Informatics Harnesses Healthcare's Wild, Rich Data

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Healthcare has become a data-rich field, and any data rich environment requires the ability to analyze large, complex data sets. The field of informatics provides tools to integrate data, information, knowledge, and wisdom when processing data. Good informatics includes many functions, and although informatics may have multiple definitions and subcategories, for the purpose of this article informatics is considered a business function—similar to information technology—with many resulting products.

As information technology rapidly changes healthcare it has created new challenges and opportunities. Informatics enables organizations to study data, consider their impact, and solve problems. Informatics is sometimes used in combination with another field such as bioinformatics or business. The American Medical Informatics Association (AMIA) defines health informatics as the fields of clinical informatics and public health informatics, including both applied research and practice.

Informatics uses information technology for assimilating, gathering, organizing, analyzing, and presenting healthcare-related data. These data are used to produce information for decision support, to improve quality of care, decrease costs, enhance patient safety, and increase interoperability. Health information technology (HIT) is the tool, and information, knowledge, and decision support are the outcomes.

Where Informatics and HIM Intersect

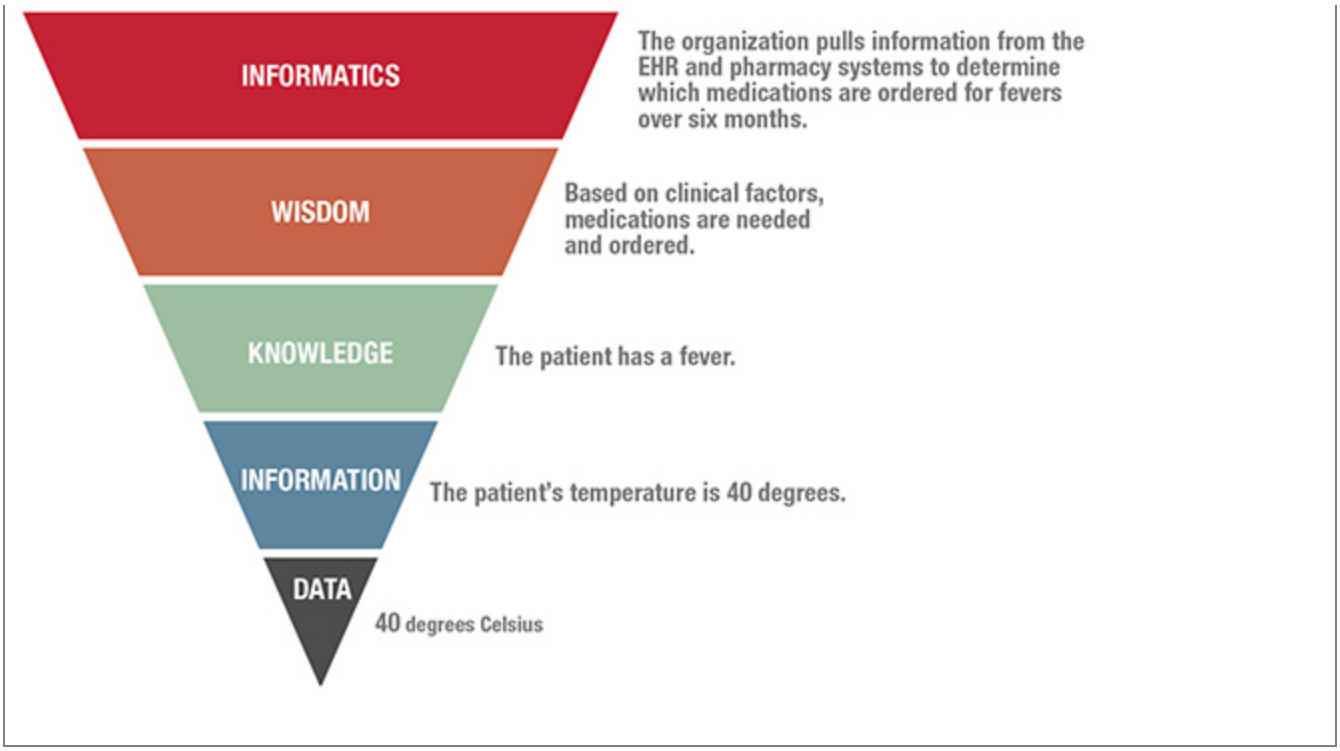
The golden age of informatics is upon the healthcare industry. As organizations and providers move rapidly to integrated electronic health records (EHR), informatics has matured to an essential level of business activities such as charge analysis or drug-to-drug interaction. Organizations are now positioned to leverage information contained in their systems in a way that was previously unmanageable in paper records.

As such, informatics and its components and outcomes have become crucial assets.

To further demonstrate how informatics impacts healthcare one must understand the hierarchical process of transforming data to information. The first layer is data. As the most basic level, it refers to the collection of characters or numbers such as a physician order. Data are usually interpreted into some type of value, usually qualitative or quantitative. A data element can be in a structured format, such as a numeric five-digit field or unstructured free form text such as a narrative.

The next layer is information. Data are then manipulated as values by turning it into information. The layer after that is knowledge. Knowledge refers to the ability to use information, or more importantly, how to use it. The final layer is wisdom, which is how and when to use the knowledge.

Visual Representation of Transforming Data into Informatics



The Ever Growing Reach of Informatics

Informatics is now found in every corner of the industry. As a sound multidisciplinary approach to decision making, it has expanded its reach beyond research and public health. Informatics depends on clean data. As such, data and their subsequent analysis becomes an important subset of informatics.

In some cases informatics is considered to be an advanced level function of health information management. The certified health data analyst (CHDA) credential is one way of showing competency in this arena. As organizations become more data-driven, advanced analytical tools make it easier to collect, store, and analyze a wider range of data. From this level, the analysis of data at a minute level generates healthcare intelligence.

Healthcare intelligence transforms raw clinical data into meaningful and useful information. It is the application of informatics that allows the wide range of data to be transformed. Used correctly, informatics can harness data into meaningful information that streamlines administrative processes, improves quality of care, and decreases healthcare costs.

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