20 Years
Years
CELEBRATIONS

Biocon Foundation
EMPOWERING COMMUNITIES

THE EMPOWERMENT EFFECT

Annual Report 2024

CONTENTS

Our **Vision**

To provide socioeconomic inclusion through innovation and sustainable models that deliver scalable solutions.
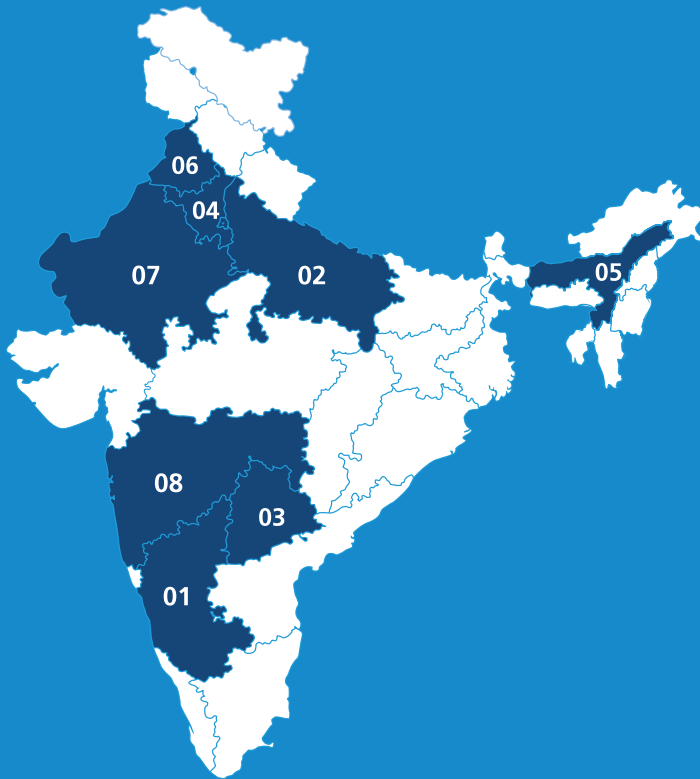
Our **Mission**

To support interventions that resolve select primary issues faced in sustainable development. Whilst doing so, we shall conform to statutes and policies and adhere to the principles of responsible business practices.

Strategic **Objectives**

- Vitalize preventive and primary healthcare
- Mitigate hunger, poverty and malnutrition
- Provide safe drinking water, sanitation and hygiene
- Empower communities through equitable educational opportunities
- Ensure protection of the environment and natural resources
- Augment essential rural resources
- Disaster relief, rehabilitation and reconstruction
- Reduce inequalities and empower the marginalized
- Conserve traditional art, culture and sites of national importance
- Support projects that create and nurture science and technology
- Facilitate the development of sports
- Contribute to welfare funds with statutory approval

Our Reach: 08 States, 16 Districts

Our Administration

Biocon Foundation, the CSR arm of Biocon Limited, Biocon Biologics Limited and Syngene International Limited, is guided by the CSR Committees, composed of members of the Board of Directors of these companies. The CSR Committees provide strategic direction, oversight of CSR policy and monitor the execution of the CSR activities by the Foundation.

Biocon Foundation is a registered trust under the Indian Trusts Act of 1882, registration number ANK-4-00410- 2006-07 dated August 09, 2006. The trust is recognized under Section 80G of the Income Tax Act 1961.

01
Karnataka
8 Districts
(Bengaluru Urban, Bagalkot, Chikkaballapur, Uttara Kannada, Koppal, Dakshina Kannada, Chamarajanagar and Yadgiri)

02
Uttar Pradesh
1 District
(Varanasi)

03
Telangana
2 Districts
(Hyderabad & Medchal-Malkajgiri)

04
Delhi

05
Assam
1 District
(Kamrup Metropolitan)

06
Punjab
1 District
(Amritsar)

07
Rajasthan
1 District
(Bhilwara)

08
Maharashtra
1 District
(Nashik)

The Empowerment Effect

A Message from the
Managing Trustee
Kiran Mazumdar-Shaw

"

"The true measure of success
is not just in what you
achieve, but also in how you
impact others positively."

Ratan Tata

As Biocon Foundation celebrates its 20th anniversary, I find myself reflecting on the extraordinary journey we've embarked upon—one that has empowered communities, catalysed transformative change, and left an indelible mark on the lives of those we serve. Established in 2004, long before the mandatory Corporate Social Responsibility (CSR) framework was introduced, Biocon Foundation was built on the belief that purposeful, strategic philanthropy could drive sustainable, systemic change. When the CSR law was enacted in 2014, it provided an invaluable opportunity to formalize our endeavours, positioning Biocon Foundation as the driving force behind the Biocon Group's social impact initiatives. Yet, despite these structural shifts, our guiding vision has remained steadfast—dedicated to addressing the most urgent social imperatives through focused, high-impact initiatives.

Over the past two decades, we have relentlessly pursued our mission to bridge critical gaps in healthcare, education, rural development, and environmental sustainability. Today, our commitment to innovation, resilience, and community-centered approaches is as resolute as ever, as we continue to evolve and adapt in partnership with the communities we serve. We have become more than just a philanthropic entity; we are a catalyst for systemic change, shaping a future where every initiative creates lasting, sustainable impact.

In this special edition of our annual report, we reflect on some of our most groundbreaking programs, each designed with a vision to not only address immediate needs but to lay the foundation for enduring change across multiple sectors. I invite you to explore these initiatives in depth, as they provide a vivid portrayal of our unyielding commitment to effecting profound, transformative change.

The eLAJ smart clinic initiative, a decade-long program with a footfall of over 10 lakh people across Karnataka's rural, tribal, and underserved areas, is a powerful testament to the profound impact of community-driven healthcare. Through the seamless integration of cutting-edge technology with localized solutions, we have redefined access to quality healthcare, ensuring it extends far beyond the confines of our clinics. By pioneering household-level surveillance for non-communicable diseases, eLAJ has addressed pressing health challenges in remote communities. Over time, the initiative has evolved, seamlessly integrating cancer surveillance, adolescent health programs and enhanced care continuum ensuring a comprehensive, timely, and high-quality care. eLAJ continues to be shaped by the aspirations of the communities we serve and has become a model of holistic healthcare, drawing admiration from leading academic institutions and health experts.

Similarly, our unwavering commitment to oral cancer surveillance, which has been a cornerstone of Biocon Foundation's healthcare initiatives since 2011, highlights our proactive approach to public health. Recognizing that early detection is critical to reducing mortality rates and the associated economic burden, we have invested heavily in advancing oral cancer surveillance. In 2018, we established the Oral Cancer Task Force (OCTF), bringing together leading oncologists, researchers, and healthcare stakeholders to advance our shared mission. The OCTF's globally recognized clinical practice guidelines for managing head and neck cancers rank among the top 13 guidelines worldwide, demonstrating the power of collaboration and expertise in tackling one of India's most pressing health challenges.

In addition to our healthcare programs, we are proud to support the development of the Indian Institute of Science (IISc) Non-for-Profit Hospital—a pioneering initiative that will redefine healthcare delivery in India. This 800+ bed multispecialty hospital will offer state-of-the-art diagnostic and treatment facilities across 16 specialties, including advanced medical infrastructure and a biorepository. Furthermore, the IISc Medical School's academic programs will foster the development of interdisciplinary healthcare leaders through academic programs such as MD-PhD, MS, DM/MCh, and MPH, equipping them to advance research, integrate clinical care, and ultimately drive improvements in patient outcomes. This initiative aligns with our vision of creating a seamless connection between research and clinical practice, bringing scientific innovations directly into patient care pathways.

In education, our initiatives are designed to create lasting value, transforming access to knowledge and fostering the next generation of leaders and innovators. One of our most impactful projects, the Mobile Science Labs, brings hands-on science education to students in rural and underserved areas. Since 2018, these labs have ignited curiosity, making science accessible through practical experiments that stimulate learning and empower students to explore new ideas.


Amongst our most successful education programs is the "Chinnara Ganitha" initiative, launched in 2012, which has reshaped the way mathematics is taught in over 1,200 government schools across Karnataka. By employing innovative teaching techniques—including visual aids, interactive activities, and real-life applications—we have made mathematics engaging and accessible, significantly improving students' mathematical proficiency and confidence.
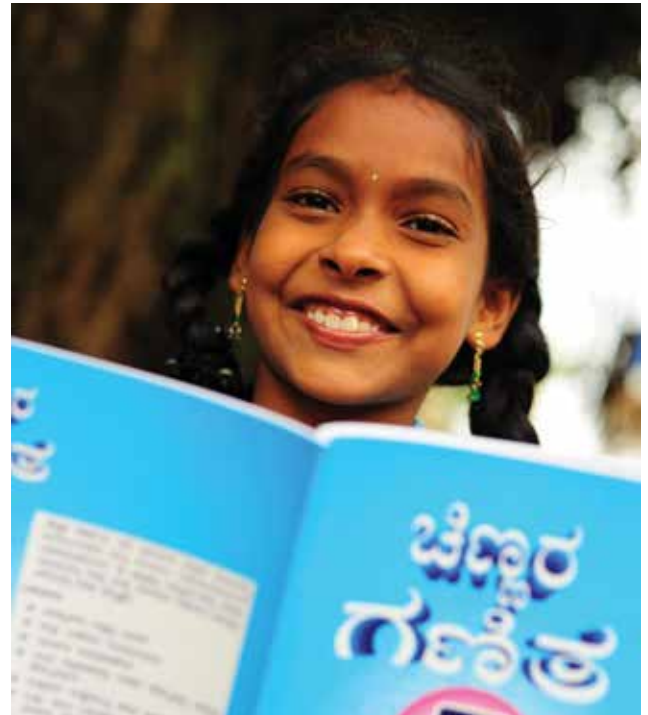
We have also made a strong commitment to improving diversity in STEM through our Women in STEM program. In collaboration with the Office of Principal Scientific Adviser in the Hyderabad Science Cluster, this initiative drives greater participation of women in STEM fields, enhancing career opportunities and fostering a more diverse, dynamic workforce that will shape the future of innovation and progress.

Beyond healthcare and education, we recognize the urgency of addressing environmental sustainability. Our initiatives in lake rejuvenation, afforestation, and water security are designed to ensure that communities remain resilient in the face of climate change. A notable example is our support for the Hebbagodi Metro Station project, which aims to reduce air pollution, improve urban mobility, and enhance the quality of life for thousands of people in the region. This project reflects our commitment to building sustainable urban spaces that promote cleaner air, efficient transportation, and overall better living standards for communities.

Over the years, we have also responded to urgent community needs by improving school and sanitation infrastructure, as well as providing disaster relief and rehabilitation efforts, ensuring that we remain a reliable partner in times of crisis.
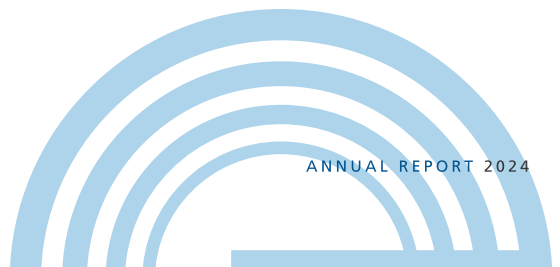
As we look ahead, Biocon Foundation remains firmly committed to driving transformative change. By continuing to harness the power of innovation, technology, and collaboration, we aim to build solutions that are both scalable and sustainable. We recognize that the interconnectedness between business success and societal progress is profound, and we are committed to aligning our corporate initiatives with meaningful social impact. Each initiative we undertake sets in motion a ripple, generating an empowerment effect that transcends immediate outcomes, driving lasting change in communities and beyond. As we move forward, this poem by Rumi beautifully reflects the essence of our shared mission:

The way is full of genuine sacrifice.
The thickets blocking the path are anything
that keeps you from that, any fear
that you may be broken to bits like a glass bottle.
This road demands courage and stamina,
yet its full of footprints! Who are
these companions? They are rungs
in your ladder. Use them!
With company you quicken your ascent.

With best wishes,

Kiran Mazumdar-Shaw,
Founder & Managing Trustee
Bengaluru, January 31, 2025
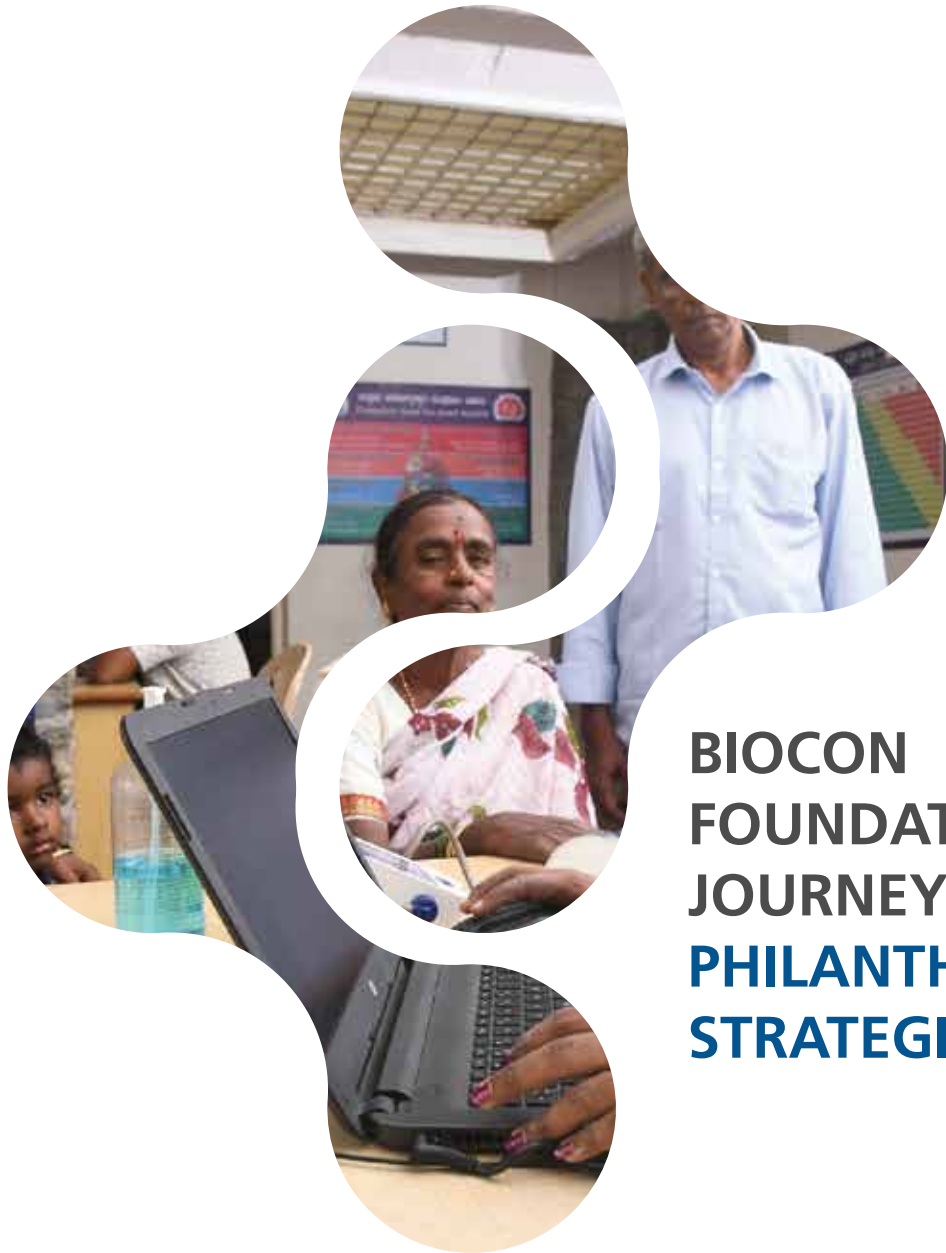
BIOCON FOUNDATION'S JOURNEY FROM **PHILANTHROPY** TO **STRATEGIC CSR**

As one of its first outreach initiatives, Biocon Foundation initiated a primary healthcare clinic in Huskur village, utilizing the government school premises after hours, to improve health facilities in the village. Recognizing an opportunity to support the school, my association with the Foundation began when I developed a self-help series of workbooks on mental mathematics for classes 1 to 7. Notably, such resources were unavailable in Kannada, and we were able to partner with Macmillan Education India to publish the series. Over 12 years, the initiative reached 1,200 government schools across Karnataka and fostered improved mathematical competence and confidence among students. Decades later, I was invited to serve as the Mission Director of Biocon Foundation.

Before corporate social responsibility (CSR) became mandatory, Biocon Foundation demonstrated foresight by designing innovative programs addressing critical needs in underserved rural communities near its facilities. The Foundation maintained a focus on healthcare and education, leveraging its expertise to build strong community relationships. Over time, it transitioned seamlessly from localized philanthropic efforts to strategic CSR initiatives at its expanding locations. The shift emphasized impact and scalability.

Healthcare efforts have advanced from primary care to oncology services, while educational initiatives have expanded from primary education to research collaborations with leading government institutions. Recognizing environmental challenges, the Foundation has also undertaken lake rejuvenation projects and supported mass rapid transit systems.

The Foundation's ability to innovate and execute programs continues to set benchmarks in the social sector, ensuring sustainable impact in the communities they serve.
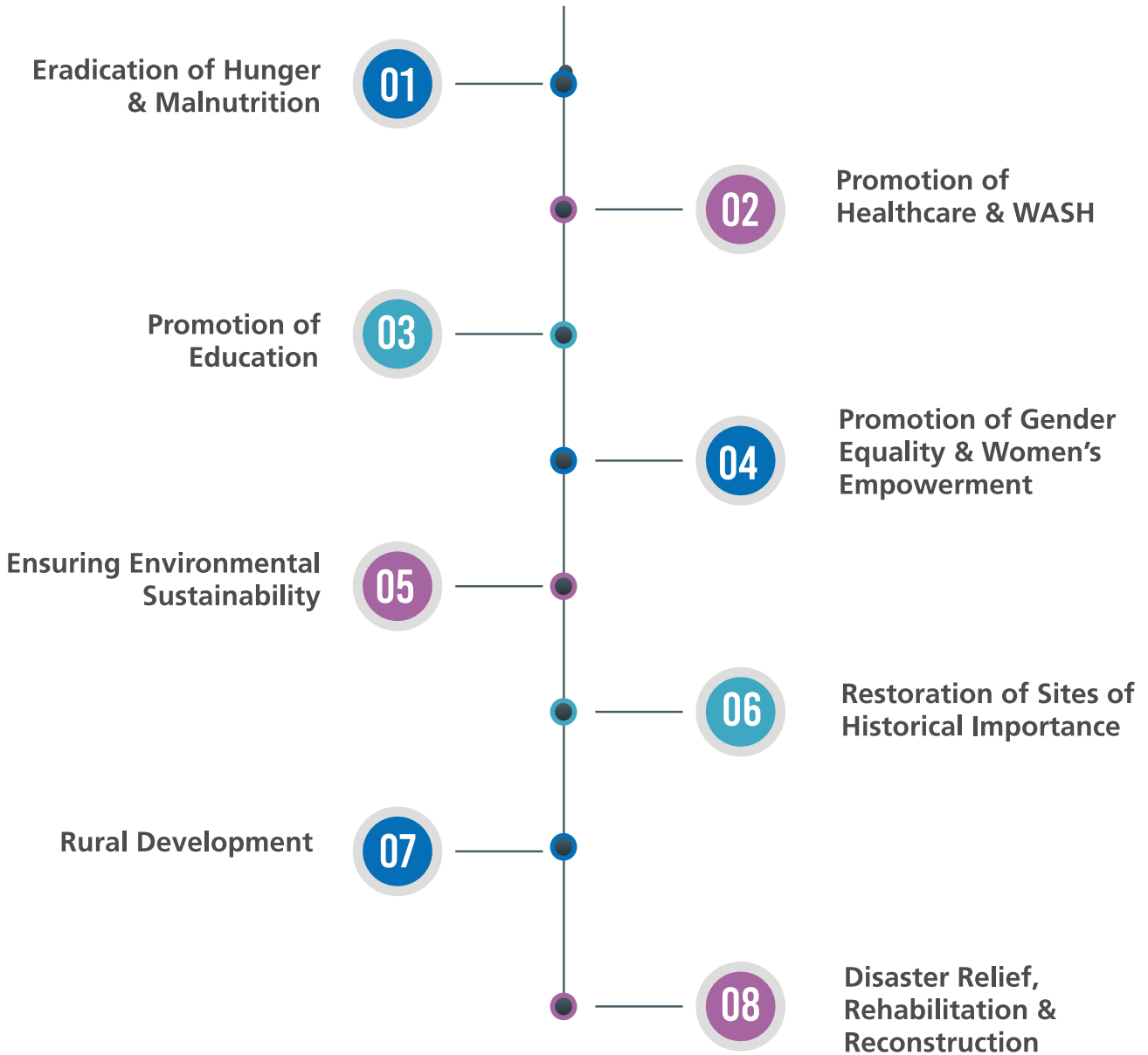
Warm regards,

Pratima Rao,
Former Mission Director
Bengaluru, January 03, 2025

Sustainable Development Goal & Biocon Foundation Programmes

No Poverty

- Primary Healthcare
- School Education
- Rural Development

Zero Hunger

- Curbing Malnutrition

Good Health & Well-Being

- Primary Healthcare
- eHealth
- Management of Non-Communicable Diseases (NCDs)
- Women's Health
- Geriatric Health
- Child Health
- Mental Health
- Child-mediated Health Promotion
- Antimicrobial Resistance Tracker
- IISc PG Medical School & Hospital
- Miyawaki Afforestation
- Mass Transit System
- Home Medical Kits

Quality Education

- Experiential Learning
- STEM Education
- Science on Wheels
- Science Quiz
- School Infrastructure
- Smart Classrooms
- STEM Scholarships
- Grant-in-Aid

Gender Equality

- Women's Health
- Women's Safety
- Domestic Violence Counselling
- Women and Child Helplines
- Rehabilitation of Women Victims
- STEM Scholarships for Women

Clean Water & Sanitation

- Rejuvenation of water bodies

Industry, Innovation & Infrastructure

- Primary Healthcare Infrastructure
- School Infrastructure
- Digital Infrastructure
- Mass Rapid Transit

Reduced Inequalities

- Women's Health
- Child's Health
- Geriatric Health
- Mental Health
- Women's Safety
- Children's Park
- Rural Development

Sustainable Cities & Communities

- Mass Rapid Transit
- Miyawaki Afforestation
- Urban Landscaping
- Revival of Urban Waterbodies
- Advocacy (Cities and Climate Action Workshop)

Responsible Consumption & Production

- Revival of Waterbodies
- Miyawaki Afforestation
- Mass Transit System

Climate Action

- Mass Transit System
- Miyawaki Afforestation
- Revival of Waterbodies

Peace, Justice & Strong Institutions

- Women's Safety
- Domestic Violence Counselling
- Women and Child Helplines
- Rehabilitation of Women Victims
- Legal Aid to Women Victims
- Rescue of Women Victims

Partnership for the goals

- Government
- Tertiary Hospitals
- Research Institutions
- Oral Cancer Task Force
- Capacity Building
- Data Sharing
- Joint Implementation
- Collaborative Research
- Grant-in-Aid
- Employee Volunteering

Schedule VII CSR Activities & Biocon Foundation Initiatives

Biocon Foundation's initiatives align with the Schedule VII CSR activities represented below:

01 Eradication of Hunger & Malnutrition

02 Promotion of Healthcare & WASH

03 Promotion of Education

04 Promotion of Gender Equality & Women's Empowerment

05 Ensuring Environmental Sustainability

06 Restoration of Sites of Historical Importance

07 Rural Development

08 Disaster Relief, Rehabilitation & Reconstruction

Healthcare

Our philosophy and approach

Our work in healthcare is built on six foundational pillars, termed as the "Six C's":

• Community engagement,
• Connected Care through technology,
• Continuity of Care,
• Capacity building,
• Collaboration, and
• Communication.

We function within the framework of Complex Adaptive Systems (CAS), which emphasizes the dynamic and interconnected nature of the healthcare landscape. This approach recognizes that healthcare systems consist of various interdependent elements, including individuals, organizations, and environmental factors, all of which continuously interact and adapt to changes. CAS theory posits the embeddedness of all systems within larger ones and the need to analyse relationships across levels of systems. Based on CAS, the healthcare structure can be viewed as an embedded system, with bigger systems (macrosystem) made up of smaller systems or mesosystems, which in turn are made up of microsystems. The microsystem comprises the smallest replicable unit. and the local milieu in which patients, providers, support staff, information, and processes converge for the purpose of providing care to meet health needs. They are essentially the building blocks of the health system. For our purpose, we have considered the eLAJ clinics and government sub-centres as microsystems. By understanding contextual challenges at multiple levels, we have sought to address and navigate the complexities of the healthcare space, leveraging the Six Cs to foster resilience and innovation.

Through community engagement, we actively involve community members in the planning and implementation of various programs, ensuring that our initiatives address their perceived needs and incorporate their perspectives.

Connected care is a transformative approach that leverages technology to improve healthcare delivery, enhance patient engagement, and foster better health outcomes. The use of electronic medical records (EMRs) and point-of-care devices has been crucial in ensuring data accuracy and security. This has helped standardize the process of care, bring in standard treatment protocols and improved clinical outcomes.

Continuity of care focuses on seamless service delivery over time. While the focus is on primary healthcare or screening for disorders, we ensure that timely referrals and follow up is actioned. Moreover, continuity of care fosters long-term relationships between patients and healthcare providers, enabling personalized care that evolves with the patient's changing health needs and ensuring comprehensive management of chronic conditions.

We prioritize the capacity building of front-line health workers by enhancing their technical skills and technology proficiency, as they are the true ambassadors of our programmes. This involves providing ongoing training and professional development opportunities to ensure they stay updated with the latest medical practices, digital tools, and innovative healthcare solutions.

Collaboration is key to our approach as we forge partnerships with various stakeholders to maximize impact, including academia, NGOs, civil society organizations and local governance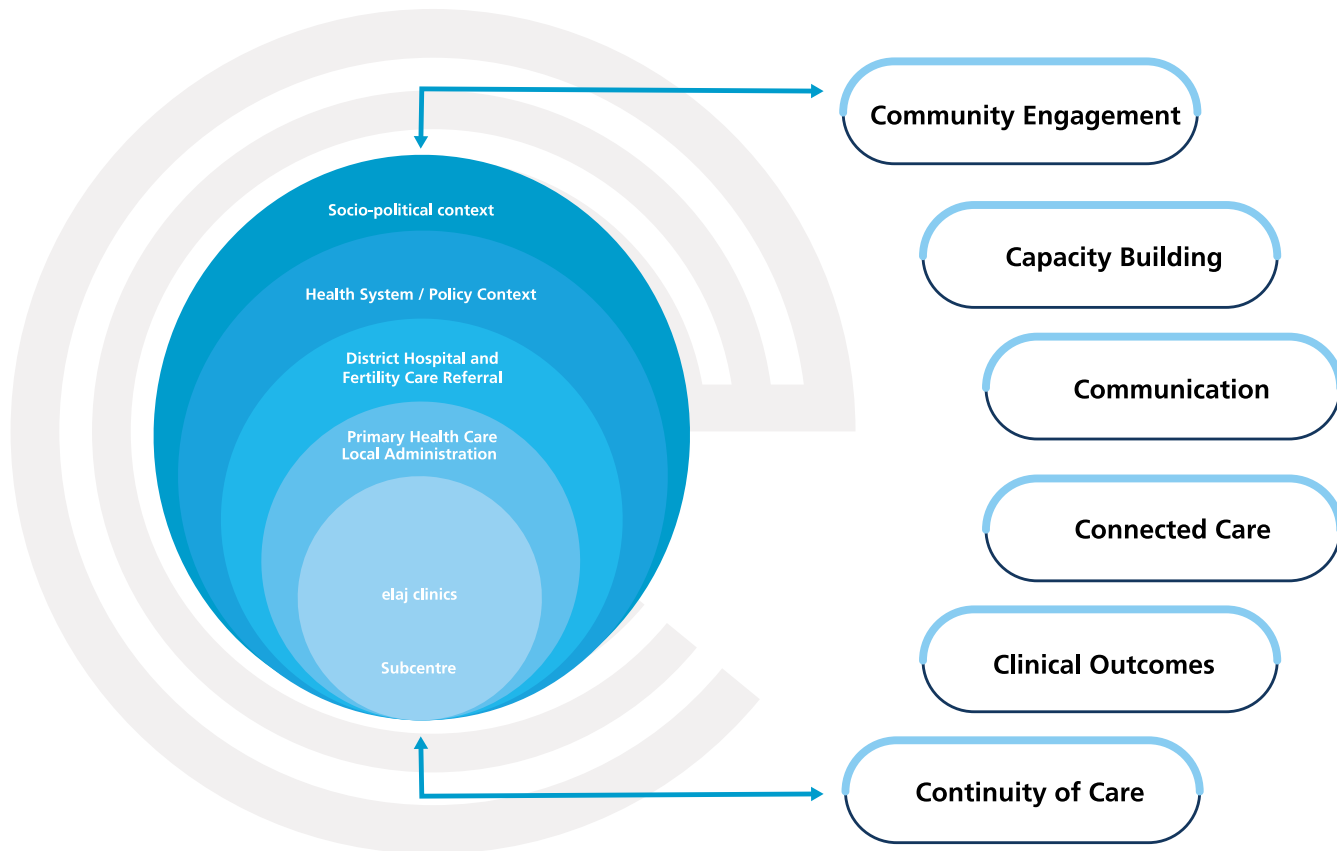 bodies. Our collaboration with academia has provided evidence-based solutions, and training for health workers, while NGOs and CSOs help extend our reach to underserved populations, playing a pivotal role in promoting health awareness and fostering community engagement. Additionally, local governance bodies have supported the allocation of necessary resources and ensured that services are tailored to meet the specific needs of the community. This multi-sectoral collaboration not only enhances the quality and accessibility of care but also fosters sustainable health systems that are responsive to the evolving needs of the population.

Clear communication underpins all our efforts to ensure transparency and foster trust. We leverage on relevant communication platforms to reach out to various stakeholders and to disseminate the progress of our programmes. This involves regular updates through meetings, reports, social media, and community outreach, ensuring that all parties are well-informed and aligned with the goals and achievements of our initiatives. We also prioritize two-way communication, encouraging feedback from stakeholders, which helps us adapt and improve our strategies, building relationships, promoting collaboration, and addressing any concerns or barriers in a timely manner.

Together, these Six C's guide our commitment to making a positive difference in healthcare, empowering us to address challenges and seize opportunities in the complex systems in which we work.

The figure below presents the CAS system as embedded interconnected systems which are porous representing free flow of information and influence. The arrows are bidirectional between CAS and 6Cs foundational elements representing influence and information flowing across these concepts.

Navigating Healthcare Complexities
The Six C's Framework

Socio-political context

Health System / Policy Context

District Hospital and Fertility Care Referral

Primary Health Care Local Administration

elaj clinics

Subcentre

Community Engagement

Capacity Building

Communication

Connected Care

Clinical Outcomes

Continuity of Care

eLAJ Smart Clinic Initiative

In India, healthcare disparity represents a critical challenge, particularly for economically disadvantaged and marginalized communities who encounter significant barriers in accessing essential healthcare services. Health system challenges such as lack of adequate healthcare facilities, and insufficient healthcare professionals, especially in remote area, exacerbate these issues and result in poorer health outcomes for the underprivileged population, increasing their vulnerability to preventable diseases. Concurrently, the alarming rise in non-communicable diseases (NCDs) such as diabetes, hypertension, cardiovascular diseases, chronic respiratory conditions, and cancers, poses additional challenges to these communities. Contributing factors to these include unhealthy diets, higher rates of tobacco and alcohol use, socioeconomic stressors, lack of education and awareness, and environmental factors.

Numerous efforts at national and international levels have been initiated to address healthcare disparities in India. One notable initiative in this direction is the 'Lancet Citizens' Commission on Reimagining India's Health System' (2020), which assesses existing challenges and proposes actionable solutions. A key recommendation from the commission is to ensure universal health coverage (UHC), allowing all individuals-especially those from economically disadvantaged and marginalized communities- to access essential healthcare services without financial burden. The commission also emphasizes the integration of technology into health systems as a critical approach to enhancing access and efficiency. This includes leveraging telemedicine, digital health records, and mobile health applications to connect underserved populations with the care they need. Additionally, the commission advocates for targeted public health campaigns focused on raising awareness about non-communicable diseases (NCDs) and promoting healthier lifestyle choices, reinforcing the necessity for a multifaceted strategy to combat the rising burden of NCDs among economically disadvantaged communities. The commission highlights the importance of a collaborative approach by engaging citizens and communities in addressing healthcare challenges in India.

eLAJ is a primary healthcare model envisioned by Biocon Foundation that embodies the principles of universal health coverage, emphasizing a community-based approach while leveraging the advantages of technology to ensure continuity of care.

Evolution of the eLAJ model

In 2016, Biocon Foundation launched the eLAJ Smart Clinics to enhance healthcare access for underprivileged communities. This initiative stemmed from the Foundation's earlier Micro Insurance Scheme, Arogya Raksha Yojana Health (ARY), which annually enrolled 50,000 to 60,000 individuals. Through ARY, beneficiaries could receive medical services from qualified surgeons and doctors at hospitals approved by the scheme. With the introduction of the Government's RSBY insurance scheme, ARY was phased out to avoid overlapping services.

However, the experience in ARY programme led to a deeper understanding of public healthcare system challenges, especially at primary healthcare centres. A major issue identified was the high burden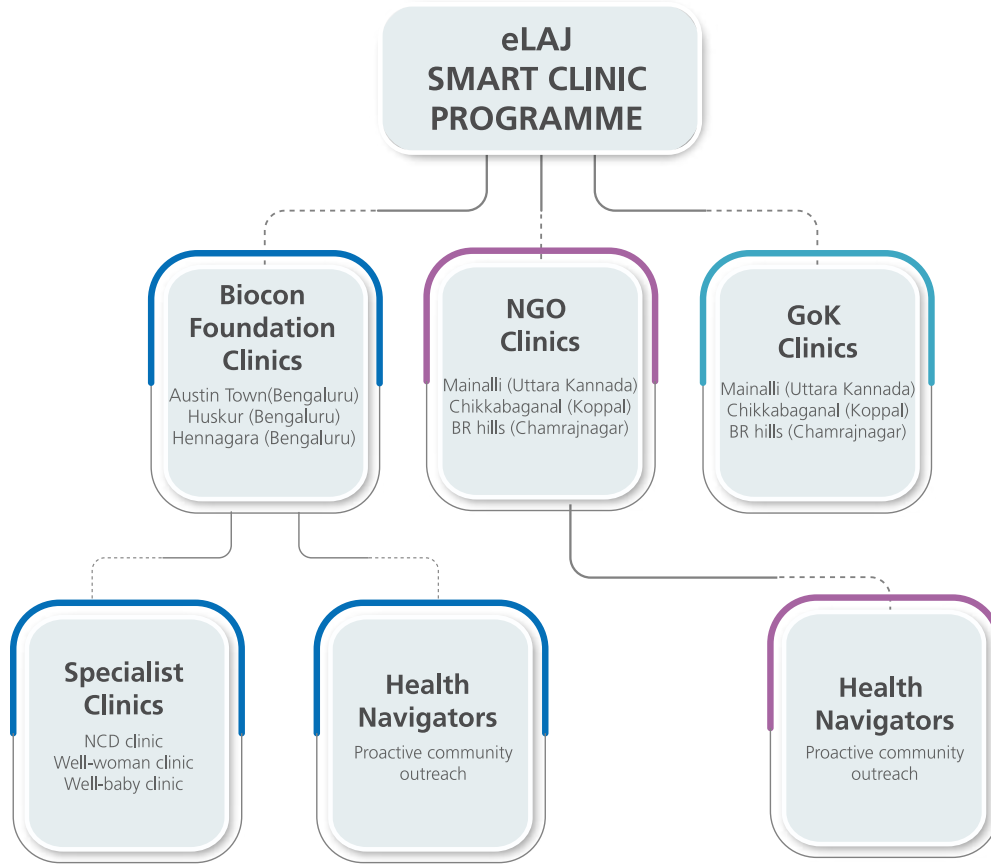 of non-communicable diseases (NCDs) and the lack of accessible services close to patients' homes. Another challenge was ensuring continuity of care, in the absence of accurate health records or any other documentation of patients' health status. To address these issues, the eLAJ Smart Clinics programme focused on managing NCDs and integrating technology into primary healthcare centres (PHCs). This led to the development of an in-house electronic medical record (EMR) system, designed to collect demographic details, clinical data, and link with laboratory diagnostics. The Foundation also responded to requests for additional human resources and laboratory services. Consequently, the eLAJ model was established, with the eLAJ EMR developed in 2015-16 and a Memorandum of Understanding (MoU) signed with the Government of Karnataka in 2016 to implement the eLAJ Smart Clinic programme in 2015 PHCs.

The eLAJ program was established in both Foundation run clinics as well as in partnership with the government. Over the past few years, the Foundation has also partnered with grass-root NGOs functioning in tribal areas, thereby extending the eLAJ model to these underserved locations. Currently there are 11 eLAJ clinics operating in different parts of Karnataka, serving urban, rural and tribal communities.

The Figure below depicts the structure of eLAJ clinics.

Structure of **eLAJ** programme

eLAJ SMART CLINIC PROGRAMME

Biocon Foundation Clinics
Austin Town(Bengaluru)
Huskur (Bengaluru)
Hennagara (Bengaluru)

NGO Clinics
Mainalli (Uttara Kannada)
Chikkabaganal (Koppal)
BR hills (Chamrajnagar)

GoK Clinics
Mainalli (Uttara Kannada)
Chikkabaganal (Koppal)
BR hills (Chamrajnagar)

Specialist Clinics
NCD clinic
Well-woman clinic
Well-baby clinic

Health Navigators
Proactive community outreach

Health Navigators
Proactive community outreach

Mr Raghavendra, a community health worker at the tribal health initiative shared his views on the programme. "I am from the Soliga Adivasi community and have higher secondary school education. When I first joined this programme as a community health worker, I viewed it as just another job opportunity. But I soon realized that it was much more than that- it was a chance to work for the betterment of my own community. Although I do not have formal training in healthcare, I received essential training to equip me as a community health worker after joining this programme. This role has brought immense satisfaction, as now I can help my community in meaningful ways". Raghavendra's day starts with going to households in his own respective hamlets and interacting with fellow community members. "With the equipment provided by the Biocon Foundation, including a portable ECG device, a mobile device for oral health screening, and tools for hypertension and diabetes screening, I can respond quickly and effectively to health concerns in my community", he shared. "People have started to recognize, trust and respect me. In most cases, I am the primary point of contact for health emergencies in the hamlets where I work. I respond to their queries by visiting their homes and referring them to the hub for further diagnosis and treatment", he shared with pride. "Over time, community members have come to trust us - a trust built through our consistent presence and continuous follow-up at the grassroots level. This work has given me a deep understanding of the health issues and needs of my own community, and it is truly fulfilling to support them in this way".

Mr Raghavendra
Community Health Worker

Praveen Rao S, Team Lead, Institute of Public Health, shared, "We are grateful for the collaboration and support from Biocon Foundation through their CSR initiative, which has enabled us to implement the FIRST MILE Initiative- a Hub-and-Spoke community health programme targeting non-communicable diseases (NCDs) in tribal communities within the BRT Tiger Reserve area of Chamarajanagar District." Led by the Institute of Public Health Bengaluru in partnership with Vivekananda Girijana Kalyana Kendra, this programme focuses on delivering essential health services at the hamlet level, including early detection and referral systems for NCDs. "With Biocon's support, we have enhanced the quality of services at the Vivekananda Tribal Health Centre by adding a dedicated lab technician, nursing staff, and implementing the eLAJ digital medical records system, which improves service efficiency and ensures continuity of care. We have also deployed three mobile health teams staffed by trained community health workers from the Soliga tribal community, reaching 17 remote hamlets that are isolated from basic public services", he added.

"Importantly, Biocon Foundation supports a programme that emphasizes meaningful impact over beneficiary numbers, demonstrating a commitment to addressing tribal health issues through a 'quality-over-quantity approach'. We appreciate their dedication to ensuring that every life touched by this initiative receives essential and sustainable healthcare support."

Mr. Jayaraj, a 68-year-old patient at the eLAJ Clinic in Austin Town, has been receiving treatment for diabetes at the clinic for the past three years. He shared that, compared to other clinics and hospitals he has visited, the care at eLAJ Clinic stands out. "They take care of us very well here," he said. He further explained that doctors from St. John's Hospital come to the clinic to provide their services, which he greatly appreciates. "They talk to us nicely and do the checkups. They give us respect." One particular feature of the clinic that Mr. Jayaraj particularly values is the reminder calls before the

Non-Communicable Disease (NCD) camps. "They call one day prior to the NCD camp," he said, noting that this service is particularly beneficial for elderly patients. "People who are old, they tend to forget things… and many people can't read. So even if you write and give them, they can't understand." He emphasized that because of these reminders, many patients are able to attend the camps. "They also go door to door to meet with the patients," he added, highlighting the clinic's efforts to ensure that no one misses out on the NCD camps. Mr. Jayaraj regularly visits the clinic every month for his blood check-up and medication. He mentioned that his wife also does her monthly check-up at the clinic. "I have referred two of my neighbours too," he said, pointing out that the clinic's services have made a significant positive impact on his health. "After coming here, my blood sugar is under control", he shared

Mrs Shyamala, a 68-year-old elderly woman with diabetes and hypertension, has been coming to the Austin town eLAJ primary healthcare clinic for a decade for her monthly check up. Recounting her experience, she stated,

"After I started coming here, I am able to save some money. If you go to private clinics, you have to do the blood tests twice, once fasting and once after food, and it would cost 200 rupees, and BP check-up, another 100 rupees. Before, I had to bear the expenses for medicines. But since I started coming here, I am able to save on travel and hospital check-up costs.

Mrs Shyamala
eLAJ clinic patient

Since I can't afford it, they provide medicines here at a 50% discount. Additionally, because my husband cannot walk, the staff comes to our home for check-ups and blood tests. This has been a huge help for us."

Highlights

Outpatient services: Regular Outpatient and specialist clinic services were provided through the eLAJ clinics in different geographical locations. Regular cancer screening camps were organised, and identified positive cases were referred to higher centres for treatment.

Expansion of eLAJ to tribal areas: In response to local needs, the programme was expanded to three underserved and tribal areas in Karnataka- Chikkabaganal in Koppal, Mainalli in Uttara Kannada, and Biligiriranga Hills in Chamarajanagar, in collaboration with local NGOs.

Introduction of health navigators: Initial interactions with the stakeholders revealed that tribal communities are reluctant to approach modern medical systems, despite the higher prevalence of NCDs and other diseases among them. In consultation with the local leaders and NGO partners, a health navigator model was developed, and piloted it in Chamarajanagar. Selected members from the same community were provided with training and now and they go door-to-door in hamlets / villages surrounding the health centre, using appropriate point-of-care devices to screen for diseases like diabetes, hypertension, oral cancer, and other conditions. Through this screening for both communicable diseases and NCDs, they raise awareness and direct high-risk individuals to the clinic. This pilot programme shows promise in improving health outcomes for tribal communities, combining outreach, technology, and cultural sensitivity.

eLAJ Clinics Data Snapshot

Total patient visits to eLAJ clinics	65,366
Total number of beneficiaries	53,000
Patient visits at Specialist Clinics in Huskuru, Hennagara & Austin Town	3,698
Lab Investigations performed at eLaj clinics	41,022

|		
New eLAJ clinics that were set-up in FY-24	**3** (Chamarajanagar, Uttar Kannada & Koppal districts)	
NCD Screening kit was introduced	A total of 519 patients were screened and around 386 patients were referred to eLAJ clinics.	
AI-Enabled ECGs conducted, and abnormalities found.	1,266 ECGs were conducted with abnormalities found in 10 cases.	
Community-based baseline data collection, (using a family folder and community-based assessment checklist) collected using digital applications.	3,227 individuals among 2,011 households	
Number of individuals screened for NCDs	2,451	
Number of High-risk cases identified and referred	796 (32.5%)	

Out-patient Service Satisfaction Assessment

To better understand and enhance patient satisfaction, we regularly conduct Outpatient Exit Surveys across various geographical areas. These surveys provide us with valuable insights into the patient experience, helping us to evaluate key aspects of care such as accessibility, continuity, comprehensiveness, health education, and the overall humanness of our services. By collecting feedback directly from 4,000+ patients, we could identify strengths, address potential gaps, and ensure that our care is consistently aligned with the needs and expectations of the communities we serve.

Geography-wise Outpatient Exit Survey Results
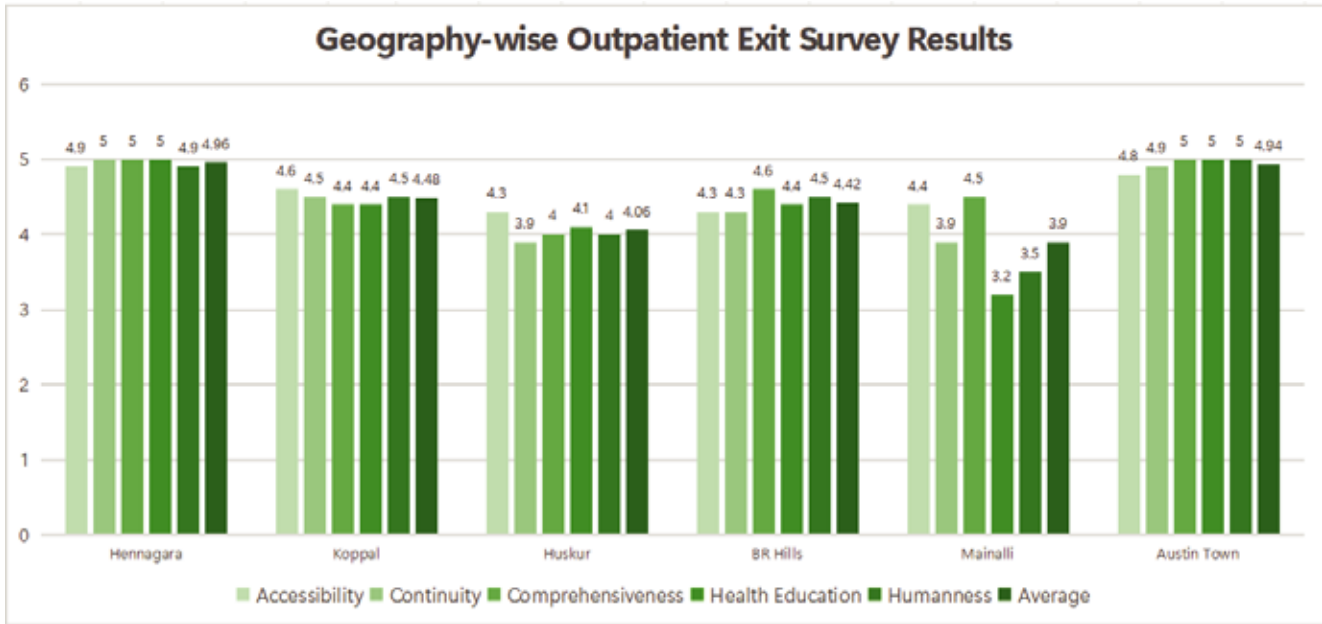
Implementation of Process of Care Indicators for Optimized Patient Care

We initiated the Process of Care Indicators to ensure that all standard care processes are consistently followed and standardized across our services. These indicators help us track and verify that each patient receives the necessary care in a timely and appropriate manner. We consider the care process to be "ideal" when a patient has undergone at least three of the following care indicators as per the prescribed schedule, ensuring that they receive comprehensive, well-coordinated, and quality care throughout their treatment journey:

- Consulted the treating physician on the last two consecutive due dates.
- Blood pressure (BP) measured during the last two consecutive visits.
- Renal function test performed in the last 6 months.
- Lipid profile performed in the last 6 months.
- Retinal fundus examined in the last year.
- ECG recorded in the last year.

This structured approach allows us to maintain high standards and continuously improve patient outcomes.

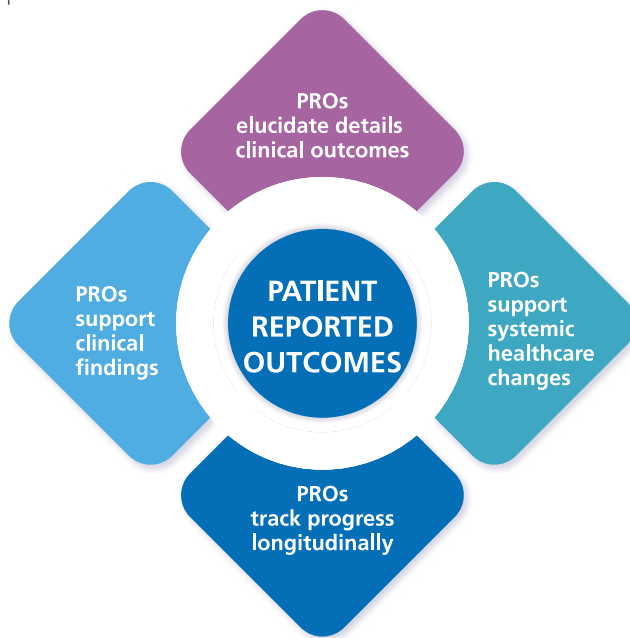## Measuring Patient-Reported Outcomes in Diabetes Care: A Cross-Sectional Study

We initiated a study to assess Patient-Reported Outcome Measures (PROMs) in diabetes care, aiming to improve the quality of care and support informed clinical decision-making for patients with chronic conditions. Recognizing the importance of understanding patients' perspectives, we focused on measuring key aspects of diabetes management to enhance treatment effectiveness and overall outcomes. Our objective was to gather insights into how patients with diabetes perceive their condition and care, enabling us to tailor interventions and improve healthcare delivery. To achieve this, we conducted a cross-sectional study involving 116 participants from three Biocon Foundation Clinics (Huskur, Hennagara, and Austin Town), focusing on three key domains:

• Symptoms and Symptom Burden
• Health Behaviours
• Patient's Healthcare Experience

The study specifically aimed to determine, using validated tools such as the Diabetes Self-Management Questionnaire, key factors influencing:

• Adherence to Medication
• Diabetes Control Status

This approach allows us to better understand the challenges and experiences of patients, ultimately contributing to more personalized and effective diabetes care.

Adapted from
Which diabetes specific patient reported outcomes should be measured in routine care? A systematic review to inform a core outcome set for adults with Type 1 and 2 diabetes mellitus: The European Health Outcomes Observatory (H2O) programme - ScienceDirect

Challenges
Although the eLAJ programme has been operating since a decade, it is not free from challenges. Cultural barriers often hinder access to services, particularly in the screening for breast and cervical cancer. Many women, especially those from some minority communities are reluctant to participate in screenings, and it becomes even more challenging for staff to persuade them if the attending doctor is male. Another significant challenge is to help the community overcome the misconceptions and fear surrounding vaccinations and to motivate them for immunisation of children. However, the health workers have been able to navigate through such challenges and are able to work with the community closely.

An external impact assessment of eLAJ clinics done in 2022 indicated that Electronic Medical Records have been beneficial for patients and staff members at PHC. EMR was reported to be especially helpful in cases of patients with NCDs and high-risk morbidities. Based on the learnings, eLAJ EMR version 2.0 is currently being developed, which will be a comprehensive mobile-first solution that complies with Ayushman Bharat Digital Mission (ABDM) requirements and industry standards, enhancing data collection and referral processes. Some of the key features are:

• Comprehensive mobile first, offline capable EMR solution compliant with ABDM requirements and industry standards (HIPAA, LOINC, SNOMED CT, ICD etc.)

• ABHA ID generation as one of the unique patient identifiers.

• The solution will strengthen the linkage between clinical care & community outreach activities through grass-root navigators.

• The e-Health platform will enable integration of AI-enabled point-of-care devices.

• An improved dashboard providing enhanced data-visualization and analytics for better monitoring and remote diagnosis. ABHA ID generation as one of the unique patient identifiers.

India has laudably committed to several global health policies, and despite the progress on several population health indicators, effective universal healthcare coverage has been a challenge, specifically in terms of financial risk protection, geographic inequities and quality of care. The eLAJ Smart Clinics by Biocon Foundation demonstrates the feasibility of a community-centric, technology-enabled and clinical outcome- oriented healthcare model for remote and underserved communities. The expansion of this model into tribal areas through health navigators is a novel approach, which acknowledges and respects cultural sensitivities while addressing specific health needs. Moving forward, such contextualized models in collaboration with local grass-root NGOs, could transform healthcare delivery in underserved locations, by ensuring consistent care, improving early detection of diseases, and reducing strain on secondary and tertiary hospitals.

Community Outreach

Karnataka, with its diverse population spread across semi-urban and rural areas, faces significant challenges in accessing quality healthcare, particularly in addressing the rising prevalence of non-communicable diseases (NCDs) such as hypertension, diabetes, cancer, and anaemia. Studies indicate that nearly 26% of the adult population in rural areas of Karnataka is affected by NCDs. According to recent NFHS-5 data, the prevalence of both diabetes and hypertension in the state is higher than the national average. A study conducted in Dakshina Kannada revealed that nearly half of the individuals with hypertension were unaware of their condition, highlighting gaps in awareness and diagnosis. Anaemia too continues to be a pressing concern, especially among women, with over 40% in the reproductive age group identified as anaemic, as per NFHS-5.

The NCD burden is also increasing among tribal populations in Karnataka as well. A recent study in Chamarajanagar found that approximately 29% of forest-dwelling individuals aged 26–40 years had hypertension. The same study reported a higher prevalence of tobacco use and undernutrition among the tribal population. These health challenges are compounded by inadequate healthcare infrastructure, forcing individuals to seek care from private sector. Although the state government has launched various initiatives to address these issues, systemic challenges such as workforce shortages and geographical inaccessibility continue to impede the delivery of

To address these gaps, Biocon Foundation has implemented several community-focused healthcare initiatives in Karnataka, aimed at improving health outcomes and empowering underserved populations. These programmes emphasize preventive care, early detection, and health education, with a particular focus on tackling NCDs, raising cancer awareness, and conducting school health programmes. In Uttara Kannada and Chamrajnagar, the outreach program has been extended to nearby villages and hamlets, keeping eLAJ clinics at the centre of the activities. Mobile health camps are organised at various locations to conduct school-based health check-ups, NCD screenings including oral cancer surveillance for different
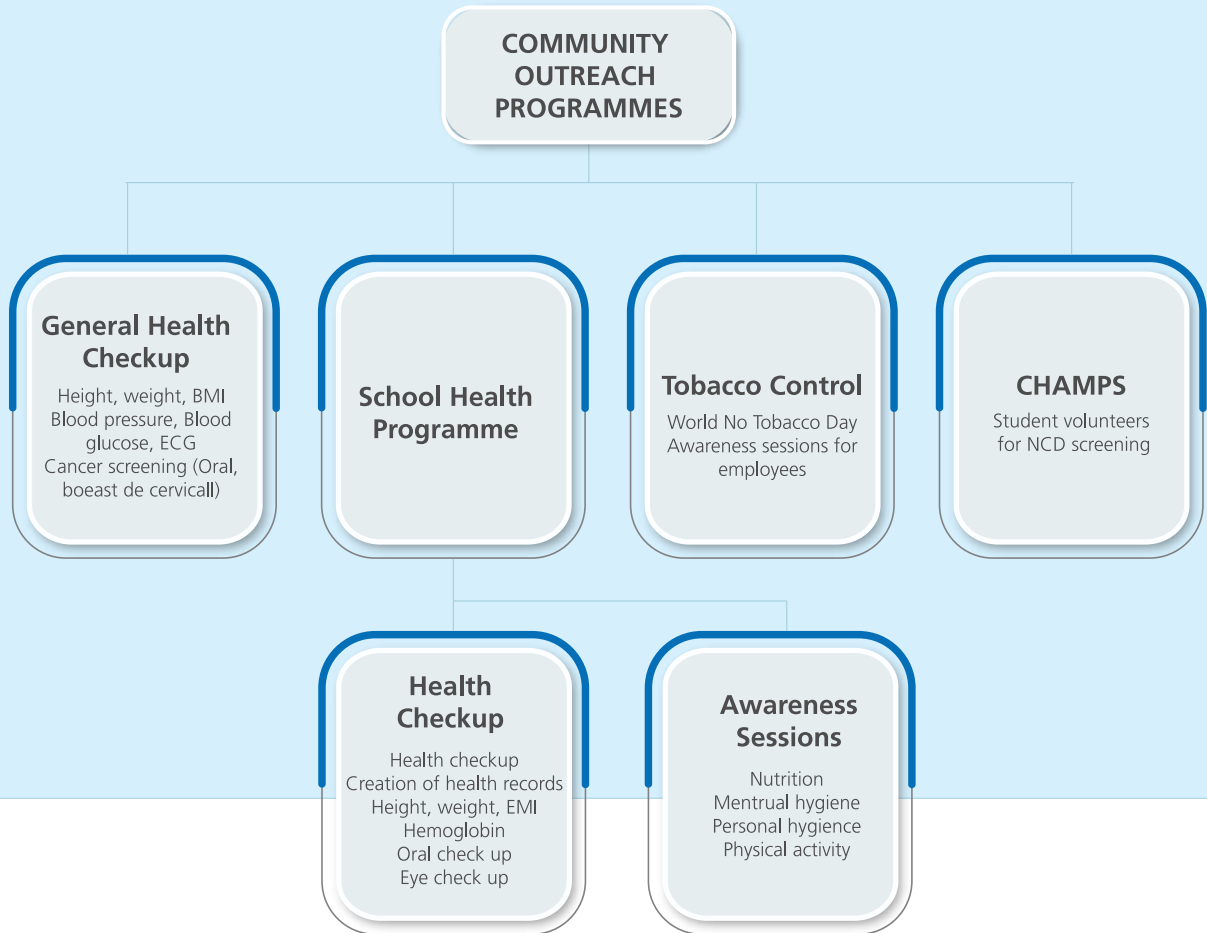
The community outreach initiative is built on the foundational principles of FHWs (Frontline Healthcare Workers) focusing on recruiting and training skilled local cadres. This strategy strengthens the connection with the community, ensuring active involvement of frontline healthcare workers. By providing these workers with extensive training, tools, and technology, they are empowered to effectively manage healthcare and deliver quality services within their communities. These health-care workers play a crucial role in spreading awareness about NCDs and encouraging health-seeking behaviour in the community. Independent models of front-line health worker (FHW) -led healthcare delivery play a crucial role in achieving primary health care goals. These models help create linguistically and culturally appropriate links to healthcare for diverse communities, while also driving significant health promotion efforts.

Biocon Foundation's programmes leverage technology-based solutions, such as point of care devices and mobile applications for NCD screening, to monitor and manage patients efficiently. By integrating technology and grassroots healthcare delivery, the foundation ensures that critical health services reach underserved communities, improving both access and outcomes.

The key outreach programmes conducted across various regions are depicted in the figure below.

Structure of Community Outreach Programme

COMMUNITY OUTREACH PROGRAMMES

General Health Checkup
Height, weight, BMI
Blood pressure, Blood glucose, ECG
Cancer screening (Oral, boeast de cervicall)

School Health Programme

Tobacco Control
World No Tobacco Day
Awareness sessions for employees

CHAMPS
Student volunteers for NCD screening

Health Checkup
Health checkup
Creation of health records
Height, weight, EMI
Hemoglobin
Oral check up
Eye check up

Awareness Sessions
Nutrition
Mentrual hygiene
Personal hygience
Physical activity

Highlights

School health programme: General health camps were conducted across 13 schools, screening 1,682 students for various health indicators including BMI, height, weight, hypertension, oral health, and eye health. The programme identified 524 students as anaemic, 483 with dental issues, and 95 with visual disorders who were referred to government Primary Health Centres (PHCs) for further evaluation. The collected data was shared with the Taluka Health Officer to facilitate appropriate follow-up and intervention.

Common cancer surveillance in small factories: In Anekal taluka, 841 women were screened for breast cancer and about 3% of them were referred for post-clinical breast examination. These women were taught about self- & clinical-breast examinations.

Awareness sessions for schools: Awareness programmes were conducted across 13 schools in Anekal, reaching 1,400 students. The programme focused on educating students about key aspects of health and hygiene, including menstrual hygiene, personal hygiene, and nutrition. Health records were created for more than 500 students to monitor and support the students' understanding and application of these important topics.

General health check-ups: We conducted general health camps in 11 factories in Anekal Taluka, where 2491 workers were screened for common health conditions. 374 people with suspected hypertension, 105 with suspected diabetes and 569 with anaemia were identified and referred for further care and management. The details of general health camps among different communities are given in table below.

On World Hypertension Day, a health screening camp was organised for Pourakarmikas in Anekal, where a health check-up and diet counselling were offered to 100 Pourakarmikas. Another camp was conducted for Anganwadi workers in 10 circles of Anekal Taluka, where 241 workers were screened and 18 were referred.

As part of World No Tobacco Day 2023, Biocon Foundation organised a volunteer programme, in which Biocon employee volunteers were trained about dangers of tobacco use, and they conducted awareness sessions in schools on the same topic

Type of screening done	Total screenings	Suspicious/lesion positive case
Oral cancer screenings	3,709	303
Clinical Breast Examination	2,310	102
Cervical Cancer screenings	60	5

Type of screening done	Total number of referrals	Percentage
1,682 school students from 13 schools	Anaemic referral	524 (31.15%)
	Dental referral	483 (28.7%)
	Ophthalmology referral	95 (5.64%)
	Undernourished referral	1,103 (65.57%)

Some of the challenges include operating with limited infrastructure support when conducting general health camps on factory premises or in village settings. This issue becomes particularly critical during cancer screening camps for women, where providing private spaces for screenings is essential to ensure comfort and confidentiality. When health conditions or suspected cases of cancer are identified, individuals are referred to hospitals for further diagnosis and management. Despite conducting multiple follow-ups to ensure they seek necessary care; many fail to do so due to time constraints and financial limitations. This creates a significant challenge for health workers, who tries to continually motivate individuals to prioritize their health and access the care they require.

To ensure the long-term sustainability of its initiatives, Biocon Foundation plans to expand the use of digital tools, including mobile apps, for real-time health tracking to enhance follow-up care for individuals diagnosed with NCDs. The foundation also aims to increase collaboration with local health authorities to integrate community health data into national health systems, thereby improving disease surveillance and enabling early interventions. There is a plan to provide ongoing training and tools to frontline health workers, to improve health data collection, disease screening, and follow-up services.

Biocon Foundation's community outreach programme exemplifies how a holistic approach—combining health education, early screening, technology, and community engagement—can bridge the healthcare gaps in underserved populations. By focusing on both preventive care and early detection, the programme has made significant strides in improving public health outcomes, empowering individuals to take charge of their health, and addressing health disparities in rural and semi-urban areas. Through continuous collaboration with local healthcare providers and leveraging technology-driven solutions, Biocon Foundation is creating a model for sustainable healthcare outreach that can be replicated across other regions in India and beyond.

Ms. Kavitha, a Child Development Project Officer (CDPO) in Anekal shared her experience of attending the health camp organised by Biocon Foundation. "During the camp, height and weight measurements and anaemia screenings were conducted for children, while Anganwadi teachers underwent breast and cervical cancer screenings," she shared. Highlighting the challenges faced by women in accessing healthcare, she stated, "for many women, getting such a comprehensive health check-up at hospitals can be really tough. First of all, it is costly, and often, women prioritize their families' health instead of focusing on themselves. Then, with all the work and household chores, they do not find time to go to the hospital. They also feel shy and hesitate to undergo such check-ups." She acknowledged the personal impact of the camp, saying, "Personally, this camp has helped me pay attention to my own health." Reflecting on its overall benefits, she added, "**The camp was incredibly beneficial for all women, including adolescents, who can learn to prioritize their health as they prepare for motherhood in the future."**

CHAMPS: Empowering Students to Fight NCDs in India

Non-communicable diseases (NCDs), particularly hypertension, have become a major health crisis in India, contributing to premature deaths and placing a heavy burden on the healthcare system. Despite the government's efforts, existing initiatives have not been fully effective in addressing the widespread prevalence of hypertension, especially among adolescents. Hypertension, a leading cause of preventable deaths, affects millions of Indians and is on the rise among adolescents. The CHAMPS (Child Health Activist Mentoring and Promoting Health in Society) programme, a Corporate Social Responsibility (CSR) initiative, seeks to tackle this challenge by empowering high school students to become health messengers in their communities.

This programme was designed to increase health literacy about hypertension among adolescents, with the goal of reducing the incidence of high blood pressure and its related complications in the community. Envisioned by Dr. Devi Prasad Shetty, Chairman and Founder of Narayana Health, the CHAMPS programme targets adolescents from grades 7-9 in government schools. The programme focuses on training students to educate their families and peers about hypertension, how to measure blood pressure, and the lifestyle changes necessary to prevent and manage the condition.
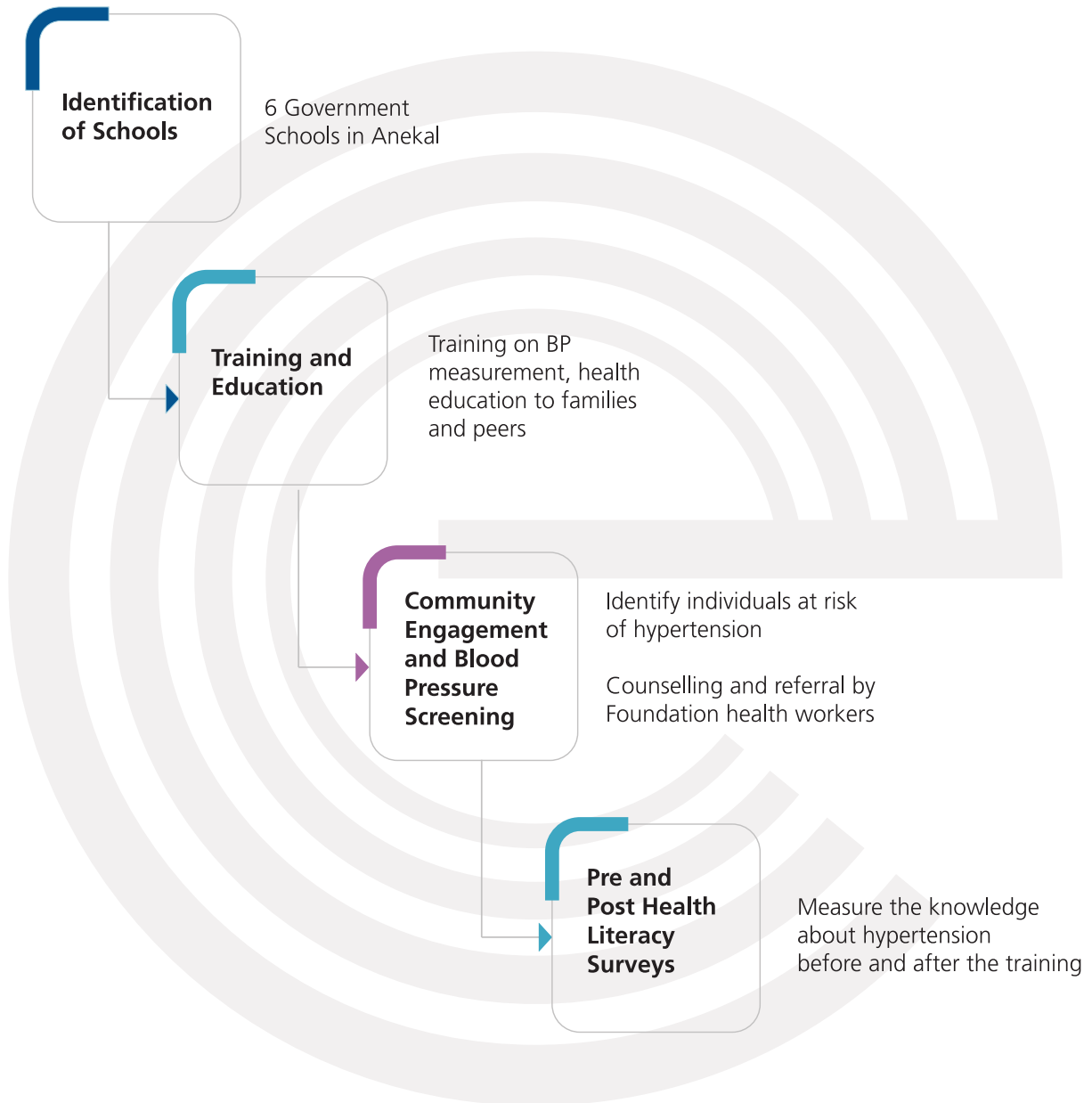
As part of this programme, students are trained to:
• Understand the basics of hypertension, its causes, and consequences.
• Use digital blood pressure (BP) monitors to measure BP and identify those at risk.
• Educate their families and communities on prevention and management of hypertension.

The programme aims to harness the energy, creativity, and peer influence of adolescents to spread awareness about NCDs, particularly hypertension, among their families and communities.

The following figure depicts the key components of the programme.

Components of CHAMPS

Identification of Schools

6 Government Schools in Anekal

Training and Education

Training on BP measurement, health education to families and peers

Community Engagement and Blood Pressure Screening

Identify individuals at risk of hypertension

Counselling and referral by Foundation health workers

Pre and Post Health Literacy Surveys

Measure the knowledge about hypertension before and after the training

After receiving training on the basics of hypertension and practical skills, such as using OMRON digital BP machines, students demonstrated significant knowledge improvement, as evidenced by pre- and post-training surveys. As health activists, 81 students actively conducted screenings and health education sessions, identifying nearly 600 individuals in their communities, with 27% found to have hypertension, including 16% diagnosed for the first time. This early detection facilitated timely medical intervention. By engaging students as agents of change, the initiative fostered community awareness and created a sustainable health outreach model that emphasizes peer education, early detection, and preventive care for long-term impact.

The CHAMPS programme by Biocon Foundation has proven to be a successful CSR initiative that empowers adolescents to become leaders in the fight against non-communicable diseases (NCDs) like hypertension. By leveraging the power of peer education, technology, and community engagement, CHAMPS is making a significant contribution to improving health literacy and early detection of hypertension, which will ultimately help to reduce the growing burden of NCDs in India. Through collaboration, innovative approaches, and a focus on long-term sustainability, the CHAMPS programme has the potential to transform how communities approach health and wellness, making it a model for future health outreach initiatives. Biocon Foundation remains committed to advancing such impactful CSR initiatives that drive lasting change in public health and empower communities across India.

Transforming last-mile healthcare delivery through digital solutions: a case study

As part of its commitment to reduce premature mortality from NCDs, Government of India reorganized the NCD control programme in 2016 aligned to the WHO Global NCD Action Plan 2013-2020 and introduced Population Based Screening (PBS) for the common NCDs. Prevention, control & screening services are being provided through trained frontline workers (ASHA, ANM & MPWs), and the referral support and continuity of care is ensured though PHC, CHC, District Hospitals and other tertiary care institutions. PBS can help in better management of diseases by early detection, follow up, and treatment adherence. It also generates awareness on the risk factors of NCDs

The FHWs are well-recognized to deliver different preventive health care services at the doorsteps of the beneficiaries, especially in the LMICs. ASHA'S (Accredited Social Health Activists) in India work as an interface between the community and the primary health care centers. Each ASHA is selected from the village, and she caters to a target population of 1,000 people. Towards the objective of proactive community outreach, through the aegis of eLAJ smart clinics, the Foundation has trained 16 healthcare navigators, across 6 locations in Karnataka to deliver preventive screening in the community using Digital Health Interventions in the form of Digital based health examination and screening. The trained FHWs provide early detection for the common NCDs (hypertension, diabetes, and oral cancer), assess risk factors of NCDs like BMI, tobacco and alcohol consumption and conduct preventive ECG for patients suffering from NCDs at households.

An initial study aimed to evaluate the feasibility and efficacy of delivering preventive NCD screening through NCD kits from the perspective of Community Health Workers (FHWs). The qualitative study used Focused Group Discussions (FGDs) and In-Depth Interviews (IDIs) with FHWs in various regions. The feasibility and efficacy of the FHW-driven NCD screening model was explored. Six domains from the WHO Health System Quality of Care Framework were used including **(1) Effectiveness:** being need-based, adherent to the evidence base, and resulting in improving health **(2) Efficiency:** maximizing resource use and avoiding waste **(3) Accessibility:** being timely, geographically reasonable, skilful, and resourceful **(4) Acceptability:** considering individual preferences and aspirations as well as community cultures **(5) Equity:** not varying in quality due to personal characteristics and **(6) Safety:** minimizing risks and harm to service users.

Key findings which emerged from the study are given in the table below:

Domain (WHO Quality of Care Framework)	Perceptions
Effectiveness	NCD kit identifies undiagnosed cases and facilitates early intervention.
	Raises health awareness, leading to better health outcomes.
Efficiency	Maximizes resource use by conducting screenings at home, reducing clinic visits.
	Effective use of NCD kits across communities.
Accessibility	Screenings provided even in remote areas, including tribal and forested regions.
	Flexible timing for working populations.
Acceptability	Community engagement is positive, fostering trust and respect.
	FHWs from tribal community improve cultural alignment and reduce suspicion among the community members.
Equity	Services are offered equally to all households, reducing selection bias.
	Free services improve access for financially disadvantaged individuals.
Safety	FHWs ensure safety by wearing gloves and performing painless procedures.
	Community trust is built through adherence to safety protocols.

Previous studies in the Indian context have found that screening using FHWs has resulted in improved control of NCDs and its risk factors. This study sought to explore the role and perception of FHWs in conducting home-based digital interventions for the screening of NCDs, using the NCD kit. The real-world uptake of digital health interventions is influenced by many factors. Human interaction remains a critical ingredient to successful health service delivery as observed through previous studies. The FHWs follow a workflow where they establish rapport with the community by briefing about NCDs, checking basic vitals and then people are assessed foron their disease history and risk factors. A critical impact of the screening procedure, according to the FHWs, are picking up new cases and ensuring that they begin treatment on time. They observe that people are mostly receptive, however men are hesitant to share their tobacco and alcohol history, owing to the cultural judgement and social stigma. Also, respondents in tribal regions with high consumption patterns, were reluctant for oral examination and were also apprehensive of the ECG machine with its multiple wires. However, over time and with consistent efforts of FHWs, the underserved communities in tribal areas valued the screening services more evidently compared to urban communities, who were quite often wary or uninterested in the services. Several challenges in service delivery were identified and it varied according to rural, urban and tribal contexts. The forest terrain in few locations were a difficult territory for the FHW in terms of wildlife attacks, poor roads or absent roads. In urban context the community were not receptive sometimes and FHWs observed instances when people dismiss the services offered, with statements such as 'we don't want to know', 'we already know', and 'why should we know if you are not giving the medicines' etc. General reasons that held back people from getting screened included (1) a belief that one was currently healthy; (2) lack of time; (3) a belief that screening procedures and digital health interventions were too complicated to understand; (4) negative emotions such as fear, anxiety, embarrassment, pain, and discomfort and, (5) having had a negative experience during a previous health checkup. These findings are in par with data from similar studies in LMIC settings where only 37% of the referred population sought care, owing to limited self-perception of risk majorly.

This qualitative study findings suggest that digital health interventions through local FHWs have the potential ability to quickly integrate into the health care system through capacity building, appropriate digital healthcare interventions and community-based approach. This approach is cost-effective and helps achieves high-quality outcomes.

Digital interventions can potentially help with the burden of NCD, with evidence of their ability to screen and increase control rates of hypertension, diabetes and CVDs. A factor critical for the successful scaling of FHW-led screening is acceptance by local community and integration with existing health care systems.

Oral Cancer Surveillance Program

Dr. Divya Khanna, an Associate Professor at Tata Memorial Centre, Varanasi, shared a heartwarming story about the oral cancer surveillance project supported by the BIOCON Foundation. She shared, "a 9th-grade student, inspired by the awareness program, took it upon himself to encourage his father to quit tobacco. His conviction was so strong that he convinced his father to remove all tobacco products from their home and urged him to attend the oral cancer screening at the school. His father told us, 'My child asked me to attend the oral cancer screening. After the screening, I realized the risks of my habits and decided to quit tobacco that very day'.

Biocon Foundation has been engaged in advocacy and screenings for oral cancer among underserved communities since 2014. India accounts for over one-third of the global oral cancer burden. The country reported 143,579 new cases of lip and oral cavity cancer and 79,979 deaths in 2022, according to GLOBOCAN (Global Cancer Observatory). The project runs across specific sites in Uttar Pradesh, Rajasthan, Punjab, Assam, Maharashtra, and Karnataka. This flagship programme has made significant strides, completing over 85,000 screenings to date, employing a multifaceted approach to combat overall burden of oral cancer.

Oral cancer screening:

The key components of the programme are:

Trained frontline health workers screen high- risk individuals for oral potentially malignant disorders (OPMDs) in Bengaluru, Varanasi, Amritsar, Nashik, Rajasthan, Uttara Kannada, Chamrajnagar and Guwahati.
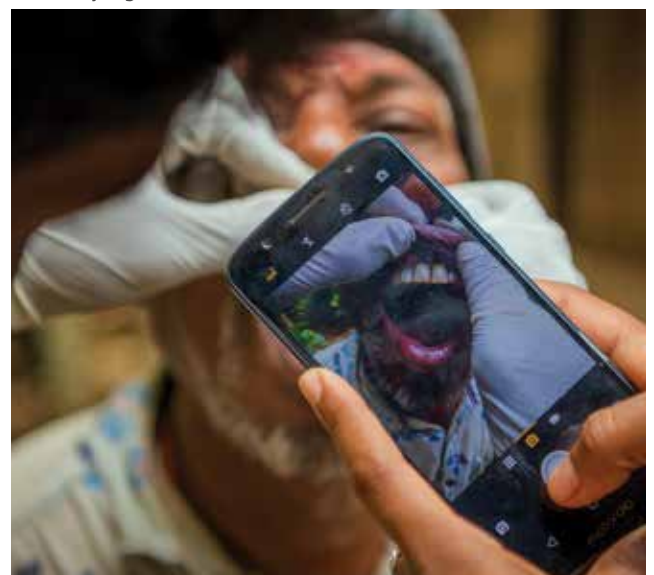
mHealth mobile application:

A mobile application developed by Biocon Foundation is particularly helpful for mass screenings and is used by FHWs to screen high-risk individuals for Oral Potentially Malignant Disorders (OPMD). Images of suspected lesions are captured using the mHealth application and shared with remote specialists for evaluation. These specialists classify the lesions as either suspicious or benign. The results of the classification are then communicated to frontline healthcare workers (FHWs), who follow up with patients identified as having suspicious lesions. High-risk individuals are further screened by a dedicated team of specialists, and are offered free biopsy services, along with tobacco cessation counseling.

The mHealth application has also contributed to the creation of a comprehensive bank of white light images, which has facilitated the integration of Artificial Intelligence (AI) and Machine Learning (ML) into the program. The AI algorithm, initially developed by the Indian Institute of Science, has since been continually refined and enhanced, with ongoing collaboration, further advancing its capabilities.

The Oral Cancer Task Force (OCTF):

This task force, created in 2018, aims to ideate, educate, and engage stakeholders to effectively downstage oral cancer in India. Comprising leading cancer specialists, the OCTF has developed the first India-specific consensus clinical practice guidelines for managing Head & Neck Cancer (HNC), with the second edition released in July 2023 to commemorate World HNC Day. These updated guidelines provide oncologists with evidence-based practices to improve treatment outcomes for HNC patients and have been published in the Journal of Cancer Research Statistics and Treatment. Recognized among 13 worldwide Clinical Practice Guidelines in Cancers, this acknowledgment highlights the significance of the OCTF's efforts and aligns its guidelines with those from the U.S., Europe, Canada, Japan, and the National Comprehensive Cancer Network (NCCN).

Training and capacity building:

We have undertaken significant training and capacity-building efforts in collaboration with our knowledge partners, the KLE Institute of Dental Sciences, Bangalore (KLESIDS), and the Mazumdar Shaw Medical Foundation (MSMF). These initiatives include:

• Certificate training programmes for dental interns to enhance their skills in early oral cancer detection.

• Refresher training sessions for oncologists, healthcare workers, ASHAs (Accredited Social Health Activists), and medical officers on utilizing mHealth tools for the early detection of oral cancer.

Research projects

The OPMD Atlas Project, funded by central government, aims to evaluate and accurately deploy point-of-care (PoC) diagnosis systems in the national healthcare system to enable accurate screening, detection, and prognosis of OPMD patients. This will be a key advancement in the war against oral cancer as oral potentially malignant disorders (OPMDs) are the precursors of over 80% of oral cancers. This project is run in collaboration with Mazumdar-Shaw Medical Foundation, the Indian Institute of Science, Bengaluru, KLE Society's Institute of Dental Sciences, Bengaluru, the Department of Preventive Oncology, NCI-AIIMS – Jhajjar, and the Homi Bhabha Cancer Hospital, Varanasi.

Multimodal intraoral imaging system for oral cancer detection and diagnosis in low resource setting- optimization phase is ongoing. "AI-Assisted Screening of Oral Potentially Malignant Disorders Using Smartphone-Based Photographic Images" has been published in Cancers as part of the Special Issue Artificial Intelligence in Cancer Screening.

Longitudinal study at Varanasi: In 2024, a longitudinal study has been initiated to systematically follow up the individuals attending the screening camps. The aim is to capture the data on detection, management and outcome of oral lesions identified in the screening camps for a longer period of time.

Oral Cancer Screening Initiatives: Data Highlights	
Total number of lesion positive cases identified since inception.	~ 85,000+
Total no. of individuals screened for oral cancer since inception	~ 10,484 (12.33%)
Total no. of individuals screened for oral cancer (FY24)	~ 10,575
Total no. of m-health enrolled / habit positive (FY24)	~ 5,600
No. of lesion positive cases identified among the targeted population (FY24)	~ 1,385 (24.71%)
Total no. of screenings performed for common dental problems (FY23)	~ 10,260.
Total no. of cases identified and treated for common dental problems (FY24)	~ 1,397 (13.61%)

"I am Dr. Divya Khanna, an Associate Professor, Dept of Preventive Oncology, HBCH and MPMCC, Tata Memorial Centre, Varanasi. I am compelled to share a heartwarming testimonial that underscores the transformative impact of our ongoing oral cancer screening project under the BIOCON Foundation. One of the most compelling testimonials comes from a young student of the 9th grade, who, inspired by our awareness program, took it upon himself to initiate change within his own family. This student, whose name we hold to protect his privacy, approached his father after the program, urging him to quit tobacco. His conviction was so strong that he convinced his father to discard all tobacco products in their home, pleading with him to abstain from their use ever again. Furthermore, this young advocate for a tobacco-free lifestyle implored his father to participate in the oral cancer screening conducted at his school. The impact of his words and actions was profound, as they not only motivated his father to attend the screening but also prompted him to make a life-altering decision. Here is a quote from the father's testimonial: "My child asked me to attend the oral cancer screening program. After going through the screening process, I realized the gravity of my habits and the potential risks I was exposing myself to. Motivated by the love and concern of my child, I made a conscious decision to quit tobacco that very day."

Insights from
Dr Divya Khanna

These testimonials underscore the power of education and awareness in fostering positive change within our communities. It serves as a testament to the impact our oral cancer screening camp and tobacco awareness program can have on individuals and families, rippling through society and inspiring a commitment to a tobacco-free lifestyle. As we continue our mission towards a healthier, tobacco-free future, stories like this fuel our dedication to making a difference, one life at a time."

Bangalore Urban Mental Health Initiative (BUMHI)

India's rapid urbanization, while contributing to economic development and improved living standards for many, has also brought significant challenges, particularly concerning mental health. As millions of people migrate from rural areas to urban centres in search of better opportunities, they encounter a host of stressors that can adversely affect their mental well-being. The National Mental Health Survey of India found a significantly higher prevalence (13.8%) of common mental disorders in urban areas compared to rural areas (9.2%). Despite concentrated healthcare resources in cities, the gap between mental health needs and access to treatment remains significant.

BUMHI training highlights

BUMHI is a community-based project commenced in 2018 which aims to tackle common mental disorders through self-care, informal care, and community support. As part of this project, 13 self-care modules were designed through multiple stakeholder inputs and consultations with the community. These modules cover topics like stress management, communication, and goal setting. A module on psychological first aid equips participants to help others experiencing mental distress. In the current phase, Community-based organizations (CBOs) have been trained to deliver BUMHI modules and promote mental health awareness. Through these NGOs, BUMHI reaches out to slum dwellers, migrants, and construction workers who otherwise may lack access to mental health resources.

Dr. Aravind, Principal Investigator & Additional Professor, NIMHANS, shared, "When we conceptualized this programme, our plan was to focus on self-care and informal care for mental health in urban areas." The initial idea was to train a few individual volunteers or organizations as community counsellors in each ward in the project area. However, the team encountered challenges in getting the desired involvement from the general public. "To overcome this, we approached resident welfare associations and various community groups, such as youth welfare groups. While these groups acknowledged the importance of the project, many hesitated to participate in our training sessions."

Post training assessment
- Understanding of mental health & well-being increased by 12%.
- Self-acceptance & emotional regulation increased by 20%.
- Empathy increased by 60%

Recognizing that training the general public would be a significant challenge, especially with the programme consisting of 13 modules, each requiring three to four hours of dedicated time, they decided to adapt their strategy. "To make the training more accessible, we restructured our approach by advertising specific training modules on designated Sundays." This tactic proved effective as more people began to engage. "Health enthusiasts and volunteers stepped forward to attend the training, allowing us to conduct sessions once a month or every couple of months," Dr. Aravind recalled.

At the next stage, the team approached educational institutions with the goal of training teachers and core groups of students. However, "only a few institutions were willing to form dedicated groups to take on all 13 modules," Dr. Aravind noted. Many teachers expressed a lack of interest or were unable to commit sufficient time for completion. "We realized that many individuals without health issues often do not see the need for mental health training; for example, if I don't have diabetes, what's the point of learning about physical activity?"

After this learning, the team shifted their focus to non-governmental organizations (NGOs) already working at the grassroots level with vulnerable populations. "This change led to a breakthrough, as many organizations expressed interest in participating in the training," Dr. Aravind explained. AnOne organization focused on suicide prevention, wanted their volunteers to deepen their understanding of mental health. Similarly, various organizations came forward to train their employees. A group of folk artists who conduct street plays for community education also participated in the trainings to incorporate health topics into their performances. By partnering with grassroots organizations and adapting our training approach, we were able to engage more participants in our programme.

Suja Warriar, a mental health professional and Director of Academia at WEQUITY, shared, "After moving out of Infosys Limited last year, I decided to focus my efforts on social impact projects, particularly those related to mental health. My interest in this area led me to engage with the programs at NIMHANS, which were working towards improving mental health care and awareness." She continued, "Initially, I collaborated with the team to organize sessions in educational institutions for students and teachers. Later, I brought in NGO teams specializing in mental health to undergo comprehensive training modules." Reflecting on the outcome of the BUHMI project, she shared, "This turned out to be a highly impactful initiative, as these NGOs were able to pass on their knowledge to community members, ultimately reaching underserved and unserved populations who truly needed support."

Suja Warriar
Director of Academia at WEQUITY

As a CSR strategist herself, Ms. Suja also acknowledged the role of Biocon Foundation in supporting the BHUMI initiative: "I'm glad that organizations like Biocon are supporting such interventions, which are critical in addressing the needs of the time."

Highlights

A total of 15 training workshops focused on self-care and informal community care were conducted across colleges, civil society organizations, and health institutions.

Awareness sessions on technology addiction and the healthy use of technology were conducted in 11 schools, reaching over 2,000 students.

NIMHANS will launch BUMHI Phase 3, incorporating the learnings from last two years. This phase of the project aims to extend its reach and enhance mental health support for a significant portion of the vulnerable population in the city. The key activities during this phase would be:

• Extending the current training to more grass roots organizations across Bangalore
• Introducing a lay counsellor certificate course to train core members within participating organizations, empowering them to deliver essential counselling services to their community members.

Peripartum Mental Health Initiative

Dr. Bhuvaneshwari, from St. John's Research Institute, explained that the idea for initiating screening and intervention for maternal mental health stemmed from experiences at St. John's Hospital. During busy outpatient consultations, common disorders like depression and anxiety often went undetected. "We recognized the need for improved screening and support, she said, reflecting on their decision to engage more closely with the community. "The project began in May 2022, and with funding from the Biocon Foundation, we were able to start the program by training health workers. Initially launched as a pilot, the initiative concluded in August 2024." The first step was to provide hands-on training for health workers, focusing on both physical and psychological issues during pregnancy, as well as screening for mood and anxiety disorders. "One of the challenges we faced was how to phrase sensitive questions in Kannada," Dr. Bhuvaneshwari noted. "It was also a struggle to balance the screening with the data entry process."

The consenting process presented another challenge, particularly because many pregnant women were hesitant to participate, citing domestic responsibilities as a barrier. To address this, the team organized an awareness session at the maternity centre. "We asked a gynaecologist to educate expectant mothers about mental health during pregnancy," she explained. "We used the limited time they spent in the outpatient department's waiting area to reach as many women as possible."

Participation from women in the postpartum period was also lower than expected, primarily due to childcare responsibilities and household chores. However, despite these obstacles, valuable insights were gathered throughout the project. "The women we worked with appreciated the safe space that allowed them to discuss sensitive issues," Dr. Bhuvaneshwari said. "Many expressed a strong need for mental health check-ups during maternity care, and they particularly valued the discussions on social support."

Reflecting on the partnership with the Biocon Foundation, she shared, "Our experience with Biocon Foundation was extremely fulfilling. Since the eLAJ clinic was located right next to the maternity centre, we were able to turn to their staff for support whenever we needed it."

Common Mental Disorders (CMD) encompass non-psychotic mood disorders and neurotic disorders, including conditions such as depression, anxiety disorders, and substance use disorders. The prevalence of CMD among pregnant women ranges from 1% to 37%, highlighting a significant public health concern. Additionally, the prevalence of alcohol and tobacco use during pregnancy in India is around 5% and 4.6%, respectively, indicating a concerning trend that may contribute to the burden of CMD. In Karnataka, 19% of women screened through a mental health initiative were diagnosed with conditions such as depression and anxiety, highlighting a substantial burden.

In Low and Middle-Income Countries (LMICs), the risk factors for CMD in perinatal women include single motherhood, lower socioeconomic status, unplanned pregnancies, intimate partner violence, poor social support, the birth of a female child, and a history of psychiatric illness. Screening for CMD during pregnancy is essential due to its association with adverse obstetric outcomes, such as poor nutrition, premature delivery, operative delivery, pre-eclampsia, placental abruption, and stillbirth. Moreover, CMD is linked to intrauterine growth

restriction (IUGR), low birth weight (LBW), and impaired behavioural and cognitive development in children, contributing to long-term health challenges for both mothers and their children. Despite the significant burden of CMD during pregnancy, national health programs in India, such as the Reproductive and Child Health (RCH) program, the National Health Mission (NHM), the Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) initiative, and the National Mental Health Program (NMHP), have not sufficiently addressed maternal mental health. With only 0.75 specialist psychiatrists per 1 lakh population, the availability of mental health professionals is limited, making it challenging to meet the needs of pregnant women with CMD. To bridge this gap, task shifting to non-specialist health workers is essential. Recognizing the urgent need to address this, Biocon Foundation supported St. John's Research Institute, Bangalore for a pilot project to provide peripartum and postpartum mental health support to pregnant women in an urban area of Bangalore. By screening and providing psychiatric and counselling support, this initiative aims to bridge the gap in mental healthcare accessibility during this critical period. The figure below depicts the essence of the program.

During 2023-24, a total of 320 women attended the screening programmes and among them, 19% were diagnosed with various mental health conditions, and were provided the required psychiatric and counselling services. The findings of this intervention project underscore the critical need for mental health support during the maternal healthcare journey, particularly during the peripartum and postpartum periods. A recent study published in The Lancet Psychiatry found that implementing a brief psychological intervention during pregnancy decreased the incidence of postpartum depression by nearly 50%. These findings highlight the importance of integrating mental health services into maternal healthcare to ensure that women receive the comprehensive support they need.

IISc PG Medical School & Hospital

IISc, recognized globally as India's top institution for science and engineering and ranked first in research impact by QS rankings, is charting a transformative new path by introducing medicine and clinical sciences as its third major discipline. This bold initiative includes the establishment of a postgraduate Medical School and an 800-bed hospital at its Bengaluru campus, designed to integrate clinical sciences with basic sciences and engineering for interdisciplinary research.

A pioneering MD-PhD dual degree programme will also be introduced, offering advanced, cross-disciplinary training to address critical healthcare challenges. In light of the COVID-19 pandemic, this initiative underscores the need for a proactive approach to public health and preparedness for emerging diseases. By leveraging IISc's strengths in interdisciplinary research, the project aims to catalyse innovation in healthcare and set a benchmark for transformative medical education and research in India.

Biocon Foundation has signed an MoU with IISc, Bengaluru, to fund the development of the 147-bedded Biocon-Syngene General Medicine Block in this hospital. The construction of the hospital is currently progressing as per schedule. Tenders have been floated, and floor plan and service plan have been finalised as per a series of discussions between hospital experts and architects. The Institute played host to several experts from the field of medicine and medical technology to gather inputs for development of the facility. The facility is expected to become operational by mid 2025.

The medical school will roll out a unique MBBS/MPH Internship programme to foster interdisciplinary research and develop physician-scientists in the country. Under this programme, in the year under review, 37 selected students got an opportunity to work under the supervision of 32 participating faculties at IISc, Bengaluru for a period of 1 to 2 months. The key thematic areas of Research included Cancer Biology, Bioengineering, Artificial Intelligence, Data Science, Endocrinology, Biomedical devices and others.

Highlights

- Ongoing research studies
- Predicting the Risk of Developing Diabetes and its complications through a Longitudinal Cohort Study
- Multiple Pathogen Serology (M-PATHS) – Using multiplexed antibody profiling to understand the human pathogen burden
- Bio surveillance via Immunological, Genomic and Epidemiological Models

• Extension of previous research

• India Hypertension Control Initiative (2017-2024)

• ICMR Epihub: A platform for epidemic intelligence and interpretation of infectious disease epidemiology (2023- 2026)

• Getting to the cause of chronic kidney disease of Unknown cause (CKDu) (2022-2026)

• Research Publication: The paper titled "Emerging 4D Fabrication of Next-Generation Nerve Guiding Conduits: A Critical Perspective" by Akshat Joshi, Saswat Choudhury, Sonal Asthana, Shervanthi Homer-Vanniasinkam, Uma Nambiar, and Kaushik Chatterjee was published in the Royal Society of Chemistry Journal. This marks the first paper published as a collaboration between IISc and the Bagchi-Parthasarathy Hospital.

• **Lectures and academic programmes**

▪ Triangulation of evidence in aetiological epidemiology: Principles, Prospects and Limitations by Prof George Davey Smith, Director of the Integrative Epidemiology Unit, University of Bristol | Mrs Sharwaree Gokhale Memorial Lecture of CBR

▪ Enteric infections in impoverished communities by Dr Gagandeep Kang, Director-Enterics, Diagnostic, Genomics and Epidemiology, Global Health, Bill & Melinda Gates Foundation, Seattle

▪ Webinars on various topics such as Bacterial Lifestyles, Multiplexed Serology & Viral Antigenicity, Schizophrenia and Immune Modulation in Cancer

• **Notable Visits and Collaborations:**

▪ Prof. M. Srinivas, Director of AIIMS, visited IISC and delivered MJ Thirumalachar& MJ Narasimhan Endowment Lecture on April 20th, 2023.

▪ A Master Research Agreement was signed between IISc and GE Healthcare on June 16th, 2023.

▪ A two-day workshop was organized with Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, on August 21-22, 2023.

▪ IISc entered into an MoU to set up the Clinical Immunology and Rheumatology Wing at the IISc Bagchi-Parthasarathy Hospital, on August 24th, 2023.

▪ The medical team visited various leading institutions, including PGI Chandigarh, Amrita Hospital, New Delhi, AIG Institute, Hyderabad, Yashoda Hospital, Hyderabad, SMS Medical College, Jaipur

The collaboration between the Biocon Foundation and IISc underscores the critical role of institution-building grants in enhancing the capacity of organizations, particularly within the academic and research sectors. These grants offer vital financial support that enables the development of key infrastructure, boosts operational efficiency, and fosters the growth of institutional knowledge and expertise. Beyond the immediate benefits, institution-building grants help organizations cultivate strategic partnerships, stimulate innovation, and attract further funding, thereby strengthening their ability to adapt to emerging challenges and achieve their long-term objectives.

Antimicrobial Resistance Tracker

World Health Organization (WHO) explains antimicrobial resistance as a condition which occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death. AMR is a leading public health threat. The WHO estimates that 10 million annual deaths will be caused by AMR infections by 2050.

Antimicrobial resistance (AMR) is a critical public health issue in India. Overuse and misuse of antibiotics are widespread in healthcare, agriculture, and animal husbandry across the country. National surveillance data reveals alarming trends, with resistance observed in major pathogens like Escherichia coli, Klebsiella pneumoniae, and Staphylococcus aureus. For example, up to 70% of E. coli and Klebsiella isolates are resistant to commonly used antibiotics. Multidrug-resistant strains of tuberculosis and typhoid are on the rise, further challenging existing treatment protocols. India's National Action Plan on AMR, launched in 2017, emphasizes surveillance, awareness, optimizing antibiotic use, and infection prevention. Yet, challenges remain, particularly in rural areas with limited healthcare access and inadequate regulation of over-the-counter antibiotic sales.

While hospital-based records of AMR are often available, there is no current solution that allows both consumers and hospitals to keep track of antibiotic usage. To address this challenge, Biocon Foundation partnered with Indraprastha Institute of Information Technology Delhi (IIIT-D) in 2023, to develop a mobile health (m-Health) application compliant with the Ayushman Bharat Digital Mission (ABDM) sandbox guidelines. This application aims to provide a comprehensive solution to the challenges posed by AMR in the Indian context, facilitating access to AMR data for healthcare professionals, raising public awareness, and enabling the collection of data on antibiotic usage.

The application will target:

- General practitioners for alerting on AMR rates, safety profile and potential drug-drug interactions for antibiotics.

- General public by providing ABDM standardized format for crowdsourcing antibiotic consumption data.

Highlights

• The AMR tracker solution AMRSense won the prestigious Trinity challenge for the year 2023-24. Launched in response to the Covid-19 pandemic, the Trinity Challenge is a charity supporting the creation of data-driven solutions to help protect against global health threats.

• The Infection Escape Game, released during AMR Awareness Week, uses gamification as an effective tool to engage the public with complex scientific issues like Antimicrobial Resistance (AMR). Gamification helps make abstract concepts such as bacterial resistance and antibiotic overuse more relatable and easier for the general public to understand. Interactive experiences like these allow people to see how their actions, such as demanding unnecessary antibiotics or practicing poor hygiene, contribute to the problem.

• AMROrbit Scorecard- The AMROrbit Scorecard uses a dynamic stage-of-care model to provide strategic, actionable insights into the progression of AMR globally. This pioneering tool will equip healthcare stakeholders with critical data to mitigate the rise of antibiotic resistance. This solution won the prestigious innovation award at the 2024 AMR Surveillance Data Challenge. The solution was selected from 56 entries across 27 countries in a competition sponsored by GARDP (Global Antibiotic Research & Development Partnership), Paratek Pharmaceuticals, Pfizer and Vivli (Centre for Global Clinical Research Data). The challenge sought innovative, data-driven solutions from across the globe to combat the global health crisis of antimicrobial resistance (AMR).

The AMR tracker initiative is a significant step in combating antimicrobial resistance in India by leveraging technology and community engagement. By targeting general practitioners, the initiative ensures real-time alerts on AMR trends, safety profiles, and potential drug-drug interactions for antibiotics, aiding in informed and responsible prescribing practices. For the general public, the integration of an ABDM-standardized format for antibiotic consumption enhances transparency and builds a robust database to monitor usage patterns. The dual approach bridges gaps in awareness, fosters collaboration across stakeholders, and strengthens India's fight against the growing AMR challenge. This initiative funded by Biocon

Foundation also serves as an example of how seed grant programmes can help academic and research organisations to drive innovations and transformative solutions that have the potential to create lasting impacts on public health and tackle some of the most pressing health challenges of our time.

Covid Wastewater Surveillance

Wastewater based surveillance (WBS) is an innovative method to analyse community health by examining sewage for biological and chemical markers. It involves detecting pathogens, viruses, or other substances such as drugs and pollutants, to obtain real-time data on public health issues. Globally, WBS has gained significance as a cost-effective and non-invasive tool for monitoring disease outbreaks, including COVID-19, and tracking other health conditions or the spread of specific pathogens. It is increasingly being used as an early warning system for public health planning, helping governments allocate adequate resources and respond proactively.

In India, WBS has shown promise for monitoring infectious diseases such as cholera and other waterborne illnesses. Recent studies have demonstrated its potential in densely populated urban areas, where traditional health data collection may face challenges. For instance, pilot projects have used wastewater monitoring to track the presence of SARS-CoV-2 in metropolitan cities like Bengaluru and Pune, offering critical insights for pandemic management. Beyond infectious diseases, this approach can also be leveraged for environmental pollution control, given India's significant water contamination issues, thus addressing broader health and ecological concerns.

Biocon Foundation signed a tripartite agreement with St. John's Research Institute (SJRI) and Indian Institute of Science (IISc), Bengaluru for water-based monitoring for SARS-CoV-2 and variants at selected hospitals and other institutions in Bengaluru. Wastewater-based testing for SARS-CoV-2 was found to be an effective way to track the virus, especially in the context of limited human testing post pandemic.

Objectives of this project are:

1.Early Detection of Outbreaks: WBS can provide early warning signs for SARS-CoV_2 outbreaks.

2.Planning allocation of resources: With a good early warning system, the hospitals can allocate infrastructure resources such as hospital beds, ventilators, etc. for the anticipated influx of patients.

3.Trends and Patterns: Analysing trends and patterns in wastewater data can help to gain insights into the dynamics of SARS-CoV2 in the catchment areas.

A total of ten sites are selected for the project and from these identified sites, untreated wastewater collected twice a week for processing at SJRI, where samples will undergo RNA extraction and RT-PCR analysis to estimate viral loads using commercial kits. Sequencing will utilize ONT-SARS-CoV-2 Midnight primers, with subsequent bioinformatic analysis for lineage assignment and mutational profiling. Additionally, trends in SARS-CoV-2 will be predicted by correlating viral loads in wastewater with factors such as wastewater volume, foot traffic, and past studies during the Omicron wave.

Wastewater-based surveillance offers a cost-effective, real-time tool for understanding the local prevalence of infectious agents, particularly in resource-constrained settings where individual diagnostic testing may not be feasible for acutely ill patients, and clinicians often rely on empiric treatments. The evolution of WBS has been driven by the integration of molecular and genomic technologies, enhancing its accuracy and scope. Furthermore, innovative data-sharing platforms have facilitated the rapid dissemination of surveillance

findings to public health authorities, government officials, and even the public. This transparency empowers evidence-informed decision-making, based on local disease dynamics, and strengthens the response to public health challenges.

From the Biocon Foundation's perspective, this collaboration marks a pivotal advancement in public health surveillance and early detection capabilities. Our commitment to supporting cutting-edge research and technology-driven solutions aligns with our broader mission of improving public health and contributing to the well-being of communities. Through this partnership with St. John's Research Institute and the Indian Institute of Science, we are reinforcing the health system's ability to proactively monitor emerging health threats. By harnessing the power of wastewater surveillance, we aim to ensure more effective preparedness, timely interventions, and optimal resource allocation, ultimately paving the way for healthier, more resilient communities.

Education

Mobile Science Labs

"I attended the summer camp conducted by Agastya Foundation during the Navaratri holidays, during those ten days, we learned many games and crafts. The teachers made learning so fun for us. They brought all the materials needed for each activity, allowing us to create different products (science crafts). Every day during the summer camp, we had new and exciting activities. A team of Instructors from Agastya monthly visit our school and bring all the materials needed to explain science concepts. First, they divide us into groups of five or six students, and all activities are conducted within these groups. If we have any doubts, the teachers clarify them, and our regular class teacher also help us.

Initially, I found some of the activities challenging, but soon I got the hang of it, and we even started keeping a separate book just for the science projects. The hands-on approach of using materials made it easier to grasp the concepts. They also give some homework for some projects, which also help us to understand the topic. Teachers ask us to explain it to our fellow students who find it difficult to understand, so during free periods, we explain the last class activity to our friends. The classes are really helpful for all of us. For example, one of my friends struggled with reading, but since these classes started, they make each one of us to read the chapter. Over a period, I've seen his reading ability really improved. I'm really happy with this programme." says Gurulingaya, a class 7 student from Government High School, Anekal

Biocon Foundation and Syngene International Ltd partnered with Agastya International Foundation to establish Mobile Science Labs (MSLs) that help develop the scientific temperament in students at government schools. These vans, equipped with science models and experiments, travel long distances, so that children studying in under-resourced schools have an opportunity for hands-on learning with science models.

The programme was inaugurated on August 3, 2019. The first cluster for these mobile labs was Government Schools in Anekal, Bengaluru. Subsequently, the Foundation has since extended MSL interventions in Chikkaballapura district, Karnataka. Building further on the success of this model in Karnataka, the Foundation has launched a pilot model - Lab on a Bike (LOB) in the rural outskirts of Medchal-Malkajgiri, a suburb of Hyderabad.

The third-party impact assessment

A third-party impact evaluation was conducted to gauge the effectiveness of this experiential science learning initiative in promoting science education. The study used a mixed methodology, incorporating both quantitative and qualitative approaches and employed various research methods to capture the programme's impact. The IRECS framework, based on five pillars, namely Inclusiveness, Relevance, Expectation, Convergence and Service Delivery, was used to gauge the programme's impact. This assessment covered the programme's impact on students' interest, academic performance, and teachers' pedagogical practices. This impact assessment evaluated a sample of 52 schools, divided into treatment and control groups, with a focus on students from grades 8, 9, and 10. The sample represented diverse socioeconomic backgrounds, with approximately 50% female participation, ensuring inclusivity and equal representation. Key findings of the assessment are furnished below:

84% of students mentioned that the MSL teacher's instructions were easy to comprehend.

66% of students highlighted MSL sessions strengthened their understanding of science concepts.

89% of the students said they felt motivated to ask their doubts in the MSL sessions, demonstrating high student satisfaction with instructor approachability and teaching methods.

98% of students rated instructor's approachability and responsiveness as 'Outstanding'.

The impact assessment also revealed that students in the intervention group, who participated in the Mobile Science Lab (MSL) programme, consistently outperformed those in the control group across various measures. The MSL group demonstrated better academic performance, achieving an average score of 54% compared to 40% in the control group for 9th grade. The scientific attitude was 30% among MSL participants compared to 20% in the control group, while proactiveness was found to be 45% among MSL participants compared to 30% in the control group. The intervention also fostered greater engagement, with 95% of treatment students actively participating in MSL sessions and 64% conducting do-it-yourself experiments at home, compared to just 12% of students in the control group."

Prakash is associated with the MSL programme for the last five years. "First, we visit the schools, and in each class, we divide the students into groups of five. We bring materials relevant to the topic and have the students conduct the activities themselves," Prakash explained. He has observed significant improvements in students' performance, noting, "I've seen the improvement in them, they score better marks in science, and they show more interest in science topics now." However, there are practical challenges as well. "In some schools, there aren't enough classrooms to divide students into sections. As a result, there would be more than 60 students in one class. In such scenarios, we demonstrate the activity and then invite a few students to come forward and participate", he added.

He feels that awareness among community members also has improved over time. "Superstitions are typical to some of these communities. We provide scientific knowledge and promote rational thinking to dispel myths and encourage reliance on evidence rather than superstition in students. Over a period of time, we have observed an increase in their awareness levels," he shared.

Biocon Foundation will continue to engage with local stakeholders and recalibrate its strategies to create value for the long term. These learning experiences could potentially spark scientific curiosity among students and motivate them to pursue higher education and careers in STEM.

Mobile Science Labs benefited about 6,700 students across 46 government schools in Karnataka through about 55,000 science experiences in more than 1,400 learning sessions. Furthermore, 10 science fairs were organized for government schools.

Lab on a Bike benefited about 1,700 students in 7 government schools in Hyderabad. More than 12,000 learning experiences were delivered in more than 300 sessions. In addition, 5 science fairs were organized in government schools.

Quiz competition and smart classrooms

In the effort to reimagine learning beyond traditional classrooms, Biocon Foundation expanded its scope of collaboration with Agastya International Foundation to curate an Interschool Science Quiz Competition, namely Synquizitive. It's aimed at creating a culture of questioning in government schools. The quiz templates were crafted to spark critical thinking and collaborative problem-solving, ensuring that students are not just memorizing facts, but truly understanding the principles of science. Questions, carefully curated by academic experts, came alive through engaging audio-visual formats, prompting students to apply their knowledge to real-world scenarios.

Employees of Biocon Group of Companies volunteered to conduct the written qualifier test of the quiz at government schools. The teams, each consisting of three finalists from classes 6 and 7, represented their schools in the semifinal and final rounds.
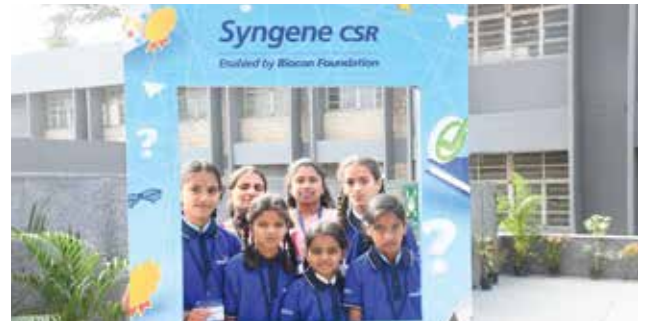
After scintillating rounds of questions, winning teams emerged at the final rounds. Medals and cash prizes were bestowed upon the top three winning teams. Consolation prizes were awarded to the runners-ups. Trophies were presented to the teams which bagged first spot at each location. The quiz final events were graced by Dr V K Aatre, Former Head, Defence Research and Development Organisation (DRDO), Dr Tessy Thomas, Former Director General of Aeronautical Systems of DRDO, Ms Kiran Mazumdar-Shaw, Founder & Managing Trustee, Biocon Foundation, and other dignitaries. The Bengaluru leg of the quiz was included under the banner of Bengaluru Habba and was broadcasted on community radio, Namma Nadi, 90.4 FM. To further incentivize participation and create conducive learning environments, Biocon Foundation awarded smart classrooms to top-performing schools in each location. These smart classrooms were set up at GHPS Haragadde, GHPS Katipalla and ZPHS Shamirpet in Bengaluru, Mangaluru and Medchal-Malkajgiri (suburb of Hyderabad), respectively. These schools emerged as winners of the "Synquizitive" science quiz in 2023. The fully furnished classrooms consist of interactive educational technology (EdTech) with rich multimedia content aligned to state curriculums. In addition to interactive technology, educational software, and digital toolkits, the Foundation has also provided furniture and fixtures, power backup solution and other supporting infrastructure to create a well-designed space for pupils. The teachers at the schools are trained in the use of EdTech to achieve improved learning outcomes.

"The science quiz has opened a new world of possibilities for me. It is not just about winning a competition; it is about discovering the joy of science and realizing that learning can be exciting. The hands-on experience and mentorship have fired my curiosity, and I'm inspired to pursue a future in science, thanks to this incredible initiative." shared Govinda Raj, Student, Government Higher Primary School, Katipalla. Participants included about 7,500 students from 150 government schools.

Building futures: School infrastructure development

SDG 4.A sets target for building and upgrading education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

Through the 'Right of Children to Free and Compulsory Education Act (2009)', the Government of India signified its commitment to ensuring that every child has access to quality education, irrespective of their socio-economic background. However, challenges such as infrastructure deficits, quality of instruction, and access in rural areas persist, highlighting the need for ongoing efforts to realize the full potential of this fundamental right. The condition of government schools in India is nowhere near the standards set by the WHO. In Karnataka, the situation is no different. A 2020-2021 study conducted by the Department of Public Instruction (DPI) found that 6,840 government schools in Karnataka require improved infrastructure. This year alone, due to the seasonal rains, 4,000 government school buildings were reported as damaged, emphasizing the urgent need for regular maintenance and upkeep.

In the 2024-25 budget, the Karnataka government allocated Rs 850 crore for improving the infrastructure of government schools and pre-university colleges. However, government funding alone may not be sufficient to address these challenges. There is a pressing need to augment government initiatives through collaborations with NGOs and civil society to ensure that schools are not only built but also maintained effectively, providing a safe and conducive environment for students to thrive.

Biocon Foundation is dedicated to its vision of providing quality education for all children, particularly in underserved communities. The Foundation has consistently worked to enhance school infrastructure in rural areas to create better learning environments and experiences for students. By conducting site visits and engaging in consultations with community stakeholders, the team was able to systematically assess infrastructure gaps and prioritize the specific needs of each community. This year, eight schools were identified in three districts for urgent infrastructure development. Following this, 11 classrooms were constructed, significantly enhancing the existing infrastructure and improving the overall learning environment for students.

Reflections from our stakeholders

"There were about 35 children in the classroom, with students from classes 1 to 5 combined. We had approached the government multiple times for help, but they always responded by stating that they didn't have the funds. Eventually, we reached out to our local MLA, who informed us that a few CSR companies were contacted to assist in building government schools. That's when Biocon came to our school and constructed new classrooms, which was a huge relief. Before the new classrooms were built, we struggled with a lack of teachers as well. The government would put down our request by saying, 'you have only one room, what would be the use of posting more teachers?' However, after the construction, we now have got three teachers, which has been tremendously beneficial for our children. The quality of the new building is very good; unlike the older classrooms that had leaks and were in poor condition, the new structure provided by Biocon is sound, there are no complaints at all. This initiative has truly made a positive impact on our school and the learning environment for our children." Mr. Venkatesh, parent of a class 4 student mentioned.

I was assigned the task of identifying schools that required maintenance work. We selected a few schools that were most in need, and Biocon Foundation took the initiative to construct new buildings for them, which was completed last year. The quality of construction is excellent, and community members, parents, and teachers are all very pleased. Everyone has praised the work, with some remarking, "It looks like a private school, and it will be very beneficial for our children." Classes are now being conducted in the new building, and the students are also very happy with the improvements. I would like to express my gratitude to Biocon Foundation for this commendable endeavour.

Block Education Officer
Chikkaballapur

"We were in dire need; the school was in a very bad shape. It was very old, and a part of the roof had collapsed. It was risky to conduct the classes there. Through the local MLA, we came to know about Biocon Foundation. The Foundation helped us build two classrooms, the construction was completed in 2023, and from June, class 5 and preschool are running in those rooms. This means a lot to us and our children." says Headmaster, Koppa Government Higher Primary School, Uttara Kannada district

The stakeholders' accounts serve as a compelling example of how targeted initiatives can transform not just physical infrastructure but also the overall educational experience for students and their families.

The presence of additional teachers, made possible after the construction of new classrooms, significantly enriches the learning experience. The improved educational facilities not only benefit current students but also have the potential to attract families, thereby increasing student enrolment in these schools.

Mr. Venkatesh
Parent of a class 4 student

This initiative demonstrates how CSR can play a pivotal role on strengthening sustainable development in education.

Data at a glance

- **Number of districts covered 3**
- **Number of schools benefitted 8**
- **Number of classrooms completed 11**
- **Children's Park 1**

Environmental Sustainability

Miyawaki Afforestation

Biocon Foundation joined hands with Vana Charitable Trust, based out of Dakshina Kannada, to transform a wasteland at KPT Junction, Mangaluru into a green forest . This wasteland was a dumping ground filled with debris and waste. "We initially encountered a significant amount of garbage that posed serious environmental risks," said Mr. Jeet, noted environmentalist and trustee of Vana Charitable Trust. A thorough survey was conducted to delineate the area for development, and the grant support of the Foundation, proved consequential in getting this project off the ground and lay the foundation for an urban micro-forest. The layout design and project plan were approved by the Mangaluru City Corporation.

During the cleanup, the team discovered the area was filled with laterite stones unsuitable for cultivation. To resolve this, they excavated 2 feet 6 inches of solid laterite and refilled the space with virgin soil mixed with sand, topped by a 6-inch layer of coco peat. The soil was further enriched with coir pith, sand, and manure to create a robust foundation for planting. Although the new forest was successfully established, the project later faced challenges, including equipment theft. This setback raised concerns but also showcased the community's resilience, with local institutions stepping in to safeguard the project and support the team. Initially, while cleaning the area, the team faced complaints regarding stench from compositing materials. This required the team to communicate effectively with the community, helping them understand the importance of the project and the temporary discomfort it may cause. As the project progressed and the forest began to take shape, community sentiment shifted from criticism to appreciation. Local families began to see the benefits of having a green space for both recreation and environmental improvement. However, ongoing maintenance remained a

concern, particularly with littering issues from nearby vehicle parking and waste disposal. In response to these challenges, the team implemented routine clean-up efforts and sought additional support from the municipality to install cameras to monitor the area. The proactive measures taken by the project team resulted in a well-maintained green forest in the busy urban area.

Global environmental challenges have become increasingly pressing, with dire consequences for both the planet and people. Issues such as climate change, deforestation, pollution, biodiversity loss, and water scarcity are threatening ecosystems and human health alike. The Intergovernmental Panel on Climate Change (IPCC), a specialised body of United nations, warns that without significant reductions in greenhouse gas emissions, global temperatures could rise by 1.5°C as early as 2030, resulting in more severe weather events and disruptions to agriculture.

The situation in India is equally alarming; the urban green cover is rapidly depleting due to unplanned development and infrastructure expansion. According to the Forest Survey of India (2021), the overall green cover in Bengaluru, Karnataka's capital, stands at approximately 10%, a sharp decline from 46% in the 1970s. Mangalore, another designated smart city in Karnataka, aims to enhance its liveability, sustainability, and economic growth. However, recent reports indicate that its development plans may have neglected the crucial role of green spaces. This reduction in green spaces has exacerbated issues like urban heat islands, which makes certain parts of these cities significantly hotter than surrounding areas due to concentrated infrastructure and lack of vegetation.

A study conducted by NITTE University reported that the decrease in the number of trees has led to an increase in the surface temperature in Mangaluru by nearly five degrees

Celsius between 2014 and 2022. A study at St. Aloysius College in Mangaluru revealed that the campus's 1,730 trees, spread across 37 acres, store approximately 332 metric tons of carbon. This highlights the significant role even limited green spaces can play in urban sustainability and mitigating heat. Complementing such efforts, the Miyawaki method offers a promising solution for urban afforestation. Forests created using this technique grow up to 10 times faster than conventional methods, with dense canopies that not only store carbon effectively but also cool the surrounding environment, thus helping to combat urban heat island effects.

The area where the Miyawaki forest was established was once a dumping ground for plastic waste and garbage, leading to unpleasant odours, especially on weekends when waste trucks were parked there. However, thanks to the efforts of the Biocon Foundation and the Mangalore City Corporation, this area has undergone a remarkable transformation. The trucks were removed, and a Miyawaki forest was planted, replacing the smelly, barren space with a lush, green environment filled with variety of plants, fruit trees, and birds.

The change has been significant—what was once dry, polluted land is now rich in soil and biodiversity. The forest provides shade, attracts birds and other creatures, and offers a peaceful, environment-friendly space for both residents and visitors to enjoy. People from the community, including children, are particularly happy with the new greenery, using it as a place to relax and take photos. The Miyawaki forest is not just a beautiful addition to the area but also a testament to the commitment and hard work of the team. The workers involved in its creation and maintenance were dedicated to ensuring the plants thrived, even going so far as to manually water and care for them without external help.

This initiative has also sparked a sense of community ownership and responsibility. Local residents are actively involved in preserving the forest, understanding its importance for both the environment and their well-being. The shift from a waste-filled space to a vibrant, green area highlights the value of such ecological projects, especially in cities undergoing rapid development like Mangalore, which is on its way to becoming a smart city. The Miyawaki forest stands as a powerful example of how thoughtful environmental initiatives can bring positive change to urban areas. Fr Vincent Dsouza, Director, Canara Organisation for Development and Peace (CODP), Mangalore.

Biocon Foundation's efforts at preserving an urban green zone highlight the need for more such initiatives, which would help in mitigating the urban heat island effect and create the momentum for more such urban green spaces. The Miyawaki afforestation initiative serves as example of how community-driven initiatives can contribute to promoting environmental sustainability. By fostering green cover, engaging local stakeholders, and promoting sustainable practices, such efforts can play a vital role in addressing the pressing challenges of deforestation, biodiversity loss, and climate change.

Mass Rapid Transit Systems Hebbagodi Metro Station

Bengaluru, recognized as one of the fastest-growing cities in India, faces a multitude of challenges stemming from rapid industrialization and a significant influx of people moving to urban areas. The city's unplanned urban development has intensified issues such as overcrowding and traffic congestion, straining existing infrastructure and public services. As the population continues to rise, these challenges necessitate effective urban planning and sustainable solutions to maintain the quality of life for its residents. Air pollution too is a significant issue, with vehicles being a major source of atmospheric pollutants. Emissions from these vehicles are particularly problematic because they are ground-level sources, directly affecting the health of the general population.

Bengaluru faces a significant transportation challenge: it has 62% more registered vehicles than Mumbai, despite having only one-third of the population. To address this, the Bengaluru Metro Rail Corporation Limited (BMRCL) launched a mass rapid transit (MRT) system in 2011. The metro's primary goal is to alleviate road congestion by encouraging a shift from private vehicles to public transportation.

Enabling Sustainable Mobility

With the objective of making a positive impact on the environment and promoting sustainability in urban living, Biocon Foundation supported the Bangalore Metro Rail Corporation Limited (BMRCL) by investing ₹650 million in the construction of the Biocon-Hebbagodi Metro station, a key part of the 18.82-km Yellow Line connecting R.V. Road and Bommasandra. This flagship programme is expected to enhance sustainable mobility for residents of Bengaluru, helping to reduce traffic congestion on Hosur Road and decrease vehicle-related pollution. The station is nearing completion, with plans to open to the public by April 2025.

This is one of the biggest projects Biocon Foundation has taken up till date. This project aligns with Biocon Foundation's mission for environmental sustainability by promoting the use of public transport, thereby reducing carbon emissions and fostering a cleaner, greener Bengaluru. The new metro station, along with the murals on the metro pillars, adds beauty and art to the urban landscape while encouraging community involvement and appreciation for local culture.

Pillars of Society: Celebrating Everyday Heroes

Along with the construction of metro rail, in 2024, Biocon Foundation sought to re-envision the space under the elevated Metro corridor, by adding colourful pier wall paintings that celebrate Karnataka's rich culture and traditions, along with aesthetically pleasing ambient greenness in the form of median gardens.

The Pillars of Bangalore were proposed as an initiative to celebrate and acknowledge the contributions of the everyday heroes of the city who form the essence of the social fabric of Bangalore.

To bring this vision to life, the Foundation partnered with Srishti Manipal Institute of Art, Design, and Technology to showcase traditional arts, focusing on the Channapatna dolls that represent the local heritage. This unique public art project, dubbed 'Pillars of Society - Celebrating Everyday Heroes,' has transformed the Metro corridor between Hebbagodi and Huskur Gate into a vibrant cultural space. With 43 distinct art designs now decorating the pier walls, the murals honour the everyday heroes of the city. From the captivating energy of a Yakshagana performer to the stoic depiction of our silent stewards- the Pourakarmikas; the artwork portrays a diverse range of essential vocations. Plumbers, electricians, tailors, cobblers, doctors, research scientists and even aerospace engineers – these everyday heroes are brought to life in stunning visuals.

Conceptualization

The Pillars of Bengaluru are formed by its diverse and dedicated people who contribute to the city's vibrancy and functionality in various ways. Among these are the Caring Bengaluru individuals, such as BBMP cleanliness workers, doctors, and nurses, who keep the city clean and healthy, ensuring a hassle-free life for its residents. The Nourishing Bengaluru group includes the food vendors scattered across the city, providing our daily meals and beverages, including breakfast and filter coffee, as well as milk delivery to our homes. Embellishing Bengaluru highlights those who embody the city's rich 500-year cultural fabric, uniting its residents through artistry and tradition; this includes flower hawkers, street musicians, and Yakshagana performers. The Moving Bengaluru category encompasseses BBMP drivers, auto rickshaw and cab drivers, metro personnel and traffic police men, who help us navigate to our places of work and return home safely each day, and form a critical Pillar of Bangalore. The rapid growth of Bengaluru, often referred to as the Silicon Valley of India, is supported by the Building Bengaluru group, composed of individuals who construct its physical infrastructure and innovate within industries like technology and design, driving the city's evolution. Finally, Upholding Bengaluru represents those who maintain order and safety, including police officers and security guards, whose roles are essential in maintaining the city's structure and providing education and support. The metro pillars have been adorned with these images, acknowledging and celebrating their contribution to the community.

Stories From The Field

Gauramma is a young nursing professional who has been working at Chandapura Hospital for the past three years. She shared her views on this initiative, "One day, while traveling to the city, I saw the painting of a nurse on the metro pillar. I was so pleased to see it; the painting is appealing. I thought that by showcasing this image, more young people would be motivated to join our profession. It's a great feeling to know that people acknowledge us. When I shared this with my colleagues, they also felt happy that our profession has been recognized as something important."

Pradeep, a supervisor of Pourakarmikas, shared his thoughts upon seeing the painting of a Pourakarmika on one of the metro pillars. "When I saw the picture at the entrance of Biocon, I felt proud. I believe this painting will remind people of the vital services performed by Pourakarmikas, which is often overlooked. It will encourage all of us to demonstrate responsible citizenship and ally ourselves with Pourakarmikas in keeping the city clean. Every day, when our workers come to clean that area, they see this painting and feel uplifted. It serves as a reminder for everyone to recognize the contributions of essential category workers."

Lake Rejuvenation

Hebbagodi lake rejuvenation

Lakes and other natural bodies of water, including lakes, play a significant role in enhancing mental health and well-being. Studies have shown that access to green spaces and water bodies can lead to reduced stress, improved mood, and increased feelings of tranquillity, including a large study conducted across 18 countries in using data from the BlueHealth International Survey which found that water bodies offer significant mental health benefits, like stress reduction, and improved mood by promoting relaxation, alleviating mental fatigue, and enhancing concentration.

Although Karnataka is famous for its water bodies, rapid urbanization, population growth, and unchecked industrialization have heavily impacted these natural ecosystems. Encroachments, pollution from untreated sewage and agricultural runoff, excessive water extraction, and poor waste management have all contributed to the degradation of these essential water bodies. According to Karnataka State Lake Conservation Authority, the state is home to approximately 38,000 lakes, many of which have suffered from pollution, encroachment, and neglect. In urban Bangalore, it is estimated that about 90% of lakes are either polluted or have lost their original function due to urban encroachment and ineffective waste management practices.

Despite Biocon Foundations revitalization of Hebbagodi Lake through a cleanup process in 2018, increased urbanization and industrialization in the catchment area have led to continued pollution, sedimentation, and nutrient influx, degrading water quality. The lack of a sewage treatment plant worsened the situation, despite ongoing bioremediation and aeration efforts. In response, the Foundation, in consultation with experts, has implemented nature-based solutions such as sludge removal, desilting, and sewage diversion to transform the lake into a sustainable rain-fed wetland.

Stakeholders speak:

Prior to undertaking the Hebbagodi Lake rejuvenation, Biocon foundation had completed the restoration of the Yarandahalli Lake. After the lake was opened for public access in June 2023, a mental health survey was conducted in collaboration with NIMHANS, to explore the perceived mental health benefits of visiting the lake. Among 150 study participants, approximately 78% reported that their mental health improved as a result of visiting Yarandahalli Lake, while 85% noted an enhancement in their physical health. Additionally, around 95% of community members reported feeling relaxed during their visits. About 67% of the participants mentioned that they visited the lake when they were feeling low or stressed, and approximately 75% of them stated that spending time at the lake provided relief from these feelings.

Improvement in water quality along with an influence on health, reiterate the need to reimagine urban blue spaces, such as lakes, as multifunctional assets that balance ecological restoration with social, cultural, and urban needs. While improving ecological health through sustainable water management, pollution control, and biodiversity conservation, these spaces can also serve as hubs for recreation, community engagement, and mental well-being. In the face of rapid urbanization rejuvenated lakes can offer a sense of connectedness to nature by providing serene environments, mitigating urban heat islands, managing stormwater, and improving air quality. A blended approach to blue spaces is the way forward, incorporating an integrated model that combines mental health benefits with the ecosystem services framework.

Women Empowerment

Breaking Barriers: Women in STEM Scholarship and Mentorship Programme

Anu grew up in Krishnagiri, Tamil Nadu, where opportunities for higher education were limited for students from lower-economic backgrounds. Both her parents are private school teachers, and financial constraints often came in the way of her dreams of pursuing a career in research. Despite these challenges, Anu excelled in her studies, earning a master's degree in biotechnology from St. Joseph's College in Trichy.

After she graduated, Anu applied for various research positions, but other than her limited experience while completing her dissertation, she did not have the required experience. Due to her financial implications, she could not apply for higher studies. While searching for opportunities, she came across the Biocon Foundation's scholarship programme and applied for the same. To her surprise, she was selected for the scholarship. This opportunity provided her with a monthly stipend, which helped alleviate some financial pressure, and it also opened the door to hands-on research experiences.

The programme required her to relocate to Hyderabad; it was a significant step in Anu's career. She got her placement at Centre for Cellular & Molecular Biology (CCMB), where she got hands-on research opportunity. In addition, she was mentored by a Scientist from Syngene. Anu also had opportunities to attend workshops and meet professionals in the field, which gave her confidence and clarity about her research interests. Initially Anu faced many challenges, including language barriers and adapting to a new environment, away from her family. Thankfully, her fellow scholars became a support system, who were very appreciative and supportive towards her.

"I did not know how a research environment would be, I didn't even know the procedure of mixing proper ethanol, or other basic lab practices. The stay at Hyderabad was immensely useful. Because it's not just that I went and worked there. There were many online meetings with my mentors. I got to interact with many fellow researchers, was able to attend conferences, I was able to explore so much in those 6 months when I worked in Hyderabad", shares Anu.

Now, after completing the programme, Anu is looking forward to pursuing a PhD. She's passionate about improving healthcare solutions and helping other young women follow similar paths in science. Her story showcases the importance of opportunities and support in shaping the aspirations of individuals from challenging backgrounds, illustrating how initiatives like those offered by the Biocon Foundation can make a real difference.

As per the UNESCO (2023) report, women make up only 35 percent of students in higher education globally, highlighting a significant issue in their participation in science, technology, engineering, and math (STEM) fields. Currently, women account for less than 30 percent of the world's STEM researchers. This gender disparity is even more pronounced in India. For example, in B. Tech programmes, representation of women stands at just 28.7%. Only 28% of girl students were found to be enrolled in the STEM stream, compared to 37% of boys. As of 2020, women comprised only 9% of fellows in India's three major science academies: the Indian National Science Academy (INSA), the Indian Academy of Sciences (IAS), and the National Academy of Sciences (NASI).

To motivate and empower girl children in science and technology, Biocon Foundation launched the transformative "Scholarship and Mentorship Programme for Women in STEM" in collaboration with the Research and Innovation Circle of Hyderabad (RICH), the nodal agency for the Science and Technology cluster. This programme is designed to nurture the STEM talent of underprivileged female students from Tier 2 and Tier 3 cities. It offers experiential learning opportunities through internships at leading research institutions and industries in Hyderabad, along with scholarships and mentorship from subject matter experts at Syngene. The figures below illustrate the identification/mobilization, selection process components of the programme.

Identification and Selection process

Creation of Institutional collaborative networks across academia. Industry partners and Government.

Mobilization of candidates through call for applications and amplifying the message at various forums.

Selection of candidates through interviews and evaluation by a selection committee.

Scholarships awarded to candidates. Candidates are mapped to institutions based on shared area of interest.

Workshops, and seminars are organized for industry exposure.

On completion of scholarship period, students are supported for placements and become part of alumni group. Alumni play a role in amplifying the cause and showcasing trajectory / career growth post scholarship.

Components of the programme

SCHOLARSHIP

MENTORING FROM EXPERTS

WORKSHOPS AND SEMINARS

SUPPORT FROM RICH

6 MONTHS INTERNSHIP

Perspectives from Mentors

Dr. Dangeti Shekhar, who has been mentoring the students from the first and second cohorts of the programme shared that initially the students were quite reserved and hesitant to ask questions, leading to a very formal atmosphere. "To break the ice, I would start our conversations with some informal talk about their studies and families to help them feel more at ease," he recalled. Once the students opened up, they started to seek clarifications of their doubts. They expressed their career anxieties which I tried to address through constructive feedback and sharing my own journey and industry experience. Questions like, "How can I pursue my PhD while working?" emerged frequently.

Conducting a gap assessment helped identify areas for improvement among mentees, including writing and presentation skills, as well as a lack of awareness regarding higher education opportunities. "After attending this programme, one of my mentees from the first cohort has already secured a job and is exploring PhD opportunities," he noted. He emphasized that the initiative is valuable for encouraging women who may lack guidance and mentoring to pursue higher education. The programme selects students from all over India, which he regarded as a positive aspect. "It's heartening to note that number of students in the programme has increased, from 21 in the first cohort to 30 now," he added.

Overall, this mentoring experience has been fulfilling for him. "At first, I was hesitant to invest my time, but I gradually managed to set aside some hours outside my regular work schedule," he reflected. He added that his mentee continues to reach out for support, underscoring the value of the relationship established through the programme. Dr. Dangeti Shekhar, Senior Research Investigator, Discovery Chemistry, Syngene Scientific Solutions Ltd

2023-2024 at a glance

Under this programme, Biocon Foundation supported a total of 51 students, selected based on academic merit, socio-economic backgrounds, and research interests. Each student was paired with premier research institutions and industries, with mentors from Syngene assigned to provide professional support and subject matter expertise. All participants successfully completed internships in the areas of Pharmaceuticals, Biotechnology, Chemistry, and Applied Biology.

Seminars for students
• Unleashing the Power of a PhD: Opportunities and Advancements in Biology, Chemistry, and Pharma by Ms. Zeenat Khakerwala, PhD Scholar, Home Bhabha National Institute (HBNI), Raja Ramana Centre for Advanced Technology (RRCAT), Indore, India.
• Navigating the Path to Impact: Effective Scientific Communications and Publication by Shane Rydquist, Head of Content and Operations at Cactus Communications, India.
• Identify Your Potential: Empowering Personalities and Building Careers by Ms. Gowri Ramani, Executive and Leadership Coach, India

This programme by the Biocon Foundation serves as a transformative initiative to address the persistent gender disparity in science and technology in India. By providing scholarships, internships, and mentorship for underprivileged women from Tier 2 and Tier 3 cities, it empowers participants to overcome socio-economic barriers and succeed in STEM fields. Through hands-on research opportunities, skill-building workshops, and guidance from experienced mentors, the programme fosters confidence and professional growth. Its success in increasing participation and nurturing talent highlights the critical role of such efforts in creating a more inclusive STEM landscape.

PARIHAR initiative

Deepthi, a 34-year-old woman, was employed at a bank when she got married. The initial months of her marital life were uneventful. However, a few months into the marriage saw a drastic change in her husband's behaviour. He would subject her to physical abuse, pressuring her to hand over her salary and credit cards. When Deepthi was just one month pregnant, he physically assaulted her, leading her to seek refuge in her maternal home, where she has been living with her child ever since. Her husband refused to visit or provide any financial support to her. On her cousin's advice, Deepthi approached Parihar NGO, hoping to explore counselling before considering divorce. Unfortunately, even after multiple counselling sessions, her husband remained uncooperative. Deepti then proceeded with the divorce.

"At that time, I didn't know what to do. I had no financial support from my husband, and my parents are aged," Deepthi recalled. She was unsure how to raise the necessary finances for her family, as she could not take up a job that would require leaving her baby alone with her elderly parents. After a few counselling sessions, Parihar team encouraged her to participate in their skill development programme. She enrolled in a six-month tailoring course, where she learned tailoring, flower garland making, and bag making.

After completing the training programme in 2023 June, Deepthi began taking on small tailoring jobs and creating bags based on customer orders. "I'm now earning around ₹15,000 a month, which allows me to take care of my parents and my daughter," she shared proudly.

The Parihar staff supported her by providing a high-quality sewing machine, enabling her to take on more work. To secure additional orders and tackle her financial difficulties, especially for her child's education- she regularly attends sales organized by Parihar, where she can sell her products and increase her income. "I participated in the sale organized at Biocon too. I am thankful to Parihar for all the help and support I received from the counsellors and Rani Madam. I don't know how we could have survived without their support during crucial times in my life", she shared.

Deepthi's story is a powerful example of how Parihar's counselling and skill development programmes can transform lives, helping women regain their confidence and independence in the face of adversity.

Violence against women and children remains a serious concern in India. According to the National Crime Records Bureau (NCRB), approximately 38,000 to 40,000 women die annually due to various forms of domestic violence, with over 7,000 dowry deaths reported in 2019 alone. The latest National Family Health Survey (NFHS-5) revealed that Karnataka recorded the highest number of domestic violence cases in India, with 44% of married women reporting abuse. Children, too, are often exposed to domestic violence, leading to severe emotional and psychological harm. The NFHS-5 found that 30% of children under 18 live in households where women experience physical violence. The survey also reported that 23% of women in India were married before the age of 18, a clear form of violence and exploitation, particularly affecting young girls. NCRB records showed that in 2021, around 45,000 cases of crimes against children,

including rape, kidnapping, assault, and abuse, were reported. These alarming statistics highlight the urgent need for stronger protective measures and interventions to combat violence and exploitation against women and children across the country.

Since September 2019, Biocon Foundation has been supporting 'Parihar', an initiative by the Bengaluru City Police for women and children in distress. The range of support extends from providing immediate shelter for women in distress, to medical service, psychological counselling and legal aid. In addition, Parihar also organizes various workshops aimed at sensitising police personnel, conducts family counselling and spreads community awareness

Key activities of Parihar

- Counselling
- Police Support
- Medical and Psychological Assistance
- Short Stay Home
- Child Welfare Committee
- Legal Aid Assistance
- Awareness Programmes/ Workshops
- Skill Development Training

Highlights

Counselling: More than 1,900 new cases were registered under Parihar during the year, and 89% of them were successfully resolved.

Workshops

- Parihar & Bengaluru City police in association with Biocon and NIMHANS conducted a one-day workshop on 'Violence against women & children and Mental health awareness' for Nirbhaya Help Desk Staff, who work in police stations across Bengaluru city. The workshop as conducted at the office of the Commissioner of Police, Bengaluru.

School and College Programmes

- Awareness programme for BBMP school children at Ganganagar on Child Rights, Child Protection and Services
- 'Safe and unsafe touch' and menstrual hygiene awareness programmes at various Government schools
- Awareness programme on 'Domestic Violence Laws related to women' for schoolteachers and college students.
- Awareness on Women Safety and Drug abuse for students from different colleges.

• **Workplace interventions:** Awareness programmes on prevention of sexual harassment at Workplace (POSH) for women was conducted for various organisations such as Visvesvaraya Industrial and Tech Museum, Insight Heal Your Mind, and Virya Mobility Company, Bommasandra, On the International Day Against Drug Abuse and Illicit Trafficking, Parihar organized awareness sessions targeting pre-university students and teachers to combat the issue of drug abuse.

• **Skill development:** The third batch of 30 women, completed their training in tailoring at Parihar Skill Development Centre. A group of women who completed the six-month tailoring course at the centre was invited to set up stalls at Biocon Park and Biocon Campus, which were a huge success. This initiative allowed these underprivileged women to generate income through the sale of handmade bags and provided a valuable opportunity for employees to engage directly with the beneficiaries and learn about the impact of this CSR initiative.

• Chaithra, a counsellor at Parihar shared: "I joined Parihar ten years ago, soon after completing my master's in social work. it was my first job and after I came here, I realized that there are so many issues faced by children and women around us. I typically handle about 20 to 25 cases a month, which shows the number of families facing such issues.

As a child and family counsellor, I primarily deal with cases involving child visitation rights, custody, maintenance, and educational support. For example, I often assist mothers seeking custody after their children have been taken away. After counselling, when I see families find solutions and lead happier lives, it gives me immense satisfaction. When a child comes back and says, 'Ma'am, we are going to school,' I feel proud of my work as a social worker, knowing that I'm able to make a difference in their lives.

• Parihar completely relies on donor funding for our daily operations. There are times when funds get low, which creates challenges for our programmes. In 2018, we faced significant funding issues, and it was Biocon Foundation that stepped in to help us at that time. I am incredibly grateful for their support. Biocon Foundation also helped us to connect with other donors. Because of this, we are able to extend our services women and children.

• We are able to balance our work, we get government holidays and have a manageable workload. As the number of cases has increased, Parihar has opened eight additional centres, which has eased the overall burden on us. I'm committed to our mission, and despite the challenges, I feel supported and motivated to continue my work."

Case Studies

CASE STUDY 1

Legalities And Compliances In Corporate Social Responsibility

Introduction

Corporate Social Responsibility (CSR) serves as a cornerstone of ethical corporate governance, fostering community development while ensuring sustainable business practices. Biocon Foundation exemplifies this ethos by spearheading impactful initiatives that align with societal needs. This case study explores the global and national CSR landscape before delving into Biocon Foundation's experiences, challenges, and solutions.

Global Perspectives and Legal Trends

India's CSR mandate is pioneering, inspiring similar policies in other jurisdictions. Globally, CSR is actively implemented in:

USA: While CSR remains largely voluntary, ESG (Environmental, Social, and Governance) metrics are increasingly critical in stakeholder decision-making. For example, companies like Patagonia integrate CSR into their core business model, particularly through environmental stewardship.

Europe: Legal mandates, such as the EU Corporate Sustainability Reporting Directive, embed CSR within broader sustainability objectives. Countries like France legislate corporate vigilance plans to ensure ethical supply chain practices. For instance, Danone's sustainability reporting aligns with these directives, setting benchmarks for corporate accountability.

Emerging Markets: Nations in Africa and Southeast Asia are adopting CSR frameworks modelled on India's regulations to attract foreign investment and promote sustainable development. For example, South Africa's Broad-Based Black Economic Empowerment (B-BBEE) integrates CSR with socio-economic development goals, while Indonesia's CSR mandates for mining companies ensure community benefits from resource extraction.

National Priorities and Legal Framework of CSR in India

The Companies Act, 2013, marks a paradigm shift by mandating CSR for eligible companies. Section 135 stipulates that organizations meeting specific thresholds of turnover, net worth, or profit must allocate at least 2% of their average net profits from the preceding three years to CSR activities. Schedule VII therein provides a defined scope, highlighting areas like healthcare, education, environmental sustainability, and rural development.

Although the legal mandate for CSR came into effect on April 1, 2014, vide the Companies Act of 2013, Biocon Foundation was established in 2004 reflecting the organization's early commitment to contributing to the community. Biocon Foundation's efforts, such as healthcare initiatives for early detection and treatment of non-communicable diseases and educational scholarships for underserved students, exemplify compliance with the Act. The Foundation also aids small NGOs lacking documentation by guiding them through due diligence, ensuring alignment with legal requirements. For instance, unspent CSR funds are transferred to dedicated accounts or government-specified funds, adhering to recent amendments.

Biocon Foundation's Experiences

Governance and Documentation Challenges: The Foundation has encountered NGOs with inadequate documentation. To address this, Biocon provides templates, and step-by-step support during the onboarding process. For example, the Foundation's partnership with local NGOs during the Lake rejuvenation project highlighted the importance of maintaining detailed records, bills and documentation to ensure transparency in releasing and utilising CSR funds.

Legal Disputes and Advocacy: In 2022, Biocon Foundation had funded the creation of a micro urban forest using Miyawaki afforestation techniques in Mangalore. Though all necessary permissions were sought and granted well in advance by the appropriate local authorities, the NHAI sent Biocon Foundation and the implementation agency for the project a notice of unauthorized occupation in September of 2024 directing us to remove said urban forest due to it encroaching highway land. This dispute was heard before a special bench on 14th October 2024 and a stay order was granted in the favour of Biocon Foundation. These experiences underscore the necessity of legal vigilance and proactive measures.

Fly-by-Night Operators:

The Foundation has also dealt with dubious proposals, as well as various agencies misrepresenting themselves as partners of Foundation. A specific example which Biocon Foundation has dealt with is an organisation which would approach NGOs around the country promising substantial grants to them in exchange for a small fee. Biocon Foundation would receive numerous proposals for programs from these NGOs requesting the Foundations financial support. They fraudulent company also had access to and used our Grant Application Forms to further misrepresent themselves as agencies through which we seek implementation partners. As a CSR

entity, Biocon Foundation undertakes activities solely upon approval from the CSR Committee and hence would never undertake such an activity. To counter this, the Foundation had to put up a disclaimer on their website explicitly stating that our programs are undertaken purely upon prior approval, and we do not seek proposals through any third-party agencies. risk and compliance teams audit processes regularly, and third-party evaluators, assess CSR initiatives and conduct independent third-party assessments for Biocon Foundation programs.

De-identifying patient data and DPDP act integration: Biocon Foundation collects patient data for its eLAJ program in strict compliance with the Digital Personal Data Protection (DPDP) Act, 2023 to ensure transparency, accountability, and patient privacy. Data is collected only with explicit and informed consent, where patients are clearly informed about the purpose of data collection, its intended use, and their rights under the Act. The data collection process adheres to the principles of data minimization, collecting only the information necessary for providing healthcare services and analysing health trends for targeted interventions. Robust security measures, such as encryption and access controls, are implemented to safeguard the data against unauthorized access or breaches. Additionally, all patient data is anonymized or pseudonymized wherever feasible to protect individual identities. Biocon Foundation ensures purpose limitation by using the data strictly for eLAJ program objectives and not repurposing it without fresh consent. Further, patients are provided mechanisms to exercise their rights, such as accessing their data, correcting inaccuracies, or requesting deletion.

Regular audits and documentation ensure compliance with the DPDP Act, reflecting Biocon Foundation's commitment to ethical and lawful handling of patient identifiable or anonymized data.

Conclusion

As CSR continues to shape the global corporate landscape, organizations like Biocon Foundation are at the forefront of creating meaningful social change. By adhering to legal requirements, mitigating risks, and embracing emerging trends, companies can maximize their impact while safeguarding their reputations. The future of CSR lies in its ability to balance compliance with innovation, ensuring that corporate actions contribute to a sustainable and equitable world. Biocon's ongoing projects, coupled with global examples of best practices, underline the transformative potential of CSR when executed responsibly.

CASE STUDY 2

eLAJ 2.0: Towards a New Paradigm in Primary Care

Primary Health Centres (PHCs) is the most inclusive, cost-effective and efficient approach to deal with the burgeoning public health challenges, presuming it provides comprehensive health services of an assured quality at an affordable cost. A data-driven approach to primary healthcare delivery is an essential cornerstone of the quality process. Regrettably, the first tier of the Indian health system is glaringly deficient in the aspects of a ubiquitous health information system to provide robust data-driven insights.

In order to revitalise primary care in this dimension, an electronic medical record (EMR) system was envisaged by Biocon Foundation. It aimed to address the issue of non-availability of healthcare

information across primary healthcare. To meet this need, development of eLAJ EMR set about in 2012. The vision took shape when the legacy version, developed in-house, began to roll out at the Foundation-run clinics in 2015. This eHealth model to strengthen delivery of primary care also garnered interest from state governments. Therefore, it was carried through as a proof of principle to support feasibility of digital service innovation at PHCs in Karnataka and Rajasthan.

Despite initial challenges, the solution dovetailed well with the outpatient workflow; successfully spurring end-user adoption and regular use. It enabled the digital recording, storage and retrieval of longitudinal patient records of every clinical encounter in a secure environment. Furthermore, it supported integrated diagnostics and personalised care for the patients. However, the legacy version of the electronic platform had a limited mandate, primarily focused on digitization of outpatient services.

In line with the evident epidemiological trends, the need to develop an integrated and specialised model of care for common NCDs became imperative over the years. Therefore, a dedicated service in the form of Specialist Clinic was curated and community outreach was further reinforced. The current EMR couldn't measure up to this evolving service need which entailed a structural approach to addressing the NCDs. It has resulted in fragmentation of care and data silos. On top of that, Digital Personal Data Protection Act, 2023 and the advent of Ayushman Bharat Digital Mission (ABDM) has led to revolutionary shift in the digital landscape in recent times. It has compelled the health service providers to reimagine data protection practices and closely align its services with the

principles and standards set forth.

The changing user needs coupled with contemporary legal and regulatory environment created an opportunity for building an interoperable and more robust system than its previous incarnation. eLAJ 2.0 promises to be a comprehensive mobile-first solution compliant with ABDM requirements and industry standards. The integrated solution will be designed to strengthen the linkage between facility-based care and health outreach, therefore, breaking down the data silos. It'll draw on ABHA for patient identification and linkage of health records. There is also an impetus on integration of AI-enabled point -of-care technology solutions to model new approaches of screening. Furthermore, an improved dashboard will serve as a vital resource for visualisation of key trends and tracking of clinical performance and quality measures.

With strategic actions addressing current challenges, eLAJ 2.0 sets out with an ambition to enhance healthcare quality and patient outcomes while ensuring it's responsive to key technology and regulatory trends.

CASE STUDY 3

Lakes Rejuvenation: A Case Study of Anekal Taluk, Bangalore District

Anekal Taluk, located in the southern part of Bangalore district, is a region where urban and rural landscapes converge. This area is home to several lakes that serve as vital water sources, support local ecosystems, and provide recreational spaces for surrounding communities. However, in recent years, the condition of these lakes has deteriorated significantly due to urbanization, pollution, encroachment,

and poor management. This case study delves into the challenges faced by the lakes in Anekal Taluk, the impacts on ecosystems and communities, and the ongoing efforts to restore these vital water bodies.

The lakes in Anekal Taluk are grappling with severe pollution caused by untreated sewage and industrial effluents. As the region experiences rapid population growth and urbanization, the existing waste management systems have proven inadequate, leading to the discharge of untreated sewage into the lakes. This contamination not only depletes dissolved oxygen levels, critical for aquatic life, but also makes the water unsafe for human consumption and recreational use. Alongside sewage, in violation of the zero liquid discharge policy, industrial effluents from nearby factories are also discharged into the lakes, posing long-term risks to both the environment and human health.

Encroachment is another pressing issue affecting the lakes in Anekal Taluk. Rapid urban development and agricultural expansion have encroached upon lake areas, reducing their size and disrupting natural water flow. This not only diminishes the water-holding capacity of the lakes but also hampers groundwater recharge, worsening the already critical water scarcity in the region. Encroachments often involve illegal construction or landfills, further polluting the lakes and damaging their ecological balance.

Urbanization has also contributed to a decline in water levels in many lakes. Reduced rainfall, combined with improper water management practices, has led to decreased water availability, directly affecting agriculture and domestic needs. The introduction of invasive aquatic species, such as water hyacinth, has further complicated the situation. These species thrive in

nutrient-rich waters, blocking sunlight, depleting oxygen, and choking native biodiversity. Unchecked proliferation of these plants leads to fish kills, further degrading water quality and the ecosystem.

The impact of this degradation extends beyond the environment. The pollution of lakes has led to a significant loss of biodiversity, with many species of fish, birds, and amphibians disappearing from these water bodies. For local communities, this has meant not only the loss of natural heritage but also direct threats to their health and livelihoods. Contaminated water poses serious health risks, including waterborne diseases such as cholera and gastroenteritis, while the decline in water quality and availability has disrupted agricultural activities, fishing, and livestock watering, upon which many families depend.

Despite these challenges, efforts to rejuvenate the lakes in Anekal Taluk are underway. Various government agencies, non-governmental organizations (NGOs), and community groups have initiated projects aimed at restoring these vital water bodies. Community participation has emerged as a key element in these efforts. Residents, who have an intrinsic connection to the lakes, provide valuable insights into the historical and ecological significance of these water bodies and help identify sources of pollution and encroachment. Grassroots movements and awareness campaigns have demonstrated the potential for collective action to drive meaningful change.

Policy frameworks developed by the Bangalore Development Authority (BDA) and Bruhat Bengaluru Mahanagara Palike (BBMP) aim to regulate and protect urban lakes, but enforcement remains inconsistent.

Strengthening these governance mechanisms is crucial to ensure the long-term sustainability of rejuvenation efforts. Additionally, integrating sustainable development practices, such as promoting ecotourism around lakes, can provide economic incentives for conservation while benefiting local communities. The plight of lakes in Anekal Taluk highlights the urgent need for a paradigm shift in the management and restoration of urban and semi-urban water bodies. While the challenges of pollution, encroachment, and mismanagement are substantial, they also present an opportunity to reimagine lake conservation as a collaborative endeavor. A sustainable and holistic approach requires the active participation of multiple stakeholders, including government agencies, local communities, environmental organizations, and private enterprises.

Political commitment and accountability are equally critical to ensure that policies are not only formulated but also effectively implemented and enforced. Additionally, adopting innovative technologies for waste management, promoting eco-friendly practices, and integrating lakes into urban planning can further strengthen conservation initiatives.

Ultimately, restoring the lakes of Anekal Taluk is not just about addressing environmental degradation but also about fostering resilience in the face of rapid urbanization and climate change. By prioritizing multi-stakeholder collaboration, embracing inclusive governance, and nurturing a sense of stewardship among all involved, these water bodies can be transformed into thriving ecosystems that serve future generations.

CASE STUDY 4

Monitoring and Evaluation (M&E) Framework in Biocon Foundation's CSR Programs: Reflecting a Need-Based Evolution

Abstract:
Biocon Foundation's evolving Monitoring and Evaluation (M&E) framework emphasizes data refinement, standardization across different facilities, and a patient-centric approach to improve healthcare outcomes in underserved communities. The eLAJ program employs real-time monitoring, ensuring scalability and alignment while enhancing care quality. Impact assessment is central to this process, with third-party evaluations guided by the IRECS framework (Inclusiveness, Relevance, Expectation, Convergence, and Service Delivery). Additionally, the integration of the Stakeholder and CAS (Complex Adaptive Systems) model deepens engagement with local contexts, aligns stakeholder expectations, and fosters convergence of objectives, driving effective service delivery. This comprehensive approach prioritizes patient satisfaction and drives sustainable health outcomes.

Key words- Monitoring and Evaluation (M&E), Data Refinement, Data Standardization, Patient-Centric Approach, Healthcare Outcomes and Scalability

At Biocon Foundation, the evolution of our Monitoring and Evaluation (M&E) framework underscores our commitment to continuous improvement, real-time adaptation, and data-driven decision-making. The goal is to ensure that our direct implementation CSR programs, for instance the eLAJ program—remain responsive to both unique local challenges and standard healthcare delivery processes.

Our M&E framework has evolved through Continuous Quality Improvement (CQI), refining and standardizing data collection methods to generate actionable insights. This evolution extends beyond measuring impact; it actively refines interventions in real-time, ensuring adaptive and responsive interventions addressing dynamic healthcare needs of the communities.

Impact assessment serves as a cornerstone of Biocon Foundation's approach. Independent third-party organizations engaged to conduct rigorous evaluations of program effectiveness, utilizing framework like IRECS (Inclusiveness, Relevance, Expectation, Convergence, and Service Delivery). Additionally, we integrate and further enhance our evaluations the Stakeholder and CAS (Complex Adaptive Systems) model to ensure our interventions are not only responsive to local contexts but also aligned with stakeholders' expectations. This dual framework approach fosters convergence of objectives and enhances service delivery, with a focus on sustainable outcomes.

Our impact assessments prioritize a multi-dimensional understanding of beneficiaries, including primary, secondary, and institutional stakeholders—ensuring a holistic and nuanced evaluation. This is crucial in impact assessments to ensure comprehensive and accurate results. While our programs primarily engage direct beneficiaries and institutional partners, we recognize the critical influence of secondary stakeholders, such as caregivers and family members, whose roles are essential to the long-term success and scalability of our

interventions. The CAS model, in particular, emphasizes engagement with stakeholders at all levels, from local community members and healthcare providers to policy-level stakeholders, adopting a bottom-to-top approach throughout the assessment process. This ensures the evaluation accurately reflects the real needs, challenges, and aspirations of the communities we serve.

A significant development in our M&E approach has been the enhancement of granular data collection, utilizing Point-of-Care (POC) devices and Integrated Electronic Medical Records (EMR) systems. These technologies track vital signs and monitor health trends longitudinally, allowing for precise, real-time tracking of patient health outcomes. This enables timely adjustments to care, improving intervention effectiveness and ensuring better health outcomes. By integrating qualitative insights from community feedback with quantitative data, we can assess both the reach of our programs and the impact on health-seeking behaviour, patient satisfaction, and overall health management.

Collaboration with local NGOs is crucial for ensuring grassroots-level engagement and contextual strategies. Our engagement with community-based programs ensures improvements in health-seeking behaviours and healthcare outreach in remote areas remains relevant, sustainable, and impactful. Leveraging Epicollect tools for refined data collection and community risk profiling enables us to collect precise, real-time insights, strengthening the accuracy and effectiveness of our interventions.

Despite challenges like limited resources in underserved areas, data management complexities, and technological barriers, we continuously refine our strategies to overcome these obstacles through regular capacity building, offline applications, and innovative approaches. By focusing on long-term impact metrics (such as health behaviour change), medium-term outcomes (like increased access to preventive care), and short-term outputs (such as health camps and capacity building), we ensure our programs remain adaptable, sustainable, and aligned with our mission to provide equitable healthcare.

In conclusion, evolving M&E framework is central to the success and sustainability of our CSR programs. By integrating real-time monitoring, advanced technologies, and local partnerships, we enhance healthcare delivery and achieve improved health outcomes. Through continuous refinement, data standardization, and collaboration with communities and NGOs, the foundation helps address healthcare gaps in underserved populations. Despite challenges, the integration of health technology and flexible M&E systems ensures patient-centric care and support the broader health equity goals of the eLAJ program.

CASE STUDY 5

An Integrated Framework for Democratisation of STEM

Biocon Foundation has embraced a STEM-focused framework which has led to a range of initiatives for popularisation of science; engendering the next generation of innovators and problem solvers. It covers all educational levels right from primary school through PhD and weave STEM training and research throughout for continuity and progression. The approach seamlessly integrates academic learning with career prospects.

On the one hand, there is an unrelenting focus on elevating academic standards at the schools, building strong foundation and steering pupils towards STEM disciplines. On the other hand, it gives succour and strength to research output at higher institutions and nurture a pipeline of STEM talent, easing their transition from college to career.

This approach applies itself to the emerging trends which imply that the majority (80%) of jobs in the next decade will demand STEM skills, estimated by the National Science Foundation, an independent agency of the United States federal government. It also speaks to the current R&D expenditure in India which stands at a paltry 0.64% of GDP, significantly lower than the global average of 2.6%, underscored by the Economic Survey 2023-24. It calls for a more collaborative approach, and industry-academia partnerships could be a cornerstone in aligning academic endeavours with the evolving needs for scientific research and 21st-century workforce.

The framework put in place by the Foundation embodies this ethos and proffers a synergistic approach, whereby academia, government and industry work hand-in-hand. This is manifested in its structured partnerships with the government schools to shape future pioneers, propelling research at the higher educational institutions and cultivating well-rounded STEM professionals under the aegis of S&T clusters, among others. This is further reflected in the invigorated funding to public universities, IITs, and autonomous bodies established under the auspices of Department of Science and Technology in recent years.

One notable initiative is the experiential learning for school students, which aims to blend theoretical knowledge with practical applications of science. The Science on Wheels, equipped with teaching resources and dedicated lab infrastructure, bring learning to life in classrooms. It's harmonised with science fairs, summer camps, annual quiz competition and provision of EdTech infra to stoke young minds and light the spark of curiosity.

A 2020 report by the World Bank on global trends in the participation of women and girls in STEM states that despite the high proportion of female STEM graduates, women account for a meagre 27% of workforce in India. The initiatives of the Foundation recognize the barriers of participation in STEM - be they financial, geographical, or societal - and incorporate strategies to overcome them.
On that account, the industry- and research-oriented programs are contrived to be gender-accentuated and contending with the issue of leaky pipeline. It places the stress on enrolling women graduates from tier II and III cities and colleges not known for creating the cream of the crop. The scholarships, post-doctoral fellowships and mentorship coupled with cutting-edge research opportunities and extensive industry training are aimed at creating a fertile ground for women to take a leap.
As the proficiency in STEM is becoming indispensable, the endeavours of the Foundation continue to go from strength to strength.

Contributed by:
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Awards and Accolades

Biocon Foundation was awarded the prestigious **9th Dalmia Bharat- CSRBOX CSR Impact Award 2023** in the 'Healthcare (Small)' category for its Oral Cancer Screening Program.

Biocon Foundation received the **'Gold Green Environment Stewardship Award'** for urban resilience program aimed at rejuvenating lakes in Bengaluru at the 10th edition of the National CSR Times Summit and Awards.

Biocon Foundation was recognized for its work in the field of education by Karnataka State Government at the CSR Conclave 2023 – Education, in recognition of our significant contributions to education The event was attended by Mr. Siddaramaiah (Hon. Chief Minister), Mr. D K Shivkumar (Hon. Deputy Chief Minister), Dr. G Parameshwar (Hon. Minister Home Affairs), Mr. Madhu Bangarappa (Hon. Minister School & Literacy), Mr. M B Patil (Hon. Minster Large & Medium Industries), Dr. M C Sudhakar (Hon. Minster Higher Education), and Mr. Sharan Prakash Patil (Hon. Minister Skill Development), among others.

Biocon Foundation's partner organisation Indraprastha Institute of Information Technology, Delhi received the Innovation Award at the 2024 AMR Surveillance Data Challenge for AMROrbit, an innovative multi-level scorecard for antimicrobial resistance monitoring.

More details can be found at https://amr.vivli.org

Biocon Foundation's partner organization, NIMHANS, received the Best Paper Award for their study titled 'Prevalence and Psychosocial Correlates of Technology Addiction Among School-Going Adolescents in India: Findings from a School-Based Cluster Survey' at the 1st Annual National Conference of the Society for Addiction Psychology (ANCSAP) 2023.

IIIT Delhi won the Trinity challenge for data driven solutions for the year 2023-24, for its AMR tracker solution AMRSense, funded by Biocon Foundation. The same project won the prestigious innovation award at the 2024 AMR Surveillance Data Challenge.

- 2024 - 10th National CSR Times (Gold) Award for Green & Environment Stewardship

- 2024 - Dalmia Bharat - CSRBOX CSR Impact Award 2023 for Oral Cancer Screening Program under Healthcare Category

- 2024 - Award at the CSR Conclave 2023 by the Karnataka State Government in Recognition of Significant Contributions to Education

- 2023 – Mahatma Award under Sustainable Cities and Communities Category

- 2023 – IHW Gold Award to Oral Cancer Screening Program under Disease Screening Initiative of the Year Category

- 2022 - Oral Cancer Screening Program was Recognized by The CSR Journal as One of the Top CSR Initiatives for Cancer Prevention and Early Detection on the National Cancer Awareness Day 2021

- 2022 - Bengaluru Women Achievers Award to Mission Director, Biocon Foundation by the Bangalore Political Action Committee (B.PAC)

- 2022 - Mahatma Award under "Good Health and Well-being" Category

- 2021 - South India's Best CSR Leaders Award to Mission Director at the National CSR Leadership Congress & Awards

- 2021 - Mahatma Award under Health & Wellbeing category

- 2021 - Best Corporate Foundation Award at the World CSR Congress

- 2020 - Best Practice in CSR Awards for Oral Cancer Screening by Institute of Public Enterprise

- 2020 - The Organization Icon Award at the Alert Being Awards (ABA)

- 2020 - 101 Fabulous Global CSR Leaders Awards to Mission Director at the World CSR Congress & Awards

- 2019 - The Jury Commendation Certificate for Oral Cancer Screening at the 18th FICCI CSR Awards

- 2019 - Facilitation by Karnataka Tank Conservation and Development Authority for Development of Hebbagodi Lake Rejuvenation

- 2018 – FICCI CSR Award for Hebbagodi Lake Rejuvenation

- 2018 – The BioContribute Award for Oral Cancer Screening

- 2018 - Social and Business Enterprise Responsible Award for Hebbagodi Lake Rejuvenation

- 2018 – India International CSR Conclave and Awards for Hebbagodi Lake Rejuvenation

- 2018 – Limca Book of Records for Creating India's Largest Artificial Wetland in Hebbagodi Lake

- 2018 - CSR Project of the- Year in Environment Category at IICSR Conclave

- 2018 - Corporate Citizen Award by Indian Drug Manufacturers Association (IDMA)

- 2017 - The Social Change Award

- 2017 - CSR Health Impact Award at India Health and Wellness Summit

- 2017- CSR Excellence Award under CSR Health Project of the Year Category at IICSR Conclave

- 2017 - CSR Journal Excellence Award

- 2017 - Award from Government of Rajasthan for PMSMA to Mathania PHC, Jhawalar

- 2017 - Award from Government of Rajasthan for PMSMA to Soorwal PHC, Sawai Madhopur

- 2016 - Award to eLAJ Smart Clincs in Healthcare Category at the 3rd NGOBOX India CSR Awards

- 2015 - WHO-Public Health Champion Award for Sustained Impact in Public Health

- 2014 - Best CSR in Healthcare at the India Health and Wellness Awards

- 2014 - The Golden Peacock Award for Corporate Social Responsibility

- 2014 - CSR Project of the Year for Oral Cancer Screening by NGOBOX

- 2014 - Asia Best CSR Practices Award for Cervical Cancer Screening Program

- 2014 - Best Social Innovation Award for Oral Cancer Screening Program at World CSR Congress

- 2007 – Health Micro Insurance Award

- 2005 - Corporate Citizen Award by Rotary Club of Bangalore

Biocon Foundation in the News

Biocon Foundation celebrates World Earth Day with a tree plantation drive around adopted lake

By Team TheCSRJournal | Published: 24 Apr 2023

Biocon Foundation, the Corporate Social Responsibility (CSR) arm of the Biocon Group, organised a plantation drive to celebrate World Earth Day at Yaranaballi Lake. The lake was adopted by Biocon Foundation and is being rejuvenated in partnership with the Malligavad Foundation. Dr Anupama Shetty, Mission Director, Biocon Foundation and Anand Malligavad, founder of the Malligavad Foundation, presided over the plantation drive.

Biocon Foundation releases 2nd edition of consensus guidelines for head & neck cancer

Marks the World Head & Neck Cancer Day at the OCTF Conference

By IPF Bureau | July 28, 2023

Biocon Foundation, the Corporate Social Responsibility (CSR) arm of the Biocon Group, held its annual Oral Cancer Task Force Conference in Bengaluru.

The second edition of the India-specific Consensus Guidelines for the Management of Head and Neck Cancer (HNC), developed by the Oral Cancer Task Force (OCTF) was released to commemorate the World Head and Neck Cancer Day. The updated India-specific guidelines will help oncologists improve treatment outcomes of HNC patients by following evidence-based clinical practice. This is being published in the Journal of Cancer Research Statistics and Treatment.

Biocon Foundation has been conducting oral cancer screenings for the underserved communities since 2011. In 2018, Biocon Foundation took the initiative for the formation of the OCTF with a mission to ideate, educate and engage stakeholders and thereby, effectively downstage oral cancer in India. The OCTF is an independent multi-disciplinary task force comprising leading specialists. Under the aegis of OCTF, the first ever Indian clinical practice guidelines on management of head & neck cancer (HNC) were laid down and published in the Indian Journal of Cancer in February 2020.

Biocon Foundation and Shakti Sustainable Energy Foundation organize Cities and Climate Action Workshop

By Team TheCSRJournal | Published: 10 Aug 2023

Anekkal and Katipalla govt school students emerge winners in Science quiz

Sruthy Susan Ullas / TNN / Dec 13, 2023, 09:22 IST

New For You

Teams from Government Higher Primary School, Kaaragadde, and Dakshina Kannada Zilla Panchayat Government Higher Primary School - Katipada clinched victory in Syngene International's annual Science quiz. With a focus on governmen ... Read More

Bengaluru
Project launched for better oral cancer diagnosis in Bengaluru

The project was launched on World Neck and Cancer Day celebrated on July 27 by Biocon Foundation, the CSR arm of the Biocon Group.

Biocon Group concludes month-long sustainability initiatives with 'Nature Positive' campaign

Updated - July 03, 2023 12:37 am IST   Published - July 03, 2023 00:00 am IST - Bengaluru

THE HINDU BUREAU

Govt Scholarship & Mentorship Programme for Women in STEM in Collaboration With Syngene & Biocon- Stipend Upto Rs 15,000 pm

IIIT-H working on AI-driven model to detect oral cancer from photos

TNN / Updated: Oct 11, 2023, 11:30 IST

HYDERABAD: Now artificial intelligence (AI) can help detect causative cause of oral cancer. In a new AI-based technology developed by IIIT-Hyderabad and other researchers, oral potentially malignant disorders (OPMDs) and oral cancer can be identified using AI from a simple photograph taken with a smartphone.

The study, 'AI-assisted Screening of Potentially Malignant Disorder', commissioned by IIIT-Applied AI Research Centre of IIIT-Hyderabad and led by researchers Vivek Talwar and Pragya Singh, found that using a deep learning model, they could accurately flag cancerous lesions inside the mouth which could be malignant.

ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ವಿಜ್ಞಾನ ವಿಷಯ ಕಲಿಕೆಯಲ್ಲಿ ಆಸಕ್ತಿ ಮೂಡಿಸುವ ಗುರಿ

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Journal lists oral cancer guidelines among 13 global clinical practices

Bengaluru: The consensus guidelines for the management of head and neck cancer (HNC), developed under the aegis of Oral Cancer Task Force (OCTF) supported by Biocon Foundation, have been recognized among 13 worldwide clinical practice guidelines by 'Cancers' -- an international, peer-reviewed, open access journal of oncology -- according to a press release from Biocon Foundation, the CSR arm of Biocon Group here on Monday. The OCTF's consensus guidelines were included in Cancers as part of a scoping review that identified and compared the worldwide clinical practice guidelines for treating oral, oropharynx and larynx cancer. This recognition acknowledges the global significance of OCTF's efforts, and positions its consensus guidelines among those from US, Europe, Canada, Japan and the National Comprehensive Cancer Network, the release added. Kiran Mazumdar-Shaw, founder & managing trustee, Biocon Foundation, and OCTF member, said, "We are exceptionally proud that the Consensus Guidelines for the management of head and neck cancer developed by Oral Cancer Task Force, with support from Biocon Foundation, has been recognized among the 13 worldwide clinical practice guidelines in Cancers, an international peer-reviewed journal of oncology."

ರಸಪ್ರಶ್ನೆ ಸ್ಪರ್ಧೆ: ಕಾಟಿಪಳ್ಳ ಸರ್ಕಾರಿ ಶಾಲೆಗೆ ಪ್ರಶಸ್ತಿ

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