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GST Reforms to Drive Affordable Healthcare and Industry Growth

The GST reform is expected to empower several industries like pharmaceutical, medical device, insurance and wellness sectors to expand operations, innovate, and deliver more affordable products and services. It may also accelerate growth in Tier-2 and Tier-3 markets by lowering consumer costs and boosting uptake of healthcare and preventive solutions.

The Government of India has announced a major GST rationalisation package aimed at affordable healthcare, preventive health and stronger insurance coverage. Key measures include reducing GST on essential medicines from 12% to 5% or nil, cutting rates on medical devices and equipment, and lowering job-work charges in pharmaceutical manufacturing to 5%. Together, these are intended to ease production costs and address issues related to inverted duty structures. Several items of daily or regular use, such as spectacles, lenses and contact lenses, now attract only 5% GST, making these goods cheaper for millions. Additionally, individual health insurance premiums are exempt, expanding coverage for middle-class and senior citizens. Furthermore, essential products such as Ultra High Temperature (UHT) milk, paneer and dry fruits are tax-free or at 5%, and gyms and fitness centres have had GST cut from 18% to 5%, promoting preventive health. Goods which remain in the top GST bracket, for obvious reasons, include tobacco, pan masala and sugary drinks. This is to discourage harmful consumption. Together, these reforms align with Ayushman Bharat, Poshan Abhiyaan and the Fit India Movement to create a more health-positive tax regime.

In this newsletter
you can expect
updates from:

Government Initiatives

Emerging Technologies

Health and Medicine

Environmental Science

Food and Agriculture

Space Exploration



ICMR Transfers Nine Advanced Health Technologies to Industry at India MedTech Expo 2025

ICMR's licensing of nine advanced healthcare technologies empowers pharma, vaccine, and diagnostic industries to scale indigenous innovations, co-develop affordable solutions, and expand into domestic and global markets.

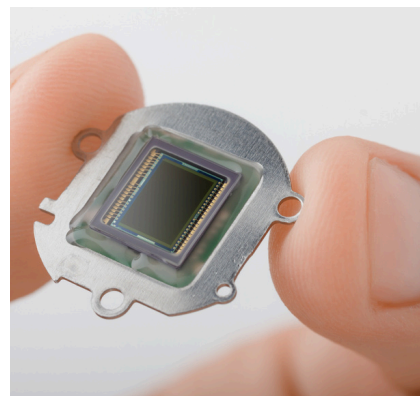
At the India MedTech Expo 2025, ICMR licensed nine cutting-edge healthcare technologies to industry partners under its Medical Innovations: Patent Mitra initiative, resulting in 17 licensing deals. Covering multistage malaria vaccines, novel Salmonella/Shigella vaccines, diagnostic kits for JE, Dengue, Chikungunya, Aspergillus and rapid Monkeypox/Nipah assays, the partnerships with Indian Immunologicals, Biological E, Panacea Biotec, Zydus Lifesciences and others speed up commercialisation of public research and expand access to affordable, indigenous medical solutions in line with Viksit Bharat 2047.



Government Plans Major Regulatory Easing to Speed Up Drug Testing and Clinical Research

It enables pharma companies and CROs to accelerate drug testing, reduce compliance delays, and drive investment in research infrastructure and partnerships, strengthening India's position as a cost-efficient global clinical development hub.

The Union Health Ministry has proposed amendments to the New Drugs and Clinical Trials Rules, 2019, to simplify drug testing and bioavailability/bioequivalence BA/BE studies. Published on 28 August 2025 for public feedback, the reforms replace the test-licence system with a notification process (except for high-risk drugs), cut processing time from 90 to 45 days, and remove licences for certain BA/BE studies. These changes are expected to reduce licence applications by around 50%, shorten drug-development timelines, and allow the CDSCO to deploy its staff more efficiently. The initiative aligns India's pharmaceutical regulations with global best practices and strengthens its position as a clinical research and drug-development hub.



Miniaturised Smart Sensor Detects Explosive Hydrogen and Toxic Gases

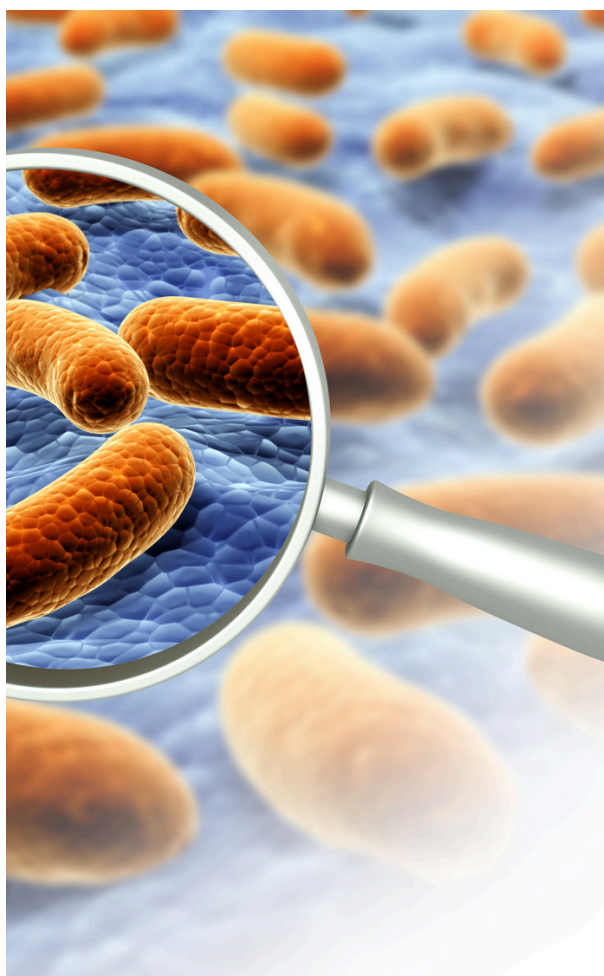
Energy, automotive, and aerospace industries can integrate these sensors for real-time hydrogen and NO₂ leak detection, enhancing safety and compliance. IoT and smart-device manufacturers can develop scalable, low-cost environmental monitoring solutions for industrial plants and urban areas.

Researchers at IISER Thiruvananthapuram, supported by the Department of Science and Technology's Nano Mission, have developed a low-power miniaturised sensor that can detect and trace levels of explosive hydrogen and toxic nitrogen dioxide at room temperature. Using nickel oxide nanostructures functionalised with nickel or zinc oxide nanoparticles, the sensor offers a cost-effective, scalable alternative to palladium-based sensors and enables faster, more selective detection. The research, published in *Sensors and Actuators B, ACS Applied Electronic Materials*, and *Small*, is advancing into self-powered, AI-assisted arrays for hydrogen safety, clean energy, aerospace, defence and environmental monitoring.



This vaccine opens up opportunities for the oncology pharma and biotech industries to accelerate the development of personalised mRNA-based cancer treatments. It also offers the diagnostics sector a chance to scale tumour genomic profiling and support precision medicine infrastructure.

Russia's Enteromix vaccine, an mRNA-based immunotherapy developed by the National Medical Research Radiological Centre in collaboration with the Engelhardt Institute, has shown 100% efficacy and safety in early/preclinical trials targeting colorectal cancer. The vaccine reportedly shrank tumours, slowed their growth (by 60-80% in some cases), and showed no serious side effects with repeated dosages. It is personalised for each patient's tumour RNA profile, making it a precision immunotherapy. Versions for other cancers, including glioblastoma and melanoma, are under development. It now awaits regulatory approval from Russia's Ministry of Health before being made available to the public.



Invisible Pathogens in Delhi Air Double Infection Risk, Says New Study

The findings of the research may encourage manufacturers and health-tech firms to develop advanced air-filtration, ventilation, and rapid pathogen detection systems for urban and high-risk environments.

Airborne pathogenic bacteria linked to respiratory, gastrointestinal, oral and skin infections are twice as abundant in densely populated parts of Delhi compared to less crowded regions, highlights research by scientists from the Bose Institute (DST). Published in *Atmospheric Environment: X*, the study shows that PM2.5 particles act as carriers for these microbes, allowing them to penetrate deep into human lungs and spread infections. Seasonal weather patterns such as winter inversions, high humidity and stagnant winds further amplify bacterial survival and spread over the Indo-Gangetic Plain. High-risk windows appear during winter haze and rain, when pollution and meteorological conditions allow microbes to linger longer in the air. This research highlights the urgent need for urban health planning and better air quality management to reduce pathogen exposure in megacities.

Ancient Nagaland Fossils Uncover Antarctica's Role in Shaping Indian Monsoons

It enables climate, agri-tech, insurance, infrastructure, and renewable-energy sectors to develop advanced prediction tools and adapt operations to changing monsoon and wind patterns.

Scientists from the Birbal Sahni Institute of Palaeosciences (Lucknow) and the Wadia Institute of Himalayan Geology (Dehradun) have linked fossil leaves from Nagaland's 34-million-year-old Laisong Formation to the early evolution of the Indian monsoon. Using CLAMP (Climate Leaf Analysis Multivariate Program), they found that the region once experienced extremely high rainfall and temperatures. The age of the fossils coincides with the formation of massive Antarctic ice sheets, which shifted the Intertropical Convergence Zone (ITCZ) toward the tropics, intensifying rainfall over Northeast India. This discovery, published in *Palaeogeography, Palaeoclimatology, Palaeoecology*, shows how global events at the South Pole reshaped tropical climates and monsoon systems in India. The findings also warn that modern Antarctic ice melt could again disrupt monsoon patterns critical for agriculture, water security and millions of livelihoods.



High Intake of Artificial Sweeteners May Accelerate Brain Aging in Adults

This research can guide food and beverage companies to reformulate low- and no-calorie products with safer sweeteners, enhancing consumer health appeal.

A recent study has found that high consumption of seven artificial sweeteners- including aspartame, saccharin, acesulfame-K, erythritol, xylitol, and sorbitol is linked to faster declines in memory and overall cognition, equivalent to about 1.6 years of aging. The study, published in *Neurology*, is based on tracking 12,772 adults in Brazil, average age 52, over eight years. The study finds that the effect was stronger in people under 60 and particularly in those with diabetes. It is noted that sweeteners were mainly consumed via diet drinks, flavored water, energy drinks, yogurt, and low-calorie desserts. No link was observed for tagatose. While the study shows associations, it does not prove causation, highlighting the need for further research into long-term brain health and safer sugar alternatives.

Fermented Foods Hold Key to Personalised Nutrition for India's Diverse Population

The research findings may enable food and nutraceutical companies to create customised fermented products enriched with bioactive peptides to target specific health conditions.

Bioactive peptides (BAPs) in traditional fermented foods such as yoghurt, idli, miso, natto, kimchi and fermented fish can regulate blood pressure, blood sugar, immunity and inflammation, highlights a new study by the Institute of Advanced Study in Science and Technology (IASST), Guwahati (DST). The research led by Prof. Ashis K. Mukherjee and team and published in Food Chemistry (2025), shows that these peptides short protein fragments of 2-20 amino acids exert antimicrobial, antihypertensive, antioxidant and immune-modulatory effects through interactions with biomolecules. However, the research also found that their bioavailability and impact differ across India's diverse population due to genetic polymorphisms (e.g., ACE, IL-6), gut microbiota, dietary habits and health conditions, making them promising for precision nutrition. The study calls for omics-based research, better fermentation methods and rural food system innovation to position India as a global leader in personalised nutrition.



India's PRATUSH Mission Uses Tiny Computer to Capture the Universe's First Signals

The technology may enable space-tech and semiconductor industries to build compact, low-power systems for deep-space missions while creating new markets in AI analytics, rugged electronics, and lunar infrastructure.

The Raman Research Institute (RRI), funded by India's Department of Science and Technology, has developed PRATUSH- a proposed lunar payload to study the Cosmic Dawn by detecting faint 21-cm hydrogen signals free from Earth's radio noise. At its heart is a credit card-sized single-board computer (SBC), adapted from a Raspberry Pi, acting as master controller of a sensitive radiometer and FPGA processor. This compact digital receiver system reduces size, weight and power needs while performing high-speed data capture, calibration and preliminary processing. Tests over 352 hours achieved noise levels of just a few millikelvins, demonstrating extreme sensitivity. This low-power, high-precision technology brings a new way to deploy cost-efficient space payloads and deepen our understanding of the early Universe.



New Computational Model Offers Sharper View of Stellar Atmospheres

The new method could facilitate increased innovation in space-tech, aerospace, and semiconductor sectors by enabling ultra-precise sensors, satellite instruments, and AI-driven astrophysics simulations.

Scientists from the Indian Institute of Astrophysics (IIA), in collaboration with IRAP, France, have developed an advanced computational method to simulate stellar atmospheres more realistically. This Full Non-Local Thermodynamic Equilibrium (FNLTE) model overcomes the traditional assumption that atomic velocities always follow the Maxwellian equilibrium, capturing instead the complex, chaotic interactions of photons, atoms, and radiation fields. Moving from the two-level to the three-level atom problem, the model now includes effects such as Raman scattering naturally, producing markedly different velocity distributions near stellar surfaces compared to standard models. Published in *Astronomy & Astrophysics*, the study marks a major advance for decoding stellar spectra essential for measuring star temperatures, compositions, and circumstellar environments, which can also support exoplanet discovery and refined models of molecular clouds where stars and planets form.

Thank you for reading!

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