Thank you Dr. Hiremath for that very kind and generous introduction.

Respected seniors, members of the Executive Committee, colleagues and students, all of who are members of this august and prestigious Association.

It has been a privilege and honour to have served as your President this last year and I wish to thank you all from the bottom of my heart for the faith you have reposed in me. The opportunity to deliver the Presidential address of the Indian Association of Cardiovascular Thoracic Surgeons (IACCTS) is the highest honour that a cardiothoracic surgeon can achieve in this country and it is with great humility and gratitude that I accept this honour.

I have had in the past the opportunity to serve the Association for five years in the Executive Committee (EC) as Editor of the Indian Journal of Thoracic and Cardiovascular Surgery (IJTC). That experience served me well in executing my duties as President for the last year. When I took over as President, I pledged to the executive that our energies would be devoted to strengthen the association and seek meaningful growth. I have had the privilege of having a most supportive EC and I would like to name them individually to express my thanks and gratitude. Past Presidents Dr. Shiv Nair and Dr. V.V. Bashi have generously parted with counsel gained from their past experience as Presidents. Dr. Z.S. Meherwal has been a long-time friend and colleague, who I have used as a sounding board all along. It is with great pleasure that I pass on the baton to him for I am confident that he will take the association to even greater heights.

Our ever dynamic Secretary Dr. C.S. Hiremath made sure that the entire executive was on its toes through the year. Words are insufficient to describe the energy and enthusiasm he puts into his work. I thank our Editor-in-Chief Dr. O.P. Yadava for his critical appraisal of our deliberations and his constructive criticisms. He has been a tremendous support. I have valued the enthusiastic and constructive inputs from our younger colleagues Dr. Lokeshwar Rao, Dr. Ravindra Shetty, Dr. Shamsher Lohchab, Dr. Vivek Pillai, Dr. Gaurav Goyal, Dr. Bhumesh Shah and Dr. Siva Muthukumar and I am sure they will continue to contribute to the Association. Last but not least, my sincere appreciation for Dr. Rajendra Umbarkar who completes his term as Treasurer and Joint Secretary for working tirelessly to resolve the innumerable audit and tax issues that have besieged the Association in the last couple of years.

The last two years have not been easy for any of us. The coronavirus disease-19 (COVID-19) pandemic made us acutely aware of our fragility and brought us face to face with the inevitability of our mortality. Many of us lost near and dear ones, many contracted the virus and sadly we lost many of our colleagues in the battle against the virus. Our
thoughts and prayers go out to the bereaved families. At the EC, we took cognizance of the fact that affected families of our members may face financial difficulties, and we put in place mechanisms for disbursement of financial aid from the Benevolent Fund of the Association.

The Pandemic forced us to change the way we conducted Association business. Physical meetings changed to meetings on Zoom. Though not ideal, the upside was that we were able to have many more meetings than were held in the past. A total of eleven EC formal meetings were held on Zoom during the year along with meetings of the various sub-committees. Collective decisions were therefore taken on many matters that required urgent attention. It also enabled recording of the entire proceedings of the meeting to ensure a permanent record.

Before I go on to the main theme of my talk, I would like to mention some of the important issues that we addressed during the year. One of the main achievements was the designing, testing and roll-out of the IACTS National Database. This indeed is a landmark for the association since this has been a much needed endeavour for the Association. The format has been tested by the nodal centres and the database is now being rolled out to all members in a phased manner. We put in place the process for utilization of the Benevolent Fund for the benefit of needy families of our deceased members. We implemented measures to strengthen our financial accounting and auditing processes. We are in an advanced stage for purchase of land for building a ‘Centre for Excellence’ which will be a showpiece for our Association. We have enhanced our website and made a repository of lectures and videos for the benefit of our students and younger surgeons. We have also formed a Committee to look into the Master of Chirurgiae (M.Ch.) and Diplomate of the National Boards (DNB) curriculums in detail and come up with suggestions for reform so that these courses are more in alignment with current patient needs and are more attractive to medical graduates.

Today, we face an existential threat not only to our Association but also to our specialty itself. We are acutely aware of the fact that for the past few years M.Ch. and DNB seats are only partially filled and we are likely to face an acute shortage of cardiovascular surgeons in the near future. We have to keep adjusting to changing government policies and priorities on a regular basis. Geo-political disturbances and resultant disruptions in the supply chain have had a significant impact on a specialty like ours that is so heavily dependent on imported medical supplies. Last, we need to look into the impact of the emergence of several sub-specialty societies over the past few years.

To address the issue of falling interest in our specialty, we need to energetically rework our resident training program and redraw the M.Ch. and DNB curriculums to make them more meaningful. I have proposed an IACTS mentorship program, because mentorship continues to be an important aspect of our surgical training. I envisage a voluntary group of senior members who could take on the role of mentors for students assigned to them—not necessarily from their own institutions. This would be of immense help in their training and career growth. ‘Catch them young’ should be our motto for generating interest in our specialty amongst medical students. We need to step into the medical colleges and organise ‘awareness’ lectures for medical students highlighting the merits and tremendous growth potential of our specialty. We should be incentivising and encouraging interns to spend some part of their elective posting in our specialty to give them a closer look at the evolving opportunities. Last, for those who have completed their training, we need to ensure that they are put on a structured career path.

The next area of concern that I would like to address is the issue of sub-speciality societies. Emergence and growth of sub-specialties has been a well-known phenomenon in the medical world and our own specialty has not been immune. It is but natural that those surgeons who transition into a particular sub-specialty will form groups that will eventually evolve into scientific societies. Today we have at least seven major sub-specialty societies in our specialty (Table 1) in addition to several zonal and regional chapters of the Association. While the emergence of these societies is important for the growth of the specialty, they unfortunately also have some negative impact. The most significant of these is the diminishing involvement of many specialist surgeons in the parent body, the IACTS, especially with regard to the annual meeting and Continuing Medical Education (CME) programs. Each society holds its own annual conference; as a result there are multiple conferences through the year, often with conflicting dates and venues. More importantly there is dilution of industry sponsorship in an environment of stretched budgets, which impacts the conduct of our annual meeting. There is also an impact on resident training as some of the centres have become so highly sub-specialized that their resident training has become very restricted. There is also the issue of participation in multiple databases. Many of the Societies have their own database which they encourage their members to feed data into. This will indirectly reduce

Table 1 List of current sub-specialty societies

- Society of Coronary Surgeons
- Society of Pediatric and Congenital Heart Surgeons
- Society for Minimally Invasive Cardiovascular Surgeons of India
- Society for Heart Failure and Transplantation
- Indian Society for Heart and Lung Transplantation
- Indian Society of Thoracic Surgeons and Trust
- Vascular Society of India

…. and many local chapters and groups
their interest in joining the national IACTS database that has been designed and is being rolled out. Last but not least, there is likely to be less interest in submission of articles to our Society journal—the IJTCS, as submissions to their own sub-specialty journals would be more favoured.

How do we try and neutralize this? There needs to be more active interaction between the IACTS and the sub-specialty societies. They need to work in tandem rather than at cross purposes. It may be advantageous to have representation from the societies in the EC to encourage inclusivity. This would of course need a constitutional amendment. The annual meetings need to be coordinated so as to avoid dilution of resources and maximise attendance. The main sub-specialty meetings could be incorporated in the IACTS annual meeting or the three CMEs that are held every year. It could be mandated that members of the sub-specialty societies are first members of the IACTS as a parent body. Last, each society could periodically contribute a supplement issue related to their specialty to the IJTCS. We need to work towards a win–win situation for all, since ‘united we stand and divided we fall’.

Having elaborated on some of the important association matters, I will now come to the main theme of my Presidential address and that is the ‘Cry of the children’—congenital heart surgery in India—a journey of six decades. Having been a dedicated pediatric cardiac surgeon for many decades, it is only appropriate that my presentation relates to this subject.

As I stand here, I cannot but reflect on the journey of six decades and a half and express my gratitude to the countless individuals who have guided and nurtured me along the way. First, I thank the Almighty for showering me with more than I have ever deserved. I have always found succour in prayer at every crossroad in my life.

My family comes from the southernmost tip of India. My paternal grandfather was a school master in Suchindram, a village known for its famous Hanuman temple. A short distance away is the southern tip of India’s land mass—Kanyakumari, known famously for being one of only two places on earth from where from the same point, you can see both sunrise and the sun set into the sea. My father Shri S.M. Krishna (Fig. 1) was a maverick of sorts and left home at an early age to find his fortune. He educated himself and found work in Bombay where he hunted for a bride and married my mother. My parents then moved to Ahmedabad, where I was born. There must have been something in the stars because in the place of the Civil Hospital where I was born, now stands the famous UN Mehta Institute of Cardiology and Cardiac Surgery—the largest cardiac surgical facility in the country.

In 1958 my father shifted to Dehradun—up in the north of India, 3000 kms from our roots, to join the newly formed Oil and Natural Gas Commission (ONGC) which was headquartered there. It was in Dehradun that I spent my early childhood and school years. I mention this in specific because this part of my life had an important bearing on my future. When I was seven years old, calamity struck our family. My father passed away all of a sudden, presumably of a heart attack. Medicine was not so developed those days, but I vividly recall him collapsing at home clutching his chest and then watching our family doctor haplessly thumping his chest and plunging a hypodermic syringe into his ribcage. It was an early but rather gruesome introduction to the world of medicine!!

My father’s untimely demise left my mother widowed with three children at the young age of thirty one. She had only basic education—having been married off right after schooling, no money and was in a land far removed from her roots. I seek your pardon and dwell on this because the fallout of this event was to shape my future. From a carefree schoolkid, I was transformed into the ‘man of the house’ and I learnt the word ‘responsibility’. I was told that I was responsible now not only for myself but also my family. That sense of responsibility has stayed with me ever since and has guided every decision in my life.

The second experience was a demonstration of empathy and generosity. My mother was driven to withdrawing...
me from school because she could not afford the school fees. Brother Duffy, the then Principal of my school magnanimously waived my school fees so that I could continue with my education on one condition—that I remained on top of the class. Excelling in studies was a matter of survival then, which in later years became a habit. Because of his generosity, I was able to clear my Indian School Certificate examination with honours. I remain forever grateful to the Patrician Brothers of my school for I am not sure where I would have been but for their benevolence. In return I have made it my mission to help impoverished students in need of help for their education and would urge you all to help at least one poor child through school. You never know what he or she might become thanks to your support.

My mother taught me the lessons of fortitude and resilience. She braved the loss of my father with grace and dignity and set about the task of rebuilding our lives. The ONGC employed her as a lower division clerk on compassionate grounds on a meagre salary. Struggling on a hand-to-mouth existence, she not only educated the three of us but also went on to study, herself, and acquire a bachelor’s degree. She would eventually retire as Joint Director in the same organization. At 92, she still retains her positive attitude towards life and lives every day to the full. There can be no repayment for her sacrifices. Our extended family, especially my uncles and later my father-in-law were immensely supportive and took on the role of father figures and mentors—I deeply value their help and counsel through the years.

I would also like to acknowledge late Prof. P.S. Bidwai—late professor of pediatric cardiology at the Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, and Prof. B.N.S. Walia—chief of Pediatrics and Ex Dean PGIMER, Chandigarh, who steered me in the direction of pediatric cardiac surgery when I was a fledgling trainee in cardiac surgery at a time when pediatric cardiac surgery was at its infancy in our country.

In medical college, I was to meet the second woman who was to shape my life. They say ‘Behind every successful man there is a woman’. One of my college professors very aptly changed it to “a ‘surprised’ woman”. That ‘surprised’ woman shares this moment here with me. We have travelled this journey together for 44 years and she has made a mark for herself as a pioneering pediatric cardiac intensivist. She has looked after our ICU and our home with equal care and dedication. She has been my strongest supporter and my harshest critic, but needless to say I would not be where I am today but for her.

Of course the centrepiece of our life now is our daughter Ananya Gauri. She restores our faith in the belief that medicine is still the most fulfilling profession. After a graduate degree in Food Technology, a Master’s degree in Management and halfway through a degree in Hospital Management, she has changed careers and joined medical school to pursue a career in Medicine. We are immensely proud of her achievements.

My career path as a pediatric cardiac surgeon has been shaped by many hands. During Bachelor of Medicine and Bachelor of Surgery (MBBS) at the All India Institute of Medical Sciences (AIIMS), I was to meet the legendary Prof. N. Gopinath (Fig. 2). He was quick to spot the potential in me and encouraged me to do an elective posting in cardiothoracic and vascular surgery (CTVS) during my internship. I was hooked. Such was the level of his encouragement that he gave me a research project to do—analysing the spectrum of rheumatic heart disease that presented to the cardiac clinic. He subsequently made me write that up as a Chapter in the Association of Physicians of India (API) textbook of Medicine. Imagine, that as an Intern he made me first author for a chapter that bore his name. Dr. Gopinath ensured that I joined M.Ch in CTVS. He was to retire soon after I joined but he continued to maintain a keen interest in my subsequent progress and remained a mentor till his last days. One of the frequent discussions today revolves around the question of how to encourage young medical graduates to join our speciality. This is a prime example of how one can go about doing it.

M.Ch training at the AIIMS was rigorous and brutal as those who have been through it would recall. It was akin to a blacksmith beating cast iron into solid steel. We cursed and swore then, but appreciated the value of that training in later years. I recall feeling totally shattered when the first draft
of my thesis was thrown out of the seventh floor window of the hospital by Prof. Venugopal as total rubbish. However, he then made me correct it and re-correct it and finally after seven revisions it not only got accepted as a thesis but also got published as an original article in the *Journal of Thoracic and Cardiovascular Surgery* (JTCVS) [1]—probably first for an M.Ch. resident. My grateful thanks to Prof. P. Venugopal, Prof. I.M. Rao, Prof. A. Sampath Kumar and Prof. Balram Airan for teaching me the art and science of cardiac surgery and instilling in me a work culture that is a part of me till this day. Those were also the days when we had inspirational heroes in the world of cardiac surgery. Drs. Denton Cooley, Michael Debakey, Leonard Bailey and Magdi Yacoub were amongst the legends that we looked up to. Dr. Cooley's visit to the AIIMS in 1983 was a momentous occasion and much later his gift of personally autographed biography remains one of my most cherished possessions.

I am especially grateful to Late Prof. I.M. Rao who veered me towards a career in congenital heart surgery. He was instrumental in getting me a fellowship with Dr. Roger Mee (Fig. 3) at the Royal Children’s Hospital in Melbourne. That was to prove a turning point in my life.

The year’s fellowship in Melbourne opened my eyes to the immense possibilities in congenital heart surgery and also made me acutely aware of the huge void that existed in our country in this area. Dr. Mee was not only a skilled surgeon but was also a great Indianophile who was keen on mentoring surgeons from India. For many years after my return to India, we maintained a regular interaction and his continued guidance was of immense help in my efforts to set up a pediatric cardiac program. His biography ‘Walk on Water’ is a must read for aspiring congenital heart surgeons.

Our association also taught me the value of mentorship and I have tried to emulate the same with my trainees. I am convinced that in cardiac surgery, mentorship continues to play a vital role in any cardiac surgical program. I am also fortunate to be closely associated with and have as good friends many talented and highly regarded surgeons who were or are associated with the Melbourne pediatric program. Their support and guidance has been of tremendous help for the growth of our surgical program. They include Mr. William Brawn, Dr. Tom Karl, Dr. Shunji Sano, Dr. Charles Fraser and Dr. Christian Brizard. All of them are legends in themselves and I am deeply indebted to their contributions to my professional growth.

On my return to the AIIMS in 1990, I took a momentous decision to confine myself to congenital heart surgery. I faced scepticism and a barrage of doomsday predictions. One of our senior surgeons told me point blank that I was committing medical suicide. This reaction was understandable considering what had happened with congenital heart surgery in our country till then. While many of the landmark procedures in cardiac surgery had been performed in our country as early as the 1960s, very little progress had been made till the 1980s. In the early 1980s, there were only about ten centres performing sizeable volumes of cardiac surgery, limited largely to valve surgery and closed congenital heart surgery or repair of simple cardiac defects in older children. Neonatal and infant cardiac surgery was virtually non-existent. The general belief was that surgery for complex congenital heart disease and infant heart surgery was impossible to deliver in India and was not a priority in the larger picture. The perception was that pediatric and infant surgery required huge resources supported by highly skilled manpower—neither of which was available. Developing a pediatric cardiac program was therefore considered to be a fruitless exercise and most of our cardiac surgeons who had received training in pediatric cardiac surgery overseas returned home and confined themselves largely to adult cardiac surgery.

So, the initial steps towards this goal of pursuing pediatric cardiac surgery were challenging. When I started, we had one baby crib with a manual radiant warmer, one adult servo ventilator, an erratic blood gas analyser, and one infusion pump. We had no trained pediatric anaesthetist, intensivist or perfusionist. But there was a lot of enthusiasm amongst younger colleagues who were more than willing to pitch in.

The tide of pessimism turned when the first successful neonatal surgeries were performed and it became evident that neonatal cardiac surgery was do-able in our country. Our first neonatal arterial switch was done in Oct 1990, referred by Prof. P.S. Bidwai and Prof. B.N.S. Walia from PGI, Chandigarh, who were ardent supporters of our efforts to set up a congenital heart program. The first successful repair of neonatal obstructed total anomalous pulmonary

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Fig. 3 With Dr. Roger Mee in 1989
venous connection (TAPVC) was also achieved along with many other challenging neonatal and infant surgeries.

With the help of Dr. Rajesh Sharma and many of the younger trainees, congenital heart surgery at the AIIMS witnessed a rapid growth with many complex lesions being dealt with. We were also able to convert our experience into numerous international publications. These included our experience with repair of tetralogy of Fallot in infancy, the rapid two-stage arterial switch operation, univentricular repairs, and many others [2–4].

It was at this time that I was fortunate to have been introduced to Bhagwan Sri Sathya Sai Baba (Fig. 4). I became closely involved in Bhagwan’s mission to provide free healthcare to the masses and in setting up the cardiac unit at the Super-specialty Hospital in Prashanti Nilayam which continues to provide cardiac surgery free of cost to those who need it even today. I started operating on children there and when he saw sick children recover from heart surgery and become well, he resolved to do more to provide free heart surgery for children with congenital heart disease. In later years, his vision would be fructified by the numerous Sathya Sai Sanjeevini hospitals that have been established and are doing a yeoman service by providing free heart surgery to thousands of children.

However, even by year 1995, it became apparent that other than the AIIMS, and Dr. K.M. Cherian (an institution in himself) in Chennai, there seemed to be no other takers for this challenging speciality. I must mention here that Dr. Cherian has always been one of my heroes and was and remains an inspiration for his immense contributions to the growth of not only cardiac surgery but also congenital heart surgery in our country.

My move to Escorts Heart Institute in 1995 raised many eyebrows. It came at a time when the country was making an economic turn around and many adult cardiac programs were mushrooming in the private sector. It was my belief that congenital heart surgery (CHD) surgery would not grow in the country unless the private sector actively got involved. I had to replicate the AIIMS experience in the world of private medicine. At that time, Dr. Naresh Trehan was willing to provide me with such a platform at the Escorts Heart Institute and it was his vision and unstinting support that led to the establishment of the first dedicated pediatric cardiac program in Northern India. I am deeply grateful to him for his patient guidance and hand holding through the initial turbulent years at the inception of the pediatric program, well before the program was solidly on its feet.

Our team which had me as the surgeon included Prof. Savitri Shrivastava (Fig. 5) and Dr. S. Radhakrishnan as the pediatric cardiologists, Dr. Parvathi Iyer as the pediatric intensivist, Dr. Sumir Girotra as the pediatric anesthesiologist and Mr. Virender Singh as the pediatric perfusionist. I am happy and proud to say that we are still together 27 years later except for Mr. Virender Singh who passed away tragically a few years ago (Fig. 6). They are the pillars on whose shoulders the program stands. Prof. Savitri Shrivastava worked with us, till well into her eighties till failing health compelled her to retire.

The program goals that we laid out were simple—to provide quality pediatric cardiac care, to evolve low-cost but effective care models and most important impart training in all aspects of pediatric cardiac care to expand the pool.
of available manpower. Again here, the initial days were not easy. We had lofty ideals but many challenges to face. Making inroads into an adult dominated world was difficult and arduous. We had poor understanding of how private medicine worked. Patient footfall was low at the start of the program coupled with unrealistically high expectations, both from the hospital management and from patient families, since they were paying stiff hospital bills. Healthcare was put under consumer forum at the same time adding to our woes.

But we survived nevertheless, with a dogged determination to pursue our goals. It was hard work with sleepless nights and a lot of self-belief. Most importantly, the core team stuck together and there was support from many well-wishers amongst the numerous sceptics. Useful guidance came from friends and mentors across the globe and we learnt important lessons along the way. And so, the pediatric cardiac program at Escorts Heart Institute grew steadily. At a peak, we were doing over 750 cases a year. Today, over 14,000 surgeries have been performed and with a focus on quality care, the 30-day surgical survival has exceeded 98% consistently for the last 15 years (Fig. 7). What has been most heartening is that our trainees have stepped out to set up programs of their own in different parts of the country as well as in the neighbouring countries. Many of the units in Northern India especially in Delhi are manned by surgeons, cardiologists or intensivists who have been trained in our unit. And I am very proud to state that our very first trainee, Dr. Sunil Kaushal, heads the finest pediatric cardiac unit in Rajasthan at the Fortis Hospital in Jaipur.

The apparent growth and success of the Escorts program worked like a catalyst for additional pediatric programs to be energized in many parts of our country and by the early 2000s neonatal and infant cardiac surgery had witnessed steady growth. In addition, our country was witnessing an economic turnaround with coronary surgery booming across the country allowing for piggybacking of pediatric cardiac programs. The speciality started becoming attractive to many younger surgeons since it appeared to be less of a suicide trap! More centres became training grounds leading to the spawning of fresh programs. Some state governments like Andhra Pradesh also started schemes to subsidize and support cardiac surgery for children from the economically weaker sections of the society. Today there are over a hundred dedicated pediatric cardiac surgeons all over the country who perform close to 25,000 congenital heart surgeries annually with at least ten centres that perform high-quality neonatal and complex congenital heart surgery. Unfortunately, the distribution of the pediatric centres in our country is not uniform—most units being concentrated in the metro cities and the majority being in the non-governmental sector. Likewise, more centres are located in the southern and western part of the country and there are far fewer centres in the north, central and eastern parts of India.

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**Fig. 6** The team at Escorts Heart Institute—Dr. K.S. Iyer, Dr. S. Radhakrishnan, Dr. Parvathi Iyer, Dr. Sumir Girotra

**Fig. 7** Surgical outcomes (30 day mortality) over 23 years at Fortis Escorts Heart Institute
Going forward, we need to ask ourselves whether this is enough? A status report on congenital heart surgery in India was published by Dr. Anita Saxena in 2018 [5]. We still continue to have about 2,40,000 newborns with CHD born every year of whom at least 50,000 require intervention in the first year of life to avert certain death. All in all, there are anywhere between 2 and 4 million patients with CHD in our country in all age groups. There is clearly a huge gap between the supply and demand for CHD surgery. Only one in eight children with CHD manages to get any form of treatment. There is also a wide variation in regional availability of services, with most of the facilities for neonatal surgery being in the private sector, with costs which are largely unaffordable by the majority.

Universal care for CHD would involve a huge increase in the available capacity and resources. The projected need would be about 500 centres with about 1000 cardiac surgeons and 2000 cardiologists along with necessary support staff (Table 2). Clearly these targets are not achievable in the short term. So, what is the way forward? Before we start increasing our facilities, we need to look closely at whether we are optimally utilizing our existing capabilities. With 150 surgeons performing pediatric surgeries, we should be able to generate an output of at least 50,000–60,000 cases per year. But we are doing only half of that number annually. Why is that?

There are several reasons for this. First, we have a wide variety of centres that provide CHD surgery ranging from corporate chains which charge full and expensive packages to the philanthropic hospitals like the Sathya Sai Sanjeevini hospitals where treatment is totally free (Table 3). Between these extremes are the charitable trust hospitals, government hospitals, medical college hospitals etc. where the charges for surgery are variable.

Second, funding for surgery is also very variable. The majority of patients have to pay out of pocket which is an unfortunate situation (Table 4). Health insurance for CHD is suboptimal. All in all, there is no uniformity on the source and adequacy of funding for CHD surgeries.

Third, there are the problems faced by surgeons. The majority of existing facilities are in private hospitals. Job opportunities in public hospitals are few. Cost constraints limit patient volumes in private hospitals and payouts from schemes like Rashtriya Bal Suraksha Karyakram (RBSK) and Pradhan Mantri Jan Arogya Yojna (PMJAY) are not adequate to cover costs and are not accepted by many private hospitals. Hospitals compete with each other for the limited number of paying patients. As a result many skilled and experienced surgeons in the private hospitals manage only 15–20 cases per month while there are long waiting lists, often stretching to years, in public hospitals. To bridge the revenue gap, private hospitals encourage medical tourism to tap international patients who have the paying capacity.

Surgeons also face personal problems. CHD surgery is a high-stress specialty. Most pediatric programs are surgeon driven and therefore he or she is responsible for the actions of all members of the team. Then there is constant pressure from the hospital to generate revenues. Fear of litigation makes surgeons risk averse and kills innovation. Thus, it is not uncommon for surgeons to feel isolated when adversity strikes. As a result, many young surgeons now find pediatric cardiac surgery a daunting sub-specialty.

What then is the solution? There exists in our country a huge wall between the public sector and private sector in the

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**Table 2** Projected manpower requirements to provide universal pediatric cardiac care

|                         | Current numbers | Required |
|-------------------------|-----------------|----------|
| Anesthesiologists       | 100             | 1000     |
| Centres                 | 75              | 500      |
| Intensivists            | 100             | 1000     |
| Nurses                  | Data not available | 20,000–25,000 |
| Pediatric cardiac surgeons | 120 (70 exclusive) | 1000     |
| Pediatric cardiologists | 200 (100 exclusive) | 2000     |
| Perfusionists           | 130             | 1000     |

**Table 3** Types of centres providing pediatric cardiac surgery in India

- Corporate—Fortis, Apollo, Narayana
- Public Teaching—AIIMS, PGIMER, SCTIMS
- State Medical Colleges
- Charitable Trusts—SGR Hospital, Child Trust Hospital
- Free Philanthropic—SSIHMS, Sathya Sai Sanjivini Hospitals
- CGHS, Central Government Health Service; PGIMER, Postgraduate Institute of Medical Education and Research; SCTIMS, Sri Chitra Tirunal Institute for Medical Sciences; SGR, Sir Ganga Ram; SSIHMS, Sathya Sai Institute of Higher Medical Sciences

**Table 4** Sources of funding for pediatric cardiac surgery

- Self pay—out of pocket
- CGHS, state health service
- Government schemes—RBSK, NRI, Shree Hemchandrai, Pradhan Mantri Jan Arogya Yojna
- NGOs, philanthropy, individual sponsors
- International—Rotary Gift of Life
- Corporate social responsibility

CGHS, Central Government Health Service; RBSK, Rashtriya Bal Suraksha Karyakram; PMJAY, Pradhan Mantri Jan Arogya Yojna; NGO, non-governmental organization
field of healthcare with practically no interaction and a lot of mistrust between the two segments of care providers. We need to break this wall and create more bridges so that there is more cooperation between these two important wings of pediatric cardiac care. The government needs to take a major initiative in this direction. First, it should recognize the skills available in the private sector and evolve mechanisms to harness them to improve services in the public hospitals. It should establish pediatric programs in all AIIMSs and PGIMERs across the country and recruit retiring cardiac surgeons as mentors to develop these programs. It should rationalize payouts from government schemes to allow better participation from private hospitals and improve access for poor patients. Last, it should provide a more secure environment for doctors working in ‘high risk specialties’ like congenital heart surgery.

What can the IACTS do? It should play an advocacy role for streamlining government policies for pediatric cardiac care. It can help in capacity building by providing training opportunities for aspiring pediatric cardiac care specialists. It should be responsible for laying down clinical and ethical guidelines for the improvement of the specialty.

To summarize, congenital heart surgery has progressed significantly in our country in the last two decades. However, a huge gap still exists between its supply and demand. Children with CHD in our country deserve a lot better. Universal care for children born with CHD is a distant dream at present but is, I believe, an achievable goal if all stakeholders work in unison towards that goal.

“We cannot remain silent spectators to the silent plight of these unfortunate children”.

That brings me to an explanation for the title of my presentation—‘Cry of the Children’. It is borrowed from a very moving poem written way back in 1843 by Elizabeth Barrett Browning. It describes very poignantly the silent and unheeded suffering of the children who were forced to work under terrible conditions in the coal mines and factories. In the words of the poet:

‘Now tell the poor young children, O my brother, To look up to Him and pray — So the blessed One, who blesseth all the others, Will bless them another day. They answer, “Who is God that He should hear us, While the rushing of the iron wheels is stirred? When we sob aloud, the human creatures near us. Pass by, hearing not, or answer not a word! And we hear not (for the wheels in their resounding)”

When I read the poem, I could immediately draw a parallel between the plight of the children in the coal mines and the plight of children with congenital heart disease in our country. We cannot and should not ‘Pass by, hearing not, or answer not a word’!

I do not wish to end on a pessimistic note. The first neonate who underwent an arterial switch operation in 1990 is now a 32-year-old handsome young man, working as a software professional in Toronto. The neonate who underwent repair of obstructed TAPVC is now a doctor, recently married. A baby who underwent an emergency arterial switch operation at day one of life in 1993 for transposition of great arteries with profound desaturation is now at age 30 years, an active young professional in the creative arts. These are just examples of how timely surgery can transform lives of these individuals, who are otherwise doomed to die.

In the end, I would like to dedicate my talk to all my trainees through the years who have toiled night and day with me to make this dream come true as well as to all my co-workers—nurses, perfusionists, doctors and clerical staff who have all been part of this arduous but glorious journey.

Thank you all for a patient hearing and Jai Hind.

Funding None.

Declaration

Conflict of interest None.

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