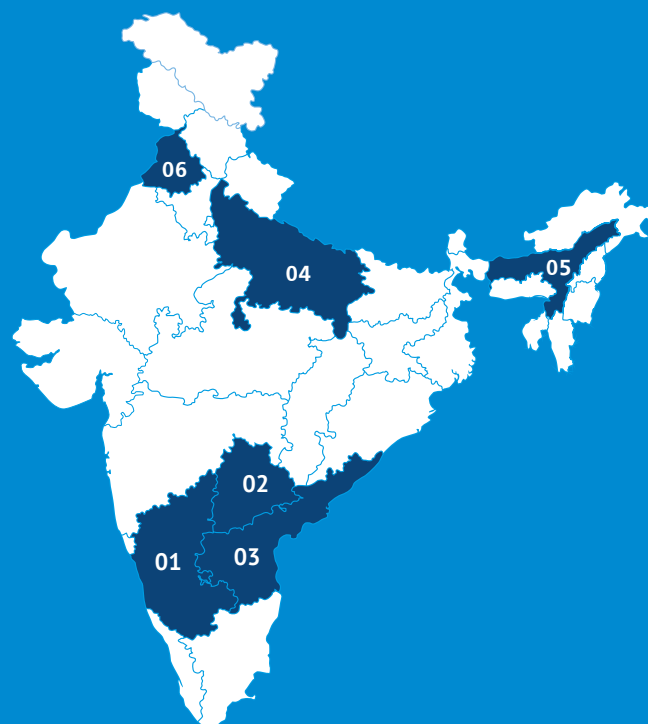




Unconditional Equity

Annual Report 2021

Our Reach



01

Karnataka
8 Districts

02

Telangana
1 District

03

Andhra Pradesh
1 District

04

Uttar Pradesh
1 District

05

Assam
1 District

06

Punjab
1 District

Administration

Ms Kiran Mazumdar-Shaw,
Founder and Managing Trustee

Dr John Shaw,
Trustee

Biocon Foundation, the CSR arm of Biocon Limited, Biocon Biologics Limited and Syngene International Limited, is guided by the CSR Committees, constituted 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.

The members of the Biocon Limited CSR Committee are:

- Ms Mary Harney, Chairperson
- Dr Vijay Kuchroo
- Professor Ravi Mazumdar

The members of the Biocon Biologics Limited CSR Committee are:

- Ms Kiran Mazumdar-Shaw, Chairperson
- Ms Nivruti Rai
- Mr Peter Piot

The members of the Syngene International Limited CSR Committee are:

- Professor Catherine Rosenberg, Chairperson
- Dr Vijay Kuchroo
- Ms Vinita Bali

The Mission Director of Biocon Foundation is
Dr Anupama Narayan Shetty.

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 recognised under Section 80G of the Income Tax Act 1961 and the Foreign Contribution (Regulation) Act, 2010.

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Unwavering Resolve

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 the 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**

Undeterred Commitment

A Message from the Managing Trustee

"More than ever before, organizations, communities and individuals understand that we're stronger together. As we forge ahead, we need to renew our commitment and rethink existing systems, keeping equity, innovation and resilience at the core of our models."

When we least expect it, life sets us a challenge to test our courage and willingness to change; at such a moment, there is no point in pretending that nothing has happened or in saying that we are not yet ready. The challenge will not wait. Life does not look back. – Paulo Coelho

Dear Stakeholders,

The world perceives India as a resilient nation. We are a people who take on natural disasters, shortages, terror attacks and pestilence with fortitude and forbearance. It is our innate ability to tackle the immediate problems, always hopeful that we will turn the tide; that makes us so. The past year, disrupted by the COVID-19 pandemic, has been witness to severe trials and tribulations. In our annual report, we wanted to document not only the challenges but more importantly, the incredible tenacity displayed by individuals and communities across domains in which the Foundation has engaged. Therefore, we unanimously chose the theme of "Unconditional Equity" for this year's annual report, which we believe, fully resonates and conveys the shared experience of people in the past year.

You can't cross the sea merely by standing and staring at the water. – Rabindranath Tagore

Primary Healthcare

Several crucial sectors have seen disruptive changes with the pandemic, however, the spotlight was squarely on the response of the healthcare sector, functioning at the frontlines. The beleaguered Indian healthcare sector has been a source of debate even before the pandemic. The onslaught by COVID-19 served to highlight long-standing weaknesses in our healthcare delivery system, whether in the private or public sector. Dotted across the Indian landscape, 24,855 rural primary healthcare centres (PHCs) and 5,190 urban PHCs serve as the first line of defence in the ongoing combat against COVID-19. These centres have proven to be pivotal in nationwide strategies to test-track-treat in COVID-19 mitigation, as well as in current vaccination drives.

Our eLAJ Smart Clinic initiative has been at the forefront of the pandemic. We commend our field staff for their positive and ready response to the pandemic by standing shoulder to shoulder with the government staff to mitigate the crisis effectively.



With resources being diverted to deal with the pandemic, the disruption of preventive services for NCDs may lead to an alternate public health crisis. eLAJ clinics have continued the emphasis on NCD surveillance through monthly clinics and community surveys.

At the Foundation too, our overarching belief is that supporting infrastructure at the primary health care level is crucial in buttressing systemic healthcare strategies. The eLAJ Smart Clinic program has been well-positioned to be at the forefront of the pandemic. We drew from a variety of skills and coping mechanisms to stage a fairly quick recovery from the lockdown periods. Our staff at twenty PHCs across 7 districts of Karnataka, rose to the challenge and assisted in COVID-19 relief operations, covering door-to-door contact tracing and COVID-19 awareness. In all spheres of activity at the PHCs, our staff put aside their fears and anxieties and supported the government effort. Our lab technicians were well equipped to handle Rapid Antigen Testing and our data entry operators were deployed to efficiently use the apps that were developed to sync data to the ICMR database. We commend our field staff for their positive and ready response to the pandemic by standing shoulder to shoulder with the government staff to mitigate the crisis effectively.

The resilience shown by our frontline healthcare providers demonstrated that if all components of a system, however under-prepared or under-resourced, come together to adapt to the challenge that threatens the functioning of the system, the system can survive and in time, develop new systems to fend off future catastrophes, the likes of which we have experienced in the past year.

Just as the vaccine is engineered to boost the immune system, the exposure to the challenges of COVID-19 has enhanced our resilient spirit. We have focused on enhancing the diagnostic capabilities and digital backbone of the eLAJ program. Several iterations in the eLAJ Electronic Health Record (EHR) would allow our frontline workers to securely capture demographic and clinical data at the community and household levels, thereby enabling syndromic surveillance. In keeping with the NITI Aayog's Vision 2035, rather than episodic interventions, our eLAJ centres would focus longitudinally on quality and outcomes of care.



With resources being diverted to deal with the pandemic, the prevention, screening, and control of common non-communicable diseases (NCDs) have been partially or completely disrupted. Global reports indicate that the situation may lead to an alternate public health crisis with a long-term upsurge in deaths from NCDs. It would be contingent for healthcare organizations to renew their efforts in NCD surveillance. At our eLAJ clinics, we have continued the emphasis on NCD surveillance through periodic clinics and community surveys. Going forward, we will enhance NCD surveillance through multi-level interventions including improved diagnostics, synergy with state-wide surveillance programs and improved data analytics.

Mental Health

Amongst the more insidious ways in which the pandemic has affected people globally, has been the impact on mental well-being across age groups. Fear of the contagion, extended lockdowns, closed schools, work-life disruptions and myriad uncertainties have resulted in the surge of a spectrum of mental health disorders. In 2019, we had collaborated with NIMHANS on specific mental health initiatives, which had an overall focus on public mental health advocacy through sustainable and scalable models. The Bangalore Urban Mental Health Initiative (BUMHI) has looked at improving the knowledge base of community in protecting and promoting mental health. In addition to self-care, this initiative has looked at training community members on psychological first aid for common mental disorders. We are glad that the mental health resource kit will be released shortly and we hope that it would be widely used by frontline workers.

Oral Cancer Screening

With COVID-19 taking a toll on cancer screening and treatment, the number of cases presenting at late-stages have grown over the past year. We had to make every effort to restart our screening program for early detection of oral cancer.

With a surge of a spectrum of mental health disorders during the pandemic, our partnership with NIMHANS is focused on public mental health advocacy through sustainable and scalable models.



An outreach program like oral cancer screening wherein a close examination of the mouth was essential, has posed a major challenge in terms of implementation and convincing people at risk to get screened. Despite this, our partners, Dr Bhubaneswar Borooah Cancer Institute (BBCI) in Guwahati and Tata Memorial Centre (TMC) in Varanasi, have successfully conducted outreach camps. Multiple virtual training sessions were provided to healthcare workers and outreach camps were started with all necessary precautions. The mobile health application for oral cancer screening, developed by Biocon Foundation, was used in these screenings. The application has proven handy in the pandemic scenario since images were easily shared with remote specialists for quick diagnosis.

In addition, through our collaboration with the Indian Institute of Science, based on images of pre-cancerous lesions shared by our team, an artificial intelligence (AI) based algorithm is ready for deployment. These initiatives have been commendably published by the team in collaboration with national experts from the field. It is our strong belief that despite the pandemic, continued efforts on the ground with innovative and incremental changes would help sustain efforts towards downstaging oral cancer in India.

COVID Relief Activities

It was not just our healthcare programs that persisted through two lockdowns and innumerable restrictions. In a bid to support the government infrastructure, Syngene International committed a significant part of its CSR contribution towards setting up an ICMR-approved lab that would conduct RT-PCR tests for the Government of Karnataka. It is noteworthy to mention that Syngene was able to conduct approximately 85,000 RT-PCR tests for the Government of Karnataka.



At the time that the migrant workers were leaving the metros in hordes, we engaged in relief efforts and provided 9,000 dry ration kits in Bengaluru, Visakhapatnam and Sangareddy districts of Karnataka, Andhra Pradesh and Telangana respectively. These kits were in addition to 10,000 such kits already distributed in the financial year ended March 2020.

Syngene established an ICMR-approved RT-PCR testing centre in Bengaluru and conducted about 85,000 tests to augment the COVID-19 testing capacity of the Government.

Environment

Green is my sword to fight for a better living, make it yours too. – Saalumarada Thimmakka

At the Foundation, primacy has always been given towards sustainable practices and environmental initiatives. Though the pandemic situation was witness to improvements in parameters such as air quality and noise pollution, we turned our attention to the Hebbagodi Lake which was restored and inaugurated in December 2018. Lack of maintenance would have destroyed all the efforts that had been employed for restoration and at the same time, deprived daily wage earners of their livelihood. We obtained special permission from local authorities to continue the lake maintenance through the lockdown and beyond, thus ensuring that all our hard work was not undone. Continual bioremediation has ensured improvements in the water quality of the Hebbagodi Lake.



Our commitment to address the environmental concerns has extended to supporting infrastructure which would ease growing pollution levels, resulting from increasing urbanization. Bengaluru, one of the fastest-growing metropolitan cities in India, reels under the stress and strain of traffic congestion and the resultant air pollution. The Bangalore Metro Rail Corporation Limited (BMRCL) metro line on the RV Road-Bommansandra yellow line (reach 5 under phase 2) has come as a solution to this growing problem. The Foundation entered into a memorandum of understanding with BMRCL to fund the Biocon-Hebbagodi Metro Station on this line. Supporting this alternate solution to mass mobility is in line with the Biocon Group's commitment to environmental sustainability. On completion, this mass transit system would serve outlying rural areas, connecting them to the city.

Our unwavering commitment to address the environmental concerns has allowed us to fund the construction of mass rapid transit, and execute urban afforestation and landscaping initiatives, apart from resuscitating urban waterbodies.



The Foundation has also worked towards restoring the landscape at the Cubbon Park Metro Station. Several varieties of trees and shrubs have been planted which have provided a greater green cover for the Minsk square traffic island.

We are also glad that with support from Ramakrishna Mission, we were able to initiate a Miyawaki micro-forest in Mangaluru city. Establishing such fast-growing mini-forests in urban settings would aid in improving air quality, reduce heat islands as well as noise pollution. We are certain that the creation of such resilient and complex ecosystems, along with community engagement, will pave the way for much needed urban lung spaces.

Amidst the pandemic-induced school closures, we pivoted to eLearning methods and invested in building safe and resilient school infrastructure to prevent learning losses and dropouts.

Education

We have an obligation and a responsibility to be investing in our students and our schools. We must make sure that people who have the grades, the desire and the will, but not the money, can still get the best education possible. – Barack Obama



With COVID-19, schools were shut across the globe and more than 1.3 billion children were estimated to have been locked out from classes. Education in government schools has been the hardest hit at this time. With no access to technology and connectivity, students have had to rely on sporadic efforts to reach them through this time. We commend our educational partner, Agastya International Foundation (AIF), whose volunteers ensured that government school students were contacted during the lockdown period. Mobile numbers were collected painstakingly from parents, spread across Anekal Taluk, and WhatsApp groups were created across classes. AIF ensured online classes through these forums. With the easing of restrictions, blended learning or the combination of both online and offline modes of learning was offered too.

Committed to meaningfully contribute to the social cause, employees of Biocon created a collection of learning resources to ease stress and encourage continuous learning at home amidst the lockdown. The curricular and co-curricular modules have been designed to engage the learners creatively and make the learning fun for them.

The Foundation has also used this downtime to improve school and anganwadi infrastructure. Spacious and well-ventilated classrooms with sanitation facilities have been constructed with the hope that, with the easing of the situation, these facilities would encourage and motivate students to return to classrooms.

Women's Safety

The Foundation has been working with Parihar, an NGO initiated by the Bengaluru City Police. Parihar's professional counsellors and trained volunteers have provided support and rehabilitation to women and children in distress. Domestic violence, a deep-rooted societal malaise globally, saw an alarming increase during the lockdown phase. Several countries reported a surge in the number of distress calls by women. Parihar saw a five-fold increase in the number of women seeking support. With its operations nested within the Bengaluru Police, Parihar has been able to successfully ensure robust support systems, through helplines, crisis centres, shelters, legal aid and protection services; offering much-needed relief for the survivors. In a testament to the grit of the counsellors and police staff, despite the challenges of the lockdown and COVID-19 concerns, more than 3,000 women in distress have been reached, supported and rehabilitated in the past year.

As domestic violence saw an alarming rise during the lockdown phase, our support to Parihar, an initiative of Bengaluru City Police, has rendered much needed support and rehabilitation to women and children in distress.

Looking back, as we all have witnessed, the past year has been a very difficult one, beset by multiple challenges. Through this, we have seen empathy and tenacity underline the quick turnaround in all our programs. We are deeply thankful and appreciative of the grace, grit and ingenuity displayed by our team and partners.

We now live in a transformed world. We are at a juncture that is a potent springboard towards reimagining our future. More than ever before, organizations, communities and individuals understand that we're stronger together. As we forge ahead, we need to renew our commitment and rethink existing systems, keeping equity, innovation and resilience at the core of our models.

Let us build back better.

With best wishes,



Kiran Mazumdar-Shaw

Founder & Managing Trustee

Bengaluru, June 01, 2021

Sustainable Development Goals & Biocon Foundation Programs

Unrelenting Enterprise



Schedule VII CSR Activities & Biocon Foundation Initiatives

Unlimited Care

Schedule VII CSR Activities are Notified Under Section 135 of the Companies Act 2013.

**Biocon Foundation's Initiatives Align
with the Activities Represented Below**



**Eradication of
Hunger &
Malnutrition**



**Promotion of
Healthcare
& WASH**



**Promotion
of
Education**



**Promoting of
Gender Equality
& Women's
Empowerment**



**Ensuring
Environmental
Sustainability**



**Restoration
of Sites of
Historical
Importance**



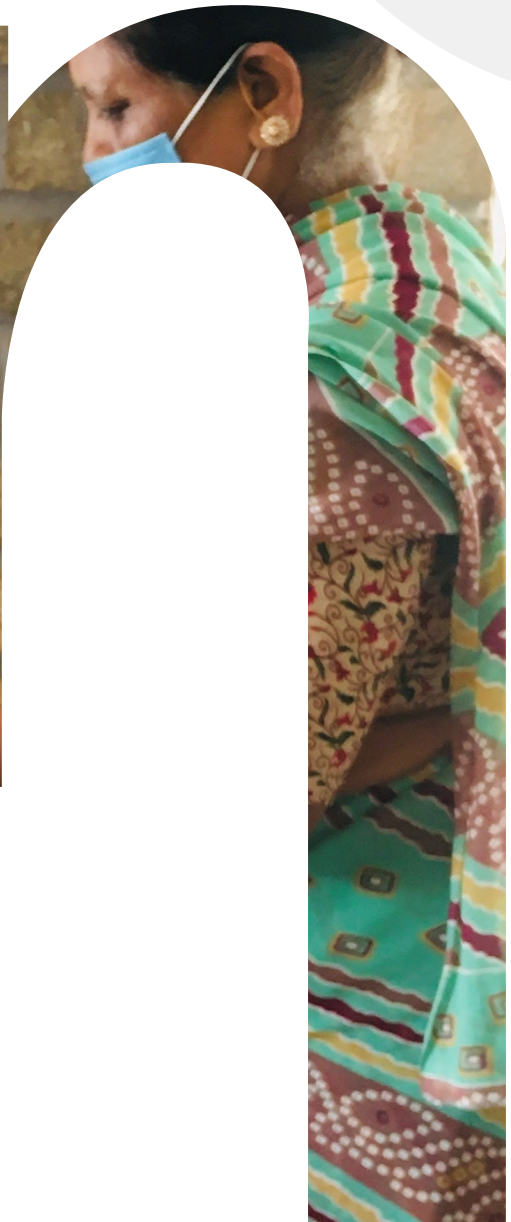
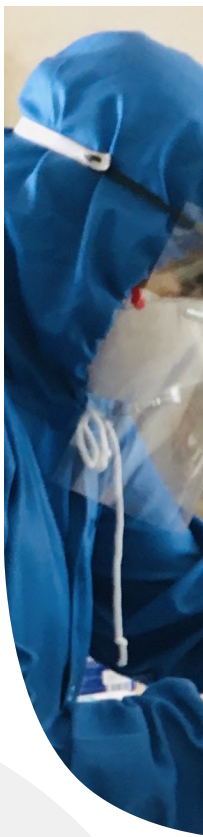
**Rural
Development**



**Disaster Relief,
Rehabilitation &
Reconstruction**



Healthcare **Unceasing Innovation**





The NITI Aayog, in its vision paper titled Public Health Surveillance by 2035, outlined three major threats to public health - NCDs, re-emerging and new communicable diseases, and antimicrobial resistance.

Rationale

Primary healthcare is a vital strategy that remains the backbone of health service delivery. Keeping this objective in mind, primary healthcare centers (PHCs) were envisaged as a critical component to improving care at the grassroots level, providing promotive and preventive healthcare services as well as health education. As of 31st March 2019, India had a network of 24,855 PHCs in rural areas and 5,190 UPHCs in urban locations. These centers epitomize last mile healthcare delivery, covering maternal and child health services, all major national health programs, along with the provision of free essential drugs and diagnostic services.

Primary healthcare services overlap with those of universal health coverage (UHC). However, UHC in the Indian context, is work in progress. Despite notable progress in the past 3-4 decades, there are still gaps in PHC delivery system. Common challenges include shortfalls in infrastructure, supplies and personnel, resulting in poor quality of care. Owing to these gaps in PHC services, people either seek healthcare in outpatient departments of government hospitals or mostly go to private hospitals. The consequences of weak primary healthcare are evident in poor health outcomes, delayed care and expensive hospitalizations leading to increased out-of-pocket expenses. The COVID-19 pandemic has placed a sharp focus on these gaps, highlighting the need for renewed and innovative steps to address the multi-level challenges.

The NITI Aayog, in its vision paper titled Public Health Surveillance by 2035, outlined three major threats to public health including - noncom-

municable diseases (NCDs), re-emerging and new communicable diseases, and antimicrobial resistance. The report highlights several challenges including a limited focus on NCD surveillance with a need for a comprehensive picture that would combine health records with periodic surveys for risk factors and disease prevalence.

The report goes on to suggest that a predictive, responsive, integrated system of disease and health surveillance would be founded on robust electronic health records, data analytics with advanced health informatics.

Against this background, it is evident that multi-level interventions are required on a sustained basis. The adoption of Electronic Health Record (EHR) or Electronic Medical Records (EMR) by the providers can ensure more effective and comprehensive delivery of care. Collection, storage and use of medical records would ensure evidence-based care, accurate and faster diagnosis, which in turn would translate into treatment at lower costs, increasing efficiency, avoiding unnecessary investigations, reducing errors and enabling robust analytics. Furthermore, EHR systems help in maintaining the continuum of care and public health surveillance by assessing disease trends and disease profiles of different communities. It empowers decision-makers to assess and manage interventions thus providing the possibility of enormous advances for public health practice and policy. Therefore, EHR systems are of paramount importance to improve patient care and outcomes at all levels.

Approach

At Biocon Foundation, the eLAJ Smart Clinics program was structured with the perspective of supporting the Primary Health Centres (PHCs), by leveraging technology to improve data capture, quality of care, and specifically address the burden of non-communicable diseases (NCDs). Apart from the provision of EMR, the focus has also been on improving human resource availability and improved diagnostic capabilities. With these objectives in mind, the eLAJ program was rolled out in 2016, in partnership with the Government of Karnataka, as a proof of concept to demonstrate the potential of Information and Communication Technology (ICT) based tools to refine the quality of healthcare. This model of primary healthcare delivery has been adopted in three private clinics of Biocon Foundation, and twenty government PHCs in Karnataka, through a Public-Private Partnership (PPP), catering to a population of more than one million across seven districts of Karnataka. The eLAJ EMR captures demographic data, clinical history as well as data from diagnostic services, thereby enabling the physician to have a holistic view of the patient's medical condition and ensuring a continuum of care. The eLAJ dashboard provides longitudinal patient data that can be used to execute strategies to manage NCDs. In keeping with the NITI Aayog's vision 2035, the scope of the EMR is

being expanded to include standard treatment guidelines, training modules for oral cancer screening as well as NCD surveillance formats, which also aligns with the National Health Mission Guidelines. To improve traction on the EMR services, data entry operators have been provided at the point of registration and clinical examination. Additionally, advanced laboratory diagnostics handled by the Foundation-appointed lab technicians, can perform more than 50 tests for comprehensive primary healthcare delivery.

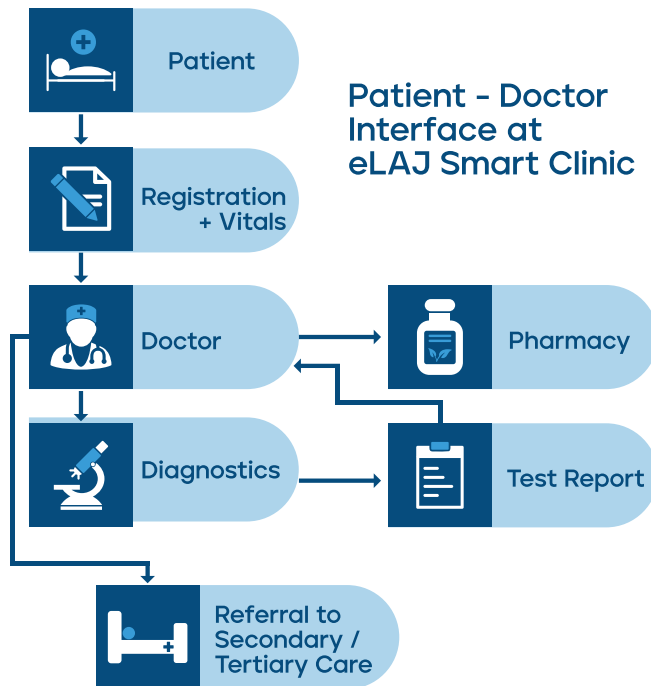
The eLAJ model has proven to be relevant, agile and robust in its response to the pandemic, and the several lessons gleaned will be incorporated to enhance the services and serve the communities in an outcome-oriented, equitable and inclusive manner in the post-COVID-19 world.



- **Bengaluru Urban** - Mallathahalli, Singasandra, Hebbagodi, Jigani, Chandapura & Attibele
- **Chikkaballapur** - Dibbur, Manchenahalli & Jangamakote
- **Kolar** - Lakshmipura & Ronuru
- **Tumakuru** - Huliya & Kuripalya
- **Bagalkote** - Kaladgi, Pattadakal & Sulebhavi
- **Dakshina Kannada** - Bondel & Bajpe
- **Yadgir** - Kaulura & Kotagera

I am a tailor by profession. The lockdown has severely affected my income. The hardships could have hampered access to health services, had there not been an eLAJ clinic in our village. Since last two years, I have heavily relied on the free services offered by the clinic. I find the staff and doctor experienced and passionate towards patient care and feel grateful to them for their services.

**Geetha (37 years),
Gatthalli village**

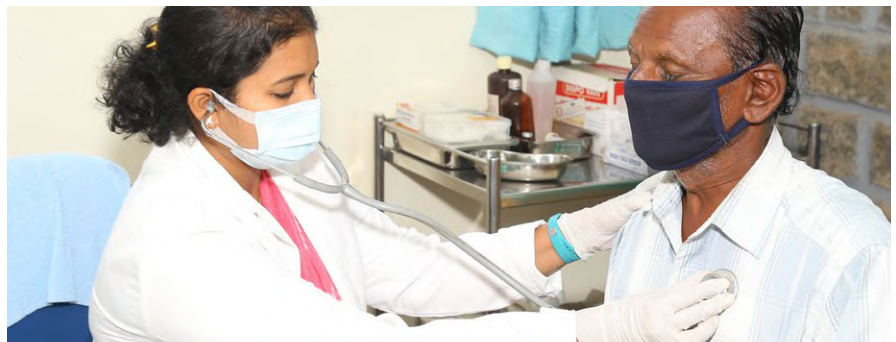


Developments

Owing to a cadre of digitally trained staff and shared activities with the State Government, eLAJ clinics have been able to address the challenges during both the lockdown as well as post-lockdown phases.

A distinct advantage that the eLAJ clinics possessed, was the availability of staff who were well-versed with digital health, since they had been trained on the use of electronic medical record and integrated diagnostics. In keeping with the "Test, Track and Treat" strategy of the Government, the emphasis across Karnataka, through the added human resources at PHCs was on rapidly ramping up

the number of daily tests. The eLAJ staff were therefore, immediately deputed for COVID-based contact tracing as well as RT-PCR testing in the field. Data sets were regularly updated by eLAJ staff in the field through the software application of ICMR. With the commencement of vaccination for frontline healthcare workers by the government, the staff have also been deputed for vaccination-related data entry. The contribution by the Foundation-appointed staff has been recognized and appreciated by Local government officials & other stakeholders across the network of eLAJ clinics.



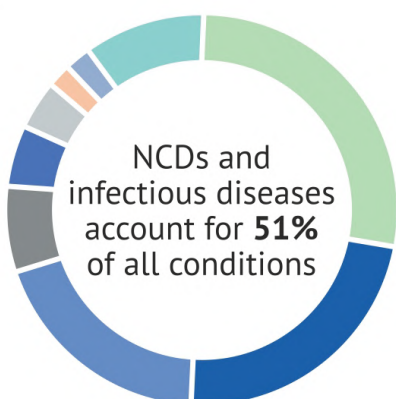
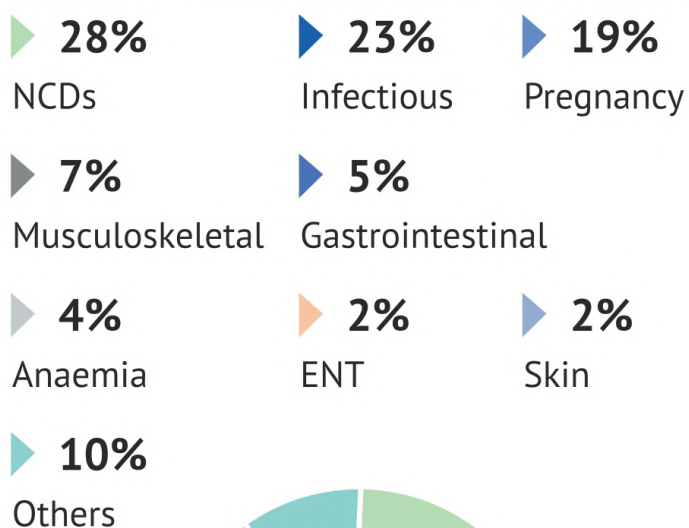
Outcomes

36,000
Registered Patients

15,000
New Registrations

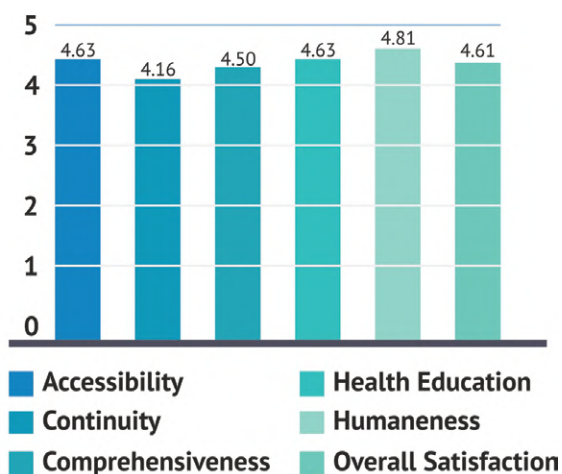
61,000
Consultations

Conditions (eLAJ Dashboard) Breakup by Category



Outpatient Exit Survey

Six key performance indicators (KPIs) were identified and a five-point Likert scale was used to gauge the patient satisfaction. A total of 93 outpatients of Huskur and Austin Town clinics were asked to grade their experiences on a scale of 1-5, with 5 signifying a very positive experience.



Humane Touch

eLAJ clinics scored a high 4.81 out of 5 on humaneness, representing empathy and compassion in medical services.



Accessibility

Clinics are located in the heart of the local communities and are readily accessible with a doctor available most of the times.



Overall Satisfaction

Clinics have an overall satisfaction rate of more than 4.60 signifying the high-quality of services delivered to the patients.

I needed to get myself checked because of a health complication during the lockdown. When most of the clinics were closed due to the lockdown, eLAJ Clinic remained open despite the challenges and provided the much-needed consultation and laboratory services. Post-lockdown, the clinic organised regular health camps and COVID-19 awareness sessions for the local community. I appreciate the high-quality and compassionate care provided to me.

Sarala Mary (62 years),
Austin Town

Against The Odds

Notwithstanding the numerous challenges amidst the crisis, eLAJ staff has worked shoulder to shoulder with the Government health workforce for COVID-19 management activities such as RT-PCR testing, contact tracing and vaccination at the frontlines. With the resources being diverted to deal with the pandemic, the essential outpatient services have been disrupted. In this context, eLAJ clinics have proactively reached out to patients and provided timely access to care for people in need.

Despite the lockdown, the Foundation has been incrementally improving and iterating on the eLAJ software to improve its quality and functionality.



Acknowledgement

In the shared goal towards adoption of digital strategies to strengthen the delivery of care, the partnership with the Department of Health and Family Welfare, Government of Karnataka has been crucial. The partnership with St. John's Medical College & Hospital has helped the Foundation to predominantly cater to the healthcare needs of the slum population in Austin Town. In addition, the Foundation expresses its appreciation and gratitude to the frontline health workers for their commitment, dedication, courage and selfless service at all times, and especially during this pandemic.

SPECIALIST CLINICS

Rationale

Noncommunicable Diseases (NCDs), which include heart and lung diseases, stroke, cancer, and diabetes, are one of the major challenges for public health in the 21st century, in terms of human suffering they cause and the impact that they have on the socio-economic development of the country. According to World Health Organization (WHO) projections, if timely interventions are not carried out for prevention and control of NCDs, the total annual number of deaths from NCDs will increase to 55 million by 2030. The report also estimates that nearly 5.8 million people would die from NCDs in India every year, simply put, 1 in 4 Indians are at the risk of dying from an NCD before they reach the age of 70. The World Economic Forum has estimated that countries such as India, Russia, China and Brazil stand to lose more than 20 million productive life years to NCDs annually.

Efforts are being taken on multiple fronts to address this looming crisis. The Government of India (GoI) has committed to meeting the NCD-related Sustainable Development Goal target, which states that “by 2030, reduce by one-third, premature mortality from noncommunicable

diseases through prevention and treatment and promote mental health and well-being.” To achieve this target, GoI launched the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) with a focus on strengthening infrastructure, human resources, health promotion, early diagnosis, treatment and referral. As part of this plan, a large number of national public health programs and periodic surveys, both at the national and state levels, which directly or indirectly target NCDs, have been carried out. Additionally, NCD Cells at district and state levels have been set up to provide services for health promotion, early diagnosis, treatment and referrals for common NCDs.

Despite these efforts, there is a substantial gap in the screening and referral of non-communicable diseases. With the current pandemic, most of the resources have been diverted towards the management and prevention of COVID-19, thus partially or even completely disrupting the prevention, screening, and control of common NCDs. International studies have indicated that against the background of health system

closures and reduced availability of care, there would be a short term decline in cancer incidence, followed by increase in advanced-stage diagnosis as well as increased cancer mortality. Against this context, a clarion call has been raised to address the burden of NCDs.

With families losing livelihoods due to the lockdown and slipping into poverty, the risks to child health and wellbeing are considerable. Even though children aren't the most susceptible category, they are possibly the worst victims of the COVID-19 crisis. The discriminatory impact of the pandemic poses threats to a child's survival. As per UNICEF, an additional 140 million children in developing countries would be pushed into below poverty households. The study also estimates that 150 million additional children are living in multidimensional poverty with lack of access to essential services. Therefore, it has become imperative to prioritize the continuity of child-centered services than ever before.

According to World Health Organization (WHO) projections, if timely interventions are not carried out for prevention and control of NCDs, the total annual number of deaths from NCDs will increase to 55 million by 2030. The report also estimates that nearly 5.8 million people would die from NCDs in India every year, simply put, 1 in 4 Indians are at the risk of dying from an NCD before they reach the age of 70.

9 Global Targets for Noncommunicable Diseases for 2025



<http://www.euro.who.int/en/NCDoffice06/2017>

Approach

As the trends of NCDs are more pronounced in disadvantaged and low-income sections, the need to develop an integrated and specialised model of care was imperative. A dedicated service in the form of Specialist Clinic, with a particular focus on health promotion and prevention of NCDs and their modifiable risk factors was rolled out. The clinics remain operational at three locations across Bengaluru - Huskuru, Hennagara, and Austin Town - despite the pandemic. The clinics, are well-equipped with diagnostics facilities to perform biochemistry investigations such as creatinine, cholesterol, HbA1c and others to diagnose and monitor NCDs at the point-of-care. A Geriatric Clinic established with a concern for the well-being of elderly section of the population, continues to provide services during the pandemic at Austin Town.

The first thousand days from the start of a woman's pregnancy until the child's second birthday offer a unique window of opportunity to lay a strong foundation for growth and development for rest of the life. The Well Baby Clinics with stronger focus on growth and nutrition of under-five children have been providing free services.



Developments

The specialist clinics continue to provide a range of services for the communities free of charge.

1. NCD Clinics – The clinics provided screening, diagnosis, and management for type 2 diabetes and hypertension. Additionally, regular patient home visits were conducted for behavioural change communication and to address the risk factors (tobacco, unhealthy diet, and physical inactivity) and increase the medication adherence. The treatment modalities were aligned with the WHO guidelines.

2. Well Baby Clinics – The clinic dealt with screening and management of anaemia, worm infestations, upper respiratory tract infections, vitamin deficiencies, and protein-energy malnutrition.

The interventions were in line with the Global Action Plan (GAP) proposed by the WHO, wherein the Foundation dispensed micronutrient supplements including iron and folic acid tablets to reproductive age group and pregnant women. Counselling caregivers on health diet for children under the age of five years as well as school-age children were regularly conducted.

The Well Baby Clinics have not only eased access to treatment for common childhood illnesses with a focus on the management of protein-energy malnutrition, but they also empowered the caregivers to monitor the growth of their children using anthropometric tools and adopt appropriate child-rearing practices.

3. Geriatric Clinic – The clinic undertakes preventive and curative measures to address elderly health issues. Chronic health conditions such as diabetes and cardiovascular diseases were among the most common issues reported for medical intervention in the clinic.

4. Oral Care – A dental clinic has been launched by the Foundation at UPHC Sonnenahalli in association with Bruhat Bengaluru Mahanagara Palike (BBMP) and KLE Society's Institute of Dental Sciences (KLESIDS). The clinic treated dental caries (tooth decay) and periodontal diseases, and carried out screening and counselling for the prevention and management of oral cancer. In association with KLESIDS, free dental check-up and awareness camps were organized.



I was diagnosed with diabetes at an early age of 38 years. NCD Clinics have been the primary point of care for me since then. I have been availing consultation, lab investigation, medicines, counselling and other services free of cost at the clinic. The continuity of services during the lockdown allowed me to consult the specialist and adhere to the treatment regimen. I am extremely satisfied with the services provided, and feel grateful that such health facility is within our reach, especially when commuting is an issue during the lockdown.

Ramesh (48 years),
Gatthalli Village

Outcomes

NCD Clinics

1400+
Consultations

29%
DM patients normoglycemic

51%
HTN patients normotensive

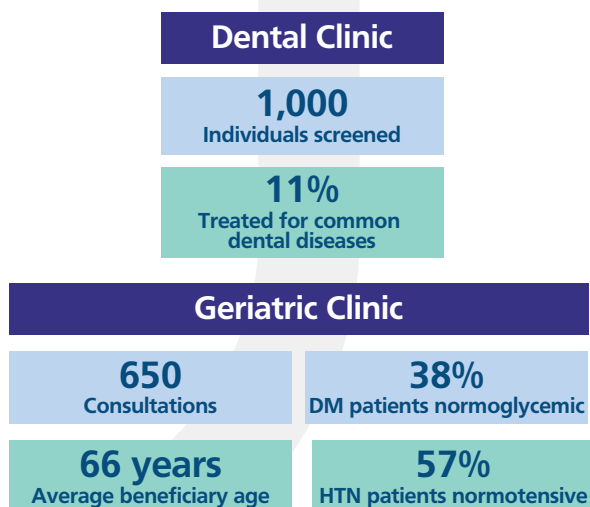
Well Baby Clinic

125
Consultations

15%
Underweight

13%
Stunted

13%
Wasted



When non-Covid services were affected everywhere else, Geriatric clinic assured us of its best services through the unusual times. Suffering from incurable chronic conditions, I have been visiting the clinic for almost 11 years to avail the free services and continued to seek care even during the pandemic. The regular check-ups and following the advice for lifestyle modifications have improved my health. I have informed and encouraged people in my community to make best use of the high-quality health services available at our doorstep.

Shyamala (64 years),
Austin Town

Against The Odds

A double whammy of chronic illnesses and vulnerability to COVID-19 infection poses great risks to patients suffering with NCDs. As the prevention and treatment services for NCDs have been severely disrupted, the situation may lead to an alternate public health crisis. After temporary suspension, eLAJ Smart Clinics resumed the essential public health services which people with NCDs rely on to manage their conditions. The clinics took appropriate measures to ensure that the facilities remain safe places for patients and health providers.

As a precautionary measure, regular surveillance activities entailing household visits by the frontline workers had to be temporarily suspended, due to which follow up had to be done telephonically. Meanwhile, the program focused on behavior change communication to raise awareness on signs and symptoms of breast and cervical cancers and risk factors associated with NCDs. The NCD surveillance will be strengthened as the situation stabilizes.

Acknowledgement

The partnership with the Department of Community Health, St. John's Medical College & Hospital has been crucial in delivering outreach health services at Austin Town. The role of dental clinic launched at UPHC Sonnenahalli in association with BBMP and KLESIDS has helped ensure better oral health services for the community. The role of KLESIDS has been pivotal in taking dental care to the doorsteps of remote populations through health camps.

ORAL CANCER SCREENING

Rationale

In India, cancer of the lip and oral cavity is rated second most common cancer among males and fifth most common cancer among females (Lancet Oncol 2018). According to the GLOBOCAN 2020 estimates, the incidence rate of oral cancer stands at 10.3% and the mortality rate is 5.4 per 1,00,000 population.

The major etiological factors involved in the development of oral cancer are tobacco consumption including smokeless tobacco, betel-quid chewing, excessive alcohol consumption, poor oral hygiene and nutrient-deficient diet.

In India, 28.6% (266.8 million) of all adults currently use tobacco (smoked / smokeless), according to the Global Adult Tobacco Survey-2. According to the National Family Health Survey-5, 27.1% of men and 8.5% of women in the age group of 15 years and above use any kind of tobacco in Karnataka. In Assam, 51.8% of men and 22.1% of women in the age group of 15 years and above, consume any kind of tobacco.

Considering the high prevalence of tobacco usage and mortality rates of oral cancer, effective preventive strategies are essential to address the burden of oral cancer and associated risk factors.

Approach

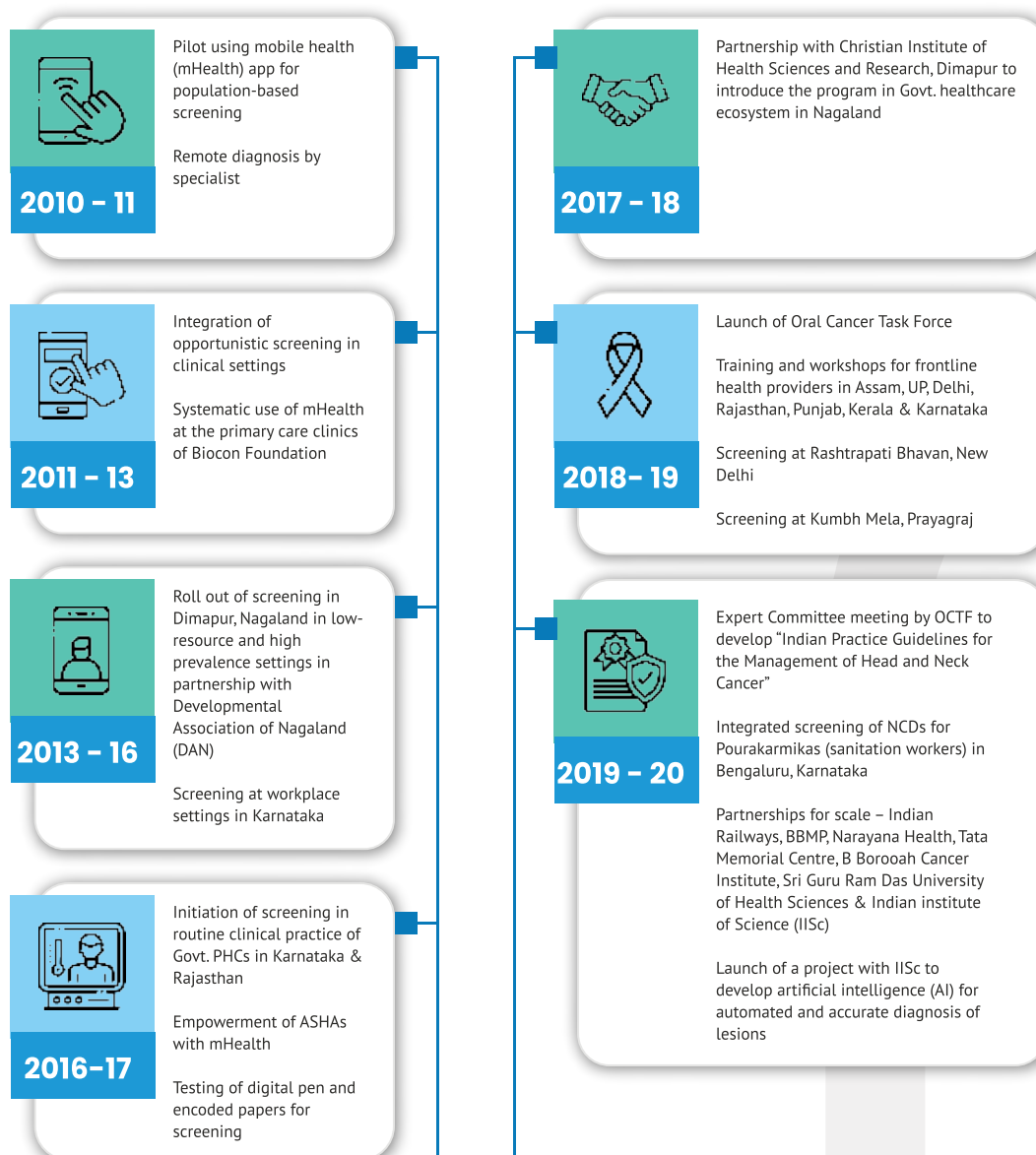
The unprecedented situation due to the pandemic has disrupted oral cancer screening. The entire health focus, as anticipated, was on the prevailing COVID-19 pandemic which resulted in preventive healthcare interventions for other health conditions to be put on hold. A delay in population-based screening would mean an increase in number of cases not detected or cases being diagnosed at a more advanced stage. An outreach program like oral cancer screening is important to detect oral lesions at an early stage and improve patient outcomes.

The increase in advanced stage oral cancer burden at the tertiary centers after the lockdown prompted us to restart the program with necessary precautions to build the confidence of the health care workers and participants. Due to travel restrictions, the initiatives were customized with remote training and monitoring for oral cancer screening.

My mother-in-law has been chewing tobacco from a young age and the consumption had increased during the lockdown. We were always anxious about the ill effects that tobacco could have on her health. We decided to take her to a free screening organized by Biocon Foundation at KLE dental college, where she was diagnosed with a lesion linked to tobacco usage and treated for the same. We breathed a sigh of relief when doctor, in a subsequent check-up, confirmed that the lesion was resolved with treatment. She was also counselled by the doctor on cessation of tobacco. We appreciate the doctors for an early intervention which saved the life of my mother-in-law.

Mumtaj (52 years),
Nelmangala

In India, 28.6% (266.8 million) of all adults currently use tobacco (smoked / smokeless), according to the second round of the Global Adult Tobacco Survey, 2016-17.



In this tough time, the healthcare resources have been diverted to manage the pandemic, the cancer care is mostly neglected. This is particularly concerning considering the high burden of oral cancer, the most common cancer in India amongst men. The impact of delayed or missed diagnosis of oral cancer could be dramatic, potentially costing many lives. The transfer of knowledge and resources by Biocon Foundation helped Tata Memorial Centre, Homi Bhabha Cancer Hospital prioritize preventive screening in Varanasi with stringent safety precautions in place. Confronted with overwhelming challenges of COVID-19, the extraordinary measures to screen hundreds of high-risk individuals in a safe environment addressed the gaps in early diagnosis and management of oral cancer.

Dr Pankaj Chaturvedi,
Head & Neck Cancer Surgeon, Tata Memorial Hospital, Mumbai

Developments

Capacity Building

As COVID-19 limited the scope of in-person training, virtual training sessions were organized on prevention and early detection of oral cancer to build capacity of healthcare providers and community health workers in Amritsar and Varanasi. In addition, refresher trainings were held for ASHA workers in Guwahati, Assam.

In order to address the shortage of trained personnel who can deliver screening services, a module for training the community health workers, general dentists and specialists has been developed.

Furthermore, Biocon Foundation was a knowledge partner at Dantha Manthana 2021, a systematic interactive session on oral health, organised by the Government of Karnataka in Mysore. The session on the "Management of Oral mucosal lesions" was attended by more than 250 dentists.

Screening

An mHealth application for oral cancer screening was provided to the partners - Sri Guru Ram Das University of Health Sciences (SGRDUHS), Amritsar and Homi Bhabha Cancer Hospital, Varanasi. Following virtual training on the software application, screenings were initiated by healthcare workers in Amritsar and Varanasi.



Biocon Foundation partnered with Rotary Club, Hassan who was awarded a global grant for oral cancer screening. The Foundation will build capacity of the health providers on the use mHealth for oral cancer screening and provide remote specialist recommendations for diagnosis of oral lesions. The project will determine the prevalence of oral lesions in Hassan district.

Process Innovation

In order to address the limitation of the field activities posed by the pandemic, a telephonic triaging process has been integrated in the screening workflow. This revised workflow has been approved by the Institutional Review Board (IRB) of the Tata Memorial Centre. Following telephonic triaging, screening for high-risk patients is initiated using mHealth application by healthcare workers, followed by examination by an onsite specialist. Data uploaded is reviewed by a remote specialist for diagnosis and treatment recommendations. The study aims at assessing the effectiveness of mHealth module as well as concordance in diagnosis between

onsite and remote specialists and health workers.

With easing of restrictions, the program at Varanasi was successfully executed with a target of five hundred patients per month. Virtual meetings with experts and other stakeholders were held periodically to track the project's progress.

Innovations in Point-of-Care (POC) Technologies

Biocon Foundation provided IISc, Bengaluru with images of intraoral lesions classified into suspicious and non-suspicious. Several images were filtered out due to variation in intensity and brightness. An Artificial Intelligence (AI) algorithm has been developed for OC diagnosis of oral cancer. The feasibility study for the deployment of AI using white light (camera light) images has also been initiated.

A surveillance model for patient follow-up was worked on with the software partners. An enhanced version of the software with provision for follow-up of individual cases along with white light and auto-fluorescence images is ready for deployment. The software will be part of a doctoral study in three Foundation clinics to enable an autofluorescence-guided surveillance of Oral Potentially Malignant Disorders (OPMDs) and development of a risk-prediction model.

In response to the pandemic, an Inter-Ministerial Working Group by the government of India, has been set up to identify promising startups that can offer innovative solutions to address the current crisis. Biocon Foundation attended a webinar on hygiene-related solutions.

Oral Cancer Task Force (OCTF)

A website is being designed under the purview of the OCTF to disseminate information to general public and professionals alike. The website would host videos, publications and several research articles from the OCTF members on early detection and management of head and neck cancers.

Outcomes

Oral cancer	
Total screened	2,200
Positive for oral potentially malignant disorders	27%
School oral health	
Students sensitized on oral hygiene	140
Publication	
“Knowledge assessment of ASHAs for technology enabled early oral cancer screening” published in the Manipal Journal of Dental Sciences.	

“Cancer” was a scary word for me. I am from Varanasi and consumption of paan has long been a cultural tradition. I always stayed away from tobacco products; however, I was addicted to paan. I never thought that consuming paan with areca nut could cause oral cancer, until I attended a screening organized by Biocon Foundation and Homi Bhabha Cancer Hospital.

Initially, I was hesitant to undergo the screening because I was overconfident that I couldn't have any risk for oral cancer, but a counselling session helped me realize the importance of screening. The results showed white patches in my mouth, symptoms that arise before developing an oral cancer. I was explained that it was a pre-cancerous lesion which could turn into cancer if not treated immediately. I panicked and couldn't come to the terms that I have been detected with a cancer. Since I am struggling to repay the auto loan, I couldn't imagine how I will be able to afford the treatment. It was so comforting to know that cure was possible because the cancer was detected at an early stage and treatment would be provided free of cost.

The screening which I was hesitant to attend earlier, changed my perception about health and life. The cessation counselling helped me overcome the habits of paan and areca nut.

I am extremely grateful to the organizations for taking up such a noble initiative to save lives. I want to thank the entire team for being so compassionate and patient with me.

Rakesh Maurya (34 years),
Varanasi

Original article

Knowledge Assessment of ASHAs for technology enabled early oral cancer Screening

Sanjana Patrick, Keerthi Gurushanth, Praveen Birur N*, Vipin Jain, Shubhasini Raghavan, Shubha Gurudath, Randeep Singh, Pratima Rao

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Abstract

Background: The global burden of Oral cancer (OC) occurs in a resource-constrained setting. The Accredited Social Health Activists (ASHAs) are link workers who connect the community with the healthcare system in rural India. In this prospect, the study aimed to assess the knowledge of trained ASHAs for OC screening, to create awareness and self-oral care amongst the rural population. **Methods-** ASHA workers (n=25) were trained for OC screening program with a robust training module comprising of digital data capture, clinical chairside and field training for early detection of OC. Knowledge assessment was carried out through a questionnaire-based Pretest and Post-test; conducted at an interval of three days and at the end of three months. The trained ASHAs performed house-to-house screening through digital data capture and referred all participants positive for habit and/or having oral lesions to the Primary Healthcare Centers (PHC) for further mHealth screening by local coordinators. The observations were statistically analyzed using paired t-test. The improvement in the knowledge of ASHAs was specified in terms of percentage. **Results-** 84% ASHAs showed an improvement in post-test assessment following three days of training that was statistically significant ($p < 0.05$). The knowledge retention of ASHAs post three months assessment was 64% and that was statistically insignificant. Of the total screened population (n=4778), 1443 (30.2%) individuals were identified as having oral lesions referred to PHC. **Conclusion-** Downstaging of OC can be achieved through training and sensitization programs for ASHAs, and they can be utilized in community based oral cancer screening. Periodic review process and motivation is required to monitor the performance of ASHAs.

Key words: Assessment, Knowledge, Screening, Training, Oral cancer.

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Introduction

The global burden of oral cancer occurs in low resource settings with poor access to specialist care; India accounts for the highest incidence for oral cancer.¹⁻³ It is one of the leading causes of morbidity and mortality.^{4,5} Late presentation and delayed diagnosis are the primary reasons for poor outcome. Oral cancer is often preceded by the clinically evident oral potentially malignant disorder. Early detection of asymptomatic lesions and surveillance of oral lesions is an important strategy to downstage oral cancer.²

Community based oral cancer screening has proved to be one of the most effective methods to reduce oral cancer burden. Community reach

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Against The Odds

An outreach program like oral cancer screening wherein a close examination of the mouth was essential, posed a major challenge in terms of implementation and in recruitment. Due to the restrictions in travel, on-the-ground training activities and routine monitoring of screening program was difficult. Multiple virtual training sessions were conducted to train field staff.

There was also hesitancy from the community to participate in the screening program due to fear of exposure to COVID-19. Several awareness sessions through ASHAs and local government bodies were held to sensitize the community on the importance of attending the screening camps. Telephonic triaging of patients was carried out to identify the at-risk population. A limited number of patients were contacted for screening to avoid overcrowding and follow COVID-19 protocols at all screening sites. Timelines for screening programs were extended by a year to attain program objectives.

Acknowledgement

Biocon Foundation would like to acknowledge the invaluable on-ground support offered by partners during the unusual times. Tata memorial centre and Sri Guru Ram Das University of Health Sciences continued screening activities despite the pandemic, ensuring patients who could not visit hospital to attend screening camps were screened through outreach activities. The role of KLE Society's Institute of Dental Sciences (KLESIDS) has been crucial in implementation of dental outreach and oral cancer screening programs. The dental clinic at UPHC Sonnenahalli in collaboration with BBMP and KLESIDS has improved the accessibility to oral health care services for the local population. The Foundation also acknowledges the technology partner Diona Mobility Solutions for the continued effort in developing and deploying the patient follow-up modules, for the research program at Varanasi.

The Foundation is also grateful for the constant mentorship from the esteemed members of the OCTF for spearheading the program despite their busy schedules.

PROMOTION OF MENTAL HEALTH

Rationale

India is experiencing a massive urbanization. The population size of India has tripled since 1950 to 1.35 billion and the level of urbanization too has nearly doubled, reaching 34 per cent in 2018. As per the World Population Prospects 2019 of the United Nations, India will contribute most to the urban increment with the addition of 416 million urban dwellers, nearly doubling the size of its urban population between 2018 and 2050.

Urbanization is associated with increased prevalence of mental disorders. The fast-paced lifestyle, work-life imbalance, breakdown of support systems, and economic instability, which are commonly observed among the residents in urban area, interplay with several other physical and social factors and predispose to the development of mental problems.

The National Mental Health Survey of India (2015-16) observed the prevalence of mental disorders at 10.6%, while prevalence of severe mental disorders and common mental disorders were 0.8% and 10% respectively. Common mental disorders which include conditions like depression, neurotic and stress related disorders, and alcohol and (illicit) substance use disorders are a major contributor to the overall burden of mental health disorders in India.

The National Mental Health Survey of India (2015-16) also revealed that the prevalence across diagnostic categories in urban metros was higher than in rural and urban non-metro areas with less than 10 million population. The prevalence of schizophrenia and other psychoses (0.64%), mood disorders (5.6%) and neurotic or stress related disorders (6.93%) were nearly 2-3 times more in urban metros. The grim statistics clearly indicates the need to prioritize and implement interventions to reduce the burden of common mental disorders in urban India with a specific focus on urban metros with more than 10 million population.

As the pandemic and ensuing lockdowns have taken a heavy toll on mental health, the need for mental health interventions seem all the more necessary to attend to the unmet mental health needs, now and after the pandemic has passed.

The National Mental Health Survey of India observed the prevalence of mental disorders at 10.6%, while prevalence of severe mental disorders and common mental disorders were 0.8% and 10% respectively. As the pandemic and ensuing lockdowns have taken a heavy toll on mental health, the need of services seems more pressing than ever.

Approach

Illness or health experience is an outcome of multitude of personal and social circumstances. Therefore, reducing the burden of mental disorders requires an approach to engage, collaborate, network and advocate in building an enabling and supportive environment for mental health.

In order to foster mental health in Karnataka, Biocon Foundation partnered with the Centre for Public Health, National Institute of Mental Health and Neuro Sciences (NIMHANS). The activities in the areas of urban mental health, elderly healthcare and school mental health are based on a broad theme to Innovate, Integrate and Advocate for Public Mental Health.

Bengaluru Urban Mental Health Initiative (BUMHI)

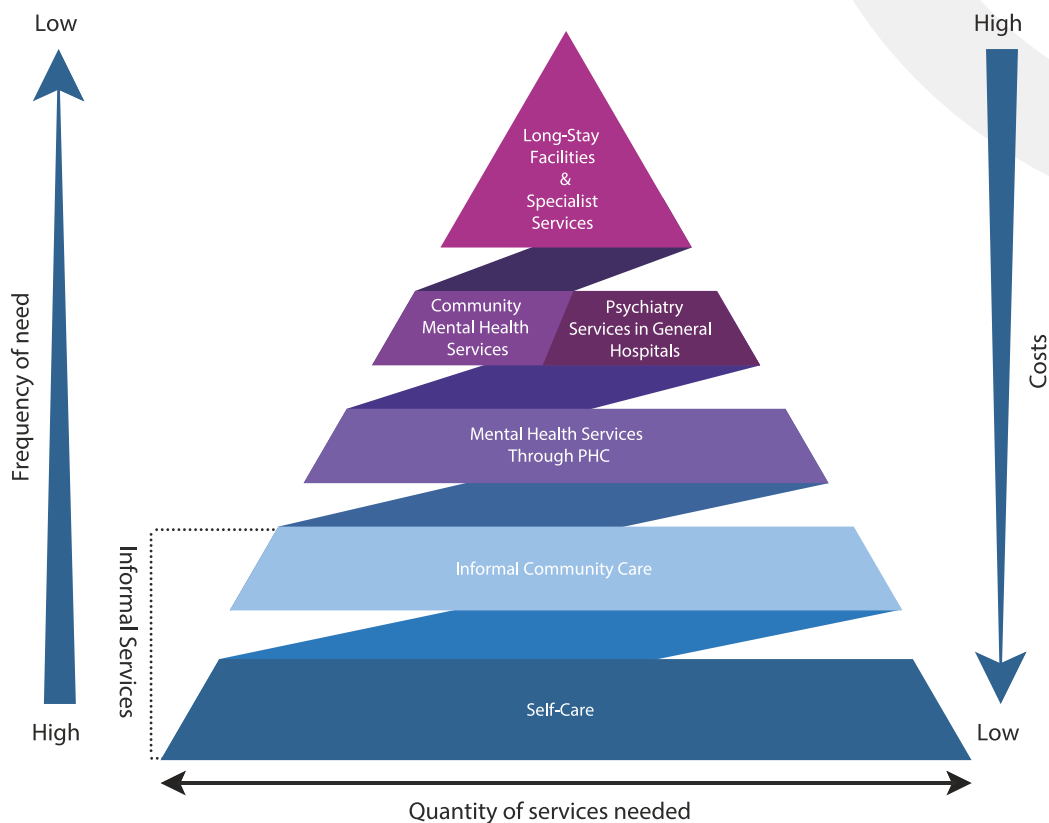
Evidence suggests that public and private healthcare providers are preoccupied in providing curative services for mental disorders and mental health promotion has not received due prominence within the existing health system. WHO framework for mental health services places self-care and informal community care at the bottom of

the pyramid, which implies that it is the most important and cost-effective service needed for the community. Self-care aims at equipping the individuals with relevant knowledge about; symptoms of mental disorders, when to seek care, from whom to seek care, how to manage stress and emotions and so on.

In view of the above, BUMHI attempts to develop, implement and evaluate urban specific strategies aimed at strengthening self-care and informal community care for mental health.

Objectives:

The BUMHI initiative aims to elicit and document perceptions, priorities and concerns about mental health among Urban dwellers. This would lead to the development of a mental health resource kit to strengthen self-care and community informal care. The initiative would also engage stakeholders and create community spaces to protect mental health.



WHO Pyramid Framework for Mental Health Services

Community Centre for Hearing Health (C2H2)

Unidentified and untreated hearing loss impinges on mental wellbeing in the elderly and accelerate cognitive deterioration in several pathways. Disability studies have proposed that acceptance is the key to adjust to a disabling condition. The dimensions of acceptance include emotional and behavioural adaptations at individual and societal levels. The stigma related to acceptance and usage of hearing aid is substantive.

In an attempt to advocate and integrate a holistic approach towards dealing with age-related hearing losses and develop a scalable model for community audiology, the program takes the high-quality audiology services to the rural community.

Objectives:

The community hearing initiative aims to develop a screening tool validated at the community level, for assessing hearing health and the impact of hearing difficulties with a special focus on Quality of Life. Another vertical of the initiative aims to assess some of the operational challenges in hearing aid fitment and usage amongst the elderly.

School Mental Health

Adolescence is a time of significant developmental changes. It is characterised by a limited capacity for selfregulation and an increased risk of susceptibility to peer pressure and experimentation. Internet, mobile phones, television, gaming and social networking sites have made revolutionary changes in information and communication but have also increased the levels of distress. Technology addiction is considered as an emerging behavioural addiction. Adolescents with technology addiction tend to have severe social skills deficit, oppositional symptoms, sensation seeking tendency, impulsivity behaviour and poor ability for self-regulation.

In the given context, an action research approach has been undertaken to diagnose the problem and develop an integrated solution to address technology addiction among school-going adolescents.

Objectives:

The school health initiative aims to address these issues by characterization and description of technology addiction amongst school-going adolescents. Also, a teacher training module will be developed that addresses technology addiction amongst adolescents.

Setting up a School Wellness Cell at the schools is another way to track behaviours and encourage teacher-led intervention for students to cope with mental health.



NIMHANS, Biocon Foundation and Syngene collaboration is unique; the attempt to address and nurture hitherto unaddressed concerns of Public Mental Health stands out prominently. Apart from provisioning free digital hearing aids to 100 needy rural elderly, it defines a program for mental health in urban areas and addresses technology addiction amongst adolescents – first of its kind in the country.

Dr Girish N Rao,
Professor of Epidemiology,
Centre for Public Health, NIMHANS

Developments

Bengaluru Urban Mental Health Initiative (BUMHI)

Institutional Ethics Committee approval from NIMHANS has been obtained for the study. More than 150 participants attended 8 online community consultative meetings held to elicit and document the perceptions, priorities and concerns about mental health. The participants included different age-groups across both genders and different socioeconomic strata.

A workshop was conducted with experts including psychologists, public health professionals, psychiatrists, social workers, educationists and others to develop the training modules and related resources for self-care kit. As a result, 14 modules on self-care have been developed and will soon be validated.

Community Centre for Hearing Health (C2H2)

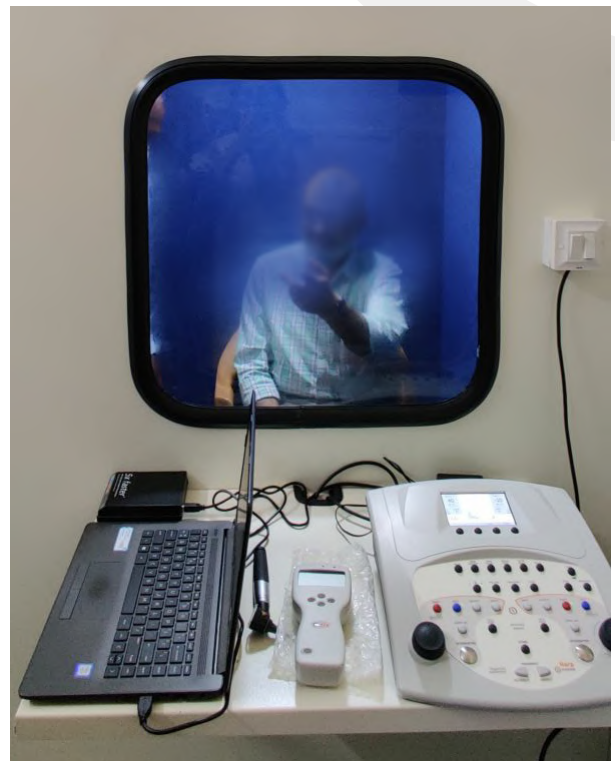
Ethical clearance for the project has been obtained from NIMHANS. A soundproof audiological booth has been inaugurated at General Hospital, Srinivasapura, Kolar, the Public Health Observatory of the Department of Epidemiology, NIMHANS.

The endeavour would utilize the manpower and infrastructure available within the District Health System. In addition, the Department of Speech Pathology and Audiology, NIMHANS would participate in providing the proposed services under C2H2.

The Technical Review Committee under the chairmanship of Prof N Shivashankar, formerly Professor and Head of Department of Speech Pathology and Audiology, NIMHANS finalized the specifications of the hearing aids and subsequently procurement has been initiated.

School Mental Health

The Institutional Ethics Committee of NIMHANS has granted approval for the project. Desk review for manual development has been completed and study instruments for field survey have been finalized. Field related activities and recruitment were withheld due to school closure induced by the pandemic.



Against The Odds

In the wake of COVID-19 pandemic, physical consultations with the stakeholders under BUMHI project were called off and virtual consultations were held to circumvent any potential spread of infection.

The lockdown triggered by the pandemic had negative impact on the recruitment, procurement and fieldbased activities. The school closure as a result of the pandemic has hindered the progress of school mental health initiative.

Acknowledgement

The Centre for Public Health, NIMHANS, founded in 2012, catalyses the integration of a mental health framework into the broader health-related policies and programs, with a special focus on mental, neurological and substance use disorders and injuries.

In keeping with its motto of finding solutions together, the Centre for Public Health, NIMHANS entered into a memorandum of understanding with Biocon Foundation on September 30, 2019, to jointly innovate, integrate and advocate for public mental health. The expertise, experience and resourcefulness of NIMHANS and financial support rendered by Biocon Foundation have led to the roll out of innovative community health initiatives intended to strengthen mental health systems and services.

Education Unlocking Potential



Rationale

The COVID-19 pandemic led to the closure of schools, creating an unprecedented disruption in education, resulting in learning loss and high dropout rates. According to a UNICEF report, owing to the pandemic, closure of 1.5 million schools impacted 247 million children enrolled in elementary and secondary schools in India. School infrastructure is the cornerstone of a quality learning environment. In an assessment of school infrastructure by the Department of Public Instruction for the academic year 2020-21, out of the total 49,279 government schools surveyed in Karnataka, 1,961 (4%) government schools received D grade, and 4,879 (10%) received C grade, indicating a scope for improvement.

According to Annual Status of Education Report (ASER) 2020, among children in the 6-10 years age group, there has been a sharp increase in the proportion of children dropping out of schools in Karnataka, from 0.2% in 2018 to 6.4%. The proportion of children in the age group of 11 -14 years dropping out of schools has increased from 1.2% to 6% during this period. The comparison between ASER 2018 and 2020 shows that the proportion of government school children coming from a household with smartphones has increased to 63.5% as compared to 36.7% two years ago. Despite this, only 10.6% of government school children accessed live online classes as compared to 24.4% of children in private schools.

Overall, more than 70% of all enrolled children received some kind of learning materials/activities from their teachers. WhatsApp was the most common medium used for sharing learning materials/activities

with private school children (76.2%) and personal visits were the most common medium among government school children (70%) (ASER 2020).

With a greater proportion of students having smartphones, it is evident that internet connectivity has improved in the rural areas, however overall access to online learning is still a concern for government school children

Approach

As the state rethinks how to address school reopening, Biocon Foundation has invested in school infrastructure to provide safe and effective learning environments for school children in Karnataka. Spacious, well ventilated and child-friendly classrooms with sanitation facilities have been constructed to prepare schools for reopening in safe environments for children and teachers.

Biocon Foundation has partnered with Agastya International Foundation (AIF) for the provision of science, technology, engineering, and mathematics (STEM) learning amongst government school students in Anekal, Bengaluru. With school closures, the entire STEM learning format was quickly shifted to an online mode, thereby ensuring continuity in learning.



The hands-on education model with an emphasis on experiential learning at all stages, aligns with the National Education Policy (NEP) 2020. The program is rooted in orientation to conceptual understanding, rather than rote learning. Other aspects of their pedagogical framework include, the vernacular medium of instruction and technology-enabled learning which are in agreement with the fundamental principles of the NEP 2020.

Additionally, the employees of Biocon actively contributed through the VEngage program to the cause of education and built on the goodwill and social consciousness developed over the years.

In India, a UNICEF report revealed that closure of 1.5 million schools due to the pandemic and lockdowns in 2020 has impacted 247 million children enrolled in elementary and secondary schools.

Developments

Improving School Infrastructure

The pandemic called for an action to reimagine school infrastructure as enabling spaces for community learning with enhanced health and safety before the students return to school in the new normal. To create enabling environments for learning, Biocon Foundation constructed new classrooms and supporting infrastructure at Government Higher Primary School in Huskuru, Bengaluru and Government Kannada Model Higher Primary Boys School Sira, Tumkuru. As sanitation and hygiene have become all the more essential, once children return to school after the COVID-19 crisis, a sanitation complex with handwashing facility

500 students provided with safe and effective learning environments at government schools in Huskuru and Sira.

150 students received access to sanitation and hygiene at Government High School, Pejavara.

has been inaugurated at Government High School, Pejavara in Dakshina Kannada. As the government gears up to reopen the schools after a long interval, these renewed spaces will motivate students to attend schools.



We were conducting classes in an old and dilapidated school building, walls and ceilings in the classrooms had developed cracks, posing a risk to the lives of the students. Our teachers and students are obliged to BioconFoundation for reconstructing our school despite the challenges of COVID-19. The infrastructure has created a safe and fearless learning environment. As the students return to schools, they are going to experience a friendly and conducive ambience.

Srinivasamurthy R

Head Master, Government Higher Primary School, Huskuru



1,600 students of 14 government schools in Anekal received 46,200 virtual exposures and 6,200 face-to-face exposures, each exposure being 1-1.5 hours in duration.

- **Explore Play & Learn (EPL)** - The online sessions promote at-home learning activities by enabling the students to use ordinary household materials and apply the learning to real-life scenarios.

- **Digital Summer Camps** – The children were exposed to workshops in arts and crafts, low-cost model building and other activities. Reaching out to students via WhatsApp groups was intended to keep them engaged in learning activities, help them discover interest, and build independence, self-sufficiency and self-confidence.

- **Shikshana** – To support the teacher's professional development, and refine their skills in STEM and new approaches to learning assessment, virtual capacity building sessions were conducted on the Google Classroom platform.

- **Career Guidance** – The virtual program assisted the students of classes 9 and 10 to understand their interests, personalities and aptitudes, and choose the right stream to pursue career aspirations.

After the decision of the Government of Karnataka to reopen regular schools for classes 9 and 10 and Vidyagama classes for 6 to 8 on alternate days, a Mobile Science Unit, equipped with more than 100 science models, provided hands-on learning opportunities to the students in small batches with necessary safety precautions in place.

To evaluate digital learning, a mixed-method survey comprising of pre- and post-test assessment design with focused group discussions was conducted. The aim was to measure the impact of the program in terms of Awareness, Curiosity & Confidence and capture the students' responses and readiness for the digital pedagogy and factors affecting the learning process.

Our partnership with Syngene International and Biocon Foundation enabled us to keep the learning going for underserved children with the Mobile Science Lab program in Anekal during extremely difficult times in 2020. Even though the situation was challenging, we leveraged new avenues to reach children and teachers, and our instructors worked longer and harder than ever before. We thank Biocon Foundation for their invaluable support.

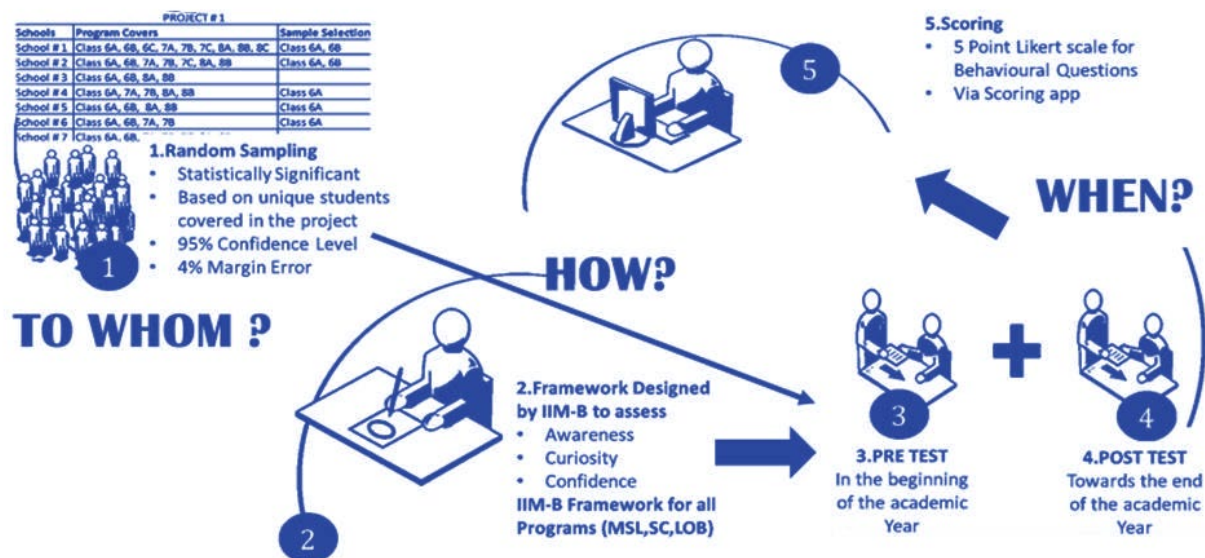
K Thiagarajan

Chief Operating Officer,
Agastya International Foundation

STEM Learning

In the wake of the health risk posed by the COVID-19 pandemic, a blended learning model was facilitated. Agastya was quick to adapt to the situation at hand and transformed the outreach from a physical mode of instruction to online education to minimize the health risks without compromising student learning. AIF volunteers collected the phone numbers from the parents to enable virtual groups. The academic year began entirely online, ensuring that young learners were engaged during the lockdown through e-learning via virtual platforms using rapidly digitized content, training and outreach mechanisms. Technology has transformed the education system from the traditional structure to the modern method of teaching during the pandemic. The pedagogical framework encompassed the following:

Impact Assessment Methodology



Pre-and post-test data collection was done through Google Forms

IMPACT

AWARENESS

- Knowledge of alternate experiential methods of learning and teaching science
- Improved by 16%

CURIOSITY

- Behavior characterised by exploration, investigation, observation, and a desire to learn more about new, incongruous or unknown elements
- Improved by 16%

CONFIDENCE

- The ability to stand up and speak their mind to develop consciousness of their own abilities and to demonstrate the same
- Improved by 21%

During the national lockdown and school closures in response to the COVID-19 pandemic, with the support from Biocon Foundation and Syngene International, we conducted online classes, and in particular, 'Explore, Play and Learn' curriculum via Google Meet to help children critically think, develop a scientific mindset and learn digital skills. The children participated enthusiastically in the activities, students and parents appreciated our sincere efforts.

Kalesh
Instructor

When my school had been closed last year, I was trying to read the textbooks and understand science and maths concepts, but I could not follow. At the same time, Agastya International Foundation started online classes to help students continue to learn at home. Instructors made it so easy to grasp concepts and cleared my doubts. I am also happy to have acquired digital skills during the lockdown.

Anushree SR

Class 9th Student, GGHS Anekal

VEngage

The employees of Biocon actively contributed through the Biocon's VEngage program to the cause of education and build on the goodwill and social consciousness developed over the years.

The employee volunteering program provides meaningful social engagement opportunities. Employees rendered their services to design modules on co-curricular topics - arts and crafts, general knowledge quiz, storytelling and games, and curricular subjects to encourage students to channelize their energies in a positive direction & prevent them from slipping out of the education system.

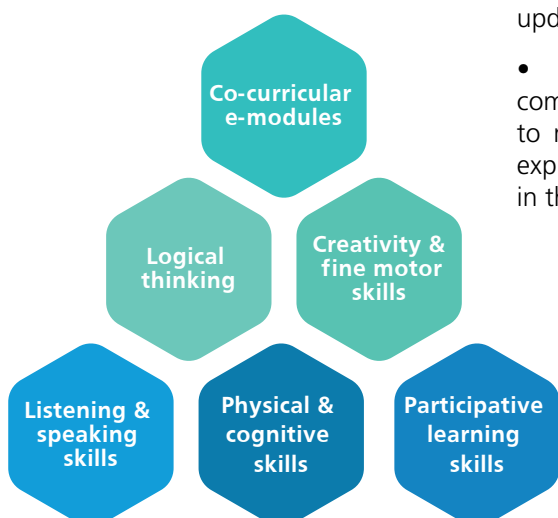
To keep the students meaningfully engaged and motivated, and promote at-home learning during COVID-19, a variety of stimulating co-curricular modules have been developed for classes 4 & 5.

- The module on arts and crafts promote easy-to-learn methods such as Zentangle, Mandala, Doodle, science experiments and greeting cards making using materials that are readily available at home.
- The Quiz modules have been designed on Current Affairs, Geography and Human Science subjects which are simple to answer and inspire the students to remain updated.
- Moral stories have visual components and voice modulations to make the narration emotionally expressive to instil positive thinking in the students.

- A module encourages indoor games such as Snakes & Ladders, Join the Dots, Tic-Tac-Toe, Bingo, Pictionary, and Name, Place, Animal, Thing using ordinary household items.

In addition, the curricular modules have been developed which include subjects like Math, Kannada and English designed for children of class 4. The format of the sessions for development of e-learning modules was comprised of PowerPoint presentations with voiceovers and content in the form of pictures, infographics and charts. The sessions concluded with worksheets in English and Kannada for all the chapters.

24 volunteers actively participated to design 3 curricular and 4 co-curricular e-learning modules for school children.



Against the odds

Despite the restrictions due to COVID-19, construction activities continued, keeping in mind safety requirements mandated by the Government. The Foundation persisted in its efforts to complete the civil works promptly, to ensure that the students come back to brighter, better and safer classrooms.

Interruptions to classroom-based instructions posed a major challenge. It required adapting to a variety of online teaching tools, creation of a virtual interactive and supportive environment, and most of all, gaining learners' confidence

and keeping the instructors and pupils motivated to attend regular classes. The access to smartphones at the household level offered a low-cost solution to the problem. Building a strong and supportive relationship with parents and students combined with regular capacity building of teachers, helped to make learning fun and interactive.

This enables students and teachers to adapt to the challenges of online learning. With the reopening of schools, students were sensitised to the norms of social distancing, respiratory etiquette and hand hygiene.



Acknowledgement

The successful completion of the school infrastructure projects was a result of convergence between all the stakeholders - administrators, teachers, staff members, students, parents, local leaders, elected representatives and community members.

To promote science-based learning, Biocon Foundation continued its partnership with Agastya International Foundation. In the face of the pandemic, Agastya

pivoted to an online teaching and learning format to prevent losses in learning owing to school closures. The hybrid learning model helped close the achievement gaps for high school students.

The Human Resource Development division of Biocon facilitated employee volunteering in CSR and employees leveraged the opportunity to actively participate and contribute to design learning resources which were engaging for school children.

Environmental Sustainability

Uncommon Stewardship



Rationale

Lakes have a significant impact on the development of Bengaluru, influencing the climate, maintaining the groundwater levels, and have played a vital role in the cultural development of the city. Rapid urbanisation and the growing needs of the metropolis means that the lakes of the city are in danger of disappearing forever. The Council of Scientific & Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) report found that only 21 (10%) out of 210 lakes in Bengaluru had water, fit for drinking in 2020. Multiple studies conducted by Indian Institute of Science (IISc) reveal that urbanisation has led to a 79% decrease in wetlands during 1973 – 2016. Nearly 98% of lakes were encroached, 90% of lakes were sewage-fed and 82% showed loss of catchment during 2013 - 14. According to ATREE's Centre for Social and Environmental Innovation (CSEI), 60% of the wastewater generated by Bengaluru remains untreated and ends up flowing into the city's lakes or downstream.

With reference to the efforts on afforestation, India's national forest policy aims at maintaining 33% of the country's geographical area. According to the India State of Forest Report 2019, the forest cover of Karnataka stands at 20.11% of the geographical area, whereas Dakshina Kannada has a greater forest cover with a total of 3,064 sq. km of forest, spread over 63% of its geographical area. However, Mangaluru city, one of the major commercial centres of the state, is losing green cover to massive urbanisation.

Air pollution levels continue to be a serious public health concern in Bengaluru. Traffic congestions and abysmally slow commute speed have

tremendous adverse impacts on the quality of life of the residents in the city. According to a Greenpeace Southeast Asia analysis of IQAir data, Bengaluru recorded an estimated 12,000 avoidable deaths owing to PM 2.5 air pollution

Approach

Rejuvenating the Waterbodies

Hebbagodi Lake rejuvenation has been conceived with an alternate approach to create a sustainable and healthy ecosystem. Owing to the lack of a sewage treatment plant (STP) in Anekal Taluk, the lake receives untreated sewage and industrial effluent estimated to be at 6 million litres per day (MLD). Biocon Foundation undertook rejuvenation of the Hebbagodi lake and currently, the efforts are focused on maintaining the lake. The maintenance includes eco-friendly solutions such as bioremediation and artificial floating islands, implementation of mechanical aeration to improve the oxygen saturation of water and submersible mixers to prevent sedimentation.

Rapid urbanisation and the growing needs of the metropolis means that the lakes of the city are in danger of disappearing forever. A study conducted by IISc revealed that urbanisation has led to a 79% decrease in wetlands during 1973–2016.



Regular efforts are taken to control weed, floating trash and debris. Additionally, a green belt is being maintained around the lake. The project encourages convergence between stakeholders and community participation in conserving and managing the waterbody.

Another project entails the conservation and management of a pond adjoining Sri Madduramma Devi Temple in Huskur, Anekal.

Miyawaki Afforestation

The Miyawaki method is an afforestation technique to build dense, native forests. The mixed plantation method is adopted to grow a multilayer mini forest in 15–20 years. It is believed that the approach results in 10 times faster plant growth and 30 times denser plantation than the conventional methods, and requires no maintenance after three years. In the multi-stratal approach, the plantation includes a sub-tree layer (6-12 feet), tree layer (20-40 feet) and canopy layer (above 40 feet) to develop a quasi-natural ecosystem. This technique is being increasingly undertaken to create urban micro forests which not only

helps in increasing the green cover, but reduces air and noise pollution and aids in the reduction of heat islands.

Mass Transit System

In the year under consideration, the commitment to ecological balance and sustainability, helped us explore the uncharted territory to support people-oriented and environment-friendly transport alternatives. Mass transit systems lessen the usage of individual vehicles thereby reducing toxic emissions and greenhouse gases.

The Ministry of Corporate Affairs, Government of India issued a memorandum dated January 22, 2020, to include urban transport which is critical to the economic and social

health of the city, as permissible CSR activity under a liberal interpretation of item no (iv) "ensuring environmental sustainability" of Schedule VII of the Companies Act, 2013.

Urban Landscaping

A project to transform Minsk Square, a historical landmark in the centre of the city was undertaken. The landscape architecture approach involved a balance between hardscape and soft scape elements to convert the place into an oasis.



Developments

Rejuvenating the Waterbodies

The maintenance of the lake is an arduous task and involves a list of activities that are planned and carried out daily. Weed control requires pulling to remove most of the roots, preventing the invasive plants from growing back. Plastic, other garbage and debris are contained using trash barrier and bar screens and all the floating matter is removed manually from the lake surface. A bioreactor is installed and operated to produce thousands of litres of enzyme every day, followed by enzyme dosing, using microbes

and bacteria to remove contaminants and pollutants from water. Energy-efficient cascading aerators are employed to augment oxygen absorption into the water. Submersible mixers are used to prevent sludge from settling and remove suspended solids. Recognized as a low-cost nature-based solution, artificial floating islands (AFIs) are deployed as a sustainable solution to mitigate the pollution. To audit the water quality, sampling from various points and analysis are conducted in NABL accredited laboratories.

300%

reduction in
Chemical Oxygen
Demand

1,400%

decline in
Biological Oxygen
Demand

75%

decrease in
Total Dissolved
Solids

Dissolved Oxygen level has increased to 5 mg/l from nil

pH of water is maintained between the appropriate levels of 6.5 and 8.5

Nitrates have reduced to conform to the norms after the treatment



The surrounding and children's park area are maintained to keep them safe, clean, and operational. Security personnel have been appointed to protect the assets and promote safety. The management and maintenance responsibilities are handled by a dedicated team from Biocon Foundation in coordination with concerned government agencies.

The park has become a very safe place for our children to gather, play and have fun. It is always kept clean and maintained properly. The lake used to be littered with trash earlier, but it is well maintained now. It has a walking track, trees and benches, a great place for the families to walk around and hang out.

Jagadeesh

Retailer, Hebbagodi

The whole area was in shambles before restoration, as it was covered in trash and weeds. Further, mosquitoes were a huge problem, and that has been eradicated now. Lake rejuvenation by Biocon Foundation has helped breathe a new life into the area, for our children to play, and for the community to come together.

Manjunath

Resident, Hebbagodi



The maintenance of Huskur Kalyani involves routine cleaning of garbage, removal of weeds, cleaning the bund and maintaining the green cover.

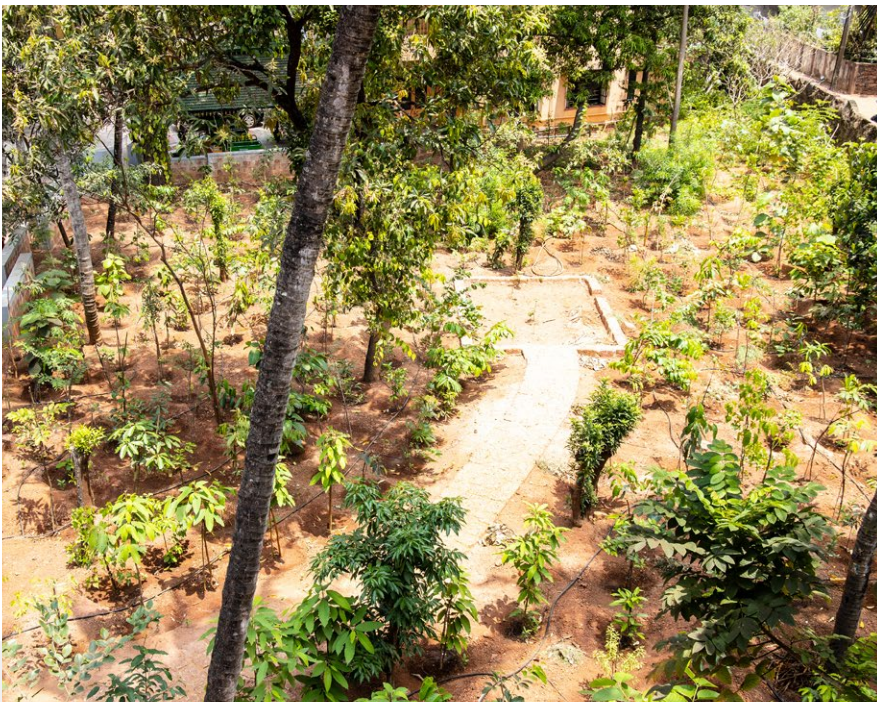
Miyawaki Afforestation

As a part of the initiative, more than 40 varieties of native saplings from the Western Ghats that includes different Plant groups - evergreen, deciduous and perennial plants - were identified to develop an urban green space at Ramakrishna Mission campus in Mangaluru. About 500 native saplings have been planted and are being maintained.

A drip irrigation system has been installed to deliver the water and nutrients directly into the root zone efficiently and prevent the loss of water from evaporation and run-off.

Organic compost, namely "Vermi-Compost" with 7.2 NPK Level, prepared out of kitchen waste is being used to nourish saplings with high doses of nutrition.

The project was dedicated to the citizens on October 02, 2020, in the presence of Deputy Commissioner of Dakshina Kannada district, Commissioner of Mangalore City Corporation, Range Forest Officer, representatives from Ramakrishna Mission (implementing partner) and Syngene International (funding partner), volunteers and residents.



40 varieties of 500 native saplings planted, transforming more than 8,700 sq. ft area into a micro forest.

Syngene International and Biocon Foundation, under CSR, supported us to initiate Miyawaki Urban Forest in Mangaluru City. This project attempts to protect biodiversity by nurturing 40 varieties of 500 native saplings. This project evokes a sense of environmental responsibility among the citizens of the city.

Swami Ekagamyandaji,
Ramakrishna Math, Mangaluru

My first encounter with the Miyawaki technique was at Ramakrishna Mission – a project sponsored by Syngene International. I have been frequently visiting the place ever since, witnessing proper nourishment of every plant and steady increase of flora, rise in the number of earthworms, birds of different species & squirrels coming around, often. This place is a lot cooler, energising & peaceful.

Saritha Shetty,

Lecturer & Resident, Mangaluru

Mass Transit System

On October 08, 2020, Ms Kiran Mazumdar-Shaw, Founder and Managing Trustee, Biocon Foundation signed an MoU with Mr Ajay Seth, Managing Director, BMRCL to fund the construction of the proposed Metro Station at Hebbagodi.

The Hebbagodi Metro Station is part of the new line of 18.82 km from R V Road to Bommasandra, being constructed under Phase II of the Bengaluru Metro Rail Project. This Metro connectivity would provide a sustainable and efficient mode of transport to residents and business commuters from all parts of Bengaluru, reducing traffic congestion on Hosur Road and helping lower the environmental impact from vehicular pollution.

Bengaluru Metro will construct a foot overbridge connecting the Metro Station concourse to the other side of Hosur Road to provide access to commuters and the general public. It will also undertake other station access infrastructure such as footpath improvement on either side of the station up to a distance of 500 meters, as per the MoU.

Once open for public use, the new Metro line is expected to see an average daily ridership of lakhs of passengers, reducing the amount of road traffic congestion and level of emissions and improving air quality.



In recognition of the contribution, the Government of Karnataka issued an order dated December 29, 2020, naming Hebbagodi Metro Station as 'Biocon-Hebbagodi Metro Station' for 30 years.

We are pleased to partner with BMRCL for the construction of the Metro station at Hebbagodi on Hosur Road. Through the funding contribution, we are fulfilling our responsibility towards environmental sustainability by providing an alternate means of mobility for the citizens of Bengaluru. This project will help in easing traffic congestion by enabling greater use of public transportation. Biocon Foundation is committed to investing in public infrastructure to drive social inclusion.

Kiran Mazumdar-Shaw,

Founder & Managing Trustee,
Biocon Foundation

Urban Landscaping

A memorandum of understanding was signed between Biocon Foundation and BMRCL to modify the visible features of Minsk Square. The landscaping involved electrical works, improving surface drainage, construction of planter of about 4,500 sq. ft area, planting of more than 4,000 plants, shrubs and trees of 20 varieties and installation of LED lights to change the appearance of the area, making it inviting for citizens.

Phase I of the project has transformed about 460 Sq. m area into an attractive urban landscape.

Against The Odds

Rejuvenating the Waterbodies

The COVID-19 lockdown posed a challenge, as a disruption in maintenance, for even on short-term basis, could degenerate the lake and its surrounding ecosystem. To sustain the momentum of lake restoration, essential service passes were obtained and maintenance continued unabated with protective measures. The daily wage labourers, who suffered disproportionately during the lockdown, were retained.

The influx of raw sewage into the Hebbagodi Lake, due to the absence of a Sewage Treatment Plant (STP) in the area, poses a major threat to the sustainability of the waterbody. The lack of proper garbage collection and disposal mechanisms in the neighbourhood has led to improper disposal methods, like open dumping in and around the lake. The Foundation has been engaging with the City Municipal Council, Hebbagodi to address these concerns.

Miyawaki Afforestation

Selection and procurement of more than 40 varieties of native saplings, that will survive and grow in the local environment and site conditions as well as maintenance of the plants to have a higher survival rate, were some of the challenges. The Forest Department facilitated the procurement of saplings and regular maintenance has resulted in a survival rate of more than 90% in the short term.



Urban Landscaping

The lack of clear drawings or details about subsurface drainage and the depth available at various points led to design changes. Owing to the COVID-19 lockdown, the construction activities were halted.

As the restrictions were gradually lifted, the activities resumed and Phase I of the project was completed.



Acknowledgement

Rejuvenating the Waterbodies

A collaboration among various stakeholder groups – government agencies, Biocon Group of companies and Biocon Foundation has resulted in conservation and restoration of the water bodies. Citizen's engagement has also been integral to the efforts.

Miyawaki Afforestation

Biocon Foundation has entered into an agreement with Ramakrishna Mission, an organisation engaged in various forms of humanitarian, social service activities for more than a century, to pilot an urban afforestation project in Dakshina Kannada. The district administration, the Forest Department and residents rendered their wholehearted support to the initiative.

Mass Transit System

To build safe and faster travel alternatives, the private partnership financing model between Biocon Foundation and BMRCL will give fresh impetus to sustainable urban transport in Bengaluru.

Urban Landscaping

The public-private partnership to restore and upgrade the sites of historical importance is crucial to preserve the rich history of the city. The partnership between Biocon Foundation and BMRCL is a positive step in this direction.

We are extremely happy to have Biocon Foundation for coming forth with their support for Sustainable Urban Development and Urban Transport. BMRCL is committed to and is working actively to add 128 km of new metro network in the coming five years.

Ajay Seth

Managing Director,
Bengaluru Metro Rail Corporation Limited.

Rural Development **Unequivocal Progress**



Rationale

An assessment of the infrastructure of Anganwadi Centres (AWCs) in India by NITI Aayog revealed that 41% of them had either shortage of space or unsuitable accommodation in 2015. It was also found that 60% AWCs were located in rented accommodations.

According to a report on the utilization of Integrated Child Development Services (ICDS) in Mangaluru, it was found that 25% of children were not attending AWCs regularly. Poor infrastructure in Anganwadis, led to increased enrolment in private nursery schools. The median duration of adherence to Anganwadi services was mere 12 months.

In the state of Karnataka, 3.3 % of schools have no toilet facility and 25.9% of schools have unusable toilets. 7.6% of schools have no separate provision for girls' toilet. While some schools had separate girls' toilets, 25.9% of them were locked and 7.1% were unlocked but not useable (ASER 2018).

Measures to improve infrastructure and providing conditions for quality pre-school and school education are of paramount importance to increase school enrolments and ensure continuity in education.

In India, 41% of Anganwadi Centres had either shortage of space or unsuitable accommodation in 2015, a study conducted by NITI Aayog found. Poor infrastructure in Anganwadis lead to abysmal adherence to ICDS services and increased enrolment in private nursery schools.

Approach

The Foundation adopted an approach that identifies the gaps in the current state of infrastructure and provides solutions to create an environment that encourages parents to send their children to the government AWCs and schools.

We sought to adhere to the recommendations of NITI Aayog in both renovating and constructing

model AWCs. As per their recommendations, an AWC should be located in a convenient and hygienic area and sufficient space should be made available to accommodate the enrolled children. The centres should be protected with boundary walls or barbed wires. An AWC should be well-equipped with water, sanitation and hygiene facilities.



Once operational in an old and dilapidated building, the Maravooru AWC has been transformed into a model Anganwadi with spacious rooms, a large play area, toilet facility and drinking water supply, thanks to the efforts of Biocon Foundation and Syngene International. The new building fulfils the aspirations and caters to the basic needs of children attending AWC. The children can now enjoy a good childhood, consume nutritious foods and obtain quality preschool education, leading to the holistic development of children.

Shalini

Supervisor - Bondel Sector,
Department of Women & Child Development, Dakshina Kannada

Developments

Transforming Anganwadi Centres

Infrastructure development remains crucial to the improvement of the ICDS program. A physical verification was conducted to evaluate the infrastructure of more than 20 AWCs in Dakshina Kannada. It was found that most of AWCs lack adequate facilities, and therefore the gaps in the infrastructure and amenities need to be plugged.

The Anganwadi buildings in Kalavar and Maravooru were found to be unfit for use. To address the issue, model AWCs were constructed and new buildings were inaugurated in

the presence of elected representatives, government officials, anganwadi workers, parents and children. In addition, 14 AWCs were renovated and compound walls were constructed based on their requirements to bridge the inadequacies in infrastructure. AWCs have also been provided with proper facilities, viz. sanitation facilities, portable water units, outdoor playing equipment, toys and so on.



More than 600 children under six years of age are benefiting from the infrastructure upgrades of 16 AWCs in Dakshina Kannada.

The Department of Women and Child Development greatly appreciates the support of the Biocon Foundation and Syngene International. Their CSR initiatives that include construction of new and repair of old Anganwadi buildings, provision of pure drinking water facilities and other developmental activities have enabled us to further the goals of ICDS. Together we are making a huge difference in the domain of women and child development.

Shyamala C K

District Program Officer (ICDS),
Department of Women & Child Development,
Dakshina Kannada

The facelift to Anganwadi buildings has immensely enhanced the delivery of services in rural areas. The construction of compound walls has helped in maintaining nutrition gardens. The application of outdoor protective sheets has boosted the physical education activities in Anganwadi. Availability of RO water purifiers will contribute to the improved health status in children. The parents feel safe and happy now to send their children to the new AWCs.

Ashwini,

Supervisor - Katipalla Sector,
Department of Women & Child Development,
Dakshina Kannada

Strengthening School Infrastructure

The newly constructed buildings of Government Higher Primary School in Huskuru, Bengaluru and Government Kannada Model Higher Primary Boys School in Sira, Tumkuru have been inaugurated. The improved infrastructure will positively influence educational attainment and outcomes.

To provide safe, inclusive and equitable access to sanitation, a toilet block with a handwashing facility was constructed in Government High School in Pejvara, Dakshina Kannada.

The notable improvements in the infrastructure of schools in Huskuru and Sira provide enabling learning environments for more than 500 students.

The sanitation complex built at Government High School, Pejvara provides access to sanitation and hygiene for more than 150 students and influences learning.



Against The Odds

The lockdown imposed to curb the pandemic, temporarily halted the progress of projects in the pipeline. However, as the easing of restrictions was announced, construction activities resumed instantly. The projects have been completed as the government prepares to reopen AWCs and schools in the state.

The economic consequences of the pandemic have pushed many families into poverty and more children are at risk of malnutrition and education disruption. The continued support of robust infrastructure to deliver welfare services will play a vital role in the postpandemic recovery of communities.



Acknowledgement

Facilitated by the Department of Women and Child Development, panchayats, local leaders and communities, the infrastructure of AWCs were upgraded to promote early childhood care and education (ECCE) in Dakshina Kannada.

Stakeholders engagement lies at the heart of the strategy to deliver quality school infrastructure for improved education outcomes. The involvement of and support from the school administration, teachers, students, parents, elected representatives and communities have resulted in the successful completion of the projects.

Grant-in-Aid **Unveiling Possibilities**



Rationale

Miyawaki Afforestation

Developing economies are confronted with rapid degradation of the urban environment. Growing demands have led to a decrease in the green cover in many of the metropolitan cities across India. Environmental degradation and the resulting health issues require quick and sustainable solutions without hindering economic growth and infrastructure development.

Conventional forests or non-native species take decades to grow and require more care and resources, however, native species, are accustomed to the local soil and environmental conditions and hence stand a better chance of growth, and that too a rapid one. With cities running out of time, the restoration of degraded lands is an urgent necessity in the urban areas and the need of the hour is a relatively rapid solution.

Women's Safety

Since the outbreak of the COVID-19 pandemic, people throughout the world have been affected across a number of dimensions – in terms of access to health, education, financial resources and so on. Preventive measures such as implementation of lockdowns have led to large scale unemployment and hunger, and confinement to homes has heightened tensions and strains accentuated by the cramped and confined living conditions.

Data from National Commission of Women (NCW) shows that in India, women filed more domestic violence complaints during the lockdown than what was recorded in a similar period in the last 10 years. In addition to the lasting impacts on an individual's mental health, it also hinders educational attainment and earning potential, and has significant economic and social costs. These

effects are more distinct for women and girls due to pre-existing gendered cultural biases and social norms that make them particularly vulnerable. Violence against women and children has been labelled as "shadow pandemic" by UN Women. As per National Family Health Survey – 5 (NFHS-5), Karnataka has seen an alarming increase in the violence against women and children by approximately 20%.

In order to address this sharp increase, a multidisciplinary approach is of paramount importance for the upliftment and empowerment of women and children.

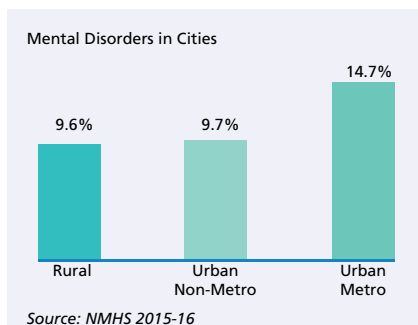
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Mental Health Promotion

Mental health has for decades, been low in the priority of health planners at the state and central levels, and this is well reflected in the quantity and quality of mental health services in India. The needs of patients and families far outstrip the availability and accessibility of services for those with mental disorders. India has scarce mental health resources, such as mental health specialists.

In the current situation of the COVID-19 pandemic, the World Health Organization (WHO) has also expressed its concern over the pandemic's mental health and psycho-social consequences. It speculates that new measures such as self-isolation and quarantine have affected usual activities, routines, and livelihoods of people that may lead to an increase in loneliness,

anxiety, depression, insomnia, harmful alcohol-and drug use, and self-harm or suicidal behaviour. The lockdowns around the world have led to an increase in cases of domestic violence where women and children who live with such violence, have no escape from their abusers during quarantine. A recent survey by the Indian Psychiatric Society, shows a twenty percent increase in mental illnesses since the COVID-19 outbreak in India.



The lockdown may be an important strategy to break the chain of transmission, however, it has also created boredom and monotony among office-goers and children. In many households, children who end up staying indoors become restless and, in some cases, violent. Unable to spend time outdoors has led to increased screen time among children leading to several physical and psychological issues.

Other than the scarcity of specialists, India is still battling the fact that mental health is a taboo which prevents a lot of people from recognizing the need for help and seeking help. The stigma associated with mental health problems may cause reluctance to seek support.

Experiential Learning

The COVID-19 pandemic has led to closures of schools. There is a paradigm shift in the way educators deliver quality education through various online platforms. Transitioning from traditional face-to-face learning to online learning can be an entirely different and challenging experience for the learners and the educators, which they must adapt to with little or no other alternatives available. Innovative pedagogic models, based on gaming, online laboratories and realtime assessment have been adopted recently. These models have shown an improvement in higher-order thinking skills, conceptual understanding, and in many cases, enhanced students' creativity,

imagination and problem-solving skills. Simulations such as remote or virtual online laboratories, provide relatively low-cost access to experiential learning.

It's time to appreciate the full potential of technology for learning. In the wake of this medical emergency, keeping the students' safety in mind, along with their academic concerns, different stakeholders in the education space have been endorsing online learning so that learning only grows and does not recede.



Mass Transit System

Bengaluru is one of the country's fastest-growing metropolitan area. It is the third-largest city with a population of over ten million, a hub of opportunities. The city is experiencing multi-faceted problems as a result of rapid urbanization, one of them being urban congestion. It is defined as excess demand for travel over its supply. The problems caused due to urban congestion are increased air pollution levels, increased stress levels, and increased travel time, that in turn causes productivity loss. There are various policies and initiatives

underway to improve urban mobility, primarily aiming to strengthen urban infrastructure. Mass transit systems are potentially more economical, eco-friendly and less time consuming, making it a sustainable solution for urban mobility. In addition, it is the most proficient way of reducing the ever-growing traffic congestion of the developing city.

Approach

Miyawaki Afforestation

In an attempt to restore the green cover in the Dakshina Kannada district, the Miyawaki urban micro forest initiative was undertaken by Biocon Foundation. Miyawaki is a technique pioneered by Japanese botanist Akira Miyawaki, that helps build dense, native forests. The approach ensures that plant growth is 10 times faster and the resulting plantation is 30 times denser than usual.

The technique supports the growth of a dense, mixed, native forest and results in an ecosystem, complete with small animals, rodents, birds. They have a growth rate of a meter per year, resulting in a complete, mixed, native forest ecosystem in few years, compared to other systems of planting that take about decades or centuries to develop. Miyawaki forests act as carbon sinks, absorbing carbon in the cities and thus have the potential to minimize global warming.

This technique that utilizes the growth of native vegetation with low maintenance is a promising solution to increase the forest cover in our country and provide a greener environment not only for us, but also for our future generations.



Women's Safety

Parihar, an initiative of Bengaluru City Police, is managed by a team of professional counsellors and police staff. It functions as a helpline, crisis and remediation centre working in tandem with the police department to address distress calls from women, children and families as a whole.

Parihar has started Santhwana Centres (satellite offices) in 5 police stations across Bengaluru. The organisation also conducts

workshops, seminars, and awareness programs at schools, colleges, workplaces, and communities for the safety and protection of women and children. Additionally, Parihar imparts skill-based training, encouraging survivors to be self-sufficient and financially independent. The services also include short-stay home facilities, medical facility, psychological counselling, and legal aid to women.

Over the years, Parihar has been successful in assisting more than one lakh women & children, in resolving their disputes through effective counselling, police support, short stay/shelter homes, medical and psychological counselling, and legal assistance.



Counsellors from Parihar visited my college for a talk on Women empowerment. The talk motivated me to stand up for my relative Mubeena who was going through a bad marriage. Mubeena also thanked Parihar for doing such a wonderful job in helping women find the courage to stand up against the acts of subjugation.

Chandini

I was going through very hard time in my personal life. Parihar team supported and helped me to resolve my issues very amicably. I can vouch that any woman who comes to them with their issues will be guided in a rightful manner. This organisation is a blessing to all the women who are going through a tough time. The moral support and the direction given by them helps to regain the confidence and hope in our lives. I'm really grateful to Parihar for all their help and guidance.

Shikha Saran

Mental Health Promotion

Recognising the need for public mental health advocacy combined with innovative and sustainable solutions, the Department of Epidemiology, Centre for Public Health, NIMHANS and Biocon Foundation initiated a dialogue and identified 3 collaborative projects under the themes of Urban Mental Health, Elderly Healthcare and School Mental Health in the year 2019.

The Bengaluru Urban Mental Health Initiative (BUMHI) focusses on developing a mental health resource kit to support community informal care and self-care. The Healthy Hearing initiative focuses on bridging the communication gap for the elderly by providing hearing aids to the needy. The School Mental Health program intends to deal with the concerns related to technology addiction among adolescents.

Experiential Learning

Biocon Foundation, in association with Agastya International Foundation, a Bengaluru based education trust, aims to transform and stimulate thinking of rural students and teachers



by delivering hands-on science education in government schools. It has one of the largest, mobile, hands-on science education programs for teachers and students in India. The program is rooted in orientation to conceptual understanding, rather than rote learning. Other aspects of their pedagogical framework including vernacular medium of instruction and technology-enabled learning are in agreement with the fundamental principles of the National Education Policy (NEP) 2020.

Mass Transit System

In pursuit of sustainable solutions impacting the environment, Biocon Foundation has contributed to the Bengaluru Metro Rail Corporation Limited (BMRCL), towards building a Metro Station in Hebbagodi.

BMRCL, a joint venture of the Government of India and the Government of Karnataka, is a special purpose vehicle entrusted with the responsibility of implementation of Bengaluru Metro Rail Project. Bengaluru Metro immensely adds to the comfort level of travel. In addition, Metro is a major environment friendly addition to the Bengaluru City as it significantly contributes to the reduction of carbon emissions.



Developments

Miyawaki Afforestation

Biocon Foundation partnered with Ramakrishna Mission to launch the initiative on October 02, 2020. The organisation now maintains about 40 varieties of 500 saplings. Drip Irrigation & Sprinklers have been installed for watering the saplings on a daily basis. High quality organic compost & nutrient are being provided to the saplings at regular intervals. This initiative has been successful with the support of the citizens of Mangaluru, which in turn has inspired others to adopt similar initiatives in various parts of the city. The micro forest has been visited by many students, forest officials and senior citizens with an interest to understand the novelty of the technique.

QR codes would be developed by interested students as an interactive format to understand more about the native species which have been planted. The Geo Positioning System (GPS) mapping of the saplings at Ramakrishna Mission would be carried out in order to understand the micro forest size and perimeter.



40 varieties of 500 native saplings planted, transforming more than 8,700 sq. ft into an urban micro-forest.

Women's Safety

The increased domestic violence faced by women and children was aggravated due to the lockdown, wherein sufferers were unable to seek relief outside the home. Through its 24/7 helpline operations, Parihar was able to address several distress calls, and even had counsellors working in night shifts to ensure that the help was just a call away.

With COVID-19, and especially in the case of abandoned women, a rescue van (Pink Hoysala) was deployed to deal with emergencies. Child marriages have been on the rise during COVID-19. With the timely intervention by the Parihar team, several instances of child marriages have been averted.



Parihar registered 3,013 cases and 2,335 (77.5%) cases were reconciled and settled amicably.

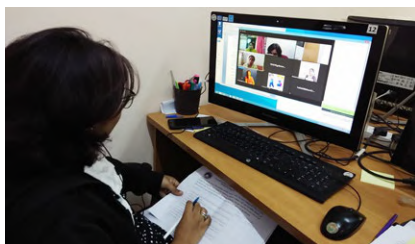
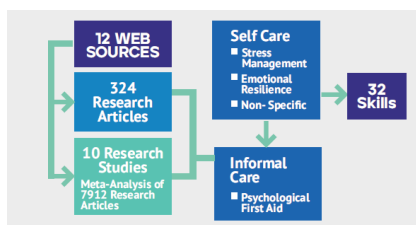
I had approached the Vanitha Sahayavani to seek help in resolving my marriage issues. I should say that Parihar has truly been like another home for me, in providing all the necessary support. The counsellors have always extended emotional support and boosted my morale. I hope I will be able to resolve my issues soon. Thank you all for standing by me.

Dr Rekha

Mental Health Promotion

1. Bengaluru Mental Health Initiative (BUMHI)

Desk review on self-care has been completed. The community consultative meetings were organised and the report is under review. Discussions regarding the different modules were conducted with subject experts including psychologists, public health professionals, psychiatrists, social workers, and educationists at the Department of Epidemiology, NIMHANS. This workshop resulted in drafting of the modules which will be released in 2021.



2. Healthy Hearing

The Technical Review Committee finalized the specifications of the hearing aid and the procurement has been initiated. A soundproof audiology booth has been inaugurated at Government General Hospital, Srinivasapura, Kolar to conduct hearing tests at ease.

3. School Mental Health

The Institutional Ethics Committee of NIMHANS approval has been obtained for the initiative. Transactional methodologies and contents for the teacher's manual identification are in the final phase. A draft of the manual

will soon be ready for release for the purposes of consultation.

Mass Transit System

The Biocon-Hebbagodi Metro station is part of the new line of 18.82 km from R V Road to Bommasandra (Reach 5) being constructed under Phase II of the Bengaluru Metro Rail Project. Bengaluru Metro will construct a foot-overbridge connecting unpaid area of the Metro Station concourse to the other side of Hosur Road to provide access to Metro commuters and the general public. It will also undertake other supporting infrastructure such as footpath improvement on either side of the station, up to a distance of 500 meters.

The Metro connectivity would provide a sustainable and efficient mode of transport to hundreds of thousands of residents and business commuters from all parts of Bengaluru, reducing traffic congestion on Hosur Road and helping lower the environmental impact from vehicular pollution.

Experiential Learning

Through the EPL initiative (Explore, Play & Learn), Agastya has provided at-home learning sessions to the students. These sessions promote self-learning and self-exploring capacities of students and enable them to learn through their household materials and daily life situations. Career guidance sessions for students of class 10 were organized to help them choose appropriate careers based on their interests and skills. Digital Summer Camps have helped engage the children through daily activities such as art crafts, lowcost model making, and so on. Virtual Science Fair was organized with experiment sessions to help students explore science.

1,600 students of 14 government schools in Anekal received 46,200 virtual exposures and 6,200 face-to-face exposures, each exposure being 1-1.5 hours in duration.

Key behavioural shifts among students have been noted; 16% improvement in levels of awareness and curiosity and 21% improvement in confidence.

Against The Odds

Miyawaki Afforestation

The lockdown led to scarce labour and sometimes material, thus hindering the maintenance of the plants. However, Ramakrishna Mission took up in-house vermicomposting ensuring access to rich manure. The installation of drip irrigation, further resolved maintenance issues. Social distancing norms, have prevented visitors from coming to these micro forests. However, post the lockdown, more visitors at the venue are expected.

Women's Safety

One of the challenges faced by the Parihar team was loss of follow up, as many beneficiaries have moved back to their hometowns due to the lockdown imposed to tackle the pandemic. The lockdown has restricted many to their homes, and those who do not have access to phones have been suffering as they are unable to reach out for help. There has been some hesitancy in terms of adapting to the new form of tele-counselling. Despite the overwhelming distress calls received during the lockdown, the counsellors worked in shifts to provide free tele-counselling, police assistance/ intervention, and carry out rescue of women and children when required.

Mental Health Promotion

In order to hold community consultative meetings under BUMHI project, virtual meetings were conducted as an alternative to traditional face-to-face meetings when needed. The virtual engagements with community stakeholders led to the development of modules of the self-care resource kit.

Despite the challenges of the pandemic, a soundproof audiology booth has been established for hearing examination at General Hospital, Srinivasapura, Kolar, the Public Health Observatory of the Department of Epidemiology, NIMHANS.

The School Mental Health initiative requires data collection as well as interaction in the field. Owing to school closures, field-related activities could not be undertaken. With re-opening of schools and academic institutions, it is expected that all the initiatives would gain momentum.

Experiential Learning

With school closures, the learning format was quickly shifted to an online mode, thereby ensuring continuity in learning. It required adapting to a variety of online teaching tools, creation of a virtual, interactive and supportive environment, and most of all, gaining learners' confidence and keeping the instructors and pupils motivated to attend regular classes.

The continued support by the parents and students combined with regular capacity building of teachers have helped to make the learning fun and interactive. It has enabled students and teachers to adapt to the challenges of online learning. Once the schools were reopened, the students were sensitized to the norms of social distancing, respiratory etiquette, and hand hygiene.

The hands-on teaching methods employed by Agastya Instructors are unique. The instructors are approachable and maintain skills and professionalism in all areas. During the lockdown, digital summer camps helped students continue their learning. I express my gratitude and appreciation for all the support towards government school children and teachers.

Naveen

Science Teacher,
GHPS Anekal

Mass Transit System

COVID-19 lockdown initially saw the migration of workers to their hometowns, thus causing a dearth in availability of manpower. With the relaxation of the lockdown, a gradual influx of workers has enabled construction activities to continue.

Acknowledgement

Miyawaki Afforestation

Ramakrishna Mission has been instrumental in making the Miyawaki Urban Forest project a reality in Dakshina Kannada. Their motivation and perseverance have spearheaded the desired change, bought about by this initiative for environment and for the community.



Women's Safety

The successful implementation of initiatives for women's safety were a result of cooperative efforts by the Commissioner of Police and their team including senior officers, local police stations, BBMP, Health department, Women and Child Welfare Department and the entire team of Parihar.

Mental Health Promotion

The knowledge and skill set provided by the experts at NIMHANS is the driving force behind various initiatives. Their constant research has enabled identification and management of mental health in different settings and age groups.

Experiential Learning

The constant effort of Agastya has been commendable during these challenging times. Agastya has quickly adapted to the situation at hand, transforming its outreach programs from physical mode of instructorstudent interaction to online platforms. The instructors have connected with students using online platforms thus minimizing the health risk. We are certain that Agastya will excel in offering blended learning, once schools reopen.

Mass Transit System

BMRCCL plays a huge role in turning this blueprint from mere sketches to reality. Perseverance by the team is commendable and none of this would be possible without their support.

Awards & Accolades

Unflinching Focus



- **The Jury Commendation Certificate for Oral Cancer Screening program under *Exemplary Innovation* category was presented by Shri Anurag Thakur, Hon'ble Minister of State for Finance and Corporate Affairs, Government of India at the *18th FICCI CSR Awards*.**
- **The *Organization Icon Award* for invaluable health services to the underprivileged sections of the society was presented by Dr. J Radhakrishnan, Principal Secretary to Govt. of Tamil Nadu, Health & Welfare at the *Alert Being Awards (ABA) 2020*.**
- ***Best Corporate Foundation Award* was presented at the *World CSR Congress 2021*.**



Biocon Foundation in the News

Untiring Pursuit









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