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Andromeda Care

HIV/AIDS
2019

ANDROMEDA CARE
Better Sexual Education

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INTRODUCTION

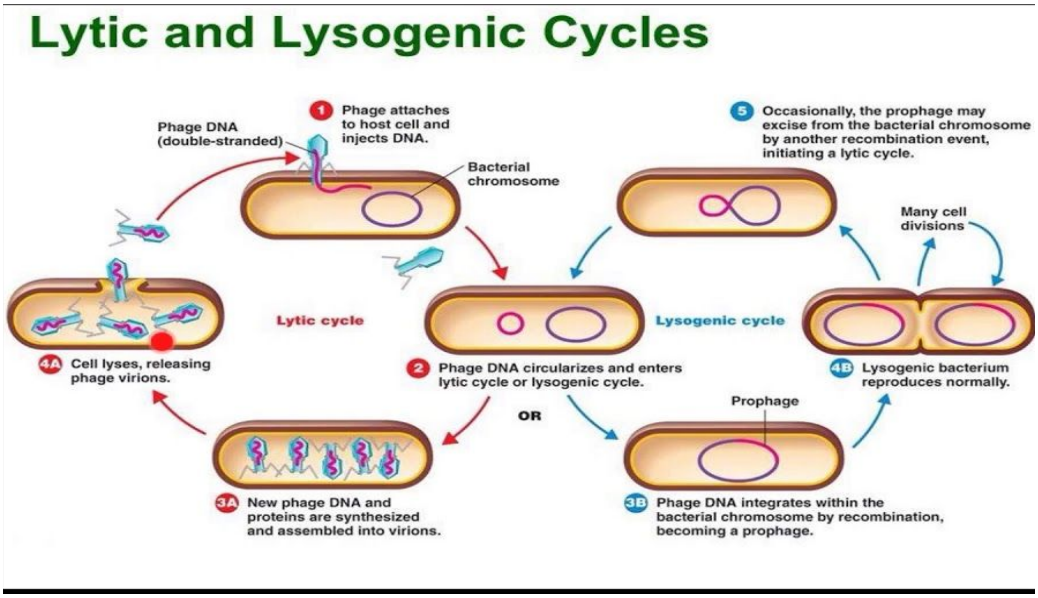
Welcome to the Andromeda Sex. Ed course. In this curriculum, we will be going over how to keep yourself safe and healthy. Sexually transmitted diseases and infections are spreading quickly and people need to know how to protect themselves. Protecting yourself is very important because you don't want to suffer the consequences of not being aware. Here at Andromeda Care, we care about how communities are affected and we want all youth to be able to live their best lives. Now, let's get started!

CHAPTER ONE

Virus

Before getting into detail about HIV, there needs to be an understanding of viruses. Viruses are the smallest pathogens that are non-living biological entities containing RNA or DNA and need a host to 'live'.

Once viruses enter a host they begin one of two cycles. Either the Lytic cycle, which is the shorter cycle. In the lytic cycle, there are about 3 stages. First, the virus finds a host cell, 2nd it enters a cell and injects its RNA or DNA and, 3rd it takes over the cell and begins to replicate itself. The other cycle is the lysogenic cycle, which is longer. 1st the virus finds a host cell and injects its RNA or DNA into it. Then the virus's genetic material becomes apart of the genetic material of the host. The virus then stays inactive until it is triggered by something(could be anything). After the virus is triggered the lytic cycle begins.



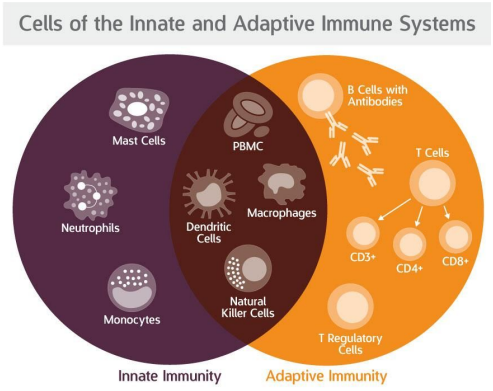
Chapter Two

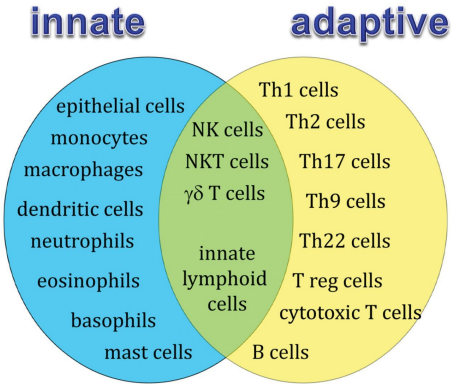
Immune system

The immune system works in many different ways. The immune system has two different defense which are:

Innate (Non-Specific) Defence System...

It is your first line of defense. This involves a mixture of external barriers(skin and mucous membrane) and Interior barriers (Phagocytes, neutrophils, macrophages, antimicrobial proteins, and other attack cells) This system is always there and is usually something everyone has. The meaning of Non-specific is these barriers attack any bacteria that are foreign. The Innate system also attacks very quickly and has a large number of components. It can also cause fever or swelling even though it sounds scary, it can be a sign your body is healing.





Adaptive (specific) Defence System...

It is your second line of defense. This system contains your Specific cells to attack specific pathogens. Every antigen that enters your body, the adaptive system remembers. It takes a longer time for people to develop a good Adaptive system since it needs a specific antigen to enter. This is why if your body has been exposed to an antigen before, it will be better at defeating it.

Fun Fact: your adaptive immune system has two different ways to fight back. One is your humoral immunity and the other is Cellular Defences

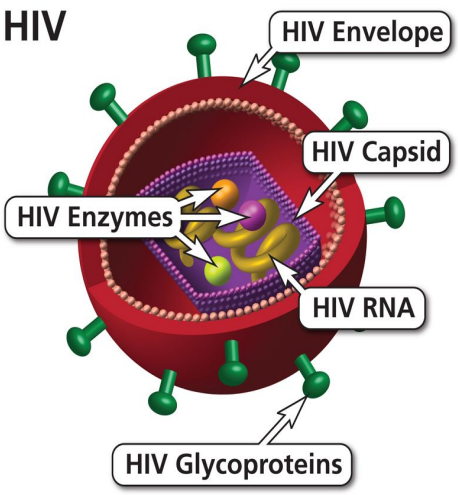
Chapter Three

HIV

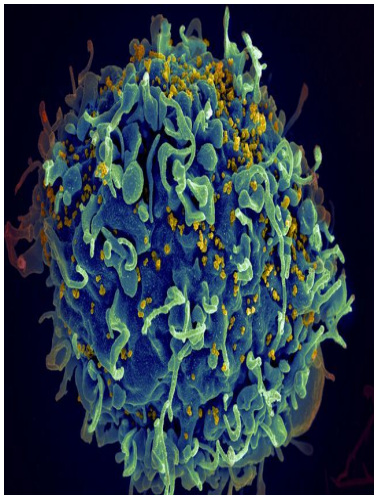
What is HIV?

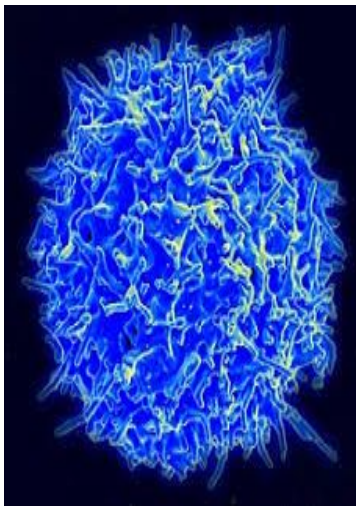
HIV is an infectious disease that is transmitted through sexual contact. HIV is a virus that attacks T-cells. There is no cure for HIV but there is treatment to help keep it down. If HIV is left untreated it can lead to AIDS.

This is HIV anatomy:



T-cell:





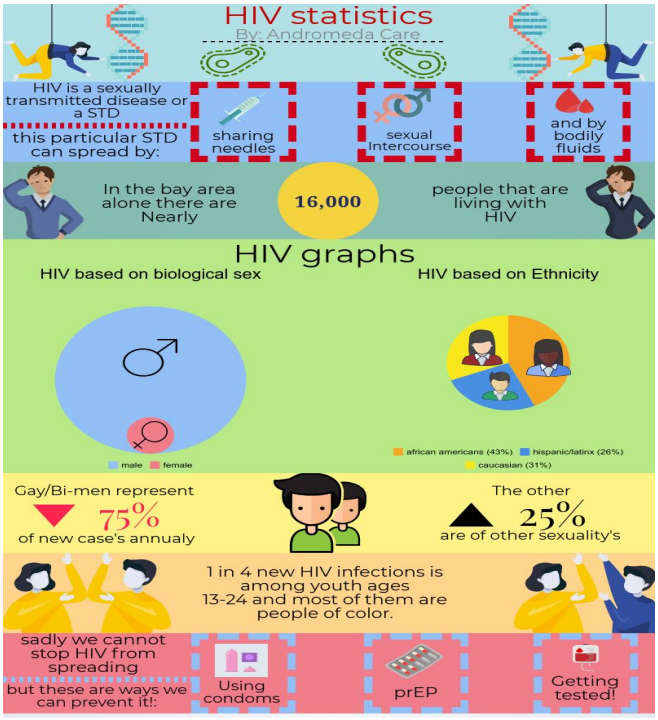
What are HIV symptoms?

The most common symptoms of HIV are:

- Body Rash
- Fever
- Sore Throat
- Severe Headaches
- Tiredness

The Less common symptoms of HIV are:

- Fatigue and night sweats
- Swollen lymph nodes
- Ulcers in the mouth or on genitals
- Muscle aches and joint pain
- Nausea and vomiting



Chapter Four

Protection

Do you know how to protect yourself from HIV/AIDS? There are different ways that u can keep yourself safe.

The first and foremost way to protect yourself is to use condoms. If you don't know what a condom is, that's okay. A condom is a latex “sleeve” put on a penis, to prevent semen from getting into the vagina. There are also female condoms that are internally inserted. Condoms are the best way to prevent getting something called a sexually transmitted disease or infection(STD/STI).

Another way to prevent HIV/AIDS is to be abstinent. Abstinence is when you refrain from having sex. It can be proven to be 100% effective in preventing pregnancies, and infections. Don't ever feel like you are pressured to have sex because abstinence can save you from certain consequences, such as HIV.

There is also medication you can take that prevents you from getting or spreading HIV. One medication is called PreP (Pre-exposure prophylaxis) or the brand name, Truvada, but it can be pricey. PreP works by blocking an enzyme called HIV reverse transcriptase. By blocking this enzyme, it prevents HIV from making copies of itself.

Glossary

Abstinence: the fact or practice of restraining oneself

Adaptive defense system: The adaptive defense consists of antibodies and lymphocytes, often called the humoral response and the response. This interaction is so crucial that the adaptive response cannot occur without an innate immune system. The cells of the adaptive immune system are lymphocytes – B cells and T cells.

AIDS: a disease in which there is a severe loss of the body's cellular immunity, greatly lowering the resistance to infection and malignancy.
Antigen: a toxin or other foreign substance which induces an immune response in the body, especially the production of antibodies.

Antimicrobial proteins: nutrient-binding proteins or contain sites that target specific microbial macromolecules.

Cellular defenses: nonspecific effector cells of the innate immune response.

Condom: a thin rubber sheath worn on a man's penis during sexual intercourse as a contraceptive or as a protection against infection.

HIV: human immunodeficiency virus, a retrovirus which causes AIDS.:

Host: a living cell in which the virus multiplies.

Humoral immunity: the aspect of immunity that is mediated by macromolecules found in extracellular fluids such as secreted antibodies, complement proteins, and certain antimicrobial peptides.
Immune System: the body's defense against infectious organisms and other invaders.
Innate defense system

Lytic Cycle: The lytic cycle is one of the two cycles of viral reproduction, the other being the lysogenic cycle. The lytic cycle results in the destruction of the infected cell and its membrane. Bacteriophages that only use the lytic cycle are called virulent phages

Lysogenic Cycle: Lysogeny, or the lysogenic cycle, is one of the two cycles of viral reproduction. Lysogeny is characterized by integration of the bacteriophage nucleic acid

into the host bacterium's genome or formation of a circular replicon in the bacterial cytoplasm

Macrophages: a large phagocytic cell found in stationary form in the tissues or as a mobile white blood cell, especially at sites of infection.

Neutrophils: Neutrophils are a type of white blood cell. In fact, most of the white blood cells that lead the immune system's response are neutrophils. There are four other types of white blood cells. Neutrophils are the most plentiful type, making up 55 to 70 percent of your white blood cells.

Pathogens: a type of cell within the body capable of engulfing and absorbing bacteria and other small cells and particles.

Phagocytes: a type of cell within the body capable of engulfing and absorbing bacteria and other small cells and particles.

STI/STD: Sexually Transmitted Infections/ Sexually Transmitted Disease
T-cell: a lymphocyte of a type produced or processed by the thymus gland and actively participating in the immune response.

Virus: A virus is a small infectious agent that replicates only inside the living cells of an organism. Viruses can infect all types of life forms, from animals and plants to microorganisms, including bacteria and archaea.

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