Assessment of Healthcare Informatics Education in USA: The Current State and Comparisons across Program Types

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ABSTRACT

The use of Information Technology in Healthcare has seen a significant increase in the last several years. However, availability of information pertaining to consistency and content of university degree courses educating people in this area is very limited. This paper reports the similarities and differences between these programs in United States with an intention to outline various graduate healthcare informatics programs. This study presents a qualitative assessment of the course curricula of 30 programs spanning 30 universities and four schools (Business, Information Systems, Public Health, and Medicine). The analysis suggests that there are seven different degree programs that are focused in the areas of healthcare informatics. By and large, the geographic growth of the programs matches the interest online in these areas. Programs taught in the schools of management have focused management of healthcare, school of information have focused on data and informatics, schools of medicine have focused on informatics and management, while schools of public health (smallest set of programs) have taken a broader view of the subject tying to accommodate a little of everything. This study provides curriculum designers and students an understanding of the details of each program and how are they different.

Keywords: Informatics, Interdisciplinary, Healthcare, Program Review, Curriculum

Key practitioner outcomes:

1. Number of graduate programs has growth substantially in the last decade, including the number of graduates from the same. The number of states offering these programs has also grown and has been consistent with the interest of people in this area.
2. There are four kinds of health informatics, offered by different types of programs. Practitioners should make sure that they are hiring from the right kind of program before hiring.
3. There are seven types of degrees offered, with the majority being MSHMI, there is no real correspondence between the name of the degree and school that it is offered in.

1. BUSINESS OF HEALTHCARE INFORMATICS EDUCATION

The demand for skills in information technology systems has been dynamic, and this growth can be attributed to constant improvement in technology and its application (Todd, McKeen, and Gallupe 1995). Consequently, the academic world has consistently been building new and dynamic information technology (IT) curricula (Brewer, Harriger, and Mendonca 2006) to address the needs of the industry. In the last few decades, healthcare sphere has seen a huge increase in the use of technology and relevant skills (Mohla et al. 2013). This increase in demand for professionals who understand the unique blend of ITs and healthcare has resulted in a new stream of curricula at academic institutions across the country (Sittig, Hazelwood, and RHIA 2018; Hazelwood, Delhomme, and Sittig 2019; Leonard, Jones, and Lang 2019).

While many healthcare informatics programs exist, deeper understanding of the subject matter and skills that various programs focus on is required to comprehend if the professionals have the right concoction of training, tools, and knowledge to enhance the healthcare IT space (Ashrafi et al. 2019; Fenton, Tremblay, and Lehmann 2016). The advantages of such an analysis are that it can provide (a) an understanding of the landscape of healthcare courses; (b) an interpretation of the similarities and differences between various programs; (c) a benchmark against which programs may be evaluated; and (d) an account of the response by academics regarding practice demand.

The goal of this paper is to provide such a comprehensive overview of different types of graduate programs offered in healthcare informatics in United States and suggest content modification to enhance the program which in-turn will positively impact the healthcare IT space. We do this by building on previous literature and conducting a content analysis of the current program curricula. There are several advantages to such an approach and its outcome. First, it provides academics with an account of the current state of healthcare information technology system programs. It also provides an overview of the depth of the field. Secondly, it provides curriculum designers and students an understanding the details of each program and how are they different. Finally, from a practitioner's perspective, it provides evidence to the industry as to how their feedback was captured and a window into the skills and knowledge the graduates of such programs carry.

The rest of the paper is organized as follows. We first present the background for this research, looking at the existing literature as well as the published graduate data. The third section takes a unique approach to answering the questions identified in this introduction, the method used to analyze it, and a discussion of the findings. We conclude with some broad guidelines and suggestions to enhance the curricula and aid future research in this area.

2. HEATHCARE INFORMATICS FIELD OVERVIEW AND BACKGROUND

Given the applied nature of the information technology systems discipline, it has had a long tradition of looking at the employment marketplace to help design relevant programs (Todd, McKeen, and Gallupe 1995; Brewer, Harriger, and Mendonca 2006). This led to a focus on the design and development of systems. This tradition has continued in the development and delivery of healthcare informatics.

A key gap highlighted from an employer’s perspective is the chasm in the healthcare information technology systems arena (Leonard, Jones, and Lang 2019; HealthIT.gov 2020). Consequently, the last two decades have seen considerable development in these programs. Early efforts to furnish the demand for healthcare information systems professionals were(Khan 2010;

Chatterjee, LeRouge, and Chiarini Tremblay 2013) graduate concentrations (Lang 2003; Harris, Bell, and Woodward 2016). The researchers argued, based on responses from CIOs and students, that curriculum designers should increase the focus in the areas of project management, application systems, information security, systems integration, and problem solving.

Overall, an assessment of the master's degrees conferred nationally in health informatics during the Integrated Postsecondary Education Data System (IPEDS) (https://nces.ed.gov/ipeds/) reporting years of 2009–2019 clearly shows an upward trend, thereby reflecting an increasing demand for such programs nationwide (see Figure 1). An interesting observation made by researchers is that a lot of this growth has been fueled by programs in business and IS departments (Tremblay, Deckard, and Klein 2016). Additionally, the growth in the programs seems to be steaming primarily from graduate programs, making them the ideal candidate to understand the nature of this field. Overall, this variance in programs creates the need to understand the similarities and differences between the healthcare informatics programs in more detail.

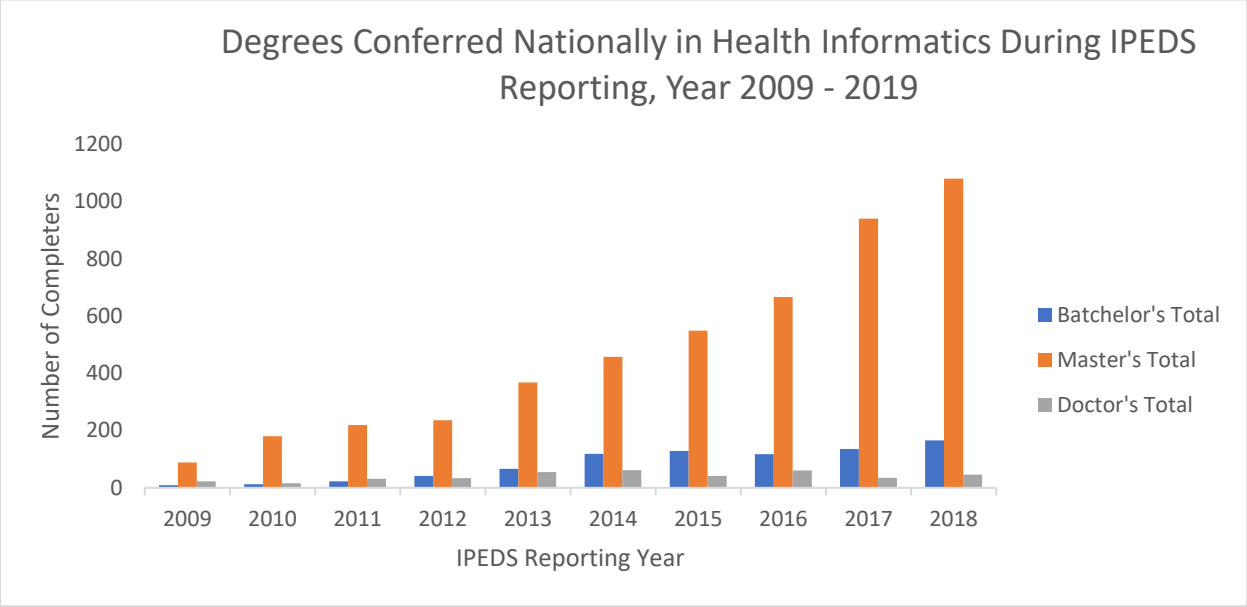

Figure 1: Degrees Conferred Nationally in Health Informatics

However, as one study has reported, since most of the healthcare informatics programs were housed within business schools, the graduates out of these programs lacked domain knowledge (Hazelwood, Delhomme, and Sittig 2019). Consequently, new interdisciplinary programs were created with enhancements from the healthcare sciences, computer science, IS, and cognitive science (Dorsey et al. 2015; Harris, Bell, and Woodward 2016; Tremblay, Deckard, and Klein 2016; Sittig, Hazelwood, and RHIA 2018). Researchers have shown that such interdisciplinary programs significantly increase the knowledge and skill set of graduates (Berner et al. 2016) and have a positive impact on their job prospects (Devaraj and Kohli 2000).

Interdisciplinary programs are believed to have great academic value. The demand for professionals in the healthcare information technology systems space would really benefit if the course curriculum is designed solely around training, tools, and knowledge to enhance the healthcare IT space rather than combining it with other courses. For professionals looking for

extended and deeper understanding of any specialized area within the health IT space, short-term certifications have proven to be an effective alternative.

3. QUESTIONS AND METHODS

The goal of the paper is to provide a comprehensive overview of the types of graduate programs offered in healthcare IS across the United States. Each of the three questions highlighted below (Q1-Q3) provides a unique insight and requires a different method of analysis. Thus, instead of presenting a single method section, we have presented each research question and its method together. The paper also evaluates the industry requirements in the health IT space and derives additional information. Critical questions like: does the syllabi cater to the industry requirements? How the can the curricula be improved? Is it addressing the interest of people? Are discussed along with the comprehensive overview of healthcare IS programs. We have also included a brief discussion section for each question to keep up with the continued progression, and with the overall discussion presented as part of the conclusion.

Q1: What are the different graduate programs in healthcare IS offered in the USA?

Healthcare IS graduate programs go by many names, some of which include health IT, health IS, and health Informatics. To answer this question, we assigned a graduate research assistant to find information regarding all such programs. An initial list of healthcare IS programs was provided by the experienced IS faculty members at a major southeastern university in USA, which housed a graduate program in healthcare informatics. The authors used various terms like "master of health informatics," "master of science in healthcare informatics," "master of science in healthcare management and informatics," and "master of science in healthcare management" to search for programs online. Subsequently, a broad Internet search was conducted to diligently appended them to the list for any programs left out. The final list was then re-verified by the authors independently. This list of 30 programs, and their respective websites, is presented in Appendix Table 1. (The information is limited to the search parameters mentioned above which is non-exhaustive and does not include all the medical schools).

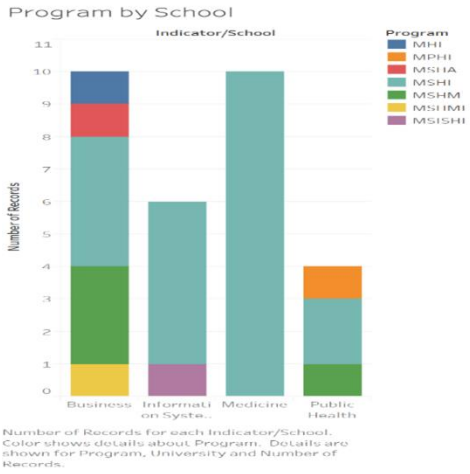

Figure 2: Programs names across schools

The search resulted in a total of thirty programs from thirty different universities. They were then categorized into four groups of schools based on where the programs were housed: (i) Medicine/Health, (ii) Public Health, (iii) IS, and (iv) Business (without an IS department). We also categorized the programs into seven groups based on the degree type: (i) Master of Health Informatics (MHI), (ii) Master of Science in Health Informatics (MSHI), (iii) Master of Science in Healthcare Management and Informatics (MSHMI), (iv) Master of Science in Healthcare Management (MSHM), (v) Master of Science in Health Administration (MSHA), vi) Master of Science in Public Health Informatics (MSPHI), and (vii) Master of Science in IS and Health Informatics (MSISHI). Figure 2 shows the distribution of these programs across the different school domains.

A geographical plot of where the programs are offered was also conducted using this data and is shown in Figure 3. Two interesting observations can be made from this map. First, while business schools tend to offer the largest number of such programs, they are well distributed across the different types of schools. Secondly, these programs are offered with different names, and these names are not consistent across the school domains. Thus, a richer analysis of the content of each these programs is warranted to understand the commonalities and differences among them.

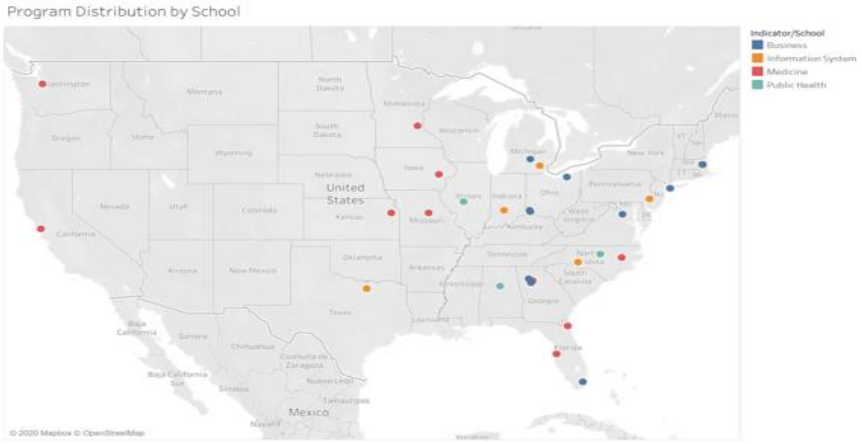

Figure 3: Program Distribution Map

Q2: Did the program address the interests of the people?

Prior research has outlined the interests of people in health IS based on their Google search data. A similar analysis was conducted in 2018 by Ashrafi et al. 2018. The 2018 data, along with the updated 2020 data is shown in Figure 4. Interestingly, the map corresponds very well with the programs offered, with each of the top seven states in terms of interest having multiple programs.

The map portraying regional interest (fig.4) is an intriguing indication of universities offering programs in healthcare IT and informatics. Levels of interested professionals, socio demographic factors are a few underlying parameters to the number of universities offering healthcare informatics in these areas. (Ashrafi, 2019)

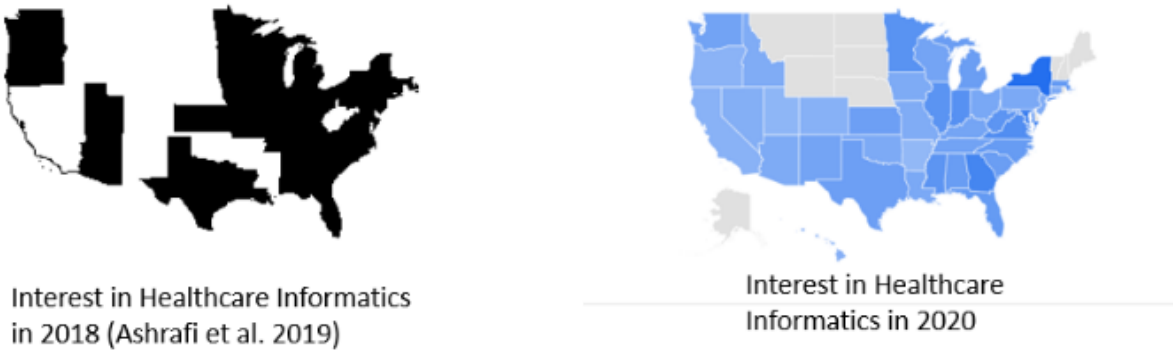

Figure 4: Regional Interest in Healthcare Informatics

The figure comparison shows that while the dominant interest continues to be in the east coast of USA, the interest has also grown in the south and west. This when viewed along with figure 3 shows a map that very well with the programs offered, with each of the top seven states in terms of interest having multiple programs.

According to this study and the underlying sample data, the map of programs offered (Figure 3) and that of the interests of the people in health informatics are closely related. If number of searches and interest in pursuing a degree in health informatics are key parameters, the states depicted in the map have shown more interest when compared to other states in learning more about health informatics and take it up academically(Ashrafi, 2019). This conceivably is the reason why many of the interdisciplinary courses are offered by many institutions in south eastern part of the United States.

This points us to the fact that the programs have been designed in response to public interest and demand. Another interesting feature of the maps is that the people's interest, and the availability of programs are both prominent in the southeast region of the country and the Midwest, with a significantly reduced presence in the western regions. The inference here would be that an increase in interest is directly proportional to the programs offered/designed.

To understand the content of each of these programs, a method similar to that used by Mardis et al. (2018) was employed. We gathered the website descriptions, syllabus (available upon request), and course curriculum for each of the programs. The data were then sorted for redundancy, after which we carried out an assessment of each syllabus based on the following focal areas of study: data management and information, data analysis and acquisition, healthcare business processes, information security, bioinformatics, cost control, and patient safety (See Appendix Table 2). These keys were used to rate each program's syllabus using a three-point Likert-type frequency-based scale with the following values: 1 = "Not part of the core courses," 2 = "Part of the courses," and 3 = "Part of the core courses of the program." The rating scale allowed us to obtain some insight into what has been taught and the focus of the teaching in each program across different schools.

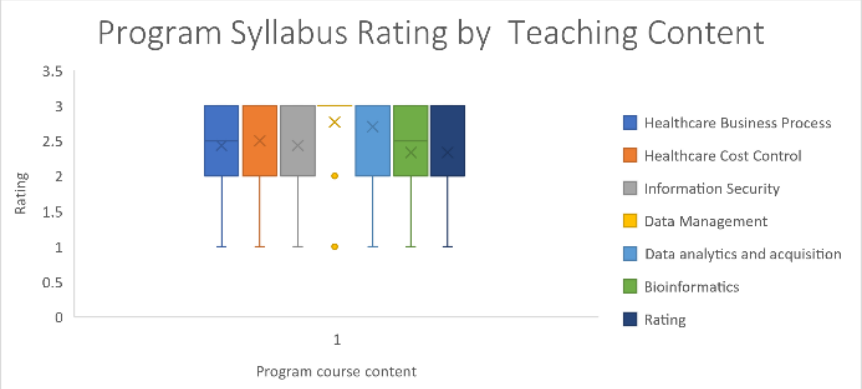

Figure 5: Syllabus Content / Focus Analysis

A box plot/ whisker was among the best ways to illustrate these difference as it allows for graphically depicting the content along with the mean values with whiskers. The mean values (Figure 5) provide a better platform to assess the program content/syllabus. According to the box plot in Figure 5, data management has the highest mean value (2.76), followed by data analysis and acquisition (2.7), healthcare cost control (2.5), information security (2.4), and healthcare business processes (2.4). Both bio informatics and patient safety have the lowest mean values (2.3). Overall, the assessment depicts that data management, data analysis, and healthcare cost controls are the core courses offered in health informatics programs across all the schools that are currently offering these programs. The skillset which is a combination of healthcare concepts and IT is the current industry requirement. (Ashrafi, 2019). Both clinical, non-clinical and administrative processes within the healthcare ambit requires this combination of skills and the boxplot (Figure 5) is an apt depiction of the current health IT industry need.

Q3: What was taught across different types of programs?

A detailed qualitative analysis was carried out on the collated syllabi text from the core curriculum content using NVivo (qualitative analytic software) (Johnston 2006). Subsequently, a word cloud was generated for visual examination, which also served as the basis for comparing the programs based on the school it is being offered at. After the files were imported, a word query was run to generate a word cloud. This is a refined process, as duplication and redundancies are avoided using the "stop words list" criteria. Word clouds provide the ability to understand what is emphasized in a particular text as well as the overall emphasis. The larger the word shown, the greater the prominence within the context of the data provided (Heimerl et al. 2014).

Finally, the exported word cloud and summary were used for visualization and examination to establish the commonalities and differences in the programs across the four different schools where the program is offered in the United States.

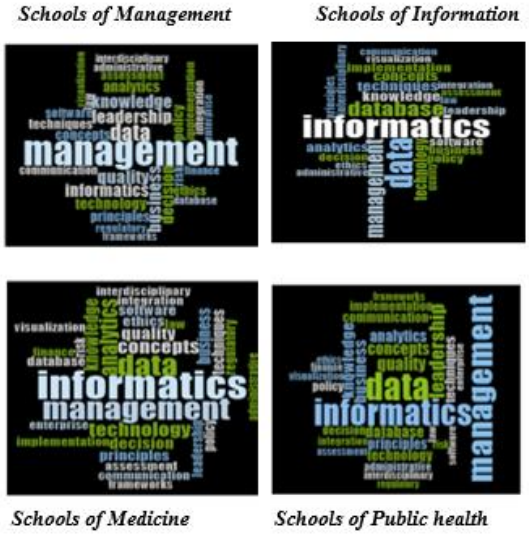

Figure 6: Word cloud of program content by school type

4. DISCUSSION REGARDING COMMONALITES AND DIFFERENCES

The interdisciplinary nature of the programs across the 28 case studies and through the four different schools reveals the extent of commonalities in healthcare management and informatics programs within the United States. It is also a factor driving the growth that health informatics has seen in the last decade. This in turn has augmented the level of competition and demand for health informatics professionals

School/College	Program	Percentage
Business	10	33.3%
Medicine	10	33.3%
Information Systems	6	20.0%
Public Health	4	13.3%
Total	**30**	

Table 1: Schools offering Healthcare informatics programs

A key commonality among the health informatics programs is that they are all technology based. The need for technology in the healthcare space and its usage is the driving factor for schools to blend technology into the program with an intention to meet the high demand for Healthcare IT professionals. There is an evident dearth of healthcare professionals equipped with the adequate skills, techniques, and software knowledge to perform data analytics. Healthcare providers are finding it difficult to find professionals equipped with a blend of healthcare and IT skills to address issues pertaining to healthcare information overload by adopting new age technology (Ashrafi, 2019)

The use of data and the information that they carry cannot be ignored in clinical decision making, assessment, and healthcare business processes. Hence, the reason why data analysis is at the core of these programs and one of the main commonalities of the health informatics discipline across different programs in the United States is justified. However, in this case, study based on the generated word cloud, including the management and leadership skills/qualities possessed by the program graduates, enhances their capacity to perform their duties efficiently and simultaneously compete with the ever-increasing demand in the healthcare space. Dealing with large datasets is a given in the healthcare IT space. The number of clinical and non-clinical applications that healthcare systems deal with are increasing by the day. While adding manpower is an accepted solution, workforce with the right skillset to handle healthcare data issues with new age technology is the modern-day industry requirement (Ashrafi, 2014). Leadership skills are the icing on the cake when combined with core healthcare concepts & knowledge in health IT informatics/analytics.

According to the sample size of this study, there is an equal percentage of the programs housed in the schools of business and medicine, followed by the information technology systems and public health schools, respectively. This indicates that the programs are run the most in these schools, as shown in Table 1a, while Table 1b depicts MSHI to be most widely offered across the four schools (i.e., 70 % of the sample size). Note that we chose to keep stick to the names of the degrees awarded by the institutions, even though some like healthcare administration and healthcare management sound similar. Overall, schools of business offer five out of the seven programs. Interestingly, one common feature of all the programs, irrespective of where the program is housed, is in the interdisciplinary capacity, whereby various departments, and faculties, as well as different schools, come together to offer a unique degree experience. However, the focused area of study for each of these schools is different (e.g., school of business → management, school of public health → data informatics and analytics, school of medicine → informatics management, and school of information system → informatics).

Degree Type	**Program**	**Percentage**
Master's in Health Informatics (MHI)	1	3.3%
Master of Science in Health Informatics (MSHI)	21	70.0%
Master of Public Health Informatics (MPHI)	1	3.3%
Master of Science in Health Administration (MSHA)	1	3.3%
Master of Science in Healthcare Management and Informatics (MSHMI)	1	3.3%
Master of Science in Health Informatics and Information System (MSISHI)	1	3.3%
Master of Science in Healthcare Management (MSHM)	4	13.3%
Total	**30**	

Table 1: Degree types offered.

The capstone and thesis are other differentiating parameters found among these programs. The project undertaken by an aspiring graduate is pivotal to the value, the quality of program and to the overall healthcare space . Capstone projects are perceived to be a huge benefit by majority of the employers in the healthcare industry. Applying the skills learnt in classroom such as system analysis, design, data analytics and IT development enable the professionals handle real life issues much better (Gary H, 2012). Professionals with a good capstone project will require minimal ramp-

up time and are able to hit the ground running when induced into healthcare IT setting. Capstone projects also facilitate a hands-on project experience as it offers a blend of practical experience and interpretation of written work supported with analysis. The thesis is a written work stating a claim supported with data and an argument.

Program offering mode, which can either be by face-to-face or online, is another factor that determines the popularity or student choice. Aspiring professionals are known to go for an in-person program offering rather than online medium. While, the former has its own advantages offering flexibility and sometimes being cost effective, it does depend on other factors like socio-demographic or financial considerations which drive the choice. In a few cases, the program is offered both on-campus and online, which caters to the needs of traditional students, adults, and working-class students. Finally, the quality of the programs in terms of accreditation is a key differentiating factor. A few programs are accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) or the Commission on Accreditation of Healthcare Management Education (CAHME), and some are not. Accreditation does help in improving the quality and standards of the MSHMI program .

Based on the bar chart and sample size considered for this study, it was found that the school of business offer more varied degree types (i.e., MSHA, MHI, MSHI, MSHM, and MSHMI) compared to the school of medicine, which offers just one-degree type (MSHI) in healthcare informatics. The sample size considered for the study is representative of the different program names and where they are housed across the United States.

5. CONCLUSION

In this paper, we presented a detailed evaluation of the graduate healthcare IS programs across the United States. Subsequently, we performed a curriculum content analysis to tease out the differences and similarities between the syllabi and schools that are offering the programs. When such programs are backed with adequate training the right technical and communication skills, a congenial environment is provided within which students can succeed. An encouraging part of the analysis is that most programs are interdisciplinary, and such an approach looks promising. These programs offer the best of both worlds by combining the key healthcare concepts with healthcare IT skills which is a crucial industry requirement.

The analysis showed the variance across disciplines and the fact that the names of the degree programs did not offer enough insight into the content. However, a deeper content analysis showed that each of the four major areas (business, information, medicine, public health) did emphasize distinct features. Consequently, we suggest that a) curriculum designers should try to consistently name these b) practitioners and students should look at the curriculum and decide what they should focus on based on a concoction of their interests and industry requirements and c), there is an opportunity to come up with well-defined accreditation standards for each of the areas by conducting a peer assessment method in relation to the pre-defined standards.

Handling huge datasets is a part of the healthcare industry. The inevitability around using technology and platforms like Bigdata and other analytical tools is evident. While we investigated the curricula and the content of these interdisciplinary programs, focus on informatics and the current technology around data crunching is ever evolving. Both the clinical and non-clinical workstreams of the healthcare IT space needs professionals who are technically well equipped and have a good understanding of the analytical tools that are being used within the industry. The academic world would really benefit the healthcare IT industry by creating top class professionals

if the focus on informatics, data analytics continues to rise in conjunction with healthcare IT knowledge.

In terms of future research, periodic review of program quality is required to ensure relevance and the competitive ability to meet the ever-changing technological needs. The limitation of this research is that not too many schools offer the program, but one reason for this may be that the sample size was very limited.

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Appendix

Table 1: SCHOOL AND PROGRAMS

University: Program	Website
Kennesaw State University MSHMI	https://coles.kennesaw.edu/mshmi/curriculum.php
University of South Florida MSHI (ONLINE)	https://www.usfhealthonline.com/programs/masters-degree/ms-health-informatics/
Mercer University Penfield College MSHI(ONLINE)	https://penfield.mercer.edu/programs/graduate-professional/health-informatics/
George Mason University MSHI(ONLINE)	https://landing.masononline.gmu.edu/mshi
The University of Cincinnati MHI (ONLINE)	https://online.uc.edu/masters-programs/mhi-health-informatics/
Michigan State University MSHCM (ONLINE)	https://explore.michiganstateuniversityonline.com/lp/ms-hcm
Case Western Reserve University MSM	https://weatherhead.case.edu/degrees/masters/ms-management/healthcare/
Jacksonville University MSHI	https://www.ju.edu/healthinformatics/programs/ms-health-informatics.php
University of Michigan MSHI	https://www.si.umich.edu/content/mhi
Adelphi University NY MSHI	https://lp.adelphi.edu/healthcare-informatics/
Harvard TH Chan School of Public health MSHM	https://www.hsph.harvard.edu/mhcm/
Maryville University MHA	https://online.maryville.edu/lpppc-mha/
The George Washington University Boston	https://landing.healthsciencesprograms.gwu.edu/cohm
Claremont Lincoln University MHA	https://www.claremontlincoln.edu/programs/online-masters-degree-healthcare-administration/
Colorado State University MHAM	https://csuglobal.edu/graduate/masters-degrees/healthcare-administration
Saint Leo University MHM	https://www.saintleo.edu/mba-healthcare-management-online
UNC School of Medicine MHA	https://www.med.unc.edu/anesthesiology/education/residency/what-makes-unc-unique/master-of-healthcare-administration/
Georgia State University MSHA	https://robinson.gsu.edu/masters-programs/ms-in-health-administration/

University of Illinois Chicago MSHI	https://catalog.uic.edu/gcat/colleges-schools/applied-health-sciences/him/
Drexel University CCI MSHI	https://drexel.edu/cci/academics/graduate-programs/ms-in-health-informatics/
National University MSHI	https://www.nu.edu/OurPrograms/SchoolOfHealthAndHumanServices/HealthSciences/Programs/MSHI/
University of San Francisco MSHI	https://www.usfca.edu/nursing/programs/graduate/masters/health-informatics
Penn State MHA	https://www.worldcampus.psu.edu/degrees-and-certificates/health-policy-and-administration-masters/overview
UAB MSHI	https://www.uab.edu/shp/hsa/masters-programs/mshi
Suffolk University Boston MHAM	https://online.suffolk.edu/landing/online-mha
Walden University MHA	https://info.waldenu.edu/walden-programs/health-sciences/masters/master-of-healthcare-administration
Florida International University MSHI	https://business.fiu.edu/graduate/health-informatics-and-analytics/curriculum.cfm#expandable11
Northeastern University MSHI	https://www.northeastern.edu/graduate/program/master-of-science-in-health-informatics-boston-5247/
University of North Texas MSISHI	https://informationscience.unt.edu/ms-health-informatics
Indiana University MSHI	https://online.iu.edu/program/indiana-health-informatics-ms-graduate-1515523342786
Northeastern University MSHI	https://www.khoury.northeastern.edu/program/health-informatics-ms/
UNC Charlotte MSHI	https://hi.uncc.edu/academics/health-informatics-masters-program
Northern Kentucky University MSHI	https://www.nku.edu/academics/informatics/programs/graduate/mhi.html
East Carolina University MSHIIM	https://www.ecu.edu/cs-dhs/hsim/ms_hiim/
The University of Iowa MSHI	https://informatics.uiowa.edu/study-opportunities/graduate-program/health-informatics
The University of Kansas MSHI	http://www.kumc.edu/health-informatics/master-in-health-informatics.html
University of Minnesota MHI	https://healthinformatics.umn.edu/education-training/graduate-programs/master-health-informatics-program
University of Missouri MSHI	https://online.missouri.edu/degreeprograms/medicine/health-management-informatics/health-informatics/masters/
University of Washington MSHIIM	https://www.health-informatics.uw.edu/

Table 2: Content Coding (H=high coverage, M=Medium Coverage, L=Low Coverage)

School (PH,BIZ,MED)	DRM/IS	DA&A	Healthcare Business Process	Computer Security	Bioinformatics	Healthcare Cost Control	Patient Safety
University of South Florida (Med)	H	H	H	H	H	M	H
Mercer University (Med)	H	H	M	H	H	M	M
George Mason University (Biz)	H	H	H	L	L	M	H
University of Cincinnati (PH)	H	H	H	H	H	M	M
Michigan State University (BIZ)	H	L	H	L	L	H	L
UNC (PH)	M	M	M	L	H	M	M
Case Western University(BIZ)	M	L	H	L	M	H	M
Jacksonville University (med)	H	H	M	H	M	M	M
University of Michigan (IS)	M	M	M	M	H	M	M
Adelphi University (BIZ)	M	M	H	H	L	L	M
Harvard University (PH)	M	L	H	L	H	M	H
Florida International University ()	H	H	H	H	M	H	H
Maryville University ()	H	H	H	L	L	M	M
George Washington University (Med)	M	L	H	L	H	H	H
Claremont Lincoln University (BIZ)	M	L	M	L	L	M	L
Saint Leo University (Biz)	M	L	M	L	L	M	L
Colorado State University (Med/Biz)	M	M	H	L	M	H	M
UNC (MED)	M	H	M	L	H	M	H
University Of Illinois (PH/MED)	H	H	H	H	H	H	H
Georgia State University (BIZ)	H	H	H	H	H	M	M
Drexel University ()	H	H	M	H	L	M	M
National University (PH)	H	H	H	M	H	M	M
University of San Francisco CA	H	H	H	M	H	H	H
PennState University (PH)	H	H	H	M	H	H	H
University Of Alabama	M	M	H	H	H	M	H
Suffolk University (Biz)	M	M	M	L	M	M	M
Walden University (BIZ)	M	M	M	L	L	M	L