
1. Ex-Servicemen Contributory Health Scheme (ECHS)

Tag: Schemes

Context:

- The Ex-Servicemen Contributory Health Scheme (ECHS) has recently allowed Defence veterans with lifestyle diseases on long treatment to purchase the required medicines for the month of April at once to contain the spread of COVID-19.

About Ex-Servicemen Contributory Health Scheme (ECHS):

- It is a flagship Scheme of the Department of Ex-Servicemen Welfare, Ministry of Defence. It was launched with effect from 2003.
- It is to provide quality healthcare for Ex-servicemen (Army, Navy and Air Force) pensioners and their dependents.
- It provides allopathic and AYUSH medicare through a network of ECHS Polyclinics, AYUSH hospitals spread across the country.
- Its Polyclinics are designed to provide 'OutPatient Care' which includes consultation, essential investigation and provision of medicines.
- It also provides with Specialized consultations, investigations and 'In Patient Care' (Hospitalization) through spare capacity available in Service hospitals/Government Hospitals/civil hospitals.
- It is financed by the Government of India. The Central Organisation ECHS is located at Delhi in the Integrated Headquarters of Ministry of Defence (Army).

2. Hantavirus

Tag: Medicine and Pharmaceuticals

Why in News?

- Recently, the China's English daily Global Times has reported the death of a person from Yunnan Province who tested positive for the Hantavirus.

About Hantavirus:

- They are a family of viruses spread mainly by rodents. A person can get infected if he/she comes in contact with a rodent that carries the virus.
- It is not novel and its first case dates back to 1993. It occurs mostly in rural areas where forests, fields and farms offer suitable habitat for infected rodents.

- Hantaviruses in the Americas are known as “New World” hantaviruses and may cause **Hantavirus pulmonary syndrome (HPS)**.
- Other hantaviruses, known as “Old World” hantaviruses, are found mostly in Europe and Asia and may cause **Hemorrhagic fever with Renal Syndrome (HFRS)**.
- The most important hantavirus in the United States that can cause HPS is the Sin Nombre virus, spread by the Deer Mouse.

3. National Centre for Disease Control (NCDC)

Tag: Institutional Reforms

Why in News?

- The Union Minister of Health & Family Welfare has recently visited the National Centre for Disease Control (NCDC) Control Room to review the current status of COVID-19.

About National Centre for Disease Control (NCDC):

- It formerly known as National Institute of Communicable Diseases (NICD), had its origin as the Central Malaria Bureau, established at Kasauli (Himachal Pradesh) in 1909.
- It was transformed into the National Centre for Disease Control (NCDC) with a larger mandate of controlling emerging and re-emerging diseases in 2009.
- It functions as the **Nodal Agency** in the country for disease surveillance facilitating prevention and control of communicable diseases. It is also a national level institute for training specialized manpower for public health, laboratory sciences and entomological services and is involved in various applied research activities.
- It is under administrative control of the Director General of Health Services, Ministry of Health and Family Welfare. It has its headquarters in Delhi.

Functions of NCDC:

- It undertakes investigations of disease outbreaks all over the country.
- It provides referral diagnostic services to individuals, community, medical colleges, research institutions and state health directorates. **Tokyo Olympics 2020.**

4. Tokyo Olympics 2020

Tag: International Institutions

Context:

- Recently, the International Olympic Committee and the Tokyo 2020 Organising Committee have decided to postpone the Tokyo 2020 Summer Games to the summer 2021 due to the coronavirus pandemic.

About:

- The Olympics games have been held every four years since 1948.
- The honour of holding the Olympic Games is entrusted to a city, not to a country. The choice of the city lies solely with the IOC.
- The decision came after some of the major sporting nations like Australia and Canada withdrew from the Tokyo Olympics 2020.
- The nations withdrew in the backdrop of limited international travel, difficulty in training and exposed risk of contracting or spreading the disease.

International Olympic Committee (IOC):

- It was created on 23 June 1894 and is the supreme authority of the Olympic Movement.
- It is a not-for-profit independent international organisation that is committed to building a better world through sport.
- It ensures the regular celebration of the Olympic Games, supports all affiliated member organisations and strongly encourages, by appropriate means, the promotion of the Olympic values. It engaged in generation and dissemination of knowledge in various areas like Epidemiology, Surveillance, and Laboratories etc.
- Its applied integrated research in various aspects of communicable as well as some aspects of non-communicable diseases has been one of the prime functions of the Institute.

5. New kind of light that Breaks Limits of Natural Law

Tag: Science & Technology

Why in News?

- A new study presents a material that emits light when heated that appears to exceed the limits set by that natural law. Researchers were wondering if there is a new light in the world that breaks hitherto known laws of nature.

Highlights:

- According to Planck's Law, no material can emit more radiation than an idealised material 'blackbody' that absorbs energy perfectly.
- When heated, all materials emit light in a predictable spectrum of wavelengths. Increasing heat causes all materials to emit more intense radiation, with the peak of the emitted spectrum shifting to longer wavelengths as heat rises.
- A new material defies the convention set by Planck's law, emitting light that is coherent, similar to that produced by lasers or LEDs.
- The difference is that it doesn't need the costly structure needed to produce the stimulated emission of those technologies.
- The researchers demonstrated 'Super-Planckian' material, which showed a spike in radiation at about 1.7 microns, which is the near-infrared portion of the electromagnetic spectrum.
- They believe the light is coming from within the crystal, which has so many planes within the structure, so many surfaces acting as oscillators, so much excitation, that it behaves almost like an artificial laser material.
- The new material could find applications in optical physics, energy harvesting, military infrared-based object tracking and identification.

6. Why COVID-19 has Killed More Elderly Patients?

Tag: Science & Technology

Why in News?

- Across the world, the novel coronavirus has killed elderly people the most, especially those with pre-existing medical conditions such as Heart Disease.

Highlights:

- Immunological and molecular observations support the clinical observations of infrequent COVID-19 infections in children compared to more frequent COVID-19 infections in elderly patients, especially those with comorbid conditions.
- Researchers have hypothesised that the reason could lie in the victims' medications, when they suffer from comorbidities such as cardiovascular diseases, hypertension, diabetes and chronic kidney disease.

- For patients with cardiovascular diseases such as refractory hypertension, coronary artery disease and heart failure, some highly recommended medications are angiotensin converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs).
- These medications are also recommended for the management of cardiovascular disease in elderly patients and in those with diabetes and renal insufficiency.
- It was found that the administration of intravenous injections of ACEIs and ARBs increases the ACE2 receptors in their cardiopulmonary circulations.
- The ACE2 receptors bind with the proteins present on the exterior of coronaviruses such as SARS CoV and SARS-CoV-2. Significantly, the presence of “S” proteins on the exterior of the SARS-CoV-2 binds with the ACE2 receptors in the lower respiratory tract of COVID-19 patients.
- When the virus is able to bind with the ACE2 receptors, it can make its way to the patient’s lungs more easily, leading to the possibility of the patient developing pneumonia and potential respiratory failure.
- All the patients with the aforementioned diagnoses were using ACEIs and ARBs, which may mean that these medications are a possible risk factor for severe disease outcomes in the case of COVID-19.
- Elderly patients with such comorbidities are more likely to be taking these medications, and therefore, are at greater risk of facing fatal outcomes.
- One reason that children may be better protected against developing severe symptoms could be that they have fewer ACE2 receptors in their lower respiratory tracts, making it more difficult for the coronavirus proteins to bind and find their way to the lungs.

7. Fast Radio Bursts (FRBs)

Tag: Science & Technology

Why in News?

- Researchers from a Canadian space observatory have been recording the periodic radio waves hitting Earth from a neighbouring galaxy from past few years. These radio waves are called Fast Radio Bursts (FRBs).

Fast Radio Bursts (FRBs):

- FRBs are super intense, millisecond-long bursts of radio waves produced by unidentified sources in the space.

- Their discovery in 2007 by American astronomer Duncan Lorimer led to the term ‘Lorimer Bursts’.
- Since then, just a few dozen similar events have been observed in data collected by radio telescopes around the world, building evidence that points to a variety of potential causes.
- Only a handful of emissions have been traced to specific areas of the sky, indicating sources in other galaxies.
- The flash of radio waves is incredibly bright if distant, comparable to the power released by hundreds of millions of suns in just a few milliseconds.
- This intensity suggests powerful objects like black holes and neutron stars could be involved.
- The events were once considered to be largely transient – they seemed to happen once, without obvious signs of a repeat emission. However, a number of such bursts have been identified since then.



Significance:

- First noticed in 2018 by the Canadian observatory the waves have created ripples across the globe for one reason – they arrive in a pattern.
- This gave birth to theories that they could be from an alien civilization.
- Initially, it was believed that the collision of black holes or neutron stars triggers them.
- But the discovery of repeating FRBs debunked the theory of colliding objects.