

South Asia's

# *Trailblazers*

DEDICATED TO WOMEN'S WELLNESS



## DR HEMA PURANDAREY

**Dr. Hema Purandarey**

MBBS, MS, FICMH, PhD

Consultant &amp; Medical Director (Prenatal &amp; Reproductive Genetics)

MedGenome Centre for Genetic Health Care

Founder Director - Centre for Genetic Health Care (1982)

India's First Private Genetic Healthcare Facility.

'Hey, are you alright Dr Hema?' the lab in charge of the NY hospital was concerned about her who was struggling to keep her eyes open as she had just arrived from India eager to delve into science of genes fully ignoring the issues such as "jet lag."

**The transformation**

However, this was the 'transformed' Dr. Hema, because initially she was totally un-inclined towards formal education and wished to remain in her hometown. Born in Mumbai in 1940, to accomplished parents Dr. Shridhar Lele (PhD - London) pioneer in manufacturing scientific glassware, founder of Borosil and Mrs. Geeta (M.A. Sanskrit) who, recognising her intellect and compassion encouraged her to study medicine. The devoted teachers of Govt. medical college Nagpur, ignited a passion for the profession in her mind and it proved to be a game changer!

Family oriented Dr. Hema was persuaded by husband Madhav, (an engineer with IBM) not to let her precious medical seat go waste. However, forgoing her favorite OB-GYN branch to maintain work life balance, the mother of two took up a more suitable

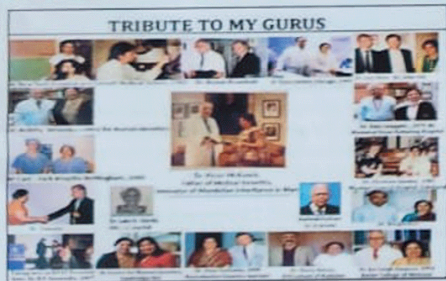
lectureship (her next choice) 'Anatomy' at Grant medical college, J.J.Hospitals, Mumbai.

While teaching Anatomy, the role of genetics in the complex fetal development mesmerised her and her interest was piqued by its occasional flaws leading to some life threatening defects. Completing the basic genetic course at Indian Council of Medical Research Mumbai, (ICMR) with due permissions from Dr. Lata Mehta, (HOD) she set up a genetic lab in her department.

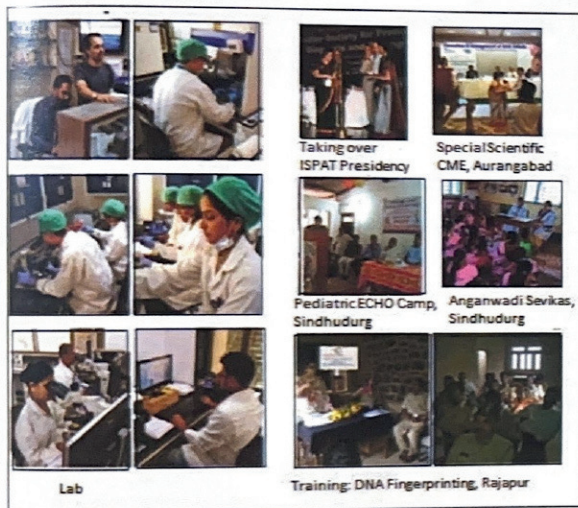
**The joy of awakening**

However, being a genetic melting pot with a spectrum of culture, Indian population is characterised by a number of endogamous groups with practice of consanguinity in many communities. The stated prevalence of birth defects was rather high, with genetics accounting for the majority of them.

Realising the fact that, the initial basic knowledge was inadequate and further in-depth study was essential she dived into the intricacies of cytogenetic techniques and interpretation of the test results and inheritance risk at distinguished centres in US like The New York Hospital - Cornell Medical Centre, Memorial Sloan Kettering Cancer Centre, and The John Hopkins Hospital, in prenatal, paediatric, cancer, and reproductive medicine, along with the crucial art of genetic counselling, shadowing doyens in the field, such as the father of Medical Genetics Dr. McKusick, and the renowned cancer geneticist Dr.







Chaganti.

After three years of extensive training despite lucrative offers, her mission to establish and expand genetic services in India brought her back. In the early 80s, due to demographic and epidemiological transitions, genetics was not on the agenda of national health priorities. Therefore, when she approached the authorities, neither the government nor the private sector was keen to venture into this field. When things got tough her

Guru, the pioneer in Nuclear Medicine, Padmabhushan Dr. R.D. Lele endorsed her idea to pursue the dream on her own to keep her identity. With his blessings, she decided to leave 15 years of pensionable service at J.J. hospitals and go solo.

#### The beginning

Dr. Hema knew that genetics was the need of the hour, and she could help the fellow Indians with her training and skillset. Therefore, in spite of the medical community's distance, she launched the "Centre for Genetic Health Care," without any kind of financial support, infrastructure, or trained staff disregarding the commercial aspect. However, one of the family friends - Mr. P.G. Kher's charitable Samaj Seva Sangh graciously provided her with a

workspace. Her colleague from J. J. hospitals Dr. Amit Chakravarty (PhD- Biochemistry) was a great help initially.

Focusing on delivering the best possible patient care, doctor handpicked fresh talent and provided them with hands-on training managing everything single handed in the pre-computer era without disposable tubes, syringes, readymade media, distilled water or any digital equipment. Cytogeneticists had to use the

only available still camera then, attached to the microscope to take photographs of the chromosomes, cut and arranged in a specified order for reporting.

The Purandares did encourage her and Madhav helped with his photography expertise. But, by then unfortunately her parents and in laws had passed away and she lost Madhav too in her 40s forcing her to fight on both the family and the professional fronts.

It was a huge undertaking. However, with the encouragement of her two teenage daughters and the tenacity ingrained in her genes, she stayed put with the dedicated wish to guide people and continued to raise awareness among both medicos and laypeople about the management and further prevention of genetic diseases.

In 1988, the Maharashtra Government sought her counsel in developing registration guidelines for genetic clinics and laboratories providing these services under the PNDDT Act. Subsequently, she served as a committee member at the state level.

#### Contributions

Along with upgradation, while introducing in house facility of fetal tissue sampling with her proficient Ob-Gyn team, doctor presented an idea of devising a reusable, stainless steel, 16 gauge, bulbous canula with a smooth tip and stilet and echogenic under USG guidance, to be used in transcervical chorionic villus sampling. To get mandatory adequate and best quality clean tissue avoiding maternal cell



contamination, a wooden view box with light source was also devised by her which is used regularly today. Hers was perhaps the only centre offering all pertinent genetic services under one roof.

Driven by the vision of making state of the art genetic healthcare accessible to all, doctor travelled across the globe to update her knowledge. She also explored diverse subjects like Obstetric Ultrasound, Biochemical genetics, Clinical and Molecular Cytogenetics, IVF and Pre-Implantation Genetic Diagnosis, Human Semen Cryopreservation (Singapore, UK), and Hospitals and Lab Management through attending conferences and hands on training at renowned centres. Her fortune graced her with a meeting with Nobel laureate Sir Robert Edwards at Cambridge, enriching her understanding of genetics and IVF.

Dr. Hema was asked by FOGSI in 2018 to contribute in its TOG Decision Tree Conclave in carrier detection, genetic counselling and prenatal diagnosis in Thalassaemia. In 2020, she was asked to be a part of FOGSI GCPR (Good clinical practice) guidelines on Preconception care and Genetics, specially family history and pedigree charting. She also contributed in October and November 2021 to a Genetic Education online series on basics of genetic chromosomes and Laboratory genetics. As a faculty she is providing training to fetal medicine candidates of ICOG in prenatal diagnosis.

Adding on newer tests, striving for excellence, her laboratory has been accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) since 2002 and College of American Pathologists (CAP) since 2010.

#### ISPAT

To share the experiences, she initiated the Indian Society for Prenatal Diagnosis and Therapy (ISPAT) in 1989 with Padmashree Dr. R.P. Soonawala and like-minded colleagues, and selflessly provided a small, rent-free office space in her own premises,

along with the assistance of her own staff for a decade, demonstrating exceptional dedication. ISPAT held the 8th International Society of Prenatal Diagnosis and Therapy conference (ISPD) in 1996 with President Dr. Soonawala, and Dr. Hema as the vice president, followed by a national conference on 'Let's prevent Birth Defects' in her presidential term. Many well-known medical geneticists, and her Gurus like Dr. John Old (Oxford University Hospitals, UK), Dr. Joe Simpson (Baylor college of medicine, USA), Dr. Bruno Brambati, (consultant genetic programme WHO) Dr. Digambar Bargaonkar, (Johns Hopkins University US), Dr. Raju Chaganti (Memorial Sloan Kettering Hospital US) visited her clinic and appreciated the scope and quality of services offered by her centre.

She was invited by law enforcement officials to teach them about DNA fingerprinting and how to gather and present the evidence.

#### Teaching : a way of learning

However, just offering these services and sensitising



the professionals was not enough. Realising the need for more experts and resources, she began offering training courses -Genetic Counselling and Laboratory Training for Science and Medical Graduates, Training in Prenatal Diagnostic Techniques with PCPNDT norms. The OB-Gyn specialists, genetic technicians and counsellors trained by her are engaged in patient care at almost every nook and corner of India and abroad.

#### Rural services

Since our rural population has limited access to genetic facilities, she participated in 5 camps on Birth defects and infertility in Maharashtra, with district civil surgeons and specialists. Such medical camps can build a rapport among various ground-level healthcare professionals and the renowned specialists present at the camp, resulting ultimately in the betterment of the patients.

Establishing 1st rural pro bono Genetic counselling centre in Mutat, Sindhudurg she offered consultation at Kolhapur district in Maharashtra. She also guided



the Anganwadi sevikas, who are the first responders, to recognise high-risk cases. At 70, her own research data of more than 30 years led to her Ph.D. (Mumbai university). Along with referrals for counselling and testing from across the country, prestigious private and govt. hospitals, like Bhabha Atomic Research Centre, Wadia Maternity and IVF, Mumbai, and Ashoka Medicovert Nashik seek her affiliation. After introduction of molecular genetics tests, in 2018 the multinational molecular diagnostic MedGenome Labs Ltd. teamed up for her expertise and experience. Today equipped with the UpToDate knowledge, and lab facilities Dr. Hema offers genetic counselling, and laboratory testing services to many patients and their families and NRIs across all medical specialities.

### Plants and Veterinary genetics

Her love for plants led her to a course in plant tissue culture. Such plants are healthier and are cultivated in minimum space in tubes saving acres of land. In dairy farming, employing a bull's sperm that has chromosomal translocation-type defects could result in significant financial losses from infertility, subfertility, or pregnancy loss in the cows. Hence, she was consulted by the dairies like Chitale from Maharashtra and Kamdhenu university, Anand from Gujarat catering to prestigious dairies. Doctor was also approached by Agra Bear Rescue Institute for chromosomal studies of bears for its taxonomy project. She mentored veterinary students for their MSc and PhD projects and also helped set up a genetic lab at the Mumbai veterinary college. With increasing awareness, doctor is also invited as a faculty for postgraduate courses at ICMR-NIRRH, and

as a visiting faculty at Ali Yavar Jung National Institute of Speech and Hearing Disabilities. She has taught Nutrigenomics to postgraduates at UDCT, Mumbai and has contributed to the reviewing committee in finalising the super specialty postgraduate course in DM – medical genetics for National Medical Commission.

### Spreading awareness

With nearly 350 talks, 5 books on laboratory techniques and clinical aspects and 12 contributed chapters for doctors and many presentations for NGOs such as CAHO and Spina Bifida Foundation her prowess is incredible. Along with television interviews on channels like Doordarshan - Sahyadri and ABP Majha, digital interviews by Granthali Prakashan and on world birth defects day - 2022 by Meyer Vitabiotics and on womens day 2023 by ET Health world and articles in newspapers and Diwali numbers, she wrote books for laypeople. Marathi 'Vansh Anuvansh' earned state level awards from Maharashtra Sahitya Parishad Pune, and Shree Sthanak Puraskar 2020. First edition of 'Shoots and Roots' was sold out before its release.

### Paying back to the roots

Both her daughters are well qualified, in obstetrics, paediatrics with genetics working abroad. With an embedded philanthropic mindset, all three donate



their resources to the high school, founded by Dr. Hema's father in hometown of Mutat. Being medical professionals with a high focus on health, they donated a water purification system, and set up a solar system to combat the regular power outages hindering the education process. Doctor also established a free computer lab for the students. Additionally, she has educated the villagers in organic farming.

### Stimulus

When asked what it gives her in addition to the gratification of assisting the patient and his family, she responds, "Each family is different. The demography and outlook are unique. Therefore, each case prompts thoughtful deliberation, like the "Vishwa roop Darshan" of Lord Krishna. It enriches me to no end!"



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