



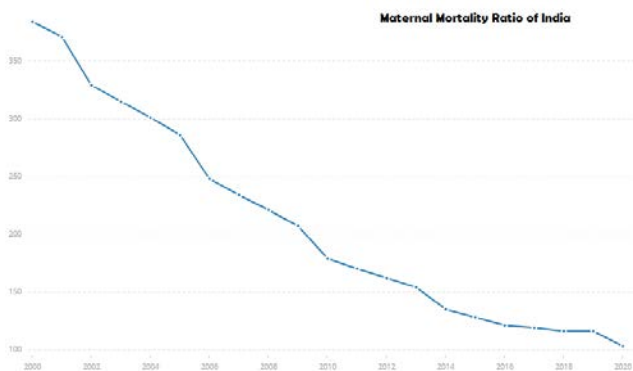
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Maternal Mortality Ratio (MMR) of India

Context: According to the UN MMEIG 2020 report titled "Trends in maternal mortality 2000 to 2020," India's Maternal Mortality Ratio (MMR) decreased from 384 in 2000 to 103 in 2020.

➤ Maternal Mortality Ratio (MMR) Decline:

- India's MMR decreased by 6.36% from 2000 to 2020, a rate three times higher than the global decline.
- The MMR in India dropped from 384 in 2000 to 103 in 2020, whereas the global MMR declined from 339 to 223 during the same period.
- India's average annual rate of reduction (ARR) in MMR was 6.36%, surpassing the global ARR of 2.07% from 2000 to 2020.



➤ Government Initiatives to Tackle Maternal Deaths and Stillbirths:

- **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)** aims to provide fixed-day, free, and comprehensive antenatal care to all pregnant women in their 2nd/3rd trimesters every 9th day of the month.
 - An extended PMSMA strategy ensures quality antenatal care, especially for high-risk pregnancies, by providing financial incentives and additional visits by Accredited Social Health Activists (ASHAs).
- **Surakshit Matritva Aashwasan (SUMAN)** initiative ensures dignified healthcare at no cost and zero tolerance for service denial for women and newborns visiting public health facilities.
- **Janani Shishu Suraksha Karyakaram (JSSK)** entitles pregnant women to free delivery, including caesarean sections, in public health institutions, along with free transport, diagnostics, medicines, and other essentials.
- **LaQshya program**, launched in 2011, focuses on improving the quality of care in labour rooms and maternity operation theatres.
- **Monthly Village Health, Sanitation, and Nutrition Day (VHSND)** provide maternal and child-care services at Anganwadi centers in convergence with the Integrated Child Development Services (ICDS).
- **Outreach camps in rural areas** aim to improve healthcare access, especially in tribal and hard-to-reach regions, by increasing awareness and tracking high-risk pregnancies.
- **Health and Wellness Centers (HWCs)** organize periodic camps to reach marginalized populations and support treatment compliance and follow-up care for pregnant women and newborns.

- **MCP Card and Safe Motherhood Booklet** distribution educates pregnant women on diet, rest, pregnancy danger signs, benefit schemes, and institutional deliveries.
- **Information Education & Communication (IEC), Inter-personal Communication (IPC), and Behavior Change Communication (BCC)** campaigns focus on generating demand for maternal health services.

➤ Schemes Implemented by the Ministry of Women and Child Development:

- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Provides support for safe deliveries, wage loss compensation, and immunization for the first living child.
- **Mission Saksham Anganwadi and Poshan 2.0:** Focuses on delivering supplementary nutrition to pregnant women and lactating mothers, emphasizing health, wellness, and immunity.

➤ Maternal Mortality Ratio (MMR) and Stillbirth Rate Data:

- MMR data from 2014-16 to 2018-20 indicates a consistent decline in India's MMR.
- Stillbirth rate data from various states shows varying trends over the years, reflecting the regional disparities in stillbirth rates across India.

Hypervelocity Expansion Tunnel Test Facility

Context: IIT Kanpur has developed and successfully tested the country's first Hyper Velocity Expansion Tunnel Test Facility.

➤ Uses in Various Projects of ISRO and DRDO:

- The facility will be utilized in projects such as Gaganyaan, RLV, and various research endeavours of ISRO and DRDO.
- Currently, only a few countries worldwide possess such a facility.

➤ India's First Hypervelocity Expansion Tunnel Facility:

- Known as Jigarthanda (S-2), the 24-meter-long tunnel is India's first Hypervelocity Expansion Tunnel facility.
- Designed by Associate Professor Ibrahim Sugarno and his team at IIT Kanpur.
- Established in the Hypersonic Experimental Aerodynamics Lab of the institute's Department of Aerospace Engineering.

➤ Collaborative Efforts:

- Developed with the assistance of Aeronautical Research and Development Board (ARDB), Department of Science and Technology (DST), and IITs.
- It took three years to prepare its indigenous design.

➤ Significance:

- The facility will facilitate the testing of hypersonic cruise missiles and rocket launcher vehicles under high-speed conditions.
- Expected to set new standards for hypervelocity research and accelerate India's capabilities in space and defense sectors.

➤ Atmospheric Conditions in the Test Tunnel:

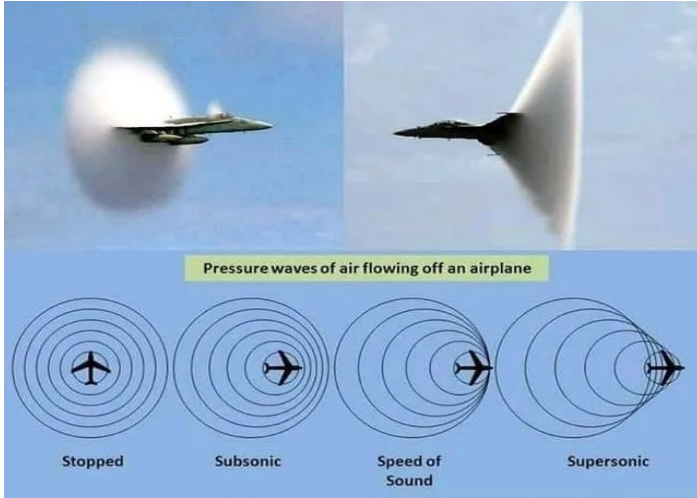
- The construction of Jigarthanda, or S-2, faced significant challenges.
- Features a 'Free Piston Driver' system capable of firing at speeds of 150-200 meters per second under atmospheric pressure of 20-35 atm.

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Study of Hypersonic Conditions:

- Enables the study of atmospheric entry of rocket launcher vehicles, asteroid entry, scramjet flights, and hypersonic conditions encountered during ballistic missiles.
- Flight speeds between 3-10 km per second can be achieved in the tunnel.
- Tests will assess the behaviour of aircraft or missiles at hypersonic speeds and their respective designs' reactions.

First Successful treatment using CAR-T Cell Therapy

Context: First patient has been declared free from cancer cells using the CAR-T Cell therapy.

- **CAR-T Cell Therapy Approval:** India's drug regulator approved CAR-T cell therapy for commercial use, offering a groundbreaking treatment option for cancer patients.
- **Accessing CAR-T Therapy:**
 - Patients gained access to CAR-T therapy at Tata Memorial Hospital, paying significantly lower costs compared to international rates.
 - The therapy's affordability allowed patients to undergo treatment that was previously financially out of reach.
- **CAR-T Cell Mechanism:** CAR-T therapy involves genetically reprogramming the patient's T-cells to become potent cancer fighters, targeting specific cancer cells.

Early Success and Remission:

- Initial outcomes of CAR-T therapy showcased promising results, with patients achieving cancer remission after treatment.
- Doctors highlighted the importance of long-term data to confirm the therapy's efficacy and success rates.
- **NexCAR19 Development:** NexCAR19, an indigenous CAR-T therapy developed collaboratively by Indian institutions, received approval for commercial use, marking a significant milestone in cancer treatment in India.
- **Commercial Availability:** Eligible patients with B-cell cancers gained access to CAR-T therapy at designated hospitals across India, expanding treatment options for cancer patients nationwide.
- **Therapy Procedure:** CAR-T therapy involves collecting and modifying the patient's T-cells to express chimeric antigen receptors (CARs), enabling targeted immunotherapy against cancer cells.
- **Clinical Studies and Advancements:** Ongoing phase II multicentre CAR-T cell therapy studies conducted by Indian researchers and startups contribute to advancements in cancer treatment within the country.

TREATMENT FOR SPECIFIC B-CELL CANCERS

NexCAR19 is a prescription drug for B-cell lymphomas, lymphoblastic leukaemias when other treatments have been unsuccessful

PATIENT'S WHITE blood cells are extracted by a machine through a process called leukapheresis and genetically modified, equipping them with the tools to identify and destroy the cancer cells.

NEXCAR19 IS manufactured to an optimal dose for the patient, and typically administered as a single intravenous infusion. Prior to this, the patient is put through chemotherapy to prime the body for the therapy.

HOW NEXCAR19 WORKS



T-cells are naturally made by the body as an advanced defence against viruses and cancer cells.

As T-cells mature, they develop specific connectors (receptors) to target key signals on cancer cells.



However, cancers can limit the inbuilt extent and efficiency with which T-cells are able to seek and fight them. This results in an increase in cancer burden.

Source: ImmunoACT



Scientists have identified certain proteins that are abnormally expressed on the surfaces of specific types of cancer cells. Specially designed receptors can find and bind to these cells.



A safe shell of a virus is used to genetically engineer T-cells so they express Chimeric Antigen Receptors — connectors that target a protein called CD19 on B-cell cancer.

NEWS IN BETWEEN THE LINES

Deepastambham



Recently, a 390-year-old Deepastambham (lamp post) has been discovered at Mudimanikyam village in Nalgonda district of Telangana.

About:

- **Deepastambham is the pillar** which is **20 feet tall with hollows for lamps** and a multi-lingual inscription.
- It is **rare in the Deccan but common in West coast temples like Goa**.
- It is found that the **inscription dated to June 1635**, written in Telugu mixed with Tamil, dedicated to Kasi Viswanatha.
- Possibly, it would have served as a **lighthouse on the riverine trade route due to its height**.
- The inscription was found in an area ruled by the **Qutb Shahi rulers**, and European travellers like **Tavernier**, who visited Hyderabad kingdom five times, described **land trade routes** during the same period.

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<p>Pakke Tiger Reserve</p> 	<p>Recently, in a significant conservation milestone, the Centre for Bear Rehabilitation & Conservation (CBRC), situated at the Pakke Tiger Reserve in the Pakke-Kessang district, has successfully rehabilitated a total of 60 bear cubs since its establishment.</p> <p>About Pakke Tiger Reserve:</p> <ul style="list-style-type: none"> India's only rehabilitation facility for Asiatic bears is located at Pakke Tiger Reserve in Arunachal Pradesh's Pakke-Kessang district. The Pakke Tiger Reserve, also known as the Pakhui Tiger Reserve, is a protected area. The reserve was renamed Pakhui Wildlife Sanctuary in 2001 and became a tiger reserve in 2002. It has won India Biodiversity Award 2016 in the category of 'Conservation of threatened species' for its Hornbill Nest Adoption Programme. This reserve is also bounded by Kameng River in the west and north and Pakke River in the east. Flora: Pakke Tiger Reserve boasts diverse flora including Sal, Teak, Bamboo, Palms, etc. Fauna: The reserve is home to highly endangered Assam roofed turtle, hornbills, Bengal Tigers, Leopards, Asian Elephants, Asiatic bear, etc. <p>Centre for Bear Rehabilitation and Conservation</p> <ul style="list-style-type: none"> Centre for Bear Rehabilitation and Conservation (CBRC) is a joint initiative of the state's environment, forest & climate change department and the Wildlife Trust of India (WTI). Established in 2001, it holds the distinction of being the country's sole Asiatic bear rehabilitation facility and rewilded 60 bear cubs since inception. From 2022 to 2023, four bear cubs were rehabilitated, but unfortunately, one cub died during this period. CBRC also rescues various wildlife species in the state, recording 23 rescue cases in 2023.
<p>World Wildlife Fund</p> 	<p>Wildlife conservation organisation World Wildlife Fund (WWF) has urged the Romanian government to classify Mahmudia wetland as a 'national interest ecological restoration area' to protect its natural progress and foster community prosperity.</p> <p>About World Wildlife Fund:</p> <ul style="list-style-type: none"> The World-Wide Fund for Nature (WWF) is an international non-profit organization that works to preserve and conserve nature and its species. It is the world's largest conservation organization, with over five million supporters worldwide. It was established in 1961 and is headquartered in Gland, Switzerland. Its mission is to conserve nature and reduce the most pressing threats to the diversity of life on Earth.
<p>Himalayan griffon</p> 	<p>Recently, the exclusive sighting of Himalayan Griffon vultures recorded during the first-ever Tri-State synchronized vulture survey from Wayanad Wildlife Sanctuary.</p> <p>Himalayan Griffon:</p> <ul style="list-style-type: none"> The Himalayan griffon vulture (<i>Gyps himalayensis</i>), is a true raptor and one of the largest old-World vultures in Asia. It is a member of the Accipitridae family, which also includes eagles, kites, buzzards, and hawks. It's native to the Himalayas and the Tibetan Plateau. It's listed as Near Threatened on the IUCN Red List. <p>Wayanad Wildlife Sanctuary:</p> <ul style="list-style-type: none"> The Wayanad Wildlife Sanctuary was established in 1973 and is located in Kerala's Wayanad district. The sanctuary is a component of the Nilgiri Biosphere Reserve (UNESCO-designated area) and of the Elephant Reserve. Kabini river, a tributary of the Kaveri River flows through the sanctuary.
<p>Personality in News</p> <p>Acharaya Srila Prabhupada</p>	<p>Today, the Prime Minister of India will address the programme marking the 150th anniversary of Srila Prabhupada ji at Bharat Mandapam, Pragati Maidan in New Delhi.</p> <p>Acharaya Srila Prabhupada (1st September 1896 – 14th November 1977)</p> <p>Srila Prabhupada, also known as Abhay Charanaravinda Bhaktivedanta Swami, was an Indian spiritual teacher and the founder of the International Society for Krishna Consciousness (ISKCON, founded in 1966) commonly known as the "Hare Krishna movement."</p> <p>Contributions:</p> <ul style="list-style-type: none"> Acharaya Srila Prabhupada was the founder of Gaudiya Mission, who played a pivotal role in preserving and spreading the fundamental tenets of Vaishnava faith. Gaudiya Mission has played a significant role in propagating the teachings of Sri Chaitanya Mahaprabhu and the rich spiritual heritage of Vaishnavism across the world. 

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	<ul style="list-style-type: none"> ▪ Srila Prabhupada established 108 temples on six continents and traveled the world 12 times to educate his devotees. ▪ Prabhupada wrote, translated, and published 51 books in 28 languages from age 70 to 81. <p>Honours:</p> <ul style="list-style-type: none"> ▪ A commemorative stamp and a coin in honour of great spiritual guru Srila Prabhupada ji will be released by the Prime Minister. ▪ Ethical Values: Principles of love, Humility, Integrity, Devotion to God, etc.
<p>Place in News</p> <p>Suriname</p>	<p>Recently, the President of India revealed that there is great potential in the bilateral trade and economic cooperation between India and Suriname in fields such as health, ayurveda, digital technologies, education and tourism.</p>  <p>Suriname (Capital: Paramaribo) Location: Suriname, officially known as the Republic of Suriname is located on northern coast of South America. It is also the smallest sovereign state in South America. Boundaries: Suriname shares its border with French Guiana (East), Guyana (West), the Atlantic Ocean (North) and Brazil (South). Physical Features:</p> <ul style="list-style-type: none"> ▪ Julianatop is the highest mountain in the country. ▪ The Suriname, the Maroni and the Courantyne are the prominent rivers in the country. ▪ Suriname has a very hot and wet tropical climate.

POINTS TO PONDER

<ul style="list-style-type: none"> ▪ What is the provision of punishment in the Public Examinations (Prevention of Unfair Means) Bill, 2024, recently introduced in the Lok Sabha? - The Bill proposes a minimum prison sentence of three to five years to curb fraud and those involved in organized crimes of fraud will have to face imprisonment of five to 10 years and a minimum fine of Rs 1 crore. ▪ Which initiative mandates at least 3% annual procurement from women-owned micro and small enterprises by Central Ministries/Departments/Undertakings? - Public Procurement Policy (2018) ▪ In the context of the Protection of Children from Sexual Offences Act (POCSO), 2012, which article did the Supreme Court recently invoke to remit the 20-year sentence of a convicted person? - Article 142 ▪ Where is GRAPES-3 (Gamma Ray Astronomy PeV EnergieS phase-3) located? - Ooty, Tamil Nadu ▪ When was Educational Consultants India Limited (EdCIL) incorporated? - June 17, 1981

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