Telemedicine Solutions
During the Pandemic and the Path Forward

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WHEELS global foundation
Water / Health / Energy / Education / Livelihood / Sustainability

smart care doc

The Traditional Healthcare Delivery

A short 30 seconds video play

During Pandemics, the traditional in-person healthcare is not possible
Because of Imposed
Lock-downs / Curfews / Lack of transportation & Severe travel restrictions

What is the Alternative?

Remote Healthcare Delivery: Telemedicine

SmartClinic

Medical Video Consult with Diagnostic Devices

From Home/Clinic/Nursing Home/Pharmacy/Schools/Offices

Patient View

Doctor View

Optional Devices

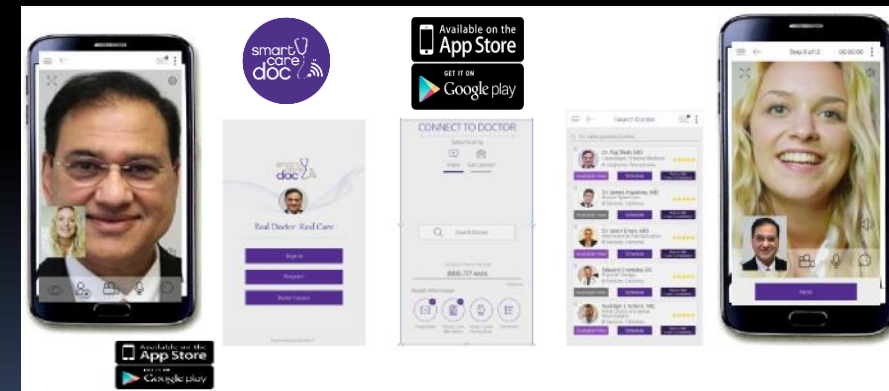Echocardiogram   Ultrasound   12 Leads ECG   Spirometer

SmartVideoCall

Medical Video Consult/Store & Forward

A familiar, user-friendly video visit experience
with extensive capabilities including scheduling
Remote diagnostic capture, wellness tracking,
insurance billing and patient record
management

Download App
and Login   Video Visit or
Get Opinion   Choose Doctor

SmartOpinion

Upload Reports/Images/Videos for Consultation on any connected devices

Realities and Challenges of Rural Areas

- Poverty
- Lack of education
- Lack of clean water supply & sanitation
- Lack of energy supply

- No healthcare providers
- No clinics or hospitals
- No Medical supplies and equipment
- No infrastructures: Roads/Transportation

The Challenge
How to deliver Healthcare to 800+m rural population

Mission
Provide Access to Affordable Healthcare

Vision
Using Technology Enabled Cost-Effective
Healthcare **E**asy **A**ccess for **R**ural-Community via **T**elemedicine
'HEART' Centers

Kit

Smartphone   Thermometer   Pulse Ox

BP   Scale   Blood Glucose

Residents of village are selected and trained as Sahayak
(Telemedicine Operators) and given Telemedicine Kit
~$500 Donated by WHEELS Global Foundation
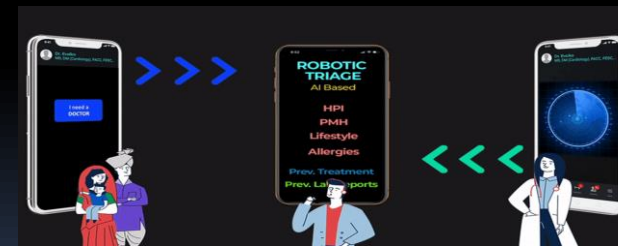
Technology Partner Evolko
Provides on-site training
software and hardware
Support and maintenance

Doctor

The Lessons Learned

➢ Preparedness and Planning before the disaster strikes is the most important lesson:

- ❖ Access to Affordable healthcare
- ❖ Healthcare facilities
- ❖ Healthcare workers education, training and supply
- ❖ Adequate reserve and rapid production of life-saving medical equipment like ventilators, O2 generators & supply, diagnostic devices, PPE
- ❖ Management of supply chains

➢ A single disaster management Agency empowered to take control and command based on data and science without political interference:

- ❖ Accurate data collection, analytics, modelling and single platform
- ❖ Emergency procurement and production
- ❖ Development of rapid testing, development of treatment and preventive mesures including vaccines
- ❖ Economic help for medical care, food, and shelter
- ❖ Licensing reciprocity for healthcare workers and mitigating professional liabilities for charity works during emergency
- ❖ Mass education and awareness to alleviate fear and anxiety

The Path Forward

TeleMedicine: 'HEART' Center

HEART Center

Smartphone Thermometer Pulse Ox

BP Scale Blood Glucose

Software and Hardware Training

Doctor PHC/Hospital

Sahayaks (Telemedicine Operators) Given Telemedicine Kit

- Remote Access
- Screening
- Triage
- TeleConsult
- Prescriptions
- Follow up

Artificial Intelligence (AI) & Machine Learning (ML) Based Technology

| 1 Screening/Triage Symptoms, Hx | 2 Vitals BP, Temp., ECG | 3 Diet & Activity | 4 Risk Factor Analysis | 5 Confirmatory Lab Tests | 6 Decides Treatment Plan | 7 Monitor On HealthRADAR |

Key Input driven by Artificial Intelligence Machine | AI-ML Based Analysis | Doctor | AI based Monitoring

TMO

A Technology equipped person from the community helps patients

- Saves Doctor's Time
- Baseline Medical Information of patients
- Detects Unassociated Disease Conditions
- Builds Database for Analytics
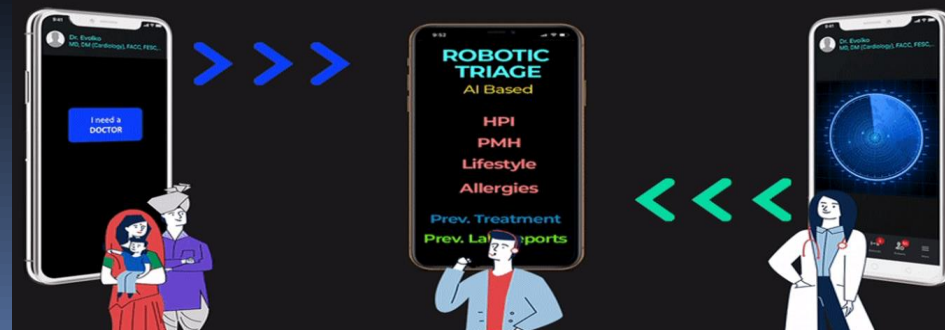
Prepare for Doctor Interaction
1. Triaging for Current Illness
2. Screening for NCDs
3. Vitals with ECG
4. Relevant Tests

Interaction with Doctor
1. Coordinate Video Consult
2. Explains Treatment Advice

"HEART" Centers: A Financially Self-Sustaining Model

Kit

➤ Initial Startup Cost per site (~$1000): Paid by WGF

From the donations: ─────────➤

- Equipment: Supplied as listed per site serving population of 3000 to 5000

- Residents of local community are selected & trained as Sahayaks (TeleMedicine Operator)

- Installation and On-Site Training of one male and one female TMOs per site

➤ Operational Cost ₹ 110 ($1.5)/Visit:

| Doctors Fee: GP/Specialist ₹50/Visit |
| Sahayak's Fee: ₹30/visit |
| Technology Support & Maintenance ₹30/visit |

Operational Cost paid by Patient
or reduced by anyone or more cost
components amount covered
by the Charities from Organizations
NGOs/Hospitals/Free Clinics

➤ Net Saving for the Patient: ₹500 to ₹2000/visit

➤ **Impact:** $1m for 1000 sites x10 patients/day = 10,000/day...3.6m/yr.

TeleMedicine Kit

Two (2) Kits per site:

- Redmi 9A Smartphones
- Jio SIMS for Internet connectivity
- Omron Infrared Thermometer
- Omron Digital BP Monitor
- Omron Pulse Oximeter
- Accucheck (Glucometer and 50 strips, lancets, Alcohol swabs)
- Stature meter
- Apollo Weighing scale
- Canon LBP 6030w Printer/site

Smartphone

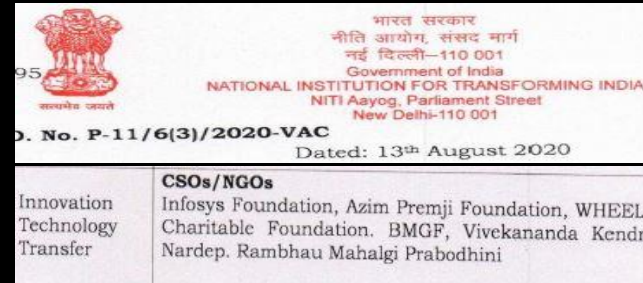Thermometer

Pulse Ox

BP

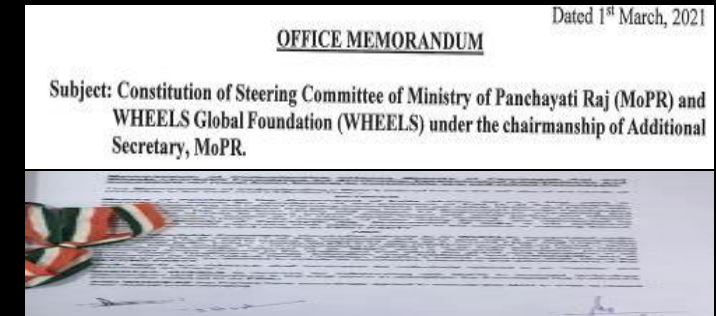Scale

Blood Glucose

Printer

ECG

WHEELS Global Foundation is recognized by Government of India for Innovation & Technology Transfer

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नीति आयोग, संसद मार्ग
नई दिल्ली–110 001
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NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street
New Delhi-110 001

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Dated: 13th August 2020

	CSOs/NGOs
Innovation Technology Transfer	Infosys Foundation, Azim Premji Foundation, WHEELS Charitable Foundation. BMGF, Vivekananda Kendra Nardep. Rambhau Mahalgi Prabodhini

Integrated SMART Village Program in cooperation with Panchayati Raj

WHEELS Charitable Foundation | IEEE smart village | WHEELS Global Foundation

WGF/WCF/IEEE
Smart Village Cluster
Development Initiative

S= Strengths
M= Measurable
A= Achievable
R= Replicable
T= Technology

Dated 1st March, 2021

OFFICE MEMORANDUM

Subject: Constitution of Steering Committee of Ministry of Panchayati Raj (MoPR) and WHEELS Global Foundation (WHEELS) under the chairmanship of Additional Secretary, MoPR.

HEART Center

Health

Education

Clean Water

- **Wearable Biometric sensors**: Apple and Android watches, Clothes

- **Portable Smartphone Lab:** U. of U of Cincinnati develops, The lab, which is the size of a credit card, plugs into your phone, connecting it automatically to a doctor's office through a custom app that can diagnose infectious diseases such as coronavirus, malaria, HIV, or Lyme disease or countless other health conditions like depression and anxiety. Delivers Test Results in 'Split' Second from point of care (Feb 2020)

- **Apple and Google partner on COVID-19 contact tracing technology** (April 2020)

- **U of Washington, Microsoft developing platform to capture patient vitals via smartphone camera** (April 2021)

- **Researchers Create mHealth Patch to Monitor COVID-19 Patients at Home:**
  Developed at Northwestern University, the mHealth patch attaches to the base of   the throat and monitors throat movement and breathing, as well as heart rate and temperature. (May 2020)

- **MIT working to launch app that uses AI to detect COVID-19 in coughing sound** (October 2020)

Would You Like to Get Involved and
Join our Mission to Change Lives of Rural India?

Please Contact

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