Final Report on

The University of the South: Public Health Technology in Rural Tennessee

Amy Patterson, PhD Clint Smith, PhD

NVF-PITU-The University of the South-Subrgant-012872-2020-11-19

Introduction

In our proposal, we listed three deliverables expected to emerge from the completion of the described project:

> Goal 1: Proposal for a Public Health Technology Certificate
>
> Goal 2: A completed planning process, including problem identification, data needs analysis, and alignment of goals for a public health research project
>
> Goal 3: Public health technology course content integrated with at least three Sewanee courses

The text below describes our progress toward meeting these ambitious objectives and any challenges encountered while working on this project. Importantly, we reflect on the process overall and how it has illuminated the core institutional needs to build intra- and inter-institutional public health capacity.

Deliverable 1: Proposal for a Public Health Technology Certificate

As part of the original proposal, we outlined the idea for a public health technology certificate for undergraduates. Since then, the idea has been swept up into broader discussions at the University of the South (UoS) regarding curriculum renewal and innovation, which started in August 2021. One idea for curriculum renewal involves some type of public health major/minor or certificate program, including data and technology. The PIT-funded Summer Data Institute (June-July 2021) inspired some of these ideas. Some student teams examined health data for the counties surrounding UoS, managing it graphically to assist local community organizations. Their final projects illustrated the potential for how any public health certificate could more closely integrate with a university-wide data institute. Conversations on these issues are ongoing and institution-wide, with final proposals on curriculum changes due in summer 2022.

Deliverable 2: A completed planning process, including problem identification, data needs analysis, and alignment of goals for a public health research project

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Within our proposal, we set out an ambitious agenda for laying the groundwork for a public health collaboration between Meharry Medical College (MMC) and The University of the South (UoS). This collaboration was primarily focused on two areas: curricular needs (see Deliverable 1, above) and public health research. While this deliverable was not completed in full, we did make progress on the relational groundwork, which will be essential for any future collaborations.

During the funding period, we began to establish relationships with key stakeholders at MMC, including Leah Alexander, PhD, MPH (Assistant Professor); Evangeline Motley-Johnson, PhD (Professor and Associate Dean, School of Graduate Studies and Research); Vanisha L. Brown, PhD, MPH (Assistant Professor); and Fortune Mhlanga, PhD (Executive Director, Data Science Institute). While still nascent, the conversations illuminated two potential areas for future collaboration on public health questions: i) collaboration with MMC researchers using data from the MMC Data Science Institute and ii) working with MMC MPH students on urban-rural public health projects.

The Data Science Institute at MMC was launched in September of 2018 and sought to leverage large datasets and data analytical capacity to enhance healthcare and technology communities in Nashville and the surrounding areas. Due to administrative personnel changes, conversations are still ongoing about data accession, identification of impactful projects, and how these can be integrated into the UoS Data Institute (also funded by PIT; see the response to deliverable one). However, Dr. Alexander expressed interest in collaborating with interested parties at UoS, once the administrative logistics have been resolved.

As part of their degree requirements, MMC MPH students must complete two programmatic requirements in addition to coursework: an Integrative Learning Experience (ILE) and an Applied Learning Experience (APE). While the ILE is a capstone project, the APE is an externship and must be completed off-campus. (See https://home.mmc.edu/wp-content/uploads/2021/02/2020-2021-Academic-Catalog-Final.pdf) While the ILE is a capstone project, the APE is an externship and must be completed off-campus. Given the proximity of MMC with UoS, UoS is a good site location for MMC MPH students interested in exploring public health questions that consider/include both urban and rural environments. All MMC MPH students were fully

remote this academic year, prohibiting further planning/implementation during the funding period. However, two MMC graduate students assisted in an epidemiology course that 8 UoS students (and two professors) took in spring 2021. These students also participated in the PIT-funded Data Institute at UoS, contributing to final projects alongside UoS students and presenting their work in July 2021 to stakeholders at local community organizations.

Deliverable 3: Public health technology course content integrated into at least three Sewanee courses

Both Drs. Patterson and Smith teach courses that involve public health content. This content will be expanded to include a more PIT-focused approach, as detailed below.

BIOL 360: Virology - Vaccine efficacy and herd immunity are topics of discussion when this class is taught; however, they are mostly explored conceptually. Future offerings of this course will use CDC Fluview Data and vaccine efficacy calculations (of the seasonal influenza vaccination) to enable students to see how vaccine compliance/hesitancy and vaccine efficacy can impact morbidity and mortality of seasonal influenza. Students will use these data to generate accessible visuals geared for the general public. The changes described above were not implemented during the funding period, as this course was not offered during the 20-21 academic year. (Taught by Smith)

BIOL 340: Microbiology - Bacterial diseases and pathogenesis, whether community- or hospital-acquired are discussed during this course. Dr. Smith's participation in the MMC-taught Epidemiology course (funded through this PIT-UN grant) will enable the integration of basic epidemiological calculations (as part of case studies) into this course. In particular, prevalence and incidence calculations will provide students additional insight into pathogens such as *L. monocytogenes* and *C. difficile*. The changes described above were not implemented during the funding period, as this course was not offered during the funding period. However, this course will be taught during the spring semester of the 21-22 academic year. (Taught by Smith)

POLS 321: Global Health Governance. Although this course focuses on policy, health message framing, and the institutions of global health (e.g., World Health Organization),

students are often required to examine public health literature. (For example, they read studies of maternal mortality rates that compare the US South to lower and middle-income countries.) Changes to this course--to be implemented in spring 2022--will include greater discussions of incidence, prevalence, case-control studies, and cohort studies. These will enable students to assess better the public health studies they read. (Taught by Patterson)

POLS 411: The Politics of AIDS. This course focuses on social movements, health messages, and health policymaking surrounding AIDS in the US and globally. Data technology will be incorporated in two ways. First, students will gain a greater understanding of public health measures such as incidence, prevalence rates, case counts, and epidemiological investigation methods. Second, students will be encouraged to incorporate health databases and dashboards (from CDC, state health departments, UNAIDS, and HIV Policy Lab at Georgetown, for example) into their final research projects. Students will be asked to portray data visually and, if appropriate, share it with a local health organization working on HIV prevention and care. This course will be taught in fall 2022. (Taught by Patterson)

Challenges and Lessons Learned

Challenge 1: The COVID pandemic made travel and face-to-face interaction impossible until late summer. As a result, the public health coursework took place online. We just had to accept this.

Challenge 2: As we planned to develop a shared research project with MMC's faculty and graduate researchers to be initiated over the summer, it was not clear if the Sewanee campus would be open for such projects until late spring. Although Sewanee's campus opened, MMC's did not. Because of ongoing worries about COVID, the MMC graduate researchers, as did some Sewanee's students, elected to participate in research DataLab projects online. The MMC researchers and Sewanee DataLab interns worked on a South Cumberland Health Network problem. Its goals were to create a reliable resource and data app to analyze rural health access disparities. The team collected and consolidated the data from various sources into a database. After that, researchers used this database to analyze trends and query modalities presented in an interactive dashboard online. We plan to use this interactive dashboard with purchased Tennessee Department of health data.

Challenge 3: To move forward with the Health Network's public health project, we applied to receive hospital discharge data from the Tennessee Department of Health. The TN Department of Health's IRB promised us data before July 1, but due to bureaucratic challenges, that did not happen. Pivoting, we developed an interactive dashboard to query public data sets. We will continue this project this coming summer. We have now received the data from the Department of Health.

Challenge 4: We expected to draw on tuition from Sewanee students to pay for them to take the MMC public health course. On the model of Sewanee's funding of study away opportunities, Sewanee uses tuition paid by Sewanee students to pay for them to study at another institution. That model was, however, not workable for a single course. So Sewanee found substitute funds to pay for students and faculty to enroll in an MMC epidemiology course.

Challenge 5: Although there has been an ongoing conversation about beginning a data-for-public health certificate, this planning has been made more complicated by Sewanee budget shortfalls during COVD and two changes in institutional leadership in less than two years. That said, there is ongoing interest in developing a certificate in data for public health or a minor in public health, and in developing data-analytical projects with MMC and its sister institution, Fisk University. We are encouraged by the continuing lively interest of all parties to this dialogue. These conversations are ongoing.

Copies of any publications or media-generated as a result of the project

1. Sewanee DataLab Social Media Instagram, Facebook, Twitter, and YouTube
2. Sewanee Features: Coding for Brighter Future
3. Sewanee DataLab Campus In-person Presentation Video shared with community partners.
4. Press release

IRS Certification

All The University of the South activities conducted with the Grant funds were and are consistent with charitable purposes as set forth in Section 501(c)(3) of the Internal Revenue Code, and The University of the South complied with all provisions and restrictions contained in this Agreement, including, for example and without limitation, those provisions relating to lobbying and political

activity.

Intellectual property and assets purchased or created with the Grant.

We created interactive data dashboards that are available to the public free of charge.

Grant Name:	The University of the South
NVF Grant Number: NVF-PITU-The University of the South	Subrgant-012872-2020-11-19
Project Name:	Public Health Technology in Rural Tennessee
Project Dates:	January 1, 2021 to December 31, 2021
Amount requested from NVF:	**44,520**
Project/Program funding expected from other sources:	75,400
Total project budget:	119,920

	NVF Grant Budget <Grant Period>	Total Project Budget. <Period>	Final Total
REVENUE			
Grants and Donations	44,520		
New Venture Fund			
The University of the South		21,400	
Subtotal Grants & Donations	44,520	65,920	
Fee for Services			
Tuition paid by students		28,800	
Program fees			
Subtotal Fee for Services	-	28,800	0
Donated Services and Supplies			
Type of donated supplies			
Project staff timeand beneftis for three people		25,200	
Subtotal Donated Services and Supplies	-	25,200	
Fundraising Campaigns and Special Events			
Name of campaign or event			
Name of campaign or event			
Subtotal Fundraising Campaigns and Special Events	-	-	
Total Revenue	**44,520**	**119,920**	
EXPENSES			**Final Total**
Salaries			
Co-PI Patterson	3,000	13,000	3,000
Co-PI Smith	3,000	3,000	3000
Sewanee adminsitrative staff		9,000	19,000
Subtotal Salaries	6,000	25,000	25,000
Payroll Taxes and Employee Benefits			
Co-PI Patterson	1,020	4,420	1,020
Co-PI Smith	1,020	1,020	1020
Administrative staff		3,060	6650
Subtotal Payroll Taxes and Employee Benefits	2,040	8,500	8,690
Subgrants if known			
Description of services	-		
Description of services			
Description of services			
Subtotal Subgrants	-	-	
Travel, Conferences and Meetings			
One day conference at Sewanee	324	324	422.76
Travel between Meharry and Sewanee	410	2,010	403.79
Description			
Subtotal Travel Conferences and Meetings	734	2,334	826.55
Professional/Consultant Services	5,560	5,560	
Meharry Faculty consulting			
Description			
Description			
Subtotal Professional/Consultant Services	5,560	5,560	5560
Other Direct Costs			
Tuition paid to Meharry Medical College	14,400	43,200	40,000
Research fellowships for Sewanee and Meharry Students	8,400	16,800	8,500
Description			
Subtotal Other Direct Costs	22,800	60,000	48,500
Indirect Costs	7,386	18,526	18,526
Totals (total should tie to total funding above)	**44,520**	**119,920**	**107,103**
	0	**0**	**12,817**