



# THE JOURNEY

SPINE FOUNDATION





# MILESTONES

## 1988

- Dr Shekhar Bhojraj sets up the first spine surgery speciality unit in the country at KEM Hospital in Bombay.

## 1993

- Dr Shekhar Bhojraj sets up the first dedicated private spine unit in India at Hinduja Hospital in Bombay

## 1998

- Dr Shekhar Bhojraj and Dr Shilpa Bhojraj establish the Spine Foundation on May 19

## 2003

- Dr Shekhar Bhojraj's first visit to Gadchiroli, in rural Maharashtra, to see the work being done there

## 2004

- First OPD in Gadchiroli in association with SEARCH
- Paediatric spine unit set up at Wadia Hospital for Children, Mumbai

## 2006

- Dr Shekhar Bhojraj starts a low cost spine-care program at Dr HV Tilak Hospital, BDD Chawl, Worli, Mumbai.

## 2007

- Spine Foundation does its first rural spine surgery at surgical camp in Gadchiroli, Maharashtra

## 2009

- Spine Foundation opens its spine unit at VN Desai Hospital in Mumbai to reach out to poor urban population

## 2015

- Specialised physiotherapy department for spine patients opens at VN Desai Hospital in Mumbai

## 2016

- Completion of 100 surgeries at Gadchiroli
- First OPD and surgical camp in Dhule, Maharashtra, at Shri Bhausahab Hire Government Medical College & Hospital

## 2017

- Spine Foundation sets up first OPD and surgical camp in Ambajogai, Maharashtra at Swami Ramanand Teerth Rural Medical College
- Spine Foundation sets up first OPD and surgical camp in Aurangabad, Maharashtra at Government Medical College
- Spine Foundation sets up first OPD and surgical camp in Akola, Maharashtra at Government Medical College & Hospital
- Spine Foundation sets up first OPD and surgical camp in Ratnagiri, Maharashtra
- Spine Foundation sets up first OPD in Sittilingi, Tamil Nadu in association with Tribal Health Initiative

## 2018

- Spine Foundation sets up first surgical camp in Sittilingi, Tamil Nadu in association with Tribal Health Initiative
- Spine Foundation signs Memorandum of Understanding with the government of Maharashtra to replicate their model throughout the state under the Maharashtra University of Health Sciences.

## 2019

- Launch of Comprehensive Spine and Musculoskeletal Care Centre concept at Gadchiroli
- MOU with Government of Maharashtra to initiate comprehensive spine care programs at Ratnagiri and Nandurbar civil hospitals
- District wide training programs for Asha workers and rehabilitation teams



# HEALTHCARE IN INDIA

India is shining. Yet there is a lot of work still to be done before the sun shines on everyone.



*Even basic healthcare is a problem in rural parts of the country, let alone specialised medical care.*

## THE HEALTHCARE BLACK HOLE

Nearly a fifth of the world's population lives in India, but there is just one doctor for every 1700 people. Even less developed countries have a better doctor-to-patient ratio. India urgently needs 500,000 more qualified doctors. A second problem is that 70% of the doctors practice in urban areas where just 30% of the people live. The reasons for this are many – from lack of basic infrastructure like housing, education, roads, water and electricity to a better and more financially profitable market for their services in urban centres.

Adding to the lack of doctors is another set of problems. India's healthcare sector is dominated by the private sector, and therefore expensive. On the other hand, the government public healthcare system is free, but ill-equipped. There has been a steady decline of government spending in healthcare over the years, leaving the poor fewer options than before. According to a World Health Organisation report in 2007, India ranked 184 out of 191 countries in the amount of public expenditure spent on healthcare out of total GDP. Private healthcare in India is expensive and majority of people do not have any kind of health insurance. Poor people have to spend a disproportionately higher percent of their income towards out-of-pocket healthcare expenses than the rich. The high cost of private healthcare has led many households to fall into, what's defined as Catastrophic Health Expenditure or CHE. CHE is health expenditure that threatens the household's capacity to maintain even a basic standard of living. One study has found that over 35% of poor households fall prey to Catastrophic Health Expenditure.

## WHAT IS THE SOLUTION?

Will we wait for the government to improve healthcare infrastructure and make quality healthcare accessible to the poor? Or hope that the private healthcare will become affordable? Or simply turn a blind eye and say that there is nothing we can do about it? On the other hand, you can raise your hand, take responsibility and say that you will do something about it. And that's what the Spine Foundation did.

India is a land of contrasts where ancient traditions co-exist with modern scientific temper. A country that wears its rich cultural tapestry as comfortably as it negotiates the corridors of global business. India is home to 1,358,751,527 people who follow nine religions, and speak more than 19,500 tongues, languages and dialects. Perhaps the only thing you will find across the land is a love for cricket and Hindi film songs.

India is a country on the move. Goldman Sachs predicts that India will be the third-largest economy in the world by the year 2050. India's GDP is growing at nearly 8% while the rest of the world average is hovering around 3%. India is only one in three nations to build supercomputers and one in five to launch communication satellites. A fifth of all Microsoft

engineers, you guessed it, are Indians. Hundred of the Fortune 500 companies have already set up R&D Centres in India.

**70% OF THE DOCTORS PRACTICE IN URBAN AREAS WHERE JUST 30% OF THE PEOPLE LIVE.**

This is a very short list of our many achievements. But before you go and knock open a bottle of champagne, consider these less-talked-about facts.

# THE BACKBONE OF LIFE

While spinal affliction is debilitating for anyone, its effects are worse if you are poor.

Someone once said that in order to succeed in life, you need three things: a wishbone, a backbone and a funny bone.

## WHAT HAPPENS IF THE BACKBONE IS COMPROMISED?

Millions of Indians suffer from afflictions of the backbone, from back pain to spinal disability. Back pain is amongst the top three reasons for doctor consults worldwide. People who are the backbone of their family or community are compromised by their own back problems. It doesn't just affect the patient's life, but the lives of their family or community as well.

Spinal care wasn't even a speciality or field, but rather a part of orthopaedics until about 30 years ago. It is only recently that spine care has emerged as a speciality in its own right. Unfortunately it remains an urban-centric speciality. The doctors spend their time and training in perfecting surgeries and treatment options specially catering to the top of the pyramid; cosmetic spine surgery, endoscopic spine surgery, total disc replacement, instrumented long segment spinal fusions for mechanical back pain to name a few. Spine care remains an expensive urban privilege.

## SPINE CARE FOR PEOPLE WHO CAN'T AFFORD SPINE CARE.

That brings us to the question, what about the people at the bottom of the pyramid who can't afford this expensive spinal treatment, whose productivity and lives have been affected by spinal problems? What about the urban poor? What about the rural population? 70% of our population is rural, with little access to health care. And it is these poor people, dependent on

manual labour to earn a living, who are most susceptible to back problems.

A farmer has to spend a long time bending to sow and plow his crops. Women have to walk for miles carrying water on their heads. They have to travel on unsprung bullock carts over bad roads. Add to that the fact that they might be malnourished and you have the recipe for a spinal disaster. This can rob people of their mobility, leave them bed-ridden and seriously affect their lives. If this person happens to be the main bread winner in the family, the whole family goes hungry. The children's education suffers and they get burdened with debt. With no access to spinal care or treatment, these families sink into the poverty hole.

This is a problem not just in India but across the world. According to a report in the October 8, 2016 issue of the influential medical journal Lancet, low back pain is one of the top disability problems in the world. The authors of this report looked at 117 published studies covering 47 countries and data from national health surveys in many countries. The report also said, 'with ageing populations throughout the world, and especially in low and middle income countries the number of people living with low back pain will increase substantially over coming decades'.

The sheer number of people at the bottom of the pyramid without access to basic health care, forget specialised spinal care, is huge. Can we simply ignore them? Can we make spinal care accessible and affordable to people who cannot afford it? How do we do it? How can we do it? What can be done to tackle the problem?

In a country as vast and populous as India, this might be just a drop in the ocean. But as we have learnt, every single drop matters.



*Leaning forward from a standing position puts more load on your spine that can result in back pain.*



*Sadly, people who are most vulnerable to back pain have the least access to spine care.*



*The Spine Foundation's vision is of spine care in all four zones of India – North, South, East and West.*

# A NEW THINKING IN SPINE CARE

**Bringing succour to the spine patients at the bottom of the pyramid requires more than just money. It requires a new thinking.**

In a perfect world, there would be no need for the Spine Foundation. But since we don't live in a perfect world, the Spine Foundation exists for the 'have nots'. It was established in 1998 to finance treatment of patients who cannot afford it, both in villages and cities. Not just a partial, but a complete coverage of their expenses from investigation to rehabilitation. The initial money for the foundation came from the medical community itself. When a doctor goes to another doctor for treatment, he is not charged either for consultancy or surgery. They pay back instead by donating to the Spine Foundation. The funds also came from the rich patients the Spine Foundation doctors treat in their normal urban practice, and philanthropists. This cross subsidy is a bit like the idea of Robin Hood taking from the rich and giving to the poor. Without the robbery, of course.

## **RAISON D'ÊTRE OF THE FOUNDATION**

The Spine Foundation was established to reach out to people who don't have access to quality spine care due to geographical and economic reasons. The mission of the foundation is to provide quality spine care to the underprivileged, even in the most remote parts of India. The foundation's vision is of spine care in all four zones of India – North, South, East and West. The Spine Foundation is working in collaboration with the Association of Spine Surgeons and the Association of Rural Surgeons in India, to reach out to places that are under-served in terms of medical facilities. But

what are the foundation stones on which this mission can be built?

It begins with the Spine Foundation's philosophy of providing economical options in spine surgery without compromising on quality. And these are the steps that the Spine Foundation has practised, popularised, propagated and published over the years.

First comes conservatism. Ask if the patient needs surgery at all? Can this patient be treated without surgery? Surgery is looked upon as the last resort. Doctors of the Spine Foundation have treated prolapsed discs and spinal tuberculosis without surgery and these have been published in reputed international spine journals across the world.

Second is the use of simplistic but innovative surgical techniques. There are dockets full of case studies where doctors have documented patients who were treated by using simple techniques with equal results as those of traditional, complicated and expensive surgeries. Again, case studies that have been published in many international journals.

That brings us to the third step; low-cost, affordable and low-tech systems and implants. The best way is to use no implants at all. Good old-fashioned surgical procedures that give excellent and comparable end results for treating conditions like spinal decompression or anterior cervical fusions. If you do have to use implants, there are low-cost indigenous options that work as well. The foundation doctors have

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**THE MISSION OF THE FOUNDATION IS TO PROVIDE QUALITY SPINE CARE TO THE UNDERPRIVILEGED, EVEN IN THE MOST REMOTE PARTS OF INDIA.**

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treated cases with thor-lumbar instability to neurofibro using indigenous, low-cost systems. Yes, those too got published as case studies across the world.

That brings us to the last step, easy-to-learn and reproducible methods. This is very important because the Spine Foundation wants to build a self-sustainable model to serve people with spine ailments in rural areas. It works along with various government and non-government organisations to reach out to them and help them live a better life.

### THE SPINE FOUNDATION MODEL

Let's take a look at the model developed by the Spine Foundation to spread spine care in rural India. It begins by identifying government hospitals in locations that are accessible to the rural population. Then they do a survey of the real needs of the patients here followed by a feasibility study. It is only after this that the decision is taken to go ahead with the camp, or not. If it's a yes, they start campaigning to raise awareness about the camp. Transportation facilities to the camp from the surrounding areas are also arranged. The first step is to set up the Rural Spine Care Centre to conduct regular OPDs and surgeries by the doctors of Spine Foundation who travel there for the spine care camp.

The next step is to develop a support system



**Spine Foundation trains doctors working in the interiors to identify and treat basic spine problems.**



**They don't call it back-breaking work for nothing.**

by identifying local doctors who are interested in helping, assisting, learning and eventually taking over. They also train voluntary health workers in patient care, counselling, on-site diagnosis, nursing and physiotherapy.

The Spine Foundation networks with secondary and tertiary care centres while also involving local medical colleges and institutes for better infrastructure and manpower.

The other thing that the Spine Foundation does is train the doctors working in the interiors to identify and treat basic spine problems. A referral practice chain from interiors to these Rural Spine Care Centres via health workers and public health care doctors has been designed, known as the 5-filter system.

The first filter is the village health worker or community health worker who identifies the patient. The identified patient is then referred to the medical staff at a nearby Public Health Centre, filter two, that has the ability to treat minor medical cases. If the patient's needs can't be met here, they are referred to a district or civil hospital that acts as filter three. In case

the patient needs more specialised care, it is bumped up to an established orthopaedic unit or Rural Spine Care Centre that's operating under the guidance of the Spine Foundation which acts as the fourth filter. 95% of the patients are treated by this stage. It's only the most serious cases that are escalated to the fifth and final filter. The Spine Foundation pays for the patient to be brought to either VN Desai or Wadia Hospital in Mumbai where highly qualified doctors and fully equipped operation theatres are available.

There are many available government schemes and local health financing schemes that go to waste because people are not aware of them. The Foundation identifies and taps into these government programmes to fund its mission. The idea is to initiate the change, set systems in place so that it can be self-reliant and shift focus to the next centre, and challenge.

The doctors at the Spine Foundation realise that they cannot be everywhere and do everything by themselves. They are the enablers whose job is to seed the movement, share their knowledge and support the people for it to flourish.



**Illustration by Dr Shekhar Bhojraj.**

# THE GENESIS OF THE SPINE FOUNDATION

What started as one man's dream, reaches out to thousands of people across the country today with its message of hope.

Can you name the hospital with the first exclusive spine surgery speciality unit in the country? In 1988, it was a government municipal hospital that was at the forefront of spine surgery and treatment in India – KEM Hospital in Bombay. The man behind this was an orthopaedic surgeon at the hospital who came from a family of freedom fighters and doctors, actively involved in social service – Dr Shekhar Bhojraj.

## INDIA'S FIRST SPECIALISED SPINE SURGEON

In the early 80s, there were no specialised spine surgeons in India. Orthopaedic surgeons were caretakers of the spine. While Dr Shekhar Bhojraj practised as an orthopaedic surgeon, the cases that interested him the most were patients who came to him with back problems. The backbone of a person is literally the backbone of his life, family and community. A broken arm or leg could be fixed easily, but when a person develops a problem with the spine, their solutions are not that simple. This debilitating condition could alter the course of a person's life. Interestingly the spine provides both stability and mobility. And when any of these two factors is missing from a person's life the result can be catastrophic.

Though surgeons across the world were working on spine care for decades, it was only during the 1980s that spinal surgeons truly began to understand the spine in all its intricacies. Though neuro-imaging was introduced

in the 1970s with the CT scanner and the development of the MRI, it was in the 1980s that instrumentation was refined and spine surgery came into its own. Dr Bhojraj kept himself abreast of the latest developments in the emerging world of spine surgery.

When Dr Shekhar Bhojraj set up the first exclusive spine surgery speciality unit at KEM hospital, he decided to give up all other orthopaedic work and concentrate solely on the spine. And with that, he became the first specialised dedicated spine surgeon in the country.

Though there was stellar work that was being done at KEM, it had its limitations. It was a municipal hospital, therefore facilities and funds were limited. Dr Bhojraj needed a bigger platform if he was to get the best advancements in spine care to India. As they say, if you really want something, the universe conspires to get it for you. In this case it came in the form of a phone call from Mumbai's Hinduja Hospital, who wanted him to set up a specialised spine unit. They had the funds to further Dr Bhojraj's study and finance a more specialised spine care unit. He joined Hinduja Hospital and in 1993 set up the first dedicated private spine unit in a hospital in India.

Dr Bhojraj's career was on an upward graph. His papers in international publications about the work done in India earned him laurels from his professional peers around the world. While Dr Bhojraj had the world at his feet there was emptiness in his heart. He came from a family of social workers, not a capitalist family.

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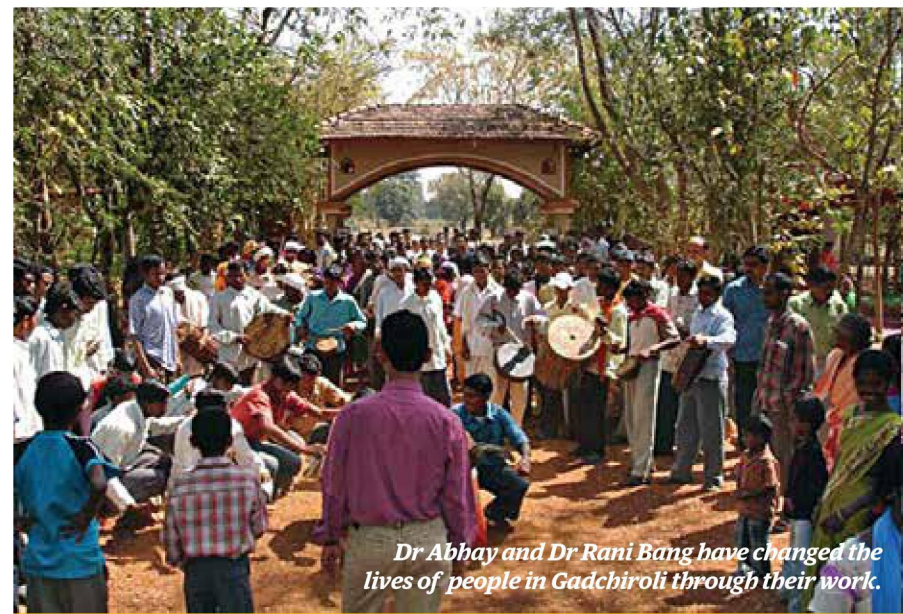
*Dr Shekhar Bhojraj set up the first exclusive spine surgery speciality unit at KEM hospital.*



*Dr Shekhar and Dr Shilpa Bhojraj , the founder trustees of the Spine Foundation.*



*Dr Bhojraj found the simplicity and the way of life in Gadchiroli extremely appealing.*



*Dr Abhay and Dr Rani Bang have changed the lives of people in Gadchiroli through their work.*

While he had brought spine care and treatment to India, there were millions of people around the country who could not and would not, benefit from all his learnings.

### SEEDING THE SPINE FOUNDATION

He didn't know how to do it. He didn't know what he had to do. He only knew that he had to do it. Spine care couldn't be the privilege of the urban rich. Rather than wait for outside or government help Dr Bhojraj decided to put his money and time where his heart was. On 19th May 1998, Dr Shekhar Bhojraj along with his wife Dr Shilpa Bhojraj, a practising consultant anaesthesiologist super-specialised in cardiac anaesthesia, established the Spine Foundation with the two of them as founders and started to treat poor patients. By 2003, the Spine Foundation had made a difference to thousands of people across Mumbai. But what it lacked was a clear roadmap. This was about to change when Dr Bhojraj came across a news article about a doctor couple working in a very backward adivasi area in eastern Maharashtra. They had just been given the Maharashtra Bhushan award for the fantastic work they were doing there. He decided to go and see what Dr Abhay and Rani Bang's work was all about. This would have a profound effect on Dr Bhojraj and the Spine Foundation.



*The backbone of a person is literally the backbone of his life, family and community.*



*Hinduja Hospital in Mumbai.*

### FINDING A NEW PATH

It was a scorching summer afternoon in 2003 when Dr Bhojraj accompanied by his 19-year-old son Tejas, landed in Nagpur airport. They then boarded a car for a four-hour ride over broken roads to the town of Gadchiroli. Their destination was a further 20km drive from the town. The place was named Shodhgram, and this was the campus from where Dr Abhay and Rani Bang conducted their work. Shodhgram is an amalgamation of healthcare, community living and research that has inspired many national and international health initiatives. It had been designed to represent Gandhi's ashram and a tribal village. Situated inside the forest among tribal villages was where the doctors lived with colleagues and their families. It was from here that they treated, trained, researched and sought solutions to the people's health issues with their active participation.

Dr Bhojraj came as a 'tourist' to meet Dr Abhay and Dr Rani Bang and see the work they were doing. But what he found instead was inspiration for the Spine Foundation. In this hinterland, Dr Bhojraj experienced

a serenity, simplicity, dedication and work culture that were close to his heart.

Dr Bhojraj discovered that poverty, illiteracy, malnutrition and heavy manual labour gave rise to high child mortality, sickle cell diseases, anaemia and back problems. The rural and tribal people had complained that backache was their major problem. The doctors at Gadchiroli were in search of solution to this large-scale-condition. As part of their scientific approach, they were trying to design epidemiologic and community-based studies to estimate the magnitude and the consequences of this problem. But they also wanted to find a solution to it. Now, as a spine surgeon, back problems was something that Dr Bhojraj knew a thing or two about. He realised that this was a golden opportunity to help these people. He would be a part of a great social service organisation with an international standing and a target population under constant monitoring and control.

The Spine Foundation had found its way. But what exactly was happening in Gadchiroli that created this major shift in the Spine Foundation?



# FINDING PURPOSE IN GADCHIROLI

Dr Abhay Bang and Dr Rani Bang show the way to affordable healthcare in a small village in the backward area of Gadchiroli.



*Dr Abhay Bang and Dr Rani Bang have brought hope, love and social upliftment to thousands of vulnerable tribal communities in Maharashtra.*

Gadchiroli is 1000km from Mumbai and 200km south of the nearest airport in Nagpur. It's a two-hour flight from Mumbai, and then a five-hour drive from Nagpur. Gadchiroli is home to Dr Abhay Bang, an MD in Medicine and his wife Dr Rani Bang, an MD in Obstetrics and Gynaecology. Their story is really inspirational and merits retelling.

## TWO SOULS, ONE DREAM

Abhay and Rani Bang completed their MBBS from Government Medical College, Nagpur, Maharashtra in 1972. This was where they met. Abhay Bang, who came from a Gandhian family, had spent his childhood at Mahatma Gandhi's Sewagram ashram in Wardha and studied in a school started by Gandhi and Rabindranath Tagore. Rani Chari, on the other hand, came from a wealthy family but preferred to wear ordinary cotton saris, wear no jewellery and live in a hut. As they discovered, their life's dreams and aspirations were quite similar. Thereafter they both completed their Masters, Rani in



## PADMA SHRI 2018

■ Dr Abhay Bang and Dr Rani Bang received the Padma Shri in Medicine from the President of India, Ram Nath Kovind, at Rashtrapati Bhavan on March 20, 2018.

Obstetrics & Gynaecology and Abhay in Internal Medicine. Incidentally, both were toppers throughout their academic years. They could have got high-profile, high-paying jobs, or could have set up lucrative practices but chose instead to serve the poor of India. They returned to Wardha and set up a clinic to work amongst the poor, but soon learnt their first lesson - village problems cannot be solved by merely providing medicines!

The question of how to do relevant public health research in Indian villages finally led them to the Johns Hopkins University, Baltimore, USA. where their aim was to learn the science of public health research. America was a dollar-intoxicated country; but it was also a knowledge intoxicated country. The Johns Hopkins University was a rich repository of knowledge on medical research in Indian villages. Here they learnt the fine art of research and ways to generate new knowledge. After finishing their Masters in Public Health they decided to return to India. Their destination - Gadchiroli, one of the most deprived districts in the state of Maharashtra.