



**Report on Stroke in Georgia, 2017, as Required by the  
Coverdell-Murphy Act, Georgia SB549, Amended by Georgia HB853  
Compiled by the Georgia Coverdell Acute Stroke Registry  
Georgia Department of Public Health  
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## Background

### *Why should we care about stroke in Georgia?*

- Georgia's age-standardized stroke death rate in 2016 was **18.8% higher** than the national average<sup>1</sup>
- In 2016, Georgia had the **7<sup>th</sup>-highest stroke death rate** in the U.S.<sup>1</sup>
- Stroke is the sixth-leading cause of death in Georgia (**4,349 stroke deaths in 2016**)<sup>1</sup>
- In 2016, about **20% of Georgia stroke deaths were premature**, i.e. among persons under the age of 65 years.<sup>1</sup>
- In 2016, the age-adjusted stroke death rate for Blacks in Georgia was **52.7 per 100 thousand** which was **27% and 51% higher than** the rates for Whites and Asian or Pacific Islanders, respectively.<sup>1</sup>
- Stroke is a **leading cause of disability**.<sup>2</sup> Treatment of eligible stroke patients with the drug Alteplase (a tissue plasminogen activator) can reduce disability by 30%, but the drug needs to be administered in the first three hours after symptom onset.<sup>3</sup>
- In 2016, Georgians had more than **20 thousand stroke hospitalizations**
  - The median charge per hospitalization was around **\$32,977**
  - The total stroke-related hospitalization charges **were over \$1.2 billion in Georgia**
- Georgia is in the "**Stroke Belt**," an area in the southeastern U.S. with stroke death rates that are approximately **30% 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.<sup>4</sup>
  - 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.<sup>5</sup>

- **In 2016, only 61%** of adult Georgians knew all three signs of stroke – facial droop, arm weakness and slurred speech – and the importance of calling 911.
- **Adult Georgians have high prevalence rates for stroke-related risk factors.** The 2015 and 2016 Behavioral Risk Factor Surveillance System (BRFSS) data showed that:<sup>6</sup>
  - **36%** of adult Georgians had hypertension (2015 BRFSS)
  - **36%** had high cholesterol (2015 BRFSS)
  - **13%** were diabetic (2016 BRFSS)
  - **32%** were obese (2016 BRFSS)
  - **30%** were physically inactive (2016 BRFSS)
  - **19%** of Georgia adults smoked (2016 BRFSS)

### Coverdell-Murphy Act Required Reporting

To assure that patients are receiving the appropriate level of care and treatment at each level of stroke center, Georgia’s Coverdell-Murphy Act (CMA), Senate Bill 549, enacted in 2008 and amended in 2016 (House Bill 853), requires the reporting of stroke care related data to the Georgia Department of Public Health (DPH) as part of the Georgia Coverdell Acute Stroke Registry (GCASR).<sup>7,8</sup> The required data elements are used to generate performance measures that help to monitor the quality of stroke care among the designated stroke centers. GCASR currently has 69 participating acute care hospitals, of which 4 are designated as comprehensive, 43 as primary, and 11 as remote treatment stroke centers. In 2016, the designated hospitals received 87% of Georgians admitted with acute stroke across the state.

### Summary of Data Findings

During 2014 to 2016, Georgians received high quality of stroke care consistently.

- The percentage of patients who received defect free care has **improved from 77% to 81%**.
- About **75%** of stroke patients had their brain imaging done within 25 minutes of hospital arrival in 2016 **compared to 63%** in 2014;
- **Nine out of ten** eligible ischemic stroke patients received the clot-busting drug Alteplase intravenously consistently from 2014 to 2016.
- The median time from hospital arrival to administration of Alteplase was **shortened from 56 minutes in 2014 to 51 minutes in 2016**.
- About **85%** of the patients received alteplase in the first 60 minutes of hospital arrival in 2016 **compared to 70%** in 2014.

Numbers for other quality indicators, such as venous thromboembolism prophylaxis, antithrombotic medication, stroke education and discharge on appropriate medication, remained **consistently high above 90%** from 2014 to 2016.

However, **less than 60%** of stroke patients were transported to hospitals by EMS and the proportion of patients who arrived at hospital in the first two hours of symptom onset remained persistently **low around 35%**, indicating the need to raise public awareness to identify stroke in the community, call 911, and transport patients to designated centers rapidly.

## **Discussion**

The Centers for Disease Control and Prevention (CDC) funds the Georgia Coverdell Acute Stroke Registry to improve stroke systems of care in Georgia. Participating EMS agencies, hospitals, and rehabilitation centers are working to strengthen the existing relationships and developing new approaches to deliver the best stroke care possible at all levels of the patient care continuum. Currently, 20 EMS agencies and 69 acute care facilities in Georgia participate in this endeavor, and they have already had a major impact on the lives of thousands across the state by reducing mortality and limiting disability from stroke.<sup>9,10</sup>

Shortening the time between symptom onset and hospital arrival is crucial for a better patient outcome. Because 65% of patients arrived at hospitals two hours or later after symptom onset and 43% transport themselves to a hospital, it is critical that all stakeholders exert a concerted effort to increase public awareness about the signs of acute stroke and the importance of calling 911 for a swift transfer of patients to one of the designated stroke centers for the appropriate level of treatment.

Moreover, we must continue to improve stroke prevention and treatment across the state by reducing the prevalence of stroke risk factors in Georgia. Adults 55 years and older have a higher risk for stroke.<sup>11</sup> Based on the National Center for Health Statistics projection, 16% of Georgia residents are expected to be 65 years and older by the 2030.<sup>12</sup> Thus, the number of Georgians affected by stroke is expected to rise over the next decade. This will increase costs, both financially and in terms of productive years of life lost.

Stroke is a major cause of disability, and adequate post-hospital care contributes significantly to reducing late complications of the acute incident. It is imperative, therefore, to monitor the quality of post-hospital stroke care. With the current five-year grant from the Centers for Disease Control and Prevention, the GCASR has expanded its reach and it is expected that the registry will be able to adopt and implement performance indicators to improve the quality of post-hospital care as well.

**Table 1. Performance Measures for Designated Stroke centers, GCASR 2014-2016**

<b>Performance Measure</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Reach</b>			
% of state acute stroke admissions in designated GCASR hospitals	--	--	87%
<b>Public Awareness</b>			
% of patients presenting to ED with acute stroke or TIA that arrive by EMS	59	57	57
% of patients with acute stroke or TIA who arrive at ED in less than 2 hours from time last known to be well (LKW)	37	36	35
<b>Quality of In-hospital Stroke Care</b>			
<b>Early phase</b>			
% of stroke patients who have brain imaging performed within 25 minutes of hospital arrival	63	68	71
% of ischemic stroke patients whose disease severity was assessed and documented using NIH stroke scale score	84	88	87
% of acute stroke patients who had dysphagia screening	87	86	87
% of acute stroke patients who received venous thromboembolism prophylaxis the day of or the day after admission	95	95	96
% of acute ischemic stroke patients who arrived at the hospital within 2 hours from time LKW and received IV alteplase within 3 hours of time LKW	91	91	90
% of acute ischemic stroke patients who received IV alteplase within 60 minutes of hospital arrival	70	80	85
% of ischemic stroke patients who received antithrombotic medication by the end of hospital day two	97	97	98
<b>Later and at discharge</b>			
% of ischemic stroke patients with medical history of smoking who received smoking cessation advice or counseling	96	98	99
% of ischemic stroke patients who were prescribed antithrombotic at discharge	98	99	99
% of ischemic stroke patients with atrial fibrillation who received anticoagulation therapy	95	96	97
% of eligible ischemic stroke patients who were discharged on statin medication	96	98	98
% of stroke patients who were assessed for rehabilitation services	98	99	99
<b>Patient Education</b>			
% of patients and/or caregiver that received educational materials during the hospital stay addressing all stroke education areas <sup>1</sup>	94	97	97
<b>Aggregate</b>			
% of patients with defect-free <sup>2</sup> in-hospital care	77	80	81
<b>Total number of patients</b>	15,669	18,658	19,075

Abbreviation: **ED** – Emergency Department; **EMS** – Emergency Medical Service; **GCASR** – Georgia Coverdell Acute Stroke Registry; **LKW** – Last Known Well; **NIH** – National Institute of Health; **TIA** – Transient Ischemic Attack

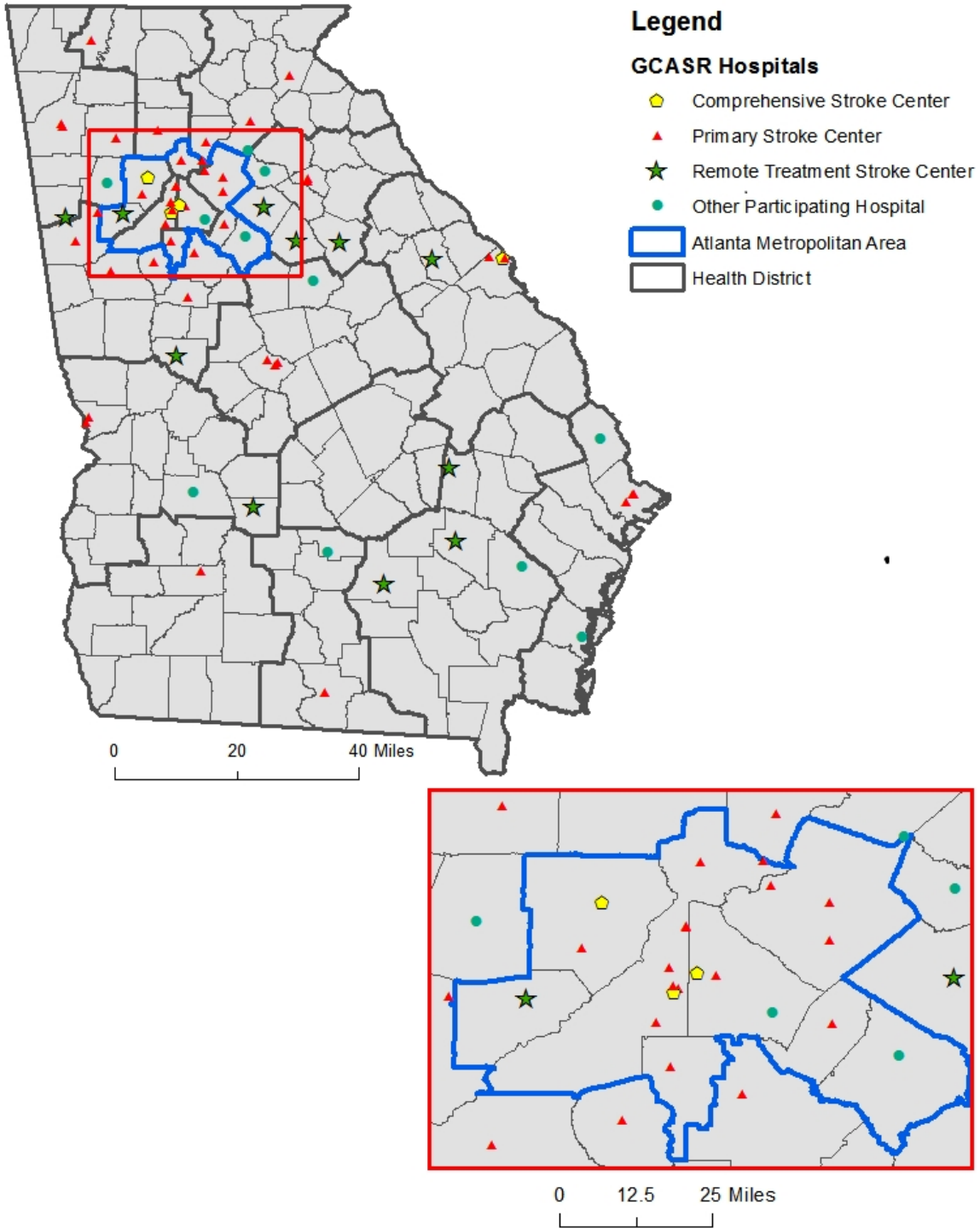
<sup>1</sup>Stroke education areas include: activation of EMS, follow-up after discharge, medication adherence, risk factors, and sign and symptoms of stroke.

<sup>2</sup>Defect-free care is defined as the delivery of care meeting all quality indicators for which a patient is eligible.

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## Georgia Coverdell Acute Stroke Registry Participating Hospitals (n=69), December 2017





## **Definitions:**

**Alteplase:** 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.

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

**Atrial fibrillation:** A disorder resulting in an irregular and often rapid heart rate. It predisposes to blood clotting and increases the risk of stroke, coronary heart disease and other heart-related complications.

**Door-to-Needle Time:** Time elapsed from when an eligible stroke patient arrives at the hospital to when Alteplase is administered. Eligible patients must receive Alteplase 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.

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

**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.

**Statin medications:** High cholesterol is a risk factor for stroke and statins lower blood cholesterol level.

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

## **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.