Health Information Management Professionals [Present Circumstances and Future Expectations]

Raniya Al Kiyumi*, Sue Walker, Amina Tariq, Gerry FitzGerald

School of Public Health & Social Work, Faculty of Health, Queensland University of Technology, QLD, Australia

*[r.alkiyumi@hdr.qut.edu.au]

ABSTRACT

Health information management (HIM) is the heart of a health organization; with each beat, it supplies much-needed information to users such as physicians, staff nurses, allied health professionals, health administrators, insurance companies and government health departments. The traditional role of a HIM professional has been to maintain organized and accurate data, which is available for patient care and for management purposes. HIM professionals undertake numerous tasks to fulfil this goal. HIM specialists, therefore, need to integrate a variety of skills, such as a strong knowledge of medical terminology and disease processes, application of clinical classification systems, excellent managerial skills and computer and information technology (IT) expertise, to manage the range of health information and human services for which they are responsible.

However, the growth in information technology has had a huge influence on HIM responsibilities. Technology has automated many of the routine functions of data collection and thus the role of the HIM professional has become more divergent and strategic in nature, particularly with the increasing development of electronic health records. Records must now be made available to increasing numbers of health care providers and various other parties simultaneously.

The changing role of HIM personnel in health care has increased the need for HIM professionals who understand the use and meaning of health record information as well as the language used to describe the reality of clinical treatments and financial operations. In addition, more employment pathways and opportunities have become available for HIM professionals.

However, many HIM experts still believe that providing a simple answer to the question, "What is HIM?" is one of the greatest challenges in the current electronic world. HIM professionals believe that, unless they can clearly articulate what they do and what makes them unique, the profession will struggle to convince others of their importance in the future. Other studies state that, in spite of the importance of HIM in protecting hospital and patient clinical information and ensuring appropriate hospital funding, it is considered a hidden profession.

The aim of this paper is to outline the current strategic challenges facing the HIM profession and to explore what those challenges mean for reconfiguring the future workforce needs and professional enablers' specific education. It is important for the HIM authorities to evaluate and identify the future needs of professionals and the role that they play, in order to maintain their sustainability.

1. INTRODUCTION

Health Information Management (HIM) plays a significant role in the maintenance of health information. The Global Health Workforce Council has defined Health Information Management (HIM) as "the practice of acquiring, analysing, and protecting digital and paper-based medical and health information vital to providing quality patient care and maintaining the daily operations management of health information and electronic health records" (Global Health Workforce Council 2015).

The main role of a HIM professional is to maintain organised and accurate information, and to do that they need to perform several complex tasks across the lifecycle of information, from acquisition to archiving to destruction, in their health care organisations. They play a critical role in completing, protecting and ensuring the availability of high-quality clinical information for purposes including patient care, reimbursement, quality assurance, research, statistics gathering and management decision making (Safian 2012, Goedert 2013).

For optimum delivery of these information intensive tasks, HIM professionals need to integrate a variety of skills, such as expertise in computer and information technology (IT), a strong knowledge of medical terminology, profound understanding of disease processes and other conditions, experience in using clinical classification systems and excellent managerial skills, to enable them to manage the range of health information services for which they are responsible, including human resources (Green and Bowie 2011, Abdelhak, Grostick et al. 2012).

As the booming information technology trends have resulted in significant changes to healthcare delivery, the changes experienced by the Health Information Management (HIM) discipline over the past decade have been unprecedented. One of the recent challenges has been the emergence of so-called "Big Data". Because of the now ubiquitous availability of digital data, HIMs are being challenged to understand how Big Data can be harnessed, managed and made available for improving decision making and health care performance (Sandefer, DeAlmeida et al. 2014). Several studies have identified multi-dimensional issues in relation to the HIM discipline that need to be addressed (Bennett 2010, Street 2012, Jacob 2013, Sandefer, DeAlmeida et al. 2014, Sandefer and Karl 2015) to make the discipline sustainable for safe healthcare delivery. Perhaps one of the most fundamental challenges for HIM is the ability to provide a simple answer to the question, what is HIM? Other studies state that in spite of the importance of HIM in protecting hospitals' and patients' clinical information, and in ensuring appropriate funding for hospitals, it is a "hidden" profession (Shepheard 2010, Safian 2012, Goedert 2013). Together these observations provide insights into the importance of assessing the status of the HIM discipline and indicate the factors that may threaten its sustainability, which may, in fact, influence the entire health system.

As such, there is a critical need to define the HIM profession precisely and to determine its key roles in the healthcare system. The aim of this paper is to outline the current strategic contemporary challenges facing the HIM profession and to explore what those challenges mean, for reconfiguring the future workforce needs and professional enablers' specific education, and influencing their sustainability. Specifically, defining the profession, the impact of technology, workforce planning, education, research and the importance of collaboration and planning is emphasized.

2. HIM PROFESSIONALS' MAJOR CHALLENGES

1.1 Defining The Profession

The HIM profession takes responsibility for assessing the quality of health information in the health sector, particularly in hospitals. However, despite this important role, previous studies have indicated that many healthcare professionals have only a vague idea about what HIM entails. The lack of understanding and appreciation of the profession has affected the status of HIM and the sustainability of the profession in some countries.

One of the most significant issues perceived from the literature is the inconsistency in the name or definition of HIM. It is referred to in some studies as "health information" and in others as "health information systems" or "information management". The transformation of the professionals' title, from being known as "medical record librarians" to "medical records administrators" and currently to "health information managers", based on the rapid development and changes in the nature of work (Bennett 2010), may be the reason for this inconsistency. In addition, the different disciplines covered in the HIM study field, such as health science, leadership and management, law and finance and IT (Walton 2012), have contributed to the misinterpretation of the nature of the profession.

Therefore, an essential step for the profession is to attain a clear consensus on the scope of practice, roles, job titles, competencies and educational needs of HIMs. Otherwise, it will remain difficult to promote the importance and uniqueness of the profession to others in the health-care system (Bennett 2010).

1.2 Implications Of Technological Advancements On HIM

In the healthcare field, technology has been firstly developed and used to promote direct patient care through diagnostic, therapeutic, and educational activities. Consequently, with the advancement in technology and the increasing interest in health information, technology has sustained rapid advances that have affected information systems in the healthcare field, especially for capturing and maintaining data (Abdelhak, Grostick et al. 2015). Accordingly, the Electronic Health Record (EHR) was developed, an innovation that helps in transitioning health information from paper medical records to electronic formats (Abdelhak, Grostick et al. 2015, Gibson, Abrams et al. 2015).

Literature has emphasized the importance of information technology in the improvement of HIM performance and in empowering employees in the health care system (Ajami and Arab-Chadegani 2014, Ajami, Ketabi et al. 2015). In addition, the advent of EHRs is considered significant in facilitating the capture and use of health data for supporting patient care, disease monitoring, health system planning and management, financial planning, education and research (Gibson, Abrams et al. 2015).

Despite the importance of IT in the health care system, many issues affecting HIT adoption have been described. These include financial issues, setting, capabilities of the system, and aspects relating to the users (Agarwal, Gao et al. 2010). Several studies from different countries have confirmed that the failure of, or dissatisfaction arising from the implementation of HIT, is related to the ignorance or shortage of qualified human resources

(Abdekhoda, Ahmadi et al. 2014, Adeleke, Lawal et al. 2014, Hasanain, Vallmuur et al. 2014, Gibson, Abrams et al. 2015). HIMs, because of their knowledge of both the IT and clinical aspects of health care, are well placed to support IT implementation.

Furthermore, the literature shows that the use of all the data collected in a health information system is now always effective. In an analysis of educational perspectives of health information management, Palkie (2013) identifies problems related to the limited IT knowledge of existing health care staff in addition to the shortage of a qualified (HIM) workforce. Covvey and Abrams (2013) highlight that in the past, the efforts to acquire and manage HIT were the concern, but more recently it has been recognized that technology is a tool to assist in the management of information and the quality of that information. The technology needs to be managed by qualified personnel to best harness its potential.

1.3 Workforce Planning

In the UK, the Department of Health has defined workforce planning and development as "a dynamic process, where the right staff with the right skills are in the right place at the right time at the right price" (Hurst and Kelley Patterson 2014). The exploration of workforce-related issues is one of the major areas of interest in the field of HIM. Several studies have sought to determine the HIM shortage and its implications, required qualifications and skills, need for clear planning, and the available opportunities for the HIM profession.

Several studies from Australia, Canada, US, Iran, Kenya, Nigeria and Saudi Arabia have identified obstacles and difficulties in IT implementation relating to a health information management workforce shortage (Bennett 2010, Shepheard 2010, Abrams and Crook 2011, Ahmadi, Jeddi et al. 2012, Palkie 2013, Abdekhoda, Ahmadi et al. 2014, Hasanain, Vallmuur et al. 2014, Gibson, Abrams et al. 2015, Hasanain, Vallmuur et al. 2015). Reports from the US and Canada indicate a required increase of up to 40% in the HIT workforce if the high level of IT adoption in health is to be maintained (Smith, Drake et al. 2011). In Australia, a recent health information workforce report has indicated that there are shortages of HIM professionals (HealthWorkforce Australia 2013). However, the profile of the existing HIM workforce is not well-known (Shepheard 2010), and there is currently no quantitative measure available to understand supply and demand for the HIM workforce (HealthWorkforce Australia 2013).

Rapid technological changes in the collection and management of health information require professionals who are able to understand and manipulate the data in electronic health information systems. Much of the reviewed literature discusses a concern about the availability of HIM professionals who can work in this area (Hersh 2010, Fenton, Joost et al. 2013, Palkie 2013, Kiilu, Okero et al. 2015, Whittaker, Hodge et al. 2015). The importance of appropriate knowledge and skills to work in the area means that HIM roles cannot be filled by staff with on-the-job training only. Therefore, it is necessary to determine the skills and qualifications required and set that expectation clearly while recruiting for HIM positions.

Literature indicates several opportunities for HIM as a result of moves to electronic health information systems (Watzlaf, Rudman et al. 2009, Bailey-Woods, Dooling et al. 2014). Information governance is one of the major roles that HIM professionals are expected to lead, based on their unique skills (Cassidy, Watzlaf et al. 2011, Jacob 2013, Bailey-Woods, Dooling et al. 2014, Anna 2015). In addition, the American Health Information Management Association (AHIMA) and the Canadian Health Information Management Association

(CHIMA) have created career pathways that include many emerging roles for the HIM professionals that can be considered a guide for the potential HIM candidates or professionals working in HIM (Butler 2014). Therefore, it is important to understand the opportunities for HIM in the health system and align these with educational and training requirements to ensure a competent workforce.

It is important to state clear recruitment process goals in selecting candidates for health information-related positions to ensure that the skilled and qualified workforce required to sustain an electronic health information system is engaged (Hersh and Wright 2008, Hersh 2010, Hersh, Margolis et al. 2010, Shepheard 2010, Abrams and Crook 2011). It is important to identify the field clearly to ensure understanding of the capabilities and competencies of HIM professionals and their role in maintaining good health information systems.

In view of all that has been mentioned so far, these studies indicate the need for changes to the future configuration of the HIM workforce to take on new roles and responsibilities and the importance of capacity development as a means of improving data quality (Safian 2012, Ledikwe, Reason et al. 2013, Hurst and Kelley Patterson 2014, Sheridan and Smith 2009). Therefore, to provide high-quality data for decision making, either for patient care or management and planning, it is critical to be able to determine clearly the status of the HIM profession and develop a detailed plan for the health information workforce because, as Hurst and Kelley Patterson (2014) state, the relationship between staffing and service quality is irrefutable. It is also necessary to determine a means of entry into the HIM workforce, and to set clear criteria for recruitment into that workforce based on position descriptions, job titles and the qualifications required at each level (Dyson, Greene et al. 2004, Hurst and Kelley Patterson 2014). Finally, it is important to construct an effective and efficient recruitment strategy that is aimed at encouraging more people to become competent HIM professionals (Safian 2012).

1.4 Educational Aspects

1.4.1 Education

Education is a cornerstone in supplying the healthcare system with qualified and trained personnel to provide a quality service and, specifically for the HIM profession, to provide high-quality data. Much of the current literature on HIM pays particular attention to education. A number of authors have considered education as an essential key for HIMs to survive in the expanding world of technological advancement in the health system (Abrams and Crook 2011, Adeleke, Lawal et al. 2014, Butler 2014). Consequently, the responsibilities and roles of HIM professionals have changed and become more divergent, which requires education that emphasizes analytical and critical thinking skills (Bennett 2010, Dimick 2012, Desai 2013, Goedert 2013).

The US Bureau of Labour Statistics showed that the HIM field is growing; the role of medical records officers and health information technicians is one of the 20 fastest-growing occupations in the USA, with an expected growth of 22% between 2012 and 2022 (Bureau of Labor Statistics 2014). In addition, according to an article by US News and World Report, HIM is now considered to be among the top developing study majors in the USA (AHIMA 2012).

There is a consensus among HIMs experts that education levels for HIMs must be upgraded to remain significant in the contemporary health system (Macpherson 2010, Dimick 2012, Goedert 2013, Palkie 2013, Sandefer and Karl 2015). Several studies have indicated the importance of degree programs to the development of HIMs (Cassidy, Watzlaf et al. 2011, Goedert 2013). Recently, a survey that was conducted by Sandefer and Karl (2015) has shown that participants with a higher educational level indicated higher competence in leadership and management, data analysis, statistics, and research, which are considered the core competencies for the HIM profession. AHIMA has promoted the addition of specialization tracks into the associate degree programs in the USA (Dimick 2012, Goedert 2013). These studies highlight the critical demand to clearly identify and modify the educational programs required based on health system needs and currency with industry changes.

However, several sources have identified that students are not attracted to enrol in HIM courses due the lack of recognition of the HIM profession and its unclear career path (Dyson, Greene et al. 2004, Bennett 2010, Hurst and Kelley Patterson 2014). (Dimick 2012) argues that people who are interested in data analytics, data integrity and statistics should be encouraged to study and work in the HIM field. This view is supported by Keeton (2015), who notes that successful students will demonstrate interest in the profession that will, in turn, promote its development. Jacob (2013) and Safian (2012) have indicated that the HIM profession now offers a range of new career opportunities.

There are many new job titles and responsibilities for HIM professionals and AHIMA has created a career map for the HIM profession (Sandefer, DeAlmeida et al. 2014). In addition, another study has recommended creating a website focused on the job opportunities available within the HIM field as a means to motivate students to enrol in HIM programs (Safian 2012).

Previous studies have demonstrated the difficulty in tracking the numbers of HIM graduates due to the variation in the education modes for the HIM workforce, which has led to employers being, in some cases, unable to align HIM qualifications with work criteria (Dyson, Greene et al. 2004). Therefore, it is necessary to determine required HIM competencies in the workplace and to use these competencies to inform HIM educational developments (Hurst and Kelley Patterson 2014).

All of the reviewed studies have identified that the competencies required by HIMs now include IT, health informatics and data analytics skills. Macpherson (2010) argues that data transformation requires HIM fundamental skills plus IT knowledge. Similarly, Butler (2014) states that the advancement in HIT is the result of dealing with data and that should be the core of an HIM educational curriculum.

However, Hersh, Margolis et al. (2010), in their study conducted to identify the HI workforce needs in developing countries, stated that it is critical to determine the skills and competencies that are consistent with the culture, language, and health system to really be able to fully utilize the benefits of HIT.

One of the methods for assessing competence in the HIM field is through the certification and/or credentialing of HIM professionals. However, HIM certification in many countries is considered optional, and may be carried out by different authorities (Dyson, Greene et al.

2004). Certification can be used to clearly define the profession, and articulate job titles, competencies and educational requirements. In Australia, HIMAA is responsible for the development of professional competency standards for Health Information Managers, which are used for assessing undergraduate HIM courses in universities. These entry-level competencies provide a robust framework for course curriculum design and content to facilitate new graduate performance. The HIM entry-level competencies are not intended to be used to measure workplace performance (HIMAA 2013) but intermediate and advanced competencies have been developed for this purpose.

1.4.2 Research

It is necessary for HIM professionals to engage in research activities to update the profession's body of knowledge and to provide an evidence base to define Health Information Management and outline its scope of practice (Brodnik and Houser 2009). These authors note that it is the responsibility of HIM professionals to research the effectiveness of proposed systems or programs and related aspects and to use this evidence to address implementation difficulties. Palkie (2013) highlights the necessity of research studies to determine competencies for HIM professionals and suggests the need for a roadmap to demonstrate future competencies. Despite this, there are some obstacles for HIM professionals to participate in research activities such as workload, time and financial issues (Brodnik and Houser 2009).

1.5 Collaboration & Planning Issues

1.5.1 Collaboration

Goedert (2013) highlights the fact that HIM professionals are required to work collaboratively with information technology departments, and with other staff in the health care system. For example, the process of data integration, stewardship and governance needs collaborative efforts from HIM, IT, and clinical informaticians (Butler 2015). These collaborative efforts allow HIM professionals to contribute to ensuring that the implemented information systems support the documentation process as well as safeguard health information and patient safety and confidentiality (Goedert 2013). The literature notes the relative absence of HIMs at IT summits related to health care technologies, in spite of the key role HIMs can play as change managers to support IT introduction (Bennett 2010). Therefore, it is essential to identify the barriers and facilitate collaborative efforts between Health Information Management professionals and other stakeholders in order to achieve a high quality health information system.

1.5.2 Planning

The questions raised in the literature for HIM strategic planning and workforce planning are: Which body is responsible for ensuring the effectiveness and efficiencies in both kinds of planning? Which body is responsible for following up these issues? (Shepheard 2010). It has been noted that HIM professionals are not always present at, or invited to attend, decision-making forums that create policies that are relevant to health information or which consider employment and contracts in the field (Abrams and Crook 2011, Goedert 2013). This has the potential to affect the sustainability of the HIM profession as the voice of the profession goes unheard and unconsidered (Shepheard 2010, Goedert 2013). Previous studies have

acknowledged that responsibility for ensuring the sustainability and availability of the HIM workforce generally lies with the government, educational and training institutions, healthcare institutions and HIM professionals themselves (Shepheard 2010). However, it is important to determine clearly the bodies responsible for planning, and to specify the extent of their input, to ensure transparency when addressing the issues currently facing the HIM profession such as those related to workforce demands and career opportunities. For instance in Australia, the recommendation from the Health Information Workforce Report is to form strategic relationships by developing a single body to represent and support all HIM stakeholders on workforce issues and work with both employers and the education sector to ensure there is a qualified workforce for HIM (HealthWorkforce Australia 2013, Lawrance 2014).

3. CONCLUSION

In spite of the importance of HIM to the healthcare system, policy makers and leaders have paid scant review to the role of HIM professionals and their contribution to health system development in the 21st century. Thus, there is now a specific and crucial need to increase recognition of the HIM profession by addressing current challenges and making plans to manage future transformations in health care. This will require all loyal HIM professionals to join their hands together each in their own contexts to work closely with their colleagues in the health field for the benefit of the health care system. In addition, HIM professionals must maintain their own strengths and motivations, and that of their subordinates and peers, because as stated by HIM expert, Professor Phyllis Watson: Are we still strong enough to face the challenges and raise the status of the profession? (Watson 2008).

REFERENCES

- [1] Abdekhoda, M., et al. (2014). "Information technology acceptance in health information management." Methods of Information in Medicine **53**(1): 14-20.
- [2] Abdelhak, M., et al. (2012). <u>Health information: management of a strategic resource</u>. St. Louis, MO, Elsevier Saunders.
- [3] Abdelhak, M., et al. (2015). <u>Health information: management of a strategic resource</u>, Elsevier Health Sciences.
- [4] Abrams, K. and G. Crook (2011). The Canadian Health Information Management Association: health information management in Canada, HIM-Interchange.
- [5] Adeleke, I. T., et al. (2014). "Information technology skills and training needs of health information management professionals in Nigeria: a nationwide study." <u>Health Information Management Journal.</u>(Unpublished study).
- [6] Agarwal, R., et al. (2010). "The Digital Transformation of Healthcare: Current Status and the Road Ahead." <u>Information Systems Research</u> **21**(4): 796-809,1000-1001,1003.
- [7] AHIMA (2012). AHIMA Launches First HIM Career Map. <u>U.S. Newswire</u>. Washington.
- [8] Ahmadi, M., et al. (2012). "A review of the personal health records in selected countries and Iran." <u>Journal of medical systems</u> **36**(2): 371-382.
- [9] Ajami, S. and R. Arab-Chadegani (2014). "The effects of applying information technology on job empowerment dimensions." <u>J Educ Health Promot</u> 3.
- [10] Ajami, S., et al. (2015). "Performance improvement indicators of the Medical Records Department and Information Technology (IT) in hospitals." <u>Pakistan Journal of Medical Sciences Quarterly</u> **31**(3): 717-720.
- [11] Anna, D. (2015). "Scanning the HIM Environment: AHIMA's 2015 Report Offers Insight on Emerging Industry Trends and Challenges." <u>American Health Information Management Association Journal</u> **86**(5): 38-43.
- [12] Bailey-Woods, L., et al. (2014). "Roles for HIM professionals in HIOs." <u>Journal of AHIMA/American Health Information Management Association</u> **85**(8): 46-49.
- [13] Bennett, V. (2010). "Health Information Management Workforce When Opportunities Abound." <u>Health Information Management Journal</u> **39**(3): 4-6.
- [14] Brodnik, M. S. and S. H. Houser (2009). "Redefining the health information management scholar role." <u>Perspectives in Health Information Management/AHIMA</u>. American Health Information Management Association **6**(Summer).
- [15] Bureau of Labor Statistics (2014) Occupational Outlook Handbook.
- [16] Butler, M. (2014). "Adapt or disappear: AHMA's reality 2016 has a new mission to transform the HIM workforce through education-- or else." <u>Journal of AHIMA / American Health Information Management Association</u> **85**(5): 24-29.
- [17] Butler, M. (2015). "Workday Informtaics." Journal of AHIMA: 18-21.
- [18] Cassidy, B. S., et al. (2011). "Teaching the future: an educational response to the AHIMA core model." <u>Journal of AHIMA/American Health Information Management Association</u> **82**(10): 34-38; quiz 40.
- [19] Covvey, D. H. and K. Abrams (2013). "Do HIM professionals get HI? ." <u>HCIM&C</u> **14**(6): 52-54.
- [20] Desai, A. (2013). "Focus on the future. Environmental scan illuminates the path ahead for HIM." <u>Journal of AHIMA / American Health Information Management Association</u> **84**(8): 48-52.
- [21] Dimick, C. (2012). "Health information management 2025." <u>Journal of AHIMA/American Health Information Management Association</u> **83**(8): 24-31.
- [22] Dyson, S. L., et al. (2004). "A shortage of health information management professionals: how would we know?" <u>Journal of allied health</u> **33**(3): 167-173.
- [23] Fenton, S. H., et al. (2013). "Health Information Technology Employer Needs Survey: An Assessment Instrument for Workforce Planning."

- [24] Gibson, C. J., et al. (2015). "Health Information Management Workforce Transformation: New Roles, New Skills and Experiences in Canada."
- [25] Global Health Workforce Council (2015) Global Academic Curricula Competencies for Health Information Professionals.
- [26] Goedert, J. (2013). "HEALTH INFORMATION MANAGEMENT: WHAT A RIDE IT HAS BEEN." <u>Health Data Management</u> **21**(10): 22-24, 26-27.
- [27] Green, M. A. and M. J. Bowie (2011). <u>Essentials of Health Information Management:</u> <u>Principles and Practices</u>. USA, Delmar CENGAGE Learning.
- [28] Hasanain, R. A., et al. (2014). "Progress and challenges in the implementation of Electronic Medical Records in Saudi Arabia: a systematic review." <u>Health Informatics-An International Journal</u> **3**(2).
- [29] Hasanain, R. A., et al. (2015). "Electronic Medical Record Systems in Saudi Arabia: Knowledge and Preferences of Healthcare Professionals." <u>Journal of Health</u> Informatics in Developing Countries **9**(1).
- [30] HealthWorkforce Australia (2013) Health Information Workforce Report.
- [31] Hersh, W. (2010). "The health information technology workforce: Estimations of demands and a framework for requirements." <u>Applied Clinical Informatics</u> **1**(2): 197-212.
- [32] Hersh, W., et al. (2010). "Building A Health Informatics Workforce In Developing Countries." Health affairs **29**(2): 274-277.
- [33] Hersh, W. and A. Wright (2008). What workforce is needed to implement the health information technology agenda? Analysis from the HIMSS Analytics[™] database. <u>AMIA Annual Symposium Proceedings</u>, American Medical Informatics Association. **2008**: 303–307.
- [34] HIMAA (2013) Health Information Manager (HIM) Entry-Level Competency Standards
- [35] Hurst, K. and D. Kelley Patterson (2014). "Health and social care workforce planning and development—an overview." <u>International journal of health care quality assurance</u> **27**(7): 562-572.
- [36] Jacob, J. A. (2013). "HIM's evolving workforce. Preparing for the electronic age's HIM profession shake-up." <u>Journal of AHIMA / American Health Information Management Association</u> **84**(8): 18-22.
- [37] Keeton, P., Pierson, P. (2015). "e-HIM Professionals WANTED." <u>Journal of AHIMA</u> **86**(5): 34- 37.
- [38] Kiilu, E. M., et al. (2015). "Human resource capacity for information management in selected public healthcare facilities in Meru County, Kenya." Pan African Medical Journal 20.
- [39] Lawrance, R. (2014). 'Messages Home'. A HIM perspective on the HWA's Health Information Workforce Report: significant issues for our profession. **4**.
- [40] Ledikwe, J. H., et al. (2013). "Establishing a health information workforce: innovation for low-and middle-income countries." Hum Resour Health **11**(1): 35.
- [41] Macpherson, B. (2010). "The role of a Healh Information Manager in creating data fit for purpose." <u>Health Information Management Journal</u> **39**(3): 58-59.
- [42] Palkie, B. (2013). Improving the understanding of progressing and emerging health informatics roles and skill sets among health information management professionals: An action research study. Ann Arbor, Capella University. **3601887**: 173.
- [43] Palkie, B. (2013). "The Perceived Knowledge of Health Informatics Competencies by Health Information Management Professionals." <u>Educational Persepectives in Health Informatics and Health Information Management</u> **1**(11).
- [44] Safian, S. C. (2012). "Factors influencing students to enroll in health information management programs." <u>Perspectives in health information management / AHIMA, American Health Information Management Association</u> **9**.

- [45] Sandefer, R., et al. (2014). "Keeping Current in the Electronic Era: Data Age Transforming HIM's Mandatory Workforce Competencies." <u>Journal of AHIMA</u> **85**(11): 38-44
- [46] Sandefer, R. and E. S. Karl (2015). "Ready or Not, HIM is Changing: Results of the New HIM Competencies Survey Show Skill Gaps Between Education Levels, Students, and Working Professionals." <u>Journal of AHIMA</u> **86**(25): 24-27.
- [47] Shepheard, J. (2010). "Health Information Management and Clinical Coding Workforce Issues." <u>Health Information Management Journal</u> **39**(3): 37-41.
- [48] Sheridan, P. T. and L. B. Smith (2009). "Redefining HIM Leadership: Toward an HIM Leadership Framework: A Commentary on HIM Leadership." Perspectives in Health Information Management / AHIMA, American Health Information Management Association, 6(Summer), 1c.
- [49] Smith, S., et al. (2011). "Clinical informatics: a workforce priority for 21st century healthcare." <u>Australian Health Review</u> **35**(2): 130-135.
- [50] Street, T. (2012). "Creating change in the health information management profession." Health Information Management Journal **41**(1): A20-A20.
- [51] Walton, T. (2012). "Health Information Management: Connecting to the Future."
 Retrieved 10/06/2015, from
 http://www.healthscienceconsortium.org/docs/Health%20Information%20Management%20Connecting%20to%20the%20Future.pdf.
- [52] Watson, P. J. (2008). "Health information management in Australia: a brief history of the profession and the association." <u>Health Information Management Journal</u> **37**(2): 40.
- [53] Watzlaf, V. J., et al. (2009). "The Progression of the Roles and Functions of HIM Professionals: A Look into the Past, Present, and Future." <u>Perspectives in Health Information Management/AHIMA, American Health Information Management Association</u> **6**(Summer).
- [54] Whittaker, M., et al. (2015). "Preparing for the data revolution: Identifying minimum health information competencies among the health workforce." Human resources for health **13**(1).