Report on Stroke Data as Required by the Coverdell-Murphy Act, Georgia SB549
Compiled by the Georgia Department of Public Health
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Background

Why should we care about stroke in Georgia?

- **Stroke is the fourth-leading cause of death** in Georgia **(3,591 stroke deaths in 2010**)[1]
- **Georgia's stroke death rate is 17% to 18% higher** than the national average[1,2]
- **Georgia has the 9th-worst stroke death rate** compared to other U.S. states[2]
- Stroke is a **leading cause of disability.**[2] Treatment of eligible stroke patients with the drug tissue plasminogen activator (tPA) can reduce disability by 30%, but many do not receive the drug because they arrive at the hospital after two hours of symptom onset.[3]
- Georgians had approximately **20,625 stroke hospitalizations in 2010**
    - The average cost per hospitalization was **$38,322**.
    - The total Georgia stroke hospitalization charges **were $790 million**.
- **Georgia is in the "Stroke Belt,"** an area in the southeastern U.S. with stroke death rates that are approximately 20% higher than the rest of the U.S. The coastal plains of Georgia are in the "buckle" of the Stroke Belt, an area with stroke death rates about 40% higher than the rest of the nation.[2]
    - The higher death rates seen in the Stroke Belt can be collectively explained in large part by demographic and socioeconomic factors and the prevalence of stroke risk factors and chronic diseases like diabetes and hypertension[4]**.**
- It is estimated that **31%** of Georgia stroke deaths occur before the patient reaches the hospital. This suggests that stroke sufferers and witnesses are **not recognizing stroke events or calling emergency services** quickly enough. Georgia survey data support this suggestion, showing that 3.2 million Georgians (46% of Georgia adults) would not be able to recognize and properly respond to a stroke event.[5]
- Nearly **one-quarter (23%) of Georgia stroke deaths are premature**, i.e. among persons under the age of 65 years (2010 death records).
- The stroke death rate for blacks in Georgia is **1.6 times higher** than the rate for whites (2010 death records).
- **Adult Georgians have high rates for stroke risk factors.** 2012 Behavioral Risk Factors Surveillance System data showed that:[6]
    - **32%** of Georgians had hypertension (2011 data);
    - **37%** had high cholesterol (2011 data);
    - **10%** were diabetic;
    - **29%** were obese;
    - **24%** were physically inactive;
    - **78%** did not consume the recommended five-a-day fruit and vegetable servings (2009 data); and
    - **20%** of Georgia adults smoked.

Coverdell-Murphy Act Required Reporting

Georgia's Coverdell-Murphy Act (CMA), or Senate Bill 549, requires the reporting of specific types of stroke data to the Georgia Department of Public Health (DPH).[7] The required elements are in Table 1 in bold, exactly as specified in the law. All data in this report comes from the Georgia Coverdell Acute Stroke Registry (GCASR), with exceptions noted for data coming from Georgia Emergency Medical Services (EMS). Georgia hospitals report certain data elements to DPH through GCASR. Georgia EMS provides data on the number of subjects transported to acute care facilities with a presumptive diagnosis of acute stroke. This is the third of the required CMA reports and covers the years 2010 through 2012. Some elements specified in the law are not available through GCASR or EMS (see Table 1) and thus are not reported here.

Summary of Data Findings

According to available data, the quality of stroke care for Georgians has improved from 2010 to 2012. In particular, delivery of the clot-busting drug tPA to ischemic stroke patients improved by **84% from 2010 to 2012**. Numbers for many other quality indicators, such as stroke education and discharge on appropriate medication, also improved from 2010 to 2012:

- The number of patients delivered to hospitals by EMS with a presumptive stroke diagnosis, based on provider impression, **increased by 44% from 2010 to 2012.**[A]
- The number of Georgians receiving acute interventional therapy for stroke, defined as tPA administration, **increased by 86% from 2010 to 2012.**
- The median door-to-needle time for tPA administration **improved by 10%, decreasing from 73 minutes to 66 minutes**. Door-to-needle time refers to the number of minutes elapsed from when the patient arrives at the hospital to the administration of tPA. The drug must be administered to ischemic stroke patients within 3 hours of symptom onset.
- The median length of stay in the hospital for stroke patients **decreased by one day from 2010 to 2012.**
- The percentage of eligible Georgia stroke patients who received venous thrombembolic prophylaxis **remained consistently high at 95%**.
- The percentage of eligible Georgia stroke patients discharged on antiplatelet or antithrombotic medications **remained consistently high at 99% from 2010 to 2012.**
- The percentage of eligible atrial fibrillation patients who received anticoagulation therapy **increased slightly from 93% to 95% from 2010 to 2012**.
- The percentage of eligible patients who had antithrombotic medication administered within 48 hours of hospitalization **remained consistently high at 97%**.
- The number of lipid profiles ordered **increased by 38%**.
- The percentage of eligible patients receiving dysphagia screenings **increased from 82% to 87%**.
- The percentage of patients who received all five components of the recommended stroke education **increased from 84% to 90%.**[¥]
- The percentage of eligible patients receiving smoking cessation programs or with whom smoking cessation was discussed **remained consistently high at 98% from 2010 to 2012.**
- The percentage of eligible patients who were assessed for rehabilitation and for whom a plan for rehabilitation was considered **increased from 97% to 98%.**
- The number of EMS patients admitted to a hospital for stroke **increased by 31% from 2010 to 2012.**
- The percentage of eligible stroke patients treated with intravenous tPA **decreased from 82% to 74%.**
- The percentage of eligible stroke patients who were discharged on cholesterol-reducing medication **increased from 85% to 91%**.

Table 1. Coverdell-Murphy Act Required Data Elements as available via GCASR or Georgia EMS, Georgia, 2010-2012

Indicator	2010	2011	2012
1. The number of patients evaluated Defined as number of patients delivered to hospital by EMS with presumptive stroke diagnosis based on provider impression *Data source:* Georgia EMS data[A]	4,309	5,469	6,191
2. The number of patients receiving acute interventional therapy Defined as number of stroke patients receiving tPA administration	533	736	993
3. **The amount of time from patient presentation to delivery of acute interventional therapy** Median door-to-needle time in minutes Range (high, low)	 73 (56, 96)	 73 (54, 103)	 66 (50, 88)
4. **Patient length of hospital stay** Median length of stay in days Range (high, low)	 4 (2, 6)	 4 (2, 6)	 3 (2, 6)
5. **Patient functional outcome** *Not collected; see Table 2 for alternative data*	--	--	
6. **Patient morbidity** *Not collected; see Note below*	--	--	
7. **Deep vein thrombosis prophylaxis given** Percent among eligible[Θ] patients	4,496 96%	4,704 96%	9,647* (95%)
8. **Number of patients discharged on anti-platelet or anti-thrombotic medication** Percent among eligible patients	 6,179 98%	 6,854 98%	 7,892 99%
9. **Number of patients with atrial fibrillation receiving anticoagulation therapy** Percent among eligible patients	 695 93%	 771 93%	 923 95%
10. **Patients on which the administration of tissue plasminogen activator was considered** *Not collected; see Note below*	--	--	

Indicator	2010	2011	2012
11. **Antithrombotic medication administered within 48 hours of hospitalization**	5,672	6,298	6,919
Percent among eligible patients	97%	97%	97%
12. **Number of lipid profiles ordered during hospitalization**	8,519	9,753	11,740
13. **Number of screens for dysphagia performed**	6,418	7,541	8,808
Percent among eligible patients	82%	85%	87%
14. **Stroke education provided**[¥]			
Number of patients who received all five components of stroke education by GCASR	4,000	4,452	5,463
Percent among eligible patients	84%	87%	90%
15. **Number of smoking cessation programs provided or discussed**	1,875	1,928	1,533
Percent among eligible patients	98%	98%	98%
16. **The number of patients assessed for rehabilitation and whether a plan for rehabilitation was considered**	7,397	8,273	9,703
Percent among eligible patients	97%	97%	98%
17. **The number of emergency medical services stroke patients who were transported to the hospital facility**			
Defined as number of patients delivered to hospital by EMS with a presumptive stroke diagnosis based on provider impression *Data source:* Georgia EMS data	4,309	5,469	6,191
18. **The number of emergency medical services stroke patients who were admitted to the facility**	5,321	5,989	6,997
19. **The number and percentage of stroke cases treated with intravenous or intra-arterial tissue plasminogen activator**	392	401	513
Percent among IV tPA eligible patients	81%	77%	74%
20. **The number of patients discharged on cholesterol-reducing medication**	4,464	4,978	5,851
Percent among eligible patients	85%	89%	91%
Total Patients	**11,014**	**12,472**	**14,844**

***** Ambulatory status as eligibility criterion for venous thrombembolism prophylaxis was dropped in 2012.
Θ Eligibility for specific care varies and is based on criteria set by the Paul Coverdell National Acute Stroke Registry for measuring the performance of hospitals in stroke patient care.
¥ The five stroke education components are: modifiable risk factors, warning signs and symptoms, activating EMS for stroke, prescribed medication, and follow-up after discharge.

Note: Some data elements listed in the Coverdell-Murphy Act are not available via GCASR or Georgia EMS (noted in Table 1) and thus are not reported here. Modification or clarification of the missing elements in the CMA may allow for future reporting on these elements. We are able to report alternative data for "patient functional outcome" in Table 2. While these data are not exactly what the CMA stipulates, they are indicators of patient outcomes and thus are included here.

Table 2. Additional Data from the Georgia Coverdell Acute Stroke Registry, 2010-2102

Data Element	2010	2011	2012
Ambulatory status of patient at discharge, if documented			
Able to ambulate independently with or without device	5,328	5,783	7,233
Percent among eligible patients	55%	53%	57%
Able to ambulate with assistance by another person	2,715	3,200	3,526
Percent among eligible patients	28%	30%	28%
Unable to ambulate	1,738	1,842	1,970
Percent among eligible patients	18%	17%	15%

Conclusions

Georgians are disproportionately affected by death and disability from stroke compared to residents in other states. Those who survive, along with their families, must endure the lifelong burden of disability, which is often severe. Controlling stroke risk factors and providing timely treatment of acute stroke are effective ways to limit death and disability from stroke.

Hospitals participating GCASR provide care for more than three-fourth of all Georgia stroke admissions. They emphasize high-quality acute stroke care and have had a major impact on the lives of thousands across the state by limiting the damage and disability from stroke. Recent analyses indicated that ischemic stroke patients treated at GCASR facilities were 1.38 times more likely to receive tPA and significantly less likely to die one year post-discharge than patients treated at non-GCASR facilities.

With an aging Georgia population[8] entering the stroke-prone years (above 55 years)[9], the number of Georgians affected by stroke is expected to rise over the next decade, which will increase costs, both financially and in terms of productive years of life lost. We must continue to improve stroke prevention and treatment across the state by reducing the prevalence of stroke risk factors in Georgia, and increasing public awareness of stroke signs and symptoms and knowledge to call 911 immediately for stroke. We must also continue to enhance hospital-based treatments of acute stroke to limit the damage to the brain that stroke causes. Although we've made great progress, there's a great deal more to do to address this major public health problem in Georgia.

Notes

A. The patient care report format for Georgia EMS data changed from 2010 to 2012, therefore Georgia EMS data may not be entirely comparable from year to year for this time period.

References

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Definitions:

Anticoagulation, Antiplatelet, and Antithrombotic Medications*:* Medications that reduce blood clotting.

Deep Vein Thrombosis*:* When a blood clot forms in a vein deep in the body, usually in the leg. If the clot breaks off, it can cause serious complications and even death.

Door-to-Needle Time*:* Time elapsed in minutes from when an eligible stroke patient arrives at the hospital to when tPA is administered. Eligible patients must receive tPA within 3 hours of symptom onset.

Dysphagia Screening*:* Screening for difficulty in swallowing. This identifies patients who need targeted treatment to improve their ability to swallow, so they do not aspirate or take fluid into the lungs. Aspiration of fluid can lead to pneumonia.

Ischemic Stroke*:* A stroke caused by a clot or blockage in a blood vessel supplying blood to the brain. The majority of strokes in Georgia are ischemic.

Hemorrhagic Stroke*:* A stroke caused by a blood vessel rupturing and bleeding in the brain. Hemorrhagic strokes are often fatal.

Lipid Profile*:* Panel of tests to measure cholesterol and triglyceride levels. High cholesterol is a risk factor for stroke.

Tissue Plasminogen Activator (tPA)*:* FDA-approved clot-busting drug for stroke. This drug can reduce disability by 30% in stroke sufferers if given to eligible patients within 3 hours of symptom onset.

Know the Signs and Symptoms of Heart Attack and Stroke

Heart attack and stroke are life-threatening emergencies. Call 911 if you experience these symptoms.

Signs of Heart Attack

- Chest discomfort. Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness, or pain.
- Discomfort in other areas of the upper body. Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- Shortness of breath. This feeling often accompanies chest discomfort. But it can occur before the chest discomfort.
- Other symptoms may include nausea, lightheadedness, or breaking out in a cold sweat.

Signs of Stroke

- Sudden numbness or weakness of the face, arm, or leg, especially on one side of the body.
- Sudden confusion, trouble speaking or understanding.
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination.
- Sudden, severe headache with no known cause.