

**Report to the Governor and the General Assembly of Virginia**  
**The Development of Collaborative Programs between W&M and EVMS**  
**June 30, 2015**

In December 2012, the Boards of Visitors of the College of William & Mary (W&M) and Eastern Virginia Medical School (EVMS) passed resolutions to request state funding to continue studying possible partnerships and collaborations. The resolutions requested that funding be included as an amendment to the Commonwealth's 2013-14 budget so that both institutions can "explore possible increased collaboration and development of integrated academic programs." The General Assembly appropriated \$200,000 in both years of the FY14-16 biennia. (See Item 151.E: *"Out of this appropriation, \$200,000 the first year from the general fund is designated to support the planning and activities related to a potential merger or partnership with the Eastern Virginia Medical School. On or before June 30, 2015, the College of William and Mary shall submit a status report to the Governor and Chairmen of the House Appropriations and Senate Finance Committees regarding the feasibility of collaborations and development of new activities and programs resulting from such an effort."*)

The College of William & Mary and Eastern Virginia Medical School are grateful for the support provided by Commonwealth's funding. It is the view of both institutions that the funding has led to productive collaboration and that the resulting work holds benefits to the state. This report summarizes the planning and activities that have occurred as a result of the Commonwealth's funding.

**Key Points**

Overall, the state should consider the \$400,000 to be a successful investment. The funding supported 19 new faculty-led interdisciplinary and inter-institutional research/educational programs. The funding supported a new collaboration between W&M's Schroeder Center for Health Policy and EVMS's Brock Institute for Community and Global Health, which will generate new research on health policy and population health issues affecting Virginians, increase faculty capacity to conduct research to help address challenges in the areas of health and healthcare, and increase opportunities for students to gain valuable skills in health data analytics. The funding created several new educational partnerships involving W&M's Mason School of Business and EVMS. The relationships developed over the past two years will be invaluable to both institutions and to the citizens of Virginia. Together with Sentara Healthcare, the two universities have solidified a three-party

partnership that strengthens educational programs, increases research productivity, and may one day have the potential to produce translational, commercializable research. There are strong indicators that on-going relationships will continue to develop and that new opportunities for collaboration will likely emerge.

## **Overview**

The Commonwealth of Virginia provided \$400,000 and Sentara Healthcare provided \$100,000 to support collaborative discussions and initiatives between EVMS and W&M. Funds from the Commonwealth were received in two components: a \$200,000 allocation to be expended by the end of fiscal 2014 and a \$200,000 allocation to be expended by the end of fiscal 2015. An executive committee consisting of representatives from both institutions was formed to review collaboration activities and plans for the allocated funds. The committee decided that the most effective way to establish the basis for a possible merger was to develop opportunities for collaborative educational programs and research activities. This decision was based on the very different natures of the two institutions and the absence of substantial additional funding; subsequent reductions in state funding strengthened the rationale for that decision.

To date, these collaborative programs and activities have included 1) a significant number of new faculty-led interdisciplinary and inter-institutional research/educational programs, 2) a new collaboration between W&M's Schroeder Center for Health Policy and EVMS's Brock Institute for Community and Global Health, and 3) several new educational partnerships involving W&M's Mason School of Business and W&M Law. To facilitate these efforts, W&M and EVMS held three joint faculty retreats (two in 2013 and one in 2014) and conducted a site visit to the Dartmouth Center for Healthcare Delivery Science in 2014. The bulk of the Commonwealth's allocation was used to support faculty-led collaborations (\$310,000) and collaborations between the Schroeder Center and Brock Institute (\$50,000). Supporting activities received \$40,000 in funding. New educational partnerships involving the Mason School of Business were supported solely by the institutions, as were other staff costs. A minor development of the collaboration process is that W&M and EVMS entered into an agreement to provide outstanding W&M undergraduates the opportunity to gain early assurance of acceptance into EVMS's Physician Assistant or PA program. The sections below describe the three substantive areas of collaboration in more detail.

## **Faculty-led research and educational projects**

A total of 19 faculty-led projects have been funded. The intent of the funding was to support new or expanding interdisciplinary and inter-institutional activities by teams of W&M and EVMS faculty and, in the case of research activities, to increase the number of faculty applications for competitive extramural funding in health care delivery science, health services or community health research, as well as basic, translational, and clinical research domains.

Projects were funded in three cycles or rounds. Each round began with a solicitation or call for proposals from teams consisting of at least one faculty member from W&M and at least one faculty member from EVMS. Proposals were formally reviewed by a research committee consisting of W&M and EVMS faculty and a representative from Sentara Healthcare. The committee based its funding decisions on each application's scientific merit and expected ability to lead to extramural funding. Two types of faculty-led collaborations were funded, including 1) research projects that developed new or strengthened existing inter-institutional collaborative research and 2) innovative educational proposals thought to have a high potential for return on investment and offering new or improved training opportunities for W&M and EVMS students and residents.

The first round of funding was announced in June 2013 and had an application deadline of August 2013. The second round was announced in October 2013 with an application deadline of December 2014. Finally, the third round was announced in September 2014 and had an application deadline of November 2014. Project start dates ranged from August 2013 to January 2015. Awards ranged in size from \$10,000 to \$25,000.

The majority of the 19 funded projects were research-focused, although a number of educational program collaborations were funded. Among the research projects, a large number focused on identifying the underlying determinants of diseases, conditions and disorders, including cancer, birth defects, amyotrophic lateral sclerosis (ALS), infectious diseases, anxiety disorders, among others. Another group of research studies focused on improving the diagnosis and treatment of diseases such as Alzheimer's disease and autism. A third group of studies focused on improving the delivery of healthcare, for example, through the use of electronic health records and by training healthcare professionals in a method known as "rapid cycle innovation." Among the educational projects were several collaborations designed to improve physicians' knowledge of issues related to

patient health literacy, legal supports available to patients, and methods of narrative medicine.

The funded projects also represent a diverse set of disciplines, including biology and microbiology, chemistry, pathology, and physiology, among others. The fields of psychology and neuroscience emerged as a frequent area of inter-institutional collaboration. Medical school faculty in the departments of family and community medicine, internal medicine, pediatrics, and geriatrics were among the large number of faculty involved in the collaborative research projects.

Since all of these faculty-led collaborations activities are relatively new (e.g., the most recent round of funded projects began less than six months ago), it is thus premature to discuss the ultimate success in terms of securing subsequent external research submissions and funding. Nonetheless, there are strong indicators that many of the projects have been successful.

Some of the collaborative research projects have already resulted in proposals to national and state funding entities and, in at least one instance, additional extramural funding. For example, applications for funding have been submitted to the National Science Foundation, the Alzheimer's Foundation, the ALS Association, the U.S. Department of Defense, the Commonwealth Research Commercialization Fund, and the Alzheimer's and Related Diseases Research Fund through the Commonwealth of Virginia Center on Aging at VCU. A three-year, \$445,000 award has been secured from the Virginia Foundation for Healthy Youth. In total, W&M and EVMS faculty have applied for more than \$1.5 million in extramural funding in relation to these collaborative research programs. This is an encouraging result given the recent nature of the collaborations.

Many of the faculty teams are collecting additional data or analyzing preliminary results with the goal of preparing grant applications in the near future. Future applications are planned for submission to the National Institutes of Health and the National Science Foundation, among other funding agencies.

Many of the faculty research teams have made conference presentations on their initial findings and submitted manuscripts for publication in scholarly research journals. For example, preliminary research findings have been or will be presented at the 2015 Annual Meeting of the Society for Psychophysiological Research, the 2015 Alzheimer's Association International Conference, the 2015 Virginia Patient Safety Conference, the 2015 International Meeting for Autism Research, the 2014 TeamSTEPPS National Conference sponsored by the Agency for

Healthcare Research and Quality (AHRQ), and the 2014 research meeting of the International Society for Eye Research, among other conferences. These activities are important for their contribution to the scientific community and are viewed favorably in the extramural funding review process.

One team has filed a provisional patent application on the basis of a neurometric protocol used in detecting the earliest stages of cognitive decline in Alzheimer's disease (#62,109,142; patent pending).

Several teams have produced new training and research opportunities for numerous graduate and undergraduate students. In addition, several new educational courses have been designed including a biology seminar entitled "The Injured Brain," two interdisciplinary undergraduate courses entitled "Discovering Narrative Medicine" and "Medicine Arts and Social Justice," and a new MBA course entitled "Health Analytics." Several new seminars in narrative medicine were developed for physicians, medical students, and residents and were subsequently accredited by the Virginia Medical Society.

### **Collaborations between the Schroeder Center and Brock Institute**

In fall 2014, a plan to support collaborative research and educational activities between the Brock Institute in Community and Global Health at EVMS and the Schroeder Center for Health Policy at W&M was approved by the executive committee. The centerpiece of these activities is the creation of a new student summer research fellowship program, known as the SC-BI summer fellows program.

Starting in summer of 2015, the SC-BI summer fellows program will fund six undergraduate and graduate research summer fellowships in healthcare services research and healthcare delivery science. The intent of the fellowships is to provide students with substantive experience in research methods and data analysis and to prepare students for professional careers in health/healthcare research and analysis. Student fellows were chosen on the strength of their academic record and on nature of their proposed research. All research projects must address issues in health and/or healthcare with a special emphasis on the residents in the Commonwealth of Virginia or residents of the southeastern region of the state.

A significant component of the fellows' research is rigorous quantitative analysis of health data. In building the summer fellowship program, the Schroeder Center and Brock Institute have collaborated to obtain a rich set of quantitative data

on patient care from Virginia Health Information (VHI). These datasets include VHI's Patient-level data (PLD) and Readmission and Transfers (RATS) data. The PLD contain the universe of acute inpatient hospital discharge records from all such hospitals in the Commonwealth. The RATS files contain information on those acute inpatient hospital discharges that result in or follow from transfers to other acute inpatient hospitals or discharges that result in readmissions. These databases contain a wealth of information that can be applied to the analysis of various topics in healthcare access, cost containment, and healthcare quality. In addition to acquiring these data, the Schroeder Center has built a statistical program library that can be used by student and faculty researchers at both institutions to read and access the raw data and construct analytical datasets. The data and the accompanying programs are now available for use by all faculty and student researchers at the College and EVMS, and not solely those students funded by summer fellowships. For this reason, this investment has the potential to produce numerous new studies on controlling healthcare costs and improving health, access to care, and healthcare quality in the Commonwealth of Virginia.

Attachments 1 and 2 contain a list of W&M and EVMS students accepted as 2015 SC-BI fellows along with brief descriptions of student projects. Funded projects include an analysis of the dependent coverage mandate in the Affordable Care Act (ACA) and its impact on healthcare utilization for young adults, an analysis of Medicare's readmissions penalties on Virginia hospitals, and an analysis of a CDC-funded grant to improve community health and reduce racial and ethnic health disparities in Norfolk, VA.

The 7-week fellow program began on June 15 and includes a series of site visits which allow each institution's students to interact with faculty and students at the other site. The program also includes outside speakers from the Joint Commission on Healthcare and Sentara Healthcare, faculty research presentations, weekly data analysis workshops for students using the VHI data, and a joint W&M/EVMS teleconference for the presentation of preliminary findings. Student research findings will be disseminated in the fall of 2015. In 2016, plans call for funding an additional six fellows and for seeking extramural funding to continue to support the program.

The Schroeder/Brock collaboration activities were approved for \$120,000 in funding, with \$50,000 coming from state funds in fiscal year 2015 and \$70,000 of future funding to be allocated from the commitment made by Sentara Healthcare. This leaves an uncommitted balance of approximately \$30,000 (from the balance of Sentara funding) for future collaborative activities between EVMS and W&M.

## **Educational partnerships between EVMS and W&M's Mason School of Business and EVMS and W&M Law**

In 2014, W&M and EVMS launched a new dual Doctor of Medicine-Master of Business Administration program, the first program of its kind in the region. Students enrolled in the program will complete the first three years of the MD curriculum at EVMS before spending a year at William & Mary's Mason School of Business completing an intensive, 48-credit-hour MBA curriculum. Students will then return to EVMS for the fourth year of their medical education. The new dual-degree program will provide medical students at EVMS an important opportunity to broaden their understanding of the complex healthcare environment they are entering and to expand their skill set beyond the clinical domain. This education will help make EVMS medical students more competitive in their applications to residencies and in their ultimate recruitment into practice settings. The marketing of the dual MD/MBA degree is currently under way.

In addition, a new non-degree certificate program in Health Care Implementation Science is currently under development by EVMS, W&M's Mason School of Business, and Sentara. This 90-hour certificate program will be targeted toward mid-level administrative managers, clinicians with managerial responsibilities, residents, and medical students. Current plans call for piloting the HCIS certificate program in fall 2015. The goal is to offer the new educational program as soon as practicable. As part of the curriculum, a course entitled "Design Thinking/Rapid Cycle Innovation" will be offered in the fall of 2015 and a course based on the Leadership Impact program developed by Sentara Healthcare will be offered in the spring of 2016.

Finally, W&M Law is in the early stages of collaboration on two educational initiatives. Representatives from W&M Law, EVMS, and Sentara Healthcare recently met to discuss a collaborative educational opportunity relating to compliance issues in the healthcare field. In addition, a series of non-credit bearing lectures on healthcare law and policy was designed and offered to W&M and EVMS students in the past academic year. Current plans call for using these lectures as the basis of a formalized one-week seminar next year, with the possibility of designing additional collaborative educational experiences, such as a cross-listed credit-bearing course.

### **Concluding Remarks**

The funding provided by the Commonwealth of Virginia and Sentara Healthcare has been effectively used to increase educational and research

collaborations between the two institutions. This increased collaboration has occurred at a program level rather than an institutional level, and, because it is based on the mutual interests of faculty members at both institutions, it is likely to continue well into the future. The relationships developed over the past two years will be invaluable to both institutions and to the citizens of Virginia, as the three-party partnership between the institutions and Sentara Healthcare strengthens educational programs and increases research productivity. Overall, the Commonwealth of Virginia should consider its investment in the collaborative activities between W&M and EVMS to be a successful one.



## **Attachment 1.**

### **Schroeder Center for Health Policy 2015 SC-BI Fellows from the College of William & Mary**

**John Snouffer**, W&M, B.A. in Public Policy, Class of 2015; M.P.P, Class of 2016  
*Inpatient Admissions for Young Adults with Mental Health Conditions in Virginia Hospitals*

The transition to adulthood is marked by periods of uninsurance; at the same time, young adults tend to have relatively high mental health needs. Examining patterns in healthcare and mental health treatment in particular is important for targeting provider incentives and facility expansions, and for evaluating the effects of insurance coverage expansions. For example, effective in 2010, the Affordable Care Act (ACA) required insurance plans to allow young adults up to age 26 to retain coverage as dependents under parents' health plans.

This study will use several years of hospital discharge data available from Virginia Health Information (VHI) to examine young adult hospitalizations, particularly hospitalizations for mental health conditions. For each quarter of each year, the VHI hospital discharge databases contain information on every patient discharge that occurs in licensed Virginia hospitals. The research will examine differences in young adult hospitalizations by hospital location and traits (such as ownership and size), and by population traits in the patient's county of residence (such as median household income and the percent uninsured). Then, using data from several years and a control group of young adults aged 18-19 and 26-28 (i.e., a group not targeted by the ACA's dependent coverage mandate), the research will examine whether the expansion of dependent coverage to young adults up to age 26 under the ACA reduced the overall number of young adult discharges and the number of young adult discharges associated with mental health conditions.

**Molly Smith**, W&M, B.A. in Economics, Class of 2016  
*Medicare Hospital Readmissions in Virginia*

The Affordable Care Act (ACA) implemented the Hospital Readmissions Reduction Program (HRRP) for the purpose of improving the quality of care for Medicare beneficiaries and reducing Medicare program expenditures. The HRRP imposes penalties on hospitals that have high rates of Medicare patients who are readmitted within 30 days of their initial hospitalization for, among other things, heart attack, congestive heart failure, and pneumonia.

The study will help policy analysts and researchers better understand how Virginia hospitals and residents will be affected by the recent implementation of readmission penalties. The research will use several years of data available from Virginia Health Information (VHI). Specifically, VHI patient-level data (PLD) and readmissions and transfers (RATS) data will be used to identify initial admissions of Medicare patients that are characterized by a readmission within 30 days. The study will use these data to examine the number of readmissions among Medicare patients over time and differences in readmissions by patient diagnoses and by payer. In addition, this study will use published data from CMS (the Centers for Medicare and Medicaid Services) on the penalties imposed on Virginia hospital to examine the potential for unintended consequences of readmission penalties, such as hospital upcoding of the severity of Medicare patient admissions or hospital reductions in charity care provided to the uninsured.

**Jimmy Cao**, W&M, B.A. in Economics, Class of 2016  
*Racial Disparities in Alcohol Consumption in Virginia*

Prior research shows that in some communities, rates of alcohol-related disease vary by race, ethnicity, and income. For example, a study done in Los Angeles County, CA found that compared to whites, Hispanics and low-income individuals exhibited higher rates of alcoholic liver disease (ALD) and African Americans had higher rates of pancreatitis. Knowledge of how certain demographic and contextual factors affect hospitalization for alcohol-related diseases can aid policy makers in designing more effective prevention and treatment programs.

This research will examine Virginia data on patient discharges from hospitals to test for the presence of racial disparities in hospitalization rates for alcohol-related diseases. Using several years of hospital discharge data available from Virginia Health Information (VHI), the research will first identify hospital admissions for alcoholic liver disease (ALD) and chronic pancreatitis using clinical information on the discharge record. Then, once identified in the data, regional and hospital-level differences in the number of alcohol-related admissions will be examined by patient characteristics, by area/hospital type, and over time. In particular, the research will test for differences by patient race in order to ascertain possible disparities in health status and health behaviors in the Commonwealth of Virginia. In addition, the research will examine the relationship between rates of alcohol-related admissions and median household income and the density of establishments that sell alcohol in the patient's county of residence.

## **Attachment 2.**

### **Brock Institute for Community and Global Health 2015 SC-BI Fellows from Eastern Virginia Medical School (EVMS)**

Below are the names of the three EVMS students who were awarded fellowships under the Schroeder Center – Brock Institute Fellowship Program for Summer 2015.

**Jillian Capucao** – Jillian’s research will focus on understanding community progress and outcomes one year following the conclusion of a Centers for Disease Control and Prevention (CDC) funded Racial and Ethnic Approaches to Community Health (REACH) grant in Norfolk, Virginia. The faculty mentor on this project is Amy Paulson, M.P.H.

**Meghana Kaloji** – Meghana’s research will focus on the evaluation of the quantity and quality of breastfeeding information Latina mothers receive in the Hampton Roads area. The faculty mentor is Natasha Sriraman, M.D., FAAP, FABM.

**Abirami Thuyagarajan** – Abirami’s project will focus on the evaluation and documentation of diabetes education provided to patients upon discharge from the Sentara Heart Hospital after a cardiac procedure such as valve replacement or coronary artery bypass grafting surgery. The faculty mentor is Jagdeesh Ullal, M.D.