

VIRGINIA'S ACADEMIC HEALTH CENTERS: MISSION-RELATED SERVICES AND COST



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Executive Summary

Virginia's two academic health centers -- the University of Virginia Health Systems (UVA/HS) and Virginia Commonwealth University Health Systems (VCU/HS) -- play a pivotal role in the delivery of healthcare to the poor. As a part of their broader mission of education, research, and the provision of highly specialized care, these two systems serve as the primary source of healthcare to a disproportionate number of low-income people who have no or limited health insurance.

In November of 2002, Governor Mark Warner directed members of his cabinet, policy office, and representatives from Virginia's two academic health centers (AHCs) to identify long-term options for addressing operational and indigent healthcare funding issues at the State's two teaching hospitals. Five months later, the Virginia General Assembly placed language in the 2003 Appropriations Act requiring the Secretaries of Health and Human Resources and Education to report on the indigent healthcare cost trends, funding options, and opportunities for operational efficiencies at the AHCs.

The impetus for these actions was a report from staff at the Department of Medical Assistance Services on an emerging funding crisis in the State's indigent healthcare program. Based on current projections, it appears that the State's two AHCs face a funding shortfall for indigent healthcare for the next biennial budget that could range from \$34 million to more than \$83 million.

This review is being conducted at a time when important policy questions are being raised about the mission and affordability to the State of the two AHCs. Critics of this system of healthcare argue that a changing healthcare

marketplace has lessened the need for the publicly supported, mission-driven work of Virginia's AHCs. Now, it has been suggested that private hospitals deliver many of the highly specialized core services historically provided by VCU/HS and UVA/HS, but that they do so at a considerably lower cost. This calls into question efforts to continually fund the high costs associated with these institutions while other government programs face steep budget cuts.

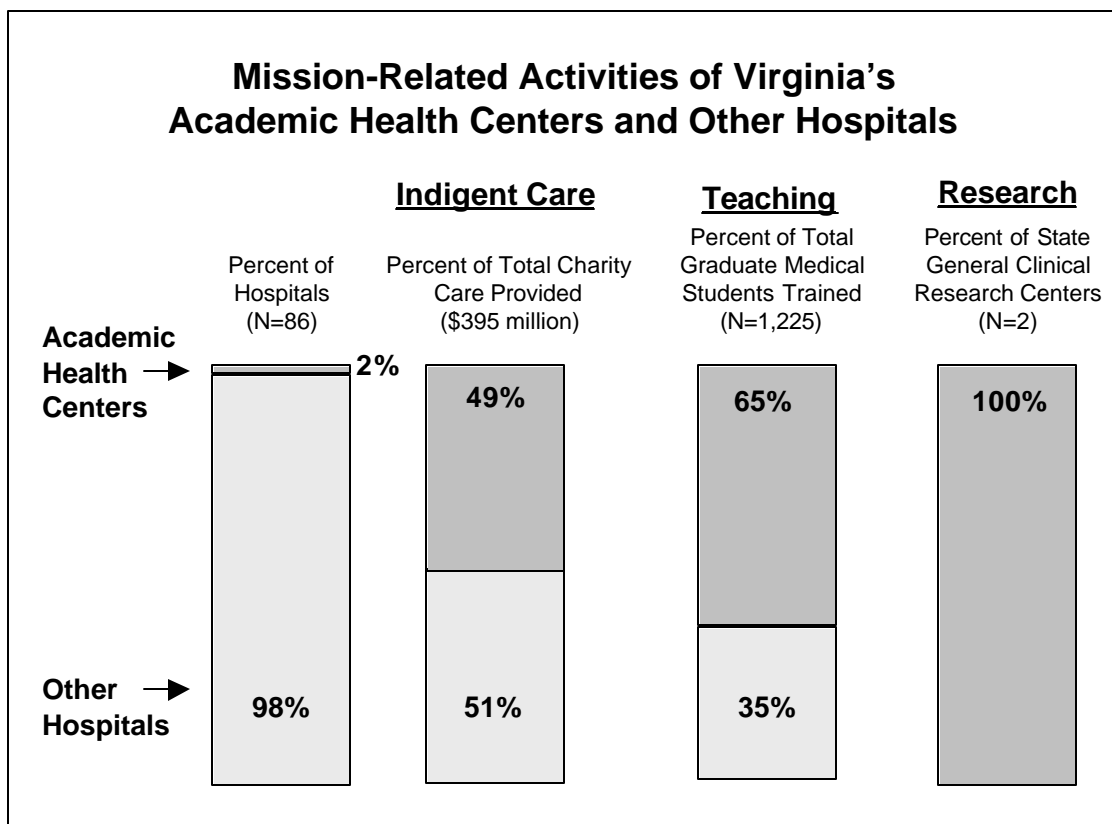
Until now, Virginia's AHCs have not faced serious public scrutiny about the value and uniqueness of their mission and the cost effectiveness of the methods they employ in delivering the education, patient care, and research for which they are noted. Accordingly, outside of the data put forward in abstruse audit reports, little is known about the overall cost of services in the AHCs, how multiple funding sources finance the major missions of the AHCs, how these institutions compare to peer institutions on basic measures of efficiency, and the cost trends associated with indigent patient care.

This report addresses these issues through an assessment of the uniqueness of mission-related activities of the AHCs, the cost of patient care, the revenue through which the care is funded, the relative efficiency of their operations, and the magnitude of the fast approaching funding shortfall.

Major Report Findings

The general findings of this study indicate that compared to other hospitals in the State, Virginia's AHCs continue to be the institutions that are primarily responsible for those activities that represent the core historical purpose of the AHCs -- the care of the indigent population, the training of future doctors

and healthcare professionals, the provision of complex specialty medical care, and the pursuit of new and innovative patient care techniques through medical research. The figure below illustrates that the AHCs play a dominant role in the performance of these missions in the Commonwealth. Moreover, because the activities associated with these missions often have the characteristics of public or merit goods, private markets cannot be relied upon to produce the level of these services that are presently purchased through UVA/HS and VCU/HS.



The overall per-patient cost of care in the AHCs was found to be higher than the levels observed for private hospitals. However, much of this difference can be attributed to the costs incurred by teaching hospitals in developing and maintaining the capacity to provide the specialized tertiary care and trauma services not typically funded in other hospitals. Further, when AHCs are

compared to their peers across the United States, their costs are generally within the expected range based on, among other factors, the characteristics of the patients treated by these facilities.

No evidence could be found to support the perception that patient care cost in the AHCs is overstated because dollars earmarked for indigent healthcare are diverted to subsidize the operating cost of the University of Virginia and Virginia Commonwealth University. For the most part, both AHCs have successfully contained growth in the inpatient component of the indigent healthcare program. However, in some years, these systems do lose money treating indigent patients but not because healthcare dollars are being diverted to the universities (see UVA/HS' flow of funds for indigent care in the figure on next page).

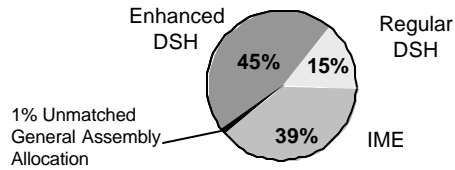
For a number of reasons, the two health systems face a significant budget shortfall in the next biennium. Further, while both of the State's AHCs can and have taken some actions that will reduce the fiscal pressure of the respective indigent healthcare programs moving forward, these changes alone will not be sufficient to close the emerging funding gap in Virginia's indigent healthcare program.

While Private Hospitals Have Taken On A Larger Role, Virginia's AHCs Continue To Maintain A Preeminent Position in the Provision of Routine and Specialized Healthcare to the Poor, Medical Training, and Clinical Research

Given the emergence of private hospitals that support teaching and indigent care, one objective of this study was to assess the degree to which

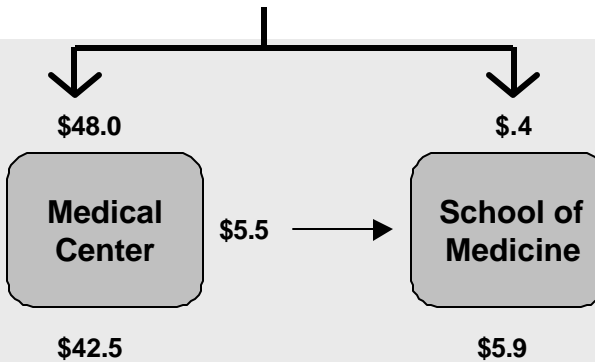
Revenues and Expenditures for Indigent Care for the University of Virginia Health System, FY 2002 (in millions)

REVENUE



**Indigent Care Revenue
\$48.4**

TRANSFERS



Operating Margin:

-\$10.2

\$0

Medicaid Funds:

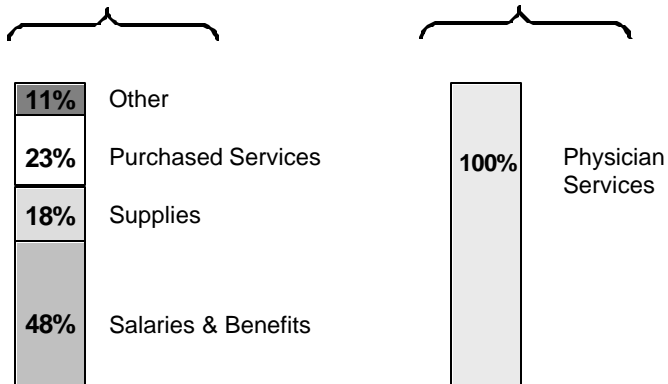
\$1.6

Total Expended Funds:

\$54.3

\$5.9

EXPENDITURES



Virginia's two AHCs can still be distinguished from their private counterparts. Clearly if the competitive private market performs reasonably well in setting prices and optimally allocating various healthcare and research services traditionally associated with the missions of AHCs, the substantial public subsidies that are used to support UVA/HS and VCU/HS are more difficult to justify.

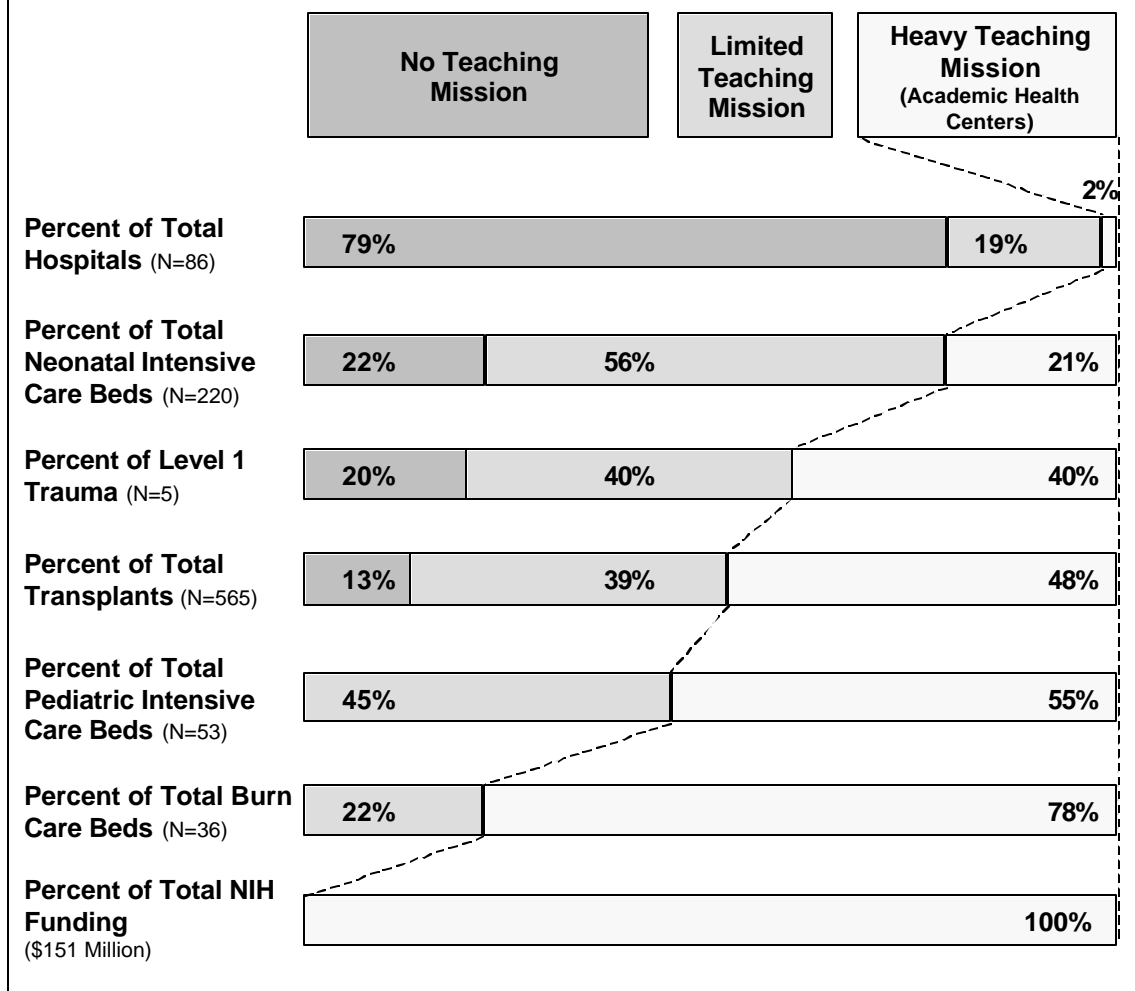
All indications from this study suggest that Virginia's AHCs maintain the primary role in the delivery of mission-related healthcare. Private hospitals, especially those that have assumed a limited teaching role, are structured to provide greater levels of one or more types of specialty care. Nonetheless, nearly four of every 10 uninsured persons in the Commonwealth who receive high cost specialty care are treated in the AHCs.

In terms of the existing capacity for specialized healthcare and research, Virginia's AHCs operate two of the five Level 1 trauma centers in the Commonwealth, perform nearly half of all transplants, staff more than half of the pediatric intensive care beds, operate nearly 80 percent of Virginia's burn care beds, and receive 100 percent of the NIH research funding distributed in the State (see figure on next page).

The Mission-Related Activities of Virginia's AHCs Add an Estimated 30 Percent to the Cost of Inpatient Care

It has been widely documented through research sponsored by the Commonwealth Task Force on Academic Health Centers, that the cost of healthcare is higher at AHCs than at private or community hospitals.

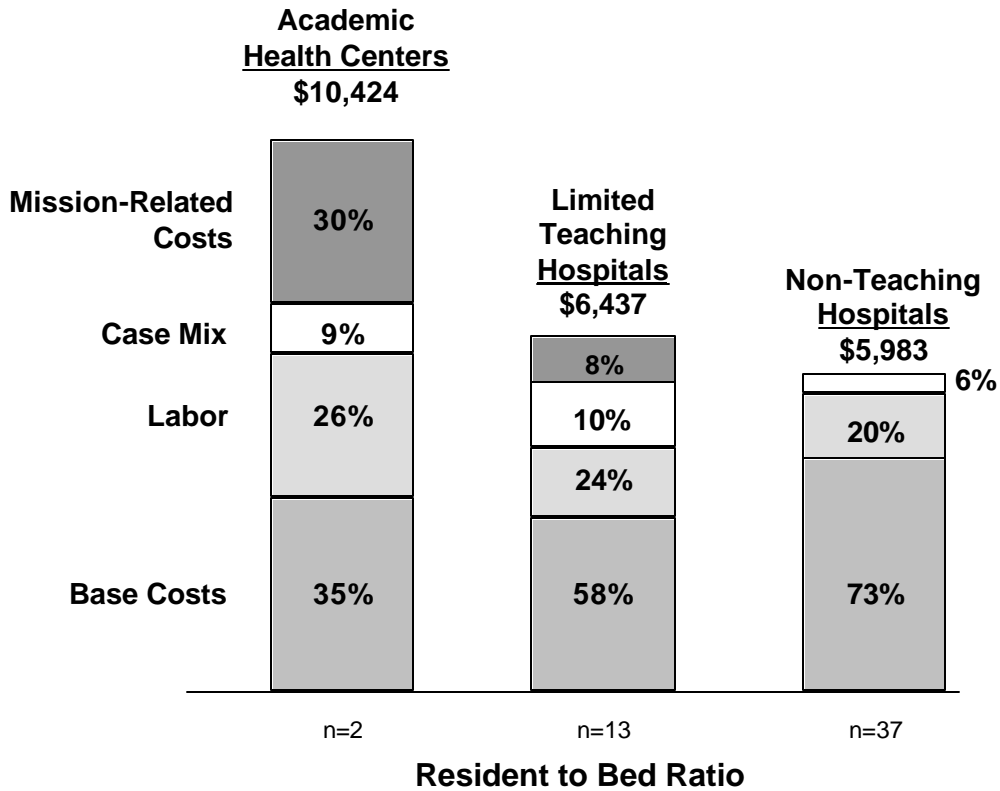
Characteristics of Virginia's Hospitals Based on the Intensity of Teaching Mission



What has not been as thoroughly examined or understood is whether and how the specific missions of AHCs contribute to these higher costs.

The results from this study reveal that the cost of inpatient care in Virginia's AHCs is higher compared to the other two groups of hospitals examined in this study, but these cost differences are driven by the mission-related activities that AHCs are funded to provide (see figure on next page). Specifically, the average cost of inpatient care in the two

**Inpatient Acute Care Costs Per Discharge for
Virginia Hospitals With 100 or More Beds
(Fiscal Years Ending in 2001)**



Sources: Estimates calculated using national weights based on the methodology developed by the Lewin Group. (See *Health Care at the Cutting Edge: The Role of Academic Health Centers in the Provision of Specialty Care*, a report of the Commonwealth Fund Task Force on Academic Health Centers.) The inpatient costs per case are calculated from the Hospital Cost Report Information System (HCRIS) cost reports submitted to the federal Center for Medicare and Medicaid Services.

AHCs -- unadjusted for case mix -- was \$10,424 per patient. By comparison, the cost for patients who received their care from hospitals with a limited teaching mission was only \$6,437 – approximately 61 percent of the cost of care in the AHCs. In hospitals with no teaching mission the cost was slightly higher (\$5,983).

The major factor distinguishing AHCs from their counterparts is the mission-related activities. Using national weights developed by the Lewin Group,

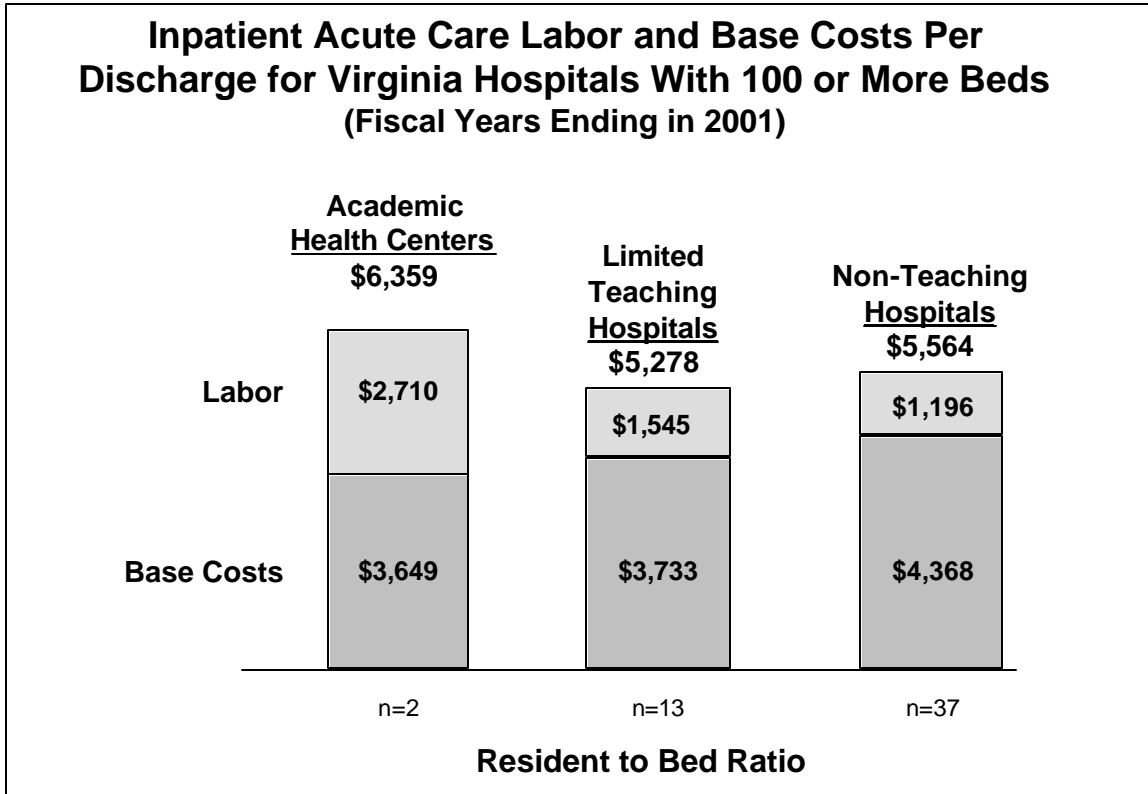
it is estimated that fully 30 percent of the costs in these facilities can be attributed to the unique role of the AHCs in the delivery of care. Only eight percent of the cost for hospitals with a limited teaching mission could be similarly categorized. As anticipated, the hospitals without a teaching mission had no mission-related patient care costs.

Further analysis indicated that most of the mission-related costs were associated with the high technology equipment and related services such as those provided in the Level 1 trauma unit. Because this equipment and the staff who operate the machines must always be available whether in use or not, these costs are sometimes referred to as “stand-by” costs.

To more closely approximate the differences in treatment costs for AHCs compared to other hospitals in Virginia, the costs associated with case-mix and the mission-related activity of the academic health centers were subtracted from the overall costs of patient care (see figure on next page). When this is done, the previously observed cost differences between Virginia’s AHC and the two groups of private hospitals are substantially reduced. Patient care costs remain higher in the AHCs due to differences in labor costs. Higher wage indices and a disproportionately large number of interns in specialty care are two of the factors believed to be responsible for these differences in labor costs.

Virginia’s AHCs Compare Favorably to Peer Hospitals Around the Nation

Because of the mission-related activities of the AHCs, comparing them with private hospitals that do not share similar goals can lead to misleading conclusions about the per-patient costs and operational efficiency of these



institutions. Therefore using analysis results from the University HealthSystem Consortium (UHC), it was possible to determine how Virginia’s AHCs compared to their peer institutions around the United States. Data on AHC hospital operations in 2001 from the UHC revealed that the measures of cost per discharge -- with adjustments to account for severity of patient illness -- for both UVA/HS (\$7,306) and VCUHS (\$7,602) were less than the 50th percentile of the comparison group of peer hospitals (\$7,644).

Moreover, the ratio of observed cost per discharge to expected cost per discharge -- based on a number of factors including the acuity level of the patients -- for UVA/HS and VCU/HS were 1.02 and 1.03 respectively. This means that the actual costs for these systems’ were essentially equal to the expected cost when compared to other participating UHC hospitals.

While Virginia's AHCs Have Worked To Control Indigent Healthcare Costs, Both Opportunities and Future Challenges Remain

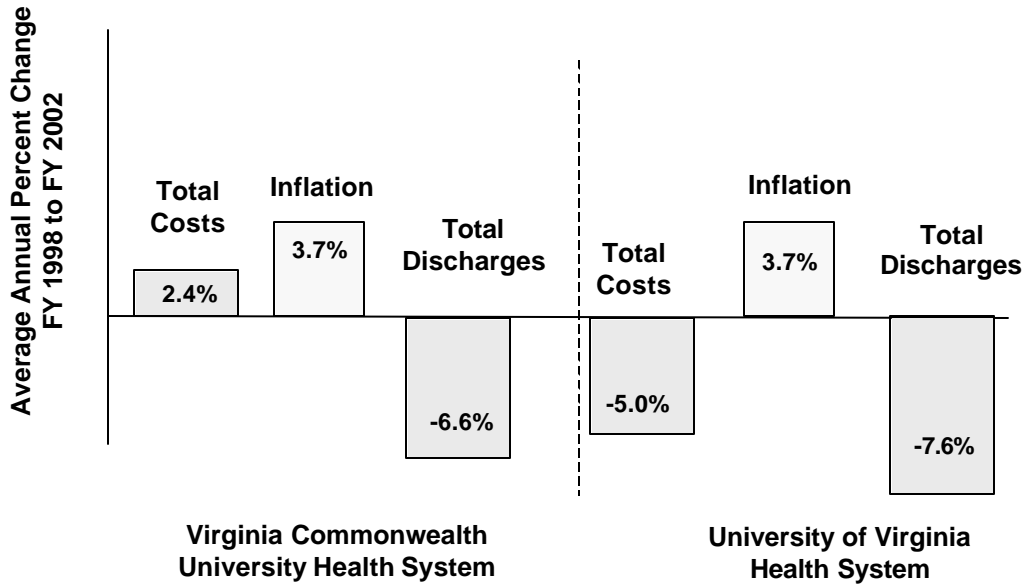
There are two major components of Virginia's indigent healthcare program: inpatient care for persons whose health problems are more acute; and ambulatory care for those whose illnesses or health problems can be treated outside of the inpatient arena (for example, through office visits). The results from an analysis of the cost trends for these programs speak to the efforts both of the AHCs have made to deliver care more cost-effectively to indigent patients.

Most notably, both systems appear to have done a good job managing cost increases in their indigent healthcare programs over the past five years. This success was largely due to the AHCs ability to contain cost in the most expensive indigent healthcare program – inpatient care. The costs for inpatient indigent care services in a five-year period from FY 1998 to FY 2002 actually declined for UVA/HS while increasing at less than the rate of hospital inflation for VCU/HS (see figure on next page). A decrease in the number of admissions and better management of hospital stays were the key factors driving these trends.

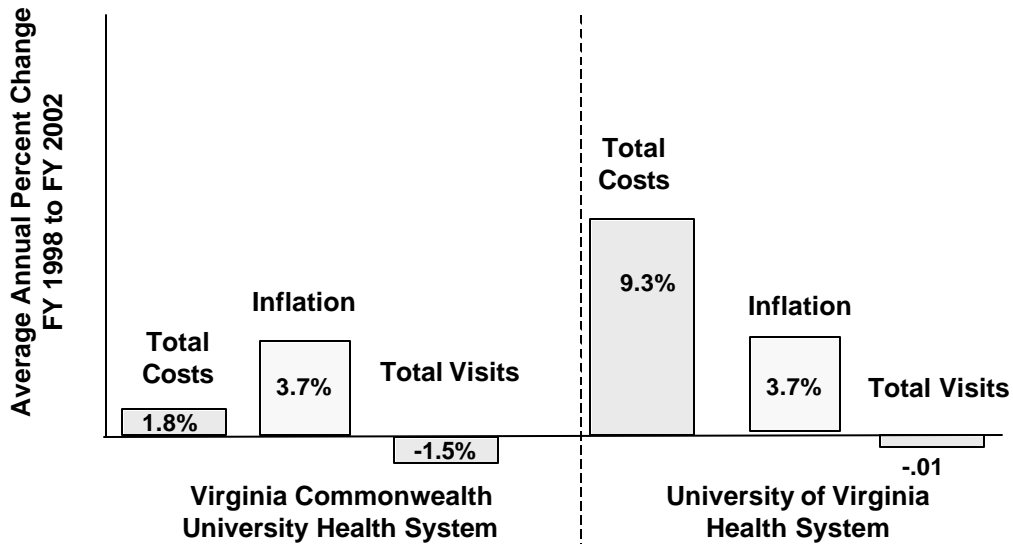
On the outpatient side, both UVA/HS and VCU/HS experienced increases in the costs associated with ambulatory care, but the cost increases were more pronounced at UVA/HS. Specifically, total outpatient costs at UVA/HS increased at a faster rate than inflation, while the number of visits slightly declined. The pattern was similar at VCU/HS but the magnitude of the increases for total outpatient costs was less than the rate of inflation. With the corresponding decline in the total number of outpatient visits, this likely means that both health systems (especially UVA/HS) are spending more on patients

A Comparison of the Trends in Indigent Healthcare Costs To Hospital Inflation (FY 1998 to FY 2002)

Change In Inpatient Indigent Care Trends



Change In Outpatient Indigent Care Trends



who are now being cared for in the outpatient clinics. Staff report that these trends can be attributed to increases in patient acuity and the types of services now being provided in the outpatient settings.

Notwithstanding these trends, management at Virginia's AHCs will face challenges as they move forward. To the extent that competition from other hospitals forces the AHCs to expand the time that faculty physicians devote to clinical services, the time available to spend teaching residents is minimized. Moreover, if both systems continue to curb costs in their inpatient program by shortening patient stays, the time available for residents to learn from patients under their care is reduced.

Finally, if either of these systems works to lower costs by moving more patients to ambulatory settings, the relevant schools of medicine will have to ensure that clinicians are available in these settings to train residents. This will be especially difficult if these clinicians are expected to take on heavy patient loads as well. So while these strategies are clearly effective vehicles for controlling the growth of indigent healthcare costs, if they are too aggressively applied, the teaching mission of both of these systems could be seriously threatened.

Possible Shift of Patients to Medicaid and FAMIS Offers Promise of Savings

One strategy available to reduce the cost of indigent healthcare to the State is to shift some patients and their associated costs to the federally funded Medicaid and FAMIS programs. It appears that once a woman has been deemed eligible for the indigent healthcare program by hospital staff at the

AHCs, she has no incentive to apply for either Medicaid even if she is eligible for one of these programs. The same holds true for children who may be eligible for Medicaid or FAMIS. In total, there were over 13,400 children who qualified for the indigent healthcare program in FY 2002 who potentially met the requirements for either FAMIS or Medicaid. The cost for treating these children and their mothers in the indigent care program, rather than through Medicaid or FAMIS, was more than \$7 million.

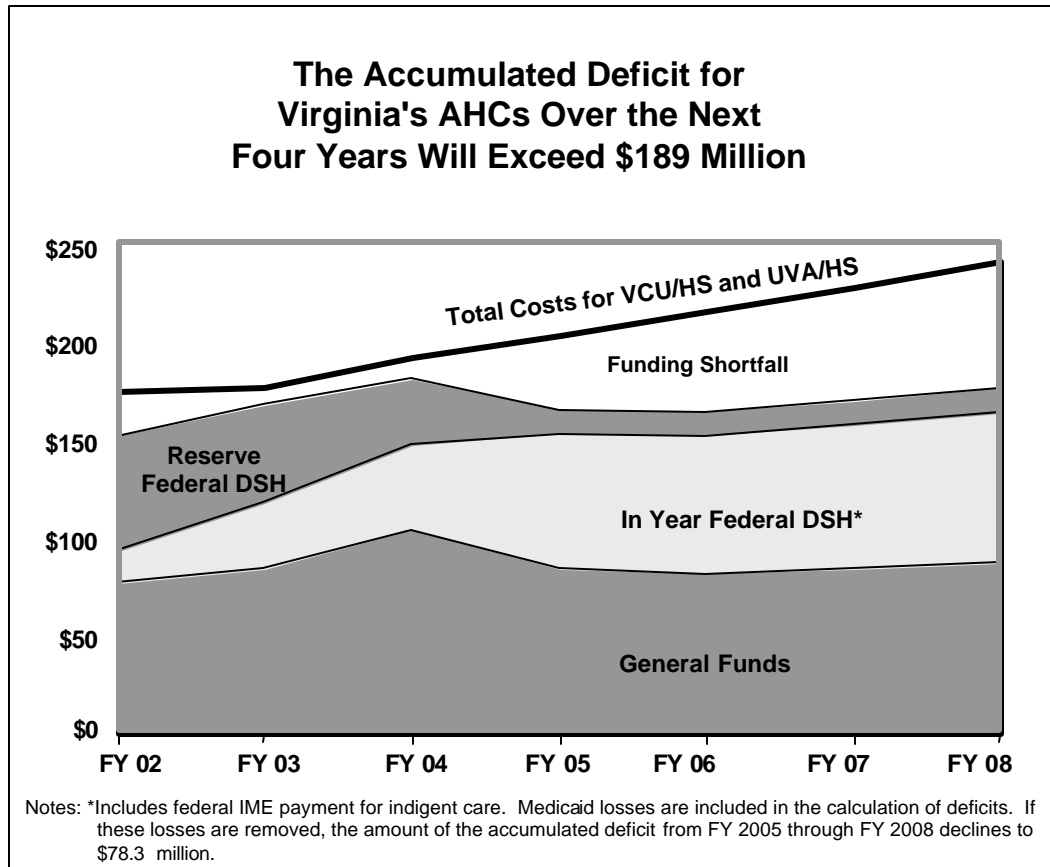
Changes to the Medicaid DSH Program Have Created a More Than \$84 Million Budget Deficit for Virginia's AHCs in the Next Biennium

Over the past twelve years, Virginia has relied heavily on the Medicaid Disproportionate Share Hospital (DSH) program to pay for indigent care at the State's two AHCs. Since Medicaid DSH payments are funded like all Medicaid payments, with 50 percent federal funds, paying for indigent healthcare through the DSH program has enabled the Commonwealth to provide the same amount of funding to the AHCs, but at half the cost to the State's general fund.

Recently, the federal government took several steps to restrict the use of DSH. Concomitantly, the growth of managed care and increased competition from private hospitals has resulted in a loss of both patients and revenue at the AHCs. This has greatly limited their ability to subsidize losses on mission-related activities, such as indigent healthcare, with other revenue sources.

Relying on unspent balances of the DSH program from previous years, Virginia has been able to maintain funding in the AHCs while minimizing the strain on the general fund. However, when those unspent balances are fully depleted in FY 2005, the current level of spending for the AHCs will not be

sustainable, thereby exacerbating already existing shortfalls, and creating a substantial budget deficit in FY 2005 and FY 2006 (see figure below).



Operational changes in the AHCs will lessen the shortfall in future years but will not be sufficient to fully address this problem. Further, private hospitals, struggling with a loss of operating margins, heavily discounted Medicaid payment rates, and the growing problem of uncompensated care are not likely to offer relief by increasing the amount of charity care they provide. This means that in the coming months, the Governor and General Assembly will need to consider a number of strategies for addressing the indigent healthcare funding problems at the State's two AHCs.

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I. Introduction

Virginia's two academic medical centers -- the University of Virginia Health Systems (UVA/HS) and Virginia Commonwealth University Health Systems (VCU/HA) -- play a pivotal role in the delivery of healthcare to the poor. As a part of their broader mission of education, research, and the provision of highly specialized care, these two systems serve as the primary source of healthcare to a disproportionate number of Virginia's poor citizens who lack health insurance.

In November of 2002, Governor Mark Warner directed members of his Cabinet, policy office, and representatives from Virginia's two academic health centers (AHCs) to identify long-term options for addressing operational and indigent healthcare funding issues at the State's two teaching hospitals. Five months later, the Virginia General Assembly placed language in the 2003 Appropriations Act requiring the Secretaries of Health and Human Resources and Education to report on the indigent healthcare cost trends, funding options, and opportunities for operational efficiencies at the AHCs.

The impetus for these actions was a report from staff at the Department of Medical Assistance Services (DMAS) on an emerging funding crisis in the State's indigent healthcare program. Based on current projections, it appears that the State's two AHCs face a funding shortfall for indigent healthcare for the next biennial budget of more than \$83 million. This shortfall will be created primarily by the depletion of reserve federal funds from the Medicaid Disproportionate Share Program (DSH).

The loss of federal support for this mission occurs at a time when other hospital revenues are being squeezed due to stiffening competition from private hospitals and reduced reimbursement rates resulting from price negotiations by third party payers, including preferred provider organizations (PPOs) and Health Maintenance Organizations (HMOs). This has substantially reduced the number of payers who do not insist on price discounts and thereby weakened the ability of the AHCs to cover losses that they have been experiencing in their indigent healthcare program over the past several years.

Still, before policymakers are willing to consider alternative revenue sources for the indigent healthcare programs at the AHCs, longstanding questions about these facilities must be revisited. Has the changing healthcare marketplace lessened the need for publicly funded and mission-driven AHCs in Virginia? If not, on what grounds do the higher costs, believed to be associated with patient care at these institutions, remain tenable at a time when much of government is contracting?

This report presents the results from an analysis of the mission-related activities of the AHCs, the cost of patient care, the relative efficiency of their operations, and the magnitude of the fast approaching funding shortfall. In the remainder of this chapter, a brief description of the organization and funding of the two health systems is provided. This is followed by a discussion of the State's indigent healthcare program and general challenges posed for the AHCs in carrying out this social mission.

THE ORGANIZATION OF VIRGINIA'S AHCs AND THE CHALLENGES FACED IN THE INDIGENT HEALTHCARE PROGRAM

Virginia's AHCs offer an integrated network of primary and specialty care services. Both systems have established major acute care hospitals as hubs of the care network. These hospitals consist of various specialty care programs and are complemented by a network of outpatient clinics. This operation of not only diagnostic services, but also outpatient primary and specialty care clinics makes the AHC's unique in comparison to many other hospitals that are operated across the Commonwealth. Through strong linkages to the respective medical schools, these systems pursue their unique mission of routine and high technology healthcare, bio-medical research, education of future health care professionals, and patient care, including the treatment of disproportionate numbers of underinsured and uninsured patients.

In FY 2002, the combined net patient revenue for these two systems surpassed \$1 billion, having grown at a rate of just over five percent per year since 1997. Comparatively, revenue growth at VCU/HS has been relatively flat over these years, while UVA/HS has experienced an annual growth rate of more than eight percent. More important, and not coincidentally, nearly 40 percent of the net patient revenue received by VCU/HS was generated from the treatment of persons who are poor and uninsured or receiving Medicaid. . At UVA/HS, the figure was 20 percent.

Due in part to the emphasis on specialty care and the mission of treating indigent patients, these two systems rank 1st (UVA/HS) and 3rd

(VCU/HS) among all Virginia hospitals in terms of the acuity level of their patients. Moreover, the extensive commitment of resources to indigent patients allows the AHCs to fulfill a valuable social mission. At the same time, however, it also produces greater fiscal strain on the health systems, because the cost of treating these patients consistently exceeds the amount of reimbursement that is provided. This is a special concern for the two AHCs because indigent patients, especially many of those served by the AHCs, need some of the more expensive forms of care.

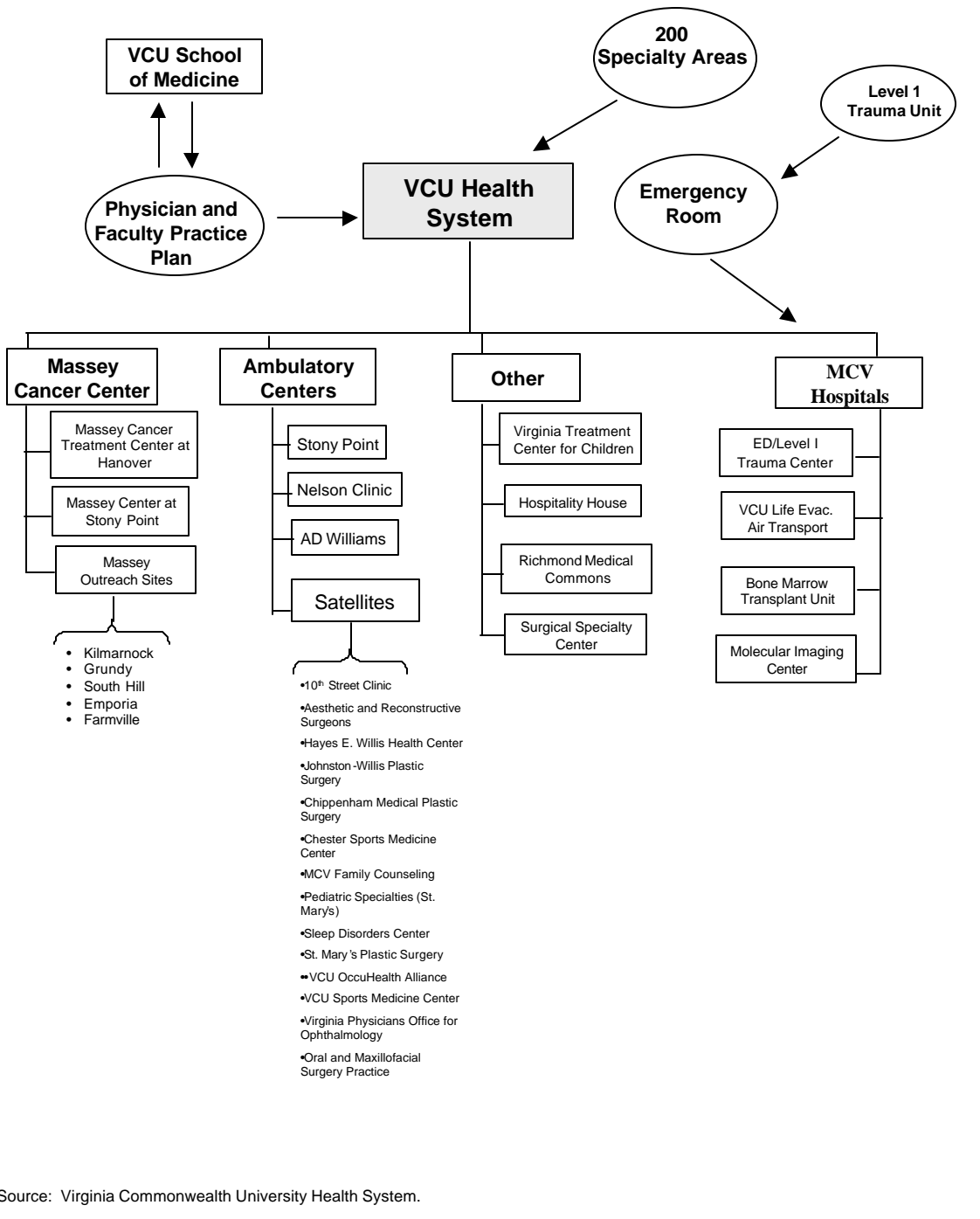
To Survive in a More Competitive Marketplace, Virginia's AHCs Have Developed Fully Integrated Healthcare Systems

While there are no standard definitions of an academic health center, nationwide, these systems typically consist of a large tertiary hospital with a strong clinical component with direct links to a university medical school. Because of the growing competition in the healthcare marketplace, many of the large AHCs have been forced to become fully integrated health systems in order to retain or increase their share of the inpatient and outpatient healthcare market. Virginia's two AHCs have followed this trend.

Virginia Commonwealth University Health System. The VCU/HS is a highly integrated system of care. Its hospital -- MCV Hospitals -- is the teaching hospital component of the system supported by physician staff from the 600-member physician and faculty practice plan (Figure1). The staff in this practice plan provide the nexus between the health system's major missions by linking patient care, research, and the education of graduate medical students from the VCU School of Medicine.

Figure 1

Key Components of the Virginia Commonwealth University Health System



Source: Virginia Commonwealth University Health System.

As a large urban institution, MCV Hospitals serves multiple functions. To carry out one of its major functions -- inpatient care -- the hospital has 822 licensed beds and offers a myriad of health services. In 2002, the number of inpatient admissions to the hospital exceeded 31,000. These admissions resulted in 185,679 total days of inpatient care, producing an occupancy rate of 62 percent.

Key features of the hospital include its emergency room and designation as a Level 1 trauma center. In 2002, more than 82,000 visits were made to the emergency room. The trauma center is staffed to treat persons who arrive at the hospital in critical condition after sustaining a life-threatening injury. This unit is supported by an emergency helicopter transport system referred to as "VCU Life Evac." Through this system, VCU/HS has extended access to its critical care services throughout South Central Virginia. Operated in tandem with Rocky Mountain Helicopters, VCU Life Evac also helps support the transfer of critically ill patients between the network of hospitals in the State.

As with most AHCs, there is a significant emphasis on specialty care at the VCU/HS. Presently the system operates over 200 specialty programs. Some of the programs are housed in the hospital and others are operated through the on-campus and satellite outpatient facilities. One of the largest such facilities is the clinic at Stony Point. Located away from the downtown campus, this facility offers primary care, specialty services, and diagnostic services.

The specialized care programs are equipped with the latest in technology and highly trained specialists. These specialists employ

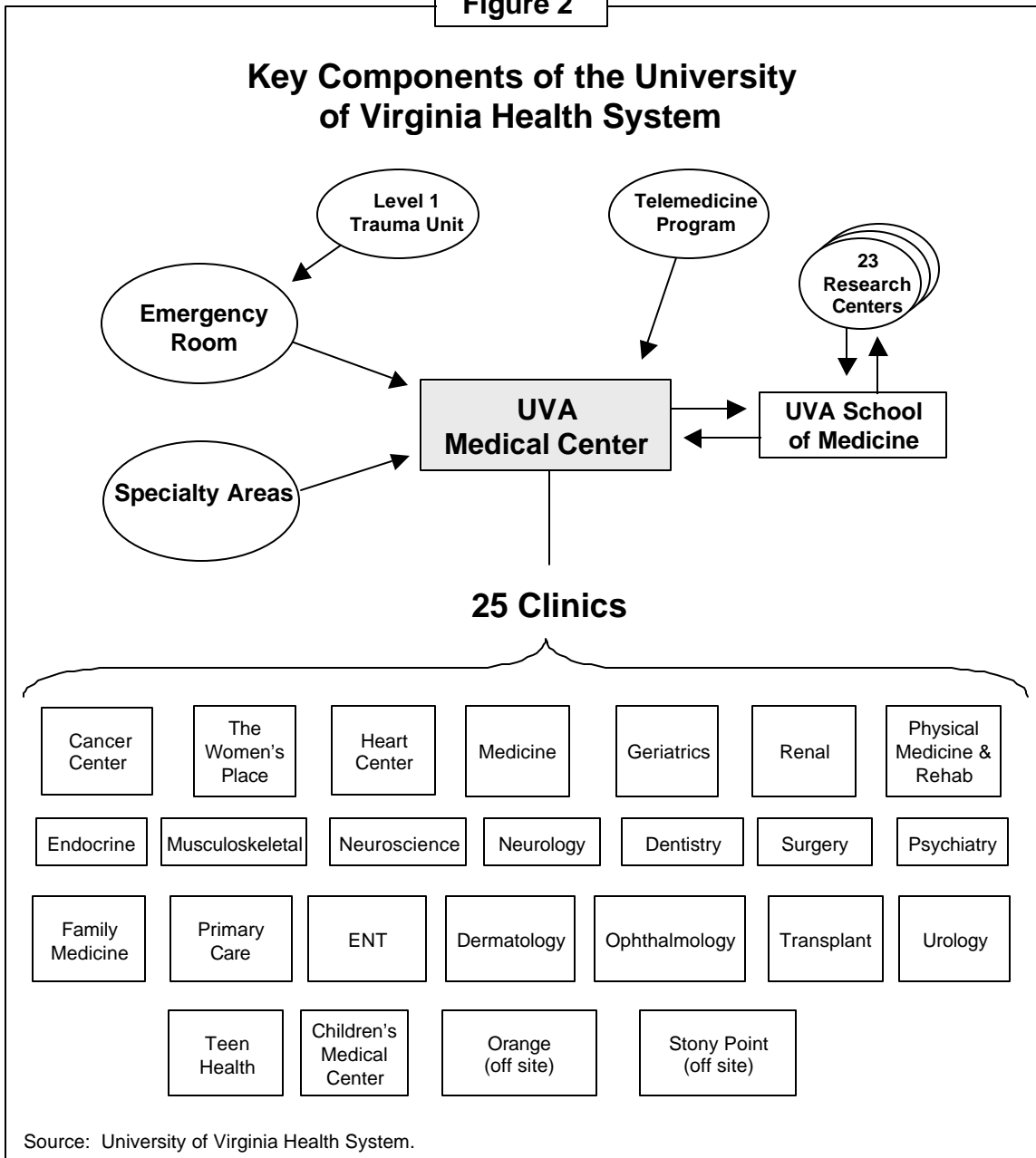
sophisticated methods to both detect and treat complex diseases. Some of the specialty programs include a chest tumor center, a neuro-oncology center, bone marrow transplant program, and a radiation oncology medical park. Perhaps the most noted centers are the VCU Massey Cancer Center, Harold F. Young Neurosurgery Center and the nationally recognized Evans-Haynes Burn Unit. This burn unit was the first such unit in the country and it remains the only burn unit of its type in the State of Virginia.

The University of Virginia Health System. The UVA/HS is also a multi-component healthcare system, offering a full range of healthcare, education and research services (Figure 2). As with VCU/HS, the centerpiece of the system is the UVA Medical Center. This is a 542-bed facility that provides primary, specialized, and emergency care services. In FY 2002, there were more than 26,800 inpatient admissions at the Medical Center, resulting in almost 150,000 days of care and an occupancy rate of 75 percent. Outpatient visits surpassed the half million mark.

Within the Medical Center is a Level I trauma center, offering services similar to those at VCU/HS. The center is also supported by a helicopter and ambulance service to expedite the transfer of critically ill persons. In addition to trauma services, there were more than 58,700 emergency room visits made at the Medical Center in FY 2002.

UVA/HS focus on specialty care treatment is coordinated through the Medical Center's 25 clinics. As reported by the University Health System

Figure 2



Consortium in a recent study of UVA/HS, some of the more noted clinics focus on the following areas:

- The Cancer Center offers some of the most advanced treatment for all types of cancer. In addition, the center supports the research mission of the system by providing patient access to clinical trials and the latest treatments.

- The Heart Center is staffed with noted surgeons, cardiologists, physical therapists, and other healthcare professionals to provide one of Virginia's most comprehensive heart programs.
- The Woman's Place provides a wide range of programs to address the healthcare needs of women. The services provided include gynecology, obstetrics, breast care, and infertility treatment.
- The Children's Medical Center is a comprehensive network of health care dedicated to the children from birth through adolescence. The service ranges from well baby care to heart transplants and neurosurgery.
- The UVA Telemedicine program was developed to link patients from rural and remote sites to trained healthcare professionals using advanced computer technology and broadband telecommunications technologies.

Patients who need more routine or primary care can visit one of the several clinics that are operated in different locations in Charlottesville and neighboring counties. Primary care physicians and nurses staff these clinics and provide a range of preventive healthcare and general wellness services. In FY 2002, these staff handled more than 144,000 visits.

The UVA School of Medicine is the second major component of the health system. This school employs almost 800 faculty and consists of 23 different research centers. The focus of this school is on developing innovative treatments for various diseases with a special emphasis on cancer research, cardiovascular disease, vaccine development, and neurodegenerative disease. In addition, the school supplies residents to both the UVA Health System and hospitals around the State to gain the clinical experience needed to become physicians. Other components of the system are the School of Nursing, the

Claude Moore Health Sciences Library, and a foundation that supports the clinical, academic, and research mission of the UVA Medical Center.

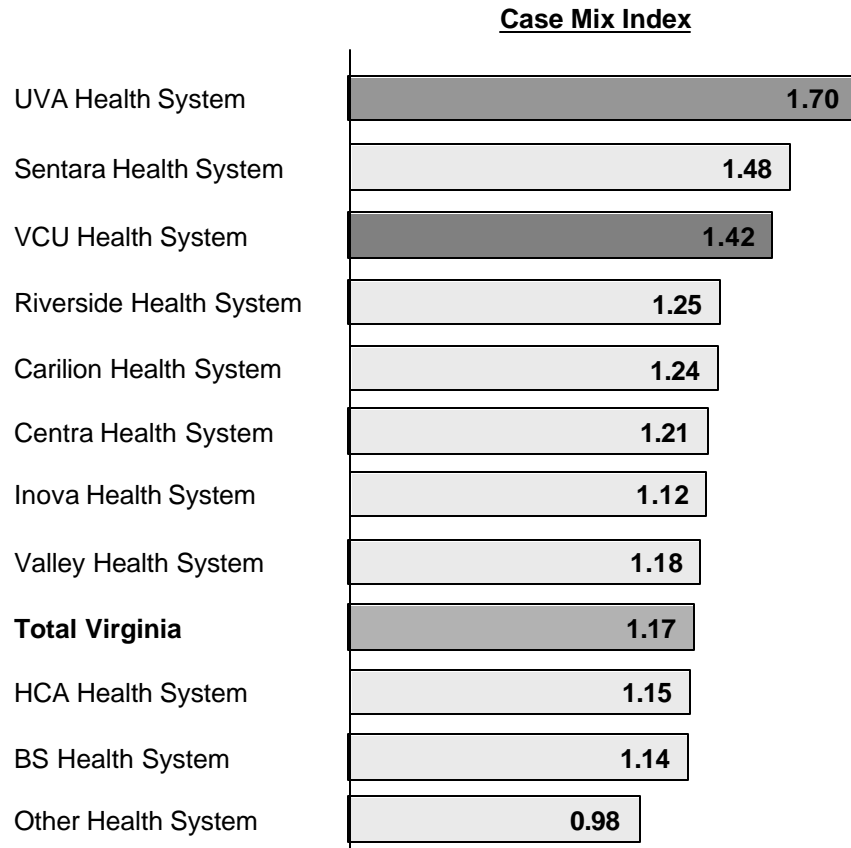
Due in part to the special mission of the AHCs hospitals, both UVA/HS and VCU/HS often treat some of the sickest patients in the State. As Figure 3 indicates, among Virginia hospitals, the AHCs have two of the three highest patient case mix scores in the State. These scores measure the severity of patient illness. For example, the UVA/HS score of 1.70 means that its patients should, on average, cost 45 percent more to treat than the average patient in the State ($1.70 / 1.17 = 1.45$). Undoubtedly, the level of specialty care provided in these hospitals and their willingness to treat patients regardless of ability to pay are fueling the differences shown in patient case mix.

Revenue Sources. Although the AHCs generate revenue from a variety of sources -- investment income, cafeteria sales, etc -- these operations depend primarily upon the revenue from providing patient care. Each of the AHCs derive patient revenue from the following major payment sources:

- **Medicare.** The fully federally-funded Medicare program makes payments to the AHCs based on healthcare services provided to the elderly or disabled. The Medicare program also provides direct payments to AHCs to cover the indirect costs of medical education services provided through the medical schools, as well as payments to subsidize the cost of graduate training for physicians.
- **Medicaid.** AHCs receive revenue from this health insurance program for the services provided to qualifying low-income adults and their children. This program is funded through federal and State dollars.
- **Indigent Healthcare.** AHCs receive revenue from both the State and federal government to cover the costs of indigent care - defined as persons who are uninsured

Figure 3

Comparison of Case Mix Index of Virginia Hospital Systems, FY 2001



Source: Virginia Health Information System

and whose income is less than 200 percent of the federal poverty level.

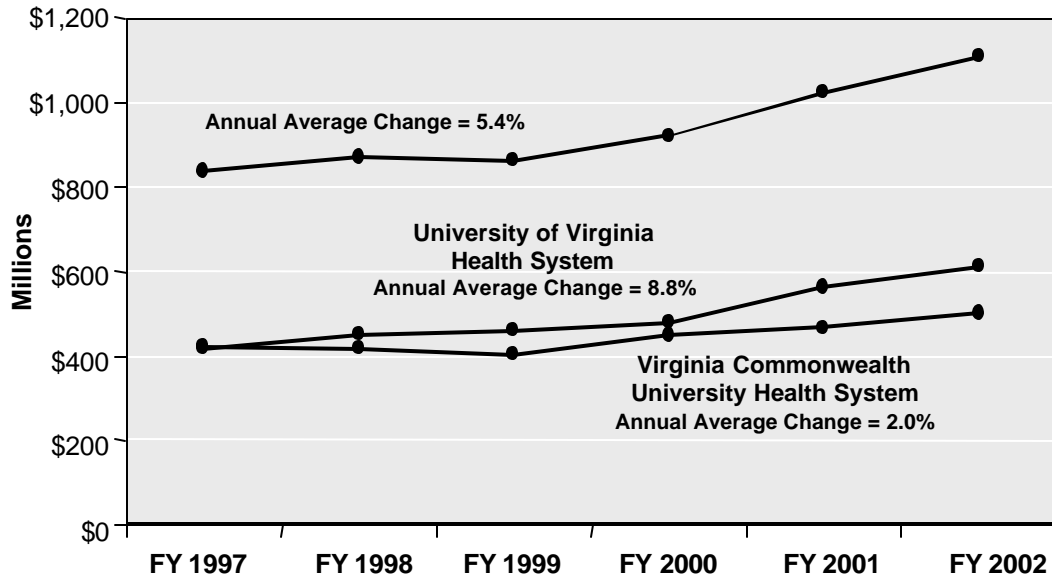
- **Commercial Insurers and Self-Pay.** AHCs receive revenue from persons treated in the hospital who have private insurance or who pay for their care with personal resources.

In FY 1997, the two AHCs generated over \$830 million in net patient revenue. By FY 2002, this figure had grown to more than \$1 billion, reflecting an average annual increase of 5.4 percent (top of Figure 4). Revenue growth has

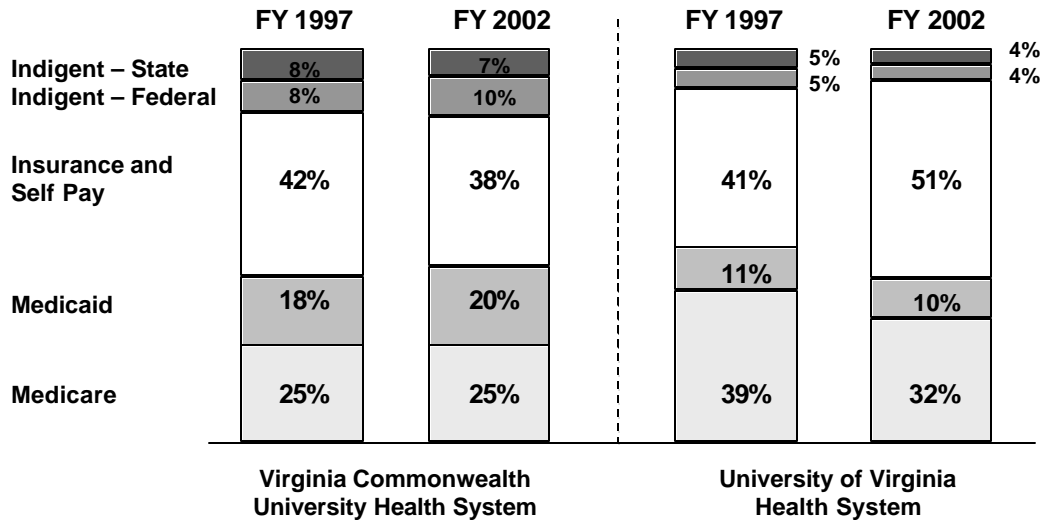
Figure 4

Net Patient Revenue for Virginia's Academic Health Centers

Trend in Net Patient Revenue, FY 1997 to FY 2002



Components of Net Patient Revenue, FY 1997 to FY 2002



Note: Revenue figures do not include physician revenue.

Source: University of Virginia Health System and Virginia Commonwealth University Health System.

been strongest at UVA/HS over this time period. Moving from \$417 million in FY 1997, this system witnessed an average annual growth rate of 8.8 percent by the end of FY 2002.

By comparison, VCU/HS saw less movement in net patient revenue over this same time period with an average annual growth rate of about two percent. This is actually less than the four percent rate of change for hospital inflation that occurred during these years. Though not shown in this graph, it should be noted that net patient revenue for VCU/HS increased by more than \$311 million in FY 2003. Most of this increase was due to an expansion of the coverage area for the HMO owned by VCU/HS called Virginia Premier. However, as will be illustrated in the next chapter, virtually all of the revenue from this expansion was used to cover the cost of the healthcare for those who were insured through the plan and treated at other hospitals.

The bottom of Figure 4 depicts the components of net patient revenue for the two AHCs. The significant finding here is that for VCU/HS, Medicaid and the indigent care program accounted for almost four of every ten dollars the system received in net patient revenue in FY 2002. While this is only an annual growth rate of approximately two percent, it has raised concern among hospital management about the system's mounting reliance on these two revenue sources. The figure for UVA/HS, on the other hand, was less than two of every 10 dollars of net patient revenue.

AHCs Face a Number of Challenges as They Carry Out the Social Mission of Indigent Healthcare

Although indigent healthcare is a State program for Virginia's uninsured residents whose incomes are less than 200 percent of the federal poverty level, most of the payments are paid under the Medicaid Disproportionate Share Hospital (DSH) program. Since DSH payments are funded through the same federal matching provisions as the larger Medicaid program, Virginia has been able to fund its indigent healthcare program at half the cost to the State general fund.

It has always been the policy of the General Assembly to fund indigent healthcare services through the AHCs. In turn, Virginia's AHCs have always embraced this mission of treating the poor. For AHCs, the goal of providing indigent care is consistent with their overall mission of improving the general health of the community. Also, because research has demonstrated that low-income persons who do not have insurance are often sicker when they seek healthcare, medical residents are exposed to the treatment of these problems, thereby providing a richer educational experience.

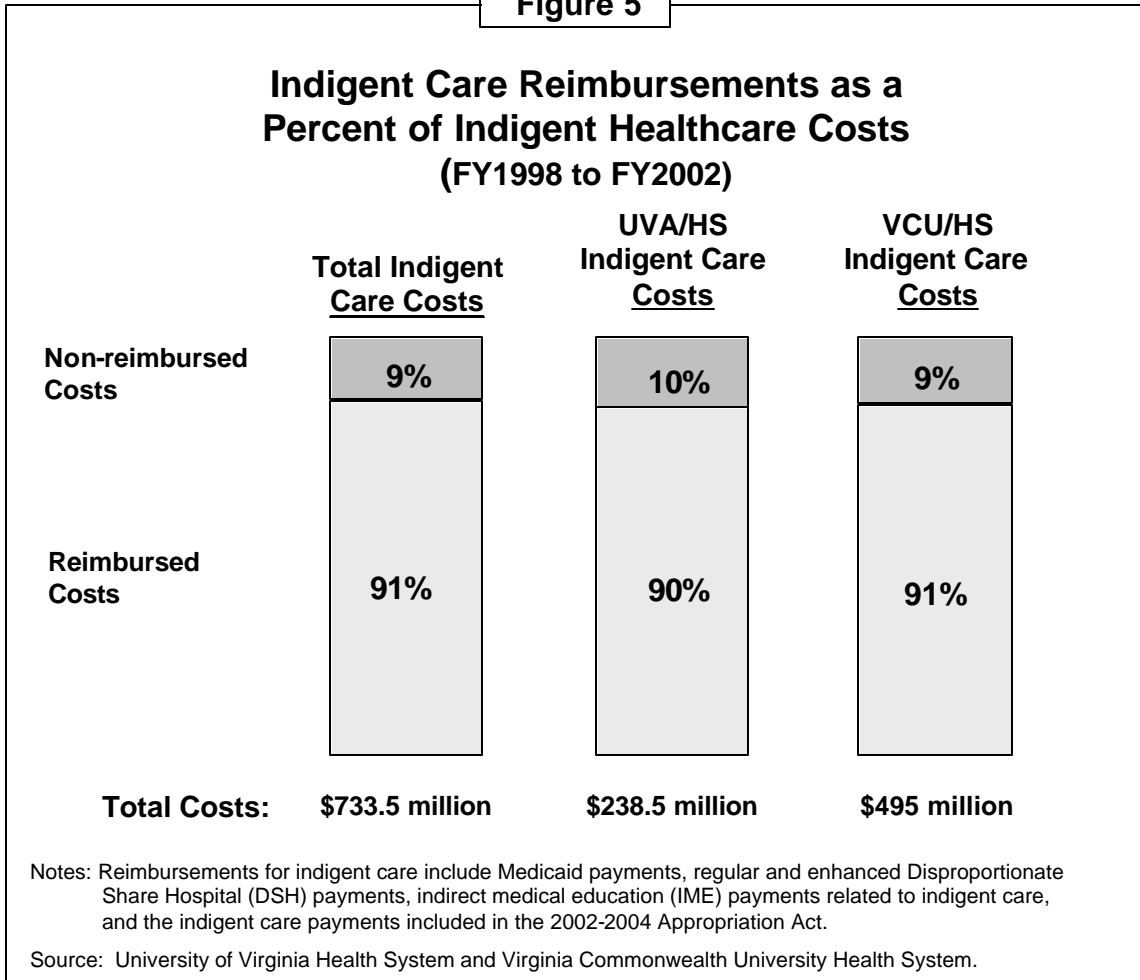
Shortfalls in Indigent Healthcare Funding. Although the General Assembly has funded indigent healthcare in the AHCs, as the Joint Legislative Audit and Review Commission (JLARC) found in a study of this issue in the early 1990s, legislators typically have not appropriated funds to cover 100 percent of the cost of this care. In 1991, in an effort to reduce the fiscal pressure on the General Fund, the General Assembly sharply increased DSH payments to the AHCs, through additional payments that were referred to as "enhanced DSH".

When first implemented, “enhanced DSH” resulted in \$30 million in annual savings for the State general fund. This amount of new DSH spending did not result in greater spending on indigent care. Instead, it represented the increased substitution of the enhanced DSH program for direct general fund appropriations to fund that care. With these enhanced payments, AHCs were still able to cover only about 75 percent of the cost of treating their indigent patients.

This shortfall was not a problem for the two systems at the time because the revenue generated from other commercial insurers and the Medicaid program covered the remaining 25 percent. This practice is known in the healthcare industry as “cost shifting.” In more recent years, these revenue streams have diminished as well. One of the contributing factors is the ability of managed care companies to negotiate discounted prices for some of the specialty care areas once controlled by the AHCs. HMO plans have shown a greater reluctance to pay the higher rates to which many hospitals have become accustomed. Also, reduced private-pay revenue has limited the ability of AHCs to supplant State and federal funds for indigent healthcare.

These fiscal pressures are creating special problems because of the losses that AHCs continue to experience in the indigent care program (Figure 5). In the five-year period from FY 1998 to FY 2002, the total accumulated cost of indigent care at Virginia’s two AHCs was slightly more than \$733 million. Over this period, these facilities received reimbursements to cover 91 percent of this cost. This means that combined, the AHCs experienced losses in the indigent

Figure 5



care program of more than \$68 million. Approximately \$44 million of these losses were incurred by VCU/HS, while UVA/HS absorbed \$23 million.

Losses from the Medicaid program are a key factor impacting the size of the shortfalls that AHCs now face. In years past, both AHCs typically made a profit on Medicaid patients that was subsequently used to mitigate losses in the indigent care program. More recently, the reimbursements received by the AHCs for the care of Medicaid patients has fallen short of the cost of treating this population because of lower rates paid by HMOs coupled with physician payments which are paid by Medicaid at 70 percent of the Medicare rate.

Because of the confluence of factors that have weakened the revenue streams of the AHCs, losses of this magnitude cannot be easily covered in future years.

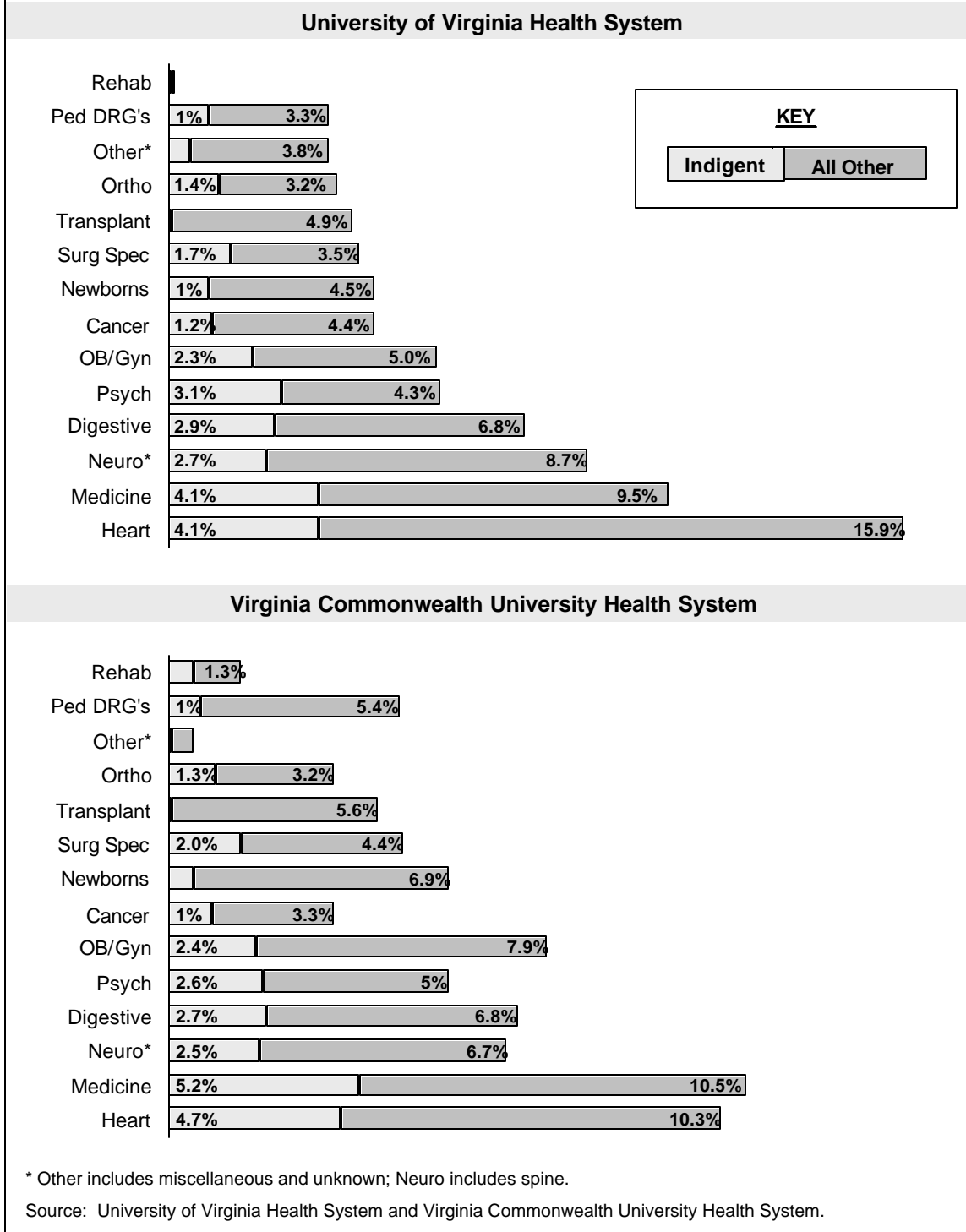
As noted by JLARC in its 1993 report on this issue, a primary reason that AHCs do not receive 100 percent of their indigent healthcare costs is timing. General fund appropriations are based on costs incurred by the AHCs in the year prior to the appropriation. Obviously, from year-to-year, indigent healthcare costs can increase unexpectedly for any number of reasons. However, in light of the State's fiscal problems, there is a growing reluctance among legislators to appropriate additional dollars for many programs, including indigent healthcare

This problem of funding shortfalls in the State's indigent healthcare program should also be considered in the context of the types of healthcare services that AHCs provide to indigent patients. As noted earlier, for a number of reasons, research has shown that when indigent patients seek medical care, they are usually sicker than persons who arrive for treatment with insurance. Thus, when they seek medical care, it is expected that indigent patients will disproportionately require some of the more expensive forms of treatment. The data in Figure 6, which highlight the categories of inpatient services that are provided for indigent patients at VCU/HS and UVA/HS, seem to support this theory.

For the most part, the distribution of discharges by service is comparable to that of other patients in both institutions. However, when the percentage of indigent discharges is compared to total discharges for all patients, it appears that there are disproportionate numbers of indigent patients in the

Figure 6

Inpatient Discharges for Indigent Patients as a Percent of all Discharges by Clinical Group, FY 2002



areas of orthopedics, psychiatry, rehabilitation, and the surgical specialties. With the exception of psychiatry, these are all high resource intensive areas for treatment. Further, the benefits of lower costs psychiatric services are not typically realized because these patients tend to have extended lengths of stay, contributing to an overall increased cost of providing care to these patients as well.

Report Organization

The remaining chapters of this report present the results from the analysis of the costs and funding of Virginia's AHCs. Chapter II assesses whether Virginia's AHCs still maintain a unique role in the State's healthcare arena and addresses questions about the flow of funds within the AHCs. Chapter III examines differences in the cost of patient care at the AHCs relative to private hospitals, presents outcome data measuring the efficiency of Virginia's AHCs, and analyzes trends in the utilization and costs for indigent healthcare at the two health systems. Chapter IV discusses the funding crisis emerging in indigent healthcare.

II. The Mission-Related Activities and Financing Models of Virginia's Academic Health Centers

Virginia's two AHCs have historically played a critical role in the provision of healthcare, medical education, and research in the Commonwealth. However, in recent years, due to economic changes in the health care marketplace and projected decreases in federal support for indigent healthcare, the funding streams used to support these two facilities have become unstable. At the same time, private hospitals in several metropolitan areas across the State now assume roles that have, in the past, been almost the exclusive responsibility of Virginia's AHCs – namely the provision of specialty health care to the poor, and the training of prospective doctors and other health care professionals.

In the midst of these changes, the operational cost of Virginia's AHCs has continued to grow. Critics of the spending trends in the State's AHCs acknowledge that the mission-related activities of the teaching hospitals exert upward pressure on facility operating costs. However, they also believe that AHCs remain plagued by operational inefficiencies which drive up the overall cost of indigent care in these facilities.

In addition, many of the critics of the teaching hospitals complain that some of the revenue earmarked to defray the cost of indigent healthcare is actually diverted by the AHCs to their affiliated universities, thereby creating unnecessary funding shortfalls for medical services to the poor. These factors and the widening perception that AHCs cannot deliver patient care in a more

efficient manner have given rise to questions about the future role of Virginia's AHCs, particularly with respect to the provision of indigent healthcare.

The purpose of this chapter is to empirically examine the degree to which Virginia's AHCs differ from other hospitals in the State with respect to organizational mission and patient services. In addition, the financing model and flow of funds within Virginia's two AHCs are examined. Questions about the operational efficiency of these institutions are addressed in Chapter III of this report.

In general this study found that some of the mission-related activities of the AHCs are more widely dispersed among private hospitals in Virginia. However, on a statewide basis, Virginia's AHCs remain disproportionately responsible for those activities that represent the core purpose of these institutions -- the care of the indigent population, the training of future doctors, the provision of complex specialty medical care, and the pursuit of new and innovative patient care techniques through medical research. Moreover, because the activities associated with these missions often have the characteristics of public or merit goods, private markets cannot be relied upon to produce the level of these services that are presently purchased through UVA/HS and VCU/HS.

In terms of the financing, separate models are in place at each of Virginia's AHCs. VCU/HS is organized with a faculty practice plan, the affiliated hospital, and a HMO known as Virginia Premier. These three entities generate more than \$760 million in revenue. The model at UVA/HS includes only a

hospital and the UVA School of Medicine, which are supported by more than \$610 million in revenue.

When the flow of revenue -- including the funds separately allocated to indigent healthcare -- is tracked through these systems, there is no evidence to support the claim that dollars earmarked for indigent healthcare are diverted to subsidize the operating cost of the University of Virginia and Virginia Commonwealth University. VCU/HS does pay its University a clinical earnings contribution but this is not funded with indigent healthcare dollars and it amounts to less than one-half of one percent of the health system's total revenue.

Both hospitals in these two systems purchase physician services from either a practice plan (VCU/HS) or the School of Medicine (UVA/HS) through arms length transactions that are governed by agreements and contracts. These purchases are made for patient care services and for the instruction provided to residents in the respective graduate medical education programs.

THE ROLE OF VIRGINIA'S AHCS IN THE PROVISION OF MEDICAL EDUCATION, INDIGENT HEALTHCARE, AND BIO-MEDICAL RESEARCH

With the growth in the number of private hospitals that embrace a teaching mission and deliver highly specialized healthcare services, real questions exist regarding whether Virginia's two AHCs can be distinguished from some of their private counterparts.

The results of this study indicate that notwithstanding the changing role of some of Virginia's private hospitals, the two AHCs maintain a preeminent position in the delivery of mission-related health care services in the Commonwealth. Most notably, although the AHCs represent only two percent of

hospitals statewide, they provide 49 percent of the indigent care in the State, train 65 percent of the residents in graduate medical school, and operate the Commonwealth's only two clinical research centers.

Private hospitals, especially those that have assumed a limited teaching role, are also structured to provide some levels of specialty care. Still, Virginia's AHCs operate two of the five Level 1 trauma centers in the Commonwealth, perform nearly half of all transplants, provide more than half of the pediatric intensive care beds, and staff nearly 80 percent of Virginia's burn care beds.

Equally important, nearly 20 percent of all the patients requiring complex, specialty care in Virginia are treated at the two AHCs. Moreover, relative to persons treated in private hospitals, a much larger percentage of patients who received this high-cost care in AHCs had no insurance.

While Private Hospitals Have Taken On A Larger Role, Virginia's AHCs Continue To Maintain A Preeminent Position in the Provision of Routine and Specialized Healthcare to the Poor, Medical Training, and Clinical Research

Virginia's AHCs exist to perform three key missions: (1) the provision of medical care, including services to persons considered indigent; (2) the education of future physicians and other health care professionals; and (3) the development of new technology and medical procedures through clinical research to further advances in patient care. Given the emergence of private hospitals with increasing teaching and charity care missions, one objective of this study was to assess the degree to which Virginia's two AHCs can still be distinguished from their private counterparts. Clearly, if the competitive private

market performs reasonably well in setting prices and optimally allocating various healthcare and research services traditionally associated with the missions of AHCs, the substantial public subsidies that are used to support VCU/HS and UVA/HS are more difficult to justify.

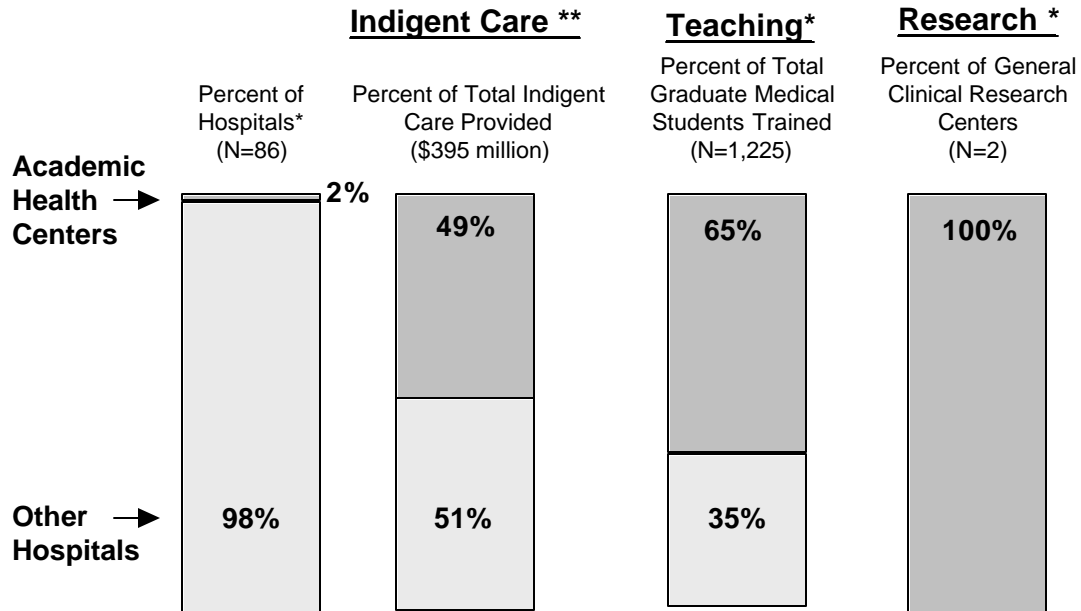
To conduct this analysis, several datasets containing information on the characteristics and activities of Virginia's hospitals were examined. In the first phase of this analysis, several variables were identified and used as proxy measures for the mission-related activities of hospitals. Next, comparisons across these variables were made for Virginia's AHCs and their private counterparts.

Focus On Indigent Healthcare. Figure 7 summarizes the results from this analysis. These data reveal that AHCs are still heavily focused on their traditional social mission of addressing the healthcare problems of the vulnerable indigent population. In FY 2002, over \$395 million in healthcare services were delivered to persons across the Commonwealth who were classified as indigent care patients (also referred to as charity care) because they had no insurance and their incomes were less than 200 percent of the federal poverty level. Though Virginia's AHCs account for only two percent of the hospitals in the State, these facilities provided 49 percent of the charity care in the Commonwealth.

The route to patient care at a hospital occurs in one of three ways: (1) patients are referred by a community clinic, primary care, or specialty physician

Figure 7

Mission-Related Activities of Virginia's Academic Health Centers and Other Hospitals



Notes: * Figures reported for 86 hospitals are for the fiscal year ending in 2001 and they do not include data from 12 additional hospitals that are not represented in the datasets used for this study. ** Data on indigent care costs are for 2002. Also, data on number of residents does not include figures for specialties such as pediatrics, psychiatry, or rehabilitation medicine.

Sources: American Hospital Association Annual Survey, Area Resource File, National Institutes of Health, and the American Medical Association.

with whom they have a medical relationship; (2) patients seek care through a visit to the emergency room or an affiliated clinic; or (3) hospital medical staff transfer patients to other facilities that are better equipped to meet the particular healthcare needs of the patients.

The concentration of indigent cases in Virginia's AHCs reflects not only the historical commitment of these facilities to serve this population, but also the special circumstances that surround the provision of care to the poor. Because indigent patients typically do not have a community doctor, their pursuit of hospital care is often self-directed. Based on past experience and public

knowledge regarding the mission of the AHCs, indigent patients often seek both routine and emergency medical care at these facilities. This is especially true for VCU/HS given its location in a large metropolitan area with several large jurisdictions that have high rates of uninsured persons who are poor.

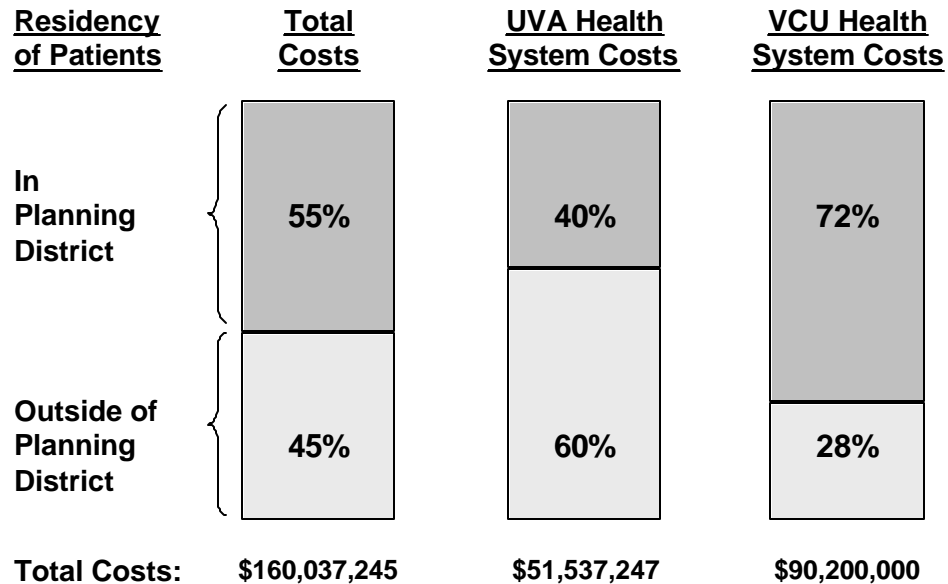
At the same time, because indigent patients tend to wait longer before seeking care, they are often sicker and need more specialized services. Some of the services they need are not routinely offered in a number of private hospitals. As a result, indigent persons who live in other jurisdictions will either travel to one of the AHCs for care, or be transferred by local hospitals that are unable to treat them. It is worth noting here that at UVA/HS, 60 percent of the indigent patients who were discharged from inpatient care in FY 2002 lived outside of the hospital's planning district (Figure 8).

Medical Education and Training. AHCs play even an even greater role in the training of residents in the schools' graduate medical education programs. Once students complete four years of undergraduate medical education, they begin a period of residency training in the graduate programs. Residency training can last up to nine years, depending upon the chosen medical specialty.

A significant component of a student's residency training is served providing patient care under the general supervision of physicians who work as clinical faculty for the hospitals. Faculty in these two institutions hold appointments in the respective Schools of Medicine and also work for the affiliated faculty practice plans. At VCU/HS, these physicians work for the VCU

Figure 8

Total Costs Incurred by Academic Health Centers for Indigent Inpatient Discharges and Outpatient Visits Based on Planning District, FY 2002



Source: University of Virginia Health System and Virginia Commonwealth University Health System.

School of Medicine and the VCUHS practice plan – MCV Physicians. Similarly, at UVA/HS, the supervising physicians work in the University’s School of Medicine and the affiliated practice plan - Health Services Foundation. The clinical work of the residents is supplemented with didactic training sessions that are designed to impart the skills essential to diagnosing illnesses and providing the appropriate treatments.

Returning to Figure 7, the data indicate that in 2001, there were 1,225 residents being trained across 86 hospitals in the Commonwealth. Nearly seven of every 10 of these individuals were performing their residency work at the State’s two AHCs. Nationwide, it is estimated that 40 percent of all residents

receive their graduate medical education from AHCs. These institutions are the training ground of choice for many students because of the degree to which the other mission-related activities of the AHCs contribute to the education of the residents. Specifically, residents are afforded the opportunity to engage in research, perform highly specialized care using the latest in healthcare technology, and provide care for a broad base of patients including persons who are indigent.

Private hospitals serve as a training ground for slightly more than a third of the State's residents. Much of this training is geared towards residents who plan to practice in primary care with little to no emphasis on research or specialized medical care. For residents with other aspirations -- research, the provision of specialty care, and exposure to nascent medical technology -- the additional educational opportunities made available at Virginia's two AHCs represent a compelling magnet.

Clinical Research. Figure 7 also indicates that Virginia's AHCs operate the only two General Clinical Research Centers (GCRCs) in the Commonwealth. In an effort to link research with the practice of medicine, Congress began authorizing grants to fund the infrastructure of these centers over 40 years ago. Most of the GCRC grants were targeted to AHCs around the country. As a result, while private hospitals are eligible to participate in the program, today, virtually all of these centers are funded through AHCs. In addition to the funding received in the GCRCs in 2001, Virginia's two centers

received a total of \$151 million in NIH funding to support a wide array of research projects.

According to staff at the two centers, clinical medical research offers three substantial benefits for the AHCs. First, they allow the institutions to attract highly qualified physicians who are interested in integrating clinical work with research. This, in turn, permits the AHCs to remain on the cutting edge in the development of innovative techniques for the delivery of both complex and routine patient care. This “translational research” -- the application of knowledge gained in basic science research to routine and specialized care -- allow the AHCs to effectively marry their research and patient care missions.

Second, successfully run research programs also serve as a magnet for patients with complex diseases in search of new methods of treatment, including those who are indigent and uninsured. If the patient’s insurance does not cover the care provided in the treatment of the specific diseases, as is often the case with clinical research, the cost of the care is charged to the grant supporting the research. Any medical services that the patient receives that are not related to the clinical trial are billed to either the third party payer or the patient, whichever is applicable. If the patient is indigent, any balance remaining after charges related to the clinical trial are extracted can be billed as indigent care.

Through the research programs, AHCs can offer physicians the infrastructure and financial support needed to work on innovative medical treatments and technologies. Because the infrastructure and staff costs are

already paid for through the research grant, physicians gain a competitive advantage in the bidding process for other research grants. Should this research spawn a new technology or medical procedure that gains much wider use, the AHCs can share in the distinction and potential profits through intellectual property agreements with the physicians.

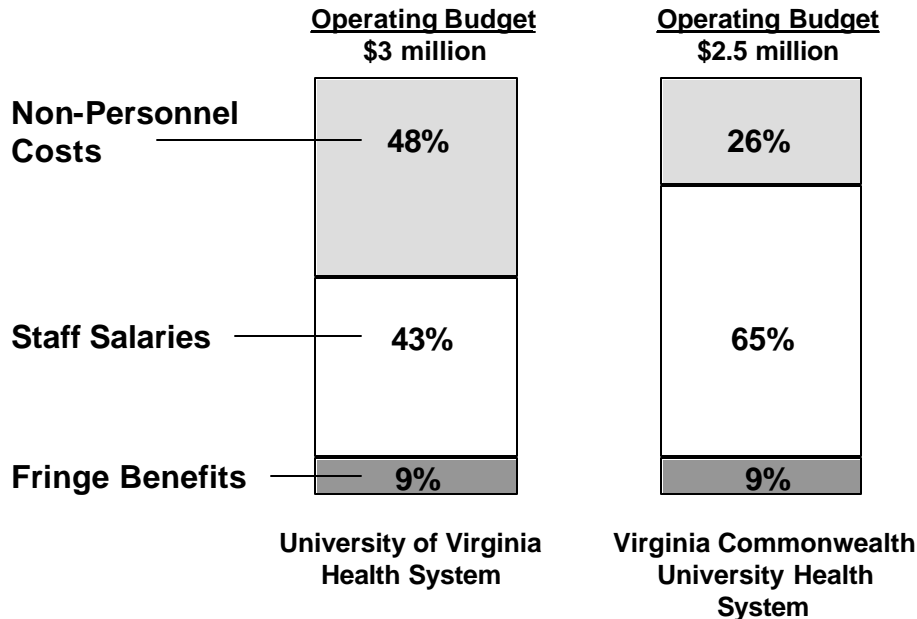
Private hospitals have typically refrained from establishing large-scale research centers for several reasons. First, the federal government is not looking to expand the number of GCRCs. Without funding, most hospitals are unwilling to absorb the start-up costs required to put the infrastructure in place that would allow staff to effectively compete for NIH medical research grants. Facility overhead and compensation packages to attract new and qualified physicians are the most significant components of start-up costs.

Second, because private hospitals must be concerned with establishing and maintaining healthy operating margins, they do not have the resources or staff time to devote to the pursuit of NIH-sponsored research. Also, some of the federal research grants require substantial matching financial commitments that add to the cost of research.

Finally, because federal research grants are distributed on a competitive basis, a constant stream of revenue is not guaranteed. This creates substantial risks for organizations that must maintain a certain level of in-house expertise in order to remain competitive for grant funding. As an example, Figure 9 reveals, the on-going operational costs of the general clinical research centers at UVA/HS and VCU/HS are \$3 million and \$2.5 million respectively. At UVA/HS,

Figure 9

Operating Budgets for Clinical Research Centers at Virginia's Academic Health Centers



Notes: Salary and fringe benefits costs at UVA/HS were a combined 74 percent. The separate breakouts reported in this table are estimates.

Source: Finance offices for the Virginia Commonwealth University Health System and the University of Virginia Health System.

salary and fringe benefit costs account for more than half of the center's budget. In the case of VCU/HS, the salary and benefit costs exceed 70 percent.

Because Virginia's AHCs have established reputations for integrating quality research with the routine and specialized patient care offered in the hospitals and clinics, the operational cost of their clinical research centers are fully funded through the GCRC grants. These grants are renewed in five-year cycles and they allow the AHCs to compete for additional research funding through both public and private sources. From a broader perspective, the health centers benefit from the research that occurs across the institutions. In the five-year period from 1997 to 2002, UVA/HS has secured almost \$600 million in

research grants for its medical school. VCU/HS School of Medicine has been awarded over \$484 million during this same time period.

Comparisons to Private Hospitals With Teaching Missions. The findings presented thus far indicate that when compared to all other hospitals in Virginia, clear distinctions can be made in the services provided based on the unique missions of Virginia's AHCs. However an important question remains: to what degree do these differences persist when the AHCs are compared with a smaller group of hospitals that have a visible teaching focus? The view has been proffered that a small group of private hospitals in Virginia essentially mirror the services provided in the AHCs. More importantly, these hospitals are thought to provide indigent care at a substantially lower cost and without large federal or State subsidies.

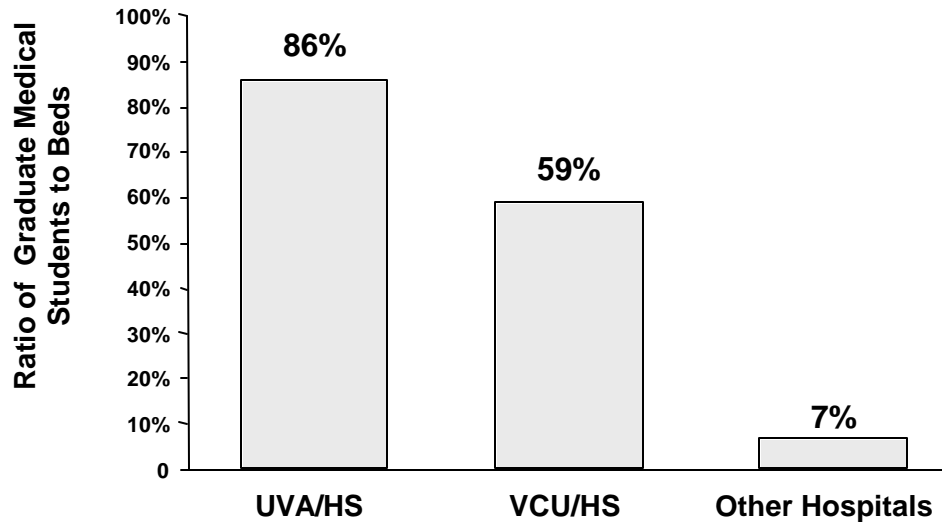
To address questions regarding the similarities in services provided by these hospitals and the AHCs, a more refined comparison was made through the construction of a variable measuring the intensity of teaching mission at each hospital. This variable was based on the number of residents in the hospital relative to the total number of hospital beds. The following classification strategy was used to establish four potential groups of hospitals and the results are reported in Figure 10:

- **“Heavy Teaching Mission.”** Hospitals with a ratio of residents to hospital beds that is equal to, or greater than, 50 percent.
- **“Moderate Teaching Mission.”** Hospitals with a ratio of residents to beds that ranges from 25 to 49 percent.
- **“Limited Teaching Mission.”** Hospitals with a ratio of residents to beds that exceed 0 but are less than 24 percent.
- **“No Teaching Mission.”** Hospitals that have no residents in training.

Figure 10

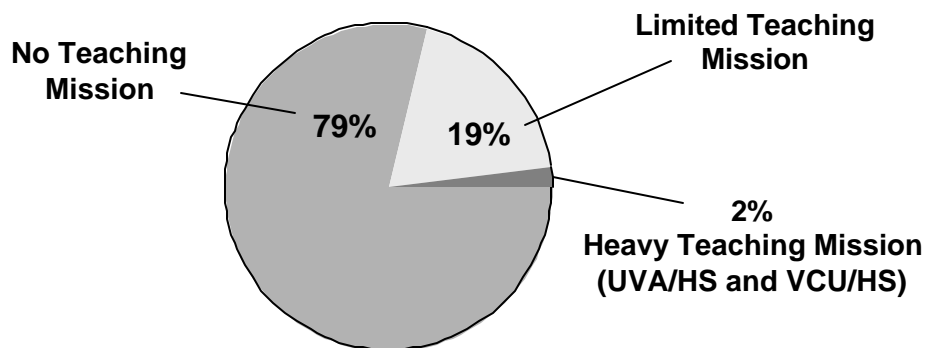
A Comparison of Virginia's Hospitals Based on Intensity* of Teaching Mission (2001)

Total Hospitals** = 86



Classification of Virginia's Hospitals Based on Intensity* of Teaching Mission (2001)

Total Hospitals** = 86



Notes: * Intensity of teaching mission is based on a measure of total residents, including interns, as a percent of hospital beds and is defined as follows: 0="No Teaching Mission;" .01 to .25 = "Limited Teaching Mission;" .26 to .50 = "Moderate Teaching Mission;" and > .50 = "Heavy Teaching Mission." ** Figure does not include data on 12 additional hospitals that are not included in the datasets used for this study. Also, data on used to calculate intensity of teaching mission does not include figures for specialties such as pediatrics, psychiatry, or rehab medicine

Sources: American Hospital Association Annual Survey.

As the top half of Figure 10 reveals, both of Virginia's AHCs are considered to have a "heavy teaching mission" with intensity measures of 86 percent (UVA/HS) and 59 percent (VCU/HS) respectively. The average for all other hospitals in the State was only seven percent.

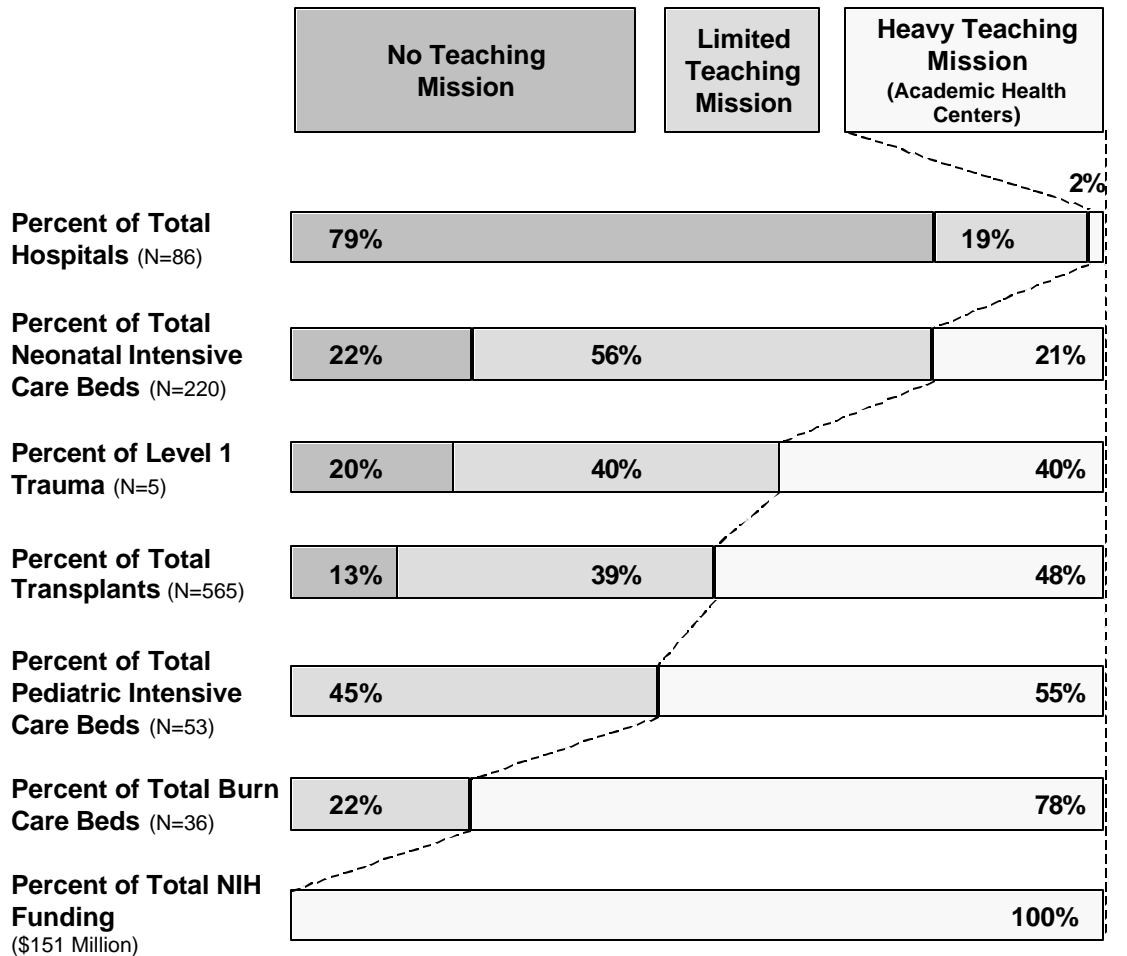
The bottom half of the graphic indicates the proportion of hospitals that fall into each of the teaching intensity categories. As shown, almost 80 percent of all hospitals in Virginia have no teaching mission as measured by the absence of any residency programs. There are no hospitals in the State with a "moderate teaching mission", but 19 percent do qualify as "limited teaching mission" facilities. Only two percent of the hospitals in the State are characterized as having a "heavy teaching mission," and these are the AHCs.

How do Virginia's AHCs compare to their counterparts who have some level of a commitment to teaching? Figure 11 reports the results of the service comparisons that were made through this analysis and demonstrates the key role that AHCs maintain in the provision of specialized care and research, even when compared to private hospitals that have similar goals.

In terms of the specialty care services, Virginia's AHCs either account for a disproportionate amount of the capacity for such care in the State, or they provide the majority of this capacity. For example, while representing two percent of all hospitals in the State, the two AHCs maintain 21 percent of the neonatal intensive care beds in the State and 40 percent of the Level 1 trauma units. Hospitals with a "limited teaching mission" provide the majority of the

Figure 11

Characteristics of Virginia’s Hospitals Based on the Intensity* of Teaching Mission



Notes: * Intensity of teaching mission is based on a measure of total residents as a percent of hospital beds and is defined as follows: 0="No Teaching Mission," .01 to .25 = "Limited Teaching Mission," .26 to .5 = "Moderate Teaching Mission" and > .5 = "Heavy Teaching Mission." **This category consists only of Virginia's two Academic Health Centers.

Sources: Data collected from Hospital Cost Report Information System, American Hospital Association Annual Survey, Area Resource File, National Institutes of Health, the United Network for Organ Sharing, and the American Medical Association.

capacity for neonatal intensive care beds (56 percent of all such beds), compared to 22 percent for hospitals with “no teaching mission.”

Providing Complex Care. Because of the focus on specialty care, it was theorized that the AHCs represented a key source for the treatment of patients with complex medical problems, notwithstanding the presence of their competitors, and regardless of the patients' ability to pay. To explore this issue, data were examined on all inpatient admissions statewide. Those cases with the most resource intensive DRGs -- Diagnosis-Related Groups -- were selected for further analysis. A DRG system uses patient diagnoses and procedures to predict the resources required to treat the patient. Each DRG is assigned a relative weight that measures the cost of treating a patient who falls in that diagnosis group relative to all patients who fall in all other groups.

Accordingly, using the value of each patient's DRG weight, it was possible to identify all high resource cases in the State and the associated hospital charges. These cases could then be grouped by hospital and an average case mix score calculated. Table 1 lists the top ten most resource intensive medical procedures performed in Virginia's hospitals in FY 2001.

Table 1	
Top Ten High Resource DRGs In Virginia	
<u>Diagnosis Related Group</u>	<u>DRG Weight</u>
Heart Transplant	20.54
Tracheostomy	17.05
Extensive 3 rd Degree Burns With Skin Graft	14.65
Heart Assist System Implant	11.64
Liver Transplants	10.98
Lung Transplant	9.20
Bone Marrow Transplant	8.61
Cardiac Valve & Other Cardiothoratic Procedures With Catheter	7.99
Coronary Bypass With PTCA	7.52
Cardiac Defibrillator Implant With Cardiac Catheter	6.36
Source: Virginia Health Information Claims Data.	

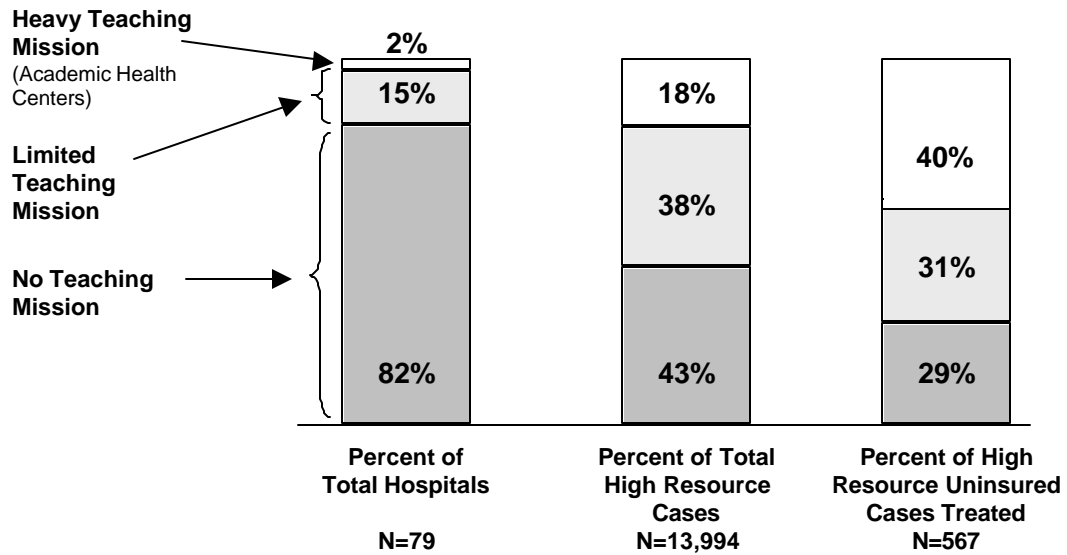
Based on this analysis, it was determined that there were 13,994 total high resource cases in Virginia in FY 2001. The patients represented by these cases were treated in 79 hospitals -- two of which were the State's two AHCs. Almost 20 percent of the high resource cases were treated in the two AHCs (Figure 12). The largest share of these cases (43 percent) was treated in hospitals with no teaching mission (82 percent of all hospitals that provide services to a high resource case). Those hospitals with a limited teaching mission (15 percent of all hospitals that provided services to a high resource case) treated 38 percent of these cases.

National studies have shown that indigent patients and the uninsured who are not poor are less likely to receive the high-cost specialty care services. When these historically underserved populations received that care, it was mostly offered through AHCs. There is evidence to suggest that this pattern of care occurs in Virginia as well. Figure 12 reveals that a substantially larger portion of the uninsured high resource cases (including persons who are indigent) gain access to specialty care in the AHCs. Specifically, nearly four of every 10 persons who were uninsured and received specialty high resource care were treated in the AHCs. In terms of charges (bottom of Figure 12), nearly 12 percent of VCU/HS total charges for high resource cases were for persons who were uninsured. These figures are considerably higher than those observed for other hospitals across the State, despite the presence of several hospitals in the Richmond-Metropolitan area that provide specialty care services. These data

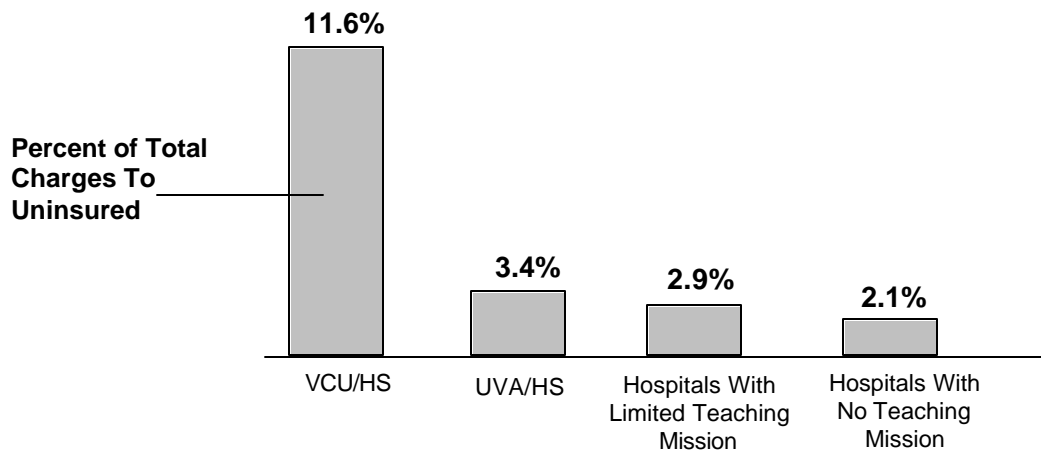
Figure 12

High Resource Cases Treated In Virginia Hospitals, 2001

Percent of High Resource Indigent And Uninsured Cases Treated



Percent of Total Charges to the Indigent and Uninsured for High Resources Care (N=567)



Sources: Virginia Health Information Claims Data, American Hospital Association Annual Survey and the American Medical Association data.

indicate that uninsured persons with the highest cost of care are more likely to receive that care at an AHC, which will usually be VCU/HS.

A benign interpretation of these findings is that private hospitals, even with recent forays into the field of specialized care, do not have the service lines in place to treat those complex illnesses that are more common among the indigent and uninsured. A less optimistic interpretation is that private hospitals are finding ways to ration this type of care to persons who do not have insurance and are not able to pay, without violating federal legislation that prohibits “patient dumping” to publicly funded hospitals. In addition, it should be noted that in the Richmond area in particular, four acute care and two specialty care hospitals have either closed or left the City in part due to the financial pressures of operating in a market that requires the provision of substantial levels of care to uninsured and underinsured populations.

Notwithstanding an explanation of this finding, the problem for policy makers posed by these and other results reported in this chapter is clear. The State’s two AHCs pursue a combination of social missions that continue to distinguish these institutions from their private counterparts in many ways. A basic characteristic of the activities associated with some of these social missions is that they represent either public or merit goods. Public goods are both non-rival and non-excludable in nature. Non-rival means that the amount of the available good is not depleted when consumed by others. Non-excludable means the good is freely available for use after it is produced. The clinical research conducted in the AHCs is an example of a public good.

Merit goods, such as the medical education of residents and specialized health care for indigents, can be purchased, and such consumption generates external benefits for society as a whole. When AHCs spend resources training residents with the latest in medical technology and treating patients who suffer from rare complex illnesses, clearly both the residents and patients benefit. However, society benefits as well from the knowledge base created by these endeavors and the advancements made in healthcare.

Economic theory holds, and experience indicates, that the competitive market does not efficiently or optimally produce public or merit goods. Because the benefits associated with the delivery of public goods such as research are often diffuse, profit-oriented hospitals are not likely to engage in a large-scale production of these goods. Likewise, the external benefits that flow from the use of nascent technology to treat rare illnesses are not fully accounted for in private transactions between the hospital and the patient. Hence, private markets cannot be relied upon to produce an optimal level of these goods and services. Therefore, if policy makers hope to maintain the level of services tied to the core mission of the AHCs, government will have to retain a major role in the funding of these institutions.

THE FLOW OF FUNDS IN VIRGINIA'S ACADEMIC HEALTH CENTERS

Over the years, one of the persistent charges raised against AHCs has been that its healthcare costs are inflated because of direct subsidizes made by these institutions to their affiliated universities. Critics contend that these subsidies are made from revenue intended for the care of patients for the sole

purpose of offsetting some of the operational cost of the University of Virginia and Virginia Commonwealth University.

Based on the proforma funds flow documents for the AHCs, these criticisms and claims could not be substantiated. Relying on five different revenue sources, VCU/HS receives more than \$768 million and allocates these funds to three entities -- MCV Hospitals, a physician practice plan, and a Medicaid HMO. Through purchase of service agreements, almost \$60 million of these funds are moved between these three entities to pay for the management and delivery of healthcare. The one exception is a \$3.2 million clinical earnings contribution made to the University. This transfer is financed by a tax on the gross receipts of insurance plans and is used by VCU to support its School of Medicine.

UVA/HS receives its revenue of \$605.3 million from four major sources. Virtually all of these funds are allocated to the UVA Medical Center, which purchases more than \$17 million in physician services from the School of Medicine.

With the Exception of a Small “Dean’s Tax” At VCU/HS, All Fund Transfers within the Academic Health Centers Are Made for the Purchase of Services Related to the Management and Delivery of Healthcare

Because of the size, complexity of organizational structure, and the multiplicity of revenue sources of Virginia’s AHCs, understanding the funding and flow of dollars in these institutions poses a considerable challenge. Both of these organizations consist of several interrelated entities whose financial relationships

are directed by numerous contracts and agreements. These documents govern the arms length financial transactions between the various components of the AHCs, which are necessary to support the mission-related activities of the two systems.

To shed some light on how these funds move through the AHCs, budget and internal purchase of service documents were analyzed for both systems. Through this review, the total dollars received by these systems and the amount and nature of fund transfers were identified.

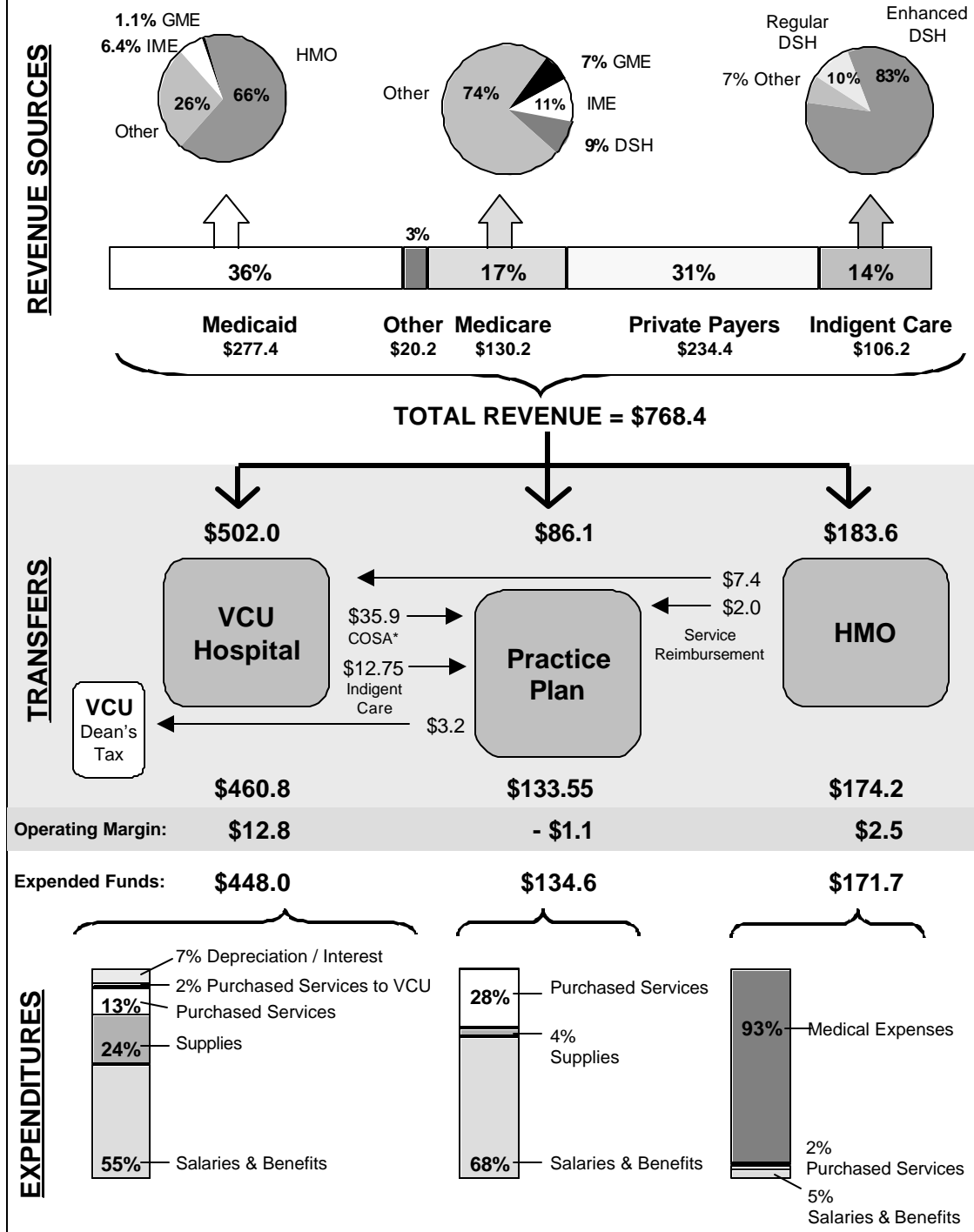
Revenue Sources and Flow of Funds at VCU/HS. Figure 13 presents the results of this analysis for VCU/HS. The top part of the graphic indicates the revenue sources for the health system. As shown, through five different sources, in FY 2003, VCU/HS received more than \$768 million. The Medicaid program was the largest revenue source for the hospital, contributing 36 percent (\$277 million) to the system. Private payers accounted for 31 percent of the system's revenue, followed by Medicare (17 percent) and appropriations for indigent healthcare (14 percent).

The middle portion of the graphic illustrates how the revenue was allocated and moved between the major components of VCU/HS. Over 65 percent (\$502 million) of the total revenue was allocated for the operation of the hospital. Smaller amounts (\$86.1 million) and (\$183.6 million) fund the system's practice plan and HMO.

Two significant internal purchase of service agreements were executed between the hospital and the practice plan. In one, referred to as Clinical Operating Service Agreements (COSA), the hospital purchased \$35.9 million in services from the plan. These purchases included \$17 million in clinical services

Figure 13

Revenues and Expenditures for the Virginia Commonwealth University Health System, FY 2003
(in millions)



* COSA refers to Clinical Operating Service Agreements.

Source: Analysis of data provided by the Virginia Commonwealth University Health System.

provided by the physicians, \$8.2 million for resident supervision, \$6 million for joint operations between the hospital and practice plan, and \$4.1 million in overhead costs that were stepped down to the hospital to pay for a portion of the practice plan's medical administration services. The second significant transfer paid for physician services provided to persons who were indigent. The system's HMO spent a total of \$9.4 million on hospital care for those it insured (\$7.4 million) and on their related physician services (\$2 million).

The only transfer made to the University that was not tied to patient care services was a \$3.2 million clinical earnings fee. In the lexicon of the AHCs, this is commonly referred to as a "Dean's Tax." Generated from a tax on the proceeds received by VCU/HS from private plans, these dollars are used to directly support the academic mission of the School of Medicine. Some of these funds are used for the recruitment of teaching and research faculty, salary supports, and research start-up costs.

The figure also shows that VCU/HS was able to generate a \$12.8 million operating margin (2.5 percent) from its hospital operations in FY 2003 -- the industry standard is four percent -- and a 2.5 million margin (1.4 percent) for its HMO. The practice plan actually lost money, requiring officials to use \$1.1 million of the system's reserve to cover the expenses of the plan.

The bottom of Figure 13 indicates how the remaining dollars in each of these entities were spent following the internal fund purchases. Most of the revenue for MCV hospitals and the practice plan covered the salaries of the

relevant staff. More than 90 percent of the revenue for its HMO was used to pay the medical expenses of those insured through this plan.

VCU/HS' Flow of Funds For Indigent Healthcare. Figure 14 tracks the flow of funds for the dollars VCU/HS received to pay for indigent healthcare services. In FY 2003, the system received a total of \$106.2 million. As indicated by the pie chart at the top of the graph, VCU/HS received virtually all of the indigent healthcare funds from the Medicaid Disproportionate Share program (93 percent). The Virginia General Assembly appropriated the remainder from the general fund.

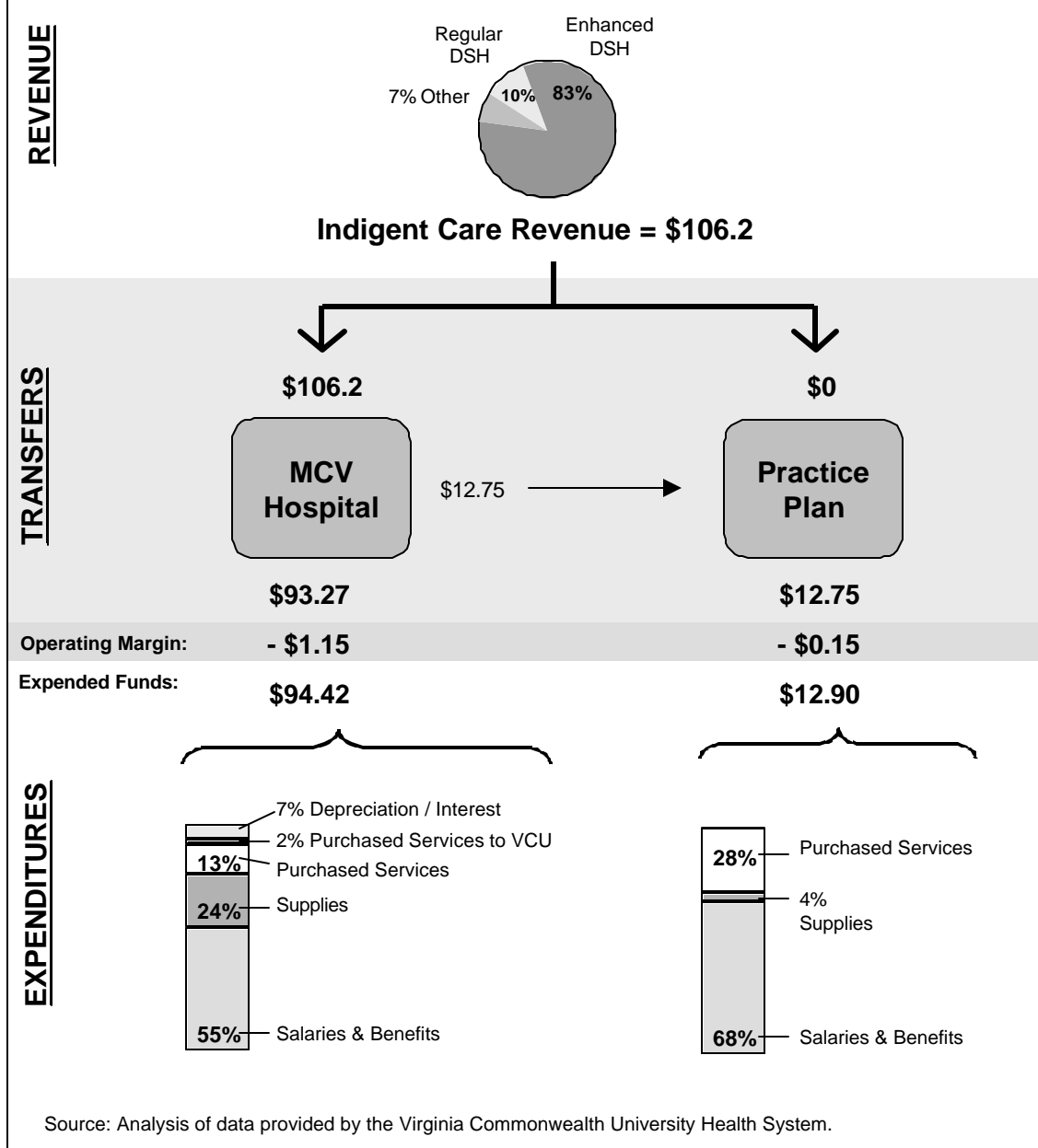
Health system administrators allocated all of the revenue for indigent healthcare to the hospital. To pay for physician services provided by the practice plan, a purchase of service fund transfer of more than \$12 million was made to the plan.

In FY 2003, indigent healthcare expenses for both the hospital and the practice plan exceeded the revenue appropriated for these services. For VCU hospital, the operating margin reflected the loss of \$1.15 million, while the practice plan suffered losses of approximately \$150,000. As noted earlier, the health system covers these losses with withdrawals from its reserve fund.

Revenue Sources and Flow of Funds at UVA/HS. The financing model in place at the UVA/HS is composed of two entities – the UVA Medical Center and the UVA School of Medicine. The sources of funding for this system are similar to those for VCU/HS but the revenue generated for the hospitals from private payers account for a much larger share of the system's revenue (47

Figure 14

**Revenues and Expenditures from Indigent Care for the Virginia Commonwealth University Health System
FY 2003 (in millions)**



percent) than observed for VCU/HS (Figure 15). Medicare payments were the second largest source of revenue for the system (33 percent), followed by Medicaid (12 percent), and indigent healthcare (eight percent).

In FY 2002, UVA/HS received \$605.3 million in total revenue. Of this amount, all but \$400,000 was allocated to the UVA's Medical Center. The remaining amount was an appropriation from the General Assembly to support indigent healthcare at the UVA School of Medicine.

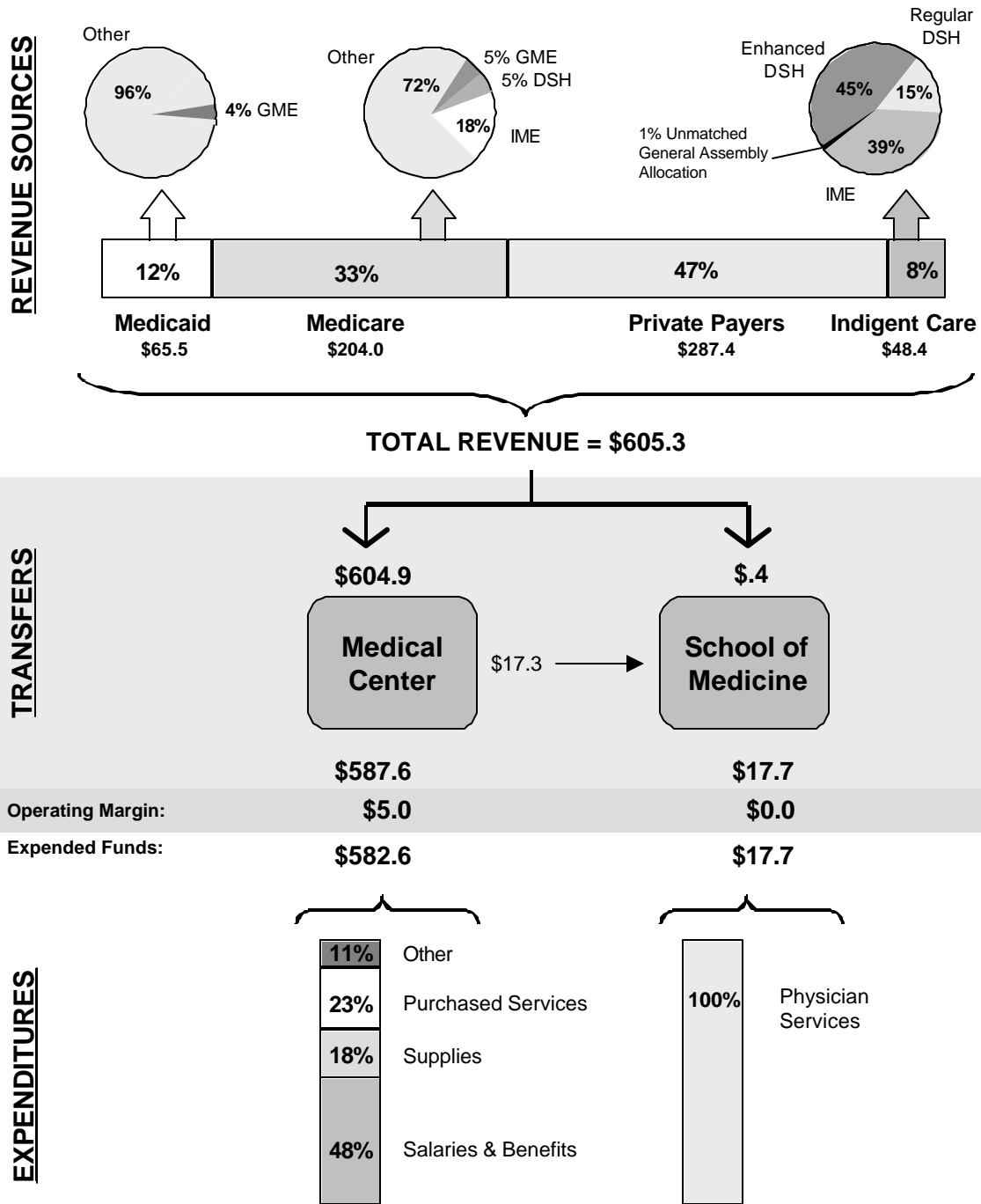
To facilitate the care of its patients, the UVA Medical Center purchased \$17.3 million in physician services from the School of Medicine. As with the VCU/HS, these funds were used to offset the cost of medical and education services provided by physicians. Following this purchase of services, the hospital was left with \$587.6 million to cover expenses. As shown by the graph, actual expenses in FY 2002 were \$582.6 million, nearly half of which were employee salaries and benefits. This generated an operating margin of \$5 million - about one percent.

With the purchase of service fund transfer from the hospital, the UVA School of Medicine generated \$17.7 million in revenue. As the cost of these services matched the amount transferred through the internal fund purchase, the UVA/HS neither made nor lost money on the operations through the school.

UVA/HS' Flow of Funds For Indigent Healthcare. As is the case for VCU/HS, the UVA/HS receives separate appropriations from various sources to pay for the indigent healthcare services provided through the system. In FY

Figure 15

**Revenues and Expenditures for the
University of Virginia Medical Center, FY 2002
(in millions)**



Source: Analysis of data provided by the University of Virginia Health System.

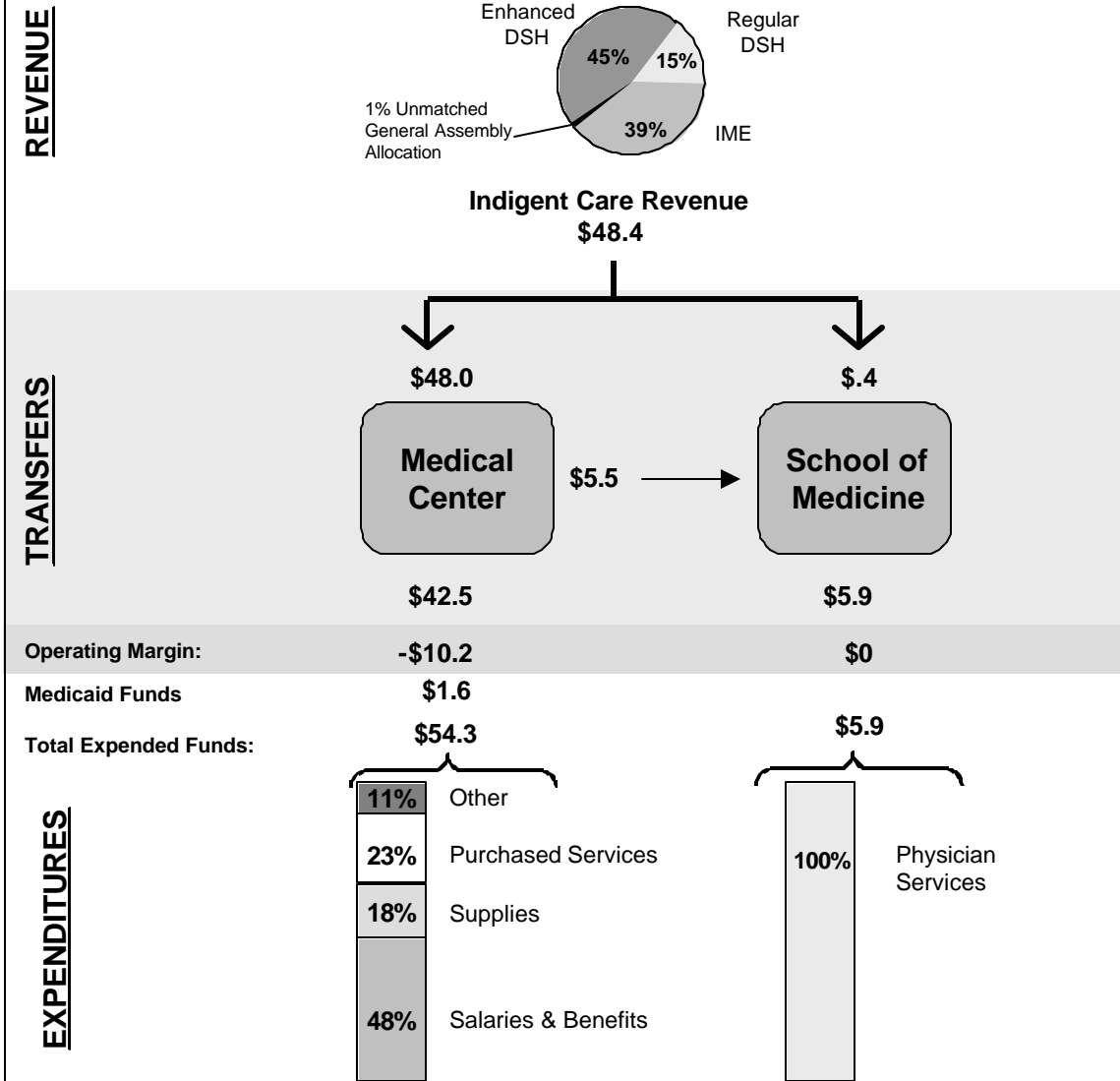
2002, UVA/HS received \$48.4 million for the indigent healthcare services it provided. Figure 16 reports the flow of funds for these dollars. Tracking the flow of funds through the system reveals one transfer to the School of Medicine of \$5.5 million to pay for physician services. When combined with the \$400,000 appropriation from the General Assembly, the School of Medicine received and spent \$5.9 million on indigent healthcare services. In the UVA Medical Center, after accounting for the purchase of services from the School of Medicine and the cost incurred for indigents in the hospital, UVA/HS lost over \$10 million on the treatment of indigent patients.

In summary, these analysis results do not support claims that valuable healthcare resources for the poor are diverted from the intended purpose to mitigate the impact of university expenses. It is important to note, however, that this funds flow analysis was only designed to answer questions related to how administrators for AHCs allocate healthcare dollars and whether these funds are being used to subsidize the education and operational cost of the universities. Quite apart from the issues examined here are questions related to service utilization of indigent patients and the operational efficiency of the AHCs. Accordingly, some of the questions addressed in the next chapter of this report are as follows:

- What are the differences in overall per-patient cost between the AHCs and other hospitals in the State? What major factors explain any observed differences in cost?
- How do Virginia's AHCs compare to peer institutions across the country in terms of the cost of the care provided?
- What trends can be observed in the cost of indigent care provided by Virginia's AHCs and what do these trends

Figure 16

**Revenues and Expenditures for Indigent Care for the
University of Virginia Health System, FY 2002
(in millions)**



Source: Analysis of data provided by the University of Virginia Health System

suggest about the manner in which the AHCs have managed the indigent care program? Have the costs for this program grown at a faster rate than hospital inflation?

- Are the indigent patients appropriately screened to determine their eligibility for other sources of funding when they seek indigent care?

III. The Cost of Patient Care in Virginia's Academic Health Centers

As State policymakers re-examine the role of AHCs, a significant portion of the ensuing debate will center on the costs associated with this healthcare model. Shifting market forces and greater competition from other hospitals have limited the ability of these facilities to cross subsidize the cost they incur in treating indigent patients, thereby necessitating a greater reliance on State general fund dollars. This has prompted important policy questions about how much the AHCs spend to treat patients, especially those persons who are indigent and uninsured.

Heightening interest in this issue is the dearth of straightforward cost data on Virginia's AHCs. Due in large part to the independence of these institutions and the complex nature of the healthcare business, the details of their operations are difficult to decipher. Accordingly, outside of the data put forward in abstruse audit reports, little is known about the overall cost of services in the AHCs, how these institutions compare to their peers on basic measures of efficiency, and the cost trends associated with indigent patient care.

This chapter examines the source of overall differences in patient costs between the State's AHCs and other providers in Virginia. In addition, results from a study comparing the performance of AHCs to peer institutions around the country are discussed. Finally, data on the cost of care for the indigent population are analyzed to assess how AHCs have managed the delivery of care to the poor over the past several years.

Consistent with the findings of several studies, this analysis found that the overall per-patient cost of care in the AHCs is higher than the levels observed for private hospitals. However, much of this difference can be attributed to the costs incurred by AHCs in developing the capacity to provide the specialized care and trauma services not typically funded in other hospitals.

Also, both UVA/HS and VCU/HS have worked with outside consultants to evaluate the efficiency of their operations. When compared to peer hospitals around the nation, both UVA/HS and VCU/HS performed as well as can be expected, given the broad missions of AHCs and the acuity levels of the patients treated.

These systems have also been able to contain growth in the indigent healthcare program over the past five years. This has been especially true for inpatient care. Key factors slowing the rate of growth in this program have been a decline in the total number of indigent patients who are admitted for inpatient care, the ability of staff at the two AHCs systems to reduce hospital stays for those who are admitted, and shifts in care protocols to the outpatient setting. Still, greater savings in both the inpatient and outpatient programs are possible if the AHCs find ways to better link the indigent healthcare program to the Medicaid and FAMIS programs.

THE IMPACT OF MISSION-RELATED ACTIVITIES ON PATIENT COSTS IN VIRGINIA'S AHCS

It has been widely documented that patients spend more for healthcare at AHCs than at private or community hospitals. What has not been as thoroughly examined or understood is whether and how the specific missions of

AHCs contribute to these higher costs. Without this type of information, policymakers have been unable to effectively debate whether the societal benefit of these missions equal or exceed the additional costs incurred in funding them.

This analysis found that the average per-patient cost of inpatient care for all payors in Virginia's AHCs is slightly more than \$10,400. This figure represents the cost per discharge prior to adjusting for case mix and outpatient caseload and is almost \$5,000 higher than the average cost observed in other hospitals in the Commonwealth. Using nationally derived weights, it is estimated that approximately 30 percent of the higher costs observed among Virginia's AHCs can be attributed to mission-related activities.

The need to fund stand-by capacity for emergency departments and specialized care were the most expensive of mission activities, accounting for 13 percent of per-patient costs. Activities funded with Indirect Medical Education dollars accounted for the second largest component of these costs at 12 percent. Once these variables are factored in, the cost per discharge for the AHC's is only slightly higher than that of other hospitals across the Commonwealth.

However, despite the higher per-patient costs relative to private providers, both of Virginia's AHCs compare favorably to hospitals around the country that have similar missions. Specifically, the costs at these institutions are at anticipated levels given a number of factors, such as the acuity level of their patients.

The Mission-Related Activities of Virginia's AHCs Add an Estimated 30 Percent to the Cost of Inpatient Care

In order to conduct the comparative analysis of inpatient costs for hospitals in Virginia, a number of important steps were required. First, using data from several sources, a measure of hospital cost based on the cost of care delivered to all patients had to be constructed. Much of the previous research on this issue has relied on hospital data from only the Medicare population as a proxy for all inpatient hospital costs. This problem was avoided for this study through the use of “all-payer” patient data. Drawn from hospital cost reports, these data provided cost information on all persons who received inpatient acute care in hospitals, excluding only those persons who received this care in long-term care units or through sub-providers.

Next, following a method used by a national healthcare consulting firm known as the Lewin Group, inpatient costs were calculated from the following cost centers from the hospital cost reports: (1) routine acute care costs not associated with long-term units, (2) inpatient ancillary costs based on the ratio of inpatient charges to total charges, (3) outpatient costs that were billed as a part of an inpatient stay using the ratio of inpatient charges to total charges, and (4) any other costs that were reimbursed as a part of inpatient care. The resulting data from each of the cost centers were summed and divided by the total number of patients reported to have received inpatient care, thus creating a measure of inpatient cost per-patient.

The final step in this analysis required that national weights, developed by the Lewin Group, be applied to the cost variable. This was necessary so that

the contribution to inpatient costs made by each variable could be estimated. The Lewin Group constructed these weights using a series of regression models, which measured the relationship between inpatient costs and a series of independent variables. These models included measures for the research, teaching, and specialized care missions of the AHCs, as well as measures of patient acuity and hospital wage costs.

The Impact of Mission-Related Activities on AHC Inpatient Costs.

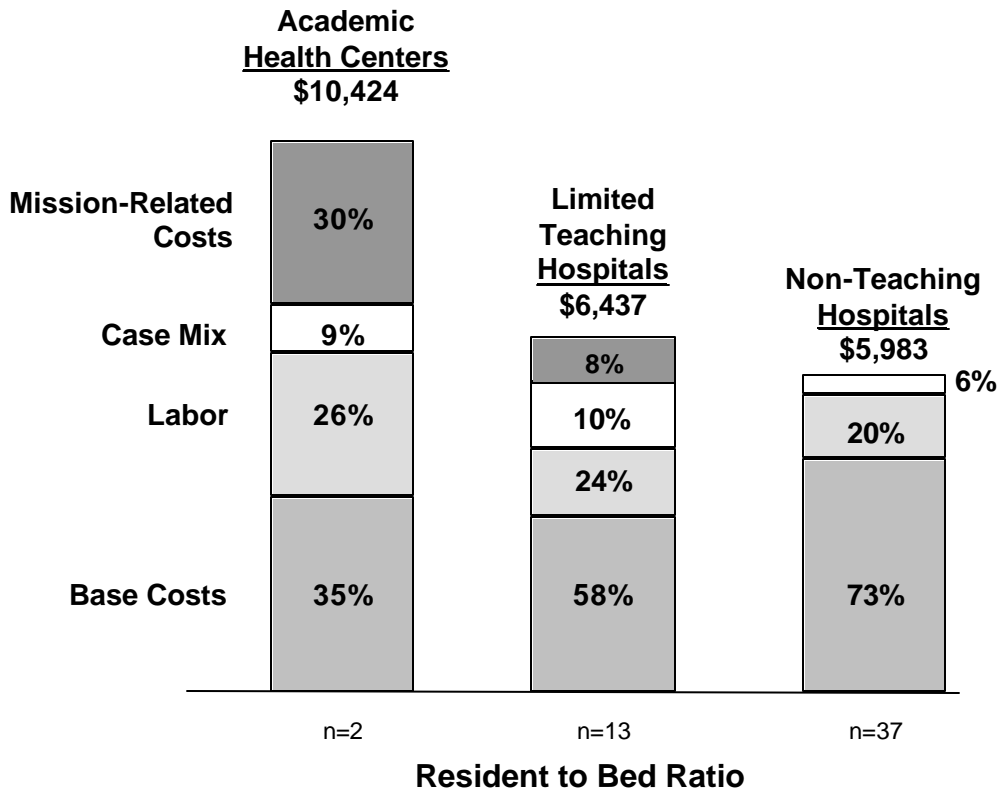
Figure 17 summarizes the results from the initial part of this analysis. As shown, using the cost report data, inpatient costs were calculated for three groups of hospitals: Virginia's two AHCs, hospitals with at least 100 beds and a limited teaching mission, and hospitals with a least 100 beds and no teaching mission.

Specifically, the average cost per discharge in the two AHCs was \$10,424 per patient. By comparison, the cost for patients who received their care from hospitals with a limited teaching mission was only \$6,437 – approximately 61 percent of the cost of care in the AHCs. In hospitals with no teaching mission the cost was \$5,983. While the results reveal that the cost of inpatient care in Virginia's AHCs is higher compared to the other two groups of hospitals, this is before adjustments are made to account for patient acuity and mission-related costs. Also, this figure has not been adjusted to account for the large outpatient volumes, including outpatient clinic activities of the AHCs.

Partly to that end, Figure 17 highlights differences in the components of these costs across the three groups of hospitals. The major factor

Figure 17

Inpatient Acute Care Costs Per Discharge for Virginia Hospitals With 100 or More Beds (Fiscal Years Ending in 2001)



Notes: Inpatient costs do not include costs related to subproviders or long-term care such as nursing facilities. Some percents do not add to 100 because of rounding. Cost data from one "limited teaching" hospital was not reliable and therefore excluded from the analysis.

Sources: Estimates calculated using national weights based on the methodology developed by the Lewin Group. (See *Health Care at the Cutting Edge: The Role of Academic Health Centers in the Provision of Specialty Care*, a report of the Commonwealth Fund Task Force on Academic Health Centers.) The inpatient costs per case are calculated from the Hospital Cost Report Information System (HCRIS) cost reports submitted to the federal Center for Medicare and Medicaid Services.

distinguishing AHCs from their counterparts is the mission-related activities of the AHCs. It is estimated that fully 30 percent of the costs in these facilities can be attributed to the unique role of the AHCs in the delivery of care. Only eight percent of the cost for hospitals with a limited teaching mission could be similarly

categorized. As anticipated, the hospitals without a teaching mission had no mission-related patient costs.

As shown in Figure 18, the particular mission-related activity that has the greatest impact on costs is the AHCs “stand-by capacity.” These are the

Figure 18

Breakdown of Inpatient Acute Care Costs for Virginia’s Teaching Hospitals Based on an Estimate of Mission-Related Costs (Fiscal Years Ending in 2001)

		VCU/HS (in millions)	UVA/HS (in millions)	Total (in millions)
Total Inpatient Costs:		<u>\$292.1</u>	<u>\$280.5</u>	<u>\$572.5</u>
*29% Mission Related Costs	4% Research	\$10.5	\$10.1	\$20.6
	12% Indirect Medical Education	\$33.6	\$32.3	\$65.8
	13% Stand-By Capacity**	\$36.5	\$35.1	\$71.6
	71% All Other Costs	\$211.5	\$203	\$414.5

Percent of Costs Associated with Each Cost Category

Inpatient Costs Associated with Acute Care by Teaching Hospital

* Notes: *These estimates are based on national weights developed using data from 1998. As a result the figure 29 percent does not precisely match the figure reported in Figure 17 which is based on 1999 cost data.
 **Stand-By Capacity includes intensive, emergency, and trauma capacity. Inpatient costs do not include costs related to sub providers or long-term care such as nursing facilities. Some percents do not add to 100 because of rounding.

Sources: The estimates are based on a decomposition analysis from the unpublished article “Mission-related Costs of Teaching Hospitals: Estimates of Graduate Medical Education, Clinical Research, and Stand-by Capacity” by Lane Koenig et. al. of the Lewin Group in November of 2002. The inpatient costs for the teaching hospitals were derived from the Hospital Cost Report Information System (HCRIS) cost reports submitted to the federal Center for Medicare and Medicaid Services based on the methodology in the Lewin Group article.

costs incurred by the facilities for staffing highly specialized functions such as burn care, neonatal intensive care, pediatric intensive care, and Level 1 trauma centers. The staffing of these and related functions are responsible for 13 percent of the additional costs of the AHCs.

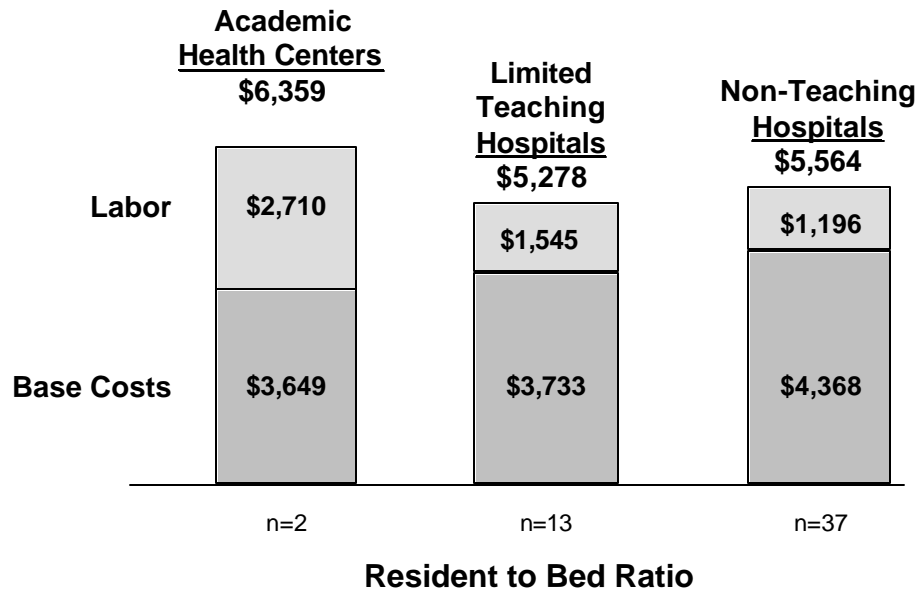
The education function, which measures the cost associated with teaching residents through clinical practice, adds 12 percent to the cost of care in the AHCs. The research mission accounted for in the national models based on whether the hospitals had a clinical research center and the amount of NIH funding received, displayed cost impacts of approximately four percent for the AHCs.

To more closely approximate the differences in treatment costs for AHCs compared to other hospitals in Virginia, the costs associated with case-mix and the mission-related activity of the academic health centers were subtracted from the overall costs of patient care. When this is done, Figure 19 indicates that the previously observed cost differences between Virginia's AHC and the two groups of private hospitals are substantially reduced.

Differences In Base And Labor Costs. The results presented in Figure 19 also show that the base costs for the AHC's -- defined as totals costs minus the costs of mission-related activities, case mix, and labor -- are relatively comparable to the hospitals with a "limited teaching" mission and are approximately 20 percent lower than that hospitals with no such mission. In regards to the labor component, the AHC's were found to have higher costs in

Figure 19

Inpatient Acute Care Labor and Base Costs Per Discharge for Virginia Hospitals With 100 or More Beds (Fiscal Years Ending in 2001)



Notes: Inpatient costs do not include costs related to subproviders or long-term care such as nursing facilities. Some percents do not add to 100 because of rounding.

Sources: Estimates calculated using national weights from *Health Care at the Cutting Edge: The Role of Academic Health Centers in the Provision of Specialty Care*, a report of the Commonwealth Fund Task Force on Academic Health Center. The inpatient costs per case are from the Hospital Cost Report Information System (HCRIS) cost reports submitted to the federal Center for Medicare and Medicaid Services based on the methodology developed by Koenig et al., at the Lewin Group.

this area than the other groups of institutions in the study. This is partially attributable to resident salaries and benefits. Within the AHC’s there is a disproportionately higher number of residents when compared to the hospitals with a “limited teaching” mission. In addition, residents in “limited teaching” mission hospitals tend to specialize in primary care disciplines whereas, in the two AHCs, there are proportionately larger numbers of residents in the specialty disciplines.

A second factor that may influence the differential in the labor cost relates to the wage index for the localities where these hospitals reside. It should be noted that the area wage indexes in both Charlottesville (1.0566) and Richmond (0.9678) are higher than all other localities of the Commonwealth except Northern Virginia (1.0962). The range for the majority of the urban areas and cities across Virginia is between .82 and .91. Hence, if this variable were to be factored into the analysis, the difference between the per discharge salary costs would be reduced.

Finally, there are several specialized employees that are not generally found in other institutions that may contribute to the higher labor costs. These groups include coordinators for programs such as transplant and trauma services, as well as staff associated with “stand-by” programs that must be available 24 hours per day in order to maintain Level 1 Trauma status.

On a technical note, it cannot be stated with absolute certainty that the mission-related activities discussed here are responsible for 100 percent of the assigned costs based on the national weights. To the extent that the national regression models estimated by the Lewin Group omitted important variables, the coefficients representing the mission-related activities could capture the influence of these missing variables, leading to an overstatement of the reported impacts.

That said, however, the reported mission-related cost impacts are separate and apart from those variables that were explicitly incorporated in the models, such as the variables measuring hospital case mix and labor costs. This means that the mission-related costs (of whatever size) incurred by Virginia’s

AHCs, are not offset by the costs associated with the care of sicker patients or the payment of higher wages. In other words, these are additional costs, above and beyond those generated by the acuity of AHC patients and the associated labor costs – an important finding.

Also, not reflected in these numbers is the growing challenge administrations face at both UVA/HS and VCU/HS in finding the appropriate mix of research, teaching, and clinical effort among the physicians. With the growing competition in healthcare, physicians are being asked to increase their clinical productivity, thereby reducing the time available for other mission-related activities. Officials acknowledge that this is a growing source of tension that must be properly managed as the health systems move forward.

Virginia’s AHC’s Compare Favorably to Peer Hospitals Around the Nation

Because of the mission-related activities of the AHCs, comparing them with private hospitals that do not share similar goals can lead to misleading conclusions about the per-patient costs and operational efficiency of these institutions. An organization available for conducting these assessments is the University HealthSystem Consortium (UHC). This organization is an alliance of 87 university-owned academic health centers. With its clinical and research focus, UHC helps member AHCs pool resources, create economies of scale, improve clinical and operating efficiencies, and influence the direction and delivery of health care. In 2001, UHC conducted two following interdependent assessments of Virginia’s AHCs:

- **Financial and Operational Benchmark Assessment.** UHC utilized its proprietary corporate information resource of comparative financial and operational data for

academic health centers to evaluate the overall cost of UVA/HS and VCU/HS as compared to peer centers.

- **Clinical Data Base Analysis.** The UVA/HS and VCU/HS' clinical practice patterns and overall efficiency by clinical cohort were compared to a similar group of academic health centers using the UHC Clinical DataBase.

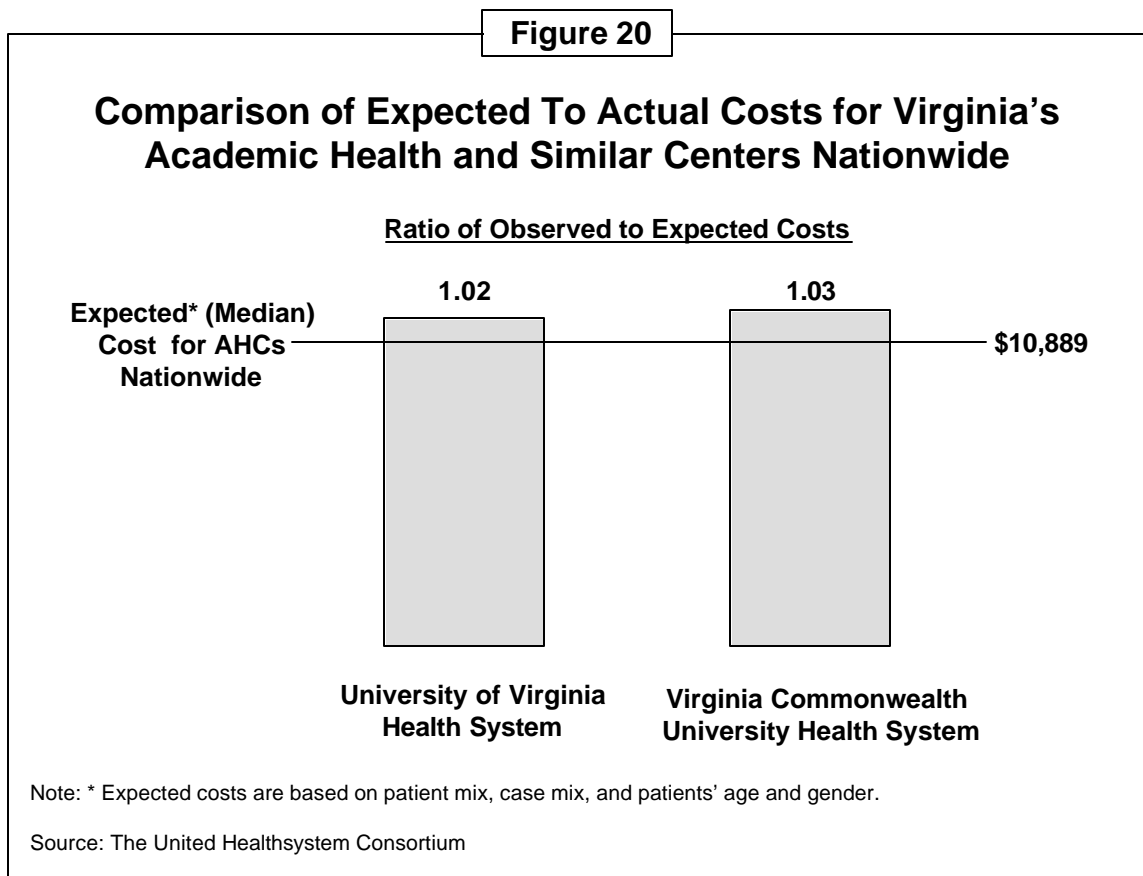
Twenty-five hospitals met the criteria of being comparable to UVA/HS and VCU/HS, including such hospitals as Vanderbilt University Medical Center, University of North Carolina Hospitals, Thomas Jefferson University Hospital, and Brigham and Women's Hospital.

Findings on Costs Per-Case and Operational Efficiency. A key finding of this study was that the measures of cost per-case, adjusted to account for the severity of patient illness -- which means costs divided by some measure of patient severity -- for both UVA/HS (\$7,306) and VCUHS (\$7,602), were less than the 50th percentile of the comparison group of hospitals (\$7,644).

Also, UVA/HS and VCU/HS' clinical practice patterns and the overall efficiency of each clinical cohort were compared to a similar group of academic health centers in the UHC Clinical Database. Statistics collected in the UHC Clinical DataBase were also adjusted for severity of case-mix using regression models that incorporate patient age, sex, payer, admission type, co-morbidities, severity of illness, and procedures known to affect outcomes.

These models generate an "expected" value of cost and length of stay (LOS) for each patient. The purpose of the "expected" value is to allow a meaningful "apples-to-apples" comparison that incorporates as much clinical information on severity of illness as possible. Because of the composition of the quality comparison group (academic health centers), the expected value provides a useful risk-adjusted benchmark for examining clinical cohorts. As shown in

Figure 20, the ratio of observed cost per discharge to expected cost per discharge for the UVA/HS was 1.02 and for the VCU/HS was 1.03. This means that the actual costs for these systems were essentially equal to the expected cost when compared to other participating UHC hospitals.



In conclusion, while Virginia's AHCs have a substantially higher overall per-patient cost than private hospitals in the Commonwealth, the empirical evidence presented here indicates that those additional costs are largely attributable to the unique missions of the AHCs. Further, when these operations are more appropriately compared to peer teaching hospitals around the country, their relative costs are at expected levels, after accounting for differences in patient risk and other factors that influence the cost of care.

Cost trends for Indigent healthcare In VIRGINIA's AHCs

Although Virginia's AHCs have a long-standing history of service to the poor and uninsured, both of these systems face new challenges and fiscal pressures that threaten their indigent healthcare programs. In the midst of this environment, legitimate questions are being asked about whether the AHCs are working to contain cost in the delivery of care to the indigent population. This study examined this issue by focusing on the cost trends for indigent healthcare for the State's two AHCs.

The general findings do support the view that AHC staff are making considerable progress in their efforts to contain the costs of indigent healthcare. From FY 1998 to FY 2002, the average annual rate of increase in the total indigent healthcare program was just more than two percent. This was less than the average annual rate of change observed for hospital inflation, which grew at a rate of 3.7 percent over this time period.

Both VCU/HS and UVA/HS have been able to slow the rate of growth in the inpatient component of the program by aggressively managing the length of time that patients spend in the hospital. Since FY 1998, the average length of stay for indigent patients has dropped by approximately five percent at both UVA/HS and VCU/HS.

UVA/HS has experienced a growth in costs in the outpatient programs of 9.3 percent that substantially exceed the rate of hospital inflation. At VCU/HS, growth in outpatient costs was a modest 1.8 percent. For UVA/HS the higher cost of outpatient care can likely be attributed to a growth in physician costs as

well as innovations developed and introduced in both AHCs that have resulted in aggressive movements of care from inpatient to outpatient settings.

Additional savings are potentially available to help defray indigent healthcare costs for the AHCs. Patient data show that as many as 13,000 children who are served in the indigent healthcare program likely qualify for the federally supported FAMIS or Medicaid programs. The costs of treating these patients were \$7 million.

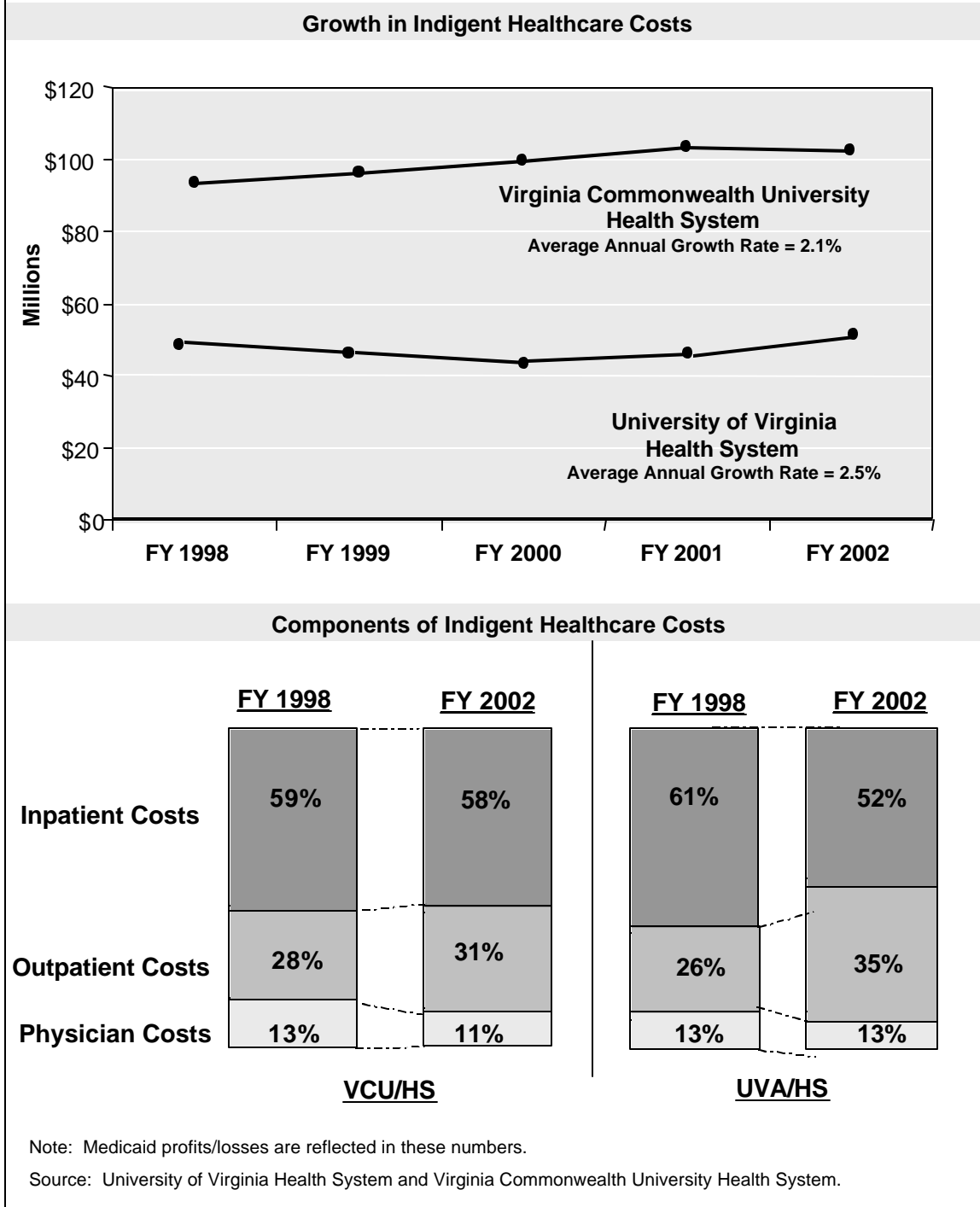
While Virginia's AHCs Have Worked to Control Indigent Healthcare Costs, Both Opportunities and Future Challenges Remain

As noted in Chapter I of this report, there are two major components of Virginia's indigent healthcare program: inpatient care for persons whose health problems are more acute; and, ambulatory care for those whose illnesses or health problems can be treated in outpatient settings. Efforts to understand cost trends in this overall indigent care program must include a separate analysis of these program components within Virginia's two AHCs.

Overall Program Cost Trends. As shown in Figure 21, both VCU/HS and UVA/HS have done reasonably well in containing growth in the costs of their respective indigent healthcare programs. In FY 1998, the cost of the entire indigent healthcare program at VCU/HS was just over \$95 million. Five years

Figure 21

Trends in Indigent Healthcare Costs at Virginia's Academic Health Centers (FY 1998 to FY 2002)



later, the costs had grown to over \$103 million, which represents an average annual increase of just 2.1 percent. The trend for UVA/HS was similar. The cost for the program in FY 1998 was approximately \$49.5 million. By FY 2002, this figure had increased by less than three percent annually to \$54.6 million.

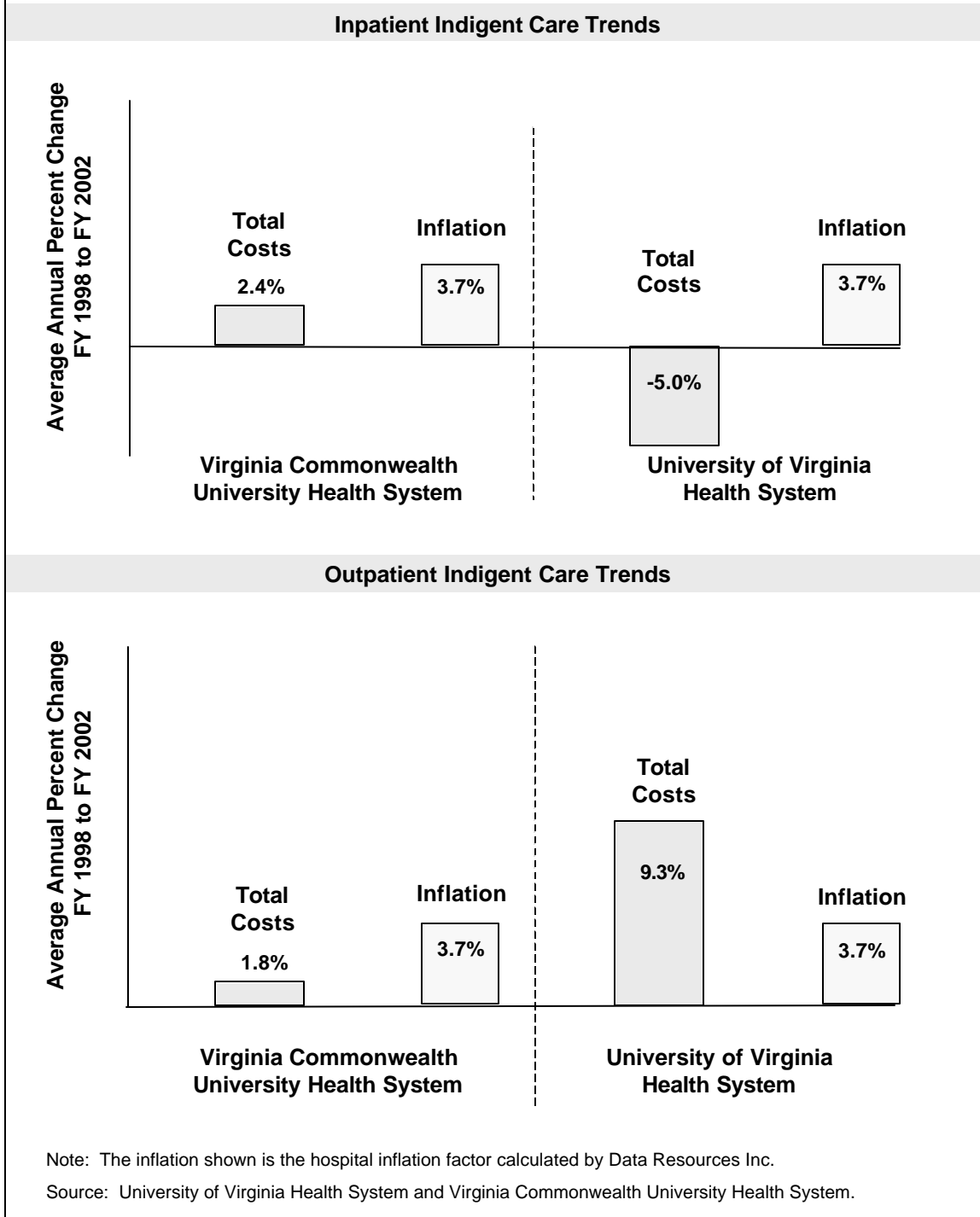
Inflation factors published by Data Resources Incorporated (DRI) are “market basket” measures of inflation in hospital inputs. Cost increases that hover around inflation are indicative of normal or expected growth, not influenced by internal program pressures. From FY 1998 to FY 2002, hospital inflation was 3.7 percent -- higher than the growth in indigent healthcare costs at both AHCs.

When the data are separated by components of indigent care -- inpatient and outpatient costs (bottom of Figure 21) -- the numbers indicate that inpatient care is responsible for most of the costs in the two programs, but as a proportion of total costs, the numbers are declining. For both systems, inpatient costs went from 63 to 52 percent of total indigent care costs. Notably, the outpatient costs as a percent of total indigent healthcare costs increased at both VCU/HS and UVA/HS. The increase was more pronounced at UVA/HS, growing from 26 percent of costs in FY 1998 to 35 percent of costs five years later.

Figure 22 examines changes in the overall costs of each of the component programs by comparing the changes to a measure of hospital inflation. As shown at the top of Figure 22, the total costs for inpatient hospital care for the indigent population was not only less than the rate of hospital inflation, but they actually declined for UVA/HS -- down five percent. VCU/HS witnessed minor growth of 2.4 percent. This growth rate was only 54 percent of

Figure 22

A Comparison of the Trends in Indigent Healthcare Costs To Hospital Inflation (FY 1998 to FY 2002)



the average annual increase observed for the rate of hospital inflation over this same time period.

The cost trends for outpatient care were more pronounced, especially for UVA/HS (bottom of Figure 22). Over the five-year period in question, these costs grew by an average of almost 9.3 percent per year at UVA/HS which was twice the rate of inflation. By comparison, the outpatient costs at UVA/HS grew by just under two percent.

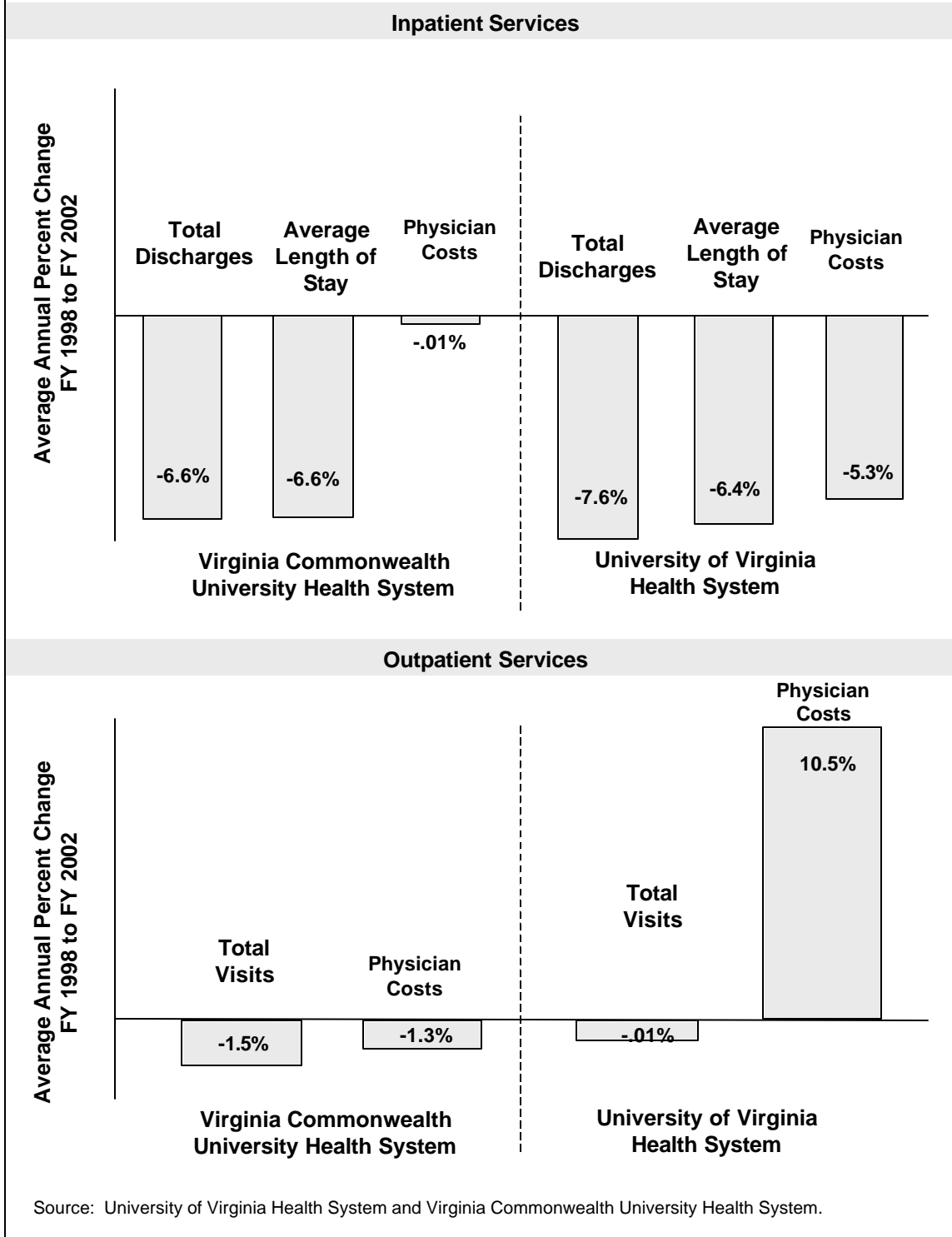
Factors Impacting Cost Trends. What factors are influencing these cost trends? What do they suggest about the management and operation of the State's indigent healthcare program? To address these questions, utilization and physician cost data were examined for both inpatient and outpatient program. The results are reported in Figure 23.

Clearly, the decline in the number of indigent patients being treated through inpatient admissions and the aggressive management of the patient hospital stays are key factors in the containment of inpatient costs. At VCU/HS both inpatient discharges and the length of time patients remained hospitalized dropped by an average rate of 6.6 percent. In the case of UVA/HS, the decline in total patient discharges was even greater (7.6 percent) and they managed to reduce hospital stays by nearly at nearly the same rate as VCU/HS.

On the outpatient side, increased visits do not explain the growth in costs for either system. This means that both health systems are likely spending more on patients who are now being cared for in the outpatient clinics of the

Figure 23

**Trends in Utilization for Indigent Healthcare Services
(FY 1998 to FY 2002)**



Source: University of Virginia Health System and Virginia Commonwealth University Health System.

AHCs. Rising physician costs may be partly responsible for the growth in outpatient costs at UVA/HS. However, staff at both VCU/HS and UVA/HS indicated that many of the patients who are now seen in the clinics have greater acuity levels and, in the past, would likely have been admitted to the more expensive inpatient setting at the hospital.

AHCs have led the industry in the development of procedures that have allowed more complex services and procedures to be moved out of the inpatient environment, especially in the area of Ambulatory Surgery. Virginia's two AHC's have been instrumental in introducing clinical innovations through the development of programs such as Centers for Minimally Invasive Surgery. Procedures that have been perfected in the AHC's have resulted in reductions in costs and enhancements in the overall quality of the care provided in other health care settings.

With the movement of services out of the inpatient arenas, the acuity level of patients cared for in ambulatory settings has increased, requiring modifications in the types of staffing support needed and a growth in the utilization of more costly medications and supplies to support patient care. So while treating these patients in the community has raised the cost of outpatient care, staff at both systems believe that additional costs are more than offset by the savings accrued from not having admitted and treated these patients in the more expensive inpatient setting.

Attempts to better understand AHC trends in unit costs for both inpatient and outpatient services are clouded by problems associated with the

manner in which the AHCs presently account for indigent patients in their financial reporting. Accordingly, a more precise analysis of the change in the unit cost of indigent care at the AHCs must be held in abeyance until these methodological problems are addressed.

***Recommendation (1).* To enhance its monitoring of the indigent care program at Virginia's AHCs, DMAS should work with staff at these facilities to develop a standard and uniform reporting process. This process should require AHCs to make annual reports on the number of indigent patients treated by the health systems, the cost of the services on both a total and per-unit basis, and the acuity level of the patients that were treated. DMAS should work with the AHCs to ensure that the methodological problems that presently hamper the reporting of unit cost are resolved in a uniform manner and that these data are reported for both inpatient and outpatient services.**

In summary, while both systems appear to have done a good job managing cost increases in their indigent healthcare programs over the past five years, management at these institutions will face challenges as they move forward. To the extent that competition from other hospitals force the AHCs to pressure physicians to perform more clinical work and generate revenue, the time available to spend teaching residents is minimized. Moreover, if both systems continue to curb costs in their inpatient program by shortening patient stays, the time available to residents to learn from patients under their care is reduced.

Finally, if either of these systems works to lower costs by moving more patients to ambulatory settings, the relevant schools of medicine will have to ensure that clinicians are available in these settings to train residents. This will be especially difficult if these clinicians are expected to take on heavy patient loads as well. So while these strategies are clearly effective vehicles for

controlling the growth of indigent healthcare costs, if they are too aggressively applied, the teaching mission of both of these systems could be seriously threatened.

Possible Cost Shift to Medicaid and FAMIS Offers Promise of Savings

When program data on patients served through the Indigent Care Program (ICP) were examined, the numbers reveal that a substantial percentage of children from low-income families are being treated through ICP. For VCU/HS, the data show that in FY 2002, nine percent of all deliveries were for children whose mothers were covered by ICP. At UVA/HS, approximately 19 percent of the deliveries fell within this category.

Incentives Needed To Encourage Medicaid/FAMIS Enrollment. It appears that once a woman has been deemed eligible for ICP by hospital staff, there is no incentive to apply for Medicaid if she becomes pregnant. The staff at both AHCs' encourage women to complete Medicaid applications, but they stop short of terminating the patients' eligibility for ICP should they refuse to apply for Medicaid. Thus patients assume no risk of losing coverage under ICP by failing to complete a Medicaid application. This is an area that presents opportunities for both UVA/HS and VCU/HS to develop policies that would make pregnant women ineligible for ICP support if they do not complete and submit a Medicaid application.

A similar scenario occurs for the pediatric population. Children can be covered under the ICP when their parents are deemed eligible. However, due to changes in employment status or financial circumstances of their parents,

children may actually become eligible for Medicaid or FAMIS. Again, there is no incentive for parents to submit applications for these programs given that their children are “covered” under ICP.

Hospital service data from FY 2002 revealed that at Virginia’s two AHCs, the cost of caring for patients who were under the age of 18 and eligible for the ICP exceeded \$7 million. In total, there were over 13,400 children who qualified for the ICP. An estimated \$4 million of the costs of caring for these children can be attributed to patients who fell within eligibility categories that qualify them for Medicaid – incomes below 133 percent of the Federal Poverty Level (FPL). Another \$1.7 million is attributed to patients whose incomes were above 133 percent of FPL but below 200 percent of this threshold, making them potentially eligible for FAMIS.

IV. The Fiscal Crisis in Indigent Healthcare

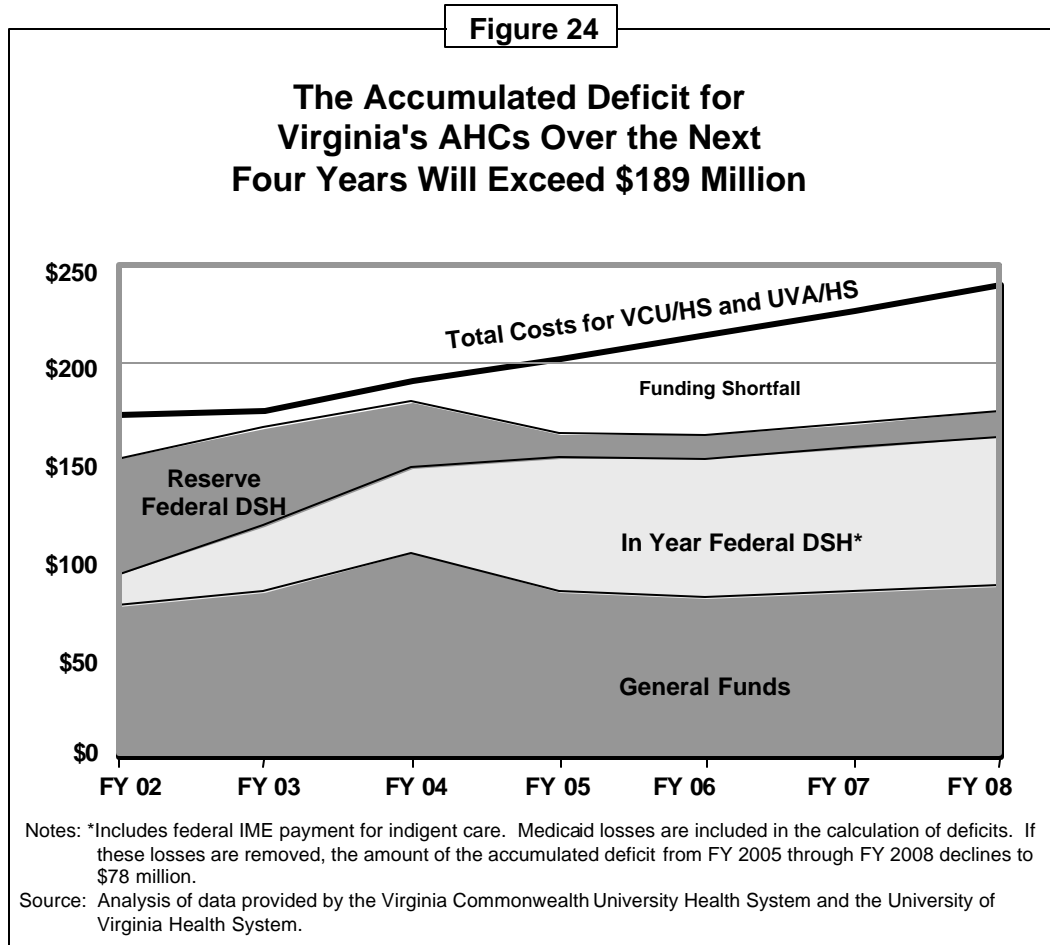
Over the past twelve years, Virginia has relied heavily on the Medicaid Disproportionate Share Hospital (DSH) program to pay for indigent healthcare at the State's two academic health centers (AHCs). Since Medicaid DSH payments are funded like all Medicaid payments, with 50 percent federal funds, paying for indigent healthcare through the DSH program has enabled the Commonwealth to provide the same amount of funding to the AHCs, but at half the cost to the State's general fund.

In early years of the program, which began in 1991, this funding strategy did not completely cover the cost of indigent healthcare at the AHCs but it saved the State approximately \$30 million annually. These savings were preserved because AHCs subsidized the non-covered portion of their indigent healthcare costs with profits earned from other revenue sources, such as private payers.

Since that time, the federal government has taken several steps to restrict the use of DSH. Concomitantly, the growth of managed care and increased competition from private hospitals has resulted in a loss of both patients and revenue at the AHCs. This has greatly limited their ability to subsidize mission-related activities, such as indigent healthcare, with other revenue sources.

Relying on unspent balances of the DSH program from previous years, Virginia has been able to maintain DSH funding for the AHCs while minimizing the strain on the general fund. However, when those unspent balances are fully

depleted in FY 2005, the current level of spending for the AHCs will not be sustainable, thereby exacerbating already existing shortfalls, and creating a substantial budget deficit over the next few years (Figure 24).



Operational changes in the AHCs will lessen the shortfall in future years but will not be sufficient to fully address this problem. Moreover, private hospitals, struggling with a loss of operating margins, declining Medicaid payment rates, and the growing problem of uncompensated care, are not likely to offer relief by increasing the amount of charity care they provide.

This chapter highlights Virginia's use of the Medicaid DSH program and presents its limitations as a key source of funding for indigent healthcare at

the AHCs. Moreover, changing trends in the financial condition of the hospital industry are briefly examined as an illustration of the difficulty that would likely be associated with any policy to expand the role of the private sector in the provision of unfunded charity care.

THE EMERGING FUNDING GAP AT VIRGINIA'S AHCS

Based on current projections, Virginia's two AHCs face a funding shortfall in the FY 2004-06 biennium that will exceed \$34 million without projected losses in the Medicaid program and \$83 million if those losses are included. Historical losses in the indigent healthcare program and rapid use of previously unspent balances from the Medicaid DSH program are the primary cause of this budget problem. Contributing to this dilemma are more restrictive federal laws that have significantly reduced the amount of dollars that Virginia can claim through the Medicaid DSH program.

For example, in 1997, federal legislation was passed that capped the amount of federal DSH funds that would be available to states starting in federal fiscal year 1998. The result of this action limited Virginia's total available DSH to \$136 million annually in 1998, with the additional provision that this amount would decrease to \$114 million over five years. Though this later action was delayed, Virginia's current DSH cap is lower than it otherwise would have been but for the changes made to federal law.

As a part of a larger effort to improve the efficiency of its operations, both of the AHCs have initiated various strategies to reduce future costs and relieve some of the pressure on this funding source. Over the next four years

(FY2005 to FY 2008), these strategies are projected to reduce the funding needs for indigent healthcare. Nonetheless, even with these savings, the projected reimbursements would leave the AHCs \$189 million short of their projected needs by FY 2008. If Medicaid losses are excluded, the four-year accumulated deficit falls to \$78.3 million.

As these changes are taking place, the shifting financial climate for the hospital industry has reduced its ability to take on larger amounts of uncompensated care. Since 1997, hospital total margins have fallen by nearly 12 percent annually. Operating margins have declined by almost nine percent annually over this same time period. Further, due to the State's reimbursement policy for Medicaid payment rates to these providers, hospital reimbursements for Medicaid now cover only 71 percent of cost. These factors militate against any proposed policy to increase the amount of uncompensated care that private hospitals are asked to provide.

Changes to Federal Rules Affecting the Medicaid DSH Program Have Created a Budget Deficit Ranging From \$34 to \$83 million for Virginia's AHCs in the Next Biennium

Currently, Medicaid payments to the AHCs for indigent healthcare are paid under the Medicaid DSH program. The Medicaid DSH program makes special additional payments to hospitals that have unusually high indigent healthcare costs. All state Medicaid programs are required to have a DSH program and Virginia has had one since 1982. Since DSH payments are funded through the same federal matching provisions as the larger Medicaid program,

Virginia has been able to fund its indigent healthcare program at half the cost to the State general fund.

In 1991, the Commonwealth sharply increased DSH payments to the AHCs, through additional payments which are referred to as “enhanced” DSH. Enhanced DSH payments are made under State regulations approved by the federal government. When enhanced DSH was first implemented in 1991, it resulted in \$30 million annual savings in State general funds. With these enhanced payments, AHCs were able to cover 75 percent of the cost of treating its indigent patients. The revenue generated from other commercial insurers covered the remaining 25 percent.

Recent Federal Limits On DSH. While the federal government has allowed, and even required, states to provide DSH payments to some hospitals, it has taken three actions to limit states’ ability to significantly expand their use of the DSH program. First, from 1991 until 1993, federal regulations limited the statewide amount of total DSH funds (state and federal) to 12 percent of total Medicaid program expenditures. This limit had no real impact on Virginia’s program because DSH spending in the Commonwealth was substantially less than 12 percent of the State’s total Medicaid budget. During this period the only factor limiting the amount of enhanced DSH paid to the two AHCs was the level of State general funds appropriated for this purpose.

Second, in 1993, federal legislation was passed that limited the amount of DSH that could be paid to an individual hospital. Under this law, no hospital could receive DSH payments greater than the amount of its losses from

Medicaid and uninsured patients. Losses are defined as the difference between the actual cost of providing services and the payments received from Medicaid and uninsured patients. This federal limit still did not impact Virginia's DSH program, because the AHCs had very large losses from uninsured patients, and the enhanced DSH program was funding only about 75 percent of indigent healthcare costs.

More limiting was the third action taken by Congress in 1997, placing state-specific caps on the amount of federal DSH funds that would be available to states starting in federal fiscal year 1998. The result of this action limited Virginia's total available DSH to \$136 million (total funds) annually in 1998, with the additional provision that this amount would decrease to \$114 million over five years. From 1998 to 2000, Virginia's allocation decreased from \$136 million to \$128 million. From 2001 through 2002 the reductions were delayed and the amount of funds allocated to Virginia was increased to \$136.0 million. The DSH allocation for 2003 is \$140.0 million and will be increased by an annual inflation factor.

Depletion of Enhanced DSH Creates Shortfalls in AHCs. Over the period of 1991 to 2003, the amount of enhanced DSH funds used to support indigent healthcare at the AHCs has increased from approximately \$57 million to \$147 million. This amount of new DSH spending is not so much a measure of greater spending on indigent healthcare, but rather increased use of the enhanced DSH program to fund that care. The State has been able to spend more on DSH in some years than is suggested by that year's federal allocation,

because there were unexpended DSH amounts from past years (1995 through 2002), against which the State could still spend in a current year. While this obviously reduced the losses that AHCs were experiencing in the program, the cost of indigent healthcare was not fully reimbursed.

Because annual DSH spending exceeds the federal allocation and past year amounts are almost gone, staff at the Department of Medical Assistance Services report that the State's enhanced DSH balances are virtually depleted. This means that without a new source of funding, both of the AHCs are currently operating indigent healthcare programs at levels that are not sustainable beyond FY 2004.

Impact on VCU/HS. To determine the impact of the funding shortfall at VCU/HS, the organizational changes being made at the health system in response to a consultant's report had to be accounted for. This report was developed by the Hunter Group, which is a nationally recognized healthcare consulting firm specializing in helping healthcare organizations improve strategic planning, operations restructuring, and financial performance.

The Hunter Group began its work at VCU/HS three years ago by conducting a comprehensive assessment of the entire operation. As a part of this assessment, the Hunter Group analyzed VCU/HS' management structure, all aspects of patient care, clinical resource management, administration, and the system's revenue structure. Based on this assessment, the Hunter Group produced a more than 1,000 page report with over 450 recommendations to overhaul the operation of the health system. The implementation of the plan is

slotted to cover a three-year period. The goal of the Management at VCU/HS is to target implementation of 100 percent of the recommendations. It should be noted that the Hunter Group has reported that approximately 75 percent of their recommendations are implemented in institutions that they have categorized as their “better” sites.

Some of the areas which management at VCU/HS have been and will continue to focus on for the purpose of generating savings based on the Hunter Group report include the following:

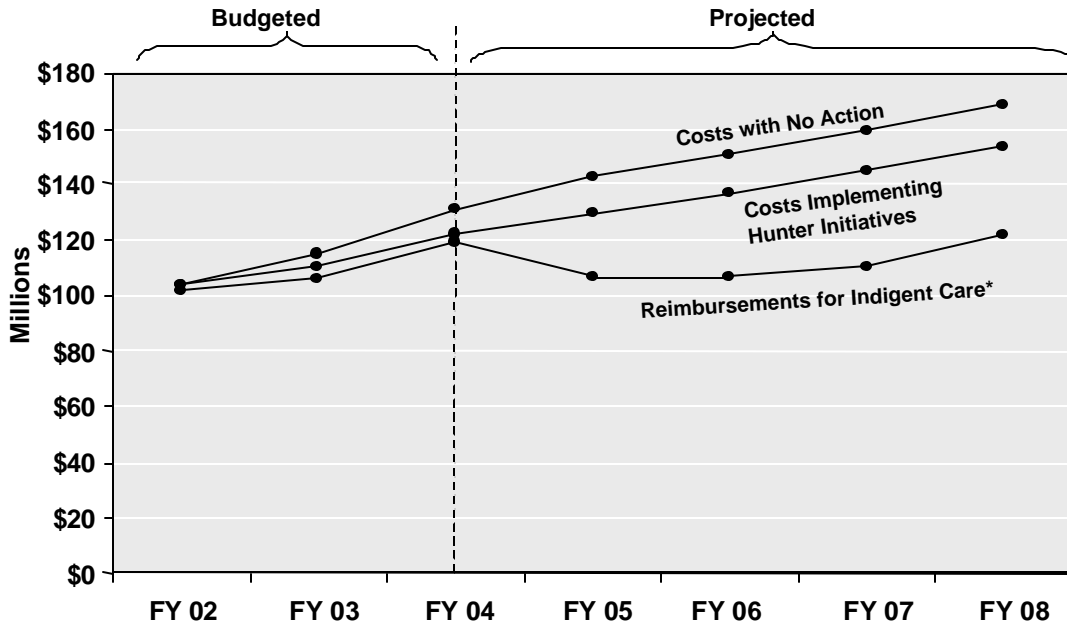
- Personnel productivity. VCU/HS plans to meet or exceed benchmarks for its hospital and practice plan
- Clinic Consolidation. VCH/HS plans to merge outpatient and hospital clinics for maximum efficiency and patient satisfaction
- Clinical Resource Management. VCU/HS plans to have physicians and hospital leadership collaborate to ensure appropriate and efficient use of resources for all disease and procedure groups.
- Overhead alignment. VCU/HS plans to bring overhead inline with Hunter supplied benchmarks
- Revenue enhancement. VCU/HS plans to renegotiate managed care contracts and enhance the total revenue cycle.

Figure 25 illustrates the impact of the declining reimbursements for indigent healthcare in future years for VCU/HS. In the top half of the figure, three trend lines are reported. The top line represents a projection of what the indigent healthcare costs would be out to FY 2008 if management at the VCU/HS chose not to implement any of the recommendations from the Hunter Group report.

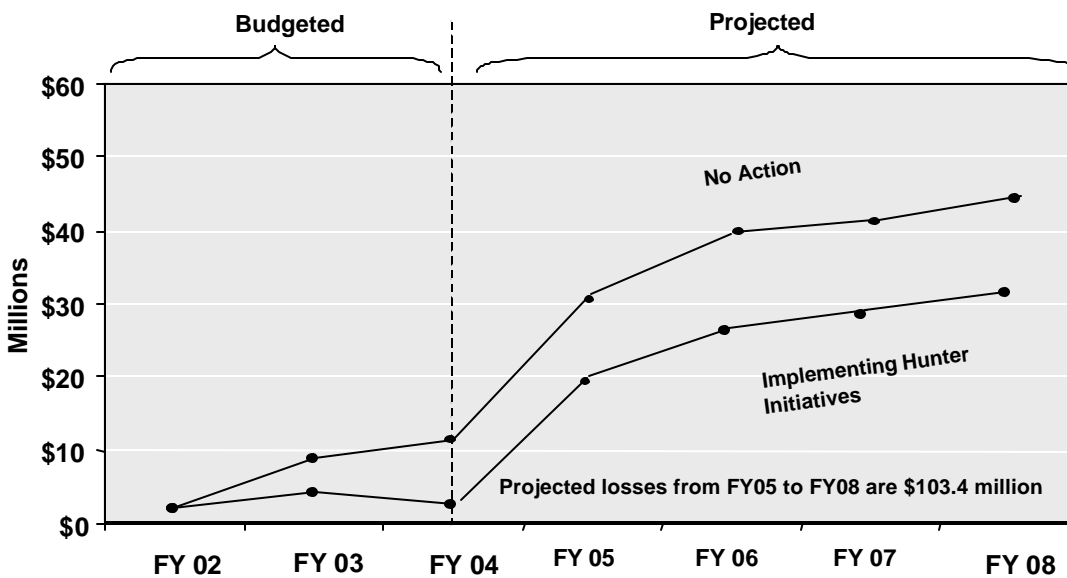
Figure 25

Effects of Implementing the Hunter Initiatives for the Virginia Commonwealth University Health System

Indigent Care Cost and Reimbursement Estimates



Difference Between Indigent Care Costs and Reimbursements



Notes: ** Reimbursements for indigent care include regular and enhanced Disproportionate Share Hospital (DSH) payments, indirect medical education (IME) payments related to indigent care, and the indigent care payments included in the 2002-2004 Appropriation Act. Medicaid losses are included. If Medicaid losses are excluded the figure drops to \$46 million.

Source: Analysis of data provided by the Virginia Commonwealth University Health System.

The middle line in the top half of Figure 25 projects VCU/HS future costs based on the Hunter Group recommendations that the organization has or is planning to implement. Based on this scenario, by FY 2008, VCU/HS is projected to be saving nearly \$15 million per year in its indigent healthcare program. This figure is taken out of the base through the reductions achieved between FY03 and FY05 and carries over each year through FY08.

The bottom line is a projection of reimbursements for indigent healthcare with the out years reflecting the loss of enhanced DSH appropriations. The projections include regular and enhanced DSH payments, indirect medical education payments, and the payments included in the 2002-2004 Appropriation Act. As indicated, reimbursements for indigent healthcare drop sharply after FY 2003 and remain considerable below the projected costs for the program out to FY 2008.

The bottom half of the figure reports the accumulated differences between projected costs for indigent healthcare under the different scenarios. If VCU/HS had taken no management actions, the difference between projected costs and what they are scheduled to receive in accumulated reimbursements from FY 05 to FY 08 total \$161 million. Thus, implementing some of the Hunter Group recommendations is projected to reduce the indigent healthcare funding needs of the system by nearly \$60 million, down to an accumulated shortfall of \$103 million. If the Medicaid losses are excluded, VCU/HS losses total \$46.3 million over this four-year period.

Table 2, highlights some of the changes that management at VCU/HS would need to consider for its indigent healthcare program to achieve reductions ranging from \$2 million to \$15 million per year. They include reductions in primary care services provided at the health system, a restructuring of the indigent healthcare program, and the rationing or elimination of certain types of healthcare.

Table 2 VCU Health Systems Indigent Care Expense Reduction Options		
Amount of Funding Reduction	Strategies	Projected Savings
\$5 million	<ul style="list-style-type: none"> Reduce Primary Care Capacity at VCU/HS Expand the Virginia Coordinated Care program to provide primary care in community sites Transition specialty services to less costly provider sites and partner with community hospitals and specialty providers to provide acute care services in lower cost settings 	\$2.5 million \$2.5 million
\$10 million	<ul style="list-style-type: none"> Restructure Indigent Healthcare Program by prioritizing services to correspond to the funding availability “Non-covered” services will be offered to patients at cost. Implement cash collection policy in the ED for non-urgent services Modify the medications provided to indigent patients to correspond with the list of covered services 	\$10 million
\$15 million	<ul style="list-style-type: none"> Reduce or eliminate various acute care services provided under the Indigent Care program Eliminate Outpatient Behavioral Health Services Reduce number of medical diagnoses covered (for example, podiatry, allergy, dermatological services sub-specialty care, treatment for upper respiratory infections) Eliminate various elective surgical procedures (for example tonsillectomy, repair of torn ligaments, cataract procedures) Reduce or eliminate tertiary care/mission critical services Reduce treatment for certain cancers for which there s limited chance for patient’s survival Reduce number of transplants for each organ system Reduce number of Neurosurgery procedures Reduce number of joint replacement surgeries 	\$15 million

Impact on UVA/HS. Figure 26 reports the results of the same analysis conducted for UVA/HS. Over the past few years, UVA/HS has initiated a number of strategies to reduce cost or introduce greater efficiencies in the system. Most notably, UVA/HS formed a partnership with General Electric (GE) to transfer innovative management technologies from the widely recognized Six Sigma program to the UVA Medical Center. A total of six projects were established through the Six Sigma program. Some of the operational improvements as a result of the pilot projects were increased efficiency in appointment availability by physicians, a more expedited discharge process, and reductions in the length of time patients spent waiting in the emergency room.

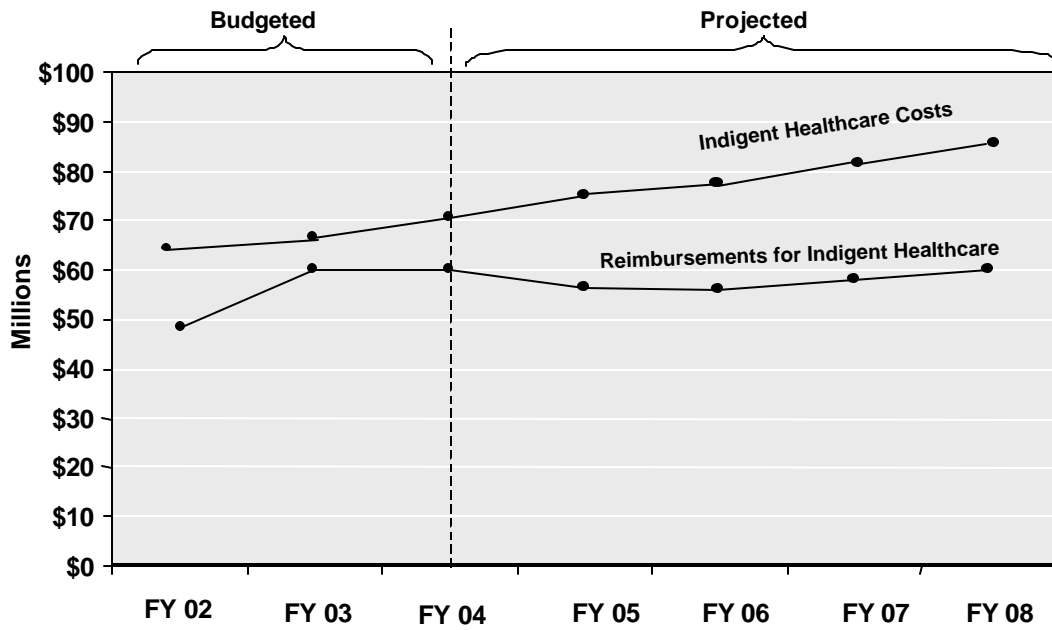
Through these and other actions, by FY 2008, UVA/HS' projected unmet funding need for indigent healthcare will be \$85.9 million. If Medicaid losses are disregarded, the unmet funding need drops to \$32 million. Because the cost savings strategies were put in place prior in FY 2002, projections of what the health systems cost would have been out to FY 2008 were these changes not made could not be reliably calculated.

In summary, even with projected savings from organizational efficiencies, together, the two health systems would face a shortfall over the next four years of nearly \$189 million. Should the Medicaid losses included in these projections be disregarded, the unmet funding need for Virginia's AHCs would be 41 percent of this amount, totaling \$78.3 million. While both of the State's AHCs can and have taken some actions that will reduce the fiscal pressure of the respective indigent healthcare programs moving forward, alone, these changes

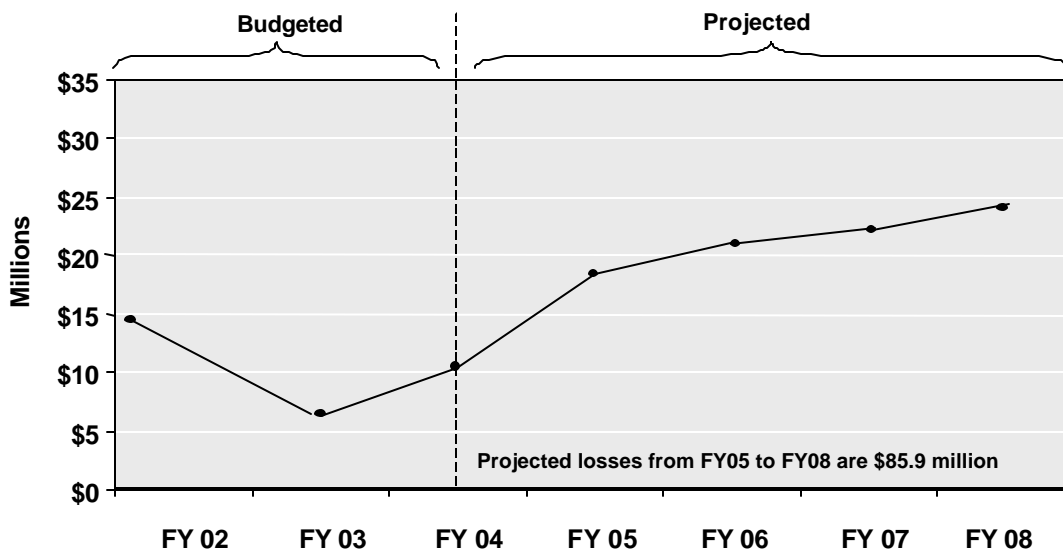
Figure 26

Effects of Implementing Cost Savings Initiatives for the University of Virginia Health System

Indigent Care Cost and Reimbursement Estimates



Difference Between Indigent Care Costs and Reimbursements



Notes: ** Reimbursements for indigent care include regular and enhanced Disproportionate Share Hospital (DSH) payments, indirect medical education (IME) payments related to indigent care, and the indigent care payments included in the 2002-2004 Appropriation Act. Medicaid losses are included. If Medicaid losses are excluded the figure drops to \$32.0 million.

Source: Analysis of data provided by the University of Virginia Health System.

will not be sufficient to close the emerging funding gap in Virginia's indigent healthcare program.

The Deteriorating Fiscal Climate for Private Hospitals Will Prevent this Industry from Significantly Increasing the Amount of Uncompensated Care it Currently Provides

As the funding available to pay for indigent healthcare diminishes, policymakers will likely look to the private sector to provide increased amounts of charity care to the uninsured. Similar to AHCs, private hospitals have historically funded their charity care efforts out of the profits from the health plans of the insured. Whether hospitals are willing to take on this increased burden in the future will probably be directly related to the financial strength of the industry.

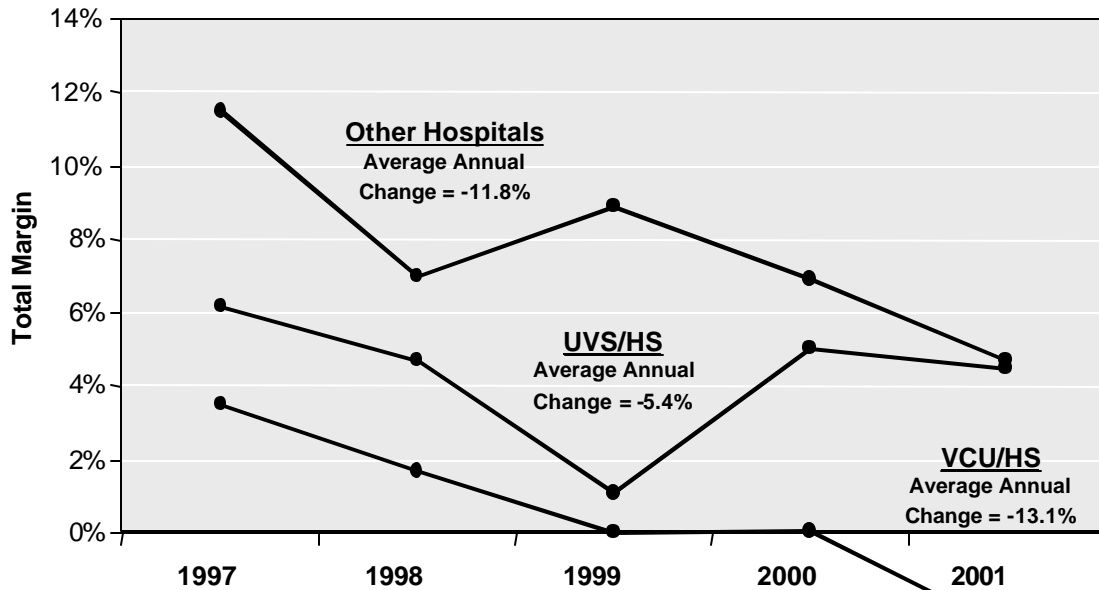
Trend In Hospital Margins. Two measures of the financial position and strength of the industry are hospital total margins and operating margins. Total margin is the most often used measure of hospital financial performance because it measures the degree to which all hospital revenue exceeds all expenses. At the end of an operating year, hospital chief financial officers prefer total margins of at least four percent to support capital reinvestment.

Operating margin more narrowly measures financial performance as it represents the degree to which operating revenue -- that is revenue generated only by hospital operations -- covers hospital operating expenses. Income from non-patient care activities such as the sale of assets, investment income, cafeteria sales, etc, is not included in the calculation of the operating margin.

Figure 27 separately reports the trend in total margins for the two AHCs and all other private hospitals. As shown, there has been a precipitous

Figure 27

Trends in Total Margins for Virginia Hospitals FY 1997 to FY 2001



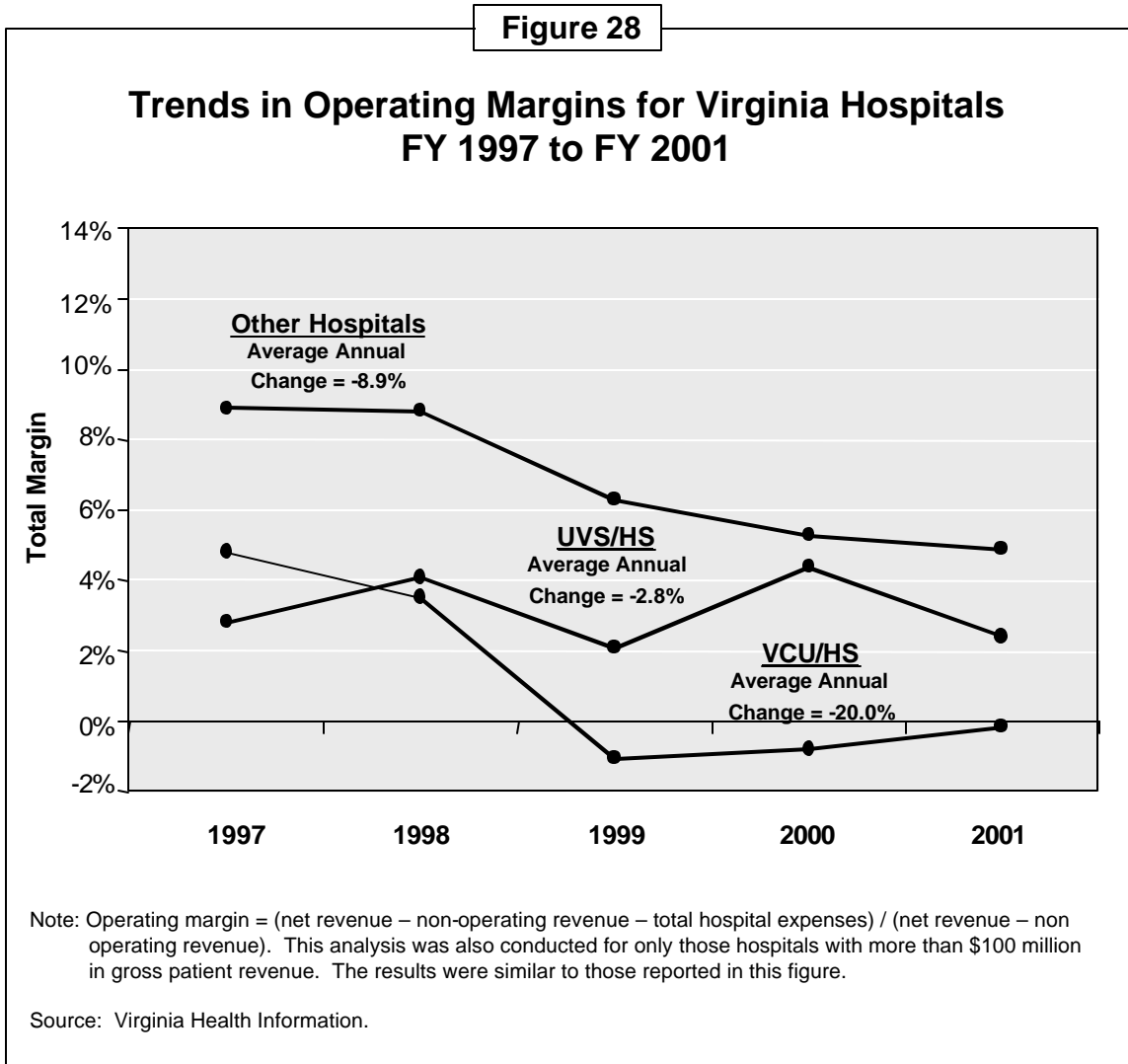
Note: Total margin = (net revenue – total hospital expenses) / net revenue. This analysis was also conducted for only those hospitals with more than \$100 million in gross patient revenue. The results were similar to those reported in this figure.

Source: Virginia Health Information.

drop in the total margin for private hospitals in the five-year period from 1997 to 2001. From a level of just over 11 percent, the average margin fell by 60 percent five years later to 4.7 percent. This represents an average annual decline of almost 12 percent a year. It is important to note that these trends include services and reimbursements from all payers.

As a point of comparison, UVA/HS finished FY 2001 with an total operating margin comparable to the average for private hospitals. VCU/HS, on the other hand, reported a negative total margin, having experienced a decline by an average of more than 13 percent annually since 1997.

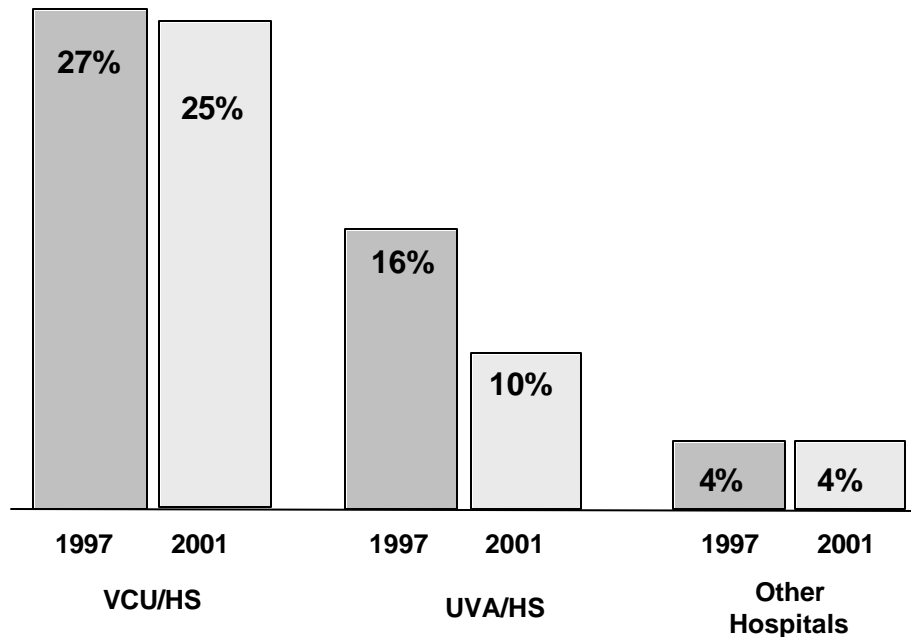
The direction of the trend for hospital operating margins was similar, although the decline was not as steep (Figure 28). This margin fell by 44 percent from a 1997 level of 8.9 percent to 4.9 percent in 2002. This represented an average annual decline of nearly nine percent. Comparatively, both of the AHC's reported operating margins that were considerably less than their counterparts.



With such steep margin losses, it is not likely that private hospitals are in a position to assume large portions of the indigent healthcare burden. As Figure 29 indicates, the industry may have reached the limit of indigent

Figure 29

Trends in Indigent Care Costs as a Proportion of Total Operating Expenses



Notes: Medicaid losses are not reflected in the figures reported here.

Source: Virginia Health Information.

charity care that it can comfortably provide in this financial environment. While there has been no erosion in the amount of indigent healthcare that hospitals have provided over the last five years, the figure remains at four percent of hospital operating expenses and has not changed since 1997.

What is especially troubling to the industry is the widening gap between the cost of providing care to the uninsured -- both indigents and non-indigents -- and the amount of the reimbursement the industry receives from the government to defray these costs. For example, in 2000, the hospital industry provided care to the uninsured at a cost of more than \$473 million. Two years later this figure had increased by more than seven percent to \$509 million. Over

this same time period, the amount of reimbursement that the industry received from Medicaid and the Indigent Healthcare Trust Fund -- which accounts for about 28 percent of the industry's uncompensated care costs -- actually declined by almost one percent.

A contributing factor to this problem is the State's reimbursement policy for the Medicaid inpatient care program. Since a policy agreed upon by DMAS and an industry Task Force in 1996, hospital payments for Medicaid recipients are adjusted each time the new rates are calculated through a formula known simply as the "adjustment factor." This adjustment factor` essentially reduces payments to hospitals based on the ratio of operating costs reimbursements to total operating costs from a previous year. The effect of this, as illustrated in Figure 30, has been that the industry has witnessed their Medicaid payment rates to private hospitals get discounted by an average of 38, 28, and 21 percent since 1997.

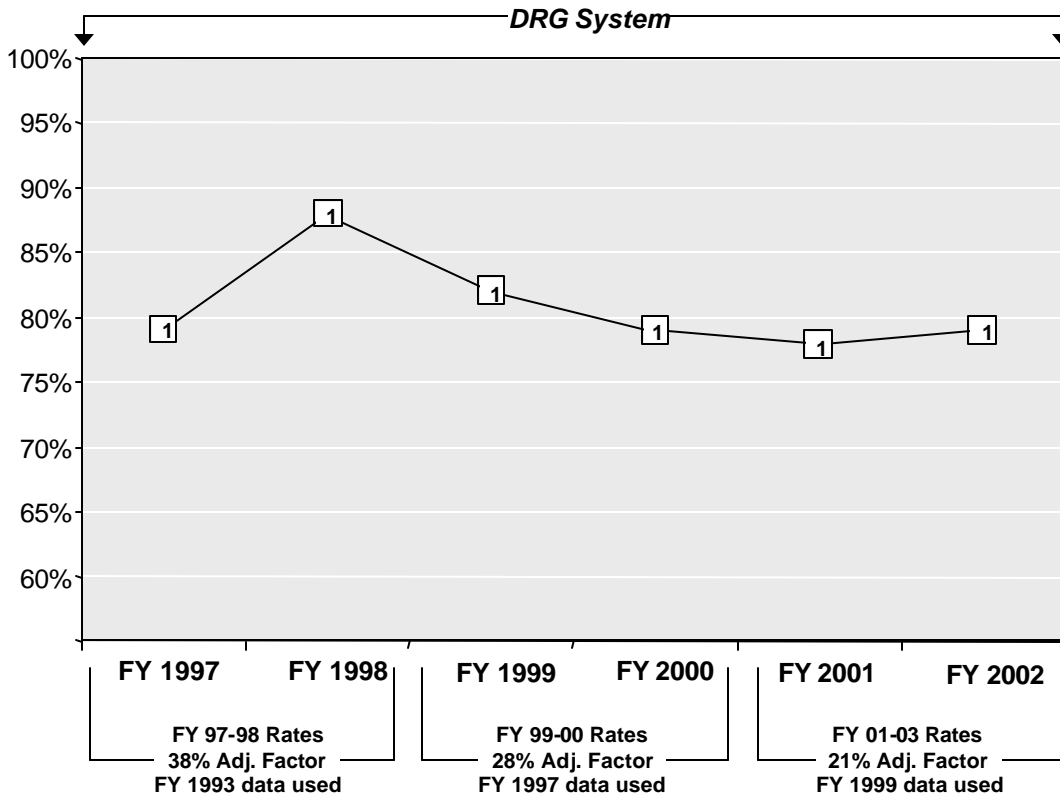
In conclusion, any effort to engage the hospital industry in a solution to funding problems for indigent healthcare at the AHCs must recognize two important facts. First, on average, excess margins, traditionally used by the industry to pay for uncompensated care in previous years no longer exist. Second, the industry is seriously concerned about the widening gap between the cost of the care they provide to the indigent population and the amount of the reimbursement they receive from government programs funded for this purpose.

In light of the worsening fiscal climate for the industry, the high cost healthcare needs of many indigent patients and the suppressed payment rates

Figure 30

Coverage Rates (Medicaid Payments Divided by Hospital Costs) for Fiscal Years 1997 to 2002 for Private Hospitals

$$\boxed{1} \frac{\text{Operating Payment} + \text{DSH}}{\text{Allowable Cost}} \longrightarrow \text{Coverage Rate Reported by DMAS}$$



Notes: DSH refers to disproportionate share hospital payments. Only Type II Hospitals are included in the coverage rates (the Medical College of Virginia and University of Virginia Medical Center are excluded). Fiscal year 1996 is not included in this analysis because the data for that year are incomplete. Included in the coverage rates are payments and costs for acute care, neo-natal intensive care unit (NICU), rehabilitation and psychiatric.

Source: Analysis of data provided by the Department of Medical Assistance Services and the Joint Legislative Audit and Review Commission report entitled *Review of the Medicaid Inpatient Hospital Reimbursement System, 2000*.

the industry receives for Medicaid patients, hospitals are not likely to take on a larger share of the indigent healthcare burden. This means that policy makers will either have to develop a plan to replace the loss of DSH revenue, or narrow the scope of the indigent healthcare program in terms of some combination of

eligibility and services. As the shortfalls are projected to occur beginning in FY 2005, the Governor and the General Assembly will need to address this issue in the next budget development process which begins in the fall of 2003.