



# DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY  
Tuesday 20190730

## **National Medical Commission Bill, 2019 (NMC)**

### **Medical Commission Bill passed (The Hindu: 20190730)**

<https://www.thehindu.com/news/national/medical-commission-bill-passed/article28750900.ece>

Union Health Minister Harsh Vardhan. File

Opposition says it's 'undemocratic'; Harsh Vardhan calls it revolutionary

The Lok Sabha on Monday passed the National Medical Commission Bill, 2019 (NMC) with Union Health Minister Harsh Vardhan assuring the House that the Bill, which seeks to repeal the Indian Medical Council Act, 1956, will go down in history as the most revolutionary step taken to improve medical education in India.

According to him, no powers of the State government will be taken away by the Centre through this Bill. Dr. Vardhan said: "We have also withdrawn the suggestion of a bridge course."

A motion for consideration of the Bill was passed by 260-48 votes after a division of votes was sought and the Bill was then passed by a voice vote.

Speaking about the exit-examination during the four-hour debate which saw the participation of 32 MPs across parties, Dr. Vardhan said: "We are bringing this to ensure good standard of medical students and colleges and to bring in transparency." The Minister added that the State governments would be fully involved with the running of the councils

The Bill was opposed by several Opposition MPs. While Vincent Pala of the Congress asked the Minister to explain what happens to MBBS students who don't pass the NEXT or the national exit exam, DMK's A. Raja called the Bill a 'joke' and 'undemocratic.'

Trinamool leader Dr. Kakoli Ghosh Dastidar said many students who study in the regional language find it difficult to clear NEET. She also described the Bill as going against the federal structure of the Constitution.

IMA stages protest

Doctors and medical students under the Indian Medical Association (IMA) held a protest march from the All India Institute of Medical Sciences to Nirman Bhawan on Monday, calling the Bill anti-poor and anti-student.

## **Generic section soon**

### **Private drug stores may have generic section soon (The Hindu: 20190730)**

<https://www.thehindu.com/news/national/kerala/generic-section-in-private-drug-stores-soon/article28749315.ece>

Your neighbourhood drug store may soon have a separate section for generic drugs.

The All-Kerala Chemists and Druggists Association (AKCDA), the largest network of medicine distributors in the State, has come up with this proposal to tackle the rising demand for non-branded medicines at affordable rates.

A.N. Mohanan, president, AKCDA, claims that the Union government has been pushing the sale of generic medicines through Jan Aushadhi stores. The State government has been promoting the Kerala generics brand of medicines through Karunya community pharma outlets as well.

There are over 400 Jan Aushadhi stores in the State and the Centre plans to set up more such shops.

“Opening up of Jan Aushadhi stores has hit our business. The rising demand for quality-assured generic drugs made us think of setting up separate sections for them,” he points out.

“More than 90% of the ₹10,000-crore worth medicines, a majority of them branded generic drugs, being sold in the State annually are not manufactured here,” Mr. Mohanan says.

He says that before the introduction of the Goods and Services Tax (GST), both multinational pharma companies and their Indian counterparts used to outsource medicine manufacturing to small units set up in northeastern States, Himachal Pradesh, and Jammu and Kashmir to get exemption from excise duty, income tax, and value-added tax. After the enforcement of the GST, the pharma majors have set up their own plants and the output of manufacturers in those States had come down considerably, he says.

“We propose to make use of their facilities and the effort will be to sell non-branded essential generic medicines. The Drugs Control Department is expected to issue guidelines soon to ensure the quality of the manufacturers. Pharmacists’ associations have offered us help,” Mr. Mohanan says.

As many as 2,000 of the 13,000 AKCDA members are expected to have generic sections at their stores within six months, he adds.

MCI contention

The medical community, however, is not very enthusiastic. Though the Medical Council of India had directed doctors sometime ago to prescribe only generic medicines, they are apprehensive of the quality aspect.

N. Sulphi, State secretary, Indian Medical Association, told The Hindu that almost 98% of generic drugs in the country is of low quality.

“If they can ensure the quality of the drugs, we can think about prescribing them,” he adds.

## **Cancer-affected breast tissues**

### **Fluorescence imaging to identify cancer-affected breast tissues introduced in AIIMS (The Tribune: 20190730)**

<https://www.tribuneindia.com/news/health/fluorescence-imaging-to-identify-cancer-affected-breast-tissues-introduced-in-aiims/809249.html>

IIT-Mandi researchers decode how lead toxicity may cause fatty liver disease

Mediterranean diet during pregnancy may lower gestational diabetes risk: Study

Fluorescence imaging to identify cancer-affected breast tissues introduced in AIIMS

During breast cancer surgery, surgeons inject a safe and affordable indocyanine green (ICG) dye in patients.

In a first, a state-of-the-art fluorescence imaging technology for easy identification of cancer-affected tissues in breast has recently been introduced at the AIIMS here.

According to Dr SVS Deo, Head of the Department of Surgical Oncology at AIIMS, the technology will be a "game changer" in breast cancer surgery space as it precisely helps identify relevant tissue intra-operatively.

During breast cancer surgery, surgeons inject a safe and affordable indocyanine green (ICG) dye in patients. Using Fluorescence Imaging technology, surgeons can view blood flow in vessels, micro-vessels, tissue perfusion and critical anatomical structures intra-operatively.

"The relevant tissues light up in fluorescent green colour. The reliability and multiple applications of the imaging are a significant differentiation compared to currently used technologies like blue dye," he said.

"Due to lack of this critical information, earlier all lymph nodes including healthy ones would be removed completely causing significant collateral damage to patient. With Fluorescence Imaging technology we can now save healthy tissue and improve patient safety and outcomes," Dr Deo said.

The technology uses near-infrared fluorescence imaging during cancer surgery that allows real time, clinically significant and actionable information to improve quality of care, outcomes and safety of patients.

Currently, the most common method to detect and remove lymph nodes during surgery is the use of blue dye and radiocolloid while using a gamma probe.

"Challenge with gamma probe is that it involves injecting radiation into the patient and is not widely available across healthcare institutes due to regulatory restrictions as well as high operating cost per surgery," Dr Deo said adding infrared FI technology with its accuracy and precision, not only helps improve patient outcomes, but also provides alternative options compared to current technologies like gamma probe.

Dr David Weintritt, a breast cancer expert from GW School of Medicine and Health Sciences, US, who joined one of the workshops held at AIIMS on the use of the technology recently, said during surgery, the technology provides critical information about patient's anatomy, when information is most important.

"Equipped with this information, several complications can be proactively avoided, thereby reducing healthcare burden," Dr Weintritt said.

This technology can also be used in breast oncoplasty and breast reconstruction post mastectomy. FI reveals areas that do not have adequate blood supply allowing the surgeon to remove tissue that would otherwise lead to problems in healing, infections and unnecessary additional surgeries which are costly, Dr Weintritt explained.

More than 250 peer-reviewed publications demonstrate that the use of this technology will improve clinical outcomes and help surgeons choose the next line of treatment. —PTI



## **Fatty liver disease**

### **IIT-Mandi researchers decode how lead toxicity may cause fatty liver disease (The Tribune: 20190730)**

<https://www.tribuneindia.com/news/health/iit-mandi-researchers-decode-how-lead-toxicity-may-cause-fatty-liver-disease/808298.html>

Researchers at the Indian Institute of Technology (IIT)-Mandi have, for the first time, unravelled the mechanisms by which lead salts may cause fatty liver disease, an advance that could pave the way for drugs to treat the disorder.

Epidemiological studies have shown that this non-alcoholic fatty liver disease (NAFLD) affects nine per cent to 32 per cent of Indian population, researchers said.

NAFLD is a dangerous epidemic and is a rapidly growing health problem intimately related to the metabolic group of diseases such as obesity and diabetes, among others, researchers said.

It is a condition wherein there is excessive fat accumulation in the liver, according to the study published in the journal 'FEBS Letters'.

“While the connection between lead and fatty liver disease has been known for a while, the actual mechanism by which lead worsens this condition has hitherto remained unknown,” said Prosenjit Mondal, Assistant Professor at IIT Mandi.

NAFLD, and most metabolic group of diseases, are often caused by the poor regulation of De novo lipogenesis (DNL), a complex process in which carbohydrates circulating in the blood are converted into fat.

The poor regulation of DNL leads to abnormal production of fat, which settles in the liver and other internal organs as visceral fat, researchers said.

It has been found that the metal lead (Pb<sup>2+</sup>), which is a serious environmental toxin, can lead to poor regulation of fat formation and deposition in the liver, they said.

Lead toxicity is a serious concern in India and the use of lead containing paints, pesticides, packaging and even beer contributes towards high exposure of Indians to this toxic metal and its salts, said researchers, including those from Council of Scientific and Industrial Research (CSIR)-Indian Institute of Toxicology Research, Lucknow and Jamia Hamdard University, New Delhi.

Lead salts absorbed by the human body is stored in soft tissues, and autopsy studies have shown that the liver hoards almost 33 per cent of the total lead cruising in the body.

DNL is a complex process that involves numerous biomolecules, one of which is Carbohydrate Responsive Element Binding Protein (ChREBP), which activates the regulatory enzyme, fatty acid synthase, which is responsible for fat production in liver cells.

The activity of ChREBP in human liver cells is kept in control by another biomolecule called sorcin.

“We observed Pb<sup>2+</sup> ions to suppress sorcin activity, and this over-activates ChREBP, which in turn triggers fatty acid synthase. This increases fat production in the liver, leading to NAFLD,” said Mondal.

Researchers also proposed chemicals that can target the Pb<sup>2+</sup>-Sorcin-ChREBP cascade, so that drugs can be discovered and developed to treat NAFLD caused by lead toxicity.

They injected mice with a small DNA segment (plasmid) through adenovirus, which increased sorcin activity and thereby reduced the progression of fatty liver disease.

## **Preventive healthcare**

### **Preventive healthcare is key (The Tribune: 20190730)**

<https://www.tribuneindia.com/news/health/preventive-healthcare-is-key/808267.html>

Sedentary and stressed professional life is making young women prone to many diseases...

Woman's role has changed radically in the past few decades. She has been pushing the boundaries and making her presence felt in the professions once dominated by men. The hectic lifestyle, though, is taking its toll as working women even below 40 years of age have become prone to several lifestyle diseases. Most of the women know about these health issues but don't invest time and money to prevent them.

The majority of these young professionals are leading stressed and unhealthy lives. They don't sleep enough, follow improper diet, do little physical activity, and breathe an unhealthy air. The work pressure and stressed personal life affect their mental state too. The sedentary lifestyle has made women vulnerable to diseases like obesity, hypertension, diabetes, high cholesterol, high blood pressure, fatigue, backaches, vitamin deficiency, osteoporosis, and various heart ailments. Moreover, these lifestyle diseases have become prevalent among working women even in the young 25-35 age group.

What makes the situation worse is the fact that more and more women in both urban and rural areas are being diagnosed with the cancer of breast, cervix, ovaries, and stomach. Alcohol and smoking have made the lung and liver cancer a common occurrence in women, too.

Unfortunately, thanks to work pressure and generally hectic and stressed lifestyle, most people tend to neglect early signs of a condition. Preventive healthcare measures can help with early diagnosis and better prognosis. An early diagnosis of an ailment makes the treatment more effective, avoiding or controlling the consequences to a large extent. Many of these conditions can be passed on genetically; therefore, preventive care will not only benefit the woman but also her offspring.

Preventive healthcare is highly recommended to keep track of one's health. One could go in for tests for anaemia, thalassaemia, Complete Haemogram (CBC), Vitamin B12 and Vitamin

D. Besides, there are certain tests which have now become crucial for women as they are more likely to develop these conditions. Some of the tests to go for are:

Diabetes

Liver (bilirubin-total, bilirubin-direct, bilirubin-indirect, SGOT, SGPT, alkaline phosphatase)

Kidney (urine routine, S. creatinine)

Blood Urea Nitrogen (BUN), S. uric acid)

Heart (cholesterol-total, triglycerides) thyroid (TSH), and bone (calcium, phosphorus)

Most importantly, women need to stay aware of cancer symptoms and practice self-examination as often as possible and consult a doctor as and when they notice something abnormal. Still, most of the women do not understand the importance of preventive measures and consider it a waste of time and money. However, they need to give it importance as an early identification of even a slight imbalance that may be pointing out to a serious condition can be treated or controlled effectively at the right time.

Besides, most women are not aware that preventive healthcare check-ups up to Rs. 5000 help you save tax under section 80D of the Income Tax Act. Preventive steps are sort of investments that one should do today and at regular intervals to build a healthy tomorrow..

What else you could do to stay healthy...

Along with preventive healthcare measures, making conscious efforts towards maintaining a healthy lifestyle is something women need to look at. Given below are a few things that women can do at their workplaces to stay fit and healthy.

Always take the stairway

Keep your body moving

Quit smoking

Take a 10-minute break from work at regular intervals

Maintain a proper diet and never skip meals

Exercise for 30-45 minutes and take a stroll daily

Women may find it difficult to do all this while doing their job but they must give priority to their health above everything else to ensure a happy and relaxed life for themselves and everyone around them.

— The writer is preventive healthcare specialist, Indus Health Plus

## **Cavities**

### **Cavities and the dangers they pose (The Tribune: 20190730)**

<https://www.tribuneindia.com/news/health/cavities-and-the-dangers-they-pose/808271.html>

Caries are more common among children. Ignoring them can lead to tooth loss, decaying of the inside parts of the teeth

Is your child's sweet tooth making you anxious? Experts estimate that every second child in India has cavities, which, if not prevented, can lead to severe dental ailments and can even affect the overall development of the child. According to US National Institute of Dental and Craniofacial Research, 42 per cent of children aged two to 11 develop a cavity in their primary teeth and nearly 28 per cent of children aged two to five develop at least one cavity. Cavities refer to tooth decay which happens when tooth enamel (outer layer of teeth) is destroyed. This happens when bacteria in the form of plaque reacts with sugary foods to form acids that attack the enamel and erode it. Dental plaque is the sticky, slimy substance made up mostly of the germs that cause tooth decay. It sticks to the teeth and can eat away the enamel.

Cavities are more common among children. Due to poor eating and oral habits, dental plaque is developed frequently in kids' teeth. If your child has toothache and holes/pits are visible, then it is surely a symptom of the cavity. Ignoring it can lead to tooth loss and the decaying of inside parts of the teeth.

A recent study by University of Melbourne and the Murdoch Children's Research Institute at Royal Children's Hospital in Melbourne, Australia, has found that environmental factors are also responsible for triggering risk for cavities. All this requires parents to be aware of the various dimensions of the problems, as well as of the fact that this is a common yet preventable disease. Cavities in baby and permanent teeth can cause pain and prevent children from eating, speaking, sleeping, and learning properly. It is important to protect both primary (baby) teeth and permanent teeth.

Primary teeth can get cavities and permanent ones can develop dental infections. Tooth decay, especially of baby teeth is a serious, infectious and transmissible disease that can spread quickly and lead to infection without proper precautions. But the good news is that it is preventable and treatable.

Cavities in children can be treated by different methods like dental sealant and fluoride varnishing, apart from dental filling. Dental sealant protects teeth especially when children are most susceptible to having decay. It is less expensive than filling. Fluoride varnish is a thick liquid painted on the teeth with a small disposable brush. It strengthens tooth enamel and can help prevent dental decay," says Dr Jayna Gandhi, Deputy Zonal Clinical Head at Clove Dental.

## Mediterranean diet

Mediterranean diet during pregnancy may lower gestational diabetes risk: Study

Women who follow a Mediterranean-style diet during pregnancy, including a daily portion of walnuts and almonds, and extra virgin olive oil, may have a lower risk of gestational diabetes, a study claims.

Gestational diabetes is a type of diabetes that is first seen in a pregnant woman who did not have diabetes before she was pregnant.

The results, published in the journal PLOS Medicine, found women who followed a Mediterranean-style diet during pregnancy had a 35 per cent lower risk of gestational diabetes and on average gained 2.75 pounds less, compared to women who received standard prenatal care.

A Mediterranean-style diet rich in good, unsaturated fats, found in foods like walnuts and extra virgin olive oil, has been shown to reduce the risk of heart attack, stroke, and cardiovascular death in adults, according to researchers at Queen Mary University of London and the University of Warwick in the UK.

Walnuts, in particular, are a traditional food in the Mediterranean diet because of their omega-3 ALA content and bioactive compounds, they said.

While there has been extensive research on the Mediterranean diet to date, the diet's potential to improve maternal and offspring outcomes has not been widely evaluated, making this study particularly valuable.

The study included 1,252 multi-ethnic inner-city pregnant women with metabolic risk factors, including obesity and chronic hypertension.

In addition to receiving folic acid and vitamin D supplementation, the women were randomly assigned to either a Mediterranean-style diet or a control group that received dietary advice per UK national recommendations for prenatal care and weight management during pregnancy.

Those who followed the Mediterranean diet consumed a daily portion of nuts, including 15 gram of walnuts, 7.5 gram of almonds, 7.5 gram of hazelnuts) and used extra virgin olive oil as their main source of cooking fat.

In addition, the diet emphasised fruit, vegetables, non-refined grains and legumes; moderate to high consumption of fish; small to moderate intake of poultry and dairy products; low intake of red meat and processed meat; and avoidance of sugary drinks, fast food, and food rich in animal-based fat.

Participants received dietary advice at 18, 20, and 28 weeks' gestation to help improve compliance and make sure the diet was made culturally sensitive.

The researchers measured dietary compliance using self-reported feedback from the participants, so it's important to note that there could have been human error in the reporting.

They also assessed the effect of a Mediterranean diet on other pregnancy complications such as high blood pressure, preeclampsia, stillbirth, small for gestational age fetus, or admission to a neonatal care unit, but did not find any significant associations.

One in four mothers enter pregnancy with pre-existing obesity, chronic hypertension or raised lipid levels, which can lead to pregnancy complications, long-term risk of diabetes and cardiovascular complications for mothers and their children. — PTI

## **Mediterranean diet**

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<https://www.tribuneindia.com/news/health/mediterranean-diet-during-pregnancy-may-lower-gestational-diabetes-risk-study/808226.html>

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One in four mothers enter pregnancy with pre-existing obesity, chronic hypertension or raised lipid levels, which can lead to pregnancy complications, long-term risk of diabetes and cardiovascular complications for mothers and their children. — PTI

## **Music session improves patient-therapist bond**

### **Music session improves patient-therapist bond (The Tribune: 20190730)**

Apart from entertainment, music has several other benefits as researchers have found that a music therapy session synchronises the brain of patients and therapists, which can improve future interactions between the two.

Published in the journal *Frontiers in Psychology*, this is the first music therapy study to use a procedure called hyperscanning, which records activity in two brains at the same time, allowing researchers to better understand how people interact.

"Music therapists report experiencing emotional changes and connections during therapy, and we've been able to confirm this using data from the brain," said study lead author Jorg Fachner, Professor at Anglia Ruskin University in the UK.

"Music therapists have had to rely on the patient's response to judge whether this is working, but by using hyperscanning we can see exactly what is happening in the patient's brain," Fachner said.

During the session documented in the study, classical music was played as the patient discussed a serious illness in her family. Both patient and therapist wore EEG (electroencephalogram) caps containing sensors, which capture electrical signals in the brain and the session was recorded in sync with the EEG using video cameras.

According to the researchers, music therapists work towards "moments of change", where they make a meaningful connection with their patients.

At one point during this study, the patient's brain activity shifted suddenly from displaying deep negative feelings to a positive peak. Moments later, as the therapist realised the session was working, her scan displayed similar results.

The researchers examined activity in the brain's right and left frontal lobes where negative and positive emotions are processed, respectively.

By analysing hyperscanning data alongside video footage and a transcript of the session, the researchers were able to demonstrate that brain synchronisation occurs, and also show what a patient-therapist "moment of change" looks like inside the brain.

"Hyperscanning can show the tiny, otherwise imperceptible changes that take place during therapy. By highlighting the precise points where sessions have worked best, it could be particularly useful when treating patients for whom verbal communication is challenging," he added. — IANS

## **Providing health for all**

### **Japan and India are exchanging ideas and expertise in many projects to promote universal health coverage (The Hindu: 20190730)**

<https://www.thehindu.com/opinion/op-ed/providing-health-for-all/article25719386.ece>

Today, on Universal Health Coverage (UHC) Day, I wonder how many readers are aware of what UHC is. According to the World Health Organisation, UHC means “ensuring that everyone, everywhere can access essential quality health services without facing financial hardship”. It sounds basic, yet the basics often pose a major challenge. Japan has been leading the international efforts towards UHC, including its inclusion in the sustainable development goals and G20 agenda under our chairmanship next year, because health is one of our fundamental rights.

India has taken the vital first step towards UHC through Ayushman Bharat. This challenge is reminiscent of the path that Japan took more than half a century ago. Japan created national health insurance coverage in 1961, when it was yet to take off economically. A major political decision was required to expand national health insurance and establish medical schools all over Japan. The implementation of UHC could only have been possible through an early and vast national investment, and through a comprehensive government effort, with the Ministries of Health, Finance and Education, as well as local governments, working together.

This investment has paid off. UHC has increased the number of healthy people and healthy workers in Japan. It has contributed to the economic miracle of Japan. Moreover, UHC has ensured social equity by functioning as a mechanism for redistribution of incomes. Even in the remotest of places in Japan, you do not have to worry about healthcare. The peace of mind which UHC ensures to the Japanese is an indispensable ingredient of our overall well-being.

We are also partnering with India in wide-ranging projects for better healthcare. Japan has previously worked with India to eradicate polio in India. Today, Japanese and Indian doctors are exchanging ideas and expertise at a research and control centre on diarrhoea established by Japan in Kolkata, and precious lives of newborns are being saved daily in a children’s hospital constructed in Chennai. In 17 cities across Tamil Nadu, urban healthcare systems are being strengthened with our cooperation.

When Prime Minister Narendra Modi visited Japan at the end of October, India and Japan signed a new Memorandum of Cooperation on healthcare to pursue the synergies between

Ayushman Bharat and Japan's Asia Health and Wellbeing Initiative. We aim to pursue our cooperation in various fields, such as honing skills of doctors in surgery of trauma as well as providing technical training for Indian nurses studying in Japanese caregiving facilities. We hope these efforts will lead to a better health ecosystem and the promotion of UHC in India. Japan is also willing to learn from India. For instance, Ayurveda can bring a new dimension to Japan's healthcare system. The path towards UHC is not short. But India has taken the first bold step, and Japan will march along with India on this path, sharing its lessons, as a friend.

## **Vaccine hesitancy'**

### **Need counter-view from policy makers on vaccine hesitancy' (The Indian Express: 20190730)**

<https://indianexpress.com/article/lifestyle/health/need-counter-view-from-policy-makers-on-vaccine-hesitancy-5862081/>

According to WHO, vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services.

WHO report: Mobile scheme to quit tobacco has over 2 million users in India

India has a doctor for every 10,189 people, finds WHO survey

Govt bans use of antibiotic Colistin in animal feed, poultry, aqua farms

World Health organisation, WHO, vaccines, vaccine hesitancy, what is vaccine hesitancy, vaccine trials India, Bill & Melinda Gates Foundation, Indian express

Vaccine hesitancy is a growing problem the world over. The US too has been grappling with it as some time back cases of polio like illness created panic.

Nine Indian companies produce vaccines prequalified for use by the World Health organisation; yet in India and the world over, the very success of vaccines is contributing to rising vaccine hesitancy, said Dr Trevor Mundel, President, Global Health Division, Bill & Melinda Gates Foundation on Monday. According to WHO, vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services.

“You have to rectify the situation of complacency that seems to have gotten into both at the policy level and among medical specialists who have seen and understand the huge population(level) benefits of vaccination. Take something like measles vaccination, it seems that its very success in eliminating measles has made people forget about the problems of disability and deaths caused by the disease. People forget about those aspects because the vaccine has been so successful. There needs to be a counter view from policy makers and the medical field,” Dr Mundel told The Indian Express on the sidelines of the Leadership Dialogue Series organised by the department of biotechnology and AIIMS. In his talk on Monday, Dr Mundel spoke about India's leadership role in solving global health challenges.

India since last year has seen a resurgence of diphtheria in big cities including Delhi despite the fact that vaccine for the disease is among the oldest in the public health programme. The

comeback of the disease caused the Union Health Ministry to commission a study on vaccine hesitancy.

Vaccine hesitancy is a growing problem the world over. The US too has been grappling with it as some time back cases of polio like illness created panic.

In his speech at AIIMS, Dr Mundel spoke about India's vaccine industry and his foundation's eagerness to partner with it. " Nine Indian companies produce vaccines that are prequalified for global use by the WHO. The Gates Foundation actively partners with three of these companies – Serum Institute, Bharat, and BioE – each of which is playing a critical role in developing safe, effective, and affordable vaccines for the leading infectious causes of death and disability in low- and middle-income countries. The Gates Foundation is eager to work with India's biotechnology ecosystem to develop new and better vaccines for the next generation," he said. India's strength, he said, is its ability to supply quality vaccines at an affordable price.

He also spoke about the possible lead India can take on research related to undernutrition and help develop interventions that can prevent stunting and wasting in children. "We know that frequent exposure to severe diarrhea and infectious diseases can severely damage the gut lining of young children, preventing their bodies from taking up essential nutrients and limiting healthy brain and body development. Indian researchers are now working on innovative ways to test for irregularities in gut development using non-invasive endoscopes that can be gently inserted through the nose and directed through the stomach and into the small intestine. We are also collaborating on early phase research to identify supplements that can restore healthy growth and development to damaged gut linings," he said in his talk.

### **Autism (Navbharat Times: 20190730)**

<http://epaper.navbharattimes.com/details/49578-54533-1.html>

# AI के जरिये ऑटिजम का पता लग सकेगा

■ **एनबीटी:** बच्चों में ऑटिजम का पता लगाना मुश्किल होता है। लेकिन आर्टिफिशल इंटेलिजेंस (एआई) के जरिये कम उम्र में दिमागी विकास के दौरान होने वाले इस रोग का पता लगाना अब मुमकिन

बच्चों में दिमागी विकास से जुड़ी बीमारी का पता लगाने में मुश्किल होती है

हो सकता है। बता दें कि ऑटिजम के शिकार व्यक्ति के सामाजिक बर्ताव पर असर पड़ता है। रपटों के मुताबिक, वॉशिंगटन से

प्रकाशित जर्नल में यह दावा किया गया है कि एआई के जरिए एक ऐसी मशीन आधारित गिनती मुमकिन हो सकती है, जो रेट सिंड्रोम (जिससे दरअसल लड़कियों का दिमागी विकास प्रभावित होता है) और ऑटिजम स्पेक्ट्रम डिसऑर्डर के बारे में कम उम्र में आकलन कर बता सकें।

## Parkinson's, other brain disease

### Discovery opens door for new treatments for Parkinson's, other brain disease (New Kerala: 20190730)

<https://www.newkerala.com/news/read/183600/discovery-opens-door-for-new-treatments-for-parkinsons-other-brain-diseases.html>

A discovery has revealed that a protein which was earlier linked to cell dysfunction and death is in fact critical for repairing breaks in DNA. The finding could lead to new treatments for Parkinson's and other brain diseases, suggests a study.

The study published in the journal 'Scientific Reports,' demonstrates the role of protein- alpha-synuclein in preventing the death of neurons in brain diseases such as Parkinson's.

The findings suggest that it may be possible to design new therapies to replace alpha-synuclein's function or boost it in people with Parkinson's disease and other neurodegenerative. It also reveals that aggregates of alpha-synuclein, lewy bodies, are problematic because they pull alpha-synuclein protein out of the nucleus of brain cells.

The study examined the cells of living mice and postmortem brain tissue in humans, revealed that these proteins perform a crucial function by repairing breaks that occur along the vast strands of DNA present in the nucleus of every cell of the body.

Alpha-synuclein's role in DNA repair may be crucial in preventing cell death. This function may be lost in brain diseases such as Parkinson's, leading to the widespread death of neurons.

"It may be the loss of that function that's killing that cell," said Vivek Unni senior author of the study.

Researchers found that the alpha-synuclein protein rapidly recruited to the site of DNA damage in the neurons of mice. In addition, they found increased double-strand breaks in the DNA of human tissue and mice in which the protein was clumped together in the form of Lewy bodies in the cytoplasm surrounding the cell's nucleus. Taken together, the results suggest that alpha-synuclein plays a crucial role in binding broken strands of DNA within the cell's nucleus.

"This is the first time that anyone has discovered one of its functions is DNA repair," Unni said. "That's critical for cell survival, and it appears to be a function that's lost in Parkinson's disease."

## **Autism risk disease**

### **Increased estrogen levels in womb may increase autism risk disease (New Kerala: 20190730)**

<https://www.newkerala.com/news/read/183471/increased-estrogen-levels-in-womb-may-increase-autism-risk.html>

High levels of estrogen hormones in the womb could increase the risk of a foetus developing autism later, suggests a study.

The study was published in the journal 'Molecular Psychiatry'.

In 2015, a team of scientists measured the levels of four prenatal steroid hormones, including two known as androgens, in the amniotic fluid in the womb and discovered that they were higher in male foetuses who later developed autism.

Some scientists have built on their previous findings by testing the amniotic fluid samples from 98 individuals, but this time looking at another set of prenatal sex steroid hormones called estrogens. This is an important next step because some of the hormones previously studied are directly converted into oestrogens.

All four estrogens were significantly elevated, on average, in the 98 fetuses who later developed autism, compared to the 177 fetuses who did not.

High levels of prenatal estrogens were even more predictive of the likelihood of autism than were high levels of prenatal androgens (such as testosterone).

Simon Baron-Cohen, who led this said "This new finding supports the idea that increased prenatal sex steroid hormones are one of the potential causes for the condition. Genetics is well established as another, and these hormones likely interact with genetic factors to affect the developing foetal brain."

"These elevated hormones could be coming from the mother, the baby or the placenta. Our next step should be to study all these possible sources and how they interact during pregnancy," said Alex Tsompanidis, a PhD student in Cambridge who worked on the study.

## **Healthier lives**

### **Years after good-behavior program in grade school, adults report healthier lives (New Kerala: 20190730)**

<https://www.newkerala.com/news/read/183217/years-after-good-behavior-program-in-grade-school-adults-report-healthier-lives.html>

Researchers have found that by teaching parents and teachers to build stronger bonds with their children and to help children form greater attachments to family in grade school can lead to a healthier and successful life in adulthood.

The people who reported better health and socioeconomic status were consistently those whose parents and teachers had received lessons aimed at building stronger bonds with their children.

The findings are published by The Journal National Institute on Drug Abuse.

"These early elementary-school interventions seek to make kids current lives better both in and out of school. But can we actually get kids on a different life trajectory that lasts beyond elementary school? In fact, we found enduring effects, where they're having an overall better experience in adulthood," said Rick Kosterman, a principal investigator with the Social Development Research Group.

Many of the concepts are teaching tools and parenting tips that are well-known today. Reinforcing positive behaviours, setting expectations for making responsible choices, and promoting positive social interaction at school through group projects and seating arrangements. Table groups in the classroom facilitate cooperation and learning from one another, for example, while at home, parents can catch their child being good and offer praise. With older children, parents can discuss issues such as smoking so that standards for healthy behaviour are established before the teen years.

The prevention curriculum, called Raising Healthy Children, was created by UW social work professors J. David Hawkins and Richard Catalano. The lessons, for use by parents and

teachers, focused on enhancing children opportunities for forming healthy bonds in grades 1 to 6 and providing them with social skills and reinforcements.

"We worked to build healthier relationships, we call it social bonding between teachers and students, and parents and children. The larger question was if we do all these things, will it turn into a prosocial, healthy lifestyle? We didn't know we would see these results so much later in life" said Hawkins.

Hawkins added, "The most important thing we've learned is to provide opportunities for kids to have positive social involvement. Make sure your kids have the opportunity to engage with you as a parent. Play with them, hold them, don't just sit on your phone when you're with them."

## **Brain aging**

### **Extra weight in 60s may be linked to brain aging: Study (New Kerala: 20190730)**

<https://www.newkerala.com/news/read/183147/extra-weight-in-60s-may-be-linked-to-brain-aging-study.html>

A bigger waistline and high body mass index (BMI) in the 60s may be linked to the signs of brain aging by at least a decade, says a study.

"People with bigger waists and higher BMI were more likely to have thinning in the cortex area of the brain, which implies that obesity is associated with the reduced gray matter of the brain," said study author Tatjana Rundek.

The study has been published in the journal 'Neurology.'

"These associations were especially strong among those who were younger than 65, which adds weight to the theory that having poor health indicators in mid-life may increase the risk for brain aging and problems with memory and thinking skills in later life," said Dr Rundek,

The study involved 1,289 people with an average age of 64. Two-thirds of the participants were Latino. Participants' BMI and waist circumference were measured at the beginning of the study.

An average of six years later, participants had MRI brain scans to measure the thickness of the cortex area of the brain, overall brain volume, and other factors.

A total of 346 of the participants had a BMI of less than 25, which is considered normal weight; 571 people had a BMI of 25 to 30, which is considered overweight; and 372 people had a BMI of 30 or higher, which is considered obese.

For the waist circumference, which can be different for men and women, the normal weight group, which was 54 per cent women, had an average of 33 inches, the overweight group, which was 56 per cent women, had an average of 36 inches, and the obese group, which was 73 per cent women, had an average of 41 inches.

Having a higher BMI was associated with having a thinner cortex, even after researchers adjusted for other factors that could affect the cortex, such as high blood pressure, alcohol use, and smoking.

In overweight people, every unit increase in BMI was associated with a 0.098 millimeter (mm) thinner cortex and in obese people with a 0.207 mm thinner cortex. Having a thinner cortex has been tied to an increased risk of Alzheimer's disease.

Having a bigger waist was also associated with a thinner cortex after adjusting for other factors.

"In normal aging adults, the overall thinning rate of the cortical mantle is between 0.01 and 0.10 mm per decade, and our results would indicate that being overweight or obese may accelerate aging in the brain by at least a decade," Rundek said.

Rundek noted that the study does not prove that extra weight causes the cortex to get thinner. It only shows an association.

A limitation of the study was that, like many studies of older people, it is possible that the healthiest people are more likely to live longer and take part in studies, so that may affect the results.

## **Skin nerves anticipate**

### **Skin nerves anticipate and fight infection: study (New Kerala: 20190730)**

<https://www.newkerala.com/news/read/182958/skin-nerves-anticipate-and-fight-infection-study.html>

A recent discovery revealed that pain-sensing nerves help fight skin infections and prevent its spread, suggesting a new type of immunity

"These pain-sensing nerves can detect pathogens, and for the first time, we've shown that they activate an immune response and also signal protective immunity in sites adjacent to the infection. This demonstrates that the immune and nervous systems work synergistically for host defence. These findings also could have important implications for developing more specific therapies for autoimmune skin diseases like psoriasis," said Daniel Kaplan, the senior author of the study published in the journal of Cell.

Until about a decade ago, the pain was thought to have evolved as a way for your body to tell you to stay away from a particular stimulus or to signal a problem with its function, like an injury. More recently, however, researchers have shown that it may play an important role in immunity against some pathogens.

In the study, Kaplan and first author Jonathan Cohen, collaborated with Pitt neurobiology professors and pain experts Kathy Albers, to develop an optogenetic mouse model where pain-sensing neurons in the skin could be activated by shining blue light.

They first showed that just activating these neurons released a small protein called CGRP, which recruited different types of immune cells to the site. This suggested that neurons

detecting skin pathogens on their own kickstart an immune response even before sentry immune cells could.

Then in the same mouse model, they infected the animals with either *Candida albicans*, a fungus that causes candidiasis, commonly known as thrush, or *Staphylococcus aureus*, a common bacterium that can turn deadly under certain conditions.

Using optogenetics and chemical nerve blockers, the researchers showed through a series of elegant experiments that when the fungus infected the skin at one location, the nerves not only detected and initiated an immune response to fight the infection but also sent a signal toward the spinal cord.

The researchers called this new nerve-driven protective mechanism "anticipatory immunity."

"The advantage of involving the nervous system is that it can communicate information across space in a span of milliseconds, compared to hours or days for the immune cells to do the same function. It's the difference between sending Paul Revere to warn of the British advance and sending a telegram to do the same," said Jonathan Cohen, the first author of the study.

Kaplan said that while it remains to be seen how the findings translate to humans, they have interesting implications for autoimmune diseases of barrier tissues like the skin or gut.

## **Cancer**

### **Cancer 4 times more likely to kill kids in poor nations than rich ones (The Times of India: 20190730)**

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