RNI No.: UPENG/2014/59232

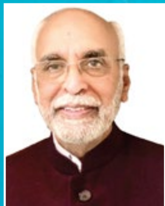
A COMPLETE HEALTH JOURNAL

Double Helical

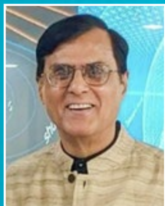
MARCH 2025

VOL X, Issue- II, Rs. 200

Dr Pakhee Aggarwal



Dr Vijay Agarwal



Dr R K Tuli

HEALTH BUDGET

WIDENING DISPARITIES

1st IGBC PLATINUM-RATED GREEN HOME in Delhi NCR

Step into regal living at Gulshan Dynasty, Sector 144, Noida, the epitome of luxury and NCR's most sustainable and efficient building, redefining residential excellence.

GULSHAN DYNASTY

MAKE THE RISE, MAKE THE CALL

Schedule your exclusive preview: +91 8010 444 888 | www.gulshandynasty.com

This project is registered with UP RERA bearing no. UPRERAPRJ950870 | WWW.UP-RERA.IN

DISCLAIMER: All images (other than actual images), visuals, etc. shown herein are illustrative or indicative only.
Nothing contained herein intends to constitute a legal offering on the company's part and any buyer of the apartment in the project shall be governed solely by the terms of the 'Agreement for sale/sub-lease' to be executed with him/her.

DOUBLE HELICAL

A COMPLETE HEALTH MAGAZINE

Volume X Issue II
March, 2025

Advisory Board

Dr. A K Agarwal,
Professor of Excellence, Ex-President, Delhi Medical Council and Medical Advisor, Apollo Hospital, New Delhi

Dr. Vinay Aggarwal,
Ex President, Indian Medical Association, New Delhi

Dr. Vijay Agarwal,
President, CAHO

Dr. Girdhar J. Gyani,
Director General, Association of Healthcare Providers (India)

Dr. Suneela Garg,
Chair, Advisory Committee, National Institute of Health Family Welfare, and Member, Lancet Commission

Dr. Chandrakant Sambhaji Pandav
Padamshree Awardee and Former Professor and HOD, Centre for Community Medicine, AIIMS, New Delhi

Dr. H P Singh,
Sr. Child Specialist

Editor & Publisher
Amresh K Tiwary

Consulting Editor
Vishal Duggal

Coordinating Editor
Punita Tiwary

Roving Editor
Dr. Manisha Yadav

Editorial Team
Abhigyan, Abhinav,
Dr. Manisha Yadav

Advertisements & Marketing
Abhinav Kumar, Vikas
Email: sales@doublehelical.com

Designer
Aparna Thomas

All material printed in this publication is the sole property of Double Helical Pvt. Ltd. All printed matter contained in the magazine is based on the information by those featured in it. The views, ideas, comments and opinions expressed are solely of those featured and the Editor and Publisher do not necessarily subscribe to the same.

Double Helical is owned, printed and published monthly. It is printed at Polykam offset, Naraina Industrial Area Phase 1, New Delhi-110028, and published from G-1, Antriksh Green, Kaushambi, Ghaziabad-201 012.
Tel: 0120-4165606 / 9953604965.

Contact us :
contact@doublehelical.com
doublehelicaldesign@gmail.com,
editorial@doublehelical.com
Website: www.doublehelical.com,
www.doublehelical.in

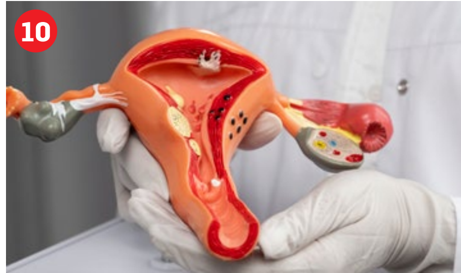
Contents

COVER STORY

16

WIDENING DISPARITIES

10



TARGETED, TAILORED, AND TRANSFORMATIVE

28

A LOOMING CATASTROPHE

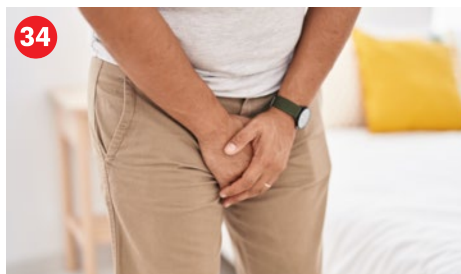
22

HEALTHCARE'S HIDDEN COST

40

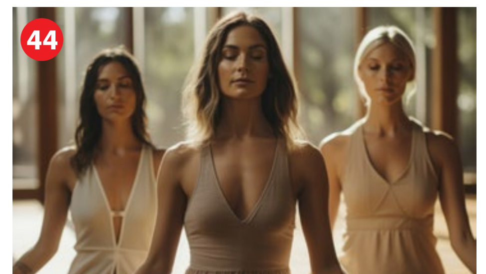
ECHOES OF PAIN

34



DECODING PROSTATE PROBLEMS

44

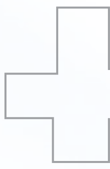


BREATHING FIT AND FREE

Facebook: https://www.facebook.com/Double-Helical-1783106448421622/?modal=admin_todo_tour

Twitter: @HelicalDouble

Youtube: https://www.youtube.com/channel/UCmbMtYUwuppYzDHd_OrcMfg/featured?view_as=subscriber



DOUBLE HELICAL

Health on the Brink

Dear Readers,

Double Helical, a comprehensive national health magazine, serves as a platform to celebrate innovations, individuals, products, and services transforming India's healthcare sector, paving the way for affordable, high-quality, and inclusive healthcare.

In the March 2025 issue, we feature a special story on the Annual Health Budget. The financial outlays reveal a piecemeal, populist approach, lacking the heft to address the deep-seated issues plaguing our healthcare system. While the allocation to the Ministry of Health and Family Welfare and AYUSH has increased from INR 94,671 crore to INR 1,03,851 crore compared to last year's budget, the increase lacks impact. Adjusted for inflation, the real rise is a mere 3 percent—hardly a game-changer. More alarmingly, this figure is 4.7 percent less than the actual expenditure in 2020–21. Are we regressing in our commitment to health resources? The numbers suggest so. Paradoxically, this means the healthcare available to citizens in 2021 was, in real terms, superior to what's on offer now. With costs soaring, the budget has failed to keep pace. The health sector's share in the total Union Government Budget has slipped from 2.26 percent in 2020–21 to 2.05 percent today.

Another story tackles referral commissions in healthcare, a complex issue that demands scrutiny to separate outright unethical behaviour from systemic financial pressures. There's a clear divide: recommending unnecessary tests or procedures is a flagrant breach of ethics and illegal, deserving outright condemnation. In contrast, referral payments to attract patients, while ethically murky, warrant a deeper look. Are they driven by profiteering or survival in a cutthroat, underfunded healthcare landscape? The assumption that banning referral fees would slash hospital bills ignores the economic realities hospitals face—skyrocketing operational costs, inadequate reimbursements, and relentless financial strain. Why do hospitals pay these commissions? Often, it's not greed but a desperate bid to stay afloat in a broken system.

Gender-Based Violence (GBV) takes centre stage in another feature. Defined as intentional physical, psychological, or sexual harm—or threats thereof—directed at individuals based on gender, GBV is a pervasive scourge. Dr Vinay Agarwal notes that while it affects both men and women, it predominantly targets women at the hands of men, rooted in patriarchal power imbalances. The United Nations estimates that one in three women globally has faced physical or sexual violence from an intimate partner in their lifetime, making GBV the most widespread violation of women's human rights.

GBV spans physical violence (hitting, slapping, stabbing), with 23–53 percent of abused pregnant women reporting kicks or punches to the abdomen; sexual violence (coerced sex, marital rape, attacks on sexual organs); verbal violence (withholding communication or mobility, mental harassment, false accusations); emotional violence (belittling self-worth, public ridicule, threats to child custody); and economic violence (controlling finances, denying employment, withholding money). Globally, nearly 30 percent of women in relationships report experiencing violence. Risk factors for perpetrators include low education, exposure to family violence, attitudes endorsing gender inequality, and substance abuse. For victims, similar factors—plus acceptance of violence—heighten vulnerability.

Prostate health is the subject of another story. As men age, an enlarged prostate—Benign Prostatic Hyperplasia (BPH)—becomes nearly inevitable. Though non-cancerous, BPH brings disruptive symptoms: frequent urination, painful bladder emptying, and sleep disturbances.

Another story presents new insights: With chronic respiratory diseases claiming 4 million lives yearly and affecting 550 million people globally, a drug-free therapy—rooted in WHO-endorsed integrative principles and India's AYUSH systems—offers hope, reversing asthma, COPD, and lung fibrosis while curbing addictions like tobacco and alcohol.

The edition also focuses on gynaecological cancer treatment, which has leapt forward, shifting from radical surgeries to precision-driven, minimally invasive techniques. Genomic profiling, targeted therapies, robotic surgery, immunotherapy, and molecular diagnostics promise faster recovery, better survival, and enhanced quality of life.

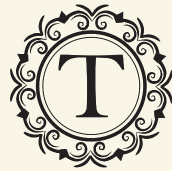
The WHO predicts 2.5 billion people—one in four—will face hearing loss by 2050, costing nearly US$1 trillion annually, which is the focus of another comprehensive story. With 1 billion young adults at risk from unsafe listening, a US$1.40-per-person investment could yield a 16-fold return, making ear care a global priority.

This issue brims with many more intriguing, mind-blowing, and thought-provoking stories.

Happy reading!

Thanks and regards

Amresh K Tiwary,
Editor-in-Chief



TREHAN
Vivanta Residences

PRESENTING

3 BHK PREMIUM HOMES. LUXURY LIFESTYLE.

SECTOR-94-Bhiwadi

3 BEDROOM PREMIUM APARTMENTS. (1461 SQFT)
Price Starting
28.99 LAKH* onwards

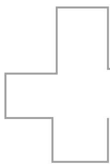
3 BEDROOM PREMIUM APARTMENTS. (1574 SQFT)
Price Starting
29.99 LAKH* onwards

LOAN AVAILABLE UP TO 90%

Kids Play Area - 24x7 CCTV - Security - Gated Society - Swimming Pool - 30/40/60 feet Rd, Ample Parking
BIG Green Parks - Gymnasium - Cafeteria - Mini Theater - Water Harvesting -Indoor Games etc.

www.thdindia.com

For Bookings And More Information Please Contact +91 6367-400-500



WHO Commends Nepal for Its Contribution to the South-East Asia Regional Health Emergency Fund

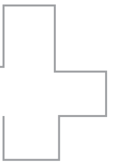
The World Health Organization (WHO) South-East Asia Region today thanked the Ministry of Health and Population, Government of Nepal, for contributing Nepalese Rupees 1,500,000 (approximately USD 11,000) to the South-East Asia Regional Health Emergency Fund (SEARHEF), a unique funding mechanism that supports member countries in the region in preparing for and responding to health emergencies.

"WHO thanks Nepal for its contribution to SEARHEF. Nepal has championed the regional health emergency fund at various forums. The country has demonstrated great leadership in building capabilities and responding to emergencies, offering many lessons for the region and the world to emulate," said Saima Wazed, Regional Director, WHO South-East Asia, in a letter to Pradip Paudel, Minister of Health and Population, Nepal. Nepal's contribution is a testament to its support, ownership, and commitment to SEARHEF, which is transparently managed by WHO for the benefit of member countries in the region.

Established in 2007, SEARHEF was created as part of the lessons learned from the Indian Ocean tsunami, which affected multiple countries in the region. It was set up to provide immediate financial support for health sector responses during emergencies, which is critical to saving lives. To date, SEARHEF has supported 49 emergencies across 10 countries, disbursing over USD 8 million.

In 2016, the scope of SEARHEF was expanded to include emergency preparedness, enabling three countries to use this funding mechanism to strengthen their Health Emergency Operations Centres and Rapid Response Teams.

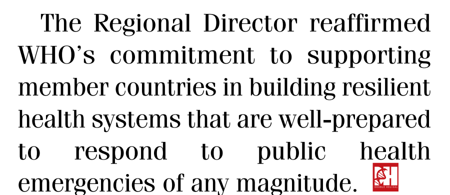
As a country prone to natural disasters, Nepal has utilised SEARHEF to respond to the Koshi floods in 2008, the massive earthquake in 2015, and the recent earthquake in Jajarkot in 2023. The funds were used to coordinate health responses, provide life-saving services, minimise disabilities through the deployment of medical teams, prevent and respond to impending outbreaks, and ensure



the continuity of essential health services through the establishment of temporary healthcare facilities.

Recognising the critical role played by SEARHEF in public health response across the region, member countries at the annual governing body meeting of WHO South-East Asia in October 2024 agreed to increase the fund's corpus from USD 1 million to USD 3 million. Nepal is the fourth country, after Thailand, India, and Timor-Leste, to contribute to the enhanced corpus of SEARHEF.

The Regional Director reaffirmed WHO's commitment to supporting member countries in building resilient health systems that are well-prepared to respond to public health emergencies of any magnitude.



WHO South-East Asia Region Enhancing Multi-Source Surveillance

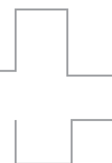
The Member States of the World Health Organization (WHO) South-East Asia Region are enhancing multi-source surveillance to strengthen public health intelligence and provide evidence for decision-making during complex health emergencies marked by uncertainties and compounded by multiple vulnerabilities.

"Through our experience in responding to pandemics and emergencies, we have learned that decision-making in health emergencies should be informed by a synthesis of multiple sources of information. This approach requires strengthening surveillance systems and capacities, as well as fostering collaboration among diverse stakeholders from multiple sectors," said Saima Wazed, Regional Director, at the three-day regional meeting 'Advancing Multisource Collaborative Surveillance in WHO South-East Asia Region', held recently.

Emphasising that robust laboratory systems are the backbone of effective surveillance, Wazed called for increased investment in sustainable diagnostic capacities.

"The future of health security in our region depends on sustainable investments in surveillance and laboratory capacities, timely data sharing, and cross-sectoral partnerships," the Regional Director stated.

Officials from Member States leading surveillance efforts for epidemic- and pandemic-prone diseases, public health laboratories, national public health operations centres, and surveillance in other sectors such as animal health, environment, and meteorology, as well as those responsible for communicating events under the International Health Regulations (IHR), alongside experts and



Timely, reliable and high-quality data is critical for a stronger health system and informed decision-making for public health policy.

*The score for health global assessment, developed by WHO and partners, aims at assisting countries in strengthening data systems and capacities to monitor progress towards health-related **#SDGs** and address existing and emerging national health priorities.*

partners, participated in the meeting.

They discussed priority actions to enhance collaboration among in-country surveillance stakeholders across sectors and to improve international information sharing and cross-border cooperation in the context of the amended IHR 2005.

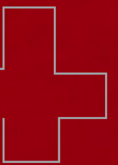
Decision-making during pandemics, epidemics, climate change-driven health emergencies—such as vector-borne and waterborne diseases—and other threats arising from the human-animal-ecosystem interface (zoonoses, food-borne diseases, antimicrobial resistance), as well as health threats caused by disasters and humanitarian crises, requires multi-sectoral solutions.

To support countries in operationalising the concept of multi-source surveillance, the WHO Regional Office for South-East Asia has developed a regional manual, "Informing Public Health Decision-Making with Multisource Collaborative Surveillance: A Step-by-Step Approach." Using this manual, Indonesia and Nepal have initiated the implementation of multisource collaborative surveillance (MSCS), and more countries in the region are planning to roll out MSCS. In line with this approach, India has proposed the creation of a South-East Asia Network for Transboundary Collaborative Surveillance, which is expected to be discussed with Member States later this year.

The MSCS approach is critical, as gathering and synthesising information from different sources is not always straightforward. Surveillance systems and data are owned by different stakeholders both within and beyond the health sector, and mechanisms for timely and effective data sharing and synthesis are not always in place.

Participants also explored opportunities to adopt innovations and enablers to strengthen early warning surveillance systems and public health intelligence. Discussions included the roles of genomic surveillance and wastewater surveillance as part of multi-source collaborative surveillance. They further deliberated on priority actions for developing national action plans to guide the governance, implementation, and sustainability of genomic surveillance systems through a multisectoral approach.

"We must continue to embrace innovation and foster stronger regional collaboration," the Regional Director said, reiterating WHO's commitment and her vision to promote regional and multi-sectoral cooperation, including among One Health stakeholders, and to leverage innovation to improve public health in the WHO South-East Asia Region.



TARGETED, TAILORED, AND TRANS-FORMATIVE

The treatment of gynaecological cancers has evolved remarkably, moving from radical surgeries to precision-driven, minimally invasive techniques. With advances in genomic profiling, targeted therapies, robotic surgery, immunotherapy and cutting-edge molecular diagnostics, the future of gynaecological cancer treatment is becoming increasingly personalised, offering reduced recovery time, improved patient outcomes, better survival and quality of life.

BY DR PAKHEE AGGARWAL

Over the years, the treatment of gynaecological cancers has seen remarkable advancements. From the early 1900s, when radical hysterectomy was introduced by Wertheim as a surgical procedure for cervical cancer, to today's minimally invasive and targeted therapies, the landscape of cancer treatment has drastically evolved. These changes have significantly

reduced surgical complications, improved patient recovery times, and enhanced overall treatment outcomes.

In recent years, breakthroughs in genomic profiling, molecular-based targeted therapies, precision radiation techniques, and cutting-edge chemotherapeutic advancements have paved the way for a more personalised approach to cancer treatment. With the emergence of immunotherapy and artificial intelligence-driven surgical techniques, the fight against gynaecological cancers has become more precise and effective than ever before.

ENDOMETRIAL CANCER: SURGERY AND BEYOND

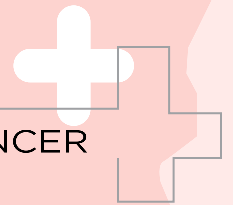
Traditionally, surgery for endometrial cancer required a large incision through a midline laparotomy. This procedure involved removing the uterus, fallopian tubes, ovaries, and an extensive pelvic and para-aortic lymphadenectomy, along with peritoneal and omental biopsies. However, the advent of robotic-assisted surgeries has transformed this approach. Today, precision robotic surgery, coupled with sentinel lymph node mapping, has replaced open surgery, significantly reducing post-operative complications while maintaining the same cancer treatment effectiveness.

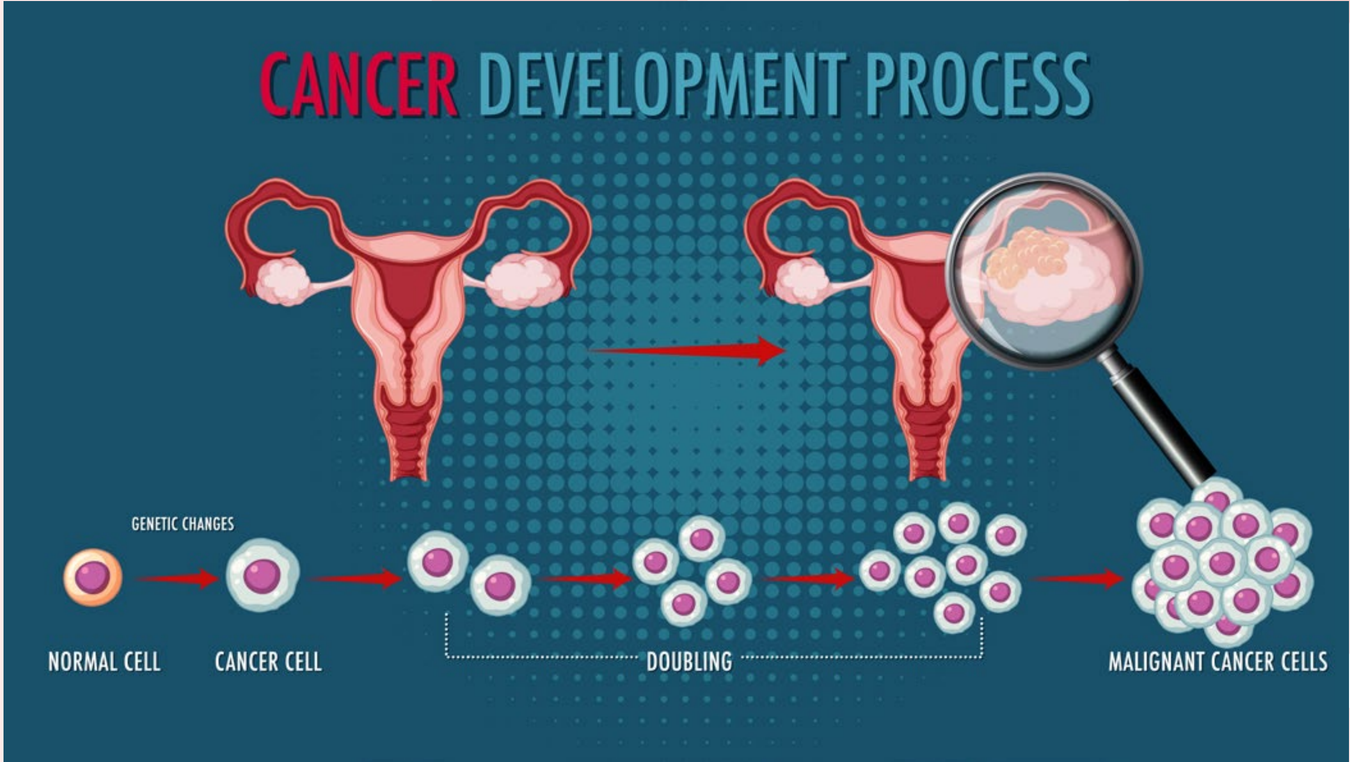
One of the key advantages of robotic surgery is its ability to offer a faster recovery, even in patients who have obesity, hypertension, or other comorbidities. The risk of developing lymphedema, a condition where excess fluid accumulates in tissues leading to swelling, is reduced by more than tenfold in robotic surgeries. As a result, patients can move on to the next stage of treatment—such as chemotherapy or radiation—much sooner than they would with traditional open surgery.

Additionally, augmented reality (AR) and artificial intelligence (AI) are being integrated into surgical techniques to further refine precision and improve patient outcomes.

From a molecular perspective, The Cancer Genome Atlas has classified endometrial cancer into four distinct types based on genetic mutations:

- POLE mutated – Tumours with a good prognosis, often not requiring aggressive adjuvant treatment.
- MMR deficient (MMRd) or microsatellite unstable (MSI-H) – A subtype that responds well to immunotherapy.
- p53 mutated – Tumours with a poorer prognosis, requiring





combined chemotherapy and radiotherapy.
- Non-specific molecular profile (NSMP) – A category requiring further research for better treatment planning.

In advanced or recurrent cases, targeted therapies like PD-1/PD-L1 inhibitors (Pembrolizumab) and tyrosine kinase inhibitors (Lenvatinib) have revolutionised treatment by selectively attacking cancer cells while minimising damage to healthy tissues.

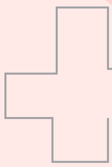
CERVICAL CANCER: EVOLVING SURGICAL AND RADIATION THERAPIES

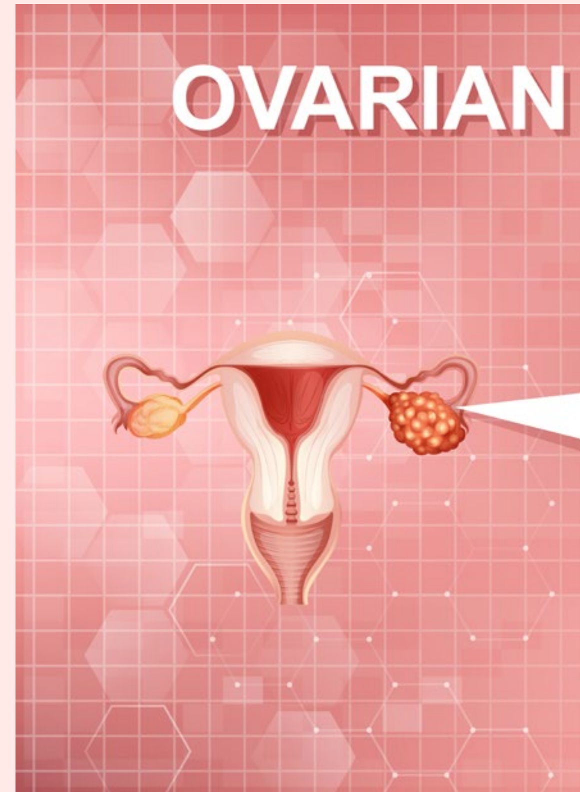
Like endometrial cancer, cervical cancer treatment has evolved from traditional open surgery to minimally invasive approaches. One of the key advancements has been the introduction of nerve-sparing radical hysterectomy, which helps preserve bladder function. This means patients can have their urinary catheters removed sooner, leading to faster recovery and better post-surgical quality of life.

From traditional open surgeries to high-precision robotic procedures, the treatment of gynaecological cancers has undergone a paradigm shift. Innovations like AI-driven surgical techniques, immunotherapy, and targeted drugs are redefining patient care, ensuring less morbidity and faster recovery.

However, a major study called the LACC trial found that minimally invasive radical hysterectomy resulted in worse survival outcomes compared to open surgery. As a result, this technique has been put on hold. A counter-study, RACC trial, is currently underway to evaluate the feasibility of minimally invasive surgery for cervical cancer. For early-stage cervical cancer, sentinel lymph node mapping is gaining traction. Research has shown that for tumours smaller than 2 cm, simple hysterectomy is adequate, reducing surgical complications while maintaining effective cancer control (SHAPE trial).

Radiation therapy has also become more sophisticated, with Intensity-Modulated Radiotherapy (IMRT) and Image-Guided Radiotherapy (IGRT) delivering precise doses while minimising damage to surrounding organs. Meanwhile, in advanced cervical cancer, clinical trials like INTERLACE and KEYNOTE A018 are investigating the benefits of combining



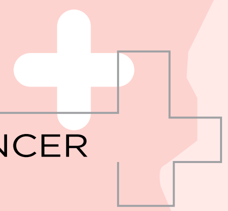


chemotherapy with immunotherapy for improved survival rates.

OVARIAN CANCER: THE CHALLENGE OF LATE DIAGNOSIS

Ovarian cancer is often diagnosed at an advanced stage (Stage III/IV), making treatment more complex. The standard treatment involves debulking surgery (removing as much tumour as possible), followed by six cycles of chemotherapy. In some cases, patients receive neoadjuvant chemotherapy before surgery to shrink the tumour, followed by interval debulking into the abdomen during surgery to enhance the treatment's effectiveness. While the standard chemotherapy regimen includes platinum- and taxane-based drugs, advancements in anti-angiogenic therapy (which blocks the tumour's blood supply)

Genetic and molecular profiling have further enhanced ovarian cancer treatment. Research shows that



The latest breakthroughs in gynaecological oncology focus on personalised medicine, where genomic profiling dictates treatment strategies. Whether it's sentinel lymph node mapping in endometrial cancer or antibody-drug conjugates for ovarian tumours, the future of cancer care is moving towards precision and patient-specific therapies.

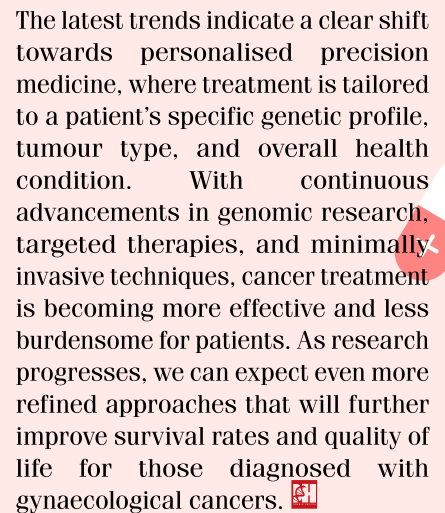
nearly 50% of high-grade serous ovarian cancers have a genetic mutation called Homologous Recombination Deficiency (HRD+), making them suitable candidates for PARP inhibitor (PARPi) therapy. These drugs, such as Olaparib, Niraparib, and Rucaparib, work by blocking an alternative DNA repair pathway, ultimately leading to cancer cell death. Another promising area of research involves Antibody-Drug Conjugates (ADCs), where cancer-specific antibodies are linked to a potent cytotoxic agent, delivering targeted therapy with minimal damage to healthy cells.

VULVAR CANCER: ADVANCES IN SURGERY AND THERAPY

Surgical techniques for vulvar cancer have also improved significantly. Traditional radical vulvectomy, which required a large butterfly incision, has been replaced by a triple incision surgery or a wide local excision for smaller tumours. Sentinel lymph node mapping using technetium and indocyanine green (ICG) has helped minimise the need for extensive lymph node dissection, reducing complications.

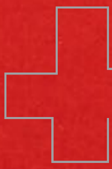
For more complex cases, robotic surgery is being used for inguino-femoral lymph node excision, leading to better surgical precision and faster recovery. Reconstructive surgical techniques have also evolved, improving the quality of life for patients undergoing extensive tumour removal. Radiation therapy, chemotherapy, and immunotherapy have all contributed to preserving organ function while precisely targeting the tumour. Newer drug combinations are now available, ensuring better survival and post-treatment recovery.

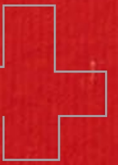
THE FUTURE OF GYNAECOLOGICAL CANCER TREATMENT



The latest trends indicate a clear shift towards personalised precision medicine, where treatment is tailored to a patient's specific genetic profile, tumour type, and overall health condition. With continuous advancements in genomic research, targeted therapies, and minimally invasive techniques, cancer treatment is becoming more effective and less burdensome for patients. As research progresses, we can expect even more refined approaches that will further improve survival rates and quality of life for those diagnosed with gynaecological cancers.

(The author is Senior Consultant, Gynaecology Oncology & Robotic Surgery, Indraprastha Apollo Hospitals, New Delhi)





WIDENING DISPARITIES

While allocations for schemes like the Pradhan Mantri Jan Arogya Yojana (PMJAY) and the Digital Health Mission have seen significant boosts, essential areas such as the National Health Mission, mental health services, disability care, and nutritional interventions continue to languish under chronic underfunding. This skewed focus not only undermines the foundational pillars of public health but also exacerbates the growing inequities in access to healthcare for the vulnerable sections.

BY DR AMITAV BANERJEE

Slogans and catchwords alone cannot deliver. Band-Aids over deep compound fractures do not work. This sums up the annual health budget, which has become an occasion to apply superficial fixes over fissures in our public health system—one that is gasping for breath due to sustained neglect since independence. Rituals and mantras can offer hope but often fail to live up to their promise.

For an effective public health system that positively impacts people's health, facilities and human resources must be positioned to ensure accessibility and affordability for the common citizen. You cannot win a football game by neglecting the goalkeeper and deep defenders while focusing only on the forwards to score goals and impress the selectors and their sponsors. To combat illness and promote health, the same strategies that work on the playing field are applicable. It is common sense rather than rocket science.

In this commentary, we will review the health sector allocations in the recent budget announced in Parliament vis-à-vis the ruptures in our public health infrastructure.

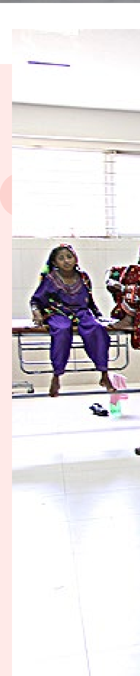
THE BUDGET SPEECH BY THE FINANCE MINISTER: RIGHT NOISES WITHOUT ANY BANG FOR THE BUCK

In her budget speech, Finance Minister Nirmala Sitharaman made all the right noises, which might impress those unfamiliar with the ground realities of our public health sector. The Minister emphasised "access to high-quality, affordable, and comprehensive healthcare" as a major component of "Viksit Bharat." This is indeed the perfect strategy for any public health system. However, the moot question remains: Do the allocations match these ambitious statements? The financial outlays reflect a piecemeal, populist approach without the potential to make any significant impact on the factors ailing our healthcare system.

While the total financial outlay for health shows some increase in the allocation to the Ministry of Health and AYUSH relative to last year's budget, the buck does not have the bang. Though the allocation has risen from INR 94,671 crore to INR 1,03,851 crore, when adjusted for inflation, the effective increase amounts to just around 3 per cent. More significantly, this is 4.7 per cent less than what was actually spent in 2020–21. Are we moving backward in the allocation of resources to the health sector? The figures suggest so. Paradoxically, this translates into the ground reality that the healthcare available to citizens in 2021 was, in real terms, superior to what is available now. The financial allocation has not kept pace with soaring costs. The share of health in the total Union Government Budget has declined from 2.26 per cent to 2.05 per cent compared to 2020–21.

CRACKS IN PROGRAMS ADDRESSING PUBLIC HEALTH CHALLENGES LIKELY TO DEEPEN

Our real health challenges lie in providing accessible and affordable healthcare to the marginalised, vast stretches of the rural population, and the urban poor. Another formidable



> While tax exemptions on essential medicines sound promising, patented drug prices remain beyond reach for ordinary citizens. Without a push for domestic generic production, affordability remains a distant dream. Meanwhile, the dismal 3.8 per cent allocation for health research leaves the field open for private pharmaceutical interests to dominate medical innovation.

challenge is addressing our embarrassingly high rates of under-five malnutrition, which surpass even those of the poorest regions in sub-Saharan Africa. To tackle these issues, Union Government schemes such as the National Health Mission (NHM), the Pradhan Mantri Swasthya Suraksha Yojana, and various nutritional programs should have received priority in budget allocations. Surprisingly, against all expectations, these programs faced cuts in funding despite the commendable work done by dedicated workers in these initiatives.

The NHM is a well-conceived program designed to improve primary and secondary healthcare, including maternal and child health, disease control for both communicable and non-communicable diseases, and several nutritional interventions. Many of these schemes were relegated during the pandemic years and have suffered setbacks. To recover from these reverses, assertive action was required instead of the stepmotherly treatment meted out to these programs. This neglect will have severe negative consequences. Critical services such as safe and institutional deliveries, routine immunisation, nutrition services for children, and tuberculosis treatment will face a resource crunch.

The NHM budget also caters to the honorariums for grassroots community health workers like the ASHAs, who earned global recognition for their commendable work during the pandemic. The limited allocation to the NHM budget will impact the remuneration for these workers, who have been rightly demanding minimum wages for a long time. These workers are the backbone of our community health programs, and a cut in the NHM budget is a serious cause for concern.

Similarly, the recently launched network of Health and Wellness Centres (HWCs), which are part of the NHM, will also be adversely affected by budgetary cuts.

A strong public health system is not built through slogans, catchphrases, and token increases in allocation. It requires well-planned and adequately funded initiatives that address real, pressing concerns. Unfortunately, this budget, like many before it, falls short of the urgent need to mend the breakages in our healthcare infrastructure.

GLITZ AND GLAMOUR TO COVER UP DEEPER CRACKS

While the health sector faces chronic underfunding, schemes that benefit the corporate sector, such as the Pradhan Mantri Jan Arogya Yojana (PMJAY) and the Digital Health Mission, continue to receive higher allocations despite their questionable impact. PMJAY, in particular, appears to be the favoured initiative of policymakers, even in the face of multiple failures and a damning report by the Comptroller and Auditor General of India (CAG). The scheme primarily benefits corporate hospitals, offering little in terms of accessibility to the urban and rural poor who rely on overstretched and crumbling public healthcare facilities.

> **The NHM budget also caters to the honorariums for grassroots community health workers like the ASHAs, who earned global recognition for their commendable work during the pandemic. The limited allocation to the NHM budget will impact the remuneration for these workers, who have been rightly demanding minimum wages for a long time.**

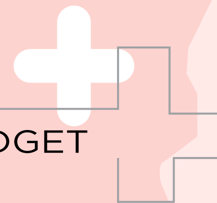
In the 2023-24 budget, INR 7,200 crore was allocated to PMJAY, of which only INR 6,670 crore was utilised. Yet, in the present budget, the allocation has been increased by 24 per cent to INR 9,406 crore. This increased outlay to PMJAY strengthens the unregulated private hospital sector, creating opportunities for exploitation of the poor. Cases of unnecessary procedures, as highlighted by the recent deaths of two PMJAY beneficiaries after angioplasty at a private hospital in Ahmedabad [*The Indian Express*, Ahmedabad, November 12, 2024], underscore this risk. More critically, the skewed allocation diverts resources from vital public health programs like the NHM, exacerbating the opportunity cost of misplaced priorities.

The growing PMJAY allocation must also be viewed in light of the 100 per cent Foreign Direct Investment (FDI) allowance in health insurance, which has further opened the market to global insurers, accelerating the privatisation of healthcare. Moreover, with the inclusion of the elderly under PMJAY, insurance premiums have soared, making coverage increasingly unaffordable.

Similarly, the Ayushman Digital Health Mission has seen an astonishing 61 per cent budget increase in real terms. However, this remains a gamble, as the scheme has struggled to integrate private players and obtain their data-sharing commitments.

Blindly prioritising corporate profits over public healthcare has dire consequences. Large sections of India's marginalised population—Dalits, Adivasis, and rural communities—reside far from urban centres, where the best PMJAY-empanelled hospitals are located. The financial burden of long-distance travel and indirect costs due to work absenteeism often leads to significant out-of-pocket expenditures, further undermining the scheme's effectiveness.

EXEMPTION FROM CUSTOMS



DUTY FOR ESSENTIAL DRUGS

The Finance Minister announced customs duty exemptions on certain drugs for cancer, rare diseases, and severe chronic conditions. However, despite these waivers, patented drugs remain prohibitively expensive for ordinary patients. A long-term solution would be to facilitate domestic production of generic alternatives, ensuring affordability and accessibility.

The proposal to establish daycare centres for cancer treatment in all district hospitals is a positive step. However, it remains to be seen how effectively these hospitals—many of which struggle to manage even routine cases—can handle specialised oncology care. A recent CAG report has highlighted severe shortages of doctors and healthcare personnel in government hospitals and health centres, raising concerns about implementation.

MEAGRE HEALTH RESEARCH BUDGET

Health research continues to receive inadequate funding, with a paltry 3.8 per cent share of the total health budget—only a marginal increase from the previous 3.5 per cent. This leaves a vacuum that private pharmaceutical companies will likely fill with their own research grants. However, such heavy reliance on corporate funding raises ethical concerns about biases and conflicts of interest, making independent, objective research increasingly difficult.

NEGLECT OF MENTAL HEALTH AND DISABILITY CARE

Mental health issues are on the rise, yet the National Mental Health Program remains grossly underfunded. The premier institution for mental health, the National Institute of Mental Health and Neurosciences (NIMHANS) in Bengaluru, has suffered a 4.44 per cent real-term budget cut. Additionally, people with disabilities continue to be sidelined, receiving a mere 0.025 per cent of the total budget allocation—a glaring oversight in a country with a significant disabled population.

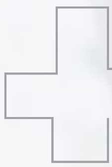
FAILURE TO PRIORITISE UNIVERSAL HEALTHCARE ACCESS

The Ayushman Bharat Health Infrastructure Mission (PM-ABHIM), touted as India's most ambitious healthcare infrastructure initiative, has seen abysmally low utilisation, with less than 50 per cent of allocated funds being spent annually. The program was designed to enhance public healthcare capacities at primary, secondary, and tertiary levels, aiming to strengthen the neglected public health system.

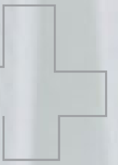
However, successive governments have strayed further from the vision of the Bhore Committee Report (1946), which had recommended comprehensive public healthcare infrastructure: a 75-bed primary health centre for every 10,000–20,000 people, a 650-bed secondary hospital at the block level, and a 2,500-bed tertiary hospital at the district level. Instead of building this robust skeleton, years of neglect have left India's public healthcare system riddled with fractures.

Annual health budgets now resemble a ritualistic exercise of applying superficial therapies over deep structural wounds. Without a significant course correction, India's healthcare crisis will only deepen, leaving millions of citizens without access to essential medical services.

(The author has served as an epidemiologist in the armed forces for over two decades. Currently Professor Emeritus at Dr DY Patil Medical College, Pune, he was recently ranked among the world's top 2 per cent scientists by Stanford University. He has also penned Covid-19 Pandemic: A Third Eye.)



DOUBLE HELICAL



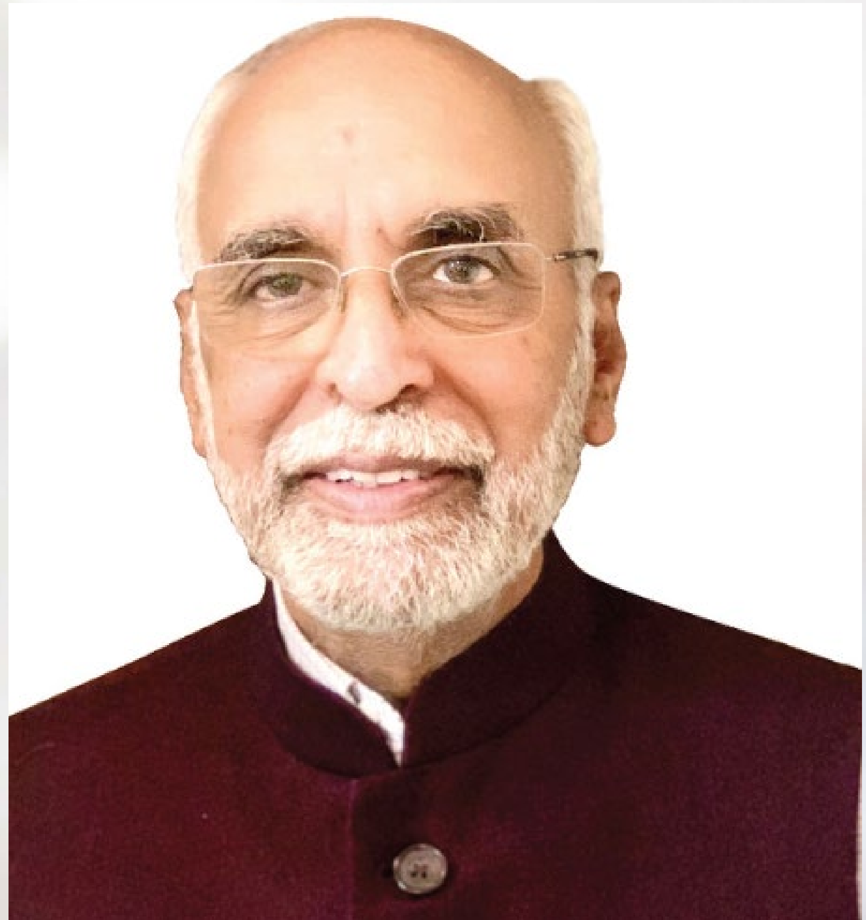
HEALTHCARE'S HIDDEN COST

Referral commissions in the healthcare sector have sparked a heated debate, raising questions about ethics, trust, and financial survival. While media narratives often paint these practices as purely profit-driven, the reality is far more complex. Hospitals, grappling with soaring operational costs and inadequate reimbursements, argue that referral payments are a lifeline in an underfunded system. This article delves into the financial pressures behind referral commissions, their impact on patient trust, and the path toward a balanced, ethical healthcare ecosystem.

BY DR VIJAY AGARWAL

A recent media article has brought to light a pressing concern regarding the practice of referral commissions in the healthcare sector, a practice that undeniably undermines patient trust and tarnishes the perception of ethical medical care. This issue, while complex, demands a thorough examination to distinguish between outright unethical practices and the systemic financial pressures that drive certain behaviours. At the heart of the matter lies a critical distinction: the difference between unethical actions, such as recommending unnecessary tests and procedures, and the referral payments hospitals make to attract patients. The former constitutes a blatant violation of medical ethics and is illegal, warranting unequivocal condemnation. However, the latter, while ethically questionable, requires a more nuanced exploration to determine whether it stems from profiteering motives or is a survival mechanism in an increasingly competitive and underfunded healthcare landscape.

A common assumption is that eliminating referral payments would automatically lead to reduced hospital bills. However, this perspective overlooks the harsh economic realities that



hospitals grapple with daily. Referral payments are often a symptom of deeper financial pressures rather than a reflection of profit-driven greed. The central question that must be addressed is: Why do hospitals agree to pay these commissions in the first place? In most cases, the answer lies not in a desire to maximise profits but in the struggle to survive within a healthcare system that is both highly competitive and chronically underfunded. Hospitals operate within a complex financial ecosystem characterised by soaring operational costs, inadequate reimbursement models, and relentless economic pressures.

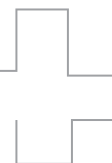
While unethical practices like unnecessary tests must be condemned, the financial realities of running a hospital cannot be ignored. There is a need to explore the delicate balance between ethical accountability and economic sustainability, offering solutions to rebuild trust and ensure quality care for all.

THE FINANCIAL REALITIES OF HEALTHCARE INSTITUTIONS

Hospitals face a multitude of financial challenges that make their operations inherently costly and often unsustainable. High operational costs are a significant burden, with many institutions carrying substantial debt from loans taken to finance infrastructure development and the acquisition of advanced medical equipment. Additionally, hospitals are subjected to exorbitant commercial electricity tariffs, which are significantly higher than residential rates, further straining their budgets. Human resource costs also weigh heavily on healthcare institutions. As a labour-intensive sector, healthcare relies on skilled personnel, particularly nurses, to deliver quality care. However, financial constraints often prevent hospitals from offering competitive salaries, leading to high staff turnover and chronic workforce

shortages. Compounding these challenges are the limitations of insurance and reimbursement systems. Hospitals frequently face under-compensation from both government health schemes and private insurance providers. Government programs, in particular, often reimburse far less than the actual cost of many procedures, forcing hospitals to absorb significant losses or seek alternative means to offset these deficits. Moreover, current reimbursement models fail to account for critical variables such as geographic location, infrastructure quality, and patient care standards. As a result, hospitals that invest in high-quality infrastructure and services are paradoxically penalised by uniform reimbursement rates that do not reflect their higher operational costs.

Media narratives often simplify the issue, overlooking the financial pressures hospitals face—from crippling operational costs to under-compensation by insurance providers. While unethical practices must be eradicated, the systemic challenges driving referral payments demand a more balanced approach. This article examines the economic realities of healthcare, the impact of simplistic narratives, and the reforms needed to create a sustainable, ethical system that prioritises patient care and trust.



These financial pressures are further exacerbated by delayed payment cycles from insurance providers, which disrupt cash flow and create additional strain on hospital operations. With over 60 per cent of hospital patients now covered by insurance—and government programs being the largest payers—the inadequacies of these reimbursement models have far-reaching implications for the sustainability of healthcare institutions.

THE IMPACT OF SIMPLISTIC NARRATIVES

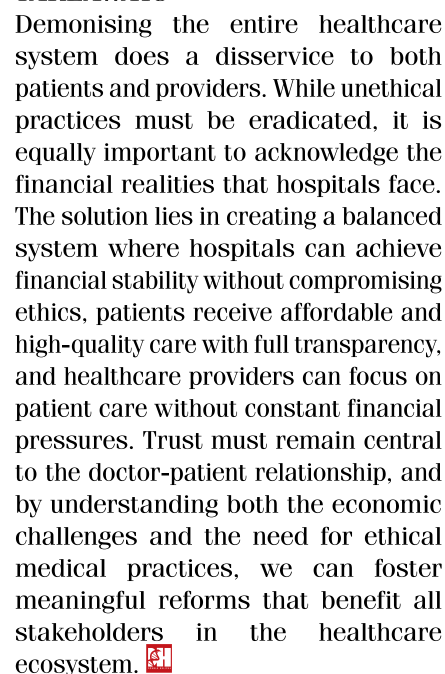
Media portrayals that focus narrowly on referral commissions or unethical practices risk creating an oversimplified and damaging narrative. Such narratives erode public trust in the healthcare system by implying that financial incentives consistently take precedence over clinical priorities. This erosion of trust has immediate and long-term consequences. In the short term, patients may delay or avoid necessary medical care due to fears of financial exploitation, while healthcare providers face increased scepticism that hinders their ability to recommend optimal treatments. The doctor-patient relationship, which should be collaborative and trust-based, becomes adversarial. Over time, these dynamics lead to deteriorating health outcomes as patients defer timely interventions, resulting in advanced conditions that are costlier to treat. Physicians, burdened by the need to constantly justify their decisions, experience burnout, while investment in healthcare infrastructure and quality improvements declines due to financial instability.

A PATH TOWARD BALANCE

Addressing these challenges requires a multi-faceted approach that balances ethical accountability with economic sustainability. Regulatory reforms are essential to create a more transparent and equitable system. Transparent pricing mechanisms that reflect the actual costs of procedures must be implemented, alongside reimbursement models that reward quality care and infrastructure investment. Clear, standardised guidelines for marketing and referral practices should also be established to curb unethical behaviours. Financial sustainability must be prioritised through the review and adjustment of insurance reimbursement rates to cover actual procedure costs. Funding models that support long-term investments in healthcare infrastructure, as well as financial incentives for hospitals that prioritise quality improvement, are critical to ensuring the viability of healthcare institutions.

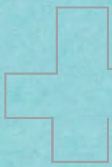
Rebuilding trust between healthcare providers and patients is equally important. Transparent communication, strengthened audit mechanisms, and patient education about healthcare economics can foster greater understanding and collaboration. Partnerships between medical associations and patient advocacy groups can further promote ethical practices and patient-centred care.

TAKEAWAYS



Demonising the entire healthcare system does a disservice to both patients and providers. While unethical practices must be eradicated, it is equally important to acknowledge the financial realities that hospitals face. The solution lies in creating a balanced system where hospitals can achieve financial stability without compromising ethics, patients receive affordable and high-quality care with full transparency, and healthcare providers can focus on patient care without constant financial pressures. Trust must remain central to the doctor-patient relationship, and by understanding both the economic challenges and the need for ethical medical practices, we can foster meaningful reforms that benefit all stakeholders in the healthcare ecosystem.

(The author is President, Consortium of Accredited Healthcare Organisations—CAHO)



A LOOMING CATASTROPHE

Bacteria are master survivors, evading antibiotics through genetic mutations, enzyme production, and molecular pumps that neutralise treatments. As resistance grows, medical costs and fatalities climb, leaving the world scrambling for innovative solutions.

BY DH BUREAU

Antibiotic resistance (AR) is one of the most pressing issues we face today. It threatens our ability to treat infections, impacts public health, disrupts food security, and hinders global development. When bacteria become resistant to antibiotics, treating infections in people and animals becomes more difficult. This leads to higher medical bills, longer hospital stays, and even more deaths. The World Health Organization (WHO) warns that AR could cause about 10 million deaths each year if the problem isn't addressed. Despite knowing how serious AR is, we're struggling to develop new antibiotics quickly enough.

WHY AR IS SUCH A BIG ISSUE

The more we use antibiotics, the more we push bacteria to become resistant. Our modern lifestyle, with dense populations and rapid travel, makes it easier for resistant bacteria to spread. Bacteria have clever ways to survive antibiotics. They can change their genetic makeup through mutations or by picking up resistance genes from other bacteria. Here's how bacteria become resistant:

1. **Reduced Affinity:** Bacteria can alter themselves so that antibiotics can't easily bind to them.
2. **Antibiotic Inactivation:** Bacteria produce enzymes that

break down antibiotics, rendering them ineffective.

3. **Membrane Changes:** Bacteria can change their cell membranes to prevent antibiotics from entering.
4. **Efflux Pumps:** Bacteria can develop pumps that actively expel antibiotics from their cells, preventing the drugs from working.
5. These mechanisms make it increasingly difficult to treat infections, emphasising the need for new antibiotics and better management of existing ones to combat AR effectively.

ANTIBIOTIC RESISTANCE: AN EMERGING CHALLENGE

Developing new technologies has helped us find new ways to fight antibiotic resistance. For example, we can now study biological systems, such as metabolic pathways and immune responses, to develop novel strategies against resistant bacteria.

HOW BACTERIA RESPOND TO STRESS AND DEVELOP RESISTANCE

Bacteria face many stressful conditions like acidity, heat, cold, hunger, and oxidative stress. These stresses trigger bacterial responses that help them survive and adapt. Unfortunately, these responses can also make bacteria resistant to antibiotics.

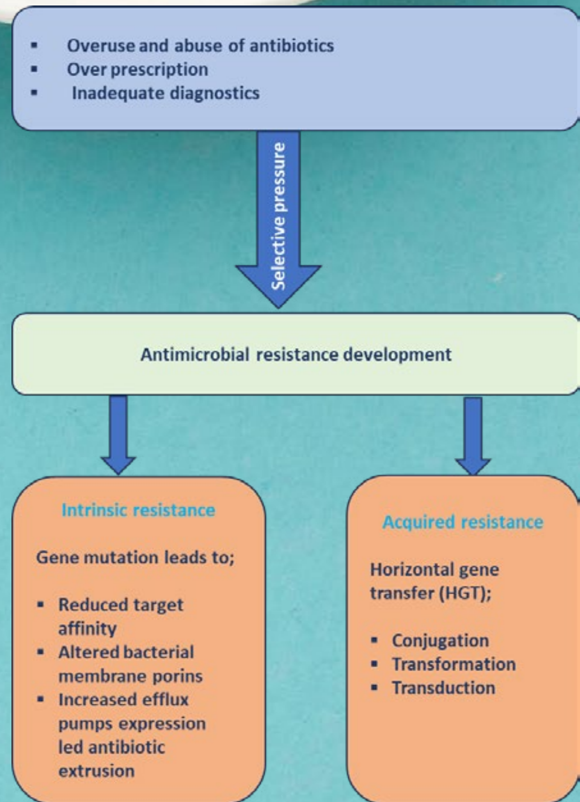


Figure 1. Resistance mechanisms adapted by Antibiotic-Resistant bacteria

For instance, Gram-negative bacteria become resistant by reducing membrane permeability, altering target sites, producing enzymes that destroy antibiotics, increasing efflux pump activity, and changing metabolic pathways. These stress responses make it harder for antibiotics to work effectively.

THE SOS RESPONSE: A KEY PLAYER IN RESISTANCE

The SOS response is a well-known bacterial reaction to DNA damage caused by stressors such as high pressure, acid, oxidants, and antibiotics. This response involves reactive oxygen species (ROS) that damage DNA. Two key genes, LexA (a repressor) and RecA (an inducer), regulate the SOS response. When DNA is damaged, the RecA-ATP complex accumulates and triggers the self-cleavage of LexA, leading to the expression of SOS genes. This process helps bacteria repair their DNA but also contributes to antibiotic resistance by promoting biofilm formation and genetic changes.

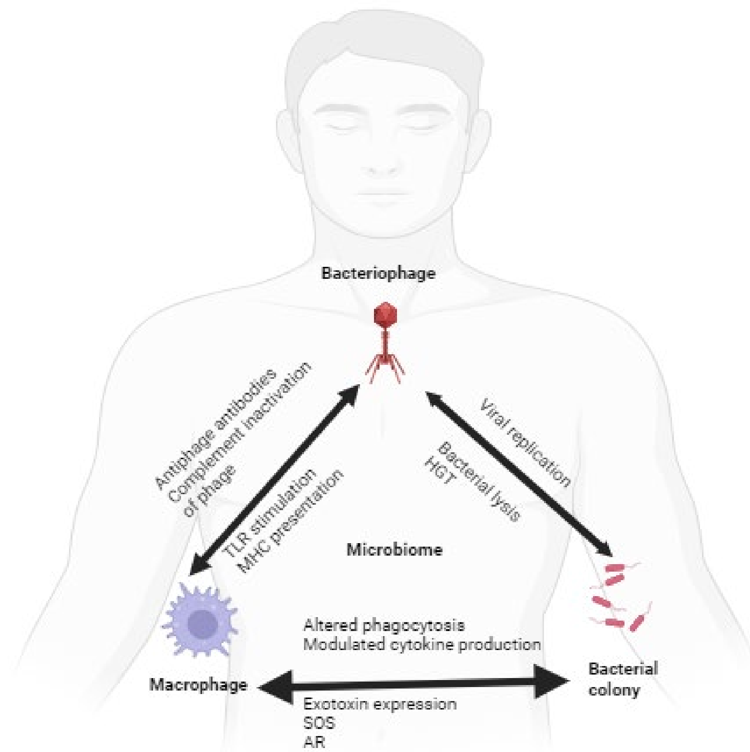


Figure 2: microbial dysbiosis, or immune dysregulation, may have significant consequences for our immunologic and metabolic health. Tri-Kingdom interaction in our microbiome accountable for maintaining immune system and metabolic health (Created with BioRender.com)

HEAT AND COLD STRESS: THEIR ROLE IN RESISTANCE

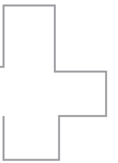
Bacteria respond to sudden temperature changes through heat shock response (HSR) and cold shock response (CSR). During HSR, bacteria produce heat shock proteins (HSPs) that help refold damaged proteins and degrade faulty ones. HSPs like ClpLA and ClpXP are associated with antibiotic resistance. HSR also increases genetic recombination and horizontal gene transfer, contributing to multidrug resistance in Gram-negative bacteria.

Advanced genomic tools are revolutionising how we detect and combat antibiotic resistance. From whole-genome sequencing to innovative immuno-antibiotics, science is racing to outpace bacteria's deadly adaptations.

During CSR, cold shock proteins (CSPs) help bacteria initiate protein synthesis under cold conditions. CSPs like CspD promote biofilm formation and the development of persister cells, which are highly resistant to antibiotics. Additionally, low temperatures can alter the expression of porins and membrane fusion proteins, further enhancing resistance in bacteria like Moraxella catarrhalis.

OUR MICROBIOME: MAINTAINING HEALTH BALANCE

Our microbiome, the community of microbes living in and on our bodies, plays a crucial role in our overall health. It forms an interconnected network involving bacteria, bacteriophages (viruses that infect bacteria), and human cells. Disrupting this balance,



such as through exposure to external phages, can affect the stability of our microbiome, impacting our immune and metabolic health. By understanding these processes and developing new strategies, we can better combat antibiotic resistance and protect public health.

PROTECTING THE FUTURE FROM ANTIBIOTIC RESISTANCE THREATS

Antibiotic resistance is becoming a bigger problem because of the overuse and misuse of antibiotics, as well as poor infection control and prevention. Everyone has a role to play in addressing this issue, including individuals, medical professionals, veterinarians, governments, and non-governmental organisations.

HOW INDIVIDUALS CAN HELP PREVENT ANTIBIOTIC RESISTANCE

- Use Antibiotics Responsibly: Only take antibiotics when prescribed by a certified health professional.
- Practice Good Hygiene: Regular hand washing and other hygiene practices can help prevent infections and reduce the need for antibiotics.

HOW POLICYMAKERS CAN ENCOURAGE RESPONSIBLE ANTIBIOTIC USE

- Develop National Action Plans: Create and strengthen policies to prevent the overuse of antibiotics and control infections.
- Improve Surveillance and Awareness: Monitor antibiotic-resistant infections and educate the public about the dangers of antibiotic resistance.

THE ROLE OF HEALTH PROFESSIONALS

- Prevent Hospital-Acquired Infections: Develop comprehensive plans and educate medical staff and patients about infection prevention and control (IPC) practices.
- Raise Awareness: Spread knowledge about antibiotic resistance and the importance of preventing infections.

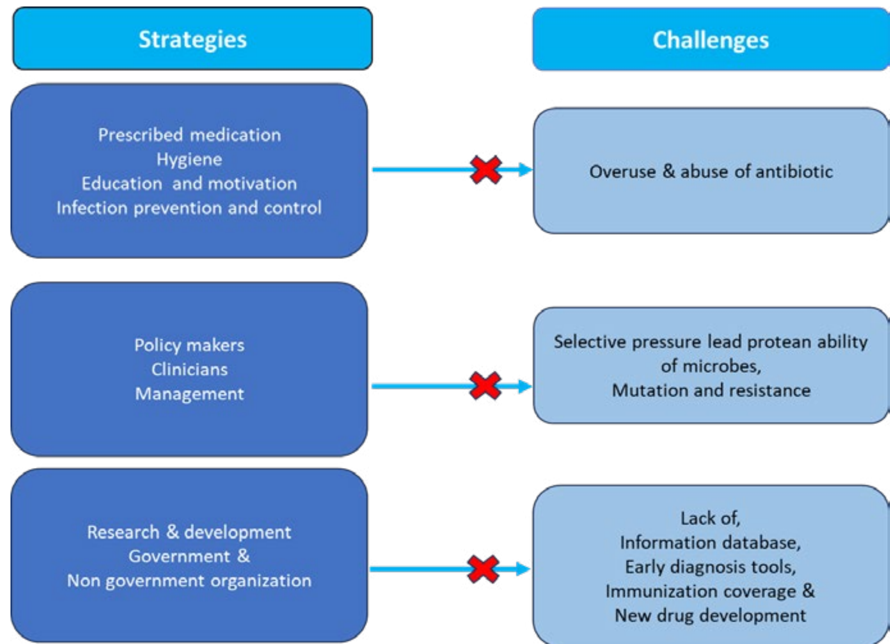


Figure 3. Multidisciplinary and Collaborative Strategy at Several Levels to Combat the Global Crisis of Antibiotic Resistance

HOW THE INDUSTRY CAN INNOVATE TO PREVENT ANTIBIOTIC RESISTANCE

- Invest in Research: Focus on developing new medicines, vaccines, diagnostics, and other technologies to prevent infections.
- Prioritise Antibiotic Resistance: Allocate funds and resources to address this critical issue.

ENSURING RESPONSIBLE USE OF ANTIBIOTICS IN AGRICULTURE

- Vaccinate Animals: Use vaccines to prevent diseases and give antibiotics only under veterinary supervision.
- Avoid Using Antibiotics for Growth Promotion: Do not use antibiotics to promote growth or prevent diseases in healthy animals.
- Practice Good Food Production: Follow best practices in producing and processing foods from animals and plants.

THE GLOBAL ACTION PLAN BY WHO AGAINST ANTIBIOTIC RESISTANCE

The World Health Organization (WHO) has made fighting antibiotic resistance a top priority. In May 2015, the World Health Assembly approved a global action plan with five key goals:

1. Increase Knowledge and Awareness: Educate the public and professionals about antimicrobial resistance.
2. Improve Research and Surveillance: Enhance the monitoring and research of antibiotic resistance.
3. Reduce Infection Rates: Implement measures to lower the likelihood of infections.
4. Optimise Antibiotic Use: Promote

the best possible use of antibiotics.

5. Ensure Sustainable Investment: Secure long-term funding and resources to combat antibiotic resistance.

By taking these actions, we can work together to slow the spread of antibiotic resistance and protect public health.

CALL FOR ACTION IN RESEARCH AND DEVELOPMENT

The rise of drug-resistant bacteria highlights the urgent need to understand how antimicrobial resistance (AMR) works, such as identifying specific genes responsible for resistance. The WHO has emphasised the theme, "Combat drug resistance: no action today means no cure tomorrow," which has spurred increased research activities. Promising strategies have been developed to restore effective treatments against infections caused by resistant bacteria.

RAPID IDENTIFICATION AND QUANTIFICATION OF RESISTANCE

To tackle AMR effectively, it's crucial to quickly identify and measure resistance. Antimicrobial Susceptibility Testing (AST) helps assess both the phenotypic and genotypic aspects of AMR. Unlike traditional methods like disc diffusion and broth dilution assays, new AST methods use molecular-based techniques (DNA and RNA-based) to detect resistance genes and their alterations. These advanced methods require sophisticated bioinformatics and large databases of resistance markers.

BROAD-SPECTRUM GENOMICS AST

In diagnostics, there's a shift from focusing on specific genes to using genomic techniques for identifying bacterial species and antibiotic resistance. Whole-genome sequencing (WGS) allows us to trace all AMR-related genes, providing a comprehensive view of resistance factors in a bacterial cell. Given the rapid increase in bacterial resistance compared to new drug development, it's crucial for governments, industries, and research organisations to collaborate and promote innovation in AMR combat tools.

NOVEL SOLUTIONS OUTSIDE TRADITIONAL DEVELOPMENT PATHWAYs

The WHO's 2020 pipeline report includes a comprehensive evaluation of non-traditional antibacterial drugs. It lists 27 emerging treatments, such as bacteriophages, antibodies, and therapies that enhance the patient's immune system to combat bacteria.

IMMUNO-ANTIBIOTICS AS AN ALTERNATIVE

Understanding how antibiotics interact with the immune system can lead to better treatments and slower development of resistance. For example, a study by Volk et al. found that combining β-lactam adjunctive therapy with standard antibiotics increased certain immune responses in patients with MRSA. While past attempts to develop a Staphylococcus aureus vaccine have failed, new therapies that combine immune response factors with traditional treatments show promise.

Recent innovations include dual-acting immuno-antibiotics (DAIAs), which target specific bacterial pathways like the MEP (methyl-D-erythritol phosphate) pathway of isoprenoid biosynthesis and riboflavin biosynthesis. These pathways are essential for bacteria but not found in humans, making them ideal targets for new antibiotics.

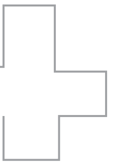
The SOS response is a DNA repair process activated by DNA damage and oxidative stress. Emerging evidence suggests that targeting components of the SOS response, such as RecA and LexA, along with efflux pump inhibitors (EPIs), can prevent the development of

antibiotic resistance. These inhibitors can enhance the effectiveness of bactericidal antibiotics, especially when used at sub-lethal concentrations.

By understanding and addressing these mechanisms and strategies, we can develop more effective ways to fight antibiotic resistance.

BACTERIOPHAGE THERAPY: A KEY DIRECTION IN COMBATING ANTIBIOTIC RESISTANCE

Imbalances in our microbiome can lead to illness. Studies on how bacteriophages (viruses that infect bacteria) interact with the human immune system are in their early stages. Much of what we know comes from phage therapy, which uses lytic phages to treat bacterial infections, and phage vaccines, which involve engineered phages for biotechnology applications. Despite extensive research on other microbiome components, our understanding of the human phageome (the collection of bacteriophages in our bodies) remains limited.



Antibiotic resistance is a global crisis, with bacteria evolving faster than medical innovations can keep up. The World Health Organization warns of a future where 10 million lives are lost annually due to untreatable infections.

COMPUTATIONAL RESOURCES IN MANAGING ANTIBIOTIC RESISTANCE

Advanced computational tools are crucial in the search for new drugs to manage antibiotic resistance. Numerous methods have been developed to identify AR genes, mutations, and genomes, many of which rely on similarity-search tools like BLAST and HMMER.

KEY TAKEAWAYS

Addressing AMR requires more than just discovering new antibiotics. It involves developing strategies to prevent the emergence of resistance and restore the effectiveness of existing antibiotics. Some of these new strategies include:

- Preventing Resistance: Implementing measures to limit or avoid the development of resistance to current antibiotics.
- Innovative Approaches: Encouraging the adoption of novel methods to combat resistance, such as bacteriophage therapy and immuno-antibiotics.
- Global Effort: A collaborative approach involving individuals, health professionals, policymakers, governments, and industries at both national and international levels.

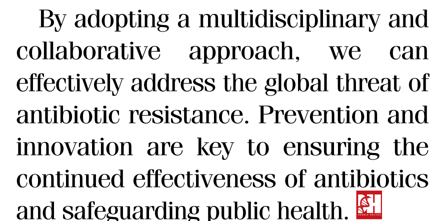
Understanding the interactions between antibiotics and the immune system can lead to improved treatments and slower development of resistance. For example, dual-acting immuno-antibiotics (DAIAs) target specific bacterial pathways not found in humans, making them effective and safe. Targeting biochemical resistance pathways, including the inhibition of the SOS response and hydrogen sulphide production, presents new avenues for combating resistance.

Phage therapy, which uses bacteriophages to target and destroy antibiotic-resistant bacteria, is an emerging strategy. This approach, along with phage vaccines and engineered phages, offers a promising alternative to traditional antibiotics.

Combating antibiotic resistance requires a comprehensive strategy that involves:

- Individuals: Using antibiotics responsibly and maintaining good hygiene.
- Health Professionals: Implementing robust infection prevention and control practices.
- Policymakers: Developing and enforcing policies to regulate antibiotic use and promote research.
- Governments and Industries: Investing in the development of new drugs, diagnostics, and treatments.

By adopting a multidisciplinary and collaborative approach, we can effectively address the global threat of antibiotic resistance. Prevention and innovation are key to ensuring the continued effectiveness of antibiotics and safeguarding public health.



(Based on a conversation with experts of Department of Pharmacology, Delhi Pharmaceutical Sciences and Research University, New Delhi)

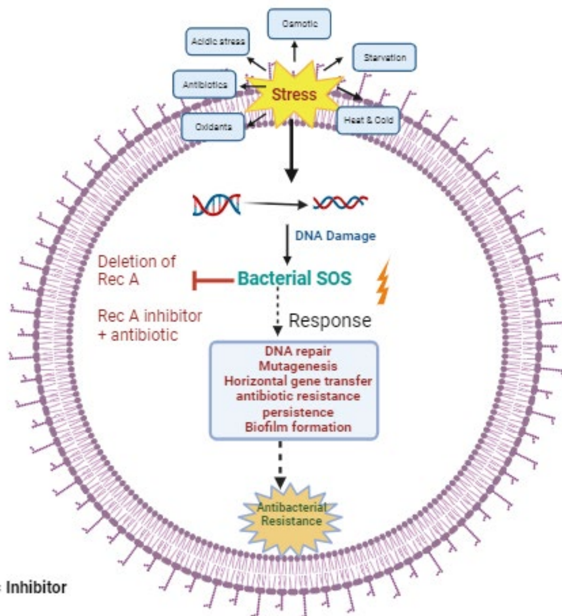
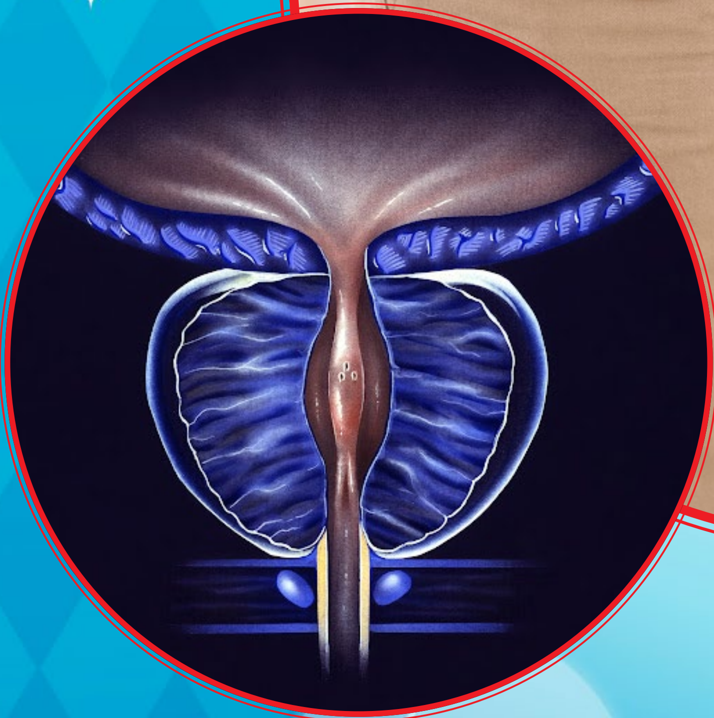


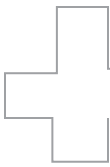
Figure 4: Bacterial Stress Response and Inhibition as a Novel Drug Target to Combat AMR (Created with BioRender.com). It illustrates the role of inhibitors targeting the SOS response, RecA, LexA, H-ATPase activity, and EPIs in combating AMR.

DECODING PROSTATE PROBLEMS

BY DR ABHINAV VEERWAL

As men age, an enlarged prostate—known as Benign Prostatic Hyperplasia (BPH)—becomes an almost inevitable part of life. While not cancerous, BPH can lead to frustrating and disruptive symptoms like frequent urination, painful bladder emptying, and sleep disturbances.





As men age, their prostate gland tends to enlarge, a condition known as Benign Prostatic Hyperplasia (BPH). This is a common occurrence, affecting approximately 50 per cent of men by the age of 50 and nearly 80 per cent by the age of 80. The prostate, a chestnut-shaped gland that is part of the male reproductive system, plays a crucial role in producing seminal fluid. While BPH is not cancerous, it can lead to significant health concerns, affecting the quality of life for many men.

COMMON SYMPTOMS OF PROSTATE DISORDERS

Men with BPH may experience an increased frequency of urination, particularly at night, which can significantly disrupt sleep patterns. A sudden and urgent need to urinate, difficulty in initiating or maintaining the flow of urine, painful urination, and a sensation of incomplete bladder emptying are also common symptoms. Some individuals may also experience terminal dribbling or unintentional leaking of urine. It is essential for men experiencing these symptoms to consult a urologist, as early diagnosis and management can prevent complications.

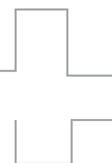
These symptoms tend to develop gradually and may worsen over time. However, some men may have an enlarged prostate without noticeable symptoms, while others experience significant discomfort. In a small percentage of cases, untreated BPH can lead to urinary retention, where the bladder is unable to empty completely. This risk increases with age and the severity of symptoms. Additionally, other conditions such as prostate or bladder cancer, kidney stones, and overactive bladder can cause similar symptoms, making it crucial to seek medical evaluation.

PREVENTION

Since BPH is primarily an age-related condition, it is currently irreversible. However, adopting certain lifestyle modifications may help delay its onset. Maintaining a healthy diet, engaging in regular physical activity, reducing stress levels, and avoiding smoking are beneficial in promoting overall prostate health. While these measures cannot completely prevent BPH, they can contribute to better urinary function and overall well-being.

HOW TO ASSESS YOUR PROSTATE HEALTH

Regular prostate examinations are recommended for men starting at age 50, or earlier if they experience symptoms or have high-risk factors. Understanding key health indicators is also crucial. The American Urological Association Symptom



Score (AUASS) helps assess the severity of BPH symptoms, while the Prostate-Specific Antigen (PSA) test aids in detecting prostate abnormalities, including cancer. Additional diagnostic tools such as Digital Rectal Examination (DRE), Urinalysis, Uroflowmetry, Rectal Ultrasound, and Post-Void Residual Volume measurement may be required for a thorough evaluation. These tests are readily available at urology clinics and provide valuable insights into prostate health.

POTENTIAL MEDICAL CONSEQUENCES OF BPH

If left untreated, BPH can lead to several complications, including urinary retention, urinary tract infections, bladder stones, blood in the urine, incontinence, and decreased kidney function. These complications can significantly impact an individual's quality of life, underscoring the importance of timely medical intervention.

BPH TREATMENT

The treatment of BPH aims to reduce urinary symptoms and improve the patient's overall comfort. For men with mild symptoms, a "wait and watch" approach is often recommended, as symptoms may improve without intervention. However, those with moderate to severe symptoms usually require medical treatment.

LIFESTYLE CHANGES

Behavioural modifications can be particularly beneficial, especially when used alongside medication. Patients are advised to avoid excessive fluid intake before bedtime or going out, as well as to reduce the consumption of diuretics such as caffeine and alcohol. Pelvic floor muscle training, including biofeedback techniques, may be particularly helpful for individuals experiencing

Are you at risk of prostate cancer?

1 in 8

In the UK, about 1 in 8 men will get prostate cancer at some point in their lives.

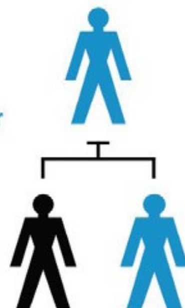
Prostate cancer is the most common cancer in men in the UK.

Over 50 years old

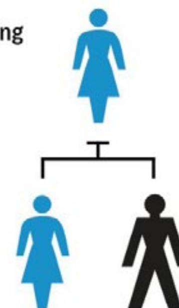
Prostate cancer mainly affects men over 50 and your risk increases with age.
The average age for men to be diagnosed with prostate cancer is between 65 and 69 years.

Family history and genes

You are two and a half times more likely to get prostate cancer if your father or brother has been diagnosed with it, compared to a man with no family history of prostate cancer.



Your risk of getting prostate cancer is higher if your mother or sister has had breast cancer.



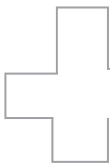
Characterised by an enlarged prostate gland, BPH can cause a range of urinary symptoms, from frequent nighttime urination to difficulty maintaining a steady stream. While not life-threatening, untreated BPH can lead to serious complications like urinary retention and kidney damage.

urgency symptoms. Certain medications, such as antihistamines and decongestants, can worsen BPH symptoms or cause urinary retention and should be avoided.

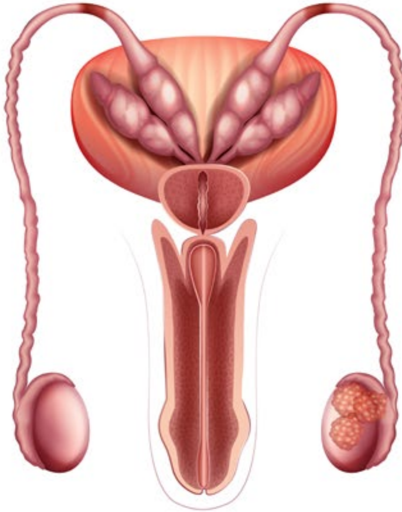
For those troubled by frequent urination, strategies such as double voiding—where one attempts to urinate again after a brief pause—can be helpful. However, patients should avoid straining or pushing excessively, as this can lead to additional complications.

MEDICATIONS

Various medications are available to manage BPH, including alpha-blockers, phosphodiesterase inhibitors, and alpha-reductase inhibitors. Men who also suffer from erectile dysfunction may find phosphodiesterase inhibitors particularly beneficial. Most men who



Testicular Cancer



The exact cause of testicular cancer is not known, but several risk factors have been identified, including:

Cryptorchidism (undescended testicles)
Family history of testicular cancer
Personal history of testicular cancer
Abnormal testicle development
Race (Caucasian men)
Age (most common in men aged 15-35)

begin medication for BPH will need to continue treatment indefinitely unless they opt for surgical intervention.

COMBINATION TREATMENT

In some cases, a combination of an alpha-blocker and an alpha-reductase inhibitor may be recommended. This approach is particularly beneficial for men with severe symptoms, a significantly enlarged prostate, or those who do not respond well to the highest dose of an alpha-blocker alone.

TRANSURETHRAL PROCEDURES

For patients whose symptoms do not improve with medication, minimally invasive procedures to remove or destroy excess prostate tissue may be considered. These procedures are performed using a special scope inserted through the urethra, and the choice of procedure depends on factors such as prostate size, location of excess tissue, the surgeon's expertise, and patient preferences. A urologist can help determine the most suitable course of treatment.

Surgical intervention is often the most effective treatment for BPH in appropriately selected patients. Transurethral Resection of the Prostate (TURP) is considered the gold standard for surgical management. Surgery offers long-term relief and has a proven track record of success.

SURGICAL OPTIONS

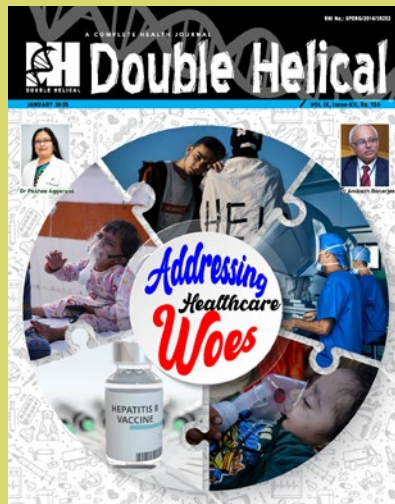
Surgical intervention is often the most effective treatment for BPH in appropriately selected patients. Transurethral Resection of the Prostate (TURP) is considered the gold standard for surgical management. Surgery offers long-term relief and has a proven track record of success. Most patients can return home shortly after the procedure, with a urinary catheter required for only a short duration. Normal activities can typically be resumed within 24 to 48 hours, and symptom improvement is usually noticeable within 8 to 10 weeks post-treatment.

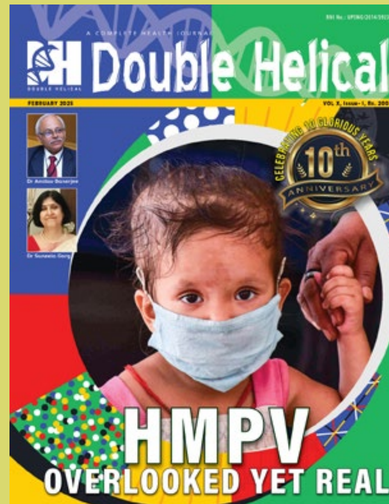
TAKEAWAYS

It is essential for the general population to be well-informed about the signs and symptoms of BPH. Early detection can prevent complications and improve overall health outcomes. Both medical and surgical treatments for BPH are highly effective, and TURP remains the preferred option for patients requiring intervention. Awareness, timely diagnosis, and appropriate treatment can significantly enhance the quality of life for men affected by this condition.

(The author MBBS, MS General Surgery, MCh Urology, is a practicing urologist with a keen interest in lower urinary tract diseases. He is currently based in Noida and specialises in the diagnosis and treatment of prostate disorders and other urological conditions.)

Your Guide to Healthy Living





Subscribe to Double Helical Magazine Now

Subscription Offer

Duration (year)	Issue	Newsstand Price INR	Subscription Price INR	Savings Price INR
1	12	1800	2600	200
2	24	3600	3200	400
3	36	5400	5000	400

Please fill this form in Capital Letters

First Name.. Last Name..

Designation/Profession..

Mailing Address..

City.. Postal Code..

State.. Country..

Telephone.. Fax..

Email.. Website..

I/We would like to subscribe for 1☐ 2☐ 3☐ Year

I am encloing a cheque/DD No. .... Drawn on .... (Specify Bank)

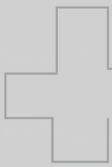
Dated..In favour of Double Helical Pvt. Ltd. payable at

Ghaziabad For Rs ....only

Advertisements & Marketing
Abhinav Kumar
Email: **sales**@doublehelical.com

All material printed in this publication is the sole property of Double Helical. All printed matter contained in the magazine is based on the information of those featured in it. The views, ideas, comments and opinions expressed are solely of those featured and the Editor and Publisher do not necessarily sub-scribe to the same.

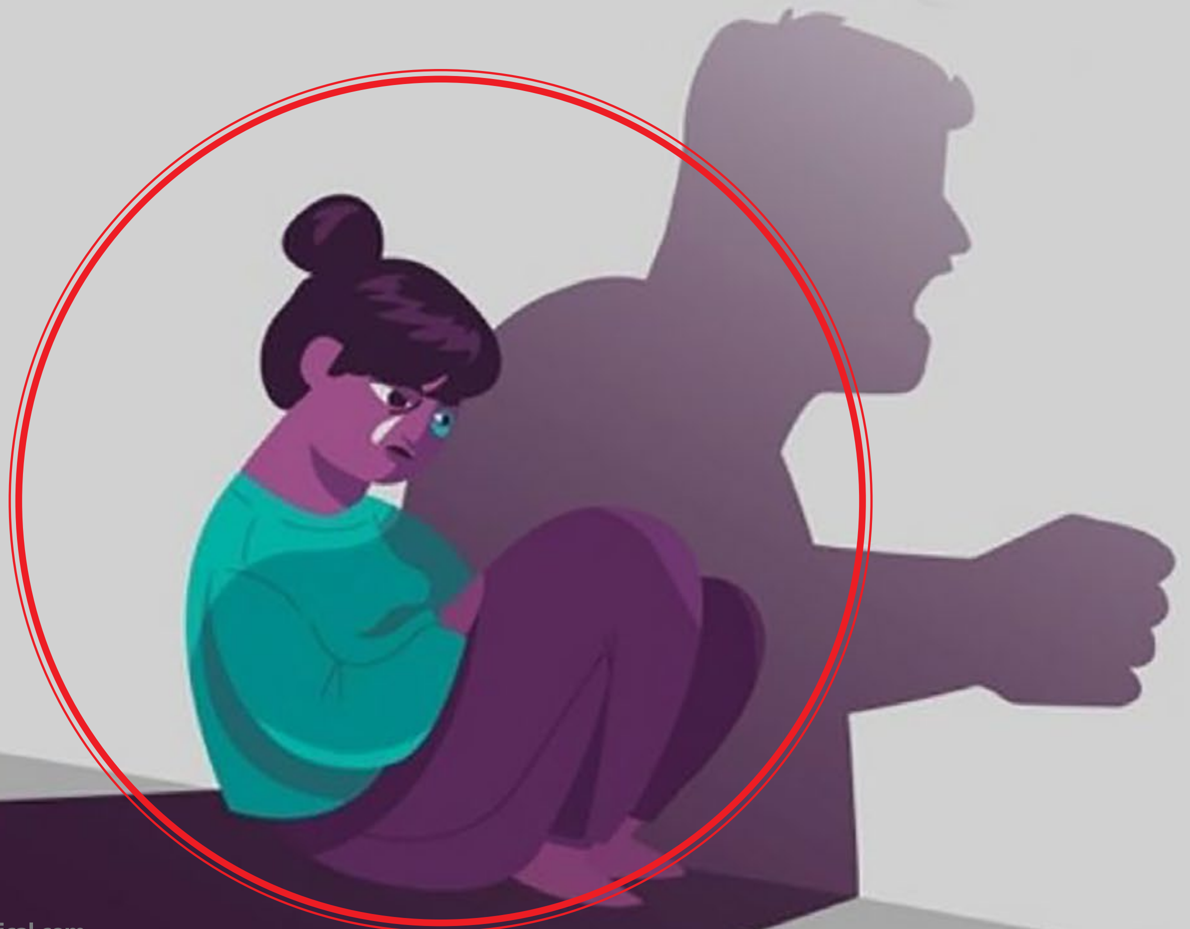
Double Helical is owned, printed and Published monthly. It is printed at Polykam offset, Naraina Industrial Area Phase 1, New Delhi-110028, and published from G-1, Antriksh Green, Kaushambi, Ghaziabad-201 010. Tel: 0120-4219575, 9953604965.
Contact us:**contact**@doublehelical.com
Email: **editor**@doublehelical.com, **doublehelicaldesign**@gmail.com
Website: www.doublehelical.com, www.doublehelical.in



ECHOES OF PAIN

Gender-Based Violence (GBV) lurks as a silent scourge, striking one in three women worldwide with devastating force. From physical scars to shattered minds, its toll on health and humanity is profound.

BY DR VINAY AGGARWAL

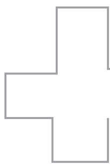


Violence against women carries profound and far-reaching consequences, casting a shadow over the physical, psychosocial, mental, and reproductive health of women, as well as the well-being of their children. Known as Gender-Based Violence (GBV), this pervasive issue stands as a stark reminder of the inequalities entrenched in society, demanding urgent attention and action.

Widely acknowledged as one of the most pressing public health challenges of our time, GBV transcends social, economic, and national boundaries, affecting individuals regardless of their background. GBV encompasses any intentional act of physical, psychological, or sexual harm—or the threat of such harm—directed at a person based on their gender. While both men and women can experience GBV, it predominantly refers to violence inflicted on women by men, rooted in the power imbalances perpetuated by patriarchal structures. The United Nations estimates that one in three women worldwide has faced physical or sexual violence from an intimate partner at least once in her lifetime, underscoring the scale of this human rights violation. As the most pervasive form of violence globally, GBV not only undermines individual dignity but also destabilises families and communities.

THE MANY FACES OF VIOLENCE

GBV manifests in multiple forms, each leaving its own imprint of suffering. Physical violence includes acts such as hitting, beating, slapping, punching, and even stabbing, with alarming statistics revealing that 23 to 53 percent of women abused



by their partners during pregnancy endure kicks or blows to the abdomen. Sexual violence takes shape through coerced sex, marital rape, attacks on sexual organs, or demeaning a partner's sexuality—acts that strip away autonomy and self-worth. Verbal violence, often overlooked, involves tactics like withholding access to phones or transportation, belittling a woman's relationships, or subjecting her to relentless monitoring and false accusations. Emotional violence erodes a woman's sense of self through criticism, public ridicule, or threats to her bond with her children. Economic violence, meanwhile, traps women by denying financial independence, with abusers controlling earnings, withholding money, or demanding justification for every penny spent. Together, these forms of violence create a web of control and degradation, ensnaring nearly 30 percent of women in relationships globally, according to reports.

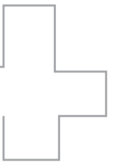
ROOTS AND RISKS

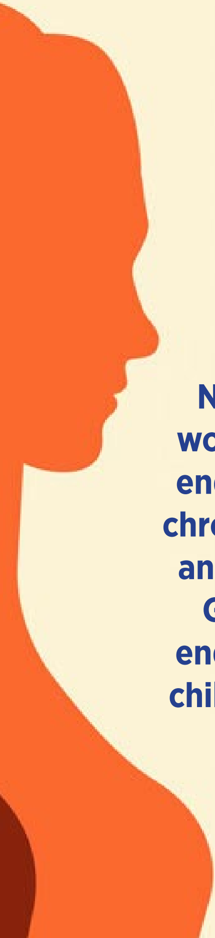
The origins of GBV lie deep within societal norms and individual experiences. Men with lower education levels, a history of witnessing child mistreatment, or exposure to family violence are more likely to perpetrate abuse. Attitudes that condone violence, uphold gender inequality, or are fuelled by substance abuse—such as alcoholism or drug addiction—further elevate this risk. On the other side, women with limited education, a background of childhood abuse, or an acceptance of violence as a norm face a heightened vulnerability to victimisation. This interplay of factors reveals a vicious cycle, where societal and personal histories converge to perpetuate harm.

A CASCADE OF HEALTH CONSEQUENCES

The effects of GBV ripple across a woman's life, compromising her physical, mental, and reproductive health in devastating ways. Physically, victims may suffer partial or permanent disabilities, chronic pain, gastrointestinal disorders, or organ damage, often compounded by poor nutrition. Mentally and psychosocially, the toll is equally severe—anxiety, guilt, shame, depression, post-traumatic stress disorder, sleep disturbances, and suicidal tendencies

Fear and stigma keep countless women from reporting abuse, trapping them in cycles of harm. Society must end this pervasive violation of human rights.





Nearly 30 percent of women in relationships endure violence, facing chronic pain, depression, and reproductive risks. GBV's ripple effects endanger maternal and child health, demanding urgent action.

are common, alongside substance abuse and social isolation driven by stigma. Reproductively, GBV introduces a host of challenges, from sexual dysfunction and unprotected sex to low birth weight in newborns, neonatal death, maternal mortality, HIV/AIDS, and infertility. Studies highlight that abused women struggle more with contraceptive use, increasing their likelihood of unintended pregnancies, unsafe abortions, and adolescent motherhood.

THE SHADOW OVER PREGNANCY

Pregnancy, a time often associated with hope, offers no reprieve from GBV. Nearly one in four women experiences physical or sexual violence while pregnant, with dire consequences for both mother and child. Research shows that newborns of abused mothers face a higher risk of dying before age five, often due to low birth weight linked directly to violence during pregnancy. Pregnant women subjected to GBV are also more likely to delay antenatal care, jeopardising their health and that of their babies. The connection between GBV and sexually transmitted infections, including HIV, further amplifies these risks. In India, for instance, married women enduring both physical and sexual violence from their spouses are four times more likely to contract HIV than their non-abused peers. A study in Tanzania paints an even grimmer picture, finding that young women aged 18 to 29 who experience GBV are ten times more likely to be HIV-positive. Depression, substance abuse, and inadequate weight gain during pregnancy are additional burdens borne by these mothers, contrasting sharply with the experiences of women spared from violence.

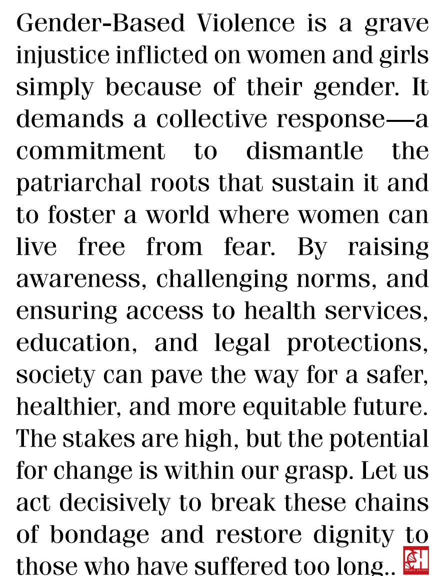
BEYOND THE MOTHER: IMPACT ON CHILDREN

The repercussions of GBV extend beyond the woman herself, profoundly affecting her children. Violence during pregnancy doesn't just threaten maternal health—it alters birth outcomes, with evidence linking it to neonatal complications and early childhood mortality. The trauma of living in an abusive household can also shape a child's development, perpetuating cycles of violence across generations. Access to family planning, which could reduce maternal mortality by 20 to 35 percent by limiting exposure to pregnancy-related risks, remains elusive for many abused women, who often bear more children than they desire under coercive circumstances.

THE SILENCE THAT SUSTAINS

Despite its prevalence, GBV remains shrouded in silence, largely because women rarely report it. Fear of stigma and discrimination looms large—society is quick to label victims as "unclean" or at fault, piling blame on those already suffering. Many women hesitate to speak out, doubting they'll be believed, especially when the abuser is an intimate partner. For married women, the fear of retaliation—whether threats to their loved ones or the spectre of murder—keeps them trapped. This reluctance to disclose abuse allows the issue to fester, unaddressed and unchecked, denying women the support and justice they deserve.

A CALL TO UPROOT THE CRISIS



Gender-Based Violence is a grave injustice inflicted on women and girls simply because of their gender. It demands a collective response—a commitment to dismantle the patriarchal roots that sustain it and to foster a world where women can live free from fear. By raising awareness, challenging norms, and ensuring access to health services, education, and legal protections, society can pave the way for a safer, healthier, and more equitable future. The stakes are high, but the potential for change is within our grasp. Let us act decisively to break these chains of bondage and restore dignity to those who have suffered too long..

(The author is past national president of IMA and CMD of Pushpanjali Medical Centre)

A PANACEA FOR RESPIRA DISE

ATORY EASES

In a world choking on rising rates of chronic respiratory diseases—claiming 4 million lives yearly and afflicting 550 million people globally—a drug-free therapy promises to reverse conditions like asthma, COPD, and lung fibrosis while dismantling addictions like tobacco and alcohol. Backed by WHO-endorsed integrative principles and India's traditional AYUSH systems, this approach has transformed lives.

BY DR R K TULI

Despite remarkable strides in medical science over recent decades, a troubling paradox persists: the global incidence of respiratory diseases—both acute and chronic—is escalating at an alarming rate, with no respite in sight. Official statistics paint a grim picture. Since 1990, the burden of Chronic Respiratory Diseases (CRDs) has surged by nearly 40 per cent worldwide. Today, approximately 550 million people—roughly 7 per cent of the global population—live with a chronic respiratory condition, facing heightened risks of premature morbidity, prolonged suffering, and untimely death. Annually, CRDs claim 4 million lives prematurely, ranking them as the third leading cause of mortality globally, trailing only cardiovascular diseases and cancer. In India alone, the toll is staggering: in 2016, Bronchial Asthma affected nearly 40 million individuals, while Chronic Obstructive Pulmonary Disease (COPD) burdened 60 million—a combined load of 100 million cases in a single nation.

What's particularly striking is the geographic disparity. High-income regions, with access to advanced healthcare, paradoxically exhibit a higher prevalence of CRDs compared to low-income areas. Global health authorities, including the World Health Organization (WHO), project that this trend will only intensify in the coming decades, driven by a confluence of factors: tobacco smoking, rampant air pollution, automobile exhausts, dust particles, biomass fuel combustion, occupational exposure to chemicals, frequent respiratory infections, and pulmonary hypertension. These risk factors vary by geography, culture, age, and gender, yet their cumulative impact is universal—respiratory health is under siege.

Respiratory diseases encompass a broad spectrum of conditions affecting the airways, lungs, and the neuromuscular mechanics of breathing. This umbrella term includes sinusitis, bronchitis, bronchial asthma, COPD, pneumoconiosis, sarcoidosis, interstitial lung disease (ILD) or idiopathic lung fibrosis (ILF), sleep apnoea, and lung cancer, among others. These ailments are often exacerbated by infections—viral, bacterial, or fungal—further complicating their management. Conventional medical treatments, such as bronchodilators, corticosteroids, and oxygen therapy, offer temporary relief by opening air passages, easing shortness of breath, and managing symptoms to improve daily functioning. Yet, these interventions are palliative at best. They come laden with side effects—ranging from mild (e.g., tremors, dry mouth) to severe (e.g., osteoporosis, cataracts, adrenal suppression)—and long-term hazards that compound morbidity. Despite the best efforts of modern medicine, CRDs remain incurable, progressively eroding quality of life and posing a formidable threat to human wellness.

THE WHO'S WARNING AND THE

CALL FOR A NEW APPROACH

The WHO has sounded a clarion call: "Unsafe medication practices and medication errors are a leading cause of injury and avoidable harm in health care systems across the world." This stark warning underpins the third Global Patient Safety Challenge, themed Medication Without Harm. It echoes the timeless dictum of Hippocrates, the Father of Medicine: "Primum Non-Nocere"—First, Do No Harm. Yet, no current medical procedure fully adheres to this principle. Pharmaceuticals, while life-saving in acute scenarios, often trade short-term relief for long-term risks, leaving patients caught in a cycle of dependency and decline.

This article emerges from a deeply personal yet professionally validated conviction: the integration of conventional medicine with drug-free, traditional modalities—collectively termed Holistic MediCare—offers a transformative solution. Rooted in my decades-long practice as a physician and former Chief Consultant of Holistic Medicine at Indraprastha Apollo Hospitals and the Indian Air Force, this approach aligns with WHO recommendations, as adopted in India's National Health Policy, to complement the best of medical science with the wisdom of AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) systems. The result? A natural, harmless, highly predictable, reproducible, and sustainable reversal of respiratory ailments—and beyond—at all stages and ages.

HOLISTIC MEDICARE: A SCIENCE OF WHOLENESS

Holistic MediCare transcends the limitations of symptom-focused medicine by treating the individual as an integrated whole—body, mind, and spirit. It leverages drug-free modalities from officially recognized traditional systems, avoiding the pitfalls of "mixopathy" (the haphazard blending of incompatible practices). By restoring the body's disturbed homeostasis—the delicate balance of physiological processes—this approach addresses the root causes of disease, not merely its manifestations. It reverses tissue damage, mitigates inflammation, and fosters regeneration, paving the way for positive health and total wellness.

Consider the scope of its impact.

No one need to suffer from Sleep Apnoea
It's eazy to get rid off sleep machine

"For many years I suffered from Severe Respiratory Allergy causing Massive Nasal Polyps, Bronchial Asthma & Sleep Apnoea leading to poor life and several co-morbidities. I had to use a machine to be able to sleep. But, Dr. Tuli's amazing drug-free treatment helped me to reverse all these problems just within 20 sessions with him seven years ago. Ever since I've enjoyed fully positive health."

PRATIMA DAYAL, IAS (Retd.) NDSE-II, New Delhi - 110049

"I had suffered from Bronchial Asthma since childhood which led to COPD - Sleep Apnoea for the previous six years needing BI-PAP support with 4-5 ltr/mt Oxygen. In addition I suffered from multiple medically incurable morbidities. Divine Guidance led me to Dr. Tuli's Holistic therapy which helped me to BREATHE FREE of all support and experience true wellness for the first time in my life."

Dr. (Med) GAUTAM BHATIA, SAHYOG Clinic, Satbari-Chattarpur, New Delhi

I arrived at The 'SOHAM' Clinic of Dr. R. K. Tuli in a totally moribund state due to Severe Depression, Chronic Fatigue, and Uncontrolled Hypertension with RBBB for over 25 yrs & Severe Sleep Apnoea needing C-PAP support for previous 10 years. But, within 2 months the drug-free Holistic Medicine therapy has put life back into me to be able to Breathe-Free and enjoy my health like never before at my age of 79 Years!!"

SHAKTI MALAVIYA, 'BLISS'-Sector 70-A, Gurugram (Haryana)

"MY LIFE WAS SAVED at 15,000 feet Altitude! While on our TREK to Everest Base Camp I suddenly developed 'Acute Mountain Sickness', and had no life energy left in me while my breath had turned feeble with SpO2 of 64% and my body pale & blue. Dr. Tuli revived me to live life all over within minutes with His Healing Touch and Needle-Free Acupuncture!!"

SACHEEN RAMCHANDANI, Khar West, Mumbai - 400052

"SOHAM"- The Centre for Holistic MediCARE

Dr. (Prof.) R. K. Tuli MBBS MD PhD

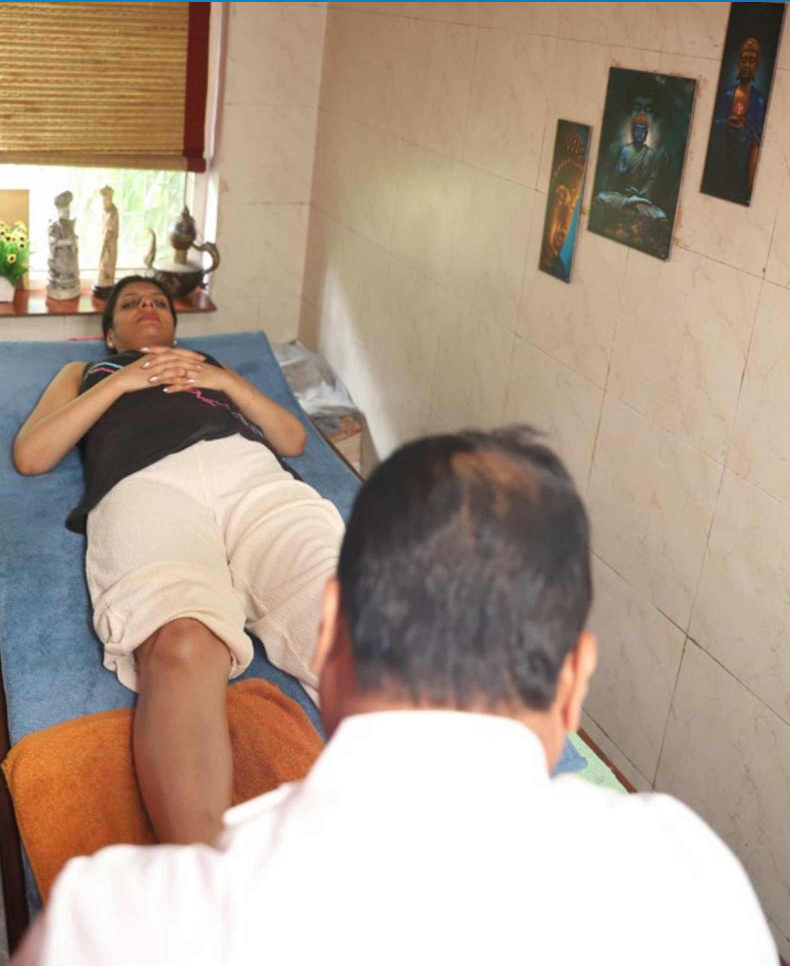
D-959, New Friends Colony. N.D. Ph: 9811224787. Web: www.holistic-medicare.net

Respiratory diseases like asthma, COPD, and ILD often coexist with comorbidities—hypertension, diabetes, obesity, chronic pain, or mental health challenges. Holistic MediCare doesn't isolate the lungs; it heals the entire system concurrently. Testimonials from eminent patients—senior surgeons, gynaecologists, and everyday individuals—attest to its efficacy. For instance, a senior surgeon, once a heavy smoker and binge drinker, not only quit his addictions but regained vitality and equanimity after treatment at my SOHAM clinic. Another patient, Latish Malhotra, shed a 24-year habit of consuming 15-20 packets of gutka daily within a week of laser therapy and counselling, declaring himself free from "this poison."

TACKLING THE TOBACCO MENACE

Tobacco consumption—whether smoked, chewed, or inhaled—stands as the primary risk factor for CRDs and a host of other diseases, from cardiovascular disorders to cancers. Yet, its grip on humanity is not a moral failing but a neurochemical one. Addiction arises from a disruption in the brain's neurotransmitter balance, where nicotine delivers fleeting relief from stress, boosts pleasure, or bolsters social standing. Sophisticated marketing by tobacco companies amplifies this allure, embedding positive memories that reinforce dependency.

Conventional medicine offers no reliable, lasting antidote to tobacco or substance abuse. Nicotine replacement therapies, antidepressants, or rehabilitation programs often falter, with relapse rates stubbornly high. Holistic MediCare, however, bridges this gap. By synergizing laser-acupuncture, reflexotherapy, hypnosis, lifestyle adjustments, nutritional guidance, and relaxation techniques, it achieves instant success in over 90 per cent of willing patients. This protocol alleviates withdrawal symptoms—stress, anxiety, cravings—within days, "erasing" past associations with tobacco and restoring a healthy neurotransmitter equilibrium. Patients report not just cessation but an aversion to



tobacco, alongside newfound confidence and self-esteem.

Take Arun Tulsian, a 50-year-old who chewed 40-50 packets of gutka daily for 30 years. By age 50, he faced precancerous oral fibrosis, restricting his mouth opening to one finger's width, alongside hypertension, diabetes, obesity, chronic fatigue, severe back pain, and immobility. After four months at SOHAM, he declared, "I've been given a new life. I've quit gutka completely, my mouth opens freely, my taste buds are back, and I'm pain-free, full of energy, and practicing yoga daily as Dr Tuli advised." His transformation exemplifies holistic medicine's power to reverse not just addiction but its cascading health consequences.

THE REWARDS OF QUITTING

The need to abandon tobacco cannot be overstated. Health education must emphasise its perils:

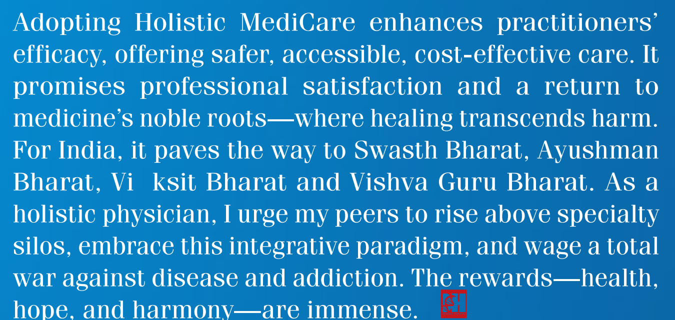
- Self-Poisoning: Each puff or chew delivers toxins that degrade organs.
- Premature Aging: It accelerates wrinkles, frailty, and disability.
- Sexual and Reproductive Harm: It leads to early impotence, infertility, and birth defects.
- Disease and Death: It vastly increases risks of lung disease, diabetes, heart attacks, strokes, and cancers—especially of the mouth, throat, and oesophagus.

Quitting saves more than health—it preserves finances. The cost of tobacco, coupled with inevitable medical bills from prolonged illness, drains resources. Early, painful death compounds the tragedy. Yet, cessation at any stage reverses damage over time. Within a year, lung function improves; within a decade, cancer risks plummet. Combined with a healthy lifestyle, individuals can reclaim decades of vibrant living—for themselves and their families.

A CASE FOR SCIENTIFIC VALIDATION

The evidence is compelling but anecdotal. Testimonials from diverse patients—Dr Ashima Vikram, whose surgeon husband quit smoking and drinking; Alla Shaurique, whose husband overcame "morbid alcoholism"; Sudarshan Sharma, who ditched 25 daily cigarettes after two sessions—highlight consistent outcomes. These stories demand rigorous exploration. Large-scale pilot projects, backed by peer support, are essential to establish scientific credibility, refine protocols, and integrate Holistic MediCare into mainstream practice. Its alignment with WHO's Health For All vision and India's Vedic motto, "Sarve Bhavantu Sukhinah - Sarve Santu Niramaya" (May all be happy, may all be free from illness), positions it as a potential panacea—not just for CRDs but for all conventionally incurable conditions.

RESTORING MEDICINE'S GLORY



Adopting Holistic MediCare enhances practitioners' efficacy, offering safer, accessible, cost-effective care. It promises professional satisfaction and a return to medicine's noble roots—where healing transcends harm. For India, it paves the way to Swasth Bharat, Ayushman Bharat, Vi ksit Bharat and Vishva Guru Bharat. As a holistic physician, I urge my peers to rise above specialty silos, embrace this integrative paradigm, and wage a total war against disease and addiction. The rewards—health, hope, and harmony—are immense.

(The author is former Chief Consultant Holistic Medicine, Indraprastha Apollo Hospitals & Indian Air Force, and Founder, Society For Holistic Advancement of Medicine (SOHAM)

DECIBELS OF DESTINY

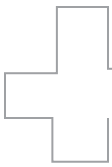
The WHO warns that 2.5 billion people—one in four—will face hearing loss by 2050, costing nearly US$1 trillion annually. This invisible disability, long stigmatised and ignored, demands action to prevent, detect, and rehabilitate, with over 1 billion young adults at risk from unsafe listening. A modest US$1.40 per person could yield a 16-fold return, making ear care a global imperative.

BY DR ARUN AGARWAL/DR SUNEELA GARG/DR ARVIND GARG/DR SIMANTINI GHOSH

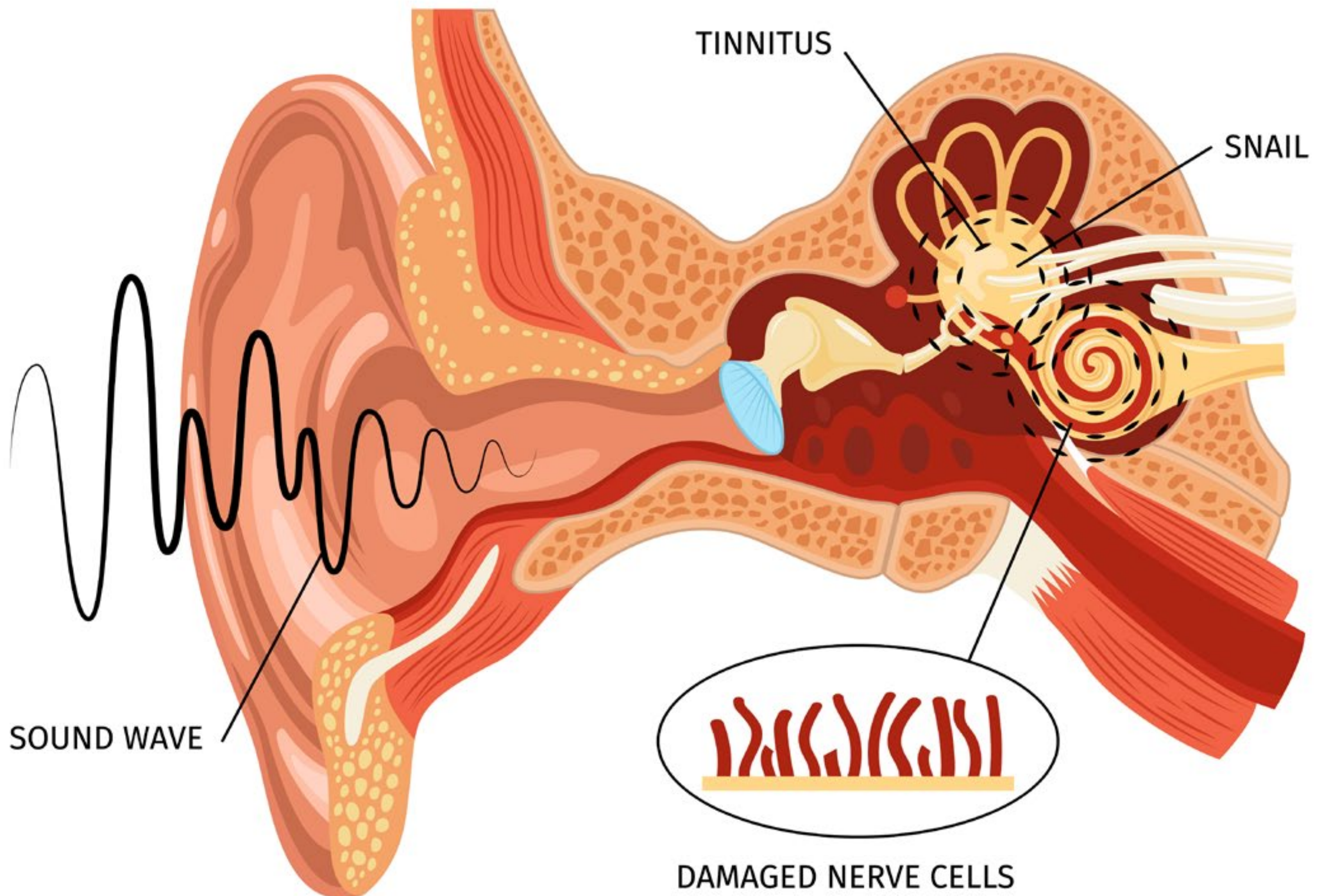
On World Hearing Day 2025, the World Health Organization (WHO) invites the world to seize a transformative opportunity. This global campaign unites stakeholders, partners, and advocates in a shared mission that transcends mere commemoration—it's a powerful call to action, urging individuals, communities, and governments to empower themselves and others to make ear and hearing care a universal reality. The urgency is undeniable: WHO projections paint a stark future where, by 2050, one in four people—nearly 2.5 billion individuals—will grapple with some degree of hearing loss, a significant rise from the one in five affected today. "Empower yourself to make ear and hearing care a reality for all!" the campaign declares, thrusting a long-neglected public health crisis into the foreground.

THE INVISIBLE DISABILITY: A STIGMATISED CRISIS

"Hearing loss has often been referred to as an 'invisible disability,' not just because of the lack of visible symptoms, but because it has long been stigmatised in communities and ignored by policymakers," asserts Dr Tedros Adhanom Ghebreyesus, WHO Director-General. This invisibility masks a pervasive challenge. Currently, over 5 per cent of the world's population—equating to 430 million people, including 34 million children—requires rehabilitation to address their disabling hearing loss, defined as a loss greater than 35 decibels (dB) in the better hearing ear. Looking ahead to 2050, WHO forecasts that nearly 2.5 billion

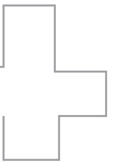


HEARING IMPAIRMENT



people will experience some form of hearing impairment, with over 700 million needing dedicated rehabilitative support. The economic toll is monumental: unaddressed hearing loss siphons nearly US$1 trillion annually from the global economy, a figure that accounts for health sector costs (excluding hearing devices), educational support expenses, lost productivity, and broader societal burdens.

The scale of this crisis is further illuminated by additional sobering statistics. Globally, over 80 per cent of ear and hearing care needs remain unmet, with nearly 80 per cent of individuals with disabling hearing loss living in low- and middle-income countries. The prevalence of hearing loss escalates with age—among those over 60, more than 25 per cent are affected by disabling hearing loss, a trend that underscores the growing burden on aging populations. Meanwhile, a younger demographic faces an equally pressing threat: over 1 billion young adults stand at risk of permanent, avoidable hearing damage due to unsafe listening practices, driven by the proliferation of personal listening devices (PLDs) and insufficient regulation of sound levels at entertainment venues. Yet, amidst this grim outlook, WHO offers a beacon of hope: scaling up ear and hearing care services worldwide requires an additional investment of just US$1.40 per person annually. Over a decade, this modest commitment promises a remarkable return of nearly US$16 for every dollar invested—a 16-fold yield



in improved health outcomes, enhanced productivity, and elevated quality of life.

THE CAMPAIGN'S MISSION: AWARENESS AND ACTION

World Hearing Day 2025 seeks to reframe ear and hearing health as a fundamental pillar of personal well-being and societal participation. The campaign's multifaceted mission is to raise awareness about how to prevent deafness and hearing loss, promote ear care practices across the globe, and dismantle the pervasive stigma and policy neglect that Dr Tedros highlights. Deeply ingrained societal misperceptions and stigmatizing mindsets remain formidable obstacles, consistently thwarting efforts to address this escalating public health challenge and perpetuating its status as an overlooked epidemic.

DEFINING HEARING LOSS AND DEAFNESS

Hearing loss is clinically defined as occurring when an individual's hearing thresholds exceed 20 dB in both ears—the established benchmark for normal hearing. This condition spans a broad spectrum: it can be mild, where soft sounds become difficult to discern; moderate; moderately severe; severe; or profound, where even loud sounds may be inaudible. Hearing loss can affect one ear (unilateral) or both (bilateral), disrupting the ability to perceive conversational speech or environmental sounds. Those classified as "hard of hearing" experience mild to severe loss and typically communicate through spoken language, often benefiting from hearing aids, cochlear implants, other assistive devices, and captioning services. In contrast, individuals who are "deaf" usually have profound hearing loss, implying little to no auditory perception; some utilize cochlear implants for partial restoration, while others rely on sign language as their primary mode of communication.

CAUSES ACROSS THE LIFE SPAN

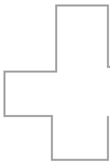
The origins of hearing loss are diverse, striking at critical junctures across the human life span with varying degrees of susceptibility. During the prenatal period, genetic factors—both hereditary and non-hereditary—can lay the groundwork for hearing impairment, alongside intrauterine infections such as rubella and cytomegalovirus, which pose significant risks to foetal auditory development. The perinatal period introduces additional vulnerabilities, including birth asphyxia, where a lack of oxygen at birth can damage hearing structures; hyperbilirubinemia, marked by severe jaundice in newborns; low birth weight; and other perinatal morbidities, compounded by their medical management, which may inadvertently heighten risks.

By 2050, nearly 2.5 billion people will experience hearing loss, up from 430 million today, with 700 million needing rehabilitation. Over 80 per cent of global ear care needs go unmet, hitting low- and middle-income countries hardest, where 80 per cent of those with disabling hearing loss reside. Among seniors over 60, one in four already battles this silent epidemic, costing the world US$980 billion yearly.

In childhood and adolescence, chronic ear infections—specifically chronic suppurative otitis media—emerge as a leading cause, often accompanied by fluid buildup in the ear, known as chronic nonsuppurative otitis media. Infections like meningitis further threaten auditory health during these formative years. As individuals transition into adulthood and older age, the landscape shifts again: chronic diseases such as diabetes and hypertension, smoking, otosclerosis (abnormal bone growth in the ear), age-related sensorineural hearing loss, and sudden sensorineural hearing loss become prominent culprits. Across all ages, a host of factors can precipitate hearing loss, including cerumen impaction (impacted earwax), trauma to the ear or head, exposure to loud noises or sounds, ototoxic medicines like certain antibiotics and chemotherapy drugs, workplace exposure to ototoxic chemicals, nutritional deficiencies, viral infections, other ear conditions, and the delayed onset or progressive manifestation of genetic hearing loss.

THE PROFOUND IMPACT OF UNADDRESSED HEARING LOSS

When hearing loss goes unaddressed, its consequences reverberate across multiple dimensions of life, profoundly affecting individuals and societies alike. At the individual level, it imposes significant limitations on communication and speech, undermining the ability to connect with others. Cognition is adversely impacted, with studies linking hearing loss to accelerated cognitive decline. Socially, it fosters isolation, loneliness, and stigma—particularly among older adults, who may withdraw from social interactions due to frustration or embarrassment. These personal tolls ripple outward, exerting a substantial impact on society and the economy. Access to education and employment becomes restricted, with children in



developing countries often excluded from schooling altogether due to a lack of accommodations. The WHO quantifies this burden, estimating an annual global cost of US$980 billion, which includes health sector expenses, costs of educational support, productivity losses, and societal impacts, measured in years lived with disability (YLDs) and disability-adjusted life years (DALYs). Tinnitus, a frequent companion to hearing loss, further compounds these challenges, eroding quality of life and exacerbating mental health struggles.

PREVENTION: A LIFELINE ACROSS THE LIFE COURSE

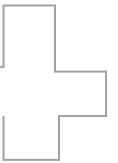
Prevention offers a lifeline, and the good news is that much of this suffering can be averted. WHO estimates that nearly 60 per cent of childhood hearing loss arises from avoidable causes, which can be addressed through targeted public health strategies and clinical interventions implemented throughout the life course—from prenatal and perinatal stages to older age. In adults, the most common triggers, such as exposure to loud sounds and ototoxic medications, are similarly preventable with proactive measures. Effective strategies abound: immunisation programs against diseases like rubella and meningitis can safeguard hearing from infancy; robust maternal and childcare practices can mitigate perinatal risks like asphyxia and jaundice; genetic counseling can identify and manage hereditary predispositions early on; timely identification and treatment of common ear conditions, such as otitis media, can halt progression; occupational hearing conservation programs can protect workers from noise and chemical exposure; safe listening practices can curb recreational sound damage; and the rational use of medicines can prevent ototoxic hearing loss by prioritizing safer alternatives.

IDENTIFICATION AND MANAGEMENT: CATCHING IT EARLY

Early identification stands as the linchpin of effective hearing loss management, enabling interventions that can alter its trajectory. This requires systematic screening to detect hearing loss and related ear diseases among those most at risk, a group that spans newborns and infants, preschool and school-age children, individuals exposed to noise or chemicals in occupational settings, patients receiving ototoxic medications, and older adults. Hearing assessments and ear examinations can be conducted in both clinical and community settings, made increasingly accessible through innovative tools like the WHO's hearWHO app and other technology-based solutions. These advancements allow screening with minimal training and resources, democratizing access to early detection. Once hearing loss is identified, addressing it as swiftly and appropriately as possible becomes essential to mitigate its adverse impacts, whether through technological aids, therapy, or environmental adjustments.

REHABILITATION: EMPOWERING INDEPENDENCE

Rehabilitation serves as a cornerstone for empowering individuals with hearing loss to function at their optimum, enabling them to remain as independent as possible in everyday activities and to



From prenatal infections to age-related decline, hearing loss strikes at every stage, yet 60 per cent of childhood cases and most adult triggers—like noise and ototoxic drugs—are avoidable. Immunisation, early screening with tools like hearWHO, and rehabilitation via hearing aids or sign language offer hope, bolstered by WHO-ITU device standards ensuring safe listening for all ages.

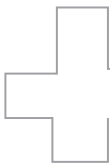
participate fully in education, work, recreation, and meaningful roles within their families and communities throughout their lives. This process encompasses a range of interventions tailored to individual needs: the provision of hearing technologies—such as hearing aids, cochlear implants, and middle ear implants—along with training in their use; speech and language therapy to enhance perceptive skills and develop communication and linguistic abilities; training in sign language and other sensory substitution methods, including speech reading, print-on-palm, Tadoma, and signed communication; the provision of hearing assistive technologies and services, such as frequency modulation (FM) and loop systems, alerting devices, telecommunication aids, captioning services, and sign language interpretation; and counselling, training, and support to boost engagement in education, employment, and community life. Comorbid conditions like cognitive impairment and tinnitus, which often accompany hearing loss, further highlight the need for a holistic approach, as these conditions significantly impact health and well-being, often leading to poorer quality of life.

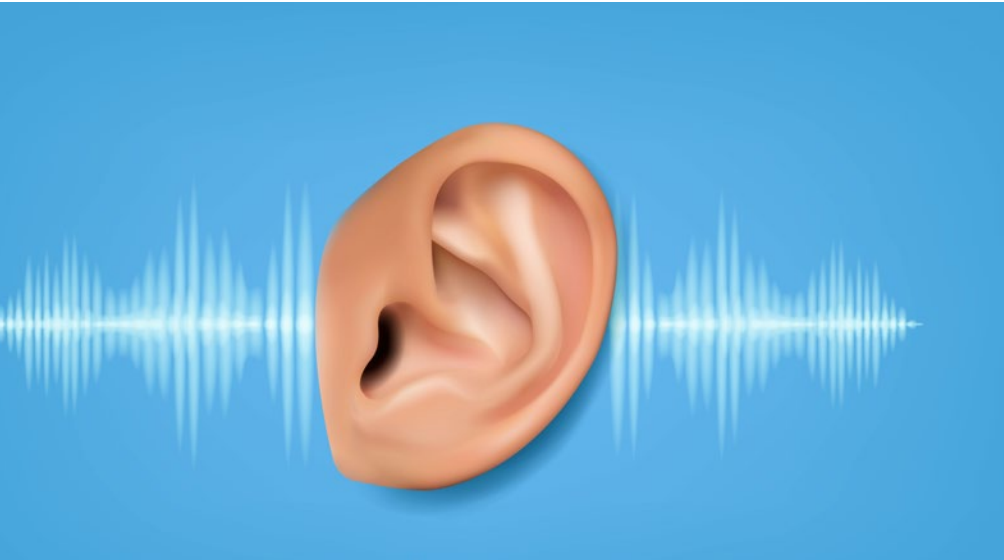
THE NOISE CRISIS: UNSAFE LISTENING PRACTICES

Unsafe listening practices—defined as listening to music or audio content at high volumes or for prolonged periods—pose a growing threat, particularly among adolescents and young adults worldwide. This trend is fuelled by the widespread availability of PLDs and the scarce enforcement of regulatory measures for both personal devices and entertainment venues. The risk of hearing loss hinges on three factors: the loudness, duration, and frequency of noise exposure. Permissible levels of recreational noise exposure are often calculated from equivalent occupational noise limits, such as 80 dB for 40 hours per week or 85 dB for 40 hours per week, though these standards vary slightly by region and regulatory body. Sound intensity, measured on a logarithmic scale, involves a time-intensity trade-off (exchange rate): for example, based on a maximum permissible level of 80 dB for 8 hours a day (40 hours/week) with a 3 dB exchange rate, permissible exposure drops to 2.5 hours at 92 dB, 38 minutes at 98 dB, and just 19 minutes at 101 dB. PLD users frequently choose volumes as high as 105 dB, while average sound levels at entertainment venues range from 104 to 112 dB, exceeding safe limits even for brief durations. These findings suggest that many young people are at risk of permanent hearing loss. While systematic reviews have explored unsafe listening practices, estimates of their prevalence and global burden remain absent from published literature, a gap that hinders prevention efforts and the ability to effectively communicate the need for intervention to governments, industries, and stakeholders responsible for policy implementation.

WHO'S SAFE LISTENING INITIATIVES

WHO estimates that over 1 billion young people globally are at risk of hearing loss due to sound exposure in recreational settings—a preventable yet costly threat. In response, governments, public health agencies, music creators, distributors, amplifiers, the private sector, civil society, and other stakeholders bear a duty of care to understand sound levels and foster safe listening environments. The Make Listening Safe initiative has birthed two landmark standards to address this crisis. The Global Standard for Safe Listening Venues and Events comprises





six features designed to protect hearing while preserving artistic integrity: an upper sound level limit of 100 dB LAeq (15-minute average) ensures safety and enjoyment; live sound level monitoring by designated staff using calibrated equipment tracks exposure in real time; optimised venue acoustics and sound systems enhance quality while minimizing harm; personal hearing protection, such as earplugs with instructions, is made available to audience members; designated quiet zones allow attendees to rest their ears, reducing damage risk; and appropriate training and information ensure that both staff and audiences understand practical steps for safe listening. These recommendations can be implemented by governments through legislation, compliance monitoring, and public awareness campaigns—recognizing that hearing loss prevention improves quality of life and yields productivity gains—by venue owners and managers who can voluntarily adopt features to protect patrons and enhance their experience, and by acousticians, engineers, musicians, and event organizers who can integrate the standard's benefits into their training and practice, safeguarding both audiences and workers.

The WHO-ITU Global Standard for Personal Audio Systems and Devices equips PLDs with safe listening features: a dosimetry function includes software that tracks sound exposure as a percentage of a reference "sound allowance," offering users two modes—80 dB for 40 hours per week for adults and 75 dB for 40 hours per week for children—to determine their safe sound dose; personalised information generates an individualised listening profile based on user habits, informing them of safety levels and providing action cues; volume limiting options include automatic reduction based on profile data (lowering volume if it's too high for too long) and password-protected parental controls to set safe levels for children; and general information provides guidance on safe listening practices across personal devices and leisure activities, alongside risks of non-compliance.

INDIA'S HEARING LANDSCAPE: NPPCD DATA

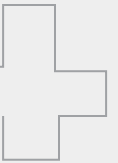
In India, the National Programme for Prevention and Control of Deafness (NPPCD) offers a detailed snapshot of the hearing loss burden: unilateral hearing loss (≥25 dB) affects 2.8 per cent of the population; bilateral hearing loss (≥25 dB in the better ear) impacts 7.1 per cent; total hearing loss or ear disability stands at 9.9 per cent, with a notable disparity between urban areas (8.6 per cent) and rural areas (11.2 per cent, $p<0.01$); and disabling hearing loss (DHL) affects 2.9 per cent, again higher in rural settings (3.4 per cent) than urban (2.3 per cent, $p<0.01$). DHL is defined as greater than 30 dB in the worse ear for those under 15 years and greater than 40 dB for those 15 and older, highlighting age-specific thresholds.

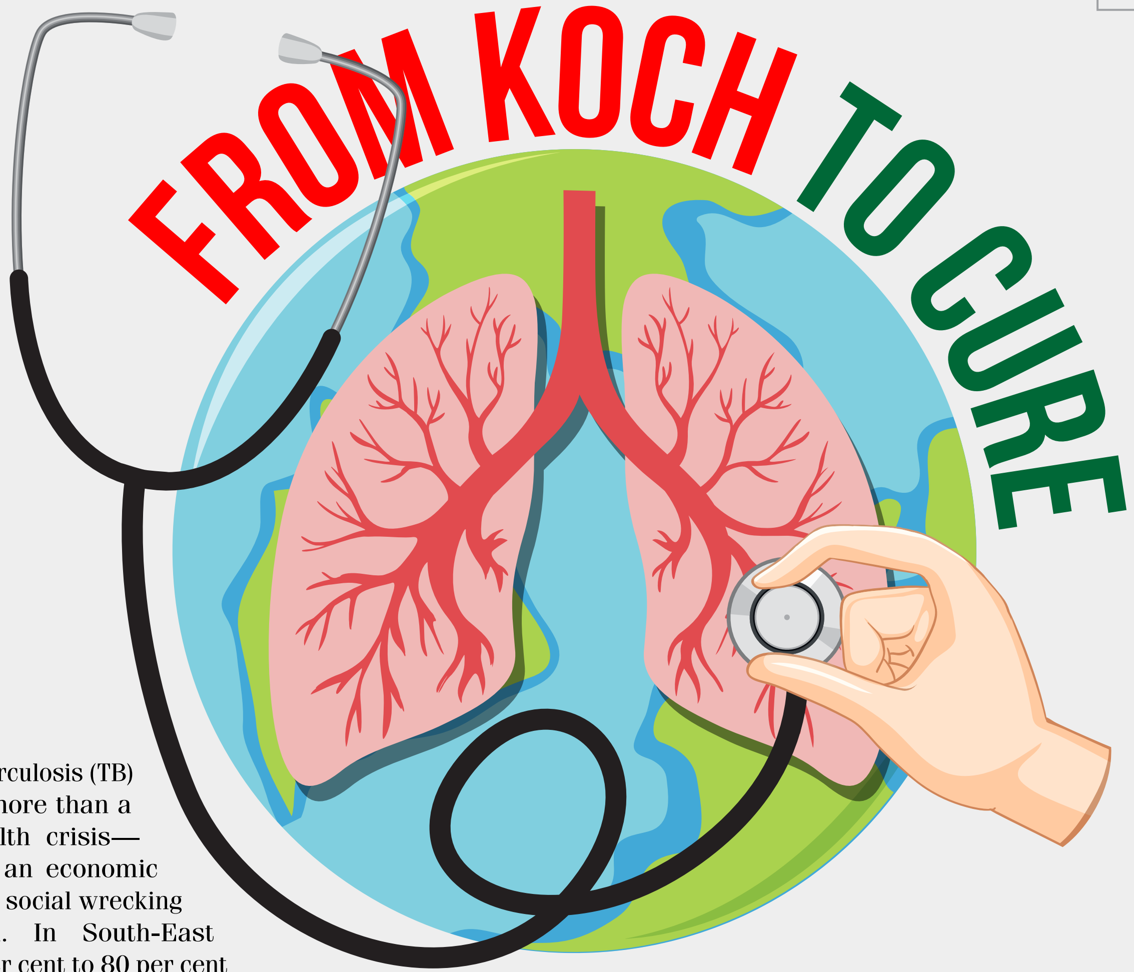
IMPLICATIONS AND BARRIERS

The implications of unaddressed hearing loss are vast, disrupting listening and communication, language and speech development, cognition, education, employment, and financial well-being. It fosters social isolation, loneliness, and challenges to mental health, interpersonal relationships, identity, and stigma. Barriers to progress are equally formidable: a pervasive lack of awareness about ear care leaves many uninformed; teachers often lack the skills to identify children with hearing loss, delaying intervention; myths and misconceptions, alongside gender disparities, health system deficiencies, and policy-level inertia, further obstruct solutions.

A VISION FOR THE FUTURE

World Hearing Day 2025 reaffirms that hearing health across the life course is attainable. By preventing avoidable loss, detecting it early, and rehabilitating those affected, we can bridge the 80 per cent gap in unmet care needs. The campaign's clarion call—to recognize hearing health as integral to a full life—demands collective action. With a modest investment, the world can mute the trillion-dollar toll of hearing loss, ensuring that silence no longer defines anyone's existence.





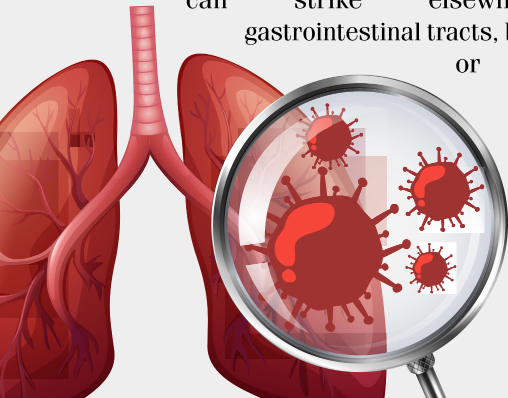
FROM KOCH TO CURE

With over 45 per cent of global tuberculosis cases and half the world's TB deaths in 2023, South-East Asia's battle is both urgent and personal as the region fights to end this epidemic.

BY SAIMA WAZED

Tuberculosis (TB) is more than a health crisis—it's an economic and social wrecking ball. In South-East Asia, where 30 per cent to 80 per cent of TB-affected households face catastrophic costs, the disease doesn't just attack the lungs; it empties pockets and shatters futures. In 2023, our region bore a staggering burden: over 45 per cent of the world's new TB cases and roughly half its estimated 700,000 deaths. India alone reported 25.52 lakh cases—a rise from 24.22 lakh in 2022—according to the Union Ministry of Health and Family Welfare. Yet, amid these grim numbers, glimmers of hope shine through.

TB, caused by the Mycobacterium tuberculosis bacterium, primarily targets the lungs (pulmonary TB) but can strike elsewhere—gastrointestinal tracts, bones, or liver (extrapulmonary TB). Spread through the air via coughs, laughter, or even song, it announces itself with a persistent cough—sometimes bloody—alongside chest pain, fatigue, weight loss, fever, and night sweats. Modern diagnostics like Xpert MTB, RIF Ultra, and Truenat assays can pinpoint it, while treatments—isoniazid, rifampin, ethambutol, pyrazinamide, and streptomycin—offer a cure. The BCG vaccine provides prevention, though drug-resistant TB (DR-TB), unresponsive to standard drugs, complicates the picture.



South-East Asia has fought back

valiantly, especially post-COVID-19. In 2023, we notified over 3.8 million new and relapse TB cases—a testament to improved detection. Treatment success hit 89 per cent for those who began therapy in 2022, while missed cases dropped from 44 per cent in 2020 to 22 per cent in 2023. India, the region's TB epicentre, achieved a 95 per cent treatment initiation rate and a 16 per cent decline in incidence since 2015. Nearly 1.5 million people started preventive treatment last year. Yet, these victories are shadowed by a looming threat: dwindling resources.

"Shrinking donor funds threaten the rollout of new diagnostics and drugs, risking a rollback of hard-won advances. Also, ending TB demands more than medicine—it hinges on partnerships, innovation, and the voices of those most affected.

THE RESOURCE SQUEEZE

Funding from partners and major donors is drying up just as our countries roll out cutting-edge tools—new diagnostics and shorter, more effective regimens for DR-TB, where treatment success lingers at 65 per cent. India's public sector handles 67 per cent of case reporting, with the private sector contributing 33 per cent, but scaling up innovation requires cash we can't spare. Without sustained investment, these advances risk stalling, leaving millions vulnerable.

A HOLISTIC PATH FORWARD

Ending TB demands more than medical breakthroughs—it requires a holistic rethink. Social support for patients—housing, nutrition, financial aid—must complement treatment to ease the crushing burden on families. Siloed efforts won't suffice. We need robust partnerships with UN agencies, WHO Collaborating Centres, research bodies, and the private sector to pool expertise and resources.

South-South collaboration is a game-changer. Our region brims with talent—India's diagnostic innovations, Thailand's community health models, Indonesia's TB care networks. Sharing these people-centric solutions can amplify access and impact. Imagine a regional hub where technologies are tested, refined, and deployed across borders—turning local ingenuity into global progress.

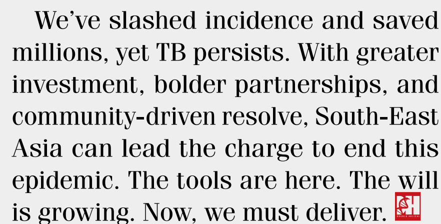
COMMUNITIES AT THE CORE

Our greatest asset? The communities we serve. From planning to monitoring TB services, their voices must shape the fight. They can dismantle stigma, combat discrimination, and ensure equitable access—barriers that medicine alone can't breach. In slums and villages, community leaders and survivors are already proving their worth, bridging gaps that clinics can't reach.

WHY MARCH 24 MATTERS

World TB Day, observed annually on March 24, marks Dr Robert Koch's 1882 discovery of the TB bacterium—a breakthrough that ignited hope. In 2025, it's a clarion call to recommit. The theme, "Yes! We Can End TB: Commit, Invest, Deliver," isn't just a slogan—it's a blueprint. The WHO stands firm in supporting our Member States, but success hinges on collective action.

We've slashed incidence and saved millions, yet TB persists. With greater investment, bolder partnerships, and community-driven resolve, South-East Asia can lead the charge to end this epidemic. The tools are here. The will is growing. Now, we must deliver.



(The author is Regional Director for WHO South-East Asia)

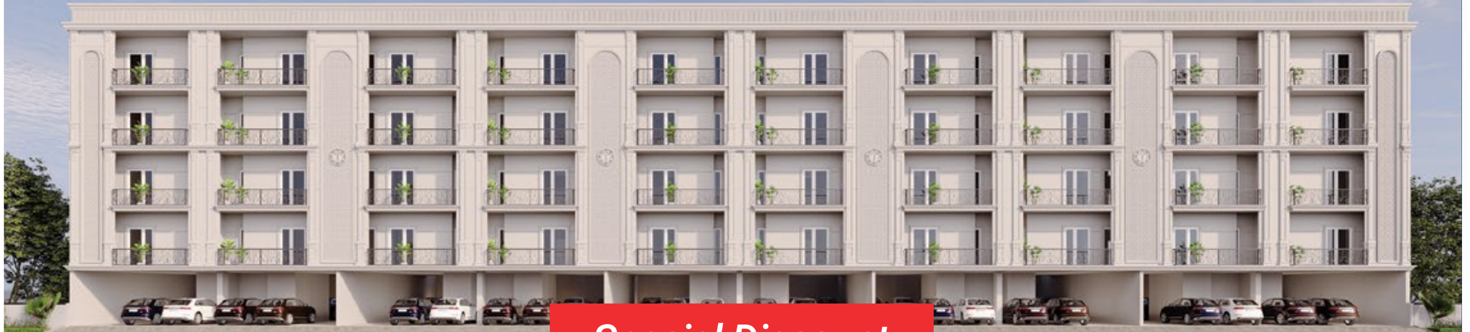
TREHAN
LUXURY FLOORS
Creating Communities Since 1989

NEW Launch

3 BHK ELEGANT LUXURY BUILDER FLOORS

ONE GOOD EARTH
SECTOR-71, GURGAON
BESIDES DLF ALAMEDA / SPR ROAD

Property Post **Delivery Managed by**



Special Discount
For Doctors

YOUR DREAM OPULENT RESIDENCE AWAITS AT LUXURY LIVING

ANANTRAJ PHASE -3
Bigger and Smarter
3 BHK SMART & ELEGANT LUXURY BUILDER FLOORS

ANANT RAJ ESTATE
ASHOK ESTATE SECTOR 63A,GOLF COURSE EXT. ROAD, GURGAON

ADANI PHASE -2
Joint Family Home
4 BHK SUPER LUXURY BUILDER FLOORS

SAMSARA SECTOR 63,GOLF COURSE EXT. ROAD, GURGAON

Well-connected Location

Rapid Metro Station (Sector 56) - 7 min

indira gandhi international /T3 - 30 min

Universities & School 10 Min

For Bookings And More Information *Please Contact* **+91 966-7700-701**

KARISHMA TREHAN DESIGNS

At Karishma Trehan Designs We Offer Full-service Interior Design, Renovation, And High-end Production.
Our Qualified Team Specializes In Luxurious Living Spaces, Blending Creativity Into Modern And Traditional Designs.

WE HOPE TO SIT WITH YOU OVER A CUP OF COFFEE TO DESIGN YOUR HOME WITH MUTUAL VISION.

Call Now **9599185969**

KARISHMA TREHAN DESIGNS

641 P, near SubhashChowk, Sector 38
Gurugram, Haryana 122001

Email : info@ktrehandesigns.com | Web: www.ktrehandesigns.com

Follow us on