

Retinopathy of Prematurity: A Big Problem for a Small Baby!

KIDROP (Karnataka Internet Assisted Diagnosis of Retinopathy of Prematurity) is India's first and now the world's largest rurally based tele-medicine network to tackle infant blindness resulting from Retinopathy of Prematurity (ROP)

ROP is the leading cause of infant blindness worldwide. In India, over the past two decades, there is an increasing number of cases. This is because ROP affects premature and low birth weight babies, who are increasing in number with improving health care. The United Nations "Born too soon" report (2012) names India as the country with the leading number of premature births at > 3.5 million / year. About 35-50% of babies born < 2000 grams (2kgs) are at risk of ROP and need to be screened. About 10-15% of these babies require treatment at the appropriate time to prevent irreversible bilateral blindness.

Since externally the eye looks normal, parents and doctors do not realize there is a problem, until it is 'too late'. Each premature baby needs to be screened by an expert a few times between 3-10 weeks of life. There are less than 20 specialized centers for ROP in the country today. Thus a majority of infants born in the rural areas are unscreened and thus risk blindness.

KIDROP attempted to address this challenge in early 2008. Under the leadership of Narayana Nethralaya Postgraduate Institute of Ophthalmology, Bangalore, specially trained teams have been using cutting edge technology and an award winning, indigenously developed, customized tele-Ophthalmology platform to screen the retinae (the nerve of the eye) of babies a few days old in their rural hospitals, using a very specialized camera. The ROP experts in NN provide remote diagnosis of these images by viewing them on their cell phones, tablets and PC's so that the baby does not have to travel to the city. Even treatment when required, is provided by the KIDROP team by mobilizing the expert(s) to the peripheral center within 48 hours of detection. The entire process, except treatment is thus achieved by a team of specially trained and certified 'non-doctors' obviating the need of the specialist for the screening in the rural areas.

Since 2009, KIDROP became a public private partnership with the **National Rural Health Mission (NRHM)**, **Government of Karnataka** and now covers more than 75% of the State of Karnataka in multiple zones. Thus far over **31,000** imaging sessions, for over **8000** babies have been completed; with over **844** babies have undergone laser treatment preventing blindness in them.

The financial worth of those babies saved from blindness at the age of two months is over **Rupees 246 crores** for those babies are now saved from blindness at the age of 2 months or less. KIDROP's model is now being extended to other states. Already teams from Pune and Ahmedabad are functional and a team in Jaipur is undergoing training. This model has been lauded by IIM-A, IIM-B, Harvard Business Review, Fortune, India Today, World Ophthalmology Congress, Eurotimes, Retina Today among others, and has been recognized in countries such as Thailand, Indonesia, Russia, Mexico, Dominican Republic, South Africa and Brazil.

+ "iPhone used to stave off blindness" – A Top 10 Medical Innovation
India Today, 2009.

+ "A unique and successful model of delivering cutting edge
technology in health care to rural India" *Min. of External Affairs,
Govt. of India - India Perspectives, Jan 2010.*

+ "A telemedicine innovation for the poor that should open eyes"
Harvard Business Review, Nov 2010.

+ "A precious gift to a premature child" *Indian Institute of
Management, Ahmedabad, Case Study 2011.*

+ "Indian ROP project shows benefit of district-based programmes"
Eurotimes, Nov 2012.

+ "Initiative to prevent blindness in premature infants bags National
award" *The Hindu, Nov 2012.*

Karnataka Internet Assisted Diagnosis of Retinopathy of Prematurity (**KIDROP**)

India's first and the world's largest single hospital
network of tele-ROP screening services



- + 31856 infant screening sessions
- + 844 laser treatments
- + 81 Neonatal intensive care units
- + 18 districts in Karnataka
- + 17 teams trained
- + > 500,000 retinal images
- + 298,456 kilometers travelled on road

(Data upto March 2013)

Over ₹246 crores of 'blind-man-years' saved

Winner of "Innovative Initiative in Healthcare through PPP - 2012" by public choice at the e-INDIA summit.