



DesignerData
Version 1.0

Understanding obesity, managing cardiovascular health and type 2 diabetes



Tapasvi Solution Brief
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Data Driven Decisions: Tipping Point in Health Care

Transformational opportunities are presented today due to the availability of clinical and administrative datasets by US medical care system.

Drawing inspiration and quoting from T.S. Eliot's, *The Rock*, "*Where is the wisdom that we have lost in knowledge? Where is the knowledge that we have lost in information?*", the goal of Tapasvi Clin-MolBio Solutions is to objectively evaluate these vast amounts of data with custom made analytics to increase the knowledge of all the stakeholders in health care industry.

Tapasvi's analytic solutions are based on evidence based medicine and time-honored techniques of clinical data analysis, to present complex clinical information in a new and invigorating way. This entails management of medical knowledge from clinical data coupled with clinical practice innovation and increased patient involvement.

Freely available clinical data has become the basic staple for developing evidence for Tapasvi. Advances in health information technology (HIT), Big-Data (SAP-HANA) and analytics raised the potential for this data to be used to fill the gaps in healthcare, for restructured care, wellness initiatives and disease management programs. In fact, data driven decisions has enormous potential for health system to perform more efficiently and prevent billions of dollars of unproductive health care costs. Fostering implementation from evidence gathered from freely available data is the most economical way to manage the burden of diseases, associated costs and time, with an added advantage of patient involvement.

Historically, implementation of research findings takes decades whether it happens at the bedside or at the lab-bench. The famous papers of Oliver Holmes on the contagiousness of Puerperal Fever which advocated hand washing before examining a pregnant woman was revolutionary in 1834. However, it took decades to come to practice, with some resistance. Introduction of the scientific discoveries does not appear to be faster today than centuries ago.

In the classic evidence hierarchy, the Randomized double-blind controlled Clinical Trails (RCTs) are the gold standards in clinical research and to innovate new drugs. However, they have serious limitations. On average it takes 17-20 years, costs up to 2 billion US dollars, and at times, constrained by external validity and uniform applicability of the results before a drug

becomes marketable. In contrast, the quasi- experimental observational studies, (albeit with the inherent issues of bias and confounding) are enticing, given the massive availability of the clinically rich data as potential source of evidence, dramatically reducing the time lag of 17-20 years. In this context, data driven innovative analytics with zero time-lag is a potential simple solution for reducing the burden of cardiovascular conditions and type 2 diabetes associated with obesity, given the strategic goal of WHO for a 25% reduction in cardiovascular conditions by year 2025, and American Heart Association by the year 2020.

***DesignerData*: Helping understand obesity and its consequences**

Tapasvi delivers *DesignerData*, developed in the co-innovation lab at SAP as a Sap-Startup focus member. *DesignerData* is an intuitive, easily understandable analytics and visualizations that aid in detection, evaluation and treatment of obesity and related chronic conditions.

With pre-built analytic models, clinical decision rules, and user interface, *DesignerData* brings awareness about the relevance of the burden of obesity and related conditions. *DesignerData* can be used for other diseases and health conditions as well.

Business Case

Understanding obesity and its consequences is important, because unlike many diseases, obesity is ominous, with no single vaccine, drug or a therapy. Obesity epidemic has serious health, economic and social consequences for the individuals and society at large. Direct consequences of obesity include, high blood pressure, higher waist hip ratios, elevated cholesterol and triglycerides, decreased HDL, increased LDL, metabolic syndrome (combination of the above 4 factors) and diabetes. In-direct consequences are heart diseases, stroke, angina, cardiovascular diseases and heart Failure.

Today, more than 1.4 billion people in the world are obese and overweight. Obesity is no longer a problem exclusive to high-income countries, it is common in low- and middle-income countries too. The costs of obesity can be staggering. In 2009-2010, the prevalence of obesity among American men and women was almost 36%. In USA, 1 in 3 deaths, i.e. about 800,000 deaths are due to preventable cardiovascular conditions. What is alarming is most of these deaths are avoidable. Infact, people with obesity

will have more than one chronic condition. For instance, from 2002 to 2009, the number of people with more than 2 chronic conditions has increased from 23.4 million to 30.9 million. An estimated 26 million people in the United States have diabetes, and this figure is projected to nearly double by 2034. Financial costs of obesity are staggering. In 2030, heart disease alone can cost up to \$819 billion , heart failure around \$70 billion and stroke approximately \$184 billion. In 2012, the direct medical cost of diabetes in the United States was calculated at around \$176 billion coupled with the cost of lost productivity at \$69 billion.

Beneficiaries

- People/Patients: Improve health and maximize use of self-care and related services. Educates patient of all skill levels with clinical information about cardiovascular risks and type 2 diabetes associated with obesity to aid in prevention, self-management and behavioral changes
- Healthcare Providers: Opportunity to guide/counsel patients with better information to recommend “What works best” in health care settings.
- Health Insurance Plans: To manage the financial risks related to health consequences of excess weight. Providers and payors can capture critical information of high-risk patients for health decision support, product-tailoring, target education to aid patients in disease management efforts
- Policy Makers: What works best at the community level to increase the power to greatly influence obesity prevention