



**DATA FOR DECISIONS: THE HIM  
WORKFORCE  
AND  
WORKPLACE**

**Employment  
of HIM  
Professionals  
in the U.S.:**  
Current Patterns  
and Future  
Prospects

**FORE**  
Foundation of Research  
and Education of AHIMA

**AHIMA**  
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# **DATA FOR DECISIONS: THE HIM WORKFORCE AND WORKPLACE Employment of HIM Professionals in the U.S.: Current Patterns and Future Prospects**

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## **Employment of HIM Professionals in the US: Current Patterns and Future Prospects**

June 10, 2004

This report has been prepared as a reference document to be used by policy analysts and policy makers interested in the attitudes and activities of selected bellwether employers of HIM professionals in the US. It presents nine different case studies of HIM employers, each based on interviews with a variety of different individuals ranging from senior executives to HIM professionals. The report also includes a summary of the two-page supplement to the 2002 AHIMA member survey completed by those who reported that they supervised at least one other HIM professional.

Margaret Langelier and Paul Wing  
The Center for Health Workforce Studies  
University at Albany State University of New York  
School of Public Health  
One University Place  
Rensselaer, NY 12144-3456  
Phone: (518) 402-0250  
Fax: (518) 402-0252  
Email: [mhl02@health.state.ny.us](mailto:mhl02@health.state.ny.us)

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## Preface

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This report is one of several prepared as part of the Health Information Management Workforce Research Study conducted for the American Health Information Management Association by the Center for Health Workforce Studies at the University at Albany in Albany, NY. Central to this study were three surveys administered to AHIMA constituents. The first survey was of HIM students graduating in the year 2002; the second was a survey of education program directors completed in that same year; and the third was a random sample of members of the organization in 2002. The member survey included a “member as manager” module for HIM professionals who manage or supervise other HIM associates.

A fourth component of the study involved case studies of nine bellwether organizations that employ HIM professionals. These case studies were initiated in 2002 and completed in 2003. Each case study was designed as an interview process that engaged senior and executive managers (HIM and other), as well as HIM professionals working in technical HIM roles. The interviews addressed current roles for HIM professionals within their respective organization, and inquired about perceived future directions and influences on the profession.

This report summarizes the findings from the nine case studies . In addition to presenting the case study findings, the report also presents a series of recommendations for strengthening the HIM profession and AHIMA in the near future.

This report was prepared by Margaret Langelier, the Senior Research Associate responsible for organizing and conducting many of the case study interviews, and Paul Wing, who also participated in the conduct of the case studies. They have made a special effort to present the findings with as little bias as possible toward one perspective about HIM or another.

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## Executive Summary

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The health information management (HIM) profession is currently experiencing major transformations in its traditional roles and functions. Although this change has generally been gradual and incremental, the pace of change is expected to increase substantially in the near future. Innovations in medical and information technology coupled with the regulatory and financial constraints affecting the healthcare industry are currently driving professional and organizational transformation. The speed at which change is occurring has been compared to that of a train that lumbers as it begins its journey, but as it reaches cruising speed is then difficult to stop. This analogy seems particularly apt to contemporary changes in healthcare organizations that are struggling to manage, understand, and adapt to ongoing, significant changes.

Healthcare provider organizations are presently stretched to their proverbial limits to provide care and maintain profitability in a stressful economic environment. Reimbursement for services is highly contained, while the costs of new medical and information technologies are staggering. Technological innovations in medical diagnostic imaging, improved clinical and administrative information systems, enhanced clinical pathways, and new pharmaceuticals are among the changes that permit earlier diagnosis of illness, more effective management of illness, and improved patient outcomes. These innovations bring the patient to healthcare provider organizations earlier in the course of illness and create lengthier trajectories of care. The aging of the population is a concern that will add to the tensions in health care organizations.

Accurate, timely information is increasingly viewed as fundamental to understanding the problems in the healthcare industry and to devising solutions to address those problems. Health information, as a shared resource, is particularly valued for its contribution to the achievement of quality care. Of major import for HIM is the recognition by the industry that quality information is needed to improve the provision of healthcare. Managing both personal and population health information becomes ever more difficult as the quantity of information increases, as the number of records and databases in which health information resides increase, and as concerns about privacy continue to grow. These are all major challenges for the HIM profession in the future.

In this context, the American Health Information Management Association (AHIMA) contracted the Center For Health Workforce Studies at the University at Albany, State University of New

York to conduct a comprehensive study to help understand the current and future roles for health information management professionals in this complex and changing environment. The study was multifaceted and included an investigation of employer perceptions about the HIM workforce and employer perspectives on the changing roles for HIM professionals in current healthcare provider organizations.

In an effort to understand the context in which health information managers work, study staff visited nine organizations across the United States to prepare case studies related to health information managers. These organizations included several integrated delivery systems, the Department of Veterans' Affairs, a for-profit hospital company, a health cooperative, an information technology vendor organization, a health information management consulting firm, and a pharmaceutical company.

This variety of organizations was chosen to reflect the range of employment opportunities currently available for HIM professionals. Although the case study organizations differ in structure, purpose, and process, HIM professionals within these organizations have many attributes in common. Of particular interest to study staff were current and future roles for the HIM profession as described by HIM professionals and others within the organizations who work with, manage, or hire HIM personnel. The case studies were conducted with a standard interview protocol. A summary of each case study is included in this report.

Additional perspectives and perceptions about HIM employment were obtained from a component of the membership survey that was completed by HIM professionals who employ, hire, or manage at least one health information management professional. The results of this manager survey are detailed in a separate report that supplements the findings of the survey of AHIMA members.

### **Objectives of the Report**

This report presents some of the current thinking about HIM professionals at nine bellwether organizations heavily involved in HIM. To the extent that the nine organizations reflect cutting edge thinking about HIM, this report should provide planners, policy makers, and educators with important bases for discussions about future directions in the HIM field. To the extent that some traditional management practices are not present in the case study organizations, there is reason

for concern that HIM managers and education programs may not be at the cutting edge of innovative, forward-looking HIM practice.

Clearly, nine case studies do not represent a comprehensive examination of HIM employers, but they do help to clarify the issues that face the HIM profession in these turbulent times and should stimulate interesting discussions about the future of HIM.

The objective of this report is not to burrow in the details of how the nine organizations approach HIM. Rather it is to synthesize and summarize common themes related to the organization and transformation of HIM across the organizations, especially those that appear to be especially relevant or promising for other employers. Of particular interest to the authors are innovations in the structure and application of HIM that are consistent with emerging trends in health care delivery, HIM technologies, and cost containment strategies.

The authors recognize that these are nine individual organizations crafting individual, often incremental solutions that may not be entirely portable to other organizations. It was not our intent to identify specific solutions, but rather to understand common problems and the variety of solutions that have been selected to address critical issues. The consistency of concerns and issues across diverse organizations was in itself an important finding of this part of the workforce study. That consistency is evident in the observations that follow.

### **Case Studies**

As part of the larger HIM Workforce Study, case studies were conducted of nine employers of HIM professionals across the US. These organizations were selected in collaboration with AHIMA staff and the Project Advisory Committee to represent especially interesting or innovative ways of using HIM professionals or addressing HIM issues in their operations. In one way or another each of the employers represents an approach to HIM that deserves consideration by other organizations. The organizations that were included are:

- Care Communications, Inc., Chicago, IL
- Cerner Corporation, Kansas City, MO
- Group Health Cooperative of Puget Sound, Seattle, WA
- HCA, Inc. (Hospital Corporation of America, Inc.), Nashville, TN
- Maimonides Medical Center, Brooklyn, NY

- Partners HealthCare System, Boston, MA
- Pfizer, Inc., New York, NY
- Rockford Health System, Rockford, IL
- Department of Veterans' Affairs, VISN 2 Network, Albany, NY

Collectively, the employers represent settings for HIM professionals that range from multi-facility patient care delivery systems, to HIM consulting firms, and to vendors of HIM services and systems.

The HIM innovations found in these organizations, which are not mutually exclusive, cover a wide range of strategies and themes. They include:

- Multiple facilities with parallel or common HIM systems and procedures;
- Organizations whose primary HIM focus is on supporting patients;
- Organizations with a stated mission of automating all clerical/technical HIM functions and eliminating technical HIM positions;
- Organizations aggressively moving toward the electronic health record;
- Vertically integrated systems seeking to link and unify medical records across different types of settings;
- Organizations that have given HIM a central position in their operations.

### **Conclusions**

This report will summarize the insights about HIM obtained through interviews and the survey protocol. Although many of the conclusions are derived from qualitative methods, there are several themes that pervade both the interview process and the survey responses. They are:

- HIM roles are changing.
- Information is essential to provision of quality healthcare services and its importance will continue to increase as information is more accessible and useable.
- The health record is increasingly automated and will eventually be fully digitized.
- HIM professionals are working in changing organizations and their roles within those organizations are expanding.
- The HIM profession must embrace change and enhance their broad technical skills especially their understanding of data content and structures.

- Education programs for HIM professionals must adapt to the changing environment.

Some elaboration of each of these general observations follows, with additional insights obtained from the interviews in each of the nine case study organizations.

### **Health information management roles are changing.**

Employer interviews support the view that health information management roles are changing. Across organizational structures, HIM professionals are filling new roles that require the basic competencies of health information management and in some cases, expanded skill sets. Professionals with RHIA and RHIT credentials are working in all aspects of healthcare including quality initiatives, risk assessment, corporate compliance, technological system design and implementation, data analysis and assessment, project management, healthcare consulting, etc. HIM professionals occupy technical roles, management positions, and executive leadership positions. The breadth of occupational opportunity was readily apparent and easily identified among the HIM professionals interviewed. Also apparent was the need for HIM professionals to embrace opportunities for change. In the organizations at which interviews occurred:

- Health information managers are valued for being transdisciplinary.
- HIM is seen as a bridge between the clinical uses of the health record and the administrative uses of the record. HIM understands both clinical process and administrative workflow.
- The HIM profession is viewed as collaborative, cooperative, and adaptable.
- Health information managers and technicians are moving from surveillance and archival functions to prospective functions and process intervention.
- HIM professionals must be increasingly technically capable of working with digitized information.
- HIM professionals at the RHIA level need leadership skills, project management skills, process management skills, and enhanced communication and presentation skills.
- HIM professionals need to be strategic thinkers with a global perspective of the organizations in which they work.
- HIM professionals at the RHIT level need a better understanding of data content and structures and of database architectures and applications.

- Coding languages and typologies will continue to be important technical tools to be used in data gathering and analysis functions. HIM professionals must maintain expert knowledge of nomenclatures and classification systems and expand their knowledge of reference terminologies.
- There is growing competition for new HIM employment opportunities from a variety of other health and management professions who are poised to embrace the new roles that are emerging.

The interviews revealed that in the near future:

- Practice for HIM professionals in an electronic environment is expected to be “by exception” rather than by “checklist”. Many HIM surveillance functions will be automated, but HIM professionals will be required to perform expert audit functions and review records that are identified as complex or not meeting standards.
- Work with digitized records will be more productive, more streamlined, and in real time. Digitized records will permit users to have better control of data.
- The profession will no longer be document focused but will instead be information focused.
- Patients are increasingly aware of their personal health information and are also increasingly concerned about appropriate use of and access to that information. HIM has an important opportunity to assume an intercessory role for patients and become patient advocates.
- HIM professionals should craft a more strategic role for their profession and avoid a narrow tactical focus.

**Information is essential to provision of quality healthcare service and its importance will continue to increase, as information becomes more accessible and useable.**

Whereas the patient health record was once viewed primarily as a clinical tool, it is now also viewed as essential for many business and administrative functions. The information contained in individual and group health records is increasingly valued for the potential insight to understanding trajectories of care and for improving both individual and public

health outcomes. The value placed on health information necessarily increases the value of those who can gather, manage, and use health information to meet the clinical and business objectives of an organization. This information is increasingly digitized so the ability to work with electronic information will continue to be a highly valued skill. In all nine case study organizations, information guides organizational goals.

- Information is gaining importance in healthcare organizations.
- Information contributes to the quality of services provided to patients and to improved patient outcomes.
- Information is increasingly collected and stored in electronic media.
- Concerns about both the privacy and security of personal health information abound and will increase as information is distributed more across healthcare provider organizations.
- Healthcare organizations are increasingly concerned about economies of scale and about best practices and clinical pathways that contribute to efficient and effective services and positive outcomes. Information influences the paths to describing, defining, and implementing processes to increase efficiency and effectiveness.
- The volume of available information increases the opportunity for better, more reliable data to eliminate both clinical and administrative errors. The amount of information available is already beyond the ability of providers and provider organizations to manage without the use of new technologies.
- HIM professionals will be valued for converting data into quality information and managing data content. Content libraries will be of special importance as organizations manage and store increasing volumes of information. HIM professionals will be important to structuring and managing those libraries.

**The health record is increasingly automated and will eventually be fully digitized.**

Although progress toward an electronic health record has been gradual, the pace of electronic conversion and implementation is accelerating. Vendors and consultants comment that they have seen a noticeable increase in both interest and implementation of electronic medical and information technologies in recent years. As technology improves, more healthcare providers will embrace tools to increase administrative efficiencies and to improve clinical outcomes.

- Although healthcare organizations have been slow to embrace technology, the pace at which technology is implemented in healthcare provider organizations will increase over the coming decade.
- HIM professionals will be responsible for converting data to quality information that will help their organizations manage patient care effectively and permit clinicians to offer higher quality services.
- Many HIM functions will be automated and performed by expert systems. Capable coding applications, voice recognition, and electronic signature applications will permit electronic systems to provide some of the functions currently being performed or monitored by HIM professionals.
- Standard computer platforms, common database architectures, and standard typologies and languages will permit communication among healthcare providers to enhance quality of care, but will also increase concerns about security, privacy, and access to appropriate and permitted users.
- Machines will perform many basic clerical functions, but professionals will be needed to place the information generated by the machines into the particular organizational contexts for dissemination and use.
- Information technology engineers are focused on the technical requirements and capabilities of computing and communication systems, but often do not have sufficient domain knowledge of healthcare process. This is the expertise of HIM professionals that should position them well to fill important roles in digitized healthcare organizations.

**Health information management professionals are working in changing organizations and their roles within those organizations are expanding.**

Just as change is affecting HIM professionals, the organizations in which they work are also experiencing significant change. Patient care, which was previously provided in highly structured environments and mainly in inpatient settings, is now provided in homes, ambulatory care facilities and clinics, group physician practices, and alternative therapy settings. Hospitals and other healthcare settings are challenged by change to keep their organizations profitable and to provide current, cutting-edge technology to meet the needs of

their providers and patients. Just as HIM struggles to maintain, visibility and viability, the organizations in which they work are struggling to maintain currency, efficiency, and effectiveness.

- Healthcare organizations are moving to integrate services across spectrums of care and moving out of silos to continuums of care. The integrated delivery system configuration is common in areas where there is high demand for medical services.
- Healthcare organizations are increasingly organized into matrices in which personnel work in flexible teams on process design and system implementation.
- Health information managers are dispersed across organizations and are less departmentalized.
- Health information managers are challenged to manage virtual departments with remote coders and transcriptionists.
- Health information managers are challenged to have one foot in the paper world and another in the electronic world. Management of the hybrid medical record demands both traditional skills and new competencies.
- HIM professionals must have an integrated, global view of the organizations in which they work and must have a comprehensive understanding of both the clinical and administrative imperatives of those organizations.
- HIM professionals are increasingly found in less traditional employer organizations than in acute care hospitals.
- Health information managers report being responsible for multiple and varied functions in their employing organizations.
- Healthcare environments are becoming patient-centric, changing both the focus of care and the process of care.
- Compliance with regulatory mandates drives process design in healthcare organizations. HIM is well positioned through its knowledge of workflow to contribute to meeting compliance goals and objectives.
- Outsourcing of several back-end functions is occurring especially in some basic services like coding and transcription.

**The health information management profession must embrace change and enhance their information technology skills.**

Throughout the interview process, informants from the nine case study organizations addressed the importance of engaging current change so that the HIM profession can define its own future. As has been stated, the only way to know the future is to create it. HIM professionals and their employers indicate that the educational and experiential preparation for health information managers provides important competencies and currently positions the profession to function in a number of areas in healthcare organizations. However, clinging to traditional roles is dangerous in an environment that is changing rapidly. Part of change is opportunity. Informants suggest that if the HIM profession is willing to embrace technology in its workplaces and in its educational programs, it will be well positioned as an integral player in managing health information. Overwhelmingly, informants caution that clinging too tightly to traditional roles in relationship to a paper record is a dangerous tactic.

- Fundamental to management of the electronic health record is a need for health information professionals who are technically knowledgeable and capable.
- HIM professionals must have or acquire an understanding of the technical vocabulary of electronic systems and of the way in which architecture is structured and inter-connected.
- HIM professionals must have an understanding of the relational databases in which many health records are stored and retrieved.
- HIM professionals should understand the linkages in electronic process and have some knowledge of system design.
- It is imperative that the HIM profession understands that technological change has a momentum that cannot be ignored. The pace of implementation of electronic health records must not outpace the knowledge and skill of the professionals who manage the information.
- Although some roles for HIM professionals will disappear, new roles will emerge that are satisfying and challenging and that will elevate the status of both the health information technician and the health information manager.
- The change from the paper record to electronic media is a true paradigm shift. The structure and content of the health record will change and the legal definition of the

health record must be redefined accordingly. HIM should be poised to lead these initiatives.

- Electronic media will permit new uses of the medical record. HIM should be prepared to work with all users and especially patients to ensure the privacy of the information in personal health records.
- Change will occur swiftly and will require ongoing accommodation of HIM professionals to manage a hybrid medical record.
- HIM professionals should become knowledgeable management professionals who understand the value of information and its effective application to organizational needs. Those who help to create knowledge will be highly valued in the healthcare organizations of the future.
- One executive suggested that HIM should consider ecosystems and feedback cycles when considering change. It is the nature of complex and adaptive biological systems that are sophisticated to be somewhat competitive. Adaptation must occur in order for a species to be relevant. If HIM focuses on the operational aspects of the paper world, it will not adapt to the changing and increasingly electronic environment. It is important that HIM understands the effect of technology on process and outcomes.

### **Education programs for HIM professionals must adapt to the changing environment.**

Education programs are fundamental to providing new HIM professionals with current competencies and skills. Education programs will be challenged to provide curricula with enhanced technology applications while maintaining basic coursework that is fundamental to core domains of HIM knowledge. Education programs must, however, engage with this challenge in order to graduate technically competent professionals with relevant skills. Change must be relatively immediate since the changes in the environment are ongoing and significant.

- Education programs are fundamental to the management of expected professional change.
- Some HIM education programs are too small to implement change.
- The shortage of HIM faculty affects the ability of programs to implement change.

- Understanding coded language and standard nomenclature is highly valued in healthcare organizations. Standard typologies are essential when aggregating data. This is a competency that brings value to the HIM profession. Interviewees confirmed the importance of competency in code sets and classification systems that permit data analysis and permit communication across electronic systems. HIM professionals must acquire new competencies in reference terminologies, vocabularies, and related technologies such as mappings and new computer tools.
- Employers prefer to hire experienced HIM professionals. This suggests that the professional practice experience (PPE) is of particular importance to academic programs.
- HIA programs should incorporate project and process management skills, leadership, and effective communication in their curricula.
- HIA students should be required to demonstrate mastery of presentation skills.
- HIM education programs should include: coding, statistics, data analysis, accounting and finance, anatomy, pharmacology, disease process, relational databases, and nomenclature
- All HIM students should be encouraged to work on project teams during their educational programs. This is excellent preparation for working in teams in employer organizations.
- HIT students should be educated as a technical workforce with some statistical and data analysis skills, some education in healthcare finance and a good understanding of database functionality.
- Continuing education courses should address the need to increase the technical skills of the current HIM workforce.
- Continuing education courses should provide cutting-edge technology education to equip credentialed HIM professionals to accommodate technological process in their employing organizations.
- Graduate education for the HIM profession should be considered. Although employers overwhelmingly prefer experience to either credential or education, when other things are equal, they demonstrate a preference for those with graduate degrees when hiring for professional and executive positions.

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## **Nine HIM Employer Case Studies**

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The following synopses of the nine case studies are provided as summary documents of the interviews that were conducted to inform this study. In each case, both HIM professionals and non-HIM professionals were interviewed to ensure a complete view of the subject of change for the HIM profession. The host organizations were extremely accommodating during the interview process. Each is considered a benchmark organization in a particular group of healthcare provider organizations.

The interviewees in these organizations were impressive representatives of the HIM profession who are concerned that the larger HIM profession effectively manage both ongoing and potential change to the advantage of the profession. Professionals in each organization provided original insights as well as corroborating the insights of those in other organizations. The recurrent themes are apparent.

The summaries below are not intended to be comprehensive reports detailing the interviews, but to represent the salient ideas that were advanced. The case studies were performed at the following organizations:

- Care Communications, Inc, Chicago, IL
- Cerner Corporation, Kansas City, MO
- Group Health Cooperative of Puget Sound, Seattle, WA
- HCA, Inc. (Hospital Corporation of America, Inc.), Nashville, TN
- Maimonides Medical Center, Brooklyn, NY
- Partners HealthCare System, Boston, MA
- Pfizer, Inc., New York, NY
- Rockford Health System, Rockford, IL
- The Department of Veterans' Affairs, VISN 2 Network, Albany, NY

### **Care Communications, Inc.**

Care Communications, Inc., is a leading HIM consulting firm headquartered in Chicago, IL. The company was founded in 1976 to provide education and consulting services to help HIM departments in hospitals to develop and implement methods to support medical audit and emerging quality assurance activities. The business grew quickly and currently provides a broad spectrum of professional HIM services to a variety of healthcare organizations, research and insurance companies, and law firms [Care Communications, 2003].

Care Communications employs expert certified HIM professionals to provide cancer registry services, coding compliance consultation, coding quality review and education, master patient index clean-up services, interim management services, coding outsourcing, remote coding services, medical data collection, and electronic health information strategy development. This firm is at the cutting edge of the transformations now occurring in the HIM field.

Consulting services in HIM are temporary services such as remote coding services that provide support to an existing department, consulting services for review and analysis of a process that improve or redesign that process, or higher level consulting services that introduce a new process into an organization. Principals of the organization believe that professionals implementing change require leadership skills and Care Communications provides leadership training to help meet those challenges.

### ***HIM at Care Communications***

HIM services offered by the firm have been very sensitive to the demands in the healthcare environment. In the 1970s, the firm was influenced by the emphasis on quality assurance; in the 1980s the interest in DRGs attracted the talents of consulting associates. In the 1990s a demand for cancer registrars and a severe shortage of qualified coders in hospitals created more temporary staffing opportunities for the company. In 2000 the need for remote coding services and interest in the electronic health record is driving demand for e-HIM™ consulting services. Care Communications has developed expertise in all of these areas to offer to its clients. The firm is guided by the philosophy that its associates are consultants to improve process and foster efficiency in client organizations. The firm encourages its clients to grow their own staff in order not to become too dependent on the services of consultants. This customer-centric focus has

increased the credibility of the firm and has forged long-term relationships with a number of clients. This positioning has also enabled the firm to implement change within organizations.

### ***Perspectives on HIM Functions in Organizations***

The following are among the observations shared by informants in the organization during the interview process. Certain topics are emphasized for their pertinence to the current workforce research study, and for their relevance to current and future roles for HIM professionals.

Although coding will be automated, achieving that goal is more difficult than most realize. Reliable coding must be based on reliable documentation, which will encourage continuing demand for coding auditors. The adoption of expert coding systems will be slow and the HIM profession should continue to position itself to provide services that will help to automate coding functions and supplement automated coding with editing for data quality.

When implementation of EHRs supported by expert coding systems occurs, the ability of an organization to outsource coding functions to qualified coders increases. This permits further distribution of coding professionals into home and other work settings. Care Communications professionals feel that, although outsourcing of services may provide an immediate remedy in a crisis, outsourcing a core process is seldom in the best interest of healthcare organizations. HIM functions, including those related to medical coding, are fundamental to a healthcare organization and outsourcing them creates an additional level of organizational complexity and review. Because this adds to the task of reviewing and certifying the quality of local data, outsourcing should be used very selectively (that is, only when qualified local staff or production resources are unavailable). Outsourcing, however, becomes an easier short-term solution as electronic systems on standard platforms are adopted and proliferate across organizations.

Hiring coders is currently problematic in the healthcare industry. There is a massive need for credentialed coders. There are large numbers of non-credentialed people in the coding field, creating a less than optimal situation. Many organizations find that coders are not fast enough, or are not capable enough, or that there are simply not enough of them.

### ***Observations About HIM Professionals in their Workplaces***

As consultants, Care Communications associates visit many healthcare organizations and work with a variety of HIM professionals in those client sites. Although generalizations about the perception of HIM are impossible, associates perceive some general differences in the perception of HIM in the organizations where they consult.

In some places HIM is not valued, and that may be due to the persistent refusal of the department or its manager to allocate HIM resources across the organization or to the entrenchment of the department in archival functions. In smaller organizations, HIM is generally more visible and more easily involved with organizational process. In larger organizations, there are often many organizational layers that distance HIM from other departments.

In some organizations, HIM is perceived as having narrow boundaries. HIM may not be totally accepted or engaged in organizational planning for change. Additionally, interpersonal skills of HIM professionals vary considerably, and these skills often dictate how HIM is perceived in the organization. The profession must rely on the HIM director in an organization to bring HIM to the right tables. This is easier to accomplish in some organizations than in others.

Consultants are sometimes perceived as highly qualified auditors and may be threatening to some HIM professionals. Consultants are well received by executive management who hire them because they are seen as an outside eye, but they may not be well received by HIM departments.

### ***The Electronic Health Record (EHR) in Organizations***

The EHR will provide the single biggest professional challenge for HIM professionals in the coming years. HIM must carve a professional role in relation to the EHR. The changing paradigm of the EHR impacts all users of the record and those who implement change do not always fully understand the big picture. As a result, organizations make decisions in designing and implementation that may cause redundancies or omissions. This often happens when HIM is excluded or omitted from the process.

Significant change in the operational capabilities of technology has occurred over the last 10 years. The transition from paper records to an electronic environment is happening more rapidly today than in the past. Organizations are much more technology savvy, and interest in the EHR is rapidly increasing. A short time ago, many facilities were without the EHR. Currently, many of

the organizations in which Care Communications consults have implemented several significant pieces of an EHR. Organizations are struggling with conversions to an EHR, and HIM is not always a participant in the process. Information systems and technology personnel tend to be the leads in the implementation process.

Care Communications professionals observe that the understanding of the definition of an EHR varies considerably in the hospital industry. One informant provided the example of a client organization that thought it was significantly advanced with its EHR and thought itself ahead of its peers, when in reality the EHR in the organization consisted primarily of scanned documents. A truly digitized record is still a distant goal for many organizations. However, it is a goal actively pursued on many fronts.

An effective EHR is expected to reduce the need for certain workers, especially those performing more clerical HIM functions, because electronic systems will have many technical capabilities. However, new functions will evolve that will require higher-level skills of those working in HIM.

The EHR should enhance efficiency and increase portability of records. This will require that HIM professionals understand basic encoding, how networks are assembled, how abstracted information flows to billing, and how health information flows to other units across a system. The EHR will create more reliable data that can be converted to more useable information to improve quality of patient care and business outcomes. There will be significant demand for people who understand the data and information potential of the EHR in their organization. HIM personnel should prepare for these transitions and positioning themselves and their profession to fill that need.

The trend in healthcare from provider-centered care to patient-centric care is driving interest in the personal health record. EHRs will increase quality of care by reducing errors from lack of current or real time information. The effect of the EHR on quality of care is an important reason to implement electronic information systems and is driving the current pace of change.

Implementation of the EHR will also change the nature of the relationship of the patient to his personal health information. Patients as consumers will require the help of experts to manage health information that may be complicated or sensitive. Patients are not currently literate about

health records. This is a significant opportunity for HIM professionals to become patient educators and advocates.

### ***The Future of HIM Professionals***

HIM is certainly receiving more attention now that HIPAA is implemented. The security and auditing of outsourced records is of concern to many organizations that outsource HIM work. Consultants suspect that the expected implementation of ICD-10 will also create some upheaval in provider organizations and this initiative will create a focus on the competencies of the HIM profession in many healthcare organizations in the short term as a resource for education and training about the coding system.

Current trends in healthcare organizations suggest that the future roles for HIM professionals will be at higher levels in their organizations. Insurance companies and government compliance and regulatory bodies will increasingly recruit HIM professionals for their understanding of personal health information. Expert coders will be in demand to audit and analyze data. HIM professionals will be recognized as the true experts in coding, privacy, and security and will be significantly more involved with information technology. HIM professionals will need to understand information and information systems, not just IS architecture. When systems are fully automated, HIM professionals will continue to occupy roles as editors and interpreters of data.

Now and in the future, HIM professionals need:

- An ability to interact with upper level management,
- To be more astute at managing change and transition,
- An understanding of how to be both part of a team and also how to lead a team,
- Education in computer security and software systems,
- Increased technical knowledge and skills including an understanding of information system architectures and applications,
- Leadership education and strategic management skills,
- Writing for HIM reporting,
- To be more quality oriented,

- To be more research oriented (some schools are currently excellent at producing good researchers),
- To be mentors for other HIM professionals,
- An understanding of coding and how to analyze data,
- To have more varied opportunities for professional practice experiences.

Care Communication associates also suggested that graduate education should be of interest to the HIM profession. The body of knowledge is sufficient to support a graduate degree that should have a strong curriculum focused on information technology.

### **Cerner Corporation**

Cerner, headquartered in Kansas City, MO, is the world's largest health information technology company [Cerner, 2002]. Founded in 1979 to create and market an electronic laboratory system, the company has become a major force in the health technology marketplace.

Cerner is organized as five regions across the US and one global region. In 2003, Cerner employed over 5,000 associates worldwide including 800 clinical professionals and 1,000 engineers. Cerner has grown both organically and by acquisition over its almost 25-year history. In 2004, Cerner engineers, markets, implements, and supports 1,750 program applications for more than 1,500 healthcare delivery organizations worldwide [Cerner, 2004].

Cerner has built a number of enterprise-wide applications for its clients, including point of care programs, delivery coordination programs, and operational management programs. The company currently markets 52 comprehensive "solutions" to address the needs of clients in healthcare delivery organizations. Cerner has patient-centric architecture which automates the process of care, connects patients to personal health information, permits the implementation of evidence-based medicine, and structures and stores information for research and learning [Cerner, 2002].

### ***HIM Professionals at Cerner***

HIM professionals interviewed at Cerner work on sales recruiting teams, as solutions managers, as product line managers, in implementation of systems, as directors of sales and marketing, as IT strategists after purchase, in executive positions, and in a wide range of HIM and non-HIM

roles. Non-HIM professionals interviewed at Cerner included a number of systems and electrical engineers, a software development engineer, a manager of product engineering, a manager in human resources, and executive leaders.

In the early years, Cerner employed mostly engineers. However, the company soon realized that these professionals did not have the domain knowledge or the understanding of healthcare processes required to develop the various solutions they were designing. HIM professionals were among a number of professions hired to complement the company's engineering skills. There are currently about 40 HIM professionals on staff along with 800 clinical staff including physicians, nurses, and pharmacists. Approximately 2000 Cerner associates are located in the Kansas City headquarters, while the others work virtually across the country and the world.

HIM expertise was first introduced to the company around 1991 to support the development of new HIM technology for Cerner's electronic medical record. Additional HIM expertise was added over the next 10 years to help with document imaging and electronic signature applications. The increased emphasis on HIM skills provided some positive economic results. The sales of HIM solutions at Cerner increased from \$8 million in 2000 to \$31 million in 2003. This significant growth in revenue from HIM applications suggests expanded interest in HIM technology. This has enhanced the visibility of HIM within the company. Having executive staff that understands the competencies of HIM professionals has been critical to the success of the profession at Cerner.

There was an impressive array of professional experience among the HIM associates interviewed. HIM professionals at Cerner are required to have strong HIM backgrounds with years of direct experience working in a healthcare setting. A background in information technology application is preferred but not required. Interviews with HIM professionals at Cerner reveal that many of them were involved with technology planning and application deployment in a variety of hospital and other healthcare settings prior to their employment at Cerner. Cerner seeks people with technical aptitudes and a good command of HIM industry-standard knowledge.

When hiring HIM professionals at Cerner, credentials are mandatory. HIM credentials are important to customers when implementing solutions. Professionals who hold credentials dispel

issues of credibility when interfacing with customers. To create value, credentialed people must have some understanding of the technical side of the healthcare applications world.

HIM professionals at Cerner are hired for their understanding of how healthcare works and how automation can help with the business imperatives of an organization. One of the key connections that HIM professionals bring to the client is how patient care and clinician workflow are integrated with administrative functions.

The Cerner culture is collaborative and client focused. In 2003 the company was restructured to move client-facing functions from Kansas City headquarters out to geographic regions closer to the client. As a result some HIM product staff report to regional managers, while others continue to connect directly with the HIM product business unit. This matrix model (combination of centralized and decentralized) makes effective communication a vital factor to the HIM business unit's success.

HIM professionals at Cerner are viewed by peers and by those external to the profession as having camaraderie and being a collaborative network of professionals. It was obvious during the interviews that HIM professionals appreciated the work of their HIM peers across the organization and were supportive of the innovations and talents of other health information managers at Cerner.

Consulting work within the company is seen as an excellent training program for project managers since consultants obtain broad-based experience in a number of settings. A byproduct of the consulting work of HIM professionals at Cerner is that HIM associates visit many healthcare organizations. In the process, they are able to identify and draw examples from best practices across many organizations. This enhances the skills of HIM professionals and enriches the guidance they are able to provide when working with clients. Innovative ideas from clients also contribute to the current and proposed technology solutions.

### ***Perspectives on the HIM Workforce***

Cerner associates provided perspectives on HIM professionals both in their own organization and in the various healthcare organizations where Cerner solutions are being implemented. The future for HIM professionals in healthcare organizations was considered promising by many of those interviewed in Kansas City. The future, however, is predicated on the ability of the HIM

profession to embrace technology. There will be endless opportunity to work with health data and HIM should be positioned to perform that role.

HIM must not be resistant to change. In some places, HIM professionals find it hard to push the envelope to see outside the current box. Some HIM professionals cling to their comfort zone rather than move to new roles in managing data and information. In other places, HIM professionals are active participants in the change process.

Informants suggested that there is a need for the HIM profession to understand the current healthcare landscape. It is critical that HIM join with other stakeholders in their businesses to build new information systems. The HIM profession needs to focus more on data, information, statistics, and analysis, rather than on documents. An understanding of vocabularies will be very important to HIM professionals working both in global and domestic environments. In the future, machines will do much of the basic detail work, but HIM professionals will ensure data quality, accuracy, and completeness, and place the information in context.

HIM is a bridge between the clinical and the financial/administrative functions of a healthcare organization. While inside technology companies, HIM is seen as filling the gap between user requirements and technical requirements and as a bridge between solution designers and requirement analysts. HIM understands both the user and the workflow. HIM is positioned to influence design because HIM professionals possess an excellent understanding of operational flows and decision processes.

HIM roles are changing in relation to the digital EHR with issues about storage, warehousing, and privacy spawning different workflow, processes, and requirements. Clinical informatics is emerging as a role in which people who understand how to use data are sought since healthcare decisions are increasingly driven by data and information. HIM professionals must understand technical architecture and be expert at process redesign and implementation. In Cerner's business, it is especially helpful to have an understanding of the needs of the end user of a technical product.

The HIM profession is detail oriented and currently concerned with managing process and with monitoring the record for correctness and completeness. Automation in many HIM departments is not presently very advanced because hospital systems haven't demanded it. However, the industry now wants to economize and to create faster access and turnaround to address issues of

patient safety and physician error. The healthcare system is beginning to pay attention to the advantages of technology. This focus is expected to affect HIM in a fundamental way.

### ***The Education of Future HIM Professionals***

HIM education programs should educate students in coding, statistics, data analysis, accounting and finance, anatomy, pharmacology, disease process, relational databases, and nomenclature. Graduate credentials are viewed as strengthening credibility and making a statement about individual drive and initiative. However, an HIM master's degree may not strengthen a candidate's marketability any more than a master's degree in any other discipline. Graduate programs in HIM should be open to interested students with non-HIM backgrounds. Having a master's degree may not be essential to the success of an individual, since experience is viewed as most important when hiring new people, but graduate credentials enhance employability.

### ***Perspectives on the Electronic Health Record (EHR)***

There is considerably more awareness of the EHR over the last six or eight years especially prompted by the recognition that revenue is not increasing while costs escalate in the healthcare industry. Technology will improve both business and clinical process. As technology proliferates, it is especially important to understand that the electronic paradigm is different than the paper paradigm. The way in which we see and use electronic information in an EHR will and should differ from our interface with the paper record.

If paper formats and processes are duplicated online, then technology contributes little to improving healthcare. Technology provides the means of doing things in a fundamentally different and better way than paper. Technology will permit HIM professionals to have a different focus. They will have more opportunities in analytics, since they will no longer rely on a paper chart. Much more can be done with the EHR than with a paper chart, but it cannot be done in the same way. HIM will be involved in evaluating how the EHR is improving patient care.

HIM needs to be highly involved in clinical automation and must insist on being included in planning and implementation for EHRs within their organizations. The capability of the EHR will change the way people work. Healthcare is only just beginning to discover the data and process management potential of the EHR. Users of technology will no longer be able to think or

operate in islands and will need to look across all silos to use information effectively. Currently, most healthcare organizations are only partly digitized. Many have automated systems but still have a distance to go before they are fully electronic.

### ***New Challenges for HIM***

Patient access to health information presents many challenges. Managing personal health records is a shift for patients and is perceived by some as a role reversal. Most patients currently expect physicians to manage personal health information. Patient access will create a newly interactive relationship with their personal health information. Since this is a function that does not generate income for provider organizations, implementation of personal health records will be slowed by the economics of building systems to provide them.

The need for processes with global applications was reiterated by many of the informants. Processes must fit the global environment in which organizations work. Healthcare will feel the effect of globalization over time. HIM professionals at Cerner embrace the adoption of ICD-10 since Cerner works in many nations already using the new coding language.

### ***Future Roles for HIM***

The professional roles for HIM will change, but good HIM preparation will still be important. There will be no set career path, and flexibility and willingness to engage opportunity will be required. Roles will evolve and retain some similarity to current roles, but practice will be by exception rather than by a checklist. Work will be streamlined, more productive, and more real time. Future challenges for the profession will be privacy, distribution, and protection of personal health information, and defining and administering the legal medical record.

HIM is extending into new places, and into process flows in which it did not always participate. This is happening on various levels and is increasing the knowledge and awareness of HIM by the public. Even at Cerner, HIM is not well known or understood. There is increasing visibility especially with the linkage of HIM to the revenue cycle solutions and with the advent of HIPAA.

### ***Electronic Initiatives at Cerner***

In 1996, Cerner introduced a significant shift in the platform for their solutions strategies by rewriting architecture on a Millennium Platform. This is a patient-centric relational database that permits Cerner to provide applications that can standalone or can interface with other Cerner

products. While Cerner provides solutions to providers still grounded in a paper media, it is a widely stated corporate objective that all media in healthcare institutions should be electronic. A result of such a shift would be the automation of many task-oriented functions of HIM including transcription, basic coding, and record completion tasks. For this reason, there is a perceived need for HIM to be positioned at a higher level. The HIM profession should be preparing for this shift in responsibilities.

Without exception, those interviewed see a significant future role for the HIM profession in data mining, data management, data analysis, and report writing. HIM professionals at Cerner have accepted this paradigm change and have emerged professionally with skills that are highly respected. Cerner HIM professionals are well equipped to work with others to increase the quality, the integrity, and timeliness of patient information.

Cerner and St. Scholastica College in Duluth, MN are currently engaged in a unique project that permits students enrolled in HIM studies and in several clinical programs including nursing, physical therapy, occupational therapy, and exercise physiology to use Cerner technology solutions to learn in an electronic environment. This program called ATHENS (Advancing Technology and Healthcare Education Now at St. Scholastica) is hosted through a remote server at Cerner [Cerner, 2003]. HIM students use a group of applications that includes an electronic master patient index; an eligibility program; a chargemaster; HIM functions such as chart completion piece, electronic signature, and so on; and an outcomes measurement program, among other capabilities. This project is expected to produce HIM professionals with state of the art skills who understand the value and the potential of the EHR and who can function in electronically capable healthcare organizations.

Another interesting initiative at Cerner is the Winona Online Health Project that began in 2000. This is a collaborative e-health project between Cerner, the city of Winona, MN, a broadband company, and the healthcare providers in the area to connect all residents in the city with their medical records and the healthcare system. The object of the project is to provide secure interface with personal health information that enables interactive exchange of information between physicians [Cerner, 2000]. One of the objectives is to provide community health assessments and also to manage residents with chronic clinical conditions. Of particular interest are improved health outcomes for patients with diabetes or heart disease.

Winona is a small city with an interesting vision. Computers were supplied to the entire community supported by high-speed access lines to support education. The Health Online program does not currently have full participation because patients aren't evenly motivated to connect with their healthcare system. Some are challenged by creating and managing a personal health record. One of the lessons learned at this point in the project is that there is a need to start with the consumer and integrate the patient into the healthcare system. When fully implemented the project is expected to involve 25,000 patient users, 50 physicians, one hospital, and seven pharmacies [Cerner, 2000].

### **Group Health Cooperative of Puget Sound**

Group Health Cooperative is a consumer directed healthcare system based in Seattle, WA. The cooperative dates to 1947 when a group of consumers, including union and grange members, joined to create an alternative healthcare delivery system. Members were required to invest \$100 and received voting rights in the cooperative. Initially, the group encountered some resistance from the medical establishment but a court decision prohibited the local medical society from acting in a discriminatory manner towards the cooperative [Permanente Journal, 2003]. Once established, the cooperative has flourished. Currently, it is the second largest consumer directed healthcare organization in the country serving one of every 10 people in the state of Washington, as well as enrollees in two counties of Idaho.

Group Health is the third largest employer in the state with more than 10,000 employees system-wide [Group Health Overview, 2003]. The system provides both health insurance and healthcare in two owned hospitals as well as other affiliated hospitals, skilled nursing facilities, home healthcare agencies, 40 outpatient clinics, behavioral health clinics, urgent care facilities, and primary and specialty physician practices. A total of 560,000 enrollees receive care from more than 1,000 affiliated provider physician practices (Group Health Permanente) and an additional 6,500 community clinicians who contract with the plan. Group Health Cooperative has established a Center for Health Studies in Seattle that conducts health research [Group Health Overview, 2003].

### ***Health Information Management at Group Health***

Health Information Managers and technicians are employed in various operational areas with a wide range of responsibilities throughout the organization at Group Health. Some of these roles

are directly related to traditional health information management roles. Other professionals are working in expanded functions that are peripheral to HIM but for which HIM skills have proven to be integral. HIM professionals work in a significant number of hybrid roles for which HIM skills are fundamental, but for which expanded skill sets, including other learned competencies, are also required.

Group Health culture is seen as supportive of people who make contributions and expand on their personal skill sets. HIM experiences differing degrees of recognition within the organization depending on whether other professionals interface with the functions of HIM. Overall, HIM is highly respected and HIM professionals are in a number of important roles across the organization. At one time, Group Health was the largest employer of HIM professionals in the state. Executive management is an active advocate for the HIM profession.

HIM professionals who were interviewed work in research operations, management of coding and transcription operations for physician providers, management of patient data services, headquarters policy formulation and dissemination, organization-wide privacy functions for providers, the health plan, the research arm and for fundraising and marketing, system-wide HIM process implementation including release of information, consumer appeals and review of clinical necessity in health plan operations, organization wide quality initiatives and assessments, on practice teams as change agents to educate and direct providers in implementing new system process, in operations flowcharting clinical and business functions to standardize process, in data resource management, and in risk assessment and adjustment. One of the HIM professionals interviewed is employed as the chief operating officer and vice president of the Group Health Division concerned with governmental programs. Another was the system-wide Privacy Officer. Non-HIM executive level management was also interviewed to understand HIM at Group Health from a broader perspective.

Group Health is organized as both an insurer and as a provider organization. The cooperative has administrative headquarters and a conference center in one location with many of its business functions located in another. Interviews reveal that the overall management of the cooperative is structured with traditional reporting lines although some matrix reporting is also in place. HIM professionals within the organization may report to a variety of superiors or may be the superior to whom others, in a variety of roles, report. HIM professionals discussed their work as being

organized around teams such as the security matrix team or the clinical information systems team. In fact, during the interviews in the business offices, a large number of team meetings were occurring in tandem in surrounding conference rooms.

Of interest to the interviewers was the cooperative attitude of health information managers in a variety of roles within the organization. Many of the individuals were acquainted with each other despite the size and diversity of the organization. HIM professionals appeared to be mentors to each other and confident in the competence of their peers within the organization. It was apparent HIM professionals collaborate with each other on a variety of organizational initiatives and appreciate and encourage the particular expertise of their HIM peers. HIM professionals were well informed about the responsibilities and activities of other HIM professionals despite the proliferation of those functions across the large organization.

The interviews were hosted by the corporate director of HIM who is also the privacy officer for the organization. Centralized HIM functions, including privacy, report directly to the executive director of medical informatics. Privacy has been an ongoing concern of Group Health.

Washington State has had a privacy act in place that is in some aspects more restrictive than HIPAA and Group Health has been active for many years in ensuring that medical records are protected. Group Health was well positioned when the federal legislation became effective.

Implementation of a computer information system with both business and clinical applications is a current priority in Group Health. There is an aggressive push to implement a system-wide EHR in the organization that is spearheaded by a physician and an operations manager with a customer service background. This effort is directed by a dynamic team on an aggressive time line. Physicians are viewed as fundamental to the success of the implementation of the EHR and for this reason, a physician was chosen as one of the leads.

The need for an integrated EHR in the health cooperative is dictated by the size of the cooperative and by the significant resources devoted to management of clinical and patient information. Group Health has an entire transportation and record management system in place that is dedicated to transporting records between sites where patients receive care.

The technology applications currently occurring at Group Health include such initiatives as electronic signatures, unique patient identifiers to identify the patient across providers in the system, and a consumer portal to health information (MYGROUPHEALTH.COM.) that provides

a patient interface to appointment scheduling, pharmacy, laboratory results, and electronic communications with providers. One HIM professional commented that the introduction of the patient portal was essential. She commented that finally technology had caught up with a founding principle of the organization, which is that consumers should participate in their own healthcare. The patient portal makes that possible.

The ambitious implementation of the EPIC system includes several parallel initiatives including interfacing legacy systems in laboratory, radiology, and pharmacy, scanning certain documents into the system, and working on creating electronic data repositories as well as off-site paper storage. EPIC implementation will centralize HIM functions eliminating some HIM roles in clinics and other provider offices. HIM professionals have been important to the implementation process because of HIM expertise in the legal aspects of health information and also their understanding of both clinical and administrative operations.

The information system that is being implemented has a very broad based focus. Technology is seen as the driver to ubiquitous information to be used in creating quality outcomes and also as the creator of economies for the user. Just as new clinical applications will affect the delivery of care, the system has new administrative capabilities and has been broadened to include data for transactional enterprise wide applications. An example of the expected savings for the system was the pharmacy application. Group Health pharmacies handle 7 million paper prescriptions a year. There is a significant savings for each script that is transmitted electronically, so automating this process alone is of significant value. Group Health anticipates about a \$40 million payback in cost savings over four years in a number of areas, if the EPIC system is implemented as expected.

Group health works on a patient-centric model. As stated, the cooperative was founded on the principle of consumer involvement. The consumer portal has created the need for more interaction with patients, who must have a level of confidence with the privacy of their personal health information contained in the personal health portion of the record. This interaction is an expanded role for HIM and an opportunity to influence and educate consumers. Consumers are becoming more aware of appeals process and are currently better educated about their benefits than in prior years.

Technology is viewed as an important tool to create positive outcomes at Group Health. HIM professionals embrace the rapid change related to technology implementation within the system and have inserted themselves into change processes. These outcomes depend on the integration of systems across the network that is not yet a reality. Certain functions (for example, pharmacy) are now integrated, but others are still not online. The cooperative is staging implementation across the system so that training and adjustments appropriate to user needs can occur in an orderly fashion.

Coding and billing functions are important to the business operations. Hiring credentialed coders is a priority for those who manage coding-related functions. Informants indicate that it takes years to train expert coders. Group Health is doing some concurrent coding which presents a new opportunity for credentialed HIM professionals.

Informants addressed the question of what skills are needed by HIM professionals. The responses were consistent regardless of the function of the respondent. Current and new HIM professionals need:

- An understanding of technology,
- Project management skills,
- Business process management skills, and
- Communication skills, including report writing.

HIM education programs should incorporate database classes into the curriculum. HIM professionals need to understand the technical language of computing. HIM professionals should broaden their tool sets to be efficient at implementation of process, to understand the use of data to shape behavior and should be proficient at communicating effectively and convincingly.

One executive suggested that HIM should consider ecosystems and feedback cycles when considering change. It is the nature of sophisticated, complex and adaptive systems to be somewhat competitive. Adaptation must occur in order for a species to be relevant. If HIM focuses on the operational aspects of the paper world it will not adapt to the changing environment. It is important that HIM understands the effect of technology on process and outcomes in order to evolve as a profession.

The experiences of HIM professionals at Group Health suggest that the profession is very adaptable. HIM professionals thrive in the Group Health environment and are challenged to grow and learn on a continuing basis. The level of satisfaction with employment was high and the commitment to the profession was apparent.

### **Hospital Corporation of America, Inc. (HCA)**

Hospital Corporation of America (HCA) is an investor-owned hospital company, which began at one hospital in Nashville, TN in 1968. By 1987, the company owned 255 hospitals and managed an additional 208 hospital facilities. In 2003, the company owned and manages 191 hospitals and 82 outpatient facilities in 23 states and two foreign countries. The company is currently listed on the New York Stock Exchange, although at various times the company has been privately held. It is still headquartered in Nashville, TN.

HCA has acquired a number of hospital systems during its 35-year history and also merged with Columbia in 1994. The merged conglomerate owned more than 300 hospitals and a variety of other health services businesses including outpatient facilities and home health care agencies. In 1997, the company returned to its original management and began a period of divestiture. HCA has changed its focus from acquisitions to operations and has launched a patient safety initiative, a compliance and ethics program, and a technology process improvement program during recent years. [HCA Timeline, 2004]. HCA is recognized in the healthcare industry for its innovative business practices and acumen while maintaining high patient satisfaction with its services.

### ***HIM at HCA***

HIM roles at HCA are of interest since HIM professionals function in a corporate environment that differs from not-for-profit hospital corporations in its operations, processes, and business outcomes focus. The management overlay of locally managed hospitals creates a push and pull that must be effectively managed for the entire corporation. Local cultures and corporate culture must be accommodated in organizational strategies and corporate policies. Professionals at HCA were clear that the focus of both investor-owned and not-for-profit hospitals is to provide services appropriate to positive patient outcomes, and this is the main priority for all providers in the HCA hospital system.

Compliance issues emerged at HCA in the late 1990s and placed HIM in the forefront of integrity initiatives. Corporate leadership recognized that there were consequences to choices about reimbursement and coding functions in member hospitals. The corporate offices determined that HIM functions needed standardization and benchmarks across the system. This standardization has occurred through a comprehensive compliance and ethics program that has come to be a benchmark in the industry.

A critical focus for HIM within this environment is consistency of both method and process. Corporate Health Information Management Services (HIMS) at HCA, Inc. is positioned as a consultant to the organization with a mandate to demonstrate the value of the services provided to customer hospitals and outpatient facilities.

HIM is valued for its contributions to many different initiatives. The HIM professionals in the organization have moved the profession forward. HIMS is considered a hub at HCA providing vital interaction to support compliance initiatives and business objectives. The HIMS department grew from nine staff members prior to 1997 to 22 HIM professionals in 1997. There were 58 FTE professionals in corporate compliance in 2003. These professionals are located in headquarters or in geographic areas serving affiliate entities (that is, hospitals, ambulatory surgery centers, and owned physician practices). HIM professionals in the corporate offices focus on integrity and compliance and on providing valued services to HCA affiliates.

HIM professionals interviewed at HCA, Inc., work in risk management, corporate management, project management, billing compliance, operational redesign, quality management, consulting on HIM operations, privacy, and a number of other roles. Several of the HIM professionals were corporate executives with vice-presidential titles. Several non-HIM executives were interviewed, including operations officers, information officers, and the officer for ethics and compliance.

At corporate headquarters, HIM is located in a centralized department under a vice president of the company. However, many of the HIM professionals who were interviewed work in departments not traditionally associated with HIM functions, including quality assessment, finance, and risk assessment. Many of these professionals work on strategic issues in team structures with professionals from a variety of departments contributing to the development and implementation of new processes.

It was apparent that HIM professionals at the corporate level were individuals with the professional commitment and curiosity to seek new and challenging opportunities that were, in many cases, different from “traditional HIM roles.” One informant described the HIM professionals at corporate headquarters as people who had “spread their wings.” These professionals were generally described as individuals willing to embrace opportunities in other than traditional HIM roles. Leadership qualities were apparent in many of those who were interviewed. Teaching leadership to a person was described as difficult, but informants reported that mentoring by other HIM professionals had fostered important growth in the individual and provided opportunity to develop leadership. Mentoring from others in the HIM profession was cited as very important personally by several of the HIM professionals who expressed gratitude for the effect on their careers. These professionals reflected on mentoring as invaluable to professional growth.

The supply of qualified HIM professionals was perceived to be insufficient to meet the need at HCA. The demanding nature of the work requires professionals with experience in healthcare environments and an extensive body of knowledge. HCA’s corporate hiring experience with some current graduates suggests a need for more in-depth knowledge of clinical information in graduating students.

### ***The Contributions of HIM Professionals at HCA, Inc.***

The Corporate Integrity Agreement (CIA) reached with the Federal government in 2000 encouraged a focus on the skills of HIM and increased the visibility of the HIM profession. The agreement has encouraged HIM to think outside of the box and to create and disseminate best demonstrated practices across the company. This is especially challenging when working with process that has traditionally been manual archival process, since current emphasis is on electronic and concurrent process. Organizational demands require that HIM at the corporate level be on the cutting edge with knowledge of electronic tools and hands-on applications.

HIM professionals have major responsibilities in individual hospital facilities as well. HCA facilities are required to review case mix relative to benchmarks and, on an ongoing basis, examine and explain variances from the benchmarks. For instance, if the number of severe pneumonia patients treated in a facility is unusually high, the factors affecting that must be explained. Is the rate due to demographics, to a high number of skilled nursing facilities in the

area with elderly residents who are admitted to that hospital when ill, or is the variance due to any documentation or coding issues? This is a proactive approach adopted to understanding unexpected differences, to maintaining integrity throughout the system, and to providing quality services to patients.

Coding is an especially important function at HCA with this corporate emphasis on compliance and because of the financial functions it supports. Both remote coding and concurrent coding are being done at HCA. HCA requires that all coders take 30 hours of coding training per year either through reading of publications or in dedicated courses, some of which are offered by the company. Coding is a skill that has provided HIM with credibility. HIM directors do not need coding experience but they must have some level of understanding or comprehension of the skill.

### ***The Electronic Health Record (EHR) at HCA***

The EHR is a major focus at HCA. The organization is large and implementation of a common platform for both clinical and administrative functions is expensive. The EHR was compared to a train sitting on a track. Pushing it to get started is extremely hard but once it gets going, stopping it takes tremendous energy. Once moving, it can pick up speed quickly.

Implementing a universal EHR in a corporation as large as HCA has many challenges including obtaining agreement from a wide variety of users. Physicians must drive the process and they are in many different locations and practice configurations across the corporation. The approach at HCA has been incremental with some clinical applications in MEDITECH already in place.

### ***The Future of the Profession***

Informants at HCA remark that health information managers must be excellent at data gathering. Data affects determinations about reimbursement, physician practice patterns and quality. The HIM profession is not always seen as strategic and is often viewed as tactical. Overall, HIM needs more visibility. Informants remark that HIM is often placed in a silo and confined to a narrow area of operations. HIM professionals have broad skill sets, which are not always used in a visible manner by their employing organizations.

The challenge for the profession is to think strategically when dealing with daily operations. Empowering staff is also a challenge. Managers are so focused on day-to-day technical tasks they are often not able to think more broadly. Now is a pivotal time for HIM—and also a

frustrating time—since HIM is dealing with ongoing change. The challenge was described as a conflict between the routine tasks currently required and the need for involvement in the more global and future-oriented work of the hospitals.

Members of the profession were compared to two different families. One is content with the way things are. The other is driven to be more vocal and more visible in the marketplace. This is an internal struggle for the profession that will continue. However, over time, differences are expected to lessen.

HIM professionals suggested that HIM education should emphasize:

- Strong technical skills;
- Good clinical knowledge;
- Sufficient management skill to permit the professional to engage opportunity;
- Internships in nontraditional settings (not just hospitals) so students understand the breadth of opportunity for the profession;
- The ability to work with and understand other professionals in other professional contexts;
- An understanding of the regulatory requirements that pertain to provision of healthcare;
- The ability to determine how processes can be better structured to create a return on the investment of both human and other resources;
- Strong organizational skills;
- Quality and measurement;
- Statistical analysis skills;
- Data presentation skills including capturing, presenting, and understanding the meaning of data in a particular context;
- Understanding large information systems and how information flows through organizational processes; and
- The ability to multi-task.

Professionals at HCA encourage educators to teach beyond the walls of the medical record department and outside of the professional box. The EHR will require HIM professionals to possess abstraction and editing skills. Professionals must be able to use technology to demonstrate control of the information and must be accountable. A master's degree was seen as desirable with stronger management, financial, and legal studies, and a more advanced curriculum than the HIA program of study currently offered at many institutions.

It is apparent that many of the HIM professionals at HCA feel accomplished and challenged in their work. As a group, they were confident in their excellent foundations in HIM that have permitted career progression. They were also generally optimistic about the possibilities for the HIM profession as they confront the opportunity for change.

### **Maimonides Medical Center**

Maimonides Medical Center is a large not-for-profit hospital in Brooklyn, NY. Founded almost 100 years ago, the hospital has a long tradition of providing quality care and of innovation in provision of health services. The current hospital houses more than 700 beds and 70 primary and specialty programs. The center is large and is situated over a 10-block area in Brooklyn.

Maimonides is a leading academic medical center and is the Brooklyn affiliate of Mt. Sinai School of Medicine. Each year more than 400 physician residents and medical students are trained at the center. Physicians at Maimonides provided 135,000 ER visit consultations and 81,000 emergency room visits, and birthed 6,100 babies in 2003 [Maimonides Medical Center, 2004].

In 2002, Maimonides was the recipient of the prestigious Davies Award for innovations in use of healthcare technology. The hospital was also named as one of the Hospital and Health Network's "100 most wired hospitals" in 2000, 2001, and 2002 and one of the "Most Wireless" in 2003. In addition, the hospital system also received the "What Works" award from Health Management Technologies in 2000 and the "Best Practices in Storage & Networking" Award from Storage & Networking World in 2002.

Both medical and information technology applications are widely used at Maimonides to enhance quality of care for patients. Medical applications in imaging, in plastic and reconstructive surgery, in angiography, in anesthesiology, in robotic surgery, in electrophysiology, in rehabilitation medicine, and in urodynamics are among the innovations that

identify the hospital as progressive in embracing new tools [Maimonides Medical Center, 2004]. The Clinical Electronic Health Record, MACS, provides users with real-time access to physician orders, radiology requests, laboratory, pharmacy, and other clinical information. Radiology uses the Picture Archiving and Communication System (PACS) and voice recognition software that eliminates the need for X-ray films, and has decreased the turnaround time from order to result to less than 24 hours. The use of these technologies is credited with reduction in medication errors and decreased length of stay, among other improvements.

### ***The EHR at Maimonides***

Maimonides' Electronic Health Record is currently comprised of several different clinical applications. These include:

- MACS (Eclipsys 7000) for computerized physician order entry (100 percent of physicians are trained in and fully utilize CPOE) and results (to be replaced in 2005 by Eclipsys Sunrise Clinical Manager EHR),
- Next Gen Ambulatory EHR which is currently deployed in all primary care sites, and will be implemented in all specialty clinics and psychiatry in 2004-2005,
- Healthmatics ED (A4 Health Systems) as an EHR for the Emergency Department,
- E&C IProB as an EHR and decision support system for the Department of Obstetrics and Gynecology. This will also be implemented in the obstetric clinics in 2005.

The implementation of an EHR at Maimonides is an ongoing process. Among the innovations at Maimonides are a voice recognition system and wireless LANs. A process is currently in place to permit physicians to directly enter orders and code encounters without the immediate intervention of a coder. Coders do retrospective review of charts as needed. Physicians have embraced electronic media with several doctors developing an interest in informatics.

The next major objective is an "optical storage" system to archive medical records. Assessments of progress toward a totally EHR varied depending on the perspective of the informant. HIM professionals see a need for more attention to electronic processing in the HIM department.

### ***HIM at Maimonides***

Informants at Maimonides suggest that HIM must have a vision for its future. HIM must move quickly to carve a substantial role in relation to the EHR. Data quality and clinical decision support will be important functions that should belong to HIM. At Maimonides the legal department oversees privacy and the Information Technology department manages security.

HIM-credentialed people are preferred at Maimonides. They are not, however, widely available. When director positions need filling it is difficult to find RHIA- or RHIT-credentialed candidates. Recruiting occurs from other facilities or from out of state.

Training coding professionals has been a priority for the HIM Department at Maimonides. In New York City, many coders are unionized and salaries must be contract negotiated. The unions are helpful in organizing training programs to upgrade the skills of their members. Maimonides conducted a number of major training programs to enhance the skills and credentials of their coding staff. Many of the current coders have AHIMA credentials. In the view of Maimonides staff, dedicated training programs are optimal. Community college curricula in HIM is seen as containing too much “superfluous content,” particularly for coding staff.

The HIM Department at Maimonides is responsible for managing the health record, pre-certification, billing for self-pay and Medicaid and Medicare, discharge planning, patient accounting, ambulatory patient registration and registration of maternity patients. HIM is not directly responsible for registration in the emergency department. ED personnel perform this function. HIM has, however, been part of the training infrastructure for all components of the hospital, including the emergency department. HIM is also responsible for educating physicians and other clinicians in key aspects of the medical record. Compliance is also the responsibility of the HIM director. HIM is presently considering an optical storage system.

Informants indicate that, currently, HIM staff need:

- A better understanding of technology
- Interpersonal skills that permit effective interaction with clinicians and others in the health system,
- A working knowledge of Joint Commission standards, state and federal requirements, an understanding of registries, and an understanding of HIM software programs.

## **Partners HealthCare System**

Partners HealthCare System, presently headquartered in Boston, MA, is among the nation's premier integrated healthcare delivery systems. Founded in 1994 through the partnership of two major medical centers, Massachusetts General Hospital and Brigham and Women's Hospital, the system has expanded to include a variety of provider organizations in Eastern Massachusetts including several community hospitals, a mental health hospital, a network of rehab facilities, nursing homes, community health clinics, and home health services. A partnership was also created with Dana Farber Cancer Institute to provide adult oncology services. The physician network includes about 1,000 primary care doctors and 3,500 specialty care physicians many of whom are affiliated with the flagship hospitals [Windows Media, 2002]. Over 1.5 million people receive care from system-affiliated physicians. Partners HealthCare has a goal of providing high quality coordinated care to its patients.

Partners' two major hospitals are Harvard Medical School-affiliated teaching sites and medical research and clinical education are major endeavors of the system [Partners HealthCare, 2004]. Partners has implemented state of the art technology to support several telemedicine applications that enable physicians to consult remotely with physicians and patients all over the world. [Microsoft, 2002]. Applications have been developed which permit remote consultation, remote education, remote triage and remote home care applications [Microsoft, 2002] including consultation on stroke victims and a program that permits early discharge for breast cancer surgical patients.

### ***HIM at Partners HealthCare***

When discussing HIM at Partners, it is apparent the scale of HIM is much larger than in most inpatient hospitals. The two main hospitals have bed capacities between 700 and 900 and also contain a number of outpatient clinics and physician groups. At Brigham and Women's Hospital, there are 101 FTE HIM employees, and at Dana Farber there are 40 FTE HIM professionals. Of these, seven are HIM managers (four of whom hold either an RHIT or an RHIA credential). Approximately half of the coders employed by Partners are credentialed. Brigham and Women's Hospital employs 11,000 people and provides 600,000 ambulatory care visits, 55,000 discharges from inpatient beds, and 50,000 emergency room visits each year. There are an additional 110 FTE HIM professionals at Massachusetts General Hospital, which provides an even greater

number of patient services than its sister hospital. The numbers of HIM-credentialed personnel in the Massachusetts General HIM Department is 14. Affiliated community and rehabilitation hospitals contain HIM staff in numbers that reflect their operational needs.

### ***The Environment for HIM at Partners***

HIM is challenged to have one foot in the paper world while the other is in the electronic world. It is a constant challenge to think out of the box and to be more efficient. HIM positions are currently very demanding and require seasoned professionals to handle daily issues. HIM is responsible for many of the privacy functions of the organization. HIPAA has bolstered the professional image of HIM with its emphasis on privacy and security. It has brought people to the door and has required that HIM be prepared to take the lead on a number of issues.

Another challenge in such a large system is the number of medical records and the different affiliations of provider physicians. Some are system affiliated and others are in private physician practices. Managing the medical record is complicated by these contractual arrangements.

Coding is of such importance to the system that Partners employs an HIM Corporate Coding Director who oversees the work of production coders, develops and disseminates policies related to coding and compliance functions, acts as a technical adviser to a variety of projects, sits on a number of corporate committees, and also provides system-wide education on coding. The professional in this position is very involved with IS staff, with physician profiling and compliance, and with other operations support functions.

Three corporate technical coding advisors are assigned to BWH/MGH. They advise on APCs and DRGs within the Partners Health Care Organization. These are credentialed staff, one with an RN background and another with a physician background. There is one corporate coder trainer involved with growing coders for the system, providing training for HIM programs for coders, and training seasoned coder staff.

Coding functions in the organization employ about 50 full-time equivalent employees. The hospitals experience vacancy rates in the range of 30 percent for coding positions. Contract coders are hired to provide coding services due to the high volume of patient services and the lack of available qualified coders. The budget for those services is substantial. Partners HealthCare trains coders in house. Managers feel that it takes many months for a coder to

become proficient in a particular area like APCs or DRGs. When APCs were introduced, Partners hired eleven additional staff in the coding department. Coders use both the 3M encoder and the QuadraMed encoder. There is an ongoing need for strong coding professionals with topnotch skills. The coding department provides both prospective and retrospective review of coded documents based on certain criteria.

Work cultures vary between hospitals. Massachusetts General Hospital has an HIM department structured around standard hours, while Brigham and Women's Hospital HIM staff work on flex time. The patient mix at each hospital varies as well, affecting the coding and billing functions of each hospital differently. Massachusetts General provides services to more Medicare-eligible patients than Brigham and Women's. Some of the coders at BWH work remotely and one works out of state on APC claim editing.

The corporate management at Partners working with HIM professionals determines HIM policy and procedure for all affiliated provider facilities. These policies are developed in committees that focus on everything from forms to confidentiality. Again, the scale of the endeavor is expanded by the size of the organization. There are currently 18 projects focusing on some aspect of privacy policy and procedure. New corporate policies are presented to each hospital board for review and acceptance at the local level.

The large size of the HIM departments coupled with the huge number of paper medical records for several million patients challenges the system to find space to house the HIM departments. Some professionals and records reside in affiliate hospitals while other professionals work offsite in administrative office buildings. It is a clearly stated objective of the system to encourage remote coding and automation of many of the clerical tasks provided by the department. Transcription, cancer registry work, and coding services are all partly outsourced. As well, implementation of various components of an electronic health record is ongoing. Implementation of a fully digitized EHR would decrease the need for physical storage space for the voluminous paper records. Informants suggest that the goal of the system is to create a mostly virtual HIM department over the coming years.

HIM is valued in the organization. HIM managers suggest that they have worked hard to be included on the front end of initiatives since historically, HIM has been positioned on the back end of the organization. Typically, the profession has been viewed as providing more of the

checks and balances needed in the system than as contributing to process planning and implementation.

HIM professionals feel appreciated by the physicians with whom they work and by the legal departments with whom they interface through committee meetings and daily work. It has been a struggle on the information system (IS) side of the organization. HIM professionals have found it to be a greater challenge to be involved when IS decisions are initially made. HIM has taken a proactive approach and has worked with appropriate departments to introduce the skills of HIM to IS design processes.

The HIM Departments report to various executives across the system. At the corporate level, HIM reports to the information systems officer; at Brigham and Women's Hospital, HIM reports to the chief financial officer; at Dana Farber Cancer Institute, HIM reports to a vice president of the Hospital; and at Massachusetts General Hospital, HIM reports to the vice president of strategic planning and information management. (Previously HIM at Mass General reported to the Operations Vice President.)

Some matrix reporting occurs due to the nature of the corporate affiliations as managers and directors have both facility and corporate responsibilities. Therefore, HIM may report to facility executives and also have corporate reporting responsibilities to Partners headquarters staff. This matrix reporting is important to the management of so many affiliated entities.

### ***The Electronic Health Record at Partners***

Implementation of an EHR is progressing at Partners HealthCare. However, the cost of total digitization across this large integrated system is slowing the process. The first effort at automation was a computerized patient order entry system built about ten years ago. Several outside organizations have cited Partners as being particularly progressive in its interest and adoption of electronic media to aid in both clinical and administrative processes. The telemedicine applications are of particular interest as they represent new avenues to provide care.

A longitudinal medical record for ambulatory patients has been implemented in outpatient facilities. HIM professionals are currently working with other personnel to develop a similar application for inpatient use.

There are a number of issues with planning and implementing the EHR. The Partners business affiliation is relatively recent, while the hospitals that have been joined have long individual histories. In each location, technology had already been adopted that is still in use. There are many legacy systems in each location that are not compatible because platforms are not common. To address this problem, Partners has currently adopted a voluntary policy that encourages review by the corporate information system department of new systems being considered for purchase to determine if new systems are compatible with existing systems.

For many years, a variety of clinical departments acted independently in establishing information systems, and this has proven to be expensive and time consuming after the system consolidation. Brigham and Women's Hospital has a system that was built by physicians called BICS (Brigham's Integrated Computing System). Many ancillary systems have been built to serve the needs of a variety of providers and specialty practices and, although access is available through a variety of patches, the process is cumbersome.

Physicians at Partners are seen as very progressive in their desire to implement an EHR to minimize paperwork. In fact, physicians are viewed as being ahead of the system's ability and readiness to implement electronic health records. Many physicians actively e-mail patients and engage available technology. However, many physician practices own computer systems that cannot interface with hospital systems further complicating the availability of information. Many of the system's resources are being used to build interfaces to legacy systems rather than on implementation of common universal systems.

The various interests of users currently dictate the functionalities in many systems. A more systematic approach is desirable. HIM can contribute when systems are being built since they are compliance oriented and understand different dimensions of the record than the clinical perspectives of providers.

Many HIM functions will eventually be automated including transcription and coding. Even release of information will be affected when patients can access their personal health record online. One HIM professional suggested that she envisioned kiosks in hospitals where patients print their own medical records as needed. These innovations will affect the roles of HIM. Coders will have to be expert to become coding quality editors, and more HIM time will be devoted to monitoring security and privacy.

### ***Skills Needed by HIM Professionals***

HIM professionals suggested several skills needed both by current HIM staff and future HIM professionals. HIM professionals must:

- Assume proactive roles in the organizations where they work;
- Understand more about information systems, project management, and program development;
- Be more assertive about their skills and invite themselves to the table;
- Become accomplished at automated systems and understanding structured language;
- Have excellent communication skills to positively influence other people, to establish credibility, and professional relationships;
- Understand process design, have a better understanding of technical functionality and security and systems thinking;
- Have strong leadership skills;
- Be able to market themselves; and
- Be team oriented.

Both internal and external marketing of the profession is needed. The current knowledge base and expertise of HIM is seen as relevant and valuable. HIM professionals should be encouraged to mentor others, especially newer members to the profession. The biggest challenge to the HIM profession will be to bring all these skills together and to manage professional change.

### **Pfizer, Inc.**

Pfizer, Inc., is recognized as one of the leading pharmaceutical companies in the world. It is a global company operating in 85 countries and employing about 120,000 people worldwide.

Pfizer is organized around three businesses – healthcare, animal health, and consumer health.

Pfizer is considered to be a leader in the manufacture and marketing of human pharmaceuticals with products available in 150 countries [Pfizer, 2004]. Pfizer has become a world leader in animal health products for both domestic animals and livestock having purchased the animal

health division of SmithKline Beecham in the mid-1990s. Consumer health is also a very successful division of the company with many of the most common, well-known, over-the-counter drugs being manufactured and marketed by Pfizer. Pfizer's recent mergers with Warner-Lambert and Pharmacia (previously Serrill, Upjohn, and Monsanto) have resulted in a substantial business conglomerate with expanded products and markets.

Pfizer engages in a significant amount of product research to develop new pharmaceuticals and in human clinical research trials of newly developed drugs as well as longitudinal studies of adverse events from already introduced and approved drugs. The clinical research efforts at Pfizer have provided an opportunity for HIM professionals to manage the large number of patient records for these trials involving thousands of patients in dozens of countries. Typically the company engages in about 200 research studies over a five-year period. As an example, one current study, which extends over a seven-year period, includes 24,000 patients. In addition, each of the 85 Pfizer country offices conduct clinical trials to support local marketing efforts.

The merger with Pharmacia, which markets a number of oncology drugs, will create increased demands for Pfizer's clinical research teams since oncology drugs typically have more adverse effects due to the compromised health of the patients consuming them. Studies are conducted on adverse drug effects so that follow-up information can be provided to patients and to the FDA.

### ***Organizational Strategies***

Pfizer's approach to its multi-national configuration has been to integrate its businesses. While many companies who operate in multiple companies operate independent businesses outside their primary market, Pfizer has moved to a global paradigm with consistent systems and operations across all its international businesses. Pfizer has adopted a policy of consolidation and integration to move away from silo businesses to a continuum of operations.

Pfizer is operating in a global environment and therefore, needs globally consistent processes. Much of the design of those processes has occurred over the last couple of years. Initial rollout was slow but implementation is now becoming more aggressive. There are cost savings inherent in standardization so there are incentives to move to standard systems.

Pfizer encounters different legal requirements to conduct research in each country where it is doing clinical trials. Pfizer has decided that the most restrictive environment should drive the

design of systems so that the standard protocol implemented in any country will withstand scrutiny. A few countries have unusual requirements or restrictions that are handled independently.

HIPAA has not had much impact on the company since the national and international standards for clinical research were already very restrictive. In Pfizer's research endeavors, drug studies occur concurrently in many different countries resulting in the need to pool data obtained in a variety of languages. This presents some significant challenges to obtaining accurate translations and to presenting research results. In some cases, the results may be presented in the language of the country where the research was conducted and in others, it may be translated into a common language.

### ***HIM at Pfizer, Inc.***

HIM professionals at Pfizer are involved in coding, managing clinical trial records (including subject documentation), designing systems, and developing and implementing institutional policy. Pfizer employs PhD level biostatisticians to analyze data and HIM professionals do not generally have appropriate skills for this high level of analysis. HIM professionals are, however, sought for their skills in privacy and security.

There are increasing opportunities in the pharmaceutical business for HIM professionals. At headquarters Pfizer employs about 19 people in the HIM group, called the Trial Master File (TMF) group, to perform the document management process, and to abstract and audit data from the clinical trial record. HIM performs many of the traditional HIM functions for the company, including establishing a tracking system through bar coding of records, record completion tasks, and filing the charts. The archival functions currently performed by the TMF group at Pfizer will eventually be moved to the regulatory department so that HIM tasks will be performed throughout the company, at various levels of the organization. This will also allow the TMF group to focus on policies, guidelines, standards, system development, and quality management of trial files.

The HIM profession is recognized for its knowledge of the legal requirements for the medical record. HIM skills have also been tapped by the organization to understand anomalies in data. The example of the diagnosis of tuberculosis was provided as an illustration of the use of HIM competencies. Physicians will use the diagnosis of tuberculosis when testing for the disease

rather than using a code that indicates they are ruling out the disease. For that reason, the incidence of disease is often cited as increasing when in fact the rate may be a result of overcoding. HIM professionals have the ability to ascertain if such anomalies are in fact due to overcoding or are a real phenomenon. This is achieved through a more comprehensive review of the medical record to look at diagnosis and treatment.

Additionally, HIM is appreciated for understanding medical typologies and compliance standards. HIM professionals at Pfizer examine the myriad legal requirements of patient and information releases from a variety of local, state, national, and international authorities that are critical to conducting human clinical trials.

HIM professionals also help to build the electronic casebooks for submission of patient records to the FDA including those where research is being discontinued or where serious adverse events have occurred. These electronic casebooks are built concurrently with the paper medical record and capture essential facts addressing 16 domains of interest that are determined by the FDA and the International Committee on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICHCFR).

Many of the coding functions required by the research are outsourced or performed by Pfizer staff who are by and large, not credentialed. This is probably due to the fact that the typologies used are largely associated with research and not acute care. Pfizer is migrating from homegrown coding systems to the WHODRA and MedDRA typologies used by the research community for classifying diseases. Using standard codes permits pooling of data from several research studies. Coding is particularly important to research organizations since international research protocols require that records related to clinical trials include references to adverse events, concomitant medications, and other relevant patient history. The volume of HIM work at Pfizer is sometimes unpredictable so the company has entered into a long-term contract with a consulting company that provides trained HIM staff to manage the research files on an as needed basis.

There is an emerging trend in pharmaceutical research to conduct more long-term health outcomes research to demonstrate the value or efficacy of one medication over another medication in the same class of drugs in the management of chronic illness. HIM professionals have many skills that would contribute to this longitudinal research. This was cited as one of the emerging opportunities for HIM professionals in the pharmaceutical industry.

HIM functions are distributed across the corporate structure and are not solely confined to the TMF group. Coding is housed in the medical dictionary group; traditional records management for clinical trial documentation is in the TMF group and within the Regulatory group; and HIM professionals also work with a group of quality auditors who are responsible for security, privacy and confidentiality. HIM professionals are also contractors to the company as clinical regional associates who compile records during clinical research for abstraction and analysis. The organization is highly matrixed around projects and teams. HIM professionals working in various parts of the company like the research division interface with other HIM professionals in a variety of other departments on project work.

### ***The Electronic Health Record at Pfizer***

Pfizer does not have an EHR for its clinical trial patients. The pharmaceutical industry in general is less advanced than the health services world in tools to manage trial records. Implementation of an EHR is somewhat hindered by the fact that research is conducted in a number of countries, many of which are not yet automated. A hybrid model for the trial record is emerging with parts of the clinical record on paper and other parts on electronic media.

Many records are currently scanned for use electronically, but the record itself is not automated. Pfizer is also attempting to create a global system for the electronic management of trial master files. They are investigating how to manage both raw and analyzed data.

### ***Skills Needed by HIM Professionals***

Informants suggest that HIM professionals should:

- Be educated to interact strategically and to be better advocates for the profession. There are many opportunities at Pfizer to bring process improvement to the industry. Many of the current processes are not as state of the art as they are in direct healthcare provider organizations. HIM has an ability to understand the medical record that is valuable to the pharmaceutical industry.
- Have opportunities to develop skills that apply in environments other than inpatient hospitals.
- Become standard setters and move from traditional coding functions to auditors and reviewers.

- Better demonstrate the value of HIM to the organization. The example of project management was provided. The corporation encourages project management personnel to train and test for certification in project management because this skill is seen as a value added for the organization. The same is not now true for “traditional HIM functions”.
- Have strong leadership, strategic planning, and project management skills.

Overall, HIM professionals and their non-HIM peers and executive management see increased opportunities for HIM professionals in the pharmaceutical industry. As the skills and competencies of the profession become more well known, and as those skills are applied to the operations of the pharmaceutical industry, demand for HIM professionals should increase.

### **Rockford Health System**

The Rockford Health System is the largest integrated delivery system in northern Illinois, which functions as both a healthcare provider and a healthcare insurer for its enrollees. The system includes Rockford Memorial Hospital with 396 licensed beds, Level 1 Trauma and Level III NICU, the Rockford Clinic with 70 multi-specialty physicians in eight locations, Van Matre HealthSouth Rehabilitation Hospital, a 37-bed inpatient rehabilitation hospital, the Visiting Nurses Association which provides a variety of home healthcare services, and several dialysis centers. The insurance company, Rockford Health Plans, offers a comprehensive set of insurance options including a health maintenance organization, a preferred provider organization, and a third party administrator plan. Rockford Health Plans insure 42,000 members. The system also includes the Rockford Memorial Development Foundation that raises funds to help meet the mission of the Health system.

Rockford Health System provides comprehensive medical care through its primary and specialty care clinics and its wide range of services. The health system is located in a city of about 140,000 people about an hour northwest of Chicago. There are two other hospital systems in the area, St. Anthony’s Medical Center and the Swedish American Hospital.

### ***HIM at Rockford Health System***

HIM departments operate variously in the different facilities at Rockford Health System. Each department’s reporting structure differs depending on the organizational structure of the facility. Within the hospital, the HIM department reports to the Chief Information Officer. This is a

recent shift made after a Joint Commission visit that focused on quality and compliance. Coding and billing are supervised separately and together depending on the particular structure of the facility. In all facilities, coding and billing departments report to the respective finance executive.

Cross-functional teams drive policy and planning within the system. HIM is generally included on these committees. Many departments still operate in silos despite cross facility planning. Certain parts of the health system are not always aware of information available in other parts of the system so there is some inefficiency in the large organization. HIM experiences this inefficiency with a lack of feedback when deficits in the health record are discovered. It is difficult in large integrated systems to meet the needs of all users of the medical record.

Information systems departments in organizations like Rockford should be committed to developing and using systems to improve operations and outcomes, yet IS personnel do not always understand the operational aspects of systems that are being built. HIM professionals can be used effectively to help other professionals understand the process and desired outcomes.

The complexity of data has increased and as a result more sophistication is required to understand it. HIM professionals have an ability to analyze data to improve outcomes and processes and to make informed decisions. Understanding and using data will continue to be a competency required in the future for the HIM profession. Informants suggest that an HIM professional with project management skills would be perfectly suited to a cross functional role in an information system department as a link between operations and technology. Some HIM staff are currently involved in troubleshooting and monitoring electronic applications at Rockford, but none are involved in building systems.

Coding is also seen as a skill that will continue to be needed at Rockford. One informant commented that she refused to hire people who were trained in insurance companies because expert systems do all the thinking in those environments and coders from such locations are not trained to solve problems outside those parameters. A need for expert coders who understand case mix variation will continue, despite the implementation of expert coding systems. Finding trained coders is an issue and the system is considering remote coding to attract a workforce to the positions. An expert coding unit within the Rockford Clinic is highly regarded for its handling of complex or difficult claims. The coding unit codes all surgery prospectively while E& M services are only reviewed retrospectively.

Coding roles vary within the system. When physician practices were purchased by the hospital system, billing and coding for all services was consolidated. Management soon realized that hospital coders and billers were not expert at billing for physician services. The structure of coding and billing services was then reconfigured to separate hospital coding and billing from physician coding and billing. Training an expert coder takes about a year even with some experience in another organization. This is because the medical record is complex and many pieces of it must be considered when assigning codes. Rockford Health System experiences difficulty in finding adequately trained coders. Coding credentials are encouraged, but new employees do not always have them.

Management considers experience to be more important to a position and more predictive of success in a position than holding a credential. Highly educated and credentialed people are not always seen as being able to perform essential tasks for the position for which they are hired. A few credentials are viewed as indicators of competency. The CPA was cited as such a credential, but management professionals at Rockford cautioned that there are only a very few credentials in this category. When hiring new employees, experience is preferred over education and credentials.

HIM staff is encouraged to participate in planning and decision-making. This involvement has led to a stable workforce at Rockford Health System with low turnover and few vacancies. HIM has a particular expertise in extracting useful information from raw data. This expertise is not always used effectively across the system. HIM professionals are trained as information analysts who understand operational goals. These talents are particularly useful for the weak link between operational goals and technology implementation. Technology must serve operational needs so that professionals can work smarter not harder.

Quality and compliance have been added as pieces of the puzzle for HIM. Compliance is a system-wide concern and there is a dedicated compliance committee to address accountability, goals, and directives. Quality is largely a nursing role but some HIM professionals are in quality roles in the system.

### ***The Electronic Health Record At Rockford Health System***

Management informants at Rockford explain that although there is significant progress in establishing an EHR, there is no comprehensive computerized patient record at Rockford Health

System. The paper record is still considered the official record within the system, although transcribed records and other portions of the record including laboratory results are electronic and are accessible by clinicians at point of service. Achievement of a full EHR is hindered by the huge cost and also by the lack of acculturation in many clinical providers to expert electronic systems. Rockford has made significant steps towards achieving an EHR and will continue to move towards that goal.

The system has established a clinical data repository (CDR) that provides reports for services provided within the system including laboratory and operative reports. This resource makes it possible for financial services personnel to access many of the health records needed to perform their work without interface with the Medical Records Department. Currently, electronic records do not include handwritten physician notes, patient-originated documents, records from non-affiliated providers who have provided care to the patient or historical documents related to that patient's care. The downside to direct access by providers and administrators to the electronic record system is that these professionals have fewer opportunities to interface with HIM professionals who manage the record. This makes the profession less visible to the users of the record since HIM does not act as an intermediary to use.

### ***Future Skills for HIM Professionals***

HIM professionals need:

- Better project management and critical thinking skills to problem solve,
- Better understanding of the global implications of particular decisions, and
- Greater emphasis on strategic thinking and less on task-oriented activities.

Informants suggest that a new class of certified worker may be needed to deal with confidential files. Centralized repositories will challenge the system to find ways to restrict access to protect privacy. Access to protected information can be both direct and indirect and that makes protection of patient information very difficult. At the same time, HIM is likely to become more directly involved with the patients. Patients are beginning to understand that their personal health information is available to many users and there are privacy and security concerns surrounding the use of that information. One informant suggested that there would be a need for a patient information expert just as there are currently tax experts with special expertise.

## **The Department of Veterans' Affairs VISN 2 Network**

The Department of Veterans' Affairs is the largest single public healthcare system nationwide with 163 hospitals, 850 ambulatory care and community outpatient clinics, 137 nursing homes, 43 domiciliaries, and 73 home care programs across the US [Fact Sheet, 2002]. The VA system is also the largest provider of medical education and training programs in the country. Over half of all practicing physicians have received part of their medical education in a VA facility [Fact Sheet, 2002].

Nationally, there are three administrations within the Department of Veterans' Affairs – National Cemetery Administration, Veterans' Benefits Administration, and Veterans' Health Administration. The VA health system provides backup to the active military healthcare system, is designated as a primary respondent in situations of civilian defense, and is also a contractor to the Department of Defense which purchases medical care for Tri-Care and Sierra insured military dependants from the VA.

The VA was established by Abraham Lincoln “to care for him who shall have borne the battle and for his widow and his orphan.” This remains the mission of the VA today. About eight years ago, the organization was redesigned to operate as 22 (now 21) regional entities. The goals of the redesign were to maximize veteran utilization while preventing duplication of services. There was also a shift in focus from providing inpatient care to outpatient care. In 1996 the Albany VA medical center had approximately 600 acute beds. Presently, approximately 200 acute care beds are operational with some additional sub-acute beds licensed and available if needed.

Nationally, there are 26 million veterans eligible for services from the Department of Veterans' Affairs. Eligibility for a variety of benefits also extends to dependents, spouses, and survivors of veterans, increasing the number of those who can potentially access VA services to more than 70 million people [Fact Sheet, 2002]. The Veterans Health Administration currently provides healthcare to over 4.5 million veterans. The cost for VA benefits exceeded \$50 billion in 2000, with 43 percent of that amount spent on medical service [Fact Sheet, 2002].

The Veterans Integrated Service Network (VISN) 2 (the VA Healthcare Network Upstate New York) includes 29 outpatient clinic settings hosting approximately 500 different outpatient medical clinics. There are five hospitals within the VISN and a smaller hospital in Batavia that is connected to the Buffalo service center. VISN 2 administrative and health service units are

located in Albany, Buffalo, Syracuse, Bath, and Canandaigua. Services provided in Bath and Canandaigua are largely psychiatric with some medical services being offered in Bath. VISN 2 (the region that includes all the upstate New York counties and two in Pennsylvania) currently serves 135,000 veterans with a wide range of service-connected ratings.

VISN 2 chose to reorganize into product lines called Care Lines. These include four major focuses for VISN 2: medical/surgical care, behavioral healthcare, geriatrics and long-term care, and diagnostic and therapeutic care including radiology, rehabilitation services and other therapies. Administrative functions were also reorganized to be consistent with these Care Lines.

### ***The Electronic Health Record at VISN 2***

Unlike most other health systems whose information systems were built and driven by business practices, the VA information systems were built with a patient focus. The VA presently has perhaps the finest patient information system in the world. However, now that financial issues are gaining attention, retrofitting information systems to meet the business needs of the VA has been challenging.

The Clinical Patient Record System (CPRS) within the VA was built for providers. It has been modified to more specifically meet the needs of specialty care providers and services and to increase the interfaces with administrative applications systems within the Veterans Health Information Systems and Technology Architecture (VistA). The traditional VA information system, VistA, was originally created and deployed in 1985 to support patient care and other activities like appointment scheduling, admission, discharge and transfer as well as laboratory and other clinical activities. It was used mainly in VA medical facilities meeting the need for patient care activities.

The CPRS today provides an integrated patient record system for clinicians, managers, quality assurance staff, and researchers. The primary goal of CPRS is to create a fast and easy-to-use product that gives physicians enough information through clinical reminders, results reporting, and expert system feedback to make better decisions regarding orders and treatment. CPRS has evolved from order entry/results reporting (OE/RR) to a comprehensive umbrella package that includes progress notes, health summary and consults, in addition to ordering capabilities for laboratory, pharmacy, radiology, diets, and so on. CPRS organizes and presents all relevant data on a patient in a way that directly supports clinical decision-making. These data include medical

history and conditions, problems and diagnoses, diagnostic and therapeutic procedures, and interventions. Additionally, modifications are being made to CPRS to interface with administrative applications within VistA and to continuously update functionality to better serve all identified needs of an EHR. These interfaces will meet the needs of the provider community, the administrative staff, and the veteran.

According to a national mandate that applies to the entire VA healthcare system, 100 percent of all health records must be electronic. The VA system has adopted the mantra that paper will not be accepted if the report is conducive to electronic media.

Despite the largely computerized patient health records, some documentation must remain on paper (that is, flow sheets). CPRS also includes a vitals package. Some patients currently have both a paper record and an electronic record within the VA healthcare system. The paper record is largely comprised of historical medical information, and non-VA records. Some of the paper information is scanned in the VA's imaging systems. Active patient paper records are maintained in the facilities where the veteran seeks care. Records of veterans who have not received services for three consecutive years are retired to the federal records center in Neosha, MO where the records are stored for the remainder of the 75-year retention period.

The VA system has evolved into a system with rigid structural information security and privacy safeguards. VA professionals recognize that the system far exceeds most private and public health care providers in their progress to a computerized patient record (CPR) or electronic health record (EHR). One of the future challenges for health information managers and for information systems personnel within the VA is to complete the transition to a totally electronic patient record.

The evolution in information systems has been shaped by a focus on the VA priority to have a patient-centered system even for administrative services with a focus on improving the continuum of care. HIM personnel have been directly involved in and integral to the creation of new information systems and in the alteration of existing systems to achieve these goals. Information systems within the local Veterans healthcare system now include more than medical and clinical information with the development of business-oriented applications that interface with the patient health record.

The VISN 2 network has elected to further enhance the business information systems within the current VistA system. VISN 2 has achieved additional efficiencies over time by adding several support programs that have been written by IT staff in the VISN or by purchasing commercial add-ons to the VistA system.

VISN 2 is presently participating in a national demonstration project for an initiative called My HealthVet. This is a program available to veterans that allows an individual, upon application and approval by their physician, to have electronic access to a secure copy of his or her medical record. This program introduces a variety of security and privacy concerns for the patient, for the systems administrators, for the health information managers, and for the physicians who provide services to patients.

### ***HIM at VISN 2***

The VA system is receptive to and inclusive of HIM professionals' skills. The prevailing work culture focuses on integration rather than fragmentation. Collaborative processes are readily apparent throughout the network. HIM presently has a far more interactive role than it previously had within the VISN. The profession is viewed as providing value-added services to the system as opposed to providing only data valuation. One of the reasons for this change is the increased emphasis on third-party revenue generation that has made HIM more visible. This suggests that linking the health record to revenue had a positive impact on the HIM profession.

### ***Health Information Managers and Coding and Revenue Functions***

In this VISN, HIM has been a driving force for change. The profession is seen as future focused and change oriented and as functioning in an important role in supporting process enhancement. The linkage of HIM skills to revenue streams has created many opportunities for HIM professionals that might not otherwise have been available including career paths in consulting, products, compliance, and risk management.

### ***Health Information Managers and Clinicians***

One of the VISN 2 clinical informants suggested that health information managers should be more integrated into workgroups in the system to better understand the context of the work that is being performed. HIM had been viewed as performing surveillance functions, but is now becoming more recognized for being an integral part of the education function as well. There are

many opportunities for HIM professionals to make prospective interventions and to provide staff education. One informant observed that HIM should be part of the training for all healthcare workers as they are initiated into the fundamentals of providing patient care.

### ***Health Information Managers and the Electronic Health Record***

There was a recurrent feeling expressed in the interviews that HIM is respected as a profession within this health system. There is apparent established credibility for HIM functions as well as significant personal rapport operating among system personnel. In some cases, health information managers are still identified with only the paper health record. Historically, clinical coordinators have been identified as the technical experts for the implementation of the electronic health record within the VA system. HIM and the policies and procedures required for the EHR and identification of current guidance that needs to be incorporated into the electronic system are often seen as tangential to the actual implementation. HIM is credited with being vigilant about disposal of “paper” records and enforcing the need to shred hard copies of sensitive records. Health information managers, although always technically connected to the patient record, were introduced more visibly to the electronic process when operations re-engineering began with the focus on improving revenue and other operational outputs.

### ***Health Information Managers and Compliance***

Compliance officers who are HIM professionals in the network perform an audit function, but are also actively engaged in provider education. Provider education is performed by all VISN HIMS compliance officers in group training modules.

### ***Health Information Managers and Information Systems***

Health information managers are definitely viewed as being subject matter experts. Information technology staff anticipate potential expansion of roles for health information managers with a privacy and security focus now that patient access is being introduced through the pilot of the national “My Health Vet” program. This program has created some new challenges for health information managers since a crucial part of the access process is provision of understandable, accurate clinical information with essential privacy safeguards in place for all users of the health record. Health information managers are presently involved in training clinicians about the program and the various issues incumbent upon the VA when new users are permitted access to

the record. IS/IT managers comment that they can provide encryption and firewalls, but that the content, compliance, and privacy issues are the responsibility of clinicians and health information managers.

HIM professionals are very helpful when reviewing a process, examining how that process will comply with the regulatory parameters and verifying that a system will meet the standards. More and more, the business objectives of the organization are driving the structure of information systems and health information managers are regarded as experts in understanding the match between the clinical and business imperatives of the organization.

### ***New Roles for Health Information Managers***

HIM professionals are not in stagnant roles but rather in ever-evolving ones. Within the VISN, there is active communication among HIM professionals in the same roles and also with those in other functional HIM and non-HIM capacities within the organization.

Health information managers have many opportunities within the system because of the changes that are occurring. Ongoing alterations in a wide range of network processes has led to the development of various functions for health information managers in compliance, utilization management, and other staff positions connected to accreditation, revenue, and finance. The profession has broadened as more person-to-person contact with clinicians and other administrative staff has occurred.

The HIM manager in the VISN is also the Freedom of Information Officer. She works closely with the local Privacy Officers, legal counsel, and information system personnel whenever an information request is made. This is a visible role for the profession since the VA is a public health system run by the government.

### ***The Skills of Health Information Managers***

Overall, health information managers within the VISN are perceived as vital to the success of the network. Upper level managers interviewed in the fieldwork process were complementary of the skill set and the contributions made by health information managers to the vision for change and to the processes that create or enable change. When asked about whether this was a function of the personal style and rapport of the health information managers or a function of their roles and their professional understanding of the issues, managers suggest that it is a combination of both.

An effective health information manager with good skills is an excellent marketing tool for the profession.

Credentials were perceived as “somewhat” important. They enable the person who is doing the hiring to assume the new employee has a basic knowledge of certain pertinent material.

However, having a credential does not always speak to having the ability to apply the knowledge that is fundamental to success in a position. Informants agree that work experience may be as strong an indicator of success in a position as any credential.

### ***Current and Future Concerns of the VA and HIM within the VA***

Informants stated the following:

- IT professionals suggest that they are impressed with HIM knowledge of the regulatory requirements for the health record, but health information managers need to strengthen knowledge about technology and data structure. Health information managers need to improve their technical skills to understand technical interfaces and other hardware and software issues.
- HIPAA is viewed as a major opportunity for HIM professionals to improve or develop skills relative to the new privacy and security rules. Opportunities for professionals who understand some of the technical aspects of security and privacy will abound.
- Wireless network security was of some concern to IS professionals. Although there is confidence that security within the local network is excellent, broader wireless networks and technologies were a worry. This is a growing concern as more documentation occurs through PDAs, as more wireless technology is employed in communications between physicians and patients, and as larger external networks connect with smaller local networks through wireless technology.
- Another challenge for HIM professionals is precise definition of required content within the electronic record. As one IT manager observed, it is important that the record be comprehensive and complete, meet regulatory standards, support the provision of care by the clinicians, and enhance the continuum of care for the patient. However, it is not necessary to include every piece of paper relating to a patient. This would be an inefficient use of technical and human resources. The standards for the record are the

responsibility of the HIM professionals who must create, implement, and monitor the standards for content. As more records become electronic, the maintenance and storage of records will require and receive increased attention.

- The new VA technology initiative providing direct patient access to individual health records within the VA system is creating some new challenges. The veteran's electronic health record is now available to qualified patients through the "My Healthe Vet" program. Increased access will create an opportunity for HIM professionals to facilitate patient access while ensuring privacy and security standards are maintained.
- HIM personnel within the VA indicate that marketing initiatives are needed for the profession. Although managers and clinicians who work directly with HIM professionals seem to hold them in high regard, other professionals often do not understand the HIM skill set and the value added by HIM to provision of care. Individual HIM professionals can only educate those with whom they work about the profession. The public remains largely ignorant about HIM and how it serves them in protecting their records.

Overall, the VISN in upstate New York appears to be both progressive and aggressive in meeting the challenges of the current healthcare environment. HIM professionals within the network are participating in a number of successful initiatives that have resulted in greater efficiencies. The network management seemed to enjoy a collaborative relationship that was remarkable for its goodwill and its obvious recognition of the necessity for contributions from professionals with a variety of competencies to achieve success with the re-engineering process across the network.

Communication seemed to be a natural tool for people at many levels of responsibility both those on the front line and those more removed from patient care. Input from a variety of professionals was actively sought to resolve many operational problems. Although there was a recognition that more work still needed to be done, there appeared to be significant satisfaction with the joint efforts of those in operations in a variety of roles in improving records flow, providing appropriate and adequate security, enhancing the continuum of care, and improving revenue processes. Health information managers occupied fundamental roles in these efforts and were regarded as instrumental to the change process.

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