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## Diabetes Rising Disease Burden

The Indian Council of Medical Research (ICMR) has undertaken a nationwide study with the aim of addressing the scarcity of information on diabetes and the other metabolic Non-Communicable Diseases (NCDs). The first phase of the study has reported alarming outcomes

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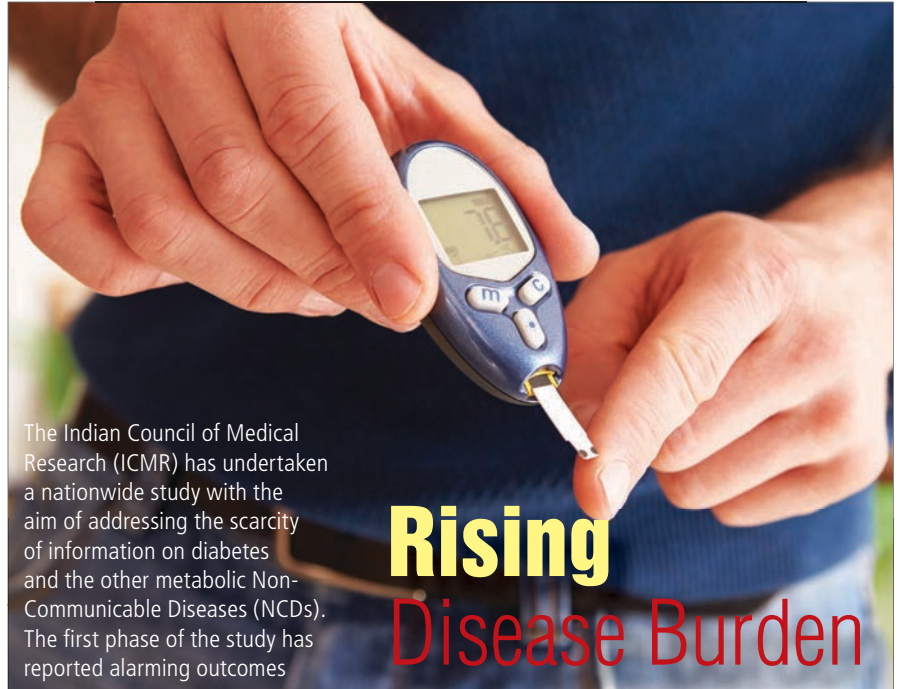
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**COVER STORY**



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# What ails the Capital's air

**D**ear readers,

Thanks for your continued support and good wishes. We really appreciate your efforts for staying with us and guiding us like a guardian. Like every month this time too we wish to present, good and interesting stories pertaining to improving the quality of life. There are a number of innovative report and analysis-based stories, in the field of healthcare.

The increasing trend of diabetes is a big challenge. The Indian Council of Medical Research (ICMR) has undertaken a nationwide study with the aim of addressing the scarcity of information on diabetes and the other metabolic non-communicable diseases (NCDs). The first phase of the study has reported alarming outcomes.

India is reported to have the second highest number of diabetic individuals in the world, but there is no reliable data on the national prevalence of diabetes as well as the other major diseases such as hypertension, obesity, dyslipidemia and a large number of growing.

The ICMR-INDIAB Study is a cross-sectional, community-based survey of adults of either sex, aged 20 years and above, aimed at determining the national prevalence of type 2 diabetes mellitus and pre-diabetes (Impaired fasting glucose/Impaired glucose tolerance) from all the 28 States, National Capital Territory (NCT) of Delhi and two Union Territories (UTs), namely, Chandigarh and Puducherry in the mainland of India.

As we know, the sense of balance relies on a series of signals to the brain from several organs and structures in the body. Balance

disorders occur when the balancing organ within the ear, heart and nerves is not able to maintain coordination of body systems.

Our story describes that the balance disorders are a combination of physiological factors that can make you feel unsteady or dizzy. While sitting, standing or lying down, you may feel as if you are floating, moving or spinning and you may feel dizzy and dazed for the time being. This disorder can intervene in your daily activities of life, and can even lead to falls and accidents, which may cause you to end up with fractures and other types of injuries.

Balance disorders can be caused by certain health conditions, medications, or a problem in the inner ear or the brain. A balance disorder can profoundly impact daily activities and cause psychological and emotional hardship.

Another story "Dangerous Disorder" highlights the alarming increase in the number of people suffering from haemophilia in the country. The need of the hour is to take appropriate initiatives for establishing infrastructure and providing good quality factors for the management of the disease. According to a study conducted by the World Federation of Hemophilia (Annual Global Survey), almost 50 per cent of the world's hemophilia population lives in India and almost 70 per cent of PWH (People with Hemophilia) do not have adequate knowledge or access to treatment. The risk of death from the lack of basic knowledge and untreated hemophilia is very high.

Hemophilia is a genetic and life-threatening bleeding disorder. Even with a minor injury or cut, in hemophilia patients' blood does not

clot normally due to the absence of clotting proteins called Anti-Hemophilic Factors (AHF).

With the network of 80 Chapters spread across the country, Hemophilia Federation India (HFI) aims to reach out to more and more PWH and provide quality care, affordable treatment, educational & psycho-social support and economic rehabilitation. The HFI has so far been able to identify more than 16,000 hemophiliacs across the country out of estimated 1.2 lacs (1 in every 10,000 population).

Despite the Odd-Even campaign by the Delhi Government, the air quality of the capital city is still not improving. Keeping this in mind, we examine whether the Delhi government is really serious towards public health. Whatever the results of two-week long odd-even campaign, the modus operandi to be curb air pollution does not meet expectations of millions of Delhiites.

Many families with elderly members ailing from respiratory illnesses have installed oxygen cylinders at home for emergency purposes because they can't keep running to the hospital for every frequent breathing crisis that arises. The medical practitioners feel that problem needs the attention of not just a single man, but of an entire system, whose combined effort must be to make whole capital city's air breathable again.

Thank you again for your overwhelming patronage of the magazine!


**Amresh K Tiwary**, Editor-in-Chief

  
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# Protect your Eyes

Take preventative measures in preparing and caring for your eyes and the delicate skin surrounding them in summers to keep them unaffected from UV exposure

**BY DR. MAHIPAL S SACHDEV**

**S**ummer is here and you have planned summer getaways and outdoor adventures and for this you are all prepared with summer clothes to beat the heat waves and sunscreen to rescue your skin from burning. However, your safety measures should not end here. You must know that the potentially harmful Ultra Violet (UV) rays of the sun that you need to watch out for and that they can even damage the long-term health of your eyes and the delicate skin surrounding them.

UV radiation can play a contributory

role in the development of various eye-related disorders including age-related cataract, pterygium, cancer of skin around eyelids and photokeratitis. In fact, the eye may be at a greater risk from the sun than the skin. Our skin has the capacity to adapt to UV radiation by producing melanin (tan) that protects against UV exposure. The eye does not develop tolerance to UV rays, but becomes more sensitive with repeated exposure and the effect on the eye is cumulative.

Even the reflective UV light, or glare from water, sand, snow as well as the road, can also have a debilitating effect



UV radiation can play a contributory role in the development of various eye related disorders including age related cataract, pterygium, cancer of skin around eyelids and photokeratitis

on the eye. So, the importance of protecting your eyes from UV exposure should never be overlooked in the summer season.

Squint is a natural reaction of the eye when exposed to direct or reflective light as it tries to block out the glare. It not only causes eye fatigue but also encourages the development of unsightly facial fine lines and wrinkles which look awkward.

### **UV rays are responsible for damage**

Other cosmetic UV damage to the skin around eyes, otherwise known as photo ageing manifests itself as dryness, sagging or loss of elasticity and mottled pigmentation. As per an estimate by WHO, 20% of cataracts are primarily caused due to sun damage and excessive UV exposure resulting in the development of skin cancers, of which 10% occur on the eyelids. Hence appropriate eyewear and hats are not just fashion accessories but are

essential.

In summers, it is important to invest in good quality eyewear that blocks 100% UV radiation. People who wear prescription glasses need not fret. They do not have to alternate between prescription glasses and sunglasses as they move around.

Today, the market has photo chromic lenses (variable tint) which automatically adjust to the level of UV light they are exposed to, going from exceptionally clear indoors to sunglass

As per an estimate by WHO, 20% of cataracts are primarily caused due to sun damage and excessive UV exposure has resulted in the development of skin cancers, of which 10% occur on the eyelids

dark outdoors. UV Rays blocking eyeglasses provide the most complete and convenient eyewear to shield the eye from harmful effects of UV rays of the sun. While most prescription lenses offer some UV protection, not all are equally effective.

It is advised to use Plastic Photo chromic lenses that block 100% UV radiation and enhance visual comfort by preventing eye fatigue by reducing glare. These plastic photo chromic lenses optimize visual clarity by allowing just the right amount of light to reach the eye. Moreover, these lenses make quick transition from clear to dark when you move from indoors to outdoors and fade back just as fast when you move out in the sun. Furthermore, these lenses can be made to fit frames of any style and are used widely by spectacles users worldwide.



(The writer is Chairman and Managing Director, Centre for Sight, New Delhi)



# War Against Infections

The Union Ministry of Health is in mission mode for elimination of Kala-azar and leprosy. It is working in close coordination with the states and regularly reviews the progress made by them on these fronts

**By Team Double Helical**

**T**he Union Health Minister J P Nadda was recently briefed on the progress about elimination of Kala-azar in the affected states (Bihar, Jharkhand, West Bengal and

eastern parts of Uttar Pradesh) covering issues such as availability of the synthetic Pyrethroidspray, manpower availability to operate the stirrup pumps, awareness campaigns undertaken by the states etc. He has

directed for aggressive campaigns to be carried out for meeting the target dates for elimination of Kala-azar from the endemic districts. The Health Minister has also directed the ministry to work in close coordination



# Kala-azar Simplified

**K**ala-azar is a slow progressing indigenous disease caused by a protozoan parasite. In India *Leishmania donovani* is the only parasite causing this disease. The parasite primarily infects reticuloendothelial system and may be found in abundance in bone marrow, spleen and liver.

Kala-azar or black fever is endemic in 54 districts across four Indian states. Bihar is even considered the epicentre of VL (Visceral leishmaniasis) in South Asia with 33 out of 38 Districts of the worst affected. The state alone reports over 70% of the total number of VL cases in India, with nearly 35 million people at risk of contracting the disease.

Two-thirds of Kala-azar cases in this area are women and children, with high mortality rates among these vulnerable groups. The disease also affects livelihoods as well as health and in Bihar it's reported that nearly 5 months of work is lost due to the illness.

In India, Visceral Leishmaniasis may be the first opportunistic infection in asymptomatic HIV-I infected person. It also occurs in advanced stages of AIDS. All co-infected patients are not symptomatic. Diagnosis may be altered because symptoms may be of short duration; fever and spleen may not be marked; *Leishmania* antibodies may be undetectable. However peripheral blood smears of buffy coat and blood culture may yield good results. Response to treatment is poor; drug side effects may be more and relapses may be common

Kala-azar is a vector borne disease. Indian Kala-azar has a unique epidemiological feature of being Anthroponotic; human is the only known reservoir of infection. Female sand-flies pick up parasite (Amastigote or LD bodies) while feeding on an infected human host. Parasite undergo morphological change to become flagellate, development and multiplication in the gut of sand-flies and move to mouthparts. Healthy human hosts get infection when an infective sand-fly vector bites them

There is only one sand-fly vector of Kala-azar in India *Phlebotomus argentipes*. Sand-flies are small insects, about one fourth of a mosquito. The length of a sand-fly body ranges from 1.5 to 3.5 mm. Adult is a small fuzzy, delicately proportionate fly with erect large wings. The entire body including wings is heavily clothed with long hairs. Life cycle consists of egg, four instars of larvae, pupa and adult. The whole cycle takes more than a month. However, duration depends on temperature and other ecological conditions. They prefer high relative humidity, warm temperature, high

## BIHAR BATTLES KALA AZAR

Bihar remains an endemic state for kala-azar and account for 70% of the total kala azar cases in India.



Source : Ministry Of Health And Family Welfare, India 2014

subsoil water and abundance of vegetation. Sand-flies breed in favourable micro-climatic conditions in places with high organic matter that serve as food for larvae. These are ecologically sensitive insects, fragile and cannot withstand desiccation

A case of fever of more than 2 weeks duration is not responding to antimalarials and antibiotics. Clinical laboratory findings may include anaemia and other symptoms. Variety of tests is available for diagnosis of Kala-azar. The most commonly used tests based on relative sensitivity, specificity and operational feasibility.

Parasite demonstration in bone marrow/spleen/lymphnode aspiration or in culture medium is the confirmatory diagnosis. However, sensitivity varies with the organ selected for aspiration. Though spleen aspiration has the highest sensitivity and specificity (considered gold standard) but a skilled professional with appropriate precautions can perform it only at a good hospital facility.

The Government of India provides Kala-azar medicines, insecticides and technical support and the state governments implement the programme through primary health care system and district/zonal and State malaria control organizations and provide for other costs involved in strategy implementation.



**J P NADDA, Union Health Minister**


with the states and review the progress made by them in the next three months.

Nadda also reviewed the National Leprosy Eradication Programme (NLEP). The Health Minister was briefed on the various initiatives undertaken under the programme. In order to improve detection of new cases of leprosy, an intensive house-to-house Leprosy Case Detection Drive in a campaign mode has been conducted in 50 high endemic districts in seven states of Bihar, Uttar Pradesh, Madhya Pradesh, Odisha, Maharashtra, Jharkhand and

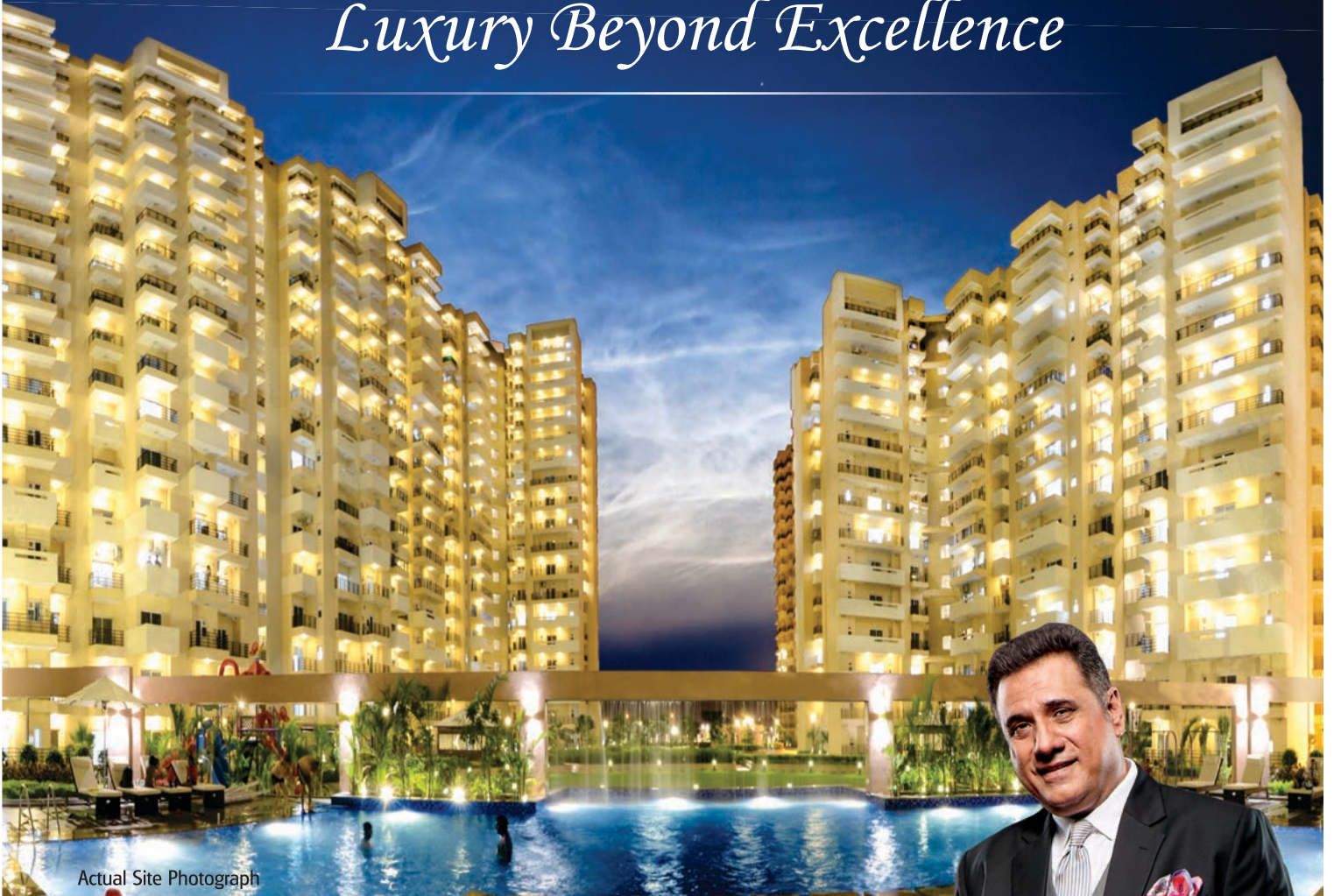
Chhattisgarh. More than 60,000 new cases were detected through this aggressive detection drive. Secretary (DHR) stated that an online reporting software with patient-tracking facility is being developed which will assist in more effective tracking and monitoring of the cases. A GIS application to correlate the distribution of the disease with epidemiological factors is already operational. Also, a taskforce with various stakeholders from different Ministries has been formed for mainstreaming of leprosy colonies.

The Union Health Minister has

directed that the active case detection drive shall be expanded to cover 163 districts, while the drive shall continue in the present 50 districts. The Union Minister and Secretary (HFW) shall review progress made by the states after three months. An expert committee shall be formed under the Chairpersonship of DG (ICMR) to recommend introduction of *Mycobacterium IndicusPranii* (MIP) vaccine as an immune-prophylaxis in the high endemic states. Emphasizing on the need for enhancing awareness about the disease and sensitizing people on issues of social stigma surrounding it, the minister also directed for a high visibility multi-media IEC campaign to be undertaken in these states among the affected communities along with capacity building of the medical and para-medical staff.

During the review meeting, B P Sharma, Secretary (HFW), Dr Saumya Swaminathan, Secretary (DHR) and DG (ICMR), Dr. (Prof) Jagdish Prasad, DGHS, K B Agarwal, Addl. Secretary and other senior officials of the Health Ministry were also present. 

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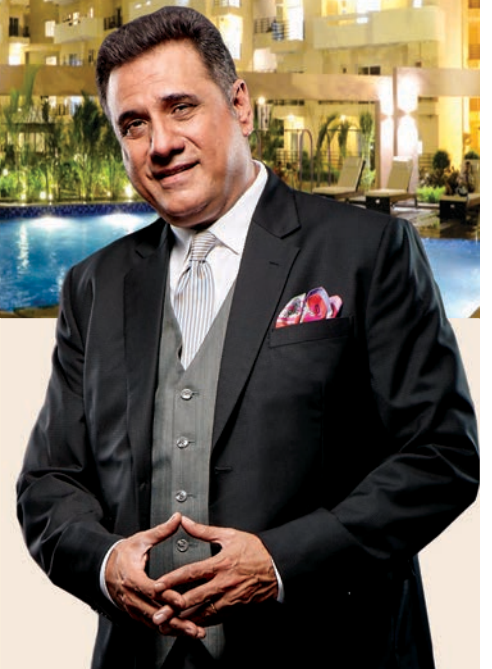
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Leprosy currently affects approximately a quarter of a million people throughout the world, with majority of these cases being reported from India

# Cursed Existence

Leprosy has been a major public health problem of India since the last century. Stigma against the disease causes its victims to be isolated and shunned

**By Team Double Helical**

**L**eprosy is a chronic infectious disease that usually affects the skin and peripheral nerves, but has a wide range of clinical manifestations. The disease is characterized by long incubation period generally 5-7 years and is classified as paucibacillary or multibacillary, depending on the bacillary load. Leprosy is a leading cause of permanent physical disability. Timely diagnosis and treatment of cases, before nerve damage takes place, is the most effective way of preventing disability due to leprosy.

Every year, the WHO receives official data on leprosy from up to 120 national programmes in member states worldwide. However, this data generally only becomes available in July of each year, and reflects the situation during and at the end of the preceding year.

As the latest individual country data becomes available it is published by WHO in the Weekly Epidemiological Record and a link to this publication is posted on this page. Rates of prevalence and new case detection are for 1 case per 10,000 and per 100,000 population, respectively


There are reports that the numbers of leprosy patients presenting to dermatologists in both private and teaching hospitals are increasing as peripheral surveillance activities are discontinued. This would require a specialized focus on early diagnosis, complete treatment and detection and management of disabilities.

Leprosy is one of the least infectious diseases as nearly everyone has some

measure of natural resistance against it. Nevertheless, stigma against the disease due to its disfigurement causes its victims to be isolated and shunned. Leprosy is also the leading cause of permanent disability in the world and is primarily a disease of the poor.

The disease is now readily treatable with multi-drug therapy, which combines three drugs to kill the pathogen and cure the victim. Disability and disfigurement can be avoided if the disease is treated early. Unfortunately, individuals with leprosy are still shunned, isolated, and stigmatized, leading to the fear of leprosy being worse than the disease itself.

Leprosy currently affects approximately a quarter of a million people throughout the world, with majority of these cases being reported from India. The country is a signatory to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). It is currently running one of the largest leprosy eradication program in the world, the National Leprosy Eradication Program (NLEP). Still, 1.2 to 1.3 hundred thousand new cases of leprosy are reported every year, 58% of the total amount of new cases reported every year.

Leprosy can affect all ages and both sexes. Leprosy has been a major public health problem of India since the last century. Leprosy was supposed to be eliminated by the World Health Organization (WHO) at the global level by the end of the year 2000. However, it still remains a significant public health problem at a national level in six countries, where India alone accounts for 64 per cent of prevalence and 78 per cent of new case detection, worldwide. 

# Rising Disease Burden

The Indian Council of Medical Research (ICMR) has undertaken a nationwide study with the aim of addressing the scarcity of information on diabetes and the other metabolic Non-Communicable Diseases (NCDs). The first phase of the study has reported alarming outcomes

**By Amresh K Tiwary**

India is reported to have the second highest number of diabetic individuals in the world, but there is no reliable data on the national prevalence of diabetes as well as the other major diseases such as hypertension, obesity, dyslipidemia and a large number of growing non-communicable diseases (NCDs). The Indian Council of Medical Research (ICMR) decided to undertake a nationwide study to obtain reliable and accurate data on diabetes and other metabolic NCDs.

The ICMR-INDIAB

Study is a cross-sectional, community-based survey of adults of either sex, aged 20 years and above, aimed at determining the national prevalence of type 2 diabetes mellitus and pre-diabetes (Impaired fasting glucose/ Impaired glucose tolerance) from all the 28 states, national capital territory (NCT) of Delhi and 2 union territories (UTs) namely Chandigarh and Puducherry in the mainland of India.

It is one of the first national studies to look at the prevalence of diabetes, hypertension, obesity and dyslipidemia in all the states of the country. The other three major objectives of this study are—(1) To determine the prevalence of hypertension

and hyperlipidemia in urban and rural India, (2) To determine the prevalence of coronary artery disease among subjects with and without diabetes and (3) to assess the level of diabetes control among self-reported diabetic subjects in urban and rural India.

Overall, the study has been initiated to estimate the prevalence of diabetes in India in a phased manner. In the first phase of this study, three states namely Tamil Nadu, Maharashtra, Jharkhand and one Union Territory namely Chandigarh located in the south, west, east and north of the country, respectively were observed. A stratified multi-stage sampling design was used for the phase-I of this study in which total 16,607 individuals were selected and 14,277 [86%] individuals participated. According to the first phase of this study, the weighted prevalence of diabetes (both known and newly diagnosed) was as follows: Tamil Nadu - 10.4%, Jharkhand - 5.3%, Chandigarh - 13.6% and Maharashtra





“The study is one of the first national studies to look at the prevalence of diabetes, hypertension, obesity and dyslipidemia in the country. I am particularly happy that the study has ensured capacity building in the prevention and control of NCDs in various states where the study is being done and particularly help individual states in planning and policy formulation.”

**Dr. Lalit M. Nath,**  
Chairperson, Expert  
Group, ICMR-INDIAB

- 8.4% (One of the primary objectives of the study was to find out the prevalence of prediabetes in these regions).

The figure presents the prevalence of prediabetes in the urban and rural population in the four regions. The prevalence of prediabetes was 8.3%, 8.1%, 14.6% and 12.8% respectively in Tamil Nadu, Jharkhand, Chandigarh and Maharashtra. Except in Chandigarh, the prevalence of Prediabetes was higher in urban areas in all age groups.

ICMR-INDIAB north-east component, which is now ongoing, includes the north-eastern states of India namely Sikkim, Assam, Meghalaya, Tripura, Mizoram, Manipur, Nagaland and Arunachal Pradesh. The ICMR-INDIAB-Rest of India (ROI) component (Phase II) involving several other states of India is currently in progress.

### **Rising Cardiovascular diseases**

The burden of cardiovascular

diseases (CVDs) is also increasing all over the world, so much so that it has emerged as a major concern in developing countries, including India. However, it is already a known fact that hypertension and dyslipidemia are the two major contributing risk factors for CVD and the Phase I of the study has thrown some interesting data on the prevalence of hypertension and dyslipidemia in the four states of Tamil Nadu, Jharkhand, Chandigarh and Maharashtra.

### **Chandigarh topped the list with highest prevalence of hypertension**

In urban areas, the highest prevalence of hypertension (overall) was observed in Chandigarh (32.6%) and Tamil Nadu (32.3%) followed by 30.5% in both Jharkhand and Maharashtra. In rural areas, Tamil Nadu had the highest prevalence of hypertension (28%) followed by Maharashtra (24.5%),

Jharkhand (22.2%) and Chandigarh (20.4%).

As far as dyslipidemia is concerned, the prevalence of dyslipidemia ranged from 75.7% in urban Maharashtra to 87.2% in urban Chandigarh and 76.5% in rural Tamil Nadu to 81.1% in rural Chandigarh.

The highest prevalence of obesity



“Diabetes represents one of the important NCDs. Reliable population based data on the burden of NCDs like diabetes is necessary to plan preventive and curative health services in the country. The ICMR-INDIAB Study is a cross-sectional, community-based survey of adults of either sex, aged 20 years and above, aimed at estimating the prevalence of diabetes and pre-diabetes across the country.”

**Dr. Soumya Swaminathan,**  
Secretary, Department of  
Health Research and  
Director General, ICMR



(both generalized and abdominal) was seen in urban and rural Chandigarh. In all the regions, prevalence of both In terms of glycemic control, the proportion of diabetic subjects with good glycemic control in urban areas was 30.1%, 34.7%, 29.6% and 31.6% in Tamil Nadu, Jharkhand, Chandigarh and Maharashtra respectively and it was 37.5%, 22.2%, 17.0% and 40.0% in rural areas respectively.

#### Lack of awareness on diabetes

Urban Jharkhand and rural Maharashtra had the highest proportion

of diabetic subjects with good glycemic control. Regarding awareness of diabetes in the study population, only 58.4% of the urban residents and 36.8% of the rural residents reported that they knew about a condition called diabetes, of these only 65.7% of the urban residents and 51% of the rural residents were aware that diabetes could be prevented. The prevalence of coronary artery disease (CAD) among subjects with and without diabetes is shown in.

In both urban and rural areas, the prevalence of CAD was higher among diabetic subjects compared to subjects without diabetes. Maharashtra (both urban and rural) had the highest prevalence of CAD among diabetic subjects compared to other regions. Generalized and abdominal obesity was higher in urban areas compared to rural areas.

According to Dr. Soumya Swaminathan, Secretary, Department of Health Research and Director General, ICMR, “Diabetes







represents one of the important NCDs. Reliable population based data on the burden of NCDs like diabetes is necessary to plan preventive and curative health services in the country.”

In this context, the study representing the states of Tamil Nadu, Maharashtra, Jharkhand and the Union Territory of Chandigarh has now been completed and the data has been compiled in a report. The results of all these four regions have already been shared with the respective state governments. These are invaluable data, as they provide a snap shot of the existing burden of disease in the country.

Dr. Swaminathan further informs, “The ICMR-INDIAB Study is a cross-sectional, community-based survey of adults of either sex, aged 20 years and above, aimed at estimating the prevalence of diabetes and pre-diabetes across the country.”

According to Dr. Lalit M. Nath, Chairperson, Expert Group, ICMR-INDIAB, “The study is one of the first national studies to look at the prevalence of diabetes, hypertension, obesity and dyslipidemia in whole

# Do You Have DIABETES?



## Take Off Your Shoes & Socks



### TODAY:

**Ask Your Health Care Provider to Check Your Feet:**  
Report any changes in how your feet look or feel

### EVERY DAY:



- 1 Wash your feet thoroughly
- 2 Dry your feet thoroughly (between the toes)
- 3 Apply moisturizer to your feet (not between the toes)
- 4 Wear moisture resistant socks
- 5 Never walk barefoot
- 6 Wear shoes that fit well

### ALSO:

- Check your feet for sores, cuts, blisters, corns and redness
- DO NOT soak your feet
- DO NOT smoke


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states of the country. It gives me great pleasure to write this Preface for the ICMR-INDIAB study (Phase I) comprising of 4 regions of India and conducted between 2008 and 2010.”

“I am particularly happy that the study has ensured capacity building in the prevention and control of NCDs in various states where the study is being done and particularly help individual states in planning and policy formulation for diabetes in the context of the disease status in their urban and rural areas. I am sure that this report will be useful to all researchers in this

country and abroad,” he added.

The first Phase of the ICMR-INDLAB study has already been completed. The other phases of this study, which will include rest of the Indian states, including the north eastern states of the country will also be completed soon and then we will have accurate and valuable data on intensifying NCDs such as diabetes, hypertension and obesity from urban and rural areas of all parts of our country. Such data is extremely valuable to policy makers and the other stake holders. 



# The Sweet Epidemic

Controlling the spread of diabetes requires urgent public attention, appropriate government interventions and combined efforts from all the stakeholders of health sector

**By Amresh K Tiwary**

**C**onsidered as one of the most silent killers, diabetes is now highly visible across all sections of society within India. In fact, the country has more diabetics than any other nation in the world. The disease affects more than 62 million Indians, which is more than 7.1% of India's adult population.

As per an estimate, nearly one million Indians die due to diabetes every year and the average age on onset is 42.5 years. The high incidence

is attributed to a combination of genetic susceptibility plus adoption of a high-calorie, low-activity lifestyle by India's growing middle class. Another report says that if not controlled, India will see the greatest increase in people diagnosed with diabetes (102 million) by 2035.

There is, therefore, an urgent need for medical intervention to mitigate the potentially catastrophic increase in diabetes in future and to reduce the burden that diabetes creates in India, appropriate government interventions

and combined efforts from all the stakeholders of health sector are required.

## Obesity is the biggest enemy

There are many causes for diabetes and the main culprit is the sedentary lifestyle of the people. Being overweight and lacking exercise can lead to diabetes, particularly in adults. Even the children who are obese when they are young have a much higher chance of getting type 2 diabetes than those children who are not obese at a young



Arvind Garg, Senior Child Specialist,  
Apollo Hospital, Noida



Dr Vipin Mishra, Senior Consultant and  
Head, Department of Diabetes and  
Endocrinology, J P Hospital, Noida



Dr Anup Mohta, Director,  
Chacha Nehru Bal Hospital, East Delhi

age.

According to **Arvind Garg, Senior Child Specialist, Apollo Hospital, Noida**, obesity is one of the major risk factors for diabetes, yet there has been negligible research on it. Despite having lower overweight and obesity rates, India has a higher prevalence of diabetes compared to western countries suggesting that diabetes may occur at a much lower body mass index (BMI) in Indians compared with Europeans. Therefore, relatively lean Indian adults with a lower BMI may also be at equal risk as those who are obese.

### The damage assessment

Diabetes is one of those diseases which affect the endocrine system. The pancreas produces the hormone insulin. In Type 1 diabetes, the insulin producing cells in the pancreas are destroyed. In Type 2 diabetes, insulin is still produced but the body becomes resistant to it. Diabetes may damage almost every tissue and organ of the body, including the kidney. If neglected, a person could go into diabetic nephropathy.

Albumin in the urine, blood urea and creatinine levels should be checked once a month. Diabetics should avoid painkillers. They should watch out for swelling of the feet, extreme fatigue, weakness and breathlessness. Obese children should also be screened for diabetes,

The doctors believe when diabetes is not well controlled there is damage to the organs and the immune system gets impaired. Recent statistics show that approximately a quarter of all people with diabetes worldwide at some point during their lifetime had developed sores or breaks (ulcers) in the skin of their feet.

The symptom that you could easily miss is the unexplained loss of weight, all of a sudden feeling of fatigue, and problems with your vision, without the need for corrective lenses. The patient may go through bouts of extreme hunger as the body calls for more food to generate energy. They could also experience unexplained tingling in their feet and hands, including dry skin. If any of these symptoms of diabetes show themselves, it may be time to consult your doctor for evaluation and possible treatment.

**Dr Vipin Mishra, Senior Consultant and Head, Department of Diabetes and Endocrinology, J P Hospital, Noida**, said, "If you have diabetes, no matter what type, it means you have too much glucose in your blood. Too much glucose can lead to serious health problems. Hypothetically diabetes mellitus refers to a group of diseases that affect how your body uses blood sugar (glucose). Glucose is vital to your health because it's an important source of energy for the cells that make up your muscles and tissues.

It's also your brain's main source of fuel".

"These days diabetes has been noticed even in the people as young as 15 years. Among the main reasons is sedentary lifestyle which has become ubiquitous now. About 17 million people suffer from kidney problems arising out of diabetes, but the irony is that only a few could afford the costs of treatment," said **Dr Shalini Jaggi, Senior Diabetologist, Balaji Action Hospital**.

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.

**Dr Anup Mohta, Director, Chacha Nehru Bal Hospital, East Delhi**, said, "Another cause of diabetes is genetics. If a child's parent has diabetes or if diabetes is common among other family members, a person's chance of also having diabetes as they age is greatly increased. Mainly, type 2 diabetes is inherited, and this type of diabetes is easier to treat, unlike type 1 diabetes. However, even if diabetes is an inherited disease, there is no guarantee that a person will get it."

# Tackling the Disease

**E**ducation is of utmost importance in the prevention of diabetes. Here's a list of symptoms that you should look out for in your body to make sure you are not suffering from any diabetes-related complications. These include frequent urination, excessive thirst, increased hunger, weight loss, tiredness, lack of interest and concentration and a tingling sensation, or the numbness in the hands, or the feet.

Other signs of the disease include blurred vision, frequent infections and slow-healing wounds.

Don't ignore basic warning signs as they could be indicative of graver problems. In case you are unsure, consult your doctor immediately.

**Remember, you are at the risk of diabetes if you:**

- are obese or overweight
- are physically inactive
- have been previously diagnosed with glucose intolerance
- have unhealthy dietary habits and meal times
- are above the age of 40
- are a patient of high blood pressure and high cholesterol
- have a family history of diabetes
- have a history of gestational diabetes
- are from a particular ethnicity (higher rates of diabetes have been reported in Asians, Hispanics and African Americans)

**The Ayurvedic view**

In Ayurveda, diabetes is known as Madhumeha (Madhu means 'honey' and Meha means 'urine'). Madhumeha is categorized as Vataj Meha (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, with 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 person**

**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 the treatment for diabetic patients. A morning walk is the best form of exercise for the people



who are suffering from diabetes. 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 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 with. Roasted cumin seeds, black salt, grated ginger and green coriander leaves can be added to the butter milk.

**Daytime 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 do 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.

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



Dr Shishir Narayan,  
Shroff Eye Hospital, New Delhi

### Stages of Diabetes

There are two stages to this disease, otherwise known as type 1 diabetes and type 2 diabetes, and they are caused when the pancreas does not produce enough insulin. A type 1 diabetic is more commonly found in younger adults and will require the use of insulin injections and a major adjustment in their diet. Type 2 diabetes is probably more common in adults; however, it is hardly ever diagnosed until the patient is required to do a blood test for some other medical problem. A type 2 diabetic is usually a patient who is constantly fighting with weight problem.


The chronic diabetes conditions include type 1 diabetes and type 2 diabetes. Potentially reversible diabetes conditions include prediabetes when blood sugar levels are higher than normal, but not high enough to be classified as diabetes and gestational diabetes, which occurs during pregnancy but may resolve after the baby is delivered.”

**Dr Shishir Narayan, Shroff Eye Hospital, New Delhi,** said, “The eyes of a diabetic need special attention and care and so regular eye check-ups are a must. The retina could get affected, and blood vessels in the eye could leak blood, due to diabetes. Diabetes also produces early cataract and in extreme cases, the patient can lose eyesight.”

### Care to cure

Those with long standing diabetes are at the risk of developing diabetic neuropathy and complications of diabetic foot. Round-the-year foot care can ensure that the chances of the complications are minimised. Gradually the sufferings due to this disease has also augmented. The diabetics, who were earlier warned for years that their illness could cause blindness, are now in for more bad news, as doctors have claimed that the patients are more likely to lose their hearing, too.

A Japanese research has found that hearing problems are far more common in diabetics than their healthy counterparts, even when other factors such as ageing and a noisy environment are taken into account.

The association of hearing impairment with diabetes is controversial, but it is believed that over time, high blood glucose levels can damage vessels (causing hearing loss). It's thought that glucose damages the nerves and tissues in the ear, diminishing the ability to hear. Diabetic patients should be screened for hearing impairment from earlier age compared with non-diabetics, from the viewpoint of prevention of several health problems such as depression and dementia caused by hearing impairment. 



# Bye Bye **Pain**

Low back pain can be treated after conservative treatment has failed. Ozone injection is a non-surgical, outpatient procedure done under local anaesthesia not requiring bed rest for more than a day or two

**By Dr. Neeraj Jain**

If you are experiencing severe or aching pain in the lower back that starts after activity, sudden movement, or lifting a heavy object, you might have consistent problem back pain.

The persons between 30 to 60 years of age are more likely to experience back pain from a lower back muscle strain or from within the disc space itself such as a lumbar disc herniation or lumbar degenerative disc disease.

The lower back pain symptoms include any difficulty moving that can be severe enough to prevent walking or standing, pain that also moves around to the groin, buttock or upper thigh, but rarely travels below the knee, pain that tends to be achy and dull, muscle spasms, which can be severe and local soreness upon touch.

Low back pain is a pandemic disease having 80% of lifetime prevalence, affecting 15-20% population at any point of time, being one of the commonest reasons for visit to a doctor and young age morbidity/disability/work absenteeism.

Some of the main causes of back pain include facet arthropathy, sciatica, muscle strain, sacroilitis, bulging or herniated discs and degenerative disc disease. Prolapsed intervertebral discs (PIVD) are the most common cause of low back pain associated with a defined structural Abnormality.

While spinal arthritis is the common reason of young age back pain at the prime of careers including those of some Bollywood celebrities, disc diseases including slip disc is prevalent in all age groups, in young age due to trauma and in old age due to degeneration.

Low back pain is not just a disease but a symptom, a syndrome with combination of multiple possible abnormalities of anterior & posterior longitudinal ligaments, vertebral body, synovia / chondropathy/ osteoarthritis of articulating facets joints, sacroiliac joint, nerve roots and foramen,

Ideally, a patient with low back pain that has persisted beyond a four-week period should be referred to a multidisciplinary pain centre. With interventional pain management patients are getting back to life

paraspinal muscles, related connective tissues eg.- ligamentum flavum , spinal canal, intervetebral disc at annulus ring. It may be due to mechanical, non-mechanical, referred pain, psychological and failed back surgery.

A back muscle strain or ligament strain is one of the most common causes of acute lower back pain. Lifting a heavy object, twisting, or a sudden movement can cause muscles or ligaments stretch or develop microscopic tears.

Piriformis syndrome is a neuromuscular disorder that occurs when the sciatic nerve is compressed or otherwise irritated by the piriformis muscle causing pain, tingling and numbness in the buttocks and along the path of the sciatic nerve descending down the lower thigh and into the leg.

Diagnosis is often difficult due to few validated and standardized diagnostic tests, but one of the most important criteria is to exclude sciatica resulting from compression/irritation of spinal nerve roots, as by a herniated disk. The syndrome may be due to anatomical variations in the muscle-nerve relationship, or from overuse or strain. Piriformis syndrome should be considered as a possible diagnosis when Sciatica occurs without a clear spinal cause.


It has both diagnostic & therapeutic relevance (as there are significant false positive and negative imaging studies not correlating to symptoms). Better results are obtained if treatment is

started early.

Patients who are not helped by weeks of conservative therapy are often referred for surgery on the premise that further non-operative care is unlikely to help. Ideally, a patient with low back pain that has persisted beyond a four-week period should be referred to a multidisciplinary pain centre. With interventional pain management patients are getting back to life. It has both diagnostic and treatment values, as sometimes all investigations put together do not give the exact diagnosis.

Early aggressive treatment plan of pain has to be implemented to prevent peripherally induced CNS changes that may intensify or prolong pain making it a complex pain syndrome. Only 5% of total LBP patients would need surgery and 20% of discal rupture or herniation would need surgery. Non-operative treatment is sufficient in most of the patients, although patient selection is important even then.

Depending upon the diagnosis one can perform & combine properly selected percutaneous fluoroscopic guided procedures with time spacing depending upon the patient's pathology & response to treatment.

Newer technologies like ozone injection cure most of the patients of slip disc and sciatica, as ozone's nascent oxygen atom shrinks the disc so taking away pressure from pain sensitive nerves. It is a non-surgical outpatient procedure done under local anaesthesia not requiring bed rest for more than day or two and prolonged absence from work realizing the importance of time, at much lower cost with almost no complications. This procedure is done under radiological guidance for precise needle targeting and best results. Thereafter, patient is given advice for spine care and healthy habits. 

(The author is Sr. Consultant Spine and Pain Specialist, Sri Balaji Action Medical Institute, Delhi)



# Brain Goes Haywire...



Sense of balance relies on a series of signals to the brain from several organs and structures in the body. Balance disorders occur when the balancing organ within the ear, heart and nerves is not able to maintain coordination of body systems

**By Dr Swapnil Shikha**

**B**alance disorders are a combination of physiological factors that can make you feel unsteady or dizzy. While sitting, standing or lying down, you may feel as if you are floating,

moving, or spinning and you may feel dizzy and dazed for the time being. This disorder can intervene in your daily activities of life, and can even lead to falls and accidents, which may cause you to end up with fractures and other types of





injuries.

Balance disorders can be caused by certain health conditions, medications, or a problem in the inner ear or the brain. A balance disorder can profoundly impact daily activities and cause psychological and emotional hardship.

If you have a balance disorder, you may stagger when you try to walk, or teeter or fall when you try to stand up. You might experience other symptoms like dizziness or vertigo (a spinning sensation), falling or feeling as if you are going to fall, faintness, floating sensation, blurred vision, confusion or disorientation and other symptoms might include nausea and vomiting, diarrhea, changes in heart rate and blood pressure, and fear, anxiety, or panic.

A combination and coordination of many body systems such as muscles, bones, vision, the balancing organ within the ear, heart and nerves help maintain normal balance. Dysfunction of these systems can lead you to encounter balance problems. Balance disorders can be caused by many types of conditions.

Other symptoms are nausea and vomiting, diarrhea, changes in heart rate and blood pressure, and fear, anxiety, or panic. Some people also feel tired, depressed, or unable to concentrate. Symptoms may come and go over short time periods or last for longer periods of time. A balance disorder may be caused by viral or bacterial infections in the ear, a head injury, or blood circulation disorders that affect the inner ear or brain. Many people experience problems with their sense of balance as they get older. Balance problems and dizziness also can result from taking certain medications.

In addition, problems in the visual and skeletal systems and the nervous and circulatory systems can be the source of some posture and balance problems. A circulatory system disorder, such as low blood pressure, can lead to a feeling of dizziness when we suddenly stand up. Problems in the skeletal or visual systems, such as arthritis or eye muscle imbalance, also may cause balance problems. However, many balance disorders can begin all of a sudden and with no obvious cause.

Unfortunately, many balance disorders start suddenly and with no obvious cause. Sense of balance relies on a series of signals to the brain from several organs and structures in the body, which together are known as the vestibular system. The vestibular system begins with a maze-like structure in your inner ear called the labyrinth, which is made of bone and soft tissue.

There are more than a dozen different balance disorders. Some of the most common are benign paroxysmal positional vertigo (BPPV) or positional vertigo – a brief, intense episode of vertigo that occurs because of a specific

change in the position of the head. If you have BPPV, you might feel as if you are spinning when you look for an object on a high or low shelf or turn your head to look over your shoulder (such as when you back up your car).


**Migraines:** Migraines are a general cause of dizziness. Sensitivity to motion can also be caused by migraines. It can also lead to motion sickness, which is dizziness experienced when traveling in boats, cars or airplanes.

**Head injury:** A severe concussion can also cause vertigo. **Ramsay Hunt syndrome:** Commonly known as zoster otitis, this condition affects the nerves close to the ears. It can be attributed to hearing loss, vertigo and pain in the ear.

**Vestibular problems and nerve damage:** Damaged nerves in the legs can cause difficulty in movement and locomotion. Abnormalities and dysfunctions in the inner ear can lead to a sensation of dizziness and a heavy head.

To find out if you have a balance problem, your will be asked to see an otolaryngologist. An otolaryngologist is a physician and surgeon who specializes in diseases and disorders of the ear, nose, neck, and throat.

The otolaryngologist may ask you to have a hearing examination, blood tests, an electronystagmogram (a test that measures eye movements and the muscles that control them), or imaging studies of your head and brain. Another possible test is called posturography. For this test, you stand on a special movable platform in front of a patterned screen. The doctor measures how your body responds to movement of the platform, the patterned screen, or both.

The first thing a doctor will do if you have a balance problem is determine if another health condition or a medication is to blame. If so, your doctor will treat the condition, suggest a different medication, or refer you to a specialist if the condition is outside his or her expertise. 

(The author is Director, Amrapali Healthcare, Noida)



# Treating Young Asthmatics

Asthma is the leading cause of chronic illness in children. It can begin at any age but most children have their first symptoms by age five. So, an early diagnosis is important

**By Dr Jasmeet K Wadhwa**

**C**hildhood asthma is a condition that is under-recognized, under-estimated, under-treated and responsible for considerable morbidity among children between one to four years of age group.

Asthma is a chronic inflammatory disorder of the airways, characterized by recurrent, reversible, airway obstruction. Airway inflammation leads to airway hyperactivity, which causes the airways to narrow in response to various stimuli, including allergens, exercise, and cold air.

Children with recurrent cough, wheezing, chest tightness or shortness of breath may have one or more forms of asthma. If left untreated, asthmatic children often have less stamina than other children, or avoid physical activities to prevent coughing or wheezing. Sometimes they will complain that their chest hurts or that they cannot catch their breath. Colds may go straight to their chest. Or, they may cough when sick, particularly at night.

Asthma has multiple causes, and it is not uncommon for two or more different causes to be present in one child. Asthma is more than wheezing. Coughing, recurrent bronchitis and shortness of breath, especially when exercising, are also ways that asthma appears.

For some children, severe asthma attacks can be life-threatening and require emergency treatment. Signs and symptoms of an asthma emergency in children under five years old include gasping for air breathing in so hard that the abdomen is sucked under the ribs and trouble speaking because of restricted breathing.

### Investigating childhood Asthma

Studies have found that amongst the unlabeled asthmatics, cough and other mild symptoms of asthma are predominant whereas wheezing and shortness of breath are more common among the labeled ones. In India, studies determining the prevalence of asthma in school children have been reported but no study has been done to determine the



If left untreated, asthmatic children often have less stamina than other children, or avoid physical activities to prevent coughing or wheezing. Sometimes they will complain that their chest hurts or that they cannot catch their breath

factors for under diagnosis of asthma. Thus, we planned to study the under-diagnosis of asthma in school children and its related factors using questionnaires and pulmonary function tests.

A cross-sectional study was carried out on 1000 school children studying in three public schools of Delhi and Haryana between 10 to 17 year age group over the period of one year. It aimed in studying under diagnosis of asthma in school children and its related factors. Questionnaires including details of medical, social, environmental factors precipitating asthma were filled by the parents and class teachers. Pulmonary function test (PFT) was performed. Based on questionnaires and PFT results, children were grouped as labeled and unlabeled asthmatics. Cough was found to be equally prevalent in both the

groups while wheezing and shortness of breath were independent and significant factors associated with getting a physician diagnosis.

General physical and systemic examination was done, followed by pulmonary function test. Peak expiratory flow rates were measured by Mini-Wright peak flow meter in standing position. Best of three measurements was taken. Children who had asthma-like symptoms were subjected to spirometry examination. In conclusion, we found that asthma is more likely to be missed or under diagnosed in children presenting with cough without wheezing and shortness of breath.

### Tricky diagnosis

Wheezing, coughing and other asthma-like symptoms can occur with conditions other than asthma, such as viral infections and so diagnosing asthma in young children can be really tricky. And this is the reason why it may not be possible to make a definite diagnosis of asthma until the child becomes older.

Diagnosing the precise cause of asthma is sometimes difficult because two or more causes may be present in one child. Unfortunately, there is not a single test that provides all the answers. An allergist/immunologist has specialized training and experience to determine if a child has asthma, what is causing it and accordingly what treatment plan should be developed.

It is also important to understand what triggers the symptoms in a particular child, and what (including medications) can make them go away. For this purpose an understanding of the family history of the child and the analysis of the environment (such as smoking or pets) is useful, so your physician may ask.

For many children under age five, asthma attacks are triggered or worsened by colds and other respiratory infections. It may be noticed that a particular child's colds last longer than they do in other children, or that signs and symptoms include frequent coughing that may get worse at night.

Moreover, infants may need extra attention during the diagnostic process because asthma symptoms can be caused by many things in this age group, some of which need very different therapies. When an infant has asthma symptoms, it is sometimes called reactive airway disease.

#### What triggers Asthma in Children

The two most common triggers of asthma in children are colds and allergens. After infancy, allergies become particularly important, and therefore asthmatic children should have an allergy evaluation to help diagnose and manage their asthma. Avoiding the allergens to which your child is allergic may help improve his or her asthma.

If the child is older than 5 years, he or she may be asked to perform pulmonary function testing to learn how air flows in his or her lungs. Other tests that your physician may discuss with you include measures of inflammation, a chest x-ray and tests for some of the less common causes of asthma-like symptoms.

#### Managing asthma in children

The most important part of managing asthma in children is to gain knowledge on how and when asthma causes problems, besides how some of the triggers can be avoided and the use of medications. The causes of asthma and best treatment for one child may be quite different than for another.

To understand this phenomena an allergist can help develop an asthma management plan, and moreover, it is wise to share it with other caregivers. The plan outlines what medications to take, and when and how to increase the doses or add more medication, if needed. It also includes advice about when to call the physician. An asthma management plan puts the patient in control for detection and early treatment of symptoms.

Inhaled medications come as metered-dose inhalers (sometimes called pumps), nebulizer solutions (delivered as a mist by a machine) and dry powder inhalers. However, it is important to learn how to use the type of medications prescribed for a child, or



The most important part of managing asthma in children is to gain knowledge on how and when asthma causes problems, besides how some of the triggers can be avoided and the use of medications

they might not work well.

Asthma medications include inhaled rescue medications (quick-relievers) to treat symptoms and long-term controller medicines (inhaled as well as oral) to control inflammation that commonly causes the asthma. If a child's asthma is more than a rare minor problem, a controller medication will probably be prescribed.

For older children and adults, doctors can use breathing tests (lung function tests) such as spirometry or peak flow measurement. As the child gets older, these tests may be used to help pinpoint an asthma diagnosis and track the progress of treatment. Generally, children under age five aren't able to do these tests.

Not all children have the same asthma symptoms, and so these symptoms can vary from episode to episode in the same child.

Possible signs and symptoms of asthma in children include frequent coughing spells, which may occur during play, at night, or while laughing or crying, chronic cough, less energy during play, rapid breathing (intermittently) complaint of chest tightness or chest hurting, whistling sound when breathing


in or out -- called wheezing, see-saw motions in the chest from laboured breathing. These motions are called retractions, shortness of breath, loss of breath, tightened neck and chest muscles and feelings of weakness or tiredness

While these are some of the symptoms of asthma in children, the doctor of a particular child should also evaluate whether any illness complicates the breathing of that child. Many pediatricians use terms like "reactive airways disease" or bronchiolitis when describing episodes of wheezing with shortness of breath or cough in infants and toddlers (even though these illnesses usually respond to asthma medications).

#### Understanding symptoms

There are many risk factors for developing childhood asthma. These include nasal allergies (hay fever) or eczema (allergic skin rash), a family history of asthma or allergies, frequent respiratory infections, low birth weight, exposure to tobacco smoke before or after birth and may be being raised in a low-income environment.

This is also important to know why the rate of asthma in children is gradually increasing. Some experts suggest that children spend too much time indoors and are exposed to more and more dust, air pollution, and secondhand smoke. Some of the suspect that children are not exposed to enough childhood illnesses to direct the attention of their immune system to bacteria and viruses.

Many children with asthma develop symptoms before age five and so an early diagnosis is important. There are a number of conditions that can cause asthma-like symptoms in young children. Treatment of Asthma in children improves their day-to-day breathing while reducing asthma flare-ups which further help reduce other problems caused by asthma. 

Dr Jasmeet K Wadhwa (The author is Consultant Pediatric Pulmonologist, Sri Balaji Action Medical Institute, New Delhi)



# Protect your Ears

While it is important to guard your ears against infections, do not be unduly alarmed at ear wax as attempt to clean ears with ear buds may result in injury to delicate skin of ear canal

**By Team Double Helical**

If you experience serious pain, your ear is swollen or red, or you have a loss of hearing, you should see your doctor. An injury to the ear that causes discharge is another reason to consult a doctor.

Ear discharge is any fluid that comes from the ear. It is also known as otorrhea. Most of the time ears will discharge earwax. This is an oil that the human body naturally produces. The job of earwax is to make sure that dust, bacteria, or other foreign bodies do not get into ear.

However, other conditions, such as

a ruptured eardrum, can cause blood or other fluids to drain from your ear. This is a sign that your ear has been injured or infected and requires medical attention.

Says **A K Agarwal**, renowned ENT surgeon and Professor of Excellence, "In most cases, discharge from ear is simply ear wax making its way out of your body. This is natural. Other conditions that can cause discharge include infection or injury."

Ear infections are one of the most common causes of discharge from the ear. An ear infection occurs when bacteria or viruses makes their way into the middle ear. The middle ear is

behind the eardrum. It contains three bones called ossicles. These are vital to hearing. Ear infections cause fluid to build up in the ear, which can lead to ear discharge.

Dr A K Agarwal adds, "Treatment of ear discharge will depend on its cause. In some cases, your condition won't need medical treatment. Signs of an ear infection usually start to clear up within the first week or two, without any treatment. Pain medications might be necessary to deal with any pain or discomfort. If your child is under 6 months old or has a fever over 102.2°F your doctor might prescribe antibiotic eardrops."



A K Agarwal, ENT surgeon and Professor of Excellence, Molana Azad Medical Collage

**Dr Achal Gulati**, Principal, Baba Saheb Ambedkar Hospital, New Delhi, informs, “Trauma to the ear canal can also cause discharge. Such trauma can occur while cleaning your ear with a cotton swab if you push it in too deep. An increase in pressure, such as when you’re flying in an airplane or scuba diving, can result in trauma to your ear. These situations may cause your eardrum to rupture or tear.”

Acoustic trauma is damage to the

ear due to extremely loud noises. Acoustic trauma can also cause your eardrum to rupture. However, these cases are not as common.

Adds Dr Achal Gulati, “Otitis externa, commonly known as swimmer’s ear, occurs when bacteria or fungus infects your ear canal. It usually occurs when you spend long periods of time in water. Too much moisture inside your ear can break down the skin on the walls of your ear canal. This allows bacteria or fungus to enter and cause an infection.”

However, swimmer’s ear isn’t exclusive to swimmers. It can result whenever there’s a break in the skin of the ear canal. This might occur if you have irritated skin as a result of eczema. It can also occur if you insert a foreign object into the ear. Any damage to your ear canal makes it more susceptible to infection.

A less common cause for ear

discharge is malignant otitis externa, a complication of swimmer’s ear that causes damage to the cartilage and bones in the base of the skull.

Other rare causes include a skull fracture, which is a break in any of the bones in the skull, or mastoiditis, which is an infection of the mastoid bone behind your ear.

Dr Aggarwal advises, “You should consult the doctor if the discharge from your ear is white, yellow, or bloody or if you’ve had discharge for more than five days. Sometimes ear discharge may occur with other symptoms, such as a fever. Tell your doctor if you have accompanying symptoms.”

Most cases of ear trauma also heal without treatment. If you have a tear in your eardrum that doesn’t heal naturally, your doctor might apply a special paper patch to the tear. This patch will keep the hole closed while



Dr Achal Gulati, Principal, Baba Saheb Ambedkar Hospital, New Delhi



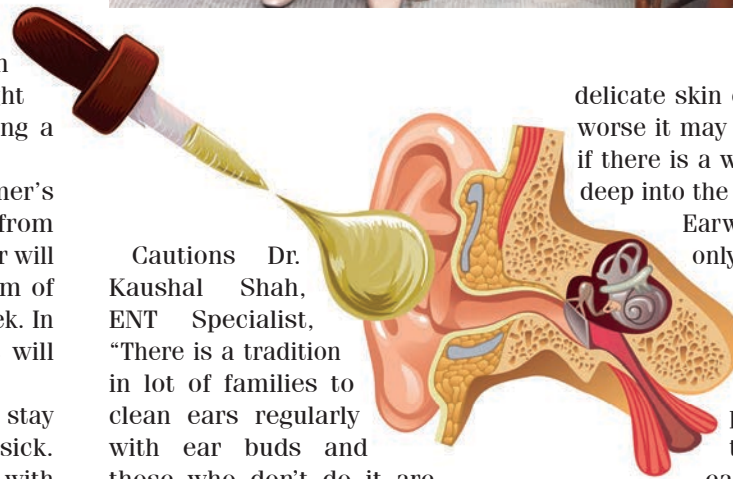
your eardrum heals. If a patch doesn't work, your doctor might surgically repair your ear using a patch of your own skin.

A doctor should treat swimmer's ear to prevent the infection from spreading. Typically, your doctor will give you antibiotics in the form of eardrops to use for about a week. In severe cases, oral antibiotics will also be necessary.

To avoid ear infections, try to stay away from people who are sick. Breastfeeding provides infants with protection from ear infections, since they receive their mother's antibodies in the milk. If you bottle-feed your baby, the Mayo Clinic advises trying to hold the infant in an upright position to prevent ear infections.

Keep foreign objects out of your ears to avoid rupturing your eardrum. If you know you'll be in an area with excessive noise, bring ear plugs or muffs to protect your eardrums.

You can prevent swimmer's ear by making sure to dry your ears after being in the water. Also, try to drain any water by turning your head to the side. You can also use over-the-counter medicated eardrops after swimming to control and alleviate swimmer's ear.




**Cautions** Dr. Kaushal Shah, ENT Specialist, "There is a tradition in lot of families to clean ears regularly with ear buds and those who don't do it are many times considered non-hygienic. But it may also lead to discharge and impact hearing ability. Inside ear is a very delicate structure and is likely to be damaged easily even with trivial trauma."

First we must understand that wax has a useful role to play in the ear, it lubricates, protects and renders antiseptic property. Ears without wax feel dry and itchy. Wax is self-cleaned from our ear canal propagated by movements of the jaw. So, most of the times there is never any need to clean wax from inside the ears. Only external surface of the ear should be cleaned with cloth.

Many times attempt to clean ears with ear buds results in injury to

delicate skin of ear canal and even worse it may injure the eardrum or if there is a wax chunk it may push deep into the eardrums.

Earwax needs to be cleaned only when it obstructs the sound pathway to ear drum. When there is feeling of fullness or blockage, there is partial hearing loss there is ringing in the ears, tinnitus/noise, itching or odour in the ear.

Many times home remedies are useful to remove ear wax like instilling drops of mineral oil glycerin or commercially available drops. If not successful than it should be removed by ENT surgeon. The surgeon may wash earwax out with warm water or saline. Sometimes the surgeon may remove wax by suction or microinstruments under microscope. There is no proven remedy for frequent wax impaction but it is very important to avoid inserting any object inside ear to clean wax. Those who get frequent wax impaction or using hearing aids may need to see the surgeon every 6 to 12 months to clean wax regularly. 



Dr Jayshree Ben Mehta



# Upholding Merit and Quality

The Medical Council of India focuses on adoption of global standards for medical education in India. The emphasis of the MCI has always been on merit-based admissions in various medical schools in the country

**BY DR JAYSHREE BEN MEHTA**

**T**he Indian healthcare system has undergone massive changes since independence. With increasing skills and right approach to provide quality healthcare, a large number of private hospitals and research institutions are contributing in fulfilling the dream of our Prime Minister Narendra Modi's Make in India movement.

The emphasis of the Medical Council of India (MCI) has always been on

maintaining and monitoring the standards of medical education in India. The Council aims at 'merit based' admissions in various medical schools in the country which are devoid of any 'capitation fee'.

The MCI is created by a Parliamentary enactment for the purposes of maintaining and monitoring the standards of medical education in India. The basic onus vested with it is, therefore, pertaining to governing the

maintenance of desired standards in various medical schools in the country under its ambit, so as to ensure generation of efficiently trained health care manpower which would be able to deal with health care delivery system meaningfully.

In order to ensure the same, the Council has ventured into updating the curricula for the undergraduate medical course and taking necessary steps to ensure that it conforms to



global standards. The curriculum is incorporated as an integral part of Graduate Medical Regulations notified by the Council u/s 33 of the IMC Act, 1956 which has a binding force for all the medical schools and examining universities to adhere to. By the said modality, the Council is also vested with the authority for further upgradation of the same taking into consideration the requirements from time to time at their end.

The opening of new medical colleges is governed in terms of the provisions incorporated at Section 10A of the IMC Act, 1956 and by the procedure entailed thereto in the governing regulations notified by the Council. An applicant has to fulfill the binding requirements in terms of procuring the 'Essentiality Certificate' from the concerned State Govt. and the 'Certificate of Consent of Affiliation' by the examining university along with a developmental plan for the purpose of opening of a new medical college. In terms of this stipulated time schedule, the application so made upon its 'primary scrutiny' by the Government of India is remitted to MCI for 'technical evaluation' and recommendations thereon. The recommendations are made by the Council on the basis of an 'on site' inspection conducted through its 'assessors' conforming to the prescribed eligibility in terms of evaluation of the plan as per minimum standard requirements prescribed in the governing regulations.

It is a matter of reality that the opening of medical colleges has been open ended in nature in as much as their geographical distribution has been inconsistent as against the population. It is for this reason that the reconstituted MCI at its meeting held on March 28, 2014 has proposed that a national perspective development plan for opening of new medical college with reference to their locations based on social and economic backwardness should be a parameter so as to ensure equitable distribution vis-à-vis geographical location.

The emphasis of the MCI has always been on 'merit based' admissions in

various medical schools in the country and which are devoid of any 'capitation fee'. The prescription of fee in unaided medical colleges in the country is governed by 'fee fixation committee' of the concerned state constituted in terms of composition and authority brought out by the pronouncement of the Supreme Court in Islamic Academy vs. Union of India case. Likewise the 'Admission Committee' headed by a retired judge of the High Court in each state is required to monitor the admissions. In addition, the Council monitors the admissions to undergraduate and postgraduate courses in each of the medical college for the purposes of ensuring that they are strictly in accordance with the regulatory requirements and defaulters are suitably penalised. Admissions made in nonconformity to the binding rules are annulled forthwith. In order to ensure merit based admissions, the concept of National Eligibility Entrance Test was mooted at the initiative of the Council way back in 2009.


The objective incorporated in Graduate Medical Education Regulations clearly brings out that the purpose is to create 'confident, competent and compassionate' medical practitioners who would be practising the profession within the tenets of 'ethical conduct' incorporating ethicality, morality and

The reconstituted MCI at its meeting held on March 28, 2014 has proposed that a national perspective development plan for opening of new medical college with reference to their locations based on social and economical backwardness should be a parameter to ensure equitable distribution vis-à-vis geographical location

value based medical practice as contemplated in Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulations, 2002). Diligent and faithful enforcement of the same has been worked out by the MCI in consultation with the various State Medical Councils and the cases are dealt in a time bound manner with MCI vested with the appellate jurisdiction on the said cases.

The process of making medical education at all levels 'quality centric' including undergraduate, postgraduate and super speciality courses is an ongoing venture of the MCI through various modalities. It includes curricular update, rationalisation of the infrastructural requirements and the incorporation of appropriate tools and techniques and technology in teaching learning process commensurate with appropriately designed tools of 'assessment and mechanism of evaluation' for the entire process. It is done through issuance of timely guidelines and commensurate regulations framed vide their update from time to time.

The Indian Medical Council Act defines Medicine at Section 2 sub-section 2(f) very specifically and categorically with reference to its inclusions and exclusions as well. In view of the said binding definition and the pronouncement of the Supreme Court from time to time, it is not open and permissible for the MCI to integrate the system of modern medicine with any other system of medicine.

In the Graduate Medical Education Regulations curriculum, structuring of the curriculum has been stipulated in three distinction contents namely 'knowledge, attitude and skills including clinical skills'. The structuring of behavioural domain is incorporated in the curriculum for the purposes of inculcation of compassion in the learner. It has been structured to ensure desired 'altruism' incorporated in him/her. 

(The author is President, Medical Council of India)

One woman dies of cervical cancer every 8 minutes in India. In the absence of a nationwide screening program, there are disparities in screening, treatment, and also survival of cervical cancer patients

**By Dr Shruti Bhatia**

# Grim Scenario





**By Dr Shruti Bhatia**

If you are experiencing abnormal vaginal bleeding, such as bleeding after sex (vaginal intercourse), bleeding after menopause, bleeding and spotting between periods, and having longer or heavier (menstrual) periods than usual, you must consult your doctor. You might have the symptoms of cervical cancers. Bleeding after douching, or after a pelvic exam is a common symptom of cervical cancer but not pre-cancer.

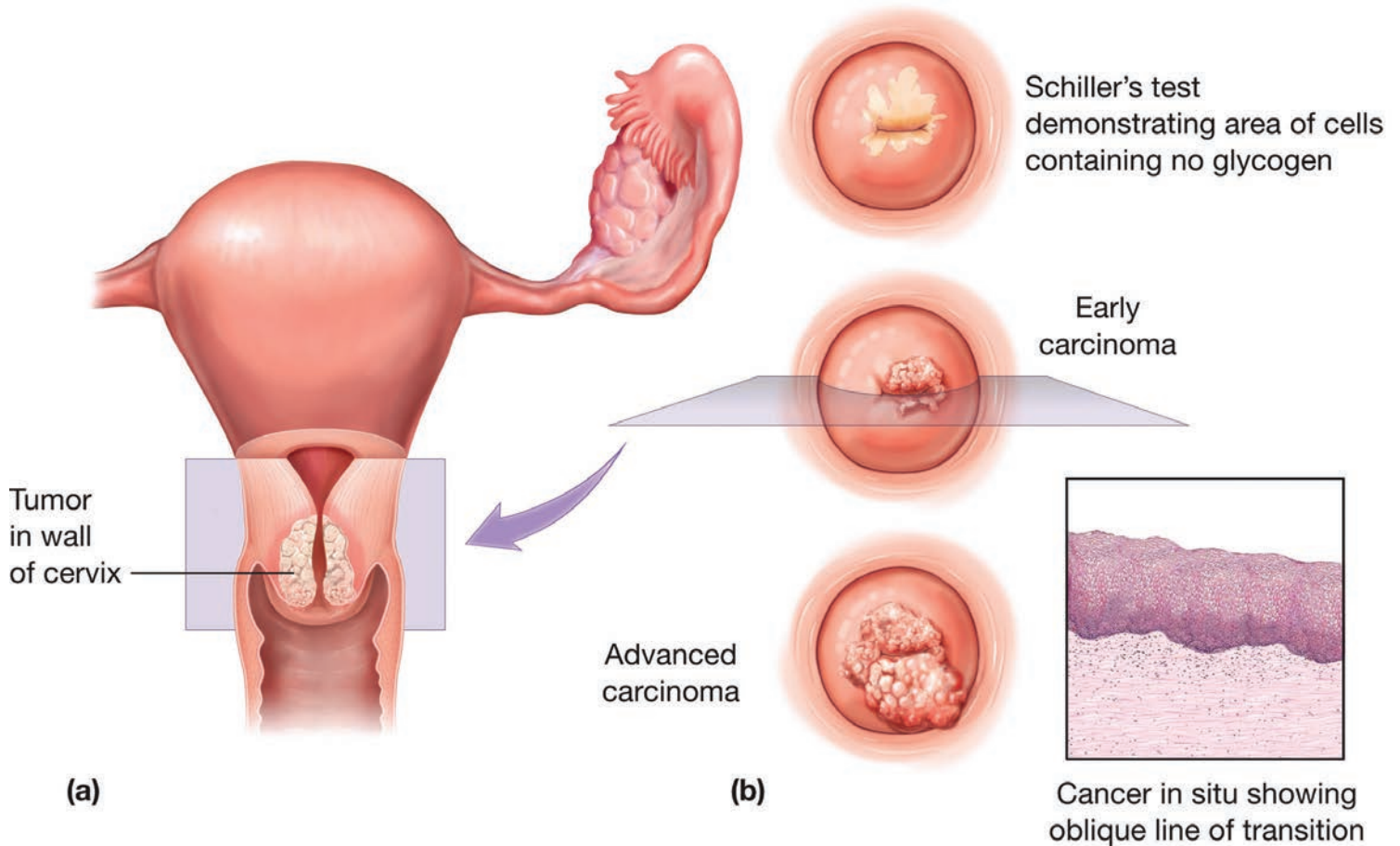
In addition, an unusual discharge from the vagina – the discharge may contain some blood and may occur between your periods or after menopause and pain during sex can also be caused by conditions other than cervical cancer.

Women with early cervical cancers and pre-cancers usually have no symptoms. Symptoms often do not begin until a pre-cancer becomes a true invasive cancer and grows into nearby tissue.

Cervical cancer starts in the cells of the cervix, the part of the womb (or uterus) that opens to the vagina. Cervical cancer is caused by a virus called HPV (human papilloma virus). Women who do not get tested, or who do not get tested as often as they should, have the greatest chance of getting cervical cancer.

HPV is spread through sex, and it can cause an infection in the cervix. The infection usually doesn't last very long because your body is able to fight it. HPV infection can change cervix cells into pre-cancer cells.

Some women have a greater chance of getting cervical



cancer if they have HPV and it doesn't go away, Have HIV or AIDS and Smoke.

Any man or woman who has ever had sex can get HPV. The virus is spread by sex. Condoms do not completely protect you from HPV, but they are helpful in protecting you from other infections that can be spread through sex. Cervical cancer starts in the cells of the cervix, the part of the womb (or uterus) that opens to the vagina. Cervical cancer is caused by a virus called human papilloma virus (HPV). Women who do not get tested, or who do not get tested as often as they should, have the greatest chance of getting cervical cancer.

HPV is spread through sex, and it can cause an infection in the cervix. The infection usually doesn't last very long because your body is able to fight it. HPV infection can change cervix cells into pre-cancer cells.

Some women have a greater chance of getting cervical cancer if they have

Some women need a radical hysterectomy. A radical hysterectomy is surgery to remove the uterus, cervix, and part of the vagina. With either total or radical hysterectomy, the surgeon may remove both fallopian tubes and ovaries

HPV and it doesn't go away, have HIV or AIDS and smoke. If the body clears the infection, the cervical cells return to normal. But if the body doesn't clear the infection, the cells in the cervix can continue to change abnormally. This can lead to precancerous changes or cervical cancer.

Cervical cancer is on the declining trend in India according to the population-based registries yet it

continues to be a major public health problem for women in India. Multifactorial causation, potential for prevention, and the sheer threat it poses make cervical cancer an important disease for in-depth studies.

Specific types of oncogenic HPV-16, 18 have been identified in patients with cervical cancer. Other epidemiological risk factors are early age at marriage, multiple sexual partners, multiple pregnancies, poor genital hygiene, malnutrition, use of oral contraceptives, and lack of awareness.

A multipronged approach is necessary which can target areas of high prevalence identified by registries with a combination of behaviour change communication exercises and routine early screening with VIA. Sensitizing the people of the area, including menfolk, is necessary to increase uptake levels.

Vaccination against types 16 and 18

can also be undertaken after taking into confidence all stakeholders, including the parents of adolescent girls. Preventing and treating cervical cancer and reducing the burden are possible by targeting resources to the areas with high prevalence.

Cervical cancer is the commonest cause of death among women in developing countries. Mortality due to cervical cancer is also an indicator of health inequities, as 86% of all deaths due to cervical cancer are in developing, low- and middle-income countries.

One woman dies of cervical cancer every 8 minutes in India. For every 2 women newly diagnosed with breast cancer, one woman dies of it in India. As many as 2,500 persons die every day due to tobacco-related diseases in India. Smoking accounts for 1 in 5 deaths among men and 1 in 20 deaths among women, accounting for an estimated 9,30,000 deaths in 2010.

India has a population of 432.2 million women aged 15 years and older who are at risk of developing cancer. It is the second most common cancer in women aged 15–44 years.

In the absence of a nationwide screening program, there are disparities in screening, treatment, and also survival. Cancer of the cervix has been the most important cancer among women in the past two decades. In India the peak age for cervical cancer incidence is 55–59 years.

The treatment depends mainly on the size of the tumour and whether the cancer has spread. If a woman is of childbearing age, the treatment choice may also depend on whether she wants to become pregnant someday. Women with cervical cancer may be treated with surgery, radiation therapy, chemotherapy, radiation therapy and chemotherapy, or a combination of all three methods.

At any stage of disease, women with cervical cancer may need treatment to control pain and other symptoms, to relieve the side effects of therapy, and




Cancer of the cervix has been the most common cancer among women in the past two decades. In India the peak age for cervical cancer incidence is 55–59 years

to ease emotional and practical problems. This kind of treatment is called supportive care, symptom management, or palliative care.

Surgery treats the cancer in the cervix and the area close to the tumour. Most women with early cervical cancer have surgery to remove the cervix and uterus. However, for very early (Stage 0)

cervical cancer, a hysterectomy may not be needed. Other ways to remove the cancerous tissue include conization, cryosurgery, laser surgery, or LEEP.

Some women need a radical hysterectomy. A radical hysterectomy is surgery to remove the uterus, cervix, and part of the vagina. With either total or radical hysterectomy, the surgeon may remove both fallopian tubes and ovaries. The surgeon may also remove the lymph nodes near the tumor to see if they contain cancer. If cancer cells have reached the lymph nodes, it means the disease may have spread to other parts of the body. 

(The author is senior consultant-Gynae Oncosurgery, Action Cancer Hospital, New Delhi)



# Dangerous Disorder

With the alarming increase in the number of people suffering from hemophilia in the country, the need of the hour to take appropriate initiatives for establishing infrastructure and providing good quality factors for the management of the disease

**By Abhigyan**

**A**ccording to a study conducted by the World Federation of Hemophilia (Annual Global Survey), almost 50 per cent of the world's hemophilia population lives in India and almost 70 per cent of PWH (People with Hemophilia) do not have adequate knowledge or access to treatment. The

risk of death from the lack of basic knowledge and untreated hemophilia is very high.

Hemophilia is a genetic and life-threatening bleeding disorder. Even with a minor injury or cut, in hemophilia patients' blood does not clot normally due to the absence of clotting proteins called Anti-Hemophilic Factors (AHF).

If not taken care, recurrent and prolonged bleeding into joints and muscles can lead to permanent disability and bleeding from the sensitive organs can lead even to death. The only possible treatment is infusion of life saving drugs AHF, which are costly and neither produced nor readily available in India (1 unit of Factor costs around Rs. 10-12 and at



“Health is a sate subject but the support of the Central Government too is necessary to achieve healthcare objectives. I am happy that our Government has finally decided to waive off the customs duty on Anti Hemophilia Factors. This will make the product fairly easy to obtain.”

**Meenakshi Lekhi,**  
Member of Lok Sabha



“At present, only 15% of the total hemophilia population has been identified in India and the rest remains undiagnosed. There are about 16000 patients registered with us, however, we suspect that the number of people suffering from hemophilia in India could be ranging seven times more than the current registered patients.”

**Dr Kanjaksha Ghosh,**  
President, Hemophilia Federation of India

any bleeding episode a person needs 500 to 2,000 IUs in one shot which amounts to an expenditure of Rs 5,000 to Rs 20,000 on an average.)

With the network of 80 Chapters spread across the country, Hemophilia Federation India (HFI) aims to reach out to more and more PWH and provide quality care, affordable treatment, educational & psycho-social support and economic rehabilitation. The HFI has so far been able to identify more than 16,000 hemophiliacs across the country out of estimated 1.2 lacs (1 in every 10,000 population).

Like every year this year too, the HFI celebrated the World Hemophilia Day. Under the patronage of Ministry of Health & Family Welfare, Govt. of India, the day was marked with organizing a

workshop on “Initiative on Hemophilia Care II – a sensitization program and the way forward” at India International Center, New Delhi. The keynote address was delivered by Vandana Gurnani, IAS, Joint Secretary, Minister of Health and Family Welfare followed by Manoj Jhalani, IAS, Joint Secretary, MOH&FW and Sh. C K Mishra IAS, AS & MD, NHM.

On this occasion, Member of Lok Sabha, Meenakshi Lekhi said, “Health is a sate subject but the support of the Central Government too is necessary to achieve healthcare objectives. I am happy that our Government has finally decided to waive off the customs duty on Anti Hemophilia Factors. This will make the product fairly easy to obtain.”

She emphasised the need to develop

a unified management system for severe haematological disorders. She added, “We are trying to get haemophilia patients sanctioned for benchmark disability or under a special category of disability.” Considering the issue of haemophilia in women, she hinted about launching a project investigating bleeding disorders in women”

Discussing the current state of haemophilia in India, Dr Kanjaksha Ghosh, President, Haemophilia Federation of India, said, “At present, only 15% of the total hemophilia population has been identified in India and the rest remains undiagnosed.



“In Delhi, there are 2000 registered patients suffering from hemophilia and the state is also witnessing cases coming from other states as they do not have basic facilities and management care in their region. Through this initiative, we are proposing to build more “hemophilia care centres” in regions which would create effective mechanism for diagnosis, treatment and bringing timely comprehensive care for hemophiliacs within their reach. We are committed to provide the treatment accessible and provide state-of-the-art facilities for the patients.”

**Dr Alok Srivastava,**  
Professor, Department of Hematology, CMC Vellore

There are about 16000 patients registered with us, however, we suspect that the number of people suffering from hemophilia in India could be ranging seven times more than the current registered patients.”

The event aimed at generating sensitization on hemophilia for the policy makers both at national and state level. The daylong session saw representation of senior officials from MOH&FW, state secretaries of health, mission directors, eminent doctors, hematologists, physiotherapists and hemophilia caregivers from various medical colleges and hospitals of the country.

Talking about the disease management in Delhi region that focuses on providing treatment to patients in their vicinity, Dr Alok Srivastava, Professor, Department of Haematology, CMC Vellore said, “In Delhi, there are 2000 registered patients suffering from hemophilia and the state is also witnessing cases coming from other states as they do not have basic facilities and management care in their region. Through this initiative, we are proposing to build more “hemophilia care centres” in regions which would create effective mechanism for diagnosis, treatment and bringing timely comprehensive care for

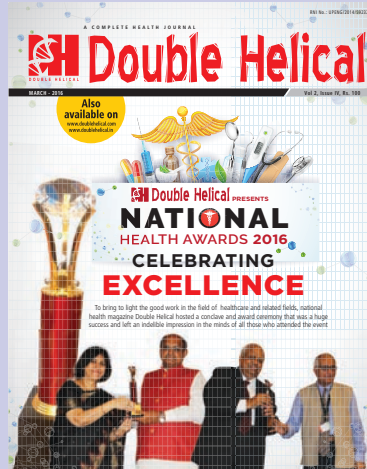
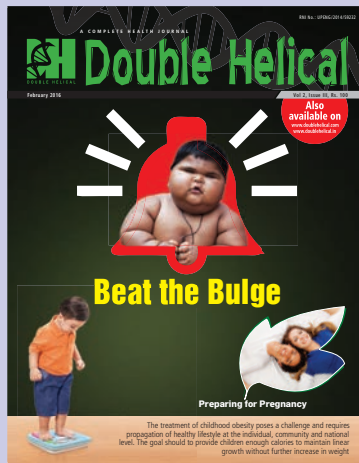
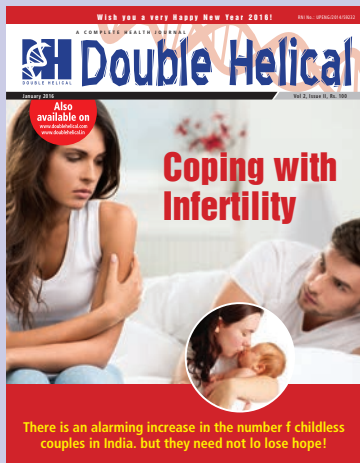
haemophiliacs within their reach. We are committed to provide the treatment accessible and provide state-of-the-art facilities for the patients.”

While talking about the state of hemophilia in the country and the need of the hour to take appropriate initiatives in collaboration with the government, Dr. Kanjaksha Ghosh added, “We thank the government for their support in establishing infrastructure and providing good quality factors for the management of disease in some parts of the country. However, we need to address this issue at a national level and thus, we would request government intervention at a macro level by means of funding, expanding infrastructural support, making free factors available and building trained workforce to control blood related disorders including Hemophilia”.

According to a study conducted by the World Federation of Hemophilia (Annual Global Survey), almost 50 per cent of the world’s hemophilia population lives in India and almost 70 per cent of PWH (People with Hemophilia) do not have adequate knowledge or access to treatment. The risk of death from lack of basic knowledge and untreated hemophilia is very high.



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# Malaria Elimination

BY TEAM DOUBLE HELICAL



**T**he govt of India has recently announced India's first public-private-partnership (PPP) agreement for research and innovation in preventive health between ICMR and Sun Pharma,.

Presiding over the signing of this agreement by Dr. Soumya Swaminathan, DG, ICMR and Dilip Shanghvi, MD of Sun Pharma, J P Nadda Union Minister of Health & Family Welfare noted that this unique initiative was a significant step in the health sector and reiterated the commitment of the Government to strengthen health research in the country.

Speaking on the occasion of the celebration of World Malaria Day, the Union Health Minister added that this collaboration will prove to be a notable milestone in the Government's strategy to eliminate Malaria from the country. India is party to the commitment at the East Asia Summit for malaria elimination by 2030, so today's announcement of malaria

elimination demonstration project is of special significance, Nadda pointed out.

Noting that Malaria is a major public health problem, and Malaria endemic countries have shown significantly lower rates of economic growth, the Health Minister informed that as part of the partnership, ICMR and Sun Pharma will establish a malaria elimination demonstration project- 'Malaria Free India' to support the National Framework for Elimination of Malaria which was announced by the Health Ministry in February 2016. The demonstration project shall be launched first in Mandla, one of the most malaria endemic districts of Madhya Pradesh. Sun Pharma will fund as well as execute this malaria elimination programme over a span of 3 to 5 years covering over 200,000 households in Mandla district. Implementing Malaria elimination demonstration project in a high transmission district of Mandla, using proven case management and vector control strategies, will be done in



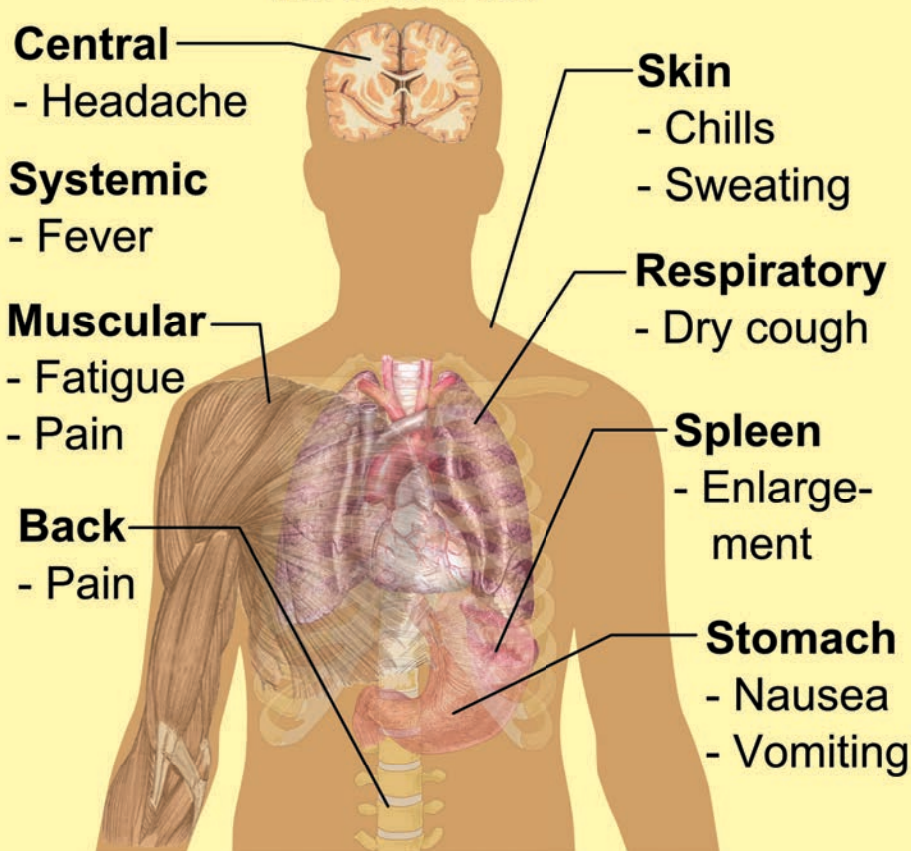
collaboration and through the support of the Government of Madhya Pradesh. The project aims to reduce the morbidity and mortality caused by malaria as well as prevent re-introduction of malaria, strengthen the existing health systems, introduce mobile-based surveillance systems and treat all malaria cases as per National Vector Borne Disease Control Program (NVBDCP) guidelines, and mobilise communities. The lessons learned would be used for elimination of malaria from the country under the national program, the Minister added. He further stated that as the PPP initiative will dovetail into Swachh Bharat Abhiyaan goals, the benefits shall be magnified.

To demonstrate the feasibility of eliminating malaria and prevention of re-establishment of this disease, ICMR and Sun Pharma will use rapid diagnostic tests (RDTs) and antimalarial drugs (ACTs), long-lasting

insecticide treated bednets and indoor residual spray (IRS).

In addition, as part of the PPP, ICMR and Sun Pharma will jointly conduct scientific research for development and testing of medical products

## Symptoms of Malaria



(including drugs, biosimilars and vaccines) as well as undertake disease control and elimination programs. They will set-up a Joint Working Group (JWG) to identify and collaborate in disease surveillance and elimination that are relevant to India. Both will expand cooperation in the area of translational health sciences research with the objective of developing new and improved medicines for infectious and chronic diseases. They will jointly work to strengthen capacity and facilities required for conducting research and trials aimed at testing safety and efficacy of medical products. They will also work with other stakeholders in creating public awareness through accurate and

research-based information exchange as part of their shared belief that knowledge of clinical safety and effectiveness of medicines is best determined through well-designed, scientifically robust, ethically conducted clinical trials. Acknowledge the need to establish systems for appropriate oversight of human clinical trials, the agreement covers capacity-building through basic and applied research collaborations, expert consultations, training, exchange of scientists, sharing of repository materials, strengthening of laboratory quality assurance systems and transfer of technology.


Shri JualOram, Union Tribal Affairs Minister, stated that he represents a

malaria-infested district in Odisha. He further said that in many tribal areas of the country, the incidence of malaria is very high, which seriously affects the productivity of the communities. Shri JualOram appreciated this special PPP initiative of the ICMR as a major step towards its fight against the vector borne diseases in the country.

Shri Narottam Mishra, Health Minister, MP, pointed out that of the 13 malaria affected districts, Mandla is the worst affected. He said that this PPP project is integrally tied up with the Swacchta Abhiyaan and will also create awareness about keeping the environment clean.

Elaborating on the salient features of the PPP, Dr.SoumyaSwaminathan, DG, ICMR stated that there is an urgent need for translational health in India and India must forge partnerships for drugs and treatment strategies for diseases that affects it the most. Malaria elimination development project is one such step in the right direction. She further stated that the tools we have today are competent to make a huge difference this includes drug combinations and newer generation of insecticides. However, we need to be watchful and careful, she added. She highlighted the challenge of diverse geographical areas in India and expressed hope that other pharma companies and private sector will partner with the government to work in the health sector.

Shri DilipSanghavi, MD, Sun Pharma, mentioned that the focus of the PPP is to use the global knowledge in elimination of Malaria. He further added that the idea is to begin from Mandla, where the incidence of malaria are high, and learn from the experience and leverage the knowledge to draw strategies for larger geographical areas.

Also present in the function were Dr. Jagdish Prasad, DGHS, Professor, M C Mishra, Director, AIIMS and other senior officers of ICMR and the Health Ministry. 



# NAMMA model public toilets set up in Delhi


In continued initiatives towards Swachh Bharat Mission, Venkaiah Naidu, Union Minister for Urban Development, Government of India, recently inaugurated a Namma public toilet, constructed at Preet Vihar Shopping Centre, New Delhi. Rajiv Gauba, Secretary (UD), D S Mishra, Addl Secretary (UD) and Dr Anoop Kumar Mittal, CMD, NBCC were among other dignitaries, present on the occasion. Implemented by NBCC, a Navratna CPSE of the Government of India, at a cost of Rs.13 lac, the modular toilet has been designed to discourage open defecation and is made of composite board.

The toilet module is prefabricated single mould without joints and its interiors are seamless with no sharp edges and corners to avoid dust accumulation. Made to serve the convenience of physically challenged, women and men, the public toilet has also been provided with excellent interior lighting with natural light in day by a polycarbonate translucent roof sheet with metal protection to meet the requirements of sufficient power supply in the toilet all along. In order to address the issue of waste disposal which is of primary importance, the whole system has been connected with underground sewer lines already existing at the place. This is a significant initiative by NBCC which, under the patronage of the Ministry of Urban

Development, has taken a lead in Swachh Bharat campaign of the Government of India, beginning since 2014.

NBCC has been implementing a total of 30 such NAMMA model public toilets in Delhi under its CSR initiative. It is being implemented by the company subsidiary named NBCC Services Ltd. (NSL), which has been mandated to take up such activities across the country. Out of these 30 toilets, 21 toilets have already been implemented with one inaugurated on 2nd October 2015 at Bhikaji Cama Place, New Delhi. The remaining 19 toilets at other locations of Delhi, have also been inaugurated on the same day along with the one at Preet Vihar, New Delhi on April 6, 2016.

It is worth mentioning that the Company under its CSR Scheme, has been executing at present, huge number of Public Toilets in Village Girl Schools in various States of the Country.

As a commitment to the fulfilment of social obligations, the Company during the launch of Swachh Bharat Mission by the Hon'ble Prime Minister in October 2014, volunteered to construct the user-friendly pre-fabricated public toilet at Mandir Marg, New Delhi, which was inaugurated by the Prime Minister himself to set the tone for the Swachh Bharat Campaign. 

# Paradigm shift in Family Planning approach

**T**he Union Health Ministry has recently launched the new revamped logo for Family Planning media awareness campaign along with the 360 degree communication plan for enhanced awareness regarding various issues surrounding family planning in the country. Highlighting the importance of communication in addressing such issues, a comprehensive strategy has been worked out where maternal and child health and wellbeing have been placed at the centrepoint of the new approach.

“There has been a paradigm shift and family planning has now emerged as a key strategy to reduce maternal and child mortalities and morbidities”, J P Nadda, Union Minister of Health and Family Welfare during his inaugural address at the two-day National Summit on Family Planning, said.

Nadda pointed out. Mega film star Amitabh Bachchan is the brand ambassador and anchor for the new communication approach. The IEC package has several TV and radio spots which focus on the role of various stakeholders such as the mother, father, mother-in-law, husband and other in the families as well as the role of community health workers, doctors, nurses, ANMs and ASHAs to educate and inform regarding the available choices. “The promotion of family planning – and ensuring access to preferred contraceptive methods for women and couples – is essential for securing the well-being and autonomy of women, while supporting the health and development of communities”, the minister added.

The Health Minister also launched the new packaging of contraceptive Nirodh with a view to increase its uptake and use. He said “As a part of our continued efforts to offer Indian women a broader basket of choice, a method mix of contraceptives -

Injectables, Centchroman and POPS - have now been introduced into the public health system under the National Family Planning program. The improved access to contraceptives will address all the development dimensions, he informed. Highlighting the importance of linkages and involvement of the private sector, he said that the Ministry will work closely through the private sector engagement using approaches such as social marketing and franchising to build strong public-private partnerships to ensure that the interventions reach everyone.

Noting that Family Planning is a key development imperative, Shri Nadda said that Family planning reinforces people’s rights to determine the number and spacing of their children. The freedom to personally determine the timing of a pregnancy strengthens above all the position of women in society. It helps reduce child mortality and improve maternal health, because many pregnancies in quick succession put mother and child at risk.


The Union Health Minister also stated the new strategic approach emphasizes continuum of care and integrated action, and Family Planning has now been put in the centre-stage as a major pillar of our RMNCH+A strategy to improve survival and health of women and children with special focus on delaying the first birth and spacing between births. The Health Minister highlighted the centrality of issues such as social and cultural practices, low literacy, poverty and lack of timely access to appropriate healthcare facilities. “We know that Child survival, maternal health, increasing age at marriage, postponing the birth of the first child, increasing birth



intervals, women’s empowerment and employment, literacy and antipoverty efforts are important determinants for stabilizing the population”, the minister stated.

The Health Minister informed that India has made notable progress in several health indicators. Considering that 45% of the maternal deaths occur in the age group 15 to 25 years where 52% of the total fertility is also clustered, we are moving from limiting to delaying and spacing for wider health benefits, he noted. There has been a sharp decline in decadal growth rate from 21.54 percent in 1990-2000 to 17.64 percent during 2001-11, the Health Minister added. The Total Fertility Rate (TFR) has also come down from 6 in 1951 to 2.3 in 2013, and 24 states/UTs have achieved the replacement level fertility of 2.1 or less.

The minister also awarded States for their contribution towards the Family Planning efforts of the country. TAMIL NADU was awarded for its exemplary contribution in Post-partum Sterilization, MADHYA PRADESH for its contribution in PPIUCD, BIHAR for its contribution on Female Sterilization and HIMACHAL PRADESH for exemplary contribution in Male Sterilization. The Health Minister also launched the Techno-Managerial guidelines for injectable contraceptives at the Summit, along with a Mobile app for Mission Indradhanush.

Also present at the function were B P Sharma, Secretary (HFW); C K Mishra, AS&MD; Dr. Rakesh Kumar, JS (RCH, IEC) and other senior officers of the Ministry and representatives of development partners. 

## Nadda Reconstitutes Institute Body of AIIMS



**U**nion Minister of Health and Family Welfare, J P Nadda has reconstituted Institute Body (IB) of the country's premier medical institute, All India Institute of Medical Sciences (AIIMS), New Delhi.

Welcoming the members of the newly constituted IB on this occasion, Nadda, said that their rich experience will make a valuable contribution in further development of AIIMS which is a premier specialist institute in tertiary healthcare in the country.

The minister who is also the President of AIIMS, added, "The institute is under a sustained phase of expansion and all efforts should be made to ensure its pre-eminent status as the apex medical sciences university of the country." Nadda also directed Director AIIMS to examine ways to fast-track admission of the patients requiring emergency treatment/interventions.

Prof M C Misra, Director AIIMS, introduced the Institute Body members and presented a brief outline of the AIIMS at this occasion. A presentation was also made on the AIIMS OPD Transformation project, the Status of the National Cancer Institute at Jhajjar, Haryana, the Redevelopment of the western campus and expansion of Trauma Centre. "The National Cancer Institute represents India's largest public health project and would be completed by March 2017, revealed Misra through his presentation.

Also present in the meeting were Bhanu Pratap Sharma, Secretary (H&FW), Dr. Jagdish Prasad, DGHS, Smt. Vijay Srivastava, Addl. Secretary and Financial Adviser, Shri V Srinivas, DD (A), AIIMS, New Delhi along with members of the reconstituted IB.

The AIIMS OPD Transformation project has benefitted over 20 lakh patients till date and has cut down waiting time significantly. The Redevelopment of AIIMS western campus would lead to construction of 3900 quarters for AIIMS faculty and staff. The expansion of Trauma Centre would add 2000 beds to the Institute's existing strength and house the new centres for digestive diseases, ENT and diabetology in addition to Spine Centre and a new Trauma Centre block.



## National Health Mission to be

**I**n a recently held meeting of the Mission Steering Group of the National Health Mission (NHM), J P Nadda, Union Minister of Health and Family Welfare announced that to enhance the reach and effectiveness of the health programmes, National Health Mission (NHM) is all set to focus on devolution, decentralization and timely responsiveness.

Enumerating the many achievements under the NHM, the Union Health Minister stated that there have been several notable accomplishments such as the expansion in full immunization coverage through Mission Indradhanush, which is almost 5% increase in one year compared to the earlier rate of about just 1%; introduction of newer vaccines with launch of IPV and Rotavirus vaccine recently in the country's UIP; increase in institutional deliveries and in the basket of contraceptives; capacity building of states through health systems strengthening approach which has benefited many programmes at the grassroots level; Kayakalp through emphasis on practices and protocols for enhancing sanitation and cleanliness in all government health facilities; new initiatives in the TB programme such as induction of 600 CBNAAT machines and launching of Bedaquiline, a new anti-TB drug for Drug Resistant TB at six referral sites; and recent announcements under the Budget such as the Health Protection scheme and free Dialysis centres in all districts.

Also present on this occasion, Venkaiah Naidu, Union Minister for Urban Development and Parliamentary Affairs, mentioned about the initiatives being taken by the Urban Development Ministry towards healthy living through the Smart Cities, which will have well defined protocols for waste management, drinking water and sanitation and cleanliness. He stated the quality of services provided in all public health institutions should be uniform and should






## made more proactive

attract the public.

Naidu also suggested that field health workers should be engaged as motivators for behaviour change among the communities. City Livelihood Centre (CLC) could be used as effective platforms to improve the outreach of the National Health Mission.

During the event, the non-official members of the MSG made a variety of suggestion which included taking up daily regimen at one go across the country for TB, increasing the basket of Non Communicable Diseases (NCDs) strengthening and synergizing surveillance with introduction of vaccines, among others.

The Health Minister stated that the meeting offered a valuable and useful platform for candid discussion on several issues, and a wider perspective from a wide section of experts which will enable to enhance quality and effectiveness of the NHM. He added that the suggestions would be taken into consideration to guide the roadmap on interventions to be taken up.

Also present at the meeting were, Arvind Panagariya, Vice Chairman of Niti Aayog, B P Sharma, Secretary (HFW); C K Mishra, AS & MD (NHM), besides other senior officers of the health Ministry. Representatives from Ministries of AYUSH, Tribal Affairs, WCD, Drinking Water and Sanitation, Panchayati Raj, Rural Development, Urban development, Department of Higher Education, Social Justice and Empowerment also participated in the meeting, along with members from the civil society and other experts in the field of healthcare. 

## Live Operative HIPEC Workshop

**M**ax Cancer Centre in association with Asian Clinical Oncology Society (ACOS) recently organized Live Operative HIPEC

(Hyperthermic Intraperitoneal Chemotherapy) Workshop at Max Super Speciality Hospital, Vaishali.

The two days of Live Cyto-reductive Surgeries with HIPEC were performed by surgeons of International repute: Dr Paul H Sugarbaker (USA); Dr. Oliver Glehen (France) and Dr Aviram Nissan (Israel). Apart from the live workshop, interesting talks and panel discussion on all the aspects of Cyto-reductive Surgery and HIPEC were also conducted by eminent faculty of national and international repute. Over 100 national and international delegates participated in the workshop which provided a platform for Surgical Oncologists, GI Surgeons, Gyne Oncologists and Medical Oncologists to share their experiences in the field of HIPEC. The workshop also provided Surgical Oncology residents (DNB/MCh) a deep insight into the HIPEC and related topics.


The workshop was inaugurated by Neeraj Mishra, Senior Vice President-Max Super Speciality Hospital (Patparganj & Vaishali); Dr Gaurav Aggarwal- Unit Head, Max Super Speciality Hospital, Vaishali; Dr K S Gopinath, Chairman, ACOS 2016 along with the team of Max Cancer Centre including Dr Harit Chaturvedi-Chairman, Max Cancer Centre, and Dr Arun Goel - Sr. Consultant, Max Super Speciality Hospital, Vaishali.

According to Dr Harit Chaturvedi, Chairman, Max cancer Centre, "Hyperthermic Intraperitoneal Chemotherapy (HIPEC) basically



consists of two parts. First component is Cyto-reductive surgery where all visible tumour is removed by a specialized aggressive type of surgery followed by heated chemotherapy that is delivered directly to the abdominal cavity with the help of a machine that delivers chemotherapy drug at high concentration, high flow and high temperature. In contrast to the usual chemotherapy delivery, which is given through a vein and circulates throughout the body, HIPEC delivers chemotherapy directly in the abdominal cavity. Heating the chemotherapy drug improves the absorption of chemotherapy drugs by remnant (if any) millimeter sized cancer nodules and also destroys microscopic cancer cells that remain in the abdomen after surgery. Also the side effects of usual chemotherapy are minimized."

Besides the workshop, the conference also provided a platform for leading pharmaceutical and allied companies to display their products/services at an exclusive exhibition organized for the purpose, at the venue.

Max Healthcare (MHC) is a joint venture of Max India with Life Healthcare, South Africa, and is the Country's leading comprehensive provider of standardized, seamless and international-class healthcare services. It is committed to the highest standards of medical and service excellence, patient care, scientific and medical education. 

# Ice therapy for pain and injury

Ice decreases the blood flow to an injured area, reducing the pain and inflammation

**BY TEAM DOUBLE HELICAL**



**H**eat and cold are the two most common types of non-invasive and non-addictive therapy for muscles and joint pain but it depends upon the pain whether it is acute or chronic.

Inflammation has four signs: swelling, redness, pain, and heat. When we apply ice to injured part ice initially decreases the blood flow to

the injury, then increases blood flow with decrease in inflammation & swelling, to that area. By this process it blocks the inflammatory process.

According to Dr Amit Saraswat, an expert in physiotherapy and founder in PhysioVeda India, when we apply ice to injured area vasoconstriction occurs first to reduce heat & then approx 5 to 10 min, the blood vessels will vasodilate.

Ice can be applied in towel as a pack or slightly wet towel dipped in ice and water mixture or containing crushed ice for not more than 5-10 minutes at a time. Any cold treatment should be used for 24-72 hrs after an injury. Cry therapy is useful after replacement operation like TKR & THR to reduce inflammation.

When there is an injury or discomfort a good rule to follow for first aid is the

'PRICE'. Here P means Protect the injury part, R for Rest the injury, I for Ice the injury, C for Compress injury and E for Elevate the injury above heart level.

Ice pack will also serve as a local anesthetic, numbing the pain, reduce muscular spasm, swelling & heat. Don't apply ice directly to the skin.


Role of heat is to open up blood vessels, which increase blood flow i.e. vasodilatation & supplies oxygen & nutrients to reduce pain in joints, relaxed sore muscles, ligament and tendon. There are two types of heat application: dry heat & wet heat or moist heat. Mostly we use moist heat i.e. heat that has moisture content, it may be applied as hot packs, towel soaked in hot water. Moist heat improves the flexibility of muscle and increases ROM because it penetrates better & goes deeper in the skin. Dry heat does not penetrate through skin so you can get burnt by that. Apply heat if you have joint stiffness, chronic pain.

"Do not apply hot pack directly to skin. Use moist towel in between the skin and hot pack. Do not keep hot pack for more than 10 minutes. Do not use heat if swelling is there, it can

make inflammation worse. Do not use heat in diabetic neuropathy, circulatory or sensory problem. If possible ask your doctor or physical therapist which heat source would be best for you.

"It is a beneficial immersion of a part of a limb in warm water and immediate immersion of limb in cold water. Role of contrast bath, is that warm water causes vasodilatation (Widening of blood vessels) in the limb or body followed by the cold water which causes vasoconstriction (narrowing of blood vessel). It increases local blood circulation," Dr. Amit Saraswat, said.

For contrast bath we take two buckets. One is filled with warm water other is filled with ice water. Immerse the area in warm water for 3 min and then switch immediately to the cold water & soak for one minute. Repeat these 5 times. Always start with warm water and end with ice water.

Don't use if you high blood pressure, any circulatory problem, any area of broken or sore skin, reduction sensation in the affected area. Contrast bath are contraindication during the acute inflammation stage, acute inflammation begins at the time of injury and lasts for approximately 72 hours. 

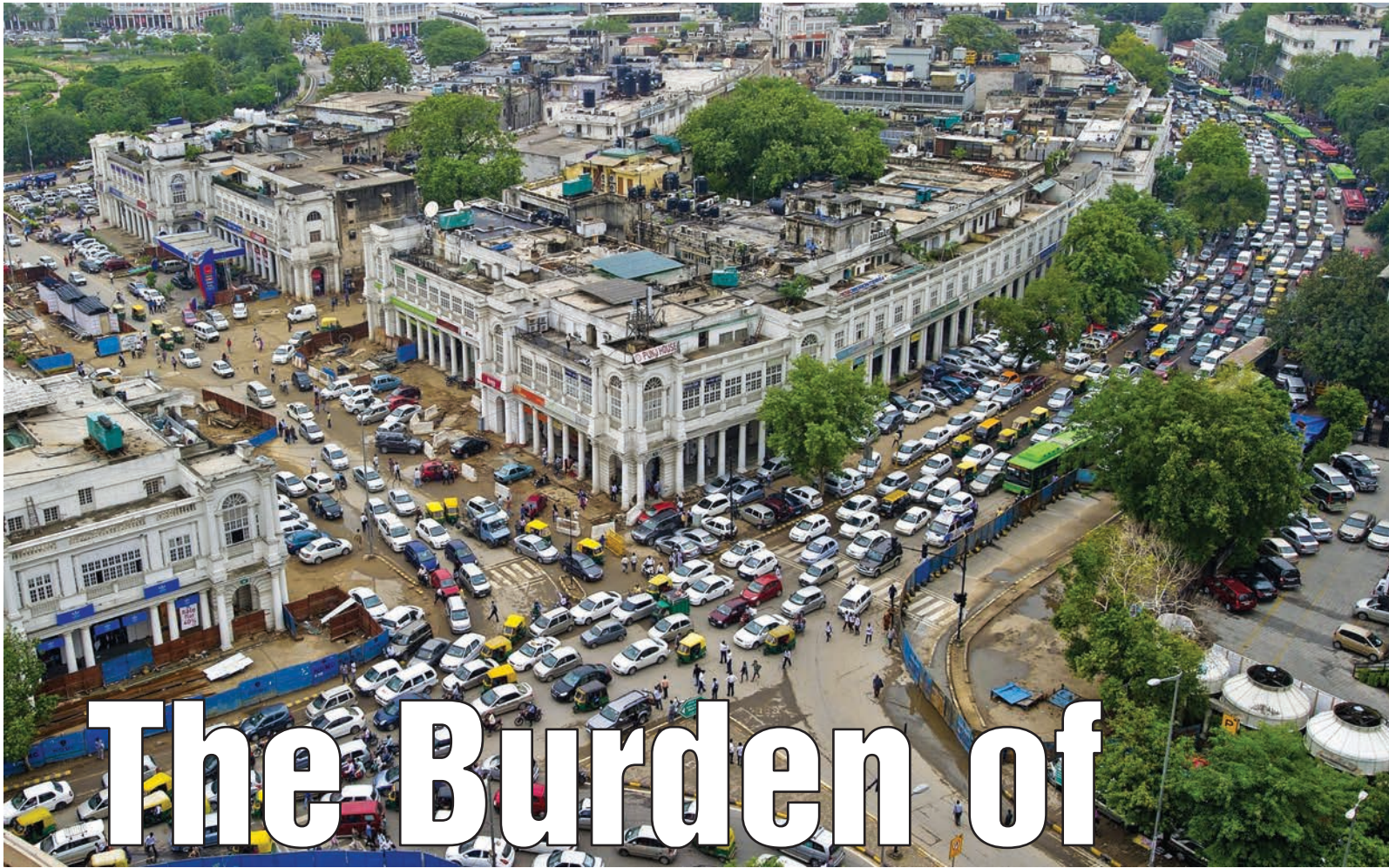


"Do not apply hot pack directly to skin. Use moist towel in between the skin and hot pack. Do not keep hot pack for more than 10 minutes. Do not use heat if swelling is there, it can make inflammation worse"

**Dr Amit Saraswat**

Expert in physiotherapy and founder of Physio Veda India





# The Burden of Pollution

The Odd-Even scheme in Delhi is not producing good results. A holistic approach involving energy, industry and building sectors, together with the transport sector, can only reduce the ambient air pollution

**BY DR MANISHA YADAV**



**D**espite the odd-even campaign by the Delhi Government, the air quality of the capital city is still not improving. Almost all of the patients are still claiming to be suffering from

respiratory problems or chest congestion.

As per report many families with elderly members ailing from respiratory illnesses have installed oxygen cylinders at home for emergency purposes because they

can't keep running to the hospital for every frequent breathing crisis that arises. The medical practitioners feel that the problem needs the attention of not just a single man, but of an entire system, whose combined effort must be to make whole capital city's

air breathable again.

It is important to know how will reducing the number of cars in circulation in a large city reduce ambient air pollution and have a benefit on health and well-being. Although newer motor vehicles have more efficient engines and are using cleaner fuels, the absolute number of vehicles is still increasing in many cities worldwide, and consequently so are levels of ambient air pollution in many urban regions.

For example, in parts of Europe where stricter standards and regulations for vehicles have been enforced, ambient air pollution levels are stable or continue to rise. Per kilometer of travel, diesel vehicles also typically emit more particulate emissions than gasoline, gas-powered, or electric vehicles of comparable size and age so that increased reliance on diesel vehicles in the vehicle fleet may be a contributing factor to health-harmful air pollution in many cities.

Diesel emissions have also been defined by WHO's International Agency for Research on Cancer as a carcinogen. Building cities around rapid public transport systems, complemented by dedicated walking and cycling networks, is more fuel efficient, in terms of transport. This also tends to facilitate a "virtuous cycle" of more compact cities, more energy efficient housing, fewer private car trips, and thus fewer air pollution emissions overall. This helps minimize the health burden from ambient air pollution – as well as encouraging healthful active transport on safe walking and cycling networks, where people are at less risk of traffic injury.

However, it should be kept in mind that transport may be directly responsible for anywhere from 15 to 70% of urban ambient air pollution in urban areas, depending on the city, but a holistic approach involving energy, industry and building sectors, together with the transport sector, is





required to reduce the disease burden from ambient air pollution.

Around 50 percent of people, almost all in developing countries, rely on coal and biomass in the form of wood, dung and crop residues for domestic energy. These materials are typically burnt in simple stoves with very incomplete combustion. Consequently, women and young children are exposed to high levels of indoor air pollution every day. There is consistent evidence that indoor air pollution increases the risk of chronic obstructive pulmonary disease and of acute respiratory infections in childhood, the most important cause of death among children under 5 years of age in developing countries. Evidence also exists of associations with low birth weight, increased infant and prenatal mortality, pulmonary tuberculosis, nasopharyngeal and laryngeal cancer, cataract, and, specifically in respect of the use of coal, with lung cancer. Conflicting evidence exists with regard to asthma.

Exposure to air pollutants is largely beyond the control of individuals and requires action by public authorities at the national, regional and even international levels. The health sector can play a central role in leading a multi-sectoral approach to the

prevention of exposure to air pollution. It can engage and support other relevant sectors (transport, housing, energy production and industry) in the development and implementation of long-term policies to reduce the risks of air pollution to health.


Mortality from ischaemic heart disease and stroke are also affected by risk factors such as high blood pressure, unhealthy diet, lack of physical activity, smoking, and household air pollution. Some other risks for childhood pneumonia include suboptimal breastfeeding, underweight, second-hand smoke, and household air pollution. For lung cancer, and chronic obstructive pulmonary disease, active smoking and second-hand tobacco smoke are also main risk factors. These risk factors may contribute to deaths that are caused by ambient air pollution.

Reducing the public health impacts

Around 50 percent of people, almost all in developing countries, rely on coal and biomass in the form of wood, dung and crop residues for domestic energy

of ambient air pollution requires addressing the main sources of the air pollution, including inefficient fossil fuel combustion from motor vehicle transport, power generation and improving energy efficiency in homes, buildings and manufacturing. Reducing the health effects from ambient air pollution requires action by public authorities at the national, regional and even international levels. Individuals can contribute to improving air quality by choosing cleaner options for transport or energy production.

The public health sector can play a leading role in instigating a multispectral approach to prevention of exposure to ambient air pollution by engaging with and supporting the work of other sectors (i.e. transport, housing, energy, industry) to develop and implement long-term policies and programs aimed to reduce air pollution and improve health. Indoor air pollution is a major global public health threat requiring greatly increased efforts in the areas of research and policy-making.

Research on its health effects should be strengthened, particularly in relation to tuberculosis and acute lower respiratory infections. 

# NOIDA - A CORRIDOR OF MATCHLESS OPPORTUNITY

Noida have been developed into vast, beautiful urban spaces. Inspired by the visionary guidance of Shri Akhilesh Yadav, Hon'ble Chief Minister of Uttar Pradesh, they have emerging as a global entity incorporating state-of-the-art infrastructure and excellent civic amenities. The biggest advantage in the development of this area is its strategic location. With excellent roads and expressway, Delhi is simply minutes away from Noida. Extending its convenience with comfort and speed, Noida's Metro, already linked to the national capital, is poised to extend to Greater Noida on one side and up to IGI Airport, Delhi, on the other.



## Expanding Metro Rail comfort and convenience

- A special purpose vehicle (SPV), Noida Metro Rail Corporation Ltd. (NMRC) has been formed on 05.11.2014 to plan, build, undertake, operate and carry on the business of mass rapid transport system in Gautam Buddha Nagar. The first Metro corridor taken up by NMRC is the 29.164 km stretch between Noida (Sector-71, 72) and Greater Noida. It will have 21 stations and a depot station at Greater Noida. Approx cost Rs. 5194 crore.
- Another new 6.675 km Metro line with six stations will connect Sector-62 (NH 24) with the Noida City Centre. Approx cost Rs. 1880 crore.
- A 3.962 km Metro line from Botanic Garden to Kalindi Kunj will provide excellent connectivity with Indira Gandhi International Airport, Delhi. Approx cost Rs. 845 crore.
- A 10.922 km line from Okhla Bird Sanctuary to Sector-142, Noida, and a 14.958 km line from Sector-71, Noida to Knowledge Park-V, Greater Noida is proposed.



## Abundant public and sports facilities in Noida

- The super-speciality hospital under construction in Sector 30 is being developed upgraded into a 300-bed super-speciality children's hospital and post-graduate institute. Approx cost of Rs 701 crore.
- Construction of the multi-speciality District Hospital with 200 beds in Sector 39 on a plot of 14000 sqmt. has commenced. Approx cost Rs 225 crore.
- Construction of Balika Inter College, village Hoshiarpur, in Sector 51 on a plot of 8,304 sqmt. has commenced. Approx cost Rs 11.56 crore.
- Construction of Nari Niketan in Sector 34 is nearing completion. Approx cost Rs 4.21 crore.
- In existing Sector 21A stadium, an additional 20,000-capacity cricket stadium is under construction. Approx cost of Rs 62.81 crore.
- The Sector 21A stadium will also have an indoor 4,000-seat stadium to be built at an approx cost of Rs 67 crore and a shooting range at an approx cost of Rs 14 crore.
- A mini-stadium is being constructed in village Sarfabad. Approx cost of Rs 34 crore.
- NOIDA's Horticulture Department, with support from the sector residents' welfare associations, proposes to start open-air gyms in the various block parks with 17 kinds of fitness equipment for the benefit of all residents ranging from the elderly to the youth.



## Overall development

- Construction of 2000 residential flats of type-1 & 2 in Sectors 117, 118 and 122 under the Samajwadi Awas Yojna. Approx cost Rs 160 cr.
- Multi-level car parking for 3,085 cars is under construction in Sector 18 at a cost of Rs 168.35 crore.
- Another multi-storey parking facility for 8,000 cars is proposed for Sector 38A Metro Station at Botanic Garden above which will be a commercial centre at a cost of Rs 750 crore.
- A Bus Terminal is proposed in Sector 82, Noida. Approx cost Rs 171 crore.
- A Traffic Park is also being planned in Sector 108 on eight acres. Approx cost Rs 34.71 cr.
- Eco-friendly cycle corridors will be built on main roads. About 50 km long. Approx cost Rs 4,900 lakh.
- Bunkar Bhavan and Shilp Haat is proposed to be constructed on 10 acres of land in Sector 33A, as the city's one-stop craft and cuisine hub.
- The main NOIDA administrative building to be built in Sector 96. Approx cost Rs 478 crore.
- An additional Ganga water project with a capacity of 37.50 cusec. Approx cost Rs 240 cr.



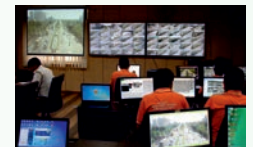
## Ensuring smooth traffic flow

- Construction of roadway on Yamuna Marginal Bandh (11.20 km). Approx cost Rs 138.85 cr.
- A six-lane bridge on the Yamuna River near Okhla Barrage is being constructed, parallel to the existing one at Kalindi Kunj. Approx cost Rs 143 crore.
- Bridges will be constructed on FNG Marg on Yamuna River between Sectors 149 and 150. Approx cost Rs 125 crore.
- Construction of 6 Bridges on Irrigation Drain. Approx cost Rs 87.82 crore.
- A 4.8-km, six-lane elevated road is being built from Vishwa Bharti Public School to Shopprix Mall. Approx cost Rs 415 crore
- For the convenience of pedestrians, 2 km of elevated corridor is being constructed from Botanic Garden Metro Station to Sector 18. Approx cost Rs 58 crore.
- Construction of underpasses at the crossing of Sectors 32, 35, 39 and 51 nearing completion. Approx cost Rs 58.02 crore.
- The construction of an underpass at the T-junction of Sectors 94 and 95 has commenced. Approx cost Rs 40.72 crore.
- Construction has commenced of a clover-leaf and underpass at the T-junction of Sectors 62 and 63 at National Highway 24. Approx cost Rs 104 crore.
- For the convenience of pedestrians, construction of 10 foot-overbridges completed on various main roads. Approx cost Rs 15.52 crore.
- An inter-city bus service between Noida and Greater Noida will be operated initially with 100 buses. In addition to a bus terminal on 5 acres in Sector 82, 242 bus shelters are also planned. A single smart card will be available to commuters for use on the buses, Metro and parking.



## Safeguarding public interests

- For increased security and patrolling, Noida police have been reinforced with 23 new Toyota Innova PCR vehicles at a cost of Rs 2.5 crore. Each SUV will have one woman constable.
- Establishment of Highway Traffic Management System (HTMS) on Noida-Greater Noida Expressway for safety & convenience of commuters at a cost of Rs 43.78 crore, and a building for an HTMS Command Control Centre at Sec 94 near Mahamaya Flyover at a cost of Rs 16.82 cr.
- In a first for UP, Noida Authority is getting set to create a 3D model of the city for city planning & security.



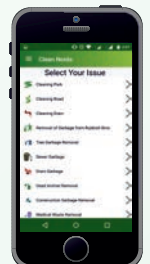
## Creating a better environment

- Ministry of Environment and Forests, Government of India, and NOIDA has established the Botanic Garden of Indian Republic on 163.79 acres in Sector 38A.
- A medicinal and herbal garden will be developed on a triangular plot of 29 acres in Sec-91 with an estimated cost of Rs 23.94 cr.
- City Park is being developed on a plot of 50 acres in Sector 117.
- Construction of an Old Age Home, Orphanage and Dada-Dadi Park at Sector 62. Estimated cost 25 cr.
- Shaheed Smarak Sthal to be constructed on 53,260 sqmt in Nalgarha village (Sector 145).
- For cleaning 6 main roads of Noida, tenders have been floated for mechanical sweeping machines.
- NOIDA is in the process of adopting the most advanced waste-to-energy (WTE) plant and the DPR has been prepared.



## 187 Citizens' Charter Services

- 187 Citizen Services are available online on [www.noidaauthorityonline.com](http://www.noidaauthorityonline.com), Grievance Redressal System on [www.noidaforcitizen.com](http://www.noidaforcitizen.com) (Mobile App) and online Jal Payments on [www.noidajalonline.com](http://www.noidajalonline.com) enabling water bills to be paid online using debit card, credit card and internet banking.
- Clean Noida Mobile App allows one to take grievances regarding various cleanliness issues to the right officials instantly, record it and get a ticket no. for future follow-up.



# The Looming Threat

Lack of access to information on levels of different air pollutants and their sources is dangerously limiting policy development world over to improve air quality

**BY DR VINAY AGGARWAL**

**W**orldwide 3.7 million premature deaths were attributable to ambient air pollution in 2012. About 88% of these deaths occurred in low and middle income countries. The regional breakdown (low and middle income countries) is: The Western Pacific: 1,670,000 deaths, South East Asians regions: 936,000 deaths, Eastern Mediterranean region: 236,000 deaths, Europe 203,000 deaths, Africa: 1,76,000 deaths, Americas: 58,000 deaths. The regional breakdown for high income countries: Europe 279,000 deaths, Americas 94,000 deaths, Western Pacific: 68,000 deaths, Eastern Mediterranean countries: 14,000 deaths.

The WHO maintains a worldwide, public database on urban outdoor air pollution in its Global Health Observatory. The database contains measured outdoor air pollution levels of PM2.5 and PM10 from 1100 cities in 92 countries for the years 2003-2010. These are used for estimating mean annual exposures of the urban population to fine particulate matter. In 2013, the WHO began collaborating with major institutions and agencies worldwide in the development of a global air pollution platform that includes data on air pollution concentrations based on satellite monitoring, chemical transport models and ground measurements, inventories of pollution emissions from key sources, and models of air





pollution drift – permitting estimates of air pollution exposures even in areas where there are no ground level monitoring stations.

WHO's main function is to identify and monitor those air pollutants with the greatest impact on people's health. This helps the WHO Member States to focus their actions on the most effective way to prevent, or reduce health risks. WHO's task is to review and analyze the accumulated scientific evidence, and use expert advice to draw conclusions on how much different air pollutants affect health as well as identify effective measures to reduce the air pollution burden.

Governments can identify their main sources of ambient air pollution, and implement policies known to improve air quality, such as: promotion of public transport, walking, and cycling (rather than transport relying on private motor vehicles); promotion of power plants that use clean and renewable fuels (e.g. not coal), and improvements in the energy efficiency of homes, commercial buildings and manufacturing.

Essential accompanying steps include increasing awareness about the high disease burden from ambient air pollution and its main sources, as



Dr Vinay Agarwal

well as highlighting the importance of taking action now to implement country-specific interventions. In addition, the use of effective monitoring to evaluate and communicate the impact of interventions is also an important tool in raising awareness. It can help drive policy action that brings benefits for health, climate and the environment.

WHO estimates that 12.7% of deaths could be averted by improving air quality worldwide. Lower levels of air pollution will reduce the burden of respiratory and cardiovascular

disease-related illnesses, health-care costs, and lost worker productivity due to illness, as well as increasing life expectancy among local populations. In addition, actions that reduce ambient air pollution will also cut emissions of short-lived climate pollutants, particularly black carbon which is a major component of soot emissions from diesel vehicles, and other sources, as well as greenhouse gases (CO<sub>2</sub>) contributing to longer-term climate change impacts.

Climate change produces a number of adverse effects on health. This includes those from drought and extreme weather events (e.g. windstorms, floods), such as water-borne and food-borne diseases. It also increases the prevalence of vector-borne diseases like dengue or malaria.

Here it is matter of debate over what challenges do countries face, and what obstacles are preventing assistance in improving ambient air quality? Enough knowledge exists internationally about the health effects of ambient air pollution but what often can limit policy development for the improvement of air quality, is the lack of access to information on levels of air pollutants and their main sources of pollutants.





There is also often a lack of awareness about the health burden of ambient air pollution. This can be due to little awareness of the international evidence from both developed and developing countries linking ambient air pollution exposure and health, or due to a gap in information from air quality monitoring, or even due to an under-appreciation of the potential solutions and measures that can be taken to improve air quality.


Improving ambient air pollution is an inter-sectoral challenge. Improving air quality should be an important consideration in policy planning across different economic sectors (e.g. transport, energy, industry, urban development) to ensure the greatest benefits for health. In addition, there is significant inequality in the exposure to air pollution and the related health risk: air pollution combines with other aspects of the

social and physical environment, creating disproportional disease burden in populations with limited incomes and with minimal local resources to take action. “

Exposure estimates for ambient air pollution are based on a global model using all available surface monitoring

Essential accompanying steps include increasing awareness about the high disease burden from ambient air pollution and its main sources, as well as highlighting the importance of taking action now to implement country-specific interventions

data, atmospheric transport models and satellite observations. One of the advantages of this approach is an ability to estimate risks in countries with no, or little, locally collected data. Exposure distributions produced by such models for larger regions agree well with the distributions from surface observations and are more reliable than estimates for smaller ones.

All studies are observational and very few have measured exposure directly. As a result, risk estimates are poorly quantified and may be biased. Exposure to indoor air pollution may be responsible for nearly 2 million excess deaths in developing countries and for some four percent of the global burden of disease. 

(The author is Founder Chairman, Max Superspeciality, Vaishali and Former, President, Indian Medical Association, New Delhi)

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