

# A Powerful Economic Engine: The Impact of Eastern Virginia Medical School



# A POWERFUL ECONOMIC ENGINE: THE IMPACT OF EASTERN VIRGINIA MEDICAL SCHOOL

**E**astern Virginia Medical School (EVMS) is one of the region's most viable economic engines. At a time when the region's economy has been sputtering, EVMS's economic impact has expanded. It now is the 20th largest private-sector employer in Hampton Roads and its estimated annual economic impact has risen to \$823.6 million, \$125.8 million (18 percent) higher than in 2007.

**A minimum estimate of the costs the region would incur if EVMS did not exist is \$220 million, or \$132 per citizen. Without EVMS, approximately 98,000 patients would be forced to travel to other metropolitan areas to obtain appropriate medical care.**

In the words of a prominent physician within the region, "It all really starts with EVMS. EVMS supplies us with the M.D.s and other skilled health professionals we need, provides thousands of patients with excellent health care, and is involved in some terrific applied research that we can use in our everyday practices." A hospital administrator put it this way: "The quality of life in Hampton Roads would fall substantially if we did not have EVMS."

The presence of EVMS continues to attract highly qualified medical personnel who provide a menu of high-quality medical care that otherwise would be beyond our regional grasp. **The regional economic impact of EVMS alumni (M.D.s and health professionals) approximates \$222 million annually.**

Many EVMS faculty are involved in cutting-edge translational research that immediately is reflected in improved patient care. EVMS has become a leader in medical modeling and simulation, a field that bodes to become increasingly important in the future.

Because EVMS is a not-for-profit institution dedicated to serving human needs, it provides very large amounts of charitable service and care to individuals and

organizations unable to pay for these services. **In 2011, the estimated value of the uncompensated health services provided by EVMS Health Services (where M.D. faculty pursue EVMS-sponsored medical practices) exceeded \$51 million.** In addition, EVMS annually provides approximately 100,000 young people with unbilled medical services that include counseling, vaccinations and prevention. EVMS also supplies approximately 7,500 adults (parents, teachers) with similar gratis services each year.

EVMS is an excellent employer. In 2011, it paid its employees more than \$108.9 million in wages and salaries and \$21.2 million in fringe benefits. **EVMS's average salary per employee (\$78,989) was 90.6 percent above the Hampton Roads regional average of \$41,440, reported by the Bureau of Labor Statistics.**

EVMS's economic activities have a ripple effect upon the region. Along with its students, residents and alumni, the medical school spent \$428 million in 2011. Its total economic impact, however, approximates \$824 million per year as these dollars are spent and re-spent. The incremental \$396 million of annual economic impact generates an estimated 3,752 additional jobs throughout Hampton Roads.

# EVMS As An Employer

Eastern Virginia Medical School is one of the largest private-sector employers in the region. In 2010, it was the 20th largest nongovernmental employer in Hampton Roads. Table 1 reports these data.

EVMS, however, is no ordinary employer. As Graph 1 illustrates, the medical school pays its employees an average of \$78,989 annually, which is more than 90 percent higher than the regional average, according to the U.S. Department of Labor's Bureau of Labor Statistics.<sup>1</sup> However, as Graph 2 reveals, EVMS also pays its employees more than the national and regional averages for health care employees. For example, EVMS's average salary of \$78,989 is about 10 percent higher than the national average of \$71,280 and about 16 percent higher than the Hampton Roads average of \$67,780.<sup>2</sup>

**TABLE 1**  
**LARGEST NONGOVERNMENTAL EMPLOYERS IN HAMPTON ROADS, 2010**

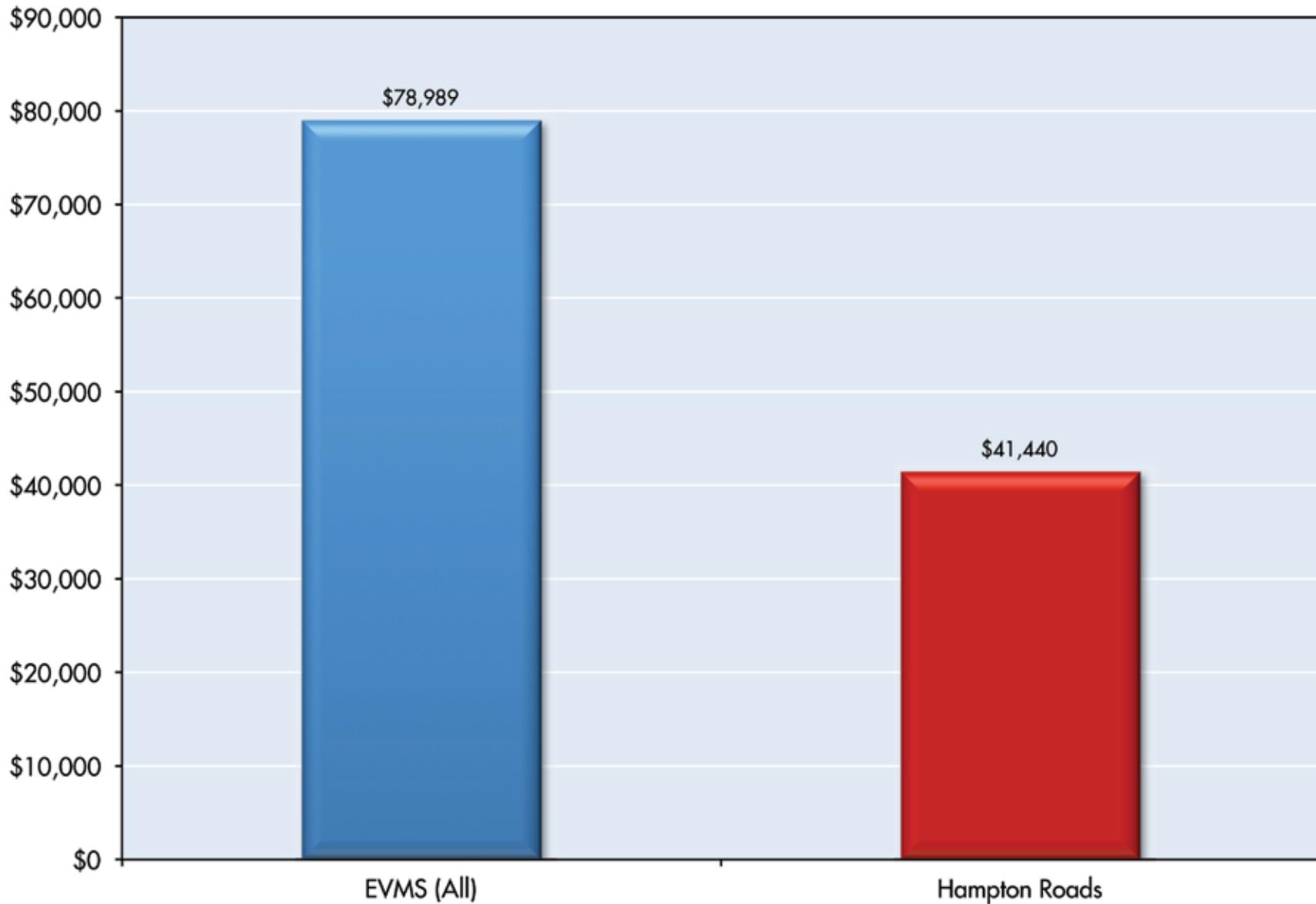
Rank	Employer	2010 Employees
1	Huntington Ingalls	20,000
2	Sentara	17,000
3	Riverside Health	7,050
4	Colonial Williamsburg	4,000
5	Bank of America	3,600
6	Bon Secours Hampton Roads	3,000
7	Smithfield Foods	2,700
8	Chesapeake Regional Medical Center	2,400
9	GEICO	2,300
10	BAE Systems	2,200
11	Measurement Specialties	2,184
12	Gwaltney of Smithfield	2,100
13	PRA	2,093
14	Stihl	2,016
15	Children's Hospital of The King's Daughters	1,905
16	LTD Management	1,810
17	Amerigroup	1,700
18	FHC Health	1,500
19	Canon Virginia	1,460
20	EVMS	1,379

<sup>1</sup> "Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, May 2010," [www.bls.gov/oes/current/oesrcma.htm](http://www.bls.gov/oes/current/oesrcma.htm)

<sup>2</sup> Note, however, that this particular health care comparison does not control for the proportion of physicians and surgeons relative to nurses and other health professionals. EVMS could be more "physician heavy" than the region and the nation.

**GRAPH 1**

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



# Computing The Economic Impact Of EVMS

Eastern Virginia Medical School's economic impact can usefully 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
- Medical residents' expenditures
- Alumni expenditures
- Value of charitable care provided

The analysis presented here is based on estimates that rely upon a variety of economic models, including the U.S. Department of Commerce's RIMS II economic model. RIMS II is the most frequently used model where economic impact studies are concerned and in essence supplies regional input-output multipliers that show how economic activity is distributed in industries across a geographic area and how those industries are interrelated, economically speaking.

After wages and salaries, the next-largest category of expenditures by EVMS is general operating expenses, which include a myriad of different items ranging from electricity to insurance. In 2011, EVMS spent an estimated \$30.7 million on operating expenses and \$29 million on contractual services, the next-largest

category. Table 2 reports these numbers as well as EVMS's expenditures in the other categories noted previously.

The \$26.66 million capital expenditures number in Table 2 is EVMS's three-year average capital expenditure, 2009-11. Student enrollment approached 1,000 in fall 2011 and the estimate of student expenditures in Table 2 is based upon the projected budget for each student in his/her course of study according to established U.S. government financial aid guidelines. However, that estimate does not include the tuition students paid to EVMS, as those tuition payments

<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Expenditure Category</b>	<b>Estimated Expenditures</b>	<b>Net of Leakages Outside Hampton Roads</b>	<b>Economic Impact Including Ripple Effect</b>
Salaries and Wages	\$108,925,511	\$96,943,705	\$225,878,832
Fringe Benefits	\$ 21,268,341	\$19,354,190	\$ 45,095,263
Supplies	\$ 7,822,250	\$ 7,118,248	\$ 16,443,152
Contractual Services	\$ 29,005,143	\$26,394,680	\$ 61,499,605
Operating Expenses	\$ 30,794,579	\$25,559,501	\$ 53,930,546
Capital Expenditures	\$ 26,666,667	\$21,600,000	\$ 44,712,000
Students	\$ 32,627,135	\$30,343,236	\$ 70,699,739
Residents	\$ 7,000,000	\$ 6,510,000	\$ 15,168,300
Alumni	\$109,951,720	\$95,657,996	\$222,883,132
Charity	\$ 54,000,000	\$49,140,000	\$ 67,321,800
<b>Totals</b>	<b>\$428,061,346</b>	<b>\$378,621,555</b>	<b>\$823,632,369</b>

are revenue to EVMS and hence already are reflected in the other expenditure columns. The annual expenditure of each of an estimated 350 medical residents is assumed conservatively to be \$20,000.

EVMS alumni impact the Hampton Roads region in many different ways as citizens and health professionals. These alumni have a computable economic impact. As Table 3 illustrates, if one simply multiplies the number of EVMS alumni in a typical Hampton Roads city times their estimated annual salary, one emerges with a very impressive contribution to the economic development of the region. **EVMS alumni in the largest seven cities (but not including alumni elsewhere in the region) earned more than \$109 million in wages and salaries in 2011. Graph 3 illustrates these data, which demonstrate the significant economic impact EVMS has upon the region, even after its students graduate.**

TABLE 3			
DISTRIBUTION OF EVMS PHYSICIAN AND HEALTH PROFESSIONAL ALUMNI IN THE SEVEN MAJOR CITIES OF HAMPTON ROADS AND THEIR ESTIMATED EARNINGS			
City	M.D. Alumni	Other Health Professional Alumni	Estimated Annual Wages and Salaries
Chesapeake	63	98	\$16,964,360
Hampton	15	16	\$ 3,542,080
Newport News	23	17	\$ 4,920,580
Norfolk	146	120	\$32,054,240
Portsmouth	12	21	\$ 3,389,460
Suffolk	41	39	\$ 9,360,860
Virginia Beach	175	163	\$39,720,140
Totals	475	474	\$109,951,720

Note: An average annual salary of \$163,840 is assumed for an M.D. and \$67,780 for all other health care professionals. These are the regional averages, according to the Bureau of Labor Statistics, [www.bls.gov](http://www.bls.gov). City averages are not available.

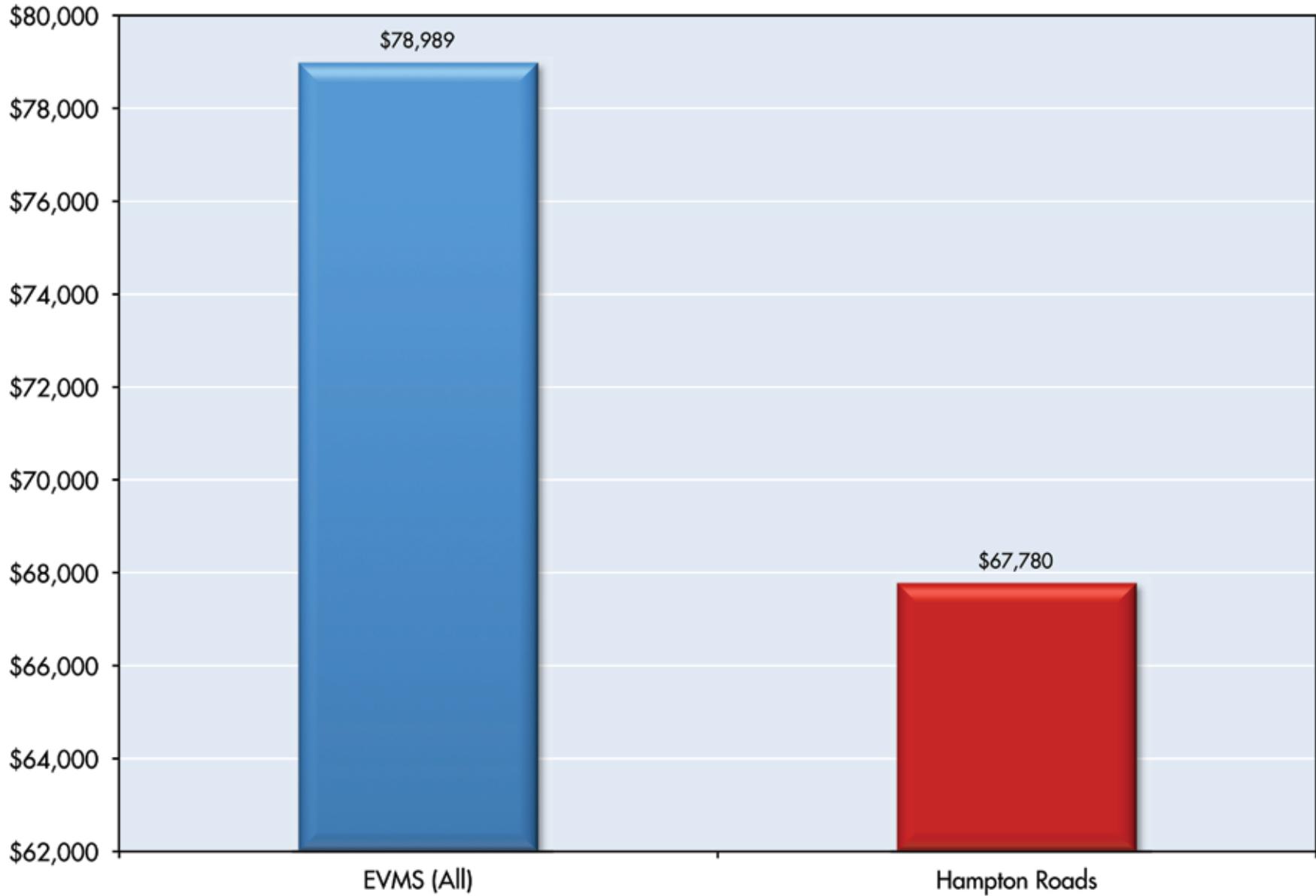
**The estimated value of the charitable resources and services supplied by EVMS in 2011 – \$54 million – consists of two parts: (1) the uncollected value of health care services provided by EVMS Clinical Enterprises in the amount of \$51,122,439; and (2) the estimated value of the numerous uncompensated public services ventures that EVMS provides the region in the amount of \$2,877,561.** These included tens of thousands of K-12 students counseled and served annually in schools in Hampton Roads, enrolling as many as 20,000 youth in children’s insurance programs, immunizations, obesity and diabetes information sessions, pregnancy counseling and assistance, etc. Based primarily on the value of the time of the EVMS personnel involved, each contact with youth has been valued at \$21 and each contact with adults at \$50. While these values are rough approximations, they do correspond to the values assumed in a variety of studies performed by the U.S. government.

**Regardless, \$54 million is a large number and one that almost reflects the less than ideal economic conditions that have diminished the ability of many people to pay for the health care that EVMS provides them. EVMS nearly always does so without any firm prospect of payment. EVMS, then, is a good citizen in a fashion rarely matched in Hampton Roads.**

The total expenditure number at the bottom of the first column in Table 2 (\$428,061,346) is the sum of the dollars actually expended by EVMS (for example, for wages and salaries) plus student and resident expenditures, plus the salaries earned by EVMS alumni in Hampton Roads, plus the estimated value of the charitable health care services supplied by EVMS. All numbers represent the EVMS 2012 fiscal year except for alumni salaries, which represent a 2011 calendar year estimate.

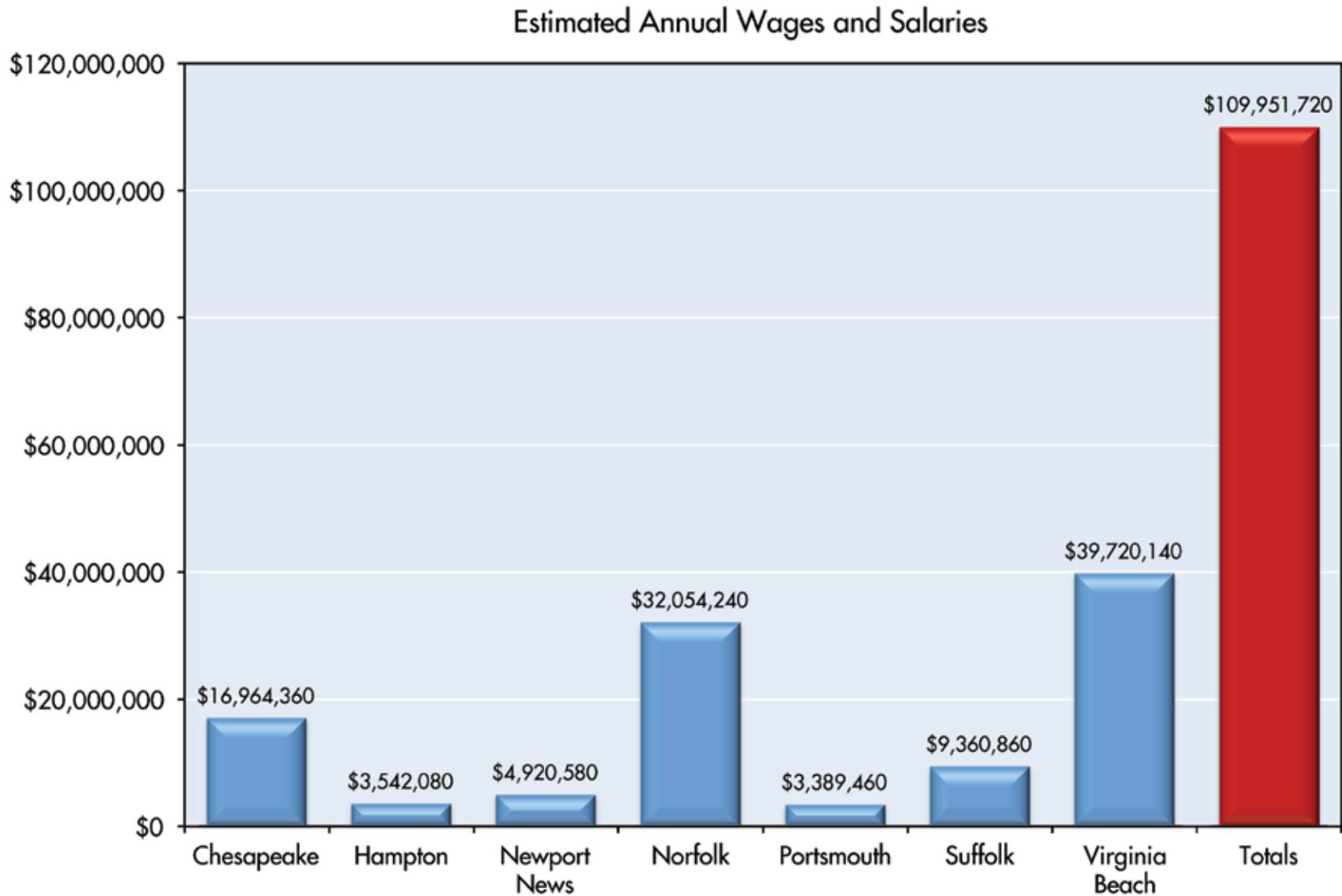
**GRAPH 2**

**AVERAGE SALARIES OF HEALTH CARE EMPLOYEES AT EVMS COMPARED TO THE HAMPTON ROADS AVERAGE**



**GRAPH 3**

**DISTRIBUTION OF EVMS PHYSICIAN AND HEALTH PROFESSIONAL ALUMNI IN THE SEVEN MAJOR CITIES OF HAMPTON ROADS AND THEIR ESTIMATED EARNINGS**





## LEAKAGES OUTSIDE THE REGION

When Eastern Virginia Medical School compensates its employees, or purchases any item, some of those expenditures are made to hire employees, or to patronize companies, located outside of the region. Column 3 in Table 2 reduces EVMS's expenditures by these "leakages." Some EVMS activities have higher rates of leakage than others. For example, larger proportions 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 2011 gross expenditures of \$428,061,346 reduced to \$378,621,555 after all leakages outside the region were taken into account.**

## ECONOMIC RIPPLE EFFECTS

When Eastern Virginia Medical School purchases necessary items such as food, furniture, gasoline and computers within the region, the dollars spent on these items initiate an economic ripple process as the money is spent and re-spent throughout Hampton Roads. This process gradually diminishes to zero as additional leakages occur. Column 4 of Table 2 applies a variety of multipliers to the estimated 2011 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 they will not hold true for specific expenditures initiated by EVMS.

**Thus, the ultimate economic impact of the original \$378,621,555 of expenditures upon employees, goods and services by the EVMS community in the region expands to \$823,632,369.** These multiplier effects combine what usually are referred to as the *indirect* and *induced* economic effects (see a section below for a discussion of these two effects). **Note that this is \$125 million (18 percent) higher than a 2007 estimate of EVMS's regional economic impact.** Graph 4 illustrates this growth.

In a time period when the regional economy has been stagnant or even contracting, the economic impact of EVMS has been expanding. **The medical school's economic impact grew almost three times as rapidly as the region's economy from 2007 to 2011. EVMS has become**

**an economic growth engine within Hampton Roads and today is one of the region's most reliable and important sources of economic growth.** This should not be lost on our elected officials and decision makers. Investments in the medical school pay rich economic dividends, in addition to the more obvious elements of health care-enhanced quality of life so often associated with medical schools.

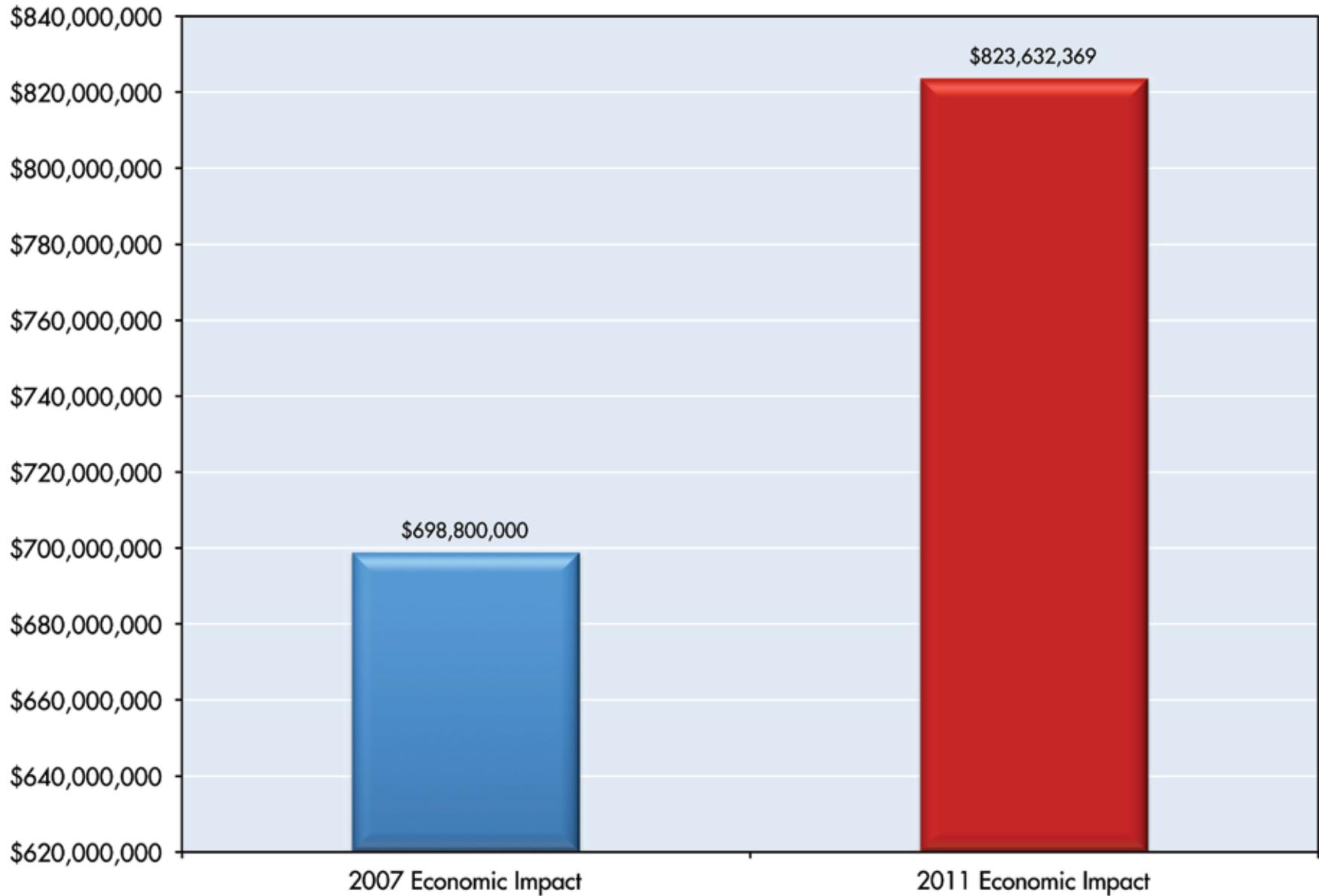
## JOB GENERATION

Eastern Virginia Medical School employs almost 1,400 people, and these employees are well compensated. Less well understood, but perhaps just as important, is the job-generation thrust that EVMS provides elsewhere within Hampton Roads.

The economic ripple effect from EVMS's activities is almost \$500 million within the region and this is a magnificent job creator. Hampton Roads businesses supply EVMS, and sell houses, automobiles, pizzas, higher education and food to EVMS employees and those same suppliers. **On average, each \$113,250 of EVMS's economic ripple effect results in one new full-time job within Hampton Roads. Thus, the medical school's economic ripple effect generates an additional 3,752 jobs inside the region. This is yet another reason why EVMS is one of the most important economic engines in Hampton Roads. Graph 5 illustrates this job-generation effect.**

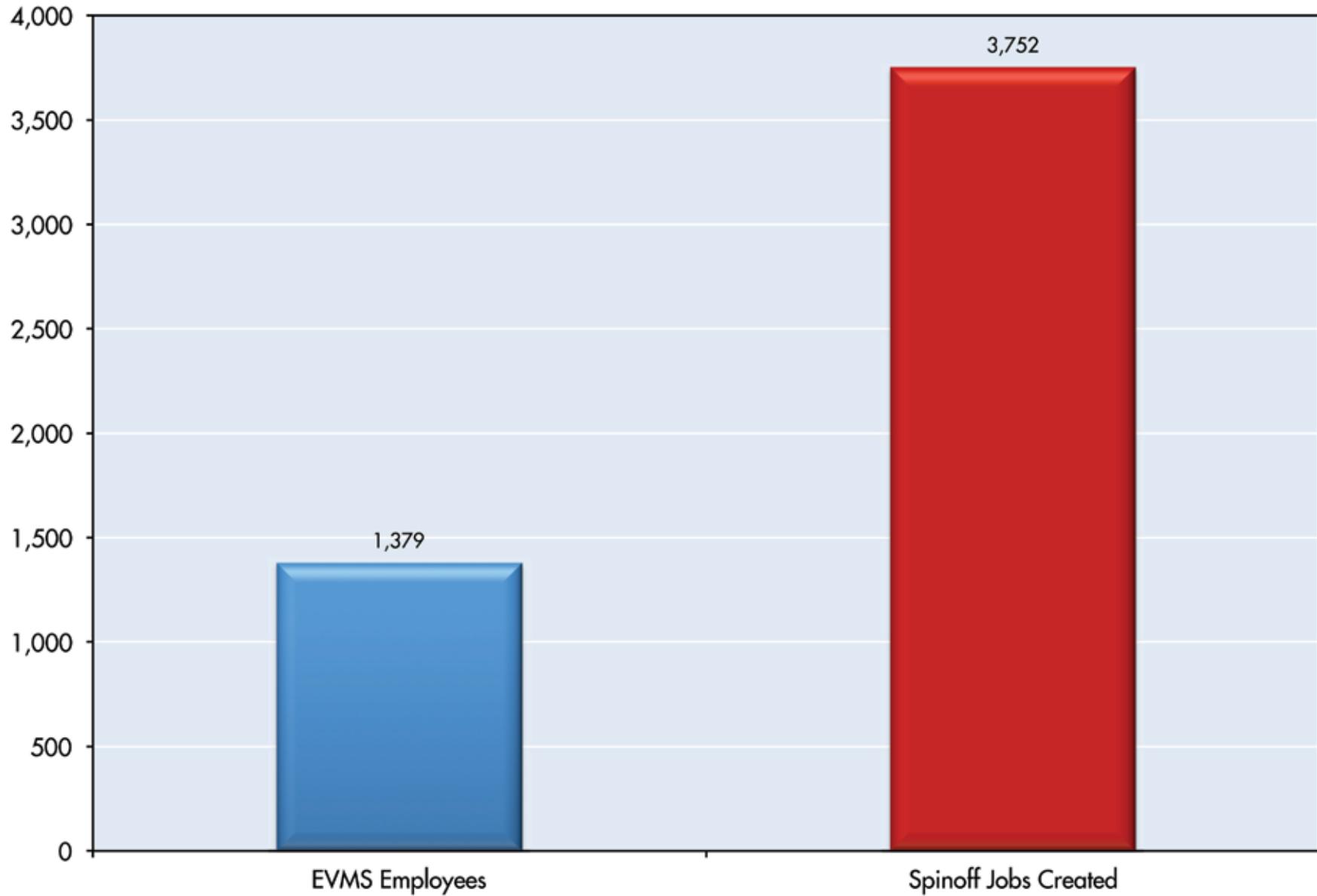
**GRAPH 4**

**GROWTH IN THE ECONOMIC IMPACT OF EVMS, 2007-2011**



**GRAPH 5**

**REGIONAL JOB GENERATION BY EASTERN VIRGINIA MEDICAL SCHOOL**



# The Cost To Hampton Roads If EVMS Did Not Exist

It is worth considering what costs our region would incur if EVMS did not exist. Because the medical school is the centerpiece of Hampton Roads' health care system, the costs would be significant and both the quantity and the quality of health care would deteriorate.

Table 4 explores some of the specific economic costs that likely would be incurred by the residents of Hampton Roads if EVMS did not exist.

<b>TABLE 4</b> <b>ECONOMIC COSTS THAT WOULD BE INCURRED BY HAMPTON ROADS IF EVMS DID NOT EXIST (INCLUDES ECONOMIC RIPPLE EFFECT)</b>	
Cost of Indigent Care Borne by Other Medical Providers in Hampton Roads	\$ 82.30 million
Lost Medical Revenue from Paying Patients at EVMS Health Services	\$ 51.60 million
Patient Migration Costs Incurred by Patients Forced to Travel to Health Providers in Other Metropolitan Areas	\$ 86.54 million
Total	\$220.44 million

**The estimated financial cost that would be incurred by citizens of our region if EVMS did not exist, \$220.44 million, is a lot of money by any standard – more than \$132 annually per person living in Hampton Roads.** Nevertheless, it is fair to say that many, perhaps most, of the region's citizens are unaware of the costs they would incur if EVMS were to disappear.

**How would citizens be affected if EVMS did not exist? First, those desiring medical care would find it increasingly difficult to obtain an appointment because physicians would be in**

**scarce supply. The 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.** Further, because the presence of a medical school frequently is used as an indicator of the quality of health care in a region, we would find it all the more difficult to attract physicians because some prospects would view us as a medical backwater.

Without EVMS, the 23 percent of local physicians who have graduated from the medical school would not be available and there can be little doubt that it would be expensive to attract replacements. According to the American Association of Medical Schools, a national shortage of 150,000 physicians looms in 2025. The absence of EVMS would transform this shortage into disastrous proportions in Hampton Roads.

As it stands, EVMS Health Services provides access to its physicians throughout the region. In addition to the wide range of services provided in Norfolk, EVMS Health Services provides obstetrics and gynecology, maternal and fetal medicine, dermatology, cosmetic plastic surgery, hearing and balance services, and Jones Institute services in Virginia Beach; family medicine in Portsmouth; surgery in Suffolk; maternal and fetal medicine and Jones Institute services in Newport News; and diabetes medicine in Hampton. In the words of a Virginia Beach physician, "EVMS comes to us."

**Second, without EVMS, the quality of medical care would decline because many of the people who provide that care would not be present.** The personnel likely to be absent would include the physicians produced or attracted by EVMS, but also medical residents, physician assistants, nurses, physical therapists, etc., who are produced or attracted by the medical school. This does not mean that Hampton Roads would not eventually be able to attract many of these essential professionals from other regions if EVMS did not exist. It does mean that it would be expensive to do so.

**Third, the absence of EVMS researchers would mean that patients would not have access to cutting-edge medical knowledge and techniques.** Currently, the path from laboratory to hospital room for an innovation frequently is remarkably short because EVMS researchers (within the provisions of law and regulatory practice) have the ability

to implement new developments quickly. The laboratory-to-practice time frame is shorter within Hampton Roads because of EVMS.

**Fourth, the absence of EVMS would require many patients to leave the region and travel to other metropolitan areas such as Richmond, Washington, D.C., or Raleigh-Durham in order to receive treatment.** Some Hampton Roads patients would find such travel impossible. Others would find it too expensive. Unfortunately, still others would not survive such travel and relocation.

**Fifth, EVMS faculty and EVMS Health Services personnel are heavily involved in the region's provision of trauma care.** Thousands of Hampton Roads residents utilize the region's trauma care facilities annually as a result of automobile accidents, gunshot wounds, heart attacks and strokes, allergic attacks, poisonings and the like. EVMS is significantly involved both in applied research and practice in trauma care, and were EVMS to disappear, "Our cutting-edge advantage also would soon disappear" (the comment of a senior physician).

**Sixth, EVMS research often proceeds to the development stage and later to commercialization. Arguably the most well-known research connected to the medical school has been generated by the Jones Institute for Reproductive Medicine.** Since its founding in 1978, the Jones Institute has focused on fertility problems. Pioneering scientists Drs. Georgeanna and Howard Jones guided the first in vitro fertilization resulting in birth in the United States in 1981. Jones Institute research was the foundation for the patented oral contraceptive Seasonale, which has generated significant revenue for the institute and the medical school. **EVMS professionals generate approximately \$40 million of external funding annually.**

Modeling and simulation additionally provides a superb example of a very promising current arena for EVMS research, development and commercialization. The National Center for Collaboration in Medical Modeling and Simulation was established in 2001 with EVMS and Old Dominion University as the major partners. Improving the quality of medical care being provided to American military forces is an important goal of the center. EVMS

is a key player in the burgeoning regional modeling and simulation activities that have centered in Suffolk. The judgment of knowledgeable individuals is that the modeling and simulation activities of EVMS are among those most likely to survive the demise of the U.S. Joint Forces Command headquarters.

## Methodological Notes On Economic Impact

These estimates of Eastern Virginia Medical School's economic impact on Hampton Roads rely primarily upon source data supplied by EVMS. The data were plugged into several models, such as the U.S. Department of Commerce's RIMS II model, in order to translate the information into actual economic impact. In essence, RIMS II and similar models supply regional input-output multipliers that show how economic activity is distributed in economic industries across a geographic area and how those industries are interrelated, economically speaking. Since the match between models such as RIMS II and EVMS activities is not exact, adjustments were made as necessary to enable the estimates to reflect the reality of EVMS.

The estimates presented here combine what usually are referred to as *indirect* economic impacts and *induced* economic impacts into one multiplier effect. Indirect economic impacts relate to increased activity by firms and industries that supply EVMS (e.g., food and fuel suppliers). Induced economic impacts reflect households spending the increased money that appears in their paychecks because of the original direct expenditures and the indirect impact upon suppliers.

Finally, it is impossible to place an economic value upon many additional things that occur in and around EVMS, up to and including saving lives. The medical school is a caring organization dedicated to doing good deeds and improving the human condition. When EVMS restores faith, reduces pain, makes people more productive and, yes, saves lives, indisputably this has a positive impact not only on the affected individuals, but also on the entire region.



