

Status Report on Telemedicine Activities of Odisha Govt.

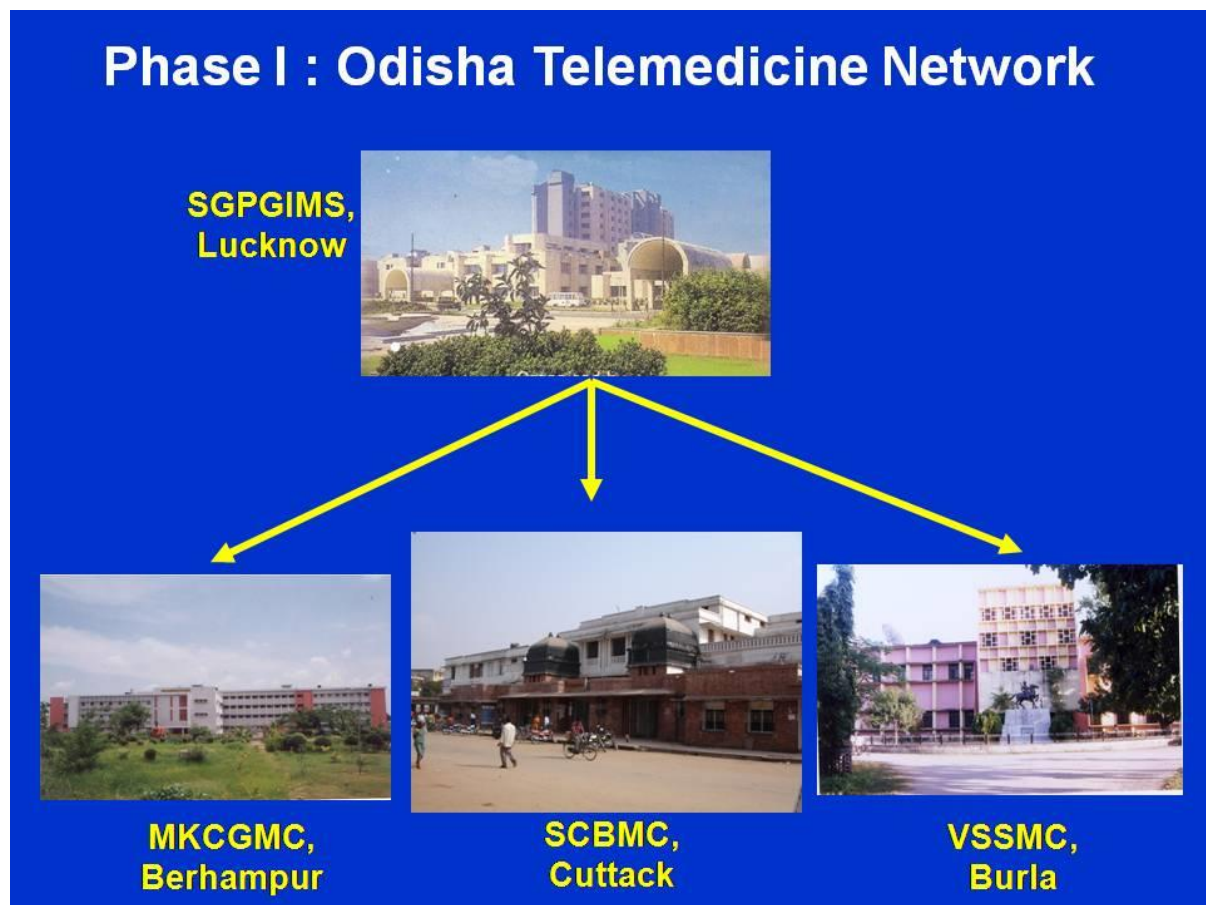
Telemedicine activities were initiated in Odisha in the year 2001 with support from Department of Information Technology, Govt. of India and Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow. Subsequently in the same year ISRO/Dept. of Space, Govt. of India came forward with an offer to establish telemedicine Network in the state of Odisha. Govt. of Odisha accepted the offer of ISRO and provided necessary infrastructure and manpower support. Establishment of the Odisha Telemedicine network was decided to be completed in a phased manner.



At present all the 30 districts of Odisha are connected to 3 Govt. Medical college hospitals of the state and to State Institute of Health & Family Welfare situated at Bhubaneswar. The Odisha state-wide telemedicine network is functioning well with total funding from Govt. of Odisha.

a. Implementation.

Phase I Odisha Telemedicine Network was established in 2003 that connected all the three Govt. Medical colleges of Odisha (Located in three districts of Ganjam, Sambalpur and Cuttack) to Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS), Lucknow through Satellite-based VSAT connectivity. The hardware and software were provided by ISRO along with bandwidth free of charge. The network was formally inaugurated by Hon'ble Chief Minister of Odisha on 13th October 2003 at Cuttack.

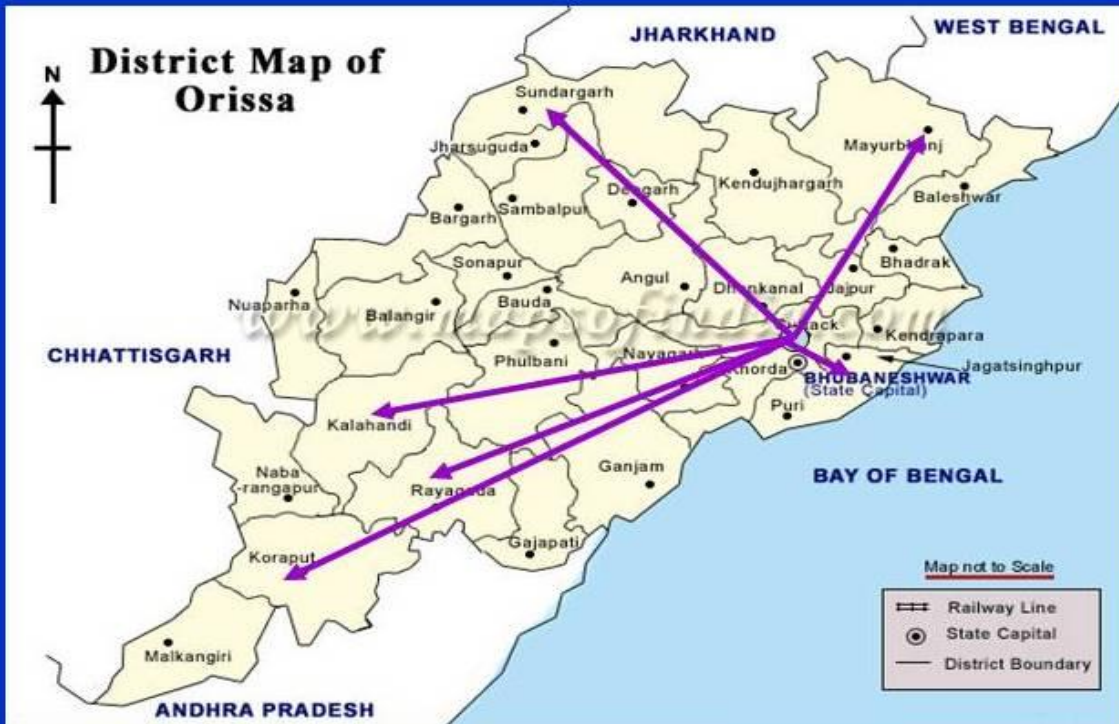


Department of Information and Technology, Ministry of Communications & Information Technology, Govt. of India in the year 2004 on suggestions of SGPGIMS, Lucknow agreed to include SCB Medical College, Cuttack in another

Telemedicine Project that linked all the three premier medical institutes i.e. AIIMS, New Delhi; PGIMER, Chandigarh and SGPGIMS, Lucknow. SCB Medical College under this project received a set of very good quality Telemedicine equipments in 2005. The network worked on ISDN connectivity with Sanjeevani and Mercury telemedicine softwares developed and installed by C-DAC (Center for Development of Advanced Computing) Mohali(Chandigarh) and Pune respectively. For project maintenance and for up-gradation of the sanjeevani software by adding additional modules of Nephrology and Dermatology the project period was extended in the year 2007 for another 3 years. During this period the implementing agency i.e;C-DAC, Mohali provided VPN(Virtual Private Network) connectivity for better data and picture transfer.

In the year 2007 with similar support from ISRO, the network expanded further to include district Hqrs. hospitals of Koraput, Bhawanipatna, Baripada, Rayagada, Sundergarh, and Capital Hospital, Bhubaneswar **as phase II implementation** of Odisha Telemedicine Network. After a trial period of six months the expanded network was officially inaugurated by Commissioner-cum-Secretary, Dept. of Health & Family Welfare on 12.5.08. This enabled extension of specialty and super specialty medical care to these districts from SCB Medical College & Hospital, Cuttack.

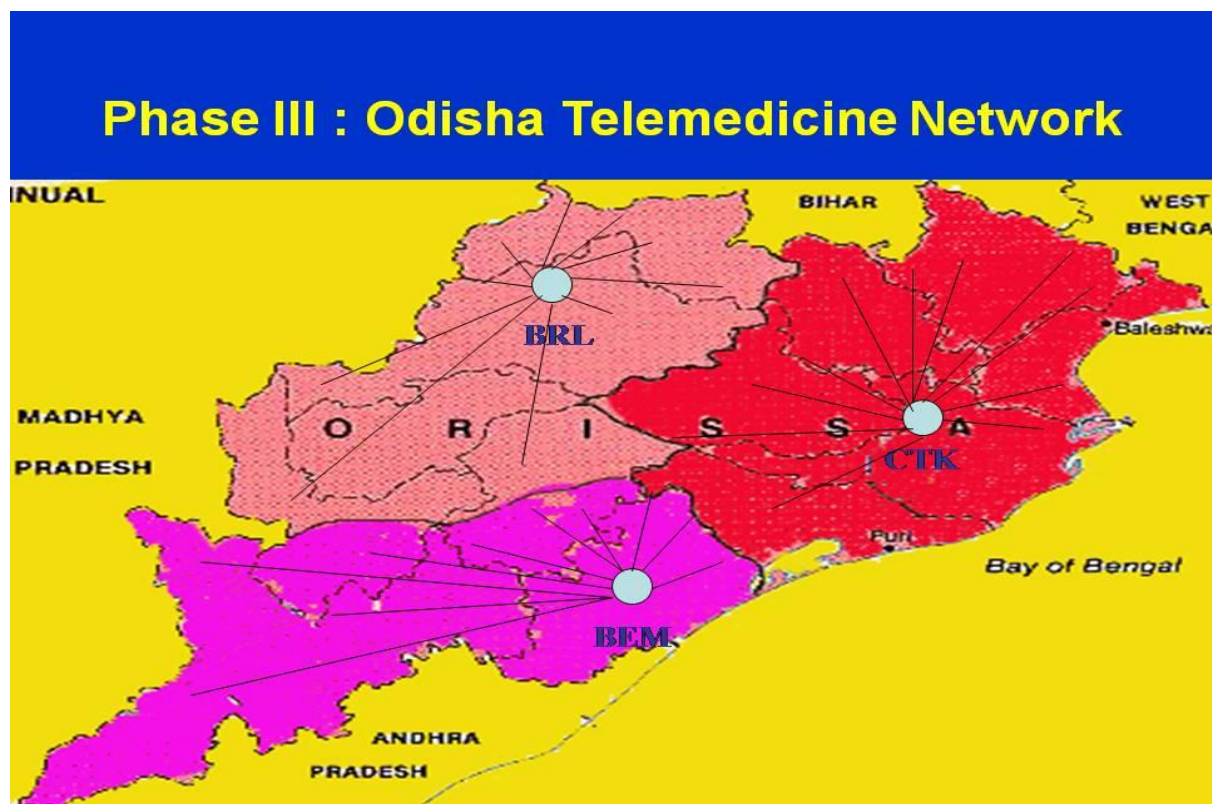
Phase II : Odisha Telemedicine Network



In the third phase of Odisha Telemedicine Network was launched on 25th November 2011. All the rest 21 district Hqrs. Hospitals viz; Balasore, Bhadrak, Jajpur, Kendrapara, Jagatsinghpur, Puri, Dhenkanal, Keonjhar, Deogarh, Jharsuguda, Baragarh, Sonapur, Bolangir, Boudh, Angul, Nayagarh, Kandhamal, Nuapada, Gajapati, Malkangiri, Nabarangpur and Rourkela Govt. Hospital, Rourkela (total 22 nodes) were provided telemedicine facility and were connected to different Medical College nodes depending on flow pattern of patients and other local factors, The primary communication infrastructure used was MPLS-VPN/VPN over BB connectivity which has been provided by BSNL, Odisha. Each Remote Telemedicine Center (RTC) has been provided reliable connectivity with upload & download speed up to 1Mbps and each Telemedicine Referral Center (TRC) has been provided stable/reliable connectivity with upload & download speed up to 2Mbps with unlimited data volume. Center for Development of Advanced Computing (CDAC), Pune is implementing the project with help of its technical partner DCL Software, Chennai. The project was implemented on a BOT (Build, Operate and Transfer) model with funding from OHSP.

The expenditure for implementation of Phase III network was 508.06 lakhs excluding connectivity charges which was Rs.38,44,866/- in the first year and around 38 lakhs for each subsequent year.

The Odisha Govt. telemedicine project implemented by CDAC Pune was supposed to terminate on 31.12.2013. However Govt of Odisha decided to extend the period of operation by CDAC, Pune for one more year from 1st January 2014. The cost of operation of these 25 sites from January 2014 to December 2014 was finalised at a negotiated cost of Rs. 75.00 lakhs. CDAC Pune through its implementation partner DCL software Chennai also agreed to offer onsite AMC of these 25 nodes from January 2014 to December 2014 at a negotiated cost of Rs. 32.00 lakhs. Accordingly the financial provision towards operation and AMC of these 25 nodes was made from OHSP during the financial year 2013-2014.



As an expansion of Phase III Odisha Telemedicine Network, three more Telemedicine nodes were added. Two were located at district HQrs hospital Sambalpur and Berhampur City Hospital respectively. The third one was established at State Institute of Health and Family Welfare, Bhubaneswar. For the same, Govt. of Odisha provided Rs. 60.00 lacs to CDAC, Pune for meeting the cost of

equipments & to operate the nodes for one year from October 2013 and Rs.7,72,947/- in favour of BSNL Bhubaneswar towards connectivity charges for one year.

To create a single telemedicine platform for the state of Odisha, it was decided in July 2013 that Phase I, Phase II and Phase III telemedicine networks would be merged together. Accordingly CDAC, Pune was entrusted with the responsibility of procurement, installation and commissioning of new telemedicine equipments with software in the 6 nodes of Phase II Odisha Telemedicine Network viz: DHH Mayurbhanja, Sundergarh, Kalahandi, Koraput, Rayagada & Capital Hospital Bhubaneswar at a negotiated cost of Rs. 60.00 lac. BSNL, Odisha Circle Bhubaneswar was paid an amount of Rs. 6,02,480.00 towards connectivity charges for these six nodes for one year from the date of commissioning. The work was completed in November 2014 and the newly created single telemedicine platform started functioning from 12th November 2014.

In a meeting held on 12.11.2014 under the chairmanship of Commissioner-cum-Secretary, Health & Family Welfare Department, Govt of Odisha It was decided that ICU Tele care and ICU remote training would be provided through a network consisting of 11 locations (10 district-level locations and one at SCB Medical College Hospital, Cuttack) using the same telemedicine network. Accordingly Govt of Odisha made a budgetary provision of Rs. 300 lac during the financial year 2015-16 for “setting up e-ICU extension with operation of Odisha Telemedicine Network (Phase III) and AMC of equipments”. This job was also entrusted upon CDAC, Pune. CDAC, Pune along with its implementation partner DCL Software, Chennai undertook the work. Accordingly e-ICU nodes were established in DHHs of Koraput, Malkangiri, Nabarangpur, Nuapada, Balasore, Mayurbhanj, Kalahandi, Bolangir, Puri and Capital Hospital, Bhubaneswar. At SCB Medical College Hospital it is in the process of installation in the newly located Central ICU.. This e-ICU network would be ready to function by end of June 2017.

During the FY 2016-2017 , Department of Health & Family Welfare, Govt. of Odisha made a budgetary provision of 290 lakhs towards maintenance of the Odisha Telemedicine Network and for establishment of new specialty-end telemedicine

nodes at Regional Cancer Center(RCC), Cuttack and Sishu Bhavan, Cuttack. It was also decided to establish two more e-ICU nodes – one at MKCG Medical College Hospital, Berhampur and other at VIMSAR, Burla. CDAC,Pune was requested to undertake the job through its implementation partner DCL Software, Chennai. The installation work is in progress and is likely to be complete in July 2017.

A Telemedicine Resource Centre was established within premises of SCB Medical College Hospital, Cuttack with funding from Govt. of Odisha.. It was inaugurated by Hon'ble Health Minister of Odisha on 19th August 2016. The centre since then is being used for holding regular telemedicine programs. This state-level centre is also being used to monitor the activities of the state-wide telemedicine network. The centre is housing the main server for storage of teaching material & clinical data in digital format .This digital health resource centre would definitely provide a platform for undertaking newer applications of telemedicine viz; Tele-mentoring, Tele-proctoring and Tele-presence Surgery. In future emphasis would also be laid towards telemedicine application in Rehabilitation, Tele-health practice for Public Health / Chronic Disease Management , Distance Education for all groups of healthcare Professionals using advanced educational technology. Designing & Construction of the building was undertaken by office of Chief Engineer(Building), Bhubaneswar; Department of works, Govt. of Odisha and IT networking was undertaken by Odisha Computer Application Centre, Bhubaneswar.

Funding by State Govt. and Central Govt.

An amount of one crore was provided by Govt. of Odisha each year from the financial year 2005-2006 for subsequent 4 years towards establishment of the Telemedicine Network in the state. Establishment of Phase I and Phase II Network was completed in 2008. From the year 2009-2010 an amount of 10 lac is being sanctioned each year for maintenance of the Phase I and Phase II network

The Phase III implementation and subsequent maintenance of the Odisha Telemedicine Network was undertaken by Department of Health & Family Welfare, Govt. of Odisha with funding from OHSP (508.06 lac) till end of March 2015. Afterwards maintenance of these telemedicine nodes is being looked after by

Directorate of Medical Education & Training, Odisha and DHS(O) with State Govt. funding from Department of Health & FW budgetary allocations.

Ministry of Health & Family Welfare, Govt. of India provided Odisha Rs.50 lac under the scheme Establishment of National Rural Telemedicine Network in 2007 which has been used for payment of communication charges to implement the Phase III Telemedicine Network.

Utilization:

Odisha Telemedicine Network established by Govt. of Odisha now offers telemedicine facility to the entire state. Taking in to consideration various local factors and flow pattern of patients to Medical College Hospitals, it was decided by Govt. in December 2011 to assign a cluster of nearby districts to a medical college & hospital for delivery of tele-health care. Accordingly SCB Medical College Hospital was declared as the hub to offer tele-health services to Balasore, Bhadrak, Baripada Jajpur, Kendrapara, Jagatsinghpur, Puri, Nayagarh, Dhenkanal, Keonjhar, Angul & Bhubaneswar ; MKCG Medical College Hospital was declared as the hub to provide tele-health services to Kandhamal, Nuapada, Gajapati, Malkangiri, Nabarangpur, Rayagada & Berhampur city hospital and VIMSAR, Burla became the hub to offer tele-health services to Deogarh, Jharsuguda, Baragarh, Sonapur, Bolangir, Sundergarh, Rourkela, Boudh, Kalahandi, Nuapada & Sambalpur city hospital.

The network is being effectively used for benefit of patients, health professionals, paramedical workers, Nurses and medical students.

I. **Benefit to Patients:** The total number of tele-consultations and tele-follow ups till end of May 2017 are **16,556**. Patients suffering from major illnesses have been benefited through these services..The type of service availed by the medical professionals of various districts are in the form of seeking 2nd opinion, in planning treatment protocol for diseases like rheumatological problems, complicated malaria, cancer, oral and facio-maxillary diseases, gastro-intestinal diseases and head Injury etc. , modifying drug treatment for various chronic skin diseases , seeking advice to

plan operative procedures for difficult surgeries and to seek comments on X-rays, Ultrasound films and CT (Computed Tomography) pictures.

II. Benefit to Post-Graduate Medical Students: .

Tele-medical education has played a significant role in improving the quality of Post Graduate Medical Education in the medical colleges of Odisha. Students by participating in discussions on newer fields of medicine viz. Rheumatology, Radiation oncology, Neonatology, Genetics, Nuclear Medicine and Endocrine Surgery etc. have gained knowledge.

The following national-level institutions have participated in tele-seminars and tele-medical video conferences.

- (1)SGPGIMS, Lucknow**
- (2) PGIMER, Chandigarh**
- (3)AIIMS, New Delhi**
- (4)CMC, Vellore**
- (5)Amrita Institute of Medical Sciences, Kochi**
- (6)SRMC, Chennai**
- (7)Regional Medical College, Imphal**
- (8)Trivandrum Medical College, Trivandrum**
- (9)G B Pant Hospital, New Delhi.**

Two tele-seminars were held on 25.03.2017 and on 12.04.2017 in which Dr.Manish Ramesh of USA presented cases of Rheumatological problems. The PG students of Medicine of SCB Medical College, Cuttack were greatly benefitted..

During the period from August 2001 to May 2017 sixteen batches of postgraduate trainees have been benefitted in the three Govt. medical colleges of Odisha through online teaching on **3141** topics.

III. Benefit to Medical Professionals, Nurses and Lab. Technicians:

The facility has proved extremely useful in updating the knowledge of Medical Professionals of District HQrs. hospitals and Medical College Teachers. Some of the

teaching programs transmitted live from SGPGIMS, Lucknow were Live Demonstration of Minimally Invasive Operative Procedures in Endocrine Surgery, CME (Continuing Medical Education) in Breast Diseases and Diabetic Foot, Scientific Program of National seminars in Paediatrics and Microbiology.

The State Institute of Health & Family Welfare, Bhubaneswar has conducted till end of May 2017 a total number of **490** training courses for benefit of medical professionals and para-medical staff of different districts.

Regular skill promotion courses are being organized for nursing students. The skill classes are being held by Nursing College of SGPGIMS, Lucknow. Distance Education is being offered from SGPGIMS, Lucknow also to laboratory technician trainees of Odisha.

It is hoped that the new medical technology would provide a platform to upgrade the existing health care delivery system in the state of Odisha

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