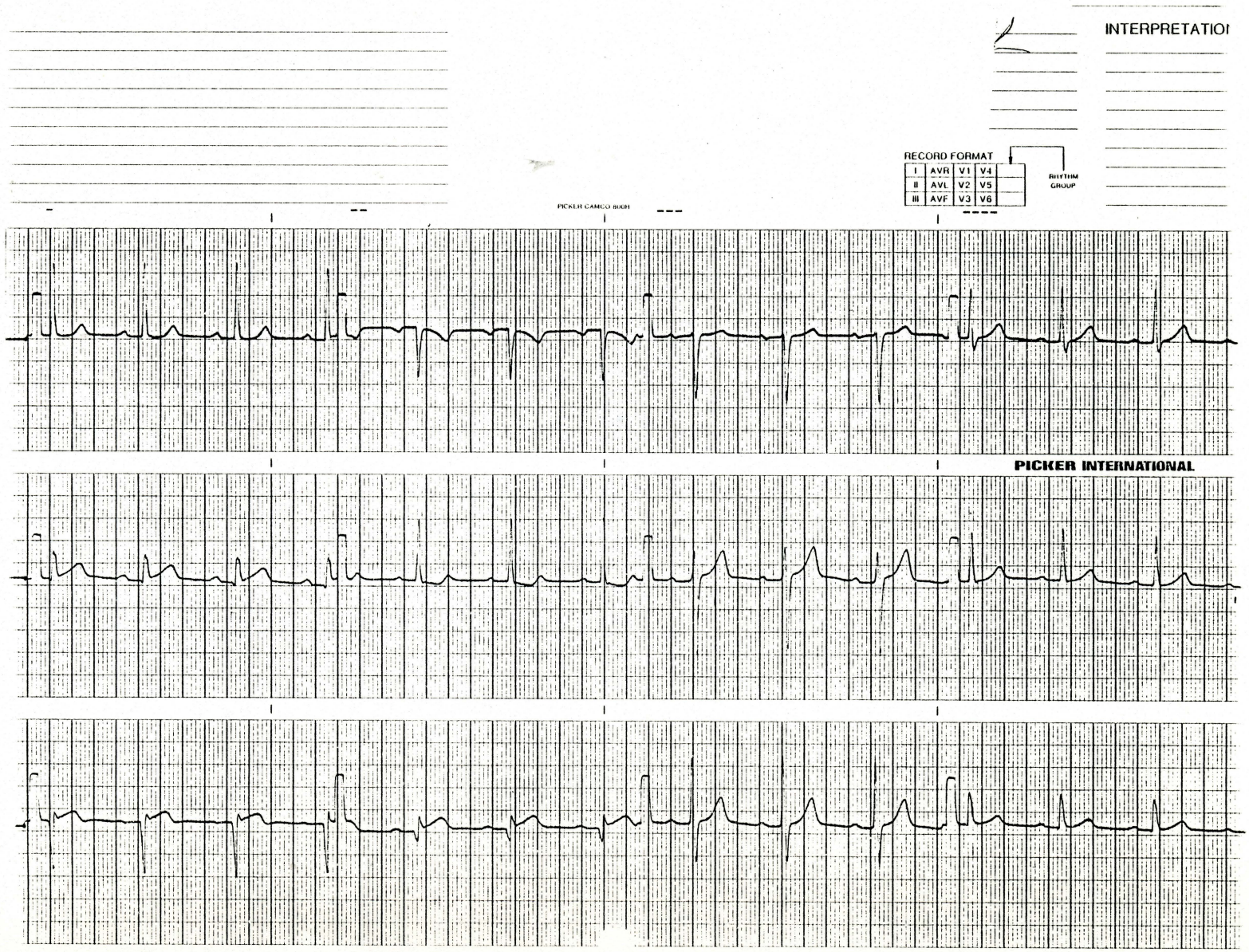
(d) _____

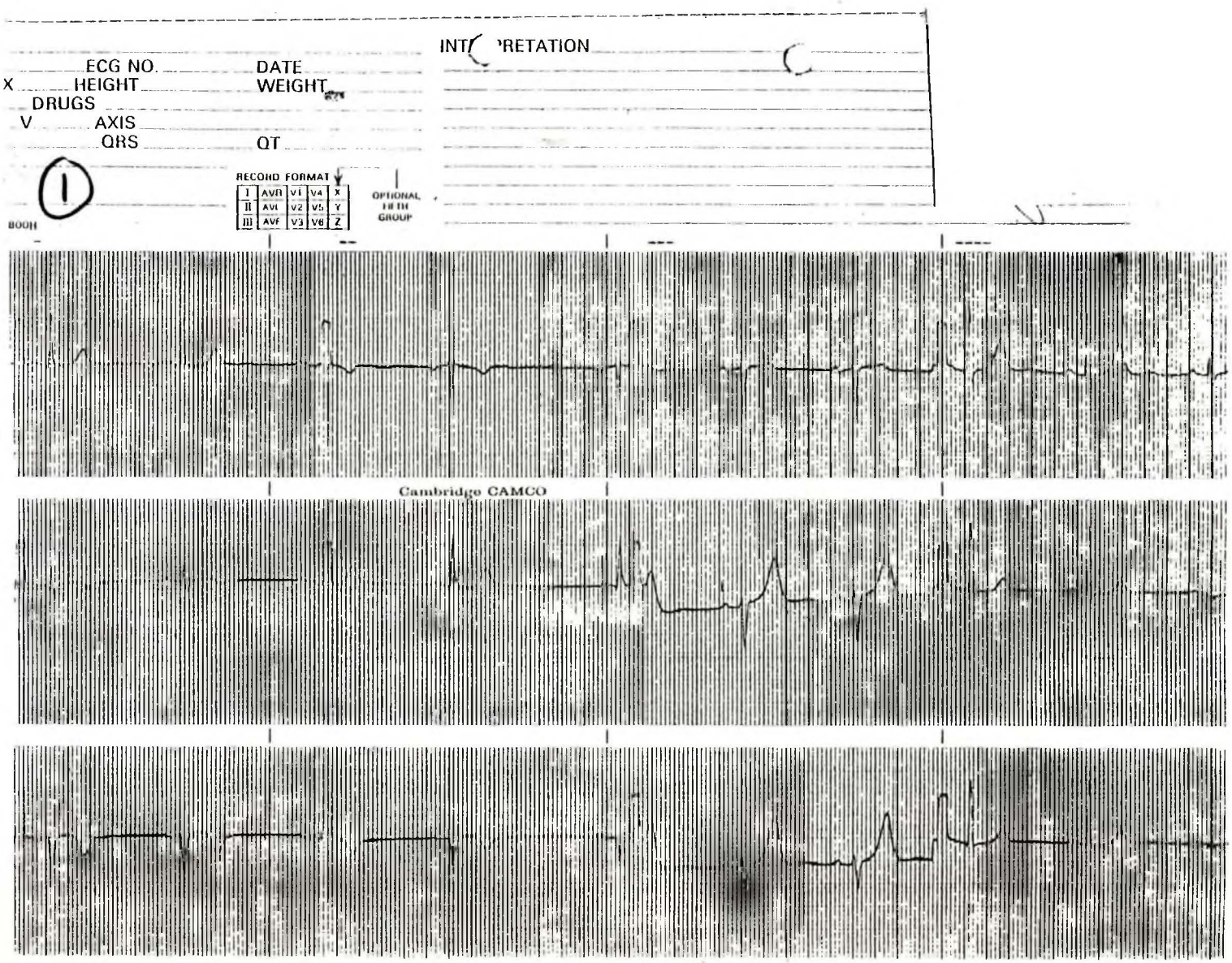
(5) 5. Analyze the attached 12 Lead ECG's, identifying the presence, location and relative age of the myocardial infarction.

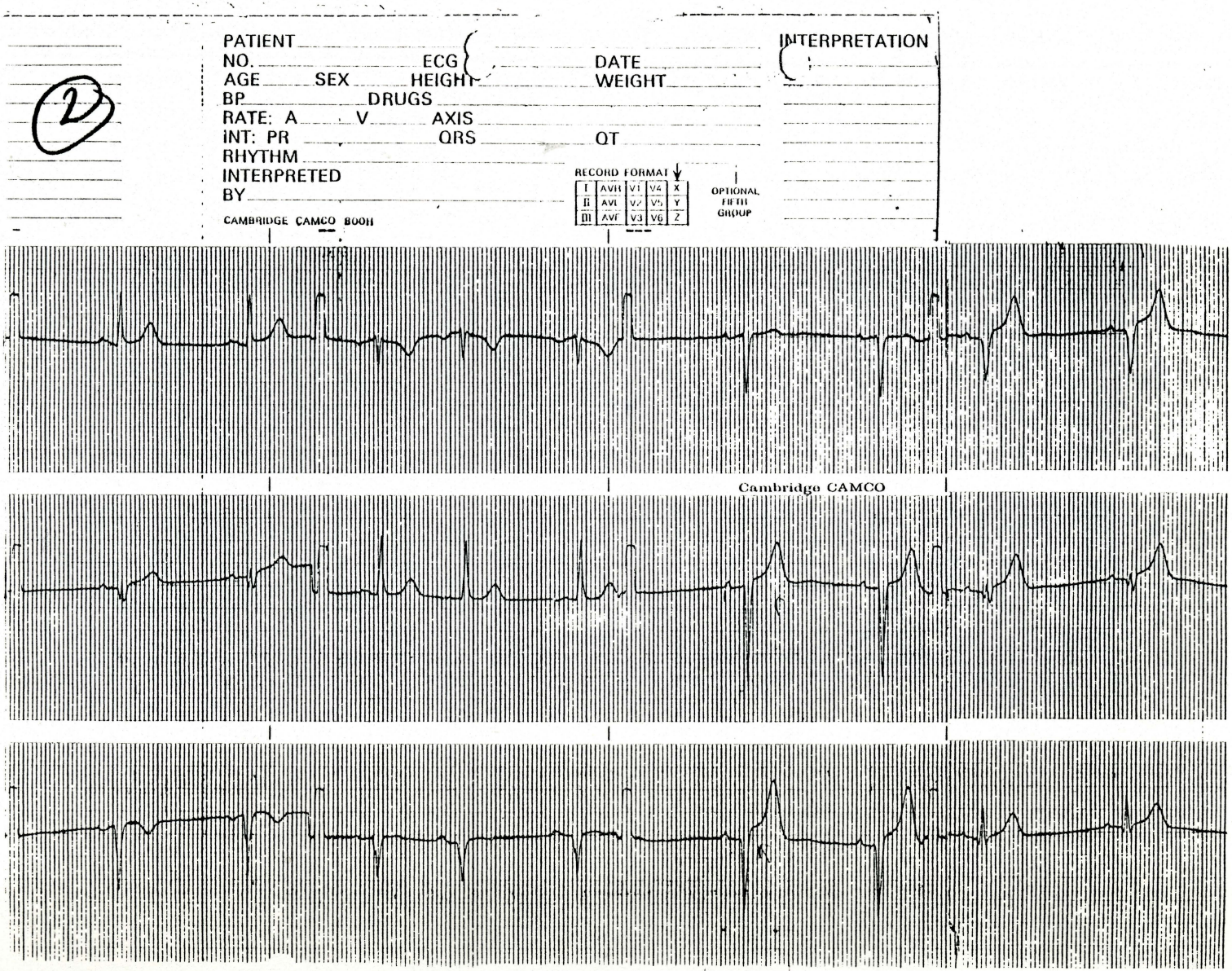
(a) _____

(b) _____

(c) _____


INTERPRETATIOI
RECORD FORMAT
I AVR V1 V4
II AVL V2 V5
III AVF V3 V6
RHYTHM GROUP
PICKER CAMCO 800H
PICKER INTERNATIONAL


INTERPRETATION
ECG NO.
DATE
HEIGHT
WEIGHT
DRUGS
AXIS
QRS
QT
RECORD FORMAT
I AVR V1 V4 X
II AVL V2 V5 Y
III AVF V3 V6 Z
OPTIONAL FIFTH GROUP
BOOH
Cambridge CAMCO


PATIENT
NO.
ECG
DATE
INTERPRETATION
AGE
SEX
HEIGHT
WEIGHT
BP
DRUGS
RATE: A
V
AXIS
INT: PR
QRS
QT
RHYTHM
INTERPRETED
BY
RECORD FORMAT
OPTIONAL FIFTH GROUP
CAMBRIDGE CAMCO BOOH
Cambridge CAMCO

MOHAWK COLLEGE PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - MIDTERM EXAMINATION

NAME: _____

DATE: _____

MARK: /80

(8) 1. Define the following terms:

(a) atherosclerosis _____

_____

_____

(b) effort angina _____

_____

_____

(c) selective myocardial cell necrosis _____

_____

_____

(d) unstable angina _____

_____

_____

(e) sudden cardiac death _____

_____

_____

(f) ischemia _____

_____

_____

(g) "significant" stenosis _____

_____

_____

(h) reentry _____

_____

_____

(8) 2. Describe the effects of ischemia and necrosis on the myocardium with respect to:

(a) energy production _____

_____

_____

(b) contractile changes _____

_____

_____

(c) the action potential _____

_____

_____

(d) compliance _____

_____

_____

(6) 3. Describe the inflammatory response of a myocardial infarction. Describe the potential clinical manifestations, as appropriate.

(3) 4. Describe the relationship between sudden cardiac death and:

(a) dysrhythmias _____

_____

(b) myocardial infarction _____

_____

(c) previous survivors of SCD _____

_____

_____

(1) 5. Why are cardiac enzymes ordered q 8hr x 3 then daily x 2?

(1) 6. Why are isoenzymes ordered?

(1) 7. _____ is the most specific indicator of myocardial damage.

(1) 8. A patient has remained at home for four days with midsternal "indigestion". Which cardiac enzyme is of the most value in this situation?

(8) 9. Describe the 12 Lead ECG changes and their location for the following diagnosis:

a) anterior septal injury _____

b) old anterior lateral infarction _____

c) acute posterior wall infarction _____

d) subacute inferior wall infarction _____

(10) 10. Describe the pharmacological management of the following: N.B.: State the classifications of drug therapies and describe the desired effects.

a) rest angina

b) exertional angina with ST depression

c) exertional angina with ST evelation

d) crescendo angina

e) myocardial infarction

(3) 11. List three contraindication for Beta blocker therapy. Explain the reason for each.

a) _____

b) _____

c) _____

(2) 12. List two cardioselective Beta Blockers.

a) _____

b) _____

(3) 13. Compare the three calcium antagonists with respect to cardio-activity and vasoactivity properties.

_____

_____

_____

_____

14. Mrs. Y is a 44 year old female who presented in the Emergency Department with an acute onset of chest pain while attending her aerobic classes. The patient received no relief from sublingual nitroglycerine nor 10 mgms IV morphine. Her 12 Lead ECG is attached.

(2) a) What additional subjective data would you obtain during the history?

_____

_____

_____

(2) b) Interpret the attached 12 Lead ECG.

_____

_____

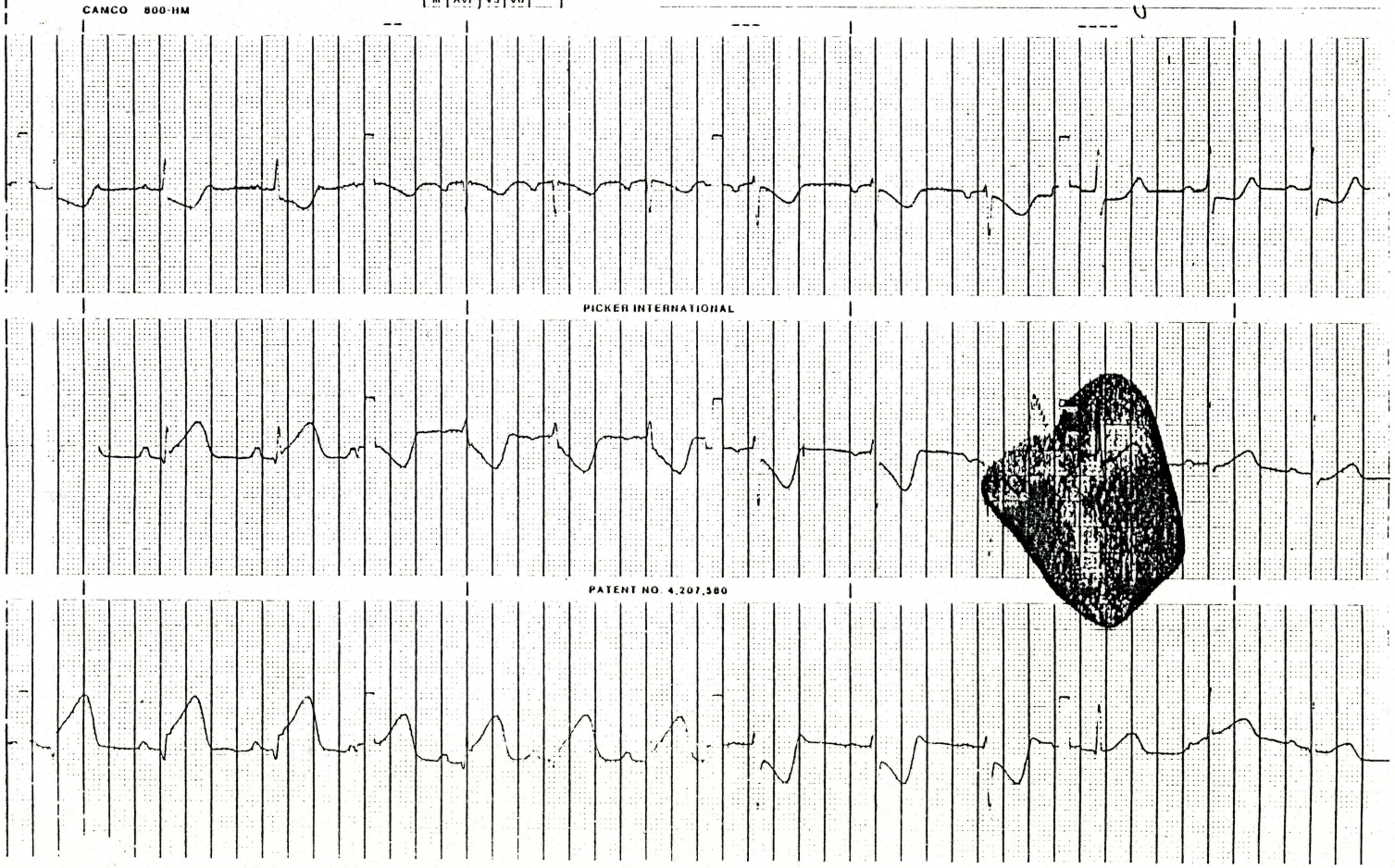
_____

PATIENT
NO. _____ ECG NO. _____ DATE _____
AGE _____ SEX _____ HEIGHT _____ WEIGHT _____
BP. _____ DRUGS _____
RATE: A _____ V _____ AXIS _____
INT: PR _____ QRS _____ QT _____
RHYTHM _____
INTERPRETED
BY _____

RECORD FORMAT

I	AVR	V1	V4	
II	AVL	V2	V5	
III	AVF	V3	V6	

OPTIONAL FIFTH GROUP



(2) c) Do you have any concerns about administering morphine in this situation?

_____

_____

(3) d) List three nursing interventions appropriate to this situation.

_____

_____

_____

(4) e) If this patient is to be discharged on sublingual nitroglycerine, describe the important information to be taught to the patient prior to discharge.

a) _____

b) _____

c) _____

d) _____

(5) 15. Describe the following diagnostic procedures:

a) coronary angiography

b) submaximal treadmill test

c) 2-dimensional echocardiogram

d) myocardial infarction imaging

e) myocardial bloodflow evaluation.

(4) 16. List four (4) criteria for stopping an exercise test.

a) _____

b) _____

c) _____

d) _____

(3) 17. What data will a cardiac catheterization reveal?

a) _____

b) _____

c) _____

TOTAL MARKS: 80

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

MODULE 2 - FINAL EXAMINATION

NAME:

DATE:

MARK: /100

MARK

(14) 1. Describe the following procedures:

(a) myocardial revascularization

(b) percutaneous transluminal coronary angioplasty

(c) cardiac transplantation

(d) permanent pacemaker insertion

(e) temporary pacemaker insertion

(f) intra-aortic balloon pump

(g) intracaval umbrella filter

MARKS

(7) 2. For each of the above procedures, describe the patient criteria.

(10) 3. Describe the controversy regarding the medical versus surgical management of coronary artery disease. Consider symptomatic improvement; prevention of MI; LV function; life expectancy.

MARKS

(10) 4. Compare LV failure to RV failure with respect to medical and nursing management.

MARKS

(1) 5. Define cardiogenic shock.

(1) 6. What are the Forrester classification criteria for cardiogenic shock?

(2) 7. Why would one infuse nitroprusside and dopamine simultaneously to the patient in cardiogenic shock?

(3) 8. List three complications of a ventricular aneurysm that the nurse should be assessing the patient for.

(a)

(b)

(c)

(1) 9. Papillary muscle rupture increases/decreases right/left ventricular preload.

(1) 10. Ventricular septal rupture increases/decreases right/left ventricular preload.

MARKS

(1) 11. Pulmonary embolus increases/decreases right/left ventricular afterload.

(1) 12. The therapeutic goal for pulmonary edema is to increase/decrease left/right ventricular preload.

(3) 13. List three clinical conditions which may result in a cardiac tamponade.

(a)

(b)

(c)

(3) 14. List three signs and symptoms of a cardiac tamponade.

(a)

(b)

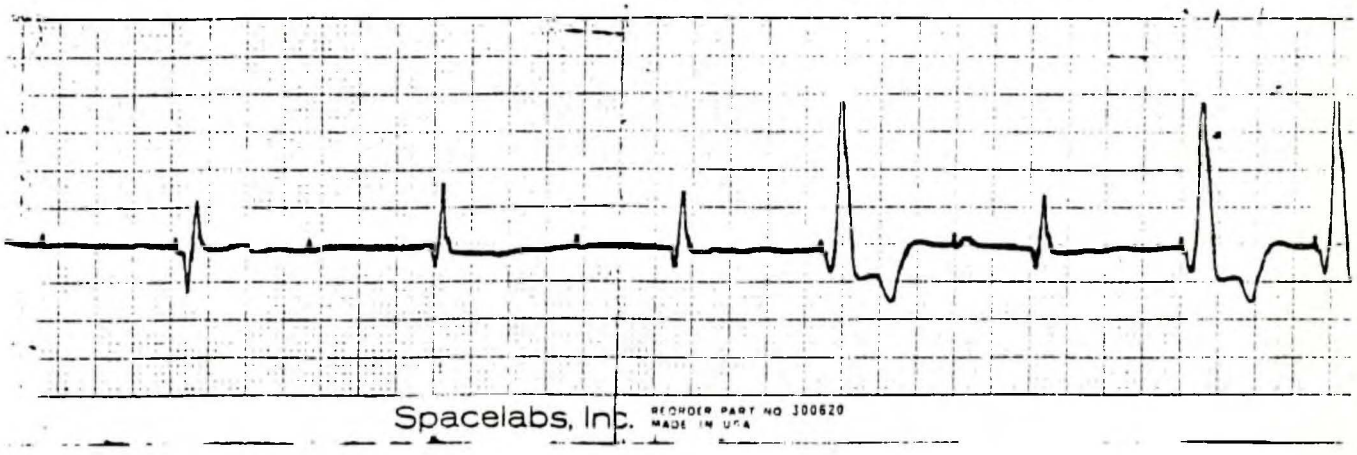
(c)

(16) 15. Identify the following pacing modes.

	Chamber Paced	Chamber Senses	Mode of Response
(a) DDD			
(b) AAI			
(c) DVI			
(d) VDD			

MARKS

(4) 16. (a) Identify the following temporary pacemaker problems:



Answer:

(b) List three interventions that may correct the problem.

i)

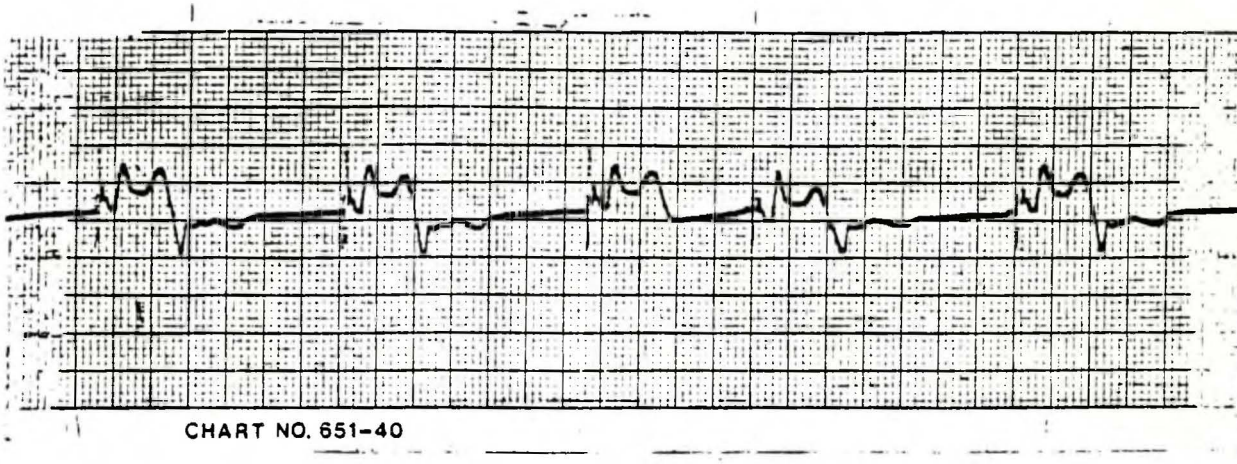
ii)

iii)

MARKS

(3) 17. The following temporary ventricular pacemaker is set at a rate of 80 beats/minute.

(a) Interpret the pacemaker rhythm:



Interpretation:

(b) Suggest a possible cause of the above situation and the resultant nursing intervention.

MARKS

(6) 18. Describe the goals of a cardiac rehabilitation programme for each of the following phases:

(a) C.C.U.

(b) medical/telemetry ward

(c) post hospital discharge

(1) 19. Why isn't the time in hospital following an MI an ideal time for patient teaching?

(1) 20. What is the purpose of an exercise test during cardiac rehabilitation?

(2) 21. What is the purpose of teaching the cardiac patient to take his/her own pulse?

(2) 22. A post MI patient asks when he/she can resume sexual intercourse. What specific instructions would you give?

MARKS

(5) 23. List five indications that a patient is inappropriately increasing his/her activity during the acute phase of his/her MI.

(a)

(b)

(c)

(d)

(e)

(4) 24. Describe four behavioural responses to an MI that a patient/family may experience and the resultant nursing interventions.

APPENDIX G

COURSE EVALUATION FORMS

APPENDIX G

Mohawk College

STUDENT REPORT ON INSTRUCTION QUESTIONNAIRE

SEE INSTRUCTIONS / REMARKS ON REVERSE SIDE.

A KNOWLEDGE OF SUBJECT MATTER

1.	DEMONSTRATED THOROUGH KNOWLEDGE OF SUBJECT MATTER	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	5.	ANSWERED STUDENT QUESTIONS COMPLETELY	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
2.	USED APPROPRIATE EXAMPLES AND ILLUSTRATIONS	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	6.	SHOWED INTEREST IN AND ENTHUSIASM FOR SUBJECT	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
3.	PRESENTED INFORMATION NOT FOUND IN TEXT	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	7.	STRESSED IMPORTANT POINTS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
4.	PROVIDED EXPLANATIONS IN SUFFICIENT DETAIL	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐			

B CLARITY OF INSTRUCTION

8.	SPOKE CLEARLY AND AUDIBLY	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	11.	USED SUFFICIENT DIAGRAMS AND VISUAL AIDS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
9.	USED APPROPRIATE LANGUAGE	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	12.	USED EASY-TO-FOLLOW BLACKBOARD PRESENTATIONS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
10.	PROVIDED WRITTEN OUTLINE OF COURSE	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	13.	CLARIFIED DIFFICULT POINTS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐

C PLANNING AND ORGANIZATION

14.	PLANNED AND ORGANIZED EACH LESSON EFFECTIVELY	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	17.	USED CLASS TIME EFFECTIVELY	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
15.	RELATED EACH LESSON TO COURSE OUTLINE	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	18.	PROVIDED A WRITTEN GRADING PLAN	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
16.	GAVE SUFFICIENT NOTICE FOR TESTS AND ASSIGNMENTS	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	19.	USED TEXT BOOK EFFECTIVELY	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐

D CONCERN FOR STUDENT LEARNING

20.	SHOWED CONCERN FOR STUDENT LEARNING	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	24.	PROVIDED ENCOURAGEMENT FOR STUDENTS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
21.	ENCOURAGED IN-CLASS QUESTIONS	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	25.	SHOWED CAREFUL CONSIDERATION FOR MARKING	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
22.	MADE ALLOWANCE FOR INDIVIDUAL LEARNING PROBLEMS	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	26.	RETURNED TESTS AND ASSIGNMENTS PROMPTLY	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
23.	PROVIDED OPPORTUNITY FOR INDIVIDUAL ASSISTANCE	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	27.	SET FAIR TESTS AND ASSIGNMENTS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐

E CLASS MANAGEMENT

28.	MANAGED CLASS EFFECTIVELY	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	32.	DEMONSTRATED PATIENCE IN CLASS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
29.	STARTED AND ENDED CLASS ON TIME	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	33.	MAINTAINED FIRM CONTROL OF CLASS	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
30.	KEPT CLASS ON TRACK	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐			
31.	STIMULATED SUFFICIENT DISCUSSION & PARTICIPATION	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐			

F FEEDBACK ON COURSE CONTENT AND TEXT

34.	RELEVANCE TO PROGRAM OR CAREER IS EVIDENT	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	36.	THE TEXT IS NECESSARY AND USEFUL	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐
35.	WORKLOAD COMPARABLE TO OTHER COURSES TAKEN	⊏VS⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐	37.	CONTENT LEVEL IS ABOUT RIGHT FOR ME	⊏VS⊐ ⊏S⊐ ⊏D⊐ ⊏VD⊐ ⊏NA⊐

VS - VERY SATISFIED S - SATISFIED D - DISSATISFIED VD - VERY DISSATISFIED NA - NOT APPLICABLE

SCAN-TRON ® FORM NO. 3531-MC © SCANTRON CORPORATION, [illegible] PRINTED IN CANADA 841227-981

23481 STUDENT REPORT ON INSTRUCTION

INSTRUCTORS CODE

CLASS CODE

Instruction Sheet

PURPOSE OF THE EXERCISE

The purpose of the feedback you are to provide by completing this questionnaire is the improvement of instruction. To this end, regard with care each item upon which you are to make a judgment and respond according to the scale shown below.

It is intended that the instructor will discuss the **tabulated results with your class and the department chairman.**

COMPLETING THE QUESTIONNAIRE

To insure confidentiality, **DO NOT show your name or your instructor's name anywhere on this sheet.** Your instructor will tell what is to be entered for administrative purposes.

Item 1 on the other side of the sheet reads: Demonstrated thorough knowledge of subject matter. Using the following scale, shade in, in pencil, the rectangle that corresponds to your assessment of this aspect of the instruction you have received.

⊏V⊐	⊏S⊐	⊏D⊐	⊏VD⊐	⊏NA⊐
Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Not Applicable

Your responses will be "read" by a computer which does not accept ink and rejects answers if shading is carried outside the rectangle. If you make a change, be sure to erase completely your previous response.

Respond to the items on the front of the questionnaire in this manner.

YOUR COMMENTS

You may complete this questionnaire and feel that some important aspect of instruction has been overlooked. If this happens, feel free to provide additional information on this sheet. However, unless you have something to add that may contribute to the improvement of instruction, you need not comment. Please print in pencil.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

PART TIME STUDIES

ADVANCED CARDIAC CARE PROGRAMME

COURSE EVALUATION

Please comment openly with regards to the following aspects of Module 2. Whenever possible, please give specific examples and/or constructive feedback.

1. Course Content and Organization.

2. Distribution of Classroom Hours.

3. Clinical Experiences (to date).

4. Reading Assignments and Objectives.

5. Textbook.

6. Handouts.

7. Assignments.

8. Quizzes and Examinations.

9. Guest Speakers.

10. Mohawk College.

TEACHER

1. What did I do that was most helpful to your learning?

2. What did I do/not do that was the least helpful to your learning?

3. Teaching - style.

4. AV Aids Used.

STUDENT

1. What could you have done to have benefited more from this module?

2. What do you perceive was the purpose of the reading assignments?

3. Which textbook was your primary resource?

4. Hours spent/week

   (a) reading

   (b) studying for the quizzes.

5. Do you think you may have learned more if there were more restrictions regarding clinical exemptions?

GENERAL COMMENTS

1. What is your overall reaction to:

   (a) this module

   (b) the entire programme

2. Do you think this module would be beneficial to your colleagues? Please explain.

3. Would you recommend this module to your colleagues? Please explain.

APPENDIX H

SUMMARY OF STUDENT REPORT ON INSTRUCTION

MOHAWK COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SUMMARY OF STUDENT REPORT ON INSTRUCTION

A. KNOWLEDGE OF SUBJECT MATTER	VS	S	D	VD	NA	NR	%
1. DEMONSTRATED THOROUGH KNOWLEDGE OF SUBJECT MATTER	76.4	17.6	0.0	0.0	0.0	5.8	
2. USED APPROPRIATE EXAMPLES AND ILLUSTRATIONS	52.9	35.2	0.0	0.0	0.0	11.7	
3. PRESENTED INFORMATION NOT FOUND IN TEXT	35.2	58.8	0.0	0.0	0.0	5.8	
4. PROVIDED EXPLANATIONS IN SUFFICIENT DETAIL	47.0	41.1	0.0	0.0	0.0	11.7	
5. ANSWERED STUDENT QUESITONS COMPLETELY	58.8	35.2	0.0	0.0	0.0	5.8	
6. SHOWED INTEREST IN AND ENTHUSIASM FOR SUBJECT	52.9	41.1	0.0	0.0	0.0	5.8	
7. STRESSED IMPORTANT POINTS	52.9	41.1	0.0	0.0	0.0	5.8	
A. SUMMARY	53.7	38.6	0.0	0.0	0.0	7.5	
B. CLARITY OF INSTRUCTION							
8. SPOKE CLEARLY AND AUDIBLY	64.7	29.4	0.0	0.0	0.0	5.8	
9. USED APPROPRIATE LANGUAGE	52.9	41.1	0.0	0.0	0.0	5.8	
10. PROVIDED WRITTEN OUTLINE OF COURSE	35.2	52.9	5.8	0.0	0.0	5.8	
11. USED SUFFICIENT DIAGRAMS AND VISUAL AIDS	35.2	58.8	0.0	0.0	0.0	5.8	
12. USED EASY-TO-FOLLOW BLACKBOARD PRESENTATIONS	29.4	52.9	0.0	0.0	11.7	5.8	
13. CLARIFIED DIFFICULT POINTS	41.1	52.9	0.0	0.0	0.0	5.8	
B. SUMMARY	43.1	48.0	0.9	0.0	1.9	5.8	
C. PLANNING AND ORGANIZATION							
14. PLANNED AND ORGANIZED EACH LESSON EFFECTIVELY	52.9	41.1	0.0	0.0	0.0	5.8	
15. RELATED EACH LESSON TO COURSE OUTLINE	47.0	47.0	0.0	0.0	0.0	5.8	
16. GAVE SUFFICIENT NOTICE FOR TESTS AND ASSIGNMENTS	52.9	41.1	0.0	0.0	0.0	5.8	
17. USED CLASS TIME EFFECTIVELY	29.4	64.7	0.0	0.0	0.0	5.8	
18. PROVIDED A WRITTEN GRADING PLAN	52.9	41.1	0.0	0.0	0.0	5.8	
19. USED TEXTBOOK EFFECTIVELY	29.4	64.7	0.0	0.0	0.0	5.8	
C. SUMMARY	44.1	50.0	0.0	0.0	0.0	5.8	

D. CONCERN FOR STUDENT LEARNING	VS	S	D	VD	NA	NR	%
20. SHOWED CONCERN FOR STUDENT LEARNING	58.8	35.2	0.0	0.0	0.0	5.8	
21. ENCOURAGED IN-CLASS QUESTIONS	52.9	41.1	0.0	0.0	0.0	5.8	
22. MADE ALLOWANCE FOR INDIVIDUAL LEARNING PROBLEMS	23.5	64.7	5.8	0.0	0.0	5.8	
23. PROVIDED OPPORTUNITY FOR INDIVIDUAL ASSISTANCE	29.4	58.8	5.8	0.0	0.0	5.8	
24. PROVIDED ENCOURAGEMENT FOR STUDENTS	41.1	52.9	0.0	0.0	0.0	5.8	
25. SHOWED CAREFUL CONSIDERATION FOR MARKING	41.1	52.9	0.0	0.0	0.0	5.8	
26. RETURNED TESTS AND ASSIGNMENTS PROMPTLY	52.9	41.1	0.0	0.0	0.0	5.8	
27. SET FAIR TESTS AND ASSIGNMENTS	52.9	41.1	0.0	0.0	0.0	5.8	
D. SUMMARY	44.1	48.5	1.4	0.0	0.0	5.8	
E. CLASS MANAGEMENT							
28. MANAGED CLASS EFFECTIVELY	35.2	58.8	0.0	0.0	0.0	5.8	
29. STARTED AND ENDED CLASS ON TIME	23.5	64.7	5.8	0.0	0.0	5.8	
30. KEPT CLASS ON TRACK	29.4	64.7	0.0	0.0	0.0	5.8	
31. STIMULATED SUFFICIENT DISCUSSION & PARTICIPATION	35.2	58.8	0.0	0.0	0.0	5.8	
32. DEMONSTRATED PATIENCE IN CLASS	47.0	47.0	0.0	0.0	0.0	5.8	
33. MAINTAINED FIRM CONTROL IN CLASS	23.5	70.5	0.0	0.0	0.0	5.8	
E. SUMMARY	32.3	60.7	0.9	0.0	0.0	5.8	
SUMMARY OF QUESTIONS A THROUGH E:	43.8	48.8	0.7	0.0	0.3	6.2	
F. FEEDBACK OF COURSE CONTENT AND TEXT							
34. RELEVANCE TO PROGRAMME OR CAREER IS EVIDENT	58.8	35.2	0.0	0.0	0.0	5.8	
35. WORKLOAD COMPARABLE TO OTHER COURSES TAKEN	23.5	64.7	5.8	0.0	0.0	5.8	
36. THE TEXT IS NECESSARY AND USEFUL	35.2	58.8	0.0	0.0	0.0	5.8	
37. CONTENT LEVEL IS ABOUT RIGHT FOR ME	35.2	52.9	5.8	0.0	0.0	5.8	
F. SUMMARY	38.2	52.9	2.9	0.0	0.0	5.8	

TOTAL NUMBER OF STUDENTS: 17