

**“An Impact Assessment of CT Scan Machine Donated by DS Group
to BIRRD Hospital, Tirupati District, Andhra Pradesh”**



IMPACT ASSESMENT REPORT

Submitted to

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Submitted by

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ABBREVIATION

1	USG	Ultrasonography
2	CT scans	Computed Tomography Scans
3	DS	Dharmapal Satyapal Group
4	CSR	Corporate Social responsibility
5	BIRRD	Sri Balaji Institute of Surgery, Research and. Rehabilitation for the Disabled
6	UHC	Universal Health Coverage
7	PPP	Public Private Partnership
8	QOC	Quality of Care
9	FMCG	Fast Moving Consumer Goods
10	NBE	National Board of Examination
11	TTD	Tirumala Tirupati Devasthanams
12	KII	Key informant interview
13	OECD	Organisation for Economic Cooperation and Development
14	AP	Andhra Pradesh
15	PACS	Picture archiving and communication system
16	VIMS	Shree Venkateshwara Institute of Medical Science
17	BPL	Below Poverty Line
18	MRI	Magnetic resonance imaging
19	CMC	Computer Maintenance Corporation

The impact assessment study focuses on evaluating the impact of the DS Group's Corporate Social Responsibility (CSR) initiative, which involved the donation of a high-quality CT Scan machine to BIRRD Hospital in Tirupati, Andhra Pradesh, in 2021. The initiative aimed to enhance diagnostic capabilities and improve healthcare services for the local population. Through a blend of quantitative data analysis and qualitative insights from key informant interviews, the study assessed parameters such as relevance, effectiveness, efficiency, impact, and sustainability. Significant improvements were noted post-installation, with increased daily diagnosis cases and approximately 1200 patients benefiting annually.

The CT Scan machine facilitated timely and accurate diagnosis, reducing out-of-pocket expenditures for patients and streamlining healthcare services. Recommendations included periodic staff training, enhancing machine utilization, considering MRI facilities, and effective maintenance for sustained impact. Overall, the report provides valuable insights into the positive effects of the CT Scan machine donation on healthcare services in Tirupati, offering actionable recommendations for future interventions aimed at enhancing diagnostic capabilities and patient outcomes.

SECTION 1: INTRODUCTION AND METHODOLOGY



BACKGROUND

The healthcare landscape in India faces multifaceted challenges, with access to quality diagnostic services being a critical concern, especially for underserved communities. The National Health Mission's initiative to implement Free Diagnostics Services across India represents a pivotal step towards addressing these challenges by aiming to alleviate out-of-pocket healthcare expenditures, optimize existing healthcare infrastructure, and enhance the overall quality of healthcare delivery. This initiative encompasses a comprehensive range of diagnostic tests, including radiological tests such as X-ray and ultrasonography (USG), as well as advanced imaging modalities like computed tomography (CT) scans, progressively available at different levels of healthcare facilities.

In line with the objective of enhancing diagnostic capabilities and expanding access to advanced medical technologies, the DS Group, as part of its Corporate Social Responsibility (CSR) commitment, generously donated a state-of-the-art CT Scan machine to the BIRRD Hospital in Tirupati, Andhra Pradesh, in 2021. This philanthropic endeavour aimed to augment the diagnostic infrastructure of BIRRD Hospital, thereby bolstering its capacity to cater to the healthcare needs of the local population in Tirupati District.

In light of these developments, there is a need to assess the impact of the CT Scan machine donation on healthcare services and diagnosis in Tirupati district. The assessment provided valuable insights into the effectiveness of the intervention, identify needs or gaps in implementation, and inform future strategies for improving diagnostic services in the district. By evaluating the outcomes and implications of the CT Scan machine donation, stakeholders can better understand the broader implications of such initiatives and make informed decisions to optimize healthcare delivery and enhance patient outcomes.

ABOUT THE PROJECT

To facilitate the availability of effective diagnostic services in Tirupati district, the high-quality CT Scan machine was donated by DS Group to BIRRD Hospital, Tirupati in the year 2021 as a part of the CSR initiative. An assessment was undertaken to understand the impact of CT Scan machines on healthcare services and diagnosis.

RELEVANCE OF THE PROJECT

Diagnostics are an integral part of the health care system and provide information needed by service providers to make informed decisions about care provision related to prevention, screening, detection, treatment, and management. Limited availability and access to quality laboratory and radiology services are among the major challenges contributing to delayed or inappropriate responses to disease control and patient management. This also results in continued reliance on empirical patient care or irrational diagnostic prescription, practices that waste scarce resources. A package of essential diagnostics, if available free of cost in public health facilities would not only reduce the burden on the poor and the vulnerable but would also be accessible to sections of the middle-class sections that face financial stress on account of expensive health care diagnostics. This would also make the health care in public health facilities comprehensive and thereby attractive to larger segments of population.

Health-related targets have been set by the global Sustainable Development Goals (SDGs) under the Universal Health Coverage (UHC) umbrella that has to be achieved by 2030. To accomplish these objectives, High Quality of Care (QoC) is essential. In line with this objective, the healthcare sector in India can be benefitted immensely from the CSR intervention in a form of Public Private Partnership (PPP).

DHARAMPAL SATYAPAL LTD. (DS GROUP)

The DS Group is a Multi-Business Corporation and one of the leading FMCG (Fast Moving Consumer Goods) conglomerate with strong Indian and International presence. Guided by a clear set of values and built on a strong foundation of collective good, Corporate Social Responsibility is an integral part of the DS Group's business objectives. The group endeavours for sustainable wellbeing of the stakeholder communities by addressing economic, environmental, health, social issues and challenges.

BIRRD HOSPITAL, TIRUPATI DISTRICT, ANDHRA PRADESH



Balaji Institute of Surgery, Research and Rehabilitation for Disabled (BIRRD) is registered under the provisions of sub clause (viii) under sub section (4) of section 111 of APCHRI & Endowment Act, 1987. BIRRD is established by Tirumala Tirupathi Devasthanams to provide medical facilities to all type of orthopedically disabled patients, especially poor, without any distinction as to caste, creed, religion or community. It is an orthopedic broad specialty research institution recognized by National Board of Examination (NBE) for broad specialties and super specialties in the medical field. To continue the noble cause, DS group provided a CT scan machine for effective diagnosis of patients coming from most needy section of the society under their CSR project in Financial Year 2021-22. As per BIRRD's operational model, the operation diagnostic service to the community remained free of cost.



The objective of the Balaji Institute of Surgery, Research and Rehabilitation for the Disabled (BIRRD) is to provide medical treatment/facilities to those suffering from polio myelitis, cerebral palsy, congenital anomalies, spinal injuries, and the orthopaedically handicapped, particularly the poor, irrespective of religion, caste or creed. In 1994, BIRRD was converted to a Trust. TTD provides a matching grant to the Trust, equivalent to the donations it receives.

BIRRD operates from a spacious hospital with a capacity of 250 beds, built at a cost of Rs. 4.5 crore. It has five operation theatres, a modern Artificial Limb Fitting Centre (that provides aids and appliances, free of cost, to physically handicapped patients) and a sophisticated Physiotherapy Department. Research is also conducted here. The TTD-run hospital is providing a wide range of ortho problems, performing annually nearly 10,000 surgeries while 500 are treated as outpatients daily.

OBJECTIVES OF THE IMPACT ASESSMENT STUDY

- To assess the impact of the installation of CT Scan Machines in affecting the life of critical patients and their family.

- To study the scope of the intervention impacting direct beneficiaries.
- To analyse how the high-quality CT scan machine impacted the overall institutional strength and the quality of diagnostic services.

METHODOLOGY

The study was conducted in BIRRD hospital in Tirupati by employing both quantitative as well as qualitative techniques in generating necessary information and evidence based on the study objectives. The relevant quantitative data was collected from the hospital based on indicators of the utility of CT scan machine while the qualitative data was collected through Key Informant Interviews (KII) with BIRRD Hospital staff and in-charge (key stakeholders of the study) explore effectiveness of the diagnostic services using a CT scan machine.

DESK REVIEW

The desk review was undertaken before the actual data was collected from the field. The existing information and documents provided the background of the study and helped customize the data collection tools toward the context. The other documents related to the project documents and data on the number of scans, types of investigation conducted since 2021 and other utility parameters from the BIRRD hospital were reviewed for the study. The review of secondary literature was useful in enriching and co-relating the primary outputs of the study.

TOOL DEVELOPMENT

The KII research tool was developed, keeping the focus on study objectives. Tool was pre-tested before the final data collection. A checklist of questions was also developed for case study to understand patients' perspective and experiences.

KEY STAKEHOLDERS OF THE STUDY

Multiple stakeholders were reached out to collect the data and information for the study. The following key stakeholders were interviewed –

- BIRRD Hospital In-charge
- Radiologist
- Lab Technician operating machine
- Senior Orthopaedist

- Patients benefitted from CT scan diagnosis

ASSESSMENT PARAMETERS IN THE STUDY

The study followed the OECD point mapping technique for assessing the Impact assessment parameters of the CSR intervention. The major assessment criteria utilized in the study report were Relevance, Effectiveness, Efficiency, Impact, and Sustainability. Following indicators has been considered in the study for assessing the impact and effectiveness of installation of CT Scan machine in the hospital:

1. Number of scans conducted on a machine on monthly /yearly basis
2. Types of investigations/diseases for which scanning done
3. Rate per investigation and scan.
4. Machine maintenance and calibration
5. Impact on healthcare diagnostic services
6. Cost-effectiveness, efficacy, and impact on hospital services
7. Impact on out-of-pocket expenditure if diagnostic services are provided free of cost.
8. Improvement in institutional strength
9. Turn Around Time (time from scanning to report generation) including emergency cases.

DATA COLLECTION

The field data collection was undertaken from 29th – 31st March 2024. The consultant visited the hospital, and conducted KII with key staff involved in operating, managing and using of CT scan machine in BIRRD hospital.

SAMPLING METHODOLOGY

The respective impact assessment study is based on 4 Key informant interviews with the key stakeholders and 2 Case studies with direct beneficiaries (Patients) in BIRRD hospital, Tirupati district. A purposive sampling technique was used to have the representative sample population. The technique was appropriate and effective for the study in focusing on the research stakeholders and direct beneficiaries. Below mentioned are the selected population and the respective tool used for the relevant data collection in the study:

S. No	Level	Tool	Number of data entity
1	BIRRD Hospital In-charge	Key Informant interview	1
2	Radiologist	Key Informant interview	1
3	Lab Technician operating machine	Key Informant interview	1
4	Senior Orthopaedist	Key Informant interview	1
6	Patient 1	Case study	1
7	Patient 2	Case study	1
	Total		6

Table 1 Sampling

DISTRICT PROFILE

Tirupati: Positioned approximately 85 kilometres from the state capital, Tirupati stands as one of the prominent districts of Andhra Pradesh. Over the past decade, Tirupati has made notable strides in enhancing its healthcare infrastructure, particularly in the realm of maternal and child healthcare services.

<i>Demography</i>	<i>Health</i>
<ul style="list-style-type: none"> <i>Total Population: 287,035</i> <i>Male population: 145,977</i> <i>Female population: 141,058</i> <i>Sex Ratio: 966 females per 1000 males</i> <i>(Source: AP State Portal</i> <i>Official Portal of Andhra Pradesh Government)</i> 	<ul style="list-style-type: none"> <i>Number of District Hospital: 1</i> <i>Community Health Centre: 4</i> <i>Primary Health Centre: 27</i> <i>Subcentre: 324</i> <i>First Referral Unit: 1</i>

SECTION 2: FINDINGS AND DISCUSSION



The impact assessment study report is based on the assessment of the DS Group-CSR intervention project of installing modern 128 slice CT Scan machine in the BIRRD hospital, Tirupati. More specifically it is an outcome-oriented evaluation study that measures the effects of the project on the beneficiaries ie. Ortho and cardiac patients. This study analyses the impact of the project in terms of accessibility, quality, and efficiency of the CT Scan machine at BIRRD hospital funded by DS Group as their CSR initiative.

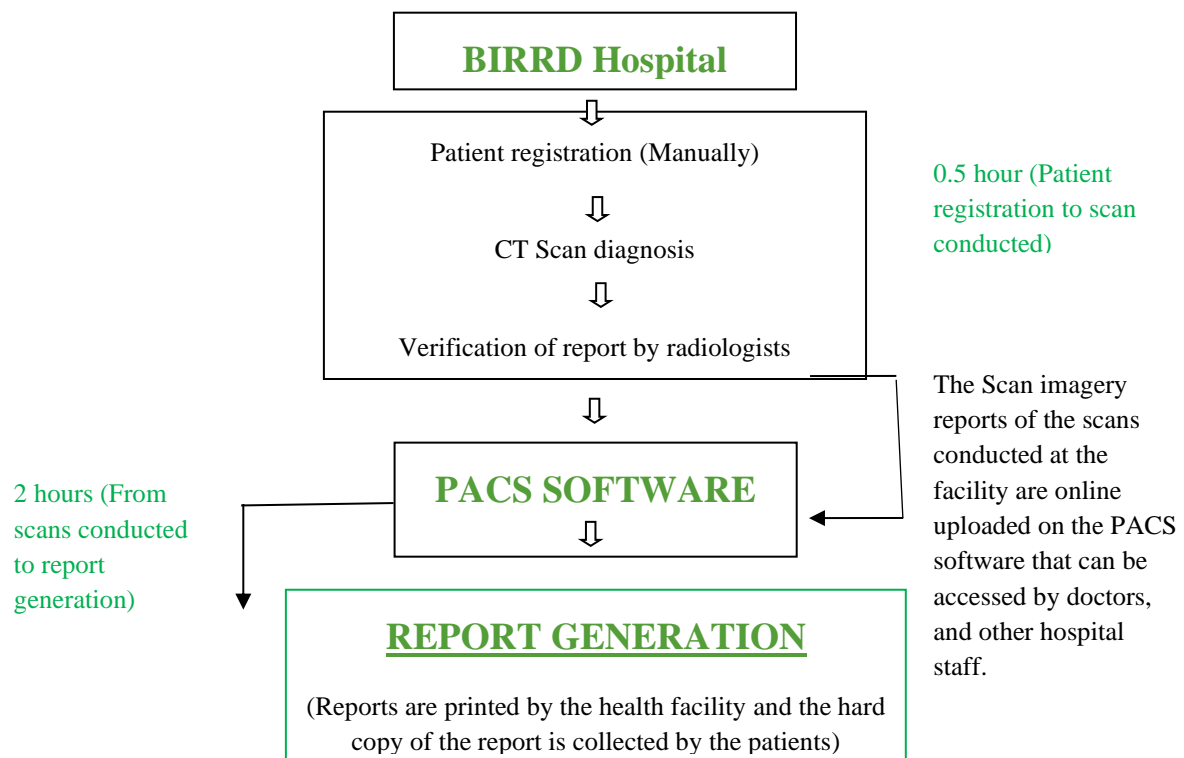
FUNCTIONING OF THE MACHINE AT THE BIRRD HOSPITAL

A Computed Tomography (CT) scanner is an x-ray machine which combines many x-ray images with the aid of a computer to generate cross-sectional views and, if needed, three-dimensional images of the internal organs and structures of the body. They help physicians diagnose a range of conditions by producing images of internal organs and structures of the body. The separate segment of the hospital is dedicated to the facility of CT scan diagnosis. Under the CSR intervention by DS Group, 3.10 crore worth of advanced CT Scan machine was installed in BIRRD Hospital in Tirupati.

At BIRRD Hospital, the CT scan machine plays a pivotal role in diagnosing various medical conditions and guiding treatment decisions. By emitting a series of X-ray beams from different

angles around the body, the CT scanner generates detailed images that enable healthcare providers to visualize the anatomy and pathology with exceptional clarity. These images are particularly valuable for detecting abnormalities, such as tumors, fractures, or internal injuries, and assessing the extent of disease progression. Moreover, CT scans are instrumental in guiding surgical procedures, planning radiation therapy, and monitoring treatment response. The CT scan machine at BIRRD Hospital enhances patient care by facilitating timely and accurate diagnosis, enabling healthcare providers to devise tailored treatment plans, and improving overall clinical outcomes.

The CT scan machine at BIRRD Hospital boasts advanced capabilities, including a remarkable capacity to capture detailed images with precision and clarity. With its cutting-edge technology, this machine can produce up to 128 slices of high-resolution images in a single scan. This high-resolution imaging capability allows healthcare providers to obtain a comprehensive view of the patient's anatomy, facilitating accurate diagnosis and treatment planning. Additionally, the CT scan machine's ability to generate images in high resolution ensures that even subtle abnormalities or intricate structures are clearly visualized, enhancing diagnostic accuracy and clinical decision-making. By offering exceptional image quality and comprehensive imaging capabilities, the CT scan machine at BIRRD Hospital significantly contributes to improving patient care and outcomes.



Total Turnaround time is less than 5 hours
(From registration to the report generation)

SERVICE PROVIDER PERSPECTIVE

As per the Key informant interviews with the BIRRD Hospital In-charge, Radiologist, Lab Technician operating machine, and the Senior Orthopaedist, it was observed that due to lack of availability of high resolution and advanced technology CT Scan machines in the hospital facility, the risk of delay in essential diagnosis and treatment was high. However, the number of referred cases to other private Diagnostic centres from the hospital was also very high. Thus, the requirement of required health infrastructure also increased. Concerning the COVID-19 upsurge complications also saw a raise in cases of COVID-19 patients with subarachnoid hemorrhage, intraparenchymal hemorrhage, subdural hematomas, and hemorrhage secondary to cerebral venous thrombosis and ischemic stroke¹. In such cases requirement of in-house CT Scan diagnosis increased in the hospital. To gather information about the project implementation, key informant interviews covered service provider as well.

The Radiologist and Hospital in charge is responsible for ensuring proper utilization of project facilities. Direct service providers such as Lab Technician operating machine and Bio-medical engineer operates the medical equipment, perform Scans, and report any malfunctions or faults to the technical staff or engineers. The key informant interview conducted with the key service providers reveals the following:

Improved Institutional Strengths:

Prior to the installation of CT scan machines at BIRRD hospital, the healthcare landscape in Tirupati faced challenges in providing comprehensive diagnostic services. Patients in need of CT scans had limited access to such advanced imaging technology within the district. Consequently, many patients had to be referred to other healthcare facilities, both public and private, outside the district, leading to delays in diagnosis and treatment. The absence of CT scan machines highlighted a gap in the healthcare infrastructure, particularly in addressing complex medical conditions that necessitate precise imaging for accurate diagnosis.

During an interview with the radiologist at BIRRD Hospital in Tirupati, it was revealed that prior to the installation of CT scan machines, patients experienced a significant increase in financial burden and out-of-pocket expenditure. The absence of onsite CT scan facilities

¹ Kurtz, T., Bhanushali, A., Kousoulas, L., & Edwards, S. (2021). Impact of the COVID-19 Pandemic on Pediatric Emergency Department Volumes, Length of Stay, and Acuity at a Tertiary Academic Medical Center. *Cureus*, 13(11), e19327.

necessitated patients to seek diagnostic imaging services at other hospitals, leading to additional expenses for transportation, accommodation, and consultations. This situation placed considerable financial strain on patients, particularly those from economically disadvantaged backgrounds.

*The installation of CT Scan machine has supported the community not only financially but also technically as due to the advancement of these machines now critical illnesses are being cured in this hospital. The population who are availing the benefits belongs to the lower class or usually those who cannot afford highly priced CT scans in private health care facilities.
..Senior Orthopaedist*

Insights from Hospital Records:

Daily diagnosis cases increased: 10-12 ortho patients, 5-6 cardiac patients.

Monthly beneficiaries: 75-100.

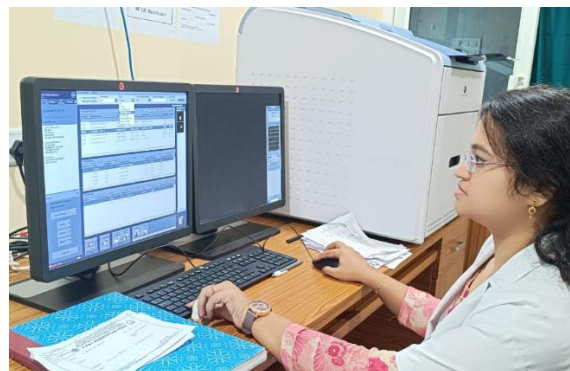
Annual beneficiaries: Approximately 1200.

Number of Scans and Types of Investigations:

The BIRRD hospital has observed a greater number of cases since the installation of the CT scan equipment. According to hospital records, the daily diagnosis cases have increased to 10 to 12 ortho patients and 5 to 6 cardiac patients. Every month, there are an average of 75 to 100 beneficiaries, and on an annual basis, around 1200 patients benefit from the project. The advanced-level CT Scan machines have contributed to the success and efficacy of treatment facilities. Additionally, the installation of the machine has helped manage the influx of patients and has allowed the BIRRD Hospital to accommodate referral cases. In an interview with lab

technician operating the machine, she stated that,

“Currently we are receiving referral patients from outside hospitals of Bengaluru and Vijayawada district also. They come here because we are offering high quality diagnostic services at free of cost. Doctors are also referring patients for scans to BIRRD hospital because in comparison to ordinary 28 slide CT



scan machines at other health facilities, we are having modern 128 slide CT Scan machine with high resolution imagery.”

The interview findings revealed that the majority of referral cases for CT scans are received from Shree Venkateshwara Institute of Medical Science (VIMS) to BIRRD.

The installation of the CT Scan machines has been highly beneficial in the trauma and brain hemorrhage cases.

Although there is no written patient satisfaction mechanism, there is an oral feedback mechanism to evaluate the quality of services provided under the project.

Monitoring Mechanism

Monitoring for the smooth facilitation of services under the project is being done on each level. Firstly, the Lab Technician and related staff operate the medical equipment and performs scans regularly. In the case of any malfunction or fault, they inform the respective technical staff or bio medical engineers who have been hired by the hospital through a private firm “GE Healthcare”.

GE Healthcare plays a crucial role in the monitoring of CT scan machines installed at BIRRD Hospital in Tirupati. GE Healthcare is responsible for ensuring their optimal functioning and performance. This includes regular maintenance checks, calibration, and technical support to address any issues that may arise during operation. Additionally, GE Healthcare provides training to hospital staff on the proper use and maintenance of the CT scan machines, ensuring that they are utilized effectively to deliver quality diagnostic services to patients. Through ongoing monitoring and support, GE Healthcare helps to ensure that the CT scan machines operate efficiently and reliably, contributing to the overall healthcare delivery at BIRRD Hospital.



Secondly, regular maintenance and servicing of the machines are conducted to ensure their proper functioning. The technical staff or engineers conduct periodic checks and repairs as needed to keep the machines in optimal condition. For this purpose, the hospital has SoPs and Regulations at place.

BENEFICIARIES' PERSPECTIVE

COST-BENEFIT

The cost-benefit estimation was performed in the study to assess the effectiveness and efficiency of the intervention in terms of economic benefit for critical patients and their caregivers.

The calculation performed for estimating the cost-benefit of utilizing the CT Scan Facility with the best quality of care is given below:

$$\mathbf{AC\ PVT - AC\ P = CB}$$

AC PVT: The average cost of a private facility

AC P: Actual cost at BIRRD hospital

CB: Cost-benefit to the Patients and its family

(INR 5000- INR 0= INR 5000 per diagnosis)

The above-mentioned estimates were calculated through a secondary information provided by the health facility in Tirupati and further using the above calculation respectively. While enquiring about the cost benefits due to the utilization of services under the project. The average cost of a normal CT scan in private hospital is 5000 INR / diagnosis and diagnostic test by CT Scan machine in BIRRD hospital is free of cost.

OVERALL IMPACT OF THE INTERVENTION

The project was initiated to provide the required facilities in the BIRRD hospital. Over three years since the installation of the CT Scan machine, the medical equipment has been functioning properly and benefitted more than thousands of potential beneficiaries. The impact of the facilities under the project does not only include health benefits but it has huge impact on out of pocket expenditure, as shared by respondents below:

Economic Impact

Due to the installation of the CT Scan machine, the respective area and people from other districts are able to access better health infrastructure and better medical facilities at BIRRD hospital.

“The facilities have successfully improved the Institutional CT Scans in BIRRD Hospital which is free of cost. This has significantly improved the Paediatric cases, and other facilities. People can easily access the services without incurring a penny.” - Hospital in-charge.

As per the response from service providers, it was observed that the lower income families or poor families now able to get benefitted by such facilities in private hospitals and have better healthcare services.

“The charges for the Scans in other private institutions ranges from 5000-10000 whereas at BIRRD hospital it is free for all” -Radiologist.

Social Impact and Community Wellbeing

Corporate Social Responsibility was started to put an effort by the Corporate for social change. High resolution and advanced technology CT Scan machine in the BIRRD hospital installed under the CSR intervention of DS Group is accessible to all people irrespective of caste or religion or region and social status. Based on the needs felt by the community, the health camps operate, and advanced medical equipment have been provided in the hospitals so that every possible treatment can be provided to the patients. Due to the easy and affordable access to the diagnostic services at BIRRD hospital, the community has developed greater trust on hospital services.

THIS IMPACT ASSESSMENT STUDY EVALUATED ON EACH OF THE FOLLOWING PARAMETERS:

Parameter	Details
Relevance	The intervention addressed the critical need for improving diagnostic services in the healthcare system, particularly in light of the increasing demand for quality care amidst the COVID-19 pandemic. The provision of a CT scan machine significantly contributes to improving diagnostic capabilities of the hospital and patient outcomes.
Effectiveness	The intervention is found to be most effective in terms of its objective to save the life of critical patients by providing them with immediate access to essential care. The high-quality CT scan machine has enhancing diagnostic capabilities of BIRRD Hospital. The CT scan machine has enabled timely and accurate diagnosis, leading to better treatment and recovery of patients.
Efficiency	The utilization of the CT scan machine has demonstrated high efficiency, both in terms of resource utilization and time management. The intervention has streamlined diagnostic processes, resulting in cost savings and improved patient management.
Impact	Post-intervention, there has been a noticeable increase in the number of scans conducted for in-house patients and for referral patients from other health facilities. This indicates improved accessibility to diagnostic services to people particularly those belong to low income families/BPL. Additionally, the quality of care provided to patients has significantly improved, leading to better health outcomes.
Sustainability	The CT scan machine, donated as part of a CSR initiative, ensures the sustainability of enhanced diagnostic capabilities at BIRRD Hospital. With dedicated technical staff for maintenance, the machine is poised to remain functional and serve the community for longer duration. The technical staff is responsible for routine maintenance and monitoring of the machine.

PATIENTS' EXPERIENCE

Pelvic fracture is prevalent among old age people and one of the leading causes of death in the elderly. This is often overlooked and can be a severe cause of pelvic arthroplasty. A CT Scan report documents a 56-year-old woman pedestrian Lakshmi Amman who fell down at her home. With prolonged pain for so many days, she was presented by her son to BIRRD hospital. On a doctor's recommendation, computed tomography was performed using a high-resolution CT scan machine donated by DS Group. The automated 3D CT scan images helped physicians diagnose minute and multiple fractures, which were difficult to diagnose without a high-quality CT scan machine. The test results and 3D images of bones assisted surgeons in complex surgical procedures. Within six hours of the diagnosis, the surgical procedure and a prosthetic implant were effectively performed by BIRRD hospital. The patient and her relatives felt great relief as the diagnosis and treatment were free of cost for a low-income family. Her son was grateful for the services which her mother received from the BIRRD hospital.



"Throughout her diagnosis and treatment, the process was smooth, and my mother got relief from severe pain and suffering. I brought her in pain, but a free CT scan and quick test report helped in timely surgery and overcame her pain"son of Lakshmi Amman

SECTION 3: CONCLUSION AND RECOMMENDATIONS

The DS Group has supported BIRRD Hospital in Tirupati District by installing high quality CT Scan machine. The intervention was found to be cost-efficient, timesaving, efficient, and technologically advanced that has strengthened the diagnostic services to patients in need of CT scans. The high-resolution CT scan machine has caused a shift in the healthcare system's priorities, with daily registration increased from 3-4 to 16-17 patients. The intervention has improved the quality of care to critical patients and increased accessibility to technologically advanced medical facilities. The need of health infrastructure was also fulfilled to some extent by the intervention. Overall, it is observed that the best quality of care and health facilities is available and accessible to people in Tirupati. The cost effectiveness of the model has made it more accessible to the poor or low-income families.

Below mentioned are the recommendations that can be considered for the effective, and sustainable impact of intervention :

Periodic Training and Capacity Building of Staff: An initial orientation on operation and use in multiple diagnosis was organized after an installation of machine. However, the staff/radiologists working in shifts require periodic training on specific topic such as diagnosis of cardiovascular disease, lungs and brain. The training and capacity building would help each staff to understand the functioning of the machines and in case of any emergency, each staff would be capable to tackle.

Need to Enhance Use of CT Scan machine: The high-quality machine can diagnose more than 100 patient a day. Being installed in an orthopaedic hospital, it has been widely used for diagnosis relevant to orthopaedic disorders. However, it can also be used to diagnose other injuries or diseases.

MRI Scan for Patients: In most of the cases, the doctor recommends patients for MRI instead of CT scan but many patients find difficult to access MRI as the BIRRD does not has MRI facilities. It seems very expensive and unaffordable for many patients as observed by the radiologists. Therefore, the MRI facilities may be provided at BIRRD premise to enable access to better diagnostic services.

Maintenance of Machine : The annual CMC maintenance of the CT scam machine in BIRRD is 35 Lac. As observed by the hospital staff, this is high cost incurred every year by the hospital maintenance and services. The maintenance cost could be avoided if the machine has more than one year's warranty.