

GLOSSARY

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A

ACUTE:

rapid in onset, aggressive; short-term initial stage of a disease. Contrast with *chronic*.

ADHERENCE:

refers generally to the ability to follow a prescribed treatment regimen, including correct dosage, number of doses per day, and dietary restrictions.

AMINO ACID:

an organic compound that is a basic structural unit of peptides and proteins. There are over 100 amino acids, eight of which are essential for human metabolism.

ANECDOTAL:

refers to evidence based on reports of specific individual cases rather than controlled, clinical studies.

ANEMIA:

the reduced ability of blood to carry oxygen due to a low hemoglobin level, an abnormality, or a reduced number of red blood cells. Symptoms include fatigue and weakness.

ANTIBODY (AB, IMMUNOGLOBULIN, IG):

an immunoglobulin protein secreted by activated plasma cells, which evolve from B cells. Antibodies are present throughout the blood and tissues; they are produced in response to stimulation by foreign antigens as part of the body's defense against disease. Specific antibodies bind to and act upon specific antigens; the antigen/antibody reaction forms the basis of humoral (TH2) immunity. Neutralizing antibodies destroy or inactivate infectious agents, while enhancing antibodies promote infection.

ANTIGEN:

any agent or substance that stimulates an immune response. Antigens are often foreign microorganisms such as bacteria or viruses, or the substances they produce.

ANTIRETROVIRAL:

an agent that suppresses the activity or replication of retroviruses such as HIV. Antiretroviral drugs interfere with various stages of the virus' life cycle, for example, reverse transcriptase inhibitors (e.g., AZT, ddI, 3TC) and protease inhibitors (e.g., saquinavir, ritonavir).

ATROPHY:

progressive degeneration, wasting, or decrease in size, especially the loss of muscle tissue.

AUTOIMMUNE RESPONSE (AUTOIMMUNITY):

a condition in which an individual's immune system fails to recognize its own biochemical markers as being "self" and attacks body tissues as if they were foreign matter, possibly leading to autoimmune diseases such as lupus or rheumatoid arthritis.

B

BASELINE:

an initial or known value (e.g., CD4 cell count, HIV viral load) against which later measurements can be compared.

BILIRUBIN:

a yellowish pigment released by red blood cells when they are removed from circulation and broken down. Normally, bilirubin is processed and excreted by the liver; an excess level of serum bilirubin (hyperbilirubinemia) is characterized by jaundice (yellowing of the skin and eyes) and may indicate stress on the liver. Bilirubin levels are measured to gauge the health of the liver.

BONE MARROW:

the soft, spongy tissue in the interior of certain bones (e.g., the long bones of the limbs). Bone marrow contains stem cells and is the site of blood cell production.

BRANCHED-CHAIN DNA ASSAY

(bDNA, QUANTIPLEX HIV RNA ASSAY):

a test that measures the amount of virus (viral load) in plasma or tissue using a chemical signal, visible as light, that is produced by viral RNA.

BREAKTHROUGH:

a condition that develops despite measures to prevent it (e.g., PCP that occurs while taking a prophylactic drug). Also, a rise in viral load after it has fallen due to anti-HIV therapy (virologic breakthrough).

C

CD4 CELL:

a type of white blood cell that carries the CD4 cell surface receptor and helps the body fight infection. CD4 cells release cytokines (chemical messengers) that coordinate a broad range of immune system activities including killer cell activation and antibody production. See also *memory T cell*.

CD4 CELL PERCENTAGE:

the number of CD4 cells compared with the number of all lymphocytes. Cell percentage is a more consistent and reliable measure than absolute cell count. Normal CD4 cell percentages are usually 30–40% of all lymphocytes.

CESAREAN DELIVERY (CESAREAN SECTION, C SECTION):

a delivery procedure that involves making an incision through the abdominal wall to permit the removal of an infant from the uterus.

CHEMOTHERAPY:

the use of chemicals or drugs to treat disease; the term is typically used to refer to cancer treatment.

CHROMOSOME:

a structure of compact, intertwined molecules of DNA (deoxyribonucleic acid) found in the nucleus of cells which carry the cell's genetic information. Humans normally have 46 chromosomes. See *DNA*.

CHRONIC:

less intense, slow, persisting over a long period. Contrast with *acute*.

CIRRHOSIS:

a condition in which the liver becomes scarred, fibrous, and filled with fat, thus reducing its ability to function. Causes include infection (e.g., hepatitis) and excessive alcohol consumption.

COFACTOR:

a factor (e.g., substance, microorganism, environmental condition) that influences the progression of a disease or the action of a disease-causing agent.

COHORT:

a group of individuals in a study who share a demographic, clinical, or other statistical characteristic (e.g., age, study site).

COLLAGEN:

a fibrous protein that makes up connective tissue.

CYTOKINE:

an intercellular hormone or chemical messenger protein (e.g., tumor necrosis factor, interleukin) released by white blood cells (e.g., macrophages, T cells). Cytokines

facilitate communication among immune system cells and between immune system cells and the rest of the body. See also *interferon*.

CYTOMEGALOVIRUS (CMV):

a herpesvirus that occurs in healthy individuals without causing symptoms. In immunocompromised individuals (usually with CD4 cell counts below 50 cells/mm³), CMV may cause serious illness including retinitis (inflammation of the retina), pneumonia, colitis (inflammation of the large bowel), and encephalitis. CMV infection of a pregnant woman may lead to congenital abnormalities in the newborn. CMV may be treated with ganciclovir, foscarnet, or cidofovir.

D

DEMOGRAPHICS:

the characteristics of a population (e.g., sex, race, age, geographic location).

DNA (DEOXYRIBONUCLEIC ACID):

a molecule that encodes genetic information and is found in the nucleus of cells as a twisted double-stranded chain. The particular sequence of four chemical building blocks (nucleotides)—adenine, cytosine, guanine, and thymine—that make up a DNA chain determines the unique genetic code of an individual.

E

ESTROGEN:

a female sex hormone; a natural or synthetic substance (e.g., estradiol, Premarin) that stimulates the development of female secondary sex characteristics and regulates the reproductive cycle in women. Estrogens are known to affect the immune system.

F

FUNDUS:

the bottom or base of an organ (e.g., eye).

G

GENE:

the unit of heredity. A gene contains hereditary information encoded in the form of DNA and is located at a specific position on a chromosome in a cell's nucleus. Genes determine many aspects of anatomy and physiology by controlling the production of proteins. Each individual has a unique sequence of genes, or genetic code.

GLUCOSE (BLOOD SUGAR):

a form of sugar that is the body's primary fuel; glucose broken down from food can be converted into energy or stored. Abnormally low or high levels of glucose in the blood often indicate metabolic disturbances (e.g., diabetes).

GLYCEROL:

the central structural component of triglycerides and phospholipids.

H

HAART:

highly active antiretroviral therapy, a term for potent combination anti-HIV treatment that usually includes a protease inhibitor.

HEMATOLOGICAL:

see *hematology*.

HEMATOLOGY:

the study of blood and blood-forming tissues.

HEMOGLOBIN (Hb):

the red, iron-based pigment in red blood cells that enables them to transport oxygen. Normal hemoglobin values are 12–15 grams per deciliter (100 milliliters) for women and 14–16 g/dL for men.

HEPATITIS A (HAV, INFECTIOUS HEPATITIS):

an inflammatory viral disease of the liver with a short incubation period. HAV may be transmitted by eating contaminated food, by fecal-oral contact, and/or through household contact. Hepatitis A may be mild to severe; symptoms include fever, nausea, and jaundice. Two-dose and three-dose anti-HAV vaccines are available.

HEPATITIS B (HBV, SERUM HEPATITIS):

a viral liver disease that may be acute or chronic, and can be life-threatening. Symptoms include fever, malaise, fatigue, jaundice, abdominal tenderness, and elevated liver enzymes. Some individuals are chronic asymptomatic carriers; chronic hepatitis B may result in liver cirrhosis and/or cancer. HBV can be transmitted by sexual contact, shared needles, or contaminated blood products. Interferon alpha is used as a treatment; two three-dose anti-HBV vaccines are available.

HEPATITIS C (HCV):

a contagious viral disease that causes inflammation of the liver. A chronic carrier state occurs in some individuals and may result in life-threatening liver damage, cirrhosis, and/or liver cancer. HCV is spread mainly via contaminated blood products or shared needles. There is no standard treatment or vaccine.

HERPESVIRUS:

a group of viruses that includes herpes simplex virus type 1 (HSV-1) and 2 (HSV-2), varicella-zoster virus (VZV), Epstein-Barr virus (EBV), cytomegalovirus (CMV), human herpesvirus types 6 and 7 (HHV-6, HHV-7), and Kaposi's sarcoma-associated herpesvirus (KSHV). Herpesviruses may act as opportunistic pathogens and/or cofactors in HIV pathogenesis.

HORIZONTAL TRANSMISSION:

contagion or spread of an infectious disease from one individual to another within a population. Contrast with *vertical transmission*.

HORMONE:

a chemical messenger (e.g., adrenaline, testosterone) involved in the regulation and coordination of cellular and bodily functions. Hormones may act locally or be secreted into the bloodstream.

HYPERTHYROIDISM:

excessive functionality of the thyroid gland marked by increased metabolic rate, enlargement of the thyroid gland, rapid heart rate, high blood pressure, and various secondary symptoms.

I

IMMUNOCOMPROMISED:

a reduction in immune system function that results in increased susceptibility to viral, fungal, or bacterial infection.

IMMUNOSUPPRESSION:

reduced function of the immune system; a state in which the immune system defenses have been suppressed, damaged, or weakened.

INSULIN:

a peptide hormone that enables the body to metabolize and use glucose. Lack of or insensitivity to insulin results in diabetes.

INTERFERON:

one of a family of cytokines (messenger proteins) that play a role in immune response. Interferons are secreted by infected cells and help protect other cells from infection. The three major classes are alpha, beta, and gamma interferon. Exogenous interferons (produced outside the body) are under study as an immunomodulatory therapy for HIV disease. Side effects of administered interferon include flu-like

symptoms (e.g., fever, aches) and anorexia. Low-dose oral interferon alpha (Kemron) has not been shown to be effective against HIV disease in clinical trials.

INTERLEUKIN (IL):

a cytokine (chemical messenger) secreted by immune system blood cells that regulates a range of immune functions. Types include IL-1, IL-2 (T cell growth factor), IL-10, and IL-12.

INTRACELLULAR:

within a cell.

INTRAVENOUS (IV):

injected directly into a vein.

J**JAUNDICE:**

a yellowish discoloration of the skin and whites of the eyes due to high bilirubin levels resulting from the breakdown of red blood cells. Jaundice is associated with liver damage or disease (e.g., hepatitis), gallbladder disease, and excessive destruction of red blood cells. See also *bilirubin*.

K**KAPOSI'S SARCOMA (KS):**

an abnormal or cancerous proliferation of cells of the blood and/or lymph vessels causing tumors on the skin, mucous membranes, and/or internal organs. KS typically appears as purplish or brownish lesions and is associated with a herpesvirus (KSHV, or HHV-8). It occurs more commonly among HIV positive gay and bisexual men than among others with HIV disease. KSHV is believed to be transmitted sexually and through deep ("French") kissing.

L**LACTIC ACIDOSIS:**

a buildup of lactic acid (a by-product of carbohydrate metabolism) in body tissues.

LESION:

any abnormal tissue change caused by disease or injury.

LIPID:

a fat.

LIPOATROPHY:

the depletion of subcutaneous fat stores, especially in the limbs and cheeks.

LIPODYSTROPHY:

a loss of fatty tissue, usually in the limbs and face. In HIV, the term is commonly used to refer to any type of body fat redistribution, including accumulations of visceral, abdominal, and breast adipose tissue. Lipodystrophy may also refer to abnormal blood lipid and/or glucose metabolism.

LYMPHOCYTE:

a type of white blood cell (e.g., T cell, B cell, natural killer cell) that plays a part in immune defense.

LYMPHOCYTE PROLIFERATION ASSAY (LPA):

a test used to measure the memory of CD4 cells (so-called memory T cells) to antigens or microbes, such as HIV.

M**MAINTENANCE THERAPY (SECONDARY PROPHYLAXIS):**

preventive or suppressive therapy that follows successful initial treatment of an illness. Maintenance therapy generally continues for the lifetime of the individual to prevent disease recurrence.

MALAISE:

a generalized feeling of illness and discomfort; a "flu-like" feeling.

MEAN:

a statistical measurement of the central tendency, or average, of a set of values. Contrast with *median*.

MEDIAN:

the number within a series that is preceded and followed by an equal number of values. Also, the middle value in a distribution, on either side of which lie an equal number of values. Contrast with *mean*.

MEMORY T CELL:

a T cell that is specialized to respond to a specific pathogen and remains in the body after an initial immune response. Memory T cells respond to a subsequent attack by the same invader in the future.

MENOPAUSE:

the cessation of menstruation. Natural menopause typically occurs between 45 and 60 years of age; women with HIV may experience early menopause.

METABOLITE:

a product of metabolism, including intermediate and waste products.

METHADONE:

an oral opioid drug used for pain therapy and to treat opiate (e.g., heroin) addiction. Methadone maintenance therapy is used to prevent withdrawal symptoms by administering a small dose of methadone on a regular (e.g., daily) basis.

MOLECULE:

a small unit of matter made up of atoms. A molecule is the smallest unit of a substance that retains its unique characteristics.

MONOTHERAPY:

use of a single drug or other therapy.

MULTIVARIATE ANALYSIS:

a statistical analysis technique in which multiple variables are analyzed separately to determine the contribution made by each variable to an observed result.

N**NEUTROPENIA:**

an abnormally low number of neutrophils in the circulating blood, leading to susceptibility to infection.

NEUTROPHIL:

the most common type of immune system white blood cell. Neutrophils are phagocytes that engulf and destroy bacteria and fungi. The normal count for neutrophils ranges between 3,000 and 7,000; counts below 500 indicate an increased risk of bacterial infection.

NNRTI:

see *non-nucleoside reverse transcriptase inhibitor*.

NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITOR (NNRTI):

a drug (e.g., nevirapine, delavirdine, efavirenz) that binds with and inhibits the action of the HIV reverse transcriptase enzyme, thus blocking viral transcription and replication.

NRTI:

see *nucleoside reverse transcriptase inhibitor*.

NUCLEOSIDE ANALOG:

see *nucleoside reverse transcriptase inhibitor*.

NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITOR (NRTI, also known as NUCLEOSIDE ANALOG):

a compound (e.g., AZT, ddI, 3TC) that suppresses HIV replication by interfering with the reverse transcriptase enzyme.

