

Office Admin Medical Assistant Quality Standards

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ADM-150

- 1. Understand The Ethical And Legal Responsibilities Of A Medical Transcriptionist**
 - 1.1 Identify the background and importance of medical records
 - 1.2 Understand why medical terminology is so vital
 - 1.3 Define and explain the purpose of a medical report or record
 - 1.4 Define privileged and nonprivileged information
 - 1.5 Enumerate the guidelines for release of information from both the private medical office and the hospital
 - 1.6 Explain the importance of subpoenas for patient records
 - 1.7 Assemble a reference notebook
- 2. Demonstrate Knowledge Of Punctuation Rules For Medical Documents**
 - 2.1 Demonstrate the ability to use reference materials to select the proper punctuation needed in unfamiliar copy
 - 2.2 Demonstrate the ability to use proper punctuation marks accurately by inserting punctuated copy
- 3. Demonstrate Knowledge Of Capitalization Rules For Medical Documents**
 - 3.1 Demonstrate the ability to capitalize words accurately from copy prepared in lower case letters
 - 3.2 Explain the special uses of capital letters in the preparation of medical reports and correspondence
 - 3.3 Use reference materials to check unfamiliar medical and business terms
- 4. Demonstrate Ability To Transcribe Numbers, Figures, And Abbreviations**
 - 4.1 Explain when a number should be keyed as a figure, keyed in spelled-out form, or keyed as a roman numeral
 - 4.2 Key medical and business symbols and abbreviations when appropriate
 - 4.3 Demonstrate ability to prepare accurately keyed material containing numbers, symbols, and abbreviations commonly found in medical writing
- 5. Demonstrate Knowledge Of Letter Transcription**
 - 5.1 Appraise the value of an attractive letter to a business

- 5.2 Assess how the business letter reflects the public image of a medical practice
- 5.3 Describe the specific qualities that make a letter mailable
- 5.4 Demonstrate the three basic mechanical formats of letter preparation
- 5.5 Demonstrate the ability to paragraph properly and to place a letter attractively on a page
- 5.6 Use a specific letter format in preparation of a letter from copy keyed as a single paragraph
- 5.7 Prepare envelopes using the recommended U.S. Postal Service procedure
- 5.8 Prepare a two-page letter following the rules for multiple-page letters
- 6. Demonstrate Ability To Proofread And make Corrections On Medical Documents**
 - 6.1 Demonstrate the ability to proofread for possible errors and mark document for revision
 - 6.2 Demonstrate the ability to use and recognize formal proofreader's symbols
 - 6.3 Redo a document that has been marked for revision
 - 6.4 Identify and correct errors after editing phrases, sentences, and documents
- 7. Demonstrate Ability To Spell Correctly, Divide Words, And Use References**
 - 7.1 Locate the spelling of medical terms by using a medical dictionary
 - 7.2 Find medical terms by the use of cross references
 - 7.3 State the type of book(s) used to locate medical words to enhance research skills
 - 7.4 Name resources for locating newly coined medical terms
 - 7.5 Identify where English words and medical words are divided
 - 7.6 Select correct English and medical words to increase spelling skills
 - 7.7 Identify appropriate compound English and medical words in a sentence
 - 7.8 Identify French and other unusual medical terms
 - 7.9 Use the *Physicians' Desk Reference* as a drug speller and to identify generic and brand-name drugs
 - 7.10 Demonstrate ability to state whether a laboratory result is high, low, or within the normal range
- 8. Identify Word Endings: Plurals, Nouns, And Adjectives**
 - 8.1 Explain the rules for making medical and English words plural
 - 8.2 Identify adjective and noun endings
 - 8.3 Construct plural and adjective endings of medical terms
- 9. Identify Antonyms, Eponyms, And Homonyms**
 - 9.1 Identify words that sound alike but have different meanings and different spellings
 - 9.2 Define the difference between the terms *antonym*, *eponym*, and *homonym*
 - 9.3 Locate eponyms in the medical dictionary
- 10. Demonstrate Ability To Key Medical Chart Notes And Progress Notes**
 - 10.1 Explain the necessity of keying accurate notes on patient progress
 - 10.2 Demonstrate the proper procedure and format for transcribing patient medical chart notes
 - 10.3 Use the different methods employed in preparing medical chart notes
 - 10.4 Recognize and correct any erroneous entry made into the medical record
 - 10.5 List the basic information to be found in patient notes in emergency departments and medical offices
- 11. Demonstrate Ability To Key A History And Physical Report**
 - 11.1 Identify the various mechanical formats used to prepare a history and physical report
 - 11.2 Explain why certain information is obtained from the patient and recorded
 - 11.3 Describe the many different ways of gathering and dictating vital medical data
 - 11.4 Prepare a formal history and physical report using variety of acceptable styles

- 11.5 Make a template for a standard history and physical report
- 12. Demonstrate Ability To Prepare Miscellaneous Medical Reports**
 - 12.1 Identify the kind of information that appears in various medical reports
 - 12.2 Prepare a discharge summary, operative report, pathology report, radiology report, consultation report, autopsy protocol, and medico-legal report
 - 12.3 List the kind of information that appears in a medico-legal report
 - 12.4 Explain the differences in typing a medical report versus an autopsy protocol
- 13. Compose Business Letters And Make Travel Arrangements**
 - 13.1 Identify the various types of letters used in a private office
 - 13.2 Compose a letter for an employer's signature
 - 13.3 Compose letters for signatures under a variety of circumstances
 - 13.4 Recognize and use the rules for writing effective business letters
 - 13.5 Make travel arrangements, including hotel accommodations, transportation, and itineraries
- 14. Key Reports, Memos, Minutes, And Agendas**
 - 14.1 Explain proper report format
 - 14.2 Key an agenda for a meeting
 - 14.3 Record, prepare and key minutes for a meeting in correct format
 - 14.4 Prepare an intraoffice memo for an employer's signature
- 15. Key Manuscripts And Abstracts**
 - 15.1 Define words concerned with the keying and editing of manuscripts and abstracts
 - 15.2 Key a manuscript, abstract, or speech in correct format

BIO-163

- 1. Understand the following basic concepts body organization.**
 1. Define: anatomy, physiology and organization.
 2. Write the nine levels of organization of the life in order, being able to explain what is level is.
 3. Describe the position of the body when it is in anatomical position. Explain why anatomical position is important.
 4. Define and use these terms associated with the relative positions of body parts: superior, inferior, anterior (prone, supine), posterior, ventral, dorsal, medial, lateral (intermediate) , proximal, distal, superficial (external), deep (internal), central and peripheral.
 5. Define: plane and section.
 6. Define and use these terms associated with the planes and sections of the body: sagittal plane, midsagittal plane, transverse plane, frontal plane, coronal plane, longitudinal section and cross section.
 7. Define, identify on the body and use these terms associated with body regions: axial portion (also what it includes), appendicular portion (also what it includes), cephalic, cranial, frontal, occipital, oral, nasal, ophthalmic, cervical, pectoral, mammary, axillary, vertebral, costal, celiac, pelvic, gluteal, inguinal, groin, lumbar, sacral, perineal, brachial,

antebrachium, carpal, cubital, palmar, thigh (femoral) lower leg, popliteal, pedal, and cutaneous.

8. Name these cavities of the body, giving their location: dorsal cavity (cranial cavity, spinal cavity) ventral cavity (thoracic cavity [pleural cavities (2), pericardial cavity and mediastinum], abdominopelvic cavity [abdominal cavity, pelvic cavity]).
9. Explain the relationship of the diaphragm to the thoracic cavity and the abdominopelvic cavity.
10. Name, give the position of and name some organs that are in each of the abdominal quadrants.
11. Name and give the function of each of the 11 organ systems of the human.
12. Explain what is meant by homeostasis.
13. Explain the importance of these factors in maintaining homeostasis: environment, negative feedback, positive feedback, disease, local disease, systemic disease, acute disease and chronic disease.

2. Understand the following basic concepts chemistry.

1. Define: element and atom.
2. Name and give the symbols of the 4 biologically important elements.
3. Explain what these are: isotope and radioactive isotope.
4. Explain what these are, name an example of each: molecule, organic molecule and inorganic molecule.
5. Write the amount of water in the body.
6. Define: solvent, solute and solution, naming the universal solvent in the body.
7. Explain what an electrolyte is and name three examples.
8. Explain what is meant by pH.
9. Write the normal pH of the body, giving the normal range of pH and what is meant by acidosis and alkalosis.
10. Name the four organic macromolecules.
11. Describe carbohydrates.
12. Describe lipids.
13. Describe proteins.
14. Describe nucleic acids.
15. Understand the importance of molecular shape controlling molecular function.

3. Understand the following basics about cell structure and function.

1. Give some generalities about cells.
2. Name, identify on a diagram, give the function and structure of these cell parts: plasma membrane, nucleus and cytoplasm.
3. Name, identify on a diagram, give the function and structure of these parts of the nucleus: nuclear envelope, nucleoplasm, chromatin, chromosomes. and nucleolus.
4. Name, identify on a diagram, give the function and structure of these parts of the cytoplasm:

ribosomes
endomembrane system
endoplasmic reticulum
Golgi apparatus
lysosomes
mitochondria
centrioles
cilia and flagella

5. Explain why membrane transport is important.
6. Name the three types of membrane transport, explaining briefly how each functions and why it is important: passive transport, active transport and endocytosis and exocytosis.
7. Describe the process and importance of each of these passive transport processes: diffusion, osmosis and filtration.
8. Explain why cell division is important.
9. Explain what mitosis is, why it is important and in what cells it occurs.
10. Explain what meiosis is, why it is important and in what cells it occurs.

4. Understand the following basics about tissues.

1. Name the 4 body tissues, giving the characteristics of each.
2. Write the characteristics of these epithelial tissues, giving some typical places where each tissue can be found: simple squamous epithelium, simple cuboidal epithelium, simple columnar epithelium and stratified squamous epithelium.
3. Write the function of each of the tissues in number 2.
4. Name these types of connective tissue, giving the structure, function and location in the body of each: adipose connective tissue, fibrous connective tissue, cartilage, bone and blood.
5. Describe the structural and functional characteristics of these types of muscle. Give the typical places in the body where these may be found.: skeletal muscle, smooth muscle and cardiac muscle.
6. Describe the structural and functional characteristics of nervous tissue. Name the two cell types.
7. Name and describe and give the typical places in the body where these membranes are found: mucous membranes, serous membranes, synovial membranes, meninges and cutaneous membranes.

5. Understand the following basic about the integumentary system.

1. Describe the basic gross structure of the skin including where it is found, its approximate surface area, how it is attached to the underlying muscle or bone and the alternative name for the skin.
2. Name the two layers of the skin, naming the tissue that makes up each layer.(identify of a diagram).

3. Name and give the functions of each of these layers or cells of the epidermis (identify on a diagram also): stratum germinativum (stratum basale), melanocytes, stratum corneum and keratin.
4. Explain where the blood supply for the skin is located, relate this to decubitus ulcers and their prevention.
5. Describe what forms finger prints.
6. Explain what the subcutaneous layer is composed of and where it is located.
7. Name the tissue that hair and nails grow from.
8. Name the structure that hair grows from, the structure that causes hair to stand on end and these hair structures: hair follicle, hair root, hair shaft and sebaceous gland. (identify of diagrams)
9. Write where hair is found on the body.
10. Describe the three functions of the sweat glands.
11. Name the skin glands that are associated with acne.
12. Explain what the mammary gland type is and the gland structure.
13. Describe the functions of skin: protection, synthesis of vitamin D, sensory reception and communication and regulation of body temperature.
14. Explain what hyperthermia (heat exhaustion, heat stroke, fever) and hypothermia are.

6. Understand the following basic of the skeletal system.

1. Describe the functions of the skeletal system.
2. Describe and identify on a diagram the structures of a long bone: periosteum, epiphysis, diaphysis, medullary cavity, yellow marrow, red marrow, articular cartilage, compact bone, spongy bone
3. Name and describe the two ways that bone is formed, giving where each process occurs.
4. Name and describe the characteristics of each of these types of fracture: simple, compound, complete, partial, greenstick, impacted, comminuted and spiral.
5. Explain the process of fracture repair.
6. Name the parts of the axial skeleton and the appendicular skeleton.
7. Identify these bones and structures of the skull:
 - cranial bones**
frontal bone (frontal sinus), parietal bones, occipital bone (foramen magnum), temporal bones, sphenoid bone and ethmoid bone.
 - facial bones**
maxillary bones, palatine bones, zygomatic bones, lacrimal bones, nasal bones, vomer bone, inferior nasal conchae and mandible.
8. Identify these bones and structures of the vertebral column and thoracic cage:
 - Parts of the vertebrae:**
body, spinous process, vertebral arch (pedicle, laminae), vertebral foramen, transverse process and intervertebral disk.
 - types of vertebrae:**

cervical vertebrae (atlas, axis), thoracic vertebrae, lumbar vertebrae, sacral vertebrae (sacrum) and coccyx.

9. Explain what a herniated disk and a slipped disk are.
 10. Identify these bone of the **thoracic cage**: rib (true ribs, false ribs, floating ribs), costal cartilage, sternum (manubrium, body, xiphoid process).
 11. Write the number of ribs of each type.
 12. Identify these bones and structures of the pectoral girdle and upper limb: **pectoral girdle**: clavicle and scapula
upper limb: humerus (head, surgical neck), radius, ulna (olecranon process), carpal bones (proximal row, distal row), metacarpal bones and phalanges (proximal phalanx, middle phalanx and distal phalanx).
 13. Identify these bones and structures of the pelvic girdle and lower limb:
pelvic girdle: Coxal bone (acetabulum, ilium, iliac crest, anterior superior iliac spine, posterior superior iliac spine, ischium, ischial tuberosity, pubis, symphysis pubis).
lower limb: femur (head, greater trochanter, lateral epicondyle, medial epicondyle), patella, tibia (medial malleolus), fibula (lateral malleolus), tarsal bones (calcaneus), metatarsal bones and phalanges (proximal phalanx, middle phalanx, distal phalanx)
 14. Describe the true pelvis and the false pelvis.
 15. Describe the basic differences between the male and female pelvises.
 16. Identify these types of joints and give the structure and amount of movement of each:
Fibrous joints: Sutures of Skull: coronal suture, sagittal suture, lambdoidal suture and squamosal suture.
Cartilaginous joints: Intervertebral discs, Pubic symphysis
Synovial joints:
 17. Identify and describe these parts of a synovial joint: joint cavity, articular cartilage, ligaments, joint capsule, synovial membrane, synovial fluid and meniscus (of knee joint).
 18. Explain what bursae are and why they are important.
 19. Describe these types of synovial joints: ball-and-socket joint, condyloid joint, gliding joint, hinge joint, pivot joint, saddle joint
 20. Define and identify these types of joint movement: flexion, extension, hyperextension, abduction, adduction, rotation, supination, pronation, circumduction, eversion, inversion, elevation, depression, protraction, retraction, dorsiflexion and plantar flexion
 21. Describe osteoporosis.
- 7. Understand the following basic concepts of the muscular system.**
1. Name the three types of muscle, giving the characteristics of each.
 2. Describe the structure of a skeletal muscle: fascia, epimysium, perimysium, endomysium, fascicle, muscle fiber (muscle cell) and myofilaments (actin and myosin).
 3. Explain what is meant by a motor unit, giving various sizes and why the sizes vary.
 4. Explain what the relationship is between the nerve and the skeletal muscle.
 5. Explain what is meant by the all-or-none law, muscle twitch, summation and tetanus.
 6. Explain how a skeletal muscle contracts and its source of energy.
 7. Differentiate between isotonic and isometric contraction.

8. Explain what these terms mean: muscle tone hypertrophy and atrophy.
9. Identify these muscle by description or on a diagram:

Muscles of the face, head and neck:

1. platysma 2. masseter 3. temporalis 4. sternocleidomastoid

Muscles that move the pectoral girdle:

5. trapezius 6. serratus anterior 7. pectoralis minor

Muscles that move the arm:

8. pectoralis major 9. latissimus dorsi 10. deltoid

Muscles that move the antebrachium:

11. biceps brachii 12. brachialis 13. brachioradialis 14. triceps brachii

Muscles of the abdominal wall:

15. external oblique 16. internal oblique 17. transverse abdominis 18. rectus abdominis

Muscles that move the thigh:

19. gluteus maximus 20. gluteus medius 21. gluteus minimus 22. tensor fasciae latae (iliotibial tract) 23. adductor muscles (3) 24. gracilis

Muscles that move the leg:

25. hamstrings (3) 26. sartorius 27. quadriceps femoris 28. rectus femoris 29. vastus lateralis 30. vastus medialis

Muscles that move the foot:

31. tibialis anterior 32. peroneus muscles (3) 33. gastrocnemius 34. soleus

8. Understand the following basic concepts of the nervous system.

1. Name and describe the type of response of the two control systems of the body.
2. Name the two divisions of the nervous system, naming the parts of each and the location of each.
3. Describe the three functions of the nervous system.
4. Name the two types of cells of the nervous system.
5. Name and give the function of each of the three types of neurons.
6. Explain what the difference is between a myelinated neuron and a nonmyelinated neuron.
7. Explain how multiple sclerosis is related to the myelin.
8. Explain what a nerve impulse is.
9. Describe the structure and function of the synapse.
10. Differentiate between a neuron and a nerve.
11. Explain what a reflex is and what a reflex arc is.
12. Name the cavities of the brain, explain what they are filled with.
13. Identify these parts of the brain, giving the basic function of each: **brain stem** (medulla oblongata, pons and midbrain), **diencephalon** (thalamus, hypothalamus), **cerebellum** and **cerebrum**.
14. Name the lobes of the cerebrum, giving the functions of each lobe.

15. Identify these functional regions of the cerebrum: motor area, motor speech area (Broca's area), cutaneous sensory area, auditory area, visual area, general interpretative area and problem solving area.
 16. Describe the structure of the spinal cord, including these structures: Posterior median sulcus, Anterior median fissure, Central canal, Gray matter, White matter, Dorsal root of the spinal nerve, Dorsal root ganglion of the spinal nerve, Ventral root of the spinal nerve, and Vertebral number where the spinal cord ends.
 17. Name and describe the position of the meninges around the brain and spinal cord: Dura mater, Pia mater, Arachnoid mater, Epidural space, Subarachnoid space
 18. Explain where cerebrospinal fluid is produced and where it goes.
 19. Name the parts of the peripheral nervous system: Somatic Nervous System (cranial nerves and spinal nerves), Autonomic Nervous System (sympathetic and parasympathetic).
 20. Describe the structure and function of the autonomic nervous system.
- 9. Understand the following basics of the sensory system.**
1. Name the three locations of general sensory receptors.
 2. Name and give an example of each of these types of specialized sensory receptors: chemoreceptors, photoreceptors and mechanoreceptors.
 3. Describe and identify on a diagram, the following eye accessory organs: conjunctiva, lacrimal apparatus, lacrimal gland, canaliculi (lacrimal canal), lacrimal sac, nasolacrimal duct and extrinsic muscles.
 4. Describe and identify on a diagram, the following eye structures: cornea, sclera, optic nerve, choroid coat, ciliary body, lens, iris, anterior cavity, pupil, retina and posterior cavity.
 5. Explain what macular degeneration is, explaining the difference between "wet" and "dry" macular degeneration.
 6. Describe and identify on a diagram, the following ear structures: **external ear** (auricle, external auditory meatus), **middle ear** (tympanic membrane, auditory ossicles (malleus, incus, stapes), oval window, round window, auditory tube), **inner ear** (cochlea, semicircular canals, vestibule), **vestibulocochlear nerve** (vestibular nerve, cochlear nerve).
 7. Explain what conduction deafness and nerve deafness are.
- 10. Understand the following basic concepts of the endocrine system.**
1. Explain how the endocrine system functions in controlling body functions.
 2. Explain what a hormone is and how it can function.
 3. Name the two classes of hormones and basically how each functions.
 4. Name and give the location of each of these endocrine glands: hypothalamus, posterior pituitary gland, anterior pituitary gland, thyroid gland, parathyroid gland, adrenal medulla, adrenal cortex, pancreas, testes, ovaries, thymus and pineal gland.
- 11. Understand the following basic concepts of blood.**
1. Name these components of blood: matrix (plasma) and formed elements (erythrocytes [RBC's], leukocytes [WBC's], thrombocytes [platelets]).

2. Give the function of each of these components of blood: plasma, erythrocytes, leukocytes and thrombocytes.
 3. Explain what is meant by a hematocrit (HCT), giving the normal values and explain what the HCT looks like.
 4. Define: anemia and polycythemia
 5. Describe the structure and components of erythrocytes.
 6. Write the normal RBC count for males and females, and the longevity of the RBC.
 7. Write the function of the RBC.
 8. Explain how WBC's differ in appearance from RBC's.
 9. Describe where WBC's and RBC's are found.
 10. Write the normal WBC count.
 11. Describe the physical and functional differences between these WBC's: granulocytes (neutrophils, eosinophils and basophils) and agranulocytes (monocytes and lymphocytes). Give the % of total WBC's for each type of WBC.
 12. Describe the structure and source of thrombocytes, the normal count and function.
 13. Define: thrombocytopenia and hematopoiesis.
 14. Explain where hematopoiesis occurs, the two stem cell types and what they form.
 15. Discuss bone marrow transplants (possible causes, where marrow is extracted for diagnosis, what the process is called, and how a transplant is done.
 16. Explain what causes an increase or decrease in RBC formation.
 17. Write the characteristics of plasma. (% H₂O, different proteins and what they do, and other solutes (food metabolic wastes, respiratory gases, regulatory substances and inorganic salts).)
 18. List and describe the 7 functions of blood.
 19. Name and describe where each of these chemicals is transported from and to: oxygen, carbon dioxide, urea and nutrients (glucose, amino acids, fats).
 20. Describe the exchange of fluid, oxygen, glucose wastes and carbon dioxide between capillaries and tissues.
 21. Describe the two processes for preventing fluid loss from the blood vessels.
 22. Describe the two processes of clot formation.
 23. Define these terms: serum, thrombus, embolus, thromboembolism and transfusion.
 24. Explain what hemophilia A is.
 25. Explain the ABO blood typing system. Include the type of and location of agglutinogens (self antigens), agglutinins (self antibodies) and an explanation of agglutination.
 26. Compare agglutination and coagulation.
 27. Explain the Rh system. Include the agglutinogens and agglutinins present. Why is Rh important?
 28. Explain how and why blood typing is done.
- 12. Understand the following basic concepts of the circulatory system.**
1. Write the functions of the circulatory system.
 2. Define cardiology.

3. Describe the location, function, size and orientation of the heart.
4. Name and describe the structure of the pericardium: fibrous pericardium, parietal pericardium, pericardial cavity, visceral pericardium (epicardium), and pericardial fluid.
5. Name and describe the structure of the heart wall: epicardium, myocardium and endocardium.
6. Name and describe the structure and function of each of these heart structures: R. atrium (R. atrioventricular valve (tricuspid valve) S-A node, A-V node), R. ventricle (papillary muscle, chordae tendineae, pulmonary semilunar valve), L. atrium (L. atrioventricular valve (bicuspid valve)), L. ventricle (papillary muscle, chordae tendineae, aortic semilunar valve).
7. Trace a drop of blood through the heart, listing all structures the blood passes through.
8. Trace a drop of blood through the coronary circulation, listing all structures the blood passes through.
9. Name these blood vessels that bring blood to and from the heart, writing where each goes or comes from: superior vena cava, inferior vena cava, coronary sinus, pulmonary trunk(artery), R. and L. pulmonary artery, ascending aorta, coronary arteries, coronary veins, aortic arch, thoracic aorta and abdominal aorta.
10. Name and describe the three routes of circulation from the heart: coronary circulation, pulmonary circulation and systemic circulation.
11. Name the parts of the heart where the blood enters the heart and where it comes from. Also name the part of the heart where the blood leaves the heart and where it goes.
12. Explain what is meant by: stroke volume, heart beat rate and cardiac output. Explain how these are related.
13. Describe the cardiac cycle, explaining what is occurring and the time segments involved.
14. Describe the cause of the different heart sounds.
15. Explain what congestive heart failure is and how it can be treated.
16. Describe the electrical conduction across the heart. (pacemaker [sino-atrial node], AV node, AV bundle, R and L bundle branch and Purkinje fibers.
17. Describe the nerve supply of the heart. (Efferent nerves [parasympathetic nerves, Vagus N. and sympathetic nerves] and afferent nerves.) Explain what stimulation of each causes.
18. Describe the control of the heart beat rate (intrinsic control and extrinsic control).
19. Explain what collateral circulation is and why it is important.
20. Explain what angina pectoris and myocardial infarction are and what causes them.
21. Explain/define: atherosclerosis, plaque, ischemic heart disease and thromboembolism.
22. Describe/explain these procedures associated with occluded coronary arteries: thrombolytic therapy (balloon angioplasty) and coronary bypass operation.
23. Explain how an electrocardiogram is done, what the different wave forms show and why an ECG is done.
24. Describe the structure of arteries, veins and capillaries.
25. Name and describe the differences between the various types of arteries and veins.

26. Define/explain these terms: varicose veins, hemorrhoids, phlebitis and pulmonary embolism.
27. Identify the following pulmonary circulation vessels on a diagram: pulmonary trunk, R and L pulmonary A., arterioles, capillaries of the lung, venules, R and L pulmonary V.
28. Trace a drop of blood through pulmonary circulation using the above vessel names.
29. Identify the following systemic circulation arteries: Aorta (ascending aorta, aortic arch, descending thoracic aorta, descending abdominal aorta, R and L coronary A., brachiocephalic A., L common carotid A., L. subclavian A., R. common carotid A., R. subclavian A., internal carotid A., external carotid A., vertebral A. axillary A., brachial A., radial A., ulnar A., celiac A., renal A., ovarian A., testicular A., common iliac A., external iliac A., internal iliac A., femoral A. and popliteal A.
30. Identify the following system circulation veins: internal jugular V., external jugular V., subclavian V., brachiocephalic V., superior vena cava, ulnar V., basilic V., axillary V., radial V., brachial V., cephalic V., median V., median cubital V.,hepatic V. inferior vena cava, suprarenal V., renal V., external iliac V., internal iliac V., common iliac V., great saphenous V., femoral V., anterior tibial V., posterior tibial V., popliteal V., and hepatic portal V.,
31. Trace a drop of blood through systemic circulation, from one part of the body to another part of the body.
32. Describe the fetal circulation.
33. Describe the fetal heart differences from the post natal heart.
34. Explain what causes the pulse, what pulse pressure is, where pulse can be taken specifically, and the relationship between heart strength and pulse strength.
35. Define: diastolic pressure, systolic pressure.
36. Explain what is happening during diastolic pressure and systolic pressure and relate this to pulse.
37. Explain what blood pressure is and explain how it can be raised or lowered by the body.
38. Explain what happens to the pulse pressure as the blood passes from the arteries to the veins.
39. Give the blood pressure in the different vessels.
40. Give the normal blood pressure values and the level at which the pressure can be considered hypertensive.

13. Understand the following basic concepts of the lymphatic system.

1. Name the components of the lymphatic system.
2. Write the functions of the lymphatic system.
3. Explain what lymph is.
4. Explain what edema is and what causes it.
5. Name and describe the four different lymph vessels.
6. Name and give the basic structure and function of these lymph organs: spleen, lymph nodes and thymus.
7. Explain what is meant by immunity and why it is important.
8. Name the two types of defense of the body.

9. Describe nonspecific defenses in general
10. Describe the barriers to entry of the immune system.
11. Describe the inflammatory reaction, the chemical involved and the cellular defense.
12. Describe the two types of protective proteins, complement and interferon.
13. Explain what is meant by: antigen, antibody and immunoglobulin.
14. Name the cells which produce antibodies.
15. Describe the structure of a simple antibody called IgG.
16. Name the cells involved in specific defense of the immune system.
17. Describe the function of B cells and the two cells which B cells produce (plasma cells and memory B cells)
18. Explain what is meant by antibody-mediated immunity (humor immunity) and cell-mediated immunity.
19. Describe the function T cells and the role of two of the cells they form (killer T cells and helper T cells).
20. Explain what major histocompatibility complex (MHC) is and why it is important.
21. Explain what is meant by active immunity and passive immunity, how each is acquired and why each would be used.
22. Explain what is meant by antibody titer and booster immunization.
23. Describe the mechanism for each of these harmful effects of the immune system: allergies, tissue rejection, autoimmune disease and immune deficiency.

14. Understand the following basics of the respiratory system.

1. Write the four functions of the respiratory system.
2. Describe the structure and function of each of these respiratory organs: **nose** (nasal cavity, median septum, deviated septum, conchae, olfactory receptors, paranasal sinuses, hard palate and soft palate), **Pharynx** (nasopharynx, auditory tubes pharyngeal tonsils, oropharynx, palatine tonsils, lingual tonsils, tonsillectomy, laryngopharynx), **larynx** (thyroid cartilage, glottis, epiglottis, vocal folds, false vocal folds), **trachea** (tracheal rings), **bronchi** (Right and Left), **bronchioles**, **alveoli** and **lungs**.
3. Explain what is meant by the respiratory membrane.
4. Explain why a surfactant is important in the alveoli. How is this a problem for premature babies?
5. Explain what is meant by ventilation.
6. Describe the membranes, cavity and fluid around the lung.
7. Explain what is meant by pneumothorax.
8. Describe the process of inspiration and expiration.
9. Explain how inspiration and expiration are controlled.
10. Give the meaning of and the average capacities of these lung volumes: tidal volume, vital capacity, inspiratory reserve volume, expiratory reserve volume and residual volume.
11. Explain what dead space is and why it is important.
12. Define these terms: internal respiration and external respiration.

13. Explain what is meant by partial pressure of a gas and explain why this is important in gas exchange between the atmosphere and the blood and the blood and the cells.
14. Explain how oxygen is transported and how carbon dioxide is transported in the blood.
15. Explain what happens to the gases during internal respiration and during external respiration.
16. Name the causative agent and describe the effects of the agent associated with these respiratory infections: common cold, influenza, bronchitis and strep throat.
17. Describe the cause of these lung disorders and the effects on the patient: pneumonia, tuberculosis, emphysema, pulmonary fibrosis and lung cancer.

15. Understand the following basic concepts of the digestive system.

1. Explain what the alimentary canal and enteron are.
2. Name and know the meaning of each of the 4 functions of the digestive system.
3. Describe the structure and function of the mouth. Include these structures: oral cavity, hard palate, soft palate, uvula, fauces, tongue, papillae, taste buds, lingual tonsil, lingual frenulum, salivary glands(parotid gland, sublingual gland, submandibular gland), deciduous teeth and permanent teeth.
4. Explain where saliva is produced, what it is composed of and its functions.
5. Describe the location, three parts of the pharynx.
6. Describe the pharyngeal reflexes associated with swallowing.
7. Describe the location, structure and function of the esophagus. Include these parts: pharyngeoesophageal sphincter and gastroesophageal sphincter.
8. Explain the meaning of: bolus, peristalsis, antiperistalsis, heartburn, reflux and hiatal hernia.
9. Describe the location, structure and function of the stomach. Include these terms: chyme, HCl, pepsin, gastric glands and pyloric sphincter.
10. Describe the role of mucus, HCl and Helicobacter pylori in ulcer development.
11. Describe the location, structure and function of the small intestine. Include the three sections of the small intestine and the villi.
12. Describe the location, structure and function of the large intestine. Include these terms: ileocecal valve, cecum, vermiform appendix, colon (ascending colon, transverse colon, descending colon, and sigmoid colon), rectum, anus and anal canal.
13. Explain the process and importance of diarrhea and constipation.
14. Explain the importance of E. coli.
15. Describe these disorders of the large intestine: appendicitis, diverticulosis, polyps and this procedure: colostomy.
16. Name the accessory organs of the digestive system.
17. Name the two parts of the pancreas. Give the functions of each part.
18. Explain what each of these is: acute pancreatitis and pancreatic cancer.
19. Describe the location, structure and function of the liver.
20. Describe bile formation
21. Explain what jaundice is and these cause of each of these forms: obstructive jaundice, hemolytic jaundice, and physiologic jaundice.

22. Explain the importance of controlling jaundice and how physiologic jaundice is controlled in the new born.
23. Describe the location, structure and function of the gall bladder.
24. Describe where chemical digestion starts, continues and ends. Name the molecules digested and some enzymes associated with each molecule.
25. Name the three organic molecules that makeup food.
26. Give the importance and the type of molecule: vitamins, minerals.

16. Understand the following basic concepts of the urinary system.

1. Name the primary organs of the urinary system.
2. Name the secondary excretory organs.
3. Define: defecation and excretion.
4. List and functions of the urinary system.
5. Describe the position and structure of the kidney. Be sure to include the blood supply and the anatomy of the nephron.
6. Describe the position and the structure of the ureter, urinary bladder and urethra.
7. Name and describe the three processes used to form urine.
8. Explain why urine is concentrated or dilute.
9. Define: urinalysis.
10. Give the % of urine that is water and that is solute.
11. Name the solutes of urine and the approximate amounts of various nitrogenous wastes: nitrogenous wastes (urea, creatinine, ammonia, uric acid), electrolytes (sodium, potassium, magnesium, calcium, chloride, sulfates, phosphates), toxins, pigments, hormones, and abnormal constituents (blood, glucose, albumin, casts, calculi and bacteria).
12. Give the range of pH and specific gravity for urine.
13. Give the water content of males, females and fat people in %.
14. Give the location of water in the body, and the approximate percentage values.
15. Explain what the relationship is between fluid intake and outflow, and how fluid gets in and out of the body.
16. Describe the hormonal control of electrolytes: ADH, aldosterone and atrial natriuretic hormone.
17. Describe the two factors which may change the body fluid pH.
18. Explain what is meant by: respiratory acidosis, respiratory alkalosis, metabolic acidosis and metabolic alkalosis.
19. Explain the impact of the the respiratory system and the urinary system on each of the above acidosis or alkalosis situations.

17. Understand the following basic concepts of the reproductive system.

1. Explain why the reproductive system is unique in its development, as compared to other systems.
2. Describe the functions of the reproductive system.

3. Describe the structure and function of these male reproductive structures: testes, scrotum, seminiferous tubules, epididymis, interstitial cells, vas deferens, ejaculatory duct, spermatic cord, testicular A., testicular V., lymphatics and inguinal ligament.
4. To explain what cryptorchidism is.
5. Explain what spermatogenesis is and where it occurs. Where does spermatozoan maturation occur?
6. Describe the structure of the sperm and the function of each structure.
7. Explain what an inguinal hernia is and why it occurs.
8. Describe the composition of seminal fluid and where all of the components originate. Give the function and % of seminal fluid, of each component.
9. Describe the structure of the male external genitalia. Explain how an erection can occur.
10. Describe the location and parts of the perineum for both the male and female. To explain what an episiotomy is and why it is done.
11. Describe male organism and its importance.
12. Describe the regulation of male hormones (FSH, LH (ICSH), testosterone) and the function of each.
13. Describe the location and structure of the ovaries.
14. Explain what is meant by oogenesis, to name the process of oogenesis, and when it occurs during a females life.
15. Give the number of eggs at birth, at puberty and the number released during a lifetime.
16. Describe the primary follicle, secondary follicle and Graafian (mature) follicle.
17. Describe the process of ovulation.
18. Describe the location, structure and function of the uterine tubes.
19. Describe the location, structure and function of the uterus. (include the fundus, body, cervix, endometrium, myometrium and perimetrium).
20. Describe the location, structure and function of the vagina.
21. Describe the structure of these parts of the vulva: mons veneris, labia majora, labia minora, glans clitoridis, urethral ostium, vaginal ostium and vestibule.
22. Describe the structure of the mammary glands.
23. Describe female organism and its importance.
24. Name the glands and hormones associated with the female reproductive system.
25. Describe the basic functions of estrogens and progesterone.
26. Describe and name the four phases of the ovarian cycle.
27. Describe what happens after the egg is released under these two situations: Egg is fertilized. Egg is not fertilized.
28. Describe the three phases of the uterine cycle.
29. Define: sterile and infertile.
30. Explain what is meant by STD.
31. Name the STD, give its causative agent, how it is spread, and the result of its action on the body: AIDS, genital herpes, genital warts, gonorrhoea, chlamydia and syphilis.

HIT-211

1. Discuss the legal considerations of medical insurance.
2. Explain the life cycle of an insurance claim.
3. Correctly use terminology common to all insurance programs.
4. Abstract pertinent information from medical chart notes for claims processing.
5. Analyze diagnoses for locating the correct ICD-9 Diagnostic Codes.
6. Correctly identify and implement current CPT Procedural Codes.
7. Accurately complete a universal HCFA 1500 claim form.
8. Interpret the Explanations of Benefits.
9. Process reimbursements from third party payers.
10. Distinguish among the principal health insurance plans and the unique characteristics of each.
11. Develop techniques to explain insurance problems to patients.

HSC-114

1. Identify and define various parts of the medical word.
2. Analyze and define medical terms.
3. Correctly spell and pronounce medical terms.
4. Identify and define common medical abbreviations.

MAP-532

1. Gain knowledge of selected diseases in a systematic approach and their selected treatment.
2. Gain knowledge in promoting health and healthful living.
3. Gain knowledge in prevention of disease.
4. Gain knowledge of patient education and resource services.

MTR-112

Psychology or Sociology elective, Humanities or Math elective.