



Narayana Hrudayalaya Limited Annual Report 2022-23

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Forward looking statement

Some information in this report may contain forward-looking statements. We have based these forward looking statements on our current beliefs, expectations and intentions as to facts, actions and events that will or may occur in the future. Such statements generally are identified by forwardlooking words such as "believe," "plan,' "anticipate," "continue," "estimate," "expect," "may," "will" or other similar words. A forwardlooking statement may include a statement of the assumptions or basis underlying the forward-looking statement. We have chosen these assumptions or basis in good faith, and we believe that they are reasonable in all material respects. However, we caution you that forward looking statements and assumed facts or bases almost always vary from actual results, and the differences between the results implied by the forwardlooking statements and assumed facts or bases and actual results can be material, depending on the circumstances.

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Chairman's Message

As a senior doctor, I believe that technology will make healthcare safer, more affordable and restore the joy of taking care of patients.

Dear Shareholders,

In 2011, Marc Andreessen the co-founder of Netscape, famously stated that "software is eating the world". In 2011, Marc Andreessen the co-founder of Netscape, famously stated that "software is eating the world". His prediction was proven correct as companies like Amazon, Google and Facebook changed the way we live our lives. However, not many people are aware that these companies were able to change the world because they are standing on the shoulders of giant platform ecosystems like Windows, Android, iOS, and AWS. Being built on a stable platform allowed these companies to share information, rapidly innovate, and build software that is so intuitive, even children can download an app the first time they pick up a phone.

Unfortunately, the healthcare industry does not benefit from a platform that allows multiple programs to interact with one another. We are rigidly isolated from progress made in the consumer technology industry due to the complexity of the existing systems. Contrary to popular perception, hospitals are not the safest places for patients. Despite having world class hospitals and intense regulation, it's estimated that if 200 patients spend just one night in an American Hospital, 1 of them will die due to medical error. Medical error is widely acknowledged to be the 3rd commonest cause of death in hospitals, after heart disease and cancer. According to the Joint Commission of the USA, medical error usually happens due to a "communication failure". The foundation of patient care is built on the ability of doctors, nurses and paramedics to communicate with each other in real time and take critical decisions. However, existing electronic medical record systems don't do a good job of addressing the communication gap in healthcare. Despite costing tens of millions of dollars, the dominant EMR systems in the west don't have happy end users and is cited as one of the most common reasons for the physician burnout in the US. There needs to be a new platform that allows multiple sources of information, and multiple methods of communicating patient data among doctors, nurses, and technicians.

As a senior doctor, I believe that technology will make healthcare safer, more affordable and restore the joy of taking care of patients. However, I also believe that if a technology company builds software far away from the patient's bedside, it won't be acceptable to the doctors. This inspired us to start our digital journey which eventually gave birth to the ATHMA platform for healthcare delivery and MEDHA platform for healthcare analytics and AI. Today ATHMA includes AADI app for inpatient care, Namah app for nursing care, ATHMA LIS for managing laboratories, ATHMA RIS for radiology and reporting and the NHCare app for patients. True to our mission, we can seamlessly integrate with third-party applications to unlock the full potential of our data.

ATHMA enables mobile first, seamless communication between all our doctors, nurses, paramedics, administrators, patients, and medical equipment. About 1.5 million messages flow everyday between all our stakeholders. This has dramatically improved the quality of patient care across our hospitals. Here's an example of how our doctors have vastly improved our patient care routine because of the new tools available to us. Before I go to bed at 11 pm, I conduct my ICU rounds sitting in the comfort of my home. I'm able to do this through the AADI app on my iPhone, which shows all the relevant patient information from ATHMA. My day begins at 4:30 in the morning with a fresh cup of coffee and checking up on all my patients virtually. Today, I can be anywhere in the world, and still see my ICU patients, interact with my colleagues, see the cardiac monitor of a particular patient, check the latest X ray, change the medication, or even speak to the patient's family from my phone. For the first time in my professional life as a heart surgeon, I can see everything about my patients from anywhere I choose and at any time I want to see it. We are among the few hospitals in the world that can remotely treat critically ill patients with all the medical reports at our fingertips. For someone like me who used to spend

many nights in the hospital as a young surgeon, this is nothing short of magical.

Young students join the medical profession because they are inspired to heal the sick and reduce suffering in this world. But modern healthcare systems have a lot of mindless and rote tasks that kills that spark. We designed Athma to restore the joy of patient care by eliminating pointless tasks while improving clinical outcomes and administrative efficiency. Our study on nurses' routine revealed that over 50% of their time is spent simply copying information from machines and entering it into another system or writing on paper. After deploying Namah nursing app, we were able to reduce the time spent on this kind of monotonous work to less than 5%. This means that nurses are now able to spend more time performing their clinical tasks and caring for their patients with empathy. These innovations dramatically enhance patient satisfaction and improves the quality of care.

Our MEDHA Analytics team has gathered mountains of clinical data to build the Normal Heart Score - a risk scoring algorithm which can predict an adverse cardiac event in post operative patients. In a recently published peer reviewed study, the NH Score outperformed both the existing benchmarks: STS and Euroscore II for all outcomes in an Indian population. The MEDHA team is currently working on predicting cardiac function from a simple ECG with better accuracy than the existing models.

Building ATHMA and our technology platform is the most complex project we have ever undertaken. It is my belief that world class software for our industry can only be built by brilliant engineers coding at the patient's bedside, interacting with doctors in the halls of the ICU, and experiencing the joys of healing patients and relieving suffering. We are truly blessed to have the opportunity to run an institution that attracts both talented clinicians and world class software engineers with magic in their fingers. The end result is truly special.

I would like to thank the Ministry of Health, Government of India for encouraging hospitals and diagnostic centres to adopt electronic medical records and bring about EMR as the next UPI moment for India. In a world where a vast majority of hospitals don't use an EMR or modern software, there is an immense opportunity to improve the quality and affordability of healthcare through digital tools. We want Athma to be embraced by hospitals around the world at a price they can afford. This will save millions of lives and will be a fitting tribute to the brilliant software developers who worked tirelessly for years to create a masterpiece.

We are extremely grateful for your trust in us and for giving us an opportunity to make the world a better place.

Thank you so much.

Dr. Devi Prasad Shetty Chairman

CEO's Insight



Our team is currently focused on developing novel healthcare concepts with the potential to significantly enhance patient outcomes.

Dear Shareholders,

I am delighted to have this opportunity to share with you the achievements and how the Company has grown during the fiscal year 2023. First and foremost, I would like to express sincere gratitude to our clinical and non-clinical staff members who have worked tirelessly to ensure the success of the Company. Their dedication and commitment were instrumental in attaining our objectives and aims. While we are pleased with our achievements, we also remain aware of the challenges we faced throughout the year.

Government Role in Healthcare

The Indian government's unparalleled vaccination campaign. which administered over 2 billion vaccine doses and saved countless lives, exemplifies the robust healthcare expertise of the Indian healthcare system and contributed to the normalisation of economic activities. The Pandemic has highlighted the need to improve the healthcare infrastructure, and as a result, the government has increased the budget allocation for healthcare by over 13% and announced the establishment of multiple medical and nursing colleges. The Budget increased access to ICMR laboratories for the manufacturing and corporate sectors, which is a positive development for medtech entrepreneurs. In addition, a proposal to implement holistic courses in the medical device segment was unveiled. These initiatives are intended to foster innovation and cultivate the talent pool required to meet the nation's expanding medical requirements. We are confident that the government will continue to support the healthcare ecosystem with additional initiatives in accordance with developing trends.

Robust Financial Performance

The fiscal year 2023 exhibited robust financial performance which is normalized performance compared with the fiscal year 2022. The performance in the current fiscal strides the improvement quarter on quarter except for the marginal dip in the third quarter due to seasonality across the healthcare industry. We are pleased to report the highest-ever revenue and profitability in the fourth quarter, as well as for the financial year, which is attributed to increased patient footfalls along with improvements in speciality and payor mix. We have reported the highest consolidated revenue of INR 45,248 Million reflecting YoY growth of 22.2% over the last fiscal year 2022. We are delighted to report the highest profitability of INR 10,313 Million in the current fiscal year translating into an EBITDA margin of 22.8% and PAT of INR 6,066 Million reflecting PAT margin of 13.4%. The performance improvement is supported by the growth in business across our flagship units, other hospitals, and newer hospitals, in addition to the increased contribution of international patients.

Our Cayman business demonstrated continued growth post relaxation of COVID restrictions and strict quarantine rules placed by the authorities for most of the first quarter of the fiscal year 2023. Despite the holiday seasonality nature of the third quarter, the Cayman unit generated revenue of USD 109 Million reflecting growth of 18.9% compared to the previous fiscal year. To complement our overseas expansion sphere, we acquired the ENT clinic and closed the deal in Q4 FY23. Also, our green field expansion of the radiotherapy block and hospital unit are moving forward as planned; these additional investments will strengthen our overseas brand presence and augment our future growth trajectory. We remain optimistic about the robust growth prospects of overseas business in the Cayman as we continue to explore investments in surrounding islands on an opportunity basis.

Our return ratios improved due to robust business performance and RoE stood at 30% at the Group level. Also, strength of our overall balance sheet and liquidity profile remains strong with Group cash and liquid investments of over INR 6.3 Billion against gross borrowings of INR 7.6 Billion (Net debt of INR 1.3 Billion) as of 31st March 2023. Our debt-to-

equity ratio has further improved to 0.06 against 0.16 in FY22, with low leverage and strong cash flows giving us sufficient room to fund our expansion through our mix of borrowings and internal accruals. We believe our recent acquisition of Orthopaedic Hospital of Sparsh situated in Hosur Road, apart from our inorganic growth strategy, will help us to take rapid strides in Orthopaedic specialty care and increase the spectrum of our multispecialty program run by our flagship unit, Mazumdar Shaw Medical Centre in Health City campus, Bengaluru, helping us to consolidate our position in the Health City campus, Bengaluru to create a strong regional network that brings synergies.

Strategic Initiatives

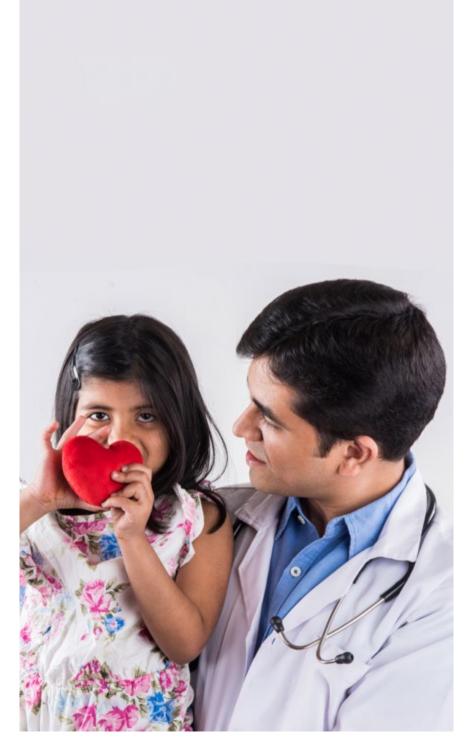
In pursuance of our mission to provide comprehensive healthcare to wide sections of society, we have piloted a subscription program in Bengaluru to cover individuals and their family members. We have recently surpassed a landmark milestone of 1,000 subscription plans in the first four months of launch and we continue to gain traction. These results are encouraging and gives us the confidence to implement a comprehensive, personalized, and seamless healthcare service at the doorstep through digitally integrated patient touchpoints. To further amplify and strengthen our focus on retail healthcare, we have incorporated a wholly owned subsidiary NH Integrated Care Private Limited and undertaken the slump sale of clinics. We are optimistic on providing a gamut of comprehensive quality healthcare services to the larger section of society at an affordable cost.

We undertake and cultivate strategic initiatives and relationships with startup partners as a result of our adaptability and dynamism with respect to current and rapidly developing healthcare trends. Our doctors at Mazumdar Shaw Medical Centre, in partnership with our local start-up and research partner, Immunnel, are conducting a groundbreaking trial involving chimeric antigen receptor (CAR) T therapy. This therapy is being offered to patients with certain blood cancers that have not responded to other treatments or have recurred despite standard therapy. Upon receiving regulatory approvals for clinical use, our patients will greatly benefit from this treatment.

Leveraging Technology

With our commitment to technology orientation, we continued to invest in inhouse technology across clinical, operational, and digital channels. We are also delighted to announce the soft launch of ATHMA's SaaS version for small healthcare facilities such as diagnostic laboratories, nursing homes, and stand-alone hospitals, which leverages our technology investments and in-house expertise. ATHMA SaaS provides a streamlined, integrated solution for a segment of the market that is underserved in Tier II and Tier III cities. The team is enrolling foundational consumers in order to collect valuable usage data and feedback to further improve and refine the platform.

Besides, we have other technological initiatives aimed at enhancing the clinical and operational excellence and digital infrastructure. NH has been an early adopter of cloud technology for healthcare services in India, and we remain committed to cloud-first technology strategy. By centralising our workloads and moving away from on-premises servers, we have achieved a single instance that powers all our Group facilities. This has enabled



NH has implemented in-house Lab Information System (LIS) across its network hospitals. Additionally, Lab Automation and the use of digital time stamps have enabled us to monitor and improve our turnaround times more effectively.

us to exchange patient data seamlessly and implement standardised processes across all our facilities. Moreover, the enterprise cloud provides us with superior availability and security, which are crucial for providing high-quality healthcare services. Also, staff members can access the data from any location in India as well as from remote locations.

NH has implemented in-house Lab Information System (LIS) across its network hospitals. Additionally, Lab Automation and the use of digital time stamps have enabled us to monitor and improve our turnaround times more effectively. Currently, 70% of our lab results are made available within 2 hours and we continue to strive towards improving this further. We are excited to announce the introduction of our most recent digital innovation, DISHA, which provides a seamless and contactless discharge process. With DISHA, regular updates will be provided from the moment a discharge decision is made until the discharge process is complete. In addition, the discharge formalities can be completed digitally, making the process quicker and more efficient and significantly improving the discharge experience for all our patients.

Our emphasis on technology extends beyond merely enhancing patient experience and efficacy. In order to collect patient feedback, we have also implemented a faceless, digital system, which enables patients to express themselves more candidly and without feeling compelled to satisfy the interviewer. This has resulted in a more precise measurement of patient satisfaction and a substantial optimisation of resource utilisation.

Significant progress has been made in the applicability and utilisation of our in-house ATHMA Hospital Information System as we continue to adopt new technologies and innovative methods. Our ATHMA Application for Doctor Insights (AADI) provides physicians with real-time information, facilitating the transmission of information in a seamless and instantaneous manner and minimising delays in the care we provide to our patients. Our ultimate objective is to implement a paperless system, which will eliminate the need for paper-based medical records and further streamline operations. Automation will play a crucial role in enhancing patient care by decreasing the time and effort required to perform administrative duties, thereby allowing our clinical staff to focus more on patients.

Our organisation has placed a significant emphasis on improving healthcare through the application of sophisticated technologies, such as artificial intelligence and machine learning algorithms. We have effectively developed a risk prediction model capable of accurately predicting risk in patients undergoing bypass surgery by implementing machine learning techniques. The model was trained particularly on our patient population, resulting in greater accuracy compared to existing prediction systems that are primarily based on data from the European or American population. Notably, this study has been accepted for publication in a prestigious journal, demonstrating the scientific rigour and clinical significance of our research.

Our team is currently focused on developing novel healthcare concepts with the potential to significantly enhance patient outcomes. One of these projects entails the development of a real-time risk prediction model for intensive care unit patients. By identifying patients at high risk of developing complications early on, we expect to reduce their length of stay and improve their overall care. In addition, we are investigating the use of ECG to predict cardiac function, which could have significant implications for the early detection and management of cardiac disorders. We are dedicated to enhancing patient care using cutting-edge technology, and our ongoing research efforts reflect this commitment.

Mastering Complexity: An Overview of Our Comprehensive and Specialized Healthcare

We are proud to announce that our Paediatric Cardiac Program is the largest in India and one of the largest and the most comprehensive cardiac programs in the world. Last year, as a Group, we performed over 10,000 adult cardiac operations and over 5500 congenital operations. We also performed nearly 60,000+ diagnostic and interventional cardiology procedures in the adult and paediatric segment which includes about 4000 cases in the advanced electrophysiology segment. We also carried out highly specialized and complex cardiac surgical procedures in the year which includes 400+ Aortic Surgery, 150+ Transcatheter Aortic Valve Implantation (TAVI), 25 Heart Transplants and Ventricular Assist Devices, and 50+ Pulmonary Endarterectomies. Despite the increasing complexity of cases, we have continued to improve our clinical outcomes, with one of our outstanding achievements being performing bypass surgery with a success rate higher than 99%. This compares favourably with the outcome reported by the most authoritative report from the Society of Thoracic Surgeons Adult Cardiac Surgery Database which reports a success rate lower than 98%

Our clinical accomplishments were not restricted to cardiac sciences alone. We are expanding our Robotic Surgical Program, which currently involves 4 of our centres which have performed over 2000 robotic procedures. Eleven of our centres currently provide Interventional Neurology services and have performed

Our Paediatric Cardiac Program is the largest in India and one of the largest and the most comprehensive cardiac programs in the world. over 6500 procedures to date. We are also the first center to perform Mechanical Thrombectomy and Temporary endovascular bypass / stent retriever for stroke and to use AI in stroke imaging (RAPID system) in India. Interventional Radiology services are currently offered in 13 of our centres which have performed over 13500 procedures. We also provide cryoablation of kidney and breast tumours, treatment for prostatic enlargement, and treatment for uterine fibroids, among other niche treatment options.

We have made significant advances in the discipline of Oncology. Since its inception in 2004, our Haemato-Oncology Programme has performed over 2,000 Bone Marrow Transplants, making it one of the largest in the country. We are also at the forefront of the development of the novel chimeric antigen receptor (CAR) T cell therapy, which has the potential to be a revolutionary treatment for certain types of cancer. In Surgical Oncology, we have invested in the finest resources and personnel and now aim to keep pushing the boundaries further by concentrating on the treatment of cancers with minimally invasive robotic techniques and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) wherever applicable.

We have crossed an annual volume of 45,000 gastrointestinal endoscopy procedures in FY23 and still growing. With over 5000 neurosurgical procedures performed annually, we now desire to concentrate on functional neurosurgery in addition to cranial and spinal surgery. Over 2500 joint replacements are performed in the field of orthopaedics, and we intend to concentrate on providing specialised trauma care.

Our Promise to Patients: Service Excellence and Quality Assurance

Our pursuit of becoming a Centre of Excellence has greatly benefited from our commitment to service excellence. We have placed a significant emphasis on providing exceptional customer service by ensuring that patients and their families feel welcome and appreciated, are treated with respect and dignity, and are involved in decision-making. Patients now have access to cutting-edge technologies and remedies as a result of substantial investments in resources and expertise to resolve a variety of increasingly complex clinical work. To ensure that we provide our patients with safe, effective, and efficient care, we have increased our emphasis on clinical governance and quality assurance programmes. We have established policies and procedures for monitoring and enhancing the quality of care, and we conduct routine performance reviews to identify areas of improvement. In addition, we have begun the process of being accredited by the Joint Commission International (Enterprise) in order to establish the highest quality standards possible.

Advancing Healthcare through Cutting-Edge Clinical Research and Academic Excellence

Engagement in clinical research is essential for achieving and maintaining clinical excellence, and it has remained a top priority for our organization. We have achieved a new record of 235 publications last year, demonstrating our unwavering commitment to advancing medical

knowledge. To foster a supportive research environment, we have implemented various measures such as clinical symposia, webinars, and other educational activities, providing access to reputable journals, supporting data management and analysis, facilitating opportunities for doctors to present their work at national and international forums, and rewarding authors for outstanding publications. Our commitment to ongoing education and training for healthcare professionals is unwavering, as we continue to train and supervise nearly 1000 medical graduates through our 100+ accredited academic programs. By doing so, we are creating the future generation of doctors who will continue to uphold our high values and ideals wherever they go.

Commitment to Environmental Sustainability

As we move forward with our mission to make quality healthcare accessible to all, we hope to do so in a manner that vields shared value for all our stakeholders, advances environmental and societal progress, and forges a greener energy future. Sustainability permeates our entire business strategy. We are aware that healthcare as a whole is an energy and water intensive industry; therefore, it is imperative that we make efficient use of energy and water to reduce our environmental footprint and make significant strides in reducing emissions and transitioning to a low-carbon economy. We intend to continue focusing on and investing in the expansion of our renewable energy mix. We have effectively met 27% of our energy needs through