

# Teaching Tips

## Teaching Disease Processes

by Ellen Drake, CMT

An important skill, if not the most important skill, in medical transcription is the ability to comprehend what the dictator is saying, evaluate it for accuracy and sense, and apply critical thinking skills, when needed, to correct, modify, or edit the dictation. In fact, every word transcribed actually involves decision-making, if not problem-solving. Isn't that the definition of critical thinking? At its most basic level, this skill involves correcting grammatical errors and adding or deleting punctuation. At an intermediate level, it is how we know that what we are typing is correct. At its most advanced level, it is the fine art of transcribing what the dictator means—not just sounds. I say “not just sounds” because so often some will say, “I just typed what he said.” But that's not true. What they typed was what they heard. There's a difference.

As a teacher, I've struggled for years with how to teach this skill. What knowledge do we need to impart, what exercises and activities can we develop that will provide students the foundation for this most important skill? At times I've despaired that it can be taught; maybe you either have it or you don't. When I try to analyze what takes place when I problem-solve in transcription, I realize that the process involves the distillation or synthesis of all that I know (about the subject in question). It also requires the quick recognition of clues within the text of the report and the extrapolation of an answer to a question by correlating these clues to my background knowledge.

This, however, is *not* an article on critical thinking; it is an article on how to teach disease processes in a way that helps students develop these problem-solving skills. I believe that a course in disease processes, perhaps more than any other academic course, requires that students correlate and integrate existing knowledge with new knowledge. The methods I discuss will help your students integrate what they already know with what they are learning. These techniques suit different learning styles and require students to be *actively* involved in learning,



rather than memorizing facts just to regurgitate them for a test. Students need a thorough understanding of disease processes, including diagnosis, treatment, and outcomes, in order to make the kinds of decisions that are required almost moment-by-moment while transcribing medical dictation.

Too often, it's taken for granted that students will learn about disease processes through the combination of terminology/anatomy study and transcribing.

Certainly, that's the way many of us learned it on the job. But that was then; this is now. Medicine is entirely too complex to leave something this important to chance. I'm awed, as are others in our field with whom I've talked, by the numbers of new disease entities, operative procedures, and diagnostic techniques today that were unknown when I started transcribing over three decades ago. We cannot use 30-year-old training techniques to prepare students for a profession as scientifically complex as medical transcription is today.

A formal course in Disease Processes should be included in every transcription training program. Begin the course with a brief overview of pathophysiology of the human body and the diagnostic process. A cursory review of structure and function should be followed by detailed study of prevalent diseases of each system. Infectious diseases, genetic diseases, and cancers may be covered separately or by body system. For each disease entity, the student should learn its etiology, symptoms, clinical presentation (physical findings), relevant diagnostic studies, and its treatment and course. Diagnostic studies include not only laboratory tests but imaging, invasive diagnostic procedures, and pathological investigations. The student should learn both normal and abnormal laboratory values and the implications of the abnormal values when found. The study of treatment should be detailed; for example, it's not enough to simply say an infectious process is treated with antibiotics. Different antibiotics are used to treat a GU infection than those used to treat a URI.

If you are just instituting a course in Disease Processes, I recommend the Disease Processes Course Description and Outline from *The SUM Program Teachers Manual* (reproduced on pp. 9-11) as well as the *Human Diseases* workbook by John H. Dirckx, M.D.

### Class Activities

**Oral Presentations:** Everyone has been ill at one time or another, and they all like to talk about it. This can be used to advantage in class if such discussions are controlled by specific guidelines. At the beginning of the term, have students complete an information form that includes the usual questions in addition to listing any disease(s) with which they are intimately familiar. The student need not have had the disease; their knowledge could come from a relative, close friend, or other healthcare work experience (since many MT students cross over from other health-related careers). They should be told not to reveal any personal, private, or confidential details on their information sheet or to the class.

Each student, over the course of the semester, can prepare an oral presentation on the disease they know the most about. Require them to do some additional research to fill in gaps in their knowledge. If the disease was one of those covered by the textbook, they must find out something about it that was not included in the textbook description. Have them give their oral presentation during the week the pertinent system chapter is discussed in class.

If the oral presentations are given at the beginning of each class, they help draw students' attention away from outside activities and focus it on the current class. Some of the presentations will be moving; relatives, even children, may have died or are dying from the diseases being discussed. To keep the presentations from being maudlin, focus on the objective presentation of the information. You can allow for a small amount of discussion about the effects of serious illness on quality of life for the patient and family as well as a discussion of support services and agencies available for specific conditions.

After the students give their presentations, discuss specific points and terminology that might appear in dictation. If a student presents data that is questionable, ask for a source for that piece of information and discuss whether the source is reliable. Discuss things that affect the outcome of clinical studies, such as cause and effect, comorbid conditions, placebo effect, and coincidence.

If time constraints don't permit individual oral presentations, allow students to work in groups. Group presentations may be straightforward oral reports or may take the form of skits, such as radio talk show format, a medical conference, a hospital's publicity director reporting on the progress of a "famous" ill patient, or a doctor being interviewed by the media.

**Internet Activities:** The Internet is packed with information on diseases. Prior to assigning research activities, however, discuss how to evaluate the quality and accuracy of information found on the Internet. Also, encourage students to access con-

tent written for healthcare workers rather than that written for patient education. Sometimes the professional sites require registration and even the payment of fees, but there is a great deal available for free.

It isn't sufficient just to ask the students to "write an essay" on their research. They need to use the data in some substantial way that simulates the type of problem-solving they may be required to do in transcription. Prepare students for their Internet research assignment with specific questions to answer, such as "What is the prevalence of \_\_\_\_\_ disease in the U.S. population?" "Are men or women more at risk of acquiring or dying of this disease?" "Why?" "Is age a factor?" "Ethnicity?" "Is the illness hereditary, congenital, acquired, immunological, the result of life style factors, etc.?"

It is important that students incorporate new learning into the knowledge bank gained from other academic courses. This is done by correlating (comparing and contrasting) new information with old, by making logical connections (e.g., if this is true, then that is also true or not true), and by applying new and old knowledge to evaluate new data or circumstances.

The Internet abounds with case studies which you can use to develop analysis and decision-making skills in students. A Google search for "*case studies*" (in quotation marks) plus *medical* yields 4.5 million pages. To find case studies that correlate with the chapters in the textbook, you could search for "case studies" plus the body system being studied. "*Case studies*" plus *gastrointestinal* yields over 77,000 pages; plus *cardiology* yields 108,000 pages. Students should proceed through case studies in a step-by-step fashion.

For example, break the case study down as follows: Give the students the patient's presenting symptoms and past history. Then ask questions such as "Based on the patient's history, list three possible diagnoses." "What physical findings might you expect to find or not find?" Next, give them the physical examination findings and ask, "How does this new information change your differential diagnoses?" "What laboratory studies and other diagnostic procedures would you order to further narrow the possibilities?" After giving them the diagnostic findings, proceed with similar questions about how these findings narrow the diagnostic possibilities. "Can you make a definitive diagnosis now?" "If not, what other diagnostic procedures might be necessary?" Finally, ask "How would you treat this illness," and "What is the expected course and prognosis of this patient's illness?"

If you are teaching this course concurrently with transcription, have the students research the specific illnesses or procedures that appear in the reports they will be transcribing. Questions for this activity might elicit specific terminology and information that they will encounter in the dictation itself, especially if the dictations require some editing. For example, if the dictator uses "varicoes" for "varices" and "recannulization" for "re canalization," you could have the students research the prevalence of these spellings on a Google search, evaluate the citations, and determine which spellings are correct and why.

An Internet "scavenger hunt" can be fun and educational. This requires a little more work on your part because you have to come up with the "objects" (information) to be found.

Review the dictation that goes with the system being studied, making a list of key terms, especially any unusual expressions that may be difficult to find in standard references. These might include things like “find the word *angry* used to describe the appearance of a lesion,” or “find the word *mouse* used to describe a loose body in a joint.” The student who finds all the “objects” first wins a prize, gets extra credit, or gets to skip a quiz.

**Textbook Activities:** Most human disease textbooks treat each disease as a separate entity. There is little to no integration, other than that all the diseases in a chapter affect a particular body system. This may be useful in terms of using the textbook as a later reference, but it doesn’t do much to teach the students to problem-solve.

An activity, excellent for small groups, that helps students evaluate similarities and differences between illnesses affecting a single body system is to have them prepare a **chart** that lists the diseases down the left-hand column. Additional columns can be added for symptoms and physical findings, listing these across the top. The students can then place a check mark in each column that applies for each disease, something like comparing the features of competing products. When finished, they have a visual study guide summarizing and comparing the symptoms and physical findings of the diseases studied for that system.

A **mind map**, a visual representation of knowledge, is a good way for a student to take notes and summarize key points in a chapter or those related to a particular disease. This activity is also excellent for groups. One mind map might consist of a rectangle centered at the top of a page. Inside the rectangle is the name of the body system being studied. Draw lines from that rectangle to additional rectangles, one for each disease studied. From the disease rectangles, draw additional lines and boxes for symptoms, physical findings, differential diagnoses diagnostic procedures, and treatment.

Have a student group work on a super-sized mind map, perhaps using poster board or several feet of paper from a roll of freezer wrap or banner paper, and hang their maps on the walls for study and review. This type of mind map is also useful for comparing and contrasting diseases as well as for analyzing case studies. In a mind map for a single disease, the disease name may be in a rectangle or circle in the middle of the page with the added topics radiating out from the center. These activities can be adapted for on-line student groups who create “electronic posters” to be displayed on the class Web site. Pie charts, good for comparing epidemiology, and graphs also appeal to visual learners.

**Testing:** Multiple-choice questions are fine for preparing students to take standardized tests (such as part I of the CMT exam), but try to prepare at least some questions that require the students to apply what they’ve learned, not just regurgitate facts. Careful wording of multiple-choice questions can call for a certain level of decision-making. Some examples of excerpts from dictation are as follows (the distractors resemble the correct answer in sound, not meaning):

### Sample Multiple-Choice Questions

The blistering is typical of \_\_\_\_\_. I would go ahead and give her 2 million q. 6 h. of the penicillin and modify therapy according to culture report.

- strep
- straps
- stress
- stretch

Urologic evaluation revealed a blockage in the right \_\_\_\_\_, and this was “cleaned out” cystoscopically, at which time scar tissue was found.

- urethra
- ureter
- uterus
- urachus

Physical examination showed, covering most of the back and also the medial central buttocks, confluent, erythematous, scaly \_\_\_\_\_ with some crusting. Similar \_\_\_\_\_ were also present on the anterior legs. (Both blanks are the same word.)

- wax
- packs
- flacks
- plaques

However, only essay questions can really demonstrate a student’s grasp of more complex issues. As difficult as these are to grade, essay questions serve two purposes: (1) They require the student to practice problem-solving, organize knowledge, and think and write logically; and (2) they test the student’s understanding of the material studied. In the box below are examples of essay questions that challenge a student’s reasoning abilities.

### Sample Essay Questions

1. Compare and contrast the methods of transmission of Lyme disease, chickenpox, syphilis, and the common cold. What methods can be used to control transmission of these diseases? In your opinion, which of the diseases might be the most difficult to prevent, based on the method of transmission. Why?

2. What are the risk factors for HIV and AIDS? In terms of reining in the AIDS epidemic, do you think prevention or treatment is more important? Justify your answer.

3. The abbreviation *PDA* can stand for *patent ductus arteriosus* or *posterior descending artery*. What information in your study of the chapter on cardiovascular disease can help you determine which translation to use in Excerpts 1 and 2 on the following page? What were the clues that helped you make a decision?

### Excerpt 1

This echocardiogram was obtained from a 3-hour-old twin infant with a cardiac murmur and cyanosis. . . . There is evidence of retrograde diastolic flowing in the main pulmonary artery, indicating the presence of a PDA. In addition, there is evidence of moderate tricuspid regurgitation. There is also evidence of left-to-right shunting across the interatrial septum.

### Excerpt 2

#### PROCEDURE PERFORMED

1. Left heart catheterization.
2. Left ventriculogram.
3. Coronary artery angiography.

The right groin was prepped and draped. . . . The RCA is a dominant artery. It gives off a large PDA and posterior left ventricular branches; both branches are widely patent.

### Web Sites for Teachers and Students

- <http://www.emedicine.com/specialties.htm>
- <http://www.medscape.com/pages/homepages/index-homepages>
- <http://www.fpnotebook.com/index.htm>
- <http://www.casepath.org/>
- <http://www.labcorp.com/datasets/labcorp/html/chapter/>

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Critical thinking activities and challenges should be incorporated into every academic subject in the medical transcription curriculum, but without the knowledge base afforded by specific and focused study of human diseases, teaching students to make the innumerable decisions necessary for the accurate transcription of a single report, much less a lifetime of work, is like transcribing with one hand tied behind your back.

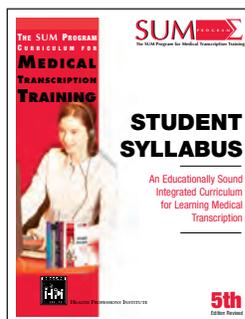
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*The SUM Program Teacher's Manual*, now in its 5th edition, was revised in September 2004. It includes over 200 pages of information about offering a quality medical transcription program. You can **download it for free** from the Free Downloads page at [www.hpisum.com](http://www.hpisum.com).

Sections include:

- SUM Program Teacher's Manual**, 5th ed.
  - Curriculum & Program Design
  - Teaching Methodologies
  - Evaluation and Grading
  - Organization Tips
  - Educationalese and Marketing
  - Professional Growth



*The SUM Program Student Syllabus* is included with the beginning and intermediate units. It provides reading and transcription assignments and helpful hints for students learning independently.

## Human Diseases *or* Disease Processes Course Description

**Course Description:** A comprehensive study of disease processes (causes, symptoms, diagnosis, and treatments), organized by body systems.

**Recommended Prerequisites/Concurrent Courses:** Anatomy and Physiology, Medical Terminology.

**Recommended Course Length:** 45 hours (3 hours per section).

### Course Objectives

1. Describe how diseases are named and classified.
2. Identify common genetic disorders.
3. List common infectious diseases.
4. Define *immunity* and identify common immunological diseases.
5. Define *neoplasia* and differentiate between *malignant* and *benign*.
6. Identify common traumatic injuries.
7. Identify common diseases for each body system.
8. Pronounce and spell common disease names.
9. Define common abbreviations for symptoms and disease processes for each body system.
10. Identify methods of diagnosis for each disease studied.
11. Distinguish between normal or physiologic and abnormal findings on laboratory tests and imaging studies.
12. Identify methods of treatment, including surgical, for each disease studied.

### SECTION 1: THE NATURE OF DISEASE; DISEASES OF THE SKIN

1. Introduction to course and overview of contents.
2. The nature of disease; how diseases are named.
3. Common disease terms.
4. Anatomy and physiology of the skin.
5. Signs, symptoms, and diagnostic procedures of the skin.
6. Diseases and disorders of the skin.

### SECTION 2: GASTROINTESTINAL DISEASES

1. Anatomy and physiology of the digestive system.
2. Signs, symptoms, and diagnostic procedures of the gastrointestinal system.
3. Diseases and disorders of the digestive system.

### SECTION 3: TRAUMA AND POISONING

1. Types of trauma.
2. Poisoning.

#### **SECTION 4: DISEASES OF THE RESPIRATORY SYSTEM**

1. Anatomy and physiology of the respiratory system.
2. Signs, symptoms, and diagnostic procedures in respiratory diseases.
3. Diseases and disorders of the respiratory system.

#### **SECTION 5: DISEASES OF THE CARDIOVASCULAR SYSTEM; DISORDERS OF BLOOD CELLS AND COAGULATION**

1. Anatomy and physiology of the cardiovascular system and blood.
2. Signs, symptoms, and diagnostic procedures of the cardiovascular system.
3. Diseases and disorders of the cardiovascular system.
4. Disorders of blood cells, blood-forming tissues, and coagulation.
5. Diagnostic procedures in hematologic disease.

#### **SECTION 6: DISEASES OF THE EARS, NOSE, THROAT, AND EYES**

1. Anatomy and physiology of the ears, nose, throat, and eyes.
2. Signs, symptoms, and diagnostic procedures of the ears, nose, throat, and eyes.
3. Diseases and disorders of the ears, nose, throat, and eyes.

#### **SECTION 7: GENETIC DISORDERS; DISORDERS OF METABOLISM, NUTRITION, AND ENDOCRINE FUNCTION**

1. Disease features and procedures diagnostic for hereditary diseases, disorders, and chromosomal abnormalities.
2. Anatomy and physiology of the endocrine glands.
3. Physiology of metabolism and nutrition.
4. Disorders of the principal endocrine glands: pituitary, thyroid, parathyroid, adrenal.
5. Disorders of the pancreas.

#### **SECTION 8: DISEASES OF THE EXCRETORY AND MALE REPRODUCTIVE SYSTEMS; SEXUALLY TRANSMITTED DISEASES**

1. Anatomy and physiology of the excretory system and male reproductive system.
2. Signs, symptoms, and diagnostic procedures of the genitourinary system.
3. Diseases and disorders of the male reproductive system and excretory system.
4. Sexually transmitted diseases.

#### **SECTION 9: THE FEMALE REPRODUCTIVE SYSTEM; BREAST DISEASES**

1. Anatomy and physiology of the female reproductive system and breasts.
2. Signs, symptoms, and diagnostic procedures of the female reproductive system and breasts.
3. Diseases and disorders of the female reproductive system and breasts.
4. Pregnancy and childbirth.

## **SECTION 10: MUSCULOSKELETAL DISORDERS**

1. Anatomy and physiology of the musculoskeletal system.
2. Signs, symptoms, and diagnostic procedures of the musculoskeletal system.
3. Diseases and disorders of the musculoskeletal system.

## **SECTION 11: INFECTIOUS DISEASES**

1. The concepts of infection and immunity.
2. Transmission of infectious diseases.
3. Infecting organisms.
4. Diagnosis and treatment of infectious diseases.

## **SECTION 12: DISEASES OF THE NERVOUS SYSTEM**

1. Anatomy and physiology of the nervous system.
2. Signs, symptoms, and diagnostic procedures of the nervous system.
3. Diseases and disorders of the nervous system.

## **SECTION 13: PSYCHIATRIC DISORDERS**

Mental disorders and psychiatric illness.

## **SECTION 14: THE IMMUNE SYSTEM**

1. Function of the immune system.
2. Immunodeficiency, autoimmunity, and allergies.
3. Signs, symptoms, and diagnostic procedures of the immune system.
4. Diseases and disorders of the immune system.

## **SECTION 15: NEOPLASIA**

1. The nature of neoplasia.
2. Common cancers and warning signs.
3. Diagnosis and treatment of malignancy.