CONSOLIDATED DECK

EDUCATION

KALLAM ANJI REDDY VIDYALAYA (KARV)

Kallam Anji Reddy Vidyalaya, established in 2001, is a co-educational day school committed to providing quality education to children from economically disadvantaged backgrounds. The school follows the State Board curriculum and prepares students for the Secondary School Certificate (SSC) examinations. From the academic year 2025 onwards, KARV is affiliated with the Central Board of Secondary Education (CBSE).

Key Program Activities

Counselling and career guidance sessions

202 students trained in General Duty Assistance Course

100 students trained in Football and 20 in Music

Functional Literacy and Numeracy (FLN) Classes

Campus Amenities

95 qualified educators with 1:40 teacher-student ratio

Inqui-Lab STEM projects

Access to Digital library

Student Health awareness clubs

Foundational Impact

100% pass rate of 180 students from Grade X

65% of students achieving the top 3 grades highlighting exceptional academic performance

90% of students enjoy going to school, with socializing and learning new things being key motivators

248 students received FLN (Foundational literacy and numeracy) training

Academic Achievement

85% have **regular attendance, showing consistency and commitment**

95% enjoy interactive **teaching methods and peer learning**

Holistic Development

90% students actively **participated in extracurricular activities**

65% reported **improved teamwork and communication skills**

Equity & Inclusion

100% of students felt their **teachers are supportive and encouraging**

95% believed there are **equal opportunities to participate** in school activities

Future Aspirations

70% aim to **pursue the MPC,** with clarity about competitive exams

80% explored multiple career options indicating **early awareness and planning**

77% of parents mentioned that the **school's academic structure and hands-on science experiments reduce the need for external tuition, reinforcing its strong educational foundation.** While 55% of parents provide **direct support through homework or tuition,** others rely on teacher guidance and motivational encouragement. KARV is a pillar of academic and personal growth, with **opportunities to enhance career counselling, cultural engagement, and financial guidance for students**

*** Surveys were conducted with Students n=12, Parents n=11 and IDI with the Headmaster*

KALLAM ANJI REDDY VOCATIONAL JUNIOR COLLEGE (KARVJC)

KARVJC was started in 2003 to enable matriculate students from low-income families attain employment oriented technical education. Students from low-income families used to settle for low-paying daily-wage jobs, as it was difficult to support their family's sustenance if they pursued a four-year degree. KARVJC supports these students through two-year vocational courses.

Key Program Activities

9 Industry-Relevant Programs

Bridge courses for National entrance exams

On-the-job training (OJT)

Soft skills training

Campus Amenities

Inclusive and accessible amenities

37 faculty members support academic and co-curricular activities

Regular industrial visits every 3 months

Serves underprivileged youth from Government orphanages and NGOs

Foundational Impact

Over 60% of students pursue higher education

15+ students secured admission into advanced degree programs

30% of students opt for professional certifications and university-level healthcare programs

Students aspire to **careers in banking, lab technology, teaching, and biotechnology,** with some aiming for roles like CA or MBA in finance

Transformative Learning

Most students are from marginalized communities provided with **vocational education addressing the lack of quality higher education in rural areas**

85% of students finding the curriculum relevant to their career aspirations, and **78% of parents acknowledging its practicality**

The average salary ranges from ₹10,000 to ₹20,000. Part-time roles tend to offer around ₹5,000 to ₹6,000

60% of parents shared that their children had shown **significant improvement in communication skills, with many now confidently speaking in public or guiding others.** 50% noted a **boost in confidence and self-expression**, while 40% said their children were using medical or technical terms at home, showing real-world application of learning. 20% noted **visible leadership skills, like taking initiative in class or helping peers**

Surveys were conducted with Students n=10, Parents n=10 and IDI with the Headmaster

SCHOOL IMPROVEMENT PROGRAM (SIP)

Launched in 2011, School Improvement Program (SIP) aimed at providing quality education to children studying in government schools near Dr. Reddy's in Bachupally. Initially starting with 11 schools, the program has now expanded to 100 government schools in Telangana and Andhra Pradesh.

Key Program Activities

Initiated FLN & EL intervention in 100 government schools

Learning through comprehension, grammar lessons and phonics-based learning

Emphasis on problem-solving, creative writing, and interactive learning methods

English sessions for improving communication and job opportunities

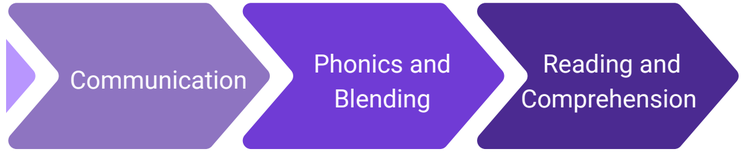
Formation of health clubs under WaSH intervention

Encouraging students to wash hands, proper waste disposal, and hygiene practices

FLN & EL learning gains

59% **students reported improved academic confidence**

95% students attended at least one **English session**



English Literacy concepts

Foundational Literacy and Numeracy concepts

Parents have reported encouraging progress in their children's academic journey, with **38% observing clear improvements in reading, writing, and solving Mathematics problems.** Around **25% highlighted noticeable growth in English speaking and communication.**

18% of parents shared that their children are showing steady and consistent improvement across subjects

Better hygiene, healthier homes

89% students reported that maintaining cleanliness in school and their surroundings not only keeps them healthy and active but also fosters positive thinking and discipline

Students reflected handwashing, proper waste disposal, and hygiene practices have helped in preventing diseases like diarrhoea and cholera

The program has also influenced students' dietary habits, encouraging them to consume nutritious food like eggs and ragi malt

WASH (Water, Sanitation, and Hygiene) sessions have had a significant positive impact on both students and their families. **89% parents reported that their children attended these sessions and observed improvements in their hygiene and health habits**

From the parents' perspective, **60% noticed clear enhancements in their child's cleanliness and self-care practices**

Surveys were conducted with Students n=59 and Parents n=57

SASHAKT SCHOLARSHIP FOR WOMEN IN STEM

Sashakt Scholarship is a one-of-its-kind initiative to encourage young women across India to prepare for and pursue a career in STEM. It provides a level playing ground to girl students, especially from rural India and low socio-economic backgrounds, to get access to quality education in some of India's best STEM institutions by offering financial support and mentorship throughout their undergraduate studies.

Key Program Activities

Scholarship covers three years of studies for career in STEM

Financially empowering rural and economically challenged girls

Enhancing technical, research, and leadership capabilities

Guided by lead woman scientist for career and academic advice

Building a strong network of women in STEM

Facilitating internships, industry exposure and job opportunities

85% students mentioned that the scholarship allowed them to complete their education without the need for part-time jobs or loans, which would have been a significant challenge for their families

75% students mentioned that the scholarship helped cover their admission fees, semester fees, and in some cases, the costs of essential resources like laptops or books

70% students expressed aspirations to pursue advanced degrees or career positions in fields such as Software Development, Research, Government Services, and Agricultural Sciences

70% students mentioned that the scholarship helped them gain independence, particularly those who moved away from home to study, and appreciated the chance to build a support network away from their hometowns

60% students reported understanding of careers in science, technology, engineering, and mathematics

80% students stated that their families were more supportive after receiving the scholarship

70% students expressed a strong desire to mentor future scholars, indicating a growing sense of confidence and leadership fostered by the program

60% of parents acknowledged that the scholarship **significantly reduced financial burdens, allowing them to support their daughter's education without economic strain.** While only 20% of parents explicitly recognised increased confidence and motivation in their daughters, **this indicates a potential gap in parental awareness**

With an average rating of 9.8/10, the scholarship received high parental approval, and 40% of parents stated they **would actively recommend it to other parents**

*** Surveys were conducted with Students n=12 and Parents n=10*

DR. K ANJI REDDY'S CAN-DO ETR GRANTS

Dr. Reddy's is committed to advancing scientific research by supporting early-stage translational efforts. Through the Dr. K. Anji Reddy CAN DO ETR (Catalysing Academic New Discovery Opportunities - Early Translational Research) initiative, the organization strives to strengthen India's research ecosystem and foster innovation. Implemented in collaboration with Ignite Life Science Foundation, this initiative is grounded in the spirit of enabling knowledge creation and community benefit, with no orientation toward commercialization or proprietary outcomes.

Key Program Activities

Cost Savings in Healthcare and Advancing Novel Therapies

Accelerating Biotech Innovation and Drug Discovery

Foundational Impact

Scientists report accelerated research progress because of the grant

Projects achieved critical early-stage research milestones within the first year of support.

50% resolved infrastructure issues using grant funds

Boosts employment in R&D and translational medicine

Improved Public Health Outcomes - Research focused on developing alternative treatments for chronic pain, addressing a major healthcare gap and reducing reliance on opioids. It aims to provide cost-effective, safer pain management solutions, improving healthcare access for underserved populations.

Cost Savings in Healthcare Systems - Support enables the development of more efficient chemical production methods, leading to lower costs in drug manufacturing and diagnostics. By improving production processes, the research can reduce overall healthcare delivery costs, benefiting both public and private systems.

Strengthening India's Scientific Innovation Ecosystem - Support enables researchers to tackle infrastructure and funding challenges, advancing critical research in India. The research strengthens India's scientific base, promoting innovation and collaboration in biomedical and pharmaceutical fields.

***2 IDIs were conducted with the Scientists*

SKILLING AND LIVELIHOOD

YOUTH SKILLING

Dr. Reddy's Youth Skilling Program focuses on building core employability skills of youth that are domain agnostic and help youth meet job requirements of multiple sectors, placing them in quality jobs that match their aspirations.

Key Program Activities

Mobilization: Customised outreach activities for the centre to enrol the right target group for the program

Training: Activity-based sessions leveraged to equip youth with core employability skills

Counselling: Youth are oriented about the reality of job market and their aspiration related to job is captured

Placement: Candidates are provided employment opportunities in companies aligning with their aspirations using a match-making platform

Assessment and Certification: Candidates are assessed based on their knowledge and skills and provided certification

Post-placement follow-up: Concurrent monitoring of placed candidates to ensure job continuity

Discovery of the Training Program

60% of the participants discovered the program through friends and family

Awareness of Other Institutions

78% of participants were unaware of alternative institutes

Reasons for Enrollment

85% of participants joined for job opportunities and skill development

Training Experience

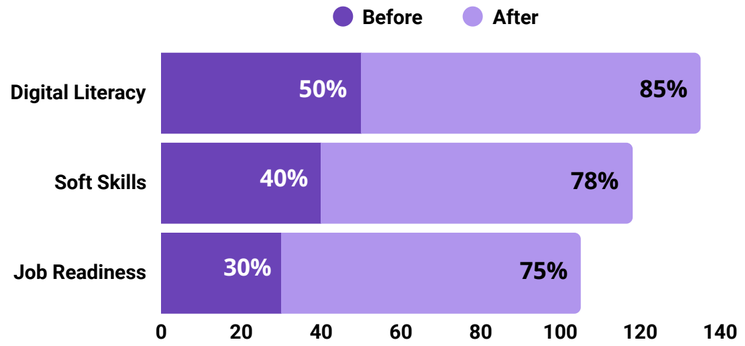
88% said facilitators were knowledgeable and explained concepts well

85% experienced a boost in confidence at workplace, with benefiting from increased self-worth and professional identity

70% youth reported increased respect in their communities and families, while 30% enrolled in further upskilling programs

60% faced initial struggles in corporate environments and have gradually improved their soft skills and professionalism

Skill Growth Before and After Training



Parents' Insights

92% parents reported a significant improvement in their child's confidence and communication skills

82% parents reported that their family's financial situation improved after their child got a job.

88% parents stated that their child now contributes financially to the family after completing training

74% parents hope their child will secure a better job and higher salary in the future.

***Surveys were conducted with Youth n=32 and Parents n=6*

PwD SKILLING

Person with Disabilities skilling program is a placement-linked skilling program for youth with locomotor, visual, speech and hearing impairment, which aims to mainstream them in the workforce by training them on core employability skills.

Key Program Activities

Mobilization: Customised outreach activities for the centre to enroll the right target group (Persons with Disability) for the program

Training: Activity-based sessions leveraged to equip youth with core employability skills

Counselling: Candidates are provided employment opportunities in companies aligning with their aspirations using a match-making platform

Placement: PwDs are oriented about the reality of job market and their aspiration related to job is captured

Assessment and Certification: Candidates are assessed based on their knowledge and skills and provided certification

Post-placement follow-up: Concurrent monitoring of placed candidates to ensure job continuity

Discovery of the Training Program

60% of the participants discovered the program through friends and family

Awareness of Other Institutions

30% of participants were aware of similar training programs

Reasons for Enrollment

60% participants enrolled due to the program's reputation and accessibility

Training Experience

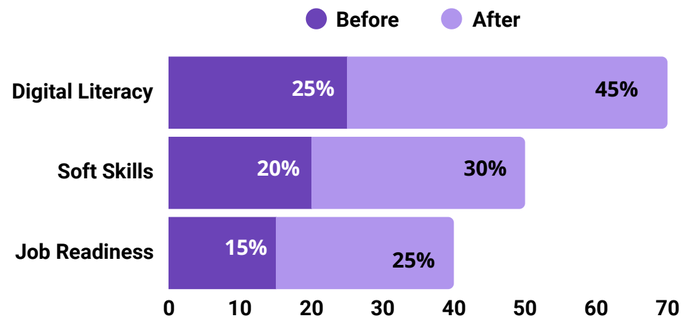
80% of participants were highly satisfied with the program

70% employed participants have stayed in the same job since placement whereas 30% are actively seeking better opportunities

80% participants secured jobs after completing the training whereas 20% are still unemployed, with waiting for better opportunities

90% participants reported an increase in confidence after training. Additionally, 60% improved their communication skills, and 70% gained useful computer and technical skills

Skill Growth Before and After Training



Parents' Insights

90% parents noticed a boost in their child's confidence, with many becoming more independent social interactions

50% trained participants started contributing to family expenses, easing financial burdens

65% parents observed that their child's progress inspired others in the community to consider similar training programs for their children

70% parents hoped for their child's long-term job stability, showing aspirations for continuous growth and career security

***Surveys were conducted with PwD n=29 and Parents n=8*

HEALTHCARE SKILLING

Addressing the shortage of skilled healthcare professionals, the Healthcare Skilling Program prioritizes training for women from low-income families. Focused on creating proficient allied healthcare workers, the program equips women with quality training tailored for roles in the non-medical health sector, ensuring their readiness for the workforce.

Key Program Activities

Mobilization: Customised outreach activities for the centre to enrol the right target group for the program

Training: Activity-based sessions leveraged to equip women with core employability skills

Counselling: Candidates are provided employment opportunities in companies aligning with their aspirations

Placement: Candidates are oriented about the reality of job market and their aspiration related to job is captured

Assessment and Certification: Candidates are assessed based on their knowledge and skills and provided certification

Post-placement follow-up: Concurrent monitoring of placed candidates to ensure job continuity

Discovery of the Training Program

40% of the participants discovered the program through friends and family

Awareness of Other Institutions

65% of participants were unaware of similar training programs

Reasons for Enrollment

40% of participants joined for career advancement and learning

Training Experience

90% of the participants rated their experience as excellent

65% individuals plan to continue working after marriage, indicating a strong commitment to their professional careers

85% aspire to specialize further in General Nursing and Midwifery, B.Sc. Nursing, or specialized healthcare roles

90% youth reported increased respect in their communities and families, while 45% are enrolling in further upskilling programs

Completion & Engagement

Completion rate

95%

Average attendence

89%

Number of sessions = hands-on experience

65%

Parents' Insights

60% youth helped in family expenses, with 40% contributing to daily needs or loan repayments

50% trained students started contributing financially, with some reducing their family's financial burden

95% parents hope their child will secure a better job and higher salary in the future

75% reported their child becoming more responsible, independent, and socially active after training

***Surveys were conducted with Women n=32 and Parents n=5*

Making Integrated Transformation through Resourceful Agriculture (MITRA)

MITRA empowers farmers through the adoption of cutting-edge technology and modern farming techniques. By enhancing productivity and reducing input costs, MITRA aims to boost farmers' incomes and overall well-being. The initiative establishes community-owned platforms at the village level, facilitating efficient utilization of last-mile connectivity through a network of lead farmers. This enables small and marginal farmers, who lack access to agri-extension services, to benefit from improved agricultural practices.

Key Program Activities

Farmer-to-Farmer extension through the Lead Farmers platform refers to a knowledge-sharing approach where experienced and progressive farmers (lead farmers) serve as mentors, guiding and educating fellow farmers on best agricultural practices, modern technologies, and sustainable farming methods

Package of Practices (PoP) involves using different agronomy practices (land preparation, seed treatment, seed rate, weed management, pest management, etc.) that reduces the overall cost of cultivation

Intercropping involves cultivating two or more plant species (potato and maize) closely together in the same field, increasing productivity per unit area and maximizing resource utilization

Mushroom cultivation was promoted as a non-farm intervention for enhancing the income of landless/migrant labourers particularly women

Improved Yield (87%) – The adoption of nuanced practices led to a 15-25% increase in crop output, particularly for wheat and paddy, by **improving soil moisture retention and plant health**

Cost Savings (81%) – Farmers reduced fuel and labor costs by 20-30% through mechanization, **optimised fertilizer application, and water-saving techniques, making farming more cost-efficient**

Better Soil Health (62%) – Zero tillage and crop diversification enhanced soil moisture retention and organic matter content, **leading to long-term soil fertility improvements and better drought resilience**

Income Gains (56%) – Farmers earned 10-30% more due to higher yields, reduced costs, and **diversified income sources like intercropping and mushroom cultivation, strengthening financial security**

Govt Scheme Awareness (44%) – Nearly half of the farmers successfully applied for financial aid and subsidies, **gaining better access to credit for farm inputs, irrigation support, and mechanization**

Market Confidence (75%) – By eliminating middlemen and improving negotiation skills, farmers accessed better markets, **received higher prices for their produce, and strengthened their bargaining power**

Peer Learning

Seeing results on other farms and **80% learnt from fellow farmers**

Higher Income

10–30% reported cost savings **post-intervention**

Desire for Market Linkages

Farmers seek **better market access, storage solutions to sustain momentum**

Team Interaction

85% of farmers acknowledged supportive **engagement with program teams**

Community Leaders view MITRA program as a **critical enabler of agricultural transformation in their villages**. The program has also built confidence among farmers by offering timely **on-ground support, access to equipment, expert guidance, and information on government schemes**. Importantly, leaders note a cultural shift: farmers are now more open to innovation, forming informal groups, and sharing knowledge. Leaders believe that sustained impact will require **stronger government partnerships, continued field-level engagement, and expansion of the program to underserved areas.**

***Surveys were conducted with Farmers n=10 and Community Leaders n=4*

ENVIRONMENT

Action for Climate and Environment (ACE)

ACE focuses on tackling and mitigating the impact of climate change on communities while simultaneously increasing its resilience to climate risk. It deploys varies strategies for climate-proofing the livelihoods of small and marginal farmers to the increasingly adverse impact of climate change by nudging them to adopt climate-friendly technologies and farming practices.

Key Program Activities

Dry Direct Seeded Rice (D-DSR) is a method of sowing rice seeds directly into dry soil by broadcasting, drilling with tractor-powered machines, or dibbling/hill planting, eliminating the need for nursery preparation or transplantation

Zero Tillage Maize (ZTM), also known as no-till farming, is a conservation agricultural technology that involves sowing crop seeds directly into unplowed fields, eliminating tilling and minimizing soil disturbances

Wet Direct Seeded Rice (W-DSR) involves sowing pre-germinated seeds in wet puddled soils, offering an alternative to conventional rice transplanting methods

Alleyways in Paddy involves transplanting paddy in rows with pathways of 20-30cm width after every 2-3 meters, enhancing sunlight exposure and aeration in the rice field

Alternate Wetting and Drying (AWD) is a water-saving irrigation technique for lowland rice production, involving periodic drying and re-flooding of fields to reduce water consumption and greenhouse gas emissions without significantly impacting yields

Income Boosts from Efficient Practices

Farmers using drip irrigation and zero tillage reported income increases of 20–40%, mainly due to savings on irrigation and land prep, plus better yields. Zero tillage in wheat saved ₹3,000–₹5,000 per acre and earned ₹6,000–₹10,000 more per season.

Yield Gains through Better Soil and Water Use

Yields improved by 10–25% with zero tillage and drip irrigation. Zero tillage led to healthier soil and better moisture retention, after two seasons. Drip boosted yields in vegetables by 15–25%. AWD kept yields stable or higher (5–10%) using less water.

Cost Reductions in Labor, Water, and Fertilizer

AWD and zero tillage cut irrigation and labor needs by 20–30%, saving ₹1,500–₹2,500 per acre. Zero tillage also reduced labor by 20–40%. Drip irrigation helped farmers save 10–15% on fertilizers via fertigation.

Knowledge Sharing

79% reported that **SHGs played a key role** in knowledge sharing and skill-building

Higher Income

38% increase in income per acre by **reducing input costs and increasing yield**

Policy Scaling

More than 65% of farmers **benefitted from subsidy programs** supporting DSR and Zero Tillage adoption

Climate-Smart Practices

Widespread adoption of DSR & Zero Tillage led to **improved soil texture, water savings, and lower fertilizer use**

This shift improves soil health and **prevents degradation, ensuring long-term productivity.** Reduced chemical use fosters more sustainable and eco-friendly farming

23% Reduction in Fertilizer Consumption

Reduced pesticide use has made farming safer and **more sustainable, protecting human health and biodiversity.** Lower chemical exposure improves reduces the ecological footprint

84% Reported Fewer Pest Infestations

***Surveys were conducted with Farmers n=10*

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Impact Assessment of Dr. Reddy's Laboratories CSR Programmes FY23-24

April 2025

SoStakes
Driving Social Value

What gets measured, gets valued

Table of Contents

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1. Executive Summary

The Indian health system, while making significant strides in recent years, still faces several challenges. The sector is overburdened, grappling with a high population-to-doctor ratio, inadequate infrastructure, and limited resources—especially in rural and underserved areas. The system struggles to meet rising healthcare demands, highlighting the urgent need for investment.

In addition to healthcare accessibility, clinical research and medical innovation face hurdles due to insufficient funding, outdated infrastructure, and a lack of publicly available disease data.

To address these challenges, targeted initiatives were undertaken by Dr Reddy's.

This Impact Assessment (IA) report covers the following health programmes

- Community Health Intervention Programme (CHIP) in Srikakulam implemented by NICE Foundation
- Improving health services by strengthening infrastructure in Aakar Asha Hospital, Hyderabad, and Banaras Hindu University, Varanasi implemented by Dr. Reddy's Foundation
- Primary Health Centre (PHC) Upgradation, Srikakulam implemented by Dr. Reddy's Foundation
- Telangana Centre for Fourth Industrial Revolution, Hyderabad implemented by Telangana Life Science Foundation
- Rare Disease Initiative, Hyderabad Implemented by Dr. Reddy's Foundation and Dr. Reddy's Institute of Life Sciences.
- Transforming Lives with Plant-Based Nutrition, implemented by Ahimsa Trust in collaboration with Physicians Association for Nutrition India (PAN India).

SoStakes has undertaken an IA of the above-mentioned programmes for FY23-24 under thematic area of health. The study involved visiting the PHCs, community level health services and hospitals to understand the healthcare delivery mechanism and its impact on the community. We collected qualitative data through an observation checklist, in-person and online discussions with beneficiaries, and in-depth interviews with the stakeholders. The assessment has been presented using the OECD DAC evaluation criteria of Relevance, Effectiveness, Efficiency, and Impact.

CHIP: The programme provides access to primary health care services in underserved communities by conducting 14,880 health camps across 155 villages through bi-weekly visits per village. The intervention provided essential services for general ailments, chronic diseases, and maternal and child health, facilitating 1,308 institutional deliveries and supporting antenatal care. A dedicated CHIP team ensured consistent service

delivery, collaborating with ASHA workers, Anganwadi teachers, and local health centres. The initiative reduced financial and physical burdens by offering free medicines and consultations, optimizing public healthcare resources, and improving the management of non-communicable diseases through regular follow-ups and referrals.

Primary Health Centre (PHC) Upgradation: Under this initiative in FY 23 & FY 24, 11 PHCs were upgraded in consultation with the district health department. The upgradation work involved essential diagnostic, pharmacy management, labour room upgradation, staff training and capacity building, efficient patient management using technology and overall infrastructure upgradation to improve healthcare access for 588 villages, which have a population of 3,69,242. Previously, poor infrastructure and lack of diagnostic facilities led community members to avoid PHCs, opting for expensive and distant private clinics instead. The end-to-end upgradation, completed in 4–6 months per PHC, improved services and increased OPD footfalls and institutional deliveries. 100% of interviewed beneficiaries expressed satisfaction with the upgradation, highlighting enhanced patient experience and better healthcare accessibility.

Improving health services by strengthening infrastructure in Health facilities: Aakar Asha is a 100-bed hospital in Hyderabad offering free reconstructive surgeries for underprivileged patients, which received OT equipment, including an anesthesia workstation and sterilization units, thereby improving hygiene and operational efficiency. 300 surgeries were done with the support of Dr. Reddy's provided equipment. Beneficiaries of cleft, burn, and accident-related reconstructive surgeries expressed gratitude for the free treatment received from the hospital. Institute of Medical Sciences, Banaras Hindu University, Varanasi received laparoscopic equipment and an MRI-compatible anesthesia workstation for its affiliate hospital, Sir Sunderlal Hospital and the Trauma Centre. The support enabled 450 additional surgeries.

The Telangana Fourth Centre for Industrial Revolution (C4IR) is bridging skilling gaps and fostering healthcare innovation through strategic partnerships. The students were mobilised for a six-month skilling programme in Synthetic Organic Chemistry, which was initiated in the subsequent year. A Clinical Registry for Haemophilia was initiated to enhance diagnostics and research. C4IR is accelerating medical innovation, industry-ready skills, and healthcare research.

A Rare Disease Research Facility was established to develop genetically engineered models of rare diseases to aid research on such diseases prevalent in

India. The research outcomes include the creation of six genetically engineered disease models using CRISPR and the setting up of a repository for zebrafish sperm and cell lines. A workflow for rare disease gene mutation has been developed, supporting an in-house model generation, preclinical evaluation, and cryopreservation. Research outputs include a provisional patent for a Duchenne Muscular Dystrophy (DMD model) and a published study on Fragile X Syndrome. 3 scientists and 25-30 researchers benefited from the Facility. The Facility is driving innovation, fostering academic and industry partnerships, and accelerating India's rare disease research ecosystem, contributing to crucial hands-on training in this much-needed area. Training has been and will continue to be a major focus area in rare disease research.

Transforming Lives with Plant-based Nutrition is a transformative initiative aimed at integrating plant-based nutrition into healthcare to combat chronic diseases, climate change, and pandemic risks. The programme has built a strong network of 2000+ students, 1500+ physicians, 50 ambassadors, and 150 volunteers, driving a nationwide shift toward nutrition-focused healthcare.

Dr. Reddy's programmes have contributed significantly to the healthcare needs of communities and to the larger healthcare ecosystem. The programmes target local communities and while also supporting larger state-level initiatives to promote healthcare research and innovation. The Insights obtained from this evaluation are highly positive and encouraging for future efforts.

Community Discussion in Pedda Nadipalli, Pusapatirega, Vizianagaram District.

2. Background

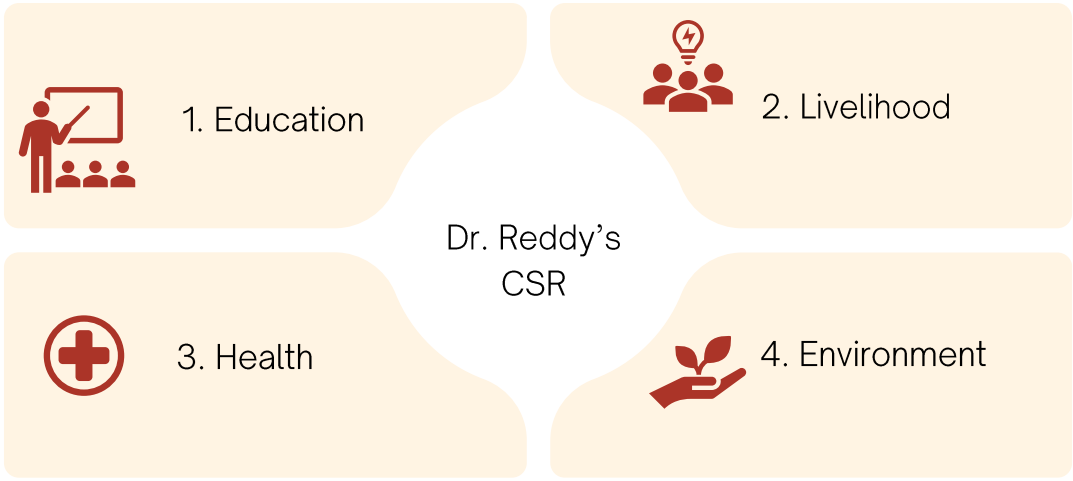
India’s public healthcare system is faced with challenges including inadequate infrastructure especially in rural areas, shortage of trained healthcare professionals, burden of out-of-pocket expenditure, and rural and urban disparity in access to quality healthcare.

India's public healthcare system has more than 2 lakh public healthcare facilities, which include primary health centres, community health centres, and district and sub-district hospitals. The system is faced with many challenges, including inadequate infrastructure, a shortage of healthcare professionals, and insufficient funding.[1] These problems are particularly evident in rural India, where 65 per cent of our population lives (National Family Health Survey 2021)

The Ministry of Health and Family Welfare’s (MoHFW) Indian Public Health Standards dashboard published the findings of a self-assessment study of public health facilities in June 2024. The dashboard revealed that almost 80 percent of public health facilities did not meet the minimum essential standards for infrastructure, manpower and equipment benchmarks set by the Government. Only 20% of them had the required infrastructure, manpower, diagnostics, drugs and equipment to provide essential services.[2]

There is also a significant disparity in the accessibility and quality of healthcare services between urban and rural areas. Urban areas have better infrastructure, access to skilled professionals, and availability of specialized care, while rural areas often struggle with inadequate facilities and limited human resources.

Inadequate funding and outdated infrastructure are some of the challenges that impact clinical research in the country.



Dr. Reddy's CSR programmes respond to community needs and priorities. They include empowering communities through livelihoods enabling skills and employability initiatives; access to high-quality education in schools and colleges; healthcare and promoting the scientific temper to encourage socially relevant innovation in society; and environmental sustainability.

In healthcare, the interventions are to enhance accessibility and quality of primary healthcare for economically disadvantaged rural households, and to strengthen public health infrastructure.

Dr. Reddy's CSR healthcare programmes align with the National Health Mission agenda, universal health coverage priorities, and UN Sustainable Development Goals.

India has a large number of patients with a wide variety of diseases; however, very little data on diseases is available from public resources. This is particularly challenging for emerging and promising start-ups who are working on medical innovation.

Dr. Reddy's CSR focuses on creating an enabling ecosystem that includes improving primary health care for rural population at Srikakulam and supporting other health infra, skilling for healthcare sector, creating a clinical registry of diseases and supporting research and innovation.

These interventions are grounded in the spirit of enabling knowledge creation and community benefit, with no orientation towards product development, commercialization or proprietary outcomes.

3. Approach and Methodology

Objective:

i. To assess the access to quality healthcare services (hospital and PHC infrastructure and delivery of care) for the rural communities.

ii. To assess the contribution made towards building a healthcare ecosystem that facilitates research and development and promotes innovation.

iii. To provide insights and learnings for course correction and future scale-up efforts.

Research Design:

We conducted a cross-sectional study where feedback on key indicators were collected from beneficiaries and key stakeholders. We relied primarily on qualitative data to get an in-depth understanding of each of the interventions. Primary data was collected through in-person Focus Group Discussions (FGDs) and In-depth interviews (IDIs) in the field. We also conducted virtual FGDs where necessary. We were also able to use an observation checklist to verify the infrastructure set-up in the field for the CHIP and PHC programmes.

Data analysis has been done using OECD DAC evaluation criteria:

Sl. No	Criteria	Impact Indicators
1.	Relevance	• Needs and gaps that the programme is seeking to address, and alignment of programme to those needs. • Socio-economic background of target beneficiaries.
2.	Effectiveness	• Hospitals/PHCS: Achievement of target outcomes - population reached, screening and consultations, patients who received treatment and care, no. of hospitals/PHCs upgraded. • Research and Development: No. of innovations & research supported, no. of awareness initiatives, no. of doctors and medical professionals trained.
3.	Efficiency	• Effective monitoring and reporting • Feedback loop for improvement • Programme teams strategy and approach
4.	Impact	• Improved accessibility to primary healthcare services • Change in community healthcare seeking behaviour • Improved preventive health awareness levels • Improved employment opportunities in healthcare • Improved data availability and research opportunities for medical research and treatment

3.1 Stakeholders and Sample Size

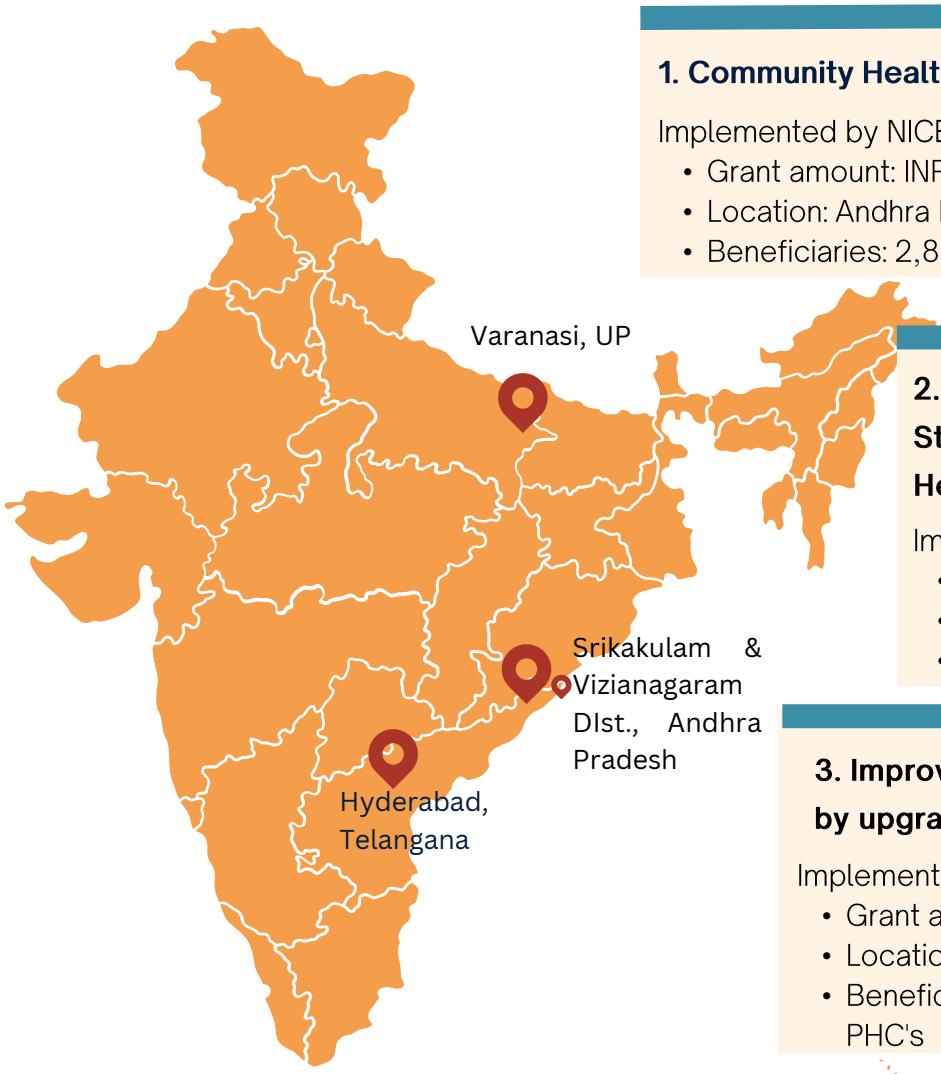
Primary data was collected from the stakeholders listed below in the field through in-person interactions and online.

Sl. No.	Programme	Location Visited	Stakeholders and sample size		
1.	Community Health Intervention Programme (CHIP)	Vallepeta, Laveru, Srikakulam District.	RMC	16 elderly (9 M, 7 F)	1 FGD
		Gummadam, Laveru, Srikakulam District.	RMNCH+A	15 F	1 FGD
		Velpurai, Ranastalam, Srikakulam District.	Community Leaders and Frontline workers	5 (1 sarpanch, 1 ASHA, 1 Anganwadi teacher, 2 panchayat members)2 F, 3 M	1 FGD
		Pedda Nadipalli, Pusapatirega, Vizianagaram District.	GMC & HBT	10 beneficiaries	1 FGD
		Virtual/Srikakulam	CHIP Programme Team	8 team members (Programme manager, programme coordinator, field coordinator, staff nurses)	1 FGD
2.	Strengthening health infrastructure in Hospitals	Hyderabad	Programme Team Patients	2 Doctors, 1 admin, 1 volunteer, 1 nurse Patients (6 M, 6 F)	17 IDI
		Virtual	Programme Team	2 Doctors	2 IDI
3.	Improving Primary Health Care Services by upgrading PHCs in Srikakulam	Srikurmam	Programme Team Patients	1 Doctor, 1 lab technician, 1 pharmacist, 1 Staff Nurse 10 patients (5 M, 5 F)	14 IDI
		Patharapalli	Programme Team Patients	1 Doctor 10 patients (5 M, 5 F)	11 IDI
4.	Telangana C4IR	Virtual	Programme Team	5 TLSF team Members	2 FGD
5.	Rare Disease Initiative	Hyderabad, Telangana	Programme Team	2 scientist	1 FGD
6.	Transforming Lives with Plant-based Nutrition	Virtual	PAN Network Programme Team	2 Ambassadors 11 healthcare professionals 3 Medical Students 2 PAN India Team members	5 FGD

Note:
RMC: Regular Medical Care, GMC- General Medical Care, RMNCH+A- Reproductive Mother Newborn Child Healthcare+ Adolescent, HBT- Home Based Treatment

4. About the programmes

SoStakes has undertaken IA of six health programmes of FY23-24 under the thematic area of Health.



1. Community Health Intervention Programme (CHIP)

Implemented by NICE Foundation

- Grant amount: INR 1.83 Cr
- Location: Andhra Pradesh (Srikakulam, Vizianagaram)
- Beneficiaries: 2,82,628

2. Improving Health Services by Strengthening Infrastructure in Health facilities

Implemented by DRF

- Grant amount: INR 1.48 Cr
- Location: Hyderabad and Varanasi
- Outcomes: 750 surgeries done

3. Improving Primary Health Care Services by upgrading PHCs in Srikakulam

Implemented by DRF

- Grant amount: INR 9.30 Cr (2 yrs)
- Location: Srikakulam, Andhra
- Beneficiaries: 67,997 OPD services in 11 PHC's

4. Telangana Centre for Fourth Industrial Revolution (C4IR)

Implemented by Telangana Life Science Foundation (TLSF)

- Grant amount: INR 1 Cr
- Location: Hyderabad
- Outcome: Clinical Registry for Hemophilia set up and Skill training programme designed and launched.

5. Rare Disease Initiative

Implemented by DRF and Dr Reddy's Institute of Life Sciences

- Grant amount: INR 8.5 cr (3 yrs)
- Location: Hyderabad
- Programme reach direct: Academia (scientists, researchers, students), Industry/ Indirect community.

6. Transforming Lives with Plant-based Nutrition

Grant to Ahimsa Trust

- Grant amount: INR 1 Cr (2 yrs)
- Location: PAN India
- Programme Reach: 1500 doctors, 2000 medical students and 150 faculty.

5. Findings

5.1. Community Health Intervention Programme (CHIP)

Programme :

Provide medical care to 155 villages across three Mandals in Andhra Pradesh.

1 **Conduct Fixed Day Health Services (FDHS)**

- General Medical Care (GMC) for patients with cold, cough, knee pain, etc.
- Regular Medical Care (RMC) for hypertension and diabetes
- Reproductive Maternal, neonatal child healthcare+ Adolescent (RMNCH+A)

2 **Home Based Treatment** (HBT) for elderly and high-risk pregnancy

3 **Awareness camps** in schools and villages.

Relevance:

The CHIP seeks to address the healthcare needs of the local community:

Major constraints - Distance and travel time: The nearest Primary Health Centre (PHC) is approximately 5-6 km away, any visit to PHC would mean additional cost of travel. Further pregnant women and the elderly also find it difficult to travel for their regular check- ups.

Loss of Pay: Given that the villagers are daily wage workers, they find it hard to take leave for regular check-ups as that would mean losing a day's wage.

Effectiveness

- **FDHS conducted:** 96 FDHS were conducted in each village. For the entire year, 14,880 FDHS were conducted across 155 villages. 100% of the villagers met were aware of the FDHS being held in the village.
- **Antenatal Care:** Our interaction with the pregnant women highlighted that Participatory Discussion forums were very helpful in developing better understanding of pregnancy and newborn care. 1308 institutional deliveries were facilitated.
- **Awareness Camps:** One hour workshop was conducted in each schools. In total, 1119 health education sessions were conducted in 138 schools throughout the year.

Beneficiaries received treatment and care Mandal-wise (April 2023- March 2024)

District	Mandal	GMC	RMC	RMNCH +A	Home based Treatment	Population
Srikakulam	Ranastalam	70,891	22,596	4,618	5,124	88,198
	Laveru	60,049	20,178	3,975	4,836	40,270
Vizianagaram	Pusapatirega	47,335	30,437	4,368	8,221	70,807
Total		**1,78,275**	**73,211**	**12,961**	**18,181**	**1,99,275**

Efficiency:

- **Consistent Delivery of Programme:** 12-member CHIP team operates in 3 unit and each unit has 1 field supervisor, 1 outreach worker and 2 nurses. FDHS were conducted on a fixed day in every village. FDHS were held for 2 hours, and 4/5 villages were covered in a day, and each village is visited twice in a week. 100% of the beneficiaries interviewed confirmed that the FDHS were held regularly and without cancellation.

- **CHIP effectively collaborated** with the grassroots health ecosystem, including ASHA workers (174), Anganwadi teachers (198), Auxiliary Midwives (89), PHCs (7), CHCs (2), District Hospital Staff, and gram panchayat members, helping to strengthen health service delivery.

- **Health guidance demonstrated through referral cases and consistent follow up:** 859 patients were referred by the CHIP team to govt PHC and hospitals. CHIP followed up and have recorded that 673 referred patients visited the PHC. Beneficiaries felt that the CHIP team understood their health issues and provided guidance by referring them to PHCs. In some cases, they accompanied them to the PHCs.

100% of beneficiaries felt that the CHIP team was approachable and supportive .

FGD with women availing ante natal services in Gummadam, Laveru, Srikakulam District.

"Post- delivery mother's healthcare is never a priority. Everything revolves around the child. Every one who visits home is interested to know about the child. Even family members forget we, too, need care and emotional support. I am thankful to the CHIP team for the regular follow-ups post-delivery"

-Mother of six month old, availed Antenatal services from CHIP

Impact:

Beneficiaries Treated

General Medical Care: 1,78,275
Regular Medical Care: 73,211
RMNCH+A: 12,961
Home-based Care: 18,181
Institutional Deliveries: 1308
Health Awareness: 1119

All the beneficiaries (the elderly, pregnant women , people with diabetes) expressed that the FDHS camps catered to their medical needs. They expressed satisfaction and gratitude.

Better access & reduced out- of-pocket spends

The free delivery of medicine/health services to the underserved community (remote areas) and people with mobility issues saves the time and effort of the villagers to travel to PHC or other private clinics. Further it also reduces the financial burden of medical treatment.

Improved awareness of antenatal healthcare

Pregnant women have received a regular health check ups and guidance on pregnancy-related issues. This has helped the first-time mothers ease their apprehension about the whole process. The FDHS have helped these mothers save the effort and discomfort of travelling to PHC for regular check-ups.

Reduces Burden on hospitals

by managing minor ailments at the community level. Referrals are made to PHC for serious health issues thereby optimising the healthcare resources, which are often scarce.

Better Management of Non-communicable diseases

FDHS are held on specified days at their doorstep, patients who need regular medicines and consistent follow-up are treated, and the disease is kept in check. The camps also support early detection & timely intervention.

> "My husband is a daily wage worker. For every visit, I had to travel by auto with my husband. This meant losing a day's work and an additional expense of Rs 200-300. The nurses in the FDHS check my BP and diabetes regularly. I visit the PHCs only for monthly scans." - Woman seeking antenatal services CHIP, Ranastalam.

5.2. Improving Health Services by strengthening infrastructure in Health facilities

Programme :

To provide equipment to support additional surgeries in the health facilities.

Providing equipment support for re-constructive surgeries, and meeting the additional equipment requirement of the post trauma centre.

Relevance:

Need to meet higher demand for surgeries:

Aakar Asha Hospital, Hyderabad

People with deformities face difficulty in carrying out day-to day activities and undergoing these surgeries is expensive in private hospitals. Aakar Asha conducts re-constructive surgeries free of cost for the needy.

Banaras Hindu University (BHU)

BHU, which operates under the Ministry of Education, faces challenges in securing funding for its affiliated Sir Sunderlal Hospital and Trauma Centre. Consequently, support was extended to BHU. To accommodate the increased number of surgeries, additional equipment support is required.

Efficiency & Effectiveness:

- **Surgeries Done:** 300 additional surgeries were done with the new equipment. The hospital had 2 OTs, but it was inadequate to cater to the increased demand. The staff shared that additional OT has been helpful in increasing the number of surgeries performed.

Aakar Asha is a 100 bed hospital. They reached out to Dr. Reddy's for equipment support for their new OT facility to meet the demand for increased surgeries.
Dr. Reddy's extended the support with OT equipment (an anesthesia workstation, video Laryngoscope and others), central sterilisation department, and laundry equipment.

- **Quicker sterilisation process:** The new equipment has significantly reduced the sterilisation time and effort. The head nurse shared that equipment sterilisation now takes 15 minutes as opposed to 30—40 minutes earlier. Similarly, hospital linens were outsourced which posed a major hygiene issue. The hygienic in-house laundry services has been really helpful in ensuring better patient outcomes.

Dr. Reddy's extended the support in the form of laparoscopic equipment and an MRI-compatible anaesthesia workstation to BHU's affiliate hospital - Sir Sunderlal Hospital and Trauma Centre, which have bed capacities of 1800 and 354, respectively.

- **Additional surgeries done with the new equipment**: MRI-compatible anesthesia workstation was a new addition to the equipment available in the hospital. Post installation, it was used for 150 surgeries in the trauma centre. The laparoscopic set was installed in the Sir Sunderlal Hospital; and was used for 300 surgeries.

Impact :

"We are pleased with Dr. Reddy's support; now we have 3 OTs; this has enhanced our efficiency to perform more surgeries in a day."
-Dr Bharatendu Swain, plastic surgeon

During the study, all the beneficiaries (12) were grateful and satisfied with the services received. They availed the services at Aakar Asha for either cleft, burn or accident-related deformities.

Testimonials

"He was playing and got an electric shock, due to which his body has severe burns. We went to a private clinic; the doctor referred us here. The surgery is done, and in a few weeks, he will be fine. I am extremely happy with the services provided here. The staff (doctors, nurses) are very helpful."
-Mother of a 12-year-old.

"Sterilisation plays a major role in performing surgery. Earlier, we used to sterilize the equipment manually with chemicals, and it took around 30-40 minutes. It was time-consuming, and the erosion of equipment was a major challenge. Now, the machine sterilizes the equipment in 15 minutes. This is helpful, especially when we have multiple surgeries. They can quickly sterilize and re-use the equipment immediately.
-Anesthesiologist

5.3. Improving Primary Healthcare Services

Programme :

To Improve Primary Health Care Services by upgrading PHCs in Srikakulam

1. Upgrading physical spaces- waiting room and patient wards to improve overall patient experience.
2. Investment in diagnostic equipment and a labour room to expand the range of services.
3. Improving working conditions by upgrading lighting, AC, power back-ups and streamlining waste disposal mechanisms.

Relevance:

During COVID, Dr. Reddy's has worked closely with the government of Andhra Pradesh to make healthcare accessible. This collaboration laid the foundation for the idea of PHC upgradation. DRF observed that PHC struggles in service delivery due to poor infrastructure and lack of modern equipment, and after consultation with District Administration and District Medical and Health Office, Srikakulam, the selection of appropriate PHCs was done for upgradation work. The unique part of the interventions were:

Engaging with the District Medical and Health Office for proper selection of PHCs.

Proper screening of PHCs before starting infra work for quality impact.

Effectiveness:

i. 11 PHCs were upgraded and refurbished in Srikakulam District: DRF got the approval for upgradation from the District Medical and Health Officer. The following PHCs were upgraded: Patharapalli, Srikurmam, Korlam, Meliaputti, Ravada, Sarubujjili, M.S.Palli, Borivanka, G.Sigadam, Kotturu, and Hiramandalam. We visited PHC Patharapalli and PHC Srikurmam. The PHCs were handed over in September 2022 and May 2023, respectively. All the equipment was installed and is being used by PHC staff.

PHC Patharapalli - patient waiting area
Before

PHC Patharapalli - patient waiting area
After

ii. Equipment installed

In most of the PHCs, diagnostic and labour room equipment was not available. These were added along with the other specific requirements.

- Haematology Analyser
- Coagulation Analyser
- Dry Bath incubator
- Bio Chemistry Analyser
- Labour room equipment

The table captures the footfalls in PHC before /after upgradation:

PHC Data from Apr-23 to Mar-24				
PHC Name	Avg. OPDs per Month		Avg. Lab Tests per Month	
	Before Upgradation	After Upgradation	Before Upgradation	After Upgradation
Patharapalli	715	1,260	742	1,269
Srikurmam	931	1,272	898	1,542
Korlam	981	1,313	1,125	1,932
Meliaputti	1,029	1,482	1,237	1,905
Sarubujjili	914	1,464	958	1,477
M.S.Palli	921	1,325	1,384	1,981
Borivanka	1,127	1,646	732	1,174
G.Sigadam	728	1,137	683	1,085
Ravada	1,072	1,394	1,258	1,969
K Kotturu	3,194	4,641	1,575	2,424
Hiramandalam	1,378	1,765	1,287	1,661
Total	12,990	18,699	11,879	18,419
Percentage increase	**44%**		**55%**	

"I used to believe that only private clinics could provide good treatment. I work as a daily wage labour. I have no savings as my medical expenses were high. My neighbour suggested I visit the PHC. For the last three months, I have been visiting to avail free treatment and medicine for diabetes. It takes around 30 minutes to consult the doctor."
-Laxmi Kumari, 40 years old, PHC Patharapalli

Efficiency:

i. Appropriate selection of PHC that required upgradation and quick implementation

The final PHCs were shortlisted based on mutual consultation with the district health department. The DRF team did a facility analysis to understand each PHCs requirement.

In most of the PHCs, diagnostic and labour room equipment were not available. Therefore, these were added along with the other requirements. The PHCs were upgraded phase-wise. The upgradation and refurbishment took around 4-6 months for each PHC.

> *"The coagulation and haematology analysers are the newest addition to the PHC post-upgradation. This has reduced the time of performing blood test thereby increasing efficiency."*
> *- Pharmacist's at PHC Srikurmam*

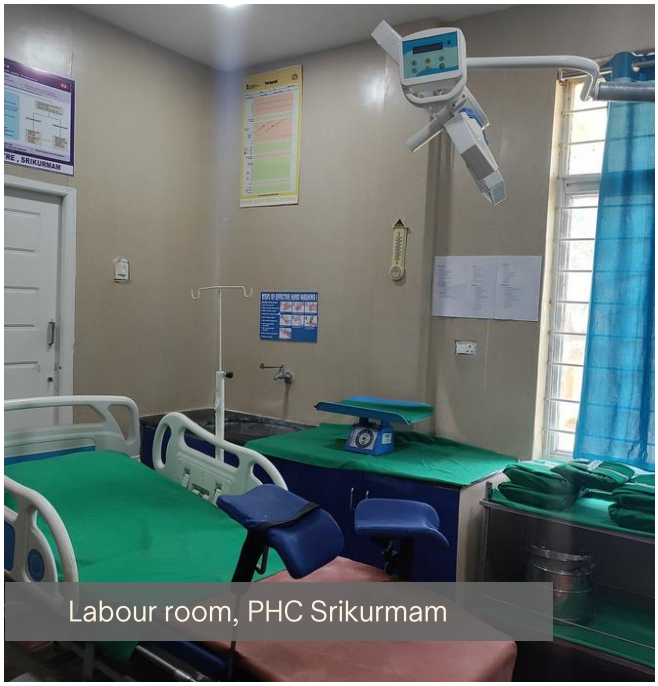
ii. Trained medical and PHC staff

To ensure effective utilisation of equipment, the PHC staff were trained. 11 demonstration trainings were held with 214 medical officers and staff participating in the trainings. The training has helped them manage the PHC effectively.

iii. Equipment operational

The PHC staff shared that the refurbished and upgraded PHCs have recorded high OPD footfalls and lab tests.

Male Ward, PHC Patharapalli



Labour room, PHC Srikurmam

Impact:

11 PHCs catered to 588 villages and a population of 3,69,242.

44%
Increase in footfalls after upgradation

Reduced out-of-pocket health expenditure

55%
Increase in lab tests

Enhanced patient Experience

100% of the interviewed are pleased with the upgradation

"The refurbishment has a positive impact on the community. They were hesitant to visit earlier. Per-day OPD footfall was 20-30, which rose to 60-70 per day after upgradation."

-Medical Officer PHC Srikurmam

Increased institutional deliveries

3 pregnant women interviewed shared that post upgradation they feel confident to deliver their babies in PHC.
"Earlier, we did not have adequate equipment for the labour room. Few women who could not afford the private clinics used to come here for deliveries. Post upgradation 21 deliveries were done as compared to 10-11 a year before upgradation."

-Head Nurse, PHC Srikurmam

"I am availing maternity facilities in the PHC. I visit for regular checkups. The doctor and nurse were cooperative. Earlier I was spending around Rs 8,000-Rs 10,000 for scans and medications in private diagnostic clinics. My friend recommended the PHC. I am pleased with the refurbishment and services provided here."

-Sujata, 22 years old, PHC Srikurmam

5.4. Telangana Centre for the Fourth Industrial Revolution

Programme :

To strengthen the Health-Tech Ecosystem in Telangana.

1. **Meeting the skill demand:** Sector-specific skilling with a focus on life sciences and manufacturing.

2. **Promoting research and treatment:** To set up a centralised Clinical Registry with real-world data on specific diseases.

Relevance:

The Telangana Fourth Centre for Industrial Revolution (C4IR), launched by the Government of Telangana in partnership with the World Economic Forum during BioAsia 2024, seeks to address the following gaps in the life science and healthcare ecosystem:

Need for graduates who are ready for the health-tech industry: The health sector has undergone a technological evolution, leading to an increase in demand for individuals with capabilities for life sciences research and manufacturing.

Limited data available to facilitate healthcare research: data on specific diseases is necessary to facilitate research and to ultimately inform interventions and health outcomes.

Prolonged validation time for new treatments as innovators face the challenge of testing their ideas or products in real-life settings. New innovators also require mentorship support and partnerships.

Effectiveness & Efficiency

i. Need assessment: C4IR conducted preliminary research and stakeholder consultations to identify skill gaps and industry requirements in the pharmaceutical and life sciences sectors. Dr Reddy's supported C4IR in student mobilisation for the skilling initiative.

ii. Designing and launch of skilling the course: C4IR organised multiple discussions from February 2024 onwards with students, parents, academia (Telangana Academy for Skill and Knowledge (TASK), Principals, Training & Placement Officers from 40 colleges) and industry partners to understand skilling needs and to define the programme structure and affordability matrix. Subsequently, the first cohort of the skilling programme was completed.

Multiple expert consultations were undertaken to develop the curriculum and to ensure its alignment with industry expectations.
Four domains were identified for skilling:
a. Medicinal Chemistry
b. Analytical Chemistry
c. Manufacturing Biology
d. Artificial Intelligence/Machine Learning (AI/ML)

Clinical Registry initiated: The aim of this initiative is to create a centralised data repository with real-world patient-specific data and clinical disease-related information that can support diagnostic procedures for improved health outcomes.

This clinical data is also meant to support research and identify trends and outcomes.
Three hospitals were identified for piloting the registry, with Haemophilia as the focus for the pilot. The centre is awaiting approvals from the Ministry of Health for implementation at pilot sites.

Partnership network: C4IR was able to build the required partnerships with target hospitals for clinical registry.

Reporting: C4IR has efficiently tracked programme progress and maintained reports for the same.

Impact:

A Clinical Registry for Hemophilia was initiated for improved disease management and to promote research.

Establishment of an ecosystem of startups, hospitals, mentors to help startups get access to facilities, equipment and expertise for faster and effective diagnostics solutions.

5.5. Rare Disease Initiative

Programme :

To create experimental models of rare diseases to fill the knowledge gap of rare diseases prevalent in India; to facilitate preclinical drug screening for therapy of such rare diseases; and to impart relevant hands-on skills and know-how to the current and next generation of scientists in India.

Activities:

1. Development of facility to develop cellular and zebrafish models of rare diseases.
2. Generation of genetically engineered models and their utilisation in experimental studies.
3. Cryopreservation of the engineered zebrafish (germline cells) and cell lines to serve as a repository of rare disease models.

Relevance:

High disease burden but limited diagnostic and treatment: India has a high burden of rare diseases owing to its large and diverse population and several endogamous groups. However, diagnosis and treatment of rare diseases are a challenge due to a lack of awareness, diagnostic facilities, and diagnostic tools. Existing therapies may be effective, but they are limited and unaffordable.

Lack of research and development: One critical gap in the area is the lack of sufficient experimental models of rare diseases to facilitate preclinical research and development.

Alignment with Government's policy on rare diseases: The National Policy for Rare Diseases (NPRD) 2021 promotes research and development to make drugs affordable for rare diseases. The policy has identified the Indian Council of Medical Research (ICMR), Department of Biotechnology, Department of Pharmaceuticals and others to promote research and development in the field of rare diseases. This initiative also aligns with SDG3 - Good Health and Wellbeing.

Effectiveness:

i. Facility for Rare Disease upgraded: Both infrastructure upgradation and equipment acquisition were carried out as planned. Civil work, including concrete work, ceiling, partitioning, plumbing, electrical work, AC and HVAC work, painting, and IT-related work, was completed to upgrade the laboratory space. Specific work to meet the requirements for a Biosafety Level-2 cell culture facility and a zebrafish facility was also done.

The facility was formally inaugurated by Prof. Jack Szostak (Nobel Laureate 2009, Physiology or Medicine) on March 14, 2024.

ii. **Establishment of workflow for rare disease gene mutation**: The workflow process has been established, and it involves the following broad steps:

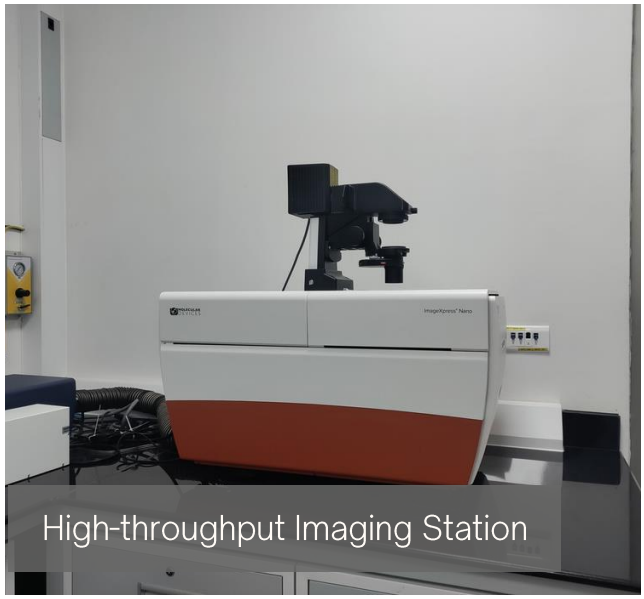
- CRISPR single-guide RNA design (computational), biosynthesis and isolation, and Cas9 enzyme purification.
- In vitro evaluation of the CRISPR reagents and redesign if necessary.
- Breeding zebrafish to generate embryos, and microinjection of the CRISPR reagents into single-celled zebrafish embryos (or transfection into cultured cells).
- Evaluation of embryos or cells to assess

Infrastructure setup:

Semi-automated Zebrafish housing

Fluorescence-based Cell Sorter

Deep Freezer for line cryopreservation



High-throughput Imaging Station

genomic edits, raising to adults and breeding over two generations to generate the final gene-knockout or mutant model (or sorting of cells to select cells with the desired gene knockout or mutation).

- Genome sequencing to confirm the gene knockout or mutation, and evaluation of the corresponding protein expression change.
- Phenotypic evaluation via imaging, other assays, gene expression and genomic profiling as needed, to validate the disease model.

iii. 6 genetically engineered models of rare diseases developed: Six diseases/ genes were successfully modelled in the centre:
i. Fragile X Syndrome (FMR1)
ii. Duchenne Muscular Dystrophy (Dystrophin)
iii. Glutaric Aciduria (Inborn Error of Metabolism),
iv. Gaucher's disease (Lysosomal Storage Disorder), and
v. Methyl Malonic Acidaemia (Inborn Error of Metabolism)
vi. Primary Mitochondrial Defects (PAM16, MPV-17)

The models were generated using Advanced Genetic Engineering technology (CRISPR) and models that greatly facilitate imaging studies (reporter lines). The DMD model has been validated, and initial characterization (sequencing and phenotyping) is done. A provisional patent for the DMD model was also filed in September 2024.

iv. Repository established: Workflows or cryopreservation of zebrafish sperm and cell lines was established to serve as a source of genetically modified lines dissemination to collaborators and researchers while also preventing overcrowding of the facility.

v. Training and Outreach: 25-30 individuals, including students (Bachelors, Masters, and Doctoral levels), and post-doctoral scientists, have received exposure and training in rare disease model development.
Outreach efforts have resulted in expressions of interest from several organizations including academia and industry, leading to utilization of the DMD model for drug screening as mentioned above.

vi. Network of hospitals : The team created a network of 10 tertiary hospitals to support clinical initiation inputs of samples/ data from live patient conditions. Well known hospitals such as AIIMS, Delhi, Kasturba Medical College Manipal, Rainbow hospital, Bangalore Sanjay Gandhi Institute of Medical Sciences, Lucknow were part of the network developed.

Impact:

Comprehensive workflow for Model Development, Preclinical Evaluation, and Repository Maintenance that minimises external dependencies and enhances efficiency in biomedical research- the facility can support the entire model development process from reagent synthesis, gene editing, genome sequencing and imaging, and cryopreservation.

Zebrafish Fragile -X- Syndrome model contributed to the research article -

Loss of FMRP affects ovarian development and behaviour through multiple pathways (published in Human Genetics, 2024) .
A provisional patent has been filed for the DMD model in Sept 2024.

The six models of rare diseases generated **will promote understanding of disease mechanisms will help to identify potential therapy targets and to evaluate therapeutic modalities/strategies.**

Potentially encouraging results for one of eight compounds (drug) screened using the zebrafish DMD model and cell-based assays. The drug was provided by an Indian Biotech start-up.

The facility has benefited several research scholars (3 scientists, 25-30 - Masters/ Bachelor students) and faculty from institutions such as Center for DNA Fingerprinting and Diagnostics, Tata Institute of Fundamental Research, L.V. Prasad Eye Institute, and Bharat Biotech are among a few who have accessed their research.

Overall, the facility supports future rare disease research studies

- Phenotypic replication in disease modelling.
- Enhanced reproducibility at scale with standardized, in-house protocols.
- Streamlined operations and optimized resource utilization.
- Potential drug screening.
- Research training and exposure to world-class and state-of-the-art disease biology studies for rare indications.

5.6. Transforming lives with Plant-based Nutrition

Programme :

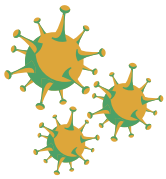
Advancing food transformation to mitigate the three largest global crises: chronic disease, climate change, and pandemic risk through Whole Food Plant-Based Nutrition (WFPBN).

Activities:

Engaging with doctors, medical students, healthcare professionals, and community members through in-person Continuing Medical Education (CMEs), webinars, and community outreach programmes and equipping them with scientific knowledge, tools and resources to incorporate WFEBN intervention into clinical/healthcare practice.

Relevance:

Environmental benefits: Producing plant-based foods emits fewer greenhouse gases compared to meat production (livestock farming) thus reducing its carbon footprint, while also addressing the problem of food security.



Pandemic mitigation: A plant-based food system can help tackle pandemics by reducing the risk of zoonotic diseases, strengthening immunity, and promoting sustainable health systems.

Effectiveness:

i. Building a community of medical professionals: The program has trained 1617 doctors, 2020 medical students, and faculty through CMEs to enable them to practice evidence-based nutrition and prescribe it to their patients for managing non-communicable diseases. 13 CMEs were organised from Jan 2023 to March 2024 in partnerships with hospitals such as AIMS Jodhpur, AIMS Nagpur, BMCRI Bangalore, and other institutions.

The CMEs engaged faculty members as Speakers and had panel discussions with subject matter experts to inform and engage the participants. The topics included -

- Food selection (with a focus on wholefood, plant-based nutrition) and its role in health outcomes and disease prevention, use of millets and its subsequent beneficial effects on the environment and the planet.
- Lifestyle diseases
- Benefits of whole foods plant-based diet for gut health, weight management, and immunity.
- Impact of low/ judicious use of dairy on cardiovascular health.

Additionally, 13 webinars were organised with expert doctors. These sessions were attended by 1000+ doctors, and were also uploaded on YouTube for viewers.

Also, 15 chefs has been trained from five-star hotels in Bangalore to create with the aim of transforming culinary practices in the hospitality sector.

All doctors in our interactions have stressed the need for mainstreaming nutrition into healthcare practice, and include it as part of the curriculum.

Year	No. of CMEs	Target Audience	Location
FY 22-23	3	737 Doctors and Interns	Jaipur, AIMS Jodhpur, AIMS Nagpur
Fy 23-24	4	880 Doctors	Hyderabad, Kochi, Mumbai, Bangalore
	6	2,020 Students	• Bangalore Medical College & Research Institute, Bangalore • Government Medical College, Jalgaon, Maharashtra • AIIMS Bilaspur, Himachal Pradesh • PSG Institute of Medical Sciences & Research, Coimbatore. • Mysore Medical College & Research Institute, Karnataka • Government Medical College, Bharatpur, Rajasthan.
Total	**13 CMEs**	**1,617 doctors, 2,020 students**	

ii. Building Community Awareness: 2 community outreach events were organised in partnership with NGOs - Swasthya Sadhna Kendra, Jodhpur; and Rotary Club, Jodhpur to spread awareness about the benefits of Whole Food Plant Based Diet.

WFPB Prodigies programme - online series was initiated in Feb-24 to inform children aged 6 to 16 of plant-based diet and its potential to support healthy growth and development.

iii. **Continued engagement**: Post training, PAN India has continued their association with doctors and medical students through WhatsApp groups. The organisation is operating 50 WhatsApp groups which continue to be educated through 'Journal Clubs' and 'Discussion Forums' (video sessions curated by member doctors/nutritionists who are dedicating part of their time to the PBN mission). 11 Journal clubs and 5 Discussion Forum sessions were held during FY23-24 and are available on YouTube for general viewing.

iv. **Policy Advisory:** The team met the FSSAI CEO in January and March of 2024 and is exploring ways to be part of their advisory panel.

Efficiency:

i. PAN India has engaged with diverse stakeholders: The organisation is working with the medical fraternity, nutritionists, chefs, community-based organizations, students, media, and patients to advocate for food as medicine to be incorporated in the health care system. The organisation is also targeting policy makers such as the FSSAI to mandate nutrition standards.

ii. **Event coordination through Ambassadors**: The organisation has appointed key individuals as 'Ambassadors' who have been able to strategically coordinate with relevant and reputed partners for CMEs in medical colleges. PAN has a network of 50 Ambassadors (till March 2024). The ambassadors have been trained and are actively engaged in organising events, developing outreach strategies, and identifying gaps and research areas.

Respondents shared that low turnout was a challenge in the initial days of CME However, in recent CMEs (e.g. Mumbai), they had a large turnout, which is indicative of their successful partnerships and mobilisation.

i**ii. Resource development:** PAN India has released a book - 'Beginners Guide for Physicians,' highlighting the need for a whole food plant-based diet to prevent, manage or, in certain cases, reverse chronic lifestyle diseases.

Impact:

An all-India network established:

- **2,000+** Medical Students associated through CMEs organised in medical schools.
- **1,500+** Physicians & nutritionists who joined post-CMEs, webinars & references.
- **50 Ambassadors** Network
- **150 Student** Volunteer Network

All doctors interviewed appreciated the CMEs - they found the materials and evidence well-researched and presented. They also found the CMEs engaging and interactive.

All doctors interviewed shared that the curated meals served during the CME events convinced them that a whole plant-based diet could be both delicious and nutritious

Increased visibility in both print and electronic media:

- Extensive coverage of CMEs in both print and e-media.
- Steadily increasing number of subscribers on social media -

-1251 subscribers on LinkedIn (subscribers actively engaging in posts)
-232 subscribers on Youtube
-615 followers on Instagram

> "Medical schools don't teach nutrition, but it's great that such organisations are doing so much in nutrition. Diet is an easier language to educate people in and empower them."
>
> -Dr. Leela, PBWFN member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