A Career in Health Care Informatics:
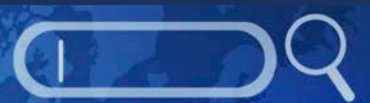
The Outlook and Options

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A Career in Health Care Informatics:
The Outlook and Options

Health care informatics has been a distinct discipline for several decades now.

But it has moved to the forefront over the last five years with health care organizations making the transition to electronic health records (EHRs). Today, the health care informatics industry is exploding and the Bureau of Labor Statistics predicts that jobs in the field will "grow much faster than the average for all occupations."
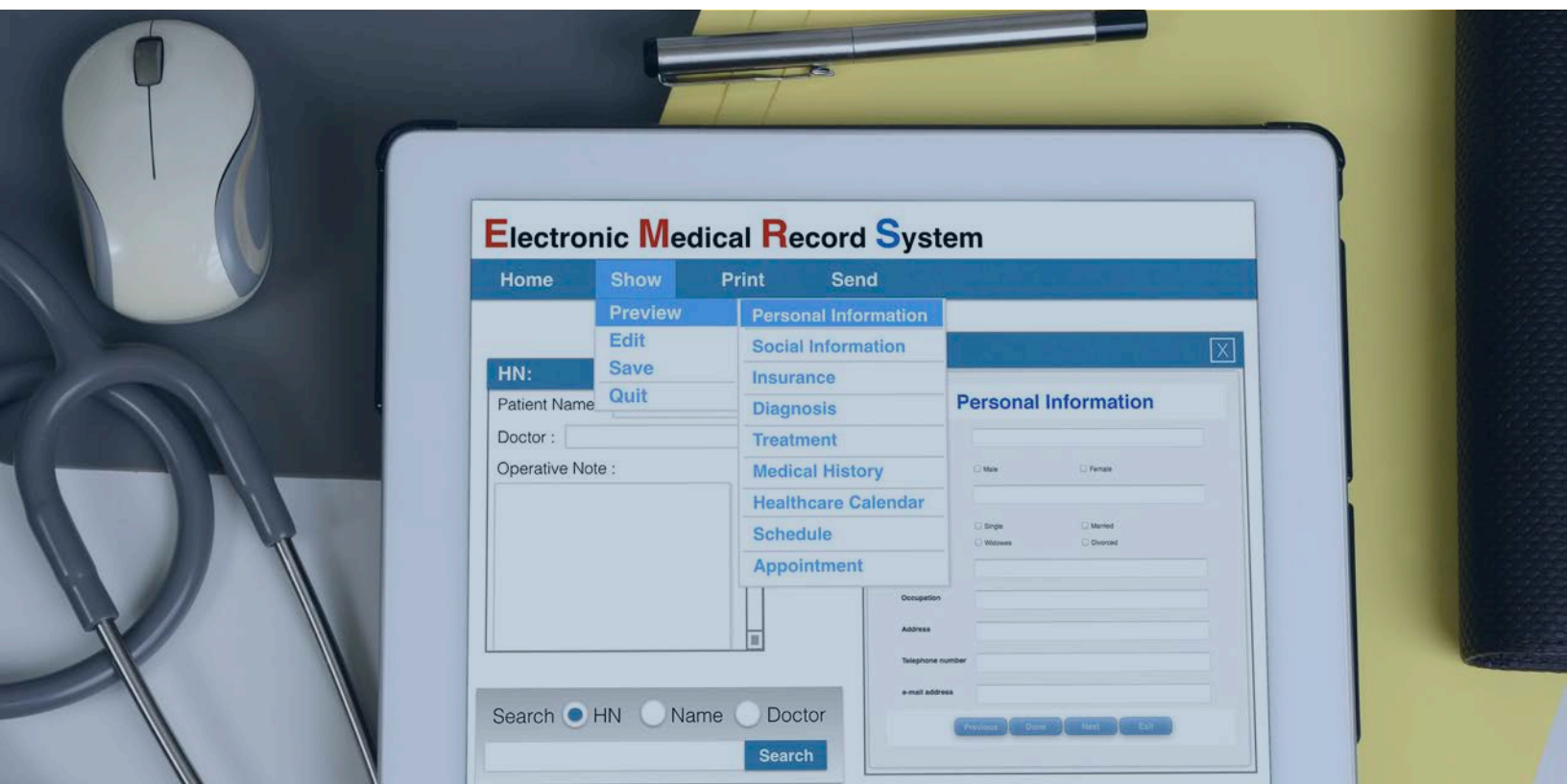
Defined by the U.S. National Library of Medicine

as the "interdisciplinary study of the design, development, adoption and application of IT-based innovations in health care services delivery, management and planning," health care informatics was propelled to popularity with the passage of the Health Information Technology for Economic and Clinical Health Act. Under this law, health centers, including hospitals, clinics and private physician offices, were required to create and maintain electronic medical records for every patient by the year 2015.

By now, the majority of health centers have moved to electronic patient records, which has created enormous possibilities in the field of health informatics.

This new and extensive digital data set has created unimagined possibilities for health care informatics professionals to analyze trends, make predictions, monitor outcomes and in general improve patient health, delivery and diagnosis.

Dr. Steven Steinhubl, director of digital medicine for Scripps Health,

told *The San Diego Union Tribune* that the adoption of electronic health records by all of the region's hospitals has opened up possibilities that did not exist five years ago. For example, he noted, it's now possible to look for trends across patients in records that used to be stranded in paper folders.

In order to realize the full potential of EHRs and effectively analyze this newly available patient data, educated and skilled health informatics professionals are needed — and the demand is strong.

This career planning guide will examine the booming field of health informatics and the many career options now available. But first it is important to clearly delineate between two similar and often confused areas of informatics: health care informatics and nursing informatics.

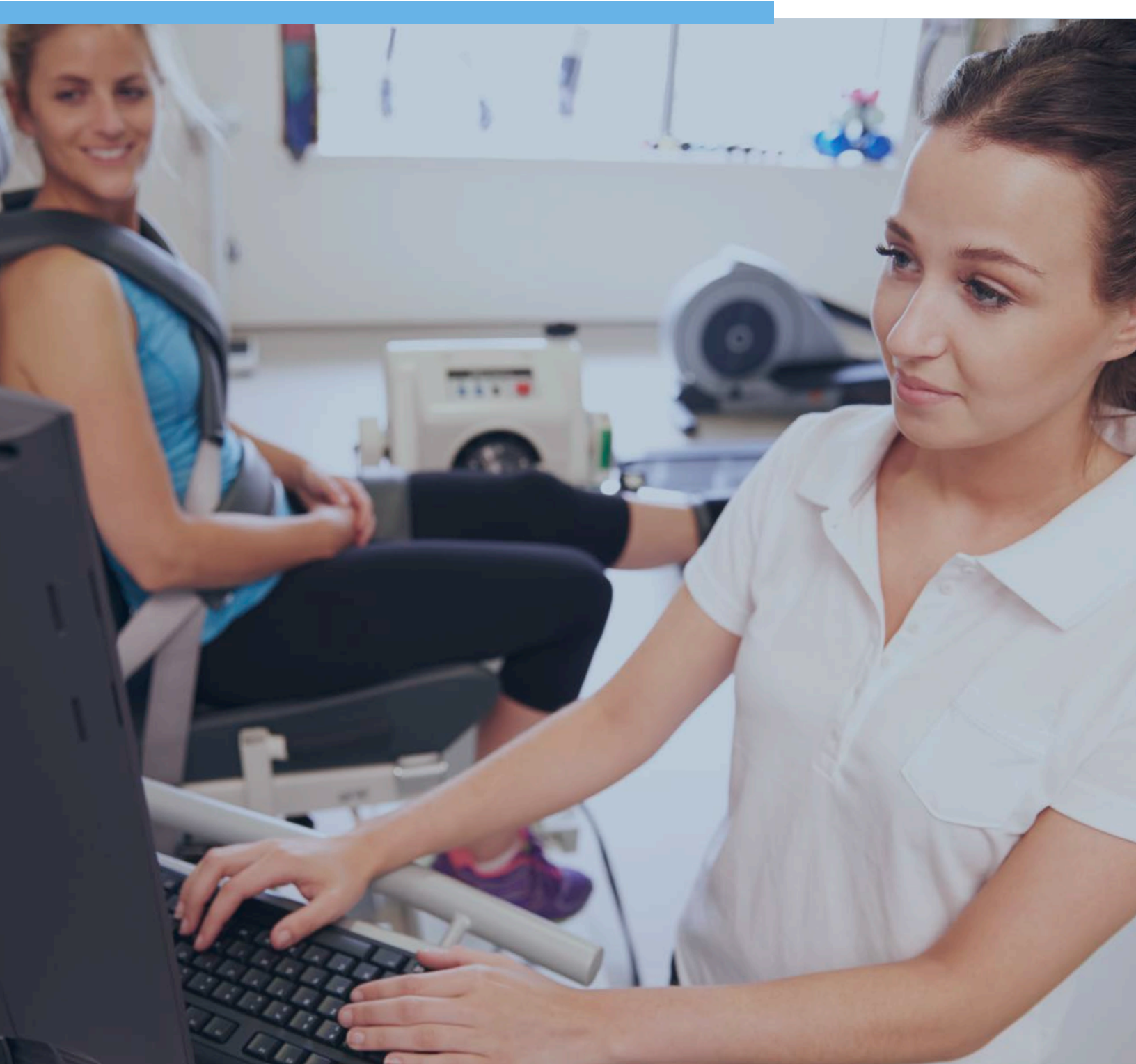# Health Care Informatics vs. Nursing Informatics – What's the Difference?

Health care informatics

is, at a very basic level, the use of information technology to improve patient care. It also covers the broad, overarching discipline of informatics and deals with the application of technology to all areas of health care, from education to research to administration.

Nursing informatics,

on the other hand, is a subspecialty of nursing and falls under the broader health informatics umbrella. Nursing informatics deals directly with patient care and is the "science and practice (that) integrates nursing, its information and knowledge, with management of information and communication technologies to promote the health of people, families and communities worldwide," according to the IMIA Special Interest Group on Nursing Informatics. Not surprisingly, nursing informatics is geared toward nurses, who want to improve patient safety through the use of computer science, information technology and nursing science.

Job Growth and Outlook for
Health Care Informatics Professionals

Prior to the mandate for EHRs, health information positions did exist, but the roles looked much different than they do today.

Jonathan Mack, program coordinator for University of San Diego's Master of Science degree in Health Care Informatics,

was quoted as saying in a *San Diego Business Journal* article, "The skill level for managing the old systems was quite low, you didn't need a coder or a programmer. Now, all of a sudden, you have these complex electronic medical records and you have no staff that can manage them."

Consequently, there has been a surge in job postings for health informatics professionals and the Bureau of Labor Statistics projects that the number of jobs in the health care informatics field will grow 22% by 2022, twice as fast as employment overall.
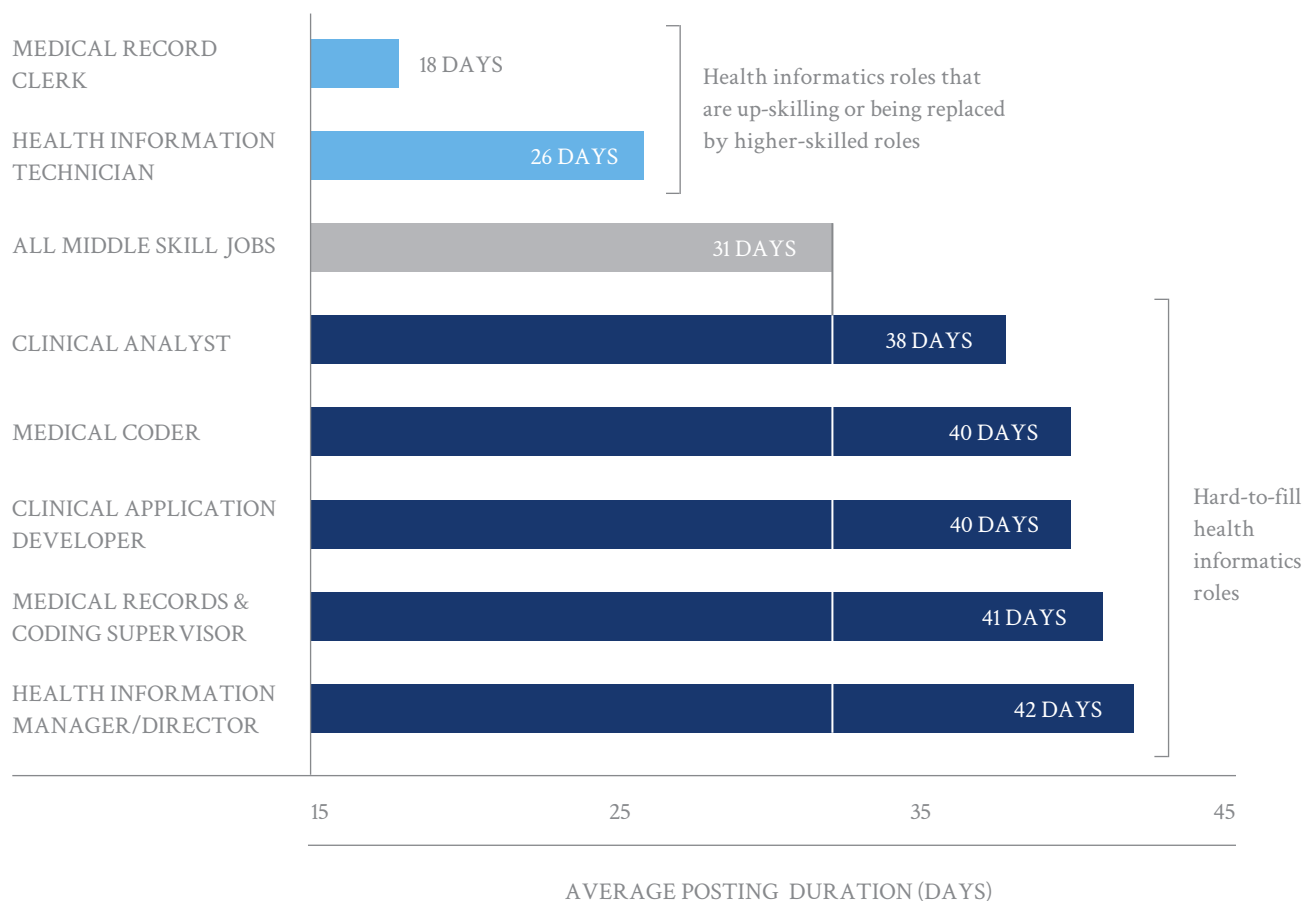
The problem is, there are currently not enough skilled informatics experts to fill these new positions, which require candidates to have both medical and information technology expertise — a combination that can be extremely hard to find.
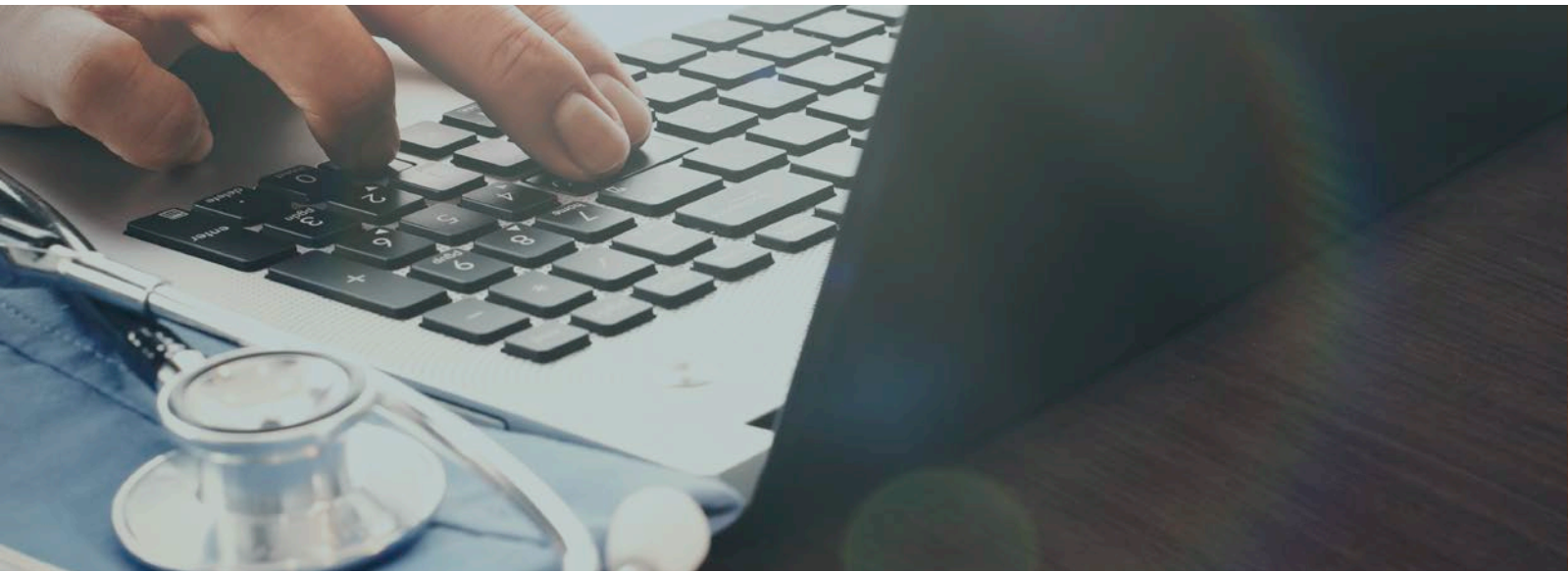
According to Burning Glass Technologies,

"New and emerging health informatics positions stay open twice as long as the ones they are replacing. Postings for Medical Records Clerks, an older position, stay open for 18 days on average, compared to 38 days for its newer successor, Clinical Analyst."

Average posting duration for health informatics positions

Position	Days
MEDICAL RECORD CLERK	18 DAYS
HEALTH INFORMATION TECHNICIAN	26 DAYS
ALL MIDDLE SKILL JOBS	31 DAYS
CLINICAL ANALYST	38 DAYS
MEDICAL CODER	40 DAYS
CLINICAL APPLICATION DEVELOPER	40 DAYS
MEDICAL RECORDS & CODING SUPERVISOR	41 DAYS
HEALTH INFORMATION MANAGER/DIRECTOR	42 DAYS

Health informatics roles that are up-skilling or being replaced by higher-skilled roles

Hard-to-fill health informatics roles

15   25   35   45

AVERAGE POSTING DURATION (DAYS)

BURNING GLASS TECHNOLOGIES, 2014

As a result of this high demand and the shortage of qualified professionals with the unique combination of skills required by employers, pay for health informatics experts is high.
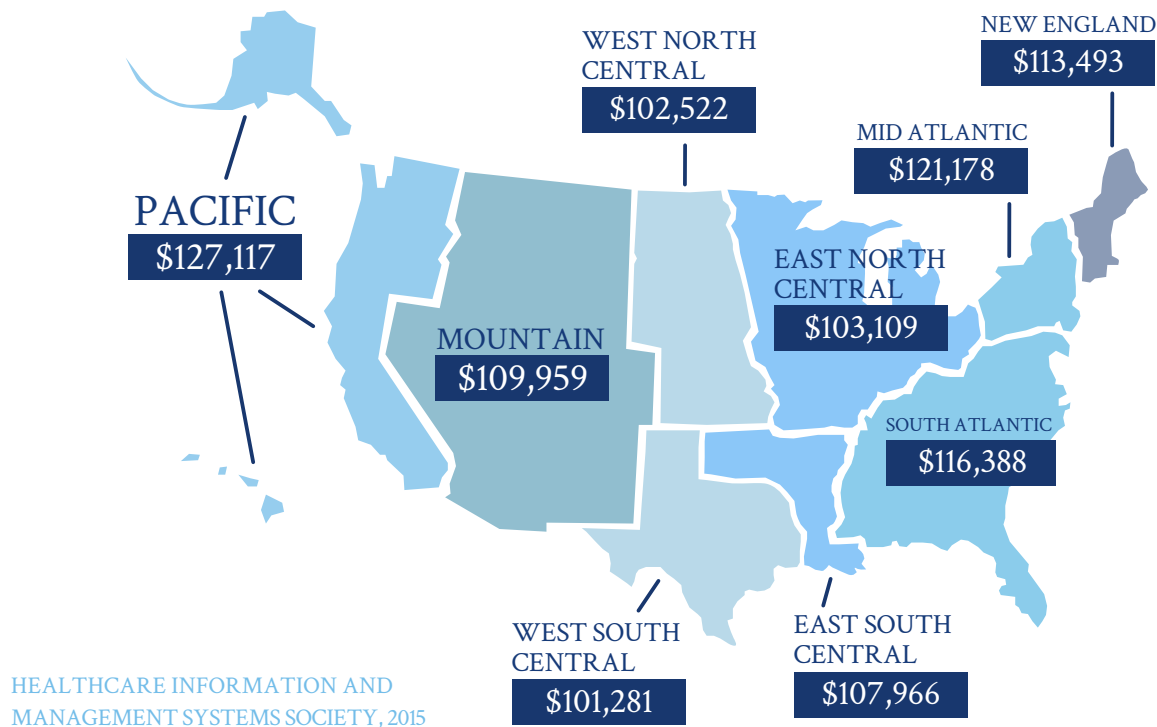
A *Healthcare IT News* article reported that:

Informatics is a top career in healthcare because those who master the art of combining patient care with health IT skills are in a better position to demand more pay, expand their growth potential and become an integral part of a growing dynamic health organization. "Clinicians with informatics skills are perfectly poised to expand their role at healthcare organizations that have already adopted electronic health records and are now getting ready to reap the rewards by analyzing the data from those systems," said Joyce Sensmeier, vice president of informatics at the Healthcare Information and Management Systems Society.

As of 2015, the overall average salary for health IT professionals was $111,387.52, according to an annual compensation survey by the Healthcare Information and Management Systems Society. The average salary for IT professionals across all industries was much lower, at $85,460 according to glassdoor.com.

Average Salaries for Health IT Professionals by Region

WEST NORTH CENTRAL
$102,522

NEW ENGLAND
$113,493

MID ATLANTIC
$121,178

PACIFIC
$127,117

EAST NORTH CENTRAL
$103,109

MOUNTAIN
$109,959

SOUTH ATLANTIC
$116,388

HEALTHCARE INFORMATION AND MANAGEMENT SYSTEMS SOCIETY, 2015

WEST SOUTH CENTRAL
$101,281

EAST SOUTH CENTRAL
$107,966

However, depending upon geographical location and job title, the latter of which is often a reflection of education and experience, salary can be a lot higher than the average.

As reported in *Modern Healthcare,* Gartner research found that compensation levels for chief medical information officers, who typically possess a medical degree, "ranged from $206,000 to $550,000, with the median falling in the range of $300,000 to $349,000."

Looking at just salary alone could explain the high levels of job satisfaction reported among professionals in the field.

According to Health IT Jobs, 80% of respondents in their 2014 salary survey reported being satisfied with their jobs. Gartner echoed this sentiment in *Modern Healthcare*, reporting that "job satisfaction in the field is high, with 44% (of CMIOs polled) indicating that they were very satisfied with their work, while 43% were somewhat satisfied. Meanwhile, 44% felt they were very successful and 50% somewhat successful at their jobs." Flexibility, the ability to learn new skills and advance one's career, in addition to income potential, are among the other reasons cited by health informatics professionals for their high career satisfaction.
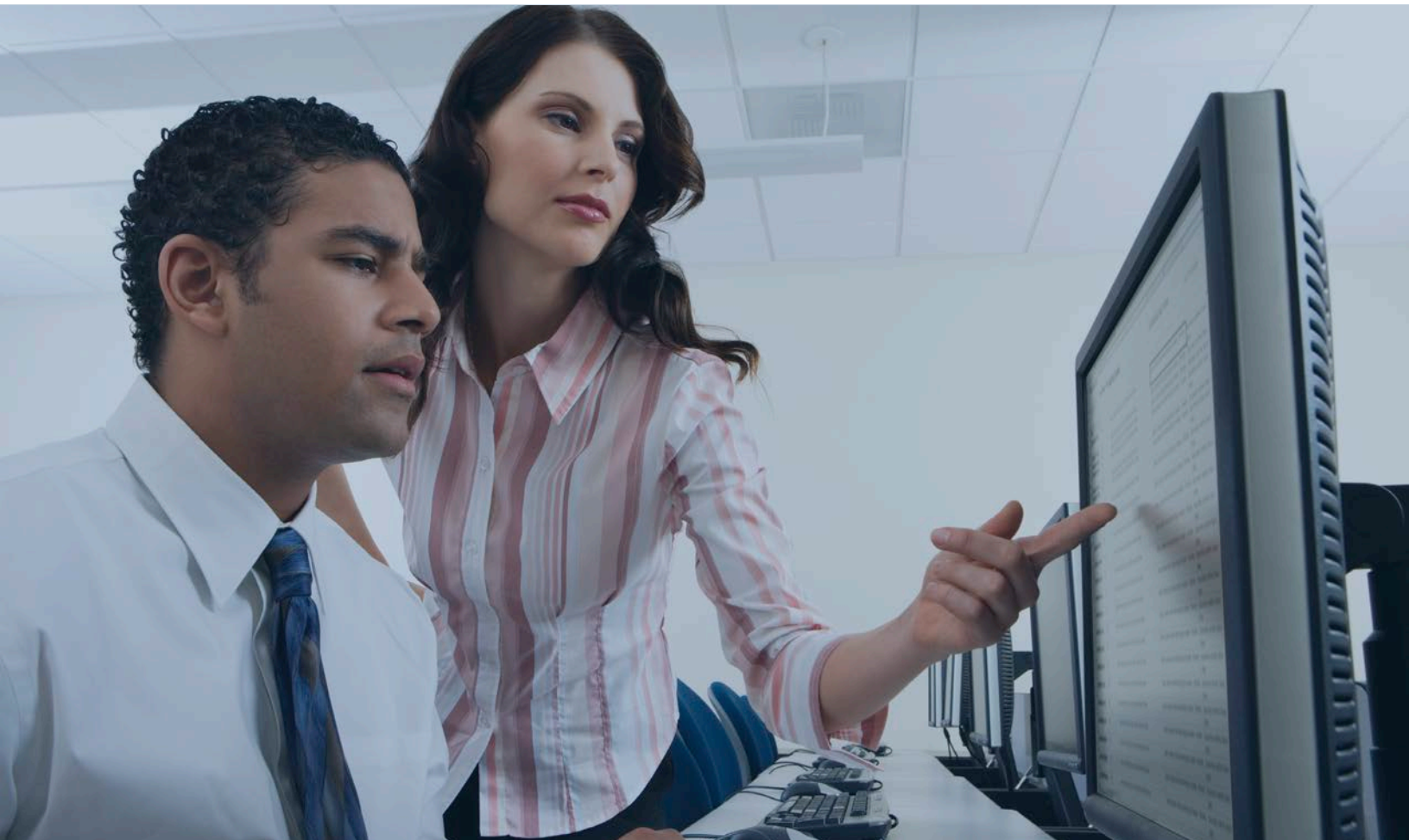
Careers in Health Care Informatics

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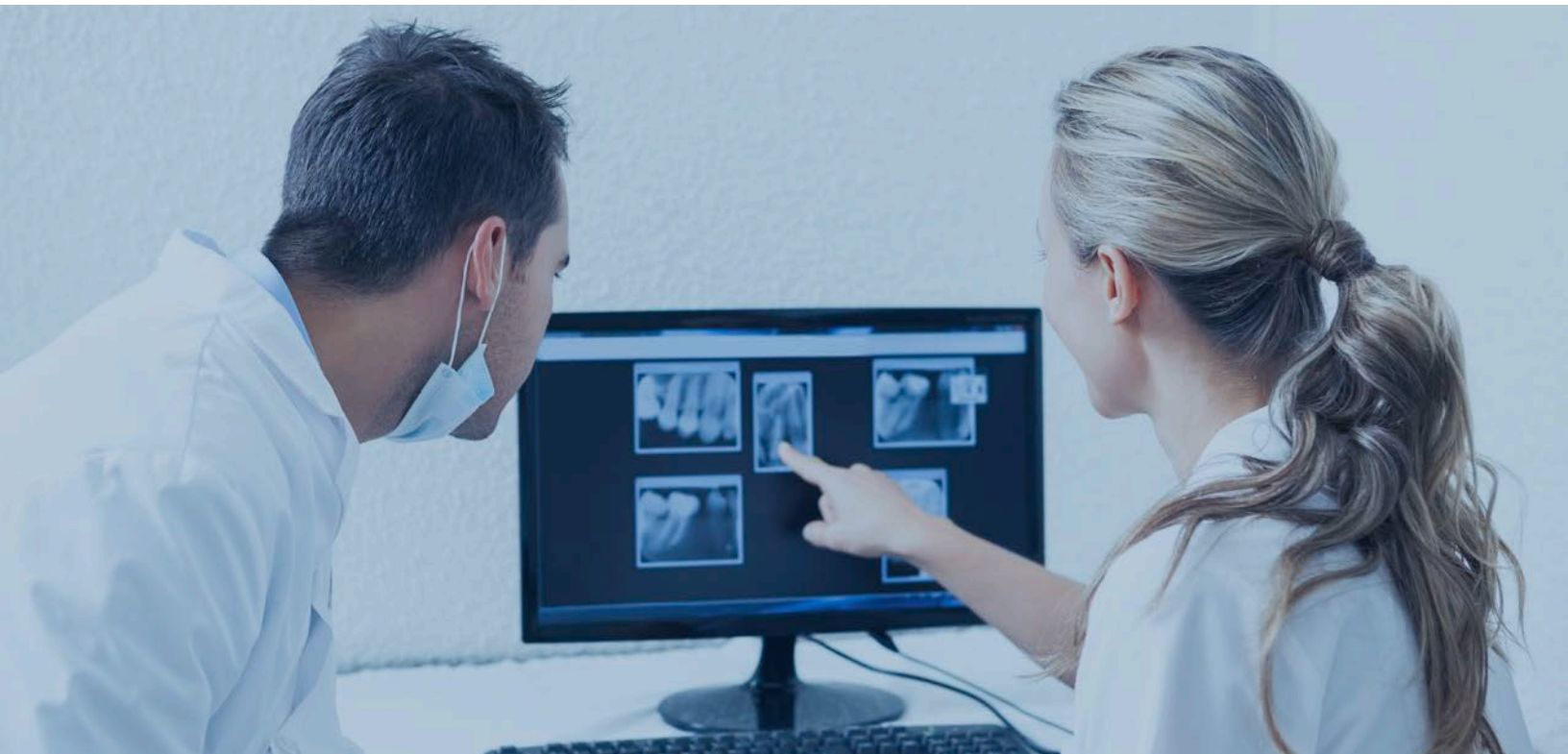
With strong demand, great pay and high job satisfaction, it is easy to see why a career in health informatics is so appealing.

What's more, the different avenues within health informatics are many and varied, from research to administration and management to clinical leadership. Plus, there are a number of organizations beyond just hospitals and clinics that are actively seeking skilled health informatics professionals, including medical software companies, consulting firms, medical device and technology companies, medical libraries, research laboratories, universities, government agencies, private practices, pharmaceutical companies and more. Let's look more closely at some of the positions and careers available within the health informatics field.

Chief Medical Information Officer (CMIO)

Salary: $206,000 to $550,000, with the median falling in the range of $300,000 to $349,000

The chief medical information officer (CMIO) is a highly coveted and integral C-suite position that was ranked one of the fastest-growing positions in health care, according to the Association of Medical Directors of Information Systems. Generally, CMIOs are physicians who continue to see patients on a part-time basis while spending the other half of their time designing and integrating IT systems for medical facilities, analyzing EHRs and other technologies being used in medical care, training physicians and creating strategic IT plans for their organization. Many CMIOs work in acute care settings and report to the chief information officer.
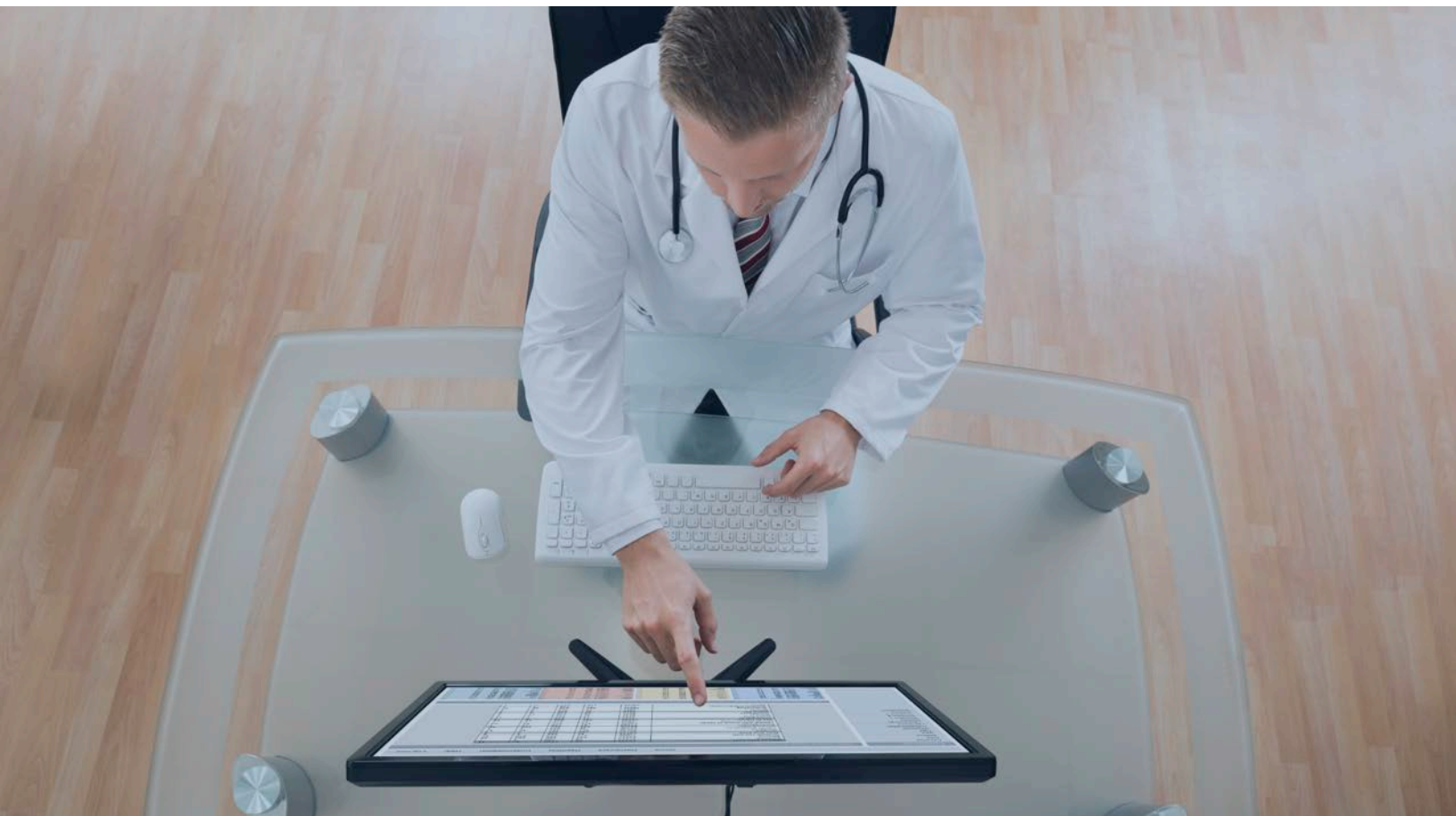
Qualifications

To become a CMIO you need a high level of education both in medicine and informatics. In a survey conducted by Gartner, which polled 120 members of the Association of Medical Directors of Information Systems, a professional association of physicians in applied medical informatics, it was found that "only 18% of the CMIOs surveyed didn't have advanced informatics training."

Vi Shaffer, a vice president at Gartner, said in a *Modern Healthcare* article referring to the survey that "CMIOs are seemingly tireless, highly educated and experienced." She noted that 71% still practice medicine and 78% have some previous administrative or management experience.

Generally, requirements to become a CMIO include:

- Board certification in particular field of medical specialty
- Have worked on a clinical information technology project at a hospital or medical facility
- Have a strong interest in technology and IT
- Demonstrate proven leadership skills and experience
- Have negotiation and conflict resolution skills
- Show management acumen
- Have extensive experience in the medical field as a physician
- Have a degree or training in health informatics

Director of Clinical Information Systems (or Clinical IT Leadership Positions)

The median annual salary for clinical IS directors is $168,805, as of February 2016, with a range usually between $134,464 and $221,562, according to salary.com.

A director of clinical information systems typically manages a team of clinical information systems staff and is charged with designing and implementing new technological solutions to improve clinical operations. This role is concerned with synthesizing data and optimizing information management in order to improve patient care and community health. This is a leadership role that requires strong IT knowledge, project management and critical thinking skills.
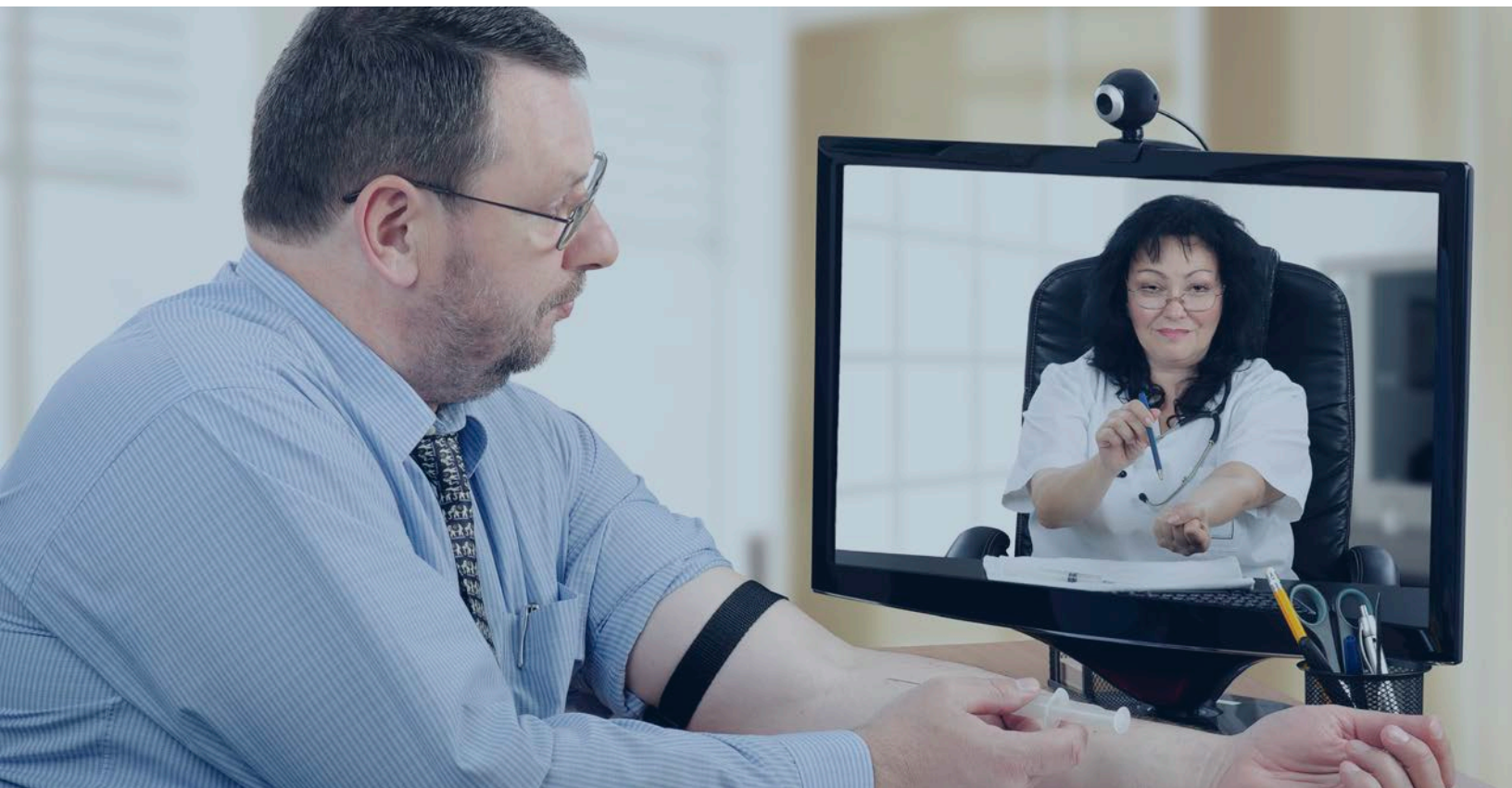
Qualifications

While qualifications will vary from employer to employer, these are a few of the requirements that most employers will expect for the Director of Clinical Information Systems position.

- Have a minimum of a bachelor's degree, although a master's is preferred

- Management experience in clinical information systems

- 10+ years of leadership experience in a medical setting

- Experience in both technical and strategic health care roles

- Experience or education specific to electronic medical records and health informatics

Clinical Applications Analyst

Clinical Applications Analyst is a similar role that would likely report to the Director of Clinical Information Systems. Analysts typically make around $71,000 per year and help to bridge the flow of information between IT systems and people. They assist clinical staff with IT systems, manage patient EHRs and interpret data.

Data Scientist

Median salary ranges from $80,000 to $232,500, according to Burtch Works, a U.S.-based executive recruitment agency for quantitative business professionals.

Unlocking the full potential of data means transforming health care as we know it. From predicting and preventing illness across populations before it begins to allowing doctors to reference data sets to see what worked for similar patients, thereby improving the process of finding new uses for existing drugs, the possibilities are endless. But in order to uncover these many possibilities, data scientists are needed.

Data scientists merge and analyze data sets from clinical trials, direct observation, EHRs, online patient networks and biomedical research, just to name a few, in order to improve health care. Personalized medicine, genomics, predictive analysis, preventive medicine, patient monitoring, disease modeling and mapping, and EHR interoperability are some of the areas where data scientists are having a huge impact.

Qualifications to work as a data scientist include:

- Master's degree, Ph.D. in IT or mathematical related field a plus

- Strong communication skills

- Business acumen

- Natural curiosity

- Technical computer science skills, such as mastery of Python Coding and Hadoop Platform

Health Informatics Consultant

Consultants allow organizations to keep overhead low while still complying with federal requirements. Today, with health informatics evolving at such a rapid pace, many larger health care institutions are reluctant to hire full-time employees because they are unsure of what their needs will be in the future. Hiring consultants is a perfect solution for these organizations and helps them bridge the gap while they determine what their long-term needs will be, what skill sets they will require and how those jobs will be classified. The consultant benefits from the freedom of being able to chose his or her own clients and projects rather than being tied down to one company. Plus, consultants often receive a higher hourly wage than full-time salaried employees.
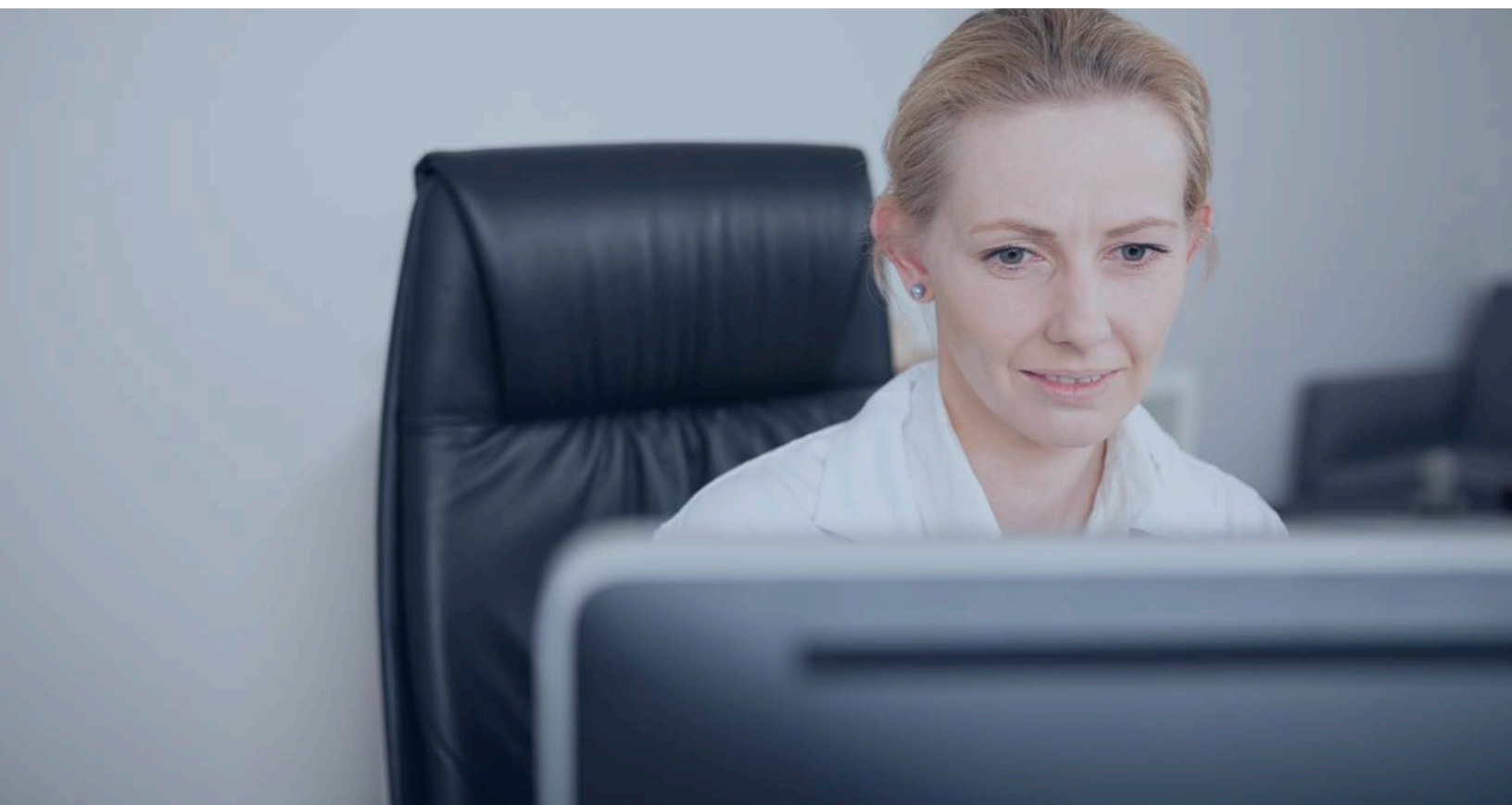
Health care informatics, as we know it today, is a relatively new field, and as such a career as a consultant can be an exciting one, helping health care facilities understand and utilize technology to enhance their operations.

The job responsibilities for this role can vary depending on the specific needs of the organization, but consultants generally act as subject matter experts, advising and educating employees at all levels. In this role you will often be tasked with developing educational programs and materials, assisting with EHRs, executing data analyses, supporting and consulting with staff, stakeholders and external customers, as well as improving clinical efficiencies and monitoring overall operations.

## Qualifications vary greatly for this role but generally include:

- Master's degree in informatics preferred

- 5+ years in the health care field

- Demonstrated leadership skills

- Ability to develop, manage and execute project plans

- Strong analytical and critical thinking skills

- IT experience and knowledge

- Experience analyzing large sets of data and an understanding of cloud technologies

Professor of Health Informatics

Salary: $68,000 is the average pay for health informatics professors, according to SimplyHired.com.

Education is another burgeoning career within health informatics. With a shortage of qualified professionals to fill the many job openings at health facilities across the country, teachers are needed to educate the medical and IT experts who may have an interest in informatics.
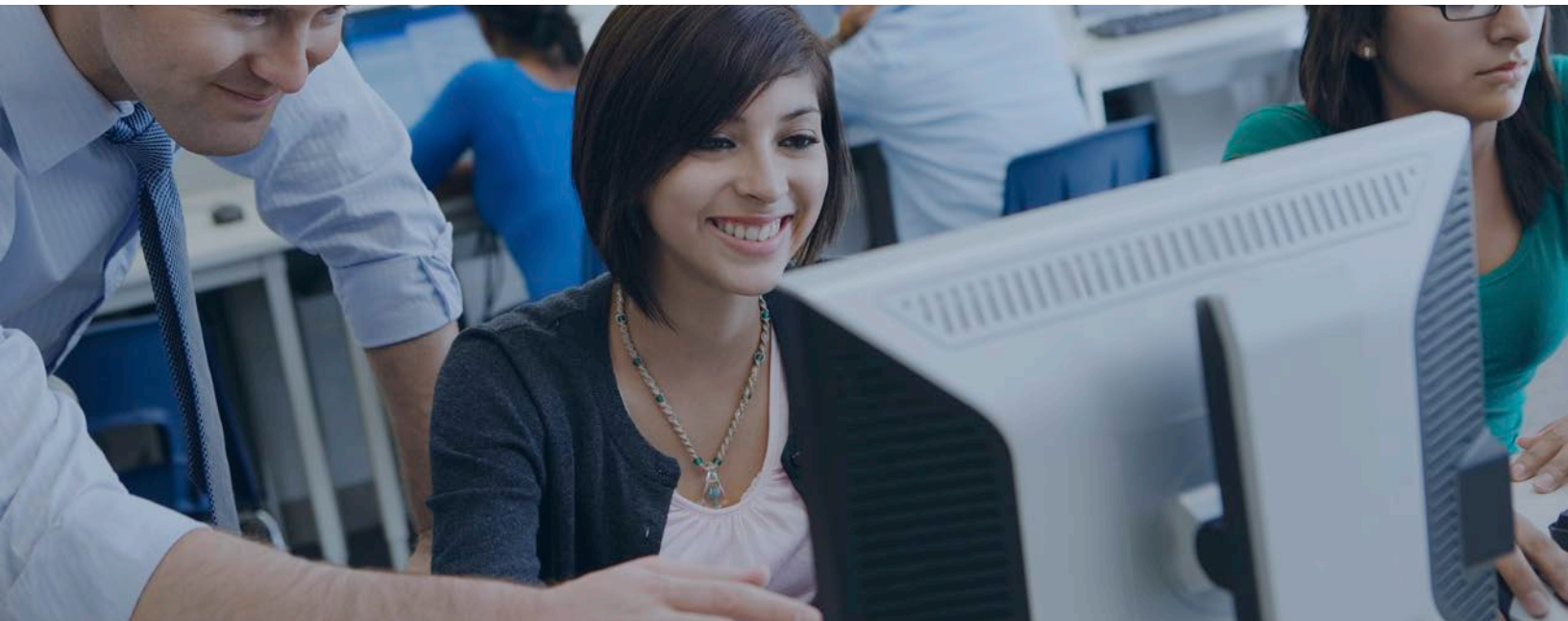
Requirements to work as a health informatics professor or educator typically include:

- Master's degree in informatics

- Doctorate degree a plus

- Experience in teaching and course development

- 5+ years of experience in the field of health informatics, IT and/or medicine

Researcher

Salary: Varies greatly depending upon the scope of the research and employer requirements

Researchers in the health informatics field look for new ways to utilize data and technology to improve patient care and delivery. As a researcher you will also be constantly analyzing and mining big data in order to identify trends that may affect public health. Additionally, researchers in recent years have been called upon to help deal with the many hiccups that have come with the rapid and sudden growth in health data. This means working to improve recruitment for clinical trials, assisting with more effective data collection and helping to better store, process and analyze data from clinical trials. Researchers often teach at universities and colleges or work part-time as consultants for health care organizations.

Qualifications to work as a researcher in the informatics field vary according to the type of research required.

A report in *Science Magazine* explained how researcher Vitaly Herasevich used data and a computer algorithm to develop a "sepsis sniffer," described as "a computer program that monitors a patient's vital signs and sends out an alert if sepsis, which is an aggressive immune reaction to an infection, or other serious trouble is imminent."

The report continued:

Herasevich's sepsis sniffer is a computer algorithm that taps the critical care unit's stream of real-time patient data and, if it detects indications of sepsis or other serious trouble, alerts nurses or physicians via pager, e-mail, or an alert board. The Mayo Clinic is now studying whether the sniffer decreases mortality in the hospital's intensive care unit. "This is an exciting field because you can really impact patient outcomes," he says.

These are just *six* of the many positions available in the growing informatics field.

Other jobs include project managers, coding professionals, systems analysts, implementation consultants, informatics managers, health information resource managers, health information system application designers and compliance officers.

Breaking into the Field:
Two Primary Paths

There are two primary paths to a career in health informatics: a background in clinical care or a background in computer information sciences.

If you are an MD, nurse or other medical clinician looking to expand your career options and move into a leadership role, obtaining a master's degree in health care informatics can be a good decision. Not only will a graduate degree in health care informatics build upon your current health care knowledge and years of medical experience, it will allow you to expand your career beyond direct patient care. And with a background in medicine and clinical care, you have the perfect educational and experiential foundation required to succeed in health informatics. beyond direct patient care.

The second path to a career in health care informatics requires a computer information science background.

For IT professionals who have an interest in the health care field and would like to use their technical skills to impact the future of patient care and delivery, a job in health informatics can be extremely appealing. But to be successful in the health informatics field, IT professionals need a certain level of health care knowledge and training, which can be gained through the completion of a master's degree in health care informatics. For many jobs in the health informatics field, a combination of IT and nursing or clinical care skills is required, a combination that is hard to find.

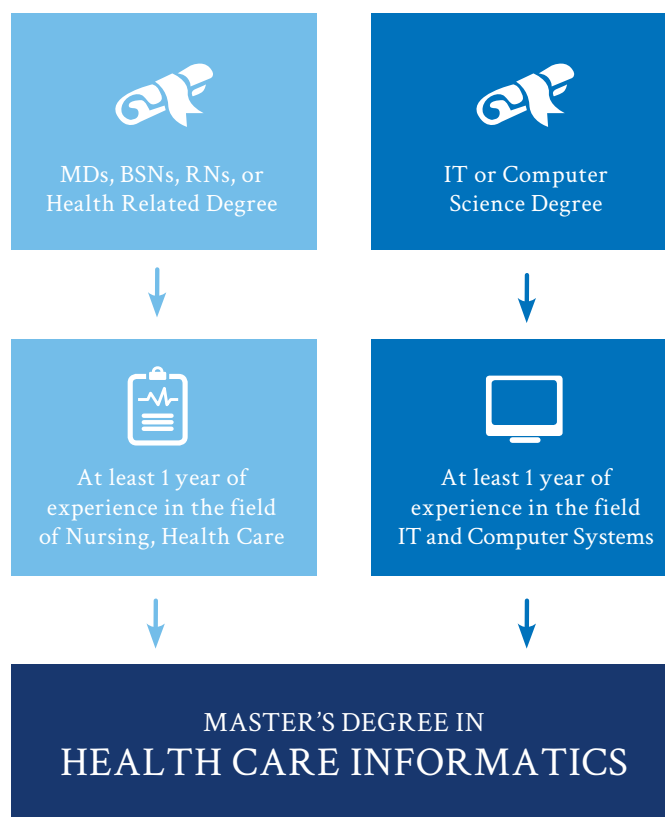## According to a 2014 report by Burning Glass Technologies:

"Specifically, our research finds that many of these new jobs (in health informatics) are hybrids, requiring skill sets from different disciplines and which therefore are not typically trained together. That means that people trained in any one required area of expertise are unlikely to have some of the other skills demanded in these new jobs. One example is the role of Clinical Analyst, which assists clinical staff with IT systems, interprets data and manages patient records. That requires some of the skills both of a registered nurse and of an IT technician — at present, an uncommon combination. As a result, Clinical Analyst positions stay open 15% longer than the national average."

That's why a strong graduate degree can make all the difference.

The best graduate programs recruit students from both patient care and IT fields, and offer curriculums that develop students' knowledge across technical and professional systems. Not only will a master's degree in health informatics fill in the blanks in your education and experience (developing your IT skills if you're a clinician or doctor, and vice versa if you're currently working in IT) but it will set you apart from the competition during a time when skilled informatics professionals are in high demand and short supply.

The Two Paths Towards a Career in Health Informatics

MDs, BSNs, RNs, or Health Related Degree

IT or Computer Science Degree

↓

↓

At least 1 year of experience in the field of Nursing, Health Care

At least 1 year of experience in the field IT and Computer Systems

↓

↓

MASTER'S DEGREE IN
HEALTH CARE INFORMATICS

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Certificate Programs Offer Options

Pursuing a master's degree takes commitment. For many, the burgeoning field of health informatics is intriguing, but for those who have never worked or studied in informatics specifically, there may be a question as to whether or not it is the right move. When this is the case, committing to a master's program can feel overwhelming. That's why universities have started to offer certificate programs. For example, the University of San Diego offers a certificate in health care informatics that is fully transferable to the master's in health care informatics degree. So in essence someone could start with the certificate program, and if they decide they enjoy the discipline and want to take their learning to the next level, all of their classes will transfer over to the master's program.

For those who are already committed to pursuing a career in health informatics, earning an advanced degree such as the Master of Science in Health Care Informatics offered at the University of San Diego open the door for greater advancement and earning potential in the field. The unique program curriculum integrates health care technology, leadership, business knowledge and skills in a 100% online format, allowing students to continue working full-time while earning their graduate degree.

For more information on this program
visit HCInformatics.SanDiego.edu or call 888-832-0239