

## **A New Heart For India**

### **Doctors Connecting Over ISDN Lines To Consult On Open Heart Surgery On Infants**

**When you first come to Chennai, India, you may notice the sweltering heat, the numerous palm trees and the colorful dress of the local people. In the midst of these tropical surroundings one may not expect to find one of the most advanced heart surgery centers in the world.**



**Dr. “Bala” lovingly checks in on his two-week old heart surgery patient**

**Yet it is here, at the Sri Ramachandra Medical College and Research Institute, that Dr. K.R.Balakirshnan, professor and head of cardio vascular surgery, performs open heart surgery on babies as young as two-weeks old. With the high risk and complications of such heart surgery, very few doctors in India will take these cases. In fact, Dr. “Bala” takes patients that have been turned down for surgery from all over South and East Asia, including Bombay, Malaysia, Singapore and the Gulf States. In his line of work, it is difficult to find doctors who can give a second opinion. That is where Cylink Wireless solutions comes in.**

**Cylink Wireless worked with Intel, Data TeleMark and VSNL, the local telecommunications provider, to establish a complete Internet connection from Dr. Bala’s hospital to the Hospital For Sick Children in Toronto, Canada. The link was established via satellite over ISDN lines. The link starts in the conference room at the Chennai hospital where doctors use Intel’s Team Station software as the user interface to the PC. The information is then transferred over ISDN lines to Data TeleMarks’s D.I.C.A. ISDN converter, which is then connected to Cylink’s wireless AirPro modem. Cylink’s wireless AirPro modem then transfers the information over the S-band (2.400-2.4835 GHz frequency) to another AirPro modem at the VSNL repeater in Korattur, roughly 30km away.**



**Cylink's AirPro modems  
at VSNL**

The information goes over a V.35 line to a mux/demuxer, which is transferred again through a V.35 link to a Cylink AirLink E1 Pro modem to yet another AirLink E1 modem at the VSNL main hub in Chennai. The data is then sent over V.35 lines to another D.I.C.A. ISDN converter box, which is sent over ISDN BRI to a network terminator to connect the ISDN exchange. The data from Dr. Bala is then sent from the ISDN exchange to VSNL's Earth Station over fiber optic cables or microwave and sent off to the International ISDN network to Dr. Einstein and Dr. Freedom in Toronto. A similar exchange takes place when the information comes back down from the International network back into Canada. This high-speed, highly reliable, two-way information network enables the doctors to share critical information such as X-rays, sonograms and even angiograms over the network. This enables them to collaborate on diagnosis, treatment, surgical techniques, post surgery

treatment, and in the future, even in-process surgery.

Connecting the Medical College in Chennai to the heart training surgery center in Toronto helps educate many doctors and medical staff who are located at these hospitals. It also enables many other doctors in the world to log into these training sessions via the Internet. Dr. Bala says the implications of providing last mile connections to the remote parts of the world will have a dramatic effect on the medical industry. In fact, he wishes that many hospitals could be equipped with this technology to share the knowledge base so they can better treat patients in their particular regions. Providing last mile connections to remote areas gives doctors the advanced information they need to increase their effectiveness in saving human lives. In the end, isn't that what it is all about? Cylink Wireless Communications...  
Expanding Your World.

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