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# Information Technology Vital for Chronic Disease Management



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**India has an extremely high prevalence of diabetes and the implementation of IT-enabled diabetes management programs may prove to be extremely advantageous in managing the impact of the disease.**

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Non-communicable diseases were estimated to account for 35 million (60%) of the 58 million deaths globally in 2005. Of these, 72% were estimated to have occurred in developing countries. Looking at India's health transition, chronic diseases contribute to an estimated 53% of deaths and 44% of disability-adjusted life-years lost. Non-communicable diseases pose a different and more complex threat to the health systems of countries, already faced with the unfinished agenda of communicable diseases, and maternal and child health problems. The hallmarks of these diseases namely long latency, chronicity, multi-organ involvement and need for long-term care make the management of chronic conditions difficult.

Chronic diseases have multi dimensional impact on the community as well as on individual and it requires a lot of healthcare resources to manage them. Also at individual level one faces financial problems which sometimes are the reason of non compliance to the treatment plan.

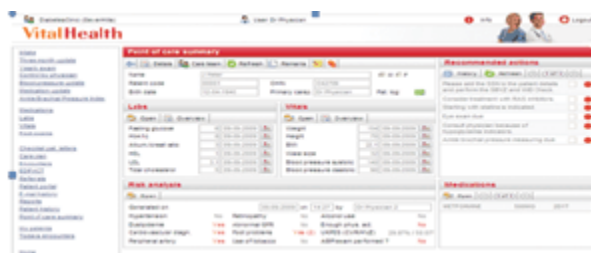
In India cardiovascular diseases and diabetes are highly prevalent in urban areas and there is no definite data about rural population. Very few studies have focused on diabetes care and provided an insight into the current clinical profile of patients and their management. One study in Asia (Diab-Care Asia), showed, the mean age of diagnosis among Indian respondents was 43.6 years. Fifty percent had poor control as measured by HbA1c, and 54% had late severe complications.

In another pan-India study with patients registered with providers, 70% of the patients were diagnosed by general physicians. Only 43.4% patients had their BP checked at the time of diagnosis. The figures were 17.6%, 5.6% and 4.2% for eye examination, kidney function tests and lipid tests. In spite of these low percentages, 27.4% and 26.5% of those surveyed had elevated blood pressure and diminished vision at the time of diagnosis. Only 7-11% of patients had been tested for HbA1c, lipids, blood circulation and kidney function after diagnosis, and 47.2% monitored their condition only four or less times in a year. This provides a base line data to researchers to understand the need for diabetes disease management solutions in India.

Many countries are trying to curtail its impact by designing Disease Management Programmes. These are based on evidence based protocols and assigns responsibilities for each care provider in the care team. It is concept which starts with the identification of a case and monitoring them to adhere to maintain the clinical indicators with in desired limits.

A growing body of literature suggests that diabetes-management programs in particular need an information technology (IT) backbone in order to be effective. In order for a diabetes-management program to be successful it is necessary to have a clinical information system to support it. The advantages of IT tools include:

- Promoting better provider-guideline compliance by presenting recommendations at the point of care
- Helping to identify patients overdue for care and assisting providers to proactively reach out to them
- Enabling patients to manage their own care through education and communication tools that allow them to receive direct feedback; and
- Providing numerous other benefits like monitoring the patient indicators from individual to population level.



#### Disease Management Model

Disease management solutions need to be supported by clinical Decision Support, clinical information system and self management support. This model explains the solution design of the application. The care provided is integrated in such a way that the information flow is seamless between care provider team and the patients.

#### Components of Chronic Disease Management Solution

Chronic disease management solution should support following features:

- Evidence Based Guidelines
- Reporting and Feed back
- Patient self Management
- Alerts and reminders
- Role based
- Population management
- Value Proposition by I.T

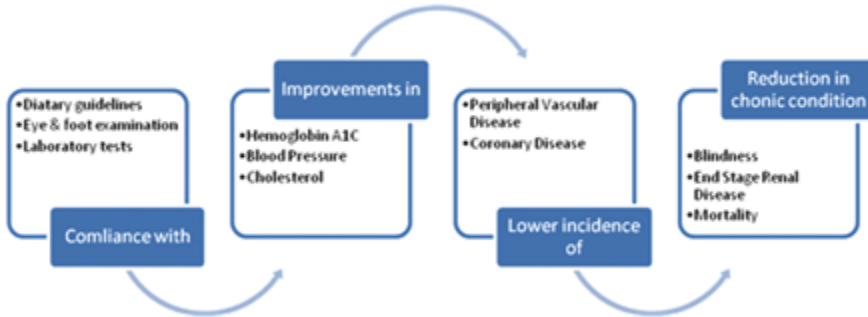


IT-enabled diabetes management helps to improve diabetic-care processes, which in turn reduces the rate of diabetic complications, thereby generating clinical and economic benefit. For instance, promoting strict dietary compliance, which improves blood-sugar levels and lessens damage to small blood vessels throughout the body. This reduction in microvascular disease lowers rates of diabetes complications such as blindness, lower-extremity amputations, and end-stage renal disease. Such outcomes not only improve patients' quality of life but also reduce utilization of health care resources, potentially leading to cost savings.

Our analysis demonstrates that our Diabetes management solutions improve processes of care, prevent development of diabetic complications, and generate cost-of-care savings. Technologies used by providers seem to be the most effective in improving the lives of patients with diabetes. Based upon the current evidence, our analysis indicates that patient-centered technologies offer the best potential for benefit. We believe that an integrated provider-patient platform, which adds patient-centered technologies to

reminder system, adds benefits beyond expectation. This integrated platform achieves the envisioned benefits of diabetes management.

### Conclusion



Diabetes management remains a challenge for developed and developing countries alike. The implementation of evidence-based guidelines and restructuring of clinical care organization has yielded gains in some countries. There have been several attempts in developing countries as well to generate feasible and effective care systems. These initiatives and projects hold promise but much depends on the re-orientation of the overall health system for effective and sustainable care.

While diabetes affects millions of Indians and places a tremendous clinical and financial burden on our society, diabetes management solutions offer an opportunity to improve care processes that enhance the lives of patients with diabetes and help control the medical costs associated with their disease.

Indian healthcare being fragmented into public and private providers should make use of web based diabetes management application which is less costly and does not involve implementation hassles.

The earlier the physicians start using this tool more beneficial it is going to be for practice and patient. Sooner or later this is the way which is going to be followed by provider community. ■