

Background: Stroke in Virginia

Virginia Stroke Registry

Quality Improvement Initiatives

Leading Causes of Death in Virginia, 2021	
Causes of Death	Number of Deaths
1. Heart Disease	15,942
2. Cancer	15,114
3. COVID-19	8,230
4. Accidents	4,558
5. Stroke	3,901
6. Chronic Lower Respiratory Diseases	3,117
7. Diabetes	2,589
8. Alzheimer's Disease	2,541
9. Kidney Disease	1,577
10. Parkinson's Disease	1,105

Stroke Key Facts:

- Stroke Death Rates have **increased** over recent years.
- Time is Brain** - the vast majority of stroke patients do not arrive to the hospital within the treatment window, leading to increased death & disability.
- Significant **disparities** in death and hospitalization rates exist for African Americans, advanced age, and lack of appropriate stroke care access in rural and underserved areas.

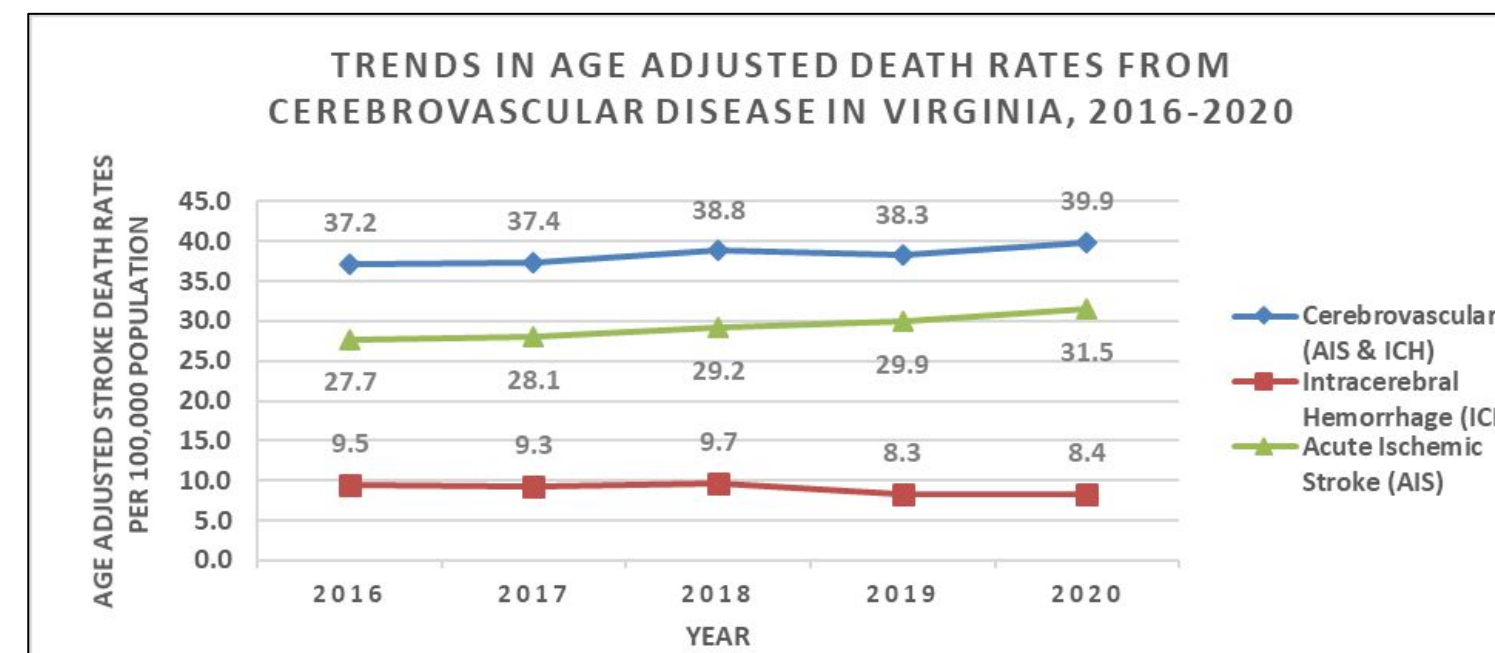


Figure: Trends in Age Adjusted Death Rates from Cerebrovascular Disease in Virginia, 2016-2020. ICD-10 Codes I60-I69 (Cerebrovascular), I60-I62 (Intracerebral Hemorrhage (ICH)), I63-I69 (Acute Ischemic Stroke (AIS)). Data Source: Vital Event Statistics Program, Office of Information Management, Virginia Department of Health.

Source: Vital Event Statistics Program, Office of Information Management - Virginia Department of Health 04/13/2022. Data is preliminary and subject to change. Counts for COVID-19 deaths are based strictly on underlying cause of death using the Virginia Case Definition for COVID-19 from 8/31/2021.

The Virginia Department of Health in Collaboration with ESO Launches First-Ever Virginia Stroke Registry

Statewide View of Stroke Data will Improve Care for all People in Virginia

Key Highlights:

- A joint effort between the Office of Family Health Services (Division of Prevention and Health Promotion and Division of Population Health Data), the Office of EMS, and Virginia Stroke Registry vendor Emergency Services Organization (ESO).
- Statewide view of stroke data along the continuum of stroke care: Pre-hospital, In-Hospital, and Post-Hospital.
- All Hospitals and EMS Agencies are allowed to participate.

Benefits:

- Data:** Collection of stroke data using a nationally-recognized data set from the Centers for Disease Control and Prevention's Paul Coverdell National Acute Stroke Program.
- Collaboration:** Partnership across the Commonwealth to identify key trends to improve stroke patient care and response.
- Evidence-based Decision-making:** Keen, data-driven insights to make informed decisions and drive quality improvement across all stages of the continuum of stroke care.
- Research:** Ability to produce and deliver research papers and studies based on aggregate data, state-wide data.

Timeline of Rollout:

June 2022 First Data Submission

- Goal: All Comprehensive Stroke Centers and Thrombectomy-Capable Centers participate
- 5 Hospitals Submitted by June 15th deadline
- 3 hospitals have uploaded data since June 15th
- 5 other hospitals are working through process

October 2022 – May 2023

- Goal: All Primary Stroke Centers participate
- 40+ additional Hospitals invited to participate

June 2023

- Full Launch of the Virginia Stroke Registry to all Hospitals and EMS Agencies

Submitted Data by June 15 th Deadline	Submitted data in June	Planning to Submit
<ul style="list-style-type: none"> Centra Lynchburg General Hospital Inova Alexandria Hospital Inova Fairfax Hospital Riverside Regional Medical Center UVA Medical Center 	<ul style="list-style-type: none"> Chesapeake Regional Medical Center VCU Medical Center Bon Secours St. Mary's Hospital 	<ul style="list-style-type: none"> HCA Chippenham / Johnston-Willis Hospital HCA Henrico Hospital HCA Reston Hospital Sentara Martha Jefferson Hospital

Virginia Stroke Registry Data Elements (CDC Paul Coverdell National Acute Stroke Program National Data Set)
of Pre-Hospital Metrics: 8
of In-Hospital Metrics: 155

Category	Stroke Data Elements
Pre-Hospital EMS Metrics	Scene Arrival, Scene Departure, Patient Age, Patient Gender, Pre-Hospital Stroke Screen Performed, Glucose Obtained
In-Hospital: Demographic	Age, Gender, Race, Ethnicity, Health Insurance
In-Hospital: Intake	EMS Notification, Hospital Arrival, Comfort Measures, Medications
In-Hospital: Medical History	DM, Prior Stroke, TIA, Carotid Stenosis, MI or CAD, PAD, Valve Prosthesis, CHF, Sickle Cell Disease, Pregnancy, A-fib, Telestroke, e-Cigarette, Dyslipidemia, HTN, Dementia, Emerging Infectious Disease, SARS-COV-1, SARS-COV-2, MERS, Other infectious respiratory pathogen.
In-Hospital: Admission	Date Admitted, Ambulatory status prior to stroke/TIA, Symptoms completely resolve
In-Hospital: Imaging	Brain Imaging performed after arrival, CT/MRI, Date and Time, Findings, Acute Vascular or Perfusion Imaging performed
In-Hospital: Stroke Onset	Date and time of last known well, patient discovery, NIH Stroke Scale performed, NIH score
In-Hospital: Thrombolytic Treatment	IV thrombolytic initiated, date and time, type of thrombolytic used (Alteplase, Tenecteplase) and dose, reasoning if tenecteplase, Imaging if beyond 4.5 hour window, IV thrombolytic at outside hospital or EMS mobile stroke unit, catheter-based treatment, Date and time of IA alteplase or MER initiation at hospital
In-Hospital: Complications	Complications of thrombolytic therapy, Reasons for no thrombolytics 0-3 hour window, Exclusions, IV thrombolytics delay
In-Hospital: Other Treatment Options	Early Antithrombotics, VTE Prophylaxis, Other Therapeutic Anticoagulation
In-Hospital: Hospital Discharge	Dysphagia Screening, Other In-Hospital Complications, Other Complications, Active bacterial or viral infection at admission or during hospitalization, Date of Discharge, Principal discharge ICD-10-CM diagnosis, Clinical Diagnosis related to stroke, Discharge Disposition, Functional Status at Discharge, Antihypertensive treatment, Lipid Treatment, Atrial Fibrillation, Antithrombotics at Discharge, Smoking Counseling, Stroke Education, Rehabilitation

Code of Virginia § 32.1-111.15:1 | Effective 1/1/2019

Department responsible for stroke care quality improvement; sharing of data and information.

- Implement **systems to collect data** and information related to stroke care.
- Facilitate **information & data sharing** and collaboration among hospitals and providers.
- Apply evidence-based treatment guidelines for transitioning patients to **community-based follow-up care** following acute treatment for stroke.
- Establish a process for **continuous quality improvement** for the delivery of stroke care.

Key External Stakeholders:

- Centers for Disease Control & Prevention Paul Coverdell National Acute Stroke Program
- Hospitals, EMS Regional Councils, Stroke Rehabilitation Facilities
- American Heart Association / American Stroke Association
- Virginia Stroke Systems Task Force
- Virginia Stroke Coordinators Consortium
- Virginia Hospital and Healthcare Association
- Unite Us
- Medical Society of Virginia
- Virginia Pharmacists Association
- Kwikpoint (Stroke Smart Virginia)



Virginia Stroke Registry Quality Improvement (QI) Process

- Analyze Stroke Registry data and the annual Hospital and EMS Stroke Inventory Survey data > Develop Quality Improvement Reports and QI recommendations for Hospitals and EMS Agencies and Provide ongoing access to the Virginia Stroke Registry platform.

Virginia Hospital and Healthcare Association Stroke Collaborative

- Collaboration with VDH through the CDC Paul Coverdell National Acute Stroke Program
- Engagement of **non-stroke certified** hospitals, hospitals in rural, underserved areas
- Goals:** Assess stroke care capacity and needs, increase telestroke access, attain hospital stroke certification, guide hospitals to participate in the Virginia Stroke Registry.
- Members:** Bon Secours Southampton, Bon Secours Southern, Centra Southside Community Hospital, HCA Lewis Gale Hospital Montgomery, Sentara Halifax Regional, SOVAH Health Martinsville, Valley Health Warren Memorial Hospital, VCU Tappahannock.

Unite Us: Post-Discharge Stroke Transitions of Care

- Goals:** Establish a post-discharge stroke transitions of care pathway for hospitals to screen for social determinants of health and refer for specific and unique needs of stroke patients. Partner with Community Health Workers to assist with follow-up.
- 20 Unite Us "Insights" Licenses** assigned to enable hospital stroke units to monitor stroke patients referral activity post-discharge through an Insights Dashboard.
- Partners:** Augusta Health, Bon Secours Mary Immaculate Hospital, Ballad Health (Johnson City, TN), Bon Secours Maryview Medical Center, Bon Secours Memorial Regional Medical Center, Bon Secours Southampton Medical Center, Bon Secours Southside Medical Center, Bon Secours St. Francis Medical Center, Bon Secours St. Mary's Hospital, Blue Ridge EMS Council, Centra Health, Sentara Norfolk General Hospital, Mary Washington Healthcare, Sheltering Arms Institute, UVA Health, VCU Health

Stroke Smart Virginia: "Spot a Stroke, Stop a Stroke, Save a life."

- A public health initiative to reduce pre-hospital delays for stroke by educating the public to recognize the signs and symptoms of stroke and early 9-1-1 activation.
- Virginia was proclaimed a Stroke Smart Commonwealth in 2021.
- Goals:** Educate people to Be Stroke Smart, Stay Stroke Smart, and Be a Stroke Champion.
- Stroke Smart** – Hospitals, Medical Practices, Schools, Faith-based Organizations, etc.

