RIVERSIDE COUNTY EMERGENCY MEDICAL SERVICES AGENCY (REMSA)

STROKE SYSTEM UPDATE 2020

Reza Vaezazizi, MD, REMSA Medical Director
Trevor Douville, EMS Administrator
Shanna Kissel, MSN, RN, Assistant Nurse Manager
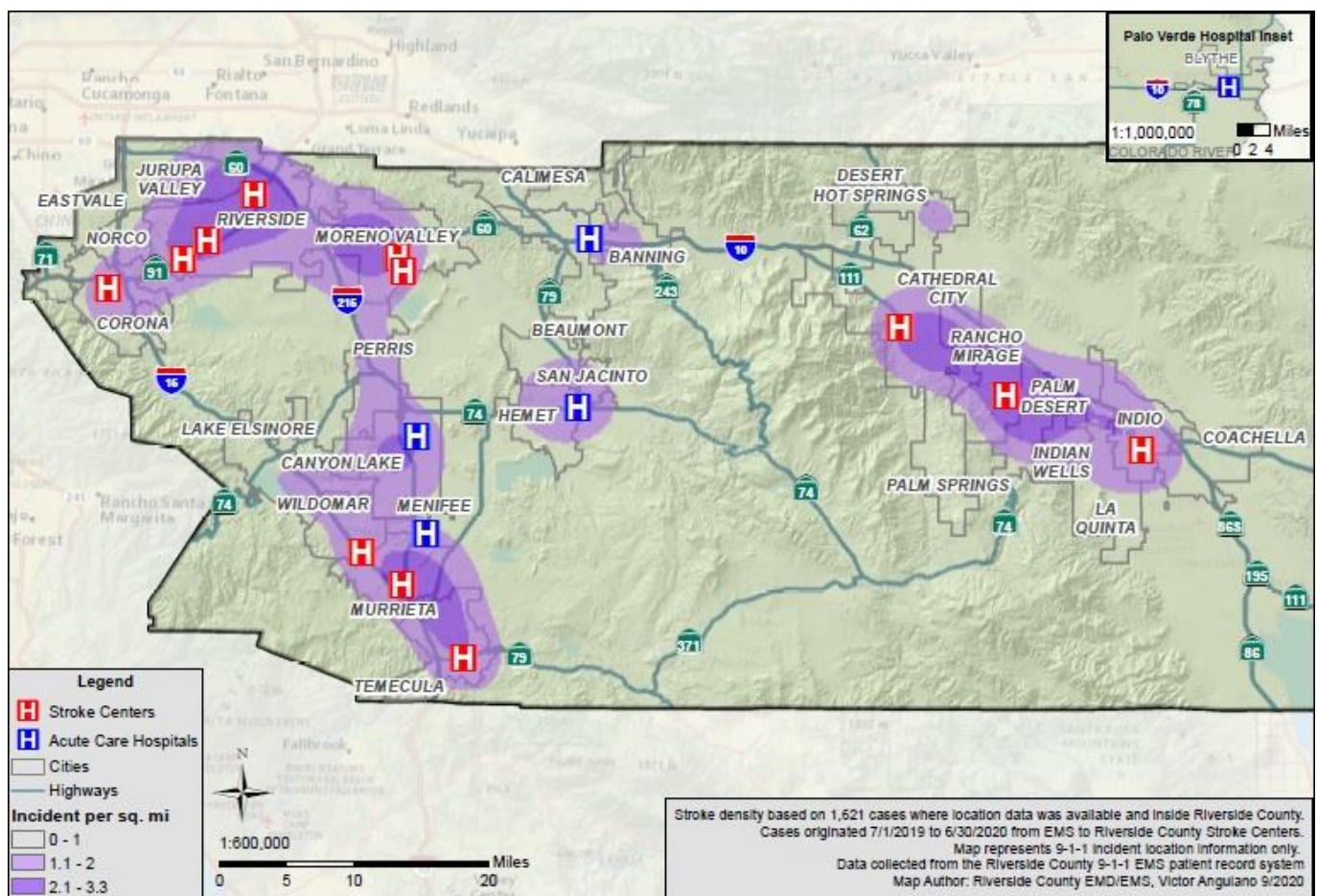**Leslie Duke, BSN, RN, Specialty Care Coordinator**

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Stroke System Summary

The Riverside County EMS Agency (REMSA) Stroke Care System Plan was developed in compliance with Section 1797.107, et seq., Health and Safety Code. REMSA's organized system of care for stroke patients has been in place since 2014. The initial stroke plan was written and approved by the State EMS Authority (EMSA) in 2019. This current Stroke plan update reflects the 2019- 2020 data and information for Riverside County.

Riverside County's jurisdiction includes 10 primary stroke centers, all of which have achieved Advanced Primary Stroke certifications from The Joint Commission (TJC). Two (2) Stroke centers are currently Det Norske Veritas-Germanischer Lloyd (DNV-GL) certified Comprehensive Stroke Centers.

EMS Stroke Patient Density Received by Riverside County Stroke Centers
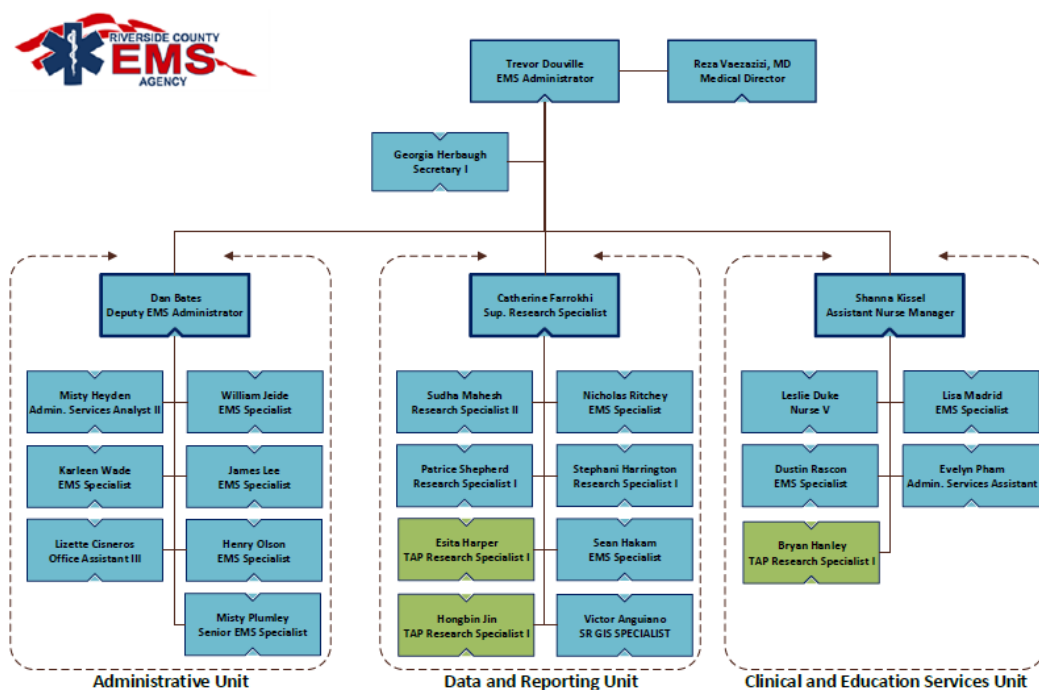July 2019 to June 2020 - N = 1,621

REMSA collects data using the Imagetrend Patient registry, which has been utilized since July 2019. All stroke centers provide the clinical outcome of each stroke patient which links back to the pre-hospital ePCR, giving EMS providers feedback and outcomes of patients transported. Stroke centers submit data concurrently, which is analyzed and reported by REMSA. There is an ongoing plan in place to align and begin submission of State mandated Stroke data in the future. Stroke data is updated quarterly and can be found here: http://www.remsa.us/documents/programs/stroke/ Meeting minutes, stroke center applications, and quarterly data can also be found there.

Changes in Stroke System

- REMSA Organization
- Stroke System Outreach-EMS education
- Policy Revisions and Additions

Riverside County EMS Agency Organization

With California Stroke regulations in place, and realignment complete, REMSA has funded a Specialty Care Nurse Coordinator role to maintain regulatory oversight and provide direction to all Stroke centers. The Specialty Care Coordinator is part of the clinical team and acts as a program administrator, and liaison, between hospital stroke programs and EMSA. In collaboration with the REMSA Medical Director, REMSA administration, and the clinical and education units, the Specialty Care Coordinator facilitates stroke committee activities related to performance improvement and quality improvement indicators.

RIVERSIDE COUNTY EMS AGENCY

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EMS Administrator

Reza Vaezazizi, MD
Medical Director

Georgia Herbaugh
Secretary I

Administrative Unit

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Deputy EMS Administrator

Misty Heyden — Admin. Services Analyst II	William Jeide — EMS Specialist
Karleen Wade — EMS Specialist	James Lee — EMS Specialist
Lizette Cisneros — Office Assistant III	Henry Olson — EMS Specialist
	Misty Plumley — Senior EMS Specialist

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Clinical and Education Services Unit

Shanna Kissel
Assistant Nurse Manager

Leslie Duke — Nurse V	Lisa Madrid — EMS Specialist
Dustin Rascon — EMS Specialist	Evelyn Pham — Admin. Services Assistant
Bryan Hanley — TAP Research Specialist I	

REMSA – Updated 10/26/20

Stroke System Outreach- EMS Education

A core goal of the Riverside County Stroke Critical Care System Plan is to disseminate ongoing stroke education to EMS field providers. Continuing stroke-specific education is designed to reduce the incidence of disease, improve health outcomes, and enhance the quality of life for stroke patients. Educational modules will be distributed bi-annually and will communicate feedback from the Riverside County Stroke System Advisory Committee process improvement initiatives directly to field providers. Major components of the education module will include stroke pathophysiology, stroke screening tools, history taking, documentation and a review of current performance metrics for the stroke system. Our mission is to collaboratively and continuously improve the delivery of high-quality care to those suffering from an acute stroke. The Stroke Program Managers from stroke centers, and EMS provider agencies, are heavily involved in conducting this mandated education.

Policy Revisions and Additions

Stroke patient treatment policies are routinely evaluated and updated with current standards of care and vetted through the Pre-hospital Medical Advisory Committee (PMAC).

Stroke Center Standards-Policy #5701 (www.remsa.us/policy/5701.pdf) details the requirements and expectations of each of the designated stroke centers within the county. Two additions were made to the policy for performance standards in 2020. To ensure uninterrupted services, each designated center must have a minimum of two (2) CT scanners and one (1) MRI machine. In addition, Thrombectomy-capable and Comprehensive centers must have a minimum of two (2) interventional suites capable of performing mechanical thrombectomy and/or neuro-endovascular procedures. The new requirements align with current standards of certification.

Ambulance Diversion-Policy #6103 (http://www.remsa.us/policy/), describes criteria and processes for the diversion of ground and air ambulances in Riverside County using the ReddiNet as the primary communication tool for ambulance diversion. Revisions to this policy included the removal of references to stroke diversion criteria and indicate that diversion status may be triggered only in cases of Internal Disaster, with immediate notification to the REMSA Duty Officer. Consequently, ambulance diversion of stroke patients was effectively eliminated.

Number and Designation Level of Stroke Centers

Stroke Center	Stroke Designation Level_	Agreement Type	Contract Term
Corona Regional Medical Center	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Desert Regional Medical Center	Comprehensive	County of Riverside Comprehensive Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Eisenhower Health	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Inland Valley Medical Center	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
John F. Kennedy Memorial Hospital	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Kaiser Permanente-Moreno Valley	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023

Kaiser Permanente-Riverside	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Parkview Hospital	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Rancho Springs Medical Center	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Riverside Community Hospital	Comprehensive	County of Riverside Comprehensive Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Riverside University Health System-Medical Center	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023
Temecula Valley Hospital	Primary	County of Riverside Primary Stroke Center Designation Agreement	July 1, 2020-June 30, 2023

System Performance Improvement

Process improvement involves the practice of identifying, analyzing, and improving existing processes to optimize performance, meet best practice standards, or simply improve quality.

The Stroke System Advisory Committee participates in case review as a continuous performance improvement activity. Case review indicators consist of system issues, unanticipated outcomes, morbidity and mortality related to procedural complications, deviation from policy or protocols, and any case(s) needing further review or loop closure. The 12 stroke centers are on a rotation for case review presentations. As a future goal to provide loop closure for the stroke centers, REMSA will send closure letters from the stroke committee with adjudication, if any.

Retrospective data collection and analysis lies at the heart of quality improvement. Data aids in understanding how well the systems work, identifying potential areas for improvement, setting measurable goals, and monitoring the effectiveness of change. Robust data systems, with the ability to report clinical indicators and performance measures, are a key tool to accomplish performance improvement activities. The goal is to connect data from across the continuum of care, from pre-hospital to in-hospital to post-hospital disposition, in order to optimally evaluate patient outcomes.

Data elements that align with the set goals and objectives are compiled and presented at the stroke QI Committee meetings, and on our stroke dashboard, located here: http://www.remsa.us/documents/programs/stroke/

Stroke System Goals and Objectives

REMSA has developed the following goals and objectives for the Stroke System calendar year 2020.

Goal #1: Designate additional Stroke centers

Goal	Objective	Timeline	Status
Equally designated specialty centers in the community. Decrease disability after stroke.	Designate: • One additional primary stroke center • Two comprehensive stroke centers • One additional Thrombectomy Receiving Center	July 2020 July 2020 Pending	Complete Complete Postponed due to pandemic

Goal #2: EMS Feedback

Goal	Objective	Timeline	Status
Provide EMS feedback	• Increase awareness of patient outcomes • Improve performance • Professional growth • Increased awareness of patient outcomes	Completed Dec. 2019	Complete Goal met, will continue to provide EMS feedback on all cases by using the stroke registry

Goal #3: No Diversion of stroke patients

Goal	Objective	Timeline	Status
Decrease time to treatment at a specialty care center	• Percentage of direct transport to a stroke center.	April 2021	In progress

Goal #4: Dedicated recorded phone line

Goal	Objective	Timeline	Status
All designated stroke centers to have a dedicated EMS phone line	• By 2021, all 12 stroke centers must have a dedicated EMS phone line for stroke patients. • Review EMS calls for areas of improvement	July 1, 2021	In progress-8 of 12 stroke centers have dedicated phone lines.

Goal #5: EMS Education

Goal	Objective	Timeline	Status
Provide education to increase identification of Stroke patients	• Monitor mLAPSS negative EMS patients with discharge diagnosis of stroke (false negative rate) • Increase proper documentation of LAMS score to evaluate need of field triage to higher level of care • Stroke committee reporting of identified opportunities for improvement related to pertinent patient history • False negative rate vs true positive rate • Deliver up-to-date and relevant education to EMS professionals • Sharing current performance metrics	April 1, 2021	In progress

Scheduled changes: By July 2021, stroke centers will need to have a dedicated EMS recorded line. Currently there are only four (4) hospitals that still need to meet this goal.

System changes: REMSA has identified the need for an additional stroke center in the Central zone and an interventional-capable stroke facility in the Southwest zone. These needs will help reduce transportation times to an appropriate stroke center and reduce time to needle and/or intervention. REMSA is continuing to work with medical centers in these areas to achieve this goal.

Hemet Valley Medical Center located in the Central zone has expressed interest in becoming a primary stroke center. Additionally, Temecula Valley Hospital, located in the Southwest zone, intends to achieve thrombectomy-capable designation by 2021. REMSA continues to collaborate with these medical centers to ensure successful compliance with the relevant designation criteria.

Other Issues: No relevant issues currently.

References

Riverside County EMS Agency 2020 Policy Manual. http://www.remsa.us/policy/

California Code of Regulations, Title 22. Social Security, Division 9. Prehospital Emergency Medical Services, Chapter 7.2 Stroke Critical Care System.
https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I85A8AB796B854EC3B8B93707B6D386F8&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

Riverside County EMS Agency System-based Clinical and Operational Performance Evaluation (SCOPE) dashboard. http://www.remsa.us/documents/programs/stroke/.

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