



## XOVA (eXcellence in Ophthalmology Vision Award) DIABTIC RETINOPATHY PROJECT

In 2010 Giridhar Eye Institute won the XOVA for Education Award, for a project on KERALA COMPREHENSIVE DIABETIC RETINOPATHY TRAINING MODEL which was initiated and implemented jointly by Giridhar Eye Institute and SSM Eye Research Foundation during 2010–2012 with financial support from XOVA (eXcellence in Ophthalmology Vision Award by NOVARTIS AG, Switzerland). XOVA is an award program sponsored by Novartis Pharma and Alcon. It provides funding, in the form of a grant, to eye care specialists who have devised non-profit initiatives that are expected to have a significant impact on unmet needs in the fields of ophthalmology and optometry. It was aimed at significantly reducing the burden of diabetic related blindness in our society by (i) Training Ophthalmologists in Indirect Ophthalmoscope and in non-surgical management of retinal diseases including laser (ii) Training Family Physicians and General Practitioners in Direct Ophthalmoscopy and basic knowledge about Diabetic Retinopathy; and (iii) Training Healthcare providers. This two year project was completed in September 2012 by conducting number of awareness programs in and around neighbouring districts in coordination with various healthcare institutions and NGOs. Following completion of this two year project, another five year project was planned to be executed as follows:

### Development of community models for diabetic retinopathy

- Population based epidemiological survey on awareness on diabetic retinopathy
- Active case detection models for Diabetic retinopathy in rural population
- Cost effective and sustainable Tele-ophthalmology in diabetic retinopathy screening.

Population based epidemiological survey on awareness on diabetic retinopathy – The Chengamanadu Survey.

Objective of the survey was to assess the knowledge and attitude toward diabetes mellitus and diabetic retinopathy of the general population in a suburban town of South India - Chengamandu. Survey was conducted with the support of Master of Social Work (MSW) students which was carried out in Chengamanad Panchayat (Kerala, India) in May 2013. A 30-point questionnaire was prepared and the data were collected and analyzed to determine statistically the knowledge, attitude, and practice scores of the general and diabetic population and also to determine significant demographic associations. In this survey, 6,211 people (3,528 [56.8%] women and 2,683 [43.2%] men) with a mean age of  $55.6 \pm 11.7$  years (range 21–98 years) were included. Good knowledge and positive attitude were observed in 3,457 (55.6%) and 3,280 (52.8%) people. Among 1,538 (25.4%) people known to have diabetes mellitus, only 619 (40.7%) had good knowledge, 828 (53.8%) had a positive attitude, and 886 (57.6%) had good practice patterns. Though general diabetic care was being followed by half of them, only 9.6% had undergone screening for retinopathy. Literacy showed

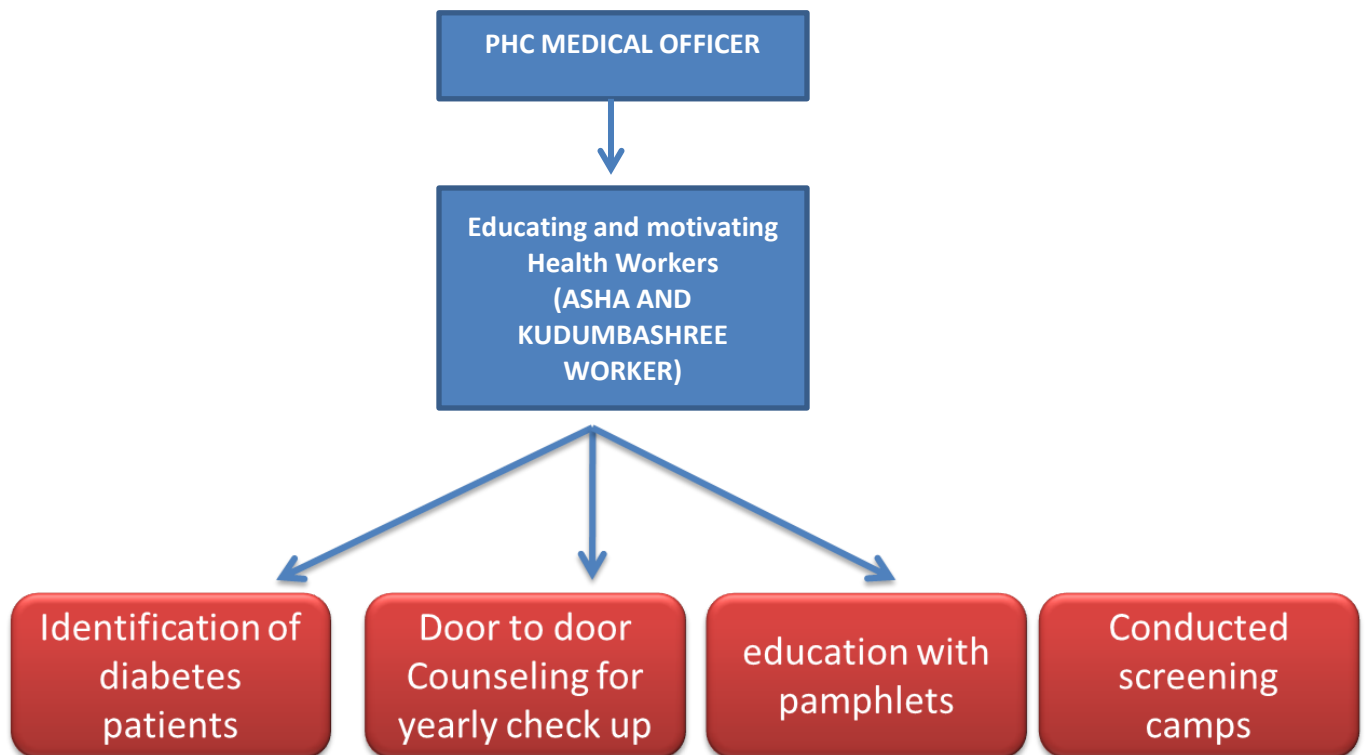
a significant association with good knowledge, attitude, and practice ( $p < 0.001$  each) in general population and those with diabetes mellitus. Overall, women had significantly better knowledge ( $p < 0.001$ ). Better literacy, especially among women, is contributory to better public awareness, however the trend for poor practice patterns needs to be radically changed with aggressive public motivation emphasizing on the necessity of retinopathy screening and periodic follow-ups.

#### Active case detection models for Diabetic retinopathy in rural population

Presently the diabetic retinopathy diagnosis is done by a passive case detection method wherein patients are referred to an ophthalmologist by physicians or general ophthalmologists. Few patients are diagnosed in screening camps also.

After the accomplishment of KERALA COMPREHENSIVE DIABETIC RETINOPATHY TRAINING MODEL, we developed an ACTIVE CASE DETECTION MODEL for detecting diabetic retinopathy in rural population. The basic civil administrative units in India are called as PANCHAYATHs. Two or three panchayaths will have one Primary Health Center with one Medical Officer. They have a register of diabetic patients in the Village which is maintained by the health worker. So we devised an active case detection model with help of these health workers and the medical officer.

#### ACTIVE CASE DETECTION MODEL – 1



We have screened all diabetic patients of 2 villages based on the above said model. This enabled us to identify early detection of diabetic retinopathy and prevent avoidable blindness by appropriate management.

#### ACTIVE CASE DETECTION MODEL – 2: Hospital based Diabetic Clubs – North Paravur Diabetic Club

This model consists of a diabetic club with 1223 diabetic patients which is formed by a group of physicians from a Village called North Paravur near Cochin, Kerala. Our team conducted a diabetic screening camp for these patients every month and screens all patients in batches. We have followed up 155 diabetic retinopathy patients on a regular basis.

This is an example for sustainable community eye health model for diabetic retinopathy management.

#### ACTIVE CASE DETECTION MODEL – 3: Mobile Tele –Ophthalmology Unit

Mobile tele-screening is an ophthalmologist led screening program that takes eye care facilities to the rural population. Patients are not required to travel to initiate eye care, and the ophthalmologist can effectively screen patients for various eye problems from his office in the main hospital. Telemedicine includes the assessment and analysis of patient information and interaction by a health professional that is separated temporally and/or spatially from the patient. At present, the diabetic retinopathy patients are diagnosed in its advanced stage. An effective case detection system for diabetic retinopathy can prevent blindness among diabetic patients by detecting these cases in the earlier stage of the disease and by providing them appropriate treatment

#### Mission

- To identify self-reported diabetic patients (Panchayath and Primary Health Center based)
- To create a registry for the identified diabetic patients
- Awareness creation activities
- To screen all diabetic patients (Panchayath based) for diabetic retinopathy using a mobile vision center and tele-ophthalmology unit
- To facilitate treatment for the disease
- Follow up of the patients using the registry

#### Staff

- Social Worker (MSW) – 1
- Trained Optometrist – 1
- Trained staff nurse – 1
- Driver – 1

#### Comprehensive Ophthalmic evaluation

- Vision testing
- Anterior segment examination
- Undilated fundus photography for all diabetic patients



Non Mydratric Fundus Camera

#### Tele – Ophthalmology

The images were taken with a non mydratric fundus camera and sent online. The optometrist clicks the image in the non-mydratric fundus camera and then sends the image to base hospital. The image is analyzed by a medical retina specialist and appropriate advice is given. Patients who need further evaluation and treatment were referred to the base hospital.

We continued our efforts to bring down the preventable blindness in our country. The XOVA project helped us to evolve active case detection strategies for diabetic retinopathy. There is substantial increase in the awareness about diabetic retinopathy among general practitioners and physicians. 20-30% increase in the referral cases from physicians for diabetic retinopathy screening. Optometrists and health workers were conducting small eye screening programs at Panchayath level for remote and geographically isolated areas. Mobile Tele Ophthalmology units are cost effective, sustainable way for detecting early diabetic retinopathy with minimal man power and resources.

Our XOVA Diabetic Retinopathy Project was acknowledged and projected in the 12<sup>th</sup> International AMD and Retina Congress organized by ESASO (European School for Advanced Studies in Ophthalmology).

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