

RESOURCE GUIDE FOR

CLINICAL
SKILLS



UNIVERSITY OF HAWAI'I
JOHN A. BURNS SCHOOL OF MEDICINE

PROBLEM-BASED LEARNING CURRICULUM
M.D. PROGRAM

2009-2010

CLINICAL SKILLS HANDBOOK

July 2009

John S. Melish, M.D.

Joel Brown, M.D.

RESOURCE MATERIALS FOR CLINICAL SKILLS

TABLE OF CONTENTS

Sections:

Pages

I.	INTRODUCTION AND OVERVIEW OF CLINICAL SKILLS	1 - 5
A.	OVERVIEW AND RECOMMENDED READING	1
B.	PBL – TUTORIAL AND CLINICAL SKILLS	1 - 2
C.	CLINICAL SKILLS LEARNING OBJECTIVES	2
D.	LEARNING STRATEGIES AND OPPORTUNITIES	3 - 4
E.	ASSESSMENT IN CLINICAL SKILLS	4 - 5
II.	MEDICAL INTERVIEWING AND HISTORY TAKING	6 - 13
A.	INTRODUCTION AND OVERVIEW	6
B.	METHODOLOGY: THE MEDICAL INTERVIEW PROCESS	6 - 7
C.	ADDITIONAL INTERVIEWING TASKS	7
D.	INITIAL MEDICAL EVALUATION	7 - 8
E.	THE CONDUCT OF THE INTERVIEW	8 - 13
III.	THE BASIC PHYSICAL EXAMINATION SEQUENCE (BPES)	14 - 24
A.	GUIDELINES	14
B.	STEPS OF THE BASIC PHYSICAL EXAMINATION SEQUENCE	18
C.	BRANCH STEPS	14 - 18
D.	COMMON ERRORS OF THE BASIC PHYSICAL EXAMINATION SEQUENCE	19
E.	EVALUATION FORM FOR THE PERFORMANCE OF THE BPES	20 - 22
F.	COMPETENCE CRITERIA FOR THE BPES	23
G.	EXTENDED PHYSICAL EXAMINATION MANUEVERS	24
IV.	THE PROBLEM ORIENTED MEDICAL RECORD (POMR)	25 - 42
A.	MEDICAL PROBLEM SOLVING: AN OVERVIEW	25 - 27
B.	DETAILS OF THE PROBLEM ORIENTED MEDICAL RECORD (POMR)	27 - 29
C.	FORMAT OF THE PROBLEM-ORIENTED MEDICAL RECORD	29 - 40
D.	EVALUATION OUTLINE: POMR OUTLINE FOR STUDENTS AND CSPS	41 - 42
APPENDIX I	- THE PATIENT PROFILE	44 - 45
APPENDIX II	- EXAMPLE OF A PATIENT PROFILE	46
APPENDIX III	- ORAL CASE PRESENTATIONS	47 - 51
APPENDIX IV	- SAMPLE POMR CASE WRITE-UP and PROGRESS NOTE	52 - 58
APPENDIX V	- STUDENT RESPONSIBILITY IN LEARNING CLINICAL SKILLS	59
APPENDIX VI	- LABORATORY HANDOUTS	61 – 78
APPENDIX VII	- EVALUATION FORMS	80 – 88

I. INTRODUCTION AND OVERVIEW

A. OVERVIEW AND RECOMMENDED READING

The following pages summarize the learning objectives for the Clinical Skills Courses paralleling the PBL curriculum of MD1-7. The Clinical Skills Program at JABSOM prepares students to interact with and gather data from patients in an organized and patient-centered manner. Each patient experience will prepare the student for the next patient encounter. Medical problem solving utilizes unique information skillfully acquired from the patient and an ever-enlarging knowledge base (Biological, Behavioral, Epidemiological, and Clinical). Ideally, using this information, physicians prevent and/or ameliorate disease and optimize health in an efficient, cost-effective, humane way by fashioning a patient-physician-alliance. This requires the patient's understanding, assent, and adherence gained through trust and education. Together, patient and doctors thoughtfully apply rational therapies to the patient's unique circumstances and life situation. The melding of basic and clinical sciences with patient care is the challenge to life-long learning and skill development for every physician truly serving patients and society as a whole.

Recommended reading for Clinical Skills

It is vital for the student to read and refer to basic texts of clinical skills. The two recommended by the faculty have, in the newest editions of each a CD-ROM (the Bates Text reviews Heart Sounds/Basic Cardiac Auscultation; the Swartz text demonstrates the entire Physical Examination). Either one of these will be a valuable reference through medical school and residency. The Bates text (Bickley) will be given to 1st year students at the time of the White Coat Ceremony at the beginning of the 1st year.

Bickley, Lynn S. (ed.) Bates' Guide to the Physical Examination and History Taking, 10th edition, 2009 Lippincott. ISBN 978-0-7817-8058-2

Swartz, Mark H. Textbook of Physical Diagnosis, 4th edition, 2005. Saunders, ISBN 1416024050

In addition, there are recommended readings on Medical Interviewing noted in MD1 materials.

B. PBL – Tutorial and Clinical Skills

The clinical skills curriculum in Problem Based Learning complements the tutorial experience. In tutorial, students examine patient problems from biological, behavioral, and epidemiological, as well as, the direct clinical perspective. Basic science is seen in the context of the totality of the patient. Similarly, these same issues and perspectives are seen in the context of a real patient, many of whose problems fall within the differential diagnosis of the paper problems studied in tutorial. Like the tutorial, patient related clinical experiences under the supervision of the CSP allow for data gathering, abnormality identification, hypothesis generation, and the development of learning issues. Where the tutor is a learning facilitator for his/her group, the CSP acts as a facilitator, content expert, and resource person in patient care and clinical practice.

These CSP experiences reinforce learning in tutorial and provide the necessary foundation for caring for patients in the future. Through the clinical skills experience, students develop the interpersonal, interview, physical examination, and communication skills that will permit them to solve and resolve patient problems. These CSP sessions transfer the tutorial process to actual patient-physician interaction. Through lab skills sessions, CSP sessions, and readings, students will be prepared for the more independent, more complex

experiences of the Third year clerkships, the Senior electives and sub-internships, and finally, the postgraduate residency training programs and the professional life that continues thereafter.

D. CLINICAL SKILLS LEARNING OBJECTIVES:

These objectives are congruent with the overall objectives of the John A. Burns School of Medicine and include: Lifelong learning, the Biological Sciences, Patient Care, Communication Skills, the Role of the Physician and the Epidemiology of Disease, Professional and Ethical Behavior, and Personal Health and Well-being.

- A. Students will acquire, practice, and demonstrate the interpersonal skills necessary for a therapeutic Physician-Patient relationship. These skills fall into the general categories of Communication and Professionalism and are patient-centered skills.
- B. Students will learn and demonstrate history and physical examination techniques useful in collecting data in order to formulate and further confirm (or deny) diagnostic hypotheses. They will also demonstrate ability to create plans based on that data that include further diagnostic evaluation, treatment, and patient education.
- C. Students will demonstrate understanding of the key abnormalities in the history, physical examination, and screening laboratory procedures that point to specific or multiple organ dysfunctions. In addition, they must be able to assess functional impairments that may have psychological or developmental dysfunction underpinnings.
- D. Students will understand that hypothesis generation occurs at every step in the data gathering process, with additional data being continuously sought and interpreted to rule in or out various diagnostic possibilities.
- E. Students will demonstrate branch steps in the history and physical examination to further evaluate variations or abnormalities discovered in the screening history and physical examination.
- F. Students will understand and utilize the Problem Oriented Medical Record for documenting the initial evaluation and course of the patient's illness and for communicating with peers, colleagues, teachers, and other health care professionals.
- G. Students will practice and become skillful in effective oral presentation of patient data and hypotheses concerning it to peers, colleagues, teacher, and other health care professionals.
- H. Students will continuously demonstrate the critical use and appraisal of pertinent information resources (patients and their families, colleagues, libraries, the medical literature, allied health personnel, the laboratory, the research bench, history, sociology, literature, the World Wide Web)....as lifelong learners in their role as physicians.

D. LEARNING STRATEGIES AND OPPORTUNITIES:

1. MD-1:

1. Clinical Skills Laboratory Sessions – Weekly exercises taking place in the clinical skills laboratory. These will be preceded by lecture-demonstrations. In the laboratory, students will examine each other as they learn the Basic Physical Examination Sequence (BPES).
2. Didactic sessions will address the integration of anatomy and surface anatomy prior to the clinical skills laboratory sessions.
3. Students will practice both communication and regional physical examination skills on standardized patients. These sessions may be videotaped for review with faculty. The standardized patients may give feedback as to their interactions with students.

2. MD-2-4, MD-6

1. One laboratory session at the beginning of each of the two subunits: Pulmonary, Cardiology, Endocrinology, GI, Musculoskeletal, Neurology – to learn and to practice the extended physical examination maneuvers which further elucidate problems in these systems.
2. A session during the musculoskeletal sub-unit with rehabilitation, surgical, and rheumatology staff at the Shriners' Hospital.
3. Clinical Skills Preceptorship: on one afternoon each week, groups of 5-6 students will interact with real patients in a clinical setting to learn and practice communication, interviewing, and physical examination skills under the guidance of a faculty physician (the Clinical Skills Preceptor (CSP). There will be 3 or 4 such experiences in each subunit. These experiences will include patients who will, in most cases, fall within the differential diagnoses of problems concurrently being reviewed in tutorial in MD 2-4.
4. At least one complete patient write-up using the Problem Oriented Medical Record to be presented to the CSP for evaluation in each subunit and subsequently turned in for review by faculty in Clinical Skills.
5. Opportunities in each CSP session to orally present pertinent patient data to others for their understanding, interpretation, and assistance.
6. Opportunities to assess the success of the patient-doctor interaction in each student-patient contact.

3. MD-5 Preceptorship

This four week block permits the students to spend 4 one-half days with a practicing clinician. All of these experiences should include patient contact and interaction and an opportunity to observe a clinician working with his/her unique patient population and area of medicine. These experiences should be under the supervision of JABSOM clinical or full-time faculty.

4. MD-7 (The Life Cycle)

This 12-week block includes special experiences in Pediatrics, Ob-Gyn, and Geriatrics to become acquainted with the databases necessary for the care of these patients. In addition, special laboratories in breast/pelvic and male genital/rectal examinations will also take place.

4. MD-8 USMLE Prep

Review and self-study for the Step 1 USMLE.

5. The Third Year Clerkships

These are in-depth inpatient and outpatient experiences in Pediatrics, Internal Medicine, Family Practice, Surgery, OB-GYN, and Psychiatry. Here patients are independently evaluated by the student under the supervision of residents and faculty physicians. Knowledge bases specific to the age and specific illnesses seen in these specialties will be explored through patient evaluation and care, in both inpatient and outpatient settings. These experiences will allow further honing of problem solving and patient interaction skills and prepare students for the sub-internships and elective experiences of the Senior year. Students will increase proficiency in history and physical examination performance, medical record keeping, oral presentation, and professional habits and attitudes related to the Physician-Patient Relationship. A mix of paper problems along with actual patients will be used for Problem Based Learning of the curriculum in each of the clerkships noted.

6. The Senior Sub-internships and Electives

Students can select a sub-internship experience in preparation for post-graduate training to assist in forming career choices and building experiences appropriate to success in one of the broad areas of medicine. They will also select clinical or basic science electives that will supplement or expand their knowledge and clinical experience in specific areas of clinical medicine, e.g., infectious disease, nephrology, gastroenterology, surgical anatomy, pediatric neurology, etc. Most elective experiences will further hone clinical skills.

E. ASSESSMENT IN CLINICAL SKILLS

1. SKILL OBJECTIVES: Students must demonstrate a minimum level of competence prior to beginning the Third year Clerkships. THEREFORE, by the end of MD-7, the student must demonstrate:

- a) Basic communication and interpersonal skills.
- b) The ability to obtain all of the components of a complete history including chief complaint, history of the present illness, past medical history, family history, patient profile and review of systems.
- c) The ability to perform the Physical Examination Sequence (BPES) in the correct order and with the correct technique.
- d) Most of the extended physical examination techniques.
- e) The ability to write a legible and understandable problem-oriented history and physical, including a Problem List, Assessment, and Plans in the appropriate format.

2. ASSESSMENT METHODS:

- a) MEQ's in MD-1 – MD-7, will test skills in information gathering, problem formulation and interpretation, and ability to search for answers generated by patient problems.
- b) Assessments by CSP and fellow Clinical Skills Group members as to the accuracy, completeness, and reliability of the medical data (History, Physical Examination) collected and orally reported by each student.

- c) Review of at least one write-up, including a Problem List, in each subunit. The format of the write-up will be evaluated according to the outline included in this resource manual.
- d) In MD-7, Students are observed performing a complete history and a Basic Physical Examination Sequence on a Standardized Patient. Each student will be given a maximum of three opportunities to demonstrate a minimum level of competence before going on to the Third year clerkships. **Students will not progress to the Clerkships unless this requirement is passed.**
- e) In the Third year Clerkships, patient write-ups are required on patients that the student has evaluated. Oral presentation will be made in the in- and outpatient settings. Residents and attending will critically review and confirm history and physical findings in these settings.
- f) **COMPREHENSIVE CLINICAL EXAMINATION (CCE):** This course consists of a practical examination of student's bedside clinical skills utilizing standardized patients. The clinical cases selected to fill the test blueprint emphasize "patient-centered" physicians activities (communication, history taking, physical examination, interpersonal skills) in common clinical situations, from each of the disciplines covered in third-year clerkships (Surgery, Obstetrics/Gynecology, Psychiatry, Pediatrics, Family Medicine, Internal Medicine), which are important and relevant to a primary care generalist's practice. All medical students must complete BIOMED 531 by passing this examination before graduation. Students must successfully complete all third-year clerkships before taking this examination.
- g) Specialty specific skills (e.g., evaluation of the newborn) are tested by specific clinical departments during the course of the clerkship year.
- h) In the Third year Clerkships, evaluation of skills and knowledge specific to the elective or to the sub-internships performed according to established departmental criteria and Knowledge Examinations
- i) **United States Medical Licensing Examination (USMLE),** Steps 1 and 2 (Year 2 and 4). USMLE Step 2 Clinical Skills Exam will be taken during Senior Year; passing is required for graduation.
- j) In each clerkship, students must pass knowledge examinations.

II. MEDICAL INTERVIEWING and HISTORY TAKING

A. Introduction and Overview:

Despite the rapid changes in medical knowledge, technology, and the organization of the delivery of medical care, the unique and basic skills in the area of medical interviewing, history taking, and physical examination by physicians and other health professionals will continue to be necessary in order to arrive at proper diagnosis and treatment of patient.

It is estimated that the majority of medical knowledge and technology will change every five years, being replaced by completely new databases and techniques. However, the skills learned in the basic communication process, medical history and physical exam continue to endure, unchanged for each generation of physicians.

During these clinical skills courses, you will be taught the basic skills necessary for the doctor-patient encounter. The patient comes to the physician with his/her problem. Vital communication must take place. This permits proper understanding of medical and other concerns. This clears the path to rational diagnosis and treatment. Whether this communication takes place on the telephone, in the office, at the bedside, or during the examination, what the physician learns from and conveys to the patient is vital to this process. Much of your success as a medical professional will be based on how well you have mastered these communication skills.

The communication that occurs between doctor and patient results in the therapeutic alliance which is of critical importance in medical care. This results from the relationship or rapport built from this interaction. Without this essential element, the doctor-patient relationship is doomed to failure. It is well known that compliance with medical regimens, follow up in medical workups and medical outcomes are directly linked to how much the patient understands and trusts the physician, as well as how much the doctor knows about his patient. This relationship in itself can become therapeutic. Increase in medical malpractice claims has been closely linked to breakdown in the doctor-patient relationship.

Medical students generally start out with remarkable sensitivity to doctor-patient interactions early in their training. However, as they progress through this education, the focus on mechanisms of disease, medical technology and therapeutic interventions takes precedence, sometimes at the expense of the human aspects of medical care. Communication may suffer, resulting in the failure of the doctor-patient relationship. This does not have to occur. We must continue to reaffirm this communication process in order to serve the patient properly.

Communication skills are learned. Understanding this process and developing skills in using these processes are the goals of the interview block. The unique aspects of the medical history will emphasize again the importance of interviewing skills and the doctor-patient relationship in obtaining medical information relevant to patient care.

B. METHODOLOGY - The Medical Interview Process.

1. To conduct a medical interview, remember to practice and refine the following:
 - a. Appropriate introduction and closure of the interview.
 - b. Use of verbal and nonverbal communication.
 - c. Use of different interview techniques to enhance understanding and

- communication, i.e., open ended questions, silence, facilitation, reassurance, etc.
 - d. Use of techniques which enhance patient-doctor rapport.
 - e. Conduct the interview in a timely manner.
 - f. Show consideration for the patient's comfort, feelings and emotional state during the interview.
- 2. To understand the complexity of the communication process, the basic elements of communication, and factors which can positively or negatively affect this process.
- 3. Recognize, understand and describe the impact illness has on the patient in his/her spheres of emotional health, personality, family, job, life-style, etc.
- 4. Recognize and understand on a personal level the special role the physician plays in caring for patients.
 - a. The task of being empathetic toward patients and realizing how the physician's personal feelings and biases can adversely affect the doctor-patient relationship, resulting in de-sensitization (de-personalization) or sympathetic over involvement with a patient.
 - b. Become aware of the physician's own feelings in a particular patient encounter. Personal feelings which are aroused by pain, death, disease, ethical and religious issues and personal biases can all affect the doctor-patient relationship.
 - c. Realize the responsibility the physician has for both the physical and emotional well-being of patients.
 - d. Recognize and appropriately interpret nonverbal communication by the patient and by the physician.
 - e. Recognize and be sensitive to his/her own feelings and attitudes in relation to the doctor-patient interaction. Recognizing the importance of gaining assent and permission at appropriate times.
 - f. Recognize the importance of eliciting and recognizing feedback from the patient in order to assess the adequacy of physician-patient communication.
- 5. Obtain and record (write up) a patient history and physical examination in a well-organized, brief but pertinent report, using the Problem Oriented Medical Record Format.

C. ADDITIONAL INTERVIEWING TASKS

The general interviewing tasks for a physician in a doctor-patient relation are to:

1. Build a relationship with the patient.
2. Learn about the patient as a person.
3. Help the patient with the emotional aspects of the illness.
4. Help the patient learn about health, illness and health care options.
5. Choose an appropriate course of action with the patient.
6. Help the patient plan and carry out the chosen action.
7. Understand the impact of the illness on the patient and his/her family.
8. Define the patient's understanding of his/her illness and attitudes in regard to evaluation and treatment

D. INITIAL MEDICAL EVALUATION

The information useful in caring for patients and solving patient problems include the following items. Keep in mind that this information will be recorded to document your patient interaction and serve to communicate this information to other health professionals who are part of the health care team. Each heading will be explained in

detail subsequently. This information is summarized in a written report which becomes the basis for current and long-term care of the patient.

1. Identifying Data:
2. Chief Complaint (including the duration)
3. Reason for the Evaluation
4. Sources of information and reliability.
5. Present Illness: Recent changes in health that led the patient to seek medical attention.
6. Past Medical History: An overall appraisal of the patient's general health prior to the present illness.
7. Family History: The health of the entire family, living and dead with particular attention to the possible genetic and environmental determinants of disease
8. Patient Profile: Information on developmental life experiences, habits and personal relationships of the patient and the current life situation.
9. Systems Review (or Review of Systems): Items that relate to general health.
10. Physical Examination: The basic physical examination. (see section III, BPES)
11. Problem List: A listing of abnormalities derived from the defined database according to the level of current understanding and prioritization. It includes "active" and "inactive" problems.
12. Assessment and Plan: Defining individual problems, their further diagnostic evaluation, treatment, and patient education.

E. THE CONDUCT OF THE INTERVIEW

No two interviews follow precisely the same course. Nevertheless, there is a common basic pattern, as follows:

1. Introduce Yourself to the Patient. The physician greets the patient, introduces him/herself and defines his/her professional role. (eg, "Hello, Ms *Brown*. I am Medical Student *Frank Li Niu*, and I would to interview you in order to further develop my skills")
2. Put the Patient at Ease. He/she explores how the patient is feeling at the moment and takes any appropriate measure to make him/her as comfortable as possible before proceeding. At the same time, the physician also establishes a contract for purpose and length of the interview.
3. Establish the Major Areas of Complaint. He/she invites the patient to mention all symptoms and complaints leading to the hospitalization or outpatient evaluation.

This is a gross screening process which is best initiated by a general question:

- "Will you tell me what led you to come to the hospital?"
- "What brings you to seek medical care at this time?"
- "How were you referred to this clinic?"
- "Why were you admitted to the hospital today (or last week?)"

The initial response to these types of questions varies widely. It may be defensive. "What would you like to know, doctor?"; "My doctor sent me" or "I don't know". It may be a single word or phrase, as "pneumonia", "pain", "shortness of breath" or "nervousness". It may be a detailed account of an illness or simply a repetition of what the referring physician told him/her.

Whatever the response, the primary objective is to get the patient to indicate

his/her immediate problem in broad outline. No attempt is made at this point to elicit the details. These can be fully investigated later.

Obtaining this initial information may be compared to locating the major landmarks on a map or blocking out the rough outlines of a painting, the finer details are to be filled in later. Ordinarily, this phase of the interview occupies 5-10 minutes and yields the following:

- (a) A list of all the symptoms and health issues which the patient considers to be important.
- (b) A demonstration of the patient's capability to express him/herself when given relatively little guidance by the interviewer.
- (c) An indication of the patient's personality and how he/she relates to the interviewer.

To begin questioning about details before this phase of the interview has been completed may seriously interfere with the further conduct of the interview. Until the physician has an overall view of the patient's problems, he/she has little basis on which to judge how symptoms are related or which are the most important. An even more serious consequence of premature questioning is that the patient is so distracted by the questioning that he/she forgets to report certain symptoms or assumes the physician is not interested.

The manner with which the physician approaches the interview will determine the way the patient responds. If the interview begins with numerous detailed questions, patients may respond by waiting silently for the next question and provide little spontaneous elaboration of their own. This places the entire burden on the physician who struggles to think what next to ask the patient. Such interviews commonly degenerate into unproductive question and answer sessions.

4. Delineate the Present Illness. The physician examines in detail the manifestations of the current illness. At the same time he/she listens for and follows up on the patient's spontaneous references to concurrent life circumstances, illnesses in the past and issues of family, health and relationships (Past History, Family History, Personal Profile).

The opening phase of the interview will establish the basis for communication between physician and patient and will indicate general areas for diagnostic consideration. The physician will note that the reported symptoms tend to group together, constituting episodes of illness. He/She now has the task of characterizing each of these episodes and analyzing the relationship of one to another.

Symptoms, as elicited by the physician, are the patient's verbal expression of perceived changes in his/her body or mind. The physician's task is to reconstruct from the patient's words the bodily or mental processes underlying the symptom. To accomplish this, symptoms are considered in seven dimensions as follows:

- (a) Bodily location - Where is symptom located?
- (b) Quality - What is it like?
- (c) Quantity - How intense is it?
- (d) Chronology - When did the symptom begin and what course has it followed?
- (e) Setting - Under what circumstances does it take place?
- (f) Aggravating and alleviating factors - What makes it worse or better?

- (g) Associated manifestations - What other symptoms or phenomena are associated with it?

These seven dimensions are central to the diagnostic process. They provide the information which will enable the physician to decide whether a complaint reflects an abnormality; and if so, where this abnormality is located and the nature of the underlying functional and structural disturbance.

Note: these SEVEN symptom characteristics MUST be committed to memory since they constitute the basis for questions about each symptom.

The necessity to delineate the illness and to characterize symptoms in the seven dimensions requires that the physician provide direction to the interview. Encouraging the patient to speak freely continues to be the basic requirement for a productive interview since only the patient can describe what he/she has been experiencing.

The two objectives: to encourage the patient's spontaneous associations and to provide direction, are best achieved by always initiating the inquiry into each new area with open-ended (non-directive) questions and by following with progressively more specific (directive) questions until the subject is fully clarified.

Investigate the Past History. He/She inquires in detail into the patient's past health. The inquiry into past health may be introduced by asking, "How has your health been in the past?" Whatever the patient brings up as a result of this inquiry is then explored in more detail. The physician learns the date of onset, the symptom, the course, the treatment and any sequelae. The names of physicians, the nature of diagnostic studies, surgery, and the dates and location of hospital admissions are noted.

Note: Diagnoses claimed by the patient, even when attributed to a reliable physician or medical center, should never be accepted at face value.

After the patient has been given an opportunity to tell about all the illnesses he/she can remember, the physician completes the information in the following categories:

- (a) Childhood Illnesses
 - (b) Adult Illnesses
 - (c) Hospitalizations (Medical and Surgical Procedures)
 - (d) Immunizations
 - (e) Current Medications
 - (f) Transfusions
5. Investigate the Family History. Inquire in detail into the patient's family history. In a well-conducted interview, many of the family members will already have been mentioned and a good deal learned about them and their relationship to the patient. With respect to illnesses and deaths of family members, determine the diagnosis, the manifestation of each illness, and the age and date of death.

In bringing to a close the inquiry about family health, the physician specifically questions the patient about diseases that might be contagious or have genetic

factors or familial grouping. Diseases usually asked about are allergies, asthma, anemia, bleeding tendencies, diabetes mellitus, cancer or tumor, epilepsy, glaucoma, gout, hypertension, kidney disease, peptic ulcer disease, nervous or psychiatric disorders, arthritis, heart disease, strokes, tuberculosis, and thyroid disease. A good final question with which to conclude is, "Has anyone in your family ever had an illness like yours?"

6. Complete the Patient Profile. Explore the patient's current life situation and past development beginning with items the patient has already mentioned. By this point in the interview, the physician should have learned a good deal about the setting of the illness, the current life situation and the family. The patient profile aims to provide an overall perspective of the patient's adjustment and functioning over the years. Accordingly, inquire into his/her performance and reactions under such circumstances as leaving school and home, military service, marriage, illness or death of important persons, or changes in his/her economic or social status. As already stressed, emphasis is always on the patient's reactions and methods of coping with these events, not simply on the event itself. Inquiry as to tobacco, alcohol, and illicit drug use may occur here or at the time of the past history.

The major subdivisions of the Patient Profile may be organized as follows:

- (a) Past development - For the purposes of elaboration, the best technique is to begin with general questions referring to a major area of life experience, for example, "Tell me about your childhood". Specific information, if not already obtained, should be such items as birthplace, educational level, marital history and occupation.
 - (b) Current life situation - This covers information about present living arrangements and relationships to family and friends. Include descriptions of home and family, social and community commitments, sleeping habits, dietary habits, alcohol and tobacco use, leisure activities, and the typical day in the patient's life.
7. Review Symptoms by System. Systematically survey systems on a regional basis (System Review). The system review serves to organize symptoms and signs in terms of the major organ systems of the body. It has two purposes.

Below are listed the general screening categories of the System Review followed by examples of the types of questions that may be asked. Although comprehensive, these suggested questions are not all-inclusive.

Questions framed to obtain information about each system should be in understandable lay language.

A slight pause is necessary after each question in order to make sure the patient has had time to consider and understand the question and also respond to it.

Weight	Renal-urinary System
General Health	Male Genitalia
Skin	Birth control
Head	Female Genitalia
Eyes	Breast
Ears	Sexual history
Nose	Endocrine System
Mouth	Hematopoietic system

Throat
Pulmonary System
Circulatory System
Gastrointestinal System

Musculoskeletal system
Nervous System
Psychiatric

Weight and General Health: Sense of change of health status and well-being.

General changes such as Usual Weight, Weight Change, Height, changes in temperature, fever, chills, or sweats, fatigue or weakness, lightheadedness.

Skin: Texture, appearance, rashes, itching, abnormal sweating, changes in hair or nails, or hair distribution, any sores or infections, skin lesions or cancer, changes in skin pigmentation, bruising.

Head: Trauma, loss of consciousness, seizures, headache (characterize), symmetry, changed appearance.

Eyes: Double vision, blurred vision, changes in visual acuity, changes in tearing, visual loss, changes in color vision, changes in eye prominence, wearing of glasses or contact lenses, redness, itching.

Ears: Deafness, changes in auditory acuity, ringing (tinnitus), pain, discharge, vertigo.

Nose: Rhinitis, rhinorrhea, discharge, obstruction, sneezing, pain, bleeding, sinus infections, change in olfaction, snoring.

Mouth: Gingivitis, sore tongue, taste changes, dental problems.

Throat: Pain, voice changes, difficulty swallowing.

Pulmonary: Chest pain, pneumonia, shortness of breath, dyspnea on exertion, wheezing, cough, sputum, hemoptysis (coughing blood), history of tuberculosis

Circulatory: Chest pain, palpitations, dyspnea, PND, orthopnea, edema, hypertension, hyperlipidemia, heart murmur, cyanosis, cold limbs, claudication, varicosities, syncope, exercise level.

GI: Appetite, dysphagia, indigestion, gas, heartburn, nausea, vomiting, abdominal pain, rectal pain, hematemesis, melena, abnormal stools, constipation, cathartic use, diarrhea, jaundice, hemorrhoids, hernia, peptic ulcer disease, gallbladder disease, pancreatitis, or hematochezia.

GU: Frequency, nocturia, polyuria, urgency, dysuria, pyuria, hematuria, hesitance, urinary flow changes, retention, incontinence, history of 'kidney trouble', abnormal urinalysis, urinary tract infection.

Male Genitalia: Genital sores or lesions, prostate trouble, scrotal mass, scrotal pain or tenderness, erectile dysfunction.

Birth Control: Birth control methods if used.

Female Genitalia: Pelvic pain, vaginal discharge, abnormal vaginal bleeding, menarche: age-year/menopause, age-year, menstrual flow, interval-days, duration-days, amount, date last menstrual period, postcoital bleeding, postmenopausal bleeding, gravid, miscarriages, stillbirths, para, caesarean, abortion, pelvic mass.

Breast: Breast lump, pain, nipple discharge, galactorrhea.

Sexual History: Sexual difficulties, syphilis, positive serology, gonorrhea, AIDS.

Endocrine System: Neck mass, thyroid problems, exophthalmos, heat/cold intolerance, thirst changes, glycosuria, excessive sweating, excessive thirst.

Hemopoietic System: Lymph node enlargement, excessive bleeding, bruising, anemia.

Musculoskeletal System: Joint pain, stiffness, swelling, back injury, pain, muscle wasting.

Nervous System: Head trauma, headaches, numbness, paralysis, faintness, convulsions, seizures, tremor, gait disturbance, coordination changes.

Psychiatric: Anxiety, depression, interpersonal relationship difficulties, work or family problems, nervous habits, substance abuse.

8. Bring the Interview to a Close. Inquire whether the patient has anything to add or questions to ask, summarizes important details and closes the interview appropriately. When the Systems Review is finished, the physician should have a reasonably complete history from most patients. If the story is long or complicated, or if the patient is quite ill, the physician must always be alert to fatigue or discomfort. The interview may be interrupted and the patient asked if a brief rest is needed.

As the interview is brought to a close, it is well to give the patient an opportunity to mention anything else he/she has on his/her mind. This is done by saying, "Is there anything else you would like to bring up?" If the physician is not clear about a particular area of the history, it might be helpful to recapitulate briefly some of the essential features of the story.

If, in the course of the interview, the patient has bared intimate details of a distressing nature or has exposed unpleasant feelings toward family, friends or doctors, he/she may later regret that he/she has said too much. The patient may be concerned about the interviewer's opinion of him/her or that the confidentiality of the communication will be violated. The physician may avert such a reaction by reassuring the patient about understanding his/her feelings and that the information will be handled with professional confidence. When the interview is finished, always thank the patient for his/her cooperation and review what is planned next. Usually it is the physical examination.

III. THE BASIC PHYSICAL EXAMINATION SEQUENCE (BPES)

A. GUIDELINES

During the physical examination, the following guidelines should be observed:

1. The patient always comes first - be considerate of his/her comfort and privacy.
2. Students WILL wash their hands before each examination.
3. While the patient must adequately disrobe, modesty should be respected at all times.
4. The examiner should explain what he/she is doing during the examination.
5. Never force a procedure on any adult patient.
6. Reassure the patient during the examination.
7. Be serious, yet maintain an appropriate sense of humor.
8. Always be gentle -- a physical examination may be slightly uncomfortable if an abnormality is present. It should never be painful.
9. Be systematic and thorough.

Physical examination techniques and skills that are required for MD 1 are outlined in the MD 1 Handbook and are described in detail below, and in your physical diagnosis textbooks.

B. STEPS OF THE BASIC PHYSICAL EXAMINATION SEQUENCE (BPES)

These are the steps included in the student Basic Physical Examination Sequence (BPES). They should be performed by the student in every complete physical examination. The BPES should be completed in 30 minutes.

Patient sitting: physician facing patient

1. GENERAL APPEARANCE: **Inspect** for habitus, level of consciousness, movement, comfort, affect.
2. VITAL SIGNS: **Determine** body temperature - read thermometer.
Determine radial pulse - rate per minute and compare bilateral radial pulses simultaneously.
Determine respiratory rate per minute (while comparing radial pulses).
Determine blood pressure - place BP cuff 2.5 cm above antecubital fossa and at level of atria. Determine BP by unilateral palpation of radial pulse and then by auscultation of the brachial artery in the antecubital fossa.
3. SKIN: **Inspect** for overall color, hair and gross lesions. (**Inspect** and **palpate** skin in detail under each regional exam below).
4. HEENT: **HEAD:** **Inspect** face for symmetry, abnormality. **Inspect** and **palpate** scalp.

- EYES:** **Test** Visual acuity. Check each eye separately (with corrective lenses) with Rosenbaum pocket chart or newsprint. Cover opposite eye.
Inspect external ocular structures - inspect lids, conjunctivae, sclerae, cornea.
Test Ocular muscle function and alignment (III, IV, VI). Note light reflex in neutral position. Ask patient to direct eyes laterally, superiorly and inferiorly "up and out," "down and out."
Test pupillary response in accommodation (convergence) and to light (direct and consensual).
Inspect corneas, lenses, ocular fundi (retina of each eye) with ophthalmoscope. Stabilize head with opposite hand.
Ask patient to fix gaze on a specific point on the wall. Change hands and sides appropriately for examination of the other eye.
- EARS:** **Test** Hearing. Use wristwatch or whispered voice.
Inspect and palpate auricles and mastoids.
Inspect canals and tympanic membranes on each side.
- NOSE:** **Palpate** for tenderness and ask patient to "sniff" to test for patency of each nasal passage.
Inspect each passage with light, using nasal speculum.
- MOUTH:** **Palpate** masseters as you ask patient to "bite down" (V) bilaterally. **Inspect** for symmetry as patient "shows teeth" (VII) & "protrudes tongue" (XII). **Inspect** lips, teeth, gingivae, oral mucosa, tongue, under tongue, and posterior pharynx with tongue blade and light. Note uvula motion when patient says "ah".

Patient sitting: physician in front of/behind patient.

(Tutor to demonstrate both techniques.)

5. **NECK:** **Inspect** neck for neck veins (see below - #7).
Inspect and **palpate** for lymph nodes - postauricular, anterior and posterior cervical, submandibular and supraclavicular bilaterally, simultaneously with both examining hands.
Palpate for parotid glands bilaterally.
Inspect and **palpate** for thyroid - each lobe separately, with patient swallowing, and **palpate** for trachea, from front or rear of patient.

6. THORAX:

POSTERIOR THORAX:

Inspect thorax and **palpate** entire spine.
Percuss at costovertebral angles - with fore-warning
Percuss for diaphragmatic excursion, from mid-thorax down to dullness before and after deep inspiration on each side.
Percuss bilateral chest wall at equivalent areas looking for hyperresonance or dullness.
Auscultate posterior and lateral lung fields - with diaphragm of stethoscope, while patient is deep-breathing with mouth open. Compare side to side in equivalent areas.

Patient sitting: physician facing patient.

ANTERIOR THORAX:

Inspect.
Auscultate anterior lung fields beginning with supraclavicular areas bilaterally with deep breathing.

Patient supine: physician at right.

AXILLAE:

Palpate with passive abduction-adduction (R hand for L axilla and vice versa).

BREASTS:

Inspect and palpate in all quadrants and nipples bilaterally.

7. CARDIOVASCULAR:

NECK:

Inspect veins. Palpate carotid pulses on each side one at a time. **Auscultate** carotids bilaterally.

HEART:

Inspect precordium.
Palpate apical impulse (PMI) and entire precordium with R hand.
Auscultate with diaphragm of stethoscope all cardiac areas (aortic, pulmonic, LSB and apex) with concurrent left finger palpation of right carotid pulse for time of the heart sounds.
Auscultate at pulmonic area for split S2 during inspiration.
Auscultate at apex with bell of stethoscope (supine, and in left lateral decubitus position, for presence of S3, S4 and murmur).

8. ABDOMEN:

ABDOMEN:

Begin by inquiring about pain. Alert patient. Ask patient to flex hips and knees to relax abdominal wall muscles.

Inspect.

Auscultate - epigastrium, left paraumbilical area over aorta for bruit and bowel sounds.

Palpate - superficially and deeply in all four quadrants.

Palpate deeply for aorta and for liver and spleen with deep inspiration. **Palpate** for spleen: turn patient to R lateral decubitus if spleen not previously felt with patient supine.

INGUINAL AREAS:

Inspect. Palpate for lymph nodes and/or masses and femoral arterial pulses.

9. EXTREMITIES:

LOWER EXTREMITIES:

Inspect and **palpate** feet, legs, and thighs for edema.

Palpate dorsalis pedis and posterior tibial pulses bilaterally and simultaneously.

Patient sitting: physician facing patient.

UPPER EXTREMITIES:

Inspect skin, fingernails, and for tremor.

Test strength- of grip bilaterally by asking patient to squeeze 2 of your fingers. Ask patient to "shrug shoulders" (XI).

DEEP TENDON REFLEXES:

Test biceps, triceps, patellar, achilles reflexes and plantar reflexes bilaterally.

Patient standing: physician facing patient and then behind patient.

POSTURE:

Inspect for symmetry of shoulders, hips, and curvature of the spine.

LOWER EXTREMITIES:

Inspect for varicose veins, other deformities.

GAIT:

Inspect gait as patient walks barefoot.

The following is usually omitted for the video examination:

MALE GENITALIA:

Inspect penis (ask patient to retract foreskin) and scrotum.

ANORECTUM:

Palpate scrotal contents and inguinal canals.

Men – have patient bend over examining table or lie in left lateral decubitus position with right hip and knee flexed.

Women - patient in dorsosacral position with knees flexed and abducted (if for pelvic exam), or lying in left lateral decubitus position with right hip and knee flexed.

Inspect anus, buttocks, and perineum.

Palpate anal canal, rectal ampulla and prostate, after gently inserting gloved and lubricated index finger.

Palpate anal canal, rectal ampulla (and prostate in men), after gently inserting gloved and lubricated index finger.

PELVIC EXAM:

Instruction by obstetrician-gynecologist.

C. BRANCH STEPS: (EXTENDED PHYSICAL EXAMINATION)

If an abnormality is detected, it must be fully described and additional examination (branch steps) performed to clarify and delineate that finding.

Example: If decreased auditory acuity is noted, the Weber and Rinne tests must be done.

Such branch steps, however, are not part of the BPES.

Branch steps are taught in separate laboratory sessions. They are useful in further elucidating abnormalities uncovered in the history and BPES and are generally not screening maneuvers (Refer to page 24).

COMMON ERRORS OF THE BASIC PHYSICAL EXAM SEQUENCE

EYES:

- When testing visual acuity for each eye corrected preferred, use some form of measurement so that your evaluator knows that the same distance is being used for both eyes. For most pocket eye-chart cards, the card should be held 14 inches away from the eye being tested.
- When testing pupillary responses in accommodation and to light (direct and consensual), review the difference between accommodation and convergence. For accommodation, ask the patient to look at a distant object or the wall (for example) for distance, then have the patient look at your finger held at 2-4 inches from the bridge of his/her nose. Convergence should be tested along with ocular motor function testing.
- When inspecting cornea, lens and retina of each eye with ophthalmoscope, remember to turn off the room lights. Use your right eye and hold the ophthalmoscope in your right hand when examining the patient's right eye. Conversely, use your left eye and hold the ophthalmoscope in your left hand when examining the patient's left eye.

EARS:

- When testing for auditory acuity bilaterally, patient should have their eyes closed. Test one ear at a time. Begin by snapping your fingers 3 feet (arms length) away from the ear being tested. Ask the patient to indicate if he/she hears the snapping of your fingers. If the patient doesn't hear, move closer to ear in six-inch increments and retest.

NECK:

- Inspect and palpate thyroid, each lobe separately, and trachea with swallowing from front or back. If you choose to examine the patient from the front, identify the thyroid isthmus and then each lobe of the thyroid gland together and separately, asking the patient to swallow as you examine each side.

THORAX:

- Review technique to percuss the lungs, percussing the posterior chest wall in symmetrical areas.
- Review proper technique to percuss diaphragmatic excursion on each side. Need to estimate the descent of the diaphragm when patient inspires.
- Review proper technique to palpate axillae with passive abduction-adduction. Your left hand should be used to examine the patient's right axillae, using your right hand to support the patient's right arm. Your right hand should be used to examine the patient's left axillae, using your left hand to support the patient's left arm.

ABDOMEN:

- Review proper use of hands. Your left hand should be used to support the patient's left flank and your right should be used to feel for the spleen.

EXTREMITIES:

- Review proper technique to test for deep tendon reflexes, biceps, triceps, knee, ankle, and plantar reflexes bilaterally. Student should check patient's bicep reflexes on each arm then tricep reflexes on each arm in order to compare bilaterally versus checking the bicep and tricep reflexes on one arm then moving to the other arm and checking the bicep and tricep reflexes.
- When inspecting the spine, please have patient bend over forward in order to check the curvature of their spine.

D. EVALUATION OF PERFORMANCE OF BASIC PHYSICAL EXAMINATION SEQUENCE

Student: _____

Date: _____

Tutor: _____

Evaluator: _____

Steps	Done	Not Done	Sequence Incorrect	Technique Incorrect	Comments
1. General Appearance: (sitting)					
Inspect overall					
2. Vital Signs (sitting)					
A. Temperature with thermometer					
B. Pulse - Measure rate per minute					
Compare bilaterally					
C. Respiratory - rate per minute					
D. Blood pressure- Palpation (unilateral)					
- Auscultation (unilateral)					
3. Skin (sitting)					
Inspect overall					
4. HEENT					
A. Head - Inspect face					
Inspect/palpate scalp					
B. Eyes (sitting)					
Test visual acuity for each eye, Corrected preferred					
Inspect lids, conjunctivae, sclerae, corneas					
Test extraocular muscle movements and convergence					
Test pupillary responses to light (direct and consensual) and to accommodation					
Inspect cornea, lens and retina of each eye with ophthalmoscope					
C. Ears (sitting)					
Test for auditory acuity bilaterally					
Inspect and palpate auricles and mastoids					
Inspect canals and tympanic membranes					
D. Nose (sitting)					
Palpate nose and sinuses for tenderness					
Test patency of each nasal passage by asking patient to "sniff"					
Inspect each nasal passage with speculum					

Steps	Done	Not Done	Seq. Incor.	Tech. Incor.	Comments
E. Mouth (sitting) Test CN V - "bite down" palpate masseter					
Examine CN VII - "show teeth"					
Test CN XII - "protrude tongue"					
Inspect lips, teeth, gingivae, tongue, posterior pharynx: "say ah"					
5. Neck (sitting)					
Inspect for neck veins (see below also)					
Inspect and palpate for postauricular, cervical, sub-mandibular and supraclavicular nodes					
Palpate for parotid gland on each side					
Inspect and palpate thyroid (each lobe separately), (and trachea) with swallowing from front or back					
6. Thorax (sitting)					
A. Posterior Thorax (sitting) Inspect posterior thorax with respiration					
Inspect and palpate entire spine					
Percuss costovertebral angles for tenderness					
Percuss posterior thorax bilaterally and symmetrically					
Percuss diaphragmatic excursion bilaterally					
Auscultate posterior lung fields bilaterally with deep inspiration Auscultate lateral lung fields bilaterally					
B. Anterior Thorax (sitting) Inspect anterior thorax with respiration					
Auscultate anterior lung fields bilaterally (starting with supraclavicular area) with deep inspiration					
C. Axillae (supine) Palpate axillae with passive abduction-adduction					
D. Breasts (supine) Inspect & palpate breasts including nipples					
7. Cardiovascular (supine)					
A. Neck Veins and arteries (supine) Inspect neck veins. Palpate and auscultate carotid arteries bilaterally one at a time					

Steps	Done	Not Done	Seq. Inco.	Tech Inco.	Comments
B. Heart (supine) Inspect precordium					
Palpate PMI (apical impulse) & Precordium					
Auscultate with diaphragm at aortic and pulmonic areas, LSB and apex					
Auscultate for splitting of S ₂ in pulmonic area					
Auscultate with bell at apex (supine & left lateral decubitus)					
8. Abdomen (supine; hips and knees flexed)					
Alert patient to abdominal exam					
Inspect abdomen					
Auscultate epigastrium and over aorta for bruit, and bowel sounds					
Palpate superficially & deeply in 4 quadrants					
Palpate for liver					
Palpate for aorta					
Palpate for spleen - supine position - R lateral decubitus					
Inspect and palpate for inguinal nodes and femoral pulses in inguinal areas bilaterally					
9. Extremities					
A. Lower Extremities (supine) Inspect and palpate legs and feet for edema					
Palpate dorsalis pedis & posterior tibial pulses bilaterally					
B. Upper Extremities (sitting) Inspect skin and nails. Observe for tremor					
Examine grip					
Examine CN XI ("shrug shoulders")					
Test for deep tendon reflexes, biceps, triceps, knee, ankle, and plantar reflexes bilaterally					
C. Posture (standing) - Inspect spine					
D. Lower Extremities (standing) Inspect for varicosities					
E. Gait - Inspect walking					
Did student respect patient's privacy? Yes No			Did student display appropriate affect? Yes No		
Did student arouse patient's anxiety? Yes No			Did student use appropriate verbal/nonverbal behavior? Yes No		

E. COMPETENCE CRITERIA FOR THE BPES

1. DEFINITIONS

When evaluating the Basic Physical Exam Sequence (BPES), the following definitions are important.

Each definition corresponds to a section on the physical evaluation form.

Regional exam: Examination of a body region usually examined as a unit, such as the abdomen, HEENT, etc. Regions are numbered and listed in bold in the shaded areas of the evaluation form. Each region set off by double lines.

Subregion exam: Exam of specific areas within a region such as the mouth in an HEENT exam. Subregions are underlined and designated by letter.

Modality: A modality is the technique used to examine a region. Generally these are inspection, palpation, auscultation, and percussion.

Minor Maneuver: Minor maneuvers are specific maneuvers within the regional exam. These are listed on individual lines on the evaluation form.

2. CRITERIA

The following are the criteria for an unsatisfactory performance on the video Basic Physical Exam Sequence by a first year student.

- A) Omission of one or more regional exam, such as failure to examine the heart, lung or abdomen.
- B) Omission of any modality of the heart, lung or abdomen exam. For example, failure to percuss the lungs.
- C) Omission of two or more subregions either in the same region or in different regional exams. For example, failure to examine the nose and failure to test examine the head and scalp or failure to examine the nose and failure to examine posture.
- D) Omission of two or more modalities of the regional exam. This can be two modalities in one region or one modality in two or more regions.
- E) Grossly faulty technique, such as striking the mid-tibia for knee jerk reflexes.
- F) Omission of four or more minor maneuvers.
- G) Four or more maneuvers not in proper sequence.

F. Extended Physical Examination Maneuvers

The Basic Physical Examination Sequence (BPES) is a comprehensive screening examination to be performed on each new patient. It is taught in MD-1. As an essential addition to the complete history, most medical problems can be identified and followed. However, additional examination steps related to each system can further define and clarify them. We refer to these additional examination procedures as Extended Physical Examination Maneuvers

Laboratory sessions to demonstrate and practice these stops are provided in MD-2, MD-4, and MD-6 through MD-7.

MD-2: Extended Examination of the Pulmonary System
Extended Examination of the Cardiovascular System

MD-4: Extended Examination of the Gastrointestinal System
Extended Examination of the Endocrine System

MD-6: Extended Examination of the Musculoskeletal System
Extended Examination of the Nervous System

MD-7: Female breast examination
Female genital and rectal examination
Male genital and rectal examination

Students prepare for these laboratory exercises by:

- Reading the enclosed handouts in this Resource Manual
- Reading the appropriate chapters in Bates textbook

Evaluation is performed by direct observation by the faculty. Further practice is accomplished in the CSP sessions, during the 3rd Year Clerkship, 4th Year Electives and Sub-internship experiences.

IV: THE PROBLEM ORIENTED MEDICAL RECORD (POMR)

A. MEDICAL PROBLEM SOLVING: AN OVERVIEW

The information and observations gathered from the history and physical examination become the evidence used by physicians to form hypotheses (diagnoses). The hypotheses are generated from the beginning of the interview and are changed or rearranged as the interaction progresses. The hypotheses seek to rationally and scientifically explain all of the abnormalities found in the database. Eventually, all of the abnormalities are identified, prioritized, and organized into a Problem List. The Problem List provides the outline of the patient's medical history. The Problem List allows us to group related complaints and physical findings pertinent to each hypotheses (tentative diagnoses) and develop plans for further diagnostic evaluation, treatment, and patient education.

J. Willis Hurst in his introductory remarks in an early edition of his textbook, The Heart, describes the Problem-Oriented System as including four elements: 1) Principles of Practice: A precise statement of goals of the individual or group using the system and how they are to be accomplished; 2) Problem-Oriented Medical Records: A medical record that can be understood by the patient and medical personnel... a record that makes the details of the patient's problem continuously available to anyone who has the need and the right to know them; 3) Audit: A method of evaluating the logic and performance of all personnel using the system; and 4) Educational Programs: The provisions for the use of the results of the audit in order to change and improve the system.

1. Principles of Practice:

The problem-oriented system of the John A. Burns School of Medicine is meant to serve medical students and their teachers as a tool for educating and evaluating a competent and skilled primary care physician. It is oriented toward the comprehensive care of hospitalized patients and for those who can expect to have long-term, comprehensive care through a primary care outpatient setting. Other adaptations of this system can also be used for episodic and specialty care but that is not the primary focus of the system used by our medical students. The student's portion of the problem-oriented system is based on the assumption that the student is an integral figure in the health-care team in the hospital or comprehensive patient care setting and that his/her observations, his/her recorded data, his/her conclusions, and his/her plans are vital and important to the care of the patient. It also recognizes that the student is just beginning a life-long process of observing, recording, and interpreting medical data. Therefore, the format of data recording and interpretation is established to evaluate his/her increasing skill in eliciting and interpreting data related to specific patients and their illnesses. Further, it is designed to evaluate, particularly in the third and fourth years, how well they are able to develop therapeutic, diagnostic, and educational plans to resolve the problems that they have determined from the data base they have collected. Quality control is assured by; 1) review of the record and 2) by certification (after observation) that the student has the necessary motor and interpersonal relationship skills to assure the precision and accuracy of the data collected.

2. Problem-Oriented Medical Records:

The University of Hawaii John A. Burns School of Medicine has adapted the Problem-Oriented Medical Record (POMR) for recording the medical history.

There are four components to the POMR:

- A. The Defined Data Base
- B. The Complete Problem List
- E. The Initial Plans
- F. The Progress Notes

There are many advantages to the POMR but it has been adopted primarily because it serves as a format for recording the diagnostic reasoning of the physician and it includes a plan for evaluating and managing each problem. In addition, the record is easily audited for evaluation of the quality of patient-care rendered by the physician.

The patient's recorded history represents the ORGANIZATION and INTERPRETATION of material derived from the interview (as well as from other sources, such as previous medical records or outside informants). The preparation of the written history is more complex than recording the findings of the physical examination. It involves making certain judgments as to what differentiates the current illness from illness in the past. It calls for decisions as to the relevance of data and their proper assignment to the major categories Present Illness (PI), Past History (PH); Family History (FH), System Review (SR or ROS), Patient Profile (PP).

To write a well-organized history, it is wise first to review in one's mind the information obtained from the interview. The data must be examined particularly for completeness; and it may be necessary to go back to the patient for clarification or exploration of issues that were not fully appreciated during the initial interview.

Thought must be given to clarity and conciseness of language in the final draft. One must learn to be accurate and complete, yet sufficiently to the point so that the physician who reviews the chart can do so without being misled by ambiguities, omissions, distortions or misstatements. Events are reported in the sequences in which they occurred and symptoms are delineated in terms of their seven dimensions.

Throughout the written history careful distinction must be made between DESCRIPTION of data and its INTERPRETATION. It is improper, for example, to write: "The patient is having angina pectoris", rather it is best to record a complete description of the symptoms in question, allowing the reader to form his/her own opinion.

Quotations are used sparingly and only when the patient's exact words contain specific information. Quotes are also used when recording an undocumented medical term used by the patient, such as "nephritis" or "nervous breakdown", but these should always be followed by a brief description of the condition so named. It is unnecessary to write "The patient said..." This adds to the length of the history and decreases readability.

Emphasis should be on the description of symptoms and events as these affect the patient, rather than on the physician's report of what the patient said or did. Finally, as the physician writes a history, he/she should constantly keep in mind the future reader and anticipate questions arising in the reader's mind and include pertinent, positive and negative information.

See the Details of the POMR below.

3. Audit:

The thorough recording of the database leads to a third component of the problem-oriented system: quality control. This will help both the students and faculty to interpret the 4 following items that are used to judge the quality of the student's work:

Thoroughness: Is the database complete?

Reliability: Is the data accurate? The recording of the examination of the liver provides an opportunity to go back and recheck the accuracy of the perception. Does the physician follow through on his/her plans?

Efficiency: Is data collected and problem-solved in a reasonable length of time?

Analytical sense: The logic pathways used in solving problems are clearly outlined in this system and are amenable to evaluation by peers or teachers. The standard for measuring the overall process is the standard expected of medical students at their level of training. Our objective is to prepare you adequately to proceed to the next step in your medical education.

4. Education Programs:

This problem-oriented medical record system makes it possible to link observation, record-keeping, formulation or assessment, and hypotheses testing to the daily activities of medical practice. Using this system we can identify deficiencies in the student's ability to observe, record, formulate and test hypotheses in such a way that these deficiencies can be corrected. The problem-oriented system provides the sequence of events and feedback loops required to learn medicine and to deliver excellent patient care.

In summary, the principles of practice of medical students have been established through defining their specific goals at each stage of their medical education. The problem-oriented system will need re-defining particularly as the student advances into the clinical years and as he/she enters postgraduate education. The use of the problem-oriented record is required for the student and outlines the defined database, the problem list, the initial plans, and the progress notes formats to be used in patient evaluations. Audit will be through comparing the database, whether presented orally or from the written form, with what is expected of students and will concern itself with thoroughness, reliability, efficiency, and analytical sense. This system will be used to learn medicine and to deliver excellent patient care by teaching and reinforcing those behaviors that are appropriate to that end.

B. DETAILS OF THE PROBLEM ORIENTED MEDICAL RECORD (POMR)

1. THE DEFINED DATA BASE

This is the general body of information collected on most patients. The Department of Medicine has designed a Defined Database which is outlined in Section D, below. The Database consists of the patient's identifying data, the chief complaint, a statement about data sources and reliability, the Present Illness, Past Illness, Family History, Patient Profile, Review of Systems, and Physical Examination. An example of a written history and physical examination is presented in Appendix III.

See the Format of the PROBLEM ORIENTED MEDICAL RECORD in Section D,

below.

2. THE PROBLEM LIST

The Problem List should be the first page of the medical record. It is derived from the information in the Data Base (e.g., the history and physical examination). It is the index or table of contents of the record. A problem is defined as anything that requires further diagnostic workup; requires medical or other therapeutic management; interferes with the quality of the patient's life as perceived by the patient; or in the opinion of the physician may be potentially a matter interfering with the quality of the patient's life. The problem should be stated at the level of understanding that can be defended by the data which are available. The problem list should show the date the problem was entered (the date when the physician identified the problem), the date the problem started, and the date when the problem was resolved. Each problem should be numbered. The problem number and title will be used throughout the record when initial plans and subsequent progress notes are written. Problems requiring further resolution should have an arrow placed after them. The date the problem was resolved should be placed above the arrow. The date is a pointer to the progress note which displays the evidence and logic used to change the problem from one that is of a low level of resolution to one that is of a high level of resolution. The problem list should be continually updated. There must be no delay in adding a newly discovered problem to the list or indicating how a problem has changed from a "low level resolution" to a high level resolution". When for any reason the defined data base cannot be obtained, or portions of it are missing, this should be formulated as a problem on the problem list. Such a problem should be identified as " Problem #1... incomplete data base."

See the Format of the PROBLEM LIST in Section C, below.

3. PROBLEM ASSESSMENT AND PLANS

a) Problem Assessment:

for each numbered and titled problem an Assessment will be composed, which will include differential diagnosis (choose between competing hypotheses) to explain the issues posed by the problem. The Assessment will include an analysis of the evidence for and against each possibility, and should end with a statement of the rationale for the next section, the Plans, based on probabilities and priorities of the particular patient's situation.

b) Plan

Each problem assessment is followed by a statement of the initial plans covering 3 specific categories for that Problem:

1. The Diagnostic Plans outline the specific tests or procedures necessary to elucidate that specific problem that are not already available in the defined data base.
2. The Therapeutic Plans define the specific drugs, dosages, and therapeutic procedures to be undertaken.
3. The Patient Education Plans define what the patient and the family have been told about the problem and the plans for further education.

4. PROGRESS NOTES

Each narrative progress note should be numbered and titled to match the problem.
The progress note has 4 elements:

- Subjective - from the historical data, symptoms
- Objective - data from physical and laboratory examinations
- Assessment - interpretation of the new subjective and objective data
- Plan - new plans are based upon the assessment of new data

The physician considers the need for further diagnostic work, new therapeutic plans and additional education of the patient and family. All information entered in the problem-oriented medical record should be related to a specific problem which should be numbered and titled to match the problem list. This includes:

- The physician's orders
- Consultation notes
- Nurse's notes
- Physical therapy notes
- Dietitian's notes, etc.

C. THE FORMAT OF THE PROBLEM ORIENTED MEDICAL RECORD

1. PROBLEM LIST FORMAT

Date: _____

PROBLEM LIST

Name: _____

Problem No.	Date Onset Date Entered	Active Problems	Date Resolved	INACTIVE/RESOLVED Problems
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

14				
----	--	--	--	--

2. **FORMAT OF THE POMR MEDICAL NOTE**

IDENTIFYING DATA (ID)

Name, age, sex, race, marital status and occupation (if retired - "retired plumber" or whatever).

SOURCE AND RELIABILITY OF THE HISTORY (S/R)

Usually from the patient and statement such as "reliable historian".

REASON FOR EXAMINATION (RE)

Record the special reason for the examination at this time, other than the Chief Complaint.

Examples:

"Pre-employment physical examination"

"Annual checkup"

"Referred by Dr. Heart for evaluation of cardiac murmur"

"Admitted to Coronary Care Unit from Emergency Room for probable myocardial infarction"

Rarely, none other than the chief complaint will seem appropriate. If so, record: "Medical attention for chief complaint" (see below).

CHIEF COMPLAINT (CC)

Record the one symptom IN THE PATIENT'S OWN WORDS and the duration. This should be brief (1-3 words) and avoid detailed qualifications. Thus, "chest pain" rather than "severe sudden onset sharp parasternal chest pain". If the CC occurred previously and is no longer present, record as: CC: Abdominal pain. DURATION: For 2 days, 1 week ago.

PRESENT ILLNESS (PI)

The Present Illness refers to the recent change in health that caused the patient to seek medical attention. It is an orderly and usually chronological account from the onset to the "zero time" of the present examination that includes all the completely characterized symptoms, signs, feeling, events and relationships that are pertinent to the patient's current illness.

As a student, you will be interviewing people who may have been hospitalized for some time. In this case the Present Illness should be the illness PRIOR TO HOSPITALIZATION. The PI may then be followed by a sub-section titled: "HOSPITAL COURSE", to give the events after admission to the hospital.

In general, the identification of the present illness begins with the symptoms and events that cause the patient to seek medical attention. One must appreciate that the term, present illness, does not necessarily refer to a single illness but TO ALL THE DISEASE PROCESSES CONTRIBUTING TO THE PATIENT'S CLINICAL CONDITION AT THE TIME OF THE EXAMINATION.

CHRONOLOGICAL ORGANIZATION

Each segment or paragraph of the PI is organized chronologically and related to the "zero time" of or examination. One should avoid the nonspecific "Saturday before admission" since this time interval will be unclear in the future.

Underlining the date or time at the beginning of each paragraph serves to highlight it as:

"Four days prior to admission (September. 25, 1977), the patient first noted..."

ORGANIZATION OF THE WRITE-UP OF THE PRESENT ILLNESS

The PI can be organized as follows:

1. An initial orienting statement describing the patient's past health.
2. The general description of the PI.
3. A concluding paragraph that brings in any additional information pertinent to the understanding of the problem.

Some physicians (as evidenced by the sample write-up) prefer to organize the PI as follows:

1. Initial paragraph clarifying chief complaint and/or reason for examination.
2. A chronological description of PI.
3. A concluding paragraph of pertinent, positive and negative information.

Students should recognize that different formats will serve for different situations and should be used appropriately.

INITIAL ORIENTING STATEMENT

Especially for patients with long standing medical problems, a brief statement concerning the patient's health prior to the onset of the PI helps orient the reader to the setting in which the PI occurred and sometimes indicates the reason for hospital admission.

Examples are:

"Diabetes has been known for 5 years effectively controlled with diet and oral hypoglycemic agents. The patient felt well until 4 days prior to admission, (Dec. 22, 1977) when she noted..."

"This patient has had poor health for 20 years with multiple hospital admissions with at least 6 major surgical procedures (see PH). She was in her usual state of health until 3 days prior to admission, (Dec. 23, 1977) when..."

"The patient has been in excellent general health his entire life until 2 weeks prior to admission (Jan. 2, 1977) when he first noted black stools."

Some of the items referred to in this initial statement are then written about in more detail under Past Health. Those, in the judgment of the writer, which have direct bearing on the patient's current situation, are described in more detail in the Present Illness.

THE GENERAL DESCRIPTION OF THE PRESENT ILLNESS

As already discussed, the description of the Present Illness is organized

chronologically by introducing the reader first to the symptoms and events leading to admission, then going back to the apparent beginning of the illness, and tracing it up to the present. The entire course of the Present Illness must be described, beginning with whatever is taken as the point of onset of the current disorder. In addition to symptoms, this description includes what the patient has done about the disorder, other medical investigations or treatments, and anything which the writer considers contributory to an understanding of the illness.

Reactions to specific circumstances in the illness should be incorporated into the body of the Present Illness, including life situations bearing on the course of the illness--for example, acute anxiety on discovering bright red blood in the stools; depression or hypochondriacal concern upon feeling a lump in the breast; a fight with the boss immediately preceding the onset of a symptom; or grief and mourning following a loss.

There is an almost endless variety of patterns to the present illness. These patterns may be roughly categorized as:

1. AN ACUTE ILLNESS IN A PREVIOUSLY HEALTHY PERSON

When a patient has been in excellent health and develops an acute illness, the organization of The Present Illness is relatively simple. One usually begins with the initial symptoms and events and systematically describes the illness up to the time of admission.

2. A RECURRING ILLNESS WITH ACUTE EPISODES

A patient may have a disease characterized by remissions and recurrences, often with symptom-free intervals in-between. Examples might be bacterial pneumonia, a peptic ulcer, or depression. The fact that there has been previous episodes is mentioned in the initial orienting statement. Next, a full description is given for the current episode.

In subsequent paragraphs, the previous episodes are described briefly with particular emphasis on resemblances or differences from the current illness. Intervals between acute episodes should not be neglected, since these may clarify what factors were favorable for remission or what contributed to the recurrence. Mild symptoms indicative of possible underlying disease should also be mentioned if they appear relevant.

3. ACUTE MULTI-SYSTEM ILLNESS

Occasionally, a patient will have a complicated illness with symptoms involving several systems. One must think carefully how to organize the Present Illness in the best way. If the illness is relatively recent and symptoms are few, it may be wise to develop the Present Illness chronologically, beginning with the earliest symptoms or events and progressing to the time of hospital admission. On the other hand, should there be multiple symptoms involving different organ systems, all beginning at different times and evolving differently, it may be best to deal with each major organ system in separate paragraphs. Such organization takes experience and judgment since there may be more than one disease process and the relationship between symptoms may be obscured by such arbitrary divisions.

4. NEW EVENTS RELATED TO A CHRONIC ILLNESS.

A patient may repeatedly have acute episodes in the course of a chronic illness. The present problem should be fully described in the Present Illness followed by a summary of relevant past events. In general, it is best to begin with an account

of the most recent episode or symptom complex. One then goes back in time and attempts to identify the beginning of ill health and develops a sequential story of the illness.

5. A NEW AND CLEARLY UNRELATED EVENT IN A CHRONIC ILLNESS.

If a patient with Parkinson's disease develops symptoms of ulcers, for example, it is not necessary to include a description of Parkinson's disease in the Present Illness. The reader is told of the chronic illness in the initial sentences and is referred to the Past History for a fuller account.

If, on the other hand, the chronic illness plays a significant role in the management of the unrelated new disease, a brief summary with pertinent information concerning the chronic illness should be included at the end of the Present Illness; and fuller details are included under the Past History.

6. DATA OF UNCERTAIN RELEVANCE

If there is information of uncertain relevance to the Present Illness, it is best included in a separate paragraph rather than the Past History of System Review. This may include psychological stresses and life events, such as a recent death or job loss, where the chronologic relationship with the illness justifies consideration.

THE CONCLUDING PARAGRAPH

The Present Illness concludes with a paragraph containing additional information important to the full understanding of the patient's problem. It may include the following items:

- Pertinent positive and negative information
- Medications and treatment
- Degree of disability

The divisions of the history following the Present Illness are organized to give a clear picture of the patient's former health, the health of his/her family and his/her personal development, relationships and achievements. The information is arranged in a way that the reader can efficiently review pertinent data. Although complete sentences are used for the PI and PP, an outline format is more effective for the PH, FH and SR.

The sample write-up and outline form should clearly indicate the organization of these divisions of the history which have been elaborated upon previously.

THE PAST HISTORY

FAMILY HISTORY

THE PATIENT ("PERSON") PROFILE ("Social History")

The purpose of the Patient Profile is to provide an overall perspective of the patient's adjustment and functioning over the years. Accordingly, one inquires into his/her performance and reactions under such circumstances as leaving school and home, military service, marriage, illness or death of important persons, or changes in his/her economic or social status. As already stressed, emphasis is always on the patient's reactions and methods of coping with these events, not simply on the event itself. This information is crucial to the appreciation of the psychological, social and cultural

aspects of his/her illness.

The physician attempts to paint a true picture of the patient as a person in recording this profile. In order to do this, he/she must attempt to know the patient as a person.

An outline has been developed to assist students in obtaining and organizing the data but the information is recorded in a narrative account. (See outline format, APPENDIX II).

One of the most difficult tasks is to provide enough information so that the person using your medical record can determine the overall background of the patient as well as the current life situation.

As an interviewer, you will acquire a great deal of information which must be summarized to prepare a well-organized, brief, pertinent report. You must omit many details and provide only those items which seem most important in the full understanding of this patient. The best approach is to outline your findings and then make certain that you comment on every item. The amount of detail provided will depend on the clinical situation.

THE REVIEW OF SYSTEMS

PHYSICAL EXAMINATION

PROBLEM LIST

Medical problem solving is the result of a series of complex interactions between physician and patient from which are derived medically useful data. The initial standard history and physical examination provide the clues which eventually permit the identification of Problems.

Definition: Problem - Anything that requires diagnostic or management plans; or interferes with the quality of life as perceived by a patient. Problems include specific etiologic or anatomic, physiologic syndromes, symptoms, signs, laboratory abnormalities, and behavioral aberrations, including social and psychiatric problems.

Each problem should be given a brief informative title at the most specific (i.e., highest) level of diagnostic integration for which the physician judges the evidence convincing. For medical problems, levels of diagnostic integration in order of decreasing specificity are:

TYPES	EXAMPLES
Etiology	Pneumococcal pneumonia
Anatomy	Cirrhosis, melanoma
Pathophysiology	Congestive heart failure
Symptoms, signs	Chest pain, clubbing
Laboratory	Hyponatremia
Behavioral	Drug abuse, unemployment, divorce

The problems should be listed in the order of importance selected as most significant by the physician. Usually, the problem that is the cause of the chief complaint (the iatrotropic symptom) should head the list. This should be followed by active problems that may be related to the primary problem, active unrelated problems, and

past problems, inactive or resolved.

For each problem, there should be an Assessment and a Plan with Diagnostic, Management (treatment), and Patient Education elements. Thus, the format of the analysis section should be written on a problem-by-problem basis:

Problem #1: Rhinorrhea
Assessment
Plan
 Diagnostic
 Therapeutic
 Patient education

The objective of identifying Problems is to eventually evolve Diagnoses, which are problems at the highest stage of resolution. Problems evolve from non-specific collections of signs and symptoms to highly refined diagnoses.

The Problem Oriented Medical Record uses the Problem List to record the Problems in their order of importance as perceived by the physician and the patient. This list also records the date of onset of the Problem and demonstrates the evolution of problem solving in relation to that problem on the way to a diagnosis. Well organized Problem Lists at the front of a patient's chart will provide a summary of this problem solving process.

The permanent (or master) problem list is written on a separate page and is a table of contents for the medical record. Each problem is given a number and title and a date when the problem was formulated. The page is usually at the very beginning of the medical record. When a new problem is added to the Problem List, it should be assigned a new number and title.

Problems may be Active or Inactive, depending on whether they currently require diagnostic or management plans. Inactive problems should be listed and identified as inactive when they represent previous medical problems which often may bear on current problems; they may also reactivate and become active problems.

As previously stated, problems may be abnormalities identified in the medical data base which imply a great number of possible disease processes. The evaluation and ordering of these clues in order to select one diagnosis from many possible diagnoses is called differential diagnosis. Thus, the ability to eventually decide what a patient has in terms of a disease process requires that the physician be able to identify abnormalities and be able to relate them to disease entities where similar abnormalities are present. This requires a knowledge base concerning diseases and their related symptoms such as the student acquires in studying pathology and in reading about medical-surgical illness.

A Tentative Problem List is the first distillation of abnormalities from a standard data base. Questions that may be asked of each Tentative Problem are:

1. Is the "abnormality" really pathologic, or is it really a normal variant for that person's age and sex?
2. Is that finding contributing to the patient's symptoms?
3. Is that finding related to other signs and symptoms?
4. What organ system is involved?

5. What pathologic process can explain the sign or symptom or the collection of signs and symptoms (e.g., a syndrome)?

A more refined Initial Problem List results from an evaluation of a general listing of all abnormalities (the Tentative Problem List). As students become more expert in problem solving, they will find that many clues may be considered together. An initial Problem List, which will be a part of all required workups this year, will be a series of headings or titles consisting of abnormalities found in the data base, dated, and listed in order of importance and activity. Each problem is clearly stated and defined on the basis of the information available at its highest state of resolution. Related problems from the Tentative Problem List will be found in the Assessment you will subsequently write in reference to each problem, such that all abnormalities in the data base are noted either as a title on the Problem List or in the assessment of a problem to which they are related.

Eventually, all Problems become resolved as diagnoses. Diagnoses are names given to disease processes based on criteria that evolve through studying many patients with similar problems and outcomes. Problems usually begin as non-specific but highly sensitive indicators of disease processes. From non-specific indicators, specific findings associated with a disease permit one, on the basis of probabilities, to make a diagnosis. A diagnosis is most highly resolved and most clinically useful when it can be described Anatomically (Organ or organ system, morphologic changes), Pathophysiologically (the biochemical or physiologic abnormality can be described), Etiologically (the underlying cause), and Functionally (current state of limitation), Therapeutically (state of function under present therapy), and Prognostically (likely outcome with maximally effective therapy).

Non-specific but extremely sensitive clues to the presence of illness, which often are included in tentative and initial problem lists are: dyspnea, chest pain, abdominal pain, headache, edema, chronic diarrhea, ascites, splenomegaly, fever, polyuria, weight loss, increased or decreased blood pressure, altered consciousness, disturbed menstrual function, and short stature. Problem solving requires asking questions about these abnormalities which are related to the way we understand, define, and categorize disease. They are the same categories that are used in defining a Final Diagnosis, the culmination of problem solving and problem resolution. The questions are related to Anatomy [location and structural changes (macroscopic and microscopic)], Pathophysiology (Disseminated intravascular coagulation), Etiology (e.g., Congenital, Infectious, etc.), and Prognosis (based on current limitation and expected response to maximal therapy).

We must remember that our problem solving has a purpose. That purpose is Diagnosis and Treatment, with the latter dependent upon the former.

The following are criteria for evaluating a Problem List:

1. All of the patient data presented in the data base should be assignable to one or more of the problems that have been identified.
2. Short informative titles should be assigned to each of the problems that have been identified.
3. The same titles and number should be used in the future by all observers who write in that particular patient's medical record.

4. When a new problem is added to the Problem List, it should be assigned a new problem and title number.
5. If the new problem replaces one or more problems previously recorded on the list, an appropriate notation should be recorded next to the initial problem (such as, "replaced by problem ___").
6. As problems evolve to syndromes or to complete diagnoses, this should be indicated on the first Problem List by drawing an arrow from the original problem title to a new title indicating this new state of resolution, with a date over the arrow indicating when this new resolution was formulated or became apparent.
7. When the problem is resolved by appropriate treatment, an appropriate notation should be made (and dated) next to the problem at its highest state of definition.
8. The permanent problem list should also note the date when each problem on the list was first formulated.
9. When uncertain as to whether information in the data base constitutes a problem, the physician should ask whether or not that information might be regarded as an entity which requires a solution to help the patient.

The form that is used by students to number, prioritize, and update an Initial Problem List is found in Section C above.

INITIAL PLANS

The following is a short description of the final section of the written medical history according to the Problem Oriented format --- Initial Plans. This section follows the Initial Problem List. It has the following format:

Initial Plans:

Problem #1: Title (from Problem List)

Assessment: Justification of a Diagnosis or Differential diagnosis with evidence for or against, in order of importance. Rationale for overall approach to the next section.

Plans: Dx 1.
 2.
 3. ...etc.
 Rx 1.
 2.
 3. ...etc.
 Pat Ed 1.
 2.
 3. ...etc.

Problem #2: Title (from Problem List)
 etc.

The "Initial Plans" section uses ONLY information provided by the Defined Data Base (no new history or physical findings or laboratory data can appear here if not recorded in the Data Base). Each "Problem" from the initial Problem List becomes a title or a heading for a section of the Initial Plans. These sections carry the same

number as the title taken from the Problem List. Each numbered problem is followed by two subsections: the Assessment and the Plans.

The Assessment interprets and analyses the data from the Data Base. As you recall, all "abnormal" data must either become a "Problem" on your Problem List or be dealt with in the Assessment of another problem. In the Assessment, you review the data you consider pertinent to the problem and you derive a series of likely working hypotheses (diagnoses) that explain the abnormalities. These hypotheses, and the data "for" and "against" each one, become your Differential Diagnosis. These hypotheses permit you to rationally select among a variety of tests to confirm or deny hypotheses and eventually select one that will become your final Diagnosis. Now, it is possible that you have enough information in your data base (from your History, Physical Examination, or Medical Testing (or response to therapy) to begin your Initial Plan with a complete well-defined Diagnosis. Under this circumstance, it is unnecessary to perform a differential diagnosis. However, you must justify, on the basis of the data collected, your Diagnosis.

Several sentences at the end of your assessment should provide the rationale for the subsequent plans section based on the likelihood and/or importance of one or more diagnostic hypotheses and the immediate and long term priorities for further testing, treatment, and patient education listed in the following section.

The "Plans" subsection follows the "Assessment". The former consists of three parts: 1. Dx (Diagnosis) - further diagnostic evaluation; 2. Rx (Treatment) - a treatment or therapeutic program; 3. Pat. Ed. (Patient Education) - the information provided the patient.

The "Dx" or Diagnosis portion of "Plans" should list in order of importance your diagnostic hypotheses, your Rule Outs (R/O's). Each R/O should be followed by the steps of extended physical examination, further laboratory tests, or even type of therapeutic trial you will undertake to support or deny this particular hypothesis in your differential diagnoses. Each of these tests and/or maneuvers should be selected for their sensitivity (few false negatives) and their specificity (few false positives). In addition, they should be chosen in terms of their risk/benefit and of their cost/benefit. They should also be chosen to monitor the course of an illness and/or response to treatment interventions. In most cases, they should be performed in order to make decisions, to act or not to act, to treat or not to treat (intervene). In fact, the whole purpose of arriving at a diagnosis is so that you can compare your patient with others with a similar illness, an illness with a predictable course and outcome, so that you can make rational choices as to the therapy in a way that will modify the natural course of the illness in a way favorable to the patient.

The "Rx" or Treatment portion of the "Plan" lists the medications and physical measures that you will use to modify the illness and/or prevent other serious and related consequences. This treatment must be consistent with the diagnostic hypotheses. In many cases, response to treatment will help confirm your hypotheses. In some cases, response to treatment will lead to a worsening of the patient's condition, particularly if your diagnostic hypothesis is incorrect, or your treatment really does not modify the natural history of the illness in a positive fashion (e.g., use of leaches to treat pneumonia; the use of antibiotics to treat a viral illness). Again, your treatment depends on your knowledge of the patient's condition. It also depends on the value of the outcome to you and the patient and his/her family (e.g., intensive care for the brain-dead octogenarian vs. fetal monitoring for a high risk pregnancy [with a history of multiple previous fetal demise]). It must also be based on cost and risk assessment of the treatment.

Finally, the "Patient Education" section of the Plan must summarize your explanation to the patient of his/her illness and its prognosis, the tests you plan to confirm the diagnosis or seek a cause of the illness (their cost, risk), and the course of treatment (again, risk, cost, and benefits). This is the hardest section to articulate in the written record when you first see the patient; but one recognizes that one actually does the majority of this at the bedside. It is worthwhile, while constructing your initial plans, to consider how you are going to approach this task, and form a brief outline for the record, demonstrating your intentions and approach in doing so. It is also true that in your progress notes, particularly the last one, you will need to legally outline exactly what you have instructed the patient to do in terms of diet, physical activity, and medication at the time of discharge (your patient disposition). This has now become a near legal obligation.

A medical record that does not document such instruction, in outline form, leaves the practitioner open to later grief in court. A patient and family can never say "the doctor never told me..." (e.g., about medication, etc.) if it has been documented in the chart AT THE TIME OF DISCHARGE OR BEFORE - NOT AFTER. In addition, the skill of your daily encouragement and instruction is a key component and reflection of your relationship with the patient; it is also therapeutic, in and of itself.

The following is a brief example of one Initial Plan, one having to do with item number one on this particular patient's problem list.

Initial Plans:

Problem #1: R. Pleuritic Chest Pain

Assessment: Sharp knife-like right anterior chest pain, aggravated by inspiration, relieved by splinting the R chest, occurring with tachypnea and hemoptysis sixteen hours after a long plane trip suggests the likely possibility of pulmonary embolism. However, there is no swelling or tenderness of the lower extremities or other evidence of phlebitis. Other diagnoses include pneumonia with pleuritis (viral or bacterial) or viral pleurisy. Against these possibilities are lack of fever, shaking chills, or increased signs of consolidation. Costochondritis is possible but there is really no localized tenderness of the costochondral junctions on the R. A subdiaphragmatic problem, e.g., abscess or ruptured viscus, is possible, but unlikely because of the hemoptysis and his apparent respiratory distress. There is no localized tenderness to suggest rib injury or fracture and breath sounds are heard throughout, mitigating against pneumothorax.

The following workup will emphasize R/O pulmonary embolism and bacterial pneumonia because of their serious and immediate consequences to the patient, with initial therapy particularly directed against possible pulmonary embolization unless this diagnosis is excluded by further testing or by the clinical course.

- Plans: Dx
1. R/O Pulmonary Embolism - Arterial blood gases on room air and with O₂ by mask. Chest x-ray. EKG. Ventilation Perfusion scan, including lower extremity radionuclide venogram. Consider pulmonary arteriogram if no definitive diagnosis by scan/x-ray, or if patient requires pulmonary embolectomy.
 2. R/O pneumonia - Chest x-ray, CBC. Cold agglutinins and TB skin test if infiltrate present, along with sputum culture.

- Rx
1. Continuous i.v. infusion of heparin after initial i.v. bolus (per Washington Un. Manual). Discontinue if further evaluation reveals other cause.
 2. Monitor PTT twice daily, maintaining at 1-1/2 to 2-1/2 times control with heparin infusion. Baseline platelet count, monitoring q 3 days for idiosyncratic decrease on heparin therapy.
 3. O2 by mask at 7 liters/min
 4. Elastic stockings
 5. Demerol for chest pain

- Pat. Ed.
1. Explain to patient the need to perform the above tests to further define the nature of this illness, to R/O pulmonary embolism and pneumonia.
 2. Explain heparin therapy; allude to risk/benefit and the means used above to monitor its safe administration.

In summary, the Initial Plans section of your Problem Oriented Medical Record takes problems at the level of resolution justified by the defined data base. It assesses each problem, either justifying a diagnosis or suggesting a reasonable differential diagnosis for further diagnostic evaluation. It then establishes a rationale for the course and priorities of action as listed in Plans. The subsequent sections of Diagnosis, Treatment, and Patient Education ends each section of the Initial Plans until all of the Active Problems on the Problem List have all been so outlined.

E. Evaluation Outline: POMR (Problem Oriented Medical Record) Outline For Students and Clinical Skills Preceptors

Directions: Please evaluate write-ups according to

- A. The format as outlined below, content and completeness of each component of the medical history (in terms of information actually available at the time).
- B. The accompanying problem list for appropriateness of title, completeness and prioritization, as well as identifying active vs. inactive problems.
- C. Assessment and plan of at least three active problem (less if fewer than 3 active problems) following the format noted.

* * * * *

Date/Time

Student Physician Name:

ID: Name, age, race/ethnicity, marital status, employment status

Reason for evaluation:

Source of Information and Reliability

Chief complaint (patient's words, with duration)

HPI: Chronologic order of symptoms, with as complete a characterization as possible of each: Time of onset, setting, intensity, duration, radiation, what makes it better or worse, with associated symptoms, as completely characterized as possible. Pertinent data from other components of the database, e.g. past hx, family history, patient profile, etc.

Past History (outlined)

Childhood Illness

Adult Illnesses and Hospitalizations (diagnosis, procedures, dates, locations)

Current medications: Names, doses, frequency (including alternative medications and Treatments).

Surgeries

Trauma

Allergies

Immunizations

Transfusions

Family History including all first degree relatives (outlined; family tree if possible).

Patient Profile: Living situation, typical day, diet and exercise, work situation, education, impact of illness, insurance status. Habits (Illicit Drugs, Alcohol, and cigarettes)

Review of Systems: Outline form (no need to repeat ROS components found in HPI)

Physical Examination:

Description of patient (the phrase: "Well-developed, well-nourished, in no acute

distress is not acceptable")

Vital signs (including weight and height, if available)

HEENT

Neck

Chest (Breast exam not included now), spine

Lungs

Heart

Abdomen

GU and rectal (exams not included now)

Skin

Extremities

Neuro: Cranial nerves

 Motor strength

 Reflexes: normal and abnormal

 Sensory

Problem List: (see separate problem list outline)

Was the Problem List Complete (all active and inactive problems identified,
and prioritized)

Assessment and Plan (for three active problems):

Problem #1 Problem Title (corresponding to Active Problems on Problem List)

Assessment: Differential diagnosis or supporting data for a definite diagnosis.

Plan: Diagnostic

 Treatment:

 Patient Education:

Problem #2 Problem Title (corresponding to Active Problems on Problem List)

Assessment: Differential diagnosis or supporting data for a definite diagnosis.

Plan: Diagnostic

 Treatment:

 Patient Education:

Problem #3 Problem Title, corresponding to Active Problems on Problem List)

Assessment: Differential diagnosis or supporting data for a definite diagnosis.

Plan: Diagnostic

 Treatment:

 Patient Education:

Appendices I - V

APPENDIX I

PATIENT ("PERSONAL") PROFILE OUTLINE

PAST DEVELOPMENT

Birthdate:

Birthplace:

Family:

Father (occupation)

Mother (occupation)

Siblings (number, sex, rank order of patient)

Quality of family life

Special problems

Special events

Childhood:

Location:

Quality: significant events

Adolescence: significant events

Location (If different from childhood): When important in understanding the patient's illness, a description should be made as to how the patient dealt with the adolescent years (special events, good & bad). The method of separation from parental control is often significant.

Educational history: Completed high school? Where?

Past employment history: The main emphasis is on how the patient adjusted to his work role(s) in terms of personal gratification, interpersonal relationships, economic security and success.

Marital history: Discuss in past development only if other than present marriage.

Number

Age

Children - number and sex
year of birth

Travel and/or other significant life events: A brief description is given of travel, especially outside the country, particularly if any disease was contracted. Also, any other experience such as near-death episodes of depression, major adjustments, etc.

CURRENT LIFE SITUATION

Living condition:

Home and family

Location:

Significant persons in life :
(if different than family)
Quality of life style:

Marital Hx (if not previously discussed):

Present occupation: Discuss the overall schedule, nature of work, satisfactions, frustrations and any occupational hazards (i.e., dust, smoke, chemicals, etc.)

Diet (typical day):

Exercise (type and amount):

Hours of sleep:

Leisure activities:

Use of ETOH (previous esp. if excessive): (now):

Use of tobacco (previous): (now-total pk/day, yrs):

Use of Prescription and/or non-prescription drugs (substances):

Financial status: It is important to describe any financial problems that may influence the current illness and hospitalization. If the patient is unemployed, the reasons should be determined. Also, obtain generalities on financial responses--pensions, social security, etc.

Religious affiliation:

Insurance:

Reaction to Illness: Some assessment should be made on how the patient feels and understands about his/her illness, and what his/her perception is of the quality of care and overall prognosis. If very depressed, anxious, then a more detailed inquiry should take place and be recorded appropriately.

APPENDIX II
EXAMPLE OF PATIENT ("PERSONAL") PROFILE

PAST DEVELOPMENT:

Ms. P.F. was born on December 6, 1956 in Laconia, New Hampshire. Her father is Irish and her mother is Italian. Both parents worked for the federal government; her father was an engineer and her mother was in employee relations. She has two older sister, ages 35 and 33, and a brother, age 31. The family was very close and lived in Washington, D.C. until the patient was 14 (1970) when the family moved to Guam when her father was transferred there. She had attended private schools in Washington, D.C. and then a public school in Guam. When her parents divorced, there was a great deal of turmoil and she was sent to the Hawaii Preparatory Academy. Although she missed the family, especially her brother with whom she was close, she made many friends and graduated near the top of her class.

Immediately after graduating from high school, the patient returned to Guam where her mother still lives. After the divorce, her father moved back to Washington D.C. where he now lives. She enrolled in nursing school and graduated four years later. She and her mother returned to Hawaii seven years ago and she now works in intensive care nursing.

She is single but has a boyfriend at the present time. She has not traveled outside of the United States.

CURRENT LIFE SITUATION:

Ms. P.F. now lives with her mother in an apartment in Waikiki. She has an active social life and has many friends. She eats very little red meat and tries to stay on a low salt/fat/carbohydrate diet. She has a small breakfast of cold cereal and toast. Lunch is usually a salad and dinner is often eaten out and consists mostly of fish or chicken.

She usually awakens at 9 am. She exercises by swimming, walking or biking several times a week. She works the 3-11 shift and returns at 1 or 2 am. Ms. P.F. enjoys a regular exercise program and likes to read mystery novels. She does not drink alcohol and does not smoke cigarettes. She tried marijuana on one occasion as a teenager. She does not use any medications except for occasional OTC antihistamines and has never used any illegal drugs.

She and her mother are financially comfortable and she is saving money to take a 6-month trip around the world. She is not concerned about her medical bills since she receives free medical care as a Kaiser employee. She considers herself a born-again Christian and is very active in her church.

She initially was concerned that her illness might be early cancer but is now relieved that the problem has been identified and is hopeful that the cyst can be easily and quickly removed.

APPENDIX III ORAL CASE PRESENTATIONS

- A. Objectives. Oral case presentations have these objectives:
1. To help the physician organize clinical data he/she has collected from his/her patient, as an essential step in patient-care.
 2. For the physician to share his/her experiences with other members of the health team in a standardized, succinct manner so that they can participate in patient care, and so all may continue to learn.
 3. For the student to acquire skills of oral case presentation; a daily activity of the clinician throughout his/her professional life.

- B. Preparation. A physician is judged, in large part, by the manner in which he/she presents his/her cases. A write-up may be excellent, but it will not overcome unfavorable impressions of a ragged, incoherent presentation. A jumbled account is also unfair to listeners; their time and energy are wasted in the struggle to understand the presenter. To be organized, concise and clear, one must prepare.

Prepare first by going over the main points in your history with your patient for accuracy, clarity, and thoroughness. If there is time, and if your patient agrees, practice presenting to your patient. Later, rehearse your presentation before a critical and understanding pilialoha (close friend) and then by yourself.

Read about your patient's symptoms, signs and relevant mechanisms, differential diagnosis, diagnostic hypotheses, prognosis and therapy in the recommended references. Anticipate questions you may be asked. Have the answers ready.

- C. Duration. To be effective, the presentation of a whole case should not exceed 5 minutes. This assumes recitation of the history, physical examination, pertinent lab data, list of main problems, differential diagnosis and plan. Accordingly, the history portion should not take longer than about 2 minutes. In this brief period, the presenter cannot possibly cover all the facts, and often, not even all of the significant facts; so do not try. Listeners should have the opportunity to ask for more detailed, additional or clarifying information after the initial presentation. The presenter should not be surprised to discover from listeners' questions that they did not seem to remember or understand what was said in the brief presentation! Effective understanding comes from interchange after the presentation. It should be obvious that the key to staying within the 5-minute limitation is to be succinct--waste no words, as advised by William of Occam, the 14th century monk, who wrote: "It is vain to do with more when one can do with less."

- D. Setting. Informal oral presentations may be in the presence of the patient at the bedside, "on rounds", or without the patient in a conference room. Formal presentations with larger audiences are usually without the patient.

Decide in advance, what the main objectives of the presentation and the setting are. These will vary with exercises in oral presentation, daily "work rounds", "attending rounds", consultations, seminars, "grand rounds", or formal scientific meetings.

- E. Consideration of the patient.

1. If the patient is to be present for the presentation, prepare him/her by explaining what to expect. Practice your presentation in his/her presence. Decide in advance if all, or only parts, of your presentation are to be made in the presence of the patient.

2. Introduce the patient to others present--individually, if only one or two, beginning with the senior physician; or as a group if there are more.
3. Be discreet in your choice of personal or other intimate data about the patient that may be embarrassing to him/her when he/she hears your presentation.
4. Be sure the patient is properly attired for examination. Respect the patient's modesty when exposing particular anatomic parts for demonstration.
5. Circumlocutions or paraphrases and cliches, which should be avoided in a written account, may occasionally be desirable in an oral presentation in the presence of the patient. The choice of such terms depends on how much the patient knows and how much you want him/her to know. If he/she knows he/she has a murmur or cancer and is not bothered by the terms, you might use them, explaining this situation to the patient and to the others in advance. Some suitable euphemisms follow:

For cancer:	proliferative process
For murmur:	bruit, basal diastolic
For death:	permanent asystole
For tuberculosis:	Koch's disease
6. If the patient is seen on rounds, the attention of all should be on the patient continuously. Members of the health team should not talk with each other while the patient is talking or while he/she is being examined.
7. Matters that should not be discussed in the presence of the patient should be deferred until the hui (group) has left the patient's presence.
8. Thank the patient and reassure him/her after your presentation.

F. Format

1. While the spoken account may be similar to the write-up, it should be much briefer. Complete sentences should be used. Only important positives and negatives should be included. The account should not be read. Brief notes, however, may be used. The patient's chart and/or the student's write-up should be handed to the senior physician, before the oral presentation.
2. If a blackboard or projection slides are available, data may be conveniently tabulated in advance. In such instances, it is usually not necessary to read or refer to each datum. Be sure that such information is legible and readily understandable. Other pertinent materials, such as flow sheets, x-ray films, ECG, and tissue slides, should be properly prepared for demonstration. A slide with words should have no more than 7 lines and the words should be clearly legible when the slides are held before the naked eye at about 30 cm. Illustrations should be large and clearly labeled.
3. Begin with a simple statement of the patient's identity.

Example: Mr. Ken Hanohano, age 49, who is married, is a taxi driver of Hawaiian-Filipino ethnicity.

Using the patient's name has the advantage of conveying a personal, "real-life" feeling and concern. If, for some special reason, the patient's name should not be revealed, use the patient's initials, as "Mr. K.H.," or just refer to "the patient." If the patient is obviously white or black and is present, omit reference to race, unless there is a special reason to do so. Notice that there is NO necessity for stating that Mr. H. is a patient, that

he is a man, that he is 49 years-old, what his race is., that he works, that you spoke with him, and he told you all of this. These are understood without your having to say so! You have saved time and avoided tautology.

4. Follow with Reason for Examination, Chief Complaint and its Duration.

Example: He returned to the Straub Clinic for follow-up management of "diabetes mellitus," and agreed to a medical student interview for 16 Oct.

His Chief Complaint on that date was pain in the right foot of one week's duration.

5. Proceed with the Present Illness.

Example: He was known to have diabetes since 1960 without drug therapy and had been feeling generally well, when 1wk. before (9 Oct 1970), he accidentally stubbed his right great toe. Pain, beginning in a 1 cm. laceration on the medial surface of the toe, slowly spread to involve the entire foot, with redness and swelling, over the subsequent week. The pain was...(characterize the pain).

You do not need to tell us "the patient said...", "the patient mentioned...", "the patient told me...".

6. Include pertinent positives and negatives from the PH, FH, SH, and SR in the PI. Include a few words about how the patient feels about his illness. You do not need to refer to the source and reliability of the history unless these are of special significance.

7. Pause. The senior physician may wish to ask questions of you and/or the patient. He/She may wish the presenter to describe the Physical Examination, or he/she may wish to proceed with the physical examination him/herself and ask about the presenter's observations at certain intervals.

8. Pause before describing the Initial Lab Data. The senior physician may or may not wish these data before conducting the analysis of the history and physical examination.

9. Conclude with the Problem List.

Example: His problems at the time were:

#1. Laceration, right great toe, with inflammation of the right foot.

#2. Diabetes mellitus, apparently well-controlled, with diet and lente insulin.

The date for each problem is not necessary in the oral presentation.

10. Use simple, proper, direct terms and phrases. Avoid slang, cliché, and jargon, unless deemed appropriate if the patient is present.

11. Speak louder than you think you need to. Vary your voice pitch like a suspenseful story-teller, which you are.

12. Be prepared to answer questions about each problem. Pertinent questions might concern more detailed characterization of specific symptoms, definition of terms used, mechanisms of symptoms and signs, previous examinations and results, previous therapy and effects, identification of the patient's problems, diagnostic criteria, differential diagnosis, evidence for and against diagnostic hypotheses, special procedures, prognosis, therapy and evaluation of therapy.

Weed, Hurst and others have recently recommended presenting the entire case as separately numbered problems from the beginning. For reasons given in this Syllabus

elsewhere (see Guide to Recording the History, II D, and Problem-Oriented Medical Record-Keeping, II B), their format is not recommended for the beginning student. The major objection is that it compels the student to identify problems before the data base is presented.

Engel has proposed group evaluation of the process of clinical data collection as "an alternative to the case presentation method". While Engel's approach is laudable, it is very time-consuming. Accordingly, it is suggested that Engel's method might readily supplement the format described here, on special occasions when ample time is available. A useful reference is given below.

G. Decorum. Your appearance and behavior, aside from your oral presentation, will not go unnoticed.

1. Be prompt and forthright when asked to present. Move to the designated site. Use the microphone, if available, at an appropriate distance. Begin without hesitation, without apology, and without editorial or prefatory remarks. You need not address any person or persons by name.
2. Stand comfortably on both feet, without leaning on or hiding behind props. Do not put hands in your pockets; they should be naturally comfortable at your side.
3. Look at your audience--in the eye--especially those in the rear, not at ceiling or at the floor.
4. Be courteous when responding to questions. Don't be afraid to say, "I don't know", these are three of the most important words in science.
5. When done, look at the moderator for a moment. If he/she gives you no further directions, sit down promptly. You need not thank anyone. Your audience will be grateful to you for your crisp presentation.

H. Hui Presentations.

Each hui of 5-6 students will usually have at least one opportunity to present and discuss a case in a conference format. Arrangements are made in advance so that each student will have ample time to prepare. One student may present the history; a second, the physical examination, initial lab data and problem list; a third, the differential diagnosis and mechanisms; and the fourth, the patient's prognosis and plan of management. Special materials, such as x-ray films, graphs, slides, and movies may need to be prepared and demonstrated. Occasionally, one or more consultants will participate in these formal presentations.

I. Summary.

1. Know your patient thoroughly, but be brief when telling others about him/her.
2. Insofar as possible, read in advance to learn what authorities have written about your patient's problems, but do not read your oral presentation.
3. Be rigorous in your reasoning, yet considerate in interpersonal relationships with your patient and with your audience.
4. To be organized, cogent and succinct, you must prepare.

J. References

1. Weed LL: Medical records that guide and teach. N Eng Med 278:593, 1968.
2. Hurst JW: The art of poor case presentation, in Four Hats, Yearbook, 1970.
3. Hurst JW: The art and science of presenting a patient's problems.
(As an extension of the Weed system), in the Problem-Oriented System, Medcom. 1972
4. Morgan WL, Engel GL: The presentation of the patient, in the Clinical Approach to the Patient, Saunders, 1969.
5. Engel GL: The deficiencies of the case presentation as a method of clinical teaching. Another approach. N Eng J Med 284:20, 1971.
6. Tarlov IM: The principle of parsimony in medical practice. NY State J Med 59:2050, 1959

APPENDIX IV

SAMPLE PROBLEM ORIENTED MEDICAL RECORD WRITE-UP

PROBLEM LIST

Date: 02/06/00

Name: **KMA**

Problem No.	Date Onset Date Entered	Active Problems	Date Resolved	INACTIVE/RESOLVED Problems
1	02/04/00	Uncontrolled Diabetes	03/20/00	Type 1 Diabetes Mellitus
2	About 1985	History Abnormal hepatic transaminases		
3	02/04/00	Family History Peripheral Vascular Disease		
4	01/01/00	Blister Left Foot	03/20/00	Resolved
5	02/06/00	ICDB* vision, flu vaccine		
6				
7				
8				
9				
10				
11				
12				
13				
14				

*ICDB = Incomplete Data Base (more information needed; important data not collected)
Initial Problem Oriented History and Physical Examination

Medical Evaluation –

Patient: KMA

Date of Birth: 09/26/46

Date of Evaluation: 02/06/00

Referring physician: Patient himself.

ID: The patient is a 46-year-old married Caucasian father of 2, who is president of a commercial company here in Hawaii.

Source: Patient and some records from the Medical Group – reliable.

RE: Self referral by patient requesting assistance in the management of his “diabetes”.

Chief Complaint: Frequent urination and increased thirst of about one weeks’ duration.

HPI: The patient has generally enjoyed excellent health. Over the past 8 months he has been under more stress than usual. His father died a year ago in June. He is in the process of completing the sale of his home in Kailua in order to be nearer his son’s school in Honolulu. In addition, his business is somewhat high in risk because he ships live products and depends on their survival to the time of arrival for the success of his business.

About 6 months ago, he visited his dentist who wondered about his current state of health. She noted that he had accumulated a great deal of dental plaque. He had no health explanation for the occurrence and thought nothing of it subsequently.

One week ago, over the weekend, he noted more frequent urination and increased thirst. He responded to this by ingesting more regular coca-cola and juice. He also noted some blurred vision. He denied headache, fever, chills, cough, or evidence of skin infection. He denied burning on urination or joint aches and pains. For the last several days he has experienced some paresthesia in his fingers but this has remitted. He denies impotence. While skiing over New Years’, the patient weighed himself at 205 lb. Today he weighs 195 lb (75.5” tall). He denies hypertension, chest pain, ankle swelling, paroxysmal nocturnal dyspnea, or orthopnea (but did subsequently complain of some vague chest discomfort with a subsequent visit (week of 02/7) to the medical group.

On Monday, he visited the medical group and was evaluated by Dr. X. His blood glucose at that time was > 600 mg/dl. He was given Glucotrol and an appointment was made for him to see an endocrinologist, Dr. Y, a week from that next Tuesday. Dr. X told the patient that he would likely need insulin. On Friday of that week (yesterday), repeat blood glucose was 375 mg/dl, serum insulin was 5 micro units/ml, and his HbA1c was reportedly 11%. Today in the office, his blood glucose before lunch was 322 mg/dl using the meter he purchased at the diabetes meeting yesterday.

Since discovering his diabetes, the patient has eaten less than usual and now has nocturia only once nightly, with less urination during the day. He has also stopped drinking his high sugar drinks.

The patient’s mother developed diabetes in her 30’s but lived to be 78, dying of stomach cancer. She was on insulin. His father died at age 86. He had gangrene of his feet, requiring amputation of a leg. He did not have diabetes. There is no other family history of diabetes.

The patient describes his exercise as “binge exercise.” He skis every year for a week on the Mainland, usually in Colorado. He surfs 2-3 times per month. He does mostly office work but does

travel to the aquaculture sites.

Current diet: Breakfast – coffee 2-3 cups, 2 plain bagels. Lunch – hamburger or turkey sandwich on wheat bread. Dinner – more varied, with fish or chicken, vegetables, and a scoop of rice and/or bread. He has ice cream 2-3 times each week. He consumes 1-2 beers daily and occasionally more on weekends.

The patient comes today for instruction in insulin management as he feels that he has not had an adequate response to diet, exercise, and his current medication. He was to return for a physical examination and follow-up visit 02/14/00

PAST HISTORY:

1) Childhood:

No serious childhood illnesses. No rheumatic or scarlet fever.

2) Adult:

12-15 years ago, had evaluation by Dr. Z who found that he had a mild elevation of his liver enzymes. This was not pursued. He denied having jaundice or any symptoms diagnosed as liver disease. He has been immunized against hepatitis B, but not A.

3) Allergy:

None.

4) Medication:

Glucotrol 10 milligrams daily. – switched to insulin today (see below)

5) Trauma:

Small sore on lateral aspect of left ankle attributed to a blister from his ski boots, which has only slowly healed.

6) Immunizations:

He had a tetanus booster last year. He has been immunized against hepatitis B. He obtains a "flu shot" each year.

7) Transfusions:

None.

FAMILY HISTORY:

Mother, Diabetes (see HPI)

Father, gangrene (see HPI)

Maternal aunts and uncles: Uncertain.

Paternal aunts and uncles: Uncertain.

Siblings: sister, age 47, and brother age 43 – both in good health.

Maternal grandparents: Uncertain.

Paternal grandparents: Uncertain

PATIENT PROFILE: The patient was born and raised on the Mainland. He comes from Croatian ancestry. Diet and exercise and stresses as noted in HPI. He is married. He is quite concerned about his diabetes and is highly motivated to control it. He is perplexed by the rapid onset of his symptoms.

Alcohol as noted. He never smoked. He does not abuse illicit drugs.

REVIEW OF SYSTEMS: The patient feels generally more fatigued. He has more energy and much

less urination since reducing his overt sugar intake.

Eyes: Denies visual changes or diplopia. No history of cataract. Visual acuity as noted, with blurred vision.

Ears: No decreased hearing, ear pain, or discharge.

Nose: Had recent sinus infection, but this has resolved. No rhinorrhea or congestion. Has occasional nasal bleeding.

Mouth and Throat: No oral pain. No change in voice, difficulty swallowing, or odynophagia.

Cardiovascular: No decreased exercise tolerance. No intermittent claudication. No history of hypertension. See HPI.

Respiratory: No cough, sputum production, wheezing, or shortness of breath.

GI: No dysphagia, heartburn, abdominal pain, history of gallstones or kidney stones, or jaundice. No diarrhea or constipation. No melena or hematochezia.

GU: No dysuria or hematuria.

Musculoskeletal: Denies muscle cramps, aches, or weakness. No sores on feet.

Skin: No rash or changes in pigmented lesions; no excessive sweating of the skin as noted. Healing skin lesion left foot.

Neurologic: No headache, visual changes, decreased hearing, vertigo, loss of balance, decreased sensation in hands or feet; no seizures. No history of head injury.

Psychiatric: No history of depression, eating disorder, or emotional lability. No sleep disturbance.

Endocrine: Polydipsia, polyuria, and polyphagia.

Hematologic/lymphatic: No tender or enlarged lymph glands. No anemia, petechiae, or history of bleeding disorder.

Allergy/immunologic: No allergy to medication; no sun-related rashes; no joint pain, redness, or swelling of joints. No history of frequent infections but possibly poor wound healing.

PHYSICAL EXAMINATION:

Appearance: Very tall somewhat fatigued appearing but alert, interested, intelligent slender Caucasian male.

Vital signs: BP = 120/65 mmHg left arm seated. P = 64/minute and regular; similar bilaterally. R = 12/min and regular and unlabored. Temperature: 97.4 degrees F. Height: 75.5" inches tall. Weight: 195 lb.

Skin: Normal.

Head: No facial asymmetry; no scalp tenderness, masses, or visible abnormalities. Eyes: Conjunctivae and lids not swollen or injected. Pupils round, regular, and reactive to light and accommodation. Extraocular movements intact, including convergence. No proptosis, lid lag, or stare. Fundi: normal A/V ratio; no exudates or hemorrhages. Optic discs normal. ENT: Pinnae and external nose: Normal. External ear canal normal. Tympanic membrane: Not erythematous or bulging. Hearing: Gross hearing normal bilaterally. Nasal contents: No obstruction or discharge. Turbinates and mucous membranes appear normal. Mouth: Normal mucous membranes and tongue. Dental: teeth in good repair. Oropharynx: not injected; no tonsil enlargement. No hoarseness.

Neck: no increased JVD or cervical adenopathy. No carotid bruit. Carotid pulsations equal and normal bilaterally. Trachea midline. Parotid glands not enlarged or tender. Thyroid: non-tender, symmetrical, and normal size to palpation. No thyroid bruit.

Chest: No deformity. No spinal or costo-vertebral angle tenderness. Normal respiratory effort. Normal diaphragmatic excursions. Clear to palpation, percussion, and auscultation posteriorly and anteriorly. Breasts: no breast tissue enlargement, tenderness, or deformity; normal areolae. No axillary adenopathy.

Cardiovascular: PMI not visibly or palpably displaced beyond midclavicular line in the 4th intercostal space and no hyperdynamic precordium. No heaves or thrills. Normal heart tones with S2A > S2P and normal splitting of the second heart sound. No murmurs. No crackles or wheezes. Femoral, posterior tibial, and dorsalis pedis pulses present and symmetrical.

Abdomen: normal appearance. Normal bowel sounds. No masses or tenderness to superficial or

deep palpation. No hepatosplenomegaly. Aorta: no bruits or masses. No bruits over femoral arteries. Hernia: None. Rectal: Prostate normal; no masses; stool hemoccult negative.

Genitourinary: bladder normal by percussion. Normal circumcised male phallus; normal testes, scrotal rugation, and male hair distribution.

Musculoskeletal: No muscle wasting or weakness in upper and lower extremities. Can do deep knee bends without difficulty. Normal digits and nails (no onycholysis). Normal gait and station.

Extremities: Strength, ROM, normal and symmetrical. There is no tremor of his extended fingers. There is a small amount of erythema and cutaneous atrophy over the left lateral malleolus. No edema or varicose veins.

Neurologic and Psychiatric: Oriented to time, place, and person. Adequate judgment and insight. Normal mood and affect. Cranial nerves II/XII normal as noted. Normal sensory response to pinprick, vibratory and position testing, and to 10 g monofilament. Reflexes: Brisk and symmetrical 2+ in upper and 2+ lower extremities, but with normal relaxation phase. Normal plantar reflexes. No clonus.

Lymphatics: No cervical, axillary, epitrochlear, or femoral adenopathy.

ASSESSMENT AND PLANS:

PROBLEM #1 Uncontrolled diabetes mellitus:

ASSESSMENT: The rapid onset of this man's symptoms of uncontrolled diabetes along with his markedly elevated blood glucose and his thin body habitus suggests Type 1 rather than Type 2 diabetes mellitus. Although his age would support the diagnosis of Type 2 diabetes, at least 10% of autoimmune diabetes occurs in adulthood. His Caucasian ancestry also makes autoimmune diabetes more likely. The most likely marker for this will be the presence of Anti-GAD antibody, which I will urge him to have collected. Even if he is a Type 2, his blood glucose is so elevated that it is unlikely that an oral agent alone will, at least initially, be adequate to control his blood glucose. In addition, there appears to be no precipitating illness or excess weight gain to treat in order to mitigate insulin resistance and make his remaining insulin work better. Furthermore, remotely, if he normalizes his blood glucose, removing the glucose toxicity element of his current problem, it is possible that he might be controlled with oral agents. However, for the present, I would support his use of a multiple insulin dose regimen to rapidly control his blood glucose and at the same time adjust his diet and exercise to a multidose insulin schedule. He appears very intelligent and willing to undertake that challenge.

PLAN:

DX: Home glucose monitoring: first before breakfast and then before meals and bedtime; subsequently, before breakfast and 2 hours after meals. Repeat HbA1c in 3 months. (he will perform a fructosamine in several weeks using his new home glucose monitor, which will also perform that additional determination). Will obtain Metabolic profile, urine for microalbumin/creatinine ratio as baseline, and fasting lipid panel would be worthwhile. He should visit an ophthalmologist soon to obtain a baseline. Anti-GAD (glutamic acid decarboxylase) antibody.

RX:

1. Diet reduced in non-complex carbohydrate.
2. Lispro insulin: to begin with 8 units before meals.
3. Glargine insulin: to begin with 16 units before bedtime, beginning today. Not to be mixed with Lispro.

PT ED:

1. Reviewed the elements of a diet appropriate to diabetes with moderation of excessive non-complex carbohydrate but urging regular mealtimes and noting the amount of food eaten.
2. Reviewed with the patient the role of exercise and the profound changes in blood glucose, which may occur with exercise in the setting of recent insulin

- injection. Discussed how this might be incorporated into a blood glucose management program.
3. Reviewed with patient the instructions for his new reflectance meter, standardized it with him, and observed him obtaining the blood glucose reported above after calibrating his machine.
 4. Discussed normal insulin-glucose dynamics in the fasted, exercise, and fed state and how we attempted to approximate that with insulin.
 5. Discussed with him the importance of record keeping.
 6. Reviewed with him the pharmacodynamics and rationale for multiple insulin injections using Lispro before meals and Glargine before breakfast and dinner.
 7. He will be deciding how he wishes to use me (as a consultant or as a PCP). I have told him that there are many resources that he can have easily altogether at the Medical Group. He will be having CDE instruction and review and dietary review with them next week (week of Feb 15). I am willing to speak to him by phone at any time.
 8. Reviewed with the patient the symptoms of hypoglycemia and how to respond to them with carbohydrate, with smaller amounts of food the later away from the injection time that they occur.

PROBLEM #2 History of mild elevation of liver function tests 12-15 years ago:

ASSESSMENT: At the present time there does not appear to be any overt liver disease. Nevertheless, non-alcoholic steatohepatitis is common in diabetic patients. Hepatic function tests should be performed subsequently and if abnormal, further testing would be in order to rule out viral or toxic or metabolic etiologies of hepatic dysfunction.

PLAN:

DX: SGOT, SGPT and other liver function tests including bilirubin (direct and indirect), serum albumin, and a prothrombin time. If abnormal, testing for viral antibodies and antigens and perhaps further testing if viral studies are negative.

RX: Depends on results of testing.

Patient Ed: On the basis of his history and physical examination, I told him that I doubt underlying liver disease. He concurs with further testing. He will call for results next week.

PROBLEM #3 Family history of severe peripheral vascular disease:

ASSESSMENT: Although he has few known risk factors for peripheral vascular disease other than diabetes, we must make sure that he has a good lipid profile. He is not hypertensive and does not smoke.

PLAN:

DX: Lipid profile obtained fasting.

RX: Statin therapy if LDL cholesterol is not < 100 mg/dL.

Patient education: The patient was congratulated for not smoking and for having a normal blood pressure. We discussed use of "baby aspirin" as a cardioprotective measure in a diabetic patient.

PROBLEM #4 Healed blister lateral aspect of left ankle:

ASSESSMENT: A potential source of lower extremity infection and foot loss. However, he has no loss of sensation in his feet and the blister has nearly resolved. Appears to be healing properly.

PLAN:

DX: Observe his foot at the time of his next visit.

RX: He will keep the blister covered for now with antibiotic cream.

Patient education: I discussed with the patient foot care and the importance of inspecting his feet daily, wearing comfortable well-fitted shoes, and reporting and treating any skin lesion to appear on his feet.

Thanks to the patient letting me evaluate and follow his interesting and demanding problem.

(signed) Frank Li Niu, MD

or

(signed) Frank Li Niu, Second Year Medical Student

APPENDIX V

STUDENT RESPONSIBILITY IN LEARNING CLINICAL SKILLS: WORKING TO FULL ADVANTAGE WITH YOUR CSP

by John S. Melish, M.D.

Problem Based Learning depends on students taking responsibility for their learning. Often students feel that not all of their objectives have been met. In some case, this is because of a passive approach to clinical skills learning experiences.

Suggestions for assuring maximal satisfaction and productivity at sessions:

- A. Select a student representative to inform the CSP several days in advance what problem you are reviewing so that he/she can obtain a patient hopefully falling within the differential diagnosis (not the mirror image) of the patient you are studying.
- B. Use the **first hour** of the CSP meeting to review your objectives for the session. In most cases, you may wish to review the data that is pertinent to the type of patient you will see that day. You may wish to discuss the review of systems and other parts of the medical history that are unique to the patient. You may also wish to ask the CSP a few questions from your tutorial session for the CSP (these questions should be brief, pointed, clinical, and not a complete review of your tutorial patient problem). You may also wish to spend time reviewing a previous case seen with your CSP the week before. You may wish to practice on each other selected aspects of the physical examination pertinent to the type of patient you will be seeing that afternoon.

The **second tutorial hour** should be spent with the patient. Each student should have a chance to perform in the course of each subunit the pertinent history and physical examination and hopefully, see how it integrates with the complete history and physical examination that we teach you in Unit 1. Try not to spend more than an hour with the patient.

The **third hour** should be spent presenting orally the findings of the case, creating a Problem List, discussing the data (assessing it), and considering the learning issues (what you missed, what more you need to know) to understand your patient and others like him or her. The third hour may also be used to review the **one** required write-up for each subunit.

- C. The write-ups should be individually performed and handed to the CSP the week before this review. In order to maximize the feedback, the following strategies can be used. Keep in mind when selecting a strategy, that the CSPs are very busy volunteers living in the pressure cooker of clinical practice.
 1. Ask how your CSP plans to review your write-up and state before-hand that you would appreciate comments on the format of the write-up as well as its content. Ask if it is realistic for him/her to do this for all the students in the group. **If not, consider...**
 1. Ask the CSP to review one write-up in great detail. Then, agree to review each other's write-ups in the last hour and as a group, with your CSP, define for the group an ideal write-up for that patient, including the format, contents of data base, and initial plans and assessment.
- D. In order that the broad objectives of the subunits be fulfilled in relation to Clinical Skills, students will be given a sign-off sheet that must be completed by the end of the four week subunit. Portions of it can be completed by the end of the first or second session, e.g., performs an historical review, including the pertinent review of systems and relevant history, for a patient with an endocrine dysfunction or with a musculoskeletal complaint or with neurologic abnormalities. This will keep the CSP constantly attuned to the needs of the students without waiting to the last session when a student complains that many objectives have not been met.

Remember the maxim that "there is no patient unworthy of a physician's interest and attention". Even if your patient's case has little to do with the paper problem or condition being studied, your interaction with him/her will help develop your interview skills, your patient-physician relationship skills, your definition of normal vs. abnormal, and your ability to elicit abnormalities.

Appendix VI
Laboratory Handouts

John A. Burns School of Medicine
Extended Cardiovascular Examination for MD 2

- I. Basic Skills
 - a. Inspection
 - b. Palpation
 - c. Percussion
 - d. Auscultation

- II. Components (Extended Exam in **Bold**)
 - a. Vital Signs
 - i. Describe Pulse-
 1. Rate (tachycardia, bradycardia)
 2. **Quality (bounding, thready, plateau, bisferiens)**
 3. **Rhythm (regular, irregular, irregularly irregular, regularly irregular)**
 - ii. Blood Pressure
 1. **Bilaterally measured in arms**
 2. **Abnormalities: alternans pulse, paradoxical pulse, postural changes, auscultatory gap**
 - b. Overall Appearance – lips (for cyanosis), skin (for hydration), nails (for color, clubbing)
 - c. Eyes – retinal exam for vascular pattern: Arteriolar narrowing (A/V ratio), exudates, hemorrhages; diabetes changes
 - d. Lungs – Inspection, Palpation, Percussion, Auscultation
 - b. Cardiovascular exam
 - i. Neck (supine and with head of bed elevated)
 1. Venous Pulsation (observe); height above sternal angle at 30-45° torso elevation
 2. Arterial pulsation (Inspect, palpate, auscult)
 - ii. Heart (supine)
 1. Inspect precordium (for visible heaves, movement)
 2. Palpate precordium (for thrills, heaves or rubs)
 3. Palpate Point of Maximum Impulse (PMI) for location, size
 4. Auscult with diaphragm at Aortic, Pulmonic, Tricuspid, Mitral areas, and along LSB (determine 1st & 2nd heart sounds, **intensity, splitting, extra heart sounds, murmurs (systole vs diastole), rubs**)
 5. Auscult with bell at all **five areas, and at apex in lateral decubitus position**
 - iii. **Heart – with diaphragm, patient seated, leaning forward; with patient pausing breath in exhalation**
 1. **Auscult with diaphragm, listening at LSB and apex.**
 2. **Other maneuvers: Listen for the effect on murmurs of: hand grip, squatting, standing from sitting, valsalva.**
 - iv. Abdomen (patient supine)
 1. Auscult for abdominal bruits
 2. Palpate for aortic pulsations
 3. **Palpate for hepatic enlargement and/or pulsations; hepato-jugular reflux**
 4. Palpate femoral pulses (**compare for symmetry, intensity; radial-femoral pulse lag**)
 5. **Auscult for femoral bruits using bell, starting with light pressure (for pistol-shot pulses, Duroziez sign)**

- v. Extremities
 1. Inspect and palpate for edema, varicose veins, venous stasis skin changes, gangrene
 2. Palpate dorsalis pedis, posterior tibial and, **capillary filling, Quinke's pulses, popliteal pulses**
 3. **Special Technique: Allen test for arterial supply to the hand**

Some terms you should know:

Auscultatory gap
Capillary filling
Clubbing
Continuous murmur
Cyanosis
Diamond-shaped systolic murmur
Diastolic decrescendo murmur
Diastolic murmur with pre-systolic accentuation
Ejection click
Ejection murmur
Friction rub
Gangrene
Heart murmur
Holosystolic murmur
Opening snap
Paradoxical pulse
Pistol shot pulse
Quinke's pulse
Splinter hemorrhages
Venous filling
Venous stasis changes, venous stasis ulcer
Water hammer pulse

THE PULMONARY EXAMINATION

Goal : To introduce the student to examination of the lungs.

Objectives :

- Know the anatomy of the anterior, posterior and lateral chest wall.
- Know the topographic landmarks for the anterior, posterior and lateral chest wall.
- Understand the value of inspection in the physical exam.
 - Know the principles and technique of chest palpation in the pulmonary exam including assessing rib motion, chest excursion, and diaphragmatic movement.
- Understand the principle and technique of assessing tactile fremitus.
- Know the principles and technique of chest auscultation.
- Know the types and characteristics for normal breath sounds.
- Know the types and characteristics of adventitious breath sounds.
- Understand the principle and technique for performing chest percussion.
- Describe common percussion notes, their characteristics and clinical significance.
- Know common chest configurations.

ANATOMY

Sternum: Manubrium, body, xiphoid process, suprasternal notch, angle of Louis (sternal angle).

Ribs: Knowing the surface anatomy as it relates to the ribs which are generally readily palpable is invaluable. The intercostal spaces are named for the rib above. Anteriorly the 2nd rib joins at the sternal angle and the 2nd intercostal space is just inferior to this.

Ribs 1-7 articulate via cartilage with the sternum.

Ribs 8-10 articulate with the costal cartilage above them.

Ribs 11 and 12 are "free-floating".

The junction of the ribs and costal cartilage is called the costochondral junction and is often tender to touch if palpated too vigorously.

The costal margin is the anterior border of ribs 7 - 10 as it crosses the upper abdomen.

The costal angle is the angle formed by the two costal margins with the xiphoid process as the fulcrum.

The inferior angle of the scapula lies at the level of T7 or the 7th rib

The most prominent vertebrae with the neck flexed is C7 - also called the vertebra prominens. This is most easily seen in flexion and it is fairly easy to count the thoracic vertebrae if one starts at C7.

The following lines are useful when identifying surface problems or as landmarks for procedures

Mid-sternal line

Mid-clavicular line

Anterior axillary line

Mid-axillary line

Posterior axillary line

Vertebral line

Scapular line

Continuing on with surface markers of underlying tissue, the following should be noted:

The trachea bifurcates to the right and left mainstem bronchi at the level of the sternal angle (this is important for estimation of endotracheal tube depth. Posteriorly it is at the level of T4.

The lobes of the lung are divided as follows:

RIGHT LUNG

Upper Lobe T3 posteriorly 5th rib mid-axillary line 4th rib anteriorly and extends to the apex Middle Lobe 5th rib mid-axillary line to the 4th rib superior anterior

4th rib anteriorly to the 6th rib mid-clavicular line

Lower Lobe T3 posteriorly to the 5th rib in the mid-axillary line and the 6th rib mid-clavicular line

The horizontal fissure separates the right upper lobe and the right middle lobe. The oblique fissure separates the right middle lobe and the right lower lobe.

LEFT LUNG

Upper Lobe T3 posteriorly 6th rib mid-clavicular line

The lower lobe is inferior to this oblique fissure.

The base of the lung is at the level of T10 and may descend to the level of T12 with deep inspiration.

PHYSICAL EXAM OF THE THORAX

The examination of the chest should be carried out in an orderly fashion and should be performed with the chest exposed.

Inspection for:

- Skin lesions Respiratory rate, depth and pattern
- Chest symmetry with respiration
- AP versus transverse diameters - noted to change markedly in favor of AP in patients with advanced lung disease. Abnormal sternum position as in pectus excavatum or carinatum
- Spinal deviations such as scoliosis or kyphosis which may markedly change respiratory mechanics.
- Abnormal retractions which may occur in diseases such as asthma or COPD
- Shape of fingernails, color of skin

Palpation for:

- Pain
- Masses-must attempt to determine if superficial or deep
- Position of the trachea (palpated in the neck)

Deviation may signal contraction on one side or expansion on the opposite. Examples: Tension pneumothorax, deviates the trachea the side opposite the pneumothorax and dramatic loss of lung volume, deviate the trachea to the same side.

Respiratory excursion - done with palms of hands on the posterior and anterior thorax - assessing for symmetry side to side.

Location of bony structures

Tactile fremitus - this is defined as palpation of vibration, (for example, have the patient say "99" or "1 -1 -1 ") and use the ball of the hand or the ulnar side of the hand to compare for symmetry side to side.

Disorders that decrease tactile fremitus may include:

- Too soft a voice or too high pitched a voice.
- Abnormal buffers such as pleural fluid (effusion), pleural air (pneumothorax), pleural thickening (fibrosis), increased subcutaneous tissue (fat or muscle), infiltrating tumor, COPD, and obstructed bronchus.

Disorders that increase tactile fremitus may include:

- Loud booming voice.
- Consolidation of lung tissue such as lobar pneumonia.

Percussion: This is performed by placing the dip joint of the long finger on the surface to be percussed and striking it with a flexed middle finger of the opposite hand with a motion coming from the wrist. It should be performed side-to-side, moving down the chest wall anterior and posterior.

PERCUSSION NOTES AND THEIR CHARACTERISTICS				
	Relative Intensity	Relative Pitch	Relative Duration	Example Location
FLATNESS	Soft	High	Short	Thigh
DULLNESS	Medium	Medium	Medium	Liver
RESONANCE	Loud	Low	Long	Normal lung
HYPERRESONANCE	Very Loud	Lower	Longer	None normally
TYMPANY	Loud	High	Distinguished mainly by its musical timbre	Gastric air bubble or puffed-out cheek





From: Bates B: A Guide to Physical Examination and History Taking, 5th Ed., 1991, p. 247.

Dullness replaces normal resonance when there is a buffer of fluid or solid tissue between the air-filled lung and the chest wall, i.e. pleural effusion, lobar pneumonia or hemothorax.

Hyperresonance occurs over areas of hyperinflated lung as in asthma or COPD (symmetrical) or air in pleural space (asymmetric) such as a pneumothorax. The diaphragmatic excursion can also be assessed with percussion.

Auscultation

In this portion of the physical examination you are listening to the sounds of air moving through the air passages, attempting to identify abnormal sounds or extra sounds and listening to the whispered word if abnormalities are found.

	Duration of Sounds	Intensity of Expiratory Sound	Pitch of Expiratory Sound	Locations Where Heard Normally
VESICULAR* 	Inspiratory sounds last longer than expiratory ones	Soft	Relatively low	Over most of both lungs
BRONCHOVESICULAR 	Inspiratory and expiratory sounds are about equal	Intermediate	Intermediate	Often in the 1 st and 2 nd interspaces anteriorly and between the scapulae
BRONCHIAL 	Expiratory sounds last longer than inspiratory ones	Loud	Relatively high	Over the manubrium if heard at all
TRACHEAL 	Inspiratory and expiratory sounds are about equal	Very loud	Relatively high	Over the trachea in the neck

*The thickness of the bars indicates intensity; the steeper their incline, the higher the pitch.

From: Bates B: A Guide to Physical Examination and History Taking, 5th Ed., 1991, p. 247.

Adventitious sounds are defined as added sounds. Their presence, timing in the respiratory cycle, and whether they clear or change with cough or deep inspiration, should be noted. Crackles are caused by alveoli popping often during inspiration or by air bubbles flowing through secretions.

Crackles (fine): Soft, high-pitched, very brief sounds also known as fine rales. Examples: Heard in the bases posteriorly in early congestive heart failure and heard in the last one-half of inspiration usually.

Crackles (coarse): Also called coarse rales. These are louder, lower in pitch and also brief. Examples: These are heard in early inspiration, the first one-half (with chronic bronchitis and asthma).

Wheezes: High pitched, shrill sound thought to be caused by air moving through narrow passages. This occurs in asthma, chronic bronchitis and COPD. The intensity of the wheeze does not correlate with the severity of the airway obstruction. In fact, complete airway obstruction yields noise at all. Local wheezing should make you think of foreign body or local airway obstruction.

Rhonchi: These are lower pitched, longer sounds similar to snoring. They may occur in pneumonia or COPD and again are thought to be caused by air moving through narrow passages, sometimes with fluid in them.

Transmitted voice sounds:

- This maneuver is performed if you note abnormal bronchial or bronchovesicular sounds on auscultation. In the affected areas you can:
- Ask the patient to say 99 (this normally produces a muffled sound). The louder, clear sounds are called bronchophony and can occur in lobar pneumonia.
- Ask the patient to say e (this normally sounds like e). If it comes out as ay, then it is called egophony and can occur in lobar pneumonia.
- Ask the patient to whisper 99 (normally heard faintly). If increased in intensity it is called whispered pectoriloquy and this occurs in lobar pneumonia
- Diminished bronchophony, egophony, or whispered pectoriloquy may be seen in COPD,
- pneumothorax, or pleural effusion.

NOTE: Please review and study pages 256-7 in the Bates book on physical diagnosis.

Endocrinology History and Examination Laboratory
John S. Melish, M.D., F.A.C.P.

Thyroid disease –

History – Hyperthyroidism vs. hypothyroidism

History of goiter or thyroid enlargement or nodularity or small thyroid gland

History of voice change, neck pressure, neck pain, difficulty swallowing

Heat or cold intolerance

Increased appetite vs. decreased appetite

Weight gain or weight loss

Increased or decreased sweating

Fine hair vs. coarse hair

Changes in nails

Prominence of eyes, diplopia; dry burning eyes

Diarrhea or constipation

Anxiety, irritability vs. depression

Tremulousness

Decreased sleep vs. increased sleep

Increased energy (initially) vs. fatigue and lassitude

Palpitations and rapid pulse (esp. with exercise) vs. bradycardia

Changes in menses

Spider nevi

Breast enlargement and galactorrhea

Muscle weakness

History of abnormal thyroid function tests

History of treatment with thyroid replacement medication, anti-thyroid medication, or
RAI therapy.

Special foods, dietary supplements, medications (changes pharmacokinetics of
Medications)

Family history – Hyper- or hypothyroidism, thyroid cancer, goiter

Medications – thyroid hormone replacement, thionamides, beta blockers, ASA, Seizure medication, x-
ray contrast dyes, anti-arrhythmia medications, diuretics, Amiodarone.

Physical examination

General appearance – thin vs. obese, hyper- vs. hypokinetic

Vital signs: Tachycardia vs. bradycardia,

Bounding pulse with wide pulse pressure; narrow pulse, occasional hypertension

Recent hair loss

Eyes: proptosis, lid lag, EOM weakness (exophthalmometer); periorbital puffiness; loss of lateral
eyebrow margins (hypothyroid)

Rapid speech vs. slow mentation and speech

Tremor of tongue

Hoarseness of voice

Goiter, symmetrical vs. asymmetrical gland; single vs. multinodular
Tender thyroid vs. non-tender
Bruit over thyroid
Soft, firm rubbery, hard
Cervical adenopathy
Onycholysis
Warm moist skin vs. cool thickened, coarse cool skin
Coarse vs. fine hair; hair loss
Palmar erythema
Yellowing of skin (hypercarotinemias)
Spider nevi
Tremor of extended fingers
Hyperreflexia (rapid relaxation phase) vs. hyporeflexia (slow relaxation phase)
Proximal muscle weakness

Testing: TSH, Free T4, Free T3; Pertechnetate thyroid scan; ¹³¹I uptake and scan; thyroid ultrasound, fine needle aspiration biopsy; CAT scan or MRI; open biopsy. Exophthalmometer

History – Diabetes Mellitus – Type 1 or Type 2 or LADA

- Onset of symptoms – progression
- Weight gain or loss
- Polydipsia, polyphagia, polyuria; nocturia
- Visual changes
- Cardiorespiratory symptoms, premature atherosclerosis, heart failure, cardiomyopathy
- Hypertension
- Hyperlipidemia
- Peripheral paresthesia – glove stocking
- Motor neuropathy – weakness, muscle atrophy
- Autonomic neuropathy – ED, constipation, abnormal sweating, diarrhea
- Mononeuropathy
- Poor wound healing
- Vaginal moniliasis; penile moniliasis
- Renal dysfunction; proteinuria
- Postprandial hypoglycemia
- Poor wound healing
- Large babies, previous miscarriage

Medications – Oral medication, steroids, betablockers, insulin, over-the-counter and alternative medication

Family history – first degree relatives, minority or race

Patient Profile: Typical day, diet, exercise, habits (alcohol, smoking, drugs), takes medication schedule, work, family support, living situation, insurance; barriers to adherence to medical regimen (income, education, stressors), personal concepts concerning diabetes.

Physical Examination

Vital signs (CV disease, hypertension, autonomic neuropathy including postural hypotension)
Smell of ketones on breath (Type 1, DKA)
Visual testing, external eye (motor, cataracts), retinal examination
Dentition, loose teeth, gum disease
Cervical bruits

Associated goiter in Type 1
Sores involving skin, especially feet; skin infections
Dry or cracked skin, especially feet
Fungal infection of fingernails and toes
Thickened skin
Necrobiosis lipoidica diabetorum
Mononeuropathy, sensory or motor
Symmetrical motor and/or sensory neuropathy
Absent reflexes, even with reinforcement
Absent or diminished vibratory sensation – 15 seconds with tuning fork 1st joint large toe
Absent or diminished response to 10 gram monofilament
Charcot joints
Limitation of range of motion – frozen shoulder, rotator cuff injuries, Prayer sign

Testing: Fasting glucose, GTT, insulin levels, i.v. GTT, A1c, creatinine clearance, urinary microalbumin/creatinine ratio, lipid and metabolic profiles; home glucose monitoring, continuous glucose monitoring.

Cushing's syndrome

History
Headache, vertex (and elsewhere)
Pigmentary changes:
Weight gain,
Muscle weakness,
Hypertension
Diabetes
Easy bruising, thin skin
Hirsutism
Pink striae
Poor wound healing
Facial rounding, rosy cheeks
Buffalo hump
Depression, irritability, behavior changes, psychosis

Increased osteoporosis, spinal fractures
Impotence and decreased libido
Other conditions treated with corticosteroids
History of lung cancer, pancreatic cancer, medullary carcinoma of thyroid, carcinoid tumor
History of alcoholism (pseudo-Cushing's syndrome)

Medication: exogenous steroids

Family history

Physical examination
General appearance:
Facial rounding, plethoric cheeks
truncal obesity, buffalo hump, hirsute, pink striae, thin extremities
Short stature (children)
Vital signs: hypertension

Bruising of extremities
Early cataracts
Visual field defect
Buffalo hump
Muscle weakness
Increased pigmentation, scars and mucous membranes

Tests: dexamethasone suppression tests, 24 hour urine for free cortisol, morning and afternoon cortisol;
MRI of sella and hypothalamus; CAT scan of adrenals; Serum ACTH with serum cortisol.

Primary Adrenal Insufficiency

Postural hypotension
Salt craving
Extreme malaise
Nausea and vomiting
Diarrhea
Marked debilitation with minor illness or trauma
Hypoglycemia
Skin changes: hyperpigmentation, vitiligo
History of water intoxication, hyperkalemia

Physical examination
Slow Pulse, no pulse increase with postural change
Hypotension
Hyperpigmentation of mucous membranes, skin, scars; vitiligo

Acromegaly

Headaches
Gigantism in children
Change in appearance with enlargement of soft tissues (face, hands, feet)
Deepening voice
Visual changes – bitemporal hemianopsia
Increased sweating, oily skin, skin tags
Decreased libido
Impaired glucose tolerance, diabetes
Hypertension
Heart disease
Symptoms of other pituitary dysfunction (e.g., secondary pituitary failure)

MEN-1 (other adenomas: parathyroid, carcinoid, adrenal, insulinomas, growth hormone, prolactinoma, facial angiofibromas)

Physical Examination
Coarse features
Prognathism
Vital signs: hypertension
Wide-spaced teeth (overbite)
Prominent jaw
Large tongue

Acral enlargement
Thickened skin
Intestinal polyposis
Change in appearance with enlargement of soft tissues
Deepening voice
Visual changes – bitemporal hemianopsia
Increased sweating, oily skin, skin tags
Decreased libido
Impaired glucose tolerance, diabetes
Hypertension
Heart disease
Symptoms of other pituitary dysfunction (e.g., secondary pituitary failure)

MEN-1 (other adenomas: parathyroid, carcinoid, adrenal, insulinomas, growth hormone, prolactinoma, facial angiofibromas)

Physical Examination
Coarse features
Prognathism
Vital signs: hypertension
Wide-spaced teeth (overbite)
Prominent jaw
Large tongue
Acral enlargement
Thickened skin
Intestinal polyposis

Extended Examination of the Abdomen

GI Subunit

Basic Exam Sequence:

Inspection:

Alert patient to Examination
Inspect abdomen

Auscultate Abdomen:

Auscultate epigastrium

Palpation:

Superficial & deep palpation in 4 quadrants

Palpate for liver

Palpate for aorta

Palpate for spleen

Supine position

Lateral position

Inguinal nodes & femoral pulses

Extended Examination:

Inspection:

Alert patient to Examination
Inspect abdomen

Auscultate Abdomen:

Auscultate epigastrium (bruits)

Auscultate for bowel sounds

Auscultate over iliac & femoral arteries

Palpation:

Superficial & deep palpation in 4 quadrants

Rebound tenderness

Palpate for liver

Palpate for aorta

Palpate for spleen

Supine position

Lateral position

Palpate for kidney

Palpate for fluid wave

Rovsing's sign

Psoas sign

Obturator sign

Cutaneous hyperesthesia

Murphy's sign

Inguinal nodes & femoral pulses

Rectum Exam (for Unit 5)

External Genitalia (for Unit 5)

Hernia Exam (for Unit 5)

Percussion:

Percuss liver

Percuss spleen

Percuss for flank tenderness

Percuss for shifting dullness

Terms:

Hematochezia

melena

flatus

obstipation

constipation

rebound tenderness

shifting dullness

guarding

rigidity

ileus

Rovsing's sign

psoas sign

obturator sign

umbilical hernia

diastasis recti

spider angioma

caput Medusae

colicky pain

crampy or cramping pain

Murphy's sign

Grey-Turner sign

Succussion splash

Tympanic, Hyperresonant

Resonant

Dullness

Flank fullness

CVA tenderness

EXAMINATION OF THE JOINTS

Basic Exam

General appearance and inspection.

Examine range of motion of neck.

Inspect and palpate spine.

Inspect anterior thorax.

Inspect and palpate fingers, wrists, elbows, and shoulders, for deformity, swelling, redness, warmth or tenderness;

Examine active range of motion of these fingers, wrists, elbows, and shoulders

Inspect and palpate legs and feet for deformity, swelling, redness, warmth or tenderness;

Examine active range of motion of ankles, knees and hips

Patient standing:

Examine posture and gait

Extended Exam

A. INTRODUCTION

The musculoskeletal system is examined chiefly by inspection and palpation while the body parts are at rest or going through their full range of active or passive motion. If there is an abnormality of active range of motion, then the joint is manipulated passively through its range of motion.

Note and record:

1. Deviation from, or limitation in, normal range of motion; include joint instability and ankylosis (stiffness or fixation of the joint).
2. Joint swelling or deformity
 - a. Thickened synovial membrane, redness, heat, tenderness.
 - b. Fluid in the joint capsule (effusion).
 - c. Bony enlargement.
3. Crepitation or grating felt by examiner over a joint as it moves
4. Strength
5. Condition of the surrounding tissues, including muscle tenderness or atrophy, subcutaneous nodules, skin changes of rash or tissue ischemia

B. EXAMINATION

1. Determine and record height and weight
2. Upper extremity (inspect and palpate; observe active range of motion; if abnormal, examine passive range of motion).
 - a. Hands and wrists: extend fingers, clench fists, grasp small object
 - b. Elbow: extend, flex, supinate, pronate.
- c. Shoulder: check forward flexion and extension, abduction and adduction, external and internal rotation and shoulder shrug.
3. Temporo-mandibular joint: palpate while moving jaw.
4. Spine (inspection, palpation, and range of motion as above).
 - a. Cervical spine: check flexion, extension, lateral flexion, and rotation.
 - b. Thoracic and lumbar spine: forward flexion, extension.
 - c. With pelvis stabilized, lateral flexion of lumbar spine and lateral rotation of thoracic spine.
 - d. Measure costovertebral joint motion (chest expansion).
 - e. Determine degree of straight leg raising and assoc symptoms
 - f. Sacroiliac joints: palpation, light percussion; compression of iliac crest; jarring of sacroiliac joint, passive hyperextension of lower extremity.

5. Lower extremity (inspection, palpation, and range of motion as above) (equal length ASIS to MM?)
 - a. Foot and ankle: flexion and extension of toes. Ankle: dorsiflexion and flexion; inversion and eversion. Observe for pes planus, abnormalities while standing and walking.
 - b. Knee: Flexion and extension. Check for stability in cruciate and lateral/medial ligaments.
 - c. Hip: Flexion, extension, abduction, adduction, internal and external rotation. Observe for flexion contracture in opposite hip during flexion of examined hip.
6. Observe gait.

TERMS to KNOW:

Baker cyst	genu recurvatum	pes cavus
Bursa, bursitis	genu valgum	pes planus
Bouchard's nodes	genu varum	rheumatoid nodule
callus	goniometer	scoliosis
carpal tunnel syndrome	hallux valgus	subluxation
crepitus	hammer toe	synovial thickening
Dupuytren contracture	Heberdens nodes	tenosynovitis
Effusion	kyphosis	tophus
flexion contracture	lordosis	ulnar deviation
ganglion cyst		

TESTS used in further studying causes of Rheumatologic syndromes:

CHEMISTRY STUDIES

Calcium
 Phosphorus
 BUN
 Uric acid
 Albumin
 Alkaline phosphatase
 LDH
 SGOT/ALT; SGPT /AST
 Creatinine
 CK
 Aldolase
 TSH, T4

HEMATOLOGIC STUDIES

CBC, Differential, Platelet count
 Lupus Anticoagulant, aPTT, PT
 Sedimentation rate
 C-Reactive Protein
 Stool for occult blood

IMMUNE SYSTEM STUDIES

(only when indicated)
 ANA quantitative and pattern
 Anti-dsDNA
 Anti-ENA (Sm, RNP)
 C3, C4, CH50
 Rheumatoid Factor (quantitative); anti CCP
 STS (RPR or VDRL)
 Anti cardiolipin/anti phospholipid antibodies
 Anti SSA ("Ro"), SSB ("La")
 ANCA

URINE STUDIES

Dipstick Protein (quantify)
 Protein/Creatinine ratio
 RBC, WBC count
 RBC morphology ("Dysmorphic" RBCs)
 Casts- type, quantity
 Creatinine clearance
24 -hour urine protein

JOINT FLUID (specify joint)

White count & Differential
 (Gram stain & culture)
 Viscosity (normal or reduced)
 Crystals (describe: shape (e.g. needle-like, globular, intracellular &/or extracellular, birefringence)

RHEUMATOLOGY EXAMINATION: elements of the history

Establish if multisystem-like process, which may mean that the HPI can be more like a complete ROS !

ARTICULAR HISTORY

Joint swelling
Joint heat/redness
Morning stiffness (hours)
Arthralgia or stiffness only
Severity or pain scale (0-10)
Joint pain:
Location, symmetry
Aggravating/alleviating factors; effects of rest, use/exercise, treatments
Chronology
Pain during sleep
Heel pain
Neck pain
Low back pain
No. of involved joints
No. of newly involved joints

Course

Onset: insidious, abrupt
Temporal/anatomic patterns of pain
Interval sx if intermittent

FUNCTIONAL HISTORY

ARA functional class or "HAQ"
Activities of Daily Living
Feeding
Dressing and grooming
Bathing and hygiene
Sexual (interest, capability pain)
Productive Activity
Primary job duties, activities; ability, & safety to function
Ambulation ability; use of assistive devices (cane, wheelchair, etc)
Medication Adherence

PREVIOUS MEDICAL HISTORY

Especially note elements of possible multisystem disease
Medication history (consider drug-induced syndrome) and illicit drug use (e.g. amphetamines)
CAM use
Drug Allergies

Fracture Hx:
Spontaneous/low-impact
Other trauma/ skeletal surgeries
Height in early 20's

FAMILY HISTORY

INCLUDE age (esp at onset or dx)
Esp FH of arthritis, autoimmune disease, back pain, crippling processes; important systemic disease (e.g., infl bowel disease, psoriasis)
Osteoporosis, fractures.

PERSONAL PROFILE

Education, support, occupation & specific physical requirements
Behavioral risks for HIV, Hep B, Hep C

REVIEW of SYSTEMS

GENERAL

Fatigue
Fever, chills
Weight change

SKIN

Rash (exacerbating factors)
Psoriasis
Skin ulcers, digital, other
Purpura
Alopecia
Raynaud's phenomenon
Skin tightening
Urticaria
Photosensitivity

HEENT

Head pain (specify location)
Dry eyes
Conjunctivitis; iritis; eye pain
Ocular inflammation, other
Tinnitus
Mucosal ulcers
Dry mouth
Salivary gland enlargement
Swelling of ears or nose

CARDIOPULMONARY

Chest pain (pleuritic, anginal)
Chest pain, other
Dyspnea or orthopnea
Edema
Cough, persistent
Wheezing

GASTROINTESTINAL

Anorexia
Dysphagia
Peptic ulcer symptoms
Abdominal pain, other
Vomiting and/or nausea
Hematemesis and/or melena
Jaundice
Diarrhea

URINARY

Dysuria
Urethral discharge
Renal stone
Hematuria (gross, micro)
Proteinuria

REPRODUCTIVE

Pregnancy history, include health & size of babies, # and trimester of miscarriages
Fertility
STD's, vag/penile discharge

HEMATOLOGIC

History of anemia, leukopenia, thrombocytopenia
Blood clotting, bleeding, bruising

NEURO/MUSCULAR/PSYCHIATRIC

Seizures
Paresthesias, numbness
Neuropathy
Muscle pain
Muscle weakness
Altered sensorium/LOC
Psychiatric (specify)

"FOCUSING" THE EXAM in RHEUMATOLOGIC DISEASE

GENERAL

Appearance
Height, Weight
BP both arms; Temperature
Respirations; Pulse rate,
symmetry

SKIN

Telangiectasia
Purpura or ecchymosis
Digital ulcers, scars, atrophy
Sclerodactyly
Scleroderma, generalized
Calcinosis, dermal
Rash, distribution &
appearance
Psoriasis
Erythema nodosum
Erythema of knuckle pads
Periungual erythema
'Heliotrope' on eyelids
Alopecia
Cutaneous ulcers/scars

HEAD AND NECK

Conjunctivitis
Episcleral-scleral disease
Uveitis/ Iritis
Oral ulcers
Xerostomia
Thyroid
Salivary gland
enlargement/mass

CHEST & LUNGS

Wall motion with respiration
Adventitial sounds
Pleural effusion
Pleural rubs

HEART

Rhythm
Size (PMI)
heart sounds 1,2,3,4
Murmurs
Pericardial rub
Dependent edema

VASCULAR

Raynaud's phenomenon
Temporal artery tenderness
Presence and symmetry of
pulses
Vascular sufficiency in digits

Varicosities/lymphedema

OTHER

Lymphadenopathy
Hepatosplenomegaly

JOINT EXAMINATION:

Specify: Range of motion,
swelling, effusion, warmth,
tenderness, deformity,
for all:

UPPER EXTREMITY

Shoulder
Elbow
Wrist
MetaCarpalPhalangeal Joints
First CarpalMetaCarpal Joint
Thumb InterPhalangeal Joint
Proximal InterPhalangeal
Joints
Distal InterPhalangeal Joints

LOWER EXTREMITY

Hip
Knee
Ankle
Subtalar,Tarsal
MetaTarsalPhalangeal
Joints
Great toe MTP
Great toe InterPhalangeal
Joint
Proximal InterPhalangeal
Joints
Distal InterPhalangeal Joints

CENTRAL

Cervical spine
Thoracic spine
Lumbar spine
Sacroiliac

OTHER JOINTS

Temporo mandibular
Sternoclavicular
Acromioclavicular
Costochondral
Sternomanubrial
(cricoarytenoid)
Costo-vertebral joints
(determined by Chest
wall excursion)

Special findings

Synovial cysts, e.g. popliteal
(Baker) cyst
Bursitis (specify)
Tendon lesions
Subcutaneous nodules
Tophi (pinna, over joints,etc)
Nailfold capillaries

FUNCTIONAL MEASUREMENTS

Upper Extremity

Grip strength (note dominant
side)
Reach above head, touch
chin, make tight fist

Lower Extremity

Time to walk 50 ft. (sec.)
Gait (describe)
Rise from chair without
assistance?

Spine

Occiput to wall distance
Chin to chest distance
Schober test of lumbar flexion
Chest excursion (costo-vertebral)

Other

Gait and stability
Inter-incisor (open mouth)
distance
Signs of joint hypermobility

Physical Examination of the Nervous System

The Steps of the Physical Exam are the same; the Branch Steps for the Exam of the Nervous System represents a summary of portions conducted during the HEENT, Neck , Abdomen, Extremities and Ano-rectal exams (see BPES). The Mental Status Exam may be performed during History Taking, but should be FORMALLY performed and is reported in the Objective (not history, or Subjective) part of the POMR.

Mental Status:

- Level of consciousness
- Attention
- Memory
- Orientation
- Perceptions
- Thought processes
- Thought content
- Insight
- Judgment
- Affect
- Mood
- Language
- Higher cognitive functions: vocabulary, fund of information, abstract thinking, calculations, construct objects w/ 2 –3 dimensions
- Screening tests: Mini Mental State Examination (MMSE), Draw-a-clock

Cranial Nerves, including “special senses”; Note symmetry; Note presence of nystagmus

- I - Smell
- II - Visual acuity; Visual fields; ophthalmoscopic exam of the ocular fundi
- II, III - Pupillary reactions
- III, IV, VI - Extraocular movements
- V - Corneal reflexes, facial sensation, jaw movements
- VII - Facial movements
- VIII- Hearing (and vestibular function)
- IX, X - swallowing, rise of palate, gag reflex
- V, VII, X, XII – voice and speech
- XI - shoulder and neck movements
- XII- tongue symmetry and position

Motor System: Note symmetry, pattern of abnormality

- Body position
- Involuntary movements (Tics, tremors, fasciculations, chorea, athetosis, dystonia)
- Muscle bulk (atrophy, hypertrophy)
- Muscle tone (hypotonia, spasticity, rigidity, ‘cog-wheel’ rigidity)
- Muscle strength Use MRC 0-5 scale (Bates, pg 574)
- Coordination
 - Rapid alternating movements
 - Point-to-point movements (Finger to nose, Heel to shin)
 - Gait (tandem walk, walk on toes & heels, hop in place, shallow knee bend, rise from sitting position)
 - Stance (Romberg test, Pronator drift test)

Sensory System: test for symmetry, pattern of abnormality

- Pain
- Temperature
- Light touch
- Vibration
- Position
- Discriminatory sensations: stereognosis, gaphesthesia; two point discrimination; point localization; extinction

Reflexes:

- Tendon stretch (“deep tendon”) reflexes (Grade 0-4)
- Superficial reflexes
- Anal reflex
- Clonus

Special Examination Techniques:

- Asterixis
- Winging of scapula
- Meningeal signs
- Anal reflex
- Evaluation of the Comatose or Stuporous patient

The Nervous System: Elements of the History

Neurological Symptom Review	
<input type="checkbox"/> Handedness	History for Children
<input type="checkbox"/> Headache	Pregnancy:
<input type="checkbox"/> Personality change	<input type="checkbox"/> Length
<input type="checkbox"/> Memory problems	<input type="checkbox"/> Bleeding
<input type="checkbox"/> School performance	<input type="checkbox"/> High Blood Pressure
<input type="checkbox"/> Dementia	<input type="checkbox"/> Weight gain
<input type="checkbox"/> Hallucinations	<input type="checkbox"/> Diabetes mellitus
<input type="checkbox"/> Seizures	<input type="checkbox"/> Infections
<input type="checkbox"/> Syncope	<input type="checkbox"/> Medications or drugs
<input type="checkbox"/> Speech problems	Labor:
<input type="checkbox"/> Appetite change	<input type="checkbox"/> Length
<input type="checkbox"/> Nausea	<input type="checkbox"/> Complications
<input type="checkbox"/> Emesis	Delivery:
<input type="checkbox"/> Dysphagia	<input type="checkbox"/> Presentation
<input type="checkbox"/> Diplopia	<input type="checkbox"/> Vaginal or c-section?
<input type="checkbox"/> Blurred vision	<input type="checkbox"/> Instruments?
<input type="checkbox"/> scotoma	<input type="checkbox"/> APGAR scores
<input type="checkbox"/> decreased vision	<input type="checkbox"/> Birth weight
<input type="checkbox"/> tinnitus	Neonatal:
<input type="checkbox"/> vertigo	<input type="checkbox"/> Jaundice
<input type="checkbox"/> decreased hearing	<input type="checkbox"/> hospital stay
<input type="checkbox"/> tremor	<input type="checkbox"/> complications
<input type="checkbox"/> paresthesia	<input type="checkbox"/> Development
<input type="checkbox"/> pain	<input type="checkbox"/> Smile
<input type="checkbox"/> weakness	<input type="checkbox"/> Coo/babble
<input type="checkbox"/> incoordination	<input type="checkbox"/> Roll over (front-back; back to front)
<input type="checkbox"/> incontinence	<input type="checkbox"/> Sit
	<input type="checkbox"/> Crawl
Family history	<input type="checkbox"/> Stand
<input type="checkbox"/> Seizures	<input type="checkbox"/> Cruise
<input type="checkbox"/> Retardation	<input type="checkbox"/> Walk
<input type="checkbox"/> School problems	<input type="checkbox"/> Talk
<input type="checkbox"/> Psychiatric problems	<input type="checkbox"/> Phrases
<input type="checkbox"/> Social problems	<input type="checkbox"/> Toilet
<input type="checkbox"/> Malignancy	
Previous Medical History	School History
<input type="checkbox"/> Surgeries	<input type="checkbox"/> School Name
<input type="checkbox"/> Medications	<input type="checkbox"/> Grade
<input type="checkbox"/> Allergies	<input type="checkbox"/> Failure
<input type="checkbox"/> Head trauma	<input type="checkbox"/> Learning problems
<input type="checkbox"/> CNS infections	
<input type="checkbox"/> Seizure	
<input type="checkbox"/> Immunizations	
<input type="checkbox"/> Chronic problems	
<input type="checkbox"/> Serious illness	

Appendix VII

Evaluation Forms