



Nobel Prize for Physiology/Medicine 2020

Why in News

Americans **Harvey J Alter** and **Charles M Rice**, and British scientist **Michael Houghton** were awarded the [Nobel Prize for Medicine or Physiology](#), 2020 for the discovery of the Hepatitis C Virus.

- The Hepatitis C virus was discovered in **1982** by **screening millions of DNA samples**.
- The Nobel award comes with a gold medal and prize money of 10 million Swedish **kronor** (over USD 1,118,000) and was created by Swedish inventor **Alfred Nobel**.

Key Points

▪ Hepatitis:

- Hepatitis refers to an **inflammatory condition of the liver**.
- It's commonly caused by a **viral infection**, but there are other possible causes of hepatitis like **autoimmune responses, medications, drugs, toxins, and alcohol**.
- There are 5 main [hepatitis](#) viruses, referred to as types A, B, C, D, and E.
- [World Hepatitis Day](#) is observed each year on **28th July** to enhance awareness of viral hepatitis.

▪ Hepatitis C:

- Hepatitis C is caused by the **Hepatitis C Virus (HCV)**.
- It is transmitted through **direct contact with infected body fluids**, typically through injection drug use and sexual contact.
- According to the [World Health Organization](#), about 71 million people in the world have **chronic infection with the Hepatitis C virus**, which is also a major cause of **liver cancer**.
- A vaccine for the disease has still not been developed but it can be treated with the help of **anti-viral drugs**.

▪ Significance of the Discovery:

- The discovery helped in finding a cure for the disease, and effective anti-viral drugs are now available.
- Tests have also been developed to **identify blood containing this virus**, so that infected blood is not given to any patient.

Hepatitis in India

- 40 million people are chronically infected with the Hepatitis B virus and 6 to 12 million with the Hepatitis C virus.
- In 2018 the **National Viral Hepatitis Control Programme (NVHCP)** was launched which has the target to **eliminate Hepatitis C by 2030**. The program is the largest program for Hepatitis B and C diagnosis and treatment in the world.
- **Hepatitis B** is included under [India's Universal Immunization Programme \(UIP\)](#) which provides free of cost vaccination against a total of 12 vaccine-preventable diseases.
- The first **recombinant DNA-based vaccine for Hepatitis B** infection was made in India by

Hyderabad-based Shantha Biotech.

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Hepatitis C

An estimated 130–150 million individuals are infected globally



The most affected regions are Africa, Central and East Asia



Most commonly transmitted by:



Unsafe injection practices

Blood transfusions



Inadequate sterilization of medical equipment



Antivirals can cure approximately 90% of hepatitis C infections, however, access to diagnosis and treatment is low

Hepatitis C is responsible for an estimated 48% of total hepatitis deaths, ~700,000 each year

Hepatitis B

An estimated 240 million individuals are infected globally

Prevalence is highest in sub-Saharan Africa where 5–10% of the adult population are chronically infected

Most commonly transmitted by:

Contact with blood or other bodily fluids of an infected individual



There is no specific treatment for acute hepatitis B. Chronic hepatitis B can be treated but not cured



Hepatitis B is responsible for an estimated 47% of total hepatitis deaths, ~686,000 per year

There are approximately 1.4 million deaths each year from acute hepatitis infection and complications

Hepatitis A

An estimated 1.4 million new cases occur each year

Hepatitis A and E combined are responsible for approximately 5% of total hepatitis deaths

Prevalence is associated with lack of safe water, poor sanitation and hygiene



Most commonly transmitted by:



Ingestion of contaminated food or water



Direct contact with an infectious person



There are no specific treatments for hepatitis A, however, it is rarely fatal

Hepatitis E

An estimated 20 million infections occur worldwide each year

Prevalence highest in East and South Asia

Most commonly transmitted by:

Fecal contamination of drinking water



Usually self-limiting and only requires symptomatic treatment



Hepatitis D

Hepatitis D is an RNA virus that requires hepatitis B for replication



This co-infection causes a more severe disease than hepatitis B alone



An estimated 15 million individuals are co-infected with hepatitis D and B

Most commonly transmitted through the blood or bodily fluids of an infected individual



There is currently no antiviral treatment for hepatitis D, however it can be prevented by vaccination against hepatitis B

Source: TH

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