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Cardiovascular disease: Georgia's biggest killer

Introduction

Cardiovascular disease (CVD), which includes all diseases of the heart and blood vessels, is the number one killer in the United States and in Georgia. Almost 40% of all deaths in Georgia in 1999 were caused by CVD. Although the CVD death rate has been declining during the past few decades, the CVD mortality rate in Georgia remains above the US rate.

The purpose of this report is to describe trends in CVD, differences in mortality rates by demographic characteristics, the burden of CVD-related hospitalizations, and risk behaviors associated with CVD in Georgia.

Methods

We analyzed data from 1999 death certificates filed on residents of Georgia with an underlying cause of death coded as cardiovascular disease (ICD-10 codes I00-I78, further classified as ischemic heart disease, I20-I25, or stroke, I60-I69). To calculate mortality rates, we used the 1999 United States Bureau of Census estimates for Georgia as the population denominator; we used the direct method of calculating age-adjusted rates based on the year 2000 standard population.

Using the hospital discharge database compiled by the Georgia Hospital Association for nonfederal acute-care hospitals in Georgia, we selected hospitalization records with principal discharge diagnosis of CVD (ICD-9 codes 390-448, further classified as ischemic heart disease, 410-414, stroke, 430-438, or heart failure, 428). Charges associated with these hospitalizations were totaled.[1] Information about smoking, hypertension, hypercholesterolemia, overweight, and physical inactivity was obtained from the 1999 Behavioral Risk Factor Surveillance System, a survey of a representative sample of the non-institutionalized adult population of Georgia.

Results

CVD Mortality

In Georgia, 24,274 persons died of CVD in 1999. The age-adjusted CVD mortality rate for Georgia of 399 per 100,000 population was 14% higher than the US rate of 351 per 100,000 (Figure 1). Ischemic heart disease, also known as coronary heart disease, is the leading form of CVD in Georgia. In 1999, of all CVD deaths, 10,502 (43%) were caused by ischemic heart disease and 4,277 (18%) were caused by stroke. Georgia's stroke rate is one of the nation's highest. In 1999, Georgia had an age-adjusted stroke mortality rate of 71 per 100,000 population, 15% above the US rate of 62 per 100,000.

CVD mortality rates are higher for blacks than for whites in Georgia. In 1999, black males had an age-adjusted CVD mortality rate 23% higher than that of white males, and black females had a rate 26% higher than that of white females (Figure 2).

CVD mortality rates are higher for men than for women. In terms of absolute numbers, however, more women than men die from CVD in Georgia each year because women live to older ages when CVD is more common. In 1999, there were 13,050 female deaths and 11,223 male deaths from CVD.

Although CVD death rates increase with age, approximately 22% of all CVD deaths in Georgia occur in persons < 65 years of age. The percentage of deaths that were premature (<65 years) in 1999 was highest for black males (42%) and lowest for white females (10%) (Table 1).

Figure 3 shows the variation in the annual average age-adjusted CVD death rates by county from 1995 to 1999.[2] Counties in the state's southeastern region and along the western border have the highest CVD death rates.

Hospitalizations from CVD

In 1999, there were 128,386 hospitalizations in Georgia due to CVD, more than five times the number of deaths. Total charges from those hospitalizations were more than $1.9 billion.[1] Approximately 37% of the CVD hospitalizations were attributed to ischemic heart disease, 18% to stroke, and 17% to heart failure. More information on stroke hospitalizations will be available from the pilot stroke registry developed by Emory University and the Georgia Medical Care Foundation with funding from the Centers for Disease Control and Prevention (see box page 3).

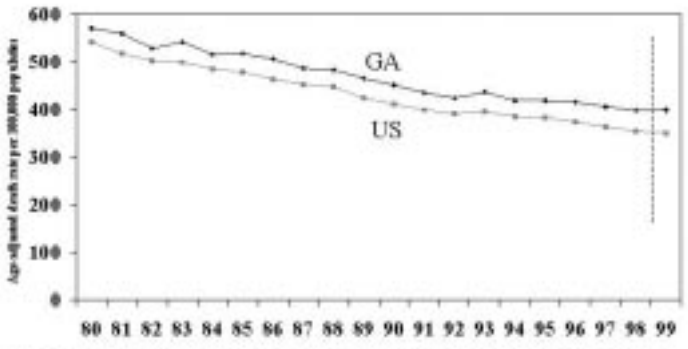
Risk factors for CVD

Smoking, lack of regular physical activity, overweight, hypertension, and hypercholesterolemia are all associated with increased risk for CVD. In 1999, 24% of Georgia adults (>18 years) reported that they currently smoke (Figure 4). Approximately 74% reported that they do not get regular physical activity,[3] 26% reported ever having been told they have high blood pressure, 29% reported ever having been told they have high blood cholesterol, and 58% were overweight or obese.[4] The percentage of Georgians who were overweight or obese has increased significantly from 37% in 1984, the first year of available data.

Physician advice

In 1998, of Georgians >18 years who were current smokers, 76% reported that a doctor or other health professional had ever advised them to quit smoking (Table 2). Of adults overweight or obese, 44% reported that a doctor or other health professional had ever talked to them about diet or eating habits. Of adults not getting regular physical activity, 42% reported that a doctor or other health professional had ever talked to them about physical activity. Among all adults in Georgia, regardless of weight and activity level, only 38% reported ever discussing diet or eating habits and only 41% reported ever discussing physical activity with a doctor or other health professional. The percentage of persons reporting discussion of smoking cessation, diet, or regular physical activity within the past year was much smaller (Table 2).

Figure 1. Cardiovascular disease death rates in Georgia and the United States, 1980-1999



NOTE: The dotted line indicates a change in coding systems used for cause of death. ICD-9 codes were used for 1985-1998 deaths; age-adjusted death rates for the US and Georgia were obtained via WONDER at http://wonder.cdc.gov from the compressed mortality file compiled by CDC. ICD-10 codes were used for 1999 deaths; age-adjusted death rates for the US in 1999 were obtained from the National Vital Statistics Report, Vol 49, No. 8, September 23, 2001.

Figure 2. Cardiovascular disease death rates in Georgia by race and sex, 1999

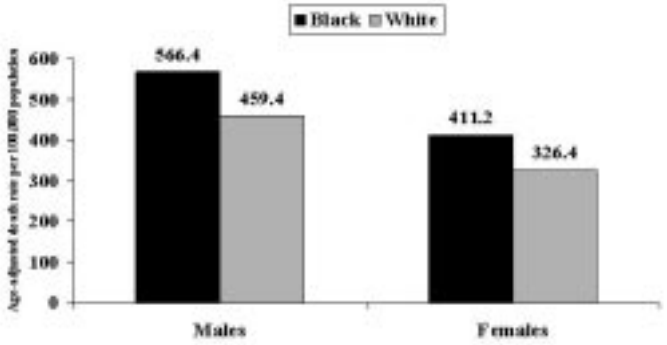


Table 1. Premature cardiovascular disease deaths by race and sex, Georgia, 1999

	Total CVD deaths	No. (%) CVD deaths <65 yrs
Black males	2,842	1,199 (42.2%)
White males	8,361	2,202 (26.3%)
Black females	3,402	828 (24.3%)
White females	9,618	997 (10.4%)

Figure 3. Cardiovascular disease death rates by county, Georgia, 1995 - 1999

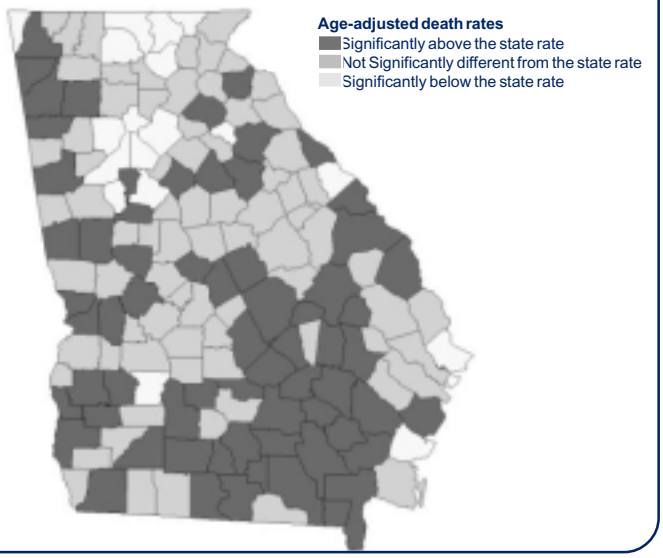


Figure 4. Prevalence of CVD risk factors among adults (>18 years) in Georgia

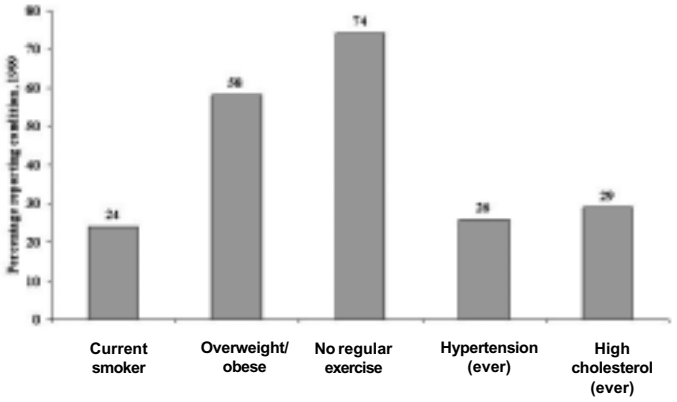


Table 2. Percentage of adults (>18) in Georgia reporting that a doctor or health professional talked to them about healthy lifestyles

Population	Lifestyle issue	Discussed issue with health professional	
		Ever (%)	Past year (%)
Current smokers	Quit smoking	76	48
Overweight/obese	Diet	44	25
Total population		38	21
No regular exercise	Physical activity	42	26
Overweight/obese		48	31
Total population		41	26

Editorial Note

CVD mortality rates in Georgia are higher than in the U.S. The state's most frequent killer not only claims thousands of lives each year, but also accounts for billions in health care expenditures.

CVD is preventable, but not without lifestyle changes on the part of Georgians. We need to stop smoking, keep youth from starting to smoke, increase regular physical activity, lose weight, and eat less fat and more fruits and vegetables. To facilitate behavior change in communities where healthy lifestyles are not the norm, environmental and policy changes that require or encourage behavior change are needed. State and local laws that limit smoking in public places and increase cigarette taxes, community decisions to build sidewalks and open school athletic facilities to the public, and business decisions to encourage walking programs in indoor shopping malls are all examples of policy changes which promote healthy lifestyles, thereby decreasing risk for CVD.

Health care providers can also help to reduce risk for CVD. Screening for hypertension and hypercholesterolemia with appropriate management for those affected is important in reducing CVD mortality. Routine discussions about the benefits of smoking cessation, increased physical activity, low-fat diets, and weight loss may encourage individuals to adopt healthier lifestyles.

For more information

More detailed information on deaths, hospitalizations, and risk factors related to CVD in Georgia will be published in February 2002 by the Georgia Division of Public Health (404-657-3103) and the American Heart Association, SE Affiliate (678-385-2075). For more information on the stroke registry, contact Dr. Michael Frankel or Michelle Manzo (404-616-8741).

Footnotes

[1] Hospital charges do not represent actual costs and do not include physician fees or medication costs.

[2] Age-adjusted mortality rates for counties were calculated using data from death certificates provided by the Vital Statistics Branch and Office of Health Information and Policy. The number of deaths from CVD in 1999 was determined by selecting deaths with an ICD-10 code of I00-I78 for underlying cause. The number of deaths for 1995-1998 was determined by selecting ICD-9 codes that correspond to the new ICD-10 codes. The number of deaths for 1995-1998 was multiplied by the "comparability ratio" provided by NCHS (National Vital Statistics Reports, Vol 49, No. 3) for CVD (0.9981) before calculating age-adjusted mortality rates. The "comparability ratio" compensates for the change in coding systems. Age-adjusted mortality rates were calculated using county population estimates from the US Bureau of Census (release date: August 30, 2000) and the year 2000 standard population. The z-test was used to compare county rates to the state rate with significance at $p<0.05$. The source of the formula for the z-test and the standard error for an age-adjusted rate was the National Center for Health Statistics, National Vital Statistics Report, volume 48, number 11, July 24, 2000, page 104.

[3] Regular physical activity or exercise is defined as at least 30 minutes of moderate-intensity physical activity 5 or more days per week or at least 20 minutes of vigorous physical activity 3 or more days per week.

[4] Overweight is defined as body mass index 25.0 - 29.9; obese is defined as body mass index >30.0.

The Paul Coverdell National Acute Stroke Registry

Emory University, in collaboration with the Georgia Medical Care Foundation, received a grant from the Centers for Disease Control and Prevention to participate in "The Paul Coverdell National Acute Stroke Registry." Georgia is one of four states participating in the project. The objective of the stroke registry is to improve the quality of care for patients with stroke. The project involves collecting information on all persons admitted to participating hospitals with a diagnosis of stroke. The data will be used to identify strengths in patient management and opportunities for improved care so as to provide education to clinicians and multidisciplinary teams. The registry gives Georgia the opportunity to impact national health care policy and at the same time improve stroke management in our communities. Over 40 acute care hospitals in the state will be participating in the project.

This article was written by Kristen Mertz, M.D., Nkenge Jones, M.P.H., and Ken Powell, M.D., M.P.H.

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Reported Cases of Selected Notifiable Diseases in Georgia Profile* for November 2001

Selected Notifiable Diseases	Total Reported for Nov 2001	Previous 3 Months Total Ending in Nov			Previous 12 Months Total Ending in Nov		
	2001	1999	2000	2001	1999	2000	2001
Campylobacteriosis	17	175	125	89	747	615	586
Chlamydia trachomatis	2444	6124	7330	7990	30344	28775	31534
Cryptosporidiosis	2	38	41	43	164	192	145
E. coli O157:H7	3	12	5	17	41	47	42
Giardiasis	43	432	301	202	1330	1224	955
Gonorrhea	1349	4812	5268	4557	21328	19190	17429
Haemophilus influenzae (invasive)	10	17	18	24	83	78	104
Hepatitis A (acute)	62	101	116	232	519	351	927
Hepatitis B (acute)	1	69	111	84	231	330	386
Legionellosis	0	4	4	0	5	10	9
Lyme Disease	0	0	0	0	0	0	0
Meningococcal Disease (invasive)	7	13	11	13	67	59	52
Mumps	0	1	0	0	4	2	7
Pertussis	0	12	5	1	50	54	18
Rubella	0	0	0	0	0	1	0
Salmonellosis	92	652	470	496	2002	1721	1648
Shigellosis	71	66	92	235	322	323	471
Syphilis - Primary	8	32	28	16	141	125	90
Syphilis - Secondary	19	62	69	59	280	293	279
Syphilis - Early Latent	35	136	120	128	708	546	559
Syphilis - Other**	31	165	180	133	769	724	717
Syphilis - Congenital	0	7	3	2	19	20	19
Tuberculosis	33	149	151	146	623	665	576

* The cumulative numbers in the above table reflect the date the disease was first diagnosed rather than the date the report was received at the state office, and therefore are subject to change over time due to late reporting. The 3 month delay in the disease profile for a given month is designed to minimize any changes that may occur. This method of summarizing data is expected to provide a better overall measure of disease trends and patterns in Georgia.

** Other syphilis includes latent (unknown duration), late latent, late with symptomatic manifestations, and neurosyphilis.

AIDS Profile Update

Report Period	Total Cases Reported*			Percent	Risk Group Distribution (%)						Race Distribution (%)		
	<13yrs	>=13yrs	Total	Female	MSM	IDU	MSM&IDU	HS	Blood	Unknown	White	Black	Other
Latest 12 Months:													
12/00-11/01	2	1622	1624	25.1	32.8	9.2	2.3	11.4	1.2	43.0	19.9	75.2	4.9
Five Years Ago:													
12/95-11/96	19	2382	2401	19.1	46.2	17.9	5.2	18.0	1.4	11.3	33.2	64.5	2.4
Cumulative:													
7/81-11/01	210	23913	24123	17.2	48.0	18.0	5.5	13.2	1.9	13.5	34.9	62.8	2.3

MSM - Men having sex with men **IDU - Injection drug users** **HS - Heterosexual**

* Case totals are accumulated by date of report to the Epidemiology Section