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Industry Interviews

Welcome to the Take5 Industry Interview Series !

We hope you enjoy our interview with

Joseph C. Nichols, MD, Principal, Health Data Consulting

1. Compared to other industries why has healthcare been less focused on business intelligence and its value to trends and patterns of information related to the improvement of patient care and quality?

Dr. Nichols: Interesting question… There is substantially less investment in information systems in healthcare and less tendency to use data to drive decisions on a day-to-day basis than in many other industries. For example, in the food services industries, precise capture of data related to customer encounters at the point-of-service provides a means to use real-time information to drive purchasing, resourcing, customer preferences, inventory and a wide variety of critical business functions. There are a number of reasons to consider when understanding this disparity of data focus in the health care industry as compared to other industries.

♦ We don't really trust our data. Clinicians who capture and document data at the point-of-service don't see value in the data and view data capture as a bureaucratic requirement and not something that helps them care for their patients.

♦ As an industry, we don't really value standards. Standards and clear definitions tend to "demystify" the delivery of healthcare services and are perceived to threaten autonomy and creativity. Clear, accessible and accurate data creates a level of accountability that may be perceived as threatening by many healthcare providers.

♦ Because of challenges with data quality, and sometimes inappropriate use of data analytic principles in evaluating quality, providers and others may tend to discount measures of quality as inaccurate.

Does healthcare Administration view business intelligence differently than Physician Executives and the broader community of Physicians?

Dr. Nichols: Physicians have traditionally not tended to use data analysis to drive business processes as much as other healthcare administrators. As physician practice organizations have become larger and more sophisticated, however, there is a trend toward more use for analysis of service and disease patterns on the practice side. Eventually, analysis of data on the practice side will become even more important under shared-risk models. The first step is to get to data that can be trusted by the user whether on the clinical or business side.

Joseph C. Nichols, MD

Dr. Joseph C. Nichols is currently Principal at Health Data Consulting in Edmonds, Washington. As a board-certified, orthopedic surgeon, and in more recent years, a proponent of bridging the needs of physicians and Information Technology as well as Executives focused on the administrative requirements to support the improvement of patient care and patient safety. His experiences include responsibility and oversight for a third party administrator's Data Warehouse, Standards, Data Quality, and ICD-10 compliance efforts. In addition, Dr. Nichols has experience with logical database design, SQL query development, business requirement, definition including use cases, process modeling, joint application development and a variety of other methodologies for defining development requirements as well as developing data definition. He is a frequent contributor to industry publications, presentations and has taught courses on "Disease Concepts" teaches at the University of Washington in the Health Information Administration program, has authored a contributing author to a text on Electronic Health Records, and is a certified ICD-10 CM and ICD-10 PCS trainer. Dr. Nichols is a member of various professional societies including The Workgroup for Electronic Data Interchange (WEDI), Health Information and Management Systems Society (HIMSS), American Health Information Management Association (AHIMA), Washington State Medical Association (WSMA), and the American Academy of Orthopedic Surgeons (AAOS).

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2. **For those healthcare organizations that have pursued data warehouses and/or data marts, what have been the direct benefits to both Administration and Physicians?**

Dr. Nichols: Assuming reasonably reliable data quality, data warehouses and data marts provide some very distinct advantages:

♦ Standards for data definitions, aggregation, uniqueness, completeness, timeliness and validation, can be managed and monitored from a single point of truth.

♦ Substantial efficiency has been gained by re-using processes that are frequently duplicated and inconsistently applied in environments where data warehouses and data marts are not maintained.

♦ System performance of reporting and analytics have been greatly enhanced by focused indexing and data mart design.

♦ Documentation of available data has been greatly enhanced as part of well-designed, data warehouses and data marts.

♦ Time lags in developing reports and needed analysis are greatly reduced because of the ease of data access at a level that is meaningful to the business user.

Can this type of understanding about the tangible benefits of data warehouses and/or data marts be readily valued beyond academic medical centers with so many competing initiatives? Most often academic medical centers have research efforts that are supported and directly benefit from this technology and its upkeep - development, management, support, extraction and manipulation of this valuable information – clinical, administrative, and/or financial.

Dr. Nichols: I believe it will take a concerted effort to establish credibility in data and to demonstrate value to the physician practice side. Value to hospitals and integrated delivery systems is a much easier sale, but demonstrating that will require champions who believe and are willing to work for better data and better analysis leading to better information. It is also important to demonstrate value by sharing data and the results of analysis back to a physician in order to encourage the need for more and better data to answer outstanding questions that are created by analysis of the data we have.

3. **What is the linkage between data quality and data warehouses and/or data marts? Why should Physicians be interested in learning more about this linkage?**

Dr. Nichols: Data warehouses and data marts assume that the underlying observations and documentation of those observations about patients' conditions and the services they receive to improve of maintain those conditions is correct. As noted previously, there is currently a significant challenge in assuring that we are capturing the important medical concepts about healthcare. *Physicians need to have a better understanding of their critical role in getting to accurate and complete data to drive decisions* that will impact the health of the population and will

have an impact on them in terms of safer, more effective care for their patients. Better data will also result in a more rational and equitable model for reimbursement for better care for more complex cases where severity may be substantially greater.

Physicians traditionally have been focused on the treatment of each patient in the narrow spectrum of that patient's encounter with them. We need to think a bit broader than that single point in time, however, if we are to provide the information necessary to improving healthcare delivery across the system. Quality healthcare delivery, effective use of limited resources, patient safety, healthcare surveillance, appropriate reimbursement and limiting fraud, waste and abuse. are the responsibility of all healthcare stakeholders. Physicians play a critical role in getting the information that is needed to accomplish those goals.

Given your response about today's physician whose focus is concentrated on the treatment of a patient within the context of a single patient encounter, then how can Medical Schools as well as Physician Executives / Leaders work toward a Physician culture that thinks in terms of being data driven across the continuum of care, not for the sake of an externally generated fad, but rather to leverage data that becomes information to support their practice quality and patient safety? [Note: We know that a growing number of informaticists are joining the ranks of physicians in a variety of roles but the concept of documenting thoroughly and then working toward use of that data as valuable medical information remains the purview of only some healthcare organizations.]

Dr. Nichols: It is vital that education for physicians at all levels of training includes an awareness of the role of healthcare information in improving healthcare. This will require a cultural re-adjustment that gets physicians to look a bit broader than a single point of care. Physicians do value research leading to medical evidence on what is most effective. They need to understand their important role in getting to this information on a broad population basis by looking at cross-enterprise data that reflects the reality of healthcare delivery on an on-going basis outside of narrowly focused, and limited, internal research studies.

4. **What are the most significant misconceptions that hospitals and health systems have about the role of a data warehouse and/or data mart in today's competitive environment?**

Dr. Nichols: There are a number of misconceptions in the healthcare industry about the role of data warehouses and data marts:

1. Design and development of data warehouses and data marts is not something done by IT professionals in a vacuum. These warehouses and data marts are intended to provide ready access to key clinical and business information. The clinical and business side of healthcare must be actively involved in the design, definition and validation of the data warehouse model.

2. Aggregation of data is often assumed to be correct, but frequently, code or value set aggregations have been developed without the required level of business and clinical participation. These aggregations are critical since most of the analysis in data marts is dependent on the appropriateness of these aggregation models. It is critical to assure that the aggregation of codes and values meets

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the "intent" of the information creator and user.

3. There is a general assumption that data in the warehouse is valid, unique, complete, timely and accurate. This assumption must be confirmed by on-going analysis, reporting and remediation of data integrity issues. These issues could be at the level of physician observations and documentation, data input, data loading, data transformation, data aggregation, analytic models, or any number of technical and non-technical points in the lifecycle of "fact to information"

4. Often warehouses and data marts are considered "one and done". Data warehouses and the underlying coding standards and assumptions are changing regularly. On-going maintenance, update and review of database definitions and implementations is key to ensuring that information continues to be refined based on the data that is collected and formatted for the use of Physicians, Executives, and other stakeholders.

5. Because of a somewhat limited historical use of these warehouses and data marts, many executives haven't fully realized the advantages of high quality data in driving the business bottom line. From the standpoint of any other industry, good business intelligence is critical to survive and thrive in this new economy. Assuming that we can derive quality information from quality data, it seems obvious that investing in good data strategies and implementation is critical, but the argument can be a bit of a challenge given past experience.

5. **What will be the role of data warehouses and/or data marts in the coming years for healthcare? Is it different by industry sector such as payers, providers, etc.?**

Dr. Nichols: It is my belief that until we can understand the clinical implications of financial decisions and the financial implication of clinical decisions, we will not see significant progress in healthcare improvement. Despite limited levels of quality information today, the pressure to control cost and improve quality has never been higher. The role of high quality data is surviving and thriving in an environment of accountable care. It will also be critical to support affordable care and value-based purchasing. We can't change what we can't understand. Data warehouses and data marts will be critical in providing the understanding needed to improve healthcare delivery and provide more appropriate reimbursement. Getting to better information requires a focus on the entire lifecycle of "fact to information". Each step of that lifecycle must include quality assurance.

♦ Clinical observations,

♦ Clinical documentation,

♦ Coding,

♦ Data input,

♦ Data load,

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- Data validation,

- Data transformation,

- Data warehouse design and implementation,

- Data aggregations,

- Data mart design and implementation,

- Analytic processing and reporting design, and

- Interpretation of analytic results.

Each of these steps is critical and each step provides the opportunity for deterioration or improvement in data quality. A commitment to getting the type of information needed to transform healthcare requires that each step in this lifecycle address the challenges to support quality information about the realities of healthcare conditions and services.

In order to manage healthcare reform from all perspectives – provider/private sector, provider/public sector, payer, employer, and government – more data will be required to support the intent of the Patient Protection and Affordable Care Act including Meaningful Use, Stage 1, and the planned Meaningful Use, Stage 2. Data unto itself is not the answer. However, the data that underpins valuable information is key to inform Physicians, Physician Leaders, other Clinicians and Executives to improve care coordination, "bend the cost curve" and prevent unnecessary, costly care.