

Data Analytics and Informatics are Two Separate Disciplines (And Why This Matters to HIM)

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Integral to this era of paperless electronic health records (EHRs) are the disciplines of data analytics and informatics. The vast volumes of electronic data woven from a multitude of systems, registries, and remote technologies creates promising career opportunities for health data analytics and informatics professionals that have a capability and skill set to impact the quality, efficiency, and cost of care without ever treating a patient.

This article provides clarity, distinctions, and similarities between the two disciplines of data analytics and informatics, including types of job opportunities available to each. Understanding these differences—often the two disciplines are erroneously seen as one and the same—will help guide health information management (HIM) professionals interested in seeking a degree and job opportunities in these in-demand fields. Also, the education of health administrators will aid in their search for the right candidates to fulfill their informatics and analytics needs.

What is the Difference Between Health Data Analytics and Informatics?

Data analytics and informatics are both essential for the success of healthcare organizations. Healthcare organizations must be able to manage, analyze, and interpret data in order to identify the best ways to deliver high quality care. Although some consider analytics and informatics to be interchangeable terms, the two are distinctively different in concept and practice. Data analytics refers to analysis of the data in some way using quantitative and qualitative techniques to be able to explore for trends and patterns in the data. Health data analysts have the advanced knowledge “to acquire, manage, analyze, interpret, and transform data into accurate, consistent, and timely information,” according to AHIMA’s CHDA website.

Informatics, on the other hand, has varying definitions based on each organization’s focus. The US National Library of Medicine defined health informatics as “the interdisciplinary study of the design, development, adoption and application of IT-based innovations in healthcare services delivery, management and planning.”¹ AHIMA defines informatics as a collaborative activity that involves people, processes, and technologies to produce and use trusted data for better decision making.² Informatics involves using the data, information, and knowledge to both improve the delivery of healthcare services and improve patient outcomes.³

In other words, data analytics involves the actual analysis of the data, and informatics is the application of that information. Health informatics professionals use their knowledge of information systems, databases, and information technology to help design effective technology systems that gather, store, interpret, and manage the data that is generated in the provision of healthcare to patients.

Data analysts then find ways to capture and use the data that is acquired by health information technology systems either within the health system or from external sources, and then display it through graphs, charts, etc. in meaningful ways to help demonstrate how the organization can improve clinical care and decision-making.

Prominent Tasks and Curriculum Considerations within Each Discipline

When taking a look at CAHIIM’s 2014 curriculum requirements for Health Informatics, the embodiment of this master’s degree is comprised of Information Systems, Information Technology, and Informatics.

The facet of Information Systems surrounds activities found in the Systems Development Life Cycle and Project Management skills. You should be able to perform a system analysis, select appropriate implementation plans, and incorporate data and technology standards, as well as develop or revise new workflows for the system and produce policies and procedures associated with them.

In the realm of Information Technology, knowledge of databases, programming languages, and computer architecture are found. One should be able to extract data from a database and design one, understand computer networks and varying levels of distributed processing, and maintain appropriate security access for applications.

Under the Informatics facet, one will encounter tasks related to analyzing data to find patterns and answers that aid in clinical or administrative decision-making. Information cannot be transferred between humans, or between human and machine, if it cannot be understood. This facet includes the cognitive aspects in mind when designing the interfaces of these systems.

Informatics is the use of technology and the design of systems to streamline everyday operations. Data can be collected, managed, stored, and extracted in ways other than electronically. In this century, however, computers do these activities much faster. With informatics, you are tasked with using information to create a way to do something with technology. Analytics, on the other hand, provides the way to transform data into information. Analytics tasks include mining rows of data to uncover hidden patterns, testing a hypothesis through qualitative and quantitative means, producing models for predicting outcomes, and designing visualization for the data in hand. To sum it up, one performs analytics so that an action can be taken through informatics—a decision can be made.

Evolving Roles for the HIM and HI Professional

Big Data is healthcare’s next frontier and acting on the frontlines are data analysts and health informaticists. Big Data opens up a whirlwind of possibilities for both healthcare delivery and the HIM profession. Consider the notion of the Internet of Things (IoT), which simply is the ability to connect all devices through the internet. Now, consider smart watches, wearables, pacemakers, insulin pumps, and a slew of other devices that can be connected to the internet. Not only will this create a better environment for consumer engagement, but health information managers will have a stream of data flowing in and out of a patient’s health record before, during, and after encounters. It will be the responsibility of data analysts to query the data and the role of the informaticist to interpret and utilize the data. Furthermore, Big Data allows for the development of machine learning and neural networks. “Modeled loosely on the human brain, artificial neural networks enable computers to learn from being fed data,” according to an article in TechCrunch.⁴ These technologies cannot be developed without the proper management of data, which is why data and information governance are crucial to the viability of the healthcare industry.

Roles in Data Analytics and Informatics

While the US Bureau of Labor Statistics tracks only the medical records and health information technician occupation, it fails to track 40 percent of health informatics occupations, including health information supervisors and managers, auditors and compliance review staff, and clinical documentation and improvement specialists. ⁵		
Data Analytic Roles		Clinical Informatics Roles
Health Data Analyst ⁶		Applied Informatics
Operations research analysts use advanced mathematical and analytical methods to help organizations investigate complex issues, identify and solve problems, and make better decisions.	Job Description	Applied informaticists use knowledge of health system structure and operations, information technology, secondary data use and technology to impact technological system design for efficient clinical care.
\$78,630 per year \$37.80 per hour	Average Salary	\$82,860 per year \$39.80 per hour
Growth expected at 30 percent; much faster than average growth rate for all occupations (seven percent)	Job Outlook 2014-2024	Growth expected at 12 percent; faster than average

Database Administrator⁷		Systems Analyst⁸
Database administrators (DBAs) use specialized software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.	Job Description	Computer systems analysts study an organization's current computer systems and procedures and design information systems solutions to help the organization operate more efficiently and effectively. They bring business and information technology (IT) together by understanding the needs and limitations of both.
\$81,710 per year \$39.29 per hour	Average Salary	\$85,800 per year \$41.25 per hour
Growth expected at 11 percent; faster than average	Job Outlook 2014-2024	Growth expected at 21 percent; much faster than average
		Information Security Analyst
	Job Description	Information security analysts plan and carry out security measures to protect an organization's computer networks and systems. Their responsibilities are continually expanding as the number of cyberattacks increases.
	Average Salary	\$92,600 per year \$44.52 per hour
	Job Outlook 2014-2024	Growth expected at 18 percent; much faster than average

Practical Implications and Applications for HIM and HI Professionals

HIM professionals are essential assets to healthcare organizations with their uncanny ability to assemble, combine, and examine primary and secondary uses of data while at the same time managing the information technology and the resources that are needed for the investigation, preparation, provision, and assessment of healthcare services.

A number of analytical tools can make it easier to collect, store, and analyze a wide range of healthcare data. This allows HIM professionals to employ their data analytics skills in assisting with organizing, collecting, and displaying data in greater depth, lending more clarity to the information and ultimately deriving what has been referenced in healthcare as "[health intelligence](#)."²

The [AHIMA Career Map](#) data analyst sample job description describes the role as:¹⁰

Responsible for external data definitions documentation and mapping process; Perform a QA function for the data integration processes and repository metrics; Collaborate with other staff to document data needs and metric definitions; Validate data load processes and the quality of the data in the clinical data repositories; Maintain, store, map and analyze medical, lab and any other health data in compliance with HIPAA policies and procedures; Use software such as SAS, Access, and SQL; Provide data mapping for medical claims integration.

The HIM professionals' skills in coding and clinical terminologies, critical thinking, strong writing and verbal communication, and ability to troubleshoot are all skills that are also essential for high quality data analysis.

In the *Mediaplanet* article titled "[Crafting a Career in Health Informatics](#)" the role of health informatics is described as distinct from, yet intertwined with, the HIM profession.¹¹ "Health informatics combines the use of computer technology with the science of health information management (HIM), keeping, protecting and storing patient health information," the article says.

Ultimately, healthcare organizations are commingling the skills of HIM professionals, informaticists, and data analysts to meet the growing demands for accurate information that improves population health, decreases cost, and reduces healthcare risks.

In the *Journal of AHIMA* article “[Workaday Informatics: How Healthcare is Applying Practical Informatics to Save Dollars and Lives.](#)” the author summarizes the changes in healthcare that are blurring the lines between health information management, informatics, and data analytics.¹²

“As healthcare organizations continue to generate enormous amounts of data—due to demands such as the ‘meaningful use’ EHR Incentive Program, accountable care organizations’ (ACOs) quality reporting requirements, ICD-10-CM/PCS transition data, and more—HIM professionals need to familiarize themselves with informatics, and fast. They can do this by understanding the role of informaticists in organizations, acquiring more skills in data analytics by obtaining a certified health data analyst (CHDA) credential, and by getting a firm grasp on what exactly informaticists do all day.”

The best data analytics and informatics professionals collaborate on transforming the way data is gathered, maintained, and analyzed through technology solutions. HIM professionals integrate and collaborate with clinicians and experts who understand the healthcare system and use data analytics, acknowledging impacts of changing health and reimbursement policies and programs, thus leveraging the strengths of both professions effectively. Working as a team, informatics professionals are bridging the gaps and introducing action-oriented improvement opportunities with the intention and potential of improving healthcare safety, quality, efficiency, and cost of care.

For HIM professionals who are hoping to advance their knowledge and grow their career potential, there are a variety of opportunities emerging in the fields of informatics and data analytics.

Notes

[1] US National Library of Medicine. “[Health Informatics.](#)”

[2] AHIMA. “[Informatics and Data Analytics.](#)” 2017.

[3] American Medical Informatics Association. “[What is Informatics?](#)” April 12, 2011.

[4] Tanz, Ophir. “[Neural networks made easy.](#)” *TechCrunch*. April 13, 2017.

[5] Hall, Susan D. “[Health informatics among the fastest-growing fields.](#) *FierceHealthcare*.” June 4, 2012.

[6] US Bureau of Labor Statistics. “[Operations Research Analysts.](#)” Occupational Outlook Handbook. December 17, 2015.

[7] US Bureau of Labor Statistics. “[Database Administrators.](#)” Occupational Outlook Handbook. December 17, 2015.

[8] US Bureau of Labor Statistics. “[Computer Systems Analysts.](#)” Occupational Outlook Handbook. December 17, 2015.

[9] Collins. “[Definition of health intelligence.](#)”

[10] Health Information Careers. “[Career Map: Data Analyst.](#)”

[11] Kadlec, Lesley. “[Crafting a Career in Health Informatics.](#)” *Mediaplanet*.

[12] Butler, Mary. “[Workaday Informatics: How Healthcare is Applying Practical Informatics to Save Dollars and Lives.](#)” *Journal of AHIMA* 86, no. 5 (May 2015): 18-21.

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Article citation:

Clack, Lesley; Houser, Shannon H.; Kadlec, Lesley; Mikaelian, Raymond; Tabisula, Braden; Zeglen, Margie. "Data Analytics and Informatics are Two Separate Disciplines (And Why This Matters to HIM)" *Journal of AHIMA* 88, no.10 (October 2017): 20-24.

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