

2015 Data Summary

Georgia Coverdell Acute Stroke Registry

PROGRAM OVERVIEW

- The Georgia Coverdell Acute Stroke Registry (GCASR) is funded by the Centers for Disease Control and Prevention (CDC) as part of the Paul Coverdell National Acute Stroke Registry.
- GCASR is named in honor of the late Senator Paul Coverdell of Georgia who died of a massive stroke in 2000.
- GCASR is a partnership between the Georgia Department of Public Health (DPH), Epidemiology, DPH Office of EMS, Emory University, American Heart Association, American Stroke Association, Georgia Medical Care Foundation, Georgia Hospital Association, CDC, and the participating hospitals and EMS agencies in Georgia.

GOALS

- Reduce fatalities and disability due to stroke and the incidence of recurrent stroke in Georgia by:
 1. Monitoring and improving the quality of pre-hospital, in-hospital, and post-discharge care of stroke patients
 2. Encouraging collaboration among EMS providers, hospitals, rehabilitation facilities, home health services, and other institutions in Georgia concerned with stroke care quality improvement

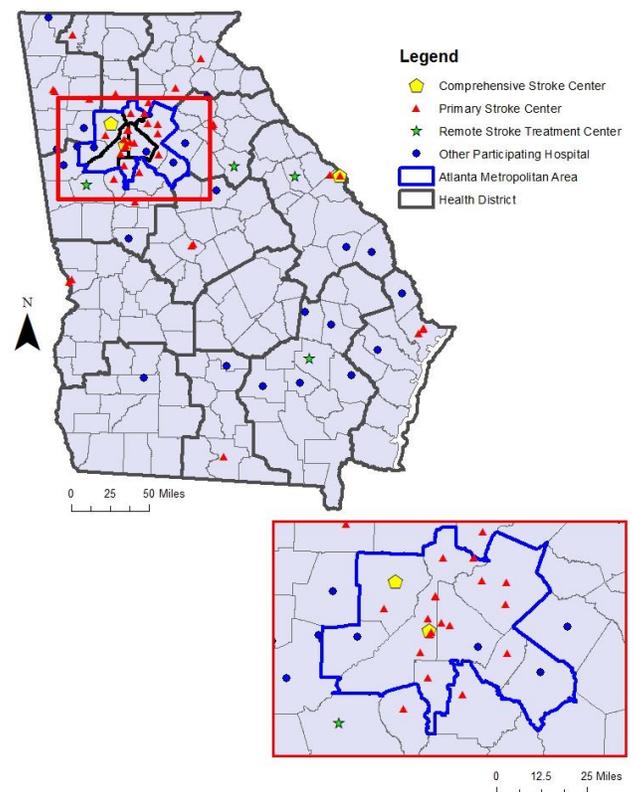
PARTICIPATION

- Hospitals, rehabilitation facilities, home health services, and EMS agencies join GCASR voluntarily.
- In Georgia, currently, 9 EMS agencies and 69 hospitals, of which 42 are Joint Commission or Det Norske Veritas (DNV)-certified comprehensive or primary stroke centers, participate in GCASR.
- In 2013, among Georgia residents 23,701 acute stroke hospital admissions were reported by 131 Georgia hospitals.
- Based on the 2013 hospital discharge data, GCASR-participating hospitals serve about 85 percent of stroke admissions in Georgia.

DATA COLLECTION

- Data on stroke patient characteristics and care received during their hospital stay are collected by participating hospitals for patients admitted with acute stroke or transient ischemic attack.
- Data on EMS performance are obtained through the Georgia EMS Information System (GEMIS).
- The purpose of data collection is to measure and monitor the quality of pre-hospital and in-hospital stroke care delivery.

Georgia Coverdell Acute Stroke Registry Participating Hospitals (n=69), November 2015



QUALITY IMPROVEMENT ACTIVITIES

Hospitals and EMS agencies participating in GCASR receive:

- Individualized stroke care quality improvement consultation



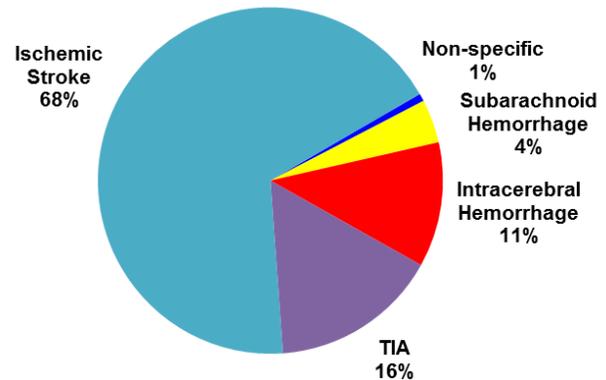
- Regular educational conference calls and newsletters to share best practices among participating hospitals and EMS providers
- Regular trainings to enhance skills and exchange best practices
- Organized mentorship among the participating facilities
- Acute Stroke Life Support training
- Quality improvement efforts focused currently on thrombolytic treatment for eligible stroke patients and door-to-needle time
- Development of tools to strengthen EMS-hospital communication

QUALITY INDICATORS

- Quality of care received by stroke patients is measured by indicators representing care processes that have been included in clinical recommendations.
- Quality indicator calculations include identification of patients for whom a care process would have been recommended, and a determination of how many of those patients received the recommended care.
- The 13 GCASR in-hospital care quality indicators are:
 1. Administration of tissue plasminogen activator (tPA)
 2. Dysphagia screening
 3. Administration of antithrombotic medication within 48 hours
 4. Deep vein thrombosis (DVT) prophylaxis
 5. Prescription for lipid lowering medication
 6. Delivery of stroke education
 7. Smoking cessation counseling or treatment
 8. Rehabilitation assessment
 9. Prescription for antithrombotic medication at discharge
 10. Prescription for anticoagulant medication for patients with atrial fibrillation
 11. NIH stroke scale score recorded
 12. Door to image time
 13. Intravenous tPA within 60 minutes of hospital arrival

- Defect-free care is defined as the delivery of care meeting all quality indicators for which a patient is eligible

Figure 1. Types of Stroke, GCASR, 2014 (n=15,938)



STROKE REGISTRY & GEMSIS DATA

- Analysis included data from 69,370 stroke patients' admissions to GCASR participating hospitals from 2010 to 2014 and 8,473 presumable stroke patients transported by EMS from the field in 2014.
- Acute ischemic stroke and transient ischemic attack account for 84 percent of patients treated in 2014 (Figure 1).
- In 2014:
 - The median 911 call to hospital arrival time for patients with EMS impression of stroke was 41 minutes.
 - Among patients transported by EMS as stroke from the field, 31% had pre-hospital stroke assessment done.
- In 2014:
 - 49 percent of stroke patients admitted in GCASR hospitals were brought to the hospital by EMS, 36 percent by private transportation, and 15 percent were transferred from one healthcare facility to another.
 - Hospitals received pre-notification on 62 percent of the stroke patients brought by EMS.

- Among hypertensive stroke patients, 79 percent were on antihypertensive medication during the week prior to admission for acute stroke.
- One hundred ninety-six GCASR patients were newly diagnosed with diabetes during admission for acute stroke.
- A third of the total GCASR admissions (33 percent) previously had a stroke (27 percent) and/or TIA (9 percent).
- About 57 percent of all stroke admissions resulted in discharge to home.

- 60 percent (410/681) of patients treated with a thrombolytic agent received IV tPA within an hour of arrival at the emergency department.
- In 2014, among GCASR hospitals, the median time to receive tPA for ischemic stroke patients arriving within two hours of symptom onset was 55 minutes.

Table 1. Most frequent co-morbidities among stroke patients, GCASR, 2014 (n=15,938)

Co-morbidity	Number	Percent
Hypertension	12,723	80%
Dyslipidemia	6,686	42%
Diabetes mellitus	5,628	35%
CAD/prior MI	3,799	24%
Atrial fibrillation/flutter	2,290	14%
Smoking	3,419	21%
Obesity/Overweight	2,918	18%

- For ischemic stroke patients, prompt thrombolytic treatment (such as tPA, if eligible) is critical for a better functional outcome.
 - For ischemic stroke patients admitted to GCASR-hospitals in 2014, 35 percent (1,845/5,344) arrived at the emergency department within 2 hours from the last time they were known to be well.
 - Among these, 60 percent (1,101/1845) had their brain image taken within 25 minutes of hospital arrival and 41percent (752/1,845) were eligible, without contraindications, for tPA.
 - Among the tPA-eligible patients, 91 percent (681/752) received thrombolytic treatment within 3 hours after symptom onset.

Figure 2. Percentage of ischemic stroke patients receiving intravenous tPA treatment, GCASR, 2010-2014 (n=46,171)

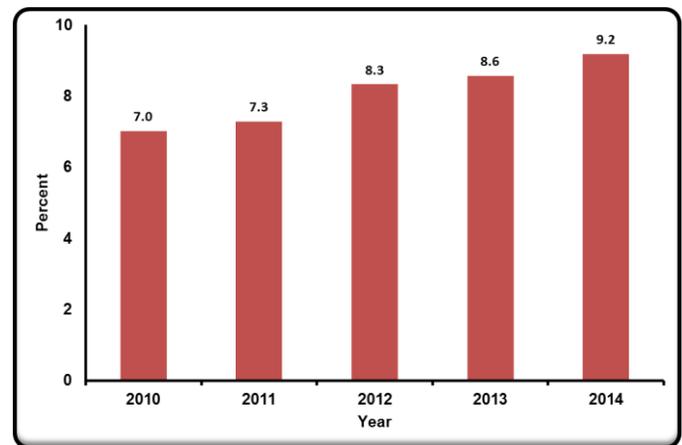
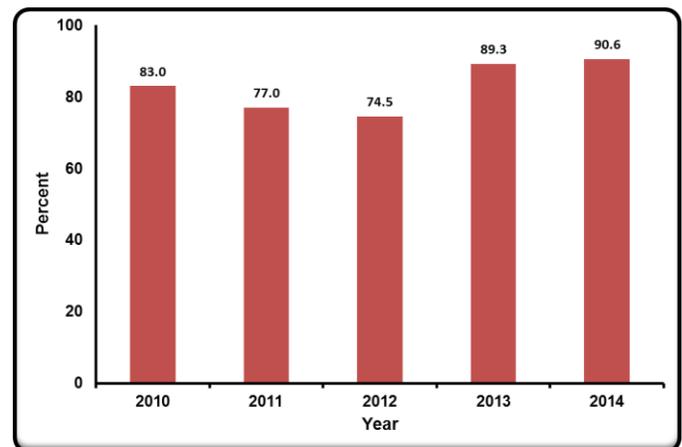


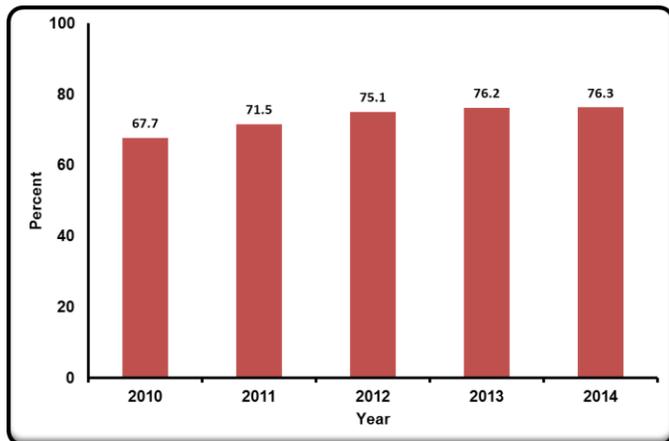
Figure 3. Percentage of eligible ischemic stroke patients receiving intravenous tPA treatment, GCASR, 2010-2014, (n=3,107)



IMPROVEMENTS OVER TIME (GCASR HOSPITALS)

- Overall, tPA administration among ischemic stroke patients increased from 7.0 percent in 2010 to 9.2 percent in 2014 (Figure 2), and among eligible ischemic stroke patients, tPA administration increased from 83 percent in 2010 to 91 percent in 2014 (Figure 3).
- The percentage of patients who received defect-free care increased from 68 percent in 2010 to 76 percent in 2014 (Figure 4), indicating improvement in all ten performance measures.
- The percentage of those who received IV tPA within 60 minutes of their arrival increased from 35 percent in 2010 to 60 percent (Figure 5).

Figure 4. Percentage of acute stroke patients who received defect-free care, GCASR, 2010-2014 (n=54,390)



- The median times to take a brain image and administer tPA (door-to-needle time) were shortened from 24 and 70 minutes in 2010 to 17 and 55 minutes in 2014, a reduction of 29 and 21 percent, respectively (Figures 6 & 7).
- Hospital pre-notification by EMS increased from 57 percent in 2010 to 62 percent in 2014 (Figure 8).

- No improvement was documented in reducing the time elapsed from symptom onset to hospital arrival (Figure 9)

Figure 5. Percentage of ischemic stroke patients treated with IV tPA within 60 minutes of hospital arrival, GCASR, 2010-2014 (n=2,586)

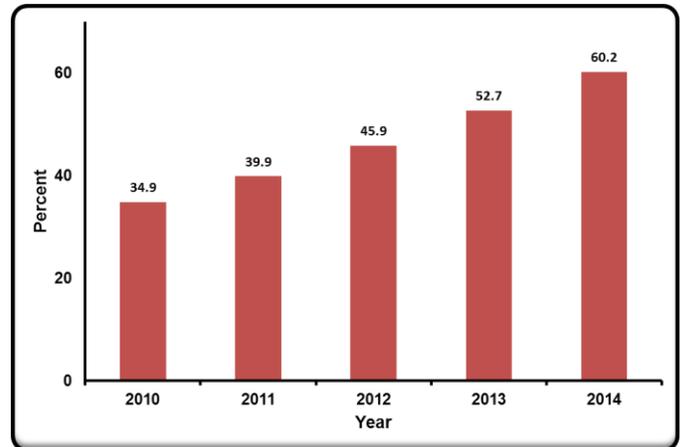


Figure 6. Trend in median door-to-imaging time among ischemic stroke patients who arrived at a hospital within 120 minutes of symptom onset, GCASR, 2010-2014 (n=7,329)

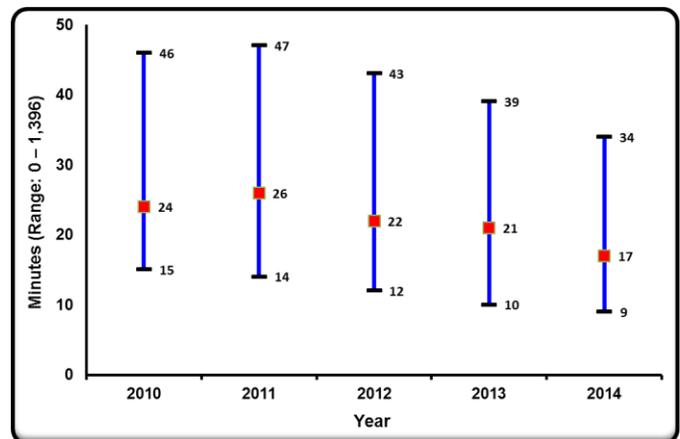


Figure 7. Trend in median door-to-needle time among eligible ischemic stroke patients treated with IV tPA, GCASR, 2010-2014 (n=2,579)

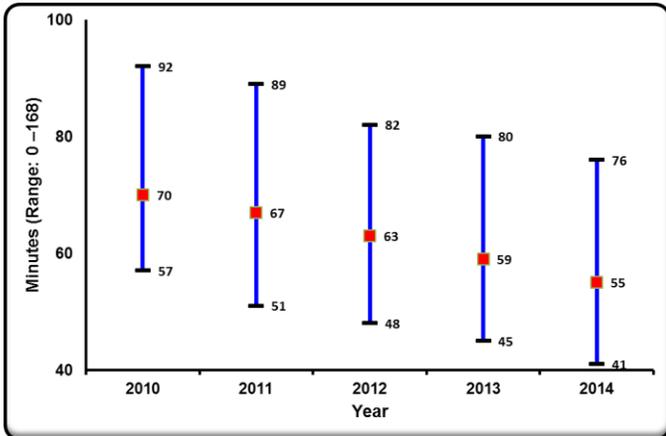


Figure 9. Trend in median symptom onset to hospital arrival time among acute ischemic stroke patients, GCASR, 2010-2014 (n=21,401)

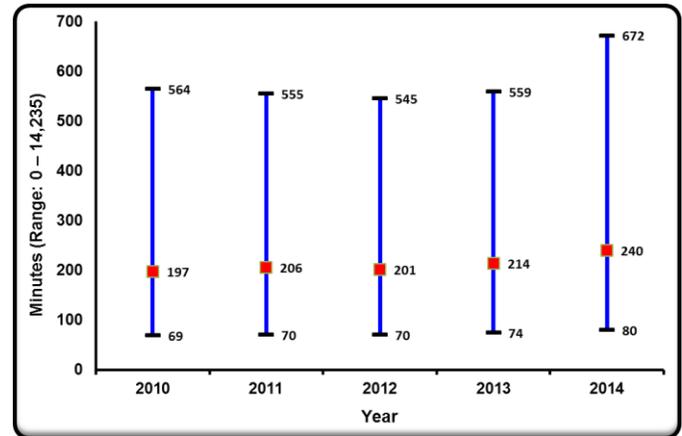
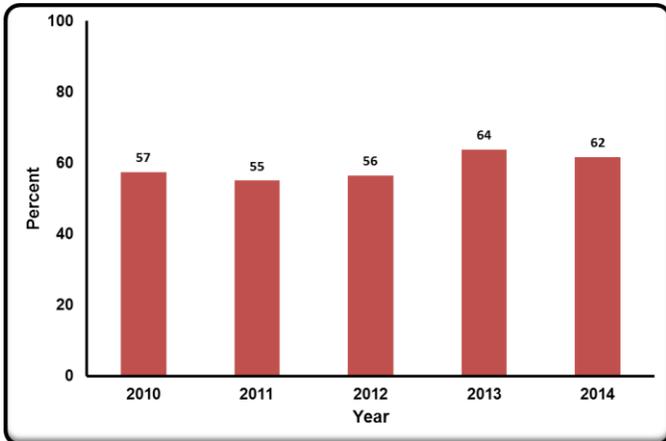


Figure 8. Percentage of stroke patients transported by EMS with hospital pre-notification, GCASR, 2010-2014 (n=35,319)



DEFINITIONS

- Stroke: brain tissue death; can be the result of a thrombus (blocked artery) or a hemorrhage (ruptured artery) which prevents blood flow to the brain
- Transient ischemic attack: temporary blockage of cerebral blood flow that causes a short-lived neurological deficit
- Deep Vein Thrombosis (DVT): blood clot located in a large vein; a potential complication of stroke
- Dysphagia: problems swallowing; a potential complication of stroke that can lead to pneumonia
- Antithrombotic: medication administered to prevent platelets or clotting factors in the blood from forming a blood clot
- Anticoagulation: administration of medications to prevent clotting of the blood
- Tissue plasminogen activator (tPA): a thrombolytic medication administered to eligible acute ischemic stroke patients to reestablish blood supply to the brain

FOR MORE INFORMATION ON GCASR, PLEASE VISIT
<http://dph.georgia.gov/georgia-coverdell-acute-stroke-registry>