

Prelim Bits 18-02-2022 | UPSC Daily Current Affairs

Type 1 Diabetes

According to a new study, Type 1 diabetes in those below 25 years accounted for at least 73.7% of the overall diabetes deaths in this age group in 2019.

- Inadequate diagnosis and treatment of diabetes is likely to be a major contributor to these early deaths, highlighting the urgent need to provide better access to insulin and basic diabetes education and care.
- The death rate varied based on the socio-demographic index (SDI) of a country.

SDI Spectrum	Death Rate for Type 1 diabetes
High SDI countries	0.13 deaths per 100,000 people (415 deaths)
Low-middle SDI countries	0.6 per 100,000 people (5,300 deaths)
Low SDI countries	0.71 per 100,000 people (4,860 deaths)

- Between 1990 and 2019, global death rates for all types of diabetes after age-standardisation decreased by 17% and that for Type-1 diabetes by 21%.
- Myanmar, Papua New Guinea and Haiti had the highest age-standardised death rates for diabetes. Cyprus, Slovenia and Switzerland had the lowest death rates.
- The UN and the World Health Organization in the 2013-2020 global action plan had recognised diabetes as one of the key challenges in the non-communicable diseases group and aimed to confront it.
- To know more about the Diabetes, [click here](#).

Reference

<https://www.downtoearth.org.in/news/health/type-1-diabetes-leading-cause-of-diabetes-deaths-in-those-below-25-easily-preventable-study-81521>

Neutrino

Tamil Nadu has said to the Supreme Court that it does not want the Indian Neutrino Observatory (INO) to be set up in a sensitive ecological zone in the Western Ghats at a great cost to wildlife and biodiversity.

- Neutrinos are the 2nd most abundant particles, after photons.
- They come in three 'flavours' or 'types', and each flavour is associated with a light elementary particle. They are,
 1. Electron-neutrino is associated with the electron;
 2. Muon-neutrino with the muon and
 3. Tau-neutrino with the tau particle.
- They are not easy to catch, as they do not carry a charge, as a result of which they do not interact with matter.
- They also might have unique properties that would help explain why the universe is made of

matter instead of antimatter.

- Subatomic particles that make up antimatter have properties that are opposite to the subatomic particles of normal matter.
- Protons, neutrons and electrons (subatomic particles of normal matter) are among the 12 quarks and leptons have been discovered so far.
- To know about the Indian-based Neutrino Observatory, [click here](#).
- **Related Links** -, [Baikal-GVD](#), [Neutrinos and Star Death](#),

Reference

<https://www.thehindu.com/todays-paper/tn-says-no-in-sc-to-neutrino-observatory/article65060947.ece>

Green Ammonia

The Ministry of Power notifies Green Hydrogen/ Green Ammonia Policy.

Hydrogen and Ammonia are envisaged to be the future fuels to replace fossil fuels.

Production of these fuels by using power from renewable energy is termed as [green hydrogen](#) and green ammonia.

- **Green Ammonia** - Ammonia is a pungent gas that is widely used to make agricultural fertilisers.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.
- **Production** - One way of making green ammonia is by using hydrogen from water electrolysis and nitrogen separated from the air.
- These are then fed into the Haber process or Haber-Bosch process, all powered by sustainable electricity.
- In the Haber process, hydrogen and nitrogen are reacted together at high temperatures and pressures to produce ammonia (NH₃).
- But, the process of making ammonia is currently not a green process.
- It is most commonly made from methane, water and air, using steam methane reforming (SMR) (to produce the hydrogen) and the Haber process (to produce the ammonia).
- Around 90% of the carbon dioxide produced is from the SMR process. This process consumes a lot of energy and produces around 1.8% of global carbon dioxide emissions.

Reference

1. <https://pib.gov.in/PressReleasePage.aspx?PRID=1799067>
2. <https://royalsociety.org/topics-policy/projects/low-carbon-energy-programme/green-ammonia/#:~:text=What%20is%20green%20ammonia%3F,nitrogen%20separated%20from%20the%20air>

Prime Minister's Employment Generation Programme

- Prime Minister's Employment Generation Programme (PMEGP) Scheme is a central sector scheme administered by the Ministry of Micro, Small and Medium Enterprises (MoMSME).
- This scheme is a **credit linked subsidy programme** that was formed by merging the two

schemes that were in operation till 2008, namely

1. Prime Minister's Rojgar Yojana (PMRY) and
2. Rural Employment Generation Programme (REGP).

- **Objectives** - This scheme aims to generate employment opportunities in the country by setting up micro-enterprises in non-farm sector of rural and urban areas.
- To provide continuous and sustainable employment to traditional and prospective artisans through setting up of micro enterprises.
- To facilitate participation of financial institutions for higher credit flow to micro sector.
- **Salient features** - Assistance is given **only to new units** to be set up.
- Existing units or units already availed any Govt. Subsidy either under State/Central Govt. Schemes are not eligible.
- No income ceiling for setting up of projects. Any industry including Coir Based projects excluding those mentioned in the negative list of the Scheme.
- Per capita investment should not exceed Rs. 1.00 lakhs in plain areas and Rs. 1.50 lakhs in Hilly areas.
- **Implementation** - At the national level, the MoMSME is implementing the PMEGP since 2008-09 through Khadi and Village Industries Commission (KVIC) as nodal agency.
- At the state level, the scheme is implemented through State KVIC Directorates, State Khadi and Village Industries Boards (KVIBs), District Industries Centres (DICs) and banks.
- It is implemented through KVIC and State/ UT Khadi & V.I. Boards in Rural areas and through District Industries Centres in Urban and Rural areas in ratio of 30:30:40 between KVIC / KVIB / DIC respectively.
- **Assistance**

Sector	Maximum cost of the project/unit admissible
Manufacturing Sector	₹ 25 lakhs
Business/service sector	₹ 10 lakhs

- Categories of Beneficiary's Rate of subsidy under PMEGP are

Categories	Beneficiary's own contribution (of project cost)	Rate of Subsidy	
		Urban	Rural
General category	10%	15%	25%
Special category (including SC/ ST/ OBC/ Minorities/Women, Ex-servicemen, Physically handicapped, NER, Hill and Border areas, etc.)	5%	25%	35%

- The balance amount of the total project cost will be provided by the banks in the form of term loan and working capital.

Reference

1. <https://pib.gov.in/PressReleasePage.aspx?PRID=1799032>
2. <https://msme.gov.in/1-prime-ministers-employment-generation-programme-pmegp>
3. <https://vikaspedia.in/agriculture/policies-and-schemes/rural-employment-related-1/pmegp>

Immunosensor for Japanese Encephalitis Virus

Hyderabad-based National Institute of Animal Biotechnology has developed an electrochemical

based immunosensor for detecting the Non-Structural 1 (NS1) secretory protein, a biomarker for Japanese Encephalitis Virus (JEV).

NS1 secretory protein is suitable biomarker for JEV found circulating in the blood and has been reported to elicit an immune response.

- This immunosensor was developed by fabricating fluorine-doped Tin Oxide electrode with reduced Graphene Oxide for the rapid, sensitive and specific detection of the NS1 secretory protein.
- The synthesized NS1 Antibodies were used as the bioreceptor to fabricate the electrode with reduced graphene oxide as a conductivity enhancing nanomaterial for the detection of JEV NS1 antigen (Ag).
- **Significance** - Detection of the NS1 instead of antibody has an added advantage since the antigen is present from day 1 of the infection and hence facilitates early detection.
- On the other hand, antibodies appear only after Day 4/5 of the infection.
- Since there is no cure available for JEV, early detection is essential to mitigate a breakout.
- Limit of Detection (LOD) range is more sensitive than other sensors developed for JEV.
- This immunosensor was also specific towards JEV NS1Ag as compared to other flaviviral NS1Ag.
- To know more about the Japanese Encephalitis Virus (JEV), [click here](#).

Reference

<https://pib.gov.in/PressReleasePage.aspx?PRID=1799063>

