

## Eradication Preventable Blindness – A Digital Platform Approach

## **Blindness is a Global Crisis**

285 million people are visually impaired globally

# 422 M live with Diabetes

**35% -** Prevalence of Diabetic Retinopathy (DR)

**11%** - Have sight threatening Diabetic Retinopathy **196 M** will have Age related Macular Degeneration (AMD)

5% of global blindness is due to AMD

**15 M premature** babies are born globally every year

54% will have incidence of Retinopathy of Prematurity (ROP)

15% require intervention

40 million people are blind globally

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75% of all cases of distance visual impairment is caused by uncorrected refractive errors and cataract 125 M visually impaired due to uncorrected refractive errors 1.1 B people with near-vision impairment – because they do not have a pair of spectacles

80 % of blindness cases are avoidable





60% of the preterm babies are born in South Asia and Africa



**3.5 million preterm babies** are born in India

37-54% ROP incidence 7-15% require treatment < 80 ROP specialists < 15 ROP centers

# 15 million babies are born too early every year globally



Retinopathy of prematurity

is a potentially blinding eye disorder that primarily affects premature infants who have received intensive neonatal care because of the very low birth weight infants

## **Diabetic Retinopathy**

#### One of the leading causes of vision loss globally



## **Diabetes in India**



**30%** are at risk of some form of Diabetic Retinopathy (DR)

How do we effectively detect DR in India's population?

How do we connect 182 Million to the Specialists?

Diabetic retinopathy (DR) affects over one-third of all people with diabetes and is the leading cause vision loss in working-age adults



Emerging need for eye screening for early detection to reduce the risk of blindness by 90%



Cost-effective interventions for preventing blindness from any form of DR

Once in a year retinal screening is suggested

(Non Diabetic retinopathy Patients)

Every 6 months retinal Screening is suggested

(Patients with Mid Diabetic retinopathy)

Once in every 3 months retinal screening is suggested

(Diabetic Patients with Proliferative Diabetic Retinopathy)

## The Solution Create affordable mass screening ecosystems

# THE PROBLEM back in 2010

Only 20,000 ophthalmologi st's in India to meet the need

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Need for Compact & Portable Equipment

Need for an equipment which can used by minimally trained Technician

Patients were dilated before imaging which triggered the need for an equipment which requires no dilation (5)

Hospitals were using **Expensive** devices to conduct a fundus examination



## **Products for Vision Management**

Imaging Systems





flora Fluorescein Angiography

Refractive Systems



digisight Handheld Refraction test



**specto** Refractive Assessment



## **Increase eye screening Touch-points**







## **Retinal Imaging AI and IOT Solution**



Quality of the digital images are analyzed to assist the operator to capture gradable photographs





Relevance

**Brightness** 

Blurriness

**Dust Particles on Lens** 

The digital images are graded for Normal vs. Abnormal giving assisted diagnosis







#### **Affected Retina**

Microaneurysms **Exudate Lesions** Hemorrhage Lesion Neo-vascularization

## ForusCare Mobile App for reviewing data



#### Normal Retina images



**Diabetic Retinopathy images** 



## **Outreach programs for mass screening**

On the festival of Ganesha in Lal Bagh at Mumbai, where thousands of devotees were gathered to celebrate, our 3nethra classic cameras were used by Eyebetes Group to continuously screen the devotees for eye problems, 24/7 and for 10 days – 10,000 devotees were screened and advised by clinical professionals.

Lal Bagh, Mumbai

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Our device and cloud platforms are designed for high-throughput screening

## **Outreach programs for mass screening**



Motorcycle based Eye screening program funded by Sightsavers Urban slums, Bangalore



Mobile rural Eye screening program funded by Cognizant Foundation Pavagada, Karnataka

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## **Already adopted across 115 centers in Andhra Pradesh**

#### Andhra Pradesh Chief Minister's e-Eye Kendram dashboard



## The Future ..

## Early detection of Systemic Diseases using Eye as a Biomarker

Integrated AI will predict/assist in early detection @ primary care

## **3nethra images used for Neurology predictions**



Forus Health has 54 installations in Neurology clinics in India. Neurologists are using these Retinal images to detect Papilledema & Cerebral Occlusion



