Modeling and Transformation

Modeling the Economic Impact of Healthcare Delivery Transformation and Changes in Approach to Disease and Chronic Health Conditions

Patients, employers, and communities face direct and indirect health care costs from chronic health conditions and disease. Stakeholders require actionable data and analytics on both the medical and productivity costs of chronic diseases to evaluate opportunities and set priorities for change. Cutting-edge modeling can both inform the extent of chronic health burdens and improve the effectiveness of interventions to reduce them.

Disease Prevalence

FTI Consulting leverages its extensive demographic and prevalence data to provide deep, comparative health status analytics across diseases and chronic conditions for local areas against peer metropolitan areas.

Economic Costs

With commercial and government claims data and unique evidence-based proprietary models, FTI Consulting evaluates workforce healthcare utilization costs and quantifies economic costs from lost workplace productivity, including impact on presenteeism and absenteeism.

Intervention & Evaluation

FTI Consulting's team of experienced professionals combine data science with customizable scenario modeling and informatics analysis to evaluate the effects of care delivery and payment model interventions or change.
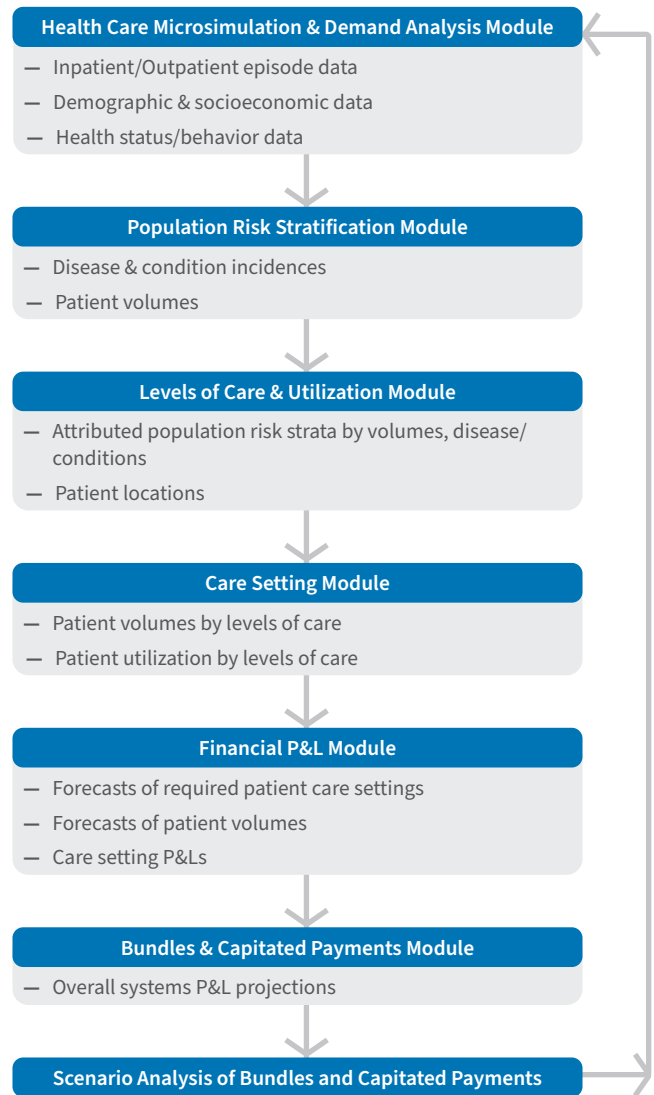
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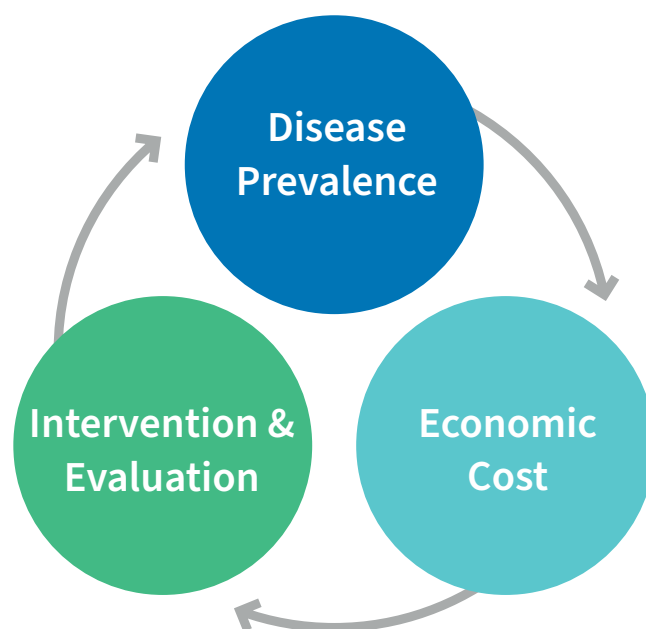
Quantifying the Impact on Health Status and Costs of Innovative Models of Care

The Center recognizes that simple extrapolation from existing trends often is not sufficient given the dynamic healthcare environment in which providers, insurers, and governments operate. The Center's microsimulation models are appropriately detailed and can be used to produce estimates at the service area or county, state, and national levels. The models provide economically sound estimates in assessing change initiatives while explicitly accounting for changes in the population, diversity, and economic growth.
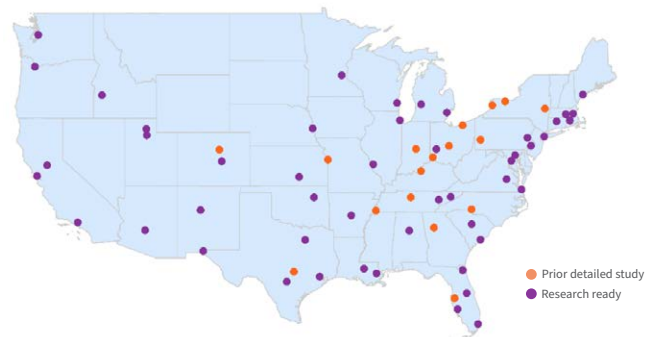
Quantifying the impact of innovative models of care requires modeling the diverse characteristics of the population. The Center's customized microsimulation models can predict the comparative effects of alternative approaches to improving outcomes while lowering the total cost of care. Our modeling framework includes a series of modules that capture linkages between changes in population growth and diversity, disease incidents and prevalence, care delivery, provider resources, and utilization. The model comprises three building blocks—the base population module, the healthcare resource modules, and the forecasting module within a comprehensive model of change.

By linking each of these components into a single model, FTI Consulting can more robustly evaluate the impact of changes undertaken by providers, health plans, and accountable care organizations.

Health Care Microsimulation & Demand Analysis Module
— Inpatient/Outpatient episode data
— Demographic & socioeconomic data
— Health status/behavior data

Population Risk Stratification Module
— Disease & condition incidences
— Patient volumes

Levels of Care & Utilization Module
— Attributed population risk strata by volumes, disease/ conditions
— Patient locations

Care Setting Module
— Patient volumes by levels of care
— Patient utilization by levels of care

Financial P&L Module
— Forecasts of required patient care settings
— Forecasts of patient volumes
— Care setting P&Ls

Bundles & Capitated Payments Module
— Overall systems P&L projections

Scenario Analysis of Bundles and Capitated Payments

Comparator Cities

FTI Consulting houses a rich collection of health care and economic data that provide insight across a large number of metropolitan areas. Its access to and experience with extensive commercial and government claims data, CDC BRFSS SMART, and other health data allow for peer city comparisons and customizable modeling.

- Prior detailed study
- Research ready

Prevalence	Medical Costs	Productivity Costs	Life Expectancy
BRFSS SMART	IBM® MarketScan® Databases	BLS & Literature	IHME County Profiles

CDC CENTERS FOR DISEASE CONTROL AND PREVENTION

IBM Watson

BLS BUREAU OF LABOR STATISTICS U.S. DEPARTMENT OF LABOR

IHME

## Early Warning Models for Disease Progression

Chronic diseases are costly to patients, their employeers, and health plans. However, these diseases are not monolithic—severe cases can be exponentially more expensive than well-controlled cases of the same condition. Identifying patients most at risk for the onset of diseases such as diabetes or hypertension can allow for early intervention and averted medical costs.

FTI Consulting's approach classifies patients into disease stages. While not all patients progress through each of these stages sequentially, through appropriate classification and effective prediction, interventions can be targetted to the right enrollees and providers and for generating cost savings and improvements in population health.

CASE STUDY

Working with a community health plan, FTI Consulting built state of the art machine learning algorithms to create an early detection system for the onset of diabetes and for the progression of the disease to more severe and costly complications. Using more than 10,000 data fields already collected by plan in their data warehouse, our algorithms outperformed both the plan's existing prediabetes definitions and similar machine learning algorithms in academic literature.

| Prediabetes | Diabetes | Diabetes with Complications |
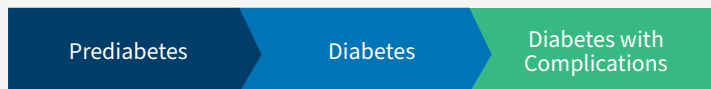
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