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# *Virginia*

## *Cardiovascular Disease*

### *Benchmark Report*

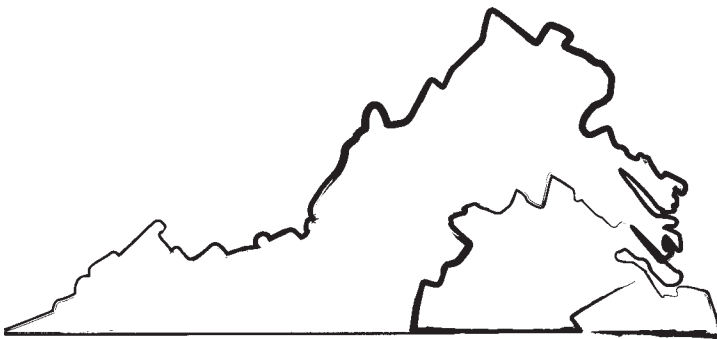
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*Prepared for:*

Virginia Department of Health's  
Division of Chronic Disease Prevention and Control

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*Prepared by:*



Central Virginia Health  
Planning Agency, Inc.

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1808 Coyote Drive, Suite 100  
Chester, Virginia 23836  
(804) 425-8867 • [www.cvhpa.org](http://www.cvhpa.org)

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**ATTACHMENTS:**

Attachment A – State, HPR, & Locality Maps

Attachment B – 2005 Inpatient Worksheets

Attachment C – Age Adjusted Death Rate Maps

Attachment D – CVD Report Card

Attachment E – CVD Use Rates & Selected Demographic Group Maps

Attachment F – 2005 Facility Worksheets

## **VIRGINIA CARDIOVASCULAR DISEASE BENCHMARK REPORT**

### **OVERVIEW**

In 2005, the Central Virginia Health Planning Agency (CVHPA) completed a comprehensive analysis of statewide cardiovascular disease (CVD) data for the Virginia Department of Health's Division of Chronic Disease Prevention and Control (DCDPC) as a member of the statewide Healthy Pathways Coalition. That analysis included inpatient data from 2001 to 2003 as well as cardiac catheterization and other data.

The Healthy Pathways Medical Committee recognized a need to assemble the data and update it, along with other benchmark CVD data, in a user friendly statewide demographically and geographically specific report card to assist in targeting CVD reduction efforts. This updated report includes an analysis of the 2005 statewide inpatient CVD data as well as an analysis of the trends from 2001 to 2005 and other interventions to assist in targeting efforts.

The CVD statewide report card contains four worksheets. The data in each worksheet is broken out by planning district (PD) within each health planning region (HPR) in Virginia. A planning district consists of several contiguous localities. Virginia has twenty-one planning districts. A health planning region generally consists of multiple planning districts. Health planning regions in Virginia are intended to represent a relatively self contained referral region for health care services. Virginia has five designated health planning regions.

The first worksheet contains the following data by locality: 1) age adjusted heart disease death rate and age adjusted cerebrovascular death rate by gender; 2) total CVD inpatient use rate and CVD use rate by race; 3) use rate and percentage of female CVD discharges; 4) use rate and percentage of CVD discharges of people 35-64 years old; 5) percentage of the population enrolled in Medicaid; 6) percentage of the Medicare aged and Medicare disabled; and 7) percentage of the elderly population with diabetes and percentage of elderly diabetics receiving lipid profiles.

The second worksheet contains the trend data for 2001 to 2005 by PD and HPR and for Virginia for the following data: 1) age adjusted heart disease death rate and age adjusted cerebrovascular death rate by gender; 2) CVD inpatient use rate by race (white and black population); 3) percentage of female CVD discharges; 4) percentage of CVD discharges of people 35-64 years old; 5) 2005 gross and net patient revenue for CVD discharges and average length of stay; and 6) 2005 cardiac catheterization utilization rate and trends.

The third worksheet contains the trends for four CVD disease groupings (acute myocardial infarction, congestive heart failure, coronary ischemic heart disease, and stroke) by PD for each HPR, analyzed by the following use rates: 1) total; 2) white population; 3) black population; 4) females; 5) males; and 6) people 35-64 years old.

The fourth worksheet contains the 2005 use rates by several categories (total; white population; black population; females; males; 35-64 age group; and 65+ age group) for CVD overall and for five disease groupings (acute myocardial infarction, congestive heart failure, coronary ischemic heart disease, stroke, and transient ischemic attack).

### **Data Sources**

The following data sources were used for this report. The year of the data is noted in parentheses.

- The source of the inpatient data is Virginia Health Information (VHI) – 2001 to 2003 and 2005.
- The source of the age adjusted death data is the Virginia Department of Health’s Division of Health Statistics (2005).
- The source of the population data is from CLARITAS, a national demographic data organization (2006 estimates and 2011 projections).
- The source of the Medicare data is the Centers for Medicare and Medicaid Services (2005).
- The source of the Medicaid data is the Department of Medicaid Assistance Services (DMAS) (2003 and 2004). Because of changes in DMAS’s policies relative to the Health Insurance Portability and Accountability Act (HIPAA) regulations, it is difficult to obtain Medicaid enrollment data for localities with fewer than 20,000 people. Thus, for these localities, the 2003 data was used since data was available that year for the smaller localities. Data for 2004 is provided for larger localities. The CVHPA Staff had concerns about enrollment data obtained for later periods.
- The diabetic and lipid profile data (2004) was obtained from the Virginia Healthcare Quality Council; this data was provided to the Healthy Pathways Medical Committee in 2005. Centers for Medicare and Medicaid Services currently requires data recipients to send special requests through its office, making it difficult to obtain more recent data.

### **Geographic Grouping of Data**

The 2005 data is grouped by the five HPRs in Virginia. Each HPR contains several PDs. In turn, each PD has several localities included in it. The data is totaled for each PD, each HPR, and the entire state for comparison purposes.

After reviewing some of the initial data, a decision was made to combine certain cities’ data into the neighboring counties. Because the populations of some of the cities are relatively small compared to the surrounding county coupled with these cities’ relatively large number of discharges compared to their population, calculating these cities’ use rates resulted in a large figure, causing a somewhat misleading ranking. The table below delineates the cities whose data were combine with a specific county.

HPR	PD	City	County Containing City Data
HPR II	PD 8	Fairfax City	Fairfax County
HPR II	PD 8	Falls Church City	Fairfax County
HPR II	PD 8	Manassas City	Prince William County
HPR II	PD 8	Manassas Park City	Prince William County
HPR III	PD 1	Norton City	Wise County
HPR III	PD 5	Covington City	Alleghany County

The following is a list of the HPRs and the PDs included in them. A map is located in **Attachment A**.

HPR I	HPR II	HPR III	HPR IV	HPR V
<b>PD 6: CENTRAL SHENANDOAH</b> AUGUSTA BATH BUENA VISTA CITY HARRISONBURG CITY HIGHLAND LEXINGTON CITY ROCKBRIDGE ROCKINGHAM STAUNTON CITY WAYNESBORO CITY	<b>PD 8: NORTHERN VIRGINIA</b> ALEXANDRIA CITY ARLINGTON FAIRFAX FAIRFAX CITY FALLS CHURCH CITY LOUDOUN MANASSAS CITY MANASSAS PARK CITY PRINCE WILLIAM	<b>PD 1: LENOWISCO</b> LEE NORTON CITY SCOTT WISE <b>PD 2: CUMBERLAND PLATEAU</b> BUCHANAN DICKENSON RUSSELL TAZEWELL <b>PD 3: MOUNT ROGERS</b> BLAND BRISTOL CITY CARROLL GALAX CITY GRAYSON SMYTH WASHINGTON WYTHE <b>PD 4: NEW RIVER VALLEY</b> FLOYD GILES MONTGOMERY PULASKI RADFORD CITY <b>PD 5: FIFTH</b> ALLEGHANY BOTETOURT CLIFTON FORGE CITY COVINGTON CITY CRAIG ROANOKE ROANOKE CITY SALEM CITY <b>PD 11: CENTRAL VIRGINIA</b> AMHERST APPOMATTOX BEDFORD BEDFORD CITY CAMPBELL LYNCHBURG CITY <b>PD 12: WEST PIEDMONT</b> DANVILLE CITY FRANKLIN HENRY MARTINSVILLE CITY PATRICK PITTSYLVANIA	<b>PD 13: SOUTHSIDE</b> BRUNSWICK HALIFAX MECKLENBURG <b>PD 14: PIEDMONT</b> AMELIA BUCKINGHAM CHARLOTTE CUMBERLAND LUNENBURG NOTTOWAY PRINCE EDWARD <b>PD 15: RICHMOND REGIONAL</b> CHARLES CITY CHESTERFIELD GOOCHLAND HANOVER HENRICO NEW KENT POWHATAN RICHMOND CITY <b>PD 19: CRATER</b> COLONIAL HEIGHTS CITY DINWIDDIE GREENSVILLE HOPEWELL CITY PETERSBURG CITY PRINCE GEORGE SURRY SUSSEX	<b>PD 17: NORTHERN NECK</b> LANCASTER NORTHUMBERLAND RICHMOND WESTMORELAND <b>PD 18: MIDDLE PENINSULA</b> ESSEX GLOUCESTER KING AND QUEEN KING WILLIAM MATHEWS MIDDLESEX <b>PD 22: ACCOMACK-NORTHAMPTON</b> ACCOMACK NORTHAMPTON <b>PD 23: HAMPTON ROADS</b> CHESAPEAKE CITY FRANKLIN CITY HAMPTON CITY ISLE OF WIGHT JAMES CITY NEWPORT NEWS CITY NORFOLK CITY POQUOSON PORTSMOUTH CITY SOUTHAMPTON SUFFOLK CITY VA BEACH CITY WILLIAMSBURG CITY YORK
<b>PD 7: LORD FAIRFAX</b> CLARKE FREDERICK PAGE SHENANDOAH WARREN WINCHESTER CITY				
<b>PD 9: RAPPAHANNOCK-RAPIDAN</b> CULPEPER FAUQUIER MADISON ORANGE RAPPAHANNOCK				
<b>PD 10: THOMAS JEFFERSON</b> ALBEMARLE CHARLOTTESVILLE CITY FLUVANNA GREENE LOUISA NELSON				
<b>PD 16: RADCO</b> CAROLINE FREDERICKSBURG CITY KING GEORGE SPOTSYLVANIA STAFFORD				

### Disease Groupings of ICD-9 Codes

For the 2001 to 2003 analysis, the ICD-9 cardiology codes were grouped into six diagnoses categories. The groupings, provided by the Virginia Department of Health’s DCDPC, are shown below. Three items to note in reviewing the disease groupings include the following: 1) the cardiovascular disease grouping is the comprehensive grouping for the project; 2) ICD-9 code 435 is not included in any of the disease groupings; this exclusion was confirmed by the

DCDPC; and 3) the disease groupings are not mutually exclusive; that is, some ICD-9 codes appear in two or three categories so these patients are double counted.

**2001-2003 Disease Grouping**

Disease Grouping	ICD-9 Codes
Cardiovascular disease (CVD)	390-434, 436-459
Acute myocardial infarction (AMI)	410
Congestive heart failure (CHF)	428
Coronary/ischemic heart disease (CHID)	402, 410-414, 429.2
Diseases of the heart (Dis of Heart)	390-398, 402, 404, 410-429
Stroke	430-434, 436-438

For the 2005 data, the Virginia Department of Health’s DCDPC revised the disease groupings. As with the 2001 to 2003 data, the cardiovascular disease grouping is the comprehensive grouping for the project and the disease groupings are not mutually exclusive; that is, some ICD-9 codes appear in two or three categories so these patients are double counted. The main differences between the 2001-2003 and the 2005 data groupings are as follows: 1) code 435 is now included in both the cardiovascular disease grouping and the stroke grouping and is also a separate disease grouping– please note that the transient ischemic attack disease grouping data was provided only for 2005; and 2) codes 405 to 409 were added to the diseases of the heart grouping.

**2005 Disease Grouping**

Disease Grouping	ICD-9 Codes
Cardiovascular disease (CVD)	390-459
Acute myocardial infarction (AMI)	410
Congestive heart failure (CHF)	428
Coronary/ischemic heart disease (CIHD)	402, 410-414, 429.2
Diseases of the heart	390-398, 402, 404-429
Stroke	430-438
Transient ischemic attack (TIA)	435

**Data Analysis**

The 2005 inpatient data is grouped by CVD overall and the six disease categories (listed in the table above) and analyzed by gender, age, race, payer, charges, and inpatient average length of stay (ALOS). **Attachment B** contains the 2005 data for each disease grouping.

**Age**

The following eight age categories were used in analyzing the 2005 data by age: 0-19; 20-34; 35-44; 45-54; 55-64; 65-74; 75-84; and 85 and older. On the scorecard, the use rate is calculated for the 35-64 year old age group. Evidence of CVD in this age group could be viewed as an indicator of premature CVD disease, which could be caused by several factors, such as lack

of/limited access to primary health care, no access to prevention screenings, or lack of/limited health insurance. Of note, the 65+ use rate is provided on the fourth worksheet of the scorecard.

### ***Race***

The 2005 race data is grouped into three categories: white; black; and other races. Use rates were calculated for all three racial groups. Note that the VHI database categorizes “Hispanic” as a race and does not have a separate ethnicity indicator. Therefore, “other” includes those identified as “Hispanic.” On the scorecard, only the white and black use rates are shown because the other races’ use rate was not calculated in the 2001 to 2003 data.

### ***Payer***

The 2005 payer data is grouped into seven categories: Medicare; Medicaid; Trigon; commercial; HMO/PPO; other; and self pay/indigent. Please note that the VHI’s patient level payer data, with the exception of Medicare, can be unreliable because of the absence of plan identifiers; thus, this data needs to be used with caution.

### ***Charges***

The charges provided for the 2005 inpatient data represent the total facility charges for each patient from the specific locality. The payment as a percentage of total charges and the average payment per patient were calculated. On the scorecard, the average net patient revenue per discharge was derived by using the HPR’s overall facilities’ net patient revenue to gross patient revenue ratio.

### **Data Limitations**

Please note the following data limitations of this report:

- The report’s purpose is to present point-in-time data about particular population groupings and general trends in that data. The report does not measure statistical significance or determine causality.
- Population data are estimates from an established demographic source with a national reputation. The only source for actual data is the decennial census, which was last conducted in 2000.
- Charge ratios were calculated for each region’s overall acute care hospitals and then applied to the CVD actual charges for that region to estimate the net cost to the consumer of health care services. The actual net to gross charge patient ratio for a particular hospital service cannot be determined from the available data.

**MORTALITY DATA**

**Age Adjusted Heart Disease and Cerebrovascular Death Rates**

*Gender*

The number of deaths can be used as one indicator of a potential problem in a locality. The table below provides the actual number of heart disease and cerebrovascular deaths by region and by gender.

**Heart Disease and Cerebrovascular Disease Deaths by Region and Gender (2005)**

Health Planning Region	Heart Disease			Cerebrovascular Disease		
	Male	Female	Total	Male	Female	Total
HPR I (Northwest)	1,093	1,023	2,116	202	360	562
HPR II (Northern)	969	947	1,916	180	315	495
HPR III (Southwest)	1,980	1,975	3,955	339	575	914
HPR IV (Central)	1,335	1,435	2,770	314	458	772
HPR V (Eastern)	1,694	1,681	3,375	349	574	923
<b>Virginia</b>	<b>7,071</b>	<b>7,061</b>	<b>14,132</b>	<b>1,384</b>	<b>2,282</b>	<b>3,666</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

- Heart disease deaths are almost four times cerebrovascular disease deaths.
- HPR III (Southwest Virginia) has the greatest number of total heart disease deaths.
- HPR V (Eastern Virginia) has the greatest number of total cerebrovascular disease deaths, followed closely by HPR III.

**Number of deaths is provided for general information, but should not be used to make assessments of disease burden in a region or across population groups.** The following table shows the age adjusted death rate by gender for heart disease and cerebrovascular disease for each HPR and for Virginia, with the highest death rates by demographic group for each HPR shaded. *Please note that all death rates are per 100,000 population.*

Age Adjusted Death Rates by Region and Gender (2005)

Health Planning Region	Age Adjusted Heart Disease		Age Adjusted Cerebrovascular	
	Death Rate		Disease Death Rate	
	Male	Female	Male	Female
HPR I (Northwest)	235.1	150.0	45.9	52.2
HPR II (Northern)	172.5	120.0	33.0	40.0
HPR III (Southwest)	<b>305.6</b>	<b>190.8</b>	55.1	55.1
HPR IV (Central)	259.1	178.8	<b>65.8</b>	<b>56.6</b>
HPR V (Eastern)	246.7	164.6	52.4	55.9
<b>Virginia</b>	<b>242.5</b>	<b>161.9</b>	<b>50.4</b>	<b>52.2</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

- As evidenced, HPR III (Southwest Virginia) has the highest death rate for both genders for heart disease. HPR III’s male age adjusted heart disease death rate is 26% higher than Virginia’s rate while HPR III’s female age adjusted heart disease death rate is 18% higher than Virginia’s rate.
- HPR III has a large percentage of rural areas within the region. Rural areas often have higher death rates for several reasons, including lower socioeconomic status, limited access to health care services, and lower employment rates, resulting in decreased access to health insurance.
- HPR IV (Central Virginia) has the highest death rate for both genders for cerebrovascular disease. HPR IV’s male age adjusted cerebrovascular disease death rate is 31% higher than Virginia’s rate while HPR IV’s female age adjusted cerebrovascular disease death rate is 8% higher than Virginia’s rate.
- HPR II (Northern Virginia) has the lowest death rates for both genders and for both diseases. This HPR’s population is the most affluent in the State, which generally means better access to health care services and health care coverage.

The following table shows the age adjusted death rate by gender for heart disease and cerebrovascular disease for each PD and for Virginia, with the highest PD in each HPR highlighted. **Attachment C** provides maps of the age adjusted death rates by gender by planning district and locality for both heart disease and cerebrovascular disease.

## Age Adjusted Death Rates by Health Planning District and Gender (2005)

Geographic Area	Age Adjusted Heart Disease		Age Adjusted Cerebrovascular	
	Death Rate		Disease Death Rate	
	Male	Female	Male	Female
<b>HPR I</b>				
PD 6 (Central Shenandoah)	223.9	155.7	53.0	63.8
PD 7 (Lord Fairfax)	243.7	150.2	39.3	47.1
PD 9 (Rappahannock-Rapidan)	215.0	176.4	38.5	44.4
PD 10 (Thomas Jefferson)	238.3	120.6	40.5	50.9
PD 16 (RADCO-Fredericksburg area )	263.9	154.5	54.7	45.1
<b>HPR II</b>				
PD 8 (Northern Virginia)	172.5	120.0	33.0	40.0
<b>HPR III</b>				
PD 1 (Lenowisco)	354.6	223.8	53.3	61.1
PD 2 (Cumberland Plateau)	331.2	224.2	40.3	60.9
PD 3 (Mount Rogers)	345.7	192.1	58.6	51.9
PD 4 (New River Valley)	295.6	178.1	48.7	52.6
PD 5 (Fifth)	312.0	198.5	49.9	51.9
PD 11 (Central Virginia)	225.5	137.0	60.6	55.7
PD 12 (West Piedmont)	312.1	211.0	62.3	57.8
<b>HPR IV</b>				
PD 13 (Southside)	305.0	242.9	91.6	66.5
PD 14 (Piedmont)	286.5	200.3	75.6	53.0
PD 15 (Richmond Regional)	241.5	161.7	60.5	55.7
PD 19 (Crater)	295.7	208.9	67.9	58.8
<b>HPR V</b>				
PD 17 (Northern Neck)	257.1	141.1	45.6	49.5
PD 18 (Middle Peninsula)	241.2	169.1	51.3	58.2
PD 22 (Accomack-Northampton)	304.2	203.7	47.6	44.7
PD 23 (Hampton Roads)	244.6	164.4	53.1	56.5
<b>Virginia</b>	<b>242.5</b>	<b>161.9</b>	<b>50.4</b>	<b>52.2</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

- From the overall state perspective, the following PDs have the highest age adjusted death rates by gender for heart disease and cerebrovascular disease.
  - PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest age adjusted male death rate for heart disease (46% higher than Virginia's rate).
  - PD 13 (Southside) in HPR IV (Central Virginia) has the highest age adjusted female death rate for heart disease (50% higher than Virginia's rate).
  - PD 13 (Southside) in HPR IV (Central Virginia) has the highest age adjusted male death rate for cerebrovascular disease (82% higher than Virginia's rate).

- PD 13 (Southside) in HPR IV (Central Virginia) has the highest age adjusted male death rate for cerebrovascular disease (27% higher than Virginia's rate).
- The high PD 13 death rates could be related to several factors, such as its rural nature and lower health care access, higher unemployment rate, demographic composition (high percentage of population identified as black), and lower socioeconomic status.

The following table shows any locality that has at least two of the four demographic group death rates ranked as the highest within the planning district.

**Highest Age Adjusted Death Rates by Locality and Gender (2005)**

Geographic Area	Age Adjusted Heart Disease		Age Adjusted Cerebrovascular Disease	
	Death Rate		Death Rate	
	Male	Female	Male	Female
<b>HPR I</b>				
Bath (PD 6)	333.5		105.8	105.0
Rappahannock (PD 9)		213.6	58.0	
Greene (PD 10)	305.3	178.9		
Stafford (PD 16)		208.0	59.9	
<b>HPR II</b>				
Prince William County (PD 8)	214.5	176.6		54.3
<b>HPR III</b>				
Lee County (PD 1)	441.7	253.9		81.7
Carroll (PD 3)			78.5	77.3
Smyth (PD 3)	464.6	262.6		
Floyd (PD 4)			50.9	67.2
Alleghany (PD 5)	455.3	341.9		
Appomattox (PD 11)	279.8	200.4		
Danville (PD 12)	395.6	294.4		
<b>HPR IV</b>				
Mecklenburg (PD 13)	350.1	304.0		
Buckingham (PD 14)	365.2	290.2		
Charles City (PD 15)	342.6	245.7	109.5	
Petersburg (PD 19)	405.3	271.6		
<b>HPR V</b>				
Matthews (PD 18)	398.7	208.7		87.7
Accomack (PD 22)	330.6	214.9		
Northampton (PD 22)			102.4	55.2
Franklin (PD 23)	373.7	297.4		83.5

**Source:** Virginia Department of Health, Division of Health Statistics (2005)

- Six localities have three of the four demographic group death rates ranked as the highest within the planning district: Bath (PD 6, HPR I); Prince William County (PD 8, HPR II); Lee County (PD 1, HPR III); Charles City County (PD 15, HPR IV); Matthews (PD 18, HPR V); and Franklin (PD 23, HPR V).

**Race**

The table below provides the actual number of heart disease and cerebrovascular deaths by region and by race.

**Heart Disease and Cerebrovascular Disease Deaths by Region and Race (2005)**

Health Planning Region	Heart Disease			Cerebrovascular Disease		
	White	Black	Other	White	Black	Other
HPR I (Northwest)	1,889	218	9	487	74	1
HPR II (Northern)	1,624	178	114	399	48	48
HPR III (Southwest)	3,547	397	11	796	115	3
HPR IV (Central)	1,850	903	17	521	245	6
HPR V (Eastern)	2,283	1,056	36	568	340	15
<b>Virginia</b>	<b>11,193</b>	<b>2,752</b>	<b>187</b>	<b>2,771</b>	<b>822</b>	<b>73</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

Number of deaths is provided for general information, but should not be used to make assessments of disease burden in a region or across races. The following table shows the age adjusted death rate by race for heart disease and cerebrovascular disease for each HPR and for Virginia, with the highest death rates by demographic group for each HPR shaded. Because the number of deaths for the other races is relatively small, caution should be taken in using these death rates as well as comparing these death rates with the white and black population’s death rates.

**Age Adjusted Death Rates by Region and Race (2005)**

Health Planning Region	Heart Disease			Cerebrovascular Disease		
	White	Black	Other	White	Black	Other
HPR I (Northwest)	184.7	215.4	88.6	48.1	75.0	16.3
HPR II (Northern)	145.7	153.9	90.3	36.3	44.4	38.0
HPR III (Southwest)	<b>239.2</b>	<b>265.4</b>	<b>148.2</b>	52.8	78.0	38.0
HPR IV (Central)	201.0	250.8	92.0	<b>56.8</b>	70.1	37.5
HPR V (Eastern)	187.4	245.3	86.5	46.6	<b>80.5</b>	<b>40.1</b>
<b>Virginia</b>	<b>192.5</b>	<b>236.5</b>	<b>90.6</b>	<b>48.1</b>	<b>72.9</b>	<b>37.1</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

- As shown, HPR III (Southwest Virginia) has the highest death rates for all the racial categories for heart disease. HPR III’s white population’s death rate is 24% higher, its black population’s death rate is 12% higher, and its other races’ death rate is 64% higher than the corresponding rates for Virginia.

- HPR III (Southwest Virginia) also has the highest death rate for both genders for heart disease. Again, as previously noted, the health related characteristics of a rural area such as HPR III can influence these high death rates.
- HPR IV (Central Virginia) has the highest death rate for the white population for cerebrovascular disease. Its rate is 18% higher than Virginia's death rate for the white population. HPR IV also has the highest death rate for both genders for cerebrovascular disease.
- HPR V (Eastern Virginia) has the highest death rates for the black population and the other races for cerebrovascular disease. Its black population's death rate and other races' death rate are 10% higher and 8% higher, respectively, than the corresponding death rates for Virginia.

The table below provides the age adjusted death rate by race for heart disease and cerebrovascular disease for each PD and for Virginia, with the highest PD in each HPR highlighted.

## Age Adjusted Death Rates by Locality and Race (2005)

Geographic Area	Age Adjusted Heart Disease Death Rate			Age Adjusted Cerebrovascular Disease Death Rate		
	White	Black	Other	White	Black	Other
<b>HPR I</b>						
PD 6 (Central Shenandoah)	187.0	213.1	120.4	<b>58.9</b>	83.8	0.0
PD 7 (Lord Fairfax)	191.3	203.6	0.0	44.4	58.0	0.0
PD 9 (Rappahannock-Rapidan)	145.7	225.8	0.0	40.4	65.4	<b>129.2</b>
PD 10 (Thomas Jefferson)	159.9	<b>235.7</b>	<b>199.4</b>	45.0	68.2	0.0
PD 16 (RADCO-Fredericksburg area )	<b>197.6</b>	204.1	79.8	42.2	<b>86.9</b>	0.0
<b>HPR II</b>						
PD 8 (Northern Virginia)	<b>145.7</b>	<b>153.9</b>	<b>90.3</b>	<b>36.3</b>	<b>44.4</b>	<b>38.0</b>
<b>HPR III</b>						
PD 1 (Lenowisco)	<b>284.7</b>	263.9	<b>747.4</b>	<b>58.2</b>	55.4	0.0
PD 2 (Cumberland Plateau)	280.3	208.9	320.3	54.1	<b>100.9</b>	0.0
PD 3 (Mount Rogers)	258.5	221.1	157.2	53.9	50.2	0.0
PD 4 (New River Valley)	229.4	225.6	0.0	51.7	42.7	0.0
PD 5 (Fifth)	250.0	215.0	102.4	49.2	72.0	36.9
PD 11 (Central Virginia)	168.4	219.2	195.6	54.7	75.0	0.0
PD 12 (West Piedmont)	237.3	<b>337.0</b>	115.0	52.4	87.9	<b>162.7</b>
<b>HPR IV</b>						
PD 13 (Southside)	<b>256.3</b>	<b>300.1</b>	0.0	<b>72.3</b>	<b>87.7</b>	0.0
PD 14 (Piedmont)	209.7	298.4	<b>449.3</b>	62.5	57.9	0.0
PD 15 (Richmond Regional)	186.8	226.6	86.8	55.0	66.9	<b>45.5</b>
PD 19 (Crater)	236.5	268.9	62.3	54.2	76.6	0.0
<b>HPR V</b>						
PD 17 (Northern Neck)	193.8	218.7	0.0	44.3	71.7	0.0
PD 18 (Middle Peninsula)	195.8	235.1	<b>121.2</b>	<b>48.8</b>	<b>95.6</b>	0.0
PD 22 (Accomack-Northampton)	<b>256.7</b>	200.7	0.0	37.7	70.8	0.0
PD 23 (Hampton Roads)	184.0	<b>250.4</b>	86.8	47.0	80.6	<b>41.8</b>
<b>Virginia</b>	<b>192.5</b>	<b>236.5</b>	<b>90.6</b>	<b>48.1</b>	<b>72.9</b>	<b>37.1</b>

Source: Virginia Department of Health, Division of Health Statistics (2005)

- From the overall state perspective, the following PDs have the highest age adjusted death rates by race for heart disease and cerebrovascular disease.
  - PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest age adjusted white population death rate for heart disease (48% higher than Virginia's rate).
  - PD 12 (West Piedmont) in HPR III (Southwest Virginia) has the highest age adjusted black population death rate for heart disease (42% higher than Virginia's rate).

- PD 13 (Southside) in HPR IV (Central Virginia) has the highest age adjusted white population death rate for cerebrovascular disease (50% higher than Virginia’s rate).
- PD 2 (Cumberland Plateau) in HPR III (Southwest Virginia) has the highest age adjusted black population death rate for cerebrovascular disease (38% higher than Virginia’s rate).
- Three of the four highest rates by races for these two diseases occur in HPR III (Southwest Virginia). As noted previously, the health related characteristics associated with a rural area partly can explain these high rates.

**Summary of Death Rate Trends**

Reviewing the death rate trends for the heart disease and cerebrovascular disease by gender reveals the following:

- The death rate trend for both diseases and for both genders is declining in the State as a whole.
- Most planning districts have either no trends in the death rates or either a declining death rate.
- The planning districts showing an upward death trend include the following:

**Upward Trends in Age Adjusted Death Rates  
by Locality and Gender (2005)**

	Age Adjusted Heart Disease		Age Adjusted Cerebrovascular Disease	
	Death Rate		Death Rate	
	Male	Female	Male	Female
<b>HPR III</b>				
Lenowisco (PD 1)	Up			Up
Mount Rogers (PD 3)	Up			
Fifth (PD 5)		Up		
<b>HPR IV</b>				
Southside (PD 13)		Up	Up	
Crater (PD 19)		Up		

**Source:** Virginia Department of Health, Division of Health Statistics (2005)

**CVD INPATIENT DATA (2005)**

This section of the report provides an analysis of the CVD data by several categories: 1) race; 2) gender (specifically female), and 3) 35-64 age group. The trends in these categories by planning district also are reviewed.

The CVD Report Card (**Attachment D**) includes a worksheet labeled Use Rates by Disease Groupings which shows the use rates by race, gender, and age (35-64, 65+) for the six disease groupings discussed in this report: CVD, acute myocardial infarction, congestive heart failure, coronary ischemic heart disease, stroke, and transient ischemic attack. *Throughout this report, the term “use rate” is used, which is a common term for “discharge rate,” defined as the number of hospital discharges per 1,000 population. The use rate calculations for a specific demographic group are per 1,000 population of the specified demographic group.* In addition, in **Attachment D**, a worksheet labeled PD Level provides the trends for race, gender, and age for the CVD data by planning district. In **Attachment E**, maps illustrating the following for CVD are included: 1) total CVD use rate; 2) percentage and use rate of black CVD discharges; 3) percentage and use rate of female CVD discharges; and 4) percentage and use rate of 35-64 age group CVD discharges. The maps are shown by planning district and by locality.

**CVD Inpatient Data by Race**

The table below illustrates the number and percentage of CVD discharges by race for each HPR in Virginia.

**CVD Discharges by Region and Race (2005)**

Health Planning Region	White		Black		Other		Total
	#	%	#	%	#	%	
HPR I (Northwest)	16,958	85.7%	2,322	11.7%	500	2.5%	19,780
HPR II (Northern)	12,135	66.0%	2,417	13.1%	3,829	20.8%	18,381
HPR III (Southwest)	24,281	86.2%	3,515	12.5%	383	1.4%	28,179
HPR IV (Central)	15,245	60.4%	9,354	37.1%	640	2.5%	25,239
HPR V (Eastern)	19,764	62.3%	11,168	35.2%	784	2.5%	31,716
<b>Virginia</b>	<b>88,383</b>	<b>71.7%</b>	<b>28,776</b>	<b>23.3%</b>	<b>6,136</b>	<b>5.0%</b>	<b>123,295</b>

Source: Virginia Health Information (2005)

- HPR III (Southwest Virginia) has the highest percentage of its discharges among white people.
- HPR IV (Central Virginia) has the highest percentage of its discharges among black people.
- HPR II (Northern Virginia) has the highest percentage of its discharges among people not identified as white or black.

The following table shows the 2005 CVD total, white, black, and other use rates for each HPR and for Virginia, with the highest use rate for each demographic group shaded.

**CVD Inpatient Use Rate by Region and Race (2005)**

Health Planning Region	Total	White	Black	Other
HPR I (Northwest)	17.1	17.4	19.1	8.9
HPR II (Northern)	9.0	8.9	10.7	8.4
HPR III (Southwest)	<b>21.5</b>	<b>21.6</b>	<b>23.0</b>	<b>11.0</b>
HPR IV (Central)	19.6	19.0	22.5	9.2
HPR V (Eastern)	17.7	18.0	19.6	6.1
<b>Virginia</b>	<b>16.2</b>	<b>16.5</b>	<b>19.4</b>	<b>8.2</b>

Sources: Virginia Health Information (2005); CLARITAS

- HPR III (Southwest Virginia) has the highest total inpatient CVD use rate (33% higher than Virginia’s rate).
- HPR III (Southwest Virginia) also has the highest use rates for white, black, and other races (31%, 19%, and 34%, respectively, higher than Virginia’s rates).
- HPR II (Northern Virginia) has the lowest total inpatient CVD use rate as well as the lowest use rates for the white and black population.
- Again, these differences in health planning regions probably are related to demographic composition (age differences) and socioeconomic factors, such as access to health care services and health insurance (employment based and other insurance).

The following table shows the 2005 CVD total, white, black, and other use rates for each PD and for Virginia, with the highest PD use rate in each HPR shaded.

## CVD Inpatient Use Rate by Planning District and Race (2005)

Health Planning Region/Planning District	Total	White	Black	Other
<b>HPR I</b>				
PD 6 (Central Shenandoah)	18.7	19.4	16.3	7.1
PD 7 (Lord Fairfax)	<b>20.3</b>	<b>20.6</b>	22.5	11.8
PD 9 (Rappahannock-Rapidan)	17.8	16.9	23.3	<b>21.1</b>
PD 10 (Thomas Jefferson)	15.8	15.3	<b>23.6</b>	3.7
PD 16 (RADCO-Fredericksburg area)	14.1	14.5	15.2	7.7
<b>HPR II</b>				
PD 8 (Northern Virginia)	<b>9.0</b>	<b>8.9</b>	<b>10.7</b>	<b>8.4</b>
<b>HPR III</b>				
PD 1 (Lenowisco)	23.2	23.0	<b>38.2</b>	21.5
PD 2 (Cumberland Plateau)	23.0	23.3	11.1	<b>21.9</b>
PD 3 (Mount Rogers)	15.0	15.3	10.4	8.4
PD 4 (New River Valley)	22.6	23.2	23.6	10.2
PD 5 (Fifth)	<b>24.6</b>	<b>25.5</b>	21.7	13.8
PD 11 (Central Virginia)	19.4	18.8	23.7	5.6
PD 12 (West Piedmont)	23.2	23.2	24.5	10.6
<b>HPR IV</b>				
PD 13 (Southside)	30.2	29.8	30.7	<b>32.7</b>
PD 14 (Piedmont)	21.4	20.5	23.4	18.8
PD 15 (Richmond Regional)	16.4	16.2	18.8	7.7
PD 19 (Crater)	<b>30.5</b>	<b>31.1</b>	<b>31.1</b>	14.6
<b>HPR V</b>				
PD 17 (Northern Neck)	<b>26.9</b>	<b>27.6</b>	25.6	<b>24.9</b>
PD 18 (Middle Peninsula)	23.4	22.4	<b>28.8</b>	18.6
PD 22 (Accomack-Northampton)	18.4	17.3	23.4	5.2
PD 23 (Hampton Roads)	17.0	17.4	19.0	5.7
<b>Virginia</b>	<b>16.2</b>	<b>16.5</b>	<b>19.4</b>	<b>8.2</b>

Source: Virginia Health Information (2005); CLARITAS

- PD 19 (Crater) in HPR IV (Central Virginia) has the highest total CVD inpatient use rate (88% higher than Virginia's) and the highest CVD inpatient use rate for the white population (88% higher than Virginia's).
- PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest CVD inpatient use rate for the black population (almost double Virginia's use rate).
- PD 13 (Southside) in HPR IV (Central Virginia) has the highest inpatient CVD use rate for the other races (four times Virginia's other races' rate).
- PD 8 (Northern Virginia) in HPR II (Northern Virginia) has the lowest total CVD inpatient use rate and the lowest use rate for the white population.

- PD 5 (Fifth in HPR III), PD 7 (Lord Fairfax in HPR I), PD 17 (Northern Neck in HPR V), and PD 19 (Crater in HPR IV) have both the highest total CVD use rate and the highest white population use rate within their HPRs. In addition, PD 19 has the highest use rate for the black population and PD 17 has the highest use rate for the other races in their respective HPRs.

The following table shows any locality that has at least two of the three racial use rates ranked as the highest within the planning district.

### Highest CVD Inpatient Use Rate by Locality and Race (2005)

Health Planning Region	Total	White	Black	Other
<b>HPR I</b>				
Lexington (PD 6)	40.3	42.8	29.9	
Page (PD 7)	23.1	22.5		68.4
Rappahannock (PD 9)			39.3	34.2
Nelson (PD 10)	26.2	25.3	35.1	
Caroline (PD 16)			24.2	12.6
<b>HPR II</b>				
Alexandria City (PD 8)	11.1	10.1	17.7	
<b>HPR III</b>				
Wise City (PD 1)	35.2	35.0	50.9	24.9
Martinsville (PD 12)	63.2	70.7	55.2	33.8
<b>HPR IV</b>				
Mecklenburg (PD 13)	35.3	35.2	35.2	41.1
Lunenburg (PD 14)			29.8	34.0
Greensville (PD 19)			49.9	41.0
<b>HPR V</b>				
Lancaster (PD 17)	30.8	32.2		62.9
Matthews (PD 18)			43.0	45.8
Northampton (PD 22)	27.1	26.6	30.1	8.7
Franklin City (PD 23)	50.3	61.6	42.6	24.8

Source: Virginia Health Information (2005); CLARITAS

- Five localities have all three racial use rates ranked as the highest in their planning districts:
  - Wise - PD 1 (Lenowisco), HPR III
  - Martinsville - PD 12 (Martinsville), HPR III
  - Mecklenburg - PD 13 (Southside), HPR IV
  - Northampton - PD 22 (Accomack-Northampton), HPR V
  - Franklin City - PD 23 (Hampton Roads), HPR V

**Overall CVD Inpatient Trends by Race**

The CVD inpatient use rate trends reveal the following:

- Virginia as a whole has a declining total CVD inpatient use rate and a declining inpatient white population use rate.
- Four of the five HPRs have declining total CVD inpatient use rates. HPR III's (Southwest Virginia) use rate shows no trend.
- Five planning districts have an upward trend in total CVD inpatient use rates:
  - PD 10 (Thomas Jefferson), HPR I
  - PD 16 (RADCO-Fredericksburg area), HPR I
  - PD 1 (Lenowisco), HPR III
  - PD 12 (West Piedmont), HPR III
  - PD 14 (Piedmont), HPR IV
- The black population's CVD inpatient use rate appears to be growing. In fact, 9 (43%) of the 21 planning districts have a rising inpatient use rate for the black population. In contrast, only five (24%) of the 21 planning districts have a rising trend in the inpatient use rate for the white population. Increased efforts to address CVD health disparities appear to be needed.
- Two PDs have increasing CVD inpatient use rates for both the white and the black population: PD 16 (RADCO-Fredericksburg) in HPR I and PD 12 (West Piedmont) in HPR III.

**CVD Inpatient Data for Females**

The following table provides the number and percentage of CVD discharges by gender and region, highlighting the HPR with the highest percentage. This analysis in this section will focus on female discharges.

**CVD Discharges by Region and Gender (2005)**

Health Planning Region	Male		Female		Total
	#	%	#	%	#
HPR I (Northwest)	10,613	53.7%	9,167	46.3%	19,780
HPR II (Northern)	9,843	53.6%	8,537	46.4%	18,380
HPR III (Southwest)	13,868	49.2%	14,311	50.8%	28,179
HPR IV (Central)	12,964	51.4%	12,273	48.6%	25,237
HPR V (Eastern)	16,374	51.6%	15,341	48.4%	31,715
<b>Virginia</b>	<b>63,662</b>	<b>51.6%</b>	<b>59,629</b>	<b>48.4%</b>	<b>123,291</b>

Source: Virginia Health Information (2005)

- Virginia as a whole has a higher percentage of male CVD discharges.
- HPR III (Southwest Virginia) has the highest percentage of female CVD discharges. Its percentage is 5% higher than Virginia’s percentage. In addition, it is the only region with more female discharges than male discharges.

The table below shows the use rate for female inpatient CVD discharges by HPR, with the highest HPR shaded.

**CVD Inpatient Female Use Rate by Region (2005)**

Health Planning Region	Use Rate
HPR I (Northwest)	15.6
HPR II (Northern)	8.3
HPR III (Southwest)	<b>21.3</b>
HPR IV (Central)	18.6
HPR V (Eastern)	16.9
<b>Virginia</b>	<b>15.5</b>

Source: Virginia Health Information (2005)

- Like the female percentage of CVD discharges, HPR III (Southwest Virginia) has the highest female use rate for CVD discharges. Its use rate is 37% higher than Virginia’s percentage.

The following table shows the 2005 percentage of female inpatient CVD discharges and the female use rate for each PD and for Virginia, with the highest PD in each HPR highlighted.

**CVD Female Inpatient Percentage and Use Rate by Locality (2005)**

Health Planning Region/Planning District	% Female	Female Use Rate
<b>HPR I</b>		
PD 6 (Central Shenandoah)	<b>47.5%</b>	17.5
PD 7 (Lord Fairfax)	46.7%	<b>18.8</b>
PD 9 (Rappahannock-Rapidan)	44.6%	15.7
PD 10 (Thomas Jefferson)	45.0%	13.8
PD 16 (RADCO-Fredericksburg area)	46.8%	13.1
<b>HPR II</b>		
PD 8 (Northern Virginia)	<b>46.4%</b>	<b>8.3</b>
<b>HPR III</b>		
PD 1 (Lenowisco)	<b>59.9%</b>	<b>27.7</b>
PD 2 (Cumberland Plateau)	53.1%	23.9
PD 3 (Mount Rogers)	51.2%	14.9
PD 4 (New River Valley)	49.3%	22.6
PD 5 (Fifth)	50.6%	23.9
PD 11 (Central Virginia)	48.8%	18.2
PD 12 (West Piedmont)	48.9%	21.9
<b>HPR IV</b>		
PD 13 (Southside)	49.1%	29.5
PD 14 (Piedmont)	48.5%	21.2
PD 15 (Richmond Regional)	48.4%	15.4
PD 19 (Crater)	<b>49.2%</b>	<b>30.3</b>
<b>HPR V</b>		
PD 17 (Northern Neck)	47.8%	<b>25.7</b>
PD 18 (Middle Peninsula)	46.6%	21.3
PD 22 (Accomack-Northampton)	<b>49.6%</b>	17.8
PD 23 (Hampton Roads)	48.5%	16.3
<b>Virginia</b>	<b>48.4%</b>	<b>15.5</b>

Source: Virginia Health Information (2005)

- PD 1 (Lenowisco) in HPR III has the highest percentage of female CVD discharges (24% higher than Virginia’s).
- PD 19 (Crater) in HPR IV has the highest female use rate for CVD discharges (almost double Virginia’s rate).

The following table shows the localities in each HPR with the highest percentages of female CVD discharges and the highest female use rates.

**Highest CVD Female Inpatient Percentage and Use Rate  
by Locality (2005)**

Health Planning Region	% Female	Female Use Rate
<b>HPR I</b>		
Fredericksburg (PD 16)	56.5%	
Lexington City (PD 6)		41.2
<b>HPR II</b>		
Arlington (PD 8)	52.9%	
Alexandria City (PD 8)		10.7
<b>HPR III</b>		
Wise (PD 1)	62.5%	
Martinsville City (PD 12)		59.4
<b>HPR IV</b>		
Richmond City (PD 15)	54.7%	
Greensville (PD 19)		63.6
<b>HPR V</b>		
Westmoreland (PD 17)	51.7%	
Newport News (PD 23)	51.7%	
Franklin City (PD 23)		46.9

Source: Virginia Health Information (2005)

- Wise in PD 1 (HPR III) has the highest percentage of female discharges in Virginia.
- Greensville in PD 19 (HPR IV) has the highest female use rate for CVD discharges.

**Overall Trends in CVD Percentage of Female Discharges**

The trends for the percentage of female CVD discharges include the following:

- For Virginia as a whole, no trend was found.
- Three (14%) planning districts experienced an increase in the percentage of female CVD discharges: PD 7 (Lord Fairfax) in HPR I; PD 1 (Lenowisco) in HPR III; and PD 18 (Middle Peninsula) in HPR V.
- Ten (48%) planning districts had a declining percentage of female CVD discharges.
- It appears that CVD discharges have not increased significantly in the female population over the past several years.

**CVD Inpatient Data for the 35-64 Age Group**

The table below provides the number, percentage, and use rate of the 35-64 age group CVD discharges by region. The region with the highest figure is highlighted.

**CVD Discharges and Use Rates for 35-64 Age Group by Region (2005)**

Health Planning Region	35-64 Age Group Discharges	% 35-64 Discharges to Total Discharges	35-64 Age Group Use Rate
HPR I (Northwest)	7,094	35.9%	15.4
HPR II (Northern)	7,010	38.1%	7.9
HPR III (Southwest)	9,246	32.8%	17.3
HPR IV (Central)	9,970	<b>39.5%</b>	<b>18.6</b>
HPR V (Eastern)	<b>12,141</b>	38.3%	17.4
<b>Virginia</b>	<b>45,461</b>	<b>36.9%</b>	<b>14.6</b>

Source: Virginia Health Information (2005)

- The 35-64 age group represents over one-third of all the CVD discharges in all five HPRs.
- HPR IV (Central Virginia) has the highest percentage of the 35-64 age group CVD discharges (7% higher than Virginia’s percentage).
- HPR IV (Central Virginia) also has the highest use rate of the 35-64 age group CVD discharges (27% higher than Virginia’s percentage).

The following table shows the 2005 inpatient percentage and use rate of CVD discharges for the 35-64 population for each PD and for Virginia, with the highest PD in each HPR highlighted.

**CVD Inpatient Percentage and Use Rate of 35-64 Age Group Discharges  
by Planning District (2005)**

Health Planning Region/Planning District	% 35-64	35-64 Use Rate
<b>HPR I</b>		
PD 6 (Central Shenandoah)	30.8%	15.1
PD 7 (Lord Fairfax)	33.5%	<b>16.6</b>
PD 9 (Rappahannock-Rapidan)	38.6%	16.4
PD 10 (Thomas Jefferson)	34.6%	13.9
PD 16 (RADCO-Fredericksburg area)	<b>43.3%</b>	15.2
<b>HPR II</b>		
PD 8 (Northern Virginia)	<b>38.1%</b>	<b>7.9</b>
<b>HPR III</b>		
PD 1 (Lenowisco)	31.2%	17.9
PD 2 (Cumberland Plateau)	<b>36.8%</b>	19.5
PD 3 (Mount Rogers)	29.6%	10.7
PD 4 (New River Valley)	32.7%	<b>20.9</b>
PD 5 (Fifth)	31.9%	18.7
PD 11 (Central Virginia)	34.8%	16.8
PD 12 (West Piedmont)	32.7%	18.2
<b>HPR IV</b>		
PD 13 (Southside)	36.8%	27.4
PD 14 (Piedmont)	38.9%	21.3
PD 15 (Richmond Regional)	39.5%	15.4
PD 19 (Crater)	<b>41.2%</b>	<b>31.3</b>
<b>HPR V</b>		
PD 17 (Northern Neck)	28.0%	19.3
PD 18 (Middle Peninsula)	38.0%	<b>20.9</b>
PD 22 (Accomack-Northampton)	32.7%	15.7
PD 23 (Hampton Roads)	<b>39.0%</b>	17.2
<b>Virginia</b>	<b>36.9%</b>	<b>14.6</b>

Source: Virginia Health Information (2005)

- PD 16 (RADCO- Fredericksburg area) in HPR I has the highest percentage of the 35-64 age group CVD discharges (17% higher than Virginia's percentage).
- PD 19 (Crater) in HPR IV has the highest use rate of the 35-64 age group CVD discharges (more than twice Virginia's use rate).

The following table shows the localities in each HPR with the highest percentages of 35-64 age group CVD discharges and the highest 35-64 age group use rates.

**Highest CVD Inpatient Percentage and Use Rates of 35-64 Age Group Discharges by Locality (2005)**

Health Planning Region	% 35-64 Years	35-64 Use Rate
<b>HPR I</b>		
Stafford (PD 16)	46.7%	
Lexington (PD 6)		47.6
<b>HPR II</b>		
Alexandria City (PD 8)		9.5
Prince William (PD 8)	44.9%	9.5
<b>HPR III</b>		
Bland (PD 3)	47.8%	
Martinsville City (PD 12)		48.7
<b>HPR IV</b>		
Richmond City (PD 15)	46.2%	
Petersburg City (PD 19)		63.4
<b>HPR V</b>		
King and Queen (PD 18)	43.3%	
Franklin City (PD 23)		43.5

Source: Virginia Health Information (2005)

- Bland (PD 3) in HPR III has the highest percentage of the 35-64 age group CVD discharges.
- Petersburg (PD 19) in HPR IV has the highest CVD use rate of the 35-64 age group. Its use rate is more than four times Virginia’s rate. As noted previously, HPR IV (Central Virginia) also has the highest use rate of all HPRs of the 35-64 age group CVD discharges (27% higher than Virginia’s percentage).
- Reduction in premature CVD hospitalizations should be a priority in central Virginia. Increasing access to appropriate primary care, appropriate screenings of priority populations, and effective medications and nutritional management may assist in decreasing these hospitalizations.

**Overall Trends in CVD Percentage of the 35- 64 Age Group Discharges**

CVD generally is associated with the 65+ age group. An increasing trend in the percentage of the 35-64 age group CVD discharges could indicate premature CVD. Several factors could be contributing to this increase, including people not being treated or recognizing the symptoms of CVD; lack of access to primary health care services; limited access to prevention screenings; and the increased number of younger people with risk factors. Premature CVD hospitalizations represent significant, avoidable health care costs.

The trends for the percentage of 35-64 population inpatient CVD discharges are shown below:

- For Virginia as a whole, no trend was found.
- HPR I (Northwest Virginia) is the only region that has a rising percentage of the 35-64 age group CVD discharges.
- Nine (43%) planning districts experienced an increasing percentage of the 35-64 age group CVD discharges.
- Based on the trends, the 35-64 age group is a demographic subgroup that should be targeted for further interventions.

### Transient Ischemic Attack Discharge Data

The DCDPC requested an analysis of the transient ischemic attack (TIA) disease grouping. The data for the TIA disease grouping is located in **Attachment B**. As noted previously, this disease grouping was not included in the 2001 to 2003 data; thus, a comparison with previous years was not performed. However, as seen by the volume of discharges from 2001 to 2003, the 2005 data analysis would appear to provide an adequate representation of the 2001 to 2003 data.

The following table provides the number of TIA discharges for 2001 to 2003 and 2005 and the use rates for 2005 by region.

**TIA Discharges for 2001 to 2003, 2005 and Use Rates for 2005**

Health Planning Region	2001	2002	2003	2005	2005 Use Rates
HPR I (Northwest)	633	610	574	522	0.5
HPR II (Northern)	761	823	848	754	0.4
HPR III (Southwest)	998	1,048	1,073	1,003	0.8
HPR IV (Central)	1,094	1,059	922	1,044	0.8
HPR V (Eastern)	895	849	930	874	0.5
<b>Virginia</b>	<b>4,381</b>	<b>4,389</b>	<b>4,347</b>	<b>4,197</b>	<b>0.6</b>

**Source:** Virginia Health Information (2005)

- As evidenced, the TIA disease grouping represents a small percentage (3.4%) of the overall CVD discharges in 2005.
- The volume of TIA discharges has declined 4.2% from 2001 to 2005, with the majority of the decline occurring from 2003 to 2005.
- HPR IV (Central Virginia) and HPR III (Southwest Virginia) have the highest volume of discharges for 2005 and for 2001 to 2003 as well.

- In 2005, the use rate per 1,000 population for both HPR III and HPR IV was 0.8, which is 33% highest than Virginia's use rate.

### **Summary of the CVD Inpatient and Trend Data**

The primary findings from the CVD inpatient and trend data and trends include the following:

1. PD 19 (Crater) in HPR IV has the highest total CVD inpatient use rate (88% higher than Virginia's) and the highest CVD inpatient use rate for the white population (88% higher than Virginia's).
2. PD 1 (Lenowisco) in HPR III has the highest CVD inpatient use rate for the black population (almost double Virginia's use rate).
3. Virginia as a whole has a declining total CVD inpatient use rate and a declining inpatient white population use rate.
4. Four of the five HPRs have declining total CVD inpatient use rates. HPR III's (southwest Virginia) use rate shows no trend.
5. The differences in health planning regions' inpatient use rate by race is probably related to demographic composition and socioeconomic factors, such as access to health care services and employment based as well as other health insurance.
6. The black population's CVD inpatient use rate shows an increasing trend. In fact, 9 (43%) of the 21 planning districts have a rising inpatient use rate for the black population. In contrast, only five (24%) of the 21 planning districts have a rising inpatient use rate for the white population. Increased efforts to address CVD health disparities appear to be needed.
7. HPR III (Southwest Virginia) has the highest percentage of female CVD discharges. Its percentage is 5% higher than Virginia's percentage.
8. It appears that CVD discharges are not increasing significantly in the female population over the past several years.
9. HPR IV (Central Virginia) has the highest percentage of the 35-64 age group discharges; this group's use rate is 27% higher than Virginia's. Reduction in premature CVD hospitalizations should be a priority in central Virginia.
10. For Virginia as a whole, no trend was found in the percentage of the 35-64 age group CVD discharges.
  - a. HPR I (Northwest Virginia) is the only region that has a rising percentage of the 35-64 age group CVD discharges.
  - b. Nine (43%) planning districts experienced an increasing percentage of the 35-64 age group CVD discharges.

11. Based on the trends, the 35-64 age group is a demographic subgroup that should be targeted for further interventions. An increasing trend in the percentage of the 35-64 age group CVD discharges could indicate premature CVD. Several factors could be contributing to this increase, including people not being treated or recognizing the symptoms of CVD; lack of access to primary health care services; limited access to prevention screenings; and the increased number of younger people with risk factors. Premature CVD hospitalizations represent significant, avoidable health care costs.

**TRENDS IN CVD DISEASE GROUPINGS**

The table below shows the number of CVD discharges by the disease groupings for 2005. The CVD grouping is the comprehensive grouping and includes all discharges for the disease groupings. Also, since some codes are included in several disease groupings, the precise percentage a disease grouping represents of the total CVD grouping cannot be accurately calculated. However, based on Virginia’s total discharges, it is evident that diseases of the heart is the largest of the five disease groupings while TIA is the smallest.

**CVD Discharges by Disease Groupings (2005)**

Health Planning Region	CVD	AMI	CHF	CIHD	Dis of Heart	Stroke	TIA
HPR I (Northwest)	19,780	2,460	3,438	6,147	13,729	3,187	522
HPR II (Northern)	18,381	2,166	2,711	5,163	12,509	3,396	754
HPR III (Southwest)	28,179	3,710	5,424	9,156	19,634	4,673	1,003
HPR IV (Central)	25,239	2,608	4,711	7,814	16,844	4,750	1,044
HPR V (Eastern)	31,716	3,498	5,311	10,557	21,540	5,198	874
<b>Virginia</b>	<b>123,295</b>	<b>14,442</b>	<b>21,595</b>	<b>38,837</b>	<b>84,256</b>	<b>21,204</b>	<b>4,197</b>

Source: Virginia Health Information (2005)

The trends in four CVD disease groupings (acute myocardial infarction, congestive heart failure, coronary ischemic heart disease, and stroke) were analyzed by planning district for the following use rates: 1) total; 2) white; 3) black; 4) female, 5) male; and 6) 35-64 age group. The VHI data from 2001, 2002, 2003, and 2005 was used. **Please note that this trend analysis is not a statistical analysis. This trend analysis should be used only for general guideline purposes and in combination with other CVD data and information.** The trend analysis is located in **Attachment D** (CVD Report Card, worksheet labeled Planning District by Disease Group).

**Acute Myocardial Infarction (AMI)**

The main findings relative to the AMI trends include the following:

- For Virginia as a whole, the AMI total use rate declined and the AMI use rate trends for all demographic groups except the black population fell. The black inpatient use rate showed no trend.
- The majority of the HPRs’ and PDs’ AMI use rates decreased for the demographic groups.
- PD 5 (Fifth) in HPR III is the only PD with three of the five demographic groups (white, female, 35-64 years) exhibiting an AMI increasing use rate trend.
- The male AMI inpatient use rate is declining for all five HPRs and for all but one of the PDs.

- Five (24%) of the PDs experienced an increasing trend in the black AMI inpatient discharge rate. These PDs are:
  - PD 16 (RADCO-Fredericksburg) in HPR I
  - PD 8 (Northern Virginia) in HPR II
  - PD 1 (Lenowisco) in HPR III
  - PD 11 (Central Virginia) in HPR III
  - PD 12 (West Piedmont) in HPR III

### **Congestive Heart Failure (CHF)**

The key findings from the CHF trends are:

- For Virginia as a whole, no trends were found in the overall CHF use rate and no trends were noted in three demographic groups (white, female, and male). The black and 35-64 age groups use rates had a growing trend.
- PD 4 (New River Valley) in HPR III had an increasing CHF trend in four of the five demographic groups. The 35-64 age group use rate had no trend.
- PD 11 (Central Virginia) in HPR III experienced a rising CHF trend in three of the five demographic groups (black, male, and 35-64 years).
- Eight (38%) of the PDs had increasing CHF trends in the use rates for blacks:
  - PD 10 (Thomas Jefferson) in HPR I
  - PD 8 (Northern Virginia) in HPR II
  - PD 2 (Cumberland Plateau) in HPR III
  - PD 4 (New River Valley) in HPR III
  - PD 12 (West Piedmont) in HPR III
  - PD 13 (Southside) in HPR IV
  - PD 19 (Crater) in HPR IV
  - PD 17 (Northern Neck) in HPR V
- Eight (38%) of the PDs had increasing CHF trends in the use rates for males:
  - PD 8 (Northern Virginia) in HPR II
  - PD 3 (Mount Rogers) in HPR III
  - PD 4 (New River Valley) in HPR III
  - PD 5 (Fifth) in HPR III
  - PD 12 (West Piedmont) in HPR III
  - PD 13 (Southside) in HPR IV
  - PD 14 (Piedmont) in HPR IV
  - PD 23 (Hampton Roads) in HPR V

## Coronary Ischemic Heart Disease (CIHD)

The primary findings from the CIHD trends are as follows:

- For Virginia as a whole, the CIHD total use rate decreased and the CIHD use rate trends for all demographic groups declined.
- The majority of the HPRs' and PDs' CIHD use rates decreased for the demographic groups.
- PD 16 (RADCO-Fredericksburg) in HPR I is the only PD that has four of the five demographic groups (white, black, male, and 35-64 years) showing an increasing CIHD use rate trend.
- The male CIHD inpatient use rate is declining for all five HPRs and for all but one of the PDs.
- Four (19%) of the planning districts have an increasing trend in the black CIHD inpatient discharge rate. These PDs are:
  - PD 16 (RADCO-Fredericksburg area) in HPR I
  - PD 11 (Central Virginia) in HPR III
  - PD 17 (Northern Neck) in HPR V
  - PD 23 (Hampton Roads) in HPR V

## Stroke

The following are the stroke trends' major findings:

- For Virginia as a whole, no trend was found in the stroke total use rate and no trend was found for all but one of the demographic groups. The exception was the 35-64 age group which had an increasing trend.
- Most of the HPRs had no trends in the stroke use rate for the various demographic groups.
- Three PDs experienced an increasing trend in the stroke use rate for all five demographic groups:
  - PD 16 (RADCO-Fredericksburg area) in HPR I
  - PD 2 (Cumberland Plateau) in HPR III
  - PD 11 (Central Virginia) in HPR III
- In addition, two PDs had a rising trend in the stroke use rate for three of the five demographic groups:

- PD 19 (Crater) in HPR IV
- PD 22 (Accomack-Northampton) in HPR V
- From five (24%) to nine (43%) of the PDs experienced an increase in the stroke use rates for some of the demographic groups.
- Nine (43%) PDs showed a growth in the stroke use rate of black inpatient discharges:
  - PD 6 (Central Shenandoah) in HPR I
  - PD 10 (Thomas Jefferson) in HPR I
  - PD 16 (RADCO-Fredericksburg) in HPR I
  - PD 8 (Northern Virginia) in HPR II
  - PD 2 (Cumberland Plateau) in HPR III
  - PD 4 (New River Valley) in HPR III
  - PD 11 (Central Virginia) in HPR IV
  - PD 13 (Southside) in HPR IV
  - PD 22 (Accomack-Northampton) in HPR V
- Eight (38%) PDs had a rise in the 35-64 age group stroke discharge rate:
  - PD 10 (Thomas Jefferson) in HPR I
  - PD 16 (RADCO-Fredericksburg area) in HPR I
  - PD 1 (Lenowisco) in HPR III
  - PD 2 (Cumberland Plateau) in HPR III
  - PD 11 (Central Virginia) in HPR IV
  - PD 14 (Piedmont) in HPR IV
  - PD 19 (Crater) in HPR IV
  - PD 22 (Accomack-Northampton) in HPR V

### **Summary of Trends in CVD Disease Groupings**

The main findings from the trends in the CVD disease groupings include the following:

1. The use rates for all CVD disease groups for the State's overall population either declined or had no trend.
2. Congestive heart failure showed a growing trend in both the black and 35-64 age groups use rates.
3. The 35-64 age group had an increasing use rate trend for stroke.
4. HPR III (Southwest Virginia) appears to be an area of concern as this region is identified frequently in the lists of increasing trends.

**GROSS REVENUE, NET PATIENT REVENUE, AND AVERAGE LENGTH OF STAY**

The following table shows the average charge/discharge, average net patient revenue/discharge, and the average length of stay (ALOS) per CVD discharge for each HPR and for Virginia for 2005, with the highest figure for each category shaded. **Attachment D** (CVD Report Card, worksheet labeled Planning District Level) includes the data (except the average net patient revenue per discharge) by planning district.

**Average Charge, Net Patient Revenue, and ALOS per CVD Discharge (2005)**

Health Planning Region	Average Charge/Discharge	Average Net Patient Revenue/Discharge	ALOS
HPR I (Northwest)	\$25,426	<b>\$14,009</b>	4.4
HPR II (Northern)	\$30,381	\$13,993	5.3
HPR III (Southwest)	\$21,058	\$9,463	4.6
HPR IV (Central)	<b>\$43,538</b>	\$13,957	<b>5.6</b>
HPR V (Eastern)	\$28,924	\$12,188	5.2
<b>Virginia</b>	<b>\$29,774</b>	<b>\$12,572</b>	<b>5.0</b>

Source: Virginia Health Information (2005)

The calculations in the above table were derived as follows. The CVD gross charges for each hospital in a HPR were summed. The overall ratio of net patient revenue to gross revenue for each hospital (source: Virginia Health Information, 2005 financial extracts) was applied to its CVD gross charges to estimate the net CVD patient revenue by hospital. The hospitals' gross revenue and net patient revenue were aggregated by HPR. The gross and net patient revenue was divided by the total number of CVD discharges in the region to determine the average gross and net patient revenue per discharge by HPR.

The 2005 total CVD charges reveal the following:

- In 2005, total inpatient charges for CVD were \$3.67 billion, representing estimated net patient revenue of \$1.5 million.
- HPR IV (Central Virginia) has the highest average charge per discharge (46% higher than Virginia's) and the highest average length of stay (12% higher than Virginia's).
- HPR I (Northwest Virginia) has the highest net patient revenue per discharge (11% higher than Virginia's).
- It is interesting to note that HPR I (Northwest Virginia) has the highest average net patient revenue/discharge, but the lowest ALOS, probably reflecting the higher Medicare income associated with fixed payment regardless of length of stay.

**CARDIAC CATH UTILIZATION AND TRENDS**

The table below outlines the number of inpatient and outpatient cardiac cath by region. **Attachment D** (CVD Report Card, worksheet labeled Planning District Level) includes the data by planning district

**Inpatient and Outpatient Cardiac Cath Utilization by Region (2005)**

Health Planning Region	Inpatient		Outpatient		Total
	#	%	#	%	#
HPR I (Northwest)	8,492	67.6%	4,070	32.4%	12,562
HPR II (Northern)	4,761	50.9%	4,587	49.1%	9,348
HPR III (Southwest)	8,763	61.5%	5,493	38.5%	14,256
HPR IV (Central)	8,008	55.9%	6,325	44.1%	14,333
HPR V (Eastern)	11,701	64.3%	6,499	35.7%	18,200
<b>Virginia</b>	<b>42,415</b>	<b>60.9%</b>	<b>27,184</b>	<b>39.1%</b>	<b>69,599</b>

Source: Virginia Health Information (2005)

- As a whole, 60% of cath in Virginia are performed on an inpatient basis.
- HPR I (Northwest Virginia) has the highest percentage of inpatient cath.
- HPR II (Northern Virginia) has the highest percentage of outpatient cath. In fact, in HPR II, the percentages of inpatient and outpatient cath are almost identical.

The following table shows the cardiac cath use rate by region:

**Inpatient and Outpatient Cardiac Cath Use Rate by Region (2005)**

Health Planning Region	Inpatient	Outpatient	Total
HPR I (Northwest)	9.6	4.6	14.2
HPR II (Northern)	3.4	3.2	6.6
HPR III (Southwest)	8.5	5.3	13.8
HPR IV (Central)	8.1	6.4	14.6
HPR V (Eastern)	8.7	4.8	13.5
<b>Virginia</b>	<b>7.5</b>	<b>4.8</b>	<b>12.3</b>

Source: Virginia Health Information (2005)

- Virginia’s inpatient cath use rate is slightly more than 50% greater than the outpatient cath use rate.
- HPR IV (Central Virginia) has the highest total cath use rate (19% higher than Virginia’s).

- HPR I (Northwest Virginia) has the highest inpatient cath use rate (28% higher than Virginia's). HPR I's inpatient use rate is almost three times HPR II's inpatient cath use rate.
- HPR IV (Central Virginia) has the highest outpatient cath use rate (33% higher than Virginia's).

The trends in the cardiac cath rate are as follows:

- As a whole, Virginia's total cardiac cath rate is declining.
- HPR V (Eastern Virginia) is the only region experiencing an increase in the total cardiac cath rate.

**OTHER KEY INDICATORS FOR CVD**

The following section of the report covers three areas: 1) the percentage of the population enrolled in Medicaid; 2) the percentage of the population enrolled in Medicare; and 3) the percentage of the older adult population who have diabetes. The data for these indicators is shown in **Attachment D** (CVD Report Card, worksheet labeled Locality Level).

CVD is prevalent in the Medicare population; thus, a high percentage of Medicare in a locality could indicate a higher percentage of the population with or at risk for CVD. Similarly, the leading cause of death for diabetics is CVD; therefore, a high percentage of diabetics could indicate increased CVD treatment and prevention needs.

**Medicaid**

The table below provides the percentage of the population enrolled in Medicaid for each HPR and for Virginia, with the highest HPR shaded. As previously noted, data from both 2003 and 2004 were used.

**Percentage of the Medicaid Population (2003/2004)**

Health Planning Region	Medicaid %
HPR I (Northwest)	5.9%
HPR II (Northern)	3.4%
HPR III (Southwest)	<b>10.9%</b>
HPR IV (Central)	9.7%
HPR V (Eastern)	8.5%
<b>Virginia</b>	<b>7.3%</b>

**Sources:** Virginia Department of Medicaid Assistance Services (2003, 2004); CLARITAS

- HPR III (Southwest Virginia) has the highest percentage of the Medicaid population (almost 50% higher than Virginia’s). This percentage is reflective of the generally lower socioeconomic status of this region as compared to the other regions.
- This high Medicaid percentage could have some impact on the high CVD inpatient use rate in the region (for example, limited access to Medicaid providers impacting receipt of primary care and preventive services; lower access to nutritional and other health supports).

The following table shows the percentage of the population enrolled in Medicaid for each PD, with the PD having the highest percentage in each HPR highlighted.

**Percentage of the Medicaid Population  
by Planning District (2003/2004)**

Health Planning Region/Planning District	Medicaid %
<b>HPR I</b>	
PD 6 (Central Shenandoah)	<b>7.1%</b>
PD 7 (Lord Fairfax)	6.0%
PD 9 (Rappahannock-Rapidan)	5.1%
PD 10 (Thomas Jefferson)	6.1%
PD 16 (RADCO-Fredericksburg area)	4.9%
<b>HPR II</b>	
PD 8 (Northern Virginia)	<b>3.4%</b>
<b>HPR III</b>	
PD 1 (Lenowisco)	<b>19.1%</b>
PD 2 (Cumberland Plateau)	17.3%
PD 3 (Mount Rogers)	12.0%
PD 4 (New River Valley)	7.3%
PD 5 (Fifth)	8.4%
PD 11 (Central Virginia)	9.3%
PD 12 (West Piedmont)	10.9%
<b>HPR IV</b>	
PD 13 (Southside)	<b>15.2%</b>
PD 14 (Piedmont)	13.3%
PD 15 (Richmond Regional)	8.2%
PD 19 (Crater)	12.6%
<b>HPR V</b>	
PD 17 (Northern Neck)	10.1%
PD 18 (Middle Peninsula)	7.6%
PD 22 (Accomack-Northampton)	<b>13.7%</b>
PD 23 (Hampton Roads)	8.3%
<b>Virginia</b>	<b>7.3%</b>

**Sources:** Virginia Department of Medicaid Assistance Services (2003, 2004); CLARITAS

- PD 1 (Lenowisco) has the highest percentage of the population enrolled in Medicaid (more than two and one half times Virginia’s percentage).

The following table shows the locality in each HPR with the highest percentage of the population enrolled in Medicaid.

**Highest Percentage of the Medicaid Population  
by Locality (2003/2004)**

Health Planning Region	Medicaid %
<b>HPR I</b>	
Waynesboro (PD 6)	11.3%
<b>HPR II</b>	
Alexandria City (PD 8)	4.9%
<b>HPR III</b>	
Lee (PD 1)	23.5%
<b>HPR IV</b>	
Petersburg (PD 19)	22.4%
<b>HPR V</b>	
Franklin (PD 23)	26.2%

Sources: Virginia Department of Medicaid Assistance Services (2003, 2004); CLARITAS

**Medicare Aged and Disabled**

The following table shows the 2005 percentage of the population with Medicare by age and disability for each HPR and for Virginia, with the highest HPR shaded.

**Percentage of the Medicare Aged and  
Disabled Population by Region (2005)**

Health Planning Region	Medicare Aged %	Medicare Disabled %
HPR I (Northwest)	11.4%	1.8%
HPR II (Northern)	6.4%	0.6%
HPR III (Southwest)	<b>14.6%</b>	<b>4.4%</b>
HPR IV (Central)	11.6%	2.3%
HPR V (Eastern)	10.5%	1.8%
<b>Virginia</b>	<b>10.4%</b>	<b>2.0%</b>

Sources: Centers for Medicare and Medicaid Services (2005); CLARITAS

- HPR III (Southwest Virginia) has the highest percentage of the Medicare aged population (almost 50% higher than Virginia's).
- HPR III also has the highest percentage of the Medicare disabled population (more than twice Virginia's percentage).
- As noted previously in this report, HPR III has the highest total CVD use rate of all the HPRs as well as the highest CVD use rates for the white, black, and other races' population. This could be partially related to the higher Medicare population since CVD is more prevalent in the elderly.

The following table shows the percentage of the population with Medicare by age and disability for each HPR and for Virginia, with the PD having the highest percentage in each HPR highlighted.

**Percentage of the Medicare Aged and Disabled Population by Planning District (2005)**

Health Planning Region/Planning District	Medicare Aged %	Medicare Disabled %
<b>HPR I</b>		
PD 6 (Central Shenandoah)	<b>13.6%</b>	<b>2.4%</b>
PD 7 (Lord Fairfax)	13.1%	1.9%
PD 9 (Rappahannock-Rapidan)	12.3%	1.7%
PD 10 (Thomas Jefferson)	12.3%	1.9%
PD 16 (RADCO-Fredericksburg area)	7.2%	1.3%
<b>HPR II</b>		
PD 8 (Northern Virginia)	<b>6.4%</b>	<b>0.6%</b>
<b>HPR III</b>		
PD 1 (Lenowisco)	11.6%	6.8%
PD 2 (Cumberland Plateau)	13.1%	<b>9.4%</b>
PD 3 (Mount Rogers)	16.0%	4.9%
PD 4 (New River Valley)	11.7%	2.9%
PD 5 (Fifth)	14.9%	3.2%
PD 11 (Central Virginia)	15.3%	3.2%
PD 12 (West Piedmont)	<b>16.1%</b>	4.0%
<b>HPR IV</b>		
PD 13 (Southside)	<b>16.7%</b>	<b>4.1%</b>
PD 14 (Piedmont)	14.1%	3.1%
PD 15 (Richmond Regional)	10.6%	1.9%
PD 19 (Crater)	13.1%	3.2%
<b>HPR V</b>		
PD 17 (Northern Neck)	<b>21.3%</b>	2.3%
PD 18 (Middle Peninsula)	14.7%	2.4%
PD 22 (Accomack-Northampton)	15.9%	<b>2.7%</b>
PD 23 (Hampton Roads)	9.8%	1.7%
<b>Virginia</b>	<b>10.4%</b>	<b>2.0%</b>

Sources: Centers for Medicare and Medicaid Services (2005); CLARITAS

- PD 17 (Northern Neck) in HPR V has the highest percentage of the Medicare aged population (more than twice Virginia’s percentage).
- PD 2 (Cumberland Plateau) in HPR III has the highest percentage of the Medicare disabled population (over four times Virginia’s percentage).

- Some similarities with the Medicaid data exist. As with the Medicare data, PD 6 (Central Shenandoah) and PD 13 (Southside) have the highest percentages of the Medicaid population in their respective HPR.

The following table shows the locality in each HPR with the highest percentage of Medicare aged and Medicare disabled population.

**Highest Percentage of the Medicare Aged and Disabled Population by Locality (2005)**

Health Planning Region	Medicare Aged %	Medicare Disabled %
<b>HPR I</b>		
Lexington (PD 6)	37.3%	
Fredericksburg (PD 16)		5.7%
<b>HPR II</b>		
Alexandria City	11.5%	1.0%
<b>HPR III</b>		
Bedford City (PD 11)	47.1%	
Buchanan (PD 2)		13.5%
<b>HPR IV</b>		
Charlotte (PD 14)	21.9%	
Petersburg (PD 19)		5.2%
<b>HPR V</b>		
Williamsburg (PD 23)	43.9%	
Franklin (PD 23)		5.9%

Sources: Centers for Medicare and Medicaid Services (2005); CLARITAS

**Percentage of the Elderly with Diabetes**

The following table shows the 2004 percentage of the 65+ population who are diabetic and the percentage of the elderly diabetics receiving lipid profiles for each HPR and for Virginia. The HPR with the highest percentage of diabetics is shaded. For the percentage of diabetics receiving lipid profiles, a low percentage indicates a potential problem area; thus, the HPR with the lowest percentage is highlighted. Of note, diabetics are at a higher risk of developing CVD. Thus, a locality with a high percentage of diabetics and a low percentage receiving cholesterol (lipid) screenings could be an area of potential concern.

**Percentages of 65+ Population with Diabetes and  
65+ Diabetics Receiving Lipid Profiles by Region (2004)**

Health Planning Region	% 65+ Diabetic	% 65+ Diabetics Receiving Lipid Profiles
HPR I (Northwest)	19.7%	46.0%
HPR II (Northern)	11.0%	<b>36.6%</b>
HPR III (Southwest)	<b>23.4%</b>	45.0%
HPR IV (Central)	20.4%	45.7%
HPR V (Eastern)	20.1%	45.0%
<b>Virginia</b>	<b>19.2%</b>	<b>44.4%</b>

**Sources:** Virginia Healthcare Quality Council provided to the Healthy Pathway Medical Committee; CLARITAS

- HPR III (Southwest Virginia) has the highest percentage of the elderly population with diabetes (22% higher than Virginia’s percentage).
- HPR II (Northern Virginia) has the lowest percentage of elderly diabetics receiving lipid profiles (18% lower than Virginia’s).
- An annual lipid profile is a standard of care for diabetics. With less than 50% of elderly diabetics receiving this lab test in 2004, a need may exist for both provider and patient education.

The following table shows the percentage of the 65+ population who are diabetic and the percentage of elderly diabetics receiving lipid profiles for each PD and for Virginia, with the PDs with the highest percentage of 65+ diabetics and the lowest percentage of elderly diabetics receiving lipid profiles in each HPR shaded.

**Percentages of 65+ Population with Diabetes and  
65+ Diabetics Receiving Lipid Profiles by Planning District (2004)**

Health Planning Region/Planning District	% 65+ Diabetic	% 65+ Diabetics Receiving Lipid Profiles
<b>HPR I</b>		
PD 6 (Central Shenandoah)	<b>20.1%</b>	47.3%
PD 7 (Lord Fairfax)	19.7%	47.1%
PD 9 (Rappahannock-Rapidan)	19.8%	45.8%
PD 10 (Thomas Jefferson)	19.9%	45.6%
PD 16 (RADCO –Fredericksburg area)	18.7%	<b>43.2%</b>
<b>HPR II</b>		
PD 8 (Northern Virginia)	<b>11.0%</b>	<b>36.6%</b>
<b>HPR III</b>		
PD 1 (Lenowisco)	25.7%	51.0%
PD 2 (Cumberland Plateau)	<b>32.7%</b>	46.9%
PD 3 (Mount Rogers)	23.3%	43.7%
PD 4 (New River Valley)	23.4%	<b>43.6%</b>
PD 5 (Fifth)	18.8%	44.7%
PD 11 (Central Virginia)	23.4%	44.0%
PD 12 (West Piedmont)	23.9%	44.3%
<b>HPR IV</b>		
PD 13 (Southside)	23.2%	47.3%
PD 14 (Piedmont)	22.3%	48.7%
PD 15 (Richmond Regional)	18.6%	<b>43.3%</b>
PD 19 (Crater)	<b>25.2%</b>	50.6%
<b>HPR V</b>		
PD 17 (Northern Neck)	18.2%	43.9%
PD 18 (Middle Peninsula)	20.0%	<b>42.3%</b>
PD 22 (Accomack-Northampton)	19.5%	46.6%
PD 23 (Hampton Roads)	<b>20.3%</b>	45.2%
<b>Virginia</b>	<b>19.2%</b>	<b>44.4%</b>

**Sources:** Virginia Healthcare Quality Council provided to the Healthy Pathway Medical Committee; CLARITAS

- PD 2 (Cumberland Plateau) in HPR III has the highest percentage of its elderly population being diabetic (70% higher than Virginia's percentage).
- PD 8 (Northern Virginia) in HPR II has the lowest percentage of elderly diabetics receiving lipid profiles (18% lower than Virginia's percentage).

The following table shows the locality in each HPR with the highest percentage of 65+ diabetics and the lowest percentage of elderly diabetics receiving lipid profiles. It is interesting that many of the more affluent localities had lower percentage of their elderly diabetics being screened for lipid levels.

**Highest Percentages of 65+ Population with Diabetes and 65+ Diabetics Receiving Lipid Profiles by Locality (2004)**

Health Planning Region	% 65+ Diabetic	% 65+ Diabetics Receiving Lipid Profiles
<b>HPR I</b>		
Fredericksburg (PD 16)	49.8%	
Stafford (PD 16)		38.5%
<b>HPR II</b>		
Alexandria (PD 8)	18.3%	
Fairfax (PD 8)		36.1%
<b>HPR III</b>		
Galax (PD 1)	54.7%	40.0%
<b>HPR IV</b>		
Sussex (PD 19)	33.6%	
Chesterfield (PD 15)		40.9%
<b>HPR V</b>		
Williamsburg (PD 23)	56.2%	35.5%

**Sources:** Virginia Healthcare Quality Council provided to the Healthy Pathway Medical Committee; CLARITAS

**Summary of Other Key Indicators of CVD**

The key findings from the other key indicators of CVD are:

1. HPR III (Southwest Virginia) has the highest percentage of the Medicaid population (almost 50% higher than Virginia’s). This percentage is reflective of the generally lower socioeconomic status of this region as compared to the other regions.
2. HPR III (Southwest Virginia) has the highest percentage of the Medicare aged population (almost 50% higher than Virginia’s) and the highest percentage of the Medicare disabled population (more than twice Virginia’s percentage).
3. As noted previously in this report, HPR III has the highest total CVD use rate of all the HPRs as well as the highest CVD use rates for the white, black, and other races’ population. This could be partially related to the higher Medicare population since CVD is more prevalent in the elderly.
4. HPR III (Southwest Virginia) has the highest percentage of the elderly population with diabetes (22% higher than Virginia’s percentage).

5. HPR II (Northern Virginia) has the lowest percentage of elderly diabetics receiving lipid profiles (18% lower than Virginia's).
6. An annual lipid profile is a standard of care for diabetics. With less than 50% of elderly diabetics receiving this lab test statewide in 2004, a need may exist for both provider and patient education.

**ANALYSIS OF CVD DATA BY LOCALITY**

The 2005 locality level CVD data was analyzed to determine areas of potential concern (see **Attachment D** (CVD Report Card, worksheet labeled Locality Level). Each locality’s rate or percentage was compared to the State’s rate or percentage and then shaded to help identify localities with possible problems. The following methodology was used to determine the shading of the locality’s rate or percentage.

- If the locality’s rate or percentage was less than or equal to the State’s rate/percentage, the locality was shaded **green**.
- If the locality’s rate or percentage was between the State’s rate/percentage and up to the rate/percentage detailed in the table below, the locality was shaded **blue**.
- If the locality’s rate/percentage was greater than the identified rate/percentage listed in the table below, the locality was shaded **red**.

**Percentage Used for Shading of Locality’s Indicators**

<b>Indicator</b>	<b>% Above State’s</b>
Age Adjusted Heart Disease Death Rate	25%
Age Adjusted Cerebrovascular Disease Death Rate	25%
CVD Inpatient Use Rate (total, white, black, other)	25%
CVD Inpatient Female Use Rate	60%
CVD Inpatient % Female	5%
CVD Inpatient 35-64 Age Group Use Rate	60%
CVD Inpatient % 35-64 Years	10%
% Population Medicaid	50%
% Population Medicare Aged	50%
% Population Medicare Disabled	75%
% 65+ Diabetic	25%
% 65+ Diabetics Receiving Lipid Profiles	5%

The following section summarizes the key findings by HPR for the locality level CVD data.

**HPR I (Northwestern Virginia)**

The following localities have at least one death rate shaded red and at least two racial inpatient use rates shaded red:

- Bath (PD 6)
- Highland (PD 6)
- Staunton City (PD 6)
- Waynesboro (PD 6)
- Clarke (PD 7)
- Page (PD 7)
- Shenandoah (PD 7)
- Warren (PD 7)
- Rappahannock (PD 9)

The following planning district has a majority of its localities shaded red for the CVD female inpatient use rate:

- PD 6 (Central Shenandoah)

The following planning district has a majority of its localities (four out of five) shaded red for the percentage of the 35-64 age group CVD discharges:

- PD 16 (RADCO-Fredericksburg area)

The following planning district has a majority of its localities shaded red for the percentage of the population that is Medicare aged:

- PD 6 (Central Shenandoah)

PD 6 also has two-fifths of its localities with a high percentage of the 65+ population that is diabetic.

The following localities have at least three of the five indicators for the Medicaid, Medicare, and diabetic elderly population shaded red:

- Buena Vista City (PD 6)
- Lexington City (PD 6)
- Staunton City (PD 6)
- Waynesboro City (PD 6)
- Fredericksburg (PD 16)

## **HPR II (Northern Virginia)**

All localities in PD 8 are shaded red for the percentage of elderly diabetics receiving lipid profiles.

### HPR III (Southwest Virginia)

The following localities have at least one death rate shaded red and at least two racial inpatient use rates shaded red:

- Lee (PD 1)
- Wise (PD 1)
- Buchanan (PD 2)
- Dickenson (PD 2)
- Tazewell (PD 2)
- Wythe (PD 3)
- Floyd (PD 4)
- Giles (PD 4)
- Pulaski (PD 4)
- Radford City (PD 4)
- Alleghany (PD 5)
- Roanoke City (PD 5)
- Salem City (PD 5)
- Bedford (PD 11)
- Danville City (PD 12)
- Franklin (PD 12)
- Martinsville City (PD 12)

The following planning districts have the majority of their localities having the CVD female inpatient use rate shaded red:

- PD 2 (Cumberland Plateau)
- PD 4 (New River Valley)
- PD 5 (Fifth)

The following planning districts have either all or a majority of their localities having the percentage of the female CVD discharges shaded red:

- PD 1 (Lenowisco)
- PD 2 (Cumberland Plateau)
- PD 4 (New River Valley)

The following planning districts have either all or almost all of their localities shaded red for the percentage of the Medicaid population:

- PD 1 (Lenowisco)
- PD 2 (Cumberland Plateau)
- PD 3 (Mount Rogers)
- PD 12 (West Piedmont)

The following planning districts have either all or almost all of their localities shaded red for the percentage of the Medicare population that is aged:

- PD 3 (Mount Rogers)
- PD 12 (West Piedmont)

The following planning districts have half of their localities shaded red for the percentage of the population that is Medicare disabled:

- PD 1 (Lenowisco)
- PD 2 (Cumberland Plateau)
- PD 3 (Mount Rogers)
- PD 5 (Fifth)
- PD 12 (West Piedmont)

The following planning districts have either all of the localities or all but one of their localities shaded red for the percentage of the elderly population that is diabetic:

- PD 1 (Lenowisco)
- PD 2 (Cumberland Plateau)

The following localities have both the percentage of the elderly population that is diabetic and the percentage of the diabetic elderly population receiving lipid profiles shaded red:

- Galax City (PD 3, Mount Rogers)
- Salem City (PD 5, Fifth)

The following localities have at least three of the five indicators for the Medicaid, Medicare, and diabetic elderly population shaded red:

- Lee (PD 1)
- Wise (PD 1)
- Buchanan (PD 2)
- Dickenson (PD 2)
- Russell (PD 2)
- Tazewell (PD 2)
- Bristol City (PD 3)
- Carroll (PD 3)
- Galax City (PD 3)
- Grayson (PD 3)
- Smyth (PD 3)
- Wythe (PD 3)
- Giles (PD 4)
- Roanoke City (PD 5)
- Salem City (PD 5)
- Bedford City (PD 11)
- Lynchburg City (PD 11)
- Danville City (PD 12)
- Martinsville City (PD 12)
- Patrick (PD 12)

#### **HPR IV (Central Virginia)**

The following localities have at least one death rate shaded red and at least two racial inpatient use rates shaded red:

- Brunswick (PD 13) – the total inpatient and all three racial groups are shaded red
- Halifax (PD 13) – the total inpatient and all three racial groups are shaded red
- Mecklenburg (PD 13) – the total inpatient and all three racial groups are shaded red
- Amelia (PD 14)
- Charlotte (PD 14)

- Lunenburg (PD 14)
- Nottoway (PD 14) – the total inpatient and all three racial groups are shaded red
- Prince Edward (PD 14) – the total inpatient and all three racial groups are shaded red
- Goochland (PD 15)
- New Kent (PD 15)
- Colonial Heights (PD 19)
- Greensville (PD 19) – the total inpatient and all three racial groups are shaded red
- Hopewell (PD 19)
- Petersburg (PD 19) – the total inpatient and all three racial groups are shaded red
- Sussex (PD 19) – the total inpatient and all three racial groups are shaded red

The following planning district has the majority of its localities shaded red for the CVD female inpatient use rate:

- PD 19 (Crater)

The following planning districts have the majority of its localities shaded red for the 35-64 age group CVD use rate:

- PD 13 (Southside)
- PD 14 (Piedmont)
- PD 19 (Crater)

The following planning districts have a majority of the percentage of the 35-64 age group CVD discharges shaded red:

- PD 15 (Richmond Regional)
- PD 19 (Crater)

The following planning districts have either all or all but one of their localities shaded in red for the percentage of the Medicaid population:

- PD 13 (Southside) –also has two of its three localities shaded red for the percentage of the population that is Medicare aged as well as Medicare disabled
- PD 14 (Piedmont)

The following planning district has half of its localities shaded red for the percentage of the elderly population that is diabetic:

- PD 19 (Crater)

The following localities have at least three of the five indicators for the Medicaid, Medicare, and diabetic elderly population shaded red:

- Halifax (PD 13)
- Mecklenburg (PD 13)
- Charlotte (PD 14)
- Petersburg (PD 19)
- Sussex (PD 19)

#### **HPR V (Eastern Virginia)**

The following localities have at least one death rate shaded red and at least two racial inpatient use rates shaded red:

- Lancaster (PD 17) – the total inpatient and all three racial groups are shaded red
- Northumberland (PD 17)
- Richmond County (PD 17) – the total inpatient and all three racial groups are shaded red
- Mathews (PD 18) – the total inpatient and all three racial groups are shaded red
- Middlesex (PD 18)
- Northampton (PD 22)
- Franklin City (PD 23) – the total inpatient and all three racial groups are shaded red
- Portsmouth (PD 23)
- Southampton (PD 23)

The following planning district has the majority of its localities shaded red for the CVD female inpatient use rate:

- PD 17 (Northern Neck)

The following planning district has the majority of its localities shaded red for the 35-64 age group CVD use rate:

- PD 18 (Middle Peninsula)

The following planning districts have all or at least one third of their localities shaded red for the percentage of the population that is Medicaid:

- PD 18 (Middle Peninsula)
- PD 22 (Accomack-Northampton)
- PD 23 (Hampton Roads)

The following planning districts have either all or half of their localities shaded in red for the percentage of the population that is Medicare aged:

- PD 17 (Northern Neck)
- PD 18 (Middle Peninsula)
- PD 22 (Accomack-Northampton)

The following planning district has the majority of its localities' percentage of elderly diabetics receiving lipid profiles shaded red:

- Middle Peninsula (PD 18)

The following localities have both the percentage of the elderly population that is diabetic and the percentage of the diabetic elderly population receiving lipid profiles shaded red:

- Williamsburg City (PD 23, Hampton Roads)
- York (PD 23, Hampton Roads)

The following localities have at least three of the five indicators for the Medicaid, Medicare, and diabetic elderly population shaded red:

- Franklin City (PD 23)
- Williamsburg City (PD 23)

## SUMMARY OF FINDINGS

The following lists some of the major findings from the CVD Statewide Report Card:

### Mortality Rates

- More than 14,000 Virginians died of heart disease and 3,666 Virginians died of cerebrovascular disease in 2005.
- HPR III (Southwest Virginia) has the highest death rate for both genders for heart disease. HPR III's male age adjusted heart disease death rate is 26% higher than Virginia's rate while HPR III's female age adjusted heart disease death rate is 18% higher than Virginia's rate.
  - PD 1 (Lenowisco) has the highest male death rate for heart disease in Virginia.
- HPR III (Southwest Virginia) has a large percentage of rural areas within the region. Rural areas often have higher death rates for several reasons, including lower socioeconomic status; limited access to health care services; and lower employment rates, resulting in decreased access to health insurance.
- HPR IV (Central Virginia) has the highest death rate for both genders for cerebrovascular disease. HPR IV's male age adjusted cerebrovascular disease death rate is 31% higher than Virginia's rate while HPR IV's female age adjusted cerebrovascular disease death rate is 8% higher than Virginia's rate.
  - PD 13 (Southside) has the highest death rate for both genders for cerebrovascular disease in Virginia.
  - PD 13 also had the highest female death rate for heart disease in Virginia.
- HPR III (Southwest Virginia) has the highest death rates for all the racial categories for heart disease. HPR III's white population's death rate is 24% higher, its black population's death rate is 12% higher, and its other races' death rate is 64% higher than the corresponding rates for Virginia.
  - PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest age adjusted white population death rate for heart disease (48% higher than Virginia's rate).
  - PD 12 (West Piedmont) in HPR III (Southwest Virginia) has the highest age adjusted black population death rate for heart disease (42% higher than Virginia's rate).

- HPR IV (Central Virginia) has the highest death rate for the white population for cerebrovascular disease. Its rate is 18% higher than Virginia's death rate for the white population.
  - PD 13 (Southside) in HPR IV (Central Virginia) has the highest age adjusted white population death rate for cerebrovascular disease (50% higher than Virginia's rate).
- HPR V (Eastern Virginia) has the highest death rates for the black population and the other races for cerebrovascular disease. Its black population's death rate and other races' death rate are 10% higher and 8% higher, respectively, than the corresponding death rates for Virginia.
  - PD 2 (Cumberland Plateau) in HPR III (Southwest Virginia) has the highest age adjusted black population death rate for cerebrovascular disease (38% higher than Virginia's rate).

### **Inpatient Data**

- There were more than 123,000 CVD inpatient discharges in 2005 of Virginians from Virginia hospitals, representing more than 337 hospitalizations every day.
- Virginia as a whole has a declining total CVD inpatient use rate and a declining inpatient white population use rate.
- Four of the five HPRs have declining total CVD inpatient use rates. HPR III's (Southwest Virginia) use rate shows no trend.
- HPR III (Southwest Virginia) has the highest total inpatient CVD use rate (33% higher than Virginia's rate).
- HPR III (Southwest Virginia) also has the highest use rates for white, black, and other races (31%, 19%, and 34%, respectively, higher than Virginia's rates).
- PD 19 (Crater) in HPR IV (Central Virginia) has the highest total CVD inpatient use rate (88% higher than Virginia's) and the highest CVD inpatient use rate for the white population (88% higher than Virginia's).
- PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest CVD inpatient use rate for the black population (almost double Virginia's use rate).
- The differences in health planning regions' inpatient use rate by race is probably related to demographic composition and socioeconomic factors, such as access to health care services and health insurance (employment based and other insurance).

- The black population's CVD inpatient use rate is increasing. In fact, 9 (43%) of the 21 planning districts have a rising inpatient use rate for the black population. In contrast, only five (24%) of the 21 planning districts have a rising inpatient use rate for the white population. Increased efforts to address CVD health disparities appear to be needed.
- It appears that CVD discharges are not increasing significantly in the female population over the past several years.
- HPR III (Southwest Virginia) has the highest percentage of female CVD discharges. Its percentage is 5% higher than Virginia's percentage. PD 1 (Lenowisco) in HPR III (Southwest Virginia) has the highest percentage of female CVD discharges in Virginia (24% higher than Virginia's).
- HPR III (Southwest Virginia) has the highest female use rate for CVD discharges. Its use rate is 37% higher than Virginia's percentage.
- PD 19 (Crater) in HPR IV (Central Virginia) has the highest female use rate for CVD discharges (almost double Virginia's rate).
- For Virginia as a whole, no trend was found in the percentage of the 35-64 age group CVD discharges.
  - HPR I (Northwest Virginia) is the only region that has a rising percentage of the 35-64 age group CVD discharges.
  - Nine (43%) planning districts experienced an increasing percentage of the 35-64 age group CVD discharges.
- HPR IV (Central Virginia) has the highest percentage of the 35-64 age group discharges and this group's use rate is 27% higher than Virginia's. PD 19 (Crater) in HPR IV (Central Virginia) has the highest percentage of the 35-64 age group CVD discharges (more than twice Virginia's percentage). In addition, PD 19 (Crater) in HPR IV has the highest use rate of the 35-64 age group CVD discharges (more than twice Virginia's use rate). Reduction in premature CVD hospitalizations should be a priority in central Virginia.
- Based on the trends, the 35-64 age group is a demographic subgroup that should be targeted for further interventions. An increasing trend in the percentage of the 35-64 age group CVD discharges could indicate premature CVD. Several factors could be contributing to this increase, including people not being treated or recognizing the symptoms of CVD; earlier onset of CVD; lack of access to primary health care services; limited access to prevention screening; and the increased number of younger people with risk factors. Premature CVD hospitalizations represent significant, avoidable health care costs.

### **CVD Disease Groupings**

- The use rates for all CVD disease groups for the State's overall population either declined or had no trend.
- Congestive heart failure showed a growing trend in both the black and 35-64 age groups use rates.
- The 35-64 age group had an increasing use rate trend for stroke.
- HPR III (Southwest Virginia) appears to be an area of concern as this region is identified frequently in the lists of increasing trends.

### **CVD Charges/Costs**

- In 2005, total inpatient charges for CVD were \$3.67 billion, representing net patient revenue of \$1.5 million.
- HPR IV (Central Virginia) has the highest average charge per discharge (46% higher than Virginia's) and the highest average length of stay (12% higher than Virginia's).
- HPR I (Northern Virginia) has the highest average net patient revenue per discharge but the lowest ALOS.

### **Cardiac Cath Utilization**

- Almost 70,000 cardiac catheterizations were performed in Virginia hospitals in 2005.
- As a whole, Virginia's total cardiac cath rate is declining.
- HPR V (Eastern Virginia) is the only region experiencing an increase in the total cardiac cath rate.
- HPR IV (Central Virginia) has the highest total cath use rate (19% higher than Virginia's).
- HPR I (Northwest Virginia) has the highest inpatient cath use rate (28% higher than Virginia's). HPR I's inpatient use rate is almost three times HPR II's inpatient cath use rate.
- HPR IV (Central Virginia) has the highest outpatient cath use rate (33% higher than Virginia's).

### **Other Key Indicators of CVD**

- HPR III (Southwest Virginia) has the highest percentage of the Medicaid population (almost 50% higher than Virginia's). This percentage is reflective of the generally lower socioeconomic status of this region as compared to the other regions.
- HPR III (Southwest Virginia) has the highest percentage of the Medicare aged population (almost 50% higher than Virginia's) and the highest percentage of the Medicare disabled population (more than twice Virginia's percentage).
- As noted previously in this report, HPR III (Southwest Virginia) has the highest total CVD use rate of all the HPRs as well as the highest CVD use rates for the white, black, and other races' population. This could be partially related to the higher Medicare population since CVD is more prevalent in the elderly.
- HPR III (Southwest Virginia) has the highest percentage of the elderly population with diabetes (22% higher than Virginia's percentage).
- HPR II (Northern Virginia) has the lowest percentage of elderly diabetics receiving lipid profiles (18% lower than Virginia's).
- An annual lipid profile is a standard of care for diabetics. With less than 50% of elderly diabetics receiving this lab test statewide in 2004, a need may exist for both provider and patient education.

This summary of findings, along with the CVD report card included in Attachment D, can provide an easy tool for health care providers, policy makers, local health departments, community based organizations, and others to target efforts to reduce the impact of CVD on Virginians and, ultimately, on the cost of health care overall. Clearly, progress has been made in decreasing the impact of CVD throughout most of Virginia; however, focusing efforts and resources on high need populations should result in further reduction of the negative impact of CVD on our State.