

CARDIOVASCULAR DISEASE

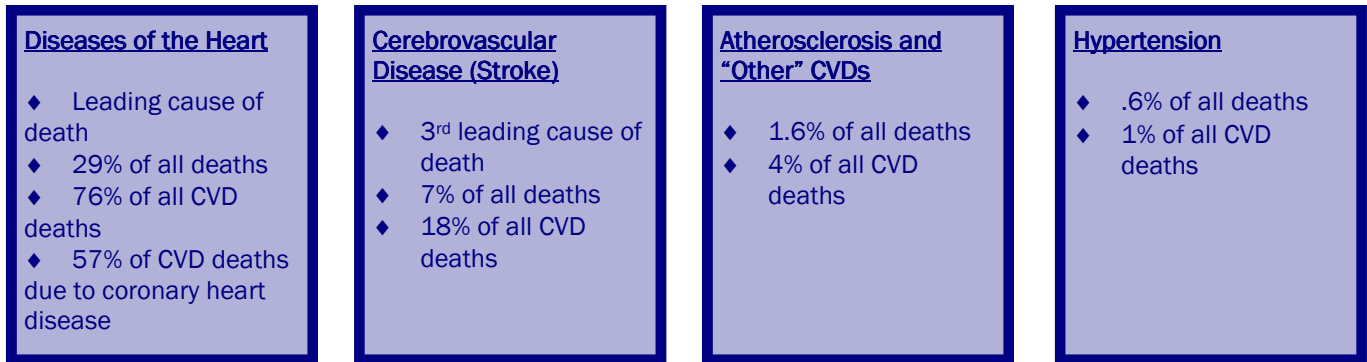
Definition & Classification

- ◆ Cardiovascular disease (CVD) is a disorder of the heart (“cardio”) and blood vessels (“vascular”). CVDs include:
 1. Diseases of the heart (including coronary heart disease)
 2. Cerebrovascular disease (stroke)
 3. Hypertensive diseases, and
 4. Atherosclerosis and other diseases of arteries, arterioles, and capillaries

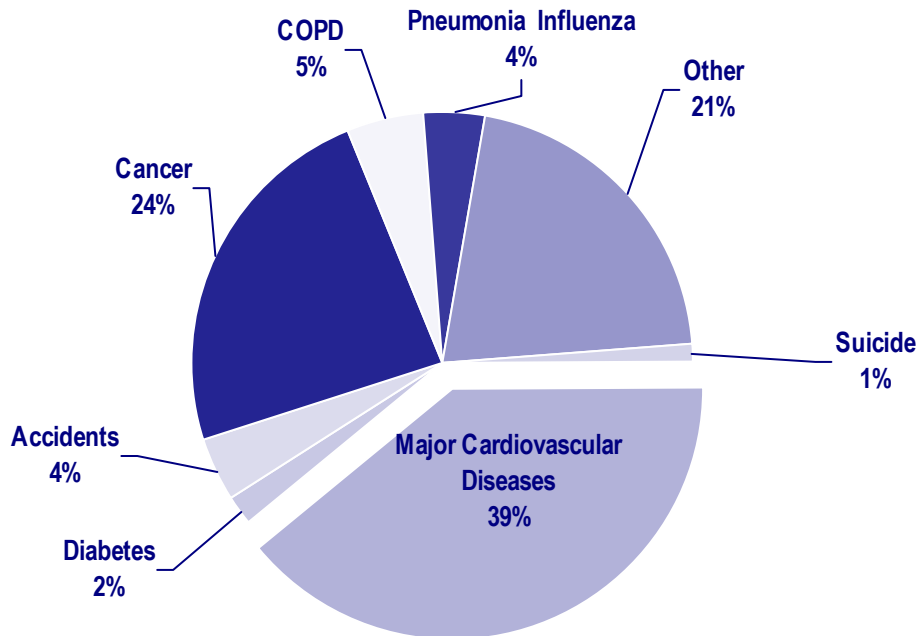
Mortality

- ◆ Cardiovascular disease was the leading cause of death among Virginians in 1998, accounting for 20,744 deaths (39 percent of the 53,629 total deaths in the state).

CARDIOVASCULAR DISEASE (CVD) in VIRGINIA, 1998

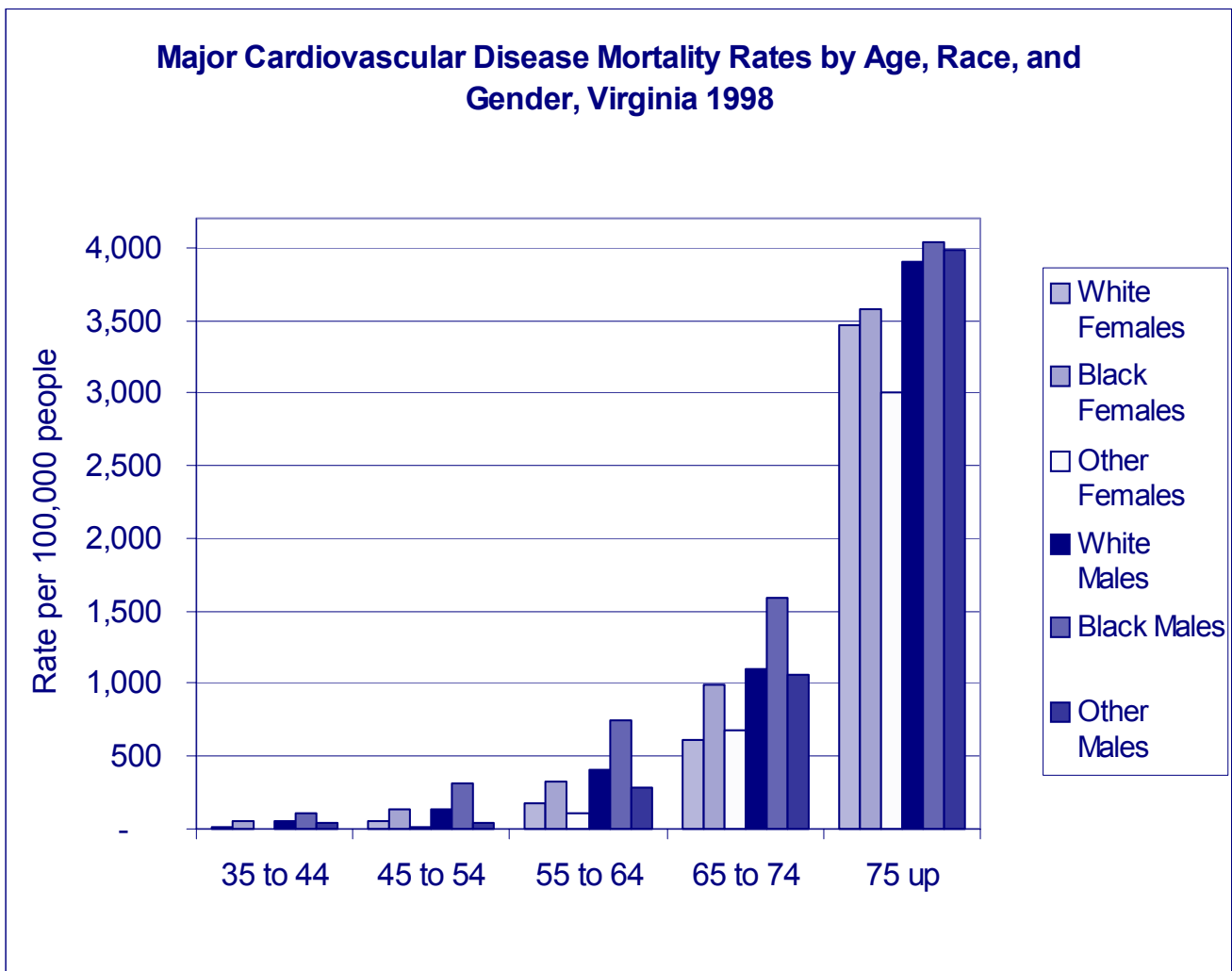


Leading Causes of Deaths, 1998



CARDIOVASCULAR DISEASE

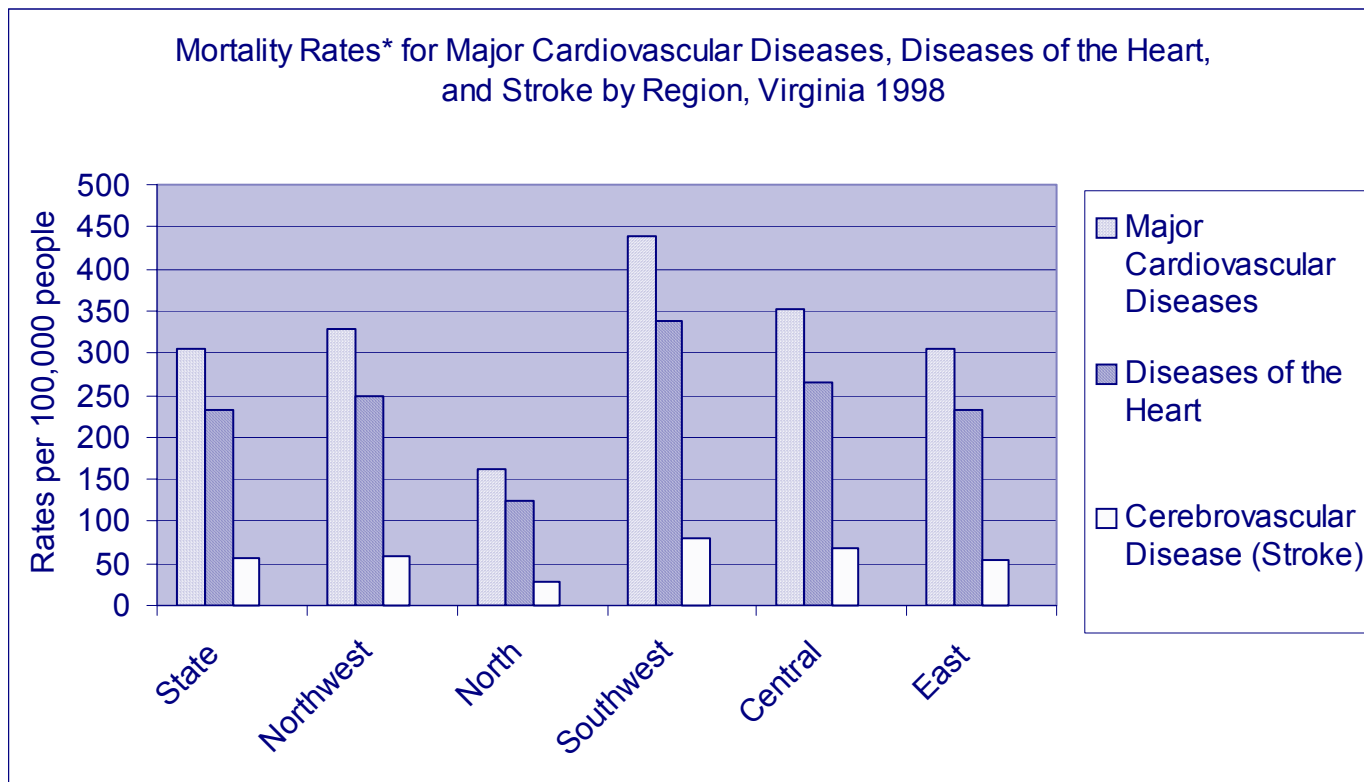
- ◆ Cardiovascular disease mortality rates increased with age, with the most dramatic increases in the 75 and older age group.
- ◆ Major cardiovascular disease (CVD) mortality rates vary by race and gender:
 - Black males have the highest mortality rates at all ages.
 - At all ages, black females have higher mortality rates than white females or females of any other race/ethnicity.
 - There is a ten-year lag in mortality rates for women when compared to men, which holds true for all race groups.



(Source: Virginia Department of Health, Center for Health Statistics, 2001)

CARDIOVASCULAR DISEASE

- ◆ The Southwest Region of Virginia has the highest mortality rates for all major cardiovascular diseases combined, as well as for diseases of the heart and cerebrovascular disease. The southwest region is the most medically underserved region of the state.



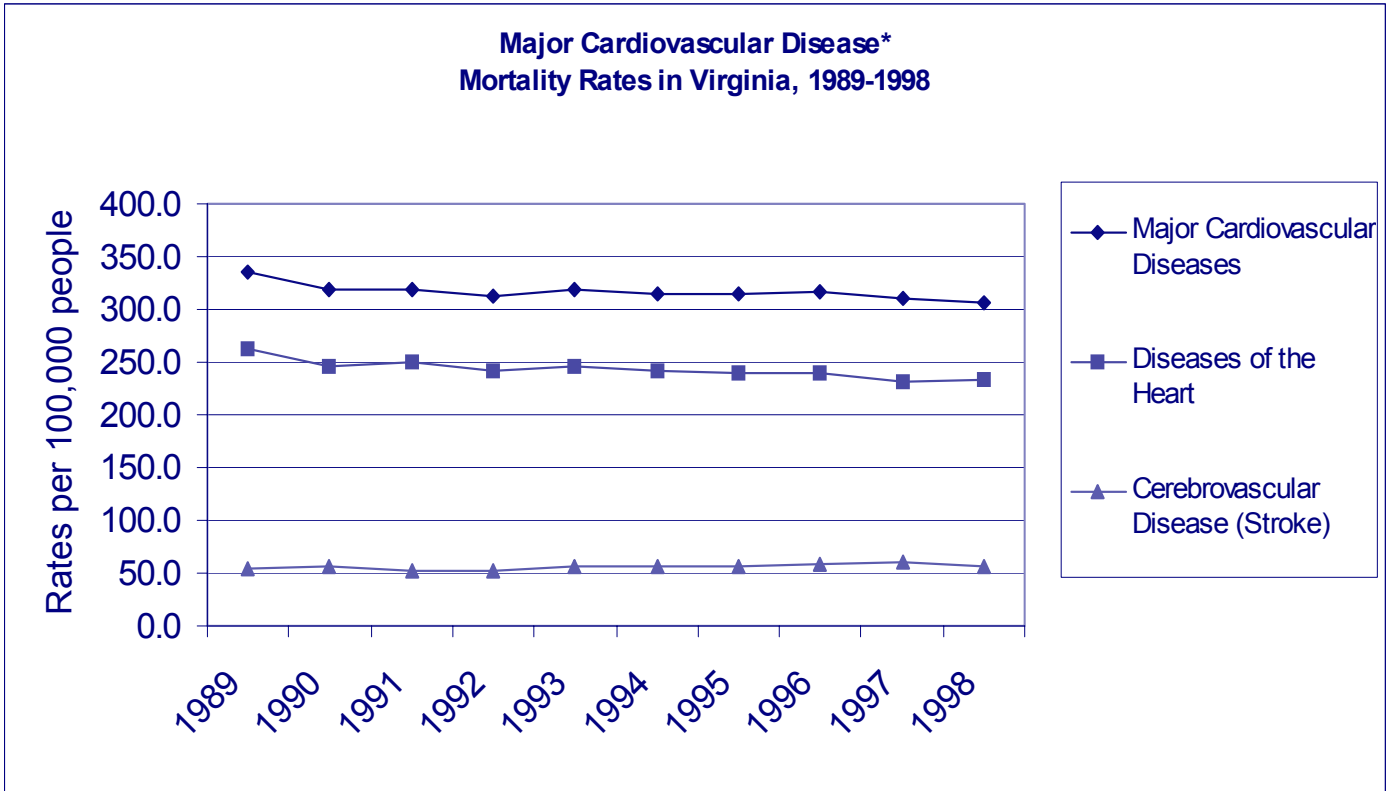
*Unadjusted Rates

(Source: Virginia Department of Health, Center for Health Statistics, 1998)

- ◆ Unadjusted mortality rates (see graph on next page) during the 1989-1998 decade:
 - Decreased 9 percent for all major cardiovascular diseases combined (from 334.4 in 1989 to 305.5 in 1998).
 - Decreased 11 percent for diseases of the heart (from 261.6 in 1989 to 233.0 in 1998).
 - Decreased 36 percent for atherosclerosis (from 6.4 in 1989 to 4.1 in 1998).
 - Increased 52 percent for hypertension (from 2.9 in 1989 to 4.4 in 1998).
 - Remained fairly steady for stroke (from 54.9 in 1989 to 55.8 in 1998).
 - Varied by race:
 - Mortality from diseases of the heart and from atherosclerosis decreased among blacks and whites, but increased among other races.
 - Mortality from stroke decreased among blacks, but increased among whites and other races.
 - Mortality from hypertension increased in all race groups.

(Source: Virginia Department of Health, Center for Health Statistics, *Virginia Health Statistics 1998*, vol. 2, p. VII-16)

CARDIOVASCULAR DISEASE



*Hypertension and Atherosclerosis + Other CVDs not shown due to low numbers.
 (Source: Virginia Department of Health, Center for Health Statistics, 2001)

Costs

- ◆ One way to estimate the burden of cardiovascular disease is through analysis of hospital discharge data. However, the figures in the table below underestimate the cost of major cardiovascular diseases because hospitalizations for hypertension and atherosclerosis are *not* included.

1998 Hospitalization & Charges Due to Major Cardiovascular Disease		
	Diseases of the Heart	Cerebrovascular Disease
Hospitalizations	92,836	22,975
Average Charge	\$15,333.00	\$12,224.00
Total Charges	\$1,474,731,634.00	\$280,256,241.00
Average Length of Stay (days)	4.19	6.15
Total Days Hospitalized	458,427	141,442

Source: VA Hospital Discharge Dataset, 1998

DIABETES

Definition

Diabetes mellitus:

- ◆ Is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both.
- ◆ Can be associated with serious complications and premature death.
- ◆ Disproportionately affects certain minority groups, such as African-Americans, Native Americans, and Hispanics.
- ◆ Is a risk factor for many serious illnesses and complications, such as cardiovascular disease, lower extremity amputations, blindness, and end-stage renal disease.
 - These complications lead to increased hospitalizations and decreased productivity.
 - The incidence of diabetes-related complications has increased over the past several years.

Classification

- ◆ **Type 1**, which used to be called “juvenile-onset diabetes” or “insulin-dependent diabetes mellitus (IDDM):”
 - Usually appears suddenly and most commonly in younger people under age 30.
 - Accounts for 5 to 10 percent of cases of diabetes.
 - Is treated by daily insulin injections or use of an insulin pump; a planned diet and regular physical activity; and daily self-monitoring of blood glucose.
- ◆ **Type 2**, which used to be called “adult-onset diabetes” or “non-insulin-dependent diabetes mellitus (NIDDM):”
 - Is the condition in which the pancreas makes some insulin, but the insulin is not effective.
 - Usually develops gradually, most often in people over 40 years of age. However, it is increasing in children.
 - Accounts for 90 to 95 percent of all diabetes cases.
 - Is controlled by diet and physical activity and daily monitoring of glucose levels. Sometimes oral drugs that lower blood glucose levels or insulin injections are needed.
- ◆ **Gestational Diabetes Mellitus:**
 - Is a type of diabetes mellitus that can occur in the second half of a woman’s pregnancy.
 - Results in a higher-than-normal blood glucose level.
 - Develops in up to five percent of all pregnancies but usually disappears when a pregnancy is over.
 - Occurs more frequently among African Americans, Hispanic/Latino Americans, American Indians, and people with a family history of diabetes than in other groups.
 - Poses an increased risk for later developing type 2 diabetes.

Mortality

- ◆ Diabetes has been the seventh leading cause of death in Virginia since 1990.
- ◆ Diabetes is the fifth leading cause of death among 45-64 year olds.
- ◆ Diabetes accounted for 1,313 deaths in 1998, which was 2.4% of total deaths statewide.

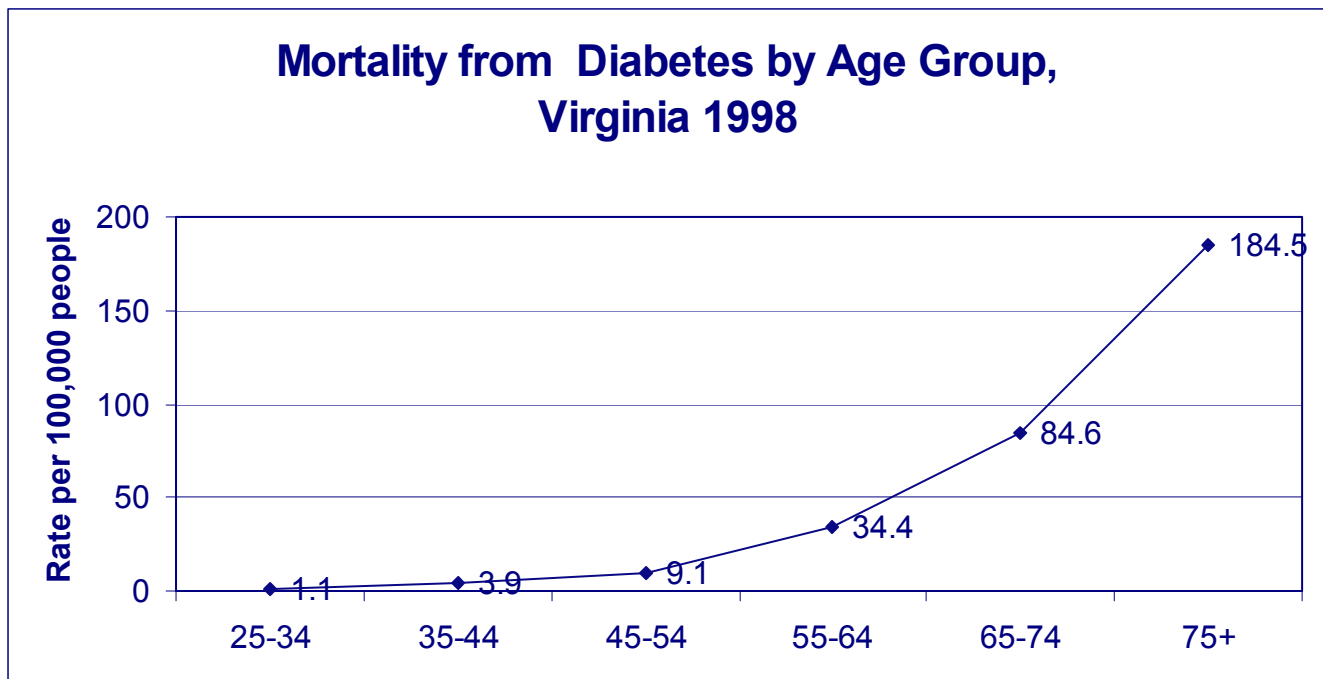
DIABETES

- ◆ 1998 unadjusted mortality rates by race and gender reveal that:
 - Black females had the highest mortality rate, exceeding the statewide mortality rate by 81 percent.
 - Black males had the second highest mortality rate, exceeding the statewide mortality rate by 24 percent.
 - The mortality rate for white females was slightly higher than the rate for white males, and both rates were below the statewide mortality rate.
 - Mortality rates for other races were significantly lower than among blacks and whites.

Diabetes Mortality by Race and Gender in Virginia, 1998* (Rates per 100,000 Population)						
Total Death Rate	White		Black		Other	
	Male	Female	Male	Female	Male	Female
19.3	16.5	18.3	24.0	34.9	4.7	3.6

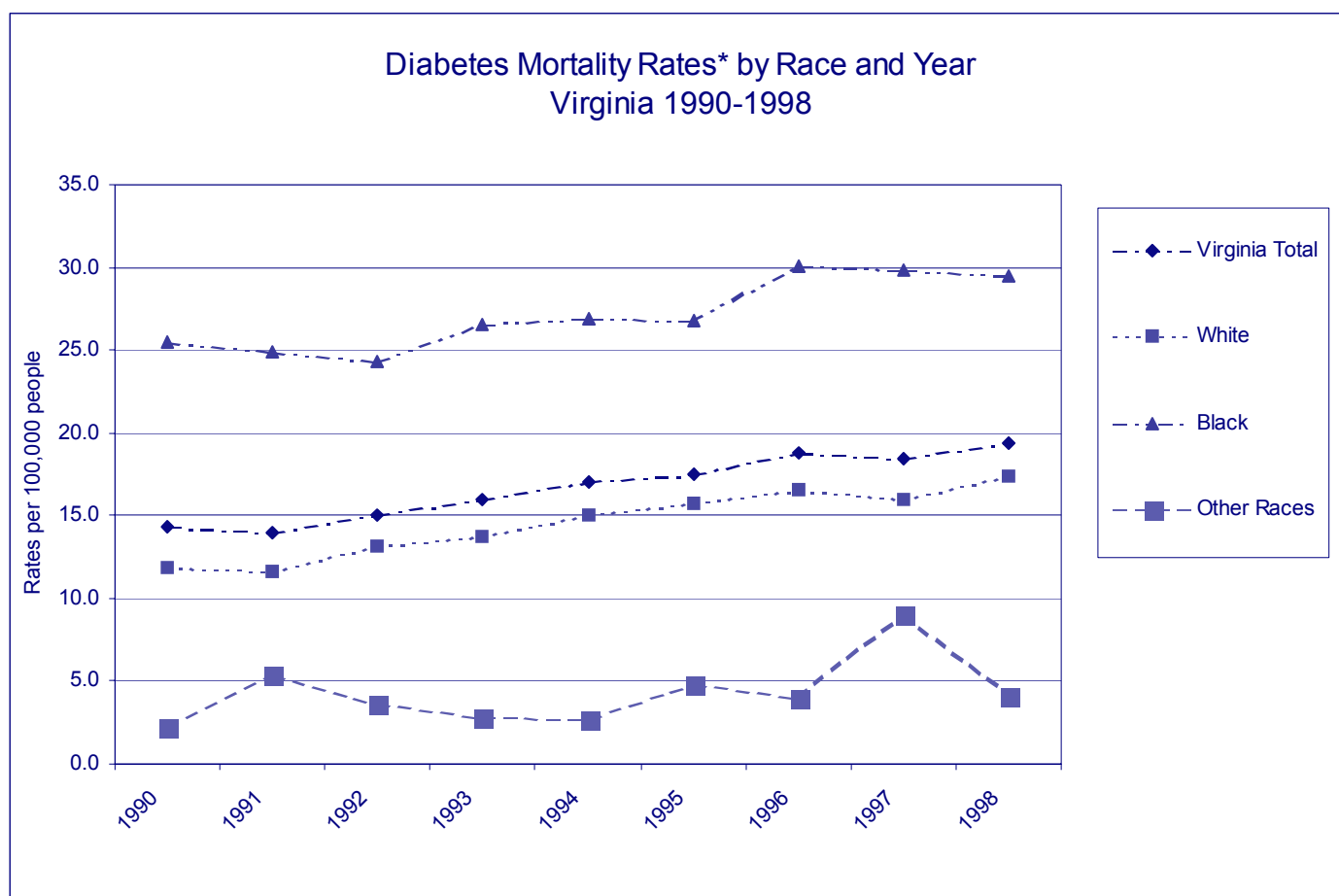
*Unadjusted rates
(Source: Virginia Department of Health, Center for Health Statistics, 2001)

- ◆ Mortality rates increased at an accelerated rate as age increased (i.e., the increase from one age group to the next occurred exponentially, not linearly.)



DIABETES

- ◆ Mortality rates over the 1990-1998 time period indicate that:
 - Blacks had the highest diabetes mortality rates from 1990 through 1998 compared to other races.
 - The mortality rate among blacks has consistently been almost **twice** the rate among whites.
 - The mortality rate among whites increased 46 percent (from 11.9 per 100,000 population to 17.4), and the mortality rate among blacks increased 16 percent (from 25.5 per 100,000 population in 1990 to 29.5 per 100,000 in 1998).
 - The mortality rate among other races increased 78 percent (from 2.3 per 100,000 population in 1990 to 4.1 per 100,000 in 1998).

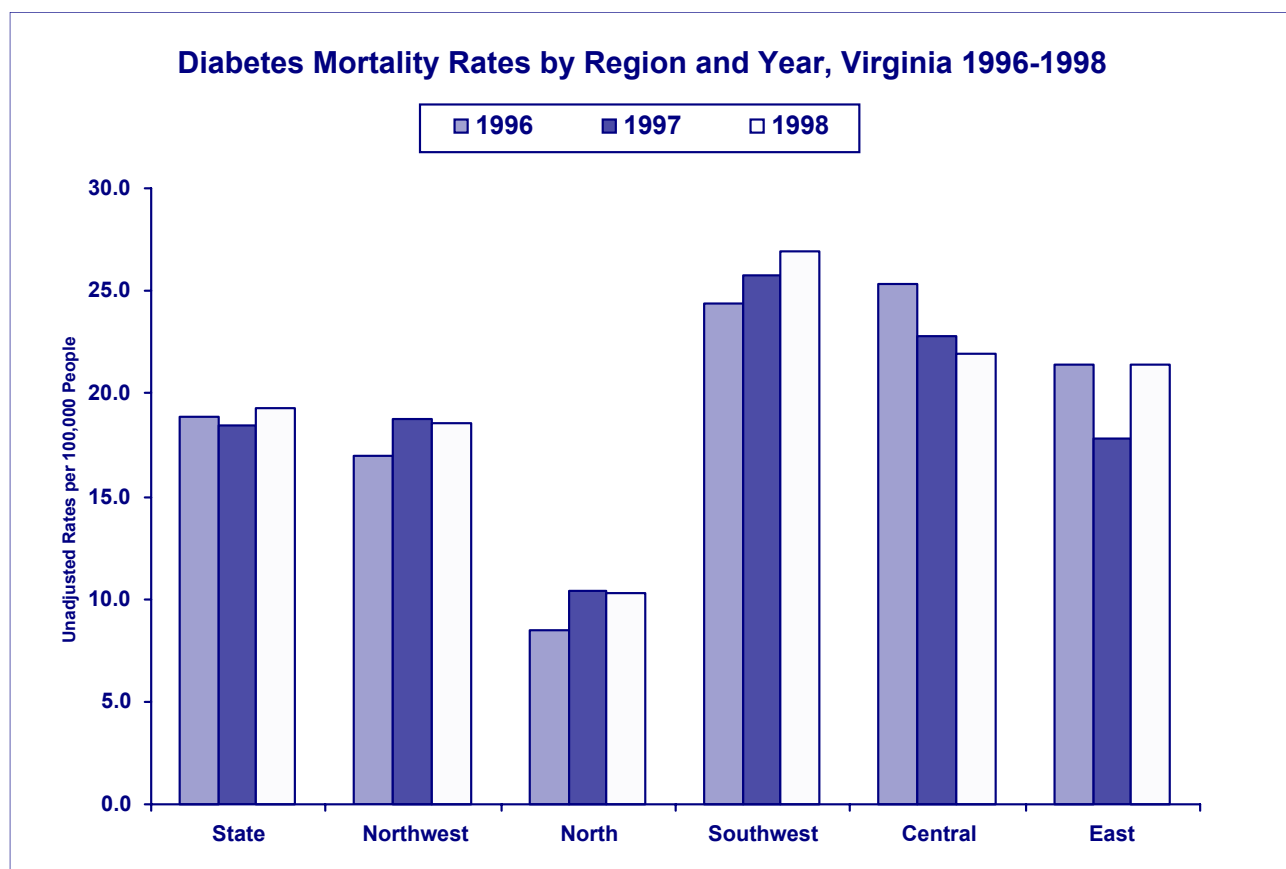


*Unadjusted Rates

(Source: Virginia Department of Health, Center for Health Statistics, 2001)

DIABETES

- ◆ Diabetes mortality rates vary by geographic region, with the southwest region suffering the greatest mortality from diabetes. The southwest region is the most medically underserved region of the state.

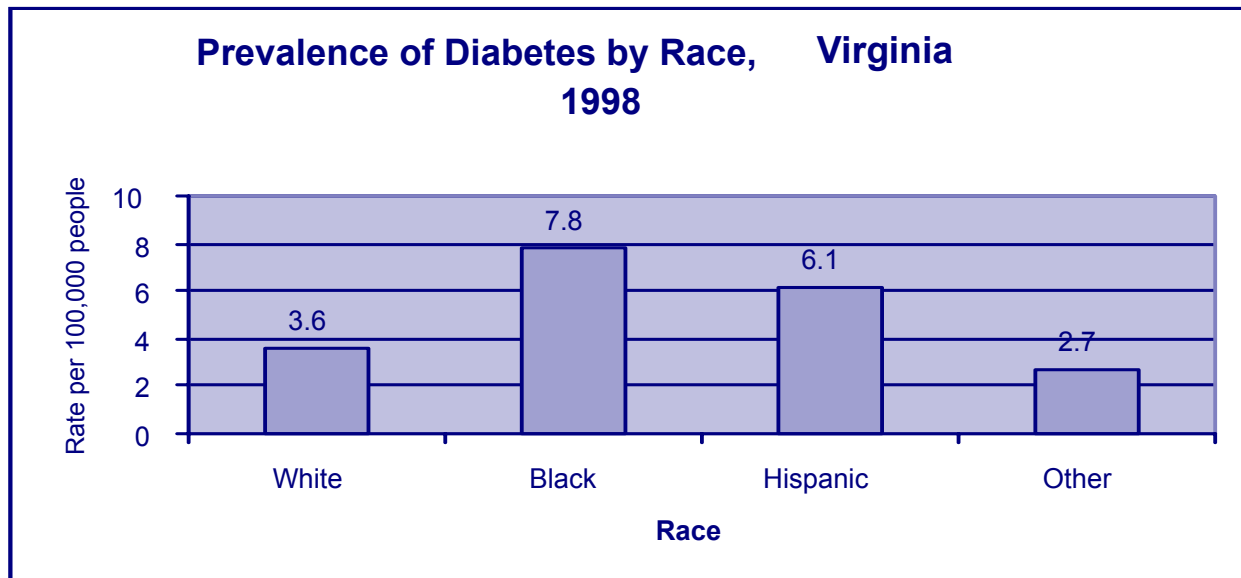


(Source: Virginia Department of Health, Center for Health Statistics, 2001)

DIABETES

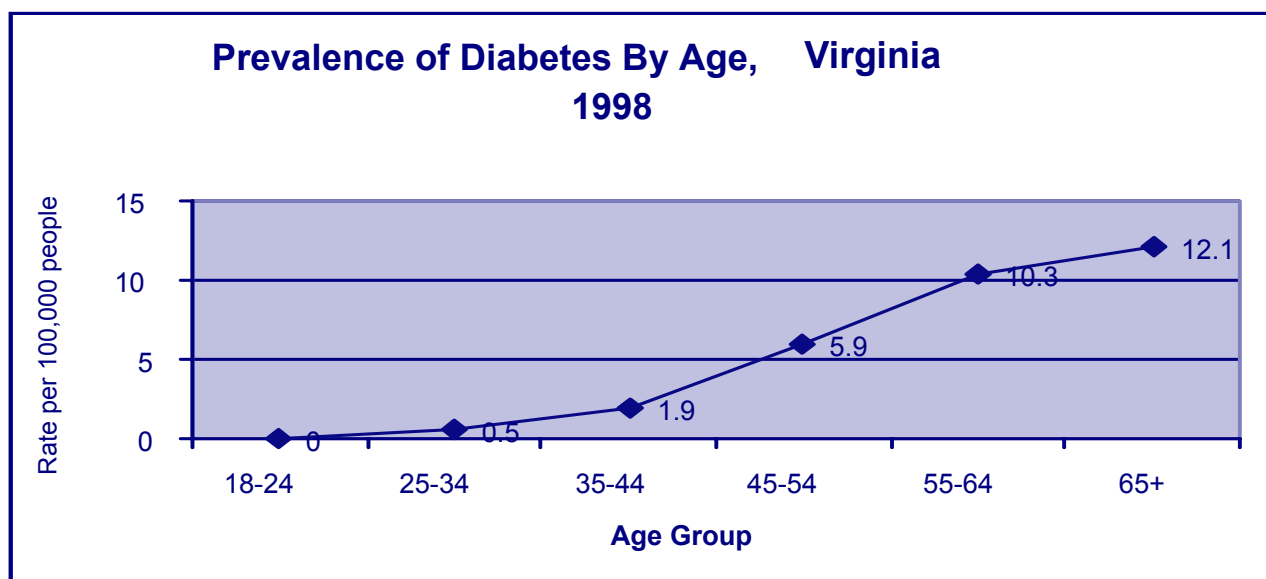
Morbidity

- ◆ Virginia's diabetes prevalence rates by age, race, and gender did not significantly differ from corresponding national rates. Prevalence rates did vary according to race, age, and gender.
- ◆ The prevalence rate of diabetes among blacks was more than twice that of whites, and more than three times the rate among other races.



(Source: Centers for Disease Control and Prevention, BRFSS 1998)

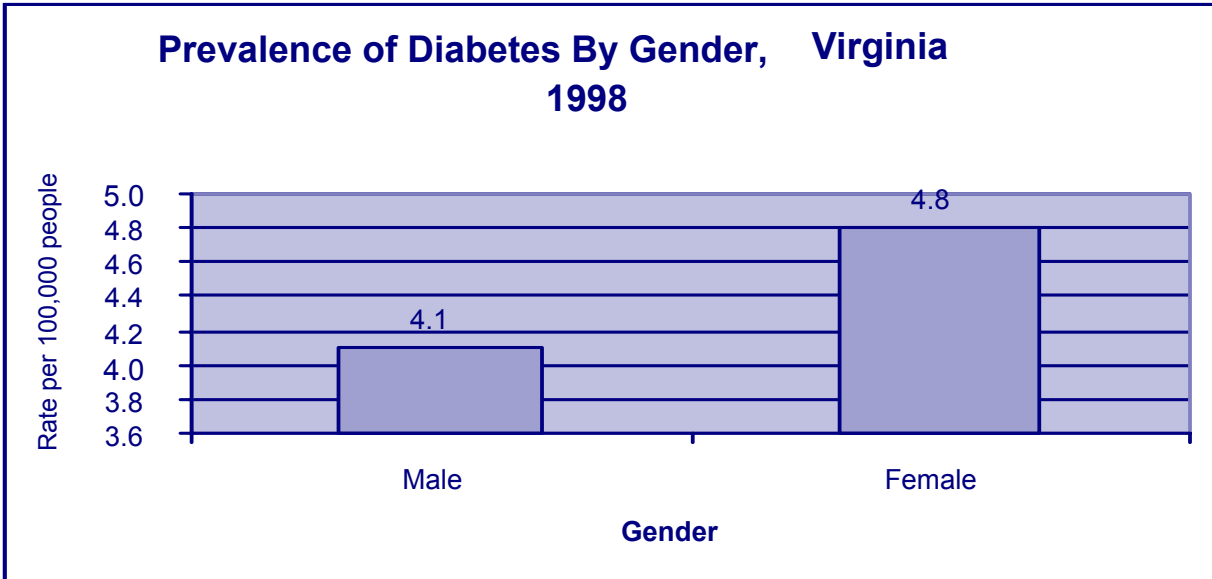
- ◆ Diabetes prevalence in Virginia increased with age.
- ◆ The most dramatic increases in prevalence rates occurred in the 45-54 and 55-64 age groups.



(Source: Centers for Disease Control and Prevention, BRFSS 1998)

DIABETES

- ◆ In Virginia, the prevalence rate among females was 17 percent higher than the rate among males.



(Source: Centers for Disease Control and Prevention, BRFSS 1998)

Costs

- ◆ One way to estimate the burden of diabetes is through analysis of hospital discharge data. However, the figures in the table below underestimate the cost of diabetes because hospitalizations for diabetes as a *secondary* cause are not included. Most hospitalizations for persons with diabetes are due to diabetes-related complications, such as cardiovascular conditions.

1998 Hospitalization & Charges Due to Diabetes (Primary Diagnosis Only)	
Hospitalizations	10,660
Average Charge	\$10,208.00
Total Charges	\$108,605,406.00
Average Length of Stay (days)	5.93
Total Days Hospitalized	63,332

Source: VA Hospital Discharge Dataset, 1998

REFERENCES

1. McKenna, M.T.; Taylor, W.R.; Marks, J.S.; & Koplan, J.P. (1998). Current issues and challenges in chronic disease control. In Chronic disease epidemiology and control, 2nd edition; Brownson, R.C.; Remington, P.L.; & Davis, J.R., eds. Washington D.C.: American Public Health Association.
2. Hennekens, C.H.; & Mayrent, S.L. (1987). Epidemiology in medicine. Boston, MA: Charles H. Hennekens and Julie E. Buring.
3. Morton, R.F.; Hebel, J.R.; & McCarter, R.J. (1996). A study guide to epidemiology and biostatistics. Gaithersburg, MD: Aspen Publishers, Inc.
4. Bishop, D.B.; Zimmerman, B.R.; & Roesler, J.S. (1998). Diabetes. In Chronic disease epidemiology and control, 2nd edition; Brownson, R.C.; Remington, P.L.; & Davis, J.R., eds. Washington D.C.: American Public Health Association.
5. Scott, J.C.; & Hochberg, M.C. (1998). Arthritis and other musculoskeletal diseases. In Chronic disease epidemiology and control, 2nd edition; Brownson, R.C.; Remington, P.L.; & Davis, J.R., eds. Washington D.C.: American Public Health Association.
6. Shambaugh, E.M.; & Weiss, M.A. (1977). Summary staging guide: Cancer surveillance, epidemiology and end results reporting. Bethesda, MD: National Cancer Institute.