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January 15, 2025

TO: The Honorable Glenn Youngkin
Governor, Commonwealth of Virginia

The Honorable L. Louise Lucas
President Pro Tempore, Virginia Senate

The Honorable Don Scott
Speaker, Virginia House of Delegates

FROM: Karen Shelton, MD
State Health Commissioner

SUBJECT: Stroke Care Quality Improvement Report 2024

This report is submitted in compliance with the Code of Virginia § 32.1-111.15:1 E., which states:

> *E. The Department shall report to the Governor and the General Assembly annually on July 1 on stroke care improvement initiatives undertaken in accordance with this section. Such report shall include a summary report of the data collected pursuant to this section.*

Should you have any questions or need additional information, please feel free to contact me at (804) 864-7002.

KS/AJ
Enclosure

Pc: The Honorable Janet V. Kelly, Secretary of Health and Human Resources

STROKE CARE QUALITY IMPROVEMENT

REPORT TO THE GOVERNOR AND THE GENERAL ASSEMBLY

2024

VIRGINIA DEPARTMENT OF HEALTH

PREFACE

Section 32.1-111.15:1 of the Code of Virginia designates the Virginia Department of Health (VDH) as the agency responsible for stroke care improvement initiatives within the Commonwealth. § 32.1-111.15:1 outlines several specific stroke care initiatives that VDH is responsible for overseeing. It also provides additional guidelines for VDH related to collecting data and information on stroke care and developing a process for continuous quality improvement for stroke care delivery. § 32.1-111.15:1 requires VDH to submit an annual report to the Governor and the General Assembly by July 1 summarizing the work the agency has undertaken and the data the agency has collected over the past year related to stroke care improvement initiatives. This report serves to fulfill that requirement for 2024.

Chapter 198 of the 2018 Virginia Acts of Assembly, which amended the Code of Virginia to add § 32.1-111.15:1, included an enactment clause that requires VDH to convene a group of stakeholders to advise on the implementation of this section (Appendix A). This group, called the Virginia Stroke Care Quality Improvement (VSCQI) Advisory Group, has met quarterly since January 2019. This is a voluntary group of representatives from Virginia hospitals, EMS agencies, rehabilitation centers, and other agencies affiliated with improving stroke care. The VSCQI Advisory Group contributed to this report.

REPORT CONTRIBUTORS
VIRGINIA STROKE CARE QUALITY IMPROVEMENT (VSCQI) ADVISORY GROUP

Virginia Hospitals Represented

- Augusta Health General Hospital
- Bon Secours Rappahannock General Hospital
- Bon Secours Southampton Regional
- Bon Secours Southern Virginia Hospital
- Bon Secours Southside Medical Center
- Bon Secours St. Mary’s Hospital
- Carilion Roanoke Hospital
- Centra Lynchburg Hospital
- Chesapeake Regional Hospital
- Fauquier Hospital
- HCA LewisGale Hospital Alleghany
- HCA Johnston Willis Hospital
- HCA Reston Hospital
- Inova Alexandria Hospital
- Inova Fairfax Hospital
- Novant UVA Haymarket Medical Center
- Richmond VA Medical Center
- Riverside Regional Hospital
- Sentara Norfolk General
- Twin County Regional Hospital
- University of Virginia Medical Center
- UVA Health Prince William Medical Center
- Valley Health Memorial Hospital - Winchester

- Virginia Commonwealth University Medical Center
- Virginia Hospital Center
- Wythe County Community Hospital

Rehabilitation Centers Represented

- Encompass Health Petersburg
- Riverside Rehabilitation Hospital
- Sheltering Arms Rehabilitation Hospital
- UVA Encompass Health Rehabilitation Hospital

Emergency Medical Services Represented

- Blue Ridge Emergency Medical Services Council
- Central Shenandoah Emergency Medical Services Council
- Lord Fairfax Emergency Medical Services Council
- Northern Virginia Emergency Medical Services Council
- Old Dominion Emergency Medical Services Council
- Peninsula Emergency Medical Services Council
- Rappahannock Emergency Medical Services Council
- Southwest Virginia Emergency Medical Services Council
- Thomas Jefferson Emergency Medical Services Council
- Tidewater Emergency Medical Services Council
- Western Virginia Emergency Medical Services Council

Other Stakeholders Represented

- American Heart Association/American Stroke Association
- Medical Society of Virginia
- Virginia Stroke Systems Task Force
- Virginia Stroke Coordinators Consortium
- VDH Office of Family Health Services
- VDH Office of Emergency Medical Services
- Virginia Hospital and Healthcare Association

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EXECUTIVE SUMMARY

The Virginia Department of Health (VDH) is the Code-mandated agency responsible for stroke care improvement initiatives within the Commonwealth. Per Virginia Code § 32.1-111.15:1, VDH is tasked with overseeing four primary stroke care initiatives:

1. Implementing systems to collect data and information about stroke care in the Commonwealth

2. Facilitating information and data sharing and collaboration among hospitals and health care providers to improve the quality of stroke care in the Commonwealth

3. Applying evidence-based treatment guidelines for transitioning patients to community-based follow-up care following acute treatment for stroke

4. Establishing a process for continuous quality improvement for the delivery of stroke care by the statewide system for stroke response and treatment

VDH is required to provide an annual report to the Governor and General Assembly on stroke care improvement initiatives undertaken in accordance with this Code section, and to include a summary report of the data collected pursuant to this section. This report serves to fulfill this requirement for 2024.

RECOMMENDATIONS

Virginia Code § 32.1-111.15:1 (3)(C) requires VDH to develop recommendations for the improvement of stroke care throughout the Commonwealth, and Chapter 198 of the 2018 Acts of Assembly requires VDH to convene the VSCQI to advise on the implementation of the provisions of § 32.1-111.15:1. Pursuant to these requirements, the VSCQI worked in partnership with VDH to develop the following recommendations for improving stroke care initiatives in the Commonwealth, which are based upon the four primary stroke care initiatives as listed in Virginia Code § 32.1-111.15:1:

Implement Systems to Collect Data and Information about Stroke Care

1. Non-certified stroke centers, as well as free-standing emergency departments and post-acute discharge facilities, such as inpatient rehabilitation facilities and skilled nursing facilities, should contribute data to the Virginia Stroke Registry. VDH is currently establishing the Virginia Stroke Registry to serve as the statewide system for collecting data and information on stroke care in the Commonwealth, as required by Virginia Code § 32.1-111.15:1.

2. The Virginia Stroke Registry should collect additional data elements related to specific populations of interest, including pregnancy status and sickle cell status. The Registry should also collect data elements regarding patients who have been treated using advanced stroke therapies.

3. The Virginia Stroke Registry should include the collection of "Z" codes (ICD-10 codes for social determinants of health) in order to address disparities of care across Virginia.

4. The Virginia Stroke Registry should serve as a resource to hospitals and free-standing emergency departments to implement quality improvement efforts, including ongoing stroke certification processes.

5. The Virginia Stroke Registry should be interoperable with additional Virginia data sources, such as the Virginia Vital Events Statistics Program, to comprehensively describe stroke burden and gaps in stroke care along the full continuum of care.

6. Currently, there is no dedicated funding (General Funds or grant funds) for VDH to develop and sustain the Virginia Stroke Registry. The General Assembly should appropriate $700,000 in general funds annually to cover the necessary costs of staffing and Virginia Stroke Registry infrastructure to fulfill the requirements mandated in Virginia Code § 32.1-111.15:1. The $700,000 represents the previously quoted cost of software maintenance ($107,000), the Stroke Registry data quality assurance platform ($135,000), the EMS and hospital data integration to support data modernization and data quality ($50,000), and the funding of three full-time staff to facilitate and maintain the stroke registry ($408,000). The three full-time staff are comprised of the Stroke Registry Coordinator, Epidemiologist senior, and Epidemiologist mid-level. The General Assembly has not previously contributed funding to support the development and/or maintenance of the stroke registry or staff funding; the mandate is unfunded.

Facilitate Data Sharing and Collaboration

7. The Virginia Hospital and Healthcare Association (VHHA) Collaborative should continue to engage the non-certified stroke hospitals and guide them towards stroke certification, participation in the Virginia Stroke Registry, and quality improvement.

8. The American Heart Association's (AHA) Get With The Guidelines ®-Stroke participating hospitals should activate the Coverdell layer, a nationally recognized data set, to submit to Phase 1 of the Virginia Stroke Registry. This means that those hospitals would be extracting additional data from patient records and submitting that data to the Registry, following AHA's national best practices for the kind of data hospitals should collect and report on stroke incidences.

9. VDH should continue to work on development of Phase 2 of the Virginia Stroke Registry, to better enable data sharing and collaboration.

Apply Guidelines for Transitioning Patients to Community-Based Follow-Up Care

10. Hospitals should continue to use Unite Us, or any statewide referral platform, to alleviate the burden on hospital stroke coordinators and care managers of connecting patients to necessary services post-discharge.

11. The General Assembly should appropriate $5.5M in general funds annually to sustain the statewide e-referral system (Unite Virginia) for hospitals and community-based

organizations, with consideration of Community Health Workers as frontline public health workers at the core of the referral system. $5.5M represents the current annual cost of Unite Virginia, which VDH is currently using CDC grants to support. The General Assembly has previously contributed funding to support the e-referral system, but the latest biennial budget does not include any funding for this work.

Establish a Process for Continuous Quality Improvement

12. VDH should continue to release the VDH Hospital Stroke Inventory Survey annually to all stroke hospitals, and update questions year to year to reflect current trends and process improvement outcomes for stroke care.

13. VDH should continue to collect data in conjunction with the Office of Emergency Medical Services (OEMS) resulting from quality improvement projects related to pre-hospital patient care.

14. VDH OEMS, in collaboration with the VDH Office of Family Health Servies (OFHS), should continue the process of updating the Emergency Medical Service (EMS) State Stroke Triage Plan to improve notification processes between EMS and the hospitals to better support eligible patients in receiving advanced treatments for stroke.

15. VDH should investigate why EMS agencies are transporting suspected stroke patients to non-certified stroke centers or out of state facilities, as opposed to in state stroke-certified facilities.

INTRODUCTION

STROKE CARE QUALITY IMPROVEMENT MANDATE

Effective January 1, 2019, Chapter 198 of the 2018 Virginia Acts of Assembly added a section 32.1-111.15:1 to the Code of Virginia to require that the Virginia Department of Health (VDH) oversee stroke care improvement initiatives in the Commonwealth, including implementing systems for stroke data collection and information sharing, facilitating information sharing with hospitals and health care providers, applying evidence-based guidelines for community-based follow-up care, and implementing a continuous process for stroke care quality improvement initiatives, in collaboration with hospitals and emergency medical services (EMS) agencies. The purpose of this report to the Virginia General Assembly and the Governor is to provide updates on the progress towards implementing the initiatives outlined in the Code and building statewide capacity pursuant to Chapter 198 (2018), as well as to provide recommendations for stroke care improvement in the Commonwealth, pursuant to § 32.1-111.15:1 (C)(3).

VIRGINIA STROKE CARE QUALITY IMPROVEMENT ADVISORY GROUP ACTIVITIES

Since 2019, VDH has convened the Virginia Stroke Care Quality Improvement (VSCQI) Advisory Group to provide guidance on fulfilling the requirements of § 32.1-111.15:1. The VSCQI meeting occurs every January, April, July and October on the third Friday of the month and meets in person immediately prior to the statewide Virginia Stroke Systems Task Force meeting. The VSCQI meetings included in this report are from April, July, and October and January 2024 (January 2023 was included in the prior year's report). Minutes for all of the following meetings are all included in Appendix F.

APRIL 21, 2023 MEETING

This meeting was held in person at Sentara Martha Jefferson Hospital in Charlottesville, VA. The goal of the meeting was to talk about the hospital data re-abstraction process as a quality improvement initiative under the stroke legislation. Data re-abstraction is a process that involves revisiting patient medical records and comparing the data with what was previously submitted or what exists in a larger database. Data re-abstraction assists hospitals in demonstrating that their data submissions to VDH and to their certifying bodies are without error. In 2023, VDH began to work with hospitals to compare their current medical records to data previously submitted to VDH through the CDC grant requirements. Of the 33 eligible hospitals, 17 participated in the re-abstraction effort for a total of 240 re-abstracted records. Hospital representatives shared their perspectives on participating in the first iteration of the re-abstraction process.

No public comment was provided at this meeting. Minutes are included in Appendix F.

JULY 21, 2023 MEETING

This meeting was held in person at Tidewater Emergency Medical Services in Chesapeake, VA. During this meeting, the Virginia Hospital and Healthcare Association (VHHA) provided updates on activities of a stroke Community Health Worker, employed by Health Quality

Innovators, at Twin Counties Hospital in Galax. Twin Counties was chosen to have a Community Health Worker placed in the hospital due to high rates of stroke mortality and because Twin County Regional Healthcare is the only stroke certified facility in the local region. VHHA also provided an update on the VHHA Stroke Collaborative, a monthly virtual meeting to support hospital representatives from non-stroke certified facilities in Virginia. The VHHA Stroke Collaborative report focused on its goals for years one through three. The VDH Stroke Registry Coordinator provided an overview of the Second Annual Hospital Stroke Inventory Survey. Discussion followed on transitions of care and use of referral tracking systems such as Unite Us for follow up.

No public comment was provided at this meeting. Minutes are included in Appendix F.

OCTOBER 20, 2023 MEETING

The October 2023 meeting was held in person at VHHA in Glen Allen, VA. The meeting began with VDH providing an overview of the Code of Virginia stroke legislation (Section 32.1-111.15:1). VHHA described efforts to improve poststroke community-based follow up care, described the 2023 health equity regulatory requirements from the Centers for Medicaid and Medicare Services, as well as the inpatient and outpatient universal quality measure set, and described screening for social determinants of health (SDOH). Discussion followed with facilities providing information on who is doing the SDOH screenings and what tools are being used.

Public comment was provided at this meeting and is included in Appendix F.

JANUARY 19, 2024 MEETING

The January meeting was held in person at Mary Washington Healthcare in Fredericksburg, VA. The VDH Stroke Epidemiologist provided a brief overview of the results of the 2023 EMS Stroke Survey and reviewed the planned collaboration with OEMS to develop a white paper with the results of the survey. The group discussed current data points to be added to the EMS portion of the Virginia Stroke Registry. Participants also discussed quality assurance related to the stroke registry, including discussing needed information from the Registry and future wishes for data outcomes from the Registry.

Public comment was provided at this meeting and is included in Appendix F.

REPORT OUTLINE

This report begins with a brief description of the current state of stroke care in Virginia and stroke data collected under Section 32.1-111.15:1 (additional data is included in the appendices). The report then provides a summary of the activities performed to implement the initiatives mandated by Code and concludes with a series of recommendations developed in partnership with the VSCQI on how to improve stroke care throughout the Commonwealth. Additional data is included in the Appendices (including data on cities and counties with age-adjusted stroke mortality rates for 2022 and a list of the Certified Stroke Centers in Virgnia as of March 2024).

THE STATE OF STROKE DATA IN VIRGINIA

Stroke is the fifth leading cause of death in the United States (Curtin et. Al, 2020), and the fifth leading cause of death in Virginia (Centers for Disease Control and Prevention, 2023). Virginia is one of 11 states in the "Stroke Belt," a region of southeastern states recognized for its high incidence of stroke and prevalence of cardiometabolic conditions, including hypertension, diabetes, hyperlipidemia, and obesity (Howard & Howard, 2020). These chronic conditions contribute to cerebrovascular disease, which is a risk factor for the development of a stroke. Stroke occurs when the blood vessels that carry oxygen and nutrients to the brain are blocked, either by a clot or by a blood vessel bursting. When this happens, the part of the brain affected cannot receive oxygen or nutrients, and damage occurs to that portion of the brain. Acute ischemic strokes (AIS), caused by the blockage of the blood vessel, comprise approximately 87% of all strokes; whereas a hemorrhagic stroke, caused by a blood vessel bursting, is less common and comprises about 13% of all strokes (American Stroke Association, 2024). There are two main types of hemorrhagic strokes, intracerebral hemorrhage (ICH) due to a blood vessel bursting and subarachnoid hemorrhage (SAH) due to the rupture of an aneurysm. A transient ischemic attack (TIA), sometimes referred to as a "mini-stroke," occurs by a temporary blockage of a vessel in the brain in which no brain damage occurs but is a warning sign of a potential future stroke (American Stroke Association, 2024).

Based on Centers for Disease Control and Prevention (CDC) data, there has been an increase in stroke mortality rates across the United States as of 2020. The CDC reports the stroke mortality rate as 39 per 100,000 for 2018-2020, an increase from 38.2 per 100,000 for both 2017-2019 and 2016-2018 (Stroke Mortality by State, 2023). Research has identified two factors which may contribute to this increase: the effects of the COVID-19 pandemic and the health of the next generation. From 2019 to 2020, Non-Hispanic Blacks experienced the greatest increase in risk-associated mortality rates (Sidney et. al, 2022). The COVID-19 pandemic contributed to this increase as patients missed routine appointments and avoided emergency departments due to the fear of COVID-19 exposure. Hospital overcrowding and short staffing due to COVID-19 caused long waits and limited appointment time slots. Additionally, US adult obesity rates increased and worsened as the pandemic continued (Restrepo, 2022). Social distancing led to adults adapting a more sedentary lifestyle while increasing alcohol and cigarette use. An increase in obesity also increases risk of chronic disease onset, such as heart disease and stroke. Rutgers University performed an analysis of epidemiologic trends in stroke mortality and found that the later a patient is born, starting around 1960, there is a higher risk of fatal ischemic stroke at any age (Cande et. al., 2022). In addition, the Journal of Urgent Care Medicine reported 44% of Millennials (person born between 1981-1996) already have one chronic health condition (Blachford, 2022). The Rutgers University analysis suggested the most likely conditions for this population are obesity and diabetes – especially after the onset of COVID-19 pandemic sedentary habits.

The number of stroke deaths among Virginians increased by 12.9% in 2022 as compared to 2019 and by 5.2% as compared to 2021. Stroke death rates have steadily increased since 2017

(VHI Death Certificate Database, 2024). As shown in Figure 1, the age-adjusted stroke death rates per 100,000 population steadily increased from 37.4 in 2017 to 41.2 in 2022.

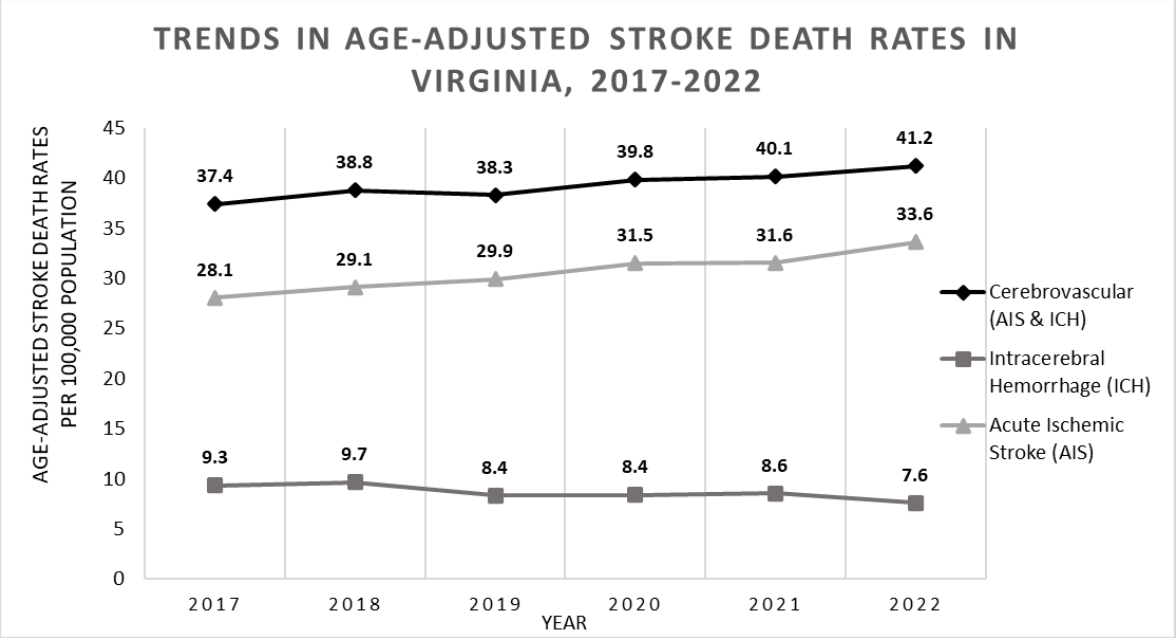

Figure 1. Trends in Age-Adjusted Stroke Death Rates in Virginia, 2017-2022. ICD-10 Codes I60-I69 (Cerebrovascular), I60-I62 (Intracerebral Hemorrhage (ICH)), I63-I69 (Acute Ischemic Stroke (AIS)). Data Source: Inpatient discharge dataset from Virginia Health Information accessed on February 2024.

Stroke death can occur at any age; however, advanced age is the strongest predictor of death from stroke in Virginia, increasing with each progressively older age group. In Figure 2, the 45-54 year age group had an age-adjusted death rate per 100,000 population of 1.9, followed by 2.7 for ages 55-64, 5.5 for ages 65-74, 12.7 for ages 75-84, and 17.5 for ages 85 and older (VHI Death Certificate Database, 2024). The 85 and older age group saw the largest increase in death rates from 2021 to 2022, increasing from 16.7 to 17.5.

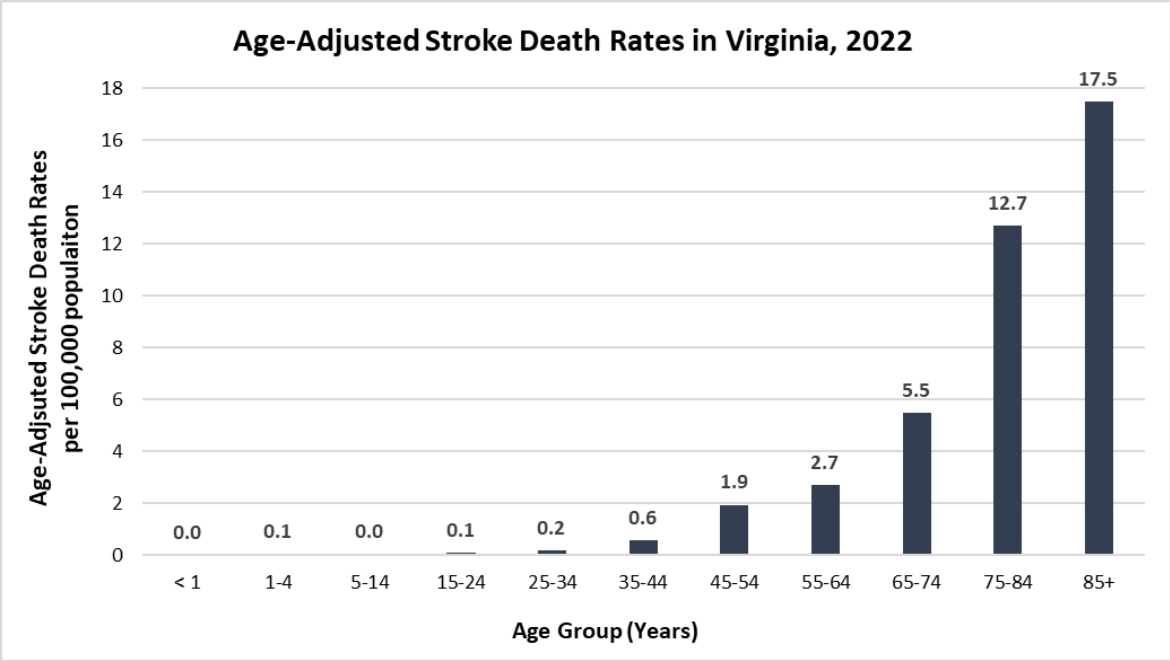

Figure 2. Age-Adjusted Stroke Death Rates in Virginia, 2022. ICD-10 Codes I60-I69 (Cerebrovascular), I60-I62 (Intracerebral Hemorrhage (ICH)), I63-I69 (Acute Ischemic Stroke (AIS)). Data Source: Inpatient discharge dataset from Virginia Health Information accessed on March 2024.

In Figure 3, advanced age was the strongest predictor of age-adjusted stroke hospitalization rates per 100,000 population. Persons aged 75-84 years had the highest rate per 100,000 population with 61.9 hospitalizations for stroke, followed by ages 65-74 at 46.3 and ages 85 and older at 34.3 (VHI Inpatient Discharge Database, 2024).

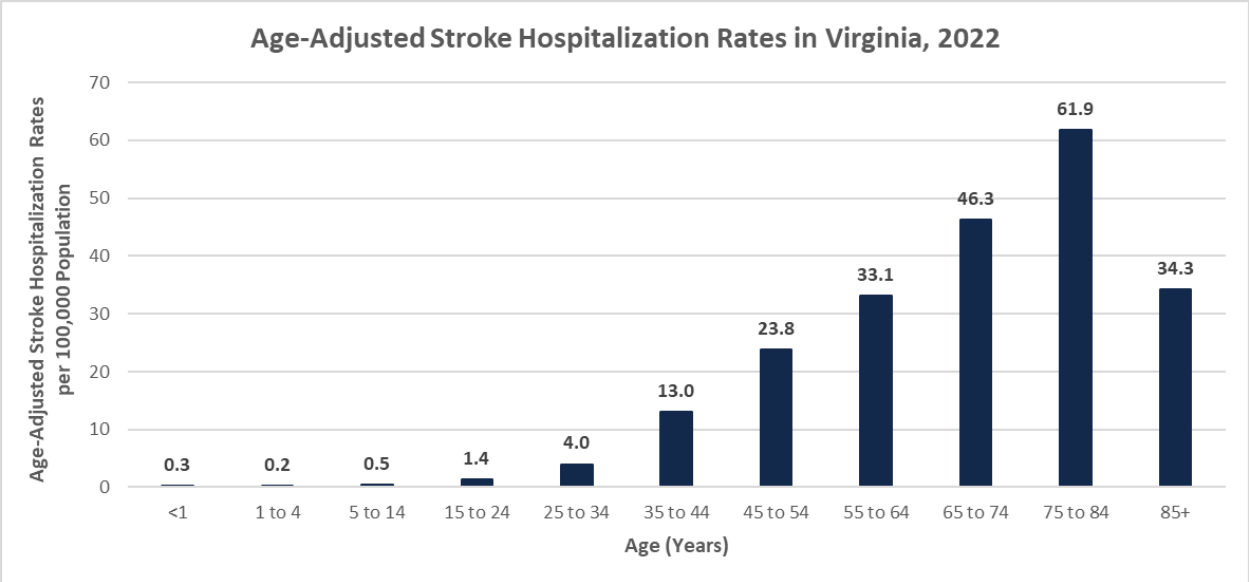

Figure 3. Age-Adjusted Stroke Hospitalization Rates Per 100,000 Population in Virginia, 2022. ICD-10 Codes I60-I62 (Intracerebral Hemorrhage (ICH)), I63-I69 (Acute Ischemic Stroke (AIS)),

G45 (Transient Ischemic Attack (TIA)), I60-I69 and G45 (All Stroke/TIA). Data Source: Inpatient discharge dataset from Virginia Health Information accessed on March 2024.

In addition to observed stroke death and hospitalization disparities by age, surveillance data also indicates disparities among stroke death and hospitalization rate disparities by geography across the Commonwealth of Virginia. Table 1 shows the 10 cities or counties with the highest age-adjusted stroke mortality rate in 2022. A table with 2022 age-adjusted stroke mortality rates for all cities and counties in Virginia can be found in Appendix C.

Table 1. Virginia Cities and Counties by Stroke Mortality Age-Adjusted Rates per 100,000 population, 2022.

Region	Locality	Stroke Mortality Rate
Eastern	Franklin City	102.02
Central	Greensville	95.03
Southwest	Martinsville	80.11
Central	Charlotte	80.05
Southwest	Covington	77.48
Northwest	Clarke	76.69
Central	Nottoway	71.04
Eastern	Southampton	70.30
Central	Petersburg	70.08
Southwest	Patrick	68.26

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PROGRESS TOWARDS IMPLEMENTATION OF STROKE CARE INITIATIVES IN ACCORDANCE WITH VIRGINIA CODE § 32.1-111.15:1

As of February 2024, there are a total of 72 certified stroke centers in Virginia, consisting of nine Comprehensive Stroke Centers, four Thrombectomy-Capable Stroke Centers, 38 Primary Stroke Centers, 10 Acute Stroke Ready facilities, and 11 stroke rehabilitation certified facilities. This is an increase of three facilities over the February 2023 number with three more Acute Stroke Ready certified facilities. There were three changes in certification with two Primary Stroke Centers increasing capabilities to become Thrombectomy-Capable Centers and one Comprehensive Stroke Center downgrading to a Primary Stroke Center. Virginia hospitals utilize three stroke-certifying agencies: The Joint Commission (TJC), Det Norske Veritas (DNV), and Accreditation Commission for Health Care (ACHC), with the majority (67%) utilizing TJC. A table with the levels of stroke certification and the capabilities of each can be found in Appendix E.

VDH made the following progress over the past year in carrying out the four initiatives outlined in Virginia Code § 32.1-111.15:1:

1. Implementing Systems to Collect Data and Information About Stroke Care

In June 2021, VDH began implementation of the CDC Paul Coverdell National Acute Stroke Program (Coverdell) grant, which requires state recipients to implement a statewide stroke registry, collect and monitor stroke care data as defined by CDC's stroke data elements, and submit de-identified aggregate data to CDC's nationally recognized data set platform with confidentiality standards. In 2023, VDH continued work on developing the Stroke Registry in partnership with vendor ESO (Emergency Services Organization) to better facilitate data sharing between the OEMS, hospitals and rehabilitation facilities through the usage of one common platform that will be able to integrate patient information. Participating hospitals and EMS agencies will have access to their own data and the ability for designated users to analyze their own data within the stroke registry platform, in addition to receiving a full annual report from VDH. ESO is the current vendor for the trauma registry for hospitals and EMS agencies through OEMS.

In 2023, the Registry data dictionary was completed with a total of 1,012 data elements to be collected by EMS agencies, hospitals, and post-discharge rehabilitation facilities. The completed data dictionary also encompasses data required by the Coverdell grant and hospital certification regulatory bodies. VDH and Virginia Stroke Care Quality Improvement (VSCQI) Advisory Group adopted the CDC stroke data elements for the Virginia Stroke Registry. The CDC data elements (DE) manual includes information about technical specifications for the DE variables included in each of the categories, guidance for their submission, and conventions for processing the data. Specifications for each DE include variable name, prompt, format, source of data, denominator population, acceptable values, description, and use for data analysis. Variables are reported for each stroke patient. The Coverdell grant administrative requirement contains four DE variables that are necessary for analytical utility, data quality, and program fidelity. These are State FIPS (Federal Information Processing Standard), unique patient identifier, residential zip code, and unique hospital identifier.

As part of the Coverdell grant requirements, five hospitals participated in the first data submission period. VDH submitted de-identified, aggregate stroke care data to the Secure Access Management Site (SAMS), CDC's nationally recognized data set platform with confidentiality standards.

Currently, only hospitals participating in the American Heart Association/American Stroke Association Get With The Guidelines (GWTG) ®-Stroke data collection platform are able to participate in the Virginia Stroke Registry. There are 47 hospitals in Virginia that participate in GWTG. Table 2, below, shows the progress VDH has made in collecting stroke patient records as part of the Coverdell grant.

Table 2. The Number of Records Submitted Per CDC Coverdell Data Submission.

CDC Coverdell Submission Date	**Number of Hospitals Enrolled** (% of eligible hospitals)	**Number of Records Submitted**
June 2022	5 (10.6%)	5,000
October 2022	33 (70%)	10,985
February 2023	35 (74.5%)	16,493
June 2023	47 (100%)	15,905
October 2023	47 (100%)	16,578
February 2024	47 (100%)	34,030

Although VDH has been able to make progress towards establishing the Virginia Stroke registry, VDH does not currently receive any General Funds or grant funds explicitly dedicated to developing and maintaining the stroke registry. The lack of funding hampers the agency's ability to fully implement the statewide system, create a sustainable staffing plan, and meet the entirety of the General Assembly mandates outlined in Virginia Code § 32.1-111.15:1. VDH has been able to use some CDC grant funding to start this work, but this funding is not earmarked for the stroke registry and is insufficient to cover the costs of staffing and infrastructure development/maintenance for the registry. VDH needs a sustainable and sufficient funding source to continue to implement this work. The total estimated yearly cost for the Virginia Stroke Registry and full-time staff support is $700,000. This includes $292,000 for the infrastructure and $408, 000 for staffing annually. See recommendation number 6 for more information.

2. Facilitating Data Sharing and Collaboration Among Hospitals and Health Care Providers

VDH managed or supported a number of collaborative efforts among hospitals and health care providers to share data related to stroke care, including:

- **The Virginia Stroke Collaborative** – The Virginia Stroke Collaborative began in 2022 as an effort to convene non-stroke certified hospitals to improve stroke care and encourage stroke certification. Led by the VHHA, with the support of the VDH, this collaborative provides another route to enable data sharing and collection. Thirteen hospitals that held no stroke certification were invited to join the collaborative, and eight hospitals participated in 2022. Membership continued to grow throughout 2023 with a

total of 15 hospitals participating in the stroke collaborative. As of February 23, 2024, two hospitals have pursued Acute Stroke Ready (ASR) certification with one awarded and one awaiting the awarding by their certifying body. Five other facilities participating in the stroke collaborative have indicated plans to pursue certification in 2024.

- **The Virginia Stroke Coffee Hour** – The Virginia Stroke Coffee Hour began in January 2023 with the purpose of sharing stroke best practices among Virginia hospitals. Over 110 hospital stroke representatives participated in these monthly meetings, representing certified stroke centers of all levels, as well as non-certified facilities. This group covered topics such as social determinants of health (SDOH), community outreach, stroke navigators, data validation, and process improvement. Hospital representatives shared quality data and improvement projects, as well as best practices to improve stroke outcomes.

- **The Virginia Stroke Coordinators Academy** – The quarterly Virginia Stroke Coordinators Academy (VSCA) began in October 2023 as a method to further encourage collaboration and growth among stroke program representatives, as well as an opportunity to earn continuing education credits. Topics covered in the October and January meetings included essentials for developing and enhancing certified stroke programs, neurological exam optimization, leadership skills, stroke radiology, and expert panel discussion on stroke centers.

- **ESO** – Two hospital systems enrolled in the ESO Health Data Exchange, a bi-directional data exchange platform, to allow EMS and hospitals to share time-sensitive patient data electronically and translate information automatically from any prehospital electronic patient care report (ePCR) system to any hospital electronic medical record (EMR) system. This data exchange program will allow VDH and Virginia system users to share outcome reports with program partners using combined data sources, including EMS agencies, hospitals, and post-discharge rehabilitation facilities.

3. Applying Guidelines for Transitioning Patients to Community-Based Follow-up Care

The VDH Stroke Registry Epidemiologist, funded through the Coverdell grant, analyzes the quantitative and qualitative data from the Virginia Stroke Registry and the hospital and EMS inventory surveys to create tailored reports. These reports inform hospitals and EMS agencies about their stroke care data and outcomes. They also help identify opportunities for implementing quality improvement, increasing capacity, and changing stroke protocols, including those related to transitions to community-based follow up care.

The VDH 2023 Hospital Stroke Inventory Survey reached 57% of all hospitals and free-standing emergency departments (FSEDs) in Virginia. This was a decrease in respondents from 88% of hospitals who responded to the 2022 Hospital Stroke Inventory Survey. Of the 61 respondents, 51 (84%) respondents do not have a patient referral tracking systems to support transitions of care for stroke patients, an increase from 73% the previous year. Furthermore, 30 (49%) respondents reported they are attempting to make post-discharge phone calls to stroke patients and/or their families; however, two-thirds of those facilities (20, 67%) report they are reaching less than 50% of their patients. Hospital stroke programs lack the necessary tools and

resources to apply guidelines for transitioning patients to community-based follow-up care. Currently, attempts by stroke coordinators to reach patients post-discharge have not been widely successful.

VDH has taken steps to improve post-discharge outreach, screening, and referrals to support transitioning patients to community-based follow-up care. VDH continued its collaboration with Unite Us to integrate health system and community partners into the statewide referral network. Across 133 localities, Unite Us has integrated over 1,314 partners into the Unite Us referral network with 2,732 active programs, 63% of which are open to referrals. Since December 2022, over 35,753 clients have been served and 36,163 referred cases sent. Food assistance and housing/shelter needs accounted for 45% of the total case volume among participating hospitals in 2023, followed by individual and family support, transportation, mental/behavioral health, physical health, and income support. Throughout 2023, the acceptance rates of referrals increased from 61.6% in Q1 2023 to 67.6% in Q4 2023 for VHHA Health Systems. Table 3 describes the health system status of Unite Us usage, type of usage, and number of active users. VHHA referrals has been achieved through the deployment of Community Health Workers at the health system level. These Community Health Workers function as an internal referral hub, receiving referrals from stroke programs and other departments within the health system. The Community Health Workers perform outreach, conduct screenings, and make referrals through Unite Us. Each hospital has the option of adopting one of two ways to utilize the Unite Us referral system: 1) “EHR Integration” - the referral platform is fully accessible within the patient medical chart connected to the hospitals electronic health record (EHR) system or 2) “Web Application” - hospital employees making the referral must log into their assigned account in a separate internet website. From 2023-2024, there were 56 Community Health Workers employed by health systems.

Table 3. Health System Unite Us Status, Integration, and Active Users as of March 1, 2024.

Hospital / Health System	Unite Us Status	EHR Integration or Web Application	# Active Unite Us Users
Augusta Health	Live	Web App	47
Ballad Health	Live	Integration	455
Bath Community	Live	Web App	3
Bon Secours	Live	Web App	90
Carilion	Live	Web App	108
Centra Health	Live	Integration	148
Chesapeake	Live	Web App	127
CHKD	Live	Integration	354
Inova	Live	Integration	7252
LifePoint / Sovah Health	Live	Web App	2
Mary Washington	Live	Integration	93
Riverside	Live	Integration	419
Sentara Health	Live	Integration	175
Sentara Quality Care Network	Live	Web App	53

Sheltering Arms Institute	Live	Integration	31
UVA Health	Live	Web App	194
Valley Health	Live	Web App	32
VCU Health	Live	Web App	327
Virginia Hospital Center	Live	Integration	40

*Note: Live status indicates Unite Us is fully operational in the hospital / health system.

4. Establishing a Process for Continuous Quality Improvement

In 2023, VDH continued to offer multiple opportunities to hospitals and FSEDs to begin or continue quality improvement projects. The three main projects that allow for data collection to influence quality improvement projects are (1) annual data re-abstraction, (2) a hospital inventory survey, and (3) an EMS inventory survey.

Data re-abstraction is an evidenced-based best practice for increasing data quality and reliability. VDH works with hospitals to compare their current medical records to data previously submitted to VDH through the Coverdell grant requirements. In December 2023, VDH submitted re-abstraction requests to 43 hospitals towards the determination of interrater reliability as a requirement of the Coverdell grant. A total of 34 hospitals participated in the process, and VDH aggregated and submitted results from the participating hospitals to the CDC Coverdell team. This was an increase from 17 hospitals who participated in the re-abstraction project in 2022. Individualized re-abstraction reports were provided to these hospitals in March 2024. The individualized reports compared previously submitted patient data to the electronic medical record re-abstraction submitted by the hospitals. The aggregated results showed the following metrics need improvement: time of brain imaging, patient last known well time, and whether a telestroke consultation took place. Each of these data elements had a matching percent of less than 80%.

The VDH Hospital Stroke Inventory Survey was released on April 24, 2023, with an email invitation sent to all known hospital and FSED stroke coordinators and/or representatives. A total of 61 survey responses were obtained, representing 57% of hospitals and FSEDs. Specific survey questions targeted the following areas of stroke care: certification, acute stroke team and acute stroke care, admission and care of stroke patients, EMS protocols and feedback, transitions of care, and stroke quality and performance improvement. Some of the key findings are listed below:

- Certification
    - 46 (75%) responding facilities are stroke certified.
- Acute Stroke Team and Acute Stroke Care
    - 41 (71%) respondents meet the recommended average door-to-thrombolytic time of less than 60 minutes.
    - 53 (87%) respondents utilize teleneurology services, either via phone, video or both.
- EMS Protocols and Feedback

    - 54 (89%) respondents accept suspected stroke patients from EMS; 46 respondents being hospitals and 8 being FSEDs.
- Transitions of Care
    - 51 (84%) respondents do not have a patient referral tracking systems to support transitions of care for stroke patients.
    - 30 hospitals (49.2%) reported they conduct post-discharge follow-up interactions with patients after being discharged home.
- Stroke Quality and Performance Improvement
    - 43 (71%) respondents have implemented changes to improve stroke care practices and patient care, with 34 (79%) facilities reporting improvements.
- Community Education and Resources
    - Almost all facilities (55, 90.2%) have organized community education events in the past year.
    - Half (31, 513 of respondents monitor for disparities among patients impacted by stroke or at high risk for a stroke.

In July 2023, a Virginia EMS Stroke Inventory Survey was distributed to 620 EMS agencies via superuser emails provided by OEMS. 130 out of 620 EMS agencies (23.7%) fully or partially completed the survey, and all 11 EMS Region Councils were represented. This is a decrease from the 2022 EMS Stroke Inventory Survey, which had final count of 251 responses and a response rate of 40%. Some key findings are listed below:

- Stroke Alerts
    - There is wide variability in the timing of calling a stroke alert, with only 20.3% pre-alerting up to the 24 hours of Last Known Well.
- Pre-Hospital Assessment Tools
    - There is wide variability in the prehospital stroke severity tools used by the 11 EMS councils, potentially leading to confusion among providers and receiving hospitals.
- EMS and Emergency Department
    - The majority of respondents (40.8%) report taking a suspected stroke patient directly to the CT scanner less than 25% of the time.

Additionally, of the 130 EMS agencies that completed the survey, 29 (24%) of agencies reported taking a suspected stroke patient to a non-stroke certified facility as their first-choice hospital, and 11 (9.2%) reported to take a suspected stroke patient to an out-of-state facility as their first-choice hospital. 100 agencies also opted to provide responses in the survey regarding their second-choice hospitals. Results for that question showed that 30% of responding agencies reported taking a suspected stroke patient to a non-stroke certified facility as their second-choice hospital, and 17% of responding agencies reported taking a suspected stroke patient to an out-of-state facility as their second-choice hospital. These are important findings, as where EMS agencies transport suspected stroke patients directly effects the level of treatment for those patients. Ideally, patients should be initially taken to in-state, certified facilities, to avoid having to transfer them to another hospital later for more proximate and appropriate care.

Findings from the 2023 Virginia Hospital Stroke Inventory Survey were presented at the July 2023 VSSTF meeting. Findings from the 2023 Virginia EMS Stroke Inventory Survey were presented at the January 2024 VSSTF meeting.

RECOMMENDATIONS

Upon advisement of the Virginia Stroke Care Quality Improvement Advisory Group, the following are recommendations provided in response to the Code of Virginia § 32.1-111.15:1:

Implement Systems to Collect Data and Information about Stroke Care

1. Non-certified stroke centers, as well as free-standing emergency departments and post-acute discharge facilities, such as inpatient rehabilitation facilities and skilled nursing facilities, should contribute data to the Virginia Stroke Registry. VDH is currently establishing the Virginia Stroke Registry to serve as the statewide system for collecting data and information on stroke care in the Commonwealth, as required by Virginia Code § 32.1-111.15:1.

2. The Virginia Stroke Registry should collect additional data elements related to specific populations of interest, including pregnancy status and sickle cell status. The Registry should also collect data elements regarding patients who have been treated using advanced stroke therapies.

3. The Virginia Stroke Registry should include the collection of "Z" codes (ICD-10 codes for social determinants of health) in order to address disparities of care across Virginia.

4. The Virginia Stroke Registry should serve as a resource to hospitals and free-standing emergency departments to implement quality improvement efforts, including ongoing stroke certification processes.

5. The Virginia Stroke Registry should be interoperable with additional Virginia data sources, such as the Virginia Vital Events Statistics Program, to comprehensively describe stroke burden and gaps in stroke care along the full continuum of care.

6. Currently, there is no dedicated funding (General Funds or grant funds) for VDH to develop and sustain the Virginia Stroke Registry. The General Assembly should appropriate $700,000 in general funds annually to cover the necessary costs of staffing and the Virginia Stroke Registry infrastructure to fulfill the requirements mandated in Virginia Code § 32.1-111.15:1. $700,000 represents the previously quoted cost of software maintenance ($107,000), the Stroke Registry data quality assurance platform ($135,000), the EMS and hospital data integration to support data modernization and data quality ($50,000), and the funding of three full-time staff to facilitate and maintain the stroke registry ($408,000). The three full-time staff is comprised of the Stroke Registry Coordinator, Epidemiologist senior, and Epidemiologist mid-level. The General Assembly has not previously contributed funding to support the development and/or maintenance of the stroke registry or staff funding as the mandate is unfunded.

Facilitate Data Sharing and Collaboration

7. The Virginia Hospital and Healthcare Association (VHHA) Collaborative should continue to engage the non-certified stroke hospitals and guide them towards stroke certification, participation in the Virginia Stroke Registry, and quality improvement.

8. The American Heart Association's (AHA) Get With The Guidelines ®-Stroke participating hospitals should activate the Coverdell layer, a nationally recognized data set, to submit to Phase 1 of the Virginia Stroke Registry. This means that those hospitals would be extracting additional data from patient records and submitting that data to the Registry, following AHA's national best practices for the kind of data hospitals should collect and report on stroke incidences.

9. VDH should continue to work on development of Phase 2 of the Virginia Stroke Registry, to better enable data sharing and collaboration.

Apply Guidelines for Transitioning Patients to Community-Based Follow-Up Care

10. Hospitals should continue to use Unite Us, or any statewide referral platform, to alleviate the burden on hospital stroke coordinators and care managers of connecting patients to necessary services post-discharge.

11. The General Assembly should appropriate $5.5M in general funds annually to sustain the statewide e-referral system (Unite Us) for hospitals and community-based organizations, with consideration of Community Health Workers as frontline public health workers at the core of the referral system. $5.5M represents the annual cost of Unite Us, which VDH is currently using CDC grants to support. The General Assembly has previously contributed funding to support the e-referral system, but the latest biennial budget does not include any funding for this work.

Establish a Process for Continuous Quality Improvement

12. VDH should continue to release the VDH Hospital Stroke Inventory Survey annually to all stroke hospitals, and update questions year to year to reflect current trends and process improvement outcomes for stroke care.

13. VDH should continue to collect data in conjunction with the Office of Emergency Medical Services (OEMS) resulting from quality improvement projects related to pre-hospital patient care.

14. VDH OEMS, in collaboration with the VDH Office of Family Health Servies (OFHS), should continue the process of updating the Emergency Medical Service (EMS) State Stroke Triage Plan to improve notification processes between EMS and the hospitals to better support eligible patients in receiving advanced treatments for stroke.

15. VDH should investigate why EMS agencies are transporting suspected stroke patients to non-certified stroke centers or out of state facilities, as opposed to in state stroke-certified facilities.

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APPENDIX A – CHAPTER 198 OF THE 2018 ACTS OF ASSEMBLY

CHAPTER 198

An Act to amend the Code of Virginia by adding in Article 2.1 of Chapter 4 of Title 32.1 a section numbered 32.1-111.15:1, relating to stroke care quality improvement. [S 867]

Approved March 5, 2018

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Article 2.1 of Chapter 4 of Title 32.1 a section numbered 32.1-111.15:1 as follows:

§ 32.1-111.15:1. Department responsible for stroke care quality improvement; sharing of data and information.

A. The Department shall be responsible for stroke care quality improvement initiatives in the Commonwealth. Such initiatives shall include:

1. Implementing systems to collect data and information about stroke care in the Commonwealth in accordance with subsection B;

2. Facilitating information and data sharing and collaboration among hospitals and health care providers to improve the quality of stroke care in the Commonwealth;

3. Requiring the application of evidence-based treatment guidelines for transitioning patients to community-based follow-up care following acute treatment for stroke; and

4. Establishing a process for continuous quality improvement for the delivery of stroke care by the statewide system for stroke response and treatment in accordance with subsection C.

B. The Department shall implement systems to collect data and information related to stroke care (i) that are nationally recognized data set platforms with confidentiality standards approved by the Centers for Medicare and Medicaid Services or consistent with the Get With The Guidelines-Stroke registry platform from hospitals designated as comprehensive stroke centers, primary stroke centers, or acute stroke-ready hospitals and emergency medical services agencies in the Commonwealth and (ii) from every primary stroke center with supplementary levels of stroke care distinction in the Commonwealth. Every hospital designated as a comprehensive stroke center, primary stroke center, or primary stroke center with supplementary levels of stroke care distinction shall report data and information described in clauses (i) and (ii) to the Department. The Department shall take steps to encourage hospitals designated as acute stroke-ready hospitals and emergency medical services agencies to report data and information described in clause (i) to the Department.

C. The Department shall develop a process for continuous quality improvement for the delivery of stroke care provided by the statewide system for stroke response and treatment, which shall include:

1. Collection and analysis of data related to stroke care in the Commonwealth;

2. Identification of potential interventions to improve stroke care in specific geographic areas of the Commonwealth; and

3. Development of recommendations for improvement of stroke care throughout the Commonwealth.

D. The Department shall make information contained in the systems established pursuant to subsection B and data and information collected pursuant to subsection C available to licensed hospitals and the Virginia Stroke Systems Task Force, and, upon request, to emergency medical services agencies, regional emergency medical services councils, the State Emergency Medical Services Advisory Board, and other entities engaged in the delivery of emergency medical services in the Commonwealth to facilitate the evaluation and improvement of stroke care in the Commonwealth.

E. The Department shall report to the Governor and the General Assembly annually on July 1 on stroke care improvement initiatives undertaken in accordance with this section. Such report shall include a summary report of the data collected pursuant to this section.

F. Nothing in this article shall require or authorize the disclosure of confidential information in violation of state or federal law or regulations, including the Health Insurance Portability and Accountability Act, 42 U.S.C. § 1320d et seq.

2. That the provisions of the first enactment of this act shall become effective on January 1, 2019.

3. That the Department of Health shall convene a group of stakeholders, which shall include representatives of (i) hospital systems, including at least one hospital system with at least six or more stroke centers in the Commonwealth, recommended by the Virginia Hospital and Healthcare Association; (ii) the Virginia Stroke Systems Task Force; and (iii) the American Heart Association/American Stroke Association, to advise on the implementation of the provisions of this act.

APPENDIX B – GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS

This is a listing of the acronyms and abbreviations appearing throughout the report and its appendices.

ACHC	Accreditation Commission for Health Care (an accrediting and certifying body)
AHA/ASA	American Heart Association/American Stroke Association
AIS	Acute Ischemic Stroke
CDC	Centers for Disease Control and Prevention
CHWs	Community Health Workers
CSC	Comprehensive Stroke Center
DE	Data Elements
DNV	Det Norske Veritas (an accrediting and certifying body)
EHR	Electronic health record
EMR	Electronic medical record
EMS	Emergency Medical Services
ePCR	Electronic patient care report
ESO	Emergency Services Organization
FIPS	Federal Information Processing Standards
GWTG	Get With The Guidelines®
ICH	Intracerebral Hemorrhage
JCHC	Joint Commission on Health Care
OEMS	Office of Emergency Medical Services
OFHS	Office of Family Health Services
PSC	Primary Stroke Center
PSC+	Primary Stroke Center Plus
Re-abstraction	A process that involves revisiting patient medical records and compares the data with what was previously submitted or what exists in a larger database
SAH	Subarachnoid Hemorrhage
SAMS	Secure Access Management Site
Stroke Registry	A reporting system designed to assist with the collection of data elements regarding stroke care to allow for the tracking and measuring of care provided and outcomes with the goal of validating and improving the quality of care
TJC	The Joint Commission (an accrediting and certifying body)
TSC	Thrombectomy-Capable Stroke Center
VDH	Virginia Department of Health
VHHA	Virginia Hospital and Healthcare Association
VSCQI	Virginia Stroke Care Quality Improvement
VSCC	Virginia Stroke Coordinator Consortium
VSSTF	Virginia Stroke Systems Task Force

APPENDIX C – TABLE 1. THE COMPLETE VIRGINIA CITIES AND COUNTIES STROKE MORTALITY AGE-ADJUSTED RATES, 2022

Region	Locality	Stroke Mortality Rate (per 100,000 people in each locality)
Central	Amelia County	37.91
	Brunswick County	34.45
	Buckingham County	43.49
	Charles City County	24.82
	Charlotte County	80.05
	Chesterfield County	34.53
	Colonial Heights City	49.27
	Cumberland County	39.79
	Dinwiddie County	17.25
	Emporia City	29.19
	Goochland County	21.25
	Greensville County	95.03
	Halifax County	57.47
	Hanover County	34.82
	Henrico County	41.03
	Hopewell City	60.69
	Lunenburg County	29.37
	Mecklenburg County	53.92
	New Kent County	50.87
	Nottoway County	71.04
	Petersburg City	70.08
	Powhatan County	23.47
	Prince Edward County	52.76
	Prince George County	39.40
	Richmond City	42.55
	Surry County	61.90
	Sussex County	65.12
Eastern	Accomack County	39.76
	Chesapeake	59.05
	Essex County	27.09
	Franklin City	102.02
	Gloucester County	46.35
	Hampton City	51.94
	Isle of Wight County	61.31

	James City County	34.20
	King and Queen County	57.62
	King William County	33.12
	Lancaster County	49.35
	Mathews County	30.11
	Middlesex County	40.06
	Newport News City	50.05
	Norfolk City	54.83
	Northampton County	53.07
	Northumberland County	41.04
	Poquoson City	31.68
	Portsmouth City	60.13
	Richmond County	26.91
	Southampton County	70.30
	Suffolk City	57.26
	Virginia Beach City	48.16
	Westmoreland County	53.55
	Williamsburg City	19.42
	York County	38.02
Northern	Alexandria City	32.13
	Arlington County	30.05
	Fairfax County	28.20
	Fairfax City	49.54
	Falls Church City	29.46
	Loudoun County	26.23
	Manassas City	39.25
	Manassas Park City	12.15
	Prince William County	33.69
Northwest	Albemarle County	29.72
	Augusta County	28.72
	Bath County	12.02
	Buena Vista City	22.75
	Caroline County	48.27
	Charlottesville City	41.03
	Clarke County	76.69
	Culpeper County	40.85
	Fauquier County	44.98
	Fluvanna County	34.01
	Frederick County	49.10
	Fredericksburg City	37.09
	Greene County	46.20
	Harrisonburg City	31.00

	Highland County	13.05
	King George County	18.46
	Lexington City	23.42
	Louisa County	45.64
	Madison County	44.41
	Nelson County	53.29
	Orange County	48.17
	Page County	39.28
	Rappahannock County	64.55
	Rockbridge County	25.51
	Rockingham County	44.17
	Shenandoah County	53.82
	Spotsylvania County	37.85
	Stafford County	36.50
	Staunton City	60.20
	Warren County	56.91
	Waynesboro City	42.39
	Winchester City	68.02
Southwest	Alleghany County	38.55
	Amherst County	43.17
	Appomattox County	41.65
	Bedford County	45.84
	Bland County	42.46
	Botetourt County	44.45
	Bristol City	46.10
	Buchanan County	37.64
	Campbell County	34.27
	Carroll County	35.95
	Covington City	77.48
	Craig County	35.97
	Danville City	42.21
	Dickenson County	52.30
	Floyd County	45.35
	Franklin County	54.65
	Galax City	30.12
	Giles County	54.29
	Grayson County	50.82
	Henry County	61.22
	Lee County	29.39
	Lynchburg County	52.56
	Martinsville City	80.11
	Montgomery County	37.16

	Norton City	44.30
	Patrick County	68.26
	Pittsylvania County	52.12
	Pulaski County	45.03
	Radford City	56.86
	Roanoke City	52.04
	Roanoke County	51.16
	Russell County	56.92
	Salem City	50.70
	Scott County	11.86
	Smyth County	39.74
	Tazewell County	53.76
	Washington County	39.76
	Wise County	38.72
	Wythe County	40.27

APPENDIX D – LEVELS OF STROKE CARE CERTIFICATIONS

	Acute Stroke Ready	Primary Stroke Center	Thrombectomy-Performing	Comprehensive Stroke Center
Certifying Body	TJC, DNV ACHC: Stroke Ready Hospital	TJC, DNV, ACHC	TJC-Thrombectomy Capable DNV-Primary Stroke Plus ACHC-Thrombectomy Stroke	TJC, DNV, ACHC
What type of facility?	Hospitals or Free-Standing Emergency Departments	Hospitals	Hospitals	Hospitals
Capabilities	Transfers most if not all AIS patients Transfers thrombolytic pts Transfers all ICH, SAH	Keeps most AIS may transfer thrombolytic pts Transfers most ICH Transfers all SAH	Keeps most AIS Keeps Thrombectomy May keep ICH or SAH Transfers to CSC	Keeps all patients Acts as a receiving facility for all patients
Receives from other facilities	No	May receive	Yes, for thrombectomy	Yes, for all
Thrombolytics	Gives	Gives	Gives	Gives
Thrombectomy	Does not do	Approx. 30% do	Does 24/7	Does 24/7
Neurosurgery	Does not do	May have	May have	Must have
Transfers patients	Yes	Yes	Yes	Yes
Teleneurology	Yes	Many have	May have	May have, May provide
Assessment by	ED Dr, NP or PA	ED Dr	ED Dr	ED Dr
Imaging Requirements	CT, Labs 24/7	CT, labs 24/7, MRI if used CTA, MRA	CT, CTA, CTP MRI, labs, MRA, angiography 24/7	CT, MRI, labs, MRA, angiography 24/7

	MRI 24/7 (if used)	Cardiac imaging	Carotid ultrasound Cranial ultrasound (TJC only) TEE as indicated (DNV	Carotid ultrasound Cranial ultrasound TEE, TTE as indicated
Stroke Unit	Not required	Dedicated stroke beds	Dedicated stroke beds Dedicated neuro ICU beds On-site CCU coverage	Dedicated stroke beds Dedicated neuro ICU beds On-site CCU coverage
Research	Not required	Not required	Not required	Required
Reviewed	TJC-every 2 yrs, Call on off years DNV-Annually ACHC-every 3 yrs	TJC-every 2 yrs, Call on off years DNV-Annually ACHC-every 3 yrs	TJC-every 2 yrs, Call on off years DNV-Annually ACHC-every 3 yrs	TJC-every 2 yrs, Call on off years DNV-Annually ACHC-every 3 yrs
Guidelines	Recommendations from Brain Attack Coalition for Acute Stroke Ready Hospitals, 2013	Recommendations from Brain Attack Coalition for Primary Stroke Centers, 2011	No guideline recommended—developed from 2015 Update to 2013 Guidelines	Recommendations from Brain Attack Coalition for Comprehensive Stroke Centers, 2005

TJC=The Joint Commission
DNV=Det Norske Veritas
ACHC=Accreditation Commission for Health Care

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APPENDIX E – CERTIFIED STROKE CENTERS IN VIRGINIA AS OF MARCH 2024

Hospital Name	City
Comprehensive Stroke Centers	
Bon Secours St. Mary's Hospital	Richmond
Chesapeake Regional Medical Center	Chesapeake
Hospital Corporation of America (HCA) Johnston Willis Medical Center	Richmond
Inova Fairfax Hospital	Falls Church
Riverside Regional Medical Center	Newport News
Sentara Norfolk General Hospital	Norfolk
University of VA (UVA) Hospital	Charlottesville
Virginia Commonwealth University (VCU) Medical Center	Richmond
Virginia Hospital Center	Arlington
Thrombectomy-Capable Stroke Centers	
Carilion Roanoke Memorial Hospital	Roanoke
Centra Lynchburg General Hospital	Lynchburg
HCA Reston Hospital Center	Reston
Inova Alexandria Hospital	Alexandria
Primary Stroke Centers	
Augusta Health	Fishersville
Bon Secours Mary Immaculate Hospital	Newport News
Bon Secours Maryview Medical Center	Portsmouth
Bon Secours Memorial Regional Medical Center	Mechanicsville
Bon Secours Rappahannock General Hospital	Kilmarnock
Bon Secours Richmond Community Hospital	Richmond
Bon Secours Southside Regional Medical Center	Petersburg
Bon Secours St. Francis Medical Center	Midlothian
HCA Chippenham Medical Center	Richmond
HCA Henrico Doctors Hospital - Forest	Richmond
HCA Henrico Doctors Hospital - Parham	Richmond
HCA Henrico Doctors Hospital - Retreat	Richmond
HCA LewisGale Medical Center Salem	Salem
HCA Spotsylvania Regional Hospital	Fredericksburg
HCA StoneSprings Hospital Center	Dulles
HCA Tricities Hospital	Hopewell
Inova Fair Oaks Hospital	Fairfax
Inova Loudoun Hospital	Leesburg
Inova Mount Vernon Hospital	Alexandria
LifePoint Fauquier Hospital	Warrenton
LifePoint Sovah Health Danville Regional Medical Center	Danville

LifePoint Twin County Regional Hospital	Galax
Mary Washington Hospital	Fredericksburg
Novant UVA Prince William Medical Center	Manassas
Riverside Doctors' Hospital of Williamsburg	Williamsburg
Riverside Shore Memorial Hospital	Onancock
Riverside Walter Reed Hospital	Gloucester
Sentara Care Plex Hospital	Hampton
Sentara Leigh Hospital	Norfolk
Sentara Martha Jefferson Hospital	Charlottesville
Sentara Northern Virginia Medical Center	Woodbridge
Sentara Obici Hospital	Suffolk
Sentara Princess Anne Hospital	Virginia Beach
Sentara RMH Medical Center (Rockingham Memorial)	Harrisonburg
Sentara Virginia Beach General Hospital	Virginia Beach
Sentara Williamsburg Regional Medical Center	Williamsburg
Valley Health Winchester Medical Center	Winchester
VCU Community Memorial Hospital	South Hill
Acute Stroke Ready Facilities	
Bon Secours Emergency Center - Colonial Heights	Colonial Heights
Bon Secours Emergency Center - Harbour View	Suffolk
HCA Emergency Center - Fredericksburg	Fredericksburg
HCA Emergency Center - Prince George	Prince George
HCA Emergency Center - Swift Creek	Chesterfield
HCA Emergency Center - Tysons	Leesburg
HCA LewisGale Montgomery Regional	Blacksburg
Inova Emergency Center - Leesburg	Leesburg
Sentara Emergency Center - Belle Harbour	Suffolk
Sentara Emergency Center - Independence	Virginia Beach
VCU Tappahannock Hospital	Tappahannock
Non-Stroke Certified Hospitals	
Ballad Health Dickenson Community Hospital	Clintwood
Ballad Health Johnston Memorial Hospital	Abingdon
Ballad Health Lee County Community Hospital	Pennington Gap
Ballad Health Lonesome Pine Hospital	Big Stone Gap
Ballad Health Norton Community Hospital	Norton
Ballad Health Russell County Medical Center	Lebanon
Ballad Health Smyth County Community Hospital	Marion
Bath Community Hospital	Hot Springs
Bon Secours Southampton Memorial Hospital	Franklin
Bon Secours Southern Virginia Regional Medical Center	Emporia
Buchanan General Hospital	Grundy

Carilion Franklin Memorial Hospital	Rocky Mount
Carilion Giles Memorial Hospital	Pearisburg
Carilion New River Valley Medical Center	Christiansburg
Carilion Rockbridge Community Hospital	Lexington
Carilion Tazewell Hospital	Tazwell
Centra Bedford Memorial Hospital	Bedford
Centra Southside Community Hospital	Farmville
Hampton VA Medical Center	Hampton
HCA Alleghany Regional Hospital	Low Moor
HCA Pulaski Community Hospital	Pulaski
LP Clinch Valley Medical Center	Richlands
LP Sovah Health Memorial Hospital of Martinsville	Martinsville
LP Wythe County Community Hospital	Wytheville
Mary Washington Stafford Hospital	Stafford
Novant UVA Culpeper Regional Hospital	Culpeper
Novant UVA Haymarket Medical Center	Haymarket
Sentara Halifax Regional Hospital	South Boston
Valley Health Page Memorial Hospital	Luray
Valley Health Shenandoah Memorial Hospital	Woodstock
Valley Health Warren Memorial Hospital	Front Royal
Non-Stroke Certified Free Standing Emergency Departments	
Bon Secours Emergency Center - Chester	Chester
Bon Secours Emergency Center - Short Pump	Henrico
Bon Secours Emergency Center- Westchester/Watkins	Midlothian
Centra Emergency Center - Gretna	Gretna
HCA Emergency Center - Cave Spring	Roanoke
HCA Emergency Center - Hanover	Mechanicsville
HCA Emergency Center - LewisGale Blue Hills	Roanoke
Inova Emergency Center - Ashburn	Ashburn
Inova Emergency Center - Fairfax	Fairfax
Inova Emergency Center - Franconia-Springfield	Alexandria
Inova Emergency Center - Lorton	Lorton
Mary Washington Emergency Center - Harrison Crossing	Fredericksburg
Mary Washington Emergency Center - Lee's Hill	Fredericksburg
Sentara Emergency Center - Lake Ridge	Lake Ridge
Sentara Emergency Center - Martha Jefferson	Charlottesville
Sentara Emergency Center - Port Warwick	Newport News
VCU Emergency Center - New Kent	Quinton

APPENDIX F – MEETING MINUTES

Virginia Stroke Care Quality Improvement Advisory Group Meeting
Meeting Location: Sentara Martha Jefferson Hospital,
595 Martha Jefferson Drive, Charlottesville, VA 23294
(Kessler Conference Room is location on the 1st floor of the Outpatient Care Center)
April 21, 2023 | 8:30am – 9:40am
Meeting Minutes (Approved)
Attendance: 20 Members attended in person

Agenda	Minutes
8:30-8:35am Welcome and Minutes Approval	Kathryn Funk (VDH) opened the meeting with introductions. Mandi (VSCC Chair) motioned to approve the minutes, and Mary (UVA Health) seconded. Minutes were approved as submitted.
8:35-9:35am Coverdell Hospital Stroke Patient Re-abstraction Pilot Overview and Results	• Kathryn shared the goal of the meeting was to talk about the data re-abstraction process as a quality improvement initiative under the Stroke legislation. • Allison Sedon (VDH) presented on the results of the re-abstraction pilot project via PowerPoint. • Process overview – extract records -> randomize -> distribute survey -> collect and analyze results. The number of records for re-abstraction were based on patient records submitted. Data elements collected based on CDC recommendations (CDC Paul Coverdell National Acute Stroke Program). Re-abstraction survey in RedCap created by VDH – 33 hospitals, 27 hospitals responded for a total of 240 records. • Feedback: Are people looking at date they left ED to unit vs presented to the ED? If a hospital is not using GWTG, some may not use when transfer was written. Age: "At time of encounter" vs date of birth. Some data may have included both outpatient and inpatient data; *Can there be branching logic in REDCap to view only inpatient which could improve matching? In Galax, some TIA patients are "ED holds" patients seen by the hospitalist virtually, could cause mismatch. *It would be helpful to have a data dictionary. Could have a sub-definition tailored to each hospital. Can include an instruction sheet or guide with the REDCap survey. NIH Stroke Scale: some hospitals document differently; some don't have doctors do it. Some hospitals do "first" documented NIH is the one to use, some use a hierarchy of expertise. ICD-10: Billing can take a while to update coding.
Hospital Perspectives and Lessons Learned	• Hospital Perspectives: REDCAp was easy to use. *Angella (Sentara) recommends to hospitals to keep a patient list with an identifier directory to help. UVA uses MRN + admission date.

	• Lessons learned: two places (telestroke) can be documented in GWT, but if telestroke layer is not enabled then it could be mismatched due to no date there for IRR. Branching logic would help. Surprised Coverdell did not include co-morbidities. *VDH will inform CDC. UVA: Many charts were before the stroke coordinator was hired. Do hospitals all have an IRR process? **Recommend more time, specific guidance, aligned with GWTG definitions. INOVA Fairfax: did not receive their feedback report. VDH will include a read receipt when submitting.
VSCQI Recommendations for Future Re-abstraction Processes	• VDH Question to group: How frequently should this re-abstraction process be done? Group answer: Twice per year and maybe quarterly down the road.
9:35-9:40am Public Comment	No Public Comment
9:40am Adjourn	

Virginia Stroke Care Quality Improvement Advisory Group Meeting
Meeting Location: Tidewater Emergency Medical Services, 723 Woodlake Drive
Chesapeake, VA 23320
July 21, 2023 | 8:30am – 9:40am
Meeting Minutes (Approved)
Attendance: 15 attendees in person

Attendees	1. Kathryn Funk, Stroke Registry Coordinator, VDH 2. Nina Rodrigues, Diabetes Coordinator, VDH 3. Kristie Burnette, Regulatory, VHHA 4. Robert "Alek" Collins, Stroke Coordinator, Chesapeake Regional Medical Center 5. Carla Gunter, Stroke Coordinator, Twin County Regional Medical Center 6. Chad Aldridge, Physical Therapist, UVA 7. David Long, TEMS Regional Council Lead and VSSTF co-chair 8. Donna Layne, Data Analyst, Centra Health 9. Karen Bonham, Community Health Worker, Twin County Regional Medical Center 10. Mandi Zemaiduk, Stroke Administrator, Centra Health 11. Melanie Winningham, Neurologist, Sentara Martha Jefferson and Sevaro Teleneurology 12. Nicole Duck, Stroke Coordinator, Riverside Regional Healthcare 13. Rebecca Smith, Stroke Coordinator, Ballad Health Johnston Memorial 14. Sophea Booker, Stroke Coordinator, Bon Secours Maryview Medical Center 15. Wendy Bunting, Acute Rehab Director, Riverside Regional Healthcare
Agenda	**Notes**
8:30-8:35am	Kathryn Funk (VDH) opened the meeting at 8:30 am with introductions. Chad (UVA) motioned to approve the minutes, and Mandi (Centra) seconded. The minutes were approved as submitted.

Welcome and Minutes Approval	* Kathryn shared that the meeting will cover updates by VHHA and HQI on Virginia projects and an overview of the Hospital Inventory survey.
8:35-9:35am VHHA Stroke Collaborative update	* Kristie Burnette (VHHA) gave an overview of Coverdell grant and Stroke Collaborative with ten members. Year 1 review, shared sample of VHHA Data Analytics reports. Year 2 review led to a discussion on elements of ASR certification and having standardized training for staff with more frequent, hands-on mock stroke codes. Current work in year 3 includes quarterly reports and the importance of feedback and accurate data submissions from hospitals, SDOH screenings with referrals, and continued, ongoing support for hospitals seeking ASR Certification.
Twin County Regional CHW Update	*Karen Bonham (HQI) gave an overview of the populations served in their region, including high number of Hispanic, seasonal residents. They have found creative ways to connect with this population through a local Hispanic coffee shop, churches, and a free clinic that offers Spanish-speaking care 2 evenings per week. A large number of patients in this region go to neighboring states for hospital care and hospital data is lost on these patients. Discussion regarding the challenges with post-stroke discharge planning amid the Spanish population. Many return to Mexico and are lost to follow-up.
Hospital Inventory Survey Overview	*Kathryn (VDH) gave an update on the stroke survey with 61 responses yielding a 57% response rate. Of those responses received, 75.4% of responding facilities are stroke certified. Barriers to certification include a lack of neurology services or having a nearby facility that is already certification. In reviewing avg door in-door out times, < 120 min was in target, >120 min and <180 min needs improvement. 53 facilities utilize telestroke services with 85% provider to camera in less than 15 min. Discussion followed on data reports and feedback to and from teleneurology vendors and facilities. Responding facilities making changes to improve gaps and performance times. EMS integration and hospital policy changes discussed to improve response times to CT, ensuring EMS run reports are scanned into EMRs. Discussion followed on transitions of care and use of referral tracking systems for follow up.
9:35-9:40am Public comment	No Public Comment
9:40 am Adjourn	

Virginia Stroke Care Quality Improvement Advisory Group Meeting
Meeting Location: Virginia Hospital and Healthcare Association,
4200 Innslake Drive, Glen Allen, VA 23060
October 20, 2023 | 8:30am – 9:40am
Meeting Minutes (approved)
Attendance: 14 attendees in person

Attendees	Appendix A Patrick Wiggins, Cardiovascular Health Supervisor, VDH Appendix B Allie Sedon, Stroke Epidemiologist, VDH Appendix C Mary Brandenburg, Population Health Manager, VHHA Appendix D Robin Scott, Bon Secours Appendix E Carla Gunter, Stroke Coordinator, Twin County Regional Medical Center Appendix F Elizabeth Hart, HCA Lewis Gale Medical Center Appendix G Melissa Gray, VA Hospital Appendix H Donna Layne, Data Analyst, Centra Health Appendix I Mandi Zemaiduk, Stroke Administrator, Centra Health Appendix J Melanie Winningham, Neurologist, Sentara Martha Jefferson and Sevaro Teleneurology Appendix K Kristie Duryea, Bon Secours Rappahannock General Hospital Appendix L Kathy West, Sheltering Arms Institute Appendix M Stacie Stevens, VCU Health Appendix N Wendy Bunting, Acute Rehab Director, Riverside Regional Healthcare
Agenda	**Notes**
8:30-8:45 am **Welcome and** **Minutes Approval**	Patrick Wiggins (VDH) opened the meeting at 8:30 am with introductions. Wendy Bunting (Riverside) motioned to approve the minutes, and Robin Scott (Bon Secours) seconded. The minutes were approved as submitted.
8:45-9:25 am **VHHA Stroke Collaborative update – Going upstream to prevent stroke readmissions and hospitalizations**	VDH provided an overview of the Code of Virginia pertaining to stroke legislation. Described the four major components of the Code, including data infrastructure building (i.e. Virginia Stroke Registry), information and data sharing, quality improvement, and post-discharge referrals to community-based healthcare services. Mary Brandenburg (VHHA) presented on the collaborative and support to hospitals to prevent stroke readmissions and hospitalizations. VHHA described efforts to improve poststroke community-based follow up care, described the 2023 health equity regulatory requirements from the Centers for Medicaid and Medicare Services, as well as the inpatient and outpatient universal quality measure set, and screening for social determinants of health (SDOH). Mary said that the presentation slides will be shared afterwards.

Advisory Group Discussion	Advisory Group members asked each other who is doing the screening in the hospitals? Robin (Bon Secours) responded that EPIC has a screening feature at Bon Secours facilities. Wendy (Riverside) stated that Riverside is doing SDOH screening. Kathy (Sheltering Arms) said Sheltering Arms Community Health Workers are screening for SDOH. Melanie (Sentara Martha Jefferson) said that Sentara is screening for SDOH. VHHA acknowledged that issues of poverty and racism cannot be solved in the hospital because it societal, but it is important to understand how these impact risk factors for stroke and the patient's health and well-being. VHHA asked the Advisory Group, who has a Community Health Worker? Responses: Twin County Regional, Centra, Sheltering Arms, Bon Secours. VHHA reiterated that this is a critical time for CHWs due to the workforce shortage. Kathy (Sheltering Arms) described their Community Health Worker workflow: Sheltering Arms CHW started in March 2023. Interfaces inpatient and now outpatient. CHWs have shared stroke experience with the patients. CHW is in the patient care meetings, advocates for patients, and brings up healthcare needs. Sheltering Arms refers patient to CHW via electronic health record, follows patient through post-discharge. CHW contacts all patients referred to them and utilizes Unite Us, the statewide referral system in Virginia, to refer to community services and resources. Advisory Group asked specifically, is Unite Us available in the Northern Neck? Response (VHHA and VDH): Yes, it is statewide. VHHA will follow up and connect them to Unite Us. VHHA stated it partnered with VDH to provide a training and learning collaborative to help with the post discharge stroke care. Health Equity Learning Collaborative. It has 1 health systems participating, special learning topics, and access to the VHHA Data Analytics Dashboard, which complies with the data infrastructure component of the Code of VA regarding stroke.
Public comment	Request - For the next CDC Paul Coverdell National Acute Stroke Program grant, can VDH and the Advisory Group focus on the goal of having all hospitals be stroke certified? Comment – Riverside Rehabilitation has been able to improve health literacy through their speech language pathology team. They have blocks of time to meet with patients. They use the AHRQ "REALM" 7 word list which is laminated. They are scored based on what they can say for health literacy levels. Score tells type of level, determines types of materials that should be given. If they cannot read the prescription, it informs what types of information is needed such as illustrations or verbal instructions. It is reported out at weekly team meetings. It's not difficult to do, but time to incorporate into workflow has been difficult.
9:30 am Adjourn	

Virginia Stroke Care Quality Improvement Advisory Group Meeting
Meeting Location: Mary Washington Healthcare, Fick Conference Center, 1301 Sam Perry Blvd, Fredericksburg, VA
January 19, 2024 | 8:30am – 9:30am
Meeting Minutes (approved)
Attendance: 23 attendees in person

Attendees	1. Patrick Wiggins, Chronic Disease Supervisor, VDH, OFHS 2. Kathryn Funk, Stroke Registry Coordinator, VDH, OFHS 3. Allie Lundberg, Stroke Epidemiologist, VDH, OFHS 4. Bethany McCunn, Stroke Registry Epidemiologist, VDH, OFHS 5. Kelsey Rideout, REMS 6. Michael Player, PEMS 7. Valerie Vagts, TEMS 8. Susan Halpin, Mary Washington Healthcare 9. Amanda Loreti, CJEMS 10. Daniel Linkins, CSEM 11. George Lindbeck, OEMS 12. Rhonda Ragan, Valley Health 13. Debbie Thomas, PEMS 14. Mary Jobson-Oliver, UVA 15. Wendy Bunting, Acute Rehab Director, Riverside Regional Healthcare, Newport News 16. Elizabeth Hart, LewisGale Medical Center, Salem 17. Stacie Stevens, VCU Health, Richmond 18. Mandi Zemaiduk, Centra Health 19. Donna Layne, Centra Health 20. Wayne Perry, REMS 21. Branden Robinson, Sevaro Health 22. Robin Scott, Bon Secours St Mary's Hospital 23. Jessica Rosner, VDH OEMS
Agenda	**Notes**
8:30-8:45 am Welcome and Minutes Approval	Patrick Wiggins (VDH) opened the meeting at 8:30 am with introductions of the stroke team. Wendy Bunting motioned to approve the minutes, and Beth Hart seconded. The minutes were approved as submitted.
8:45-9:30 am Brief Overview of the EMS Stroke Survey, Stroke Registry, and Included EMS Data Points.	Allie Lundberg provided a brief overview of the results of the EMS Survey and the current data points being added to the EMS portion of the stroke registry and planned collaboration with OEMS to develop a white paper with the results of the survey.
Pre-Hospital Data Metric Reports – Activity & Group Discussion	Future QA report discussion/activity related to the stroke registry 1. Need to have included: a. Primary & secondary stroke screen – type, result, time b. LKW (last known well) versus symptom discovery c. <u>When</u> pre-alerts are sent to hospitals d. Family/caregiver phone #

	e. Blood glucose – completion, when f. Easy & consistent collaboration with EMS & hospitals 2. Would be nice to see: a. Detailed race & gender analyses b. Patient outcome & details c. Anti-coagulant – which, when was last dose d. FSED (free-standing Emergency department) to comprehensive center/hospital - why, timing differences e. Out migration (transfer from 1 hospital to another) - why, to where, cert level difference, time difference f. Flight service availability 3. Dream Big: a. 100% patient feedback – missed cases? b. RACE to LVO correlation – research/data c. Stroke symptom recognition/awareness from family/friends/public/etc d. Consistent stroke scale [within software] e. Thinking outside jurisdiction for destinations f. Inclusivity with patient needs/wishes g. CT/thrombolytics for EMS h. Mobile stroke units Debbie from PEMS. A nice to have metric: Would be nice to see LVO metrics and outcomes when TNK was administered early. Do we always need to go to a comprehensive stroke center? Response by Stacie: Explained process with imaging with CT and CTA. Response 2: An EMS region wanted to know more information about following an LVO patient. Stacie – Is the Stroke Registry's plan to link the EMS to the hospital to the next hospital, which would take out the stroke coordinator from needing to make the data connection (i.e. follow-up)? Response: That is the big goal. Stacie response: then it would allow EMS to know whether they are over triaging. (ie over/under triage metric). Wendy – Do we know now if our stroke patients have been seen by more than one facility? Response VDH: Now no because it goes back to the patient ID. Nationwide there is no system in place, except Arkansas has a band system tracking from EMS to hospital. Response Stacie: we want to know which EMS. Response VDH OEMS: Nemsis is working on unique patient identifier. There are products such as Pulsara has a scanning function bracelet, which can talk to EHR at hospital. We do not have that worked out in STEMI, Stroke or Trauma. Still working on it. Response: Michael PEMS – EMS can have a patient care report, can turn it over to somewhere else, can then hand it over to air transport. Now it is 3 different patient care reports. Response VDH: The Stroke Registry is a patient-centric registry to breakdown silos and join multiple transports together.
Public comment	Stacie – Speaking to the State as a non-political entity, meaning not a hospital, with free standing emergency departments. What do we think regarding data on free standing EDs and determining metrics when patients should be transported from free standing EDs to main hospital. Response: Currently difficult to capture free standing

	ED data. VDH encourages free standing EDs to be stroke certified to better capture metrics. Elizabeth Hart: Will the data VDH presented be available? Response: the data is being finalized in the EMS survey and it was shared to the Advisory Group as a preliminary review. Michael PEMS – A couple of EMS Regional Council members in attendance were concerned with the EMS survey report given the number of responses and the impact it had on data reliability. In PEMS, we know that all transports go to a certified stroke center, how can there be a portion that does not? If the report goes out to the public, it would be a poor response and problematic responses. The regional councils would like to be more involved in improving completion rate and have accurate data. Concerned it may be a similar issue with the first state Trauma Report. Suggest that this EMS report results could speak to the data inconsistencies. Follow-up Daniel Linkins: EMS agencies that answered this survey may have changed leadership or staff who would not know the protocols or data. EMS Regional Councils can provide the consistency. We do this well with the children survey. Amanda Loreti – It is a low response for the survey. VDH Response: we changed up the distribution list to be more targeted, which may have decreased the completion %. Mandi – for future state, it is important to see out migration. Will the Stroke Registry and VDH be looking at. VDH Response: We are needing to develop data suppression and data sharing protocols, agreements. We are looking into it.
9:40 am Adjourn	

APPENDIX G – REFERENCES

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