

# **PROGRESS REPORT OF TIER PROJECT**

**Submitted to**

**TRIBAL RESEARCH & TRAINING INSTITUTE, UDAIPUR**

**“Telemedicine use to improve access, cost and  
quality of primary & secondary care of tribal  
people of Abu Road tehsil of district Sirohi,  
Rajasthan: a hybrid type-2 effectiveness-  
implementation study.”  
(TIER Study)**

**Centre of Excellence of Tribal Health  
All India Institute of Medical Sciences, Jodhpur  
(A Collaborating Centre for Indigenous Health, Ministry of Tribal Affairs, GoD)**

## SUMMARY

### 1. TITLE OF THE PROJECT:

Telemedicine use to improve access, cost and quality of primary & secondary care of tribal people of Abu Road tehsil of district Sirohi, Rajasthan: a hybrid type 2 effectiveness-implementation study.

### 2. REFERENCE NO. OF SANCTION LETTER WITH DATE:

S.No.:F(6)TRI/TIER/2020-21/359-62, Dated: 27<sup>th</sup> July 2021

### 3. PI NAME & ORGANISATION: (COMPLETE ADDRESS WITH TELEPHONE NO. & EMAIL DETAILS)

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### 4. DATE OF START: 15<sup>th</sup> July 2021 (MoU done on 22<sup>nd</sup> July 2021)

### 5. DATE OF COMPLETION: 14<sup>th</sup> July 2024 (Tentative)

### 6. TOTAL COST OF THE PROJECT: SANCTIONED (Rs. 43,60,598/-)

### 7. STAFF SANCTIONED & IN POSITION:

S. No	Sanctioned	Number	In position
1	Research Officer	1	Working
2	Telemedicine Support Staff	1	Vacant (resigned in March) Post has been advertised

### 8. TOTAL EXPENDITURE: Rs. 5,36,936/- (till 31<sup>st</sup> Dec 2021).

### 9. SUMMARY OF PROGRESS WORK-PLAN/TIME SCHEDULE OF ACTIVITIES IN THE PROJECT:

Task	Completion Year
Hiring of Manpower	July 2021
IEC Approval (No.AIIMS/IEC/2021/3888)	28 <sup>th</sup> Oct 2021
Work started (in field)	1 <sup>st</sup> Nov 2021
Telemedicine services at Abu Road	July 2021-24
Data will be collected	Till December 2023
Preparation of manuscript and report writing	Jan-July 2024

## DETAILED REPORT

(For the period from 15<sup>th</sup> July 2021 to 15<sup>th</sup> May 2022)

### 1. INTRODUCTION:

India is a vast country with spread of tribal in remotest location, making it difficult to provide equitable healthcare access. Telemedicine services provide a unique solution for available, accessible & affordable healthcare in remotest areas of the country. This study is an attempt to generate evidence for telemedicine use to improve access, cost and quality of primary & secondary care of tribal people. This study is the first of its kind applying effectiveness-implementation design to telemedicine in the Indian set up particularly in tribal context.

### 2. APPROVED OBJECTIVES OF THE PROEJCT:

#### Primary

1. To study the acceptability and feasibility of telemedicine among telemedicine providers & tribal patients.
2. To study the access to primary & secondary care to tribal people in Abu Road.

#### Secondary

1. To compare cost effectiveness of implementation of telemedicine services with non-telemedicine centre at Abu Road.
2. To compare quality of implementation of telemedicine services with non-telemedicine centre at Abu Road.

### 3. PROJECT AREA (BLOCK, VILLAGE, TOTAL AREA COVERED):

Tribal patients of an aspirational district Sirohi who attend Telemedicine consultation at Satellite Centre for Tribal Health & Research, Abu Road.

### 4. ACTIVITIES DONE SO FAR:

The district Sirohi is an aspirational district in southern Rajasthan, India and is divided into 5 administrative blocks. Abu Road and Pindwara blocks are densely tribal populated blocks. The telemedicine centre established at the Abu Road Block which has 1,07,664 tribal population spread across 123 villages and catered by 2 CHCs and 4 PHCs. The study was divided in to three phases including need assessment, implementation of programme and analysis of outcomes.

#### 4.1 Research Activities: Detailed methodology and key outcomes

#### 4.1.1 Research Activity 1: Need Assessment regarding Telemedicine Services:

A cross-sectional study was conducted to understand telemedicine services among the tribal population in Abu Road. A house-to-house survey was conducted among the adult tribal population about their sociodemographic profile, limiting factors responsible for poor health status, need for telemedicine, and mode of providing telehealth services. The fundamental purpose of this step was to assess the requirement of telemedicine intervention in tribal dominant areas to connect them with tertiary care medical centres for their healthcare needs. The study was conducted among tribal populations living in remote regions of Sirohi district to understand the mode of healthcare services in the same area, prevalent diseases, distance and number of primary and community health centres, availability of medicines, availability of doctors, and specialty clinics. The evaluation of needs to be met is performed by a systematic process addressing the differences between current and intended results. We assumed a baseline of 50%, and we estimated a sample size of 606 participants at 95 % CI, 10 % relative error, design effect of 1.5, and contingency of 5%. A pre-tested and validated questionnaire regarding demographic details of the target participants and need assessment regarding telemedicine among tribal population.

We interviewed 606 tribal people through the house-to-house survey. The mean age of the participants was  $34.41 \pm 13.37$  years, and 228 (37.6%) were females. 415 (68.5%) were uneducated, and only 2.5 % had completed their graduation (Table 1). In the need assessment study, we have found that 378 (61.7%) persons had never related to the concept of telemedicine. A 125 (20.6%) people think it is related to drug distribution, and 61 (10.3%) considered

Variables/Parameters	Frequency	Percentage (%)
<b>Gender</b>		
Male	378	62.4
Female	228	37.6
Total	606	100.0
<b>Education</b>		
Uneducated	415	68.5
Primary	93	15.3
Secondary	83	13.7
Graduation	15	2.5
Total	606	100.0
<b>Age group</b>		
18-20	102	17.0
21-40	342	56.0
41-60	134	22.0
60 Above	28	5.0

telemedicine a new government scheme for poor people of the village. Only 53 (9.0%) knew about telemedicine being related to an audio-visual platform to provide health consultation at the village level itself. All the participants were informed about the teleconsultation service, which was launched to provide quality and specialist services to the tribal population. The outcomes represented in figure-3, a total of 85.6% (n=519), agreed to the need for telemedicine services and showed a willingness to consult the doctor through laptop/phone if given an opportunity at the village level itself. A total of 536 (88.4%) participants agreed that going to cities for treatment is complex. A total of 414 (68.3%) people decided that telemedicine as a super-specialty will provide better health services than current health services. The most common need expressed by the participants for telemedicine care was for pediatric services (n=277, 45.7%) followed by dermatological services (n= 243, 40.1%), psychiatry (n=55, 9.1%) and general medicine (n=31, 5.1%).

#### **4.1.2 Research Activity 2: Implementation of referral telemedicine Services for Tribal Population**

There were several considerations for establishing a physical space appropriate for delivering telehealth services. So, the telecare facility was established at a pilot level in a room of CHC Abu Road to link various health specialists at AIIMS Jodhpur through online mode and provide consultation when required. The telemedicine facility equipped with a laptop and LED Screen with an internet connection, video conferencing software, telemedicine cart etc. A research officer, technical staff, and medical social worker are managing the telehealth referrals, brief the patient on telehealth services, coordinate with the telehealth provider, facilitate the technical aspects of the visits, and schedule follow-ups as necessary and awareness activities among tribal community. The medical officer at CHC would refer a patient to the telemedicine centre; otherwise, the patient can directly visit the teleconsultation facility for teleconsultation with the doctors from AIIMS Jodhpur. The teleconsultation staff would facilitate patient registration in the hospital information system (HIS) portal of AIIMS Jodhpur accessed through the teleconsultation centre's laptop. The specialist consultant would take a detailed history via teleconsultation and plan for the next course of action, which comprised of recommendations for further investigations, drug management, or need for a physical consultation. All these details would be entered in the HIS by the consultant at AIIMS Jodhpur, which could be downloaded at the centre by the teleconsultation staff. Departments of AIIMS Jodhpur providing teleconsultation.

### Speciality Departments

- |                             |   |
|-----------------------------|---|
| 1. General Medicine         | 5. Paediatrics                            |
| 2. Pulmonary Medicine       | 6. General Surgery                        |
| 3. Obstetrics & Gynaecology | 7. Physical Medicine Rehabilitation       |
| 4. Dermatology              | 8. Psychiatry (Mental/Behavioural Health) |

### Super Speciality Departments

- |               |                               |
|---------------|-------------------------------|
| 1. Cardiology | 3. Neurology                  |
| 2. Nephrology | 4. Endocrinology & Metabolism |

#### 4.1.3 Research Activity 3: Patient satisfaction survey and data collection for acceptability and feasibility of telemedicine Services for Tribal Population (Ongoing)

We are recording patient satisfaction of all patients receiving teleconsultation. A predesigned and pretested structured questionnaire is used for data collection. Our survey is mainly conceptualized to gather patients' and their primary caregiver's experiences and perceptions regarding feedback of telehealth services. The satisfaction survey contained ten items that requested patients rate their satisfaction in a variety of domains (e.g., getting connected, using telehealth, hearing, seeing, feeling safe, comfort, the physical therapist, additional information, meeting expectations, and overall session) on a 3- point Likert scale (1: very satisfied, 2: satisfied; 3. dissatisfied). The preliminary data collected through Epicollect5 by trained Medical social workers. Data were imported into a standard excel sheet, and aggregated data were analysed in SPSS using descriptive statistics.

#### A. RESEARCH ACTIVITIES (RA) PRIOR TO TELEMEDICINE:

**RA1: Staff Interviews:** Clinician who are part of Telemedicine Core Group at AIIMS Jodhpur were interviewed by Research officer to understand the anticipated barriers & enablers at the outset-COMPLETED

**RA2:** All the staff providing Tribal Telemedicine at AIIMS Jodhpur were interviewed by Research officer to understand the anticipated barriers & enablers at the outset-COMPLETED

#### B. RESEARCH ACTIVITIES (RA) WITH OPERATIONAL TELEMEDICINE:

**RA1: Staff Interviews:** Clinician who are part of Telemedicine Core Group at AIIMS Jodhpur were interviewed by Research officer to understand the services change from the outset-In progress

**RA2:** All the staff providing Tribal Telemedicine at AIIMS Jodhpur were interviewed by Research officer to understand the anticipated barriers were overcome or not -In progress

### 5. OBJECTIVES ACHIEVED SO FAR:

#### Objective:

**Primary:** To study the acceptability and feasibility of telemedicine among telemedicine providers & tribal patients.



Acceptability & feasibility of telemedicine among tribal patients have been achieved.

A manuscript detailing these have been submitted in an International Journal “**Informatics for Health and Social Care**” (Impact factor: 2.67) (title: Conceptualization and Implementation of innovative telemedicine facility for the tribal population of Rajasthan.) is under review.

#### 6. WORK REMAINING TO BE DONE UNDER THE PROJECT:

1. Acceptability & feasibility of telemedicine among telemedicine providers is to be completed.
2. Access to primary & secondary care to tribal people in Abu Road is to be completed.
3. Comparison of cost effectiveness of implementation of telemedicine services with non-telemedicine centre at Abu Road is to be completed.
4. Comparison quality of implementation of telemedicine services with non-telemedicine centre at Abu Road is to be completed.

#### 7. AGENCIES/ INSTITUTIONS/ DEPT.'S LIKELY TO BE INTERESTED IN THE PROBLEM, METHODOLOGY, RESULTS, ETC.

A. National Institute of Health Research (NIHR), UK has granted “NIHR Global Health Research Centre for Multiple Long-Term Conditions” project. One of the project sites is district Sirohi, from AIIMS Jodhpur.

B. ERICSSON- a Swedish giant has expressed interest in providing 5G tower at the Satellite Centre for Tribal health & research, Abu Road and equip telemedicine vehicle to reach out to tribals in remote locations.

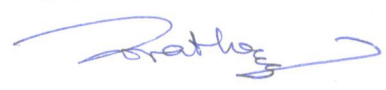
C. MICROSOFT has shown interest in providing tools for “MIXED REALITY” to be used for Teleconsultations for tribals of district Sirohi.

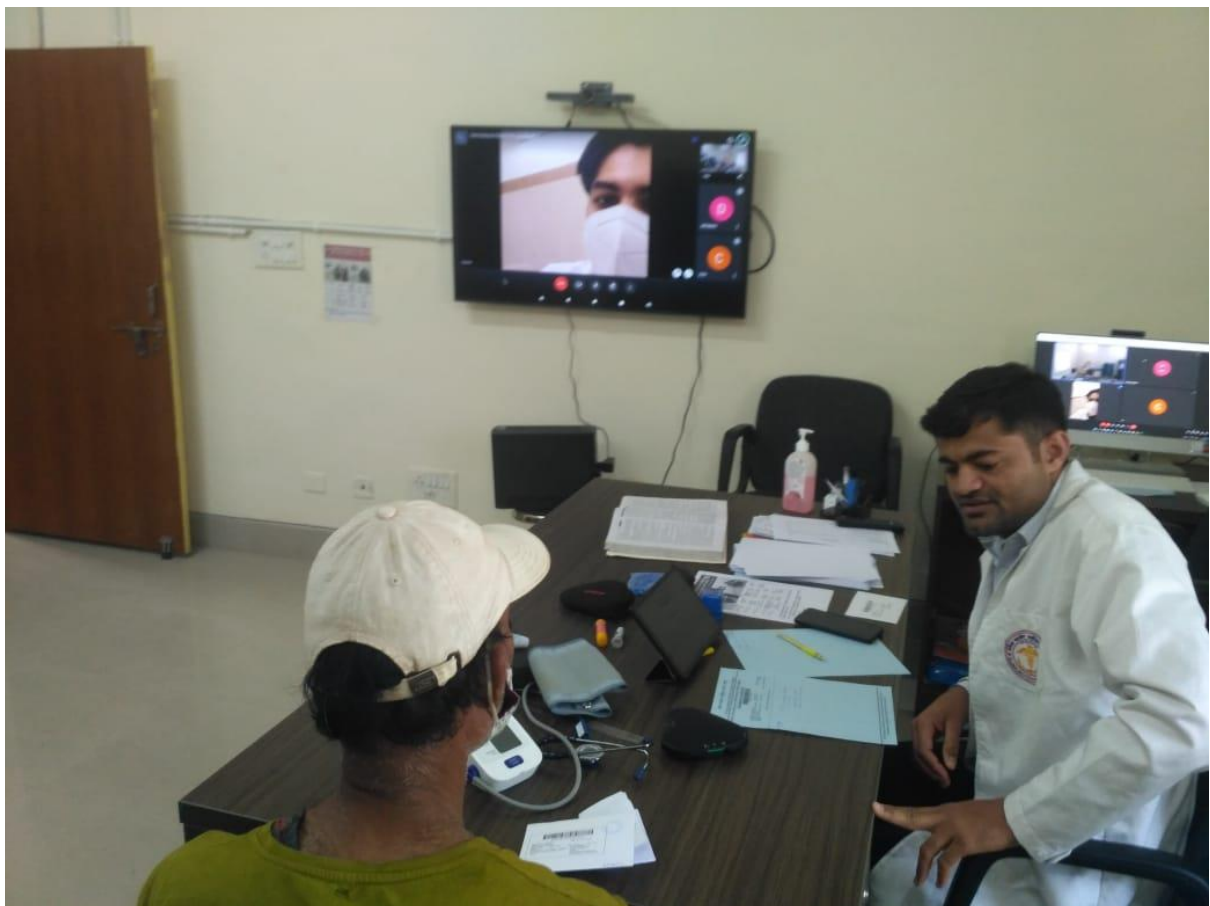
#### 8. CONSTRAINTS, IF ANY:

As Telemedicine consultations are provided without free medicines as patients get at any PHCs/CHCs. This make follow up of patients a bit difficult. A request for opening a dispensary at Satellite Centre for Tribal health & Research, Abu Road has been submitted to District Magistrate, Sirohi & Deputy Commissioner, TAD regarding this.

#### 9. INTERVENTION OF TRI, UDAIPUR REQUESTED FOR: Nil

DATE:17/05/2022

for  
  
Signature of Principal Investigator  
Dr. Gopal Krishana Borra  
सह-आचार्य  
Associate Professor  
मेडिसिन विभाग  
Department of Medicine  
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All India Institute of Medical Sciences, Jodhpur







Outreach activities by centre for providing healthcare services in various Anganwadi kendra.

## आबूरोड: संजीवनी बन रहा जनजातीय अनुसंधान स्वास्थ्य केंद्र, एम्स के डॉक्टरों द्वारा ऑनलाइन उपचार

ग्रामीणों को मिल रही बेहतरीन चिकित्सा एवं स्वास्थ्य सेवाएं

संवाददाता, रणवीर राजस्थान

**आबूरोड।** केंद्र सरकार की योजना के तहत आबूरोड के तलहटी क्षेत्र में जनजाति क्षेत्रीय विकास विभाग के एकलव्य मॉडल आवासीय विद्यालय परिसर में संचालित राजस्थान का एकमात्र जनजातीय अनुसंधान स्वास्थ्य केंद्र स्थानीय जनजाति और अन्य ग्रामीणों के लिए जीवनदायिनी साबित हो रहा है। टेलीमेडिसिन के माध्यम से जोधपुर एम्स के डॉक्टरों की मिल रही उपचार की सुविधा स्वस्थ हो रहे गंभीर रोगियों को जीने की राह सिखाने के साथ उनमें उत्साह और उमंग भर रही है। केंद्र पर सेवाएं दे रहे चिकित्सक और नर्सिंग कर्मचारियों की तरफ से यहां इलाज के लिए आने वाले हरेक व्यक्ति को पूरा सहयोग किया जा रहा है।

सप्ताह में चार दिन विशेषज्ञों की सेवाएं : स्वास्थ्य केंद्र पर सप्ताह में चार दिन टेलीमेडिसिन के माध्यम से एम्स में विभिन्न रोगों के विशेषज्ञ चिकित्सकों द्वारा अपनी ओपीडी सेवाएं मुहैया करवाई जा रही है। सोमवार को बाल रोग, हृदय रोग, फिजिकल मेडिसिन, मंगलवार को जनरल मेडिसिन, जनरल सर्जरी, बाल रोग और मनोरोग, बुधवार



को प्रसूति एवं स्त्री रोग, बाल रोग, न्यूरोलॉजी, गुरुवार को जनरल मेडिसिन, त्वचा रोग, बाल रोग और यूरोलॉजी तथा शुक्रवार को बालरोग, नेफ्रोलॉजी, इंडोकायनोलॉजी के विशेषज्ञ चिकित्सकों द्वारा इन चार दिनों में सुबह 10 बजे से दोपहर 2 बजे तक उपचार के संबंध में परामर्श दिया जाता है। गंभीर प्रकृति के रोगियों को इलाज के लिए एम्स भेजा जाता है।

**एम्स के ये विशेषज्ञ चिकित्सक दे रहे सेवाएं :** डॉक्टर नवीन दत्त, डॉक्टर जीके बोहरा, डॉ दीपक कुमार, डॉक्टर चारु शर्मा, डॉक्टर डॉ प्रतिभा सिंह, डॉक्टर अभिषेक भारद्वाज, डॉ कुलदीप सिंह, डॉक्टर वरुणा व्यास, डॉक्टर लोकेश, डॉ नितिन गोनाडे, डॉक्टर रामकरण चौधरी, डॉक्टर भरत चौधरी, डॉ प्रवीण कुमार, डॉ नितिन वाजपेयी, डॉक्टर अलीजा मित्तल, डॉक्टर मुकेश स्वामी, डॉक्टर

**निशुल्क जांच एवं दवाएं**

अनुसंधान एवं स्वास्थ्य केंद्र पर इलाज के लिए आने वाले रोगियों को निशुल्क लैब जांच और दवाओं की सुविधा दी जा रही है। फिलहाल लैब जांच आकराभट्ट स्थित सामुदायिक स्वास्थ्य केंद्र पर करवाई जाती है। शीघ्र ही स्वास्थ्य केंद्र स्तर पर लैब जांच की सुविधा उपलब्ध होगी।

**इनका कहना है**

● केंद्र पर इलाज के लिए आने वाले ग्रामीणों को बेहतर चिकित्सा सुविधा उपलब्ध करवाई जा रही है। टेलीमेडिसिन के माध्यम से एम्स के विशेषज्ञ डॉक्टरों द्वारा रोगियों का इलाज किया जाता है। लैब जांच और दवाइयों की निशुल्क सुविधा दी जा रही है।

**-डॉ. चूनाराम चौधरी, जनजातीय अनुसंधान स्वास्थ्य केंद्र, आबूरोड।**

समिता पांडा, डॉक्टर गौतमराम चौधरी, डॉक्टर रविंद्र शुक्ला। वहीं स्थानीय स्वास्थ्य केंद्र पर रिसर्च ऑफिसर डॉ राखी द्विवेदी, डॉक्टर चूनाराम चौधरी, तकनीकी सहायक, दिलीप सिंह, पुरुषार्थ शर्मा सेवाएं दे रहे हैं।