



## Business Analytics



# Industry Leading Web-Based Clinical Informatics

## University HealthSystem Consortium®

### CLIENT SITUATION

The University HealthSystem Consortium (UHC) — an alliance of more than 100 academic medical centers and more than 200 of their affiliated hospitals — represents nearly 90% of the nation's nonprofit academic medical centers. UHC's mission is to advance knowledge, foster collaboration, and promote change to help consortium member organizations succeed in their respective markets. These member organizations receive access to many performance improvement products and services.

While successful in building a portfolio of products and a massive database of case details in the early 1990s, UHC leaders decided in 1997 to replace a paper- and CD-based reporting application with a Web-based, interactive environment. The goals were to give UHC's subscribing members more timely access to data, improve reporting flexibility and analytics options, and meet growing compliance needs from several sources.

### COMSYS SOLUTION

COMSYS worked with UHC to develop a multifaceted, Web-based solution to help the consortium meet these goals. Member organizations could now quickly access and analyze data against almost any population within the vast patient database. The solution included a Web-based reporting and analytics tool called Clinical Data Products (CDP) Online and the accompanying back-end risk-adjustment modeling.

The risk-adjustment modeling was designed to level-set the data, allowing statistically relevant performance comparisons across regions, hospitals, and patient populations/demographics. Together, CDP Online and risk-adjustment modeling provided a rapid path to viable, meaningful data for UHC members.

### *Web-Based Clinical Informatics*

COMSYS collaborated with UHC's Clinical Data & Informatics team, statisticians, information technology staff, and pharmacists as well as subscribing health care providers to gather and manage requirements for the initial development of the Web-based solution. The first design, build, and implementation efforts for CDP Online were completed in 1998.

UHC member organizations submitted their patient-stay information monthly or quarterly and then used CDP Online to access their data. Members were able to analyze their case-level data against their own previously submitted data or against summarized data from any or all UHC members. Additionally, member organizations could integrate the cleansed, adjusted UHC data into their own applications or tools for analysis with other application data.

After a decade-long partnership with COMSYS and continued enhancements, UHC released the next evolution of the product, the Clinical Data Base/Resource Manager™ (CDB/RM). Leveraging the added functionality and breadth of the CDB/RM, member organizations can run reports and analytical queries based on data from more than 12 million patient cases.

### *Risk Adjustment*

COMSYS further assisted UHC in revising its process for preparing and assimilating the participating organizations' data for the risk-adjustment segment of the processing stream. Prior to inclusion in the UHC database or any CDB/RM reports or views, member data are cleansed (using UHC's proprietary system) and risk-adjusted.

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Having previously outsourced its risk-adjustment modeling process, UHC desired better control of risk models and modeling efforts and faster reporting. Working with UHC, COMSYS developed new functionality to wholly integrate the risk-modeling process under UHC's control, allowing the UHC Clinical Data & Informatics team to oversee its evolution and reducing the time between member abstract submissions and report availability. COMSYS' ability to shorten the processing turnaround time was a key factor in improving UHC customer satisfaction and increasing overall member participation.

Based on published literature and gathered requirements, UHC's risk-adjustment models are updated annually with approval of the UHC Clinical Data & Informatics team and statisticians from both UHC and COMSYS. After annual updates, many new automated reports are created in SAS and then used to validate the models. Results are then incorporated into the CDB/RM for utilization.

COMSYS team members, statisticians, developers, and architects participated in or led throughout the solution development lifecycle, which included requirements management, design, build, and test processes for risk-adjustment models. COMSYS subsequently worked to transfer system knowledge to UHC's Clinical Data & Informatics team.

### CLIENT BENEFITS

#### *Benefits to UHC Member Organizations*

- Access to risk-adjusted data is now faster through UHC's database than through many members' in-house systems, saving member organizations time and ensuring high-quality data. These data are also used for submission to various accreditation and government agencies.
- Drill-down access to case-level details is available; users can compare the information to previous time periods or integrate it with other applications.
- Trend review is available for important measures related to care quality and outcomes for specified subpopulations within hospitals and across specialties and individual physicians.
- Drill-down capabilities provide access to the details for care measures that are sent to government agencies that generate scores related to requirements.

- Application flexibility allows users to select time periods, study population/diagnoses, etc and produce reports based on data from more than 160 organizations.
- Reports, on average, take less than 10 seconds to present.
- Secure, risk-adjusted data are available at the patient and physician levels.
- Information about patient stays, length of stay, mortality rates, comorbidity and complication rates, readmission rates, intensive care unit use, and cost by service area is available.
- Reports are specifically designed to help managers and administrators identify areas for improvement, successes, and relevant local and national trends.
- New opportunities for educational or informative collaboration have been created.

With thousands of reports run each week, member organizations rely on the CDB/RM to analyze their own hospital's data as well as compare themselves with other hospitals, regions, or populations.

### BENEFITS TO UHC

The deployment of, and continued enhancements to, the CDB/RM helped UHC increase its user base and was also a catalyst in the shift to its current e-business model. Additionally, UHC earned industry recognition and accolades, which helped solidify UHC's position as a market leader in the clinical informatics space and further empower academic medical centers to improve care and clinical performance.

### CONTINUED PARTNERSHIP

Since the initial build, COMSYS has continued to partner with UHC to provide support for application infrastructure, member-requested enhancements, updated risk modeling, and changes related to accreditation and government agency requirements. COMSYS has worked closely with UHC and has systematically transitioned knowledge and responsibility from COMSYS to the UHC team.

UHC's CDB/RM application, in conjunction with the proprietary risk-adjustment process, is considered an industry-leading tool for comparative analysis of patient stays and care outcomes.

*This comprehensive product was awarded first prize in the annual Health Care Technology Awards in 2000, earning UHC industry-wide recognition.*

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