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**DIGITAL HUMANITIES SEED GRANT REPORT**

**The Population Health Management PolicyMap Project  
(PHM/PMP)**

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### **MHA Program Background:**

The Master of Healthcare Administration (MHA) is a 42 credit, CAHME accredited program offered both on-campus and online. Currently, over 130 students with diverse educational backgrounds and health experiences are enrolled in the program. Online students represent many states as well as international locations. All students are required to complete an experiential capstone experience. The MHA is located in the School of Health and Medical Sciences and is housed in the Department of Interprofessional Health Sciences and Health Administration.

### **Project Rationale:**

Beginning in 2010 with the passage of the Affordable Care Act, the healthcare industry has faced significant challenges in providing quality care to all Americans. The advent of the population health approach coupled with the advances in data analytics and the implementation of electronic records have added additional pressure for MHA programs to rapidly revise and update curriculums to prepare graduate students for new positions and responsibilities in the healthcare field.

As MHA Program Director, we have implemented several new technologies to help students develop not only visual and spatial literacy skills (EPI-Info, CDC Wonder), but to also improve their critical thinking skills when facing unknown diseases (Ebola), uncontrolled mortalities (opioid-overdose deaths) and treatment of chronic diseases via data algorithms and decision trees. Opportunities for data visualization learning will support current coursework and expand student analytical competencies. Improving patient outcomes, quality of life, and consumer satisfaction with health services are the primary goals.

### **Brief Project Description:**

This Digital Humanities Project was titled the Vulnerable Populations PolicyMap Project (VP-PMP) as it links together the academic focus on population health management for at-risk populations and the adoption of the PolicyMap technology to develop essential analytical skills applicable to real-time health industry decision-making. The Project helped prepare students to identify populations at risk, develop risk segmentation characteristics and criteria, and to complete risk stratification in order to complete integrated care plans and management. The map representation helped students further engage in determining risk factors and treatment options/availabilities that are crucial in planning, preventing, and managing any of the at-risk health conditions.

Substantial assistance was provided by the following SHU faculty/staff: Project Mentor-Lisa Deluca, MHA Library Liaison - Beth Bloom and Instructional Designer - Riad Twal.

### **Vulnerable Populations Policy Map Project Overview**

The PolicyMap learning assignment was piloted in the Master of Healthcare Administration (MHA) program. The HCAD 7518 – Managing Community and Population Health course was offered during the Fall 2016 semester to two separate sections (online and on-campus). The Vulnerable Populations PolicyMap Project (VP-PMP) was integrated into the course via a weekly (unit) assignment.

The VP-PMP built on a previously established population health group assignment which required groups of students to complete a summary review (presentation) of a vulnerable population by detailing important profile characteristics, epidemiological data, and social determinants that described the at-risk population. Each group of students selected a chapter focusing on a vulnerable population for their presentations from the course textbook. For this team assignment students had flexibility in presenting their findings via: powerpoint presentations, infograph, poster, or youtube video. Students received grades and feedback from this preparatory unit before beginning the VP-PMP assignment. The grading rubric is attached.

The following week, student teams then completed the VP-PMP group assignment. This step permitted the students to have a working knowledge of their population's health issues and the various impact factors on quality of life that contributed to health status and health costs. The VP-PMP assignment enhanced the previous week's learning outcomes and also introduced them to a new way of analysis via data visualization. The key skill development revolved around the student's capacity to find the most appropriate data sources and to select those data indicators that best represent the needs of the population at-risk. The PolicyMap tool allowed the student to link together not only clinical conditions, but social determinants as well. The summary reports and presentations demonstrated critical thinking skills as well as potential management responses to the various healthcare challenges.

### **Vulnerable Populations PolicyMap Project Implementation**

Planning for the VP-PMP was completed during summer 2016. The course instructor for both the online and on-campus sections was A. Hewitt. Lisa DeLuca, Beth Bloom and Riad Twal gave mini-presentations to the on-campus students on the utility and functionality of the PolicyMap data visualization tool. The course instructor provided written instructions and a Blackboard Collaborate session for the online students enrolled in HCAD 7518 – Managing Community and Population Health to parallel the instruction provided by the guest instructors. Each class completed the VP-PMP assignment (see attached) during October, 2016. Each class also completed the vulnerable population group presentation prior to the VP-PMP assignment.

### **Assessment**

The VP-PMP assignments were submitted by both classes for a total of 14 different submissions. Each submission was graded using a specially designed rubric to assess students' competency development and measure conceptual knowledge and application. After assignments were graded

and feedback provided, students were asked to complete a short e-survey (ASSET). Both the e-survey and a data summary are attached for each class.

An initial analysis shows that for each group, at least 65% of the participants reported they were *Very Satisfied* or *Satisfied* with the PolicyMap assignment.

Question # 5. During HCAD 7518 several technological learning tools are used (*Epi-Info, The Greatflu simulation, Health Risk Assessment*). Please indicate your level of satisfaction with *PolicyMap*.

Online	(5.0) <i>Very Satisfied</i>	(4.0) <i>Satisfied</i>	(3.0) <i>Neutral</i>	(2.0) <i>Dissatisfied</i>	(1.0) <i>Very Dissatisfied</i>	<b>Avg</b>	<b>Std Dev</b>	<i>Missing</i>
<i>Level of Satisfaction with PolicyMap.</i>	17.4% 4	47.8% 11	21.7% 5	8.7% 2	4.3% 1	<b>3.6522</b>	<b>1.0273</b>	4.2% 1.0

On-campus	(5.0) <i>Very Satisfied</i>	(4.0) <i>Satisfied</i>	(3.0) <i>Neutral</i>	(2.0) <i>Dissatisfied</i>	(1.0) <i>Very Dissatisfied</i>	<b>Avg</b>	<b>Std Dev</b>	<i>Missing</i>
<i>Level of Satisfaction with PolicyMap.</i>	10.0% 2	65.0% 13	20.0% 4	5.0% 1	0.0% 0	<b>3.8000</b>	<b>0.6959</b>	13.0% 3.0

Also reviewed were the group grades and selected topics

Online						
Group 1 Zika	Group 2 Alcohol	Group 3 Diabetes	Group 4 HIV/AIDS	Group 5 Mental Health	Group 6 Substance Abuse	Group 7 Zika
A	A/A-	A/A-	A	A+	A/A-	A
Oncampus						
Group 1	Group 2 HIV/AIDS	Group 3 Mental Health	Group 4 Substance Abuse	Group 5 Substance Abuse	Group 6 Zika	Group 7 Adolescents
A	A/A-	A/A-	A	A	A+	A/A-

## Discussion

Evidence from both the e-survey and anecdotal student feedback demonstrated strong satisfaction with the PolicyMap assignment and tool. Student assignments received high grades as the level of content mastery and application was exceptional. Grades were consistent throughout each class and between both the online and on-campus cohorts. (See attached examples). Students impressively applied the data mining techniques and data visualization to produce maps that demonstrated the outcomes of risk stratification.

Positive anecdotal student comments included:

*I learned how to use the PolicyMap to identify the population health determinants in a particular state/county.*

*I learned how to create a map that is specific in finding information about my vulnerable population.*

*Really cool software once I figured out how to use it! Once I realized how 3 layer worked I played around with my state and learned that my hometown (a very small rural town in NJ) actually has 30 murders per 100,000 a year- it's a 1.9 square mile town!! :O*

*I learned that using the 3-Layers Map (mapping tool)made it easy to match various criteria for the policy map. Using Data Loader was also helpful because with the use of this data it locates the points on the map that I used to identify the target area based on the different indicators I chose. The tables and charts also made the information easier to visualize.*

Students, especially the online cohort, also expressed a need for additional PolicyMap tool explanation and a sample exercise.

*Maybe make a simple policy map part of the discussion board. It was completely foreign to me at 1st. Discussions with my group helped but discussing the general concept of the map on bb with the professor would've helped. There was access to a collaborative session with the professor but I was not able to attend & to be honest there was a lot of information given to us at that time, I'm not sure I would've zeroed in on the map.*

*The only recommendation I can think of is more detail on the '3-layer maps' feature within the PolicyMap assignment. From looking at the group submissions, each project varies in terms of how the PolicyMap was created. However, I do realize that there was much flexibility in the how at risk populations were decided*

*One recommendation that would improve the PolicyMap assignment would be to dedicate one entire class to learning the fundamentals of how to use the features.*

Although the online cohort provided stronger recommendations for additional PolicyMap directions, the final outcomes for both online and on-campus assignments were very similar.

Over all, both groups demonstrated student engagement, completion of the assignment and satisfaction with the tool and learning experience.

### **Faculty Scholarship Impact:**

- (1) A manuscript highlighting the pilot implementation of PolicyMap in a Community and Population Health course is currently in progress. The article will be submitted to *Pedagogy in Health Promotion (The Scholarship of Teaching and Learning)* published by the Society for Public Health Education.
- (2) PolicyMap will be extended into two additional MHA courses during the next year. These include HCAD 7522 – Health Policy and HCAD 7521 – 21<sup>st</sup> Century Healthcare Systems.
- (3) Potential grant funding may be available through New Jersey state grant incentives and the Robert Wood Johnson Foundation, Inc.'s "Culture of Health" initiative. A proposal for funding resources would occur through the Seton Center for Community and Population Health. The Center plans to provide community seminars for non-profit organization that will focus on obtaining health promotion skills.

### **Conclusion**

During Fall 2016 semester, two cohorts (online and on-campus) completed a pilot PolicyMap assignment as part of the MHA program. Students participating in HCAD 7518 Managing Community and Population Health successfully used the PolicyMap tool as a data mining strategy of clinical conditions, health status (epidemiological information, morbidity and mortality data), and social determinants. Understanding data analytics and data visualization through mapping (geographic relationships and location of data points) helped students to profile vulnerable populations. Population segmentation and risk stratification are first steps in developing case and care management plans necessary for population health management. A post-intervention e-survey showed strong student satisfaction with the experience and recommendations for future improvements to the assignment.