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Special Story

Alarming Situation

Dengue and chikungunya have the alarm bells ringing as their cases rise manifold in the country.

Special Story

Pros and Cons

As the government prepares to enact a new legislation on **surrogacy**, it is important to understand various aspects related to the issue of choosing a surrogate mother to give birth to your child

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DOUBLE HELICAL

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Contents

Coping with Rising Threats

Dear readers,

Over the past few years we have witnessed dengue and chikungunya sending alarm bells ringing as their cases rise manifold in the country. Our Special Story of this issue delves deeply into this topic. This year as well, the spiraling cases of these two dreaded diseases have taken not only the Delhi-NCR, but the states of Bengal, Odisha, Kerala, UP and Telangana too in their grip.

The scenario in Delhi is more frightening as it has already reported deaths due to chikungunya in double digits and the city's hospitals continue to be overwhelmed by the influx of patients. With more than 250 dengue and 200 chikungunya cases, South Delhi continues to be the worst-hit, followed by North and East Delhi.

More worrying is that in this crisis situation, people have not received ample support by way of guidance and awareness building or any relief in the form of special camps for testing either from the state government or the municipal corporation, except some fogging here and there which was not at all adequate.

Double Helical also takes a closer look at the inspiring life story of Dr Atul Kumar, Chief of the prestigious RP Centre for Ophthalmic Sciences, AIIMS, New Delhi. He has pioneered modern Vitreous Retinal Surgery that has emerged as a ray of hope for preventing irreversible blindness due to Diabetic Retinopathy. The eminent doctor has scaled the pinnacle of

medical excellence through sheer grit, guts and gumption. He had come from a non-medico family background and struggled against all odds to get a meritorious seat at Maulana Azad Medical College, Delhi. Today the way Dr Atul Kumar has achieved global recognition as a top-rated Vitreoretinal Surgeon is really exemplary. He attributes the fame he has achieved for medical excellence to his passion to serve the patients who come to him from all over the country and the world. He handles the heavy clinical load with the-state-of-the-art labs including the Retina Lab equipped with high-tech, sophisticated imaging equipment to help diagnose retinal diseases.

Recently, Union Health Ministry has introduced a new Surrogacy Bill to stop the commercialization of present form of surrogacy in the country. As the government prepares to enact a new legislation on surrogacy, it is important to understand various aspects related to the issue of choosing a surrogate mother to give birth to one's child. While the process makes it possible for parents to have a child that possesses genes from one or both "biological" parents, it can also put in motion many emotional and psychological ups and downs for the intended parents. We have tried to explain all the burning issues that this upcoming law will touch upon with all details for our readers.

The Surrogacy Bill can be taken as an important milestone, as surrogate mothers play an invaluable role in growing families all across the world. Those who are considering using or serving as a surrogate mother should carefully weigh the pros and cons of the situation before making a decision to have a baby this way. Most importantly, the potential surrogate mothers are required to go through a series of medical tests and procedures to ensure that their bodies are fit to carry and give birth to a healthy child. The specific medical procedures used will vary from case to case, but will help confirm that the surrogate's reproductive system is in good functioning condition.

We have once again tried to come out with an edition to preserve and we hope you will enjoy reading the stories.

Amresh K Tiwary,

Editor-in-Chief

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Shared Priorities

The first India–Africa Health Sciences Meet (September 01-03, 2016) broadly focused on how capacities can be jointly built and strengthened by India and African nations in health and research, to improve healthcare delivery, address diseases of common concern and achieve shared health goals. The **Union Minister of Health & Family Welfare, J.P. Nadda** pens his thoughts on India-Africa partnership in health sciences and research...

India and Africa have shared a special relationship in the past and continue to do so. It is pillared on numerous similarities, including historic relations, freedom struggles, a huge Indian diaspora in many African nations, and the fact that a significant majority of our populations is under the age of 35. We have an opportunity and responsibility to utilize this demographic dividend to its full potential.

The father of our nation Mahatma Gandhi's determination for freedom of India has roots in Africa which eventually led to independence of our country. India and Africa share many things in common including in the area of health. In the decades following India's independence, the principle of South-South cooperation, particularly in the context of the non-aligned movement, has been at the forefront of our engagement with Africa.

India and Africa are now coming closer to establish co-operation in the area of health to promote their mutual interests. We must pool in our collective strengths and resources to ensure these diseases are fought using innovative tools and approaches, and benefit from each other's skills and experiences in this regard. Our responsibility towards our youth also includes providing them opportunities to contribute in meaningful ways to crafting innovative solutions to human problems, including fighting diseases, poor health and nutrition, and pandemics.

We, therefore, need to ensure our youth have opportunities to pursue higher education and professions in medical science, biomedical research, pharmaceutical manufacturing, designing innovative diagnostic and medical devices, and other allied disciplines.

The India-Africa partnership, touted as a partnership of equals, is pillared on numerous similarities – social, financial and political. Our common concerns and fight against poverty, nutrition, sanitation, infrastructure, health and healthcare delivery, all demand innovative, sustainable and most importantly, regionally relevant solutions. Cognizant to this demand, India is shouldering the responsibility and has taken a step forward in setting up platforms like the India-Africa Forum Summit (IAFS).

India has committed substantial support towards the development of Africa with dedicated focus on capacity building, sharing of technical know-how and globally collaborative academic linkages between the two regions through existing efforts. Building on the follow up of this prestigious summit and centered on its motto of Reinvigorated Partnerships – Shared Vision, the effort is to strengthen and leverage our regional synergies to contest shared challenges in health sciences. It thus becomes logical to streamline and institute further innovative collaborations to ensure a long-term, self-reliant and self-sustaining India-Africa partnership in health sciences and disease research.

Since the 1990s, there have also been major national and international

efforts and programmes to improve the health status of populations in developing and least developed countries. Africa with about 11% and India with approximately 17.6% of the world population are the two major focus areas of such programmes as general improvement in public health in these two regions will bring in major rewards in global productivity. The focused efforts towards achievement of the Millennium Development Goals (MDGs), of which health related goals formed important areas, have yielded

significant results in both Africa and India. Infant Mortality Rates (IMRs), Maternal Mortality Rates (MMRs) and incidence of deaths due to HIV/AIDS, malaria and tuberculosis have reduced considerably in both the regions.

It is for all to see that the persistent and intensive focus on maternal and child health has yielded dividends. Besides achieving and sustaining India's polio-free status in March 2014, India has successfully eliminated maternal & neonatal tetanus in May 2015, well before the global target date of December, 2015. 'Mission Indradhanush'- a drive to accelerate full immunization coverage, has been successfully implemented resulting in an annual increase of about 5-7% points as compared to 1% point during 2009-13.

India aims to achieve 90% full immunization coverage by 2020. Four new vaccines have been approved and introduced to tackle the vaccine preventable diseases in India in a record period of just one year. India has added another feather to its cap by eradicating Yaws in 2016. Although we do not have data from the Sample Registration Survey after 2013, India is projected to nearly achieve the MDG 4 and 5 while the MDG 6 goal to reverse the incidence of malaria, TB and HIV/AIDS has already been achieved. What is perhaps noteworthy is that India's under-five mortality rate and maternal mortality ratio declined at a higher pace than global average. There has been a significant decline in Total Fertility Rate (TFR). The TFR in declined from 3.8 in 1990 to 2.9 in 2005 and further to 2.3 in the year 2013. 24 States/UTs already achieved replacement level of less than 2.1.

The noteworthy success of the MDGs have now prompted the world community to set new targets in health and other social indicators to be achieved in next 15 years in the form of Sustainable Development Goals (SDGs). Although only one goal is specifically on health, many other goals have serious implications for health sector. India, however, along with committing itself to the SDGs, has set its own agenda in health. It has announced "the attainment of the highest possible level of good health and well-being, through a preventive and promotive health care orientation in all developmental policies, and universal access to good quality health care services without any one having to face financial hardship as a consequence" as its goal in the Draft National Health Policy 2015.

> Building on the follow up of this prestigious summit and centered on its motto of Reinvigorated Partnerships – Shared Vision, the effort is to strengthen and leverage our regional synergies to contest shared challenges in health sciences. It thus becomes logical to streamline and institute further innovative collaborations to ensure a long-term, self-reliant and self-sustaining India-Africa partnership in health sciences and disease research

The key policy principles for achieving this goal are equity, universality, patient-centred quality care, inclusive partnerships, pluralism, subsidiarity, accountability, professionalism, integrity & ethics, continuous adaptation and affordability. Some of the major programmes envisaged are for reduction of maternal mortality, achievement of single digit neonatal mortality and stillbirth rates through a careful community based intervention, universal immunization, population stabilization, women's health and gender mainstreaming, integrated disease surveillance programme, control of tuberculosis, HIV/AIDS, leprosy elimination, vector borne disease control, effective prevention and therapy of non-communicable diseases, better mental care, and disaster preparedness. Realizing the potential of Indian traditional systems of medicine in healthcare is also one of the major programmes.

At the same time, Africa has also, after much internal discussions set its health agenda referred to as Agenda 2063. Healthy and well-nourished citizens with long life spans are source of the goals of this agenda. It clearly lays down that by 2063, "every citizen will have full access to affordable and quality healthcare services" and Africa would have rid itself of all the neglected tropical diseases; put in place systems for significantly reduced non-

communicable and lifestyle changes related diseases and reduced to zero deaths from HIV/AIDS, malaria and tuberculosis.

The African population will be healthy and well nourished, enjoying a life expectancy of above 75 years. All barriers to access to quality health for women and girls would be non-existent. The Indian and African health agenda are reflective of the importance that the parties are giving to achievement of universal healthcare in the most feasible time frame. These new goals have to be taken into consideration in the formulation of development cooperation activities in the coming decades.

Organizing a summit like this at a very apt and opportune time aims at establishing a strong, reinvigorated, sustainable India-Africa partnership in health sciences and disease management that raises the efficacy and proficiency of Africa's health research institutions, laboratories, universities, human resources, and policies in jointly addressing the growing burden of disease. This is to be achieved by: building scientific capacity and leadership in Africa, establishment of institutional linkages and joint health research projects, improving clinical access by establishing health service centres in Africa, facilitating effective, affordable and accessible drugs in Africa through joint manufacturing efforts and enhancing e-health and medical tourism opportunities.

Organizing a summit like this at a very apt and opportune time aims at establishing a strong, reinvigorated, sustainable India-Africa partnership in health sciences and disease management that raises the efficacy and proficiency of Africa's health research institutions, laboratories, universities, human resources, and policies in jointly addressing the growing burden of disease

Africa, though supported by international developmental agencies, continues to lack the most far-reaching intervention in the disease control arsenal – health research capacity and indigenous product development. In order to meet its Sustainable Development Goals (SDG) targets, African nations are looking towards alleviating their health concerns and developing local scientific capacities for their specific disease prevention and management programmes.

India has fairly large health and biomedical research capabilities and disease management strategies and programmes. It has demonstrated that polio can be successfully eradicated; has set up centres of excellence in biomedical and health research, has advanced capacity in genomics, proteomics, and modern biology and established public and private clinical and educational centres of excellence. It has also proven itself as a global pharmaceutical powerhouse with significant drug, vaccine, nutraceutical, cosmeceutical and traditional medicine exports across the globe.

We have organized an exhibition showcasing the health and biomedical innovations by different scientific organizations which are available or in different phases of commercialization.

We will be happy to extend any support to African nations that they may need and mutually learn from their experience for strengthening of health systems and biomedical research. I sincerely hope that we will definitely achieve the objectives of the summit with the support and cooperation of all stakeholders and I assure my personal support and that of the Govt of India. This will usher in a new era of cooperation and in improving lives of communities both in India and the African continent.

J P Nadda, Union Minister of Health and Family Welfare received certificates for Maternal and Neonatal Tetanus Elimination (MNTE), and Yaws-Free Status

by

Dr. Margaret Chan, DG, WHO and Dr Poonam Khetrapal Singh, DG, WHO-SEARO, at 69th Session of SEARO, at Colombo, today.

Review meeting on spiraling cases of dengue and chikungunya diseases have sent alarm bells ringing in the country.

The Health Minister of Delhi, Sh Satyendar Jain calls on the Union Minister for Health and Family Welfare, Shri J.P. Nadda to discuss the rising cases of Dengue and Chikungunya in the NCR region, at New Delhi

Save your Child's Vision

Retinopathy of Prematurity (ROP) in premature babies requires greater neonatal care including screening of infants and necessary treatment. **BY DR MAHIPAL S SACHDEV**

Retinopathy of Prematurity (ROP) is a disorder of the retina in premature and very low birth weight infants. The ROP is a potentially blinding disease, but it is preventable too.

With early and appropriate treatment, we can save the child from blindness and even in advanced cases give the child a vision good enough to move around. The childhood blindness – particularly ROP – now figures in the priority list of health planners and implementers. It is estimated that 20-40 % of preterm infants develop ROP, with 3-7 % becoming blind. As neonatal care improves, it results in higher survival rate for preterm infants.

ROP blindness is going to pose a major problem for our health planners. The challenge is to increase awareness of

ROP and introduce screening of all infants vulnerable to ROP.

Why ROP in premature babies?

The last 12 weeks of a full-term delivery, from 28-40 weeks gestation, are particularly active for the growth of the fetal eye. Premature children are at risk for developing ROP because they have been taken out of the protective environment of the mother's womb and are exposed to many things including medications, high levels of oxygen and variations in light and temperature.

The blood supply to the retina starts at 16 weeks of gestation and the vessels gradually grow out over the surface of the retina till the time of birth. In premature infants, the normal growth of the retinal vessels stops and abnormal new vessels begin to grow in response to chemical signals.

Make ROP Screening a Must: The aim of screening for ROP is to detect all treatable neonates. Good screening can work miracle as it targets all "at-risk" and can be best done at a neonatal ICU.

Whom to Screen:

- Infants with birth weight at or below 1,500 grams.
- Infants born at or before 32 weeks' gestational age.
- Very sick infants with high risk factors for development of ROP: including prolonged mechanical ventilation, blood transfusions, infection, intra-ventricular hemorrhages, anemia etc.

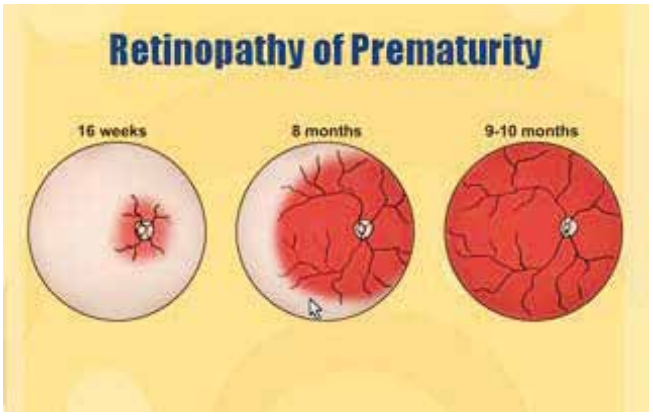
Screening must be initiated at 32 weeks' gestational age or four weeks after birth, whichever is earlier when ROP begins and is seen clinically. This is followed by another screening at 35-37 weeks' gestational age. The last screening is done at 39-42 weeks when ROP begins to regress. These three screenings are critical.

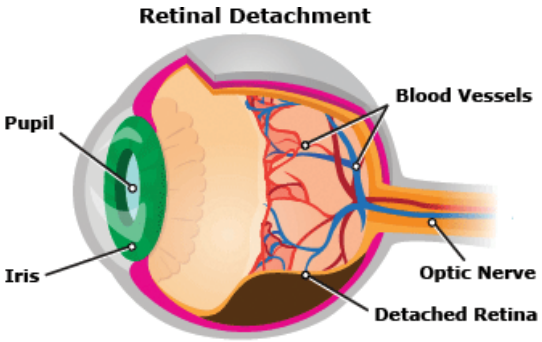
Natural Course of ROP:

ROP is a transient disease in the majority of the infants with spontaneous regression occurring in 85% of the eyes. Approximately 7% of infants with birth weight of < 1251 gm will eventually develop significant ROP. Most infants with mild ROP that resolves either with or without laser treatment will have no remaining scar tissue.

Treatment of ROP: Treatment for ROP depends on the severity of the condition.

- Mild involvement usually requires nothing more than observation.
- Moderate involvement, needs laser or cryo therapy which is used to eliminate the abnormal vessels before they cause the retina to detach.
- Severe stages need surgical management. In partial retina detachment Scleral Buckling is done while in total retina detachment V-R surgery is required.
- In cases with low vision, there are a variety of educational adaptations. Optical aids like hand magnifiers for close work, hand magnifiers for distance viewing, and CCTV (closed- circuit television) can be helpful. Myopic corrections are usually indicated, as well as high level of illumination.





Abnormal blood vessel growth can cause the retina to detach from the back of the eye.

The most significant aspect is that careful monitoring of retinal status in premature infants will save many premature children from developing ROP.

So, if you come across anybody with premature baby inform them to have ROP screening done. A timely checkup and necessary treatment will enable the child to better see this beautiful world.

(The author is Chairman & Medical Director, Centre for Sight Group of Eye Hospitals, New Delhi)

Pros and Cons

As the government prepares to enact a new legislation on surrogacy, it is important to understand various aspects related to the issue of choosing a surrogate mother to give birth to your child

BY TEAM DOUBLE HELICAL

Over the years, the process of using a surrogate mother has become a way for parents to have a child by using a third party to carry the child until birth. Although this can be an ideal solution, the concept of surrogacy is an extremely controversial issue.

One of the key issues is the surrogacy procedure itself. While the process makes it possible for parents to have a child that possesses genes from one or both "biological" parents, it can also put in motion many emotional and psychological ups and downs for the intended parents.

In addition, even if both parents of the child are on board with using a surrogate mother, there are instances where it may be difficult to family members that this is the right choice. Therefore, it is essential to take the time to thoroughly think through the entire surrogacy process and to consider all of the pertinent factors before moving forward.

The process of choosing who will act as the surrogate mother can also bring up some controversy. In some cases, the biological parents may opt to use a friend or relative for this role. This, however, could cause some potentially negative issues down the road if not handled correctly medically, emotionally, and legally.

> No one can deny the pains of infertility, but surrogacy makes having a child seem as like picking a product. By bearing a child, one develops obvious emotional connection to it, and this early love for a child cannot be easily substituted

The biggest advantage to the surrogacy process has the potential to outweigh any of the disadvantages in that regardless of the time, cost, and other factors that are involved, a loving parent or parents will soon have a child to love.

Having the ability and willingness to provide an infertile couple with a child is essential to successful surrogacy. Surrogate mothers play an invaluable role in growing families all across the world. Those who are considering using or serving as a surrogate mother should carefully weigh the pros and cons of the situation before making a

What They Say

Double Helical spoke to some eminent doctors to know their views on the issue of surrogacy. Excerpts…

"No one can deny the pains of infertility, but surrogacy makes having a child seem as like picking a product. By bearing a child, one develops obvious emotional connection to it, and this early love for a child cannot be easily substituted. I believe that if one is to take into account the child's well being, surrogacy can ensure a lack of early intimacy between mother and child. Legally also surrogacy complicates rights over the child."

Dr Arvind Garg, Sr Child Specialist, Apollo Hospital, Noida

"A child is not something that should ever be fought over, but brought up in a loving and nurturing environment. I don't deny the reality that one does not have to give birth to or show any relation to a child to be a great parent. It is the room for complication that steers me from surrogacy."

Dr H P Singh,
Senior Child Specialist, Vaishali Mother and Child Care Clinic

"Why not allow a willing woman to carry her sterile sister's child? Why not allow an older woman to carry her infertile daughter's baby? As long as all parties consent, voluntary surrogacy is as much a woman's choice as abortion. Until there are viable and successful artificial wombs, surrogate motherhood is the only option for a biological family unit's creation in some cases.

Dr Rajesh Ranjan, Senior Eye Specialist, EYE 7, Indirapuram, GZB

"Surrogate carriers can experience negative psychological effects because the baby they are carrying doesn't belong to them and it is no small sacrifice to bear a child in your belly for 9 whole months. Naturally a woman will start to develop an attachment to that child. Another issue is the fact that the child is being separated from the loving lady who carried it for 9 months before their birth."

Dr Sachin Bhargav, Senior Child Specialist, Vaishali

Dr Manisha Yadav,
Medical Practitioner

"In my view, surrogate mothers should be allowed because if somebody can't have children, they should still be able to raise a family of their own. To some people, having the same DNA as your child is very important. I believe that if someone is willing to be a surrogate mother to help somebody out, they should be able to. If someone doesn't think they would be able to give away the baby after giving birth to them, they shouldn't have signed the contract, although there are now laws and they would have to give up the child to the other family."

Dr Swapnil Shikha,
Director Amrapali Healthcare, Noida

"Surrogate motherhood should be allowed. Just because a woman is physically not able to conceive shouldn't keep her away from being a parent. Genetically having a child that you've wanted would be a lot better than having one that isn't. Just because someone else is carrying the child for you doesn't mean it won't be loved as much. It isn't about the money, it's about giving the gift of love to a person who can't do that on her own."

decision to have a baby this way.

Potential surrogate mothers are required to go through a series of medical tests and procedures to ensure that their bodies are fit to carry and give birth to a healthy child. The specific medical procedures used will vary from case to case, but will help confirm that the surrogate's reproductive system is in good functioning condition. It's important to keep in mind that many couples decide to use a surrogate mother because of the frustration of not being able to conceive in the first place.

No matter how professionally a surrogate mother views her arrangement with the couple for whom she is carrying a child, emotional attachments to the child are always a risk. A surrogate must be emotionally prepared to deal with these feelings. If you have any reservations about your ability to relinquish a child you have carried for another couple, surrogacy is not for you.

Types of surrogacy

Before we proceed it's important to mention that there are different types of surrogacy. Some types of surrogacy refer to the genetic circumstances and others types refer to the types of arrangement. There are 3 types of genetic surrogacy circumstances:

Genetic surrogacy or partial surrogacy: This is the most common type of surrogacy. Here the egg of the surrogate mother is fertilized by the commissioning male's sperm. In this way the surrogate mother is the biological mother of the child she carries.

Total surrogacy: Here the surrogate mother's egg is fertilized with the sperm of a donor - not the male part of the commissioning couple.

Gestatory surrogacy or full surrogacy: Here the commissioning couple's egg and sperm have gone through in vitro fertilization and the surrogate mother is not genetically linked to the child.

No more Wombs for Rent

The lack of provisions to regulate surrogacy has so far made it easy for the rich and powerful to commission poor and illiterate women to be surrogates, despite the perils associated with pregnancy. The draft Surrogacy (Regulation) Bill is undoubtedly a step in the right direction, yet its provisions are subject to debate

BY DR A K AGARWAL

India's draft Surrogacy (Regulation) Bill 2016 has sparked debate over the government's role in reproduction. The Union Cabinet has approved the Surrogacy (Regulation) Bill, 2016, which is aimed at curbing unethical and commercial practices and preventing the exploitation of poor women as substitute mothers.

The Bill seeks to comprehensively address the issue of surrogacy in India. In India, a surrogate mother often bears the child for a price. In surrogacy, a woman carries a child to

term for its intended parents via different fertility techniques, including IVF implantation. She is compensated for carrying the child, hence the term is described as commercial surrogacy.

The bill proposes a fine of Rs 10 lakh and jail terms of up to 10 years for violations. Many IVF specialists, while welcoming clearer guidelines for strict punishment, have frowned upon the proposed restrictions and some have even called it an attempt to impose a certain religious or moral ideal in a secular country.

Scary scenario

Commercial surrogacy was allowed in India for the first time in 2002 and has since grown into a massive industry

within the medical profession. While no clear economic numbers are available, a World Bank study conducted in 2012 estimated the surrogacy business to be worth almost $400 million a year, with 3,000 fertility clinics across India which has also presented a scary scenario.

However, India is on course to ban commercial surrogacy and disallow foreigners and non-resident Indians. The legal complications with regard to commercial surrogacy came to the fore for the first time in 2008 when a Japanese couple contracted an Indian woman to serve as a surrogate. But before the woman could deliver the child, the couple got divorced. Thus the child was born legally parentless as well as without citizenship.

Though the child was finally handed over to her grandmother, it opened questions about a practice that had continued unabated for a number of years. The culmination of these questions resulted in India's draft Surrogacy (Regulation) Bill that was approved by the Cabinet in August 2016.

The lack of provisions to regulate surrogacy, which was legalised here in 2002, made it easy to commission poor and illiterate women to be surrogates, a practice that put many of their lives at risk, according to activists and researchers. Some surrogates reportedly rented out their wombs more than once despite the perils associated with pregnancy.

Raising doubts

Though the draft Surrogacy (Regulation) Bill seeks to comprehensively address the issue of surrogacy in India many eyebrows were also raised over the outcomes of the expected law.

However, if anyone still has any doubt about the approved Surrogacy Bill, the External Affairs Minister Sushma Swaraj, who headed the Group of Ministers that drafted the bill, clears the air. "We can say this doesn't go with our ethos," she said to explain why certain populations, including gays and lesbians, were barred from surrogacy. Foreigners have to stay out, she added, because "divorces are very common in foreign countries."

She also took a dig at Bollywood celebrities, though without naming them, who have had children through surrogacy. "I am pained to say that the procedure that started as a necessity has become a hobby of sorts. This is not a thing for pleasure… it has become a fashion these days," she said. Famous Bollywood actors Shah Rukh Khan and Aamir Khan are among those who have children through hired wombs, boosting the popularity of surrogacy in India.

> The bill proposes a fine of Rs 10 lakh and jail terms of up to 10 years for violations. Many IVF specialists, while welcoming clearer guidelines for strict punishment, have frowned upon the proposed restrictions and some have even called it an attempt to impose a certain religious or moral ideal in a secular country.

"Permission (for surrogacy under the bill) may be given for necessity. However, there is no permission for cases in which the wife does not want to go through labour… since you make a poor woman go through labour pain instead," mentioned Swaraj.

Her comments and the discriminatory clauses came in for sharp criticism, especially from liberal quarters. The outrage over government's decision as to who can, or cannot, have a surrogate baby has taken the centrestage, while the issue of surrogate mothers seems to have taken a backseat.

Backers of commercial surrogacy have argued that banning it totally will not help the cause of surrogate mothers. The industry will go underground, making the surrogates even more vulnerable. On the contrary, they say, if it is allowed with checks and balances, the business will generate income for very poor women and their rights will be protected.

Surrogacy vs gainful employment

That regulation will save the women from exploitation is perhaps a simplistic assumption. Surrogacy cannot be seen as a gainful employment. Pregnancy is fraught with risks and women take it up only when forced by their circumstances.

In 2012, a surrogate mother died in Gujarat just after giving birth to a premature baby of an American parent. In an industry centred on the baby, the surrogate mother is seen as little more than a rented womb.

True, women choose to become surrogates and risk their lives. They are not forced. They are lured by the large sums of money—sometimes as big as what they earn in 15 years working as maids.

Looking at this scenario, there emerges a flurry of questions: can large monetary compensations outweigh all concerns—the physical and psychological trauma of these marginalized women? Can the choice of the surrogate mothers be seen as an empowered decision? Legislation may help, yes. But given India's poor track record in compliance to rules and regulations, how much will illiterate women be able to gain from it? Who will empower them to do so?

And, the only one answer to all these questions is: surrogacy cannot be seen as a gainful employment. By way of example, organ sales are also banned in India; only kidneys can be donated, that too only by relatives. Yet there's a thriving kidney racket in the country that relies on duping and coercing poverty-stricken villagers. Likewise, surrogacy can take the illegal route, while remaining legally "altruistic" on paper.

Ethical dilemma

For one thing, the bill makes only married couples eligible for surrogacy - no single parents, live-in couples and gays, please. The couple must certify that one of them is medically unfit to reproduce naturally. Those who have biological or adopted children will not be eligible for a surrogate, a point emphasised by external affairs ministry.

In the process, however, the bill proposes to narrow options for those wanting children and shuts out an income-earning opportunity for women as surrogate mothers. But babies have to be registered. Unlike black money, there cannot be undeclared children. While pregnancies can be kept secret, as many Indian surrogates do for fear of stigma, babies cannot live secretly. So, monitoring the genesis of every baby should be possible, in theory at least, given that there is a mechanism in place to register every birth. But who will do it?

More than the legalities, it is the ethical dilemma that must be first addressed. The issue of commercial surrogacy is complex and it is only essential for the government response to be nuanced. Imposing sweeping ideas in the name of ethos dilutes the core issue.

(The author is Professor of Excellency,Medical Advisor, Apollo Hospital and former Dean, Maulana Azad Medical College, New Delhi)

Mothers for Hire

The proposed draft Surrogacy Bill 2016 seeks to address the need for legislation to regulate surrogacy that has taken proliferated as a ruthless trade on a large-scale

BY VISHAL DUGGAL

The Union Cabinet recently cleared the draft bill called Assisted Reproductive Technology (Regulation) Bill which is likely to be introduced in the Parliament in the winter session. If passed, the Act will deal a death blow to the estimated $2 billion industry that has made the country a global surrogacy hub.

The draft bill, proposed by NDA led government, prohibits commercial surrogacy, like in the UK, while permitting altruistic surrogacy. It proposes to now allow only heterosexual childless couples, married for at least five years, to have children through surrogate mothers, who have to be close relatives, and without the involvement of a financial transaction. It also lays down that only mothers with at least one child can offer to rent out their wombs, and may do so only once in their lifetime.

The banning of commercial surrogacy can perhaps open up doors for adoption as well. In a country like India, where one encounters frequent stories of children being abandoned by their parents out of poverty or social stigma, especially girls, banning commercial surrogacy could encourage parents to look toward adoption as a means of fulfilling their dreams of parenthood.

According to Union Health Minister JP Nadda, a family institution is required to protect children from potential abuse and the adoption laws, too, need many changes that will be taken up later on. External Affairs Minister Sushma Swaraj has suggested that couples who don't have close relatives who can offer to be surrogate mothers should look at adoption more closely. As far as surrogates are concerned, the government's heart might be in the right place in wanting to curb the exploitation of poor women hired to bear children for others. Not that the government wants to completely ban the renting of wombs, but it wants to make it an altruistic practice, where eligible women offer to be surrogates for family members in need. The bill says surrogate mothers should be married and should have given birth to a healthy child before.

The draft bill provides for surrogacy as an option to parents who have been married for five years can't naturally have children, lack access to other reproductive technologies, want biological children and can find a willing participant among their

relatives. This would come as a major blow to fertility clinics in India, as most of them have thriving commercial surrogacy practices, which would be outlawed under the current form of the bill. Commercial surrogacy will result in 10 years' imprisonment.

The bill also seeks to clarify the legal position of such a child and ensures that a child born of surrogacy will have all legal rights as a citizen. It would also restrict overseas Indians, foreigners, unmarried couples, homosexuals, and live-in couples from entering into a surrogacy arrangement. The surrogate mother has to be a married woman who has herself borne a child and is neither a non-resident Indian (NRI) nor a foreigner. Couples who already have biological or adopted children cannot commission a surrogate child.

As expected, the bill has generated a lot of debate around the country. Opponents have argued that by allowing surrogacy for select classes of citizens on the basis of their lifestyle, sexual orientation, and life choices, the bill would violate citizens' Fundamental Rights as laid down in Article 14 of the Indian Constitution.

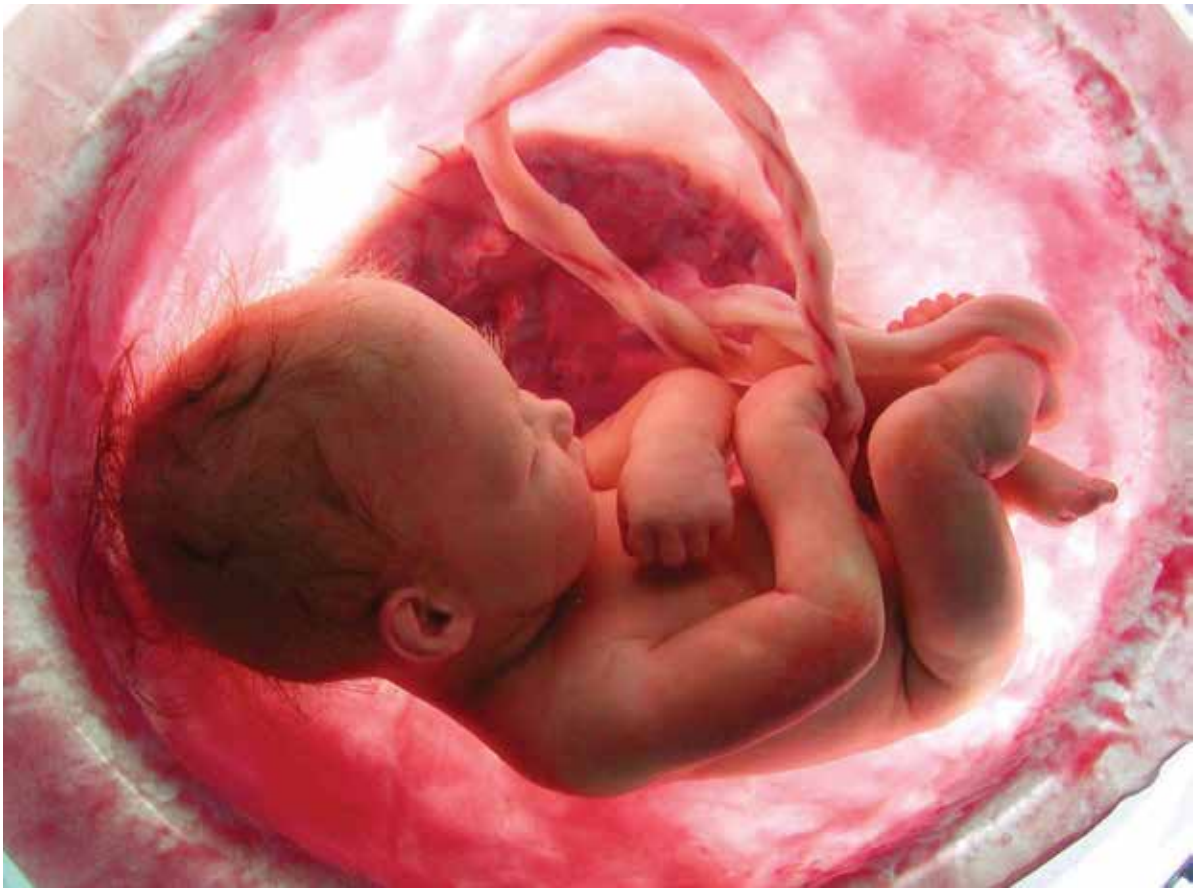
However, the bill seeks to be in step with the legal issues at the moment.

The bill also seeks to clarify the legal position of such a child and ensures that a child born of surrogacy will have all legal rights as a citizen. It would also restrict overseas Indians, foreigners, unmarried couples, homosexuals, and live-in couples from entering into a surrogacy arrangement

Gay rights are still an evolving issue in India. While the Supreme Court is sitting on a review petition on Section 377 of the Indian Penal Code, pertaining to the status of gay rights, no clear legal stand on the issue has emerged. Hence at this point, conferring legal rights to a surrogate child to gay parents would endanger the rights of the child itself.

The Surrogacy (Regulation) bill can clarify the rights for India's gay population only once these larger legal questions (about the status of gay marriage, for instance) have been answered. Hence at this point, restricting surrogacy to relationships which have a clear standing in the eyes of law protects the rights of the child and ensures consonance with Article 14 of the Indian Constitution rather than doing disservice to it.

The second major issue relates to the question of disallowing commercial surrogacy and restricting foreigners from availing themselves



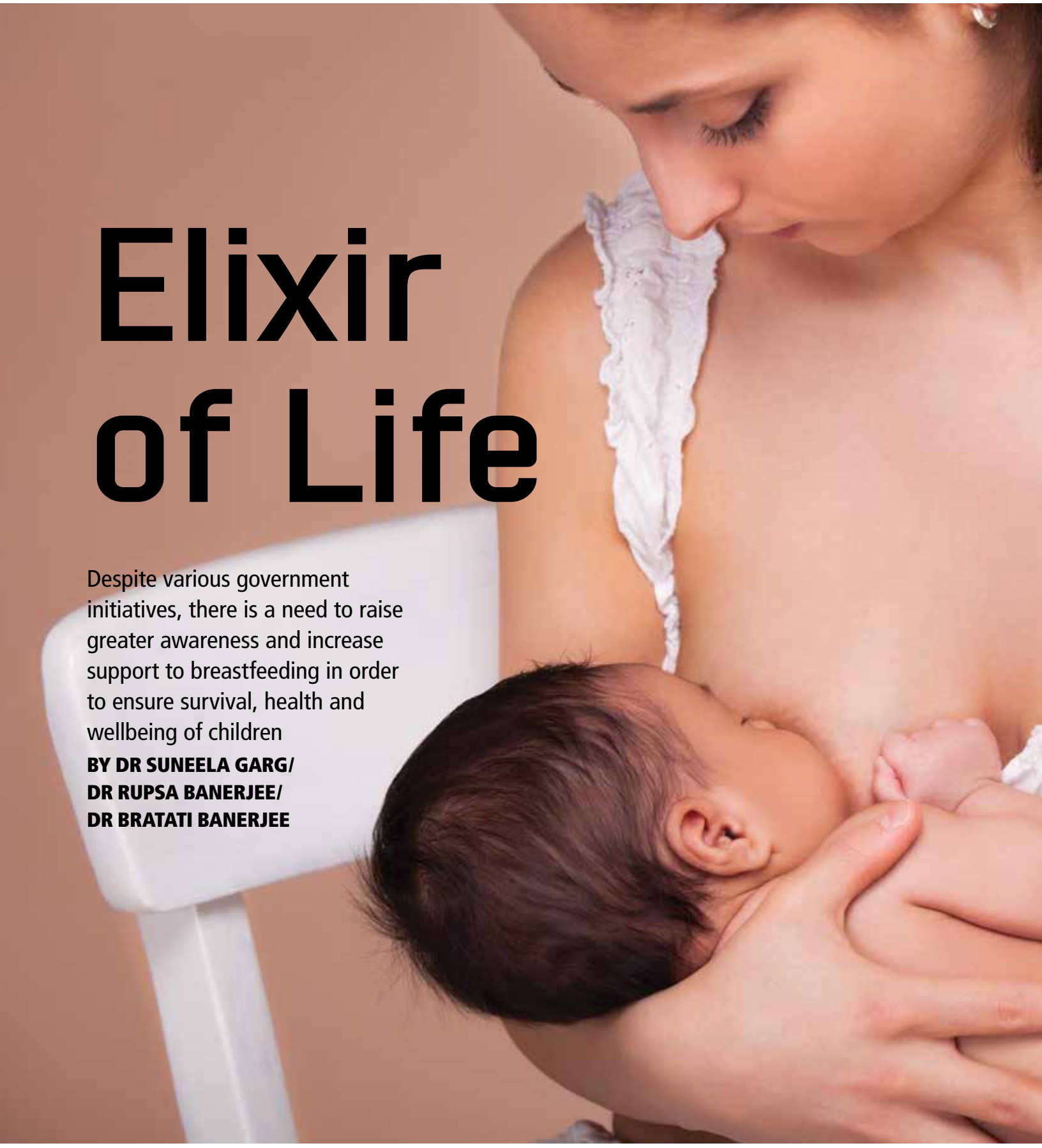
of surrogacy in India. Since the inception of commercial surrogacy, a number of incidents have sparked unpleasant legal questions surrounding commercial surrogacy involving foreigners. In 2012, for example, an Australian couple who had twins by surrogacy arbitrarily rejected one while selecting the other. Such issues reveal the complexities that surround commercial surrogacy.

While commercial surrogacy has been practiced in India legally since 2002, the large-scale proliferation of the trade has so far gone on unchecked in the absence of any legislation. It is one of the very few countries—Russia, Ukraine, and some U.S. states are among others—where commercial surrogacy is practised (Thailand, a formerly booming center for the procedure, banned commercial surrogacy last year). According to estimates by a UN-backed study of July 2012, the industry is worth more than $400 million a year, with over 3,000 fertility clinics across India.

> This would come as a major blow to fertility clinics in India, as most of them have thriving commercial surrogacy practices, which would be outlawed under the current form of the bill. Commercial surrogacy will result in 10 years' imprisonment

The need for legislation to regulate surrogacy has been long felt amid ethical and legal concerns. After a survey of 100 surrogate mothers in Delhi and Mumbai, the Center for Social Research published in a report concluding that there were few safeguards in terms of legal provisions or health insurance for the women, who were mostly poor and uneducated. There was no fixed rule for payments nor was there any provision for post-pregnancy healthcare.

With no law to regulate Indian surrogacy as things stand, a profitable surrogacy market has sprung up. Clinics rely on Indian contract law to draw up binding agreements between surrogates and intended parents, and registrars facilitate naming intended parents on Indian birth certificates. All together, it adds up to an affordable but unregulated way of having a child for infertile and gay couples.



Elixir of Life

Despite various government initiatives, there is a need to raise greater awareness and increase support to breastfeeding in order to ensure survival, health and wellbeing of children

BY DR SUNEELA GARG/ DR RUPSA BANERJEE/ DR BRATATI BANERJEE

Breastfeeding is essential for optimal growth and development of infants and children. Early initiation of breastfeeding within one hour of birth and thereafter exclusive breastfeeding for the first six months of life is of prime importance to the wellbeing of the child.

It has been seen that 13% of all deaths of children under five years of age could be prevented by breastfeeding. In India, it could reduce 156,000 child deaths each year, about one third of respiratory infections and half of all diarrhoeal episodes in children.

The health and nutrition benefits of breastfeeding are many, both for the child as well as the mother. Recently breastfeeding has also been suggested as a tool for poverty alleviation.

The Indian Scenario

The data from the fourth National Family Health Survey (NFHS-4) of 17 States showed the following with respect to the key indicators of breast feeding, revealing the need for focussing on promotion of optimal breastfeeding practices.

- Initiation of breastfeeding is 50.5%, though the rate of institutional deliveries is 84.3%
- Exclusive breastfeeding is 57.0%
- Complementary feeding is 49.6%

In spite of its innumerable benefits, very few mothers initiate early breastfeeding. The reason behind this is the fact that women face many barriers to breastfeeding. Inaccurate information regarding breastfeeding practices, lack of motivation and support from family members, absence of skilled breastfeeding counselling, availability and marketing of breast milk substitutes and inability to breastfeed due to inadequate maternity protection at workplace are some of the difficulties women face, as a result of which they cannot practise early initiation of breastfeeding within one hour of birth, exclusive breastfeeding up to six months of age and continued breastfeeding for two years or longer,

as recommended by the World Health Organization.

Breastfeeding Week

Breastfeeding Week is observed globally in the first week of August every year. Each year, a theme is selected highlighting an issue of public health importance related to breastfeeding. This year's World Breastfeeding Week focuses on the 17 Sustainable Development Goals (SDG) and how to achieve them through the protection, promotion and support of breastfeeding.

Breastfeeding in the context of Sustainable Development Goals

Breastfeeding is a readily available, natural and cost effective approach to feeding children and thus has relevance in the first goal on "no poverty". It also has relevance to the second goal on "zero hunger" as exclusive breastfeeding for first six months of life and continued breastfeeding for two years and beyond, provides adequate nutrition to prevent hunger. Breastfeeding has shown to improve survival, health and wellbeing of infants and children. It improves the child's immunity, prevents malnutrition and in turn reduces infant and child mortality. It has also shown to prevent respiratory and diarrhoeal diseases in children. In addition to child survival, the health benefits of breastfeeding extend to the mother as well, in the form of protection against diseases like breast and ovarian cancers, osteoporosis and anaemia among others.

> Breastfeeding has shown to improve survival, health and wellbeing of infants and children. It improves the child's immunity, prevents malnutrition and in turn reduces infant and child mortality

Therefore, breastfeeding is relevant to the third SDG on "good health and wellbeing". Breastmilk is rich in essential fatty acids which significantly improves mental and cognitive development of the child, thus contributing to the fourth goal on "quality education". Due emphasis has been given to support of breastfeeding in working women to ensure adequate maternity protection to enable continued breastfeeding along with work, which has been incorporated into various national policies and legislations, making the eighth goal on "decent work and economic growth" relevant in this context.

Breastfeeding should be practised by both the rich and the poor alike and therefore supports the tenth goal on "reduced inequalities". Breastfeeding is, therefore, a necessary tool for achieving sustainable development by 2030.

The MAA Initiative

This year's World Breastfeeding Week was made significant at the national level with the launch of a new approach to breastfeeding. On 5th August 2016, the Union Minister of Health and Family Welfare launched the "MAA (Mother's Absolute Affection)" initiative for the promotion of breastfeeding. The Health Minister emphasized the need for creating awareness on breastfeeding among both the rural and urban population since it is the child's first protection against death, disease and poverty. The lifecycle approach to Reproductive, Maternal, Neonatal, Child and Adolescent health was also focussed upon, and breastfeeding was considered to be a tool central to improving child survival.

The objective of launching the "MAA-Mother's Absolute Affection" initiative is to create an enabling environment to ensure that mothers, husbands and

families receive adequate information and support to promote breastfeeding practices. It was also highlighted that the difference in breastfeeding rates among rural and urban populations are alike, contrary to the belief of higher rates in rural population owing to traditional feeding practices, which implies that the need for intensified efforts to promote, protect and support optimal breastfeeding is universal."MAA-Mother's Absolute Affection" is a nation-wide breastfeeding promotion programme that addresses the needs of all children including those living in difficult circumstances.

"MAA-Mother's Absolute Affection" initiative aims to create awareness regarding breastfeeding by strengthening counselling services for supporting breastfeeding through health systems. The chief components of the MAA Programme are Community awareness generation, Strengthening inter personal communication through ASHA, skilled support for breastfeeding at delivery points in public health facilities, and monitoring and award/ recognition.

For the MAA programme, a total of Rs 30 crore has been allocated while each district will be allotted Rs 4.3 lakh for implementing the various activities under it.

Dr Suneela Garg, Dr Rupsa Banerjee, Dr Bratati Banerjee

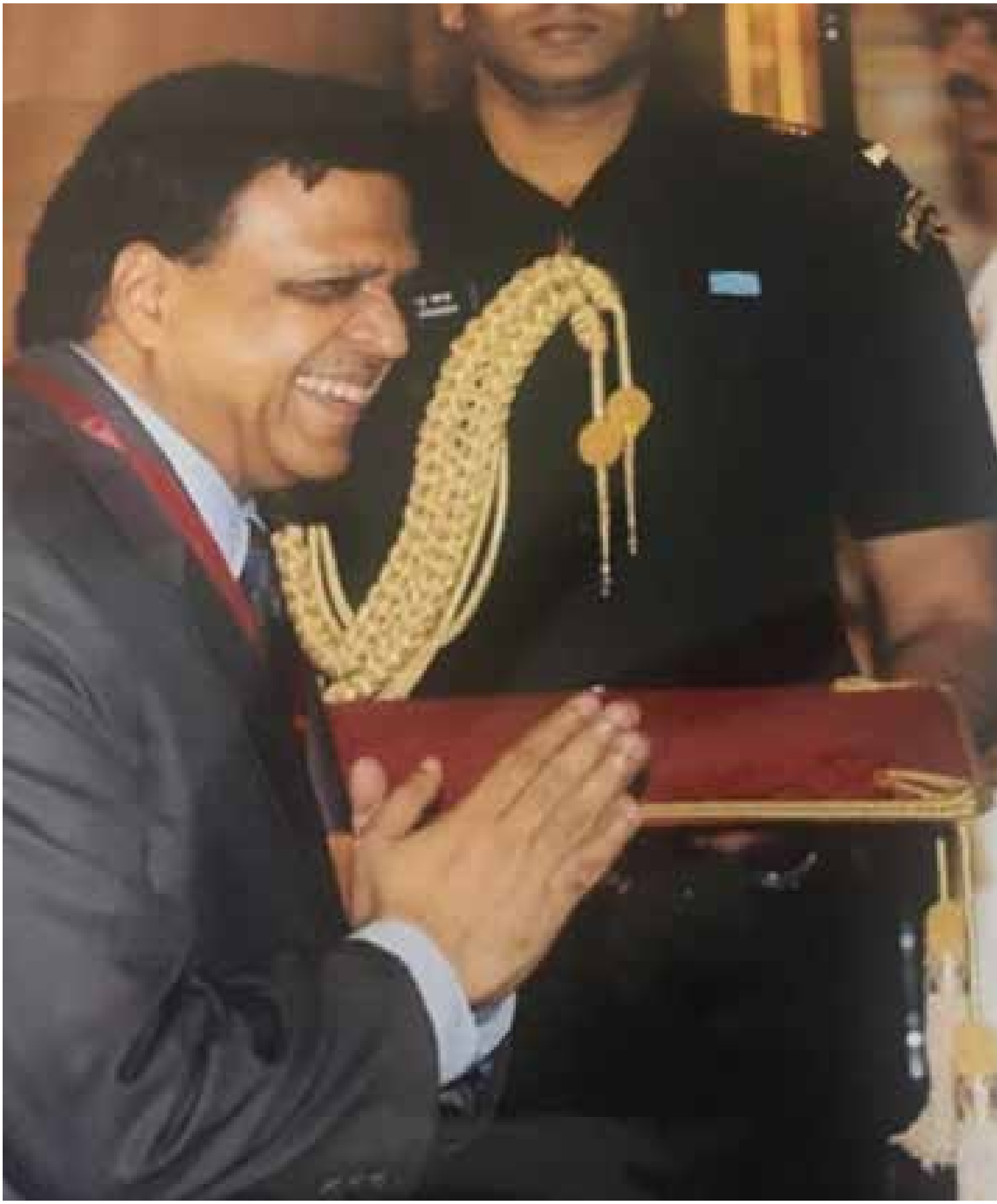
The Way Forward

Mother's milk is the best foundation for the child. Breastfeeding is a practice that has not yet gained the desired popularity in the country, even though it has been emphasized upon since centuries. Efforts are being made to raise awareness and increase support to breastfeeding among the population. The Centre for Disease Control (CDC) has provided guidelines on strategies to support breastfeeding mothers and increase breastfeeding rates. Maternity care practices such as promoting baby friendly hospitals to enable counselling mothers on the importance of exclusive breastfeeding and help them initiate early breastfeeding in the hospital will go a long way in increasing breastfeeding rates.

> The importance of breastfeeding in increasing child survival is a guiding force in continuing the country's efforts towards achieving health. It should act as a reminder that breastfeeding is a commitment and not an option.

Access to support from health care professionals and skilled counselling on breastfeeding practices, peer support programmes, support for breastfeeding in the workplace including employee benefits and services, social marketing for promotion of breastfeeding and monitoring and regulation of infant formula are some of the strategies suggested by the CDC. The importance of breastfeeding in increasing child survival is a guiding force in continuing the country's efforts towards achieving health. It should act as a reminder that breastfeeding is a commitment and not an option.

(The authors are associated with Department of Community Medicine, Maulana Azad Medical College, New Delhi)



Recieveing the coveted Dr BC Roy award in July 2016 from the President of India at Rashrapathi Bhavan.

Lighting up Lives

Chief of the prestigious RP Centre for Ophthalmic Sciences, AIIMS, New Delhi, **Dr Atul Kumar** has pioneered modern Vitreous Retinal Surgery that has emerged as a ray of hope for preventing irreversible blindness due to Diabetic Retinopathy. **Double Helical** takes a close look at the inspiring life story of the eminent doctor who has scaled the pinnacle of medical excellence through sheer grit, guts and gumption

It was a long and arduous journey for young Atul who came from a non-medico family background and struggled against all odds to get a meritorious seat at Maulana Azad Medical College, Delhi. Today, as Chief of the RP Centre for Ophthalmic Sciences, AIIMS, New Delhi, a premier institution in the field of eye care, Dr Atul Kumar has achieved global recognition as a top-rated Vitreoretinal Surgeon. He attributes the fame he has achieved for medical excellence to his passion to serve the patients who come to him

With his teacher Prof. H.K. Chuttani, former Director GB Pant hospital and Professor, Gastroenterology MAMC

from all over the country and the world.

His current routine involves teaching post-graduates at the renowned eye institute (RP Centre runs among the largest residency programs anywhere in the world, with over 130 residents doing MD at any point of time). Besides this, Research and Thesis guidance is also an integral part of the faculty curriculum. He handles the heavy clinical load with the-state-of-the-art labs including the Retina Lab equipped with high-tech, sophisticated imaging equipment to help diagnose retinal diseases. As Dr Kumar says, name the newer equipment and we have it.

R P Centre, which he heads, has an astounding 16 operation theatres or operating rooms (ORs) where various ocular and orbital surgeries are performed round the clock. The centre also boasts of a 24x7 huge casualty manned by consultants and residents who take care of eye ailments or injuries etc any time of the day or night, and perform surgery immediately, if required. A non-profit organization under the Ministry of Health and Family Welfare, it is affordable to all segments of the society.

MEDICAL JOURNEY & MILESTONES

Dr Kumar completed his MBBS from the famed Maulana Azad Medical College in 1980 and joined as an MD resident at the RP Centre soon after. He rose by dint of his merits to become a senior resident and then became a part of the Faculty as Assistant Professor at the same Institute. In 1990 he left for doing a retinal training from the University of Maryland at Baltimore, USA. On his return he adopted many techniques to improve standards and outcomes of retinal surgery which resulted in an extremely high rate of success at the Centre.

He rose through his faculty promotions and is now a Professor in the Vitreoretinal Service at the RP Centre. As Chief of this premier wing, he has managed to streamline the academic program for both senior and junior residents involving them in research and teaching besides their clinical work. He has also helped in improving the infrastructure at the eye centre and it now matches any private centres when it comes to the interiors. The latest equipment and skilled doctors have now made RPC stand among the finest eye institutes in the world. His moment of glory recently came when the WHO acknowledged RP Centre as a collaborating centre for Prevention of Blindness in September 2016.

PUBLICATIONS:

Dr Atul Kumar has over 218 indexed

AIIMS Delhi

and non-indexed publications to his credit and about 24 book chapters which he has written for various books.

DIABETIC RETINAL BLINDNESS: DR ATUL KUMAR'S VIEWPOINT

Diabetes mellitus is an important public health problem. The WHO estimates suggest that there are 422 million people living with diabetes globally, which is about 8.5% of the world adult population. It is also estimated that over 1 million deaths annually are attributed to elevated blood sugar and about 12% of global health expenditure is spent on treatment or prevention of diabetes and its related complications.

Prevalence of diabetes is growing in pandemic proportions. Between 1980 and 2015, there has been near doubling of the prevalence of diabetes from about 4.7% to the current 8.5%. In addition, there are over 300 million people with impaired glucose tolerance, more than half of who will turn into diabetic. A disease that was once considered a "rich man's disease" is now seen almost in similar proportions in high, middle and low income countries with currently about three fourth of all the diabetics in the world residing in a low or a middle income country.

India was once called the "diabetes capital of the world", till it was overtaken by China a few years ago. Nevertheless, we have the second largest diabetic population in the world - an estimated 69 million people. This is expected to rise to about 120 million by 2040. An additional 77 million people are prediabetic which places them in imminent danger of being affected by diabetes. About 1 in every 10 persons above 20 years of age in India has diabetes and the most tragic bit of the data is that more than 50% of them are unaware of their disease and are at a very high risk of developing one of the complications of diabetes. Studies from south India indicate that one in every 5 adult living in urban areas has diabetes.

Morbidity in diabetes is primarily through one or more of its complications like nephropathy, retinopathy, heart disease, peripheral neuropathy or foot disease. Diabetic retinopathy (DR), much like how diabetes affects elsewhere, affects the microvasculature of the retina leading to capillary closure, damage to blood retinal barrier, retinal ischemia, subsequent fibro vascular proliferation and vision loss that can be profound, irreversible and bilateral.

DR is the cause of 1.9% of moderate or severe visual impairment globally and 2.6% of blindness. WHO recognises DR as one of the priority eye diseases that require urgent attention from health care professionals, health organizations and Governments. One in every 3 adults over 40 years with diabetes was found to have DR in the west. Studies suggest that prevalence of retinopathy in persons with diabetes is 35% of which 1/5th of them are in imminent danger of severe vision loss. One out of every five

AWARDS AND ACCOLADES:

- Awarded the best Teacher award by "Delhi Medical Association" in 2006.
- Fellowship of the prestigious National Academy of Medical Sciences, India, October 2006.
- For contribution to healthcare in the field of Vitreo-Retinal Diseases and Surgery, the President of India awarded him "Padma Shri" in 2007.
- UGC National Hari Om Ashram Trust Award "Interaction between Science & Society" in 2009.
- Appointed Hony. Vitreo-Retinal Consultant to the Armed Forces in 2010, was reappointed in December 2015.
- DMA Award for excellence in Ophthalmic service "Vishishth Chikitsa Rattan Award" July 2012
- Appointed Chief and Professor Ophthalmology at Dr RP Centre for Ophthalmic Sciences, AIIMS, New Delhi in Jan 2016.
- Advisor Ophthalmology to Ministry of Health and FW, Govt of India in April 2016
- Awarded BC Roy for outstanding work in the field of retinal blindness and teaching, by the President of India in July 2016.
- RP Centre has been appointed as a WHO collaborating Centre for Prevention of Blindness in September 2016, with Dr Atul Kumar as Director.

With Union Finance Minister who is at the Dr RP Centre ,AIIMS

Performing Vitreoretinal Surgery

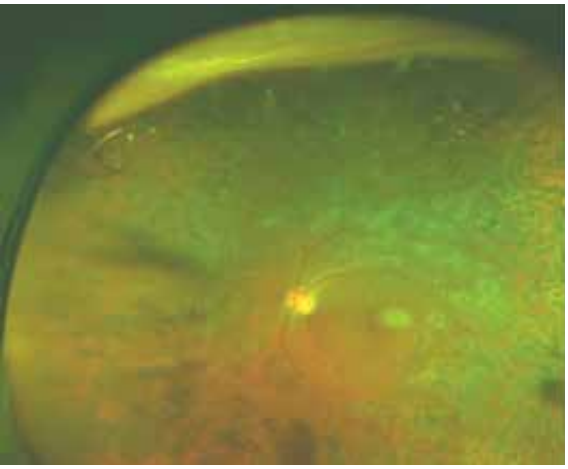
people with diabetes in India has some degree of DR and an estimated 6 million have the severe, sight threatening form called the vision threatening diabetic retinopathy.

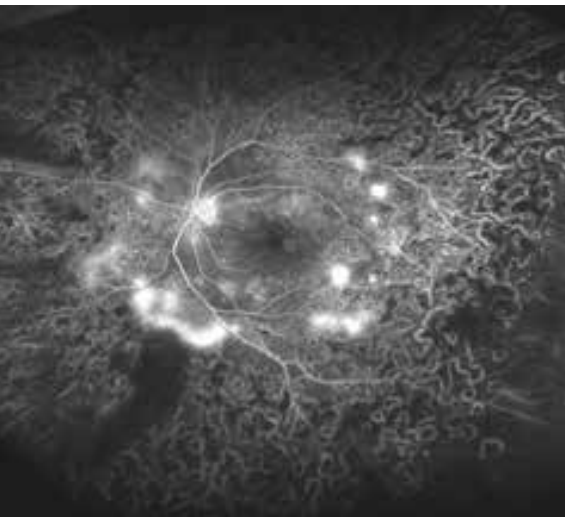
DIABETIC MACULAR EDEMA

Diabetic retinopathy progresses from an innocuous non-proliferative stage, over years and sometimes decades, to the more ominous proliferative stage that requires treatment. Diabetic maculopathy can occur during any of these stages, more frequently seen in the advanced stages and also requires treatment. The unfortunate face about this, though, is that DR is mostly asymptomatic throughout the course till a proliferative disease bleeds into the vitreous cavity or till the maculopathy appears. The fortunate side of the same fact is that it gives ample opportunity for health care professionals to screen, refer and appropriately manage cases of DR before vision threatening forms of DR develop. Diagnosis of even non-proliferative stages of DR mandates advice on strict metabolic control and frequent follow up to monitor progression and need for treatment.

Multiple large scale epidemiological studies from the west and India have shown that duration of diabetes is the single most important risk factor for the development and progression of DR. The longer a patient has diabetes, the more likely he is to have DR and the more likely he is to also have the vision threatening forms of DR. Along with the duration, other important risk factors include the glycemic control, other co-morbidities like hypertension, dyslipidemia, nephropathy, anaemia, genetic factors etc. Except for the genetic factors, all of the above risk factors are modifiable and it has been shown in multiple prospective cohort studies that control of these parameters can help in prevention and slowing progression of diabetic retinopathy.

DR primarily affects patients of working age group causing tremendous personal and social economic strains. Western data suggests that the annual cost per patient with diabetic maculopathy is approximately twice as high as those of patients with diabetes alone. Additionally, the patient will bear non-medical costs of outpatient visits, nursing care and non-medical therapies. There is limited data on the economic impact of DR in India but it is likely to be significant and growing. A more worrisome fact is that increasingly diabetes is being diagnosed at younger age group and these youngsters with





PDR with peripheral ischemia on Ultra Wide Field Imaging (OPTOS 2000)

early onset diabetes are showing almost two times increased prevalence of DR.

Treatment of diabetes mellitus is simple in earlier stages where all it requires to be done is metabolic optimization of patient, good dietary advice, change in life-style and a regular follow up. But as disease progresses, treatment becomes more protracted, more expensive and less effective. Diabetic maculopathy is the most common cause of any vision loss in patients with DR and currently intravitreal injections of anti-vascular endothelial growth factors are the first line of treatment for this condition. Although effective, this treatment is expensive, invasive, requires multiple and repeated visits and is difficult to sustain in resource limited setting. Other options available are intravitreal injections of steroids and laser photocoagulation. In contrast, gold standard in the treatment of proliferative DR remains laser photocoagulation. In advanced cases of proliferative DR and maculopathy, vitrectomy may be necessary. These treatments require special skills on the part of the ophthalmologist, advanced instrumentation and modern machinery. With growing DR prevalence, these needs are expected to strain the existing eye care systems.

PDR with peripheral ischemia on Ultra-Wide Field Imaging (OPTOS 200)

Over the last decade there has been a keen interest in the genetic make-up of the "Asian-Indian phenotype" that predisposes south Asians to diabetes. But any discussion on this should not undermine the fact that diabetes is indeed a life-style disease and that with increased sedentary and westernized life style, the prevalence of diabetes is increasing by the year.

Type-2 diabetes is a largely preventable disease. Simple measures targeting dietary habits and sedentary lifestyle have been shown to go a long way in preventing diabetes and ensuring a general cardiovascular wellbeing. In this regard, working with the civil society and a policy change at the government level for appropriate environmental changes are necessary. Organizations like the International Diabetes Foundation advocate a multitude of measures ranging from a ban on sponsorship of sporting events by manufacturers of sugar-sweetened beverages and high sugar foods to tax incentives to reduce consumption of sugar sweetened beverages and high sugar foods.

In patients with diabetes, retinopathy is preventable. Good and sustained diabetes control has been shown in multiple large studies like the DCCT, UKPDS and ACCORD to prevent and delay appearance and progression of DR. Other associated risk factors that worsen DR also need to be well controlled and our colleagues in internal medicine, endocrinology, nephrology and cardiovascular medicine play a crucial role in this. Also, since one of them is likely to be the first contact and long term care giver for patients with diabetes, it is his/her responsibility to sensitize patients for need for regular ophthalmic check-up and to provide timely referral. To provide a comprehensive care to the patient with diabetes by a team that includes an endocrinologist, nephrologist, ophthalmologist, cardiovascular physician, neurologist, podiatrist and a dietician is every doctor's duty towards his patients. If DR does occur in spite of all of these efforts, blindness is also preventable. Early detection and timely treatment of DR has shown to reduce the risk of disease progressing to blindness by over 90%.

The backbone for any preventive program for DR is the screening of patients with diabetes for DR. While use of direct ophthalmoscopy in all diabetic patients need to be encouraged among physicians and diabetologists, often these examinations do not reach sufficient sensitivity and specificity for adequate diabetic screening and referral to an ophthalmologist for a slit lamp biomicroscopy or fundus photography for the screening of DR is necessary. Recently, telemedicine in the screening has shown promise in terms of sensitivity and specificity, scale of application, documentation and ease of non-mydriatic examination.

Simultaneously, efforts need to be made towards increasing awareness among the public, nurses, health workers and even among physician colleagues about need for regular screening and the effects of late diagnosis of advanced stages of DR. In this light, it is a welcome step that DR is included under comprehensive eye care in the national program for control of blindness. With about 69 million diabetics in the country and about 11500 ophthalmologists, every ophthalmologist is required to screen at least 17 diabetic patients every day even if only an annual screening is considered necessary for all of them. Clearly, this is a target that is still far from being achieved!

Twin Terrible Threats

The dual upsurge of dengue and chikungunya in Delhi is a cause for serious concern. Double Helical takes a close look at the threats posed by these deadly ailments and the collective efforts of the government and people required to prevent them

DR SUNEELA GARG/DR CHARU KOHLI

The mosquito borne diseases are a major economic burden within endemic countries. In recent years, diseases have emerged as a serious public health problem in countries of South East Asia Region including India. Many of these, particularly dengue and chikungunya now occur in epidemic form almost in every part of India causing considerable suffering to people. Dengue outbreaks are common during post rainy season in India. Delhi presently is facing an acute outbreak of chikungunya affecting all age groups and areas. These diseases are preventable and

it is possible to save the people from suffering and economic loss.

Burden of dengue

Dengue is endemic in 112 countries of the world. Approximately 2.5 billion people, living mainly in urban areas of tropical and subtropical regions, are at risk of acquiring dengue infection. Between 250,000 and 500,000 patients develop complications each year and it results in about 20,000 deaths each year.The first recognized dengue epidemics occurred in Asia, Africa, and North America in the 1780s. A pandemic began in Southeast Asia in the 1950s, and by 1975 it became a leading cause of death among children in the region. Dengue is prevalent throughout India in most metropolitan cities and towns. In Delhi also, major epidemics of dengue have been reported in 1967, 1970, 1982, 1996 and 2003. India reports an annual 20,474 dengue cases in different parts. The total direct annual medical cost of dengue in India is about Rs. 36,467 million. Outpatient settings treated 67% of cases representing 18% of costs, whereas 33% of cases were hospitalized, comprising 82% of costs. Unnecessary hospital admissions despite of the fact that only 1-5% of dengue cases actually need admission add to this financial burden. This year more than 27800 cases have been reported in India, out of which more than 480 cases with four deaths are from Delhi. This number tends to be low due to under reporting of cases.

> Chikungunya fever is an emerging mosquito borne viral disease. It was first detected in Tanzania in 1952 and has since been found in Africa, India, and other Southeast Asian countries

Chikungunya

Chikungunya fever is an emerging mosquito borne viral disease. It was first detected in Tanzania in 1952 and has since been found in Africa, India, and other Southeast Asian countries. Since December 2005, chikungunya emerged in epidemic proportions in India and a total of 1.39 million suspected cases have been reported. The total population at risk of chikungunya infection is approximately 565.41 million in India. Till now, India has seen more than 12250 cases out of which more than 430 cases are from Delhi. The reported number of cases from Delhi are constantly increasing in past few days due to unexpected heavy rains producing a conducive

environment for mosquito breeding.

Looking at the above evidence, it can be concluded that mosquito borne diseases have serious implications on health of people. They cause significant financial burden and reduced productivity for the affected population. Therefore, reduction in cases of these diseases is important to improve health status of people.

Few facts about aedes mosquito (Tiger mosquito)

- Mosquitoes are found all over the world, except Antarctica. Dengue and chikungunya are caused by aedes mosquito.
- Aedes mosquito is also called tiger mosquito due to presence of black and white stripes on its legs.
- Female mosquitoes bite humans and use the nutrients in blood to produce their eggs. When they consume blood from an individual with circulating virus, the mosquitoes in turn become infected. Through biting many humans during their lifetime, female Aedes aegypti spread diseases.
- They can bite at any time but they prefer to bite during day time. Two hours after sunrise and several hours before sunset are favorite times.
- They have adapted to complete their life cycle in diverse aquatic habitats or water found in containers, old tyres or tree holes.
- Unhatched eggs of aedes can withstand weeks to months of desiccation, remaining viable until the right conditions for hatching occur. Therefore it is important to clean desert coolers using scrub so that eggs are not left sticking to the edges.
- Breeding sites of aedes mosquito are – clean water which can be stored water for drinking, washing and bathing (uncovered overhead water tanks) in household and also rainwater collected in unused materials like coconut shells, mud pots, plastic cups, uncovered overhead tanks, tyres etc.

Clinical symptoms

Dengue and chikungunya infection can cause a spectrum of illness ranging from mild fever to high grade fever with severe headache, joint pain, muscle pain, and rash. Chikungunya is characterised by severe joint pains. Severe form of dengue called Dengue Haemorrhagic fever (DHF) can cause death. Dengue attacks selectively platelet cells of body which are responsible for clotting of blood. If platelets counts starts decreasing in dengue, it can cause bleeding from nose, in stools, within joints etc. Tests for dengue are NS-1 antigen which is positive within the first five days. Afterwards, antibody testing is done. If a person is tested positive for dengue, only paracetamol tablet is given for fever. Platelet counts are monitored. Patient should take rest and take plenty of fluids.

Danger signs of dengue - Warning signs occur 3–7 days after the first symptoms with a decrease in body temperature (below 38°C/100°F) and include: severe abdominal pain, persistent vomiting, rapid breathing, bleeding gums, fatigue, restlessness and blood in vomit. This is the time when patient should report to doctor immediately. The next 24–48 hours of the critical stage can be lethal; proper medical care is needed to avoid complications and risk of death. Sometimes panic is created due to misinformation about dengue among people. Such rumours should not be

relied and there authenticity should be verified carefully.

Dengue shock syndrome-It develops around the third to seventh day of illness. Its symptoms are cold and blotchy skin, redness, rapid pulse and rapid fall in blood pressure and restlessness.

Prevention and Control

As there is no specific treatment for dengue and chikungunya, general public health measures have to be instituted for the prevention and control of mosquito borne diseases. Prevention constitutes taking steps to avoid mosquito bites and eliminating mosquito breeding sites. The use of personal protective measures like mats, bed-nets, screening, repellents, liquid vaporizers, mosquito coils etc. has been advocated as an effective tool in control of mosquito borne diseases.

- **Environmental modification:** Removal of natural breeding sites of mosquitoes. No garbage in which water can be collected and breeding can occur like unused tyres, coconut shells, cups, plastic bottles should be allowed in any household. This mosquito resides in cool dark corners of the house like behind curtains and almirah, under the sofa set and in kitchen in dark corners. Therefore, it is important to spray insecticide in these areas to kill the hidden mosquitoes.
- **Biological Control** - fishes which eat mosquito larva like Gambusiaaffinis and Poeciliareticulata can be put in ornamental ponds.
- **Chemical Control** - Temephos granules are used to kill larva in desert coolers or overhead tanks
- **Insecticide sprays** - Pyrethrum extract spray is also used in residential colonies
- **Personal Protection**- Long sleeves protective clothing should be worn by everybody. Mats, coils and vaporizers and other mosquito repellents should be used in house as well in workplace.Insecticide-treated mosquito nets and curtains are also good method especially for children.

Response of Government of India

Government of India has taken many efforts in control and prevention of mosquito borne diseases. The National Vector Borne Disease Control Program (NVBDCP) provides technical and operational guidelines to the state governments besides sharing costs for the control of chikungunya and dengue control in India. Early detection of cases and complete treatment, control of mosquito breeding and generating awareness among people to motivate them to take precautions are the key components of NVBDCP.

Conclusion

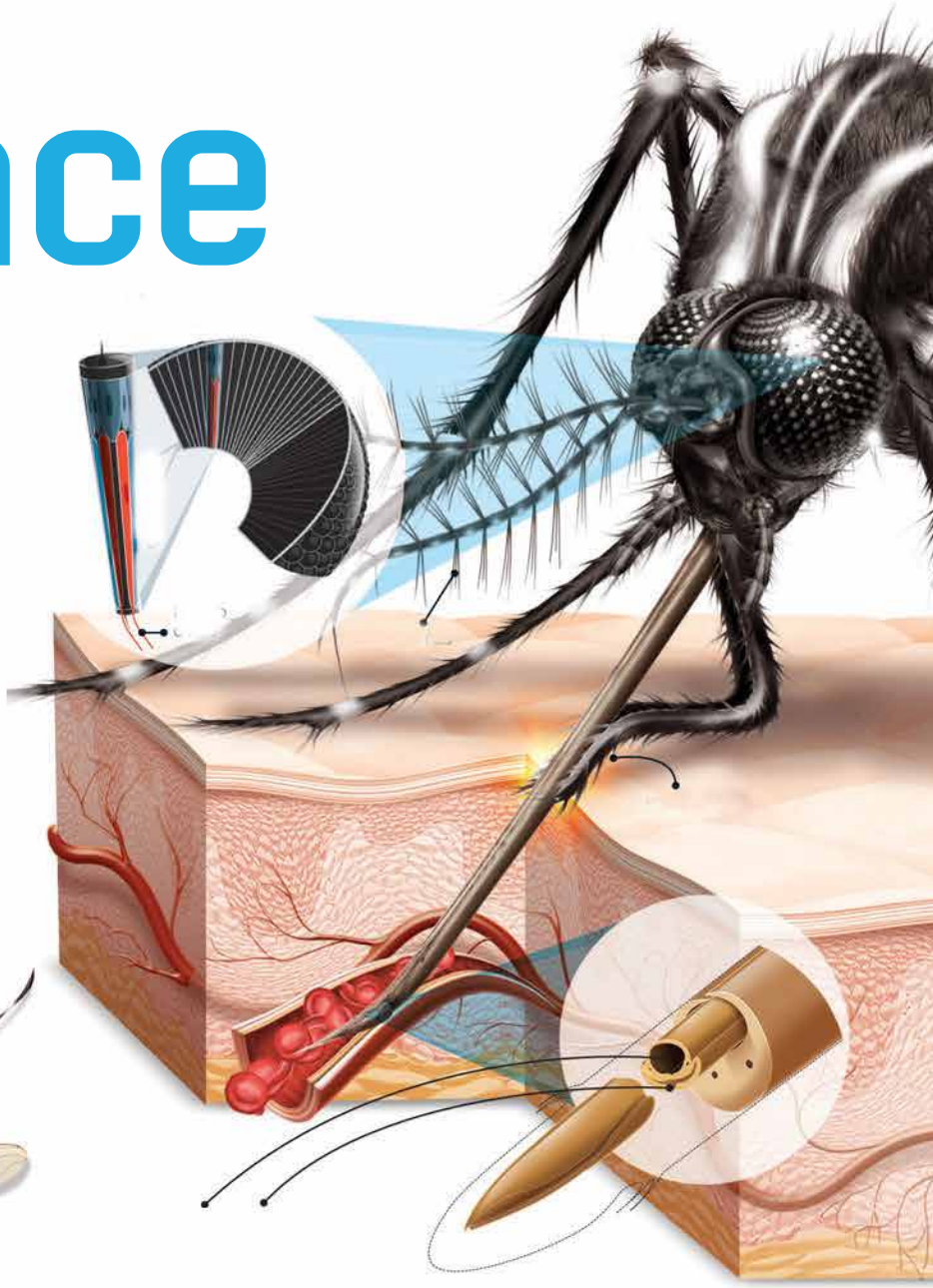
Dengue and Chikungunya are viral illnesses transmitted by aedes mosquito. In most of the cases, these diseases are self limiting. There is no cure and therefore prevention is best approach for their control. Immediate steps should be taken to prevent mosquito breeding and use of personal protective measures should be promoted. Collective efforts are essential for prevention and control of dengue and chikungunya. Example can be taken from our neighbouring country Sri Lanka which successfully eliminated malaria which is also a mosquito borne disease.

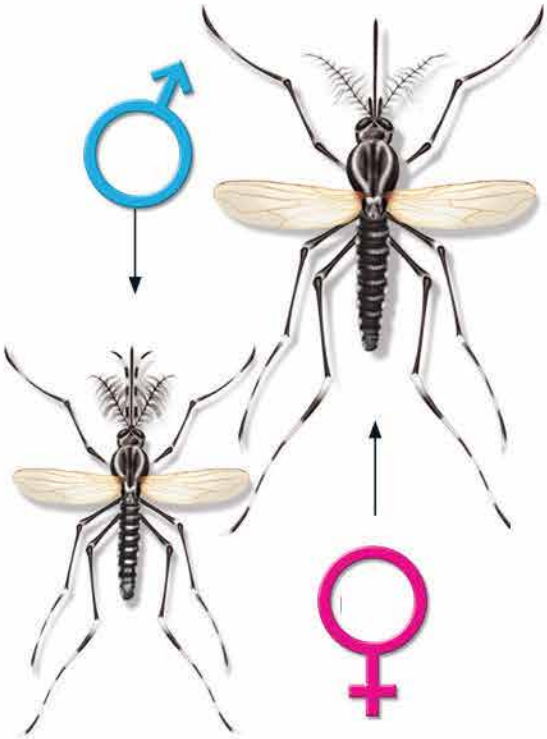
(The author are from Department of Community Medicine, Molana Azad Medical Collage, New Delhi)

Growing Menace

Chikungunya, a crippling mosquito-borne disease, is spreading fast in Delhi and several other parts of India with patients swamping the hospitals. The prevention of chikungunya involves individual and collective efforts to improve vector control

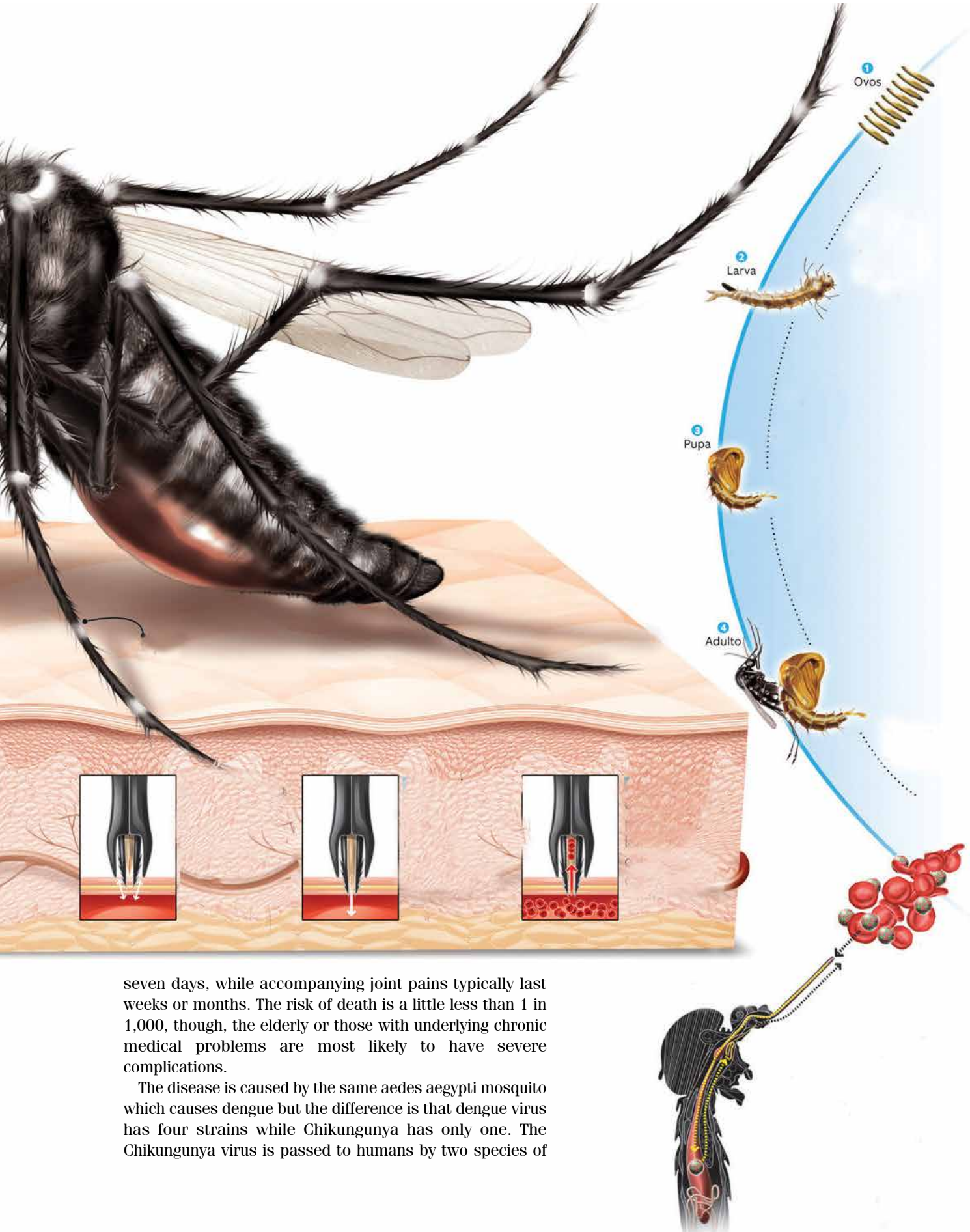
BY AMRESH K TIWARY





Chikungunya is a viral illness and its symptoms are similar to those of dengue, which include high-grade fever, severe joint pain, muscle pain and headache and joint swelling. It also causes rashes in patients but is not a threat like dengue in which there is a risk of bleeding due to abrupt fall in platelets count.

Symptoms of chikungunya include the sudden onset of fever after exposure. The fever usually lasts two to



seven days, while accompanying joint pains typically last weeks or months. The risk of death is a little less than 1 in 1,000, though, the elderly or those with underlying chronic medical problems are most likely to have severe complications.

The disease is caused by the same aedes aegypti mosquito which causes dengue but the difference is that dengue virus has four strains while Chikungunya has only one. The Chikungunya virus is passed to humans by two species of

mosquito of the genus aedes. The virus circulates within a number of animals including monkeys, birds, cattle, and rodents. Since 2004, the disease has occurred in outbreaks in Asia, Europe and the Americas.

Efforts made by WHO

The World Health Organization (WHO) is taking measures to assist in fighting the epidemic. In April 2005, outbreak of chikungunya fever occurred on the island of Réunion in the Indian Ocean. During winter 2005, six patients developed meningoencephalitis and acute hepatitis due to chikungunya virus.

A hospital-based surveillance system was established to collect data on typical chikungunya cases. Case reports, medical records and laboratory results were reviewed and analysed. Clinical features that had never been associated with chikungunya fever were recorded, such as bullous dermatosis, pneumonia, and diabetes mellitus. Hypertension, underlying respiratory or cardiological conditions were independent risk factors for disease's severity. The overall mortality rate was 10·6% and it increased with age. This is the first time that severe cases and deaths due to chikungunya fever have been documented.

> The challenge for diagnosis is that there are other syndromes, including dengue fever, with similar symptoms. It is particularly important to make a timely diagnosis of chikungunya versus dengue fever, since dengue is a more severe infection with a higher mortality rate

Since the beginning of 2006, the disease has shown an explosive emergence in nations in the Indian Ocean area. By March 7, 2006, 157,000 people had been infected in the French island La Réunion, and the disease had spread to the islands of Seychelles, Mauritius, and Mayotte (French). Subsequently, the disease appeared in India, China, and European countries.

Panic in India

According to National Vector Borne Disease Control Programme (NVBDCP), in 2006 over 13 lakh suspected Chikungunya fever cases were reported across the country. This year till July 28, 9,990 suspected cases of the disease have been recorded, with Karnataka reporting 7,591 cases.

Chikungunya cases have spiked in Delhi and several other parts of North India. The city hospitals are getting

more and more patients with its symptoms. According to a municipal report, "Chikungunya cases in capital city Delhi have shot up to 600 even as hospitals in the city continue to be swamped by patients affected by this vector-borne disease." The disease is refusing to let go of its grip on Delhi with patients swamping the hospitals including AIIMS which itself has tested nearly 890 blood test samples positive for the vector-borne disease in the last two months.

Maintaining that Chikungunya cases are spreading fast in Delhi, **IMA President-Elect Dr K K Aggarwal**, said, "Chikungunya virus (CHIKV) can cause CHIKV-associated encephalitis. Children younger than 1 year and adults aged 65 years or older have the highest incidence of CHIKV-associated encephalitis."

The worst, it seems, is still waiting in the wings, as the chikungunya cases are likely to rise further in the national capital as the season peaks in September.

Causes and symptoms

Chikungunya fever is a viral infection transmitted to humans by the bite of infected mosquitoes. It is transmitted by mosquito bite and usually has an incubation period of between four and eight days, though onset of illness can occur from two to 12 days.

> "Chikungunya virus (CHIKV) can cause CHIKV-associated encephalitis. Children younger than 1 year and adults aged 65 years or older have the highest incidence of CHIKV-associated encephalitis."
> **Dr K K Aggarwal,** President-Elect, IMA

Most people infected have symptoms which consist of a high fever, very painful joints – the unique characteristic of Chikungunya - and sometimes muscle pain and a rash. There may also be less specific symptoms, such as headaches, malaise and fatigue. Patients can be quite sick and even disabled for a period of about a week or so, and some can continue to have fatigue and joint pains for up to a month.

In addition, a proportion of patients go on to develop either recurring or chronic joint symptoms after the acute phase, and it can be disabling in some people for years. Most people who develop chronic arthralgia or arthritis usually have some underlying joint disorder, so they may be at higher risk.

Typical Chikungunya virus (CHIKV) infection results in an acute febrile illness characterized by severe joint pain and rash. Although Chikungunya is generally not considered life threatening, atypical clinical

Origin and Spread

The chikungunya virus is an arbovirus (a virus transmitted by arthropods) that is spread by the female mosquitoes of the aedes genus, primarily from the two species aedes aegypti and aedes albopictus. These two mosquitoes can also transmit other arboviruses including dengue and yellow fever.

In the Makonde language, Chikungunya means "walking bent over", an allusion to the stooped posture of chikungunya patients crippled by painful joints. After an incubation period of 2 to 10 days, the chikungunya virus causes severe, often debilitating joint pain in infected patients, mainly in small joints such as the wrists, fingers, ankles, and feet, but sometimes in the knees and occasionally in the hips or shoulders. Those affected also frequently suffer from headaches, fever, severe muscle pain, a rash on the torso and limbs, swelling in one or more cervical lymph nodes, and conjunctivitis. Bleeding gums and nosebleeds have often been described in connection with the disease, mainly in Asia.

The clinical symptoms of Chikungunya usually disappear relatively quickly – patients

manifestations resulting in significant morbidity have been documented, categorized as neurological, cardiovascular, skin, ocular, renal and other manifestations.

While Chikungunya can cause painful symptoms, it is not commonly associated with a high fatality rate. It can, however, cause death in a subset of patients who are primarily older and who have other medical issues.

In rare cases, it can cause cardiovascular complications, such as pericarditis or myocarditis. It's an alpha virus, so it's closely related to other viruses that can cause neurologic complications, and it has been associated with meningoencephalitis, seizures, peripheral nerve problems, and Guillain-Barré syndrome, a devastating neurologic problem. It can also cause renal failure, pneumonia, and hepatitis.

Most of the evidence suggests that pregnant women are not seriously affected by the disease, but if they develop infection within a week of delivery, it can be very serious for the baby. If the mother has acute Chikungunya infection and delivers a few days later, the infant can be infected. This can lead to very significant complications such as respiratory problems or profound neurologic problems, and potentially to long-term neurologic disabilities.

The Diagnosis

Within the first week of infection, the best way to diagnose the infection is to detect the chikungunya virus by a real time polymerase chain reaction (PCR) test, which detects RNA in the blood stream. Virus antibodies normally develop after the first week of illness, so after a week an antibody test should be ordered to detect Chikungunya's antibodies.

Understanding the kinetics of the viremia and antibody development is very important to enable the appropriate ordering and interpretation of tests: a negative PCR test performed after a week does not rule out chikungunya, nor does an antibody test performed within the first week. To definitively diagnose chikungunya, the experts recommends that convalescent-phase samples should be obtained from patients whose acute-phase samples test negative.

The challenge for diagnosis is that there are other syndromes, including dengue fever, with similar symptoms. It is particularly important to make a timely diagnosis of chikungunya versus

tend to recover from the fever and rashes associated with the disease within a few days, but joint problems can persist for several weeks. Infection by the chikungunya virus does not seem to have been the direct cause of the small number of fatalities recorded during epidemics.

Joint pain can persist in subacute or chronic form for several months or even years, particularly in older patients. In a retrospective South African study, 10% of patients were still affected 3 to 5 years after acute infection by the chikungunya virus. The first epidemic caused by the chikungunya virus was recorded in Tanzania in 1952.

There is a real possibility that the Chikungunya virus might spread in the warmer regions of Europe, where the aedes albopictus mosquito vector has become widespread. In September 2007, an epidemic outbreak occurred in the Ravenna region of Italy, affecting some three hundred people. It is believed to have been introduced by a traveler returning from India.

Since it was first described in Tanzania, the Chikungunya virus has regularly caused small-scale cyclical epidemic outbreaks in rural areas, mainly in southern and eastern Africa, from Uganda to South Africa, and in Central Africa. The most recent major epidemic on the African continent was in 2007 in Gabon, with 5,000 suspected cases. The Chikungunya virus is occasionally seen in West Africa, particularly Senegal. It is considered as endemic in rural areas of Africa, where it is likely responsible for several undiagnosed cases.

Epidemic outbreaks have also been observed in India, Sri Lanka, South-East Asia (Thailand, Myanmar, Vietnam, Laos, Cambodia, Indonesia, and more recently Malaysia), and the Philippines. Some isolated cases were reported in Singapore in 2009. A major epidemic struck India in January 2006 and has continued to spread, with some two million suspected cases reported to date. The higher frequency of epidemics in Asia can be explained by the prevalence of mosquito vectors that are more anthropophilic (preferring humans) in these areas.

dengue fever, since dengue is a more severe infection with a higher mortality rate. It's important to try to make that diagnosis early, because outcomes for dengue patients are better if the diagnosis is made earlier and they are supported with fluids and ICU care.

While deciding that for which virus the patients should be tested, depends on the patient's exposure history. If a patient has been to the Caribbean, the doctors consider testing for both chikungunya and dengue fever.

The Treatment

There is no treatment for chikungunya and so patient care consists of supportive care and symptomatic management, including the provision of fluids and acetaminophen. If dengue fever has not been ruled out, aspirin, ibuprofen or any medication that can cause bleeding should be avoided, as dengue is associated with hemorrhagic complications.

Chikungunya is not transmitted human to human but to limit the threat of transmission, it is important that those recently infected should avoid exposure to mosquitoes.

For those visiting or living in areas where there are outbreaks, the key is protection. The WHO recommends wearing clothing, which minimizes skin exposure to day-biting mosquitoes and applying repellents to exposed skin or to clothing.

For those who sleep during the daytime, particularly young children, or sick or older people, insecticide treated mosquito nets provide the required protection. Mosquito coils or other insecticide vaporizers may also reduce indoor biting.

Medical treatment for Chikungunya is purely symptomatic and is based on painkillers and anti-inflammatory drugs. But these treatments are unable to prevent chronic progression of the disease. Corticosteroid treatment may be necessary for patients who develop subacute or chronic symptoms. The prevention of Chikungunya involves individual and collective efforts to improve vector control. Individuals can limit their exposure to the mosquito vector by wearing long clothes, applying insect repellant and treating clothes with insecticides, and using mosquito nets. Larger-scale vector control involves pre-emptive spraying with insecticides and removing potential breeding grounds, particularly around living areas (flower pots and other containers, used tires, bulky waste, etc.).

Alarming Situation

Dengue and chikungunya have the alarm bells ringing as their cases rise manifold in the country. **BY AMRESH KUMAR TIWARY**

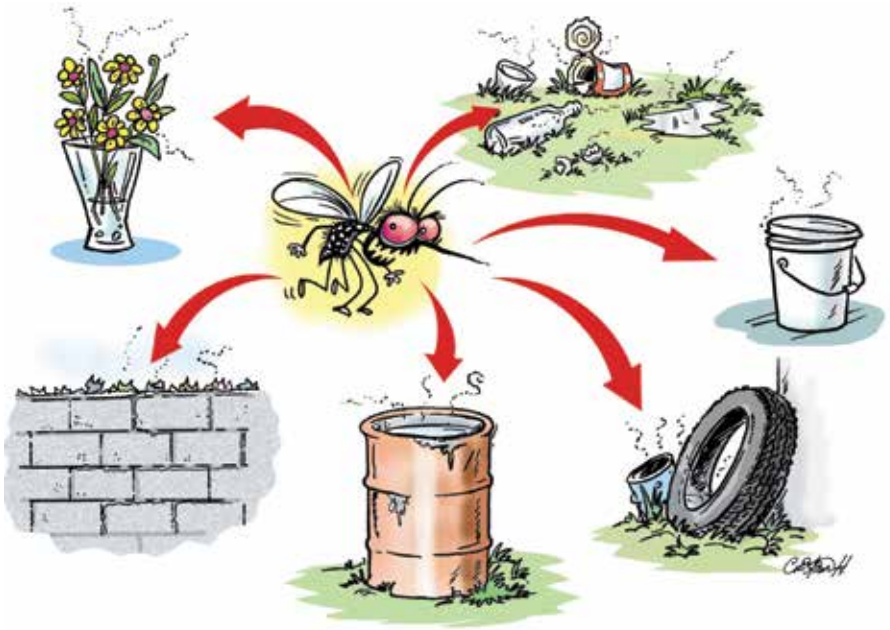
Spiraling cases of dengue and chikungunya diseases have sent alarm bells ringing in the country. Delhi-NCR is not the only area where dengue has been rampant this year. Bengal, Odisha, Kerala, UP and Telangana are among the states also under the grip of the disease.

Bengal has been hit the hardest with 24 deaths and 5,600 cases reported so far. Stagnant water, particularly at construction sites, is among the main reasons why a dengue outbreak has stung the state, the same reason why UP has seen a three-fold jump in the number of patients this year. More than 2100 cases have been reported in the biggest state against just 731 in the corresponding period last year.

Nine people have died in Odisha and more than 5,100 cases reported. Hyderabad is among the worst affected cities in south India with deaths in double digits reported till the time of going to the press against just two in 2015. In Kerala, more than 5,200 cases have come to light, and nine people have died. The death toll in Rajasthan is already six against seven last year. Alarmingly, the "dengue season" is far from over.

The capital city Delhi reported more than 10 deaths due to chikungunya, even as the city's hospitals continue to be overwhelmed by the influx of patients.

According to the municipal corporations of Delhi, more than 1,150 dengue and 1,050 chikungunya cases were recorded. South Delhi continues to be the worst-hit, with more than 250 dengue and 200 chikungunya cases reported, followed by North Delhi and East Delhi. The North Delhi Municipal Corporation has recorded 100-plus dengue and 140-plus Chikungunya cases, while the East Delhi Municipal Corporation has seen 70-plus dengue and 50-plus chikungunya cases.



The maximum ongoing Metro construction work is in South Delhi. That leads to water collecting near the sites, where mosquitoes breed.

In the slums of Delhi, residents term it as the Langra Bukhar as many are grounded by the pain and swelling in legs. People are unable to work for days and this is affecting livelihoods. The biggest problem is the lack of medical facilities for the poor in the area. On an average, there are two cases of fever in every second house.

In this crisis, people have received little support by way of guidance and awareness building or any relief in the form of special camps for testing from the state government or Municipal Corporation. Some fogging here and there is all that has happened.

A large tract of land on the periphery of the slum has been earmarked for a hospital and dispensary. A new blue board propped on the boundary wall of the land earmarked for the hospital mocks residents as it declares that a Delhi government 100-bedded hospital would be coming up here. Residents point out that this hospital has been in the works for many many years.

According to an NGO's report, in South East Delhi, 70% to 80% of the houses had cases of fever. They have a municipal dispensary close by but few find it to be of any use.

A 2014 study concluded that India's burden of dengue was the world's heaviest. It said that for every officially SOCIAL reported dengue case at the national level, 282 went unreported. That is a telling figure. The study was jointly conducted by researchers from

Coping with dual challenges

In a malaria-endemic country where the figures for that disease are far higher than those of dengue, Chikungunya and a couple of other mosquito-borne diseases put together, it is these two diseases that get the most attention every year during the monsoon. This year has seen 4.71 lakh malaria cases so far, with 119 deaths. With reference to Chikungunya, doctors in Delhi do not rule out the possibility that more cases are being reported because of availability of better diagnostic tests based on polymerase chain reaction to identify the nature of the organism.

The ministry has also been working to dispel some apprehensions. According to them, Chikungunya situation may be at the peak of a seven-to-eight-year cycle but the disease in general causes far less casualties than dengue, so there is no reason to panic. In

a review meeting Union Health Minister J P Nadda asked agencies and departments to be prepared to handle the rush and also urged them to take up publicity campaigns to dispel panic so that people do not rush to hospital at the first sign of fever, creating extra pressure on hospitals.

Explaining the reasons for the spurt, health ministry official, claim, "The character of both diseases is that they are cyclical. Every third or fourth year dengue shows a spike as the immunity of the population as a whole wanes, the disease comes back with a vengeance. Chikungunya too comes in a cycle every six years or so as the population's immunity goes down. This year the rains have also caused higher breeding of mosquitoes. It is inevitable if breeding is not checked, especially in construction sites etc." Hospitals, incidentally, have been some of the biggest offenders on that count, forcing the government to issue a warning and a deadline to control breeding. Dengue comes with the addendum that some forms of the virus are deadlier than others. This year, experts at AIIMS have found the type III strain, supposed to be less virulent, in Delhi. In Bengal, type II has been detected; this is considered deadlier than the rest.

Brandeis University in the US, Madurai's Centre for Research in Medical Entomology, Delhi's National Institute of Health and Family Welfare and the INCLEN Trust International.

According to **Vinay Aggarwal, Ex-President, Indian Medical Association and Founder Chairman of Max Superspeciality Hospital**, Vaishali, unbridled urbanization; migration of workers; a large population; poor awareness about sanitation, low health budget; and inequitable distribution of health infrastructure are some of the reasons why India repeatedly fails to control vector-borne diseases. With diversion of global funds from vector borne diseases to non-communicable diseases, the problem is

expected to exacerbate.

Given the yearly furore over dengue creates in Delhi, doctors say it is a wonder how chikungunya, which has the same vectors, has remained largely a disease of the south — Karnataka accounts for over a third of all cases since 2010, and over two-third this year. Both diseases are spread by the aedes aegypti mosquito, which is also associated with yellow fever and zika. Identified by white stripes on its legs, it is a day hunter as opposed to the malaria vector, Anopheles mosquito, which mostly bites at night.

Says **Dr N P Singh, Medicine Department, Max Superspeciality Hospital Vaishali**, "We do not rule out the possibility of the disease having arrived in Delhi with people from outside the city. The Chikungunya cases have taken us by surprise. But, this year we are seeing patients stabilize much faster. The body ache that was known to persist for months comes to a tolerable level within 3-4 days. Also, it is actually a safer disease to have than dengue, unless there are co-morbidities."

Spreading Tentacles

HIV/AIDs today is prevalent in almost all parts of the country. In the recent years, it has spread from urban to rural areas and from individuals practising risk behaviour to the general population. **Double Helical** does a reality check…

In India, the Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) epidemic is now 15 years old. Within this period, the dreaded disease has grown into one of the most serious public health problems in the country.

HIV is a retrovirus that attacks and destroys a vital component of the human immune system. The initial cases of HIV/AIDS were reported among commercial sex workers in Mumbai and Chennai and injecting drug users in the north-eastern state of Manipur.

The infection has since then spread rapidly in the areas adjoining these epicenters. It was by the year 1996, Maharashtra, Tamil Nadu and Manipur together accounted for 77 per cent of the total AIDS cases with Maharashtra reporting almost half the number of cases in the country.

Even though the officially reported cases of HIV infections and full-blown

AIDS cases are in thousands only, there is a wide gap between the reported and estimated figures because of the absence of epidemiological data in major parts of the country.

The latest estimate for the HIV/AIDS infected adult population in the country is 3.8 million in 2000. The overall prevalence in the country is still, however, very low, a rate much lower than many other countries in the Asia region.

The available surveillance data clearly indicates that HIV is prevalent in almost all parts of the country. In the recent years, it has spread from urban to rural areas and from individuals practising risk behaviour to the general population.

More women patients

Studies indicate that more and more women attending ante-natal clinics are testing HIV-positive thereby increasing the risk of perinatal transmission.

About 85 per cent of the infections occur from the sexual route (both heterosexual and homosexual), about 4 per cent through blood transfusion and another 8% through injecting drug use. About 89% of the reported cases are occurring in sexually active and economically productive age group of 18-49 years and one in every 4 cases reported is a woman.

The attributable factors for such rapid spread of the epidemic across the country today are labour migration and mobility in search of employment from economically backward to more advanced regions, low literacy levels leading to low awareness among the potential high risk groups, gender disparity, sexually transmitted infections and reproductive tract infections both among men and women.

Misery of the patients

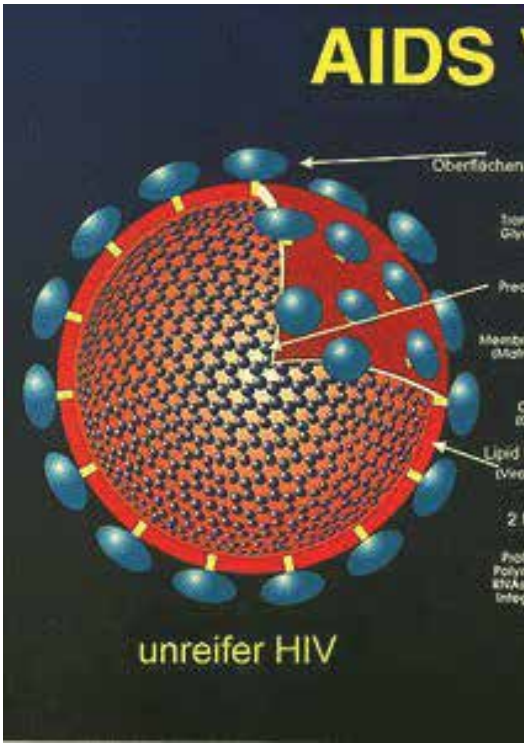
The social stigma attached to sexually transmitted infections is devastating. Discrimination against people living with HIV/AIDS denies them access to treatment, services and support and hinders effective responses. It creates a climate in which decisive action from the government may be side stepped. There have been cases of refusal of treatment and other services to AIDS patients in hospitals and nursing homes both in government and private sectors.

The social stigma attached to sexually transmitted infections is devastating. Discrimination against people living with HIV/AIDS denies them access to treatment, services and support and hinders effective responses

This has compounded the misery of the AIDS patients. More often it is mistaken to be a contagious disease and patients are isolated in the wards creating a scare among the general patients. In the workplace there are cases of discrimination leading, on some occasions, to loss of employment.

The active part played by some non-governmental organisations in bringing out public interest litigations against such cases of discrimination and the judicial pronouncements by courts in support of the rights of such people has partly helped in alleviating the misery of the affected persons.

People living with HIV/AIDS have provided the best response to the stigma and the denial that shroud the epidemic. They bring faces and voices



to the realities.

However, only clear and candid information about how HIV is and is not transmitted will alleviate unnecessary fear and discrimination. Efforts need to be made to train all medical and para medical health care workers to create a congenial environment where HIV/AIDS patients are admitted and treated without any fear and scare.

No adequate treatment

The treatment options are still in the initial trial stage and are prohibitively expensive. While there is no vaccine in sight, multi-drug anti-retroviral therapy, popularly known as 'cocktail therapy', is not a cure to the disease and may help only in prolonging the life of the patient.

Standardisation of treatment regimens for these drugs is still evolving and there are fears of patients developing drug resistance and side effects if the therapy is not administered under proper medical supervision.

Also, there are instances of quacks taking advantage of the situation and promising cures and defrauding unsuspecting people who are infected with the virus of large sums of money. Transmission of the disease through blood, though limited to 4% of the cases down from 8% in 1992, is also a serious issue as unsuspecting population can get infected through this route if safe blood is not ensured.

Complex situation

Existence of a large number of small and medium blood banks, many of them in the private sector has also compounded the problem.

Up to some extent, the Supreme Court directive of May, 1996 has helped in phasing out unlicensed blood banks by May, 1997 and professional blood donors by December, 1997. Mandatory testing of blood for HIV along with syphilis, malaria Hepatitis B and C has helped in checking transmission of HIV virus through blood transfusion.

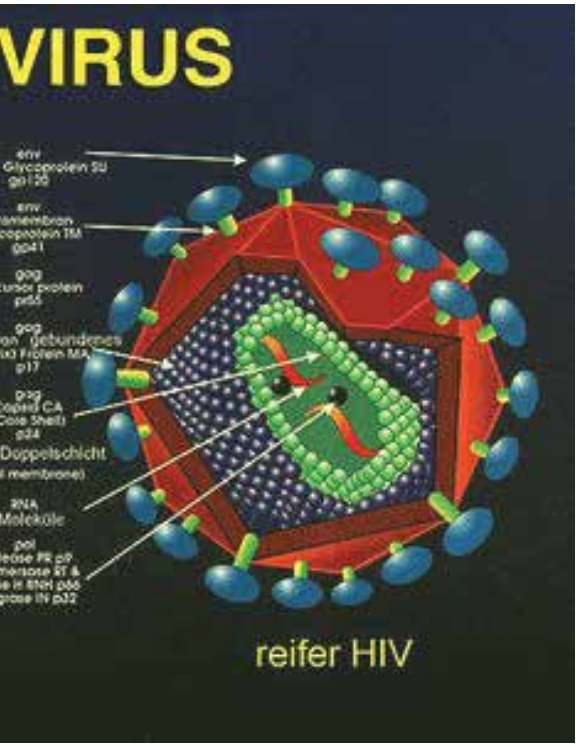
Transmission among injecting drug users is also one of the major causes for the spread of HIV/AIDS in the country. Even though the cases are more prevalent in the north-eastern states, incidence of HIV through injecting drug use is evident from many parts of the country, especially in the urban areas.

Harm reduction programmes which involve exchange of syringes and needles, coupled with peer education, community outreach, access to health services and a range of treatment modalities from abstinence to oral drug substitution have been adopted by other countries to effectively reduce transmission of HIV through injecting drug use. In India the harm-reduction approach is yet to find wider acceptability because of ethical and moral considerations.

Although transmission of HIV through use of needles, razors and other cutting instruments in beauty parlors, hair-cutting saloons and dental clinics is insignificant, lack of hygienic practices in majority of these establishments also poses a health risk to the unsuspecting general population who visit these places every day.

Tuberculosis new challenge

Standardisation of AIDS treatment regimens is still evolving with continuing fears of patients developing drug resistance and its various side



effects. Moreover, the treatment of TB among the HIV-infected persons has emerged as a new challenge. Some of the drugs which are recommended for TB treatment pose complications in cases of HIV-infected persons.

Treatment of TB among the HIV-infected persons is a new challenge to the National TB Control Programme which has now adopted Directly Observed Treatment Short-course (DOTS) strategy for control of TB infection. Looking for HIV among TB infected persons will also cause the problem of scaring away a large number of TB infected cases in the country from seeking treatment under the DOTS strategy.

There is an urgent need to bring all the establishments connected with AIDS to maintain acceptable standards of hygiene to take measures to minimise and almost eliminate the chances of HIV transmission through the use of needles and sharp cutting instruments. With a high prevalence of TB infection in India the problem of HIV/TB co-infection also poses a major challenge. Nearly 60% of the AIDS cases are reported to be opportunistic TB infection cases.

There is no risk of any TB patient getting infected with HIV unless he or she practises high risk behaviour or gets infected from transfusion of HIV-infected blood. HIV/AIDS is not a disease which spreads randomly and is transmitted as a consequence of a specific behavioural pattern and has strong socio-economic implications.

> Transmission among injecting drug users is also one of the major causes for the spread of HIV/AIDS in the country. Even though the cases are more prevalent in the north-eastern states, incidence of HIV through injecting drug use is evident from many parts of the country, especially in the urban areas.

It doesn't only costs huge sums of money in terms of controlling the opportunistic infections such as TB, pneumonia and cryptococcal meningitis, but seriously affects individuals in their prime productive years causing serious economic loss to them and their families.

Way forward

As a part of community medicine strategies, the national AIDS control policy principally aims at the following strategy for prevention and control of the disease like prevention of further spread of the disease by making the people aware of its implications and provide them with the necessary tools for protecting themselves.

Controlling STDs among vulnerable sections together with promotion of condom use as a preventive measure, ensuring availability of safe blood and blood products and reinforcing the traditional Indian moral values among youth and other impressionable groups of population are among the required measures through which we can tame the growing menace of AIDS.

Leprosy Eradication Programme

In an aim to eradicate leprosy from the country, JP Nadda, Union Minister of Health and Family Welfare, reviewed the National Leprosy Eradication Programme and pursuant to that, his ministry has launched the biggest Leprosy Case Detection Campaign (LCDC) in the country recently across 149 districts of 19 states/UTs.

This fortnight-long campaign will cover 1656 blocks/urban areas of these districts and screen a total of 32 crore people for leprosy. For this purpose, 297604 teams comprising one lady ASHA worker and one male volunteer each would visit every house in their allotted area and screen all the family members for leprosy.

The states and UTs covered in this campaign are Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Maharashtra, Nagaland, Odisha, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal, Chandigarh, Dadra & Nagar Haveli, Delhi and Lakshadweep. The districts having a prevalence rate of more than one case per 10,000 population in any of the last three years have been included in this campaign.

The Leprosy Case Detection Campaign is a unique initiative of its kind in the world where each and every member of the targeted population will be examined by the search team constituted of one male and one female volunteer at household level. House to house visits will be done by the search team as per the micro plan prepared for the local area to detect hidden and undetected leprosy cases. The objective of the campaign is the early detection of leprosy in affected persons so that they can be saved from physical disability and deformity by providing them timely treatment and thus also halting the transmission of disease at the community level.

The first LCDC was launched during March-April 2016 in 50 districts of 7 states namely Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Uttar Pradesh wherein a population of about 6.8 crores was covered. During this campaign 65427 suspected cases were identified out of which 4120 were later confirmed.

Yoga for holistic health

Yoga is a physical, mental, and spiritual practice or discipline which originated in India. There is a broad variety of schools, practices, and goals in Hinduism, Buddhism and Jainism. Among the most well-known types of yoga are *Hatha yoga* and *Ràja yoga*.

Many studies have tried to determine the effectiveness of Yoga as a complementary intervention for cancer, schizophrenia, asthma, and heart disease. The results of these studies have been mixed, with cancer studies suggesting none to unclear effectiveness, and others suggesting yoga may reduce risk factors and aid in a patient's psychological healing process.

On 11 December 2014, The 193-member United Nations General Assembly approved by consensus, a resolution establishing 21 June as 'International Day of Yoga'. The declaration of this day came after the call for the adoption of 21 June as International Day of Yoga by Indian Prime Minister Narendra Modi during his address to UN General Assembly on 27 September 2014.

The first international day of Yoga was observed world over on 21 June 2015. About 35000 people, including Indian Prime Minister Narendra Modi and a large number of dignitaries, performed 21 Yoga asanas (yoga postures) for 35 minutes at Rajpath in New Delhi. The day devoted to Yoga was observed by millions across the world. The event at Rajpath established two Guinness records – largest Yoga Class with 35985 people and the record for the most nationalities participating in it - eighty four.

The origins of yoga have been speculated to date back to pre-Vedic Indian traditions, is mentioned in the Rigveda.

J P Nadda promotes yoga at international conference

In sync with the vision of Prime Minister of India, Narendra Modi, Union Minister of Health & Family Welfare, J P Nadda led the yoga session at the 69th session of the WHO Regional Committee of South-East Asia Region at Colombo, recently.

J P Nadda said that the Prime Minister gave a call at the United Nations General Assembly to recognize Yoga as a provider of holistic approach to health and well-being. We are happy to note that the UN General Assembly adopted a resolution, with co-sponsorship from 177 countries, to observe 21st June as the International day of Yoga, the Union Health Minister stated at Colombo. Nadda was accompanied by Health Ministers of several nations in the Yoga session and more than a hundred participants.

Nadda said that Yoga, the "ancient Vedic gift to the world", has the ability to bring together the body, soul and mind for a holistic approach to health and wellbeing, including the physical, mental and spiritual realms of the human being. "Yoga is not just a set of exercises. Rather, Yoga is a philosophy of discipline and meditation that transforms the spirit and makes the individual a better person in thought, action, knowledge and devotion," the Health Minister elaborated.

Expressing his concern on the rising prevalence of non-communicable and lifestyle diseases around the globe, the Nadda, said that the problems of modern lifestyles are well known. Decline in communicable diseases has been accompanied by a gradual rise in the prevalence of chronic Non-Communicable Diseases (NCDs) which now contribute to 60% of mortality. He added that Yoga, an ancient practice of India, can contribute to resilience against NCDs. The knowledge of Yoga can be very effectively used for preventing and controlling many of the lifestyles diseases. "Major NCDs like cancer, diabetes, CVD, stroke, and COPD are largely due to unhealthy lifestyle. If the body is a temple of the mind, yoga creates a beautiful temple," Nadda stated.

Greeting the participants, the Health Minister said that the spread of yoga is the symbol of a changing world. It represents a world where knowledge flows, without restriction of country, creed or class. It represents a world where people come together across boundaries, for causes and concerns that unite the planet.

Nadda stated that Yoga is our collective gift to humanity. It may have originated in India, but it draws its energies from the millions who practise it around the world.

J P Nadda articulated the vision of Government of India in the area of universal healthcare and its roadmap for achieving the SDGs and highlighted the myriad achievements of the Health Ministry including Mission Indradhanush, MNTE and Yaws-free status of India in the various sessions at the meet.

Promoting Health at Work

Leading realty firm Gulshan Homz encourages its staff members to stay healthy to realise their fullest potential

Deepak Kapoor, Director, Gulshan Homz and one of the founder members of the realty firm, has a rich experience of working in the real estate sector for the past more than three decades. His organisation has made it a point to ensure sound health for all employees.

Kapoor does not consider good health and healthy living as activities that are consciously chosen, or something that only those who are into sports can fully achieve. He has developed a culture that empowers every employee to enjoy the bliss of good health. He has made his own lifestyle as an example to inspire his workforce to take the best care of their health.

Deepak Kapoor firmly believes in Yoga as a physical, mental, and spiritual practice or discipline to keep oneself healthy and energised. The company organises Yoga workshops regularly to encourage that the workers follow essential Yoga practices. He himself has made it a point to imbibe Yoga in his lifestyle.

In keeping with his routine of doing regular physical exercise, Deepak Kapoor sees to it that all employees in his organisation follow a daily practice of exercising their body to keep themselves fit.

As one enters the office of Gulshan Homz, one finds the workplace sparklingly clean and maintaining the highest standards of hygiene. The company has promoted the following good habits among its staff:

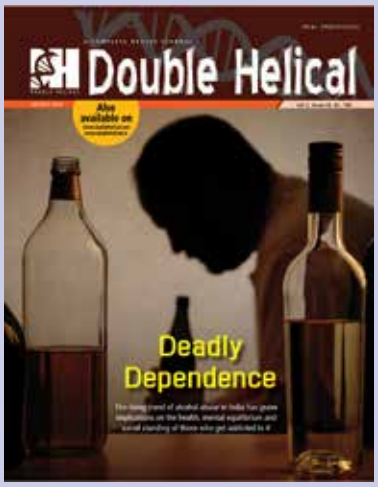
1. Personal Hygiene: The company encourages the practice of regularly washing hands by employees to keep illnesses at bay. They have made it a habit to keep their hands clean and dirt free, especially before eating, after using the restroom, and after sneezing or coughing.

2. Sanitized Environs: The employees keep their work area neat and organized. Every desk and cabin is kept clean to keep away dirt and bacteria on a daily basis .

3. Outdoor Relaxation: At Gulshan Homz, employees do not forget to provide themselves with their daily dose of vitamin D during breaks. They recharge themselves by going outside, taking a walk around the office building, or relaxing themselves from a hectic day by simply sitting quietly for a few minutes, amidst greenery.

Says Deepak Kapoor "We aim to increase productivity, and working capacity of employees by ensuring their overall well-being. Healthy habits are an integral part of life and work at Gulshan Homz. We have made it a policy to develop a workforce healthy in physical, mental, emotional as well as spiritual aspects."

Your Guide to Healthy Living



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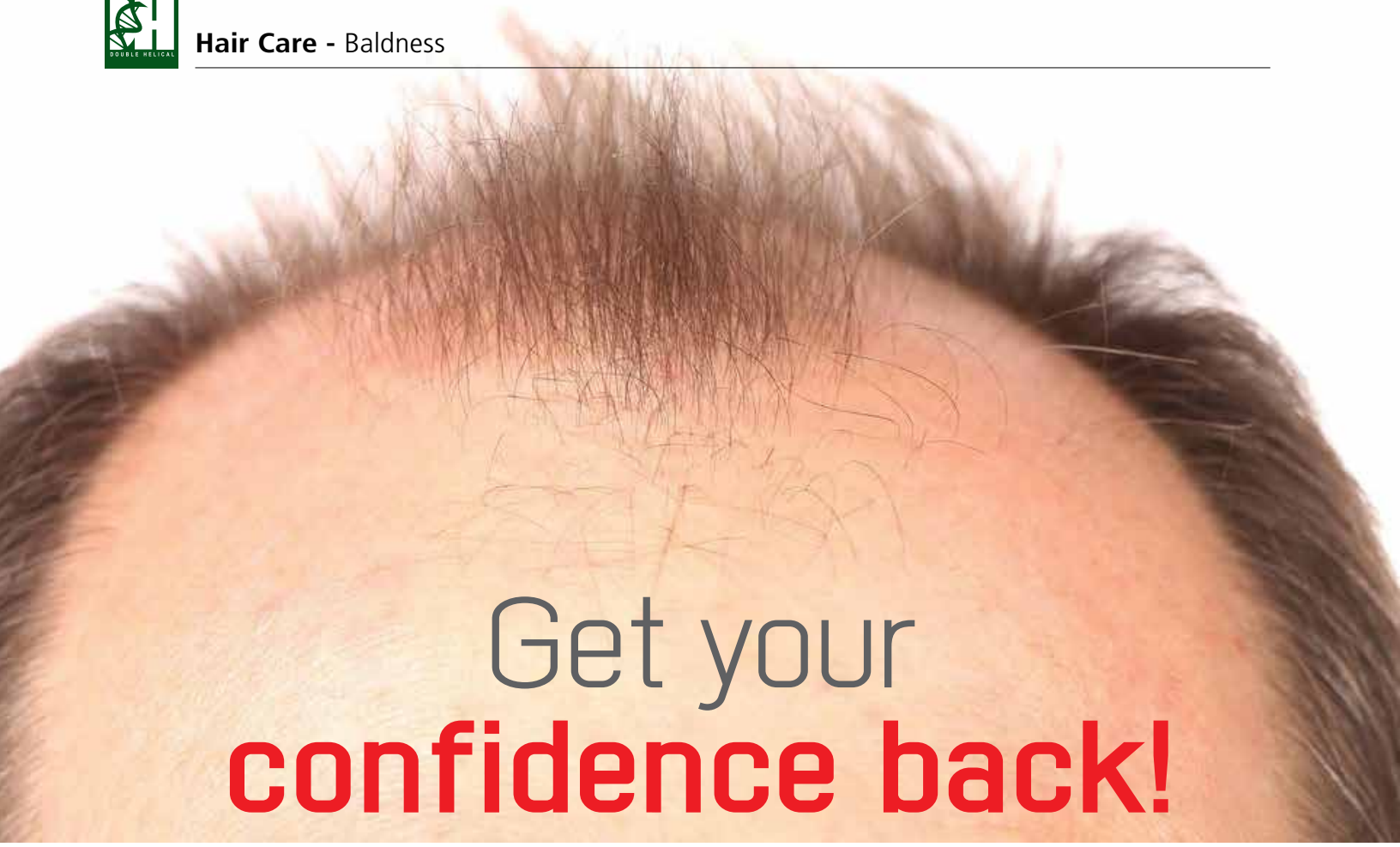


Get your confidence back!

The incidence of baldness is on the increase among various age groups but there are various treatment options, including hair transplant under expert hand

BY DR AMRENDRA KUMAR

Sudhir Mishra, 30, a Delhi-based teacher, was experiencing the problem of baldness since few years. The regular hair loss brought down his confidence and social activities. When Sharma consulted us, after evaluation of his situation we came to a conclusion that he was having baldness of Grade VI. As per examination, the cause of hair loss in his case was Androgenetic Alopecia (most common cause of baldness in males). At that stage, it was a difficult task to restore the natural hair through medical treatment. Even in case of hair transplantation, chances of obtaining 100% satisfactory results, i.e. overcoming the baldness, were minimum. We suggested him to opt for the best hair transplant method using

the B.E.S.T FUE (Bio Enhanced Simultaneous Transplant Follicular Unit Extraction) method, under the hand of best hair transplant surgeon. The result was surprising not only to Sharma but also to doctors. Sharma was very happy with the results and said that it became a turning point in his life.

Sharma's is not an isolated case, there are many others who are also suffering from the problem of hair fall, which eventually leads to baldness. People today are more prone to baldness than the earlier generations. According to a study conducted by Shankar DK, Chakravarthi M and Shilpakar R. on male Androgenetic Alopecia, the baldness begins between 30 and 50 years of age, and is more prominent after the age of 50 years. Here we take a close look at baldness- its stages, causes, effects and treatments possible.

Baldness means an excessive hair loss which is irreversible. On an average, it takes 15 to 25 years to go completely bald, but some people come across this situation in less than five years. Here are the main causes due to which this happens.

Androgenetic Alopecia: It is a genetic

sensitivity to DHT (dihydrotestosterone) hormone which leads to miniaturization of hair roots and death of the roots at the end. Once your hair roots get destroyed, they never get restored naturally. In other words, you face thinning and shortening of hairs.

Since the impact of hormone relies on the hereditary factor (genes), the baldness runs from generation to generation. The notable thing about the hair loss due to genetic problem is that the hair on the lower back and side of the scalp show less sensitivity to the hormone and thus, less baldness is observed in these areas. Also, as the females have less amount of this hormone, they are less prone to genetic baldness than males.

Lifestyle: Using dyes, straighter, gels, bleaches, etc. also affect the health of your hair. Stress also adds to the hair loss.

Smoking, Drugs and Alcohol: These products include carbon monoxide, which prevent the flow of oxygen and other nutrients to the hair follicles. Thus, the hair become weak and fall down.

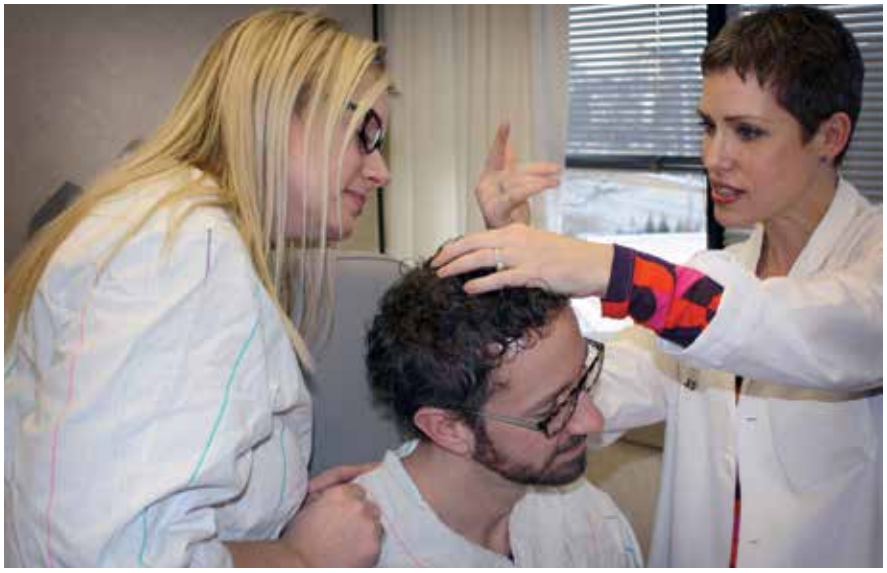
Diet & Nutrition: The deficiency of proper nutrition also causes hair loss.

Illness and Medication: Various medicines and medical treatments cause hair loss. For example, cancer chemotherapy intrudes the hair follicles which causes hair fall in excess.

Male and Female Baldness Pattern:

Both the genders face baldness, but in different manners. Thus, the male baldness pattern is different from female baldness pattern.

Hair loss begins from the front in case of males and spreads towards the scalp and finally at the back, leaving a band of hair above the ears and at the back of the head. The baldness in the case of women starts with thinning of hair on the scalp area which becomes more significant gradually. And at last, the scalp is visible at the top of the head.



Impact:

Baldness leaves a significant impact on your life. It not just affects you physically, but mentally also. Here are the things you might come across due to Premature Baldness:

- Dissatisfaction with your physical image: The loss of hairline changes your facial appearance. The focus gets shifted from your face to the forehead, which results in an aged-look!
- Low Self-Esteem: As you won't be satisfied with your physical appearance, your confidence would go down. This, in the long run, results in depression and other mental issues.
- Social Teasing: When the hair loss reaches a visible stage, you become a toy in the hands of others. It has been studied that 60% of bald men had faced teasing and humiliation due to baldness at some point in their lives.

> Baldness means an excessive hair loss which is irreversible. On an average, it takes 15 to 25 years to go completely bald, but some people come across this situation in less than five years.

Treatments Available:

If you find almost no hair on the front portion of your head, you need not lose your heart! Also, there is no need for going for temporary solutions like caps, wigs, and so on. You can get rid of baldness through medical treatments.

Medication:

Consult dermatologists to take medicines to treat hair loss. The two highly-recommended, FDA-approved medicines are Minioxidil (Regaine) and Finasteride (Propecia).

Finasteride leads to the conversion of testosterone to dihydrotestosterone. The hair follicles no more get affected by the hormone and thus, result in hair growth. When you rub the Minioxidil lotion on your scalp each day, it increases the thickness of the hair. These medicines have to be taken daily for a longer period of time. Otherwise, the hair loss would begin again. Also, there are various side effects of this medication. Apart from these two medications, PRP (Plasma Rich Platelet) therapy and low laser light

therapy is also in practice.

Surgery:

The scalp surgery like Hair transplant is the ultimate solution to hair loss. It is a hair restoration treatment that involves taking off hair follicles from the donor site (usually the back of the head) and transplant them on the recipient site (area facing baldness; usually the front portion of the head).

There are different types of hair transplant available in Delhi and across the world. In fact, we provide PRP, Bio-FUE, B.E.S.T FUE and many other hair restoration treatments. The concept is same, but the technique used as well as the results are different.

- FUT Method: In Follicular Unit Transplantation (FUT), a strip of hair grafts is taken from the back of the scalp. The hair follicles are harvested from the strip and then they are transplanted to the bald area individually.
- FUE Method: In case of Follicular Unit Extraction (FUE), the individual units of hair follicles are extracted randomly from the donor area in such a manner that the hair density decreases but in an unnoticeable manner. These follicles are then transplanted using special equipment under the effect of local anaesthesia. It takes about 4-12 hours for this minor outpatient surgery.
- To increase the survival rate of the transplanted hair, two advance methods of FUE are used in DermaClinix, namely Bio-Stimulated & B.E.S.T FUE Method.
- Bio Stimulated FUE Method: In this case, the scar-less hair transplant is done along with 3 sessions of PRP (Platelet Rich Plasma) therapy which accelerate the hair growth and minimizes the recovery time.
- B.E.S.T (Bio Enhanced Simultaneous Transplant) FUE Method: It is the most advanced FUE method till date and is widely used all over the world including our clinic. In this case, 3 sessions of PRP therapy and inclusion of liposomal ATP are given in addition to the hair transplantation treatment. This serves the hair roots with the appropriate growth factors and, thus, results in hair growth. It also improves the quality of existing hair and recovery at the targeted sites. It is preferable for VIP/ Celebrity clients. We find this treatment as the ultimate hair transplant treatment and suggest the same to all. In fact, Sudheer has also undergone a B.E.S.T FUE treatment.

About the Author

Dr Amrendra Kumar is a renowned hair transplant surgeon, known for offering the best possible treatment to all! He has done his MD in Dermatology from AIIMS (Delhi) and worked as a senior resident in PGI, Chandigarh. He is an expert in doing megasessions and gigasessions using the FUE method.

Apart from being the top-searched dermatologist in Delhi for last 9 years, he is the director and co-founder of DermaClinix- the best skin and hair treatment centre in Delhi.

FUT V/S FUE Method:

FUT is chosen over the other by the surgeons since it allows them to transplant more and more hair in a single session. FUE method is better since it leaves no scar on the donor site. It is possible to go for multiple sessions in FUE. This means you can get hair back even in case of higher grade baldness.

No one would be able to identify that you have undergone a hair transplant. Moreover, you won't be restricted to have short hair or rest for a longer period of time. As per our hair transplant surgeons and dermatologists throughout the world, the risk of side effects is less and the recovery is fast in case of FUE than that in FUT. Since it offers such a sophisticated results, FUE is expensive than FUT.

Who can go for a Hair Transplant?

Hair transplant surgery is not restricted to those only who have bald head. You can have this treatment in case:

- You have scarring areas due to some injury or skin disease.
- You want to restore or modify the shape of the hairline.
- You have the desire to thicken or recover eyebrow hair, beard hair, eyelashes, etc.

(The author is a senior Dermatologist)

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Hazards in Construction

Construction workers face various occupational hazards in the form of serious diseases and injuries. The policy-makers need to work in tandem with the industry to take various measures such as social protection and insurance, health education, regular medical examination and checkups of the labour working at construction sites

BY DR SUNEELA GARG & DR ANSHUL SHUKLA

The range of health disorders among industrial workers leading to absence from work is well documented and it has been recognised that construction workers are at greater risk of developing certain health disorders as compared to the general population and workers in other industries.

The various occupational hazards faced by construction workers include

exposure to various forms of chemicals, cement, dust, smoke, heat, cold, noise and many more.

There are only a few industries as hazardous as construction work. Work at elevation, work involving heavy overhead loads, operation of heavy machinery and power tools, confined space work, temperature extremes and material handling demands combine to increase the risk of injuries. The construction industry is

one of the most accident-prone industries, and workers may have fatal injury, hospitalization, and disability. Construction-related industrial accidents, in particular, comprise a high percentage of serious occupational injuries. The most common causes of major injuries were falls from height, slips, trips or falls on the level, and being struck by a moving/falling object.

Construction is a very stressful environment to work in. Causes are numerous that include aspects such as the physical environment, the actual organization itself, the way the organization is managed overall, personal relationships between workers, their own environment and the organization, as well as personal and social relationships and personal anxieties. Further, the heart disease, depression and anxiety, low self-esteem and burnout are a number of negative outcomes of such stress and stressors.

The workers might have different occupational diseases due to exposure to work. Some of the commonly encountered problems have been identified as follows:

Musculoskeletal Disorders

Construction workers are especially prone to Work-related Musculoskeletal Disorders (WRMDs), which result in persistent pain, loss of functional capacity and work disability. Heavy weight lifting has been consistently described as a risk factor of back pain in occupational studies, but whole body vibration, bending, kneeling, smoking, and psychosocial stress have also been identified as risk factors.

Hearing and Ear Disorders

Among construction workers hearing deficiencies caused by noise have been one of the most important occupational diseases. Disorders of the ear can affect the workers fitness for work in several ways. Hearing difficulty, tinnitus, ear discharge and posture disturbances, and auditory disorders, particularly noise induced hearing loss (NIHL) have become common problems throughout industry. Due to the frequent use of noisy machinery, such as mechanical saws, compressors, grinding machines, drills, and other cutting tools, the construction workers' exposure to noise is remarkably high.

These adverse effects of noise exposure may include sleep disturbance, irritability, stress, tension, distraction, risk of ischemic heart disease, influence on quality of life, interference with communication, health and well-being outcomes, behavioral and mental health effects

There are only a few industries as hazardous as construction work. Work at elevation, work involving heavy overhead loads, operation of heavy machinery and power tools, confined space work, temperature extremes and material handling demands combine to increase the risk of injuries.

and diminished performance.

Respiratory Problems

Respiratory diseases pose many special problems at work that differ according to the nature of the disorder and the workplace.Unskilled workers, carpenters, and bricklayers had the highest prevalence of abnormal findings in the lungs, which may indicate an obstructive lung disease such as bronchitis, obstructive emphysema and/or asthma. Smoking, air pollution, recurrent infections of the airways, climatic conditions, and socioeconomic factors are mainly considered responsible for developing such diseases. The inhalation of dust is very common in construction workers leading to continuous irritation of the mucosa.

Skin Disorders

Occupational diseases of the skin are common among construction workers.

Of all the occupational dermatoses, contact dermatitis is the most common, comprising 20-90% of all the cases. In the construction industry, various categories of workers are involved such as masons, helpers, fitters, supervisors, carpenters and painters. The common irritants and sensitizers in the construction industry are as follows

1. Irritants: Cement, chalk, fly ash, hydrochloric and hydrofluoric acids, fiberglass, rockwool, wood preservatives

2.Sensitizers: Cement and fly ash, chromate, cobalt, epoxy resin, rubber, leather gloves, adhesives (phenol or urea-formaldehyde resins), wood preservatives, fiberglass impregnated with phenol-formaldehyde, epoxy and polyurethane resins, jointing materials

Cardiovascular System

There are many risk factors for CHD of non-occupational origin, which include hypertension, smoking, diet, hypercholesterolemia and obesity. These risk factors can work in a synergistic way with occupational stress which increases the risk of developing this disease.

Substance Use

Cigarette smoking is the most important preventable factor contributing to increased morbidity and mortality due to a number of diseases such as cancer and other diseases of the lung, such as chronic obstructive pulmonary disease, emphysema and pneumonia. In addition, smoking is a risk factor for malignant tumors of the pharynx, oral cavity and the urogenital bladder. Smoking of cigarettes also increases the risk of cardiovascular diseases such as myocardial infarction, stroke and arteriosclerosis.

Among construction workers, the risk of respiratory diseases may further be elevated by smoking in addition to occupational factors, such as exposure to dust. The strong association of smoking with occupational disability due to respiratory diseases among workers with pre-existing respiratory disease might point to potential synergistic effects with other factors such as occupational dust exposure. They underline the particular importance of promotion of smoking cessation in this occupational group.

The Recommendations to tackle these problems are as follows –

1. Social Protection and Insurance
2. Health Education of Construction Workers
3. Organization of Construction Workers and Awareness about Existing Schemes
4. Regular Medical Examination and Health Checkups of Construction Workers
5. Raise the Education Status of Construction Workers.

(The authors are from the Department of Community Medicine, Maulana Azad Medical College, New Delhi)

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