Lymphatic and Immune System Terminology

Course

Medical Terminology

Unit VI

Lymphatic and Immune System

Essential Question

What medical terms are associated with the lymphatic and immune systems

TEKS

130.203 (c) 1(A),(B),(C), (F) 2(B) 4 (A),(B) 5(B),(C),(D),(E)

Prior Student

Learning Basic medical terminology: roots, prefixes and suffixes

Estimated time 4 hours

Rationale Healthcare professionals must have a comprehensive medical vocabulary in order to communicate effectively with other healthcare professionals. They should be able to use terminology related to the lymphatic and immune systems when discussing medications.

Objectives

Upon completion of this lesson, the student will be able to

- Define and decipher common terms associated with the lymphatic and immune systems
- Identify the basic anatomy of the lymphatic and immune systems
- Analyze unfamiliar terms using the knowledge of word roots, suffixes and prefixes gained in the course
- Research diseases which involve the lymphatic and immune systems

Engage

There are numerous video clips on the Internet that relate to the lymphatic and immune systems. Show one of the video clips on Stem-cell transplants and discuss the advances in the medical treatment that have happened in the past few years.

Key Points

Ι.

Lymph

- A. A clear, watery fluid
- B. Surrounds the body's cells
- C. Flows in a system of thin-walled lymph vessels that extends throughout the body (lymphatic system)
- D. Has a close relationship to the blood system, but differs from blood
- E. Rich in two types of white blood cells
 - 1. Lymphocytes
 - 2. Monocytes
- F. The liquid part of lymph contains water, salts, sugar, and metabolic waste (urea, creatinine)
- G. Originated from the blood
- H. Has the same fluid that filters out of tiny blood capillaries into the spaces between cells
 - Interstitial fluid passes continuously into specialized, thinwalled vessels called lymph capillaries, which are found coursing through tissue spaces
 - 2. When the fluid is in the lymph capillaries it is called lymph instead of interstitial fluid

- I. Passes through larger lymph vessels and clusters of lymph tissues (lymph nodes)
- J. Finally reaches large lymph vessels in the upper chest
- K. Large lymph vessels empty into the bloodstream
- II. Functions of the Lymphatic System
 - A. The drainage system to transport needed proteins and fluids that have leaked out of the blood capillaries back into the bloodstream via the veins
 - B. Absorbs lipids (fats) from the small intestine and transports them to the bloodstream
 - C. Defends the body against foreign organisms such as bacteria and viruses
 - D. Lymphocytes and monocytes (originating in the bone marrow, lymph nodes, spleen, and thymus gland) protect the body by producing antibodies and mounting a cellular attack on foreign cells and organisms
- III. Lymphatic System
 - A. Lymph capillaries
 - 1. Begin in the spaces around cells throughout the body
 - 2. Thin-walled tubes that carry lymph from the tissue spaces to larger lymph vessels
 - B. Lymph vessels thicker walled and containing valves to help keep lymph flowing in the right direction
 - C. Lymph Nodes
 - 1. Masses of lymph cells and vessels, surrounded by connective tissue
 - 2. Located along the path of the lymph vessels
 - D. Lymph nodes produce lymphocytes. They also filter lymph and trap substances from infections, and inflammatory and cancerous lesions
 - E. Macrophages are located in lymph nodes as well as the spleen, liver, and lungs
 - 1. Swallow (Phagocytose) foreign substances
 - 2. When bacteria are present in lymph nodes that drain a particular area of the body, the nodes become swollen
 - F. B lymphocytes (B cells)
 - 1. Present in the nodes
 - 2. Produce antibodies
 - G. T lymphocytes (T cells)
 - 1. Attack bacteria and foreign cells
 - 2. Recognize a cell surface protein as foreign, attaching to the foreign or cancerous cells
 - 3. Poke "hoses" in them, injecting them with toxic chemicals

- IV. Major sites of lymph node concentration
 - A. Cervical
 - B. Axillary (armpit)
 - C. Mediastinal
 - D. Inguinal (groin)
 - E. Tonsils masses of lymph tissue in the throat near the back of the mouth
 - F. Adenoids enlarged lymph tissue in the part of the throat near the nasopharynx
- V. Lymph Flow
 - A. All lymph vessels lead toward the thoracic cavity
 - B. Empty into two large ducts in the upper chest
 - 1. The right lymphatic duct drains the right side of the head and the chest
 - 2. Thoracic duct drains the lower body and the left side of the head
 - 3. Both ducts carry the lymph into large veins in the neck, where the lymph then enters the bloodstream
- VI. Spleen
 - A. Located in the LUQ of the abdomen, next to the stomach
 - B. Functions
 - 1. Destruction of old erythrocytes by macrophages
 - 2. Filtration of microorganisms
 - 3. Activation of lymphocytes by antigens filtered from the blood
 - 4. Storage of blood, especially erythrocytes and platelets
 - C. Susceptible to injury a sharp blow to the upper abdomen can cause the spleen to rupture
 - D. A ruptured spleen can lead to a massive hemorrhage
 - 1. Immediate surgical removal may be necessary
 - 2. After the spleenectomy, the liver, bone marrow, and lymph nodes take over the functions of the spleen
- VII. The Thymus Gland
 - A. Located in the upper mediastinum, between the lungs
 - B. Composed of nests of lymphoid cells
 - C. Important in the development of an effective immune system in childhood
 - D. In early development, the thymus lymphocytes learn to recognize and accept the body's own antigens
- VIII. Immune System
 - A. Specialized to defend the body against antigens (toxins, bacterial proteins or foreign blood cells)
 - B. Leukocytes (neutrophils, monocytes, macrophages) are in

tissues throughout the body

- C. Lymphoid organs (lymph nodes, spleen, and thymus) produce lymphocytes and antibodies
- IX. Immunity
 - A. The body's ability to resist foreign organisms and poisons that damage tissues and organs
 - B. Natural immunity
 - 1. Protection inherited and present at birth
 - 2. Not dependent on previous contact with infectious agents
- X. Acquired immunity
 - A. The body's ability to form antibiotics
 - B. Example the common cold; the body produces antibodies after exposure to the cold virus
 - C. These antibodies remain in the body to protect against further infection at a later time
 - D. Vaccinations are an acquired immunity
 - E. Sometimes an immediate immunity is needed as in the case of poisons entering the body antitoxins
 - F. Infections of antibodies, such as immunoglobulins, provide protection against disease
 - G. Babies receive maternal antibodies through the placenta or breast milk after birth
- XI. Immunotherapy
 - A. The use of antibodies, B cells, and T cells to treat diseases such as cancer
 - 1. Monoclonal antibodies (MoAb) are antibodies created in a laboratory by special reproductive (cloning) techniques
 - 2. Vaccines are preparations that contain antigens from tumor cells that stimulate T cells to recognize and kill cancer cells
 - 3. Transfer of immune cells in bone marrow transplantation
- XII. Pathology Immunodeficiency
 - A. Severe Combined Immunodeficiency Disease (SCID)
 - 1. Present at birth
 - 2. Infants are born with a deficiency of B cells and T cells, resulting in a lack of immunity
 - 3. The thymus is small and the children have little or no protection against infection
 - B. Acquired Immunodeficiency Syndrome (AIDS)
 - A group of clinical signs and symptoms associated with suppression of the immune system and marked by opportunistic infections, secondary neoplasms, and neurologic problems

- C. Kaposi Sarcoma
 - 1. Malignancy associated with AIDS
 - 2. Dark purplish skin nodules
- XIII. Pathology Hypersensitivity
 - A. Allergy an abnormal hypersensitivity acquired by exposure to an antigen
 - 1. Allergic rhinitis
 - 2. Systemic anaphylaxis
 - 3. Asthma
 - 4. Hives
 - 5. Atopical dermatitis
 - 6. Atopy a hypersensitivity or allergic state (inherited predisposition)
- XIV. Pathology Malignancies
 - A. Lymphoma
 - 1. A malignant tumor of lymph nodes and lymph tissue
 - 2. Many types of lymphoma
 - B. Hodgkin disease a malignant tumor of lymphoid tissue in the spleen and lymph nodes
 - C. Non-Hodgkin lymphoma follicular lymphoma and large cell lymphoma
 - 1. Mostly B cell lymphomas
 - 2. Rarely T cell malignancies
 - D. Multiple Myeloma a malignant tumor of bone marrow cells
 1. A tumor composed of plasma cells
 - E. Waldenström macroglobulinemia a tumor of malignant B cells
 - 1. Causes blood to become thick and impairs blood passage through capillaries in the brain and eyes
 - F. Thymoma -a malignant tumor of the thymus gland
 - 1. Associated with disorders of the immune system that cause muscular weakness or anemia
- XV. Laboratory Tests
 - A. **CD4⁺ cell count** measures the number of CD4⁺ T cells (helper T cells) in the bloodstream of patients with AIDS
 - B. **ELISA** a screening test to detect anti-HIC antibodies in the blood stream
 - 1. Antibodies to HIV appear within 2 weeks of infection
 - C. Western blot test used to confirm the presence of HIV antibodies
 - D. Immunoelectrophoresis a test that separates immunoglobulins (IgM, IgG, IgE, IgA, IgD)
 - 1. Detects the presence of abnormal levels of antibodies in patients with conditions such as multiple myeloma

E. Viral load test – a measurement of the amount of AIDS virus in the bloodstream

XVI. Clinical Procedures

A. CT – computed tomography scan

- 1. X-ray imaging produces cross-sectional and other views of anatomic structures
- 2. Shows abnormalities of lymphoid organs

XVII. Vocabulary

1		
Term	Meaning	
Acquired	Production of antibodies and lymphocytes after	
Immunity	exposure to an antigen	
Adenoids	A mass of lymphatic tissue in the nasopharynx	
Antibody	A protein produced by B cell lymphocytes to destroy	
	antigens	
Antigen	A substance that the body recognizes as foreign;	
	evokes an immune response. Most antigens are	
	proteins or protein fragments found on the surface of	
	bacteria, viruses, or organ transplant tissue cells	
Axillary nodes	Lymph nodes in the armpit (underarm)	
B cell	A lymphocyte that originates in the bone marrow and	
(B lymphocyte)	transforms into a plasma cell to secrete antibodies.	
	The B refers to the bursa of Fabricuius, an organ in	
	birds in which B cell differentiation occurs	
Cervical nodes	Lymph nodes in the neck	
Complement	Proteins in the blood that help antibodies and T cells	
system	kill their target	
Cytokines	Proteins that aid and regulate the immune response.	
	Examples are interferons and interleukins	
Cytotoxic T cell	A T lymphocyte that directly kills foreign cells (CD8+	
	cell or T8 cell)	
Dendritic cell	A specialized macrophage that digests foreign cells	
	and helps B and T cells to mark antigens for	
	destruction	
Helper I cell	A lymphocyte that aids B cells and cytotoxic I cells	
	In recognizing antigens and stimulating antibody	
	production; also called a CD4+ cell or 14 cell	
immunity	I he body's ability to resist foreign organisms and	
	toxins. This includes natural immunity and acquired	
	Immunity	
Immunogiopulins	Antibodies (gamma globulins) such as IgA, IgE, IgG,	
	Igivi, and igu that are secreted by plasma cells in	
have a the second	response to the presence of an antigen	
Immunotherapy	Use of immune cells, antibodies, or vaccines to treat	

	or prevent disease	
Inguinal Nodes	Lymph nodes in the groin region	
Interferons	Proteins (cytokines) secreted by T cells to aid and	
	regulate the immune response	
Interleukins	Proteins (cytokines) that stimulate the growth of B	
	and T lymphocytes	
Interstitial fluid	Fluid in the spaces between cells. This fluid	
	becomes lymph when it enters lymph capillaries	
Lymph	A thin, watery fluid found within lymphatic vessels	
	and collected from tissues throughout the body. Latin	
	lympha means clear spring water	
Lymph capillaries	The tiniest lymphatic vessels	
Lymphoid organs	Lymph nodes, spleen, and thymus gland	
Lymph node	A collection of stationary, solid lymphatic tissue	
	along the lymph vessels	
Lymph vessel	Carrier of lymph throughout the body; lymphatic	
	vessels empty lymph into veins in the upper part of	
	the chest	
Macrophage	A large phagocyte found in lymph nodes and other	
	tissues of the body	
Iversity Lymph nodes in the area between the lungs in		
nodes	thoracic (chest) cavity	
wonocional	An antibody produced in a laboratory to attack	
antibody	immunotherapy	
	Immunolnerapy	
	Protection that an individual innerits to fight infection	
Plasma cell	A lymphocyte that produces and secretes antibodies.	
Dight Lymphotic	A large lymphotic vegeel in the chect that receives	
	A large lymphalic vessel in the chest that receives	
Spleen	An organ poor the stomach that produces, stores	
Spieen	and eliminates blood cells	
T coll	A lymphocyte that originates in the hone marrow but	
(T lymnhocyte)	matures in the thymus dand: it acts directly on	
(Trymphocyte)	antigens to destroy them or produce chemicals	
	(cytokines) such as interferons and interleukins that	
	are toxic to antigens	
Suppressor T cell	A lymphocyte that inhibits the activity of B and T	
	lymphocytes. Also called a Tred (redulatory T cell)	
Tolerance	The ability of T lymphocytes to recognize and accent	
	the body's own antigens as "self" or friendly. Once	
	tolerance is established, the immune system will not	
	react against the body	
Thoracic duct	The large lymphatic vessel in the chest that receives	
T cell (T lymphocyte) Suppressor T cell Tolerance Thoracic duct	A lymphocyte that originates in the bone marrow but matures in the thymus gland; it acts directly on antigens to destroy them or produce chemicals (cytokines) such as interferons and interleukins that are toxic to antigens A lymphocyte that inhibits the activity of B and T lymphocytes. Also called a Treg (regulatory T cell) The ability of T lymphocytes to recognize and accept the body's own antigens as "self" or friendly. Once tolerance is established, the immune system will not react against the body The large lymphatic vessel in the chest that receives	

	lymph from below the diaphragm and the left side of the body above the diaphragm; it empties the lymph into veins in the upper chest
Thymus gland	Organ in the mediastinum that conditions T lymphocytes to react to foreign cells and aids in the immune response
Tonsils	A mass of lymphatic tissue in the back of the oropharynx
Toxin	Poison; a protein produced by certain bacteria, animals, or plants
Vaccination	Exposure of an individual to a foreign protein (antigen) that provokes an immune response. The response will destroy any cell that possesses the antigen on its surface and will protect against infection. The term comes from the Latin <i>vacca</i> , cow – the first inoculations were given with organisms that caused the disease cowpox to produce immunity to smallpox
Vaccine	Weakened or killed microorganisms, toxins, or other proteins given to induce immunity to infection or disease

XVIII. Combining Forms

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	Combining Form	Meaning	
	immun/o	Protection	
	lymph/o	Lymph	
	lymphaden/o	Lymph node (gland)	
	splen/o	Spleen	
	thym/o	Thymus gland	
	tox/o	Poison	

XIX. Prefixes

Prefix	Meaning
ana-	Again, anew
inter-	Between

XX. Abbreviations

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	Abbreviatio	Meaning
	n	
	AIDS	Acquired Immunodeficiency Syndrome
	CD4 ⁺ cell	Helper T cell
	CD8 ⁺ cell	Cytotoxic T cell
	CMV	Cytomegalovirus – causes opportunistic AIDS-related
		infection

Crypto	Cryptococcus – causes opportunist AIDS-related infections	
ELISA	Enzyme-linked immunosorbent assay (a test to detect anti-HIV antibodies)	
G-CSF	Granulocyte-macrophage Colony-Stimulating Factor – a cytokine secreted by macrophages to promote growth of myeloid progenitor cells and their differentiation to granulocytes	
GM-CSF	Granulocyte-Macrophage Colony-Stimulating Factor – a cytokine secreted by macrophages to promote growth of myeloid progenitor cells and their differentiation to granulocytes	
HAART	Highly active antiretroviral therapy (used to treat AIDS)	
HD	Hodgkin Disease	
Histo	Histoplasmosis – a fungal infection seen in AIDS patients	
HIV	Human Immunodeficiency Virus (causes AIDS)	
HSV Herpes Simplex Virus		
IgA, IgD, IgE, IgG, IgM	Immunoglobulines	
IL1 to IL15	Interleukins	
KS	Kaposi Sarcoma	
MAI	<i>Mycobacterium Avium-Intracellulare</i> complex – a group of pathogens that cause lung and systemic disease in immunocompromised patients	
MoAb	Monoclonal Antibody	
NHL	Non-Hodgkin Lymphoma	
PCP	Pneumocystis pneumonia	
PI	Protease Inhibitor	
RTI	Reverse Transcriptase Inhibitor	
SCID	Severe Combined Immunodeficiency Disease	
T4 cell	Helper T cell (lymphocyte)	
T8 cell	Cytotoxic T cell (lymphocyte)	
Treg	Regulatory I cell (suppressor T cell)	
Тохо	Toxoplasmosis – a parasitic infection associated with AIDS	

Activity

I. Make flash cards of lymphatic/immune system terms and practice putting the terms together with prefixes and suffixes to make new terms.

- II. Complete the Lymphatic/Immune System Vocabulary Worksheet.
- III. Review media terms with the students using review games such as the "Fly Swatter Game" or the "Flash Card Drill" (see the Medical Terminology Activity Lesson Plan -<u>http://texashste.com/documents/curriculum/principles/medical_terminology_activities.pdf</u>)
- IV. Research and report on diseases and disorders from the lymphatic/immune system.

Assessment

Students will complete a written test.

Materials

Access to the internet to find video on Stem-cell transplant Computer and data projector Disease report rubric Index cards Lymphatic/Immune System vocabulary worksheet and Key Markers

Accommodations for Learning Differences

For reinforcement, the student will practice terms using flash cards of the lymphatic/immune system.

For enrichment, the student will collect information on stem-cell research and then present the pros and cons of the research.

National and State Education Standards

National Healthcare Foundation Standards and Accountability Criteria: Foundation Standard 2: Communications

2.21 Use roots, prefixes, and suffixes to communicate information

2.22 Use medical abbreviations to communicate information

TEKS

130.203 (c) (1) The student recognizes the terminology related to the health science industry. The student is expected to:

- (A) identify abbreviations, acronyms, and symbols;
- (B) identify the basic structure of medical words;
- (E) recall directional terms and anatomical planes related to the body structure
- (F) define and accurately spell occupationally specific terms such as those relating to the body systems, surgical and diagnostic procedures, diseases, and treatments.

130.203 (c) (2) (B) employ increasingly precise language to communicate

- 130.203 (c) (4) The student interprets medical abbreviations. The student is expected to:
 - (A) distinguish medical abbreviations used throughout the health science industry; and
 - (B) translate medical abbreviations in simulated technical material such as physician progress notes, radiological reports, and laboratory reports.

130.203(c)(5)(B) translate medical terms to conversational language to facilitate communication;

(C) distinguish medical terminology associated with medical specialists such as geneticist, pathologists, and oncologist

- (D) summarize observations using medical terminology; and
- (E) correctly interpret contents of medical scenarios.

Texas College and Career Readiness Standards

English and Language Arts,

Understand new vocabulary and concepts and use them accurately in reading, speaking, and writing.

1. Identify new words and concepts acquired through study of their relationships to other words and concepts.

2. Apply knowledge of roots and affixes to infer the meanings of new words.

3. Use reference guides to confirm the meanings of new words or concepts. *Cross-Disciplinary Standards*,

I. Key Cognitive Skills D. Academic Behavior: 1. Self monitor learning needs and seek assistance when needed, 3. Strive for accuracy and precision, 4. Persevere to complete and master task. E. Work habits: 1. Work independently, 2. Work collaboratively

II. Foundation Skills A. 2. Use a variety of strategies to understand the meaning of new words. 4. Identify the key information and supporting details.

Lymphatic/Immune System Vocabulary Worksheet

Term	Meaning
Acquired	
Immunity	
Adenoids	
Antibody	
Antigen	
Axillary nodes	
B cell	
(B lymphocyte)	
Cervical nodes	
Complement	
system	
Cytokines	
Cytotoxic T cell	
Dendritic cell	
Helper T cell	
Immunity	
Immunoglobulins	
Immunotherapy	
Inguinal Nodes	
Interferons	
Interleukins	
Interstitial fluid	
Lymph	

Lymph capillaries	
Lymphoid organs	
Lymph node	
Lymph vessel	
Macrophage	
Mediastinal	
nodes	
Monoclonal	
antibody	
Natural immunity	
Plasma cell	
Right Lymphatic Duct	
Spleen	
T cell (T lymphocyte)	
Suppressor T cell	
Tolerance	
Thoracic duct	
Thymus gland	
Tonsils	
Toxin	
Vaccination	
Vaccine	

Lymphatic/Immune System Vocabulary – Key

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(B lymphocyte)	a plasma cell to secrete antibodies. The B refers to the bursa of	
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system		
Cytokines	Proteins that aid and regulate the immune response. Examples are	
	interferons and interleukins	
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	T cells to mark antigens for destruction	
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	antigens and stimulating antibody production; also called a CD4+ cell	
Immunity	The body's ability to resist foreign organisms and toxins. This	
Les en en la la Para	Includes natural immunity and acquired immunity	
Immunoglobulins	Antibodies (gamma globulins) such as IgA, IgE, IgG, IgM, and IgD	
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Immunothoropy	Antigen	
minunomerapy		
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-2b	tissues throughout the body. Latin <i>lympha</i> means clear spring water	
Lymph capillaries	The tiniest lymphatic vessels	
Lymphoid organs	Lymph nodes, spleen, and thymus gland	
Lymph node	A collection of stationary, solid lymphatic tissue along the lymph	
	vessels	

Lymph vessel	Carrier of lymph throughout the body; lymphatic vessels empty	
	lymph into veins in the upper part of the chest	
Macrophage	A large phagocyte found in lymph nodes and other tissues of the	
	body	
Mediastinal	Lymph nodes in the area between the lungs in the thoracic (chest)	
nodes	cavity	
Monoclonal	An antibody produced in a laboratory to attack antigens and destroy	
antibody	cells. It is useful in immunotherapy	
Natural immunity	Protection that an individual inherits to fight infection	
Plasma cell	A lymphocyte that produces and secretes antibodies. It originates	
	from B lymphocytes	
Right Lymphatic	A large lymphatic vessel in the chest that receives lymph from the	
Duct	upper right part of the body	
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	blood cells	
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	possesses the antigen on its surface and will protect against	
	intection. The term comes from the Latin Vacca, cow – the first	
	inoculations were given with organisms that caused the disease	
Veccine	Cowpox to produce immunity to smallpox	
vaccine	vveakened or killed microorganisms, toxins, or other proteins given	
	to induce immunity to intection or disease	

Lymphatic/Immune System Combining Forms Worksheet

Combining Form	Meaning
immun/o	
lymph/o	
lymphaden/o	
splen/o	
thym/o	
tox/o	

Lymphatic/Immune System Prefixes

Prefix	Meaning
ana-	
inter-	

Lymphatic/Immune System Abbreviations

Abbreviation	Meaning
AIDS	
CD4 ⁺ cell	
CD8⁺ cell	
CMV	
Crypto	
ELISA	
G-CSF	
GM-CSF	
HAART	
HD	

Histo	
HIV	
HSV	
IgA, IgD, IgE, IgG, IgM	
IL1 to IL15	
KS	
MAI	
MoAb	
NHL	
PCP	
PI	
RTI	
SCID	
T4 cell	
T8 cell	
Treg	
Тохо	

Combining Form	Meaning
immun/o	Protection
lymph/o	Lymph
lymphaden/o	Lymph node (gland)
splen/o	Spleen
thym/o	Thymus gland
tox/o	Poison

Lymphatic/Immune System Combining Forms – Key

Lymphatic/Immune System Prefixes

Prefix	Meaning
ana-	Again, anew
inter-	Between

Lymphatic/Immune System Abbreviations

Abbreviation	Meaning	
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Crypto	Cryptococcus – causes opportunist AIDS-related infections	
ELISA	Enzyme-linked immunosorbent assay (a test to detect anti-HIV antibodies)	
G-CSF	Granulocyte-macrophage Colony-Stimulating Factor – a cytokine secreted by macrophages to promote growth of myeloid progenitor cells and their differentiation to granulocytes	
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HD	Hodgkin Disease	
Histo	Histoplasmosis – a fungal infection seen in AIDS patients	
HIV	Human Immunodeficiency Virus (causes AIDS)	
HSV	Herpes Simplex Virus	
IgA, IgD, IgE, IgG, IgM	Immunoglobulines	
IL1 to IL15	Interleukins	
KS	Kaposi Sarcoma	

MAI	<i>Mycobacterium Avium-Intracellulare</i> complex – a group of pathogens that cause lung and systemic disease in immunocompromised patients	
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NHL	Non-Hodgkin Lymphoma	
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RTI	Reverse Transcriptase Inhibitor	
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Тохо	Toxoplasmosis – a parasitic infection associated with AIDS	

Disease Report Template	
Disease	
Alternate Names	
Definition	
Etiology	
Signs & Symptoms	
Diagnostic Tests	
Treatment	
Complications	
Prognosis	
Bibliography	