THE BEHAVIORAL SCIENTIST AS CURRICULAR CHANGE AGENT

Johanna Shapiro, Ph.D. and Brian Andrews, M.D., Ph.D.
University of California Irvine
September, 1996

I. GOALS AND OBJECTIVES:

A. TO DESCRIBE THE PROCESS OF UNDERGRADUATE CURRICULAR REFORM AT ONE LARGE, PUBLICLY FUNDED MEDICAL SCHOOL

B. TO EXAMINE WAYS IN WHICH BEHAVIORAL SCIENTISTS MAY PARTICIPATE IN AND FACILITATE SUCH CHANGE

II. CURRICULAR REFORM

A. THEORY AND VISION AS THE BASIS FOR CURRICULAR REFORM

1. Student dissatisfaction insufficient grounds for change.
2. Piecemeal efforts (i.e., changing content within one course, or coordinating between two courses) run risk of contradicting other changes.

B. SUCCESSFUL CURRICULAR REFORM FOLLOWS A CLASSIC SCIENTIFIC PARADIGM

1. Formulation of theory
2. Derivation of hypotheses
3. Empirical testing of hypotheses
4. Modification of theory
   (based on observation and experience)

III. THE CASE OF UC IRVINE: HISTORICAL OVERVIEW

A. OVERALL CURRICULAR DISSATISFACTION

B. STUDENT DISSATISFACTIONS

1. Excessive lecture hours
   (teacher/researcher-centered learning)
2. Irrelevant material
3. Redundancy and lack of coordination across courses (rigid departmental barriers)
4. Lack of integration of content knowledge
5. Lack of skill development in problem-solving, clinical reasoning (test-taking and memorization)
6. Rigid separation of clinical and preclinical years especially strong criticism of social science, "orphan" courses

C. 1992 NEGATIVE LCME REVIEW

IV. EDUCATIONAL THEORIES/CONCEPTS UTILIZED IN OUR CURRICULAR CHANGE PROCESS

A. PROBLEM BASED LEARNING

1. Structuring of knowledge relevant in clinical encounters
   a. Simulation of task environment
   b. Learning in context
2. Development of clinical reasoning and problem-solving
3. Self-directed learning skills
   a. Small group learning
   b. Independent investigation
   c. Increased motivation for learning
4. Interdisciplinary and integrative emphasis
   a. Pairing of basic scientists and clinicians
   b. Case or organ-based approach

B. STUDENT-CENTERED LEARNING

1. Agenda set by student, not teacher
   a. More control over what they learn
   b. Choose objectives, resources
   c. Decide sequence, pace of learning
2. Student more active, less passive
3. Student takes responsibility for own learning
4. Faculty guides, rather than directs

C. INTEGRATED TEACHING

1. Knowledge is interrelated and interdependent
2. Patient care is wholistic, not reductionistic
3. Understanding of disease and illness is multidisciplinary and interactive
   a. Learning must be relevant to patient care
   b. Usually organ-based or systems-based

V. DESCRIPTION OF PATIENT DOCTOR II COURSE

A. OVERVIEW OF COURSE

1. The overall purpose of this 316 hour, required course was to design a major interdisciplinary initiative as part of the preclinical curriculum that would teach students how to combine a psychosocial analysis of various dimensions of patient care (i.e., emotional, behavioral, sexual,

cultural, epidemiological, economic etc.) with the standard systematic approach to history taking, physical exam and diagnosis
2. By the end of the course, medical students were expected to be able to integrate a variety of knowledge bases and skills in a comprehensive, biopsychosocial approach to patient care.
3. Goals of the patient-doctor II course
   a. Address student dissatisfaction with orphan courses
   b. Incorporate innovative educational theories and methods
   c. Stimulate integration and coordination of biomedical and psychosocial knowledge
   d. Produce student-centered teaching
   e. Emphasize clinical reasoning and problem-solving

B. EXPERIENCE MODIFIES THEORY: COMPARISON OF YEARS I AND III

1. What worked
   a. Small groups
   b. Coleaders
   c. Surrogate patients
   d. Role-plays
2. What didn't work
   a. Expert panels
   b. Expert consultants
   c. Peer evaluation
   d. Process notes
   e. Written learning objectives
   f. Elimination of lectures
   g. Student summaries of independent learning
   h. Oral quizzes
   i. Hat game
3. What has potential
   a. Literature searching
   b. Peer teaching
   c. Case write-ups
   d. Station rotation
   e. Integration of courses
   f. Expert small group discussions
   g. Multimodal student evaluations

C. MAJOR PROBLEMS

1. Administrative: Logistical and instrumental
2. Problems with theory
3. Process Issues
   a. Elements of theFIRO
      1. Inclusion (Significance): in/out
      2. Control (Competence): top/bottom
      3. Openness (comfort, respect, trust): open/closed
   b. FIRO-based problems in PDII
      1. Inclusion vs. exclusion (marginalization of faculty)
      2. Need for control and difficulty in relinquishing control
         a. Territoriality and turf issues
         b. Power struggles

3. Tendency to operate as a closed system
   a. Lack of trust, insecurity, anxiety prevalent among both faculty and students
   b. Uncertainty regarding roles - threatened sense of professional identity (faculty); less passivity (students)
   c. Conflict over how to define a proper knowledge base
   d. Disagreement over how to achieve fair and uniform evaluation of students

D. CONSEQUENCES OF PROBLEMS

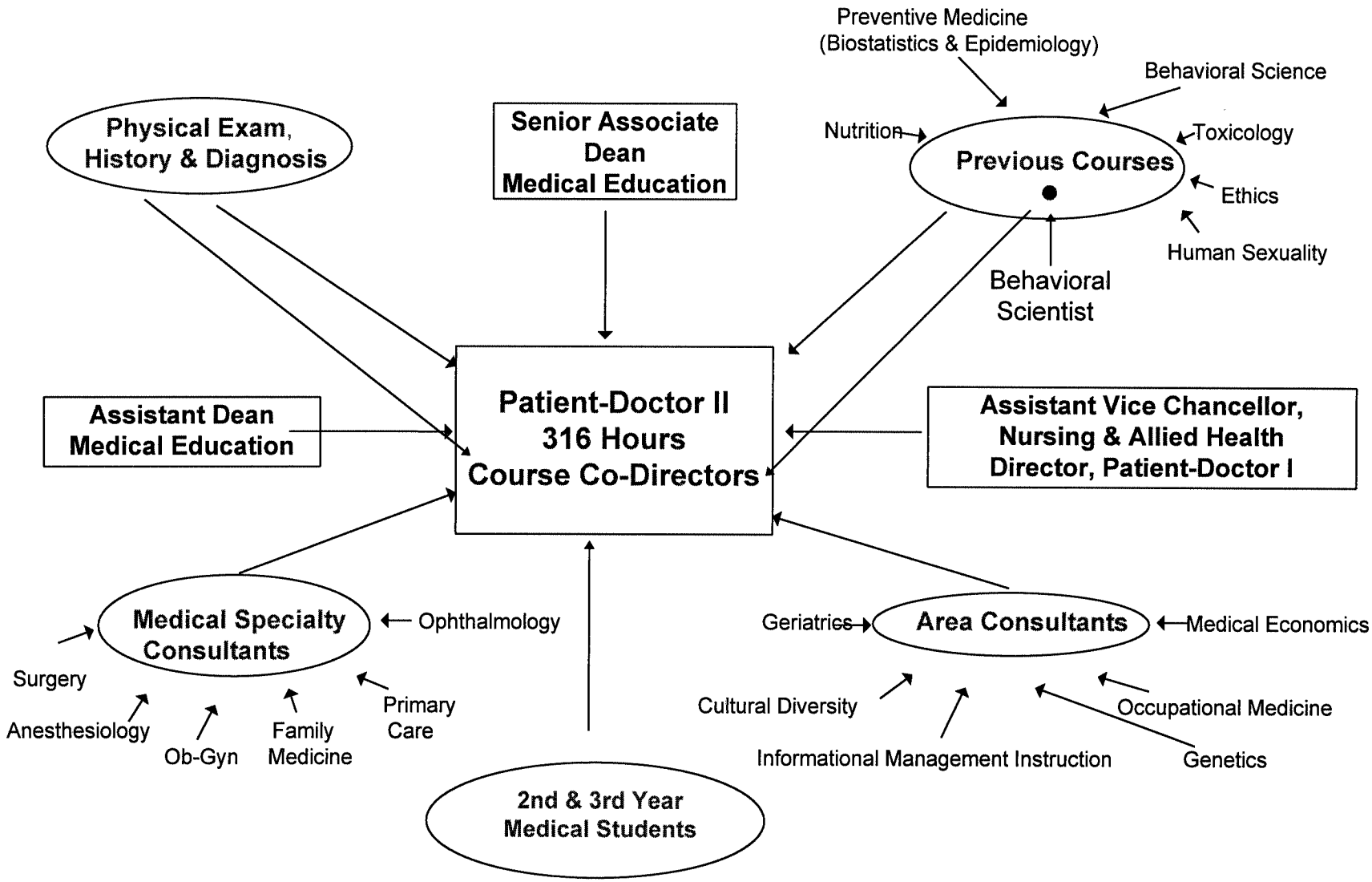
1. Reemphasis on structure, uniformity, measurable evaluation criteria, greater control
   a. Reading tied page by page to learning objectives
   b. No student-generated objectives
   c. Adjustments in grading to reflect coleader subjectivity
   d. Lectures reintroduced
   e. More objective examinations
   f. Tailoring of teaching material to exams
2. Repeated attempts at withdrawal from course by various content areas
3. Ongoing modification of the curriculum

VI. ROLE OF THE BEHAVIORAL SCIENTIST

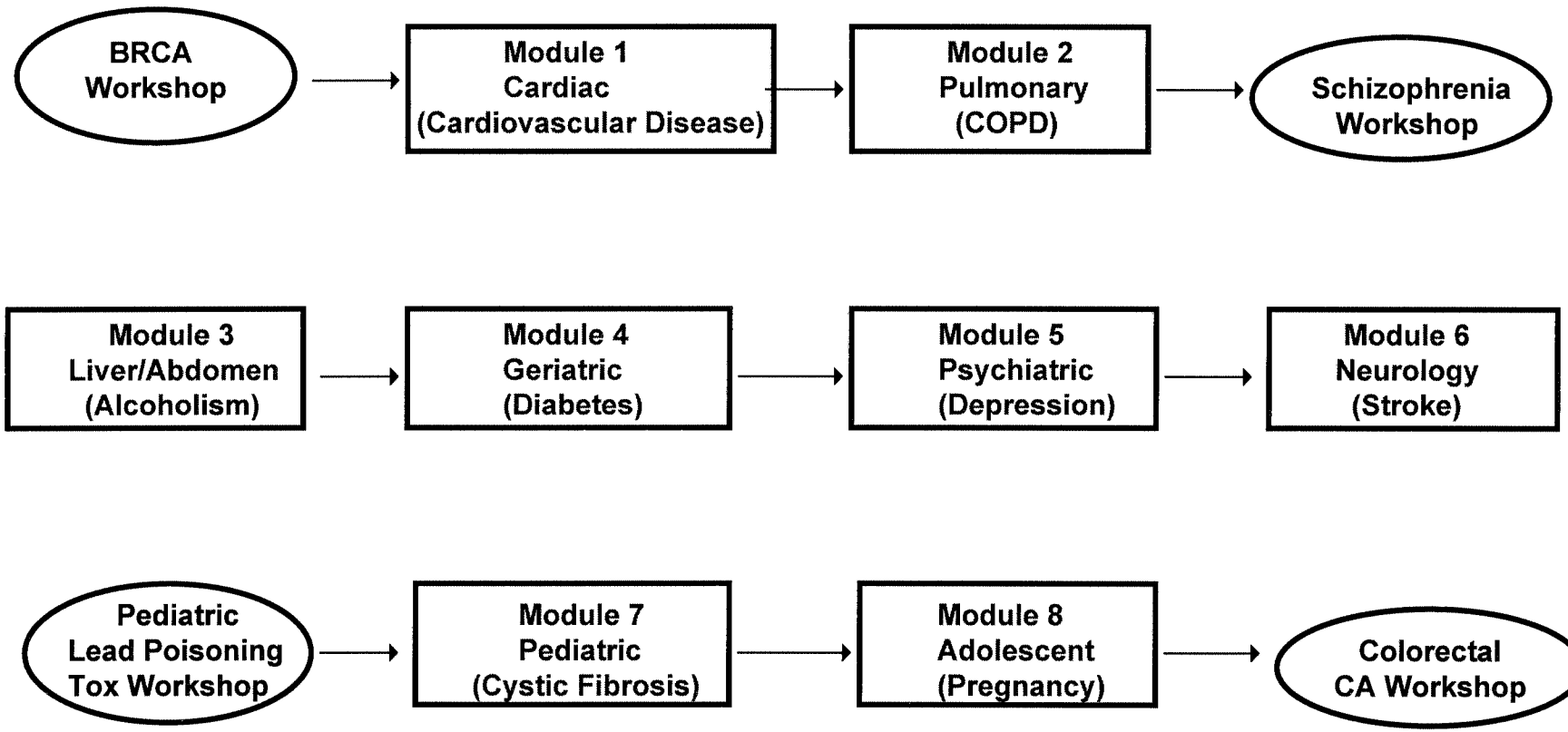
A. SUCCESSFUL STRATEGIES FOR FACILITATING PROFESSIONAL TRUST AND COLLABORATION

1. Promoting inclusion
   a. Generalism
   b. Advocacy for "softer" sciences
2. Exercising moderate control
   a. Competency
   b. Conjoint decision-making
   c. Willingness to assume leadership
3. Fostering openness
   a. Buy-in to shared goals and vision
   b. Bridge between medical and nonmedical worlds

INTEGRATED ELEMENTS

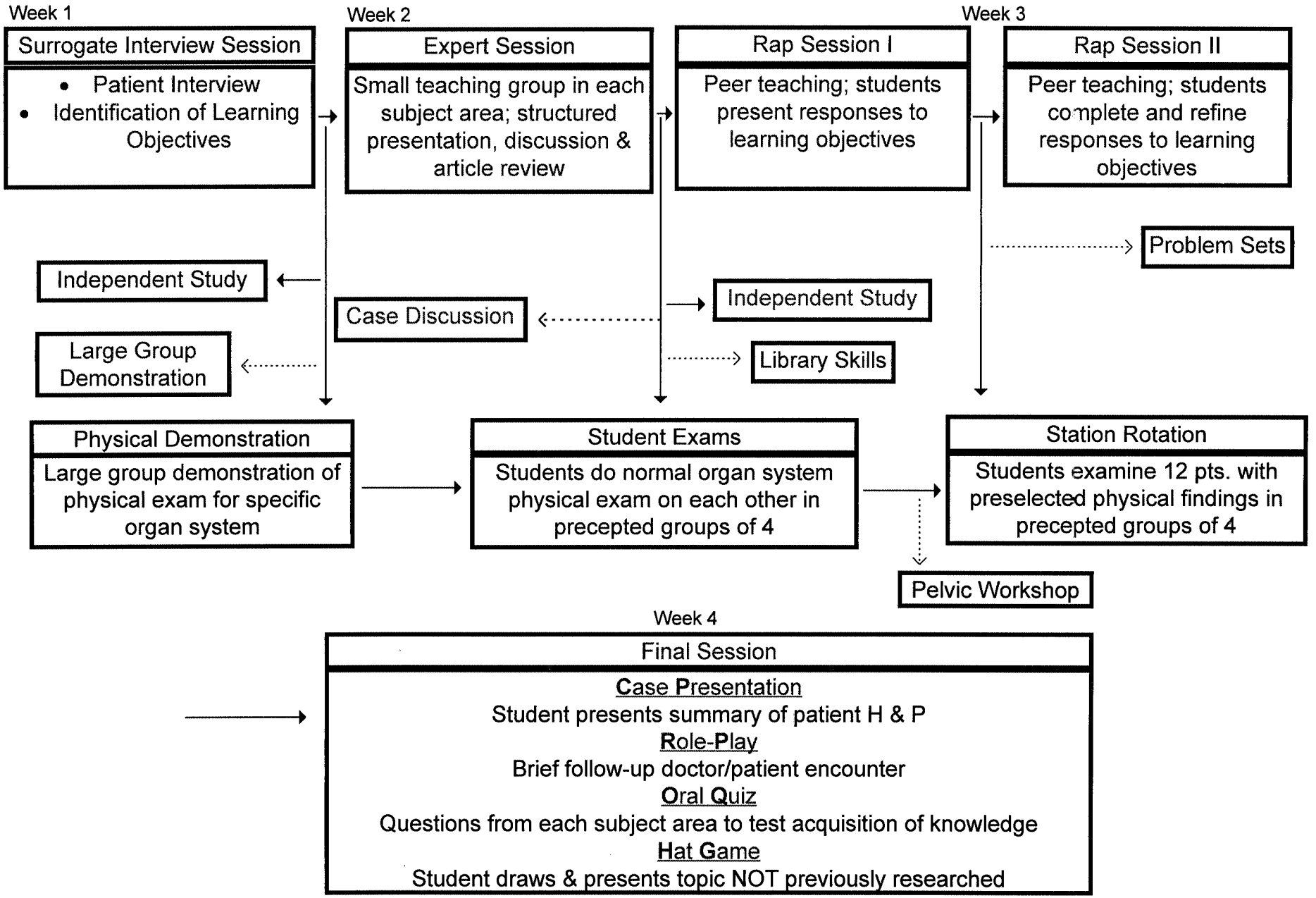


MODULE CONTENTS



Workshop = 1 day
Module = 4 weeks

MODULAR LEARNING ACTIVITIES

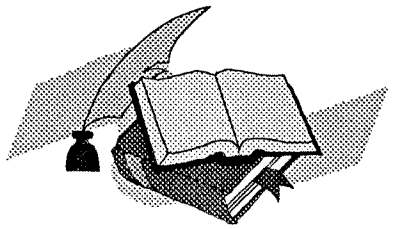


→ Indicates activity included in all

⇢ Indicates activity in some but not all

FACULTY ROLES

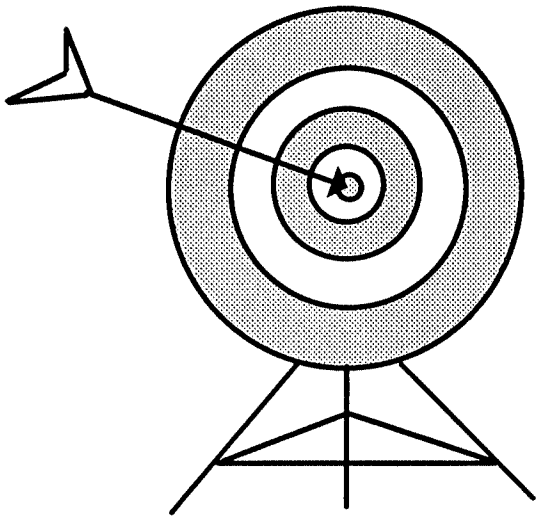
ROLE	DEFINITION	RESPONSIBILITIES
COURSE CO-DIRECTOR	One physician and one non-physician	Overall Course development, implementation, and supervision
PHYSICIAN CO-LEADER	Any physician faculty comfortable with a broad range of patient physicial and psychosocial presentations	• Evaluate students' case write-ups • Facilitate group process • Comment on case • Give feedback on student performance
NON-PHYSICIAN CO-LEADER	Basic (i.e., pharmacology) or social science (i.e. psychologist) faculty comfortable with a broad range of clinical presentations	• Facilitate group process • Comment on case • Give feedback on student performance • Role-play return visit of patient
PRECEPTOR	Physician faculty	Instruct students in physical examination and diagnosis for both normal exam and specific physical findings pertinent to a given module
EXPERT	Faculty with specific knowledge and skills relevant to a set of learning objectives (ethics, cultural diversity, toxicology, etc.)	Serve as lecturer/discussion leader for group of 12-18 students fulfilling objectives in a specific content area.
COURSE ADVISOR	Former director of courses integrated into PD II (behavioral sciences, biostatistics, nutrition, genetics, human sexuality, etc.)	Identify overall course objectives Develop specific module objectives Review clinical cases
MODULE CLINICAL COORDINATOR	Physician faculty responsible for design and implementation of a specific module	Review of clinical case Recruitment and training of surrogates Prepare questions for final session role-play
COURSE CONSULTANT	Physician or non-physician faculty whose specialty area is implicated in PD II course	Provide input about specialized area of knowledge (pelvic workshop, library searching, cultural diversity, geriatrics, genetics) as it relates to PD II course



STUDENT ROLES

(Rotate Each Module)

ROLE	RESPONSIBILITIES
Group Leader	Calls additional group study sessions, facilitates assignment of objectives, running Rap Sessions, and designates student to make case presentation.
Interviewing Student	Interviews patient surrogate and participates in final session patient role-play.
Historian	Records on the board elements of medical and psychosocial history as they are elicited by Interviewing Student.
Analyst	Identifies patient problems that need further investigation, or areas of learning to be pursued. The learning problems identified become either primary or secondary learning objectives.
Scribe	Takes notes on group process in Surrogate Interview and during Rap Sessions. Also records specific course of action recommended to resolve problems identified during Rap Session presentation of learning objectives.



To be sure of hitting the target shoot first, and whatever you hit, call it the target.
Ashleigh Brilliant, 1974

Curricular Reform As Moving Target

Curricular reform may be compared to a moving target in that once we take aim at a particular problem (e.g., poorly attended, boring lectures) with a particular arrow from our quiver (e.g., problem-based learning) we find that the target unaccountably has been moved. Suddenly, what appear are student worries about lack of consistent academic standards across small learner groups; and faculty anxiety about the adequacy of the discovery process to convey information such as biostatistics and toxicology. Successfully striking the target involves modifying the arrow's philosophically grounded trajectory of pure PBL with continual fine-tuning and curricular modification based on ongoing student and faculty feedback.

HANDOUT

PROBLEM-BASED LEARNING AND CURRICULAR REFORM: A MOVING TARGET? The Case of the UC Irvine Patient-Doctor II Course

Johanna Shapiro, Ph.D., Brian Andrews, M.D., Ph.D., Alberto Manetta, M.D., Lloyd Rucker, M.D., Ellen Lewis, RN, MSN, Anna Feldstein, Ph.D., Olivia de la Rocha, Ph.D.
University of California, Irvine College of Medicine, Irvine, CA 92717

OBJECTIVES. In 1993-4, The University of California Irvine College of Medicine built upon a problem-based learning foundation established in its first year Patient-Doctor I course through the development and implementation of Patient-Doctor II. The objectives of this second year course were several: 1) To address pervasive student dissatisfaction with the pre-clinical curriculum, especially courses such as behavioral sciences, ethics, human sexuality, toxicology, epidemiology, biostatistics, and nutrition 2) To encourage curricular applications of innovative educational theories and methodologies, such as PBL 3) To stimulate integration and coordination of disparate bodies of knowledge, in the process breaking down rigid departmental barriers and promoting faculty cooperation 4) To produce learning that was student-centered, rather than faculty-centered 5) To emphasize intellectual skills of knowledge synthesis and clinical problem-solving.

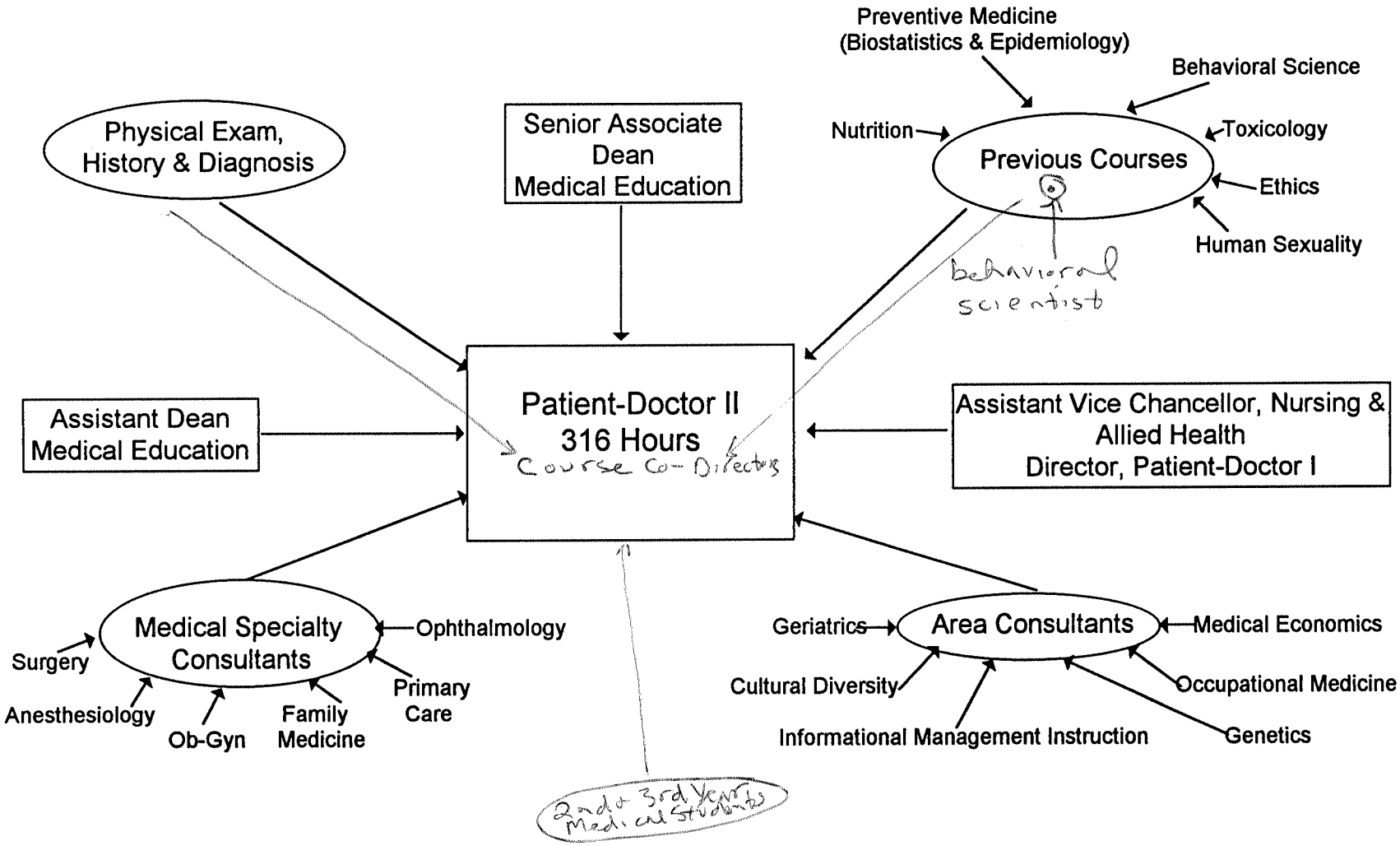
METHODS. In order to accomplish these goals, several mechanisms were employed, including: 1) Widespread involvement of faculty in course design, including formation of a multi-disciplinary, multi-departmental Task Force to guide course development 2) A two-day faculty development workshop on problem-based learning 3) Incorporation of innovative and relevant methodologies such as surrogate interviews, peer teaching, expert small group discussions, faculty panels, literature searching skills, and 4) Ongoing evaluation and critique from students and faculty, with consequent course revision and modification.

RESULTS. Results included the following: 1) Student enthusiasm for the use of surrogate patient interviews 2) Effectiveness of small group learning facilitated by experts and multidisciplinary faculty teams 3) Successful integration of small courses with each other and with physical examination and diagnosis. Unanticipated problems included: 1) Uncertainty in students and faculty as to what constituted an appropriate knowledge base 2) Difficulty in integrating certain academic material into a problem-based, case-oriented approach 3) Difficulty in striking a balance between traditional faculty-directed education and student-initiated learning 4) Anxiety resulting from new roles and expectations 5) Lack of consensus regarding how to achieve fair and uniform evaluation of students 6) Administrative snafus resulting from the complexities of course coordination and administration.

CONCLUSIONS AND IMPLICATIONS. A year's experience with Patient-Doctor II suggests that students and faculty respond positively to curricular reform that emphasizes clinical application of knowledge and high faculty-student interaction. Future efforts at curricular reform such as PD II would benefit from: 1) Initial pilot testing of any large-scale curricular change 2) Clear distinction between the formulation phase of reform, in which multiple realities are encouraged; and the implementation phase, in which a specific course of action must be carried out 3) Recognition that to accomplish humanistic educational goals of independent learning, group cooperation, and compassionate interaction with patients requires meticulous attention to detail and stringent performance criteria 4) Awareness that both student and faculty anxiety in the face of uncertainty mediates the relationship between abstract educational philosophy and its concrete application.

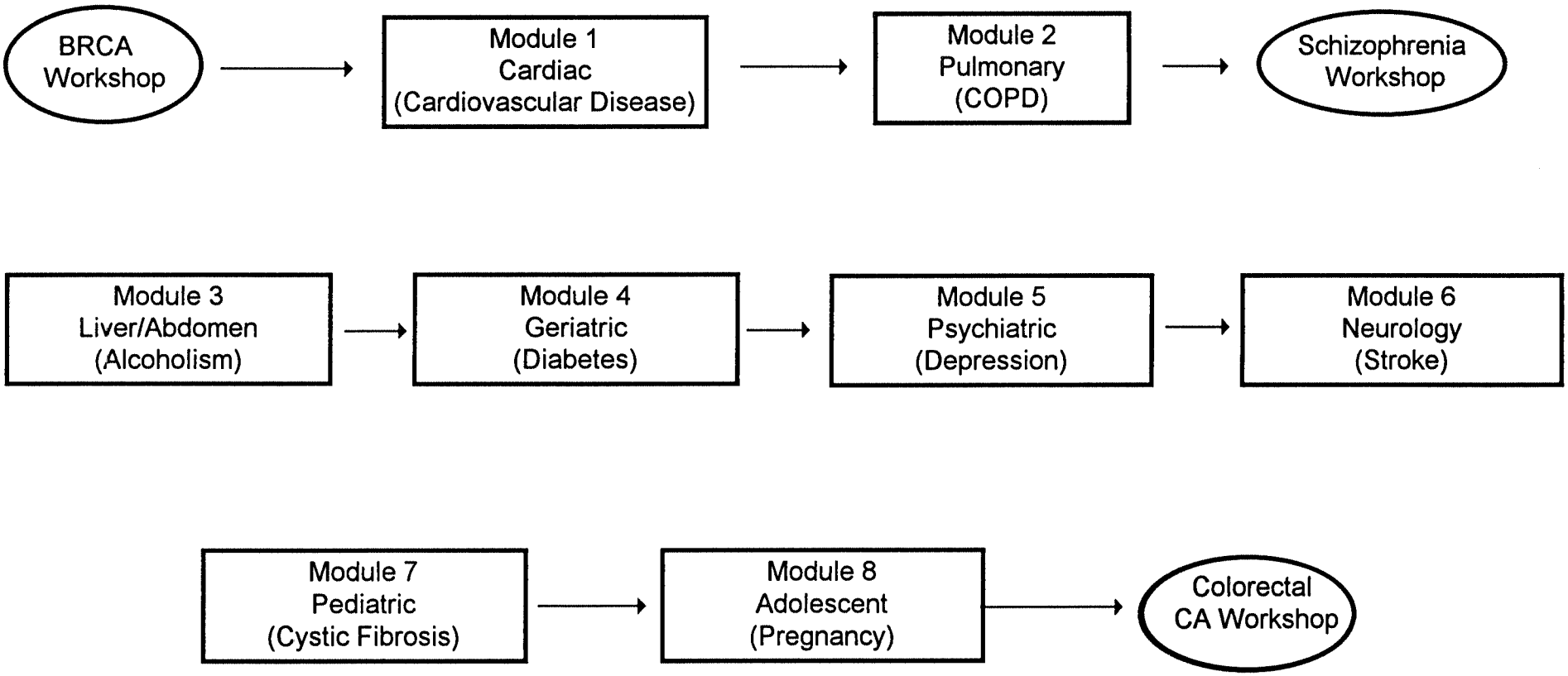
X

INTEGRATED ELEMENTS



POSTER.ART

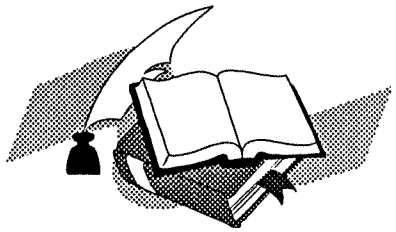
MODULE CONTENTS



Workshop = 1 day
Module = 4 weeks

FACULTY ROLES

ROLE	DEFINITION	RESPONSIBILITIES
Course Co-Director	One physician and one non-physician	Overall Course development, implementation, and supervision
Physician Co-Leader	Any physician faculty comfortable with a broad range of patient physicial and psychosocial presentations	• Evaluate students' case write-ups • Facilitate group process • Comment on case • Give feedback on student performance
Non-physician Co-Leader	Basic (i.e., pharmacology) or social science (i.e. psychologist) faculty comfortable with a broad range of clinical presentations	• Facilitate group process • Comment on case • Give feedback on student performance • Role-play return visit of patient
Preceptor	Physician faculty	Instruct students in physical examination and diagnosis for both normal exam and specific physical findings pertinent to a given module
Expert	Faculty with specific knowledge and skills relevant to a set of learning objectives (ethics, cultural diversity, toxicology, etc.)	Serve as lecturer/discussion leader for group of 12-18 students fulfilling objectives in a specific content area.
Course Advisor	Former director of courses integrated into PD II (behavioral sciences, biostatistics, nutrition, genetics, human sexuality, etc.)	Identify overall course objectives Develop specific module objectives Review clinical cases
Module Clinical Coordinator	Physician faculty responsible for design and implementation of a specific module	Review of clinical case Recruitment and training of surrogates Prepare questions for final session role-play
Course Consultant	Physician or non-physician faculty whose specialty area is implicated in PD II course	Provide input about specialized area of knowledge (pelvic workshop, library searching, cultural diversity, geriatrics, genetics) as it relates to PD II course



STUDENT ROLES

(Rotate Each Module)

ROLE	RESPONSIBILITIES
Group Leader	Calls additional group study sessions, facilitates assignment of objectives, running Rap Sessions, and designates student to make case presentation.
Interviewing Student	Interviews patient surrogate and participates in final session patient role-play.
Historian	Records on the board elements of medical and psychosocial history as they are elicited by Interviewing Student.
Analyst	Identifies patient problems that need further investigation, or areas of learning to be pursued. The learning problems identified become either primary or secondary learning objectives.
Scribe	Takes notes on group process in Surrogate Interview and during Rap Sessions. Also records specific course of action recommended to resolve problems identified during Rap Session presentation of learning objectives.

POSTED

PATIENT-DOCTOR II, ACADEMIC YEAR 1994-95
MODULE 1 - LEARNING OBJECTIVES

Not an assigned Learning Objective - every student is responsible for learning material

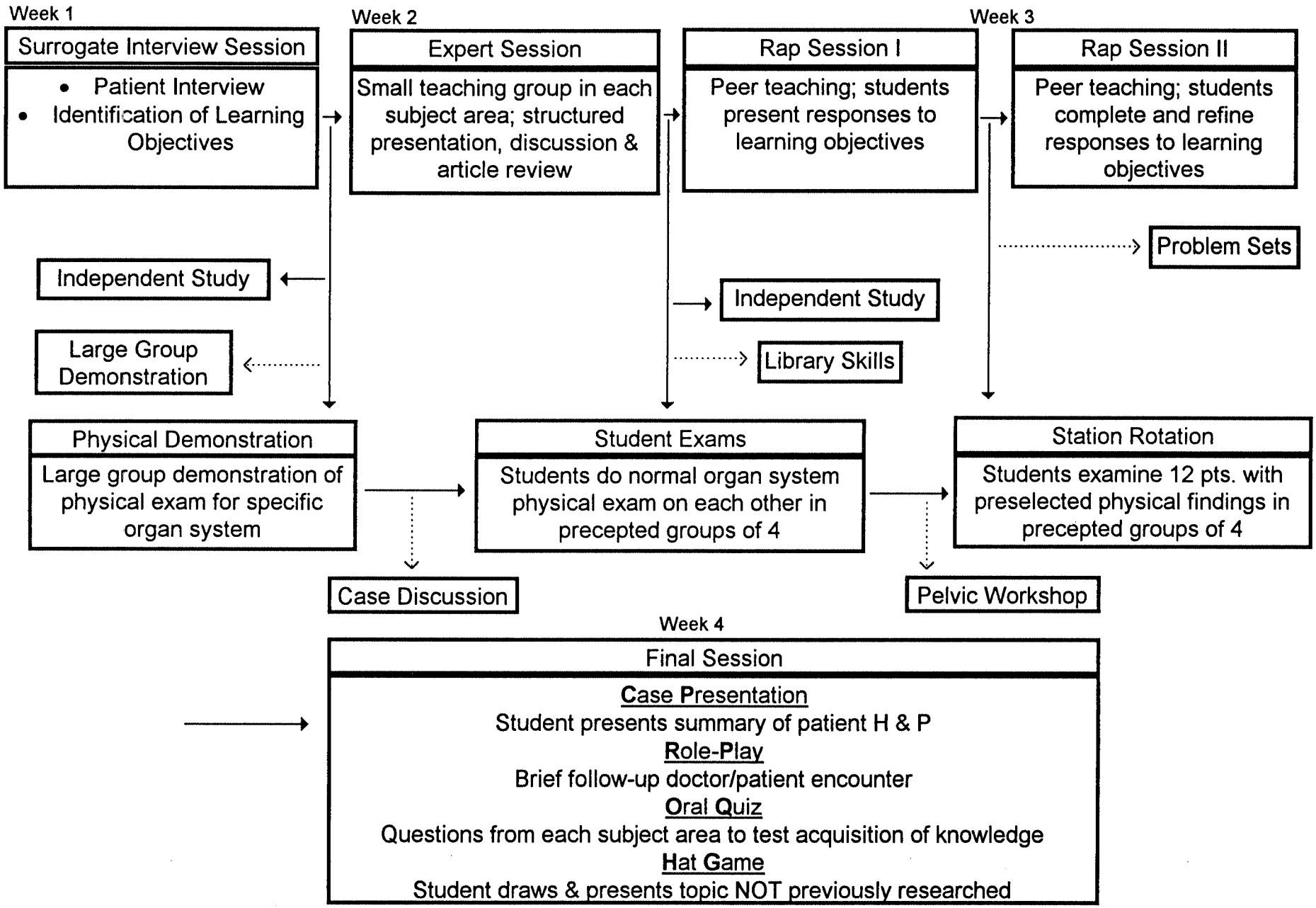
History, Physical Examination and Diagnosis	Be able to complete and report a comprehensive physical exam of the cardiac and vascular system.

Assign one student to each grouping listed below

Subject	Objectives
Preventive Medicine Expert: Dr. Anton-Culver Dr. Taylor Dr. Kurosaki Dr. Delfino	• Define the concept of risk, relative risk, and attributed risk. • Discuss the risk factors for cardiovascular disease. • Define the concepts of risk reduction, primary prevention, and secondary prevention. • Cite the literature on and discuss the scientific evidence for the efficacy of the following in reducing the risk for clinical coronary artery disease: smoking cessation, exercise, diet, lipid lowering drugs, antioxidant drugs, anti-platelet medications, stress reduction, blood pressure control, estrogens. • Understand the frequency distributions and measures of central tendency (mean, median, mode) and the appropriate choice of a measure, measures of spread or variability (range, interquartile range, variance, standard deviation, standard error of the mean), and concepts of skewness, and an introduction to the normal distribution as a description of some variables seen in biology and medicine. • Review and critique the following study: Freedman, D.S., Croft, J.B., Anderson, A.J., Byers, T., Jacobsen, S., et. al. *The Relation of Documented Coronary Artery Disease to Levels of Total Cholesterol and High-Density Lipoprotein Cholesterol Epidemiology*, January 1994, Volume 5, No. 1. (Use attached form to complete critique).
Nutrition Expert: Dr. Cygan	• Discuss the role of diet and cholesterol as risk factors for arteriosclerosis. Refer to American Heart Association guidelines for primary care physicians and patients. • Define obesity and its etiology and refer to standard weight-height tables. 1. Design a rationalized weight loss and weight maintenance program for this patient including follow-up arrangements. 1. Refer to current fad diets and assess them for efficacy and cost. 3. Discuss the psycho-social and medical consequences of obesity.
Ethics Expert: Dr. Flores	• Define basic ethical theories of deontology, consequentialism, utilitarianism, as well as rights-based and virtue-based theories and give one example of how each might be relevant to the specific case. • Define the four basic ethical principles of autonomy, benevolence, nonmalevolence, and justice and give one example of how each might be relevant to the specific case. • Identify obligations of the doctor-patient relationship, including veracity, fidelity, confidentiality, and respect for persons, and illustrate how they might apply in this particular case.

Subject	Objective
Behavioral Science Expert: Dr. Riest	• Discuss the relation of emotional issues to a patient's perception of health status and specifically discuss the somatic complaint as depressive equivalent. • Discuss the concept of stress and the relation of stress to organic illness. • Define Type A and Type B personalities and discuss the role of personality types in the development of atherosclerotic cardiovascular disease. • Discuss how to identify and interview the reluctant patient. • Discuss the role of behavior modification techniques in producing lifestyle changes for risk reduction in coronary disease. • Explore acute anxiety reactions, especially how panic attacks can mimic heart attacks.
Human Sexuality Expert: P. Lenahan, LCSW	• Assessment of the effects of chronic illness on sexual function, including: Antecedent sexual history; nature and severity of the illness; concurrent illness(es); drugs; social circumstances; personality variables; sex partner's reaction to the illness; attitudes toward sex. • Develop an awareness of the primary and secondary factors concerning coronary patients resumption of sexual activity, i.e., anxiety and fears of reinfarct/sudden death; depression; spousal decision; anginal pain; loss of self-esteem; drugs; aging. • Discuss the cardiovasclar effects of sexual activity, the relative exertion required for sexual activity, and ways to modify sexual activity to accommodate deficiencies of cardiovascular function. • Discuss the impact of medication on sexual functioning.
Toxicology Expert: Dr. Kleinman Dr. Perkins	• Identify the environmental and occupational exposures that can cause cardiovascular disease and discuss possible mechanisms. • Discuss exacerbation of pre-existing cardiovascular disease by environmental agents, such as carbon monoxide. • Identify the job characteristics associated with occupational stress. • Discuss possible biological mechanisms for the association of occupational stress with cardiovascular disease.
Medical Economics Expert: Frank Harris	• Discuss details of insurance purchasing decisions and specifically various types of employer-purchased insurance. Also learn institutional details about various types of insurance, such as indemnity plans and prepaid (capitated) plans. • Read Chapter 6 and 7 of Feldstein's text.

MODULAR LEARNING ACTIVITIES



→ Indicates activity included in all modules

⇢ Indicates activity in some but not all modules

POSTER ART