Teleophthalmology in Tripura - Tripura Vision Centre

Introduction

Tripura Vision Centre was initiated in 2007 to deliver eye care services to all the people in the state using ICT. The main objective of the project was to improve the access of primary and preventive eye care services to rural areas of Tripura by adopting emerging developments in both ICT and medical technologies.

Implementation of the Practice:

- The project was initiated on a PPP model, with Department of Health and Family Welfare, Tripura as the apex agency.
- The teleophthalmology project required setting up of Vision Centres (VCs) in all the blocks of the state to meet the requirements of the rural population of Tripura. The project was implemented in phases to cover all blocks of rural Tripura.
- The VC have been established adjacent to Information Centres in order to leverage the existing Tripura State-wide Area Network (TSWAN) infrastructure. ICT has been utilized to transfer the images of the diseased eye to the referral centre where the pictures are diagnosed and prescribed the modality of treatment.
- The project was implemented in a phased manner:

PHASES	PROGRESS
PHASE 1	The first pilot Vision Centre was set up in Melaghar block in April 2007 and is operational to date.
PHASE 2	• The second phase scaled the vision center network to 10 blocks in West Tripura district covering a population of approximately 15,32,982. • This phase is also comprised of the enablement of digital patient medical records in the Vision Centres using a database management solution, the "Vision Centre Management System (VCMS)". It also included setting up of private wireless network with a bandwidth of 384 Kbps expandable up to 2Mbps.
PHASE 3	• 29 Blocks of the State were covered to bring a state-wide network of Teleophthalmology services. • Apart from setting up Vision Centre infrastructure at 40 + 2 locations, IL&FS also set up a core mini data centre for maintaining electronic medical records and connectivity network operations centre (NOC) at IGM
PHASE 4	The Fourth Phase or the present phase was commissioned in the year 2014 with the introduction of four new Vision centres.

- Patient Examination Procedures:
  - The ophthalmic assistant, an in-charge of Vision Centre- registers the patient, does the primary examination, notes down all relevant details, captures the image of the eye (external, anterior chamber &/or fundus) and uploads this with the history and examination details into the software application for specialist sitting in the IGM hospital, Agartala to review, confirm the diagnosis and decide on treatment modalities.

- One senior Ophthalmic Assistant at the IGM hospital first reviews all patient details and based on the seriousness of the condition refer the case to the specialist for further examination and treatment.
- If the doctor requires further information from the patient, Tele-consultation is established between doctor at IGM hospital and patient at the respective Vision centre. After the complete examination doctor issues a prescription to the patient. If there are more examinations required patient is requested to visit IGM hospital. Diagnosis is made based on the history, current symptoms and image of the eye. At the end of the consultation, specialist prescription is printed by Ophthalmic Assistants (OA) and is given to the patient. OA also explains medicine and instructions to the patient and counsels him in the case of referral for further treatment at IGM Hospital Agartala.
- It takes around 15-20 minutes to examine a patient, however for the Teleconsultation and treatment patient is to wait for 30-45 minutes. Each Vision Centre is daily visited by 15-20 patients on average. At IGM Agartala each doctor review at least 15-20 patient records on software per day apart from routine OPD at the IGM.

- Key stakeholders include NHRM, Department of Health and Family Welfare, Government of Tripura, IL&FS, Arvind Eye eCare System

Results of the practice

Till March 2016, the project had screened 4.72 lakh patients across 44 VCs. The number of women screened n these VCs are more than 40%. The trend indicated that a higher number of women are accessing the services of the VCs as compared to earlier trends, as they have access to the services closer to their homes.

Lessons Learnt

The VCs have helped in screening a significant proportion of eye conditions such as refractive error, cataract, glaucoma, keratitis, diabetic retinopathy, infections, fundus examination and some low vision carefree of cost.

Conclusion

This project has been cost-efficient with the sharing of specialized health care services and can be scaled with more health care services through telemedicine.

Further Readings

i. *Pathak, S., & Kumar, B. (2017). Wireless teleophthalmology: A novel, low-cost, flexible network architecture and its performance evaluation for remote eye care solutions. TELEMEDICINE and e-HEALTH, 23(9), 753-762.*
ii. *https://health.tripura.gov.in/?q=3006201701*