

# CRISTALS – A Bonanza for the Hospitals

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## HOSPITAL UNDER INFORMATION DELUGE

It is surprising, but the fact is that management of information and related emerging services is a significant factor in running a hospital of even moderate size. Let me illustrate. On a typical day a consultant or doctor is required to examine various tests reports, X-rays & scans, and monitor response of the patient to the administered medical regime prescribed by her or him and also information about developments in pharmaceutical and other fields.

Likewise the staff of other departments of a hospital has to daily track different types of records and that too in large numbers. In-depth analysis of voluminous data becomes necessary for monitoring numerous functions at the individual department level and also at the hospital level for making decisions.

Patients also need information on various counts that range from the treatment details to billing to social support.

## INFORMATION INFRASTRUCTURE DEVELOPMENT

Typically a big hospital goes for developing necessary information infrastructure and allied services on its own. No wonder a hospital has to invest substantially in acquiring and maintaining the requisite hardware and software and human resources too. The periodic upgrade calls for further investment. In short, a separate investment intensive department is established for this support function.

It is my experience that even after collecting such huge and valuable data the full processing to extract more than normal information using the analytics and

cognitive reporting tools is hardly undertaken in practice. As a result only the silos of electronically stored data are created. It is pity that such a precious asset is not fully utilized for planning more informed treatment for the current patients, for instance.

A small or middle level hospital, obviously would afford least to invest in building such costly information infrastructure. The importance of such information can't be overlooked, however. Under such circumstances outsourcing several of these activities is one viable solution for them. An external vendor that can take care of such data organization, retrieval and analysis can certainly help such hospitals. The vendor can be further enjoined to provide reports both routine and special on-demand that are tailored to the needs of every unit of the hospital.

## INTEGRATED SERVICE OPTION

Such a need is now imperative because hospital records though generated largely in the digital form, yet they vary in the form like text, picture and video. And each follows a different format and needs special skills for organization and analytical processing.

Moreover providing authorized and 24x7 access to the pertinent facts and figures to the doctors and that through a personal digital device of their choice is quite essential now. Such facility is vital for urgent consultation by doctors, especially to deal with medical emergencies arising any time.

Analysis-based reports and cognitive services of this nature would be a boon for the hospitals. In the constantly changing information and communication technology milieu it is therefore worth opting for an external vendor.

## CRISTALS Highlights

- **Benefits to patients**
- **Useful to medical professionals**
- **Resourceful to the hospitals**
- **Gainful for insurance claiming**
- **Support to training and research**
- **Enriched services incorporating latest development in the health sector in tune with the international standards**

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## CRISTAL SERVICES

During my search for such a service provider an IT vendor named *Noetic Technologies* ([www.noeticindia.com](http://www.noeticindia.com)) based in Mumbai, India came to my notice, which offers a package of many of the above services for hospital on a turnkey basis. In particular, its service solution, namely CRISTALS (Comprehensive Information System and Analytics Services), is found quite promising and resourceful.

Whole system is designed to provide a continuously updated stream of information to the hospital besides analytical reports. It offers a multi-layered retrieval facility to serve all the segments of a hospital. Reports serving the patients are also generated. The CRISTALS is implemented in such a manner that hospital is not required to invest in any hardware and software or personnel. The vendor takes the responsibility of converting the legacy data in to digital form, if the need be.

Besides maintaining security and integrity of the data CRISTALS can take inputs from the existing hospital software and merge in its working. So the past investment made by the hospital in software and data creation is protected. Preparing all the documents and their timely submission for insurance reimbursement is a high point of this service of the vendor. Its emphasis on analytics is something noteworthy.

## THE CRISTALS PROCESSING APPROACH

The data from a computer terminal at the hospital are daily transmitted by vendor's representative or by the designated staff to the database maintained by the vendor. The vendor processes this database employing the latest database management tools.

The records are analyzed using the advanced analytics to generate a variety of reports. Such reports employing tools like *Association, Path analysis, Classification, Clustering and Forecasting* are beneficial to doctors and hospitals.

## SELECT OUTPUTS AND REPORTS

### a) Treatment Planning

*Patient's History:* Tracing of the patients stay and treatment is analyzed to give inputs for treatment as well as capacity planning.

*Prognosis and Diagnosis:* Analysis of symptoms, treatment and final outcome and side effects for the patients is useful to all the stakeholders.

### b) Administration and Finance

*Stock Verification:* A report on patients treated and stock consumed is prepared.

*Billing Report:* Cross checking of billing details with the stay of patients and services provided is facilitated

at any point of time.

*Audit Reports:* Meeting the audit requirements by retrieving information by different account heads.

*Government Reporting:* Several statutory returns are to be filed with the government agencies from time-to-time. All such reports are generated.

*Enriching Teaching & Research:* An exhaustive database of real life cases provides an opportunity to undertake in-depth research studies besides using it for the teaching and guiding the medical students.

Diagnosis and line of treatment adopted by the expert doctors in making the decisions in real life conditions could be brought out by suitable analysis of the patients' history records. Teaching could thus be enriched. This would be quite useful for the medical institutions that are involved in training and research activities.

### c) Post-Hospitalization Services

*Insurance Claims:* The CRISTALS compile all the documents and process them as per the prescribed format by individual insurance company. That ensures minimum deduction in the claim and speedy settlement. As a part of the service the vendor also tracks each case and ensures that payment to the hospital is released expeditiously.

*Patient Follow Up:* It is observed that once the patient is discharged the interaction between the hospital and patient is not paid much attention. CRISTALS bridge this gap by using latest communication means and thereby generates the goodwill about the hospital.

### d) New Services on the Horizon

In the next phase of development CRISTALS would obtain the metabolic and physical condition information generated by the wearable electronic devices by patients and link it to the existing database. This can help monitoring the routine health of the patient and suggesting corrective measures suitably.

## Recommendation

It is seen that the hospital can reduce its information maintenance and processing burden a great deal by opting for the CRISTAL services. By obtaining such external services for information management that is integrated with analytics and generation of cognitive reports, the hospitals would not be required to invest heavily in constant upgrading and maintenance of computer hardware and software. In my view small and middle level hospitals should take advantage of services like the CRISTALS.

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