



Case Study: A Hospital Group Uses Data Analysis for Clinical Integration

The Affordable Care Act tries to accomplish a very difficult balancing act: reduce healthcare costs while not drastically cutting provider reimbursement. The core component of the solution is to utilize IT for clinical integration. Clinical integration, the sharing of healthcare information about a patient across the entire system, from doctors' offices to hospitals, should help eliminate redundant tests and procedures, as well as coordinate the overall care, i.e., the Medical Home concept. SmartCare[®] is uniquely suited to carry much of this load, with its decision-support oriented data warehouse, integration of electronic medical records with claims data, network architecture, and fast, interactive functionality.

Even before the legislation passed, a group of 10 independent hospitals came together and received FTC and State Attorney General waivers to negotiate contracts collectively because of their clinical integration IT infrastructure. Data is collected from all of the hospitals and then analyzed and shared in order to develop best practices and improve quality. SmartCare[®] was used to generate critical benchmark comparisons across a set of treatment protocols developed by the hospitals, as well as provide a wide range of resource utilization and risk pool comparisons.

The 10-hospitals setup a central office and established committees to define quality standards, measures and treatment protocols. The central office is responsible for data collection and comparative profiling reports. They decided to use an outside vendor for data processing, reporting, and benchmarking. Vantage Point was the IT member of the outside vendor group.

Case-mix adjusted algorithms were developed in order to normalize each hospital's encounter data to be able to be benchmarked to the entire group. Data from the hospitals is updated and reprocessed quarterly with rolling 1-year builds, as well as data from other hospitals in the region for additional benchmarking. The data for the other regional hospitals was obtained from the public hospital dataset collected by the State.

SmartCare[®] fulfilled the need to provide an interactive software tool available over the Internet (a secure VPN network) to hospital "super-users" to review their own data and compare themselves to benchmark datasets. This was done for carefully defined treatment protocols for a large group of important diseases, which were judged by such standardized benchmarks as Average Length of Stay, Readmission Rate, Cost-to-Charge ratios, and other metrics. In addition, SmartCare[®] provided physician profiling summary reporting, resource utilization analysis drilldowns, ad hoc query and report library building, and contract performance monitoring, all of which were necessary to satisfy the clinical integration standards approved by the FTC and State Attorney General.

The screen shot below shows the important Comparative Benchmarking section of SmartCare[®]. In the yellow table is all of the critical information, including actual and expected performance, the performance index, the Z-score (comparison of standard deviations), and the "opportunity," showing the cumulative financial (ex. encounter charges) or numerical (ex. Average Length of Stay) value compared to the selected benchmark.

Benchmark Comparison Center

Close Retrieve Sort Asc Sort Desc Clear Lookup* Copy Table Print Table Criteria Wizard Benchmark Report Double-click on the row to see its encounters.

Group Benchmark By: Min. # of Cases: # Rows: Protocol:

Benchmark: # Cases: Outcomes Act.Perf. Opportunity Index Z-Score

Measure: # Rows: Protocol:

Diag/Proc/CPT Code Spanning

Diag Code*
 Proc Code*
 CPT Code*

Benchmark: Nassau Suffolk
by Measure Overall RCC Costs Per Case

Attending MD	Case Count	Outcomes	Actual Perform.	Expected Perform.	Index	Z-score Contin.	Opportunity
NOORI MOHAMMED: 012039	27	\$176,097	\$6,522	\$9,275	0.70318	-3.65542	-\$74,336
LONE ANEEGA: 012559	17	\$102,729	\$6,043	\$8,957	0.67467	-2.73393	-\$49,536
SINHA HIRENPA D: 003701	16	\$124,103	\$7,755	\$10,804	0.71888	-2.32108	-\$48,713

Encounters for this attending physician included in benchmark.

Close Sort Asc Sort Desc Copy Table Print Table Run Encounter Report 27 Total Encounters for NOORI MOHAMMED: 012039

Case:Episode	Ci	Cat	Case:Start Date	Case:End Date	Case:Age	Case:Sex	Ci	Case:MS-DRG	Ci	Case:Zip	Fin:Payor 1	Fin:Payor 2	Case:Quarter	Case:N Clin:Admitting	I Clin:Admitting	I	
ALEXANDER	848	1	10/15/2008	10/21/2008	68	M	S	292	11	111772	MEDICARE IP 2008	FM PART B	20084	127	ALEXANDRO	Hospitalist	

Episode 848 Details

Close Sort Asc Sort Desc Copy Table Print Table 161 Detail Rows

Episode ID	Vis	Line	Service Date	Charge Code	Dx	Quantity	Total Cost	Host	Department	Rev Code Group	Resource Cat	Total Charge	DOS	Rx	Total Un	Quarter	Er	Rf	Rev
848	292	1660	10/15/2008	419994		1.00	4.86	11	Lab	309: VENIPUNCTURE	H-Laboratory	60.0	6.0	0	2.0	20084	13	L4	309
848	292	1660	10/15/2008	4600011		1.00	524.58	11	Emergency R	450: EMER RM FEE-IP	H-Emergency	1126.0	6.0	0	1.0	20084	13	Ef	450
848	292	1660	10/15/2008	507301		1.00	55.35	11	Radiology	324: PACEMAKER INSERTIO	H-Radiology	812.0	6.0	0	1.0	20084	13	Im	324
848	292	1660	10/15/2008	600015		1.00	144.30	11	EKG	730: E.K.G.	H-EKG/EKG	588.0	6.0	0	3.0	20084	13	AI	730
848	292	1660	10/15/2008	8150518		1.00	802.94	11	Room And Bo	120: ROOM-CHARGE-1EAS	H-Room & Bo	3304.0	6.0	0	1.0	20084	13	R	120
848	292	1660	10/16/2008	30300R		1.00	17	11	Pharmacy	251: SU OW-MAG	H-Pharmacy	10.5	6.0	0	1.0	20084	13	PH	251

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The screen also offers a 2-level drilldown, so that by double-clicking on any row in the yellow table, the white window appears with the cases represented for that parent row, and then if you want to see all of the treatments and services for any case, the green window appears.

This powerful Comparative Benchmarking screen is very easy to use, with simple dropdown lists to define the report, which enables you to generate results for attending physicians, DRGs, facilities, and any of the dozens of other important data fields in the dataset.

In the years to come, analytics will be the backbone for clinical integration. High-speed performance accelerates the problem-solving process and creates a rapid-response feedback loop, in effect facilitating the transformation of separate hospitals and physicians into a cohesive Accountable Care Organization.