Effective use of ICT for seamless delivery of health care service
Introduction

- WHO defines health as:
  “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”
- Health remains a major issue in developing countries and more so in the hilly state like Uttarakhand
- In major countries health represent approximately 10% of GDP but in India it is only 1.15% which is one of the lowest in the world
- Investment in health returns social and economical benefits. WHO states that good health is linked to economic growth through higher labour productivity, demographic changes and educational attainment.
Tehri Garhwal

- Tehri Garhwal district is located in Uttarakhand on the southern slopes of the mid Himalayas, which comprise of low line peaks.
- Major land area of the district is hilly.
- Agriculture is the main occupation of the people of this district.
- Tehri Garhwal is surrounded by Uttarkashi district in the north, Pauri Garhwal district in the south, Rudraprayag district in the east, and Dehradun district in the west.
Geographical and Demographic Coverage

- Population of Tehri is 618,931 (2011 census).
- New Tehri, the headquarters of the district, has been built at an height of around 1750 meters above sea level, covering total area 4,080 km².
- 89% of Tehri Garhwal population lives in rural area.
- It is one of the three high priority districts in Uttarakhand and it is the only high priority district in hills in Uttarakhand.
- Have a huge population of HIV+ (41*) and Tuberculosis (728*) patients.
- Given the constraints of terrain and topography and the small and scattered nature of the rural settlements, adds to access issues.
Existing health Infrastructure

- 1 district hospital
- 1 SDH, 3 female hospitals, 11 CHC, 27 PHC,
- 209 Sub Centre (75 Sub Centre with Pharmacists)
- 28 State Allopathic Dispensaries,
- 73 Ayurvedic Hospitals & Dispensaries, 12 Homeopathic Dispensaries, 1 blood banks and 1 TB clinics.
Bottlenecks and Challenges

- Delivery of healthcare in the rural parts of mountain district (Distance and Time)
- Lack of infrastructure & staff prohibits people from getting quality services.
- Digital Divide in Uttarakhand
- No place in district where a beneficiary can register complains
- No access to systematic information of healthcare facilities available in the district
- No community participation in health
Opportunity

Telemedicine ...“it allows us to connect a patient to a doctor and it allows us to erase time and distance which is the miracle of telemedicine”
Opportunity

- The opportunity lies in the fact that there is a significant increase in the mobile phone subscribers and landline connections.
- The way telecommunication sector is booming in India, this coverage will further grow in coming times.
- Internet is available and affordable, it provides a clear path for incorporating ICT in healthcare seamlessly.
- With the onset of multiple telecommunication service providers there are chances of getting data connectivity of one service provider if not other.
Key Objectives
(Access, Affordability and Availability)

Wellbeing
Complete physical, mental and social well-being

Access
Most of the rural villages are away from road head and getting transportation on time is difficult

Affordability
Non-Government medical facilities are not affordable. Also cost of travelling adds to the burden.

Availability
Only 33% of Doctors are present in rural areas and minimal infrastructure

Health Outcomes
Poor health indicators (IMR/MMR etc)
Hello Doctor-555(June 2017)

- 555/18001804112: a toll free number connecting citizens to all the 20+ schemes of NHM and state government on a call.
- 40 Subcenters manned with pharmacists’. Studio was established at the District Hospital (DH) manned with doctors and specialist on demand.
- Subcenters connect with district hospital on video call and subsequently a patient sitting at the remotest point gets services namely; Consultancy, Prescription and Medicine (allopathic, ayurvedic and homeopathic), Pathology* and Diagnostics*.
- Google Map
Sub Center Distance from DH in KM

- Mongi Sub Center has maximum distance (145 Km) from DH
- Tiwargaun Sub Center has minimum distance (20 Km) from DH
• Haleth Sub Center (Pratapnagar) has maximum height (2175 meter)
• Maletha Sub Center (Devprayag) has minimum height (550 meter)
Population Covered by Sub Centers

(More number of female beneficiaries)
Technology

- District Hospital equipped with IVR (Interactive voice response) system & conferencing system
- District hospital and sub centers equipped with the tablets and optimized software for video call.
- Android based online/offline mobile application with integrated tele-consultation kit.
- CCTV camera installed at District Hospital. Installation in sub centers is in process.
- Android based devices like ECG Machine, Foetal heart rate monitor, Gluco meter, pulse oximeter etc for diagnosis and uploaded in the software for analysis & planning
<table>
<thead>
<tr>
<th>Items in the Kit</th>
<th>Qty.</th>
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<tr>
<td>Android tablet 10” with S/W</td>
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<tr>
<td>Pulse Oximeter</td>
<td>1</td>
</tr>
<tr>
<td>Glucometer/ Blood sugar monitor+50 strips</td>
<td>1</td>
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<tr>
<td>Hemoglobin meter+50 strips</td>
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<tr>
<td>Otoscope</td>
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<td>Thermometer</td>
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<tr>
<td>Wi-Fi enabled ECG machine</td>
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<td>Foetal heart monitor</td>
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<td>X-Ray view box</td>
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<td>Jelly</td>
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<tr>
<td>Urine Analysis strips</td>
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<td>Wi-Fi dongle</td>
<td>1</td>
</tr>
<tr>
<td>Briefcase</td>
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**Demographic**

- **H.No:** Mukhim
- **Zone:** Pratapnagar
- **Village:** Mehargaun

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<th>Parameter</th>
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<tr>
<td>Weight (kg)</td>
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<td>Abdomen</td>
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<td>Obesity</td>
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</tr>
<tr>
<td>Hb %</td>
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**Safety Parameters**

- Pregnancy
- Lactation
- C.K. Diseases
- Liver Diseases
- COPD
- Hypothyroidism
- Hypertension
- Diabetes Mellitus

**Inv./Advise**

- **Demographic**
- **Complaint**
- **Disease**
- **Medicine**
- **Allergy**
# Patient Detail

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<table>
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<td>Email Id</td>
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<tr>
<td>Address</td>
<td>Mukhim</td>
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# Complaint Detail

ABDOMINAL PAIN, 1 Day(s)

Free follow up in Days: 7

Regular follow up visits: 0

Prescription charge (Rs): 0
Patient Detail

UHID/Name: 4598/ VINITA
Gender/Age: 27 Yr(s)/F
BP (mmHg): 122/82
Address: Mukhim
SPO2: 90
Pulse (p/m): 75/Rg

Complaint Detail

ABDOMINAL PAIN, 1 Day(s)

Medicine Detail

1-0-1
TAB DUVADELAN 40MG
Oral With water After meal
x 5 Day(s)
=10.0 TAB

0-0-1
[ ISOXSUPEPINE]
TAB IRON
Oral With water After meal

Remark: Once only at bed time

0-0-1
[ IRON]
TAB CAL
Oral With water After meal

[ L-LYSINE MONO HCL + MAG HYDROXIDE + VIT D3 + ZINC SULPHATE + CALCIUM CARBONATE]

Free follow up days: 7

Have A Nice Day
Demographic

UHID: 4557
PCode: 7496
Date: 18/01/2019

Name: Patient Name

Age: Date of birth

Blood Group:

Father / Husband:
Father/Hus. Name

H O F

Head of the family:

Contact No: Contact Number

Email Id: Email Id

Adhaar Card No: Adhaar Card No

Occupation

Patient Type

Incoming Prescription of KEDAR SINGH

DOWNLOAD LATER
Advised Prescription of KEDAR SINGH

DOWNLOAD  LATER
### Patient Details
- **Name:** [Name]
- **Age:** 54
- **Gender:** Male
- **Weight:** 80

### Recording Details
- **Recorded:** 2019.01.23 09:50:37
- **Device:** EKG/ECG
- **Device Id:** X1300451

### Measurements
- **HR:** [Heart Rate]
- **RR Interval:** [R-R Interval]

### Analysis
- **Minnesota Code:** [Code]
- **Note:** Unconfirmed Report. Kindly consult with physician.

### ECG Data
- **Electrodes:** I, II, III, AVF, AVR, V1, V2, V3, V4, V5, V6
- **Comments:** NA
- **Interpretation:** NA

### Mobile Version
- **Version:** 4.0.51

### Signatures
- **Signatures:** Prohibited

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**History**

**Image - 1**

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**Current Edits**

**Pres.# 7496**

**Description**
Output

- Received 9280 Advised by Doctors and 4693 Video calls. (60% calls from women)
- Called 4015 (since September 2017) pregnant women as per their Expected Date of Delivery (EDD), tracking and preparing them for safe delivery
- Significant 9% increase in Institutional deliveries (2016-17: 3673, 2017-18: 4038)
- Over 1000 calls for tracking 84 malnourished children
- 32 children treated under RBSK and 89 were provided emergency ambulance
# Daily Report

**Doctor:**

**Date:**

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<td>4693</td>
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</table>
Services provided by Hello Doctor-555

- Advised by Doctor: 9280
- Appointment in DH: 4693
- Information: 1295
- Referred to RBSK: 598
- Counselling for Family planning/ANC: 32
- Counselling for RKSK: 30
- Counselling for NTCP: 9
- Ambulance Service: 89
- Equipments to PWD: 30
- Blood Donate: 30
- Complaint: 9
- Video Call: 20

Total: 9280
Outcome

- Service access point is localized at block level in sub centers.
- Little or Zero Cost to Citizen
- Reduction in travel time and distance to avail health service
- Real-time service delivery
- Transparent process
- Accountability ensured
- Continuous monitoring of service using inspection and review meeting by dedicated team
- Activated ten delivery points in the remotest areas.
- District Health Society (DHS) for analyzing feedback of patients
- Opened 2 Jan Aushadhi Kendra at district headquarter, remotest Hindolakhal and Pilkhi CHC and Beleshwar PHC
Outcome

- With community participation, activated 1742 VHNSC all over district and developed village health plan for 199 VHNSC in Chamba
- Center is also a center for monitoring & planning and grievance redressal for health services. Based on the experiences and learning
- AIIMS Rishikesh and Himalayan hospital has agreed to give tertiary care consultancy services (Finalization of MOU in process)
- District Health department has also started:
  - Water quality analysis project to reduce diarrheal cases
  - Project for Adolescent girls with special focus on menstrual hygiene and anemia.
  - Extension of video calling services to remaining 35 Subcenters
  - Mobile App for the field staff especially supervisors and ANM*.
Outcome

- Crowd funded more than fifty lakhs from various sources and Crowd sourced health services within and outside government sector.

- Collected and distributed, medicines worth 45,000 Rs from the medicine collection boxes located in five Nagarpalikas and cloths worth 6,45,000 Rs in winters.
Average out of pocket expenditure reduction

Graph showing the average earlier cost and new cost for various locations.
Thank You