

Nucleic Acid Testing (NAT)

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In news: The Union Minister for Health and Family Welfare and Chairman of the Indian Red Cross Society inaugurated a Nucleic Acid Testing (NAT) Testing Facility at the IRCS NHQ Blood Centre.

Key updates

- The Union Minister pointed out that by introducing NAT tests instead of the conventional ELISA test, both the window period to detect infections and the residual risk of transfusion transmitted infections of HIV, Hepatitis B, and Hepatitis C would be considerably reduced.
- The blood donation vehicles similarly would enhance Voluntary Blood Donation by reaching out to voluntary non-remunerated regular donations who are found to be safer than replacement donors.

About Nucleic Acid Testing (NAT)

- It is a molecular technique for screening blood donations to reduce the risk of transfusion transmitted infections in the recipients, thus providing an additional layer of blood safety
- In other words, NAT is a technique used to detect a particular nucleic acid sequence and thus usually to detect and identify a particular species or subspecies of organism, often a virus or bacteria that acts as a pathogen in blood, tissue, urine, etc.
- It was introduced in the developed countries in the late 1990s and early 2000s
- Many countries in the world have implemented NAT for HIV and for hepatitis B virus (HBV).
- NAT technique is highly sensitive and specific for viral nucleic acids.
- It is based on amplification of targeted regions of

viral ribonucleic acid or deoxyribonucleic acid (DNA) and detects them earlier than the other screening methods thus, narrowing the window period of HIV, HBV and hepatitis C virus (HCV) infections.

- NAT also adds the benefit of resolving false reactive donations on serological methods

Key facts: Blood donation

- In developed countries, 50 persons per 1000 people donate blood in a year. In our country, 8-10 persons donate blood per 1000 people in a year.
- India with a massive population of 1.38 billion requires just around 14 million units of blood annually.
- Ideally if 1% of the total eligible population donates blood every year there would be no shortage of blood.

Nucleic Acids

They are the biopolymers, or large biomolecules, essential to all known forms of life. The term nucleic acid is the overall name for DNA and RNA. They are composed of nucleotides, which are the monomers made of three components: a 5-carbon sugar, a phosphate group and a nitrogenous base.