Enabling Mass Eye Screening – Tele-Ophthalmology Way

K. Chandrasekhar
Forus Health Pvt. Ltd
Founder & CEO, Bangalore, India
Topics

Why Tele-Ophthalmology?
Different Models in Tele-Ophthalmology
How 3nethra enable these models
Standardization of Imaging
Conclusion
Why Tele-Ophthalmology?

The Problem

- Blindness is a Global threat to health and productivity
- Of the 39 Mn blind people in the world 12 Mn live in India
- Africa has approximately 19% of the world’s blindness
- 80% blindness caused due to –
  - Cataract / Glaucoma / Refractive Errors/ Diabetic Retinopathy/AMD
- Of the 60 Mn Diabetic patients in India 20% will develop diabetic retinopathy

80% of blindness can be prevented if pre-screened

Challenges

- Scalability – Low Patient-to-Ophthalmologist ratio; 1:70000 in India
- Affordability – Expensive devices which require trained ophthalmologist
- Rural reach – Only 7-10% of the people are screened on time
- Awareness – Lack of awareness about detecting eye disorders early

Tele-Ophthalmology is the only solution to bridge the gap
# Diabetes – Ticking Time Bomb

<table>
<thead>
<tr>
<th>Region</th>
<th>2010</th>
<th>2030</th>
<th>Increase in number of people with diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of people</td>
<td>Prevalence of</td>
<td>Number of people</td>
</tr>
<tr>
<td></td>
<td>with diabetes</td>
<td>diabetes</td>
<td>with diabetes</td>
</tr>
<tr>
<td></td>
<td>Millions</td>
<td>%</td>
<td>Millions</td>
</tr>
<tr>
<td>Europe</td>
<td>55.2</td>
<td>6.9</td>
<td>66.2</td>
</tr>
<tr>
<td>North America and Caribbean</td>
<td>37.4</td>
<td>10.2</td>
<td>53.2</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>26.6</td>
<td>9.3</td>
<td>51.7</td>
</tr>
<tr>
<td>South and Central America</td>
<td>18</td>
<td>6.6</td>
<td>29.6</td>
</tr>
<tr>
<td>Western Pacific (incl. China)</td>
<td>76.7</td>
<td>4.7</td>
<td>112.8</td>
</tr>
<tr>
<td>Southeast Asia (incl. India)</td>
<td>58.7</td>
<td>7.6</td>
<td>101</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>12.1</td>
<td>3.8</td>
<td>23.9</td>
</tr>
<tr>
<td><strong>Total (average)</strong></td>
<td><strong>284.6</strong></td>
<td><em>(6.4)</em></td>
<td><strong>438.4</strong></td>
</tr>
</tbody>
</table>

Different Models in Tele-Ophthalmology

- Large Institutions connecting their Hub & Spoke
- Individual Doctor
- Non Specialist & Specialist
- Operating in a larger telemedicine network
Multi-Hub Connection

All images captured are sent to Spl., Chennai

All images are screened at Spl., Chennai and the reports are sent to the respective GP’s.
A. Images of eye captured at GP’s office

NOTIFICATIONS:
1. by SMS
2. by EMAIL

B. Images sent to SN ophthalmology panel for analysis

D. Report printed and given to patients

Report automatically sent to the right 3nethra

Cases requiring treatment are referred to SN alumnus in the respective cities for treatment. The patient gets complete treatment (SN alumnus offers discounts to these patients than their conventional prices)

C. Ophthalmologist access studies and provides remote diagnosis
How 3nethra can help solve the problem

3nethra
A Forus Health Product

A single, intelligent, integrated, pre-screening ophthalmology device that

- Is Non-invasive
- Does not require dilation
- Is Portable & affordable
- Can be operated by a minimally trained technician even in the absence of an ophthalmologist in a rural environment

Detects

- 5 major ailments of the eye automatically (cataract, diabetic retina, glaucoma tools, cornea issues, gives cylinder, axis and spherical measurements) and provides a consolidated pre-screening report.

Has integrated

- Telemedicine and Data centre capability to connect the entire eye care ecosystem and offer comprehensive eye care
How Screening solve the problem

High Footfalls

Mobile Clinic

Optician

3nethra
A Forus Health Product

Medical Camps

Diagnostic Lab

GP's Office

Home Screening

Vision Center

Pre-screening Approach
Take the testing closer to patients!

K.Chandrasekhar, Forus Health Pvt. Ltd.
DICOM compatible

- 3nethra is capable of converting images to DICOM standard.
- Main features include:
  - Batch conversion (Single Visit/All Visits)
  - Anonymization
K. Chandrasekhar
kc@forushealth.com
Forus Health Pvt. Ltd.
4085A, 2nd Floor, BSK II stage
K.R.Road, Bangalore

Thank you for your attention!