



Tests Explained

FDA Mandated Donor Screening Panels

- **Chlamydia trachomatis. Nucleic Acid Testing (NAT)**

Chlamydia infection is one of the most common sexually transmitted infections worldwide — it is estimated that about 2.3 million individuals in the United States are infected with Chlamydia. It is the most common bacterial STD in humans.

C. trachomatis is naturally found living only inside human cells. Chlamydia can be transmitted during vaginal, anal or oral sex, and can be passed from an infected mother to her baby during vaginal childbirth. Between half and three-quarters of all women who have a chlamydia infection of the neck of the womb (cervicitis) have no symptoms and do not know that they are infected. In men, infection of the urethra (urethritis) is usually symptomatic, causing a white discharge from the penis with or without pain on urinating (dysuria). Occasionally, the condition spreads to the upper genital tract in women (causing pelvic inflammatory disease) or to the epididymis in men (causing epididymitis). If untreated, chlamydial infections can cause serious reproductive and other health problems with both short-term and long-term consequences. Chlamydia is easily treated with antibiotics. Chlamydia conjunctivitis or trachoma is a common cause of blindness worldwide.

We test for the nucleic acid of the bacteria in a swab or body secretion. Positive cases are deferred from donation

- **Neisseria gonorrhoea. Nucleic Acid Testing (NAT)**

Also known as Gonococci (plural), or Gonococcus (singular), is a species of Gram-negative kidney bean-shaped diplococci bacteria responsible for the sexually transmitted disease gonorrhoea. Symptoms of infection with *N. gonorrhoeae* differ depending on the site of infection.

Infection of the genitals can result in a purulent (or pus-like) discharge from the genitals which may be foul smelling, inflammation, redness, swelling, dysuria and a burning sensation during urination.

N. gonorrhoeae can also cause conjunctivitis, pharyngitis, proctitis or urethritis, prostatitis and orchitis. Conjunctivitis is common in neonates. Neonatal gonorrheal conjunctivitis is contracted when the infant is exposed to *N. gonorrhea* in the birth canal, and can result in corneal scarring or perforation.

Infection of the genitals in females with *N. gonorrhea* can result in pelvic inflammatory disease if left untreated, which can result in infertility. Pelvic inflammatory disease results if *N. gonorrhea* travels into the pelvic peritoneum via the cervix, endometrium and fallopian tubes.

We test for the nucleic acid of the bacteria in swab or body secretion. Positive cases are deferred from donation.

- **Human Immunodeficiency Virus type I & 2 (HIV1/2 plus O)**
- **HIV Nucleic Acid Testing (NAT)**

Infection with HIV occurs by the transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk. Within these bodily fluids, HIV is present as both free virus particles and virus within infected immune cells. The four major routes of transmission are unprotected sexual intercourse, contaminated needles, breast milk, and transmission from an infected mother to her baby at birth (vertical transmission). Screening of blood products for HIV has largely eliminated transmission through blood transfusions or infected blood products.

Women who are antibody positive to HIV have a significant chance of transmitting this virus to their newborns. There is a cocktail of pills that the mother can take before birth to prevent the transmission to the newborn.

Eventually most HIV-infected individuals develop AIDS (Acquired Immunodeficiency Syndrome). These individuals mostly die from opportunistic infections or malignancies associated with the progressive failure of the immune system. Without treatment, about 9 out of every 10 persons with HIV will progress to AIDS after 10-15 years. Many progress much sooner. Treatment with anti-retroviral increases the life expectancy of people infected with HIV.

We test for the nucleic acid of the virus which is the most accurate method for determining the presence of infection.

We also test for the presence of antibodies against the virus in the body. Positive cases are deferred from donation.

- **Hepatitis B surface antigen (HBsAg)**
- **Hepatitis B Core Antigen (Anti HBcAg)**
- **Hepatitis B Virus (HBV) Nucleic Acid Testing**

The hepatitis C virus species is classified into six genotypes. Infection with one genotype does not confer immunity against others, and concurrent infection with two strains is possible. Infection is transmitted by contact with infected blood or body fluids. In most of

these cases, one of the strains removes the other from the host in a short time. This finding opens the door to replace strains non-responsive to medication with others easier to treat. Circulating HCV particles bind to receptors on the surfaces of hepatocytes and subsequently enter the cells. Once inside the hepatocyte, HCV initiates the lytic cycle. It utilizes the intracellular machinery necessary to accomplish its own replication. New virus particles presumably bud into the secretory pathway and are released at the cell surface.

We test for the nucleic acid of the virus in blood which is the most accurate method for determining the presence of infection.

A simple blood test is available to screen individuals for the presence of hepatitis C antibody. If a man or woman is known to be hepatitis C positive, they are deferred from donation.

- **Hepatitis C Antibody (anti HCV)**
- **HCV Nucleic Acid Testing (NAT)**

The hepatitis C virus species is classified into six genotypes. Infection with one genotype does not confer immunity against others, and concurrent infection with two strains is possible. Infection is transmitted by contact with infected blood or body fluids. In most of these cases, one of the strains removes the other from the host in a short time. This finding opens the door to replace strains non-responsive to medication with others easier to treat. Circulating HCV particles bind to receptors on the surfaces of hepatocytes and subsequently enter the cells. Once inside the hepatocyte, HCV initiates the lytic cycle. It utilizes the intracellular machinery necessary to accomplish its own replication. New virus particles presumably bud into the secretory pathway and are released at the cell surface.

We test for the nucleic acid of the virus in blood which is the most accurate method for determining the presence of infection.

A simple blood test is available to screen individuals for the presence of hepatitis C antibody. If a man or woman is known to be hepatitis C positive, they are deferred from donation.

- **Human T-cell Lymphotropic Virus 1&2 (HTLV 1/2)**

Between one in twenty and one in twenty-five infected persons with HTLV 1 are thought to develop cancer as a result of the virus. It was the first identified human retrovirus.

Infection with HTLV-I, like infection with other retroviruses, probably occurs for life and can be contingent when antibody against HTLV-1 is detected in the serum. Transmission of HTLV-I is believed to occur from mother to child via breastfeeding; by sexual contact; and through exposure to contaminated blood, either through blood transfusion or sharing of contaminated needles. HTLV-II has not been clearly linked to any disease, but has been associated with several cases of myelopathy and neurological disease.

We test for the presence of antibodies in the blood against these two viruses. Positive result causes the rejection of the donor.

- **Cytomegalovirus (CMV)**

It is a member of the herpes family and has the ability to remain latent within the body for long periods of time.

CMV infections are frequently associated with salivary glands, though they may be found throughout the body. CMV infection can also be life threatening for patients who are immune compromised (e.g. patients with HIV, organ transplant recipients, or neonates). Other CMV viruses are found in several mammalian species,

CMV is found throughout all geographic locations and socioeconomic groups, and infects between 50% and 80% of adults in the United States as indicated by the presence of antibodies in much of the general population. Seroprevalence is age-dependent: 58.9% of individuals aged 6 and over are infected with CMV while 90.8% of individuals aged 80 and over are positive for CMV. CMV is also the virus most frequently transmitted to a developing fetus. CMV infection is more widespread in developing countries and in communities with lower socioeconomic status and represents the most significant viral cause of birth defects in industrialized countries.

Infants infected before birth are usually asymptomatic after they are born, however some can develop hearing, vision, neurological, and developmental problems over time. In a few cases symptoms do occur at birth. These can include: premature delivery, being small for gestational age, jaundice, enlarged liver and spleen, microcephaly (small head), seizures, rash, and feeding difficulties. These infants are also at high risk for developing hearing, vision, neurological, and developmental problems

We test for the presence of antibodies in the blood against this virus. Positive result causes the rejection of the donor.

- **Rapid Plasma Reagin (RPR)**
- **Trep Sure (Syphilis Confirmatory)**

RPR refers to a type of test that looks for non-specific antibodies in the blood of the patient that may indicate that *Treponema pallidum* the organism that causes syphilis is present. If positive a confirmatory test for specific antibodies is done.

Syphilis is a sexually transmitted disease caused by the spirochete bacterium *Treponema pallidum*. The route of transmission of syphilis is almost always through sexual contact, although there are examples of congenital syphilis via transmission from mother to child in utero.

The signs and symptoms of syphilis are numerous; Syphilis can generally be treated with antibiotics, including penicillin. One of the oldest and still the most effective method is

an intramuscular injection of benzathine penicillin. If left untreated, syphilis can damage the heart, aorta, brain, eyes, and bones. In some cases these effects can be fatal.

When left untreated syphilis can lead to infertility as well as other serious health problems including psychological impairment. A positive case is deferred from donation.

- **West Nile Virus Nucleic Acid Testing (WNV) NAT**

It is a virus of the family *Flaviviridae*. It is found in both tropical and temperate regions. It mainly infects birds, but is known to infect humans and domestic rabbits. The main route of human infection is through the bite of an infected mosquito. The US outbreak revealed novel transmission methods, through blood transfusion, organ transplant, intrauterine exposure, and breast feeding.

We test for the Nucleic acid of the virus in blood and this is the most accurate method for determining the presence of infection. Positive result cause the rejection of the donor.