Department of Health Administration and Policy
College of Health and Human Services

CAPSTONE PRESENTATIONS

MS in Health Informatics

May 12, 2016
Fairfax Campus
Merten Hall, Room 1201
About the Capstone Practicum

Welcome to the Capstone Presentations of the MS in Health Informatics students in the Department of Health Administration and Policy. Students will present their non-thesis projects completed during their practicum course. Each of these projects requires students to analyze complex, real world problems or opportunities and provide practical solutions that add value to their capstone organizations.

The capstone practicum is an important part of HAP graduate programs. During the practicum experience, students function as an integral member of an organizational entity and work for at least 20 hours per week (unpaid) to complete a project assigned by the organization. The objective of the practicum project course is to enable students to build on their theoretical preparation to:

- Develop project management skills, systematic problem/issue analysis skills through direct participation in projects in a health context and understand the issues and problems of implementing new technologies in the healthcare organization;
- Obtain practical information and knowledge about various aspects of developing products, analyzing opportunities and managing various aspects of work in business/health related enterprises or public policy making entities;
- Utilize research, communication, presentation and writing skills to complete a project deliverable as requested by the host organization.

We treat our capstone organizations and preceptors as if they are our clients who have engaged us to provide professional assistance in the resolution of an important problem or the investigation of an opportunity. Each student takes on the role of project consultant and reports regularly to the class on his or her progress. The entire class becomes invested in the success of each client engagement and the quality of each other’s work product.
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Stephanie Rodriguez, Health Informatics, MS
Usability of Information in an Integrated Practice-facing Population Health Management Portal

Profile
Stephanie Rodriguez works for the National Committee for Quality Assurance (NCQA) and will continue working for the organization after graduation. She works as a Senior Health Care Analyst on quality measure development projects for NCQA’s recognition and accreditation programs and federal reporting programs.

Stephanie has experience in managing measure development projects, including evaluating measures for clinical and financial importance, feasibility of data collection, usability and implementation among stakeholders. Through her internship with Evolent Health’s Clinical Informatics team, she has experience with evaluating a population health management tool for its usability among users.

Stephanie Rodriguez will receive a Master of Health Informatics in the spring of 2016. She completed her undergraduate work at James Madison University with a Bachelor of Science degree in Health Services Administration.

Project Summary
Evolent Health partners with health systems to help transition them to value-based care by using data-driven approaches. Through these relationships, Evolent Health gains access to a large amount of patient-level data that they use to develop decision-support tools that decrease cost and waste for health systems while increasing value and quality of care for patients.

This project focused on evaluating Evolent Health’s emerging practice-facing population health management tool for its usability to end users. This process included identifying issues and opportunities to increase usability of information on the application through semi-structured interviews, conducting an impact analysis of identified opportunities, and providing recommendations for future use cases and application features. These recommendations include 1) Consider adding conditions that will be useful for end users to see displayed, such as Chronic Kidney Disease and 2) Consider building rules that offer more valuable detail for current rules-based components of the application, such as visit type utilization information (e.g. specialty, ED) and medication adherence.
Faduma Ahmed: Health Informatics, MS
Selecting an Electronic Health Record for a Home Health Agency

Profile
Faduma works as a PI Analyst at Inova Health System in Falls Church, VA. She is currently training Epic end users on functionality and configuration of system, overseeing on multiple control automation and process improvement initiatives, as well as ensuring processes are in compliant with HIPAA and CMS guidelines. Her past experience involves implementing security controls to prevent data exfiltration and researching appropriate risk management methodologies. At the moment, she is studying to become a Certified Authorization Professional (CAP) and concentrating on cyber security within the healthcare sector. She has a valid CompTIA Security + certification.

Faduma will receive a Master of Science in Health informatics in the spring of 2016. She completed her undergraduate work at George Mason University with a Bachelor of Science degree in Health Systems Management.

Project Summary
Family Home Health Care (FHHC) is a home health agency that has been open since 2007 catering to the needs of the community by delivering the highest quality of life. Their services include but not limited to companionship and support, meal preparation/menu planning, ambulation and transfer, dressing and grooming. FHHC needs an electronic health record (EHR) that meets Medicare’s requirements and also fulfils their business needs. The selection of this topic is important because numerous studies have shown that long term care facilities that have adopted EHRs found improvements in quality of care, billing and reimbursement, documentation access, and employee satisfaction.

The purpose of this project is to propose a cost efficient EHR system to FHHC that will improve quality management and efficiency, reduce errors and duplications, and provide consolidated billing, while at the same time meeting CMS’s requirements.
Profile
For the last eight years, Michael has worked for Definitive Logic, a small IT consulting company based in Arlington, VA, where he is the Health IT Practice Director and Veterans Affairs Program Manager. In these roles he leads business strategy, business development, research and development, and IT implementations in health systems planning, program optimization, performance management and enterprise systems integration. Having worked in IT consulting roles for over 10 years, Michael has an extensive hands-on IT experience across a variety of fields including project management, software development and system integration. Prior to joining Definitive Logic Michael lived and worked as an IT consultant in Croatia for 3 years, where he led mobile phone system projects throughout the region.

Michael completed his undergraduate degree in 2005, receiving a Bachelor of Science in Information Technology from Rochester Institute of Technology. He will receive a Master of Science in Health Informatics from George Mason University in Spring 2016.

Project Summary
The passage of the Medicare Access and CHIP Reauthorization Act significantly modified the future of the Meaningful Use (MU) program, and established a new incentive based reimbursements model tied to health quality measures. Under this new paradigm the Merit-Based Incentive Payment System (MIPS) incorporates Meaningful Use and Physician Quality Reporting System measures, and Value-Based Modifier for cost and quality. There is a greater emphasis on quality of care improvements, and incentives based on comparison to other providers. Establishing a MIPS measurement system requires 1) data extraction mechanisms 2) knowledge of data formats including HL7, CCD, XML and QRDA 3) experience calculating measures 4) building quality measure reports for submission to CMS. Working with George Mason University this project required reliable data integration methods to extract patient data from a variety of EHR systems. To accomplish this open source tools, such as popHealth and custom SQL solutions were considered that were able to meet provider needs and were technically accessible.
Glenda Collado, Health Informatics, MS
Process Improvement in the Radiology Registration Department

Profile
Glenda is a PET/CT Technologist and works for Virginia Hospital Center. She plans to continue working for the organization after graduation. She also works as a Nuclear Medicine Technologist at Inova Alexandria Hospital and has been a Nuclear Medicine technologist for 6 yrs and a PET/CT technologist for 2 yrs.

She has experience with patient care, handling of radioactive materials, performing quality assurance and proficient with gamma cameras and adhere to nuclear regulatory commission regulations. While working at Virginia Hospital Center, she has acquired knowledge in maintaining and updating radiation policies, obtain managerial experience, manage patient flow, scheduling and care. Working on my capstone, she has acquired knowledge in patient process improvement, Excel data processing and patient registration systems.

Glenda will receive a Master of Science in Health Informatics in the spring of 2016. She completed her undergraduate work at Virginia Common Wealth University with a Bachelor of Science with concentration in Nuclear Medicine.

Project Summary
The Radiology Department registration department is having problems with registering patients in time and maintaining patient satisfaction scores. My project will suggest possible solutions to the problems. Some of the possible solutions are: (1) Provide patients with the option to pre-register online after appointment has been made; (2) Having schedulers pre-register patients (asking for ID and Insurance info) while appointment scheduling; (3) Storing patient information for at least 1yr so when patients come more than once at the hospital within the year they do not have to fill any paperwork out; (4) When patient comes to the registration window, give paper work to fill out and have patient wait to be called until registrar is ready for patient; (5) Reduce the registration process steps in Sorian System; (6) Staff proper training.
Alok Sagar Panny, Health Informatics, MS

Text Processing of Clinical Research Protocols and Informed Consents to Facilitate Tracking of Research Procedures

Profile
Alok is a dentist by profession. He is currently working as a special research volunteer at National Institute of Health (NIH), Bethesda, Maryland. His current work is focused on Clinical Research Informatics where he is using a range of informatics and natural language processing (NLP) techniques to analyze clinical research documents of both active and terminated clinical trials. He also worked as a GTA (Graduate Teaching Assistant) in the School of Business at GMU, providing assistance to the faculty members and also as an academic mentor in the Early Identification Program at GMU where he provided academic assistance to middle and high school students. As an intern he also served as a faculty advisor at the National Youth Leadership Forum for Advanced Medicine at The John Hopkins University where he facilitated interactive workshops, speaking events and small group meetings.

Alok has a strong clinical background. He has hands on experience working with R Studio, SQL server, HTML and Access databases. Through his capstone project with NIH, he has gained valuable experience in using various NLP tools like METAMAP, NOBLE Coder and KNIME Analytics tool.

Alok will receive a Master of Science in Health Informatics and a Certificate in Health Data Analytics in Spring-2016. He received his Diploma in Oral Implantology from Indira Gandhi National Open University (IGNOU) in 2013. In 2012, he completed his bachelor’s degree in Dental Surgery (B.D.S) at the Dr. NTR University of Health Science in Vijayawada, India.

Project Summary
Clinical Research Informatics (CRI) aims to improve the conduct of clinical research studies. Research decision support (RDS) alerts and reminders can monitor whether study protocol is being followed. This support is similar to clinical decision support (CDS) systems that monitor compliance to clinical guidelines. A necessary prerequisite for provision of research decision support is a computable representation of a study protocol. Computable representation of research studies is an ongoing CRI challenge with only limited support by existing CRI standards. Rather than requiring researchers to use additional protocol modelling software, our study pilots an approach where we use natural language processing (NLP) methods on study documents (protocol or IC) to detect study procedures. Extracted study milestone events (or procedures) can be subsequently used to track progress of individual study participants through the protocol by observing the events recorded in the research data warehouse.
Daryl Ellis, Health and Medical Policy, MS

Missing the Mark: The Exploration of Hospital Administered Medication Errors

Profile

(Daryl works for George Mason’s Health Administration and Policy Department as a Graduate Teaching Assistant and has previously worked for the department as a Graduate Research Assistant. He also has previous experience working as a Health Data Analyst for Northern Virginia Family Service.

Daryl Ellis has experience in health services research, including working on several qualitative projects analyzing ethnic disparities in oral health and exploring the association between second hand smoke exposure and various physical and neurobehavioral conditions among children. Through his experience working with the George Mason’s Health Administration Department and his capstone project he has experience with health research and its importance in policy making at the national level. He also has hands on experience working in a hospital as a C.N.A. and understands the impact policy has on patients and businesses.

Daryl Ellis will receive a Master of Science in Health and Medical Policy in the spring of 2016. He completed his undergraduate work at the University of North Carolina at Pembroke with a Bachelor of Arts degree in Political Science with a concentration in Public Administration.

Project Summary

Medications are a common treatment to aid ailing medical issues and often contribute to the improvement in health status when utilized correctly. Although medicine has the potential to improve the health, it also has the potential to be harmful when not used appropriately. This project created a literature review of the historical issue of hospital administered medication errors and empirically reviewed factors that lead to hospital medication errors. This project provides an assessment of previously federally regulated policies used to alleviate the problem of medication errors in hospitals. Future policy recommendations to improve the efforts of reducing hospital administered errors include (1) enforcing hospitals to streamline their approach in the appearance of medication vials liquid medication cups, intravenous medication bags, and packaging (2) mandate the usage of the computerized physician order entry system in all hospitals in the United States and (3) mandate medication error prevention training in each individual hospital at least two times per year and require all staff members that are involved in the drug therapy chain to attend.
Rita Domfeh, Health Informatics, MS
Selecting an Electronic Health Record for a Small Practice

Profile
Rita is a Registered Nurse and currently works at Kaiser Permanente. She has been with Kaiser a little over a year. Prior to working at KP, Rita worked at Children’s Hospital where she started her nursing career. Since then she has also worked for Novant Health Systems as an Emergency Room Nurse in Haymarket. Before Rita became a nurse she was a Financial Analyst managing trust funds for Sallie Mae where she stayed employed for 6 years. She enjoys volunteering her time with her church, the community and also in the school system.

Through her capstone project with Loudoun Medical Group, she gained the experience of successfully managing a project. Relying on her professional experience, her education and a partner, she brought an Electronic Health Record System project to fruition.

Rita will receive a Master of Science in Health Informatics and a certificate in Data Analytics in the spring of 2016. She completed her first Bachelor’s degree, a dual degree in Finance and International Business from George Washington University, Washington, DC. In 2008, she enrolled in the accelerated nursing program and received a Bachelor of Science in Nursing.

Project Summary
Loudoun Medical Group seeks to purchase and implement an EHR systems to address a number of key clinical and operational needs. Requirement currently identified include improved efficiency, reduced medical errors, improved patient care and improve access of information. At this time, the practice does not have an Electronic Health Record (EHR) System. They have been using a free EHR called Practice Fusion for prescriptions only. The practice has identified the complexity and unreliability of sample EHR system as the reason for their reluctance in acquiring an EHR. Our goal for this capstone was to assist the practice to find an EHR vendor who will meet client’s requirements.
Gurpreet Sandhu, Health Informatics, MS  
Selecting an Electronic Health Record for a Small Practice

Profile
Gurpreet received her Bachelor’s in Health Science Management at George Mason University in May 2004 and currently works for the FBI as a contractor in the capacity of a Business Analyst. Her expertise lies in business process analysis/modeling, business requirements gathering, data analysis, and development of web-based, and Client/Server applications. Successful in translating business requirements and user expectations into detailed specifications employing Unified Modeling Language (UML) using Rational Rose & MS Visio prior to working as a contractor with the FBI, she worked with SEC, Diversified systems, VAE and also at Sheraton as a Business and Reporting Analyst.

Project Summary
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Hermon Barake, Health Informatics, MS  
*Linking Quality Measures to Physician Payments*

**Profile**
Through her job as a registered nurse, Hermon has experience of working at Inova Alexandria Hospital in emergency room for 6 years and in home health agency for 3 years. Hermon also has worked as a super user in the implementation of EPIC health care recording system at Inova Alexandria hospital emergency room. Hermon has experience at Broad Systems in Alexandria, Virginia as a part time trainer of Microsoft SQUEL Data Base Administration Certification program.

Hermon will receive a Master of Science in Health Informatics in May of 2016. She completed her undergraduate work at Salam nurses college and Chamberlain College of nursing with a Bachelor of Science in Nursing.

**Project Summary**
Quality measurements are becoming the most important factor in determining whether a physician is providing the right care at the right time. There are too many national programs that the physicians are required to report to. The Center for Medicare and Medicaid (CMS) rewards physicians for implementing quality care and reporting by providing incentives annually or by posing penalties to those who fail to report. Many physicians do not know what the measurements quality metrics are and what tools to use to locate them until they get a penalty notification from CMS. National Quality Forum is an organization that promotes health quality care under the use of measurements and public reporting. NQF provides a resource for all measurements that are endorsed under each program.

The goal of the project is to do a research on what current programs are being used since the last update was on 2012. The project will establish a tool that can be used by the physicians to easily locate what type of measurement they have to use according to their specialty and their care settings. The project will include specifying the types of measurement tools to the individual measurement title. The providers will have an access to choose the type of measurements that are required to report and that are commonly used by other programs. The providers can easily see if they are well positioned for payment incentives. The alignment tool will enable the providers to compare the measurement they use with others and see which national quality strategy priorities apply to each measures.
Koyin Aladesuru, Health Informatics, MS

Regional Approach to Quality Improvement and Data Quality by Harnessing Business Intelligence Tools

Profile
Koyin is a Health Informatics Analyst at Whitman-Walker Health and in this role he has gained expansive knowledge on the power of using data to drive clinical decision-making, improve patient outcomes, and increase the quality of health care delivery. Koyin has over 4 years of technical experience and previously worked as a Data Management Consultant at Forward Health Group and a Data Analyst at Greater Baden Medical Services. In a voluntary capacity, he also serves as a leader of the data team in the DC Quality Collaborative, where he completed his capstone project.

Koyin has a keen interest in data analytics and his passion in this field translates into his technical proficiency in applications such as SQL, MS Access, Tableau, SAS, and MS Excel. His professional background has primarily been in the non-profit sector with some consultancy experience in the private sector. Breaking away from the adage of just the “data guy”, Koyin blends a practical approach in interpreting large volumes of data in the most comprehensible manner possible.

Koyin Aladesuru will receive a Master of Science in Health Informatics in the spring of 2016. He completed his undergraduate degree at the University of Maryland, College Park with a Bachelor of Science in Physical Sciences, and a minor in Actuarial Mathematics.

Project Summary
The DC Quality Collaborative previously used an outdated clinical reporting system which made data collection inefficient, tedious, and time consuming. This project developed a MS Access database for the DC Quality Collaborative to systematically analyze, monitor, and evaluate the quality of HIV care for over 30 clinics across four states- DC, MD, VA, and WV. The database stores longitudinal data on HIV clinical performances from 2011 till date and each participating clinic submits data on a quarterly basis. This refined reporting tool serves as a one-stop shop to streamline data collection and implement analytical capabilities such as data mining, trend analysis, predictive modeling, and statistical exploration. The successful completion of this project was measured using the following metrics:

1. Pre-processed and analyzed over 10,000 records of HIV clinical indicators
2. Designed SQL queries to monitor trends in HIV care over time, identify outliers, and identify health disparities by race/ethnicity, gender, age, and clinic size
3. Implemented a business intelligence tool (Tableau) to automatically generate provider “report cards” highlighting how each clinic performed over time
4. Applied clinical indicators to enable clinical decision-making and provide a benchmark for healthcare stakeholders to make informed decisions about processes and outcomes of care
5. Identified opportunities to improve data quality, reduce cost, and improve patient outcomes