

The  
ECONOMIC  
IMPACT  
*of Eastern Virginia  
Medical School in  
Hampton Roads*

*by*

**James V. Koch, PhD**

Board of Visitors Professor of Economics Emeritus

Old Dominion University

Norfolk, Virginia

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## EXECUTIVE SUMMARY

Eastern Virginia Medical School (EVMS) unquestionably has established itself as one of the foremost economic engines in Hampton Roads. While Hampton Roads has yet to recover the jobs it shed in the Great Recession, EVMS has been generating additional jobs at a swift pace. With 2,040 employees, EVMS now is the 12th-largest private-sector employer in Hampton Roads (up from 20th in 2012). An additional 4,900 jobs within Hampton Roads would not exist except for the ripple effects of the activities of the EVMS community.

The economic trajectory of EVMS is astonishing given the institution's relatively modest initial financial base. Between 2007 when I performed my first economic impact study of EVMS and 2017, the value of our region's economic activity rose from \$84.7 billion to \$103.17 billion — 2.71 percent annually. By contrast, during the same period, the economic impact of EVMS rose 5.59 percent annually, from \$698.8 million to \$1.203 billion. The economic footprint of EVMS has been growing more than twice as fast as that of Hampton Roads. Indeed, the economic growth of EVMS is accelerating. Since 2012, the annual rate of growth in EVMS' economic impact has been 6.53 percent. EVMS is gaining economic momentum.

**EVMS has evolved into a major source of new economic energy for Hampton Roads. What we are witnessing is the emergence of an “ed-med” economic sector in Hampton Roads, and EVMS is central to this story.**

More detailed analysis reveals that the economic impact of EVMS has grown more rapidly than the regional economy or any of our region's traditional economic drivers — defense spending, the port and tourism. EVMS, while not yet the size of these big three contributors, has evolved into a major source of new economic energy for Hampton Roads. What we are witnessing is the emergence of an “ed-med” economic sector in Hampton Roads, and EVMS is central to this story.

<b>Five-Year Comparison</b>	<b>2012</b>	<b>2017</b>
<b>Annual economic impact:</b>	<b>\$823.6</b> MILLION	<b>\$1.2</b> BILLION <b>↑ 21.4%</b>
<b>EVMS rank among private-sector employers in Hampton Roads:</b>	<b>20</b>	<b>12</b> <b>↑ 8</b> IN RANK
<b>Annual impact of EVMS alumni in Hampton Roads:</b>	<b>\$222</b> MILLION	<b>\$446</b> MILLION* <b>↑ 100.9%</b>
<b>Value of charitable services, including uncompensated care:</b>	<b>\$54</b> MILLION	<b>\$63</b> MILLION <b>↑ 16.6%</b>
<b>Economic ripple effect from EVMS activities:</b>	<b>\$500</b> MILLION	<b>\$655</b> MILLION <b>↑ 31%</b>
<b>Additional jobs generated locally because of EVMS economic ripple effect:</b>	<b>3,752</b>	<b>4,900</b> <b>↑ 30.6%</b>

Source: Economic Impact Report, James Koch, PhD, 2012

Source: Economic Impact Report, James Koch, PhD, 2017  
\* Includes ripple effect

## I. BACKGROUND

Eastern Virginia Medical School (EVMS) is a distinctive enterprise. A 1964 act of the Virginia General Assembly created a medical authority that eventually led to an energetic community-based fund-raising effort to establish the institution. In the 1960s, Hampton Roads was the most populated region in the United States not to host a medical school. This was an important reason why the number of physicians per 1,000 citizens in our region was only about one-half of the comparable number in Richmond. Simply put, there was a shortage of physicians in Hampton Roads, and the opening of EVMS in 1973 began to address this critical problem.

EVMS graduated its first class of 23 new physicians in 1976 and since then has distinguished itself in education, research and service. Along with its highly regarded Doctor of Medicine program, the institution offers 18 additional graduate programs, including a doctorate in biomedical sciences and a Physician Assistant master's degree program. The Doctor of Medicine program has become highly selective, with the typical fall 2016 matriculate boasting an MCAT score of more than 509.8 versus the national mean score of 508.7.

In the realm of research, the campus has been the site of pioneering work in the area of in vitro fertilization. Three EVMS faculty members have been honored as the Virginia Scientist of the Year, and the current volume of funded research averages about \$40 million annually.

The strong community origins and ties of EVMS remain central to its identity. When EVMS says it has a “community focus, world impact,” it underscores that the institution’s attention is focused on Hampton Roads, even while its activities have global significance because they have spinoff benefits to individuals located around the world.

## II. EVMS THE EMPLOYER

In the space of five years, EVMS has vaulted upward from being ranked as the 20th-largest non-governmental employer in Hampton Roads to the 12th largest, with 2,040 employees (full-time and part-time). Employment at the medical school now surpasses that at household names such as BAE Systems, Canon and Bon Secours (see Table 1).

**In the space of five years, EVMS has vaulted upward from being ranked as the 20th-largest non-governmental employer in Hampton Roads to the 12th largest, with 2,040 employees.**

EVMS is one of the most attractive employers in Hampton Roads. As Figure 1 reveals, the average employee at EVMS earns approximately \$25,500 (55 percent) more than the average regional worker. The highly educated, skilled nature of the typical EVMS employee requires such salaries if the medical school is to attract and retain the individuals its needs. This might cause some to conclude that EVMS “is all doctors” (the comment of one regional resident), but the reality is that EVMS employs a wide range of individuals ranging from janitors to surgeons. One cannot exist without the other.

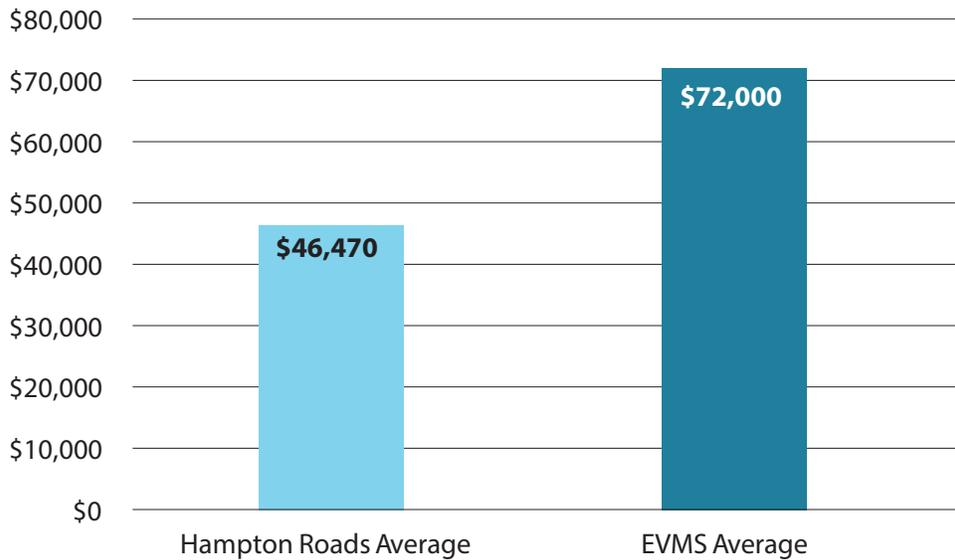
TABLE 1

**LARGEST NON-GOVERNMENTAL EMPLOYERS IN HAMPTON ROADS, 2017**

<b>Rank</b>	<b>Employer</b>	<b>Estimated Number of Employees in Region 2017</b>
1	Huntington Ingalls	24,000
2	Sentara	22,000
3	Riverside Health	8,000
4	Colonial Williamsburg	3,100
5	Bank of America	3,025
6	Gold Key Resorts	2,400
7	Chesapeake Regional Medical Center	2,700
8	GEICO Direct	2,300
9	TE Connectivity	2,200
10	Smithfield Packing	2,100
11	Stihl	2,067
<b>12</b>	<b>EVMS</b>	<b>2,040</b>
13	BAE Systems	2,000
14	CHKD	1,905
15	LTD Management	1,810
16	Canon Virginia	1,500
17	Lumber Liquidators	1,500
18	Wellpoint (Amerigroup)	1,350
19	Hall Automotive	1,300
20	Bon Secours	1,300

FIGURE 1

**AVERAGE SALARY OF AN EVMS EMPLOYEE VERSUS AVERAGE SALARY OF AN EMPLOYEE IN HAMPTON ROADS, 2017**



### III. ASSESSING THE ECONOMIC IMPACT OF EVMS

Eastern Virginia Medical School's economic impact can be divided into 10 parts:

- Salaries and wages paid to employees
- Fringe benefits paid to employees
- Purchases of supplies
- Contractual services
- Operating expenses
- Capital expenditures
- Student expenditures, net of tuition
- Resident expenditures
- Alumni expenditures
- Value of charitable care provided

The analysis presented here is based upon estimates that rely upon a variety of economic models, but especially the U.S. Department of Commerce's RIMS II economic model. RIMS II is the most frequently used economic-impact study model. In essence, RIMS II provides a regional input-output matrix that shows mathematically how each part of our regional economy is related to every other part. For example, RIMS II can provide information that tells us how the U.S. Department of Defense's expenditures on personnel at the Norfolk Naval Shipyard eventually affect the regional sale of automobiles. Analogously, it provides information that enables one to see how the economic activities of EVMS affect every other major part of the regional economy, and vice versa.

Reflecting the nature of medical care, EVMS is a personnel-intensive institution. In 2017-2018, it is scheduled to spend \$141,206,273 on wages and salaries for its employees, plus another \$29,346,671 on fringe benefits for these individuals. Column (2) of Table 2 records these and other EVMS direct expenditures.

After wages and salaries, the next largest categories of expenditures by EVMS relate to capital expenditures and general operating expenses, the latter category including a myriad of different items ranging from electricity to insurance. Because capital expenditures can be very large (or small) in a given year, entering a single year's value can be deceptively large or small. By way of illustration, EVMS' capital expenditures in FY 2017 were approximately \$6.1 million, but it has three approved projects, all either fully or partially funded by the Commonwealth, coming in the next few years that total more than \$85 million. I have adopted \$35.0 million as a representative average value for the institution's capital expenditures in a typical year.

The student expenditure estimate is based on the average budget information supplied by EVMS and represents what a typical student spends. Note, however, that this number does not include tuition and fees paid by students because these dollars already are included in other EVMS expenditure categories.

EVMS alumni impact the Hampton Roads region in many different ways as citizens and health professionals. The institution's alumni have a computable economic impact that is quite large. As Table 2 illustrates, if one simply multiplies the number of EVMS alumni times their estimated annual salary, one emerges with a very impressive contribution to the economic development of the region. Without EVMS, much of this contribution would disappear. **The salient point is that the economic contribution of the medical school to the region's economic well-being continues well after its students graduate. Almost one-half of the institution's graduates remain in Hampton Roads, and their presence enhances the quality of our lives.**

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The estimated value of the charitable resources and services supplied by EVMS in 2017-2018 — \$62,600,000 — consists of two parts: (1) the uncollected value of healthcare services provided by EVMS clinical enterprises in the amount of \$60,900,140, and (2) the estimated value of the numerous uncompensated public-service ventures that EVMS provides the region in the amount of \$1,699,860.

The uncollected value of healthcare services provided by EVMS rose 19.1 percent between 2012 and 2017 even as the Affordable Care Act took effect and Medicaid expanded. Some citizens continue to use EVMS clinical enterprises as an emergency care site. EVMS clinicians provide caring treatment to thousands of patients annually without regard to their ability to pay for the care they receive.

**With few exceptions, EVMS provides individuals healthcare before receiving promise of payment for that care from those individuals. Very few other organizations in Hampton Roads can match this sterling record.**

EVMS' public-service activities range from counseling thousands of K-12 students in schools around the region to enrolling as many as 20,000 youth in children's insurance programs to immunizations, obesity and diabetes information sessions, pregnancy counseling and assistance, etc. As I did in my 2012 study, based primarily on the value of the time of the EVMS personnel involved, I have valued each contact with youth at \$20 and each contact with adults at \$50. While these values are rough approximations, they are consistent with the values assumed in a variety of studies performed by the U.S. government.

It goes almost without saying that \$62,600,000 in charitable care is an impressively large number. With few exceptions, EVMS provides individuals healthcare before receiving promise of payment for that care from those individuals. Very few other organizations in Hampton Roads can match this sterling record.

### **Leakages Outside the Region**

Column (3) of Table 2 recognizes the "leakage" phenomenon that accompanies nearly any expenditure made by residents of Hampton Roads. When Eastern Virginia Medical School compensates its employees, nearly always they use those dollars to purchase a wide range of items, ranging from housing and food to gasoline and clothing. EVMS' own expenditures similarly span a wide range of items. Some of these expenditures are directed to vendors located outside of our region. These are termed "leakages" because they represent a drain of spending power from our region. Because the focus of this study is upon EVMS' economic impact on Hampton Roads, column (3) in Table 2 reduces EVMS' expenditures by these leakages.

Some EVMS activities have higher rates of leakage than others. For example, a larger proportion of expenditures on capital construction end up not being spent inside the region compared to expenditures on wages and salaries. **The EVMS community's estimated 2017 gross expenditures of \$612,755,775 are reduced to \$548,288,938 once we have taken estimated leakages into account.**

TABLE 2

**THE ECONOMIC IMPACT OF EASTERN VIRGINIA MEDICAL SCHOOL, 2017**

(1) <b>Direct Expenditure Category</b>	(2) <b>Direct Amount</b>	(3) <b>Minus Leakages</b>	(4) <b>Plus Ripple Effect</b>
Salaries and Wages	\$141,206,273	\$126,803,233	\$291,901,043
Fringe Benefits	\$29,346,671	\$26,441,351	\$57,139,759
Supplies	\$10,072,991	\$9,156,349	\$20,162,280
Contractual Services	\$23,069,067	\$20,969,782	\$45,441,517
Operating Expenses	\$35,432,397	\$30,046,673	\$65,321,466
Capital Expenditures	\$35,000,000	\$30,157,482	\$68,005,122
Students	\$33,949,042	\$31,640,507	\$72,773,166
Residents	\$21,280,000	\$19,832,960	\$44,445,663
Alumni	\$220,799,334	\$198,277,802	\$445,926,777
Charity	\$62,600,000	\$54,962,800	\$92,117,653
<b>Totals</b>	<b>\$612,755,775</b>	<b>\$548,288,938</b>	<b>\$1,203,234,446</b>

Source: Direct Expenditures Data from Eastern Virginia Medical School Budget, 2017-2018. Computations based upon U.S. Department of Commerce RIMS-II model and the Center for Economic Analysis and Policy at Old Dominion University.

“Spending regionally” reduces expenditure leakages and therefore increases regional economic impact, but it may result in purchasers experiencing reduced selection or paying higher prices. Every individual or firm must balance the benefits of spending locally (which might carry with it superior service) against what could be a larger of selection of goods and services and lower prices offered by external vendors. It will suffice to note that EVMS frequently chooses to patronize regional vendors, and so also do its students and alumni.

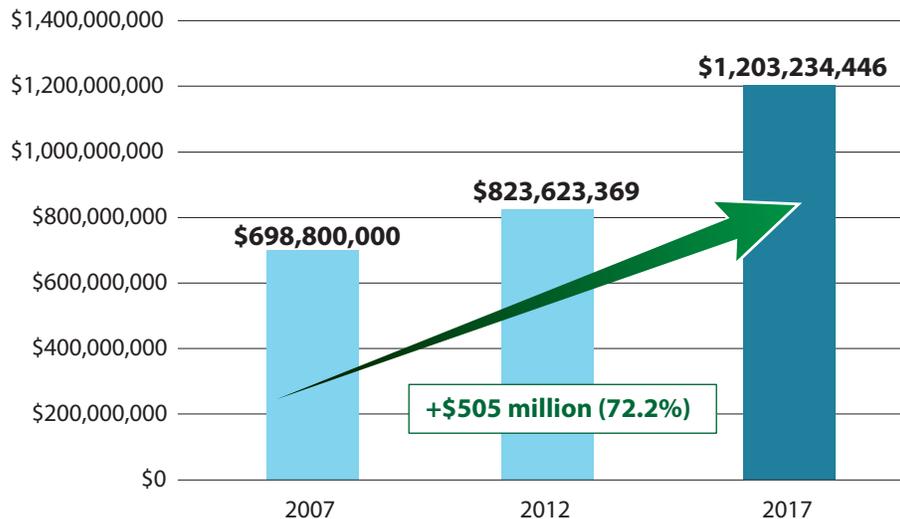
### **Economic Ripple Effects**

Wherever and whenever EVMS and its employees purchase necessary items including food, furniture, gasoline and computers, the dollars spent on these items initiate an economic ripple process. These dollars of expenditures by EVMS are received by employees and vendors who then spend and re-spend them. This process gradually diminishes to zero as additional leakages occur and/or people choose to save. Column (4) of Table 2 applies a variety of multipliers to the estimated 2017 expenditures in column (3). It is well to bear in mind that these multipliers reflect averages based upon RIMS II and national economic studies and may not hold true for specific expenditures initiated by EVMS or other entities.

The ripple effects of EVMS community’s activities expand the ultimate economic impact of its original \$612,755,775 million in direct expenditures upon employees, goods and services to \$1,203,234,446 within Hampton Roads. These multiplier effects combine what usually are referred to as the “*induced*” and “*indirect*” economic effects. The induced effect focuses on the chain of expenditures made by members of the EVMS community with the dollars they earn at EVMS or other locations. The indirect effect relates to the chain of expenditures made by those who supply and sell to the medical school and that would not occur but for the EVMS community.

The \$1,203,234,446 total economic impact of the EVMS community in 2017 is \$380 million (46.1 percent) higher than it was in 2012 and \$505 million (72.2 percent) higher than in 2007. Figure 2 illustrates this growth.

**FIGURE 2**  
**THE GROWTH IN THE ECONOMIC IMPACT**  
**OF EASTERN VIRGINIA MEDICAL SCHOOL, 2007-2017**



The growth in EVMS’ economic impact between 2007 and 2017 reflects a 5.59 percent average annual growth rate — more than double the economic growth rate of the region overall. Since 2012, however, EVMS’ economic impact has grown at an average annual rate of 6.53 percent. The institution’s economic impact upon the region has been accelerating.

## Tax Payments

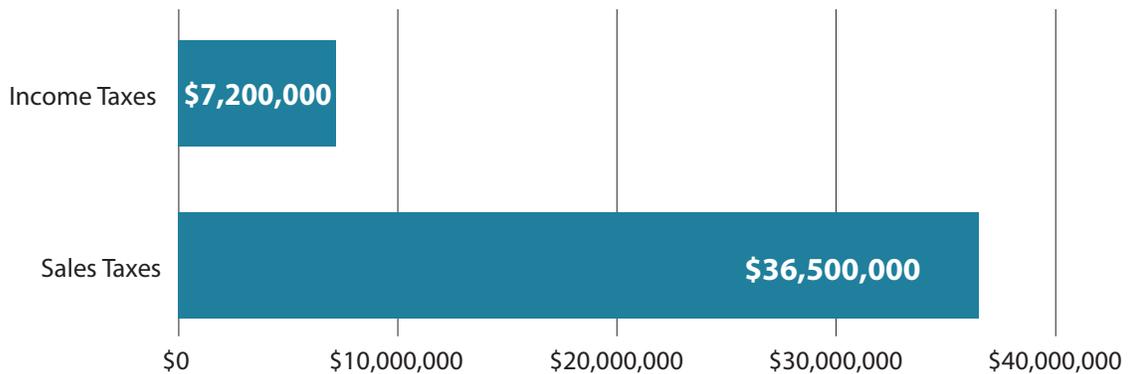
Many of the activities of Eastern Virginia Medical School are not directly taxable. Nonetheless, most of the ripple economic-impact effects of EVMS generate tax revenues for the Commonwealth and regional governmental units as dollars are spent and re-spent. Further, the incomes of members of the EVMS community are taxable, as are many of their expenditures. Analogously, members of the EVMS community pay real estate, license and a variety of other taxes.

The \$141.2 million in wages and salaries paid to EVMS employees generates an estimated \$7.20 million in additional income-tax collections for the Commonwealth. The purchases of goods and services by EVMS, its employees, students, residents and alumni, and the connected economic-ripple effects generate approximately \$36.5 million in additional annual sales-tax revenues for the Commonwealth of Virginia. Local Hampton Roads governments eventually receive approximately one-quarter of this amount (\$9.1 million) after all legislative actions are taken into account. Figure 3 summarizes the tax-generating activities of EVMS.

## Job Generation

Eastern Virginia Medical School employs 2,040 individuals. This is an impressive number, but the spinoff effects of its economic activities within Hampton Roads generate even more jobs. This occurs when members of the EVMS community spend their incomes and EVMS' suppliers make expenditures in order to provide it with inputs.

**FIGURE 3**  
**TAXES GENERATED BY EVMS ACTIVITIES, 2017**



Literally every pizza, computer, movie, automobile and home purchased by a member of the EVMS community generates jobs within Hampton Roads. Similarly, those who supply EVMS with inputs that range from electricity to food also must employ individuals to do so.

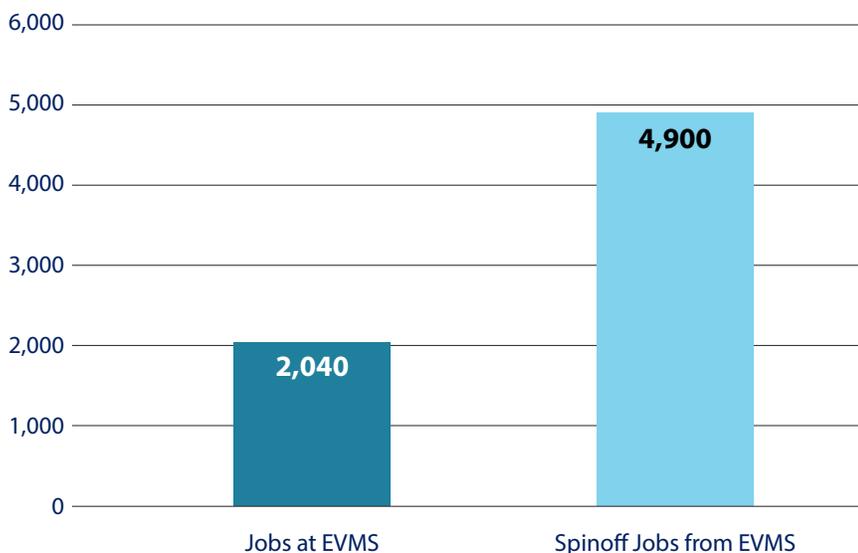
On average, each \$120,000 of EVMS' ripple economic effect results in one new full-time job within Hampton Roads. Thus, the EVMS community's economic-ripple effect (which approximates \$590,000,000) generates an additional 4,900 jobs inside the region. This constitutes additional evidence that EVMS has evolved into one of the most vital economic engines in Hampton Roads. Figure 4 illustrates this job-generation effect.

#### IV. THE COSTS TO HAMPTON ROADS IF EVMS DID NOT EXIST

It is appropriate to ask: What costs would Hampton Roads incur if Eastern Virginia Medical School were not in its midst? In my 2012 economic impact study, I estimated these costs at \$220.44 million. Changing demographics, rising use of healthcare services, and higher medical costs have increased this number substantially to \$258.33 million in 2017. This corresponds to approximately \$155 per every resident of our region.

FIGURE 4

**JOBS AT EVMS AND SPINOFF JOBS DUE TO EVMS ACTIVITIES, 2017**



Let's provide further context for this number. Consider that the Commonwealth's general-fund appropriation to EVMS approximates \$24.5 million annually. Thus, if EVMS did not exist, the Commonwealth could save this \$24.5 million; however, Hampton Roads would then incur costs 10.54 times as high — \$258.33 million. Table 3 details the major categories of these costs.

The obvious conclusion is that the Commonwealth's support of EVMS represents a highly desirable financial bargain for Virginia. If EVMS did not exist, then both Hampton Roads and the Commonwealth would incur costs far beyond current levels of tax support.

**Reality is that without EVMS, Hampton Roads would be the most populous metropolitan area in the United States not to be served by a local medical school.**

We can be more specific. If EVMS did not exist, then what kinds of costs would the citizens of Hampton Roads incur? First, those desiring medical care would find it increasingly difficult to obtain an appointment because physicians would be in scarce supply. Reality is that without EVMS, Hampton Roads would be the most populous metropolitan area in the United States not to be served by a local medical school. As a consequence, we would revert to the "bad old days" when our ratio of citizens to physicians was twice as high as that of Richmond, and our citizens had to drive and often stay overnight to obtain needed healthcare.

**TABLE 3**

**SPECIFIC ECONOMIC COSTS THAT WOULD BE INCURRED BY HAMPTON ROADS IF EVMS DID NOT EXIST (INCLUDES ECONOMIC RIPPLE EFFECT), 2017**

Cost Of Indigent Care Borne By Other Medical Providers In Hampton Roads	\$98.10 million
Lost Medical Revenue From Paying Patients at EVMS Clinical Enterprises	\$59.40 million
Patient Migration Costs Incurred By Patients Forced to Travel to Health Providers In Other Metropolitan Areas	\$101.33 million
<b>Total</b>	<b>\$258.83 million</b>

Without EVMS, we also surely would experience a deterioration in the quality of our medical care, both because it would become much more difficult to gain an appointment with a healthcare provider and because each healthcare provider in Hampton Roads (about 25 percent of their employees have been educated at EVMS) would not be able to spend as much time with each patient.

Further, and in some ways more important, we would find that certain healthcare specialists no longer would be found in our region. Appointments with physicians would occur in locations such as Richmond, Raleigh-Durham and Washington, D.C. Many specialty practices and surgeries involving citizens of Hampton Roads would have to be performed elsewhere. This would require commuting, overnight expenses and time spent distant from loved ones.

The absence of EVMS researchers and personnel also would mean that cutting-edge knowledge and techniques likely would arrive later in Hampton Roads. Medical school faculty (and the individuals they educate) are the foremost pipeline by which new innovations are introduced.

The quality of trauma care likely also would deteriorate. Numerous individuals within the region utilize the region’s trauma-care facilities annually as a result of automobile accidents, gunshot wounds, heart attacks and strokes, allergic attacks, poisonings, and other events. EVMS is significantly involved both in applied research and practice in trauma care and supplies a healthy proportion of the healthcare practitioners who practice at trauma facilities in our region.

**Hampton Roads would be a much less attractive place to live were not EVMS in its midst. Whether we focus on EVMS’ financial contributions or its influence on our quality of life, it is fair to say that very few institutions in our region contribute more to our overall well-being than EVMS. It has become an absolutely essential societal building block.**

Finally, EVMS personnel daily demonstrate that they are good citizens. They vote, serve, volunteer and contribute to the civic and social life of Hampton Roads. Apart from their financial impact, EVMS personnel and alumni have a profound influence on the quality of our daily lives. Their willingness to exercise their citizenship may not result in a precisely countable financial number, but nonetheless it is a phenomenon that is visible and important to the well-being of Hampton Roads.

In sum, Hampton Roads would be a much less attractive place to live were not EVMS in its midst. **Whether we focus on EVMS' financial contributions or its influence on our quality of life, it is fair to say that very few institutions in our region contribute more to our overall well-being than EVMS. It has become an absolutely essential societal building block.**

**Notes:**

- (1) Special thanks are due Ms. Ziniya Zahedi, who provided considerable assistance to me in the completion of this report.
- (2) Those reading this report or quoting from it should understand that economic impact studies provide reasonable, approximate estimates of economic impact rather than precise estimates because of the many assumptions that must be made about economic behavior. Different models or assumptions might produce numbers higher or lower than those reported here. Nevertheless, it is abundantly clear that the economic impact of EVMS has expanded significantly in recent years. The \$1.2 billion estimate captures this reality.

The author, James V. Koch, PhD, is a noted economist with extensive knowledge of the region. He is Board of Visitors Professor of Economics Emeritus and President Emeritus at Old Dominion University. He is a past President of the University of Montana and a former member of the EVMS Board of Visitors. For the last 18 years, Dr. Koch has produced the widely cited State of the Region Report for the 1.7 million population Hampton Roads metropolitan area. Beginning in 2015, he began to produce a State of the Commonwealth Report that focuses on Virginia's economic issues.



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P.O. Box 1980  
Norfolk, VA 23501-1980  
757.446.7070  
[www.evms.edu](http://www.evms.edu)