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## Volume 14, Issue 1/2012 - Medtech

### Eyesmart EMR

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IT @ Networking Awards 2012 - 3rd Place

The LV Prasad Eye Institute (LVPEI) was established in 1986-87 at Hyderabad as a not-for-profit, nongovernment, public-spirited, comprehensive eye care institution. From its very beginning, it set forth as its core values the "Three E's": Equity, Efficiency and Excellence. Equity translates as treating all patients (paying for services or not, rich or poor) with the same high-quality, no-compromise care. Efficiency means using the best available tools and technology, translating results of research into clinical practice, and evolving or changing policy as needed. Excellence is an ever-ascending goal that LVPEI attempts to achieve.

LVPEI operates out of 106 locations, 86 of them being primary eye care centres located in remote rural villages. For the past 24 years, it has served over 14 million people, over 50 percent of them entirely free of cost, irrespective of the complexity of care needed.

The LVPEI care model, called the Eye Health Pyramid encompasses service delivery at four different levels ranging from tertiary care to primary care in the villages. In the Village Vision Complex (VCC), ten Vision Centres connect to a Secondary Centre which then refers patients requiring further evaluation and management to the Tertiary Centres linked to them. This ensures a permanent infrastructure to deliver high quality eyecare services to the needy at all levels.

#### How it Works

eyeSmart is a revolutionary national award winning ophthalmic Electronic Medical Record (EMR) and Hospital Management System developed in-house by L V Prasad Eye Institute, India. We have embarked on networking the entire eye health pyramid of LVPEI on digitised medical records.

The goal is to enable electronic documentation for faster retrieval and research purposes, and to transform the entire network into a paperless ecofriendly environment. We have used an EMR concept of totally integrating all functions of a hospital from a common point, namely the patient. All functions, including clinical and administrative, are interlinked in a single EMR and HMS system and through a single patient record. We have made use of different flash tools, document viewers, etc., to intelligently assist our doctors in managing patient data at the convenience of a click anywhere, anytime. Doctors can access case sheets on mobile phones, and have appointment details 24/7 365 days a year.

The application is enabled for various platforms like iPads, iPhones and tablets. The EMR has now evolved into an effective educational tool for our students and fellows who train at the institute. The standard procedures, classifications, evidence based medicine protocols integrated into the system help to deliver more effective care and also aid in teaching.

The project started as an in-house exercise with the task of building an application for a smaller urban centre at Madhapur, Hyderabad. The centre started on 16 August 2010 and since then has grown to be adapted for use in three other branches in three cities. We then moved on to upgrade the system and its functions in a tertiary centre that had sub-specialities in ophthalmology. We started our first tertiary centre on EMR at KVC Campus, Vijaywada. We then started our first secondary centre on EMR at Paloncha, which saw challenges in terms of connectivity and power but these were resolved. We then proceeded to connect the primary care vision centre to the secondary centre through EMR. Currently, our patients can move anywhere in the vision centre complex without having to physically carry their medical records with them.

#### Difficulties

Problems related to connectivity and power, as can be anticipated in rural hinterlands, have been addressed and alternative backup plans put into place. Training and monitoring the centres in real time has been made possible with the formation of an EMR Support and Installation Team (ESIT). The ESIT caters to live and remote support for the staff and users and gathers essential feedback on the application. It is also responsible for enforcing protocols of quality data documentation. ESIT members are currently based across four cities with 12 full-time employees catering to eight centres running on EMR. New centre installations, support and maintenance are also handled by the ESIT. We have a fully equipped office and simulated training centre based in Hyderabad, India.

#### A Unique Concept with Proven Results

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The concept is unique as we are currently implementing a revolutionary connectivity solution with our vision centres located in remote rural villages. The broad framework of our operations is to seamlessly connect our care delivery and make our model digitally inclusive. In keeping with this mission, we have begun integrating all the 106 eyecare centers of LVPEI, spread across two states of India, in a phased manner, and hope to complete the task over the next two years.

#### **EMR Statistics (from August 2010)**

Total no. of Patients – 59,815 New Patients

Total no. of Appointments – 92,147 Appointments

> 150 unique users

No. of EMR Centres – 8

City Centre – Hyderabad

KVC Campus – Vijayawada

NBEC Secondary Centre – Paloncha

City Centre – Vizag

City Centre – Vijaywada

KAR Extension - Hyderabad

Secondary Centre – Cherukupalli

Vision Centre – Manuguru Village

#### **Cost Savings**

- Manpower costs for Medical Record Department;
- Paper printing/ storage costs;
- Man hours saved in preparing elaborate reports; and
- View reports and status of any centre, anywhere, anytime! Improving Customer Service
- Accurate, comprehensive medical reports in a single click;
- Digitised prescriptions for medicines and glasses;
- Shorter waiting time for patients;
- Online booking of appointments;
- Personalised SMS alerts; and
- Enabling better efficiency in patient flow in centres.

#### **Employee Productivity**

- Less time spent on written records (30 percent less time);
- Faster processing of information of patient statistics (90 percent less time);
- Reports at a click (100 percent time saved)
- LIVE patient status displayed dynamically to administrators (100 percent time saved)
- Faster entry of patient medical records;
- Faster printing of prescriptions, refraction records (90 percent time saved); and
- Assessment of employee specific functions (80 percent time saved).

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