

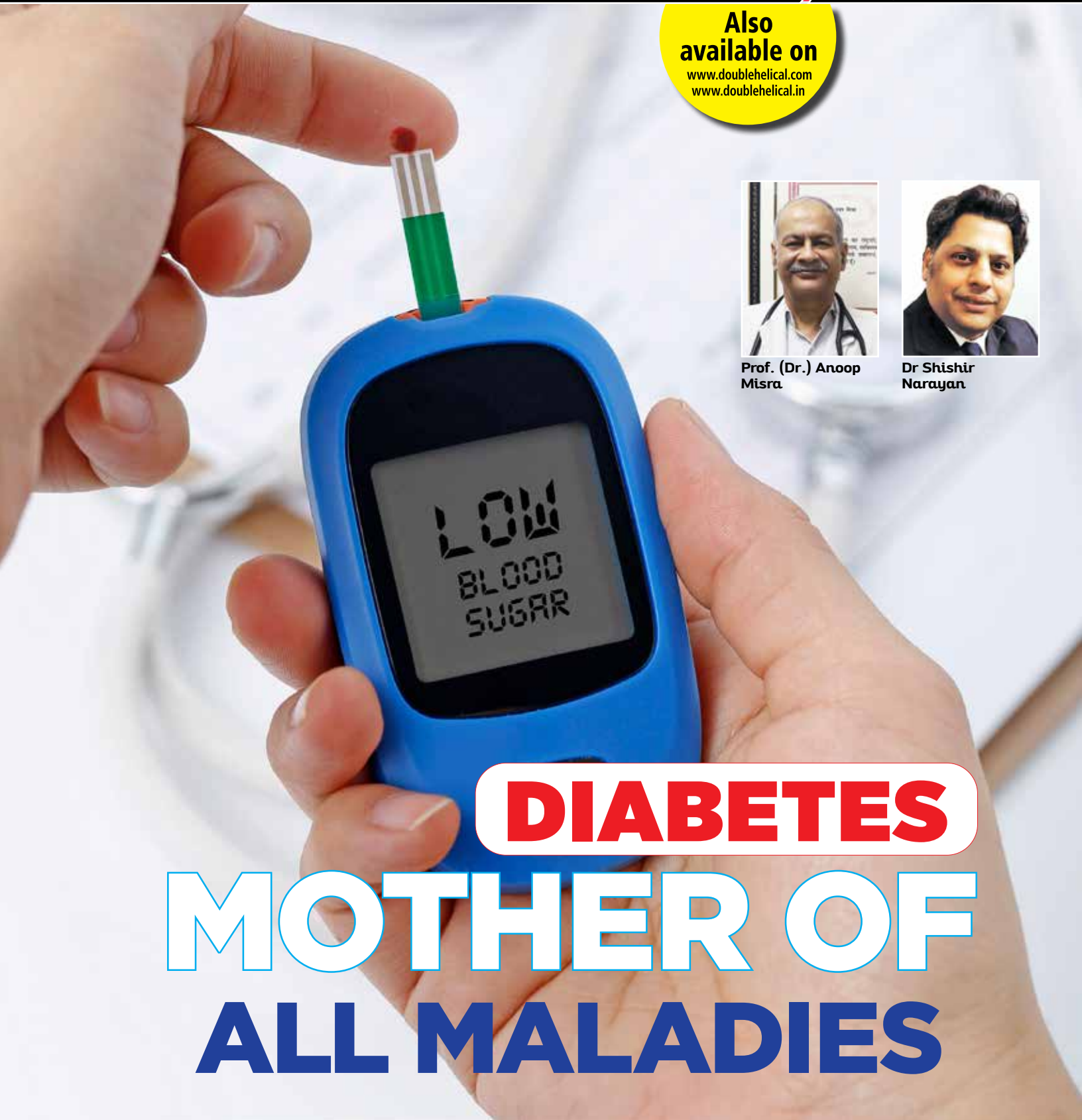


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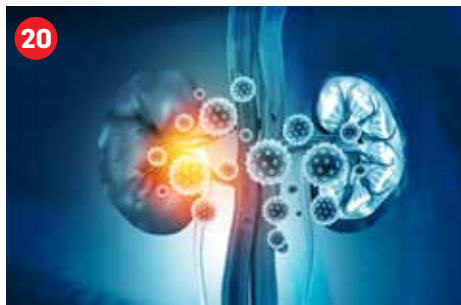
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Health Budget: A drop in the ocean

Dear Readers,

Wish you a very new happy year. Over the past seven decades, we have witnessed path-breaking changes in terms of innovation, research and development in the medical field. With seminal contribution to the furtherance of medical science, Indian doctors and medical experts have made their country proud in the eyes of the world.

Double Helical has been making a difference in the lives of the socially and economically disadvantaged groups through raising awareness as well making voluntary contributions in the areas of education, health, human rights and social services. The magazine provides a platform to recognize innovation, people, products and services that are helping to transform the healthcare sector in the country and ushering in affordable, high quality and inclusive healthcare for masses.

In the current issue, we focus on union health budget 23. In recently announced budget, the budget allocation for health for a population of more than 140 crore people in our country is Rs. 86,175 crores for Ministry of Health for Family and Welfare and Rs. 3,647 crores for Ministry of Ayush with its five departments, respectively. It forms 2.06% of the total union budget and equivalent of USD 63.75 per person. This allocation to health may be compared to Rs. 2,40,000 crores for Indian railways and Rs. 1,62,000 crore to National Highways Authority of India. This allocation appears like the story of a horse riding the jockey, rather than the rider being on the top!

The World Health Organization (WHO, since its formation in year 1948 guides healthcare all over the world,. Even though India is on the anvil of becoming the fourth largest economy in the world, its per capita annual expend on health remains a miniscule at USD 63.75 compared to the top 15 developed nations of the world with an average per capita annual spend of USD \$5736 . The United States leads the pack with 16.8% of its GDP and \$12318 per person annually on its health.

The United States is the highest spending country worldwide when it comes to health care. In 2020, total health expenditure in the U.S. exceeded four trillion dollars. Expenditure as a percentage of GDP is projected to increase to around 20 percent by the year 2028. If we talk about India's health budget then it is noted that the India home healthcare market size was valued at USD 8.8 billion in 2022 and is expected to expand at a compound annual growth rate (CAGR) of 19.29% from 2023 to 2030. The increasing need for better quality postoperative and primary care, advancement in technologies, rising disposable income, the shift of trend from communicable to lifestyle diseases, and the increasing availability of improved home care services with the technology-enabled platform are expected to

drive the market growth.

The growing geriatric population & dependency ratio in India is expected to drive the demand for home healthcare. The growing geriatric population and dependency ratio in India is expected to drive the demand for home healthcare. According to the Economic and Social Commission for Asia and the Pacific, the aging population of India is expected to reach 298 million by 2051, accounting for 17% of the national population. With the introduction of advanced home healthcare services in the country, high-quality healthcare can now be delivered in the comfort of one's own home. As cover story we highlight on Diabetes which is emerging as one of the most common and challenging health problems of the 21 st century. Rapidly increasing and reaching epidemic proportions, the disease causes substantial morbidity and mortality affecting even the youth. It has become a major public health issue, causing tremendous burden both in social and economic terms. Diabetes mellitus is a disease in which the body's ability to produce or respond to insulin is impaired. Insulin is a hormone that is needed to convert sugar, starches and other food into glucose or energy needed for daily life. Diabetes results in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood.

The cause of diabetes continues to be a mystery, although both genetics and environmental factors such as obesity and lack of exercise appear to play roles. The increased thirst and urination, increased hunger, fatigue, blurred vision, numbness or tingling in the feet or hands, sores that do not heal and unexplained weight loss are common symptoms of diabetes. So knowing causes of diabetes can help a person understand how best to treat their symptoms, and help them understand how they got diabetes in the first place. While many causes of diabetes can be prevented, some causes are just the way the body is made, and the sooner a diabetes type can be diagnosed, the sooner a person can get back to normal health and take the measures needed to take care of one successfully.

There is more such interesting and thought-provoking stuff to savour in this issue. So, happy reading!

Thanks and regards

Amresh K Tiwary,
Editor-in-Chief

Your Guide to **Healthy Living**



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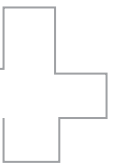


DIPSRU and IASTAM organizes Oration and Awards function

Delhi Pharmaceutical Sciences and Research University (DPSRU) and International Association for the Study of Traditional Asian Medicine (IASTAM) jointly organized “13th IASTAM Oration and Awards Function-2023 and International Conclave” at DPSRU Campus, New Delhi recently.

The theme of this year was “Regulatory Aspects of AYUSH Products for Global Reach and Competitiveness”.. The event started with invocation and University song. Welcome address and Introduction was given by Prof. Ramesh K. Goyal, Vice Chancellor, DPSRU who elaborated about the developments in DPSRU in field of Ayurveda and Unani





Acharya Balkrishna, Vice Chancellor , Patanjali University, Haridwar. IASTAM ‘Zandu International’ Oration for research contributions to natural products was given to Dr. Dilip Ghosh, Principal Consultant, Nutri Connect, Sydney, Australia. IASTAM ‘Zandu International’ Oration For Research Contributions to Ayurvedic Products was given to Dr.Suresh Patankar, Hon. Professor & HOD Urology, B.J. Medical College & Sassoon General Hospital, Pune.

Dr. K. N. Udupa’ IASTAM Award for contributions to Research in Ayurveda / Indigenous Systems of Medicine was given to Dr. Shridhar Dwiwedi, Senior Consultant Cardiologist & Head, Academics, National Heart Institute, New Delhi. ‘Dr. C. Dwarakanath’ IASTAM Award For Contemporary Interpretation or Application of Ayurvedic Principles was given to Dr. Bheema Bhatta, Medical Director, Ayurved Hospitals, Medanta Medicity,

towards research formulation development and testing facilities.

Dr. C.K. Katiyar , President, IASTAM, India, addressed the gathering and given introduction of IASTAM which was followed by felicitation of guests. Dr. Narendra Bhatt elaborated about

IASTAM awards. Three orations and nine awards were conferred to distinguished persons for their contribution in the field of Traditional Asian Medicine. IASTAM ‘Pt. Shiv Sharma Oration’ for contribution to “Promotion of Ayurveda” was given to



Gurugram/Delhi. ‘Dr. K. M. Parikh’ IASTAM Award For Contribution to Drug Development of Ayurvedic/ Herbal Pharmaceuticals was given to Dr. Vandana Mody, Vice President -Phytochemistry Department at Cadila Pharmaceuticals Ltd. ‘Vinaben Patel’ IASTAM Award For Excellence in Teaching Ayurveda was given to Dr. H. M. Chandola, Former Director-Principal Ch. Brahm Prakash Ayurved Charak Sansthan Govt. of NCT of Delhi, Former Dean – IPGT&RA Gujarat Ayurved University Jamnagar.

Mathura Das Parikh IASTAM Award for Excellence in Profession- Ayurveda was given to Vaid Jayant Deopujari, Chairman, National Commission for Indian Medicine (NCSIM), Ministry of AYUSH, Government of India. Yoga Forum Munchen Patanjali IASTAM Award for Excellence in Interdisciplinary Development of Yoga was given to Dr. Manjunath N.K, Dr. Manjunath N.K, Pro-Vice-Chancellor, S-VYASA University, Bangalore.



Gopal Das Parikh IASTAM Award for Contribution to Drug Development in the field of Phytochemistry, Medicinal Chemistry, Pharmaceutical Chemistry or Biochemistry was given to Dr. Rakesh Maurya, Consultant, CSIR-CDRI. Vd Chandra Prakash IASTAM Award for Contribution in Rasa Shastra was given to Dr. K. Shankar Rao, Former Pro Vice Chancellor: National Institute of Ayurveda (De Novo University), Jaipur and Shri Jugatram Vaidya IASTAM Award for Excellence in ShalyaTantra was given to Vd. Haridra Dave, Former I/C Deputy Director(Ayurved) Training and Research, Directorate AYUSH, Gujarat, India.



The Chief Guest of the ceremony was Shailja Chandra, Former Secretary, Ministry of AYUSH. Prof. Rabinarayan Acharya, Director General, CCRAS, New Delhi and Prof. Asim Ali Khan joined the event as Guest of honor. On this occasion souvenir of event was released by Chief Guest and Guest of Honor. Prof. Rabinarayan Acharya,



Guest of honor, discussed about the importance of traditional systems of medicine and updated the gathering about work done so far by CCRAS in his address.

This was followed by the address of Prof. Asim Ali Khan, Guest of honor and he also elaborated about the significance of Unani medicine system and updated about CCRUM. Chief Guest, Mrs. Shailja Chandra, Former Secretary, Ministry of AYUSH, Government of India shared her journey and work experience in this field and emphasized on scientific validation of traditional medicines.

Dr.Narendra S. Bhatt introduced the audience with Acharya Balkrishna and Oration was given by Acharya Balkrishna. This session was chaired by Prof. Rabinarayan Acharya and Dr. NarendraS.Bhatt. Acharya Balkrishna enlightened the gathering by his thought provoking ideas and shared the contribution of Patanjali University in



this field. Concluding remarks were given by Prof. Rabinarayan Acharya. Vote of thanks was delivered by Prof. Ajay Sharma, DPSRU. This was followed by National Anthem and Lunch.

Oration 2 and 3 were given by Dr. Dilip Ghosh, Principal Consultant, Nutri Connect, Sydney, Australia and Dr. Suresh Patankar, Hon. Professor & HOD Urology, B.J. Medical College & Sassoon General Hospital, Pune respectively

followed by theme based plenary lectures and expert talk. The first plenary lecture session comprised of 3 lectures on the conclave theme. This session was chaired by Dr. Manjunath N.K, Pro-Vice-Chancellor, S-VYASA University, Bangalore and Dr. Kousthubha Upadhyaya, Adviser (Ay.), Drug Policy Section, AYUSH. First plenary lecture was given by Dr. Narendra Bhatt, Consultant Ayurveda; Research & Industry, CRIA



Consultant, Mumbai on the topic “AYUSH Regulatory Aspects: Some Critical Issues for Deliberation”. The second plenary lecture was given by Dr. Vishweshwaraiah Prakash, Former Director-General, Council of Scientific and Industrial Research (CSIR) on the topic “The AYUSH Regulatory and Global Leadership”.


The third plenary lecture was given by Dr. Kanah Shah, Research and Regulatory Associate, Alphamed Pty Ltd, Sydney Australia on the topic

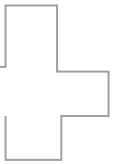
“Introduction to Multi-Herbal preparations in Australia: Scope and Regulations”. This session was followed by a tea break. Symposia 1 started with the theme: “Phytopharmaceutical Regulations and CDSCO”. Symposia 1 comprised of 4 expert talks.

Status of Participation of the Conference Total delegates registered: 225 (approx.) which include students, scholars, faculty and industrial delegates. Total research papers

presented by students and faculty: 85, Orations by distinguished scientists: 03, Plenary lectures by Awardees: 05, Invited lectures: 12, Participation of delegates from 5 States of India; 02 panel discussions, and 04 Symposia on the themes, Phytopharmaceuticals Regulations, International Regulations with respect to Complementary and Alternative Medicines, AYUSH regulations and Nutraceuticals and food products. Participation by Pharmacy and Ayurved institutes: Over 25.

Co-sponsors: IASTAM, Pharmaceutical Industry and Analytical Instrument Companies like Emami, Aimil, Multani, Waters, Khera instruments Pvt. Ltd, Yogic secrets, Thermofisher Scientific, Milestone and NiraliPrakashan.

Expected outcomes of the conference
The two-day deliberations will come out with recommendations to be submitted to the Government with the respect to regulatory issues and solutions to promote AYUSH Industry. Development of Centre of Excellence on Traditional Medicine in the University and lastly MoU with Patanjali University and it was confirmed by Acharya Bal Krishna Acharya. 



Health Quest

The prestigious ‘QUEST’ study jointly conducted by ISRO, AHPI and SEMI spanning over a period of two years, involving ten hospitals from across the country, concluded recently. Tracing the history of this epoch making study, which probably is the first of its kind in the globe, dates back to the year 2016, when Dr Alexander Thomas of AHPI and Dr Kasturirangan former Chairman ISRO, during a casual discussion deliberated on the incidence of human errors in the emergency department of hospitals.

Appalled by the high incidence of human errors, a suggested comparison was drawn with that of the ISRO best practices which is zero error complaint. Taking this suggestion forward, resulted in intense deliberations between scientists from ISRO and medical experts from AHPI and SEMI, numbering around 100 and extending for a period of one year.

This resulted in the publication of the document, ‘QUEST’ Quality Upgradation Enabled through Space Technology, for facilitating the adoption of ISRO best practices in the emergency department of hospitals.

It is noteworthy worthy that stalwart of the medical fraternity such as Dr Devi Shetty and others from across the country, participated in the discussion and provided valuable inputs towards this document.

In order to document and quantify the outcome of adopting ISRO best practices a pilot project was conducted at two of the AHPI hospitals which showed encouraging results.

Following this year full-fledged implementation project involving 10 hospitals from across the country was carried out over a period of one and half



years, with the experts reviewing the progress of the study on a weekly basis.


The study which has been completed in January 23 involved 16 quality parameters which were assessed for each of the participating hospitals, for which data has been collected on a real time basis, using a digital platform to understand areas of improvement and set up focused and specific interventions to improve process parameters.

An analysis of the results of the project has clearly demonstrated that adoption of the ISRO best practices into

the emergency care set up has had significantly beneficial effects in improving the quality of care involving many parameters.

At the meeting being held at the ISRO Headquarters in Bangalore recently, where the results of the ‘QUEST’ study would be presented, and the keynote address is being delivered by Sri. Somnath, Chairman, ISRO and the others in participation would be Dr. Devi Shetty Chairman Narayana Health, Dr. Alexander Thomas, Founder and Patron of AHPI,

Dr. Saravana kumar, President, SEMI and other senior experts and office bearers of AHPI and of SEMI. CEOs and the site champions from each of the Hospitals from all over the Country are also attending.

Therefore, the ‘QUEST’ study results is bound to have far reaching effects on the entire Healthcare delivery system of our country, as ISRO best practices is being planned to be adopted in the emergency department of the hospitals which would ultimately benefit millions of patients. 



Meet IMA New President

Meeting Dr. Sharad Kumar Agarwal at ITO, New Delhi based Indian Medical Association headquarter office was an uplifting experience that filled Double Helical Team with inherently positive vibes and immensely feel-good factor. During our half an hours-long conversation with him, he dwelt at length on the benefits to his fraternity like violence against doctors is key issue.

Dr Sharad Kumar Agarwal took the charge of new national President, Indian Medical Association for 2022-23 recently. Dr Agarwal says that in the last 2 years, members of IMA fought the menace of Covid-19 shouldering the responsibilities as the biggest organization of doctors of modern medicine with the government of India.

By qualification he is MBBS, MD with PGDHHM, Masters in Hospital Administration, having more than 20





years of experience in administration and operations. He has a good track record on P&L viability and profitability with maintaining all quality criteria like good control on cost efficiency. He was formerly associated with top notched medical institutions like MAX Hospital, Medanta Medcity, CARE Hyderabad, AMRI Kolkata and American Oncology Institute, Nagpur.

According to Dr Sharad Kumar Agarwal, the IMA stands with the government in all their healthcare projects and schemes whether in the eradication of epidemics or improving the overall healthcare structure of the country.

He says that while Mixopathy has been a talk for a while and the government is planning to introduce integrated medicine and treatment protocols by 2030, IMA has also urged the government to understand the impact of Mixopathy and rethink its strategy. We welcome mixing all the different fields of medicines, like Sidha, Unani, Ayurveda, Homeopathy and Allopathy among others and using integrative medicine can be detrimental to the patients. All the different fields of medicine should get continued support from the government in research and medical education but it's best if these medicines function separately as mixing gets rid of the purity of these fields of medicine.

He appeals IMA wants the government to rethink its planning of the integration of all systems of medicine by 2030. We would like a thorough discussion on understanding the impact of Mixopathy on our masses in consultation with IMA.

Dr Sharad Kumar Agarwal focused on various other aspects to be revamped in the healthcare industry such as the creation of Indian Medical Services, an increase in the healthcare spending of 5 per cent of GDP, the exclusion of health services from the Consumer Protection Act and the elimination of violence against doctors.

Dr Aggarwal, said, "The government should take the workforce of IMA into confidence in all their plans and programmes. Our opinion should be valued

for improving various healthcare parameters of the country. I assure IMA is ready to participate in family welfare programmes, improving Maternal Mortality Rate, Infant Mortality Rate, eradication of tuberculosis and anaemia control etc."

"As the number of Covid-19 cases is steeply rising in various countries, the surge in India is still comparatively less alarming, though as per the previous trends, the cases may erupt suddenly in our country, one should follow Covid appropriate behaviour and get vaccinated for the virus," he added.

He also focused: Aao Gaon Chalen" which was introduced before the Central Working Committee of IMA. This is being considered as dream project of Indian Medical Association and formally launched on 8th August, 2004 at Village Lakhvad in Mehsana District, Gujarat.

Since then, all the State branches of IMA have taken up this project in a big way. Local branches have also adopted villages on the basis of need assessment, community requirement and inter-sectoral relationships in creating wider impact of the interventions on the masses.

Dr Sharad Kumar Agarwal said, "The main objective of the project is to bring about holistic improvement in the village health scenario using existing infrastructure and promoting inter-sectoral coordination and networking through active involvement of IMA, Public Sector health delivery system and the community."

"Undoubtedly, "Aao Gaon Chalen" is a challenge taken up by Indian Medical Association under Public Private Partnership Programme with an objective to contribute its bit in whatever way possible to compliment the efforts taken up by the Ministry of Health & Family Welfare, Government of India for improving the health care delivery system in the rural scenario of India. More than 1040 villages have been adopted by various States and Branches till now. Village adoption forms and monthly activity reports of some branches are awaited. More than 20 lacs people have already benefited through this project," Dr Sharad Aggrwal, heightens. 

IMPACT OF EXTREME WEATHER EVENTS

Warmer climate along with higher CO₂ promote plant growth increasing outdoor aeroallergens. Pollen season may start earlier and lasting longer. This can predispose to allergic rhinitis, asthma and allergic skin conditions.....

**BY DR AMITAV
BANERJEE**





Currently India, like most part of the world, had its share of extreme weather events as defined by the Intergovernmental Panel on Climate Change (IPCC), are those that are “rare for the particular place and time of the year. According to a report by Centre for Science and Environment (CSE), the country witnessed extreme weather events on 242 days between January and September, making them rare no longer! On a more pragmatic note, the Indian Meteorological Department, classifies extreme weather events as, “lightning and thunderstorm, extremely

heavy rainfall, landslide and floods, cold wave, heat wave, cyclones, snowfall, dust and sandstorm, squalls, hailstorms, and gales.”

Last year India, had the seventh wettest January since 1901, while March 2022 was the warmest ever and third driest in the past 121 years. The country also experienced the third warmest April, eleventh warmest August, and eighth warmest September since 1901.

In the year 2022, these extreme events claimed 2,755 lives, affected almost 2 million hectares of agricultural land, destroyed over 4 lacs houses and killed 70,000 livestock. Heat wave claimed 45 lives in



2022.

The increasing frequency of extreme weather events are portent of things to come. To mitigate and cope with such events we need an understanding of the dynamics of climate change over the centuries.

GLOBAL WARMING: THE PRICE OF THE INDUSTRIAL REVOLUTION.

The Industrial Revolution which originated in Great Britain in the 18th century was a turning point in the history of climate change. The changes which continued incrementally since then include increasing levels of atmospheric carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). These gases exceed the highest levels estimated over the past 800,000 years. The concentration of CO₂, the most significant of the greenhouse gases, has increased by almost 35% since the Industrial Revolution, with high acceleration during the past two decades. Greenhouse gases heat the earth by absorbing and re-emitting

infrared radiation towards the lower layers of the atmosphere near the earth's surface. From the mid-nineteenth century to the present, the global mean temperature increased by 0.85°C which is expected to rise between 1.5°C and 4°C by the turn of this century. The rate of increase in global temperature is more rapid now than ever in the history of climate.

CASCADE OF CLIMATE CHANGE

Global warming as a consequence of increase in greenhouse gases triggers a chain of events which are responsible for extreme weather events. Due to higher temperature, moisture from the soil evaporates which has potential to precipitate severe draught. Warm air in the atmosphere holds more moisture compared to cool air which can trigger heavy rains leading to floods. Extreme events, draughts and floods have profound public health impact. Global warming also melts the Arctic and Antarctic ice caps leading to rise in ocean levels and altering the flow

of ocean currents. According to the IPCC, sea level will rise between 26 and 98 cm by the turn of this century.

PUBLIC HEALTH CONSEQUENCES OF CLIMATE CHANGE

The demography, ecology, biocenose and geography play an important role in the vulnerability of populations to climate change. High risk populations are those residing in areas of high endemicity of communicable diseases which are sensitive to climate change for e.g., malaria and other vector borne diseases. Populations residing in coastal regions and flood prone areas also face frequent threats from the consequences of extreme weather events. Food production can be adversely affected. Climate change affects crop and livestock production and viability of the fisheries industry.

DIRECT EFFECTS ON HUMAN HEALTH

Weather events such as extremes of both hot and cold can have impact on morbidity and mortality from endemic diseases. The association



In the year 2022, these extreme events claimed 2,755 lives, affected almost 2 million hectares of agricultural land, destroyed over 4 lacs houses and killed 70,000 livestock. Heat wave claimed 45 lives in 2022.

between temperature and health impact is curvilinear with steeper impact at extreme temperatures. Such extremes have become more frequent. Events which used to occur once in 20 years now occur every 2-4 years. Similarly, heat waves are occurring quite frequently in the Northern Hemisphere as well. In 2003, heat wave killed more than 40,000 people in two weeks in Europe. In Russia, heat wave killed 15,000 people in 2010. At the same time trends indicate a slight reduction in deaths due to extreme cold. However, the relatively milder cold seasons are not likely to offset the more severe health consequences of hot summers.

Official statistics after each major event are gross underestimation of the impact on health, loss of lives and property. These only report the immediate and direct losses and do not capture the insidious effects on health and wellbeing. We also do not know the full impact of extreme temperatures on people with co-morbidities, on medications, and the

very young and the very old with suboptimal thermoregulation compromising the body's capacity to maintain normal body temperature.

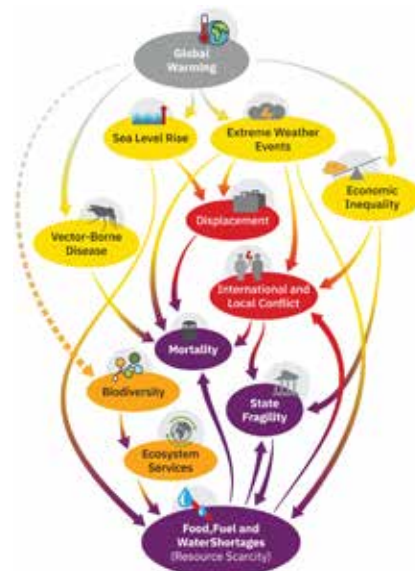
When an individual is exposed to extreme heat, blood flow diverts from deep organs to the skin surface to cool the body. In case of failure of thermoregulation capacity due to dehydration, older age, medications,

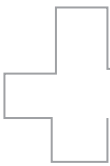
co-morbidities, etc too much diversion of blood from vital organs like the heart and lung can contribute to severe ill health or fatality.

Urban people face more heat exposure due to "urban heat island effect." Urban areas are warmer than surrounding rural regions. The land surfaces and concrete buildings absorb heat during the day and release it during the night. Temperature variability leads to negative health impact.

Extreme weather conditions also trigger environmental factors which may increase density of vectors of disease, cause water scarcity or contamination precipitating outbreaks of vector and water borne diseases. Extreme low humidity can lead to dry eyes and drying of the respiratory passages making people more susceptible to viral and bacterial infections. Such weather conditions also aggravate skin conditions like atopic dermatitis.

Warmer climate along with higher CO2 promote plant growth increasing outdoor aeroallergens. Pollen season



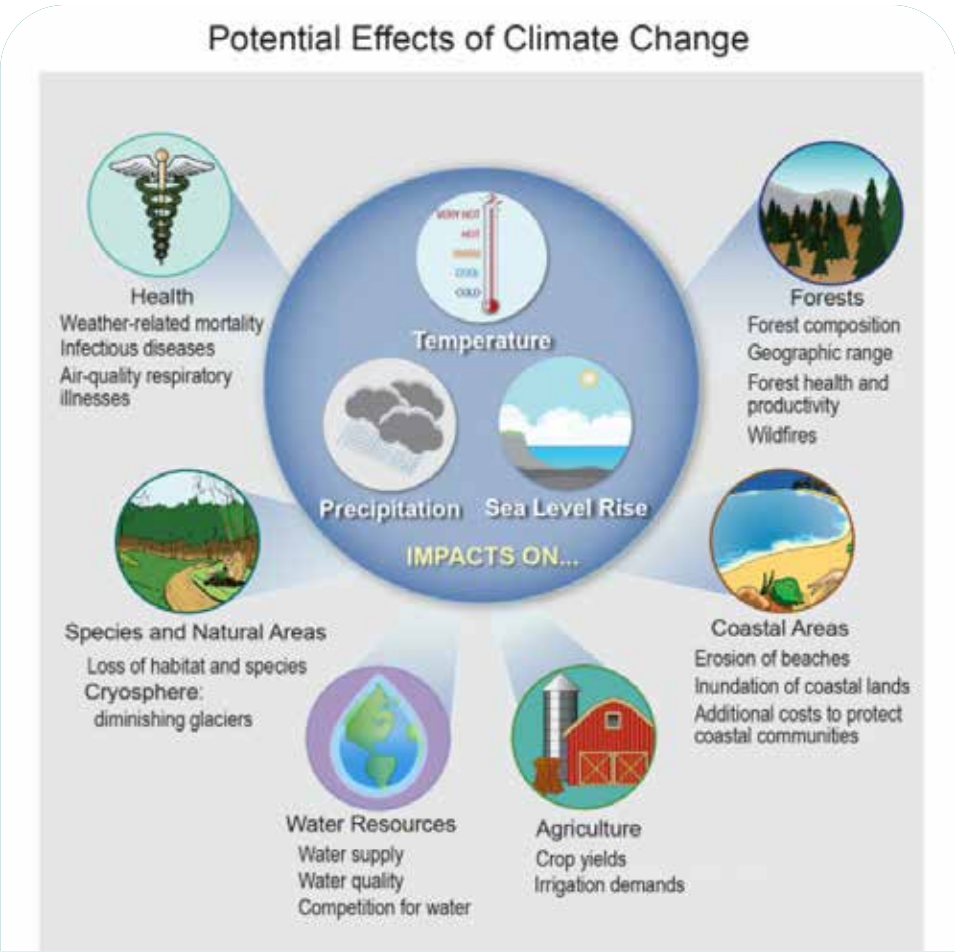


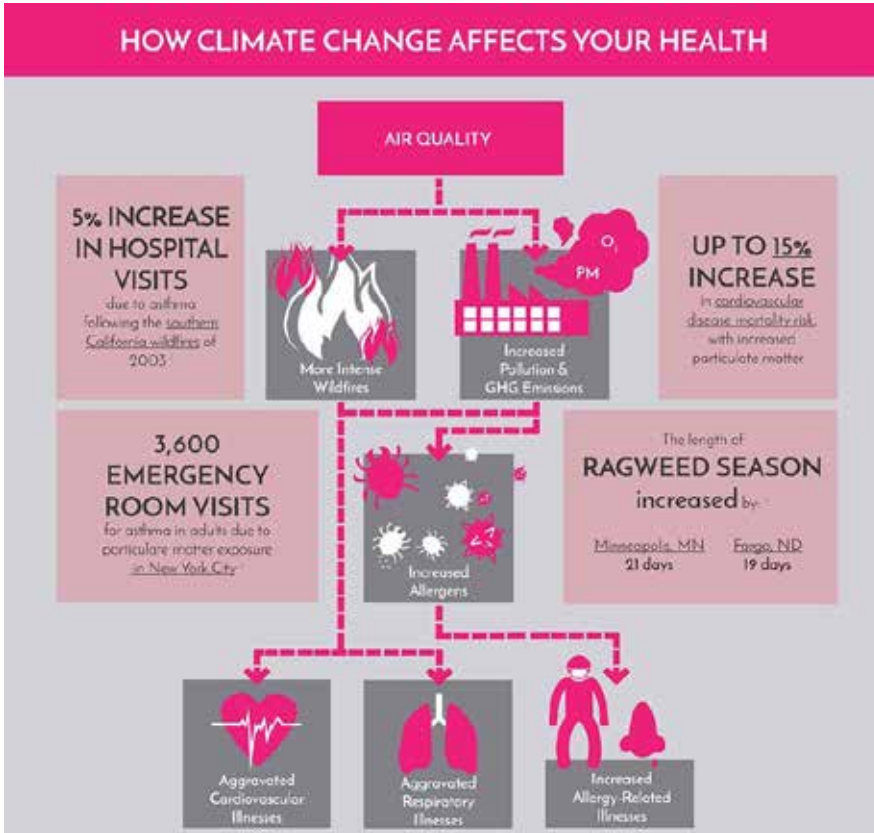
may start earlier and lasting longer. This can predispose to allergic rhinitis, asthma and allergic skin conditions.

Particularly in tropical countries like India, warm weather condition has impact on vector borne diseases. Mosquito borne diseases such as malaria, dengue, chikungunya fever, Japanese Encephalitis, are endemic in the country. Prolonged hot weather interspersed with rains can increase mosquito densities leading to outbreaks.

Food borne outbreaks are also commoner in warmer temperatures as warmer temperatures promote multiplication of pathogens.

While due to the increasing attention to global warming, health impact of warmer temperatures have gained more attention, extreme cold waves though fewer in number can be more deleterious to health. Extreme cold impairs the body's thermoregulation and can cause death by hypothermia. The range of harmful health effects range from frostbite, hypothermia, cardiac arrhythmias, cardiac arrest, and decreased cerebral circulation. Like vulnerability to heat, cold effects also






Mitigation can be compared to primary prevention and adaptation to secondary prevention.

Mitigation aims at controlling the production of greenhouse gases. This can be achieved by using solar or wind energy, green hydrogen or reducing energy demand. Promoting use of mass transportation instead of private cars can also contribute to mitigation. Gustavo Petro, the mayor of Bogota, famously remarked, “A developed country is not a place where the poor have cars. It is where the rich use public transport.”

An enabling environment that promotes walking and cycling will also ensure better health of population in addition to control of greenhouse gases. In most Indian cities, pavements, if available, provide space for hawkers rather than pedestrians. Cycle tracks if constructed, also meet a similar fate or lead to a dead end. As a result pedestrians and cyclists contribute to high proportion of road traffic accident victims in the country. Another way to mitigate is removal of greenhouse gases from the atmosphere. CO2 mops such as forests are effective for this. Land use policies preserving and expanding forests can be an important strategy for mitigating climate change.

The second approach, adaptation, reduces the public health impact of climate change. Weather forecasts which have become more precise is an important tool in this regard. Vulnerable populations are shifted and other opportunities to reduce harm can be implemented. Disease surveillance can control early outbreaks in the aftermaths of climate change induced disasters. 

depend on age, socioeconomic status and geographical location.

NATURAL DISASTERS TRIGGERED BY CLIMATE CHANGE AND ITS HEALTH IMPACT.

In the past decades millions of lives have been lost to extreme floods, storms, tropical cyclones, landslides and droughts. Particularly in less developed parts of the world like India, such disasters can lead to large scale population migrations often to poorly equipped shelters. Such refugee populations are vulnerable to spread of communicable diseases and malnutrition. Measles outbreaks with its cycle of infection and malnutrition are very common among children in such situations. Child deaths are common, besides sexual exploitation, violence and mental health disorders.

THE ETHICS OF CLIMATE CHANGE

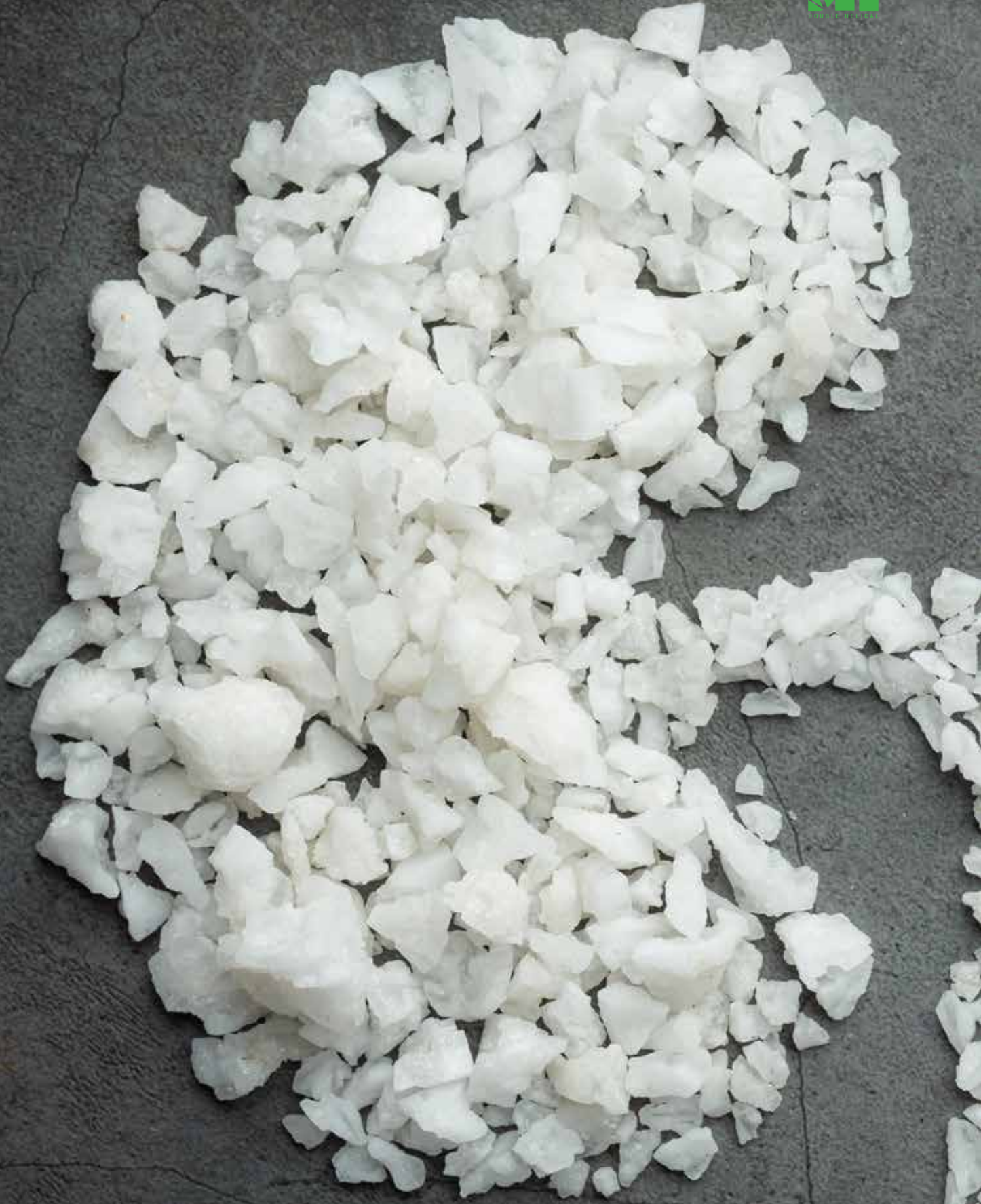
Nations contributing the bulk of greenhouse gases with highest per capita emission rates account for a small proportion of the world population. The United States with 5% of the world population, produces 25% of total annual greenhouse gases. Poor countries of Asia and Africa, have far less per capita emission of greenhouse gases and liable to get the thin edge of the wedge in international climate change negotiations.

We also have an ethical obligation to the future generation to make the earth a safer place.

WHAT SHOULD BE SOCIETAL RESPONSE TO CLIMATE CHANGE? PRIMARY AND SECONDARY PREVENTION

Mitigation and Adaptation are two strategies to address climate change.

(The author is MD, Clinical Epidemiologist, currently Professor and Head, Community Medicine at DY Patil Medical College, Pune)





NUTRITIONAL MANAGEMENT OF CHRONIC KIDNEY DISEASE

Proper nutrition is essential to reduce morbidity and mortality in CKD patients. Nutrition is often neglected in CKD (Chronic kidney disease) patients while more focus is placed on modalities of dialysis and on transplant. A proper diet history, nutritional assessment and counseling are an important cornerstone of CKD therapy.....

BY DR HARVINDER POPLI AND DR GEETA AGGARWAL



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As we know that a kidney friendly diet reduces waste build up in the blood and overcomes problem of malnutrition by controlling what patients eat and drink. In this concern it is important to know how malnutrition impacts the kidney. Malnutrition has been seen as an important feature of chronic kidney disease (CKD). Extent of malnutrition depends on the stages of CKD. It has been observed that 50% to 70% of patients with end-stage renal disease are malnourished. Malnutrition is seen in patients on peritoneal dialysis as well as on hemodialysis. Many studies have shown that it is associated with increased mortality in the patients. The causes of malnutrition may be the loss of appetite, impaired digestion and absorption, metabolic acidosis and emotional stress.

Dialysis helps to do some of the work that your kidneys did, when they were healthy. But dialysis cannot do everything that healthy kidneys do. Some waste and fluid may still build up in your body, especially between dialysis treatments. Over time, the extra waste and fluid in your blood can cause heart, bone and other health problems. So a well-balanced diet is necessary for them to stay fit as their kidneys are no longer functioning at its full capacity i.e. to get rid of the waste products and fluid from their blood.

It is essential for dialysis patients to have the right amount of protein, calories, fluids, vitamins & minerals each day; take medication correctly as prescribed by the doctor; comply with their dialysis treatment & do not skip any dialysis session and being physically active as possible.

HEALTHY DIET FOR

PERITONEAL OR HEMODIALYSIS PATIENTS:

- **GETTING THE RIGHT AMOUNT OF ENERGY/CALORIES**

Food gives us energy. Getting the right amount of calories is important to overall health and well-being. The energy need of each individual is different and depends on age, gender, body size, physical activity level and medical condition such as kidney failure.

- **NEED OF ADEQUATE PROTEIN**

Protein is essential for building and repairing muscles and daily growth. During peritoneal or hemodialysis, some amount of proteins is lost and therefore, patients require a higher protein intake compared to people who are not on dialysis. Eating the right amount of protein will help dialysis patients stay fit, as insufficient protein intake could result



Kidney Disease Diet



Eat foods low in sodium
 Avoid canned, packaged, and frozen foods
 Limit potassium intake and foods high in phosphorus
 Lowering protein intake may be recommended
 Limit fluids in advanced kidney disease



Protein can be of high and low quality. For dialysis diet, high-quality protein, e.g., meat, poultry, fish and egg whites are more desirable. Most dairy products such as yogurt, milk and cheese also contain high-quality protein



NEED OF LESS OF SODIUM IN DIET

Most people should limit the amount of sodium in their diet regardless of kidney disease. Even if salt (a major source of sodium) is not added during cooking, sodium can still be found in other food sources. This is because sodium is naturally found in all different types of foods, and more commonly in packaged and processed foods. Sodium is like a hydrated sponge that absorbs fluid. It makes you feel thirsty and intend to drink more. As a result, weight gain from fluid arises and consequently, increasing in blood pressure can be observed. Sodium restriction in kidney disease helps to maintain normal fluid balance.

Restriction in sodium intake includes: addition of limited salt during cooking; avoid using stock cubes and gravy browning e.g. Bovril, Marmite; avoid taking bottled chicken extracts; avoid taking food items that has more than 250 mg of sodium per serving; minimize the usage of canned food; use fresh herbs and whole spices in replace of salt in cooking

in weight loss, muscle wasting, reducing the ability to fight infections and thus leading to malnutrition.

Protein can be of high and low quality. For dialysis diet, high-quality protein, e.g., meat, poultry, fish and egg whites are more desirable. Most dairy products such as yogurt, milk and cheese also contain high-quality protein.

Protein food also contains phosphate. Therefore it is very important that dialysis patients take their phosphate binders with their meals.

• MOST PEOPLE ON DIALYSIS NEED TO LIMIT POTASSIUM, PHOSPHORUS, FLUIDS AND SODIUM IN THEIR DIET.



and use fresh lime, or vinegar to flavour food.

The salt substitutes may contain high potassium, so patients should take caution about it.

NEED OF LESS OF POTASSIUM

Potassium is a mineral which is important for the nerves and muscles function. Potassium needs to be maintained at a safe level in the blood. Excessive potassium level in the blood can cause muscle weakness, abnormal heart rates and in extreme cases, heart failure.

Since hemodialysis can only remove a fixed amount of potassium, it is crucial to control the amount accumulated through patient dietary intake. Potassium is found mainly in fruits and vegetables, with small quantities found in nuts, dry beans and dairy and meat products.

It is important to avoid high potassium food like wholegrain cereals, bread and biscuit; nuts, seeds

and related products, e.g. chocolate, peanut butter; coconut milk, kaya; fresh/canned fruit and vegetable juice, herbal medicine drinks, strong tea/coffee, cocoa and malted beverage, milk, wine; brown sugar, molasses, maple syrup, toffees, liquorice; high potassium salt substitute, bottled sauces, meat and vegetables extract, essence of chicken, stock cube and fruits and vegetables from the high potassium group. Potassium can be reduced in the vegetables by leaching and soaking.

NEED OF LESS OF PHOSPHORUS

As the kidneys become less effective at filtering waste products, blood phosphate level rises. When it begins to build up in the blood, calcium is drawn from the bone. The calcium phosphate product forms hard deposits in patient's tissues leading to skin itchiness, joint pain, and eye irritation and hardens their blood vessels. Over time, patients' bones

become weak and brittle. This leads to fractures and constant pain.

Both hemodialysis and peritoneal dialysis patients need to control the amount of phosphate in their diet. Almost all patients with high phosphate levels will also need to take phosphate binders as most foods contain some amount of phosphate. Usually phosphate binders are taken within 5 to 10 minutes before or immediately after meals and snacks. Phosphate binders prevent the body from absorbing the phosphate from the foods eaten and thus helping to prevent renal bone disease.

Phosphorus binders work in one of two ways. Some phosphate binders, such as Renvela (Calcium and Aluminium free phosphate binder), work like a sponge and soak up the phosphates in the food so that it doesn't get into the blood. Instead it is carried through the digestive tract and eliminated in the stool. Other phosphorus binders, such as Fosrenol



(Calcium and Aluminium free phosphate binder), Phoslo and Tums (Calcium based phosphate binders), work like a magnet. The phosphorus in the food connects to the phosphorus binder and it is carried through the digestive tract to be eliminated.

Calcium-based phosphorus binders have largely replaced aluminum-based binders and may also serve as calcium supplements. Calcium acetate, also called PhosLo, is one commonly used phosphorus binder. There are many others, usually containing calcium carbonate. Tums is a form of calcium carbonate, which can also be effective. Because most people need to take several phosphate binders with every meal, there may be concern about dialysis patients absorbing too much calcium from these medicines, so calcium levels must be monitored. Aluminum-free, calcium-free phosphorus binders, such as Renagel (sevelamer) and Renvela (sevelamer carbonate), mix

with phosphorus in the intestinal tract, but do not contain aluminum or calcium, so they don't cause problems with excess aluminum or calcium load. Chewable Fosrenol (lanthanum carbonate) is another aluminum and calcium free binder. Aluminum-based phosphorus binders and Magnesium based phosphorus binders are used rarely, when other binders are not effective.

Food rich in phosphorus that patients need to avoid when they have high serum phosphate levels include: oats, cereals; dairy products; bone-based soups; bean products (all forms of nuts, seeds, bean soup); chocolate and related products; malt drinks (e.g. Milo, Horlicks, Ovaltine); processed food and canned food (e.g. canned meat or fish, sausage, meat patty); organ meats (e.g. liver, intestine); seafood, sardines, anchovies (ikan bilis) and dried shrimp paste and wholegrain and related products (e.g. wholemeal

bread, brown rice, wholemeal noodles)

NEED OF CONTROL IN INTAKE OF FLUIDS

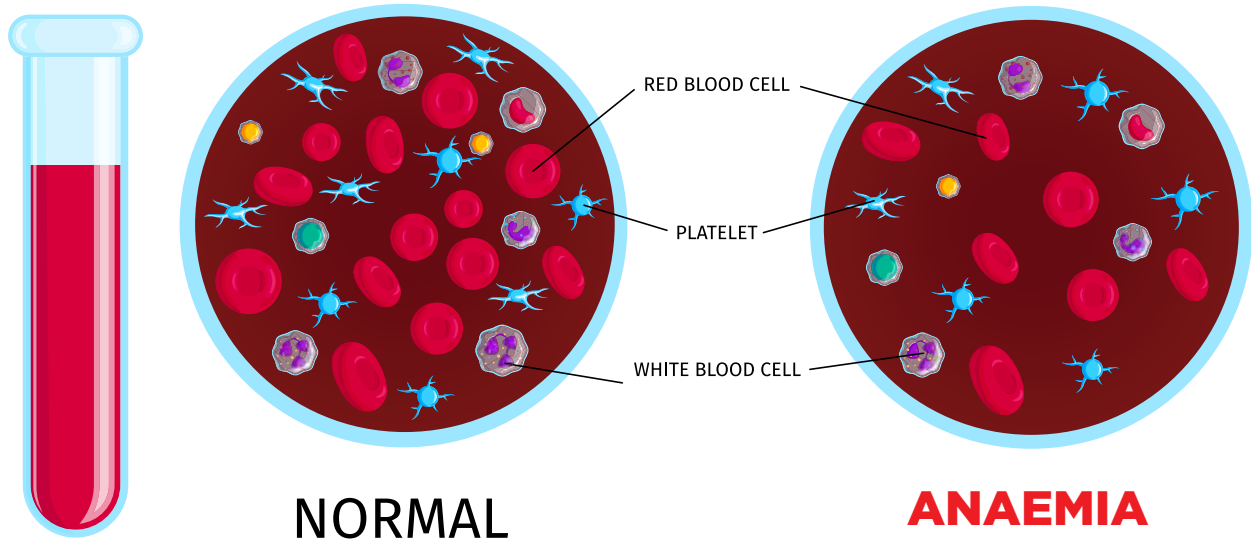
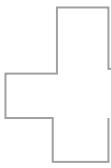
Dialysis removes extra fluid from your body. However, it can remove only limited fluid at a time safely. If you come to your hemodialysis with too much fluid in your body, your treatment may make you feel ill. You may get muscle cramps or have a sudden drop in blood pressure that causes you to feel dizzy or sick to your stomach. Excess fluid can build up in your body and may cause swelling & weight gain between dialysis sessions; changes in your blood pressure; the heart to work harder, which can lead to serious heart trouble and a buildup of fluid in your lungs, making it hard for you to breathe.

One way to limit how much liquid you have is to limit the salt in the foods you eat. Salt makes you thirsty, so you drink more. Foods that are liquid at room temperature, such as soup, contain water. Gelatin, pudding, ice cream, and other foods that include a lot of liquid in the recipe also count. Most fruits and vegetables contain water, such as melons, grapes, apples, oranges, tomatoes, lettuce, and celery. When you count up how much liquid you have in a day, be sure to count these foods.

• PREVENTION OF ANEMIA

Anemia is common among dialysis patients and it appears to be more common in those who suffer from malnutrition or protein energy wasting. Symptoms of anemia include fatigue, weakness, dizziness, headache, low immunity, breathless or shortness of breath, chest pain, low appetite and pale.

Anemia of CKD is one of the complications of kidney failure. Its severity can be related to how well the kidney is functioning. The main



reason for anemia among chronic disease patients is the reduced production of erythropoietin (EPO) by the kidneys. EPO prompts the bone marrow to make red blood cells. When the kidney's function is decreasing, the amount of EPO produced will be reduced. Other factors that cause anemia among dialysis patients are: reduced red blood cell lifespan due to accumulated urea toxic; lack of iron; lack of folate and other vitamins and blood loss during hemodialysis.

ADEQUATE INTAKE OF PROTEIN, IRON, VITAMIN B 12 AND FOLATE ARE IMPORTANT IN PREVENTING AND TREATING ANEMIA AS these nutrients are the important elements in making new red blood cells.

• VITAMINS AND MINERALS IN KIDNEY DISEASE

Vitamins and minerals are substances, which body needs to help carry out special functions. They provide energy, help the body to grow and repair tissue and maintain life. But if a patient is on dialysis, he/she may not get enough nutrients.

Almost all vitamins and minerals come from the foods we eat. The body cannot make these substances. People with healthy kidneys who eat a variety of foods from all the food groups (meats, grains, fruits, vegetables and dairy products) can get lots of vitamins and minerals. But if they have kidney disease or are on dialysis, the diet may limit some food groups; therefore, body may not get all the vitamins and minerals that is needed each day. Some vitamins are lost during dialysis treatment. There is need to take some in the form of supplements.

Depending on the health and other factors, the healthcare provider may recommend some of the following supplements:

B Complex: B complex vitamins are grouped together, but each has a different job to do.

One of the important functions of vitamin B6, B12 and folic acid is to work together with iron to prevent anemia. If patient has anemia, it means he/she has not enough red blood cells. Red blood cells carry oxygen from the lungs to all parts of your body. Additional B vitamins, called thiamine, riboflavin,

pantothenic acid and niacin, can also be given as a supplement.

Iron: If the patient is taking medicine to treat anemia, he/she may also need to take an iron pill or have injectable iron. It should be taken only if healthcare provider prescribes it.

Vitamin C: Vitamin C is used to keep many different types of tissue healthy. It also helps wounds and bruises heal faster and may help prevent infections. The healthcare provider may need to give a prescription for these vitamins.

Vitamin D: The patient may also need to take some vitamin D. It can be given as a pill and can also be given during dialysis treatment. In addition to maintaining healthy bones, newer research shows that vitamin D may also protect against heart disease. There are different types of vitamin D. Vitamin D should be taken, if healthcare provider prescribes it.

Calcium: Calcium along with vitamin D helps to keep bones healthy. It is important to take only the amount of calcium prescribed by doctor or dietitian. Too much calcium can clump together with phosphorus and deposit in places such as your heart,



blood vessels, lungs and other body tissues. If blood phosphorus level is too high, there is need to take a medicine used to bind the phosphorus from your food. Some phosphorus binder medications contain calcium. They can give extra calcium if needed.

VITAMINS THAT ARE NEEDED TO AVOID IN CKD

There is need to avoid some vitamins and minerals during kidney disease. Some of these include A, E and K. These vitamins are more likely to build up in the body and can cause harm. Over time, they can cause dizziness, nausea, and even death. These vitamins can be taken with the prescription of doctor. There is also some concern about vitamin C. Although some people may need to take a low dose of vitamin C, large doses may cause a buildup of oxalate in people with kidney disease. Oxalate may stay in the bones and soft tissue, which can cause pain and other issues over time.

• HERBAL SUPPLEMENTS AND KIDNEY DISEASE

We may think about using herbal supplements to help with any health concerns, but in case of a patient with kidney disease, one should use caution with herbal supplements.

Use of herbal supplements is often unsafe if one has kidney disease since some herbal products can cause harm to the kidneys and even make the kidney disease worse. Also, your kidneys cannot clear waste products that can build up in your body.

Herbal supplements that are especially risky for patients with any stage of kidney disease, who are on dialysis or who have a kidney transplant include Astragalus, Barberry, Licorice Root, Parsley Root, Apium Graveolens, Horsetail, Oregon Grape Root, Cat’s Claw etc.



Some herbal supplements that act like a diuretic or “water pill” may cause “kidney irritation” or damage. These include Bucha leaves and Juniper berries. Uva ursi and parsley capsules may also have bad side effects. Many herbal supplements can interact with prescription drugs. A few examples are St. Johns Wort, echinacea, ginkgo, garlic, ginseng, ginger and blue cohosh. If one has a kidney transplant, they are especially at risk, as any interaction between herbal supplements and medicines could put them at risk for losing your kidney.

Points to remember:

• IMPORTANT TO KNOW:

If patient does peritoneal dialysis, he/she may be able to take in slightly more phosphorus, potassium, sodium and fluid, than if he/she did hemodialysis. One also needs to eat more protein. This is because peritoneal dialysis works all day and night to take waste and fluid out of your blood. This keeps the waste and fluid from building up in your blood like it does between hemodialysis treatments. So the diet plan can be different in both cases of dialysis.

• SPECIAL DIET FOR PATIENTS WITH DIABETES


If patient is diabetic, the diet plan will be different that allows him/her to avoid the nutrients that are needed

to limit, while also controlling the blood sugar. If patient does peritoneal dialysis, keep in mind that peritoneal dialysis solution has dextrose in it. Dextrose is a type of sugar. When the dialysis is done, some of the dextrose is taken in by the body. So it is very important to count the dextrose in dialytic solution as extra sugar in the diet. Conversation with doctor and dietician is important in this case.

• CONCLUSION:

Increased use of medications that are prescribed at any given point of time to a patient with CKD or patient on dialysis creates havoc on his gastrointestinal system. Phosphorus binders may result in constipation while other medications may cause diarrhoea, heartburn, stomach-ache, vomiting and kill the good bacteria in the gut. Thus, probiotics may seem promising in helping restore the good bacteria in the gut and thereby improving immune function and providing anti-inflammatory effects if taken with the consultation with healthcare provider.

Many nutritional supplements are available in the market. These may be in the form of powders, which are low in potassium and phosphate. These can provide 7-10 kcal/kg calories and 0.3-0.4 g/kg protein. Patients on dialysis may be given as intradialytic parenteral nutrition. Patients on peritoneal dialysis may benefit from amino acid based dialysis solutions.

Some patients tend to over-eat unhealthy foods while at other extreme others restrict almost all food stuffs. CKD diet does not mean a restricted diet. In fact most patients even with CKD can adopt a healthy diet with minor modifications especially those highlighted above. 

(The authors are from Delhi Pharmaceutical Sciences & Research University, New Delhi)





MOTHER OF ALL MALADIES

Diabetes is emerging as one of the most common and challenging health problems of the 21st century. Rapidly increasing and reaching epidemic proportions, the disease causes substantial morbidity and mortality affecting even the youth. It has become a major public health issue, causing tremendous burden both in social and economic terms.....

BY AMRESH K TIWARY

Diabetes mellitus is a disease in which the body's ability to produce or respond to insulin is impaired. Insulin is a hormone that is needed to convert sugar, starches and other food into glucose or energy needed for daily life. Diabetes results in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood.

The cause of diabetes continues to be a mystery, although both genetics and environmental factors such as obesity and lack of exercise appear to play roles.

The increased thirst and urination, increased hunger, fatigue, blurred vision, numbness or tingling in the feet or hands, sores that do not heal and unexplained weight loss are common

symptoms of diabetes.

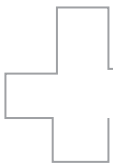
Knowing causes of diabetes can help a person understand how best to treat their symptoms, and help them understand how they got diabetes in the first place. While many causes of diabetes can be prevented, some causes are just the way the body is made, and the sooner a diabetes type can be diagnosed, the sooner a person can get back to normal health and take the measures needed to take care of oneself successfully.

Diabetes is a group of metabolic disorders characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action or both. Chronic hyperglycaemia is associated with long term damage, dysfunction and failure of various organs especially the kidneys, eyes, nerves, heart and blood vessels.

Several pathogenic processes are involved in the development of diabetes. These range from autoimmune destruction of the beta cells of the pancreas with consequent insulin deficiencies to abnormalities that result in resistance to insulin action.

TYPES OF DIABETES

Symptoms of type-I diabetes can start quickly in a matter of weeks. Symptoms of type-II diabetes often develop slowly over the course of several years—and can be so mild that you might not even notice them. Many people with type-II diabetes have no symptoms. Some people do not find out they have the disease until they have diabetes-related health problems, such as blurred vision or heart trouble.



TYPE-I DIABETES:

Type-I diabetes is a result of the progressive destruction of beta cells which lead to severe insulin deficiency. Although the symptoms have a relatively sudden onset, the underlying pathological changes occur over a prolonged period. Beta cells destruction appears to be an autoimmune process triggered by a variety of environmental factors along with genetic susceptibility which activates this autoimmune process.

TYPE-II DIABETES: Type-II diabetes,

the most common form of diabetes, is caused by several factors, including life style and genes. You are more likely to develop type-II diabetes if you are not physically active and are overweight or obese. Extra weight sometimes causes insulin resistance and is common in people with type-II diabetes.

Type-II diabetes usually begins with insulin resistance, a condition in which muscle, liver, and fat cells do not use insulin well. As a result, your body needs more insulin to help glucose enter cells. At first, the pancreas makes more insulin to keep up with

the added demand. Over time, the pancreas can't make enough insulin, and blood glucose levels rise.

The etiology of type 2 diabetes is not established. The principle underlying defects are reduced insulin sensitivity and impaired betacell function. Together these defects initiate a sequence of events that ultimately leads to widespread metabolic imbalance and clinical diseases. Type-II diabetes begins insidiously and progresses slowly.

Apart from type-1 and type-II diabetes, there is 3rd type of diabetes called 1.5 (one point five) type diabetes



Prof. (Dr.) Anoop Misra



Diabetes was recognized as ancient time, and even finds reference in the Indian ancient treatise, Vedas, more than 4,500 years ago. The term “Diabetes” originated from the Greek word for ‘Siphon’, because of marked urination in patients.

has diabetes. This figure is expected to rise in 100 million by year 2030, second only to China. Every fifth diabetes patient in the world is an Indian. A study showed that 37 percent of Delhi population suffers from diabetes or pre-diabetes. Indian have a predisposition to diabetes and nearly 75 percent of patients with type 2 diabetes have a first degree family history of diabetes.

About 90 percent patients of type 2 diabetes are either overweight or obese which is increasing in Indians. More than 60 percent women living in urban cities of India are overweight or obese. Women are at equal or sometimes higher risk for developing pre-diabetes, diabetes and diabetic related complications than man. Overall, an estimated one-third of school children are overweight or obese and 40-50 percent of school children in most metropolitan cities are overweight or obese. Diabetes – related complications are more common among Indians as compared to with other populations.

described as latent auto immune disease called Latent Autoimmune Diabetes of Adulthood (LADA), which has a slower course of onset than type 1 diabetes diagnosed in juveniles.

According to **Prof. (Dr.) Anoop Misra, Executive Chairman, Fortis C-DOC Hospital for Diabetes and Allied Sciences, New Delhi**, the Diabetes was recognized as ancient time, and even finds reference in the

Indian ancient treatise, Vedas, more than 4,500 years ago. The term “Diabetes” originated from the Greek word for ‘Siphon’, because of marked urination in patients. The term “mellitus” is derived from a Greek word, meaning ‘sweet’, in context of presence of sugar in the urine.

More than 65 million people in India suffer from diabetes, and nearly 8 percent of population above 18 years

DIABETES

422 million people have diabetes

SIGNS AND SYMPTOMS

headache

dizziness

frequent urination

blurry vision

weight loss

tingling in hands and feet

TREATMENT OF DIABETES

diabetes medications

blood sugar control

diagnostic

insulin therapy

TYPE 2 DIABETES CAN BE PREVENTED

healthy diet

weight control

break bad habits

exercise

tuberculosis combined. \Every ten seconds, one person dies from diabetes-related cause in India. Net losses in India's national income from diabetes and cardiovascular disease have been \$ 336.6 billion between 2005 to 2015.

WHY INDIANS ARE MORE PRONE TO DIABETES?

Prof. (Dr.) Anoop Misra, Executive Chairman, Fortis C-DOC Hospital for Diabetes and Allied Sciences, New Delhi, says that this has been found that Indians are more prone to 'Syndrome X' (a clustering of increased abdominal girth, high blood pressure, high blood sugar and deranged blood lipids), the first steps towards diabetes. Undoubtedly, Indians are more prone to excess body fat from birth. They have more clustered fat in their bodies (as much as 1.5 times more than white people from birth onwards. Most Indian children are born small, underweight and have a higher blood pressure and adiposity which increases the chance of them developing into diabetic adults at a later stage in their lives."

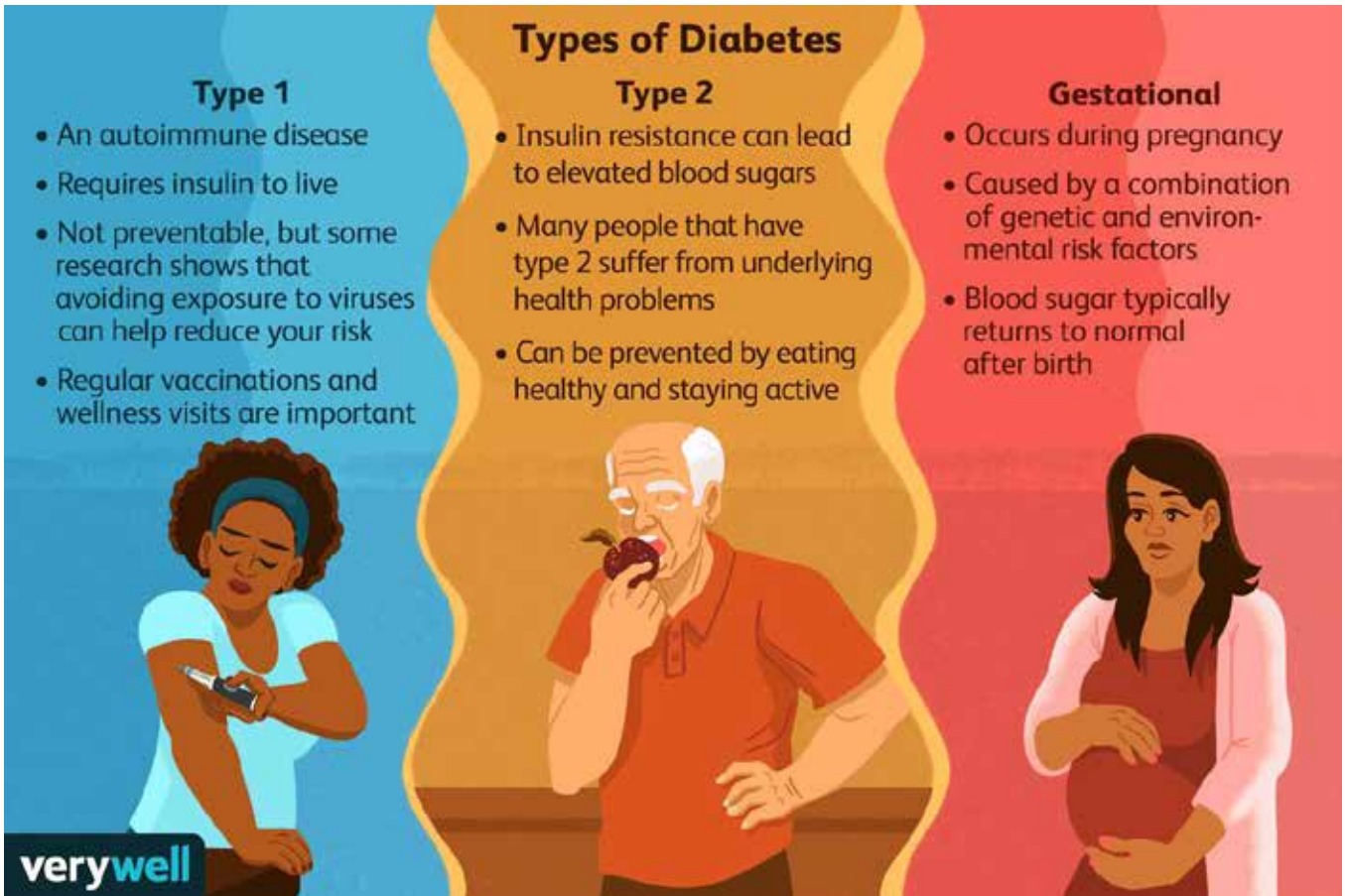
Resistance to action of hormone insulin: A combination of genetic factors and excess of fat over body, abdomen and liver lends in inherent tendency for insulin to act slowly and in a way that is only partially effective.

Fatty Liver (Fat accumulation in liver, not due to alcohol): Liver is a site of excessive fat deposition that leads to sluggish metabolism in Indians. This leads to overproduction of sugar, especially during night. Such fat laden livers may also become dysfunctional and cirrhotic, and may even turn cancerous.

Fatty Pancreas (Fat accumulation in pancreas): Studies have shown that though a person may not be fat, pancreas accumulates fat easily, and

About one fifth patients of diabetes develop retinal disorders leading to vision loss. More than 50 percent of long term diabetes was affected by diabetic neuropathy leading to sensory loss, non-healing foot ulcers and impotence among men. India tops in maximum leg amputations due to diabetic foot in the world. About 20-30 percent patients of diabetic neuropathy need dialysis or kidney transplant to

survive. Diabetes and hypertension are the most common cause of kidney failure in India. Silent heart attacks are high in diabetes. Heart disease in diabetic patients is more complicated, and leads to more death. Similarly strokes are also common in diabetic patients. The highest number of deaths in India occurs due to diabetes related heart disease, more than HIV/AIDS, malaria and



which may cause dysfunction of insulin producing cells.

Sudden switch to a lifestyle that is alien to traditional Indian ways to life: Switching to more modern lifestyle is aggravating problem and driving Indians even closer to diabetes. Most people today believe in eating ready-to eat stuff and leading a sedentary lifestyle. Such habits are far from the traditional frugal Indian way of life and rapidly increase the risk of diabetes.

Genetic Factor: A number of genes have been identified in Indians which could predispose the race more to diabetes as compared to other races. In addition, there could be genetic tendency to accumulate excess body

fat, abdominal fat and have large fat cells which decrease the action of insulin. For example, experts have identified a gene 'Myostatin' which may cause excess of fat and low muscle mass in Indians. There are other genes which may combine with each other or with bad diet or inactivity to produce diabetes.

Treatment of diabetes

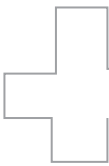
Until 1990, sulfonylureas (glyburide, glipizide etc) and biguanides (metformin) drugs were available in addition to insulin. Sulfonylureas at one time were expected to cause heart problems and during that period, metformin became more popular.

Recently in last decades gliptines (DPP4 inhibitors) are on the forefront. It is still a mystery whether

these drugs replace Metformin or Sulfonylureas. Metformin is a widely prescribed drug for treating type-II diabetes. Metformin is often the first medication that will be prescribed to people with type-II diabetes.

Metformin helps to lower blood glucose levels by reducing the amount of glucose produced and released by the liver, and by increasing insulin sensitivity. In fact, sulfonylureas and its relation with cardiovascular disease in addition to a great Framingham study of 1980 opened a new era in diabetes, that is, cardiovascular metabolic diabetes.

Due to diabetes, there is wasting of muscles and patients feel weakness. Insulin has been the major focus in treatment of type-I diabetes. However, it is very common that in type-II diabetes whereas 70 to 80 percent



Prof (Dr) Ramesh K Goyal

diabetic population has a normal to high insulin level but insulin injections are given to these patients and it is still a major mystery.

Humulin (Recombinant DNA insulin), a man-made insulin used to control high blood sugar in adults, is known to reduce high blood sugar (glucose) levels in patients with diabetes mellitus. Human insulin was expected to do miracles in the treatment of diabetes. Experiment study in animals proved that insulin can prevent every cardiovascular change but it is still a mystery as to why diabetics continue to suffer from cardiovascular disease.

According to **Prof (Dr) Ramesh K Goyal, Vice Chancellor, Delhi Pharmaceutical Sciences & Research University, Delhi**, the Diabetes is a common problem in older adults. Approximately 20% of individuals over 65 years of age have diabetes mellitus, and almost half of these individuals have not been



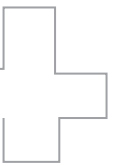
diagnosed. Unlike younger people with type 2 diabetes, who are often overweight, obesity is not that common among older diabetes patients.

However, there are widespread misconceptions about possible consequences of uncontrolled hyperglycemia,

In nursing homes, the problem of

being underweight is as common as that of being overweight. Thus, nutritional management should focus on weight gain for underweight elderly patients as much as it is focused on weight loss for obese patients.

In addition to diet and exercise, pharmacological therapy is often required for optimizing blood glucose



control. Target blood glucose ranges should be individualized. In frail patients, fasting plasma glucose levels should range from 100 to 140 mg/dl, and postprandial values should be <200 mg/dl.

The discovery of several classes of oral antidiabetic agents has increased the prospects of achieving better

control of hyperglycemia with reduced risk of severe adverse events.

Some of these agents, such as acarbose, miglitol, metformin, and troglitazone, do not cause hypoglycemia when used as monotherapy. As such, they are safer agents. Metformin appears to be especially useful in obese insulin-

resistant patients. The available data on safety and efficacy of troglitazone in the elderly is insufficient. The use of a combination of two or three oral antidiabetic agents to delay the need for insulin therapy is now possible. The long-term effects of this approach are not known, and the cost of polypharmacy is of concern.



THE AYURVEDIC VIEW



THE AYURVEDIC VIEW

Dr Tanuja Nesari, Dikrektor, All India Ayurved Institute, New Delhi, in Ayurveda, diabetes is known as Madhumeha (Madhu means 'honey' and Meha means 'urine'). Madhumeha is categorized as VatajMeha (a problem caused by aggravation of Vata). Vata symbolizes wind and dryness.

Deterioration of the body is a characteristic that indicates impairment of Vata. Maximum deterioration of dhatus (body tissues) occurs in this type of disease and this is the reason why all vital organs are affected by diabetes.

The other prime cause of diabetes is impaired digestion. Impaired digestion leads to accumulation of specific

digestive impurities (known as ama) which accumulate in the pancreatic cells and impair the production of insulin.

According to Ayurveda, sugar levels can be kept under control with the help of proper medication and a strict diet-lifestyle plan. Because diabetes is a chronic metabolic disorder that arises when the pancreas does not produce enough insulin, or when the body



cannot effectively use the insulin it produces, it can only be treated if the body is rejuvenated in its entirety.

Therefore, the treatment of diabetes recommended in Ayurveda - as against modern medicine - is aimed at rejuvenating the body to not only balance sugar levels, but also foster a positive change in the patient's life. Ayurvedic medicines work on the root cause of the disease, strengthening the patient's immunity, enhancing digestion and helping him lead an overall healthy life. Along with medication, dietary and lifestyle changes are also recommended to rejuvenate the body's cells and tissues, allowing them to produce insulin properly.

DAILY ROUTINE FOR A DIABETIC

Wake up time: Wake up by 6 am in the morning, as you also need ample time to exercise. Have a glass of lukewarm water mixed with two teaspoonful of fresh lemon juice every day.



Exercise: Exercise forms an important part of treatment for diabetic patients. A morning walk is the best form of exercise. Yoga and meditation can also be beneficial, especially to relieve stress and bring clarity to the mind. If your health permits, opt for exercises such as jogging, swimming, cycling, etc.

Breakfast: In the morning, take two slices of whole meal bread with butter and fresh milk (boiled and taken warm). Seasonal fresh fruits can be taken occasionally, with or without milk.

At work: If you are an office-goer, make sure you carry filling snacks with you all the time, as diabetics are advised not to keep their stomachs empty. Instead of snacking on cheese, chips or crackers, enjoy a handful of nuts or seeds. Go for variety with sunflower, pumpkin seeds, almonds, cashews, and walnuts.

Lunch: For lunch, opt for steamed or lightly cooked green vegetables such as cauliflower, cabbage, tomatoes, spinach, turnip, asparagus and mushrooms. Vegetable soup or boiled



Diabetes is known as Madhumeha (Madhu means ‘honey’ and Meha means ‘urine’). Madhumeha is categorized as VatajMeha (a problem caused by aggravation of Vata). Vata symbolizes wind and dryness. Deterioration of the body is a characteristic that indicates impairment of Vata.”

vegetables can also be taken. In addition, two or three whole wheat bread (chappatis), sprouts, salad, boiled rice, lentils (daal) etc. can be taken according to appetite. A glass of butter milk (salty lassi) is a nice drink to end the lunch. Roasted cumin seeds, black salt, grated ginger and green

coriander leaves can be added to the butter milk.

Day time sleep: If you are a non-working diabetic, always remember not to sleep during the daytime, as it increases KledakaKapha. A sub-dosha of Kapha, KledakaKapha governs the protective mucous lining of the digestive system, thereby facilitating proper digestion. In an increased state, it can lead to impairment of digestion, which can cause additional problems in diabetes patients.

Evening snacks: Have a glass of fresh fruit or vegetable juice. You can also take Ayurvedic tea with roasted chickpeas.

Dinner: Always remember that your dinner should be light and not have too many items. Boiled vegetables, sprouts, cottage cheese (paneer) or a bowl of salad made from fresh raw vegetables of the season. Also, make it a point to eat at least two hours before you go to bed.

Bed time: Go to sleep before 10 pm. Have a glass of fresh boiled warm milk before going off to bed.



RETAIN YOUR SIGHT

If you are a diabetic, finding and treating the eye disease early, before it causes vision loss or blindness, is in your best interests

BY DR SHISHIR NARAYAN

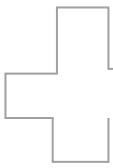
If you experience spots or dark strings, blurred, fluctuating, impaired colour and dark or empty areas in your vision, then you may suffer from diabetic retinopathy. In common parlance, diabetic retinopathy is a diabetes complication that affects eyes. If not treated on time, it can cause blindness.

Diabetic retinopathy is the most common cause of vision loss among people with diabetes and a leading cause of blindness among working-age adults. Basically, diabetic retinopathy is caused by damage to the blood vessels of the light-sensitive tissue at the back of the eye (retina).

Effective treatments are available to prevent vision loss from diabetic

retinopathy. The most opportune time for these treatments is before any vision has been lost, since even advanced diabetic retinopathy can be present when a person has no vision complaints or problems.

Elevated levels of blood glucose can damage the body in various ways, including harming the blood vessels in your eyes. Diabetes can affect the






DIABETIC retinopathy

did you know...?

One of the two 'stages' of diabetic retinopathy that requires treatment is diabetic maculopathy where the central retina can swell and cause blurred vision.

The second of two 'stages' of diabetic retinopathy that requires urgent treatment is proliferative diabetic retinopathy where abnormal blood vessels can grow from the retina and bleed.

If you undergo eye screening, have timely treatment and can have your follow-up care, your risk of blindness reduces by 95%.



Diabetes is the leading cause of blindness in the working population aged 20 to 74.

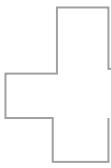
There are over 100 million people in the world with diabetic retinopathy.

There are no early symptoms of diabetic retinopathy hence the need for screening for the disease.

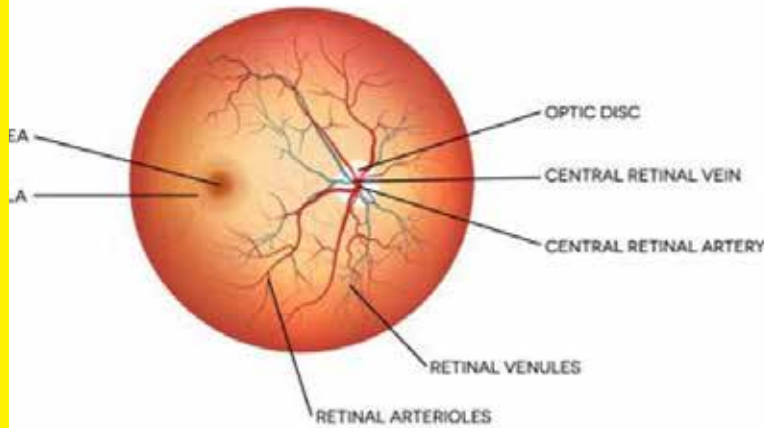
lining of the blood vessels in your eyes, causing them to thicken and develop leaks. Poor circulation in the retinal vessels can compound these problems by causing the production of fragile new vessels.

SYMPTOMS OF RETINOPATHY

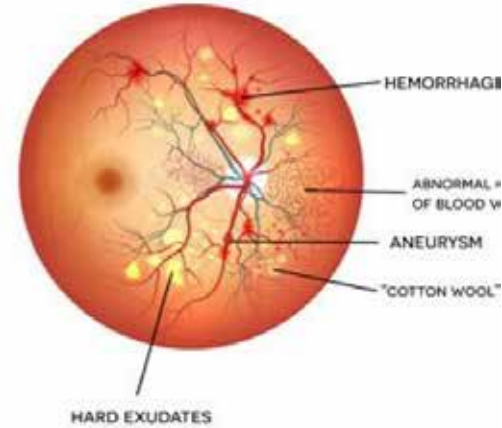
At first, diabetic retinopathy may cause no symptoms or only mild vision problems. Eventually, it can cause blindness. The condition can develop in anyone who has type-I or



NORMAL RETINA



DIABETIC RETINOPATHY



type-II diabetes. The longer you have diabetes and the less controlled blood sugar is, the more likely you are to develop this eye complication.

You might not have symptoms in the early stages of diabetic retinopathy. As the condition progresses, diabetic retinopathy symptoms may include dark strings, blurred, fluctuating, impaired colour and dark or empty areas in vision. Diabetic retinopathy usually affects both eyes.

With proper treatment plan, you can prevent vision loss. If you have diabetes, see your eye doctor for a yearly eye exam with dilation even if your vision seems fine. Pregnancy may worsen diabetic retinopathy, so if you are pregnant, your eye doctor may recommend additional eye exams throughout your pregnancy. Contact your eye doctor right away if your vision changes suddenly or becomes blurry, spotty or hazy.

Over time, too much sugar in your blood can lead to the blockage of the

tiny blood vessels that nourish the retina, cutting off its blood supply. As a result, the eye attempts to grow new blood vessels. But these new blood vessels don't develop properly and can leak easily.

THERE ARE TWO TYPES OF DIABETIC RETINOPATHY:

EARLY DIABETIC RETINOPATHY

In this more common form — called No Proliferative Diabetic Retinopathy (NPDR) — new blood vessels are not growing. The walls of the blood vessels in retina weaken. Tiny bulges protrude from the vessel walls of the smaller vessels, sometimes leaking fluid and blood into the retina. Larger retinal vessels can begin to dilate and become irregular in diameter, as well. NPDR can progress from mild to severe, as more blood vessels become blocked.

After 20 years of diabetes, most persons with diabetes will show

some signs of NPDR, which is generally not sight-threatening itself unless macular edema is present.

PROLIFERATIVE DIABETIC RETINOPATHY

It is a more serious stage of retinopathy and poses a greater risk of hemorrhage into the vitreous humor, the clear gel that fills the centre of the eye, or detachment of the retina leading to severe vision loss. Diabetic macular edema can occur with either non proliferative or proliferative diabetic retinopathy.

Nerve fibers in the retina may begin to swell. Sometimes the central part of the retina (macula) begins to swell (macular edema), a condition that requires treatment.

Diabetic retinopathy can progress to this more severe type, known as proliferative diabetic retinopathy. In this type, damaged blood vessels close off, causing the growth of new, abnormal blood vessels in the retina,




both can lead to complete vision loss.

TREATMENT OF RETINOPATHY

Laser photocoagulation is used to seal leaking blood vessels that may cause edema or swelling in the macula area of the eye. Laser surgery and appropriate follow-up care can reduce the risk of blindness by 90 percent. The primary goal of laser surgery is to prevent further vision loss and not to restore vision that has already been lost, which is why finding diabetic retinopathy early is the best way to prevent vision loss.

Laser treatment generally is not painful but may cause some temporary discomfort. The laser surgery is done on an outpatient basis in the ophthalmologist's office. After treatment, some people may experience a slight decrease in vision or it may become more difficult to adjust to darkness, a side effect that diabetes itself may cause. But the overall benefits of the laser treatment far outweigh these relatively minor drawbacks. Serious cases of eye damage in people with diabetes can be treated. If a hemorrhage does occur and vision is lost, or if the scar tissue threatens to detach the retina from the back of the eye, vitrectomy surgery can successfully restore vision.

Finding and treating the eye disease early, before it causes vision loss or blindness, is the best way to control eye disease in people with diabetes. So if you have diabetes, make sure you receive a comprehensive dilated eye examination at least once a year. Also, keep good control of your glucose levels and other health problems such as high blood pressure, kidney disease, and elevated cholesterol. 

and can leak into the clear, jelly-like substance that fills the centre of your eye (vitreous).

Ultimately, scar tissue stimulated by the growth of new blood vessels may cause the retina to detach from the back of your eye. If the new blood vessels interfere with the normal flow of fluid out of the eye, pressure may build up in the eyeball. This can damage the nerve that carries images from eye to brain resulting in glaucoma.

The longer you have diabetes, the greater risk of developing diabetic retinopathy. Diabetic retinopathy involves the abnormal growth of blood vessels in the retina. Complications can lead to serious vision problems.

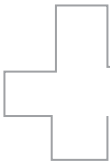
In Vitreous hemorrhage, the new blood vessels may bleed into the clear, jelly-like substance that fills the centre of your eye. If the amount of bleeding is small, you might see only a few dark spots. In more-severe

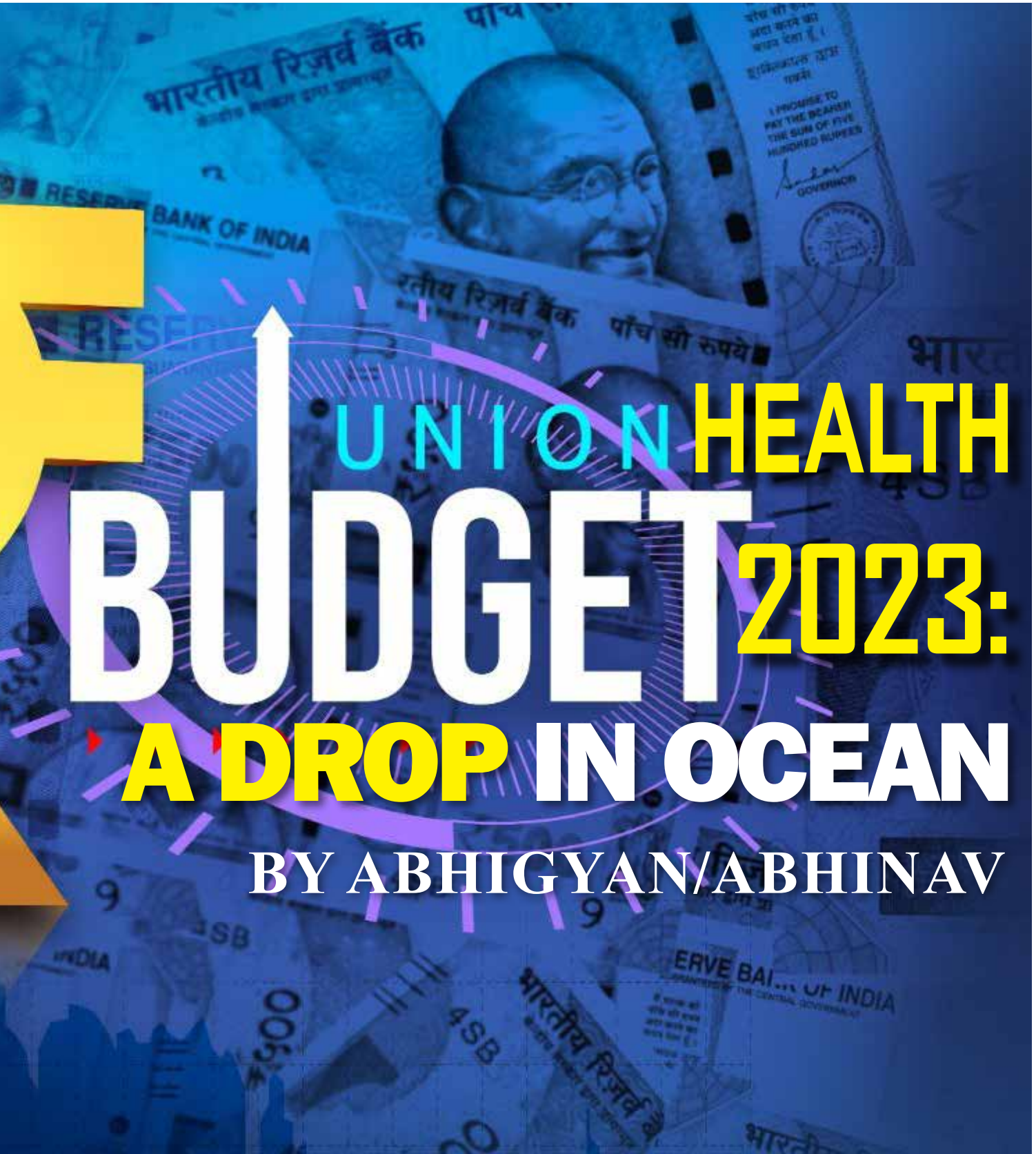
cases, blood can fill the vitreous cavity and completely block your vision. Vitreous hemorrhage by itself usually doesn't cause permanent vision loss. The blood often clears from the eye within a few weeks or months. Unless your retina is damaged, your vision may return to its previous clarity.

In Retinal detachment, the abnormal blood vessels associated with diabetic retinopathy stimulate the growth of scar tissue, which can pull the retina away from the back of the eye. This may cause spots floating in your vision, flashes of light or severe vision loss.

New blood vessels may grow in the front part of your eye and interfere with the normal flow of fluid out of the eye, causing pressure in the eye to build up (glaucoma). This pressure can damage the nerve that carries images from your eye to your brain (optic nerve). Finally. The patients of diabetic retinopathy, glaucoma or

(The author is senior Eye Consultant, Eye Trust and associated with Shrof Eye Hospital, New Delhi)





UNION HEALTH BUDGET 2023: A DROP IN OCEAN

BY ABHIGYAN/ABHINAV



In recently announced union budget the health sector has been allocated Rs. 89,155 crore in the financial year 2023-24. Unfoundedly, this allocation was an increase of approximately 13% over previous union budget which was Rs. 79,145 crore. But healthcare industry points of view, it is marginal raise in health budget not enough to keep up with inflation.

Of total Rs 89,155 crore, Rs 86,175 crore has been allocated to the Department of Health and Family Welfare, while Rs 2,980 crore has been allocated to the department of health research.

According to the Economic Survey 2022-23, the budgeted expenditure on the health sector reached 2.1 per cent of GDP in financial year 2023, and 2.2 per cent in 2022, against 1.6 per cent in 2021. In the current budget, the budgeted expenditure on the health sector stood at around 1.98 per cent of the GDP. This is when

the National Health Policy, 2017 envisages raising public health expenditure to 2.5 per cent of the GDP in a time bound manner by 2025.

In union budget speech, the finance minister announced the government's mission of eliminating sickle cell anaemia by 2047. Once launched, the initiative will allow for universal screening of 7 crore people between 0 and 40 years in affected tribal areas. And the increased funding towards the healthcare sector will also enable the Indian Council of Medical Research (ICMR) to advance its facilities.

This advancement will enable public and private medical college faculty members to undertake research within the facilities and also offer access to the private sector research and development teams. The access by these diverse teams will encourage more collaborative research and innovation in healthcare. This indicates the budget's futuristic focus on medical research, collaborative

research and research and development, which are core to enhanced care delivery.

The United States spent by far the most on healthcare, equivalent to 16.9% of its GDP – well above Switzerland, the next highest spending country, at 12.2 percent. In 2021, the United States had the highest per capita health expenditure among OECD (Organization for Economic Co-operation and Development) countries. The OCED is an international organization of 38 countries committed to democracy and the market economy.

At that time, per capita health expenditure in the U.S. amounted to 12,318 U.S. dollars, significantly higher than in Germany, the country with the second highest per capita health expenditure.

The United States is the highest spending country worldwide when it comes to health care. In 2020, total health expenditure in the U.S. exceeded four trillion dollars.



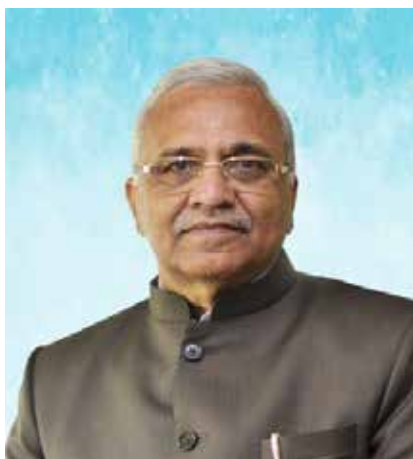
Expenditure as a percentage of GDP is projected to increase to around 20 percent by the year 2028.

If we talk about India's health budget then it is noted that the India home healthcare market size was valued at USD 8.8 billion in 2022 and is expected to expand at a compound annual growth rate (CAGR) of 19.29% from 2023 to 2030. The increasing need for better quality postoperative and primary care, advancement in technologies, rising disposable income, the shift of trend from communicable to lifestyle diseases, and the increasing availability of improved home care services with the technology-enabled platform are expected to drive the market growth. The growing geriatric population & dependency ratio in India is expected to drive the demand for home healthcare. According to the Economic and Social Commission for Asia and the Pacific, the aging population of India is expected to reach 298 million by 2051, accounting for 17% of the national population. With the introduction of advanced home healthcare services in the country, high-quality healthcare can now be delivered in the comfort of one's own home.

Dr A K Agrawal, Professor of Excellence, Medical Advisor Clinical Innovation, Apollo Hospital, and Former Dean, Maulana Azad Medical College,



New Delhi, said, "The Indian healthcare sector has continued to grow at a significant rate through effective budgetary allocations and promoting collaborations. The 2023-24 budgets highlight the government's focus on two core drivers of improved healthcare: increasing the number of trained medical professionals and investing in research and development. There is also a notable increase in allocations, indicating the commitment towards a more efficient healthcare system."



Dr Girdhar Gyani, Director General, Association of Healthcare Providers India, says that the increased funding which announced in Union budget 23-24, towards the healthcare sector will enable the Indian Council of Medical Research (ICMR) to advance its facilities. This advancement will enable public and private medical college faculty members to undertake research within the facilities and also offer access to the private sector research and development teams. But in terms of higher financing and other expectations like setting up a regulator, long term affordable credit facilities, and top sops, we observe that union health budget 2023-24 has more 'misses' than 'hits' for the health sector.

Dr R K Goyal, Vice, Chancellor, Delhi Pharmaceutical Sciences and Research University, New Delhi, said, "Focus on pharma innovation in union health budget is indicating the government's



acknowledgement of the current technological advancements in healthcare. The finance minister reported that the government would roll out a new program to promote pharmaceutical research and innovation. Further, the government will encourage industry players to invest in research and development in the established priority areas including innovative technologies in healthcare. This is welcome step of union health budget."





Dr Vinay Aggarwal, Past National President, Indian Medical Association, says that undoubtedly, our healthcare sector has continued to grow at a significant rate through effective budgetary allocations and promoting collaborations. The union health budget 2023-24 highlights the government's focus on two core drivers of improved healthcare like increasing the number of trained medical professionals and investing in research and development. The

provisions for a higher budgetary allocation are also positive but in real terms, the healthcare sector needs more to achieve the target of 2.5 percent of GDP.

Padamshree Dr Chandrakant S Pandav, Former, Head of Department, Centre for Community Medicine, AIIMS, New Delhi, says that we were also expecting some incentives for green



hospital projects, Public Private Partnership, provisions for long-term credit facilities, a dedicated regulator for the hospital sector and rationalization of import duty on medical equipment. Every sector awaits the Union Budget with a lot of expectations. However, considering this was the first Union Budget after the COVID-19 had become endemic in the country, the expectations of the health sector were higher.

In terms of budgetary allocations, Ministry of AYUSH has got Rs 3647 crore. Major schemes like National Health Mission (NHM) has not got more Rs 25 crore hike. The NHM was allocated Rs 28974 crore for FY 22-23 which has been increased to Rs 29085 crore for FY 23-24. Ayushman Bharat PMJAY has got a hike of nearly Rs 800 crore. Allocation has been increased from Rs 6412 crore to Rs 7200 crore for the next fiscal.

It is encouraging to note that the government has accorded priority to



National Digital Health Mission and increase its allocation from Rs 140 crore to Rs 340 crore for FY 23-24. But there is drastic cut in PM Swasthya Suraksha Yojna. This would have cascading effects on public health insurance programmes.

According to **Dr. R K Tuli, Founder and CMD, "SOHAM", A top centre for Holistic Medicine, New Delhi**, though the allocations for the department rose marginally, it does not amount to much once adjusted for inflation. The revised estimates for last year's budget were lower than the budgeted estimate. The United States is the highest spending country worldwide when it comes to health care, but why not in India. So I would say that this budget is a drop in the ocean of operating healthcare infrastructure."

CONCLUSION

In union health budget the finance minister announced the launch of a special mission to "eliminate" sickle cell anaemia by 2047. It will entail awareness creation, universal screening of 7 crore people in the age group of 0-40 years in affected tribal areas, and counselling through collaborative efforts of central ministries and state governments. According to the tribal affairs ministry, this genetic condition is widespread among members of tribes. One in 86 births among Scheduled Tribes suffered from it, the data revealed.

"There is no specific head in the budget documents to say how much would be spent this year on tackling sickle cell anaemia. The health ministry, though, has clarified that it will be a part of the National Health Mission – an umbrella scheme of managing various programmes in which the Centre contributes 60% and the rest is borne by state governments. No more details are available on this Mission." **Dr R K**




Tuli, added.

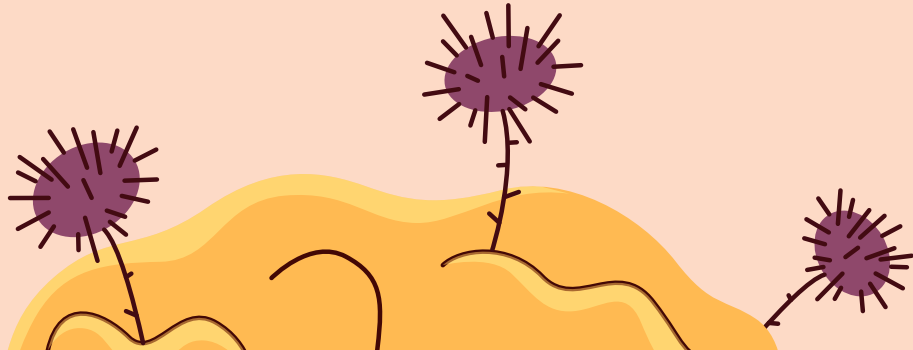
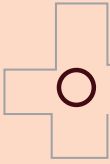
It may be noted here that this is yet another elimination target that India has set for itself after missing deadlines for similar targets for other diseases. Kala Azar (elimination deadline 2020), and filariasis (2017) are two such examples. Now, their deadlines stand revised for 2023 and 2030, respectively. India also envisages eliminating tuberculosis by 2025 – a target that experts say may not be achieved.


This is a welcome move in which finance minister also announced plans to open 157 new nursing colleges. as it will not only make India self-sufficient in nurses but also help

generate human capital for other countries, especially, which have an ageing population,. Though, colleges will fill up the vacancies in rural areas. The latest Rural Health Statistics of India revealed that the creation of more medical colleges has failed to solve the problem of inadequacy of doctors in rural areas.

The Association of Indian Medical Device Industry believes that the government did nothing to bring down the dependence on imports of this equipment. Though PM Narendra Modi urges India to become Atmanirbhar in medical devices, the medical devices imports continued to grow at an alarming level by 41% in last financial year.

Imports of Medical Devices from China went up by nearly 50% last year on account of low duties and convenience to import. These are the same domestic manufacturers, when imports got disrupted during the COVID-19 crisis; the government relied heavily on them to meet the rising demand for essential COVID items. The department of health research, which functions under the Union health ministry, saw a cut from Rs 3,200 crore in last year's budget to Rs 2,980 crore for the next fiscal. 





REALIZE YOUR OWN ABILITIES

Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community.....

BY DR ALEXANDER THOMAS

The WHO stress that mental health is “more than just the absence of mental disorders or disabilities.” Peak mental health is about not only avoiding active conditions but also looking after ongoing wellness and happiness.

The following are some of the risk

factors:-

1. Continuous social and economic pressure

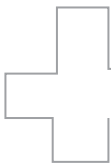
A. Modifiable factors for mental health disorders include: Socioeconomic conditions, such whether work is available in the local area, Occupation, A person’s level of

social involvement, Education, Housing quality

B. Non-modifiable factors include gender, age and ethnicity

2. Biological factors

Genetic family history can increase the likelihood of mental health conditions, as certain genes and gene variants put



a person at higher risk.

However, many other factors contribute to the development of these disorders.

Having a gene with links to a mental health disorder, such as depression or schizophrenia, does not guarantee that a condition will develop. Likewise, people without related genes or a family history of mental illness can still have mental health issues.

Mental health conditions such as stress, depression, and anxiety may develop due to underlying, life-changing physical health problems, such as cancer, diabetes, and chronic pain.

Common mental health disorders

The most common types of mental illness are as follows:

- Anxiety disorders
- Mood disorders
- Schizophrenia disorders

A - Anxiety disorders

People with these conditions have severe fear or anxiety, which relates to certain objects or situations. Most people with an anxiety disorder will try to avoid exposure to whatever triggers their anxiety.

Panic disorders

People with a panic disorder experience regular panic attacks, which involve sudden, overwhelming terror or a sense of imminent disaster and death.

Phobias

Phobias are deeply personal, and doctors do not know every type. There could be thousands of phobias, and what might seem unusual to one person may be a severe problem that dominates daily life for another.

Obsessive-compulsive disorder (OCD)

People with OCD have obsessions and compulsions. In other words, they

experience constant, stressful thoughts and a powerful urge to perform repetitive acts, such as hand washing.

Post-traumatic stress disorder (PTSD)

PTSD can occur after a person experiences or witnesses a deeply stressful or traumatic event.

B.Mood disorders

People may also refer to mood disorders as affective disorders or depressive disorders.

People with these conditions have significant changes in mood, generally involving either mania, which is a period of high energy and elation, or



Dr Alexander Thomas

depression. Examples of mood disorders include:

• **Major depression:** An individual with major depression experiences a constant low mood and loses interest in activities and events that they previously enjoyed. They can feel prolonged periods of sadness or extreme sadness.

• **Bipolar disorder:** A person with bipolar disorder experiences unusual changes in their mood, energy levels, levels of activity, and ability to continue with daily life. Periods of high mood are known as manic phases, while depressive phases bring on low mood. Read more about the different types of bipolar here.

• **Seasonal affective disorder (SAD):** Reduced daylight triggers during the fall, winter, and early spring months trigger this type of major depression. It is most common in countries far from the equator. Learn more about SAD here.

C.Schizophrenia disorders

Mental health authorities are still trying to determine whether schizophrenia is a single disorder or a





Signs of schizophrenia typically develop between the ages of 16 and 30 years, according to the NIMH.

group of related illnesses. It is a highly complex condition.

Signs of schizophrenia typically develop between the ages of 16 and 30 years, according to the NIMH. The individual will have thoughts that appear fragmented, and they may also find it hard to process information.

Schizophrenia has negative and positive symptoms. Positive symptoms include delusions, thought disorders, and hallucinations. Negative symptoms include withdrawal, lack of motivation, and a flat or inappropriate mood.

Treatments

1 - Psychotherapy, or talking therapies

This type of treatment takes a psychological approach to treating mental illness. Cognitive behavioural therapy, exposure therapy, and dialectical behaviour therapy are examples.

Psychiatrists, psychologists, psychotherapists, and some primary

care physicians carry out this type of treatment.

It can help people understand the root of their mental illness and start to work on more healthful thought patterns that support everyday living and reduce the risk of isolation and self-harm.

2 - Medication

Some people take prescribed medications, such as antidepressants, antipsychotics, and anxiolytic drugs.


Although these cannot cure mental disorders, some medications can improve symptoms and help a person resume social interaction and a normal routine while they work on their mental health.

Some of these medications work by boosting the body's absorption of feel-good chemicals, such as serotonin, from the brain. Other drugs either boost the overall levels of these chemicals or prevent their degradation or destruction.

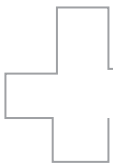
3 - Self-help

A person coping with mental health difficulties will usually need to make changes to their lifestyle to facilitate wellness.

Such changes might include reducing alcohol intake, sleeping more, and eating a balanced, nutritious diet. People may need to take time away from work or resolve issues with personal relationships that may be causing damage to their mental health.

People with conditions such as an anxiety or depressive disorder may benefit from relaxation techniques, which include deep breathing, meditation, and mindfulness. It is also noted that having a support network, whether via self-help groups or close friends and family can also be essential to recovery from mental illness. 

(The author is National President, Association of Healthcare Providers India)





AIR POLLUTION AND EYE DISEASES

There is an often overlooked association of air pollution and eye Diseases. The bad quality of environmental air can result in premature break-up of the preocular tear film and corneal epithelial damage causing significant irritation and discomfort.....

BY DR VIKAS VEERWAL

Air pollution is a serious health issue that impacts quality of life, as long term exposure is associated with respiratory and cardiovascular problems, as well as increased hospital admissions and healthcare spending. These phenomena have been observed in the west as well as in Asia, and with urbanization, such problems are expected to worsen with time.

In severe cases, pollution can even increase mortality but by improving environmental conditions, it has been shown that health indicators can respond favourably. According to the World Health Organization, air pollution consists of different particulate including particulate matter (PM), ozone, carbon monoxide (CO), nitrogen dioxide (NO₂) and sulphur

dioxide (SO₂). The number after PM refers to the aerodynamic diameter of the particles; i.e. PM₁₀ refers to particles <10 μm, and PM_{2.5} refers to particles less than 2.5 μm. PM₁₀ is generated from construction and road dust, whilst smaller particles (PM 2.5) are derived from combustion sources such as wood and biomass fuels. Regardless of the type of pollutant, pollution is a widespread issue as it can affect occupations both outdoors and indoors.

Eye structures are continuously and directly exposed to the environmental air pollutants. Due to the constant contact of the preocular tear film, cornea and conjunctiva with the surrounding air, toxins can damage or alter the physiology of these ocular structures. The quality of environmental air can result in premature break-up of the preocular tear film and corneal

epithelial damage causing significant irritation and discomfort.

Air pollution can affect the eye, causing complaints of eye redness, irritation, watering, foreign body sensation, and blurring of vision; however the link to the environment is sometimes overlooked by eye professionals. Conditions associated with air pollution are primarily: different forms of conjunctivitis, allergies, red eye syndrome, dry eye syndrome and meibomian gland dysfunction.

High concentration of toxic pollutants in the air may also cause a narrowing of the retinal vessels, which leads to disorders in its microcirculation. The connection between air pollution and cataract has also been suggested. Since the ocular surface can be easily examined, it can also serve as an indicator of the impact of pollution on

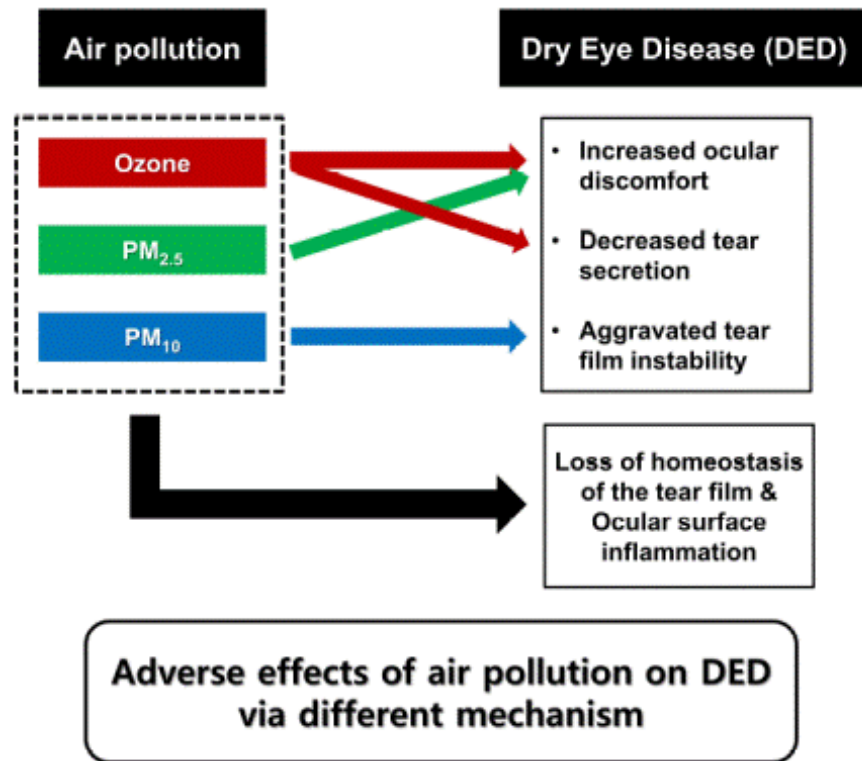
health. Despite the importance of the effects of pollution on the eye, research in this area has remained limited in regards to direct associations of the types of pollution with different ophthalmological abnormalities.

POLLUTION CAUSING THE EPIDEMIC OF DRY EYE SYNDROME (DES)

Our tear film is composed of three components: aquatic, lipid and mucous. Disorders in production, vaporization or composition of tear film are thought to be a cause of dryness of the eyes. Dry eye syndrome (DES) is the most common ophthalmic condition, its frequency varying between 11–58%. Many factors can have an influence on the occurrence of DES's symptoms: smoking cigarettes, drinking alcohol, low humidity, air pollution, sunlight exposure, wearing contact lenses, socio demographic factors, ophthalmic surgeries in the past. Schirmer's test and break-up time (BUT) test are often used in diagnosing DES.

In people living in the big cities disorders of tear film were observed more often. In inhabitants of polluted metropolis results of Schirmer's test and BUT test were significantly lower than in those living outside of the city (13.4 mm vs. 16 mm; 13 s vs. 19.2 s). In one study conducted at All India Institute of Medical Sciences, Delhi it was observed that environmental conditions have a very significant effect on ocular surface health and incidence of subclinical ocular surface changes was high among persons travelling in highly polluted area.

Inhabitants of strongly polluted areas of Delhi in India complained about reddening and irritation of the eyes two times more often than the control group. A study conducted on 55 inhabitants of Brazil showed the association between exposure to a high concentration of NO2 and disorders of the tear film and a feeling of eye



discomfort.

It is more of a concern for wearers of contact lenses, because in this group the influence of air pollution is more visible. Another study held in Southern Korea on 16,824 people showed the connection between high levels of ozone and NO₂ in the air and low humidity and occurrence of DES. High level of PM₁₀ and NO₂ in big cities was associated with shortening of break-up time, indicating increased dryness.

USE OF FACE MASKS AND DRY EYE DISORDERS

With the current Covid-19 pandemic, use of face masks has certainly become essential. Widespread use of face masks, while helps the prevention of novel corona virus transmission, it has shown to increase ocular dryness and irritation. Patients wearing masks for extended periods may be more likely to experience these symptoms. With use of face masks air blows upward from the mask into the eyes. This increased airflow likely accelerates the

evaporation of the tear film which, when continuous for hours or days, may result in ocular surface irritation or inflammation.

WHAT CAN BE DONE TO PROTECT YOUR EYES BETTER

There are many steps you can take to help minimize the effects of air pollution on your eyes.

1. Avoiding exposure: The golden rule, of course, would be to avoid exposure to harmful pollutants. On days when the pollution levels are noted to be high or there is a public health warning, stay indoors. You can easily check current air quality index on your phone using different apps that are readily available. In case you cannot avoid exposure to the environment and have to step out, make sure you wear protective eyeglasses which will minimize your exposure to the pollution causing agents.
2. Hand hygiene: Wash your hands



big cities all over the world in recent years caused growing concern about its adverse effect on human health. Eyes remain particularly vulnerable to air pollution. Both chronic, long-lasting and short-term exposure is harmful with exposure to a high dose of toxic air pollutant resulting in symptoms of conjunctivitis or dryness even on the same day. Tear film, cornea, and conjunctiva have constant contact with ambient air, so toxins that it contains can directly affect them and interfere with its functions.

Limiting exposure to high levels of air pollutants, using protective eye gear, lubricating drops when advised, and timely visiting an Ophthalmologist to get yourself evaluated are some of the measures that can help us through this environmental crisis. However, the most important issue is to urgently

often and try not to touch your eyes

3. Increase water intake: Stay hydrated as it helps in adequate tear formation. It becomes imperative when external factors such as smog increase your chances of dry eyes and eye irritation.

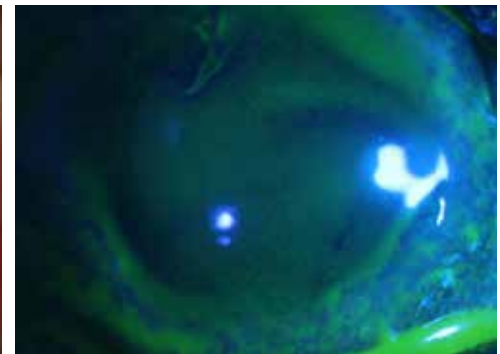
4. Eat Healthy: Have a healthy diet rich in Omega 3 fatty acid including lots of green leafy vegetables, carrots, spinach, almonds, walnuts, berries and fish which are extremely good for the eyes.

5. Wear sunglasses when outdoors.

6. Avoid eye rubbing: In case of significant irritation, avoid rubbing your eyes repeatedly as it predisposes to risk of infections. Cold compresses of the eye may help in reducing itching and irritation sensations.

7. Lubricating eye drops: While many over-the-counter lubricating drops are available in the market, it is essential to get your eyes examined by your Ophthalmologist before using any eye drops.


8. Reduce screen time: While the COVID pandemic has significantly increased our screen time, we need to



understand that long hours of exposure to different devices exacerbates dry eye symptoms. Avoid the excessive use of screen devices, including mobile phones and laptops. If essential, ensure adequate and frequent periods of rest to avoid eye fatigue, dry eyes, and computer vision syndrome.

9. In case of persistent irritation, redness or itching, you must visit your Ophthalmologist for an evaluation. Appropriate and timely intervention can prevent long term damage to your eye and improve your symptoms.

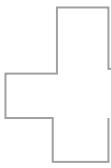
introduce systemic solutions to reduce the levels of air pollution before significant and permanent damage to our health takes place. Individuals, society, organisations and government need to work at every level to tackle this significant health problem.

FIGURE: Images showing allergic reaction of the conjunctiva and dry eye causing poor ocular surface resulting in discomfort, photophobia and irritation to the patient. 

CONCLUSION

The dramatic rise of air pollution in the

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Comprehensive Eye Care by WHO

The World Health Organization recently called for accelerated action to provide quality, affordable, integrated and people-centered comprehensive eye care for everyone, for addressing the increasing and disproportionate burden of vision impairment and blindness in the WHO South-East Asia Region.

According to Dr Poonam Khetrapal Singh, Regional Director, “Nearly 30% of the 2.2 billion people living with vision-impaired or blindness globally, are in WHO South-East Asia Region. This huge burden is unacceptable, as nearly half the global vision impairment could have been prevented or are yet to be addressed.

Inaugurating a high-level meeting of Member countries on ‘Integrated People-Centred Eye Care, Dr Poonam Khetrapal Singh, Regional Director, said, “Young children and older people are most vulnerable while women, rural populations and ethnic minority groups are more likely to have vision impairment and less likely to access care.” The increased prevalence of vision impairment and blindness in the Region among people of all socio-economic group, also tracks with the rising tide of non-communicable diseases (NCDs) such as diabetes.

In 2019, the Region was home to 87.6 million people with diabetes. Of them, 30.6 million had diabetic retinopathy (eye disease caused by high blood sugar), and 9.6 million had sight-threatening retinopathy (blindness caused by untreated diabetic retinopathy).

The three-day high-level meeting being attended by Ministers of Health in person / virtually, and programme



managers from across Member countries of the Region will deliberate on urgent measures to roll out ‘Action plan for integrated people-centred eye care in South-East Asia 2022 – 2030’. The LV Prasad Eye Institute, a comprehensive eye health facility and a World Health Organization Collaborating Centre for Prevention of Blindness, is supporting the meeting.


The regional action plan aims at enabling countries achieve 40% increase in effective coverage of refractive errors, 30% increase in effective coverage of cataract surgery, at least 80% people with diabetes are screened regularly for retinopathy, and at least 80% of those identified with sight-threatening diabetic retinopathy are treated by 2030. The plan also outlines measures that countries can take to eliminate trachoma in the Region by 2025. Two countries in the Region - Nepal and Myanmar - have eliminated trachoma.

“The regional action plan details a series of actionable, evidence based and locally adaptable strategies which need to be implemented with urgency,”

the Regional Director said.

People and communities need to be engaged and empowered, with the focus on at-risk and underserved population, to increase health literacy and enhance demand for eye care services, Dr Khetrapal Singh said.

Management of common eye health issues should be mainstreamed into routine health services and current care models must be reoriented to prioritize primary health care and community-based services, she said.

The Regional Director called for vigorously strengthening eye health workforce and emphasised on financial risk protection to enable people access essential medicines, spectacles, low-vision aids, rehabilitation and assistive products. WHO will continue to provide Member countries its full technical and operational support? Addressing vision impairment with universal eye care is not just a health issue, its critical to achieving multiple Sustainable Development Goals including ending poverty, hunger, education, gender equity and work, Dr Khetrapal Singh, said. 



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