

# Complex interventions to implement a diabetic retinopathy care pathway in the public health system in Kerala: a hybrid effectiveness-implementation study (Nayanaadram project)

<b>Submission date</b> 04/06/2018	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 06/07/2018	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 28/06/2022	<b>Condition category</b> Eye Diseases	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Diabetic retinopathy is a complication of diabetes caused by high blood sugar levels damaging the back of the eye (retina), which can cause blindness if left undiagnosed and untreated. Several developed countries with established diabetic retinopathy screening programmes and effective treatment pathways have shown that it is clinically and cost-effective to deliver this service to decrease visual impairment in people with diabetes. In this study, the aim is to evaluate the effectiveness of introducing screening and treatment pathways in the public system in Kerala by adapting care pathways in the developed countries to local needs and resources. The researchers intend to introduce a complex intervention of screening for diabetic retinopathy at the primary care level, laser treatment at district hospitals and complex referrals to the tertiary centres by increasing research and service capacity and capability. The quality and delivery of the intervention is also assessed at each sector of the care pathway to evaluate whether the study is delivered as intended.

### Who can participate?

Patients with diabetes

### What does the study involve?

The interventions are at three levels of care. The study introduces pragmatic interventions to initiate a diabetic retinopathy care pathway across primary, secondary and tertiary care to ensure:

1. Diabetic retinopathy screening of patients with diabetes registered in the NCD register (primary care): interventions include training of nurses and doctors at FHCs on capturing retinal images, data collection on a minimal dataset and increasing infrastructure facilities for transfer of retinal images to RIO
2. Prompt referral for timely treatment of sight threatening diabetic retinopathy to district hospitals (secondary care) and tertiary centres depending on the severity of the diabetic retinopathy. Interventions include training ASHA workers to identify and accompany screen-

positive patients for treatment. The effect of incentivisation on the ASHA workers is also evaluated. The ophthalmologists in the district hospitals are trained to deliver laser treatment and laser equipment is installed in some district hospitals.

3. Treatment of patients with sight threatening DR (at secondary and tertiary care): a reading centre is set up to grade all retinal images sent in from FHCs. The optometrists are trained to grade the images using the International Diabetic Retinopathy severity grading. Laser training is provided to ophthalmologists from secondary care. Research capacity is built in all 3 levels of care and activities range from quality improvement projects to publications on the care pathway. The change in the numbers of patients identified, screened and treated for sight threatening diabetic retinopathy as a result of these interventions is measured 6 months after initiation of the project.

What are the possible benefits and risks of participating?

Diabetic retinopathy is an asymptomatic disease until the disease is advanced and timely identification and treatment of sight threatening disease reduces the risk of blindness due to diabetic retinopathy. Therefore, patients have to be screened for diabetic retinopathy. This screening process is non-existent in the public system in Kerala and the diabetic retinopathy care pathway is not established. Participating in this study will enable patients with a diagnosis of diabetes and registered in the Non-Communicable Disease Register to be screened and offered timely treatment for this potentially blinding condition. The risks will include patients identified of this condition or any other blinding condition refusing or delaying treatment despite being offered.

Where is the study run from?

Directorate of Health Services (India)

When is the study starting and how long is it expected to run for?

October 2017 to July 2019

Who is funding the study?

Global Challenges Research Funds - United Kingdom Research and Innovation

Who is the main contact?

Prof. Sobha Sivaprasad

## Contact information

### Type(s)

Scientific

### Contact name

Prof Sobha Sivaprasad

### Contact details

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# Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

Ornate India Protocol 1.0

## Study information

### Scientific Title

Complex interventions to implement a diabetic retinopathy care pathway in the public health system in Kerala: a hybrid effectiveness-implementation study (Nayanaadram project)

### Acronym

Nayanaadram project

### Study objectives

Rationale - Improving research and service capacity and capability will improve diabetic retinopathy care pathway.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Ethics Committee General Hospital, Thiruvananthapuram, 17/05/2018

### Study design

Hybrid effectiveness-implementation study

### Primary study design

Observational

### Secondary study design

Cohort study

### Study setting(s)

Other

### Study type(s)

Screening

### Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet

### Health condition(s) or problem(s) studied

## Diabetic retinopathy

### Interventions

The interventions will be at 3 levels of care. The study will introduce pragmatic interventions to initiate a DR care pathway across primary, secondary and tertiary care to ensure:

1. DR screening of patients with diabetes registered in the NCD register (primary care): Interventions will include training of nurses and doctors at FHCs on capturing retinal images, data collection on a minimal dataset and increasing infrastructure facilities for transfer of retinal images to RIO
2. Prompt referral for timely treatment of sight threatening DR to district hospitals (secondary care) and tertiary centres depending on the severity of the diabetic retinopathy. Interventions will include training ASHA workers to identify and accompany screen-positive patients for treatment. The effect of incentivisation on the ASHA workers will also be evaluated. The ophthalmologists in the district hospitals will be trained to deliver laser treatment and laser equipments will be installed in some district hospitals.
3. Treatment of patients with sight threatening DR (at secondary and tertiary care): a reading centre will be set up to grade all retinal images sent in from FHCs. The optometrists will be trained to grade the images using the International Diabetic Retinopathy severity grading. Laser training will be provided to ophthalmologists from secondary care. Research capacity will be built in all 3 levels of care and activities will range from quality improvement projects to publications on the care pathway.

The change in the numbers of patients identified, screened and treated for sight threatening diabetic retinopathy as a result of these interventions will be measured 6 months after initiation of the project.

### Intervention Type

Not Specified

### Primary outcome measure

The number of people with diabetes that were identified, screened and treated for sight threatening retinopathy, measured at 6 months following the interventions

### Secondary outcome measures

Measured at 6 months following the interventions:

1. Effectiveness of intervention at primary care level – increase in uptake of DR screening at FHCs as a result of these interventions
2. Effectiveness of interventions at secondary care level – increase in numbers of people treated for STDR in secondary care
3. Effectiveness of intervention at tertiary care level – increase in numbers of patients referred for treatment as a result of DR screening at FHC
4. Factors determining effectiveness of screening and treatment uptake e.g. age groups, gender, FHC
5. Clinical and cost-effectiveness of training and incentivisation of the ASHA workers - completeness of the NCD register in each FHC and the increase in screening and treatment of DR post-training and incentivisation of the ASHA workers

Other outcomes:

6. Prevalence of diabetes in each FHC in comparison to the estimated 1:5 adult population in Kerala presumed to be diabetic
7. Prevalence of other complications of diabetes including those with nephropathy, stroke and

myocardial infarction identified through the diabetes register  
8. Change in life satisfaction questionnaires after the intervention  
9. Treatment outcomes of people with STDR  
10. Model based economic analysis of the DR screening and treatment pathway

**Overall study start date**

01/10/2017

**Completion date**

01/07/2020

## **Eligibility**

**Key inclusion criteria**

People with diabetes

**Participant type(s)**

All

**Age group**

Adult

**Sex**

Both

**Target number of participants**

1135

**Total final enrolment**

5339

**Key exclusion criteria**

Patients who do not wish to be screened or treated for diabetic retinopathy

**Date of first enrolment**

01/01/2019

**Date of final enrolment**

31/08/2020

## **Locations**

**Countries of recruitment**

India

**Study participating centre**

Directorate of Health Services

General Hospital Junction

Thiruvananthapuram  
India  
695035

## Sponsor information

### Organisation

Directorate of Health Services

### Sponsor details

General Hospital Junction  
Thiruvananthapuram  
India  
695035

### Sponsor type

Hospital/treatment centre

## Funder(s)

### Funder type

Government

### Funder Name

Global Challenges Research Funds - United Kingdom Research and Innovation

## Results and Publications

### Publication and dissemination plan

The protocol paper is being prepared for publication. Planned publication of the results in a high-impact peer-reviewed journal.

### Intention to publish date

01/12/2021

### Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication.

### IPD sharing plan summary

Other

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol article</a>		28/06/2021	30/06/2021	Yes	No
<a href="#">Results article</a>		16/12/2021	28/06/2022	Yes	No