What Is Health Informatics?

Know what to expect, then plan for it.
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Health Informatics & UIC
What Is Health Informatics?
It’s about data. And how it’s used to improve patient care.

The Technology Behind Health Informatics

Online portal systems
Electronic health records
Data collection devices
Personal data devices
Health apps
Email

The health informatics field isn’t new, but the way it’s transforming healthcare is. Recent advancements in technology, such as wearable devices and the cloud, have made it possible for massive amounts of patient data to be collected, organized and stored on a regular basis.

But health informatics isn’t solely about capturing data; it’s about analyzing information and knowing how to use it in a meaningful way to promote positive patient outcomes. The more a doctor, nurse or therapist knows about a patient, the more personalized their care can be — and the more a patient knows about their own health, the more empowered they will feel to actively make decisions about it.

The goal of health informatics is to design and develop smart systems that communicate with each other and offer a consistent platform for patients and healthcare providers to do the same. That means healthcare professionals who typically don’t work together are able to collaborate and align their care through innovative, real-time technology.

Heath informatics:

Biomedical informatics or healthcare informatics focuses on information, technologies, innovations and methodologies that identify ways to deliver more efficient and effective patient care to improve health outcomes. Health informaticians strive to improve knowledge access and contribute guidance on effective strategies to engage clinicians in embracing technology and optimizing health information and technology. Health informatics also addresses the interdisciplinary study of the design, development, adoption and application of IT-based innovations in healthcare services delivery, management and planning.
Why Is Health Informatics Important?
3 Reasons Why Health Informatics Is Important

1 Consumer Access & Connected Health

When consumers have easy access to their health records, it encourages them to play a more active role in their own healthcare decisions. But more than that, it empowers patients to educate themselves about their health condition and how to manage it. Making information accessible through digital platforms and connected devices also allows patients to interact with doctors and nurses in a more productive way.

"Providers have to see patients as a partner with a real voice and a personal vested interest in care," Dr. Geeta Nayar, chief healthcare and innovation officer at Femwell Group Health, Inc., told the Healthcare Information and Management Systems Society. "Patients are quickly becoming the CEO of their own healthcare, and the value-based model is more crucial in the physician-patient relationship."

2 Improved Health Outcomes

Certain problems — like medical errors, hospital acquired infections and avoidable readmissions — have existed in healthcare for a long time, but some of those are starting to be solved thanks to innovative solutions and algorithms being developed through health informatics. Here's why: **Many of the new digital and data tools focus on making care more efficient and precise** so healthcare professionals can continue providing caregivers with the right data at the point of care for improved clinical decision-making.

Wearable health trackers like watches and heart monitors are now alerting people about everything from sleep apnea to low blood sugar and even serious cardiac arrhythmias. This technology is one of the biggest advancements in healthcare, because it provides comprehensive information that helps make healthcare decisions more straightforward and accurate.

3 Reduce Healthcare Costs

The systems created by health informatics professionals are designed to support early detection and diagnosis, which are key to lowering healthcare costs. Since electronic health record systems provide a comprehensive overview of a patient’s health history, **it's easier to identify health risks and provide treatment early on, which eliminates the cost associated with unnecessary doctor visits, labs and prescription medication.** Here's a real-world example from Johns Hopkins Medicine demonstrating how it has saved money through health informatics.

Hopkins designed an artificial-intelligence-powered data command center that was programmed to make split-second decisions. These decisions are based on real-time data, including patient health records, emergency dispatch updates and hospital bed availability. The information is used to get patients the care they need. Since its launch in 2016, the command center has achieved:

- **60%** Increase in ability to accept complex cancer patients
- **25%** Decrease in emergency room boarding
- **60%** Decrease in operating room holds

Although this is only one example of how health informatics is impacting healthcare costs for patients and providers, it’s an indication of what to expect in the future for this emerging field.
Industry Outlook
Health informatics is bringing radical change to healthcare.

Data Overload

Healthcare data accounts for nearly 30% of the world’s data production.¹ From lab results to genetic profiles and medical claims to prescriptions, patient information is consistently being collected. The amount of data cycling through the many interconnected healthcare systems is a primary reason why healthcare IT is becoming one of the fastest growing areas in the job market.

This influx of electronic information has caused a surge in demand for professionals who are capable of collecting, interpreting and studying the data to ensure that it’s accurate and usable. In the past, data was logged and rarely used to its full potential. But now, thanks to the sophisticated tools being introduced by health informatics professionals, these insights can be leveraged to personalize patient care through predictive modeling and precision medicine.

So whether it’s an alert about a spike in heart rate or an update about lab results, the information is only accessible because of health informatics. The healthcare delivery model is changing, and it’s only the beginning.

A Changing Workplace

More than 80% of the healthcare sector uses the cloud²

96% of hospitals and 78% of physicians use electronic health records³

Nearly 7 in 10 hospitals give patients the ability to view and transmit their health information online⁴

Health informatics can reduce transactional tasks for the 63% of U.S. health workers who say the work they do requires a great deal of manual entry or analysis⁴

Mark Wolff
Chief Health Analytics Strategist
SAS Institute

“There’s a tremendous amount of digital data available in hospitals and in the broader healthcare community that has never been available before.”

¹ Fortune
² Health Information Management Systems Society
³ The Office of the National Coordinator for Health Information Technology
⁴ PWC
Spotlight: Chicago
A Tech Hub on the Rise

Top 10 Worldwide

Cities around the world are constantly thinking of ways to stand out as digital innovators, but only a few have done so successfully, and Chicago is one of them. A new report from KPMG surveyed more than 800 tech leaders and found that Chicago is in the top 10 of health tech innovation hubs worldwide.

What makes the Windy City a desirable hub for startups of all sizes is its talent, infrastructure and training programs. Since many of these startups are focused on cutting-edge technology like artificial intelligence and the Internet of Things, Chicago’s innovative culture is also a big draw for new tech companies.

Major Medical Headquarters

- American Alzheimer’s Association
- American Heart Association
- American Hospital Association
- American Medical Association

When it comes to blending technology and healthcare, Chicago has an advantage with multiple teaching hospitals and one of the highest numbers of residents and fellows per capita. The city is also home to several major medical headquarters such as the American Alzheimer’s Association, American Heart Association, American Hospital Association and American Medical Association.

Because of the rise in demand for health informatics professionals, Chicago-based universities like the University of Illinois at Chicago are instrumental in offering educational pathways that prepare students to be successful in this increasingly competitive market.

If you’re looking for a tech-savvy, healthcare-focused city to grow your health informatics career, Chicago could be the right place for you.
This is more than a career. It’s your chance to lead a healthcare movement.

Growth in Health IT

In the next three to five years, the U.S. Bureau of Labor Statistics predicts that the healthcare industry will need nearly 50,000 new health IT professionals to accommodate the government-led shift toward electronic health records. Demand for information technology professionals was reaffirmed by a 2019 survey recently released by the Healthcare Information and Management Systems Society. The survey found that 81% of health IT vendors and 59% of healthcare providers expect there to be increased demand for information and technology resources in the coming year, with these roles accounting for 63% of open positions for hospitals and 68% for vendors.

Certain healthcare organizations have been quick to implement new technology aimed at improving their processes and patient outcomes, while others lag behind — either because they lack the resources to make it happen or they don’t understand why they should. That’s where you come in — a trained health informatics professional who can advocate for the patient and the future of healthcare.

By pursuing your career in health informatics, you can improve access to health data, define the processes that are revolutionizing the healthcare industry and advance the overall delivery of patient care around the world.

The Potential

84% of healthcare organizations hired IT positions in 2014¹

The median salary for medical and health services managers is $99,730²

89% of physicians and other providers rate IT as important/very important to their practice³

Beyond the impact you can have, there’s also an opportunity to increase your compensation. Professionals with a master’s degree in health informatics make an average of $20,000 more annually than those with only a bachelor’s degree, according to American Health Information Management Association. And according to the Bureau of Labor Statistics, employment of medical and health services managers is projected to grow 18% from 2018 to 2028, much faster than the average for all occupations in the U.S.

“There is no better time in history to be involved in healthcare or technology.”

¹Health Information Management Systems Society
²U.S. Bureau of Labor Statistics
³CIO
Areas of Specialization

With the amount of data that’s out there and how complex healthcare data is, choosing an area of specialization can help focus your knowledge and target your expertise. By doing this, you’re also positioning yourself as a more valuable asset in the information technology movement.

Specialize in:
- Artificial Intelligence
- Business Analytics
- Clinical Performance
- Genomics & Precision Medicine
- Health Services Research
- Innovation
- Machine Learning
- Mobile Health Tech
- Pharmaceutical Research
- Population Health Management
- Product Development
Career Opportunities

$154,162¹
Chief Information Officer

CIOs are responsible for setting strategies for their department and analyzing the impact new systems may have on their organization’s goals and personnel. They select and implement technology solutions to streamline internal operations and optimize the customer experience.

$137,747²
Chief Medical Officer

This role is fairly new to the healthcare scene, but it’s one that’s rising in demand. Most CMIOs are practicing physicians or IT professionals with specialized training. On a regular basis, they evaluate an organization’s IT systems, analyze health data to improve operations and train a variety of healthcare professionals in IT systems and applications.

$130,421¹
Director of Information Technology

Healthcare technology doesn’t develop and deploy itself; it takes leadership and technical advice from someone with the skills to bring new products to market in a strategic way. That someone is a director of information technology. Professionals in this role are tasked with overseeing technical projects based on benchmarks they set and managing IT system performance.

$124,576¹
Pharmacy Informaticist

When it comes to medications, the more precise a prescription is, the less likely there will be a chance for error or misuse. Pharmacy informaticists are focused on exactly that. They’re replacing the traditional handwritten prescriptions with digital solutions to provide more accurate medication data to suppliers and patients.

$93,639¹
Clinical Informaticist

Data is useless if no one understands it. That’s why the work of clinical informatics specialists is so essential in today’s information-heavy healthcare environment. They identify trends and mine information, turning data into meaningful, actionable insights that can be used to improve care delivery.

$92,083¹
Physician Informaticist

Before a process can be improved, it’s important to understand what needs to change. Physician informaticists are trained to do both. They have the advanced skills to analyze a current process, identify its flaws and present reliable solutions that fulfill the needs of clinicians.

¹Average salary according to Glassdoor
²Average salary according to ZipRecruiter
Career Opportunities

$89,768¹
Clinical Informatics Director

As the advocate for new systems, a clinical informatics director champions the implementation process and trains staff on how to use each platform. They are also instrumental in keeping an eye on the latest trends in healthcare technology and recommending changes as needed.

$79,813¹
Clinical Informatics Specialist

Before a system can be used, the user interface needs to be built. And that’s what clinical informatics specialists do. They build and test user interfaces that store and analyze health information, then educate staff members on how to effectively use them. Clinical informatics specialists also play a key role in developing strategies and best practices for the development of future information systems.

$78,940¹
Health Informatics Consultant

Making sure an organization is compliant is a big responsibility, but health informatics consultants have the knowledge and expertise to handle the job. They ensure that an organization complies with federal regulations and support internal staff to train them on new procedures or technology integrations. To do this well, they’re required to remain current with industry trends and anticipate future ones.

$76,261¹
Clinical Analyst

Clinical analysts work as a liaison between patient care and clinical technologies by designing, implementing and maintaining clinical systems. They’re focused on controlling the flow of information as it’s collected from patients, clinicians, doctors and other healthcare professionals while making system updates as needed.

$75,474¹
Healthcare IT Project Manager

From start to finish, healthcare IT project managers oversee every step it takes to launch large-scale technology projects — including the supervision of all team members involved in the project. Their goal is to improve business processes and maximize efficiency by driving quality results with a measurable impact.

$73,954¹
Clinical Informatics Manager

The primary responsibility of a clinical informatics manager is to monitor the latest software and keep technology for their organization up to date. They plan, develop and implement programs that improve system efficiency and make information more accessible to all healthcare professionals.

Positions Gaining Traction

Since health informatics is still evolving, new positions will continually be introduced to meet the growing demand for specialized knowledge in this field. Here are just a few roles that are starting to grow:²

$91,940
Epic Consultant

$71,801
Clinical Data Specialist

$86,733
Clinical Data Programmer

¹Average salary according to Glassdoor
²Median salary according to Burning Glass Technologies
Work Setting
As the number of healthcare facilities making the shift toward electronic medical records increases, so do the opportunities for health informatics professionals. There are positions available in a variety of settings to impact patient outcomes.

From the more traditional like hospitals and clinics to the nontraditional like public health offices and telemedicine, there are plenty of environments to consider when entering or seeking to advance in the health informatics field.

One thing to keep in mind is that health informatics professionals working in a hospital setting deal mainly with clinical and patient information, while those who work in research, insurance or consulting may focus on other types of health information.

**Traditional**
- Academic
- Care facilities
- Clinics
- Group practice
- Health systems
- Hospitals
- Medical organizations
- Nonprofits
- Nursing homes
- Private practice

**Nontraditional**
- Cyber security & blockchain technology
- Community outreach
- Health informatics consulting
- Healthcare software vendors
- Insurance companies
- Non-healthcare tech companies
- Pharmaceutical industry
- Public health offices
- Public policy & government
- Telemedicine
Getting Started
A common question asked by professionals ready to grow their career in health informatics is: **How do I break into a field where I have limited experience?** For starters, many professionals entering this field either have a background in healthcare or IT, not both. Because of this, they seek advanced training through higher education to develop the skills they’re lacking.

Certain areas of health informatics require different training, and beyond that, certain employers also require different skills based on the needs of their organization. That’s why having a mix of standard and specialized skills is a competitive approach to entering the field.

UIC’s Master of Science in Health Informatics program can help you develop the skills employers are looking for: https://healthinformatics.uic.edu/HDS

### Develop Your Skills

**Standard Skills Employers Require:**
- Analytical
- Communication
- Interpersonal
- Leadership
- Organizational
- Problem-solving
- Research
- Technical
- Writing

**Specialized Skills Employers Prefer:**
- Apache Kafka
- Cloud computing
- Cloud security
- Distributed computing
- Information architecture
- Integration architecture
- Jboss application server
- Metadata design
- Salesforce integration
- Web services security
How to Break Into the Health Informatics Field

Know Your Story
How you got to where you are today is interesting, so share your journey with people and be proud of what you’ve accomplished. You know your expertise better than anyone else, and future employers want to know about it. But more than your background, they want to know what you can do for their patients and the future of healthcare.

Build Your Network
The more people you know, the more chances you’ll have to learn about opportunities in the health informatics field. LinkedIn is an excellent platform for professionals like you who are aiming to build their network and keep tabs on new job postings, industry trends and social events in your area. Another great way to connect with other like-minded professionals is by joining an alumni network.

The University of Illinois at Chicago’s health informatics program includes more than 800 alumni and 350-400 students who currently work in informatics. Both sets of professionals could be a great resource for you as you break into the field.

Get Involved
Volunteering with organizations such as the American Medical Informatics Association (AMIA) and the Healthcare Information and Management Systems Society (HIMSS) can help you continue growing your network and also support the development of new skills.
Our program can improve your outcomes, too.

Make Your Move

If you’re already committed to your career in health informatics, take the next step by earning your Master of Science in Health Informatics degree online with the University of Illinois at Chicago. As a program graduate, you’ll be poised to lead your respective organization in the development and implementation of health informatics strategies to improve patient care and ensure access to information.

Graduate Outcomes

A recent survey of UIC MSHI graduates between 2010 and 2018 revealed that completing the program resulted in the following:

- **86%**
  Increased my career options

- **81%**
  Helped me to be more competitive in the marketplace

- **72%**
  Helped me advance in my field

Wanda Bedford
Alumna
Master of Science in Health Informatics

“My MSHI degree from UIC has enabled me to understand how to effectively use an electronic medical record system to provide the best patient outcomes.”

Learn more about your future in health informatics
https://healthinformatics.uic.edu/health-informatics-degrees