



County of Santa Clara Emergency Medical Services System

Comprehensive Stroke System Plan

STROKE SYSTEM PLAN

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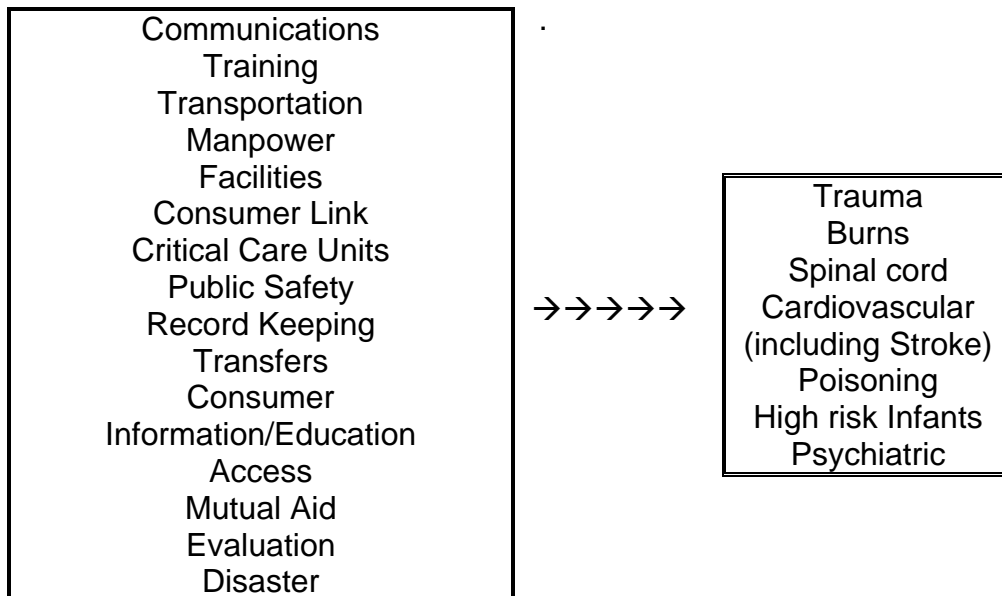
INTRODUCTION

The County of Santa Clara has the resources and technical support to begin the development of a comprehensive and inclusive plan to improve the access to acute treatment modalities, to improve the outcome and to prevent new and recurrent incidents of Stroke.

The State of California has not yet developed the statutory framework for Stroke System development. However, as the designated Local Emergency Medical Services Agency (LEMSA), the Santa Clara County EMS Agency, with strong community support, evidence based research, and recommendations, will move forward with this Stroke System Plan.

The statutory development of the LEMSAs responsibility to the public is rooted in the 1973 EMS Systems Act, with amendments in 1976, which provided federal funds and authorized planning

The Act authorized fifteen (15) essential components and targeted seven (7) specific critical patient groups.



1. **Communications:** The personnel, facilities, and equipment of the system must be linked by a central communication system so that requests for emergency services are handled through a public safety answering (PSA) point that is accessed via the universal emergency number, 911. This linkage provides direct communication between the field units and facilities of the system
2. **Training of personnel:** Appropriate training (including clinical training) and continuing education programs must be coordinated with other programs in the system, which provide similar training and education. Recruitment and necessary training of veterans of the Armed Forces with military training and experience in health care fields and of appropriate public safety personnel in such areas is emphasized.
3. **Transportation:** An adequate number of necessary ground, air, and water vehicles and other transportation resources are necessary to meet the individual characteristics of the service area.
4. **Manpower:** An adequate number of health care professionals, allied health care professionals, and other health care personnel must be appropriately trained and experienced.
5. **Facilities:** An adequate number of easily accessible emergency medical services facilities must be collectively capable of providing service on a continuous basis and are coordinated with other health care facilities in the system. Appropriate standards relate to capacity, location, personnel, and equipment.
6. **Consumer Link:** Persons who reside in the region and who have no professional training or financial interest in the provision of health care are provided with an adequate opportunity to participate in the making of policy for the system
7. **Critical care units:** Such units provide access to specialized critical care units in the system's service area.
8. **Public safety agencies:** These agencies provide for the effective use of the personnel, facilities, and equipment of each public safety agency providing emergency services in the region
9. **Record keeping:** A coordinated patient record keeping system records the treatment of the patient from the initial entry through discharge. Such records shall be consistent with patient records used in follow-up care and rehabilitation.
10. **Transfer of patients:** Patients must be transferred to facilities and programs that offer such follow-up care and rehabilitation as is necessary to affect the maximum recovery of the patient.
11. **Consumer information education:** Programs of public education and information in the region stress appropriate methods of medical self-help and first aid and the availability of first aid training programs in the area.
12. **Accessibility to care:** Necessary emergency services must be provided to all patients requiring such services without prior inquiry as to ability to pay

13. **Mutual aid agreements:** Appropriate arrangements are established with EMS systems, or similar entities serving neighboring areas; for the provision of EMS services on a reciprocal basis when access to such service would be more appropriate and effective in terms of availability, time, and distance
14. **Evaluation:** Department of Health and Human Services (DHHS) is provided with required information on reviews and evaluations, and with the results of any reviews and evaluations, which may be conducted by such system, of the extent and quality of the emergency health care services provided in the region.
15. **Disaster linkage:** Plans are formulated to ensure that the system will be capable of providing emergency medical services in the region during mass casualties, natural disasters, or national emergencies.

The EMS Systems act of 1973 identified seven special medical needs that should be addressed by a comprehensive regional EMS system (see Fig 1): (1) major accidental trauma, (2) burn injuries, (3) spinal cord injuries, (4) acute cardiovascular emergencies, including stroke, (5) poisoning and overdoses, (6) high-risk infants, and (7) behavioral and psychiatric emergencies.

Emergency Medical Services remained a non-mandated system in California until 1981 with the passage of State legislation. The County of Santa Clara in accordance with Division 2.5, Section 1797.200, Health & Safety Code, designated the EMS Agency of the Department of Public Health as the local Emergency Medical Services (EMS) Agency. The Agency was responsible for planning and implementing and coordinating all EMS activities within the County. This included the coordination of resources to address the special needs outlined in the Original EMS Systems Act.

Santa Clara has actively addressed components of the Act with the development of a Trauma System, Prehospital System, Burn care facilities, a Base hospital, and EMS for children. Stroke System development is the next special needs group to be addressed.

The public and the medical community have been actively promoting cerebrovascular health in Santa Clara County for many years. Now research and technical innovations present us with an opportunity to stem the tide of unnecessary disability from stroke and its related sequelae. Currently, there are no Stroke System regulations legislated in the State of California. However, because of the importance of this initiative, the need for timely intervention and the overwhelming support of the medical community; the Board of Supervisors has authorized the Department of Public Health to promulgate guidelines and a designation process as framework for the Santa Clara County Stroke System.

In spite of the recent research in stroke diagnosis; treatment and prevention, stroke remains common: an estimated 750,000 strokes occur each year in the

United States. As the population ages, the number is expected to grow. New treatments are available to improve outcomes, but many hospitals lack the necessary number of educated staff and equipment required to identify and treat stroke victims.(Operation Stroke).

Strokes are caused when a blood vessel in the brain becomes blocked or ruptured, no longer delivering oxygen and nutrients to brain cells. This can lead to symptoms such as weakness, numbness or paralysis on one side of the body, trouble speaking or loss of vision. Recognition of early signs of stroke can provide the best chances for saving the brain from further damage. Early recognition offers a better opportunity for time dependent treatment options.

There are two major categories of stroke, or “brain attack.” The majority of stroke patients fall victim to an ischemic stroke in which blood flow to the brain is disrupted by a blood-vessel blockage. Tissue plasminogen activator, or tPA, is a drug that may dissolve the blood clots that commonly cause these blockages and restore blood flow to the brain. Prompt treatment with tPA may minimize or prevent long-term neurological disability from stroke, such as impaired speech and loss of muscle control. But it must be administered within three hours of the onset of symptoms if no contraindications to the use of thrombolytics exist. After this time, tPA treatment is no longer effective for most patients and the risk of bleeding in the brain increases.

The remaining 10-15 percent of strokes are classified as hemorrhagic strokes in which a blood vessel in the brain bursts. In these cases, tPA should not be given to patients because the drug escalates the bleeding and worsens the condition. These patients may require surgical intervention to remove clots or to stop the hemorrhage into the brain.

The following plan represents a conscious approach to an inclusive system of care. It runs throughout the continuum of care; from first symptom to recovery. All level of caregiver and facility are included. The plan is meant as a starting point to stimulate stroke prevention education, both in the community and for health care professionals. Its goal is to promote public awareness of stroke symptoms, getting ‘the right patient to the right place, within the right time”. As with any system of health care, the Santa Clara Stroke System Plan will be revisited and modified as the State of California provides statutes, as more evidence based research becomes available and as the data and feedback from the public and medical community is analyzed and discussed.

SECTION I

Summary of Stroke System Plan

A Stroke System approach is necessary in Santa Clara County to positively impact change in the recognition and care of the stroke patient. A systematic plan of care affords the patient access to the most advanced treatment in centers that are best equipped to deal with the critical and time sensitive needs of stroke patients.

Evidence-based, best practice guidelines for stroke have been used as a guide to implement a system of care that allows caregivers to apply advanced stroke management strategies utilizing the varied resources of Santa Clara County. Having an interwoven system of expert caregivers, affords residents and visitors of Santa Clara County optimal, patient centered stroke prevention and care throughout the continuum.

Prevention of Stroke

The system will support efforts to identify, educate and aggressively treat adults at high risk of stroke. This includes individuals who have suffered from previous strokes, those with transient ischemic attacks (TIA), as well as those with atrial fibrillation and diabetes. The general public, family members, caregivers and primary care physicians will be made aware of available stroke prevention services, life style modification strategies, new drug advances, patient education tools and strategies to promote compliance. System agencies will streamline access to these resources.

Recognition of Signs and Symptoms of Stroke

The system will provide opportunities through various media to increase and sustain awareness among the general public and healthcare providers of the warning signs of stroke and the emergent actions. Through the efforts of designated Primary Stroke Centers (PSC) and public and private educational agencies, the general public will have continuous exposure to the latest strategies and treatment of cardiovascular health.

First Responders, Dispatchers and Prehospital Providers

There will be a renewed and sustained effort to educate the public about the proper use of the 9-1-1 system and resources for Cardio Pulmonary Resuscitation (CPR) education.

Dispatchers have formalized training and protocols for the evaluation of calls that report warning signs of stroke. Medical Priority Dispatch Systems (MPDS) are

used to ensure that the response to the 9-1-1 call is appropriate, and that stroke patients are rapidly identified.

Prehospital providers are trained in the rapid assessment that incorporates acute stroke protocol inclusion criteria, use of the Cincinnati Stroke Scale, determination of last time seen normal, and duration of symptoms, how to determine appropriate resources and patient destination for immediate access to the closest, open PSC . These providers will receive continuing education on the most current advances in the prehospital treatment of the stroke patients and work closely with the LEMSA staff in developing best practice approaches to field care

The PSC's will participate in the development and execution of formal transfer agreements, bypass and diversion protocols which provide for the "right patient, right place, right time" benefits of timely, appropriate therapy for stroke protocol patients.

System Overview

Stroke System design identifies the strengths and opportunities for improved stroke care in all areas of the County. An inclusive system of care will incorporate all medical care facilities. Basic medical facilities shall have education in the early recognition of stroke risk and its warning signs, as well as appropriate resources utilization. All non-PCS designated Emergency Departments will be assessed for their capabilities to perform immediate emergent stroke therapy in cases where transport will exceed the optimal time for intervention. Strategies will be developed to afford these departments with physician and nurse education and protocols that will allow them to function to their highest level of capability in the emergent care of the stroke patient. These centers will be continuously supported by their closest PSC for assistance during stroke assessment, treatment and secondary transport to a PSC.

PSC's are the primary resource hub of the system. The Joint Commission on Accreditation of Healthcare Organizations (TJC) has accredited eight Primary Stroke Centers in Santa Clara County, they are: El Camino Hospital in Mountain View, Good Samaritan Hospital in San Jose, Kaiser Permanente San Jose Medical Center, Kaiser Permanente Santa Clara, O'Connor Hospital in San Jose, Regional Medical Center of San Jose, Santa Clara Valley Medical Center, and Stanford University Medical Center in Palo Alto.

All PCS's meet or exceed the national recommended standards for PSC resources. Capabilities of each center will be widely disseminated to the medical and hospital community in order to assure advance resource recognition and access for select complex patients. All System providers shall work together to refine and improve the pathway to therapy for the stroke patient.

Acute Treatment/ Hospitalization/Rehabilitation

All Medical facilities that care for stroke patients shall use established, evidence base protocols for the screening, inclusion and treatment of the stroke patient. Interdisciplinary teams, using standardized protocols shall assure organized stroke care management at all intervals in the care continuum, including reintegration of the patient back to the community. Specially trained and continuously available stroke care experts shall guide the patient through transition from acute care to rehabilitation and community reentry.

Stroke Center staff shall assure that each stroke survivor has access to the appropriate intensity of services throughout the continuum. Each survivor shall be evaluated for rehabilitation potential and have a thorough assessment for ongoing care management issues prior to discharge. These assessments shall allow for a comprehensive plan that reflects stroke effects and ongoing needs.

Stroke Center staff will assist the survivor and support person(s) to understand the plan of care and rehabilitation, how to access resources and available agencies for ongoing support.

Community Reentry

Community, public and private agencies, long-term care providers and family groups will be enlisted to develop stroke care expertise. They will be asked to implement strategies to support stroke survivors in meeting their goals of return to independence or maximum function.

Data Collection

The Local EMSA in cooperation with the PSC's shall design a Stroke Registry for collection of performance improvement markers that will both assist in the evaluation of care delivery and assess the effectiveness of the system. As changes occur on the state and national level the registry shall reflect those additions.

Evaluation

System evaluation shall be continuous. The Stroke Audit Committee (SAC) a body of multidisciplinary medical care experts familiar with the evidence-based practice shall perform stroke medical care oversight, from field to hospital discharge. They shall work closely with all system participants in the continuous quality improvement of stroke patient management. The SAC shall develop best practice approaches that shall be widely disseminated. It shall support ongoing research opportunities in stroke care and provide PSC's with benchmark data to evaluate and improve their individual approaches to stroke patient care.

Additionally, each PSC shall have a multidisciplinary quality improvement body that evaluates the care delivered in its facility and makes recommendations as to changes in approaches to care delivery and resource utilization. The LEMSA will

continue to monitor the quality of the care delivered by dispatchers, first responders and pre-hospital personnel in supporting optimal care of the stroke victim. While self-assessment is continuous, the support of national experts may be utilized for evaluation of system effectiveness and design recommendations.

Section II

Organizational Structure

EMS Agency Organizational Structure

The Director of the EMS Agency, a Division of the Public Health Department, reports to the Director of Public Health. The Director of Public Health reports to the Executive Director of the Santa Clara Valley Health and Hospital System (SCVHHS). The SCVHHS Executive Director is responsible for carrying out policies and actions on health services, including EMS and reports to the County Board of Supervisors. The Board is comprised of five elected Supervisors, each representing a distinct area of the County.

The EMS Medical Director oversees medical components of the EMS System. This includes protocol development, policies, equipment approval, medical dispatch, base station standing order protocols and continuous quality performance.

The Stroke Audit Committee (SAC) is comprised of the medical directors of Primary Stroke centers, Stroke program coordinators of those centers, physician representatives from hospitals in the County, and other medical specialists. This group is advisory to the EMS Agency and is charged with the review of Stroke cases for appropriateness of care rendered. SAC provides recommendations to the EMS Agency for improvements in care and enhancement of the Stroke System.

The Santa Clara County EMS Plan provides a clear description for the organizational structure of all agency personnel including the roles and responsibilities for the following:

- Emergency Medical Services Agency Director
- Emergency Medical Services Agency Medical Director
- Emergency Medical Services Agency Prehospital Programs Section
Manager
- Emergency Medical Services Agency Clinical Programs Section Manager

- Administrative Services Manager
- Training and Education Coordinator
- Compliance Officer
- EMS Planning Coordinator
- Administrative Assistant
- Epidemiologist
- A copy of key position descriptions can be found in Appendix A, and in the Santa Clara County EMS Plan. EMS Agency Policies and the EMS Plan may also be accessed from the Santa Clara County web site at:

<http://www.sccemsagency.org>

The following provide input and oversight to the EMS Agency and Stroke System:

- Board of Supervisors: comprised of five elected Supervisors, each representing a distinct area of the County. They created the Division of Emergency Medical Services within the Health Department in 1979. It is now a Division of Public Health.
- County Executive: the Chief Executive Officer/Administrator appointed by the Board of Supervisors.
- Santa Clara Valley Health and Hospital System: Has a separate director and reports to the County Executive. The Director is responsible for carrying out the Boards policies, in particular emergency services.
- Public Health Department: The Director of Public Health reports to the Director of the Health and Hospital System and is responsible for overseeing the functions of EMS.
- County Health Officer: A physician who reports to the Director of Public Health. The County Health Officer oversees medical services, public and environmental health services.
- Emergency Medical Services Director: The EMS Agency Director reports to the Director of Public Health Department, and is responsible for the planning, implementation, coordination, monitoring and evaluation of the County EMS System.
- Emergency Medical Services Medical Director: A physician who oversees the medical components of the EMS system. This includes protocol development, equipment approval and continuous quality improvement process.

- Trauma and Clinical Programs Manager and Prehospital Programs Section Manager: Administrative personnel reporting to the EMS Agency Director who provide program management and oversight.
- Quality Management Coordinator: County staff responsible for development and implementation of the EMSA regulated QI plan, oversight of prehospital QI process, outcome and education. Serves as clinical liaison to all prehospital providers and the base station.
- Epidemiologist: Offers data and surveillance support to all aspects of the EMS System.
- Fiscal and Organizational Support: EMS Agency staff who provides support the system on a daily basis. They are critical to the delivery of program results in areas such as budget preparation and analysis, executive coordination and overall programmatic functions.

Standing Committees

- Clinical Practice Advisory Committee (CPAC)- provides recommendations to the EMS Medical Director through the Medical Director's Advisory Committee in the areas of prehospital care clinical protocol development. Membership consists of field providers, administrative officers, physicians, EMT's, paramedics, nurses, etc
- Emergency Medical Services Committee (EMSCo): Advisory to the Health and Hospital Commission of the County Board of Supervisors. Consumer/provider membership appointed by the Board. Provides independent oversight and evaluation of the EMS system. Advises the Board on EMS policy. Meets quarterly
- Emergency Medical Services for Children: (EMSC) Multidisciplinary committee that met to plan, monitor and implement goals of the EMSC plan. This committee has not met in several years, although is being re-developed and will begin to meet again to assess the current status and needs of the EMSC plan.
- Medical Director's Advisory Committee (MDAC): advises the EMS Medical Director on medical policy and protocols governing pre-hospital care. Membership includes the Base Hospital Medical Director, a physician representing each Emergency Department and the medical director representatives from each prehospital provider agency.
- Prehospital Audit Committee (PAC): review and study all aspects of EMS prehospital care, identify trends through the use of quality indicators and provide education that is driven by the results of these findings. Includes multidisciplinary representation of all EMS System care providers.
- Prehospital Providers Committee - Designed for all stakeholders to provide input in the area of EMS field operations, policy review, education, and multi-patient management operations.
- Stroke Audit Committee (SAC) multidisciplinary committee comprised of Stroke Medical Directors, Primary Stroke Center Stroke Program Coordinators, EMS Medical Director, and other system stakeholders as

Santa Clara County Stroke System

- required. Major responsibilities include monitoring stroke system performance as well as recommendations for system improvement.
- Trauma Audit Screening Committee (TSC): group of clinical trauma care providers that includes the Trauma Directors and Coordinators of each trauma Center, the County EMS Medical Director, as well as the County Medical Examiner. The committee screens Trauma Center/System cases to determine those that require full Trauma Advisory Committee review. The committee meets six times a year.
 - Trauma Audit Committee (TAC): includes members from the TSC as well as multidisciplinary members of trauma centers, emergency care providers and medical specialties such as Neurosurgery and Orthopedics. TAC is the medical care review committee as well as an advisory group for trauma system issues.
 - A description of the functions, authority and responsibilities of key EMS committees may be found in Appendix B, and on the Santa Clara County website.

SECTION III

Needs Assessment

In early 2000, a multi-hospital consortium set out to assess and improve stroke treatment in Santa Clara County. Using “Operation Stroke,” a nationwide program (American Heart Association) to educate and inform local communities on treatment and prevention of stroke, representatives of Santa Clara County hospitals, fire departments, the Peninsula Stroke Association, and other interested parties developed a task force with four areas of interest: 1) community education, 2) prehospital providers, 3) medical services and 4) public relations. A broad membership was key to accomplishing task force goals.

The task force worked with hospital to develop focused pilot studies and gather data. This allowed for a snapshot look at the issues, obstacles and current care delivery in Santa Clara County. Task force members utilized national benchmark studies to compare data and identify strengths and opportunities for improvement in Santa Clara.

The task force reviewed the prehospital primary paramedic data in the hopes of identifying issues that could refine the pathway to direct care for stroke victims. The task force identified issues that required some modification if the “right patient, right place” requirement was to be accomplished.

**Santa Clara County
EMS Stroke Care Task Force**

Recommendations, Implementation Plan, and Future Directions

Overview

Identification and Treatment

Stroke is the 3rd leading cause of death (Operation Stroke) in the United States and a very significant cause of disability. Over the past 2-3 years there has been a growing body of medical evidence which demonstrates that rapid identification and treatment can significantly reduce the mortality and morbidity of stroke. Rapid treatment is more likely to occur when a patient is quickly transported to a hospital that closely adheres to nationally advocated treatment guidelines¹. The Joint Commission (JC) has offered a Primary Stroke Center (PSC) certification for hospitals that adhere to these specific guidelines. In an effort to improve stroke care many advocacy groups including JC the American Stroke Association, the Brain Attack Coalition, and, locally, the Stroke Awareness Foundation have advocated the certification of Primary Stroke Centers (PSC's) as well as the rapid transport by EMS of stroke patients directly to these centers. The best outcomes occur when a patient arrives at the hospital within a very short time window.

The EMS Role

For many years the Santa Clara EMS Agency (EMSA) has recognized the critical importance of timely treatment and has had field treatment protocols in place that emphasize the rapid field identification and transportation of stroke patients to the time-closest basic emergency department. The protocols have also specified a pre-arrival "alert" system to assist the receiving hospital's preparation for the arrival of this patient. The responsibility of appropriate evaluation and treatment rests with the treating physician and the receiving hospital.

Within the past year Santa Clara County has been fortunate to see the certification of three PSC's, including one of the first in the country at Good Samaritan Hospital, followed by Stanford University and Kaiser Permanente Santa Clara. Other hospitals in the County are also near certification. In light of these developments, the EMS agency has recognized that prehospital stroke care may not be optimized in Santa Clara County. Last summer the Santa Clara

County EMS Agency, in partnership with local hospitals, physicians, paramedic providers and advocacy groups convened the Blue Ribbon Stroke Task Force. For the past 6 months this group has focused discussion on three key questions:

1. What changes, if any, to existing field treatment and screening protocols need to be made?
2. Should the EMSA adopt a policy that redirects acute stroke patients directly to PSC's?
3. What impact will ambulance redirection have on the EMS system and its ability to respond to other medical emergencies?

Recommendations

1. Minor changes to the existing stroke identification and treatment policies are recommended. Age limitation of 18 years or older and blood glucose check are to be added. Paramedic training should be provided for the destination decision-making phase of pre-hospital care. Emphasis will be placed on documentation, especially time of onset.
2. The LEMSA should adopt a transport policy to redirect ambulances to hospitals that are identified as willing and capable of treating stroke patients in accordance with JC requirements. There are three JCAHO certified PSC's in Santa Clara County and more likely to follow soon. A provisional designation policy will be adopted to allow other qualified hospitals to receive redirected patients until JC can be obtained.
3. The impact of a redirection policy is unknown. Current data systems are inadequate to accurately determine the number of patients transported with suspected stroke. The implementation plan should include provisions to improve data collection and to evaluate system impacts.
4. The agency should adopt a Quality Assurance Process that evaluates pre-hospital and hospital outcomes. The process will rely on prehospital and hospital data reporting. The agency should enter into contracts with participating hospitals to formalize data reporting. The American Stroke Association "Get with the Guidelines" data elements will be used as the reporting format.
5. The LEMSA should continue to evaluate the development of comprehensive stroke centers as well as other new developments in stroke care.

Implementation Plan

The implementation plan will focus on 4 key areas; 1) Field Assessment and Treatment, 2) Destination, 3) Paramedic Training and 4) Data Collection and Quality Assurance.

1. Field Assessment and Treatment

The current protocols will remain unchanged. At 6 months, through the Quality Improvement Process, effectiveness of the current guidelines will be assessed by measuring patient outcomes against specified benchmarks. Particular emphasis will be placed on the sensitivity and specificity of guidelines to accurately identify stroke patients

Timeline: Done with review 6 months from implementation date.

2. Destination

The destination policy will require the rapid transportation of field identified stroke patients to the closest available PSC. All hospitals that wish to receive redirected stroke patients from EMS will need to meet one of two eligibility tracks below:

- Track 1:
- A) Enter into a contract with Santa Clara County. This contract will specify performance and data reporting requirements to the county.
 - B) Have and maintain current JC Primary Stroke Center certification.
- Track 2:
- A) Enter into a contract with Santa Clara County. This contract will specify performance and data reporting requirements to the county.
 - B) Maintain a provisional Primary Stroke Center designation through the EMSA. Non-JCAHO certified hospitals may apply with the EMS agency for eligibility to receive redirected stroke patients. Such hospitals must agree to the data reporting requirements, must meet the same criteria as JC

certified PSCs and to sign a statement of intent to obtain JC certification within one (1) year from the date of designation.

3. Paramedic Training and Education

The LEMSA will develop a refresher-training course on the field identification, treatment and transportation of stroke patients for all paramedics in the county. Paramedics must complete a written examination with a score of 90% or better. Additional focused training will be added as identified in the Quality Improvement Process.

Timeline: Done. A course developed by the National Stroke Association, entitled: Stroke Rapid Response (NSA standards) was presented to all paramedics in Santa Clara County. The National Stroke Association conferred the certification of: Stroke Rapid Response testing site on Santa Clara County for the educational efforts presented in the course on June 15, 2005.

Subsequent to the 2007 prehospital protocol updates, paramedics now use last time patient seen normal instead of onset of symptoms to determine destination for suspected stroke patients. In addition the time interval use for transport to a PSC has been lengthened from 3 hours to 6 hours from time last seen normal, to ensure that stroke patients will go to a PSC instead of a non-Stroke center.

4. Data Collection/Quality Improvement

The LEMSA agency will develop a database entitled "Stroke Registry" that will record pre-hospital and hospital data. The pre-hospital data points will be derived by the National Highway and Traffic Safety Agency (NHTSA) Uniform Prehospital Data Set (<http://www.nemesis.org/about.html>). Hospital outcome quality measures will be identical to the ASA "Get with the Guidelines Program". The agency will also convene an expert body called the Stroke Audit Committee (SAC) which will meet on a quarterly basis to review hospital and pre-hospital data, system review, as well as case reviews and provide feedback to the Agency.

Timeline: Done. A modified registry was developed in conjunction with the PSC Stroke Program Coordinator's group.

Implementation Plan: Timelines 2005

The following implementation plan covers the initial startup and six (6) month evaluation phases. At the end of six months the Stroke Audit Committee will conduct a system evaluation to determine what, if any, adjustments to the program need to be made.

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|-----|--|------------------|
| 1. | Finalize Stroke Task Force Recommendations and Implementation Plan | January |
| 2. | Review Grant Opportunities | January-March |
| 3. | Prepare Hospital Contracts and data collection guidelines | January-February |
| 4. | Distribute and Collect Readiness Surveys | January-February |
| 5. | Establish a Stroke Audit Committee | June-August |
| 6. | Evaluate Readiness Surveys | June-August |
| 7. | Prepare Stroke Awareness Training to Paramedics | June |
| 8. | Designate Primary Stroke Centers | June-September |
| 9. | Provide Stroke Training and Redirection Policy | June |
| 10. | Begin Ambulance Redirection to PSCs | September |
| 11. | Collect pre-hospital and hospital data for 100% of cases | TBD |
| 12. | Convene Stroke Audit Group, perform system evaluation | TBD |

Future Directions

There are many advances in stroke care that are forthcoming in the next couple of years. These include a new array of interventional procedures that can extend the effective treatment windows for acute stroke. The concept of Comprehensive Stroke Centers, which can provide these additional services, is now being developed. The EMS agency intends to keep abreast of these changes and continue to consult with the Stroke Task Force to explore ways in which the EMS agency can optimize the outcomes of stroke patients.

SECTION IV

Stroke System Design

SYSTEMS COORDINATION

A stroke system should fundamentally be a single entity that is responsible for organizing the stroke system and should have the ability to cross geopolitical lines and coordinate all participants through emergency response call centers (e.g., 9-1-1), EMS provider agencies and receiving facilities.

FUNCTIONS

A stroke system should serve 3 critical functions.

- a stroke system should ensure effective interaction and collaboration among the agencies, services, and people involved in providing prevention and the timely identification, transport, treatment, and rehabilitation of individual stroke patients in a locality or region.
- a stroke system should promote the use of an organized, standardized approach in each facility and component of the system.
- a stroke system should identify performance measures (both process and outcomes measures) and include a mechanism for evaluating effectiveness through which the entire system and its individual components continue to evolve and improve.

A stroke system should provide both patients and providers with the tools necessary to promote effective stroke prevention, treatment, and rehabilitation. Such consideration may require collaboration among entities in neighboring states or political jurisdictions.

A stroke system should identify and address potential obstacles to successful implementation. Potential obstacles to the establishment of stroke systems include the costs of developing and maintaining a stroke system, geopolitical lines of service by EMS, adequate legal and political recognition of the system, competition for patients and market share among providers, tensions that may exist among academic and community-based institutions, variable commitment to acute stroke therapy, differences in corporate culture among different facilities and provider groups, and concerns about the adequacy of reimbursement.

Stroke systems should be customized for each state, region, or locality, although certain universal elements are encouraged to help ensure optimal prevention and the timely identification, transport, treatment, and rehabilitation of stroke patients. A local or regional systems approach is critical in part because rural and neurologically underserved areas may require collaboration with other stroke system members to ensure access to all of the core components of a primary

stroke center, as well as access to the broader services that are required to provide stroke patients with the most appropriate treatments. In many instances, telemedicine, ground transport, or air transport may help facilitate the links critical to establishing a meaningful system for stroke prevention, treatment, and rehabilitation.

PRIMORDIAL AND PRIMARY PREVENTION

Primordial prevention refers to strategies designed to decrease the development of disease risk factors (e.g., efforts to decrease the development of obesity, increase exercise, and provide a well-balanced diet).

Primary prevention refers to the treatment of established disease risk factors, including the management of hypertension, lipid levels, diabetes, atrial fibrillation, and other modifiable risk factors.

A stroke system should support educational programs that target high-risk populations and their families.

A stroke system should ensure that educational efforts include community-based organizations, policymakers, and other stakeholders.

TRAINING, NOTIFICATION, AND RESPONSE OF EMS

A stroke system should include processes that provide rapid access to EMS for patients with acute stroke and that dispatch EMS in the shortest time possible, given local resource availability.

A stroke system should promote the use of diagnostic algorithms and protocols by EMS dispatchers that reflect the most current stroke treatment recommendations and should dispatch EMS responders for suspected strokes with the most rapid emergency response and within the same time limits/goals established for other acute events (e.g., myocardial infarction [heart attack] and trauma).

The primary dispatch center in Santa Clara County (Santa Clara County Communication Center) is a Dispatch Center of Excellence which uses Medical Priority Dispatch System (MPDS) to ensure appropriate resources are sent to any patient who accesses 9-1-1. The MPDS system is a patented protocol-based process that requires the use of certified dispatchers who use a series of questions to identify the patient's issue. This system includes a series of questions which will identify a patient exhibiting Stroke symptoms. All potential stroke patients receive the highest priority dispatch if the dispatcher determines that the patient is exhibiting stroke symptoms.

A stroke system should ensure the direct involvement of emergency physicians and stroke experts in the development of stroke education materials, communications and field assessment protocols, treatment protocols, and transport protocols for EMS providers. Such training and protocols should focus on stroke recognition, triage/transport decisions, and early notification to the receiving hospital.

A stroke system should ensure that all patients having signs or symptoms of stroke be transported to the nearest primary stroke center or hospital with an equivalent designation, to be given the available acute therapeutic interventions. Air transport should be considered to shorten the time to treatment, if appropriate. Stroke patients who are not candidates for hyper acute interventions should be evaluated at the closest hospital and considered for transfer, if appropriate, to a primary stroke center or other facility through established referral.

A stroke system should ensure that EMS personnel perform and document agreed-upon stroke patient assessments and screening of candidates for thrombolysis or other hyper acute interventions, as such interventions become available.

ACUTE TREATMENT FOR STROKE

The Joint Commission actively certifies stroke centers under its Disease Specific Care Certification Program. Two facilities in Santa Clara County, Stanford and Good Samaritan, met the strict standards for accreditation in March of 2005.

In order to expedite the development of the hospital component of the Santa Clara Stroke system, hospitals who actively sought Primary Stroke Center Certificates from JC were given a temporary option through an EMS review process. If successful, this would result in a provisional designation from County. Upon successful completion of their JC survey, the County designation would be conferred. A Primary Stroke Center

A stroke system should determine the acute stroke treatment capabilities and limitations of all hospitals and make these available to primary care providers, EMS, and the public.

A stroke system must develop strategies that incorporate hospitals that do not intend to seek stroke center status. All hospitals and facilities that could be involved in the care of acute stroke patients should develop action plans for the triage and treatment (or transport) of stroke patients.

A stroke system should ensure that hospitals identified as “acute stroke capable” possess the appropriate resources and deliver primary stroke care, in accordance with national recommendations and local or national certifying bodies.

A stroke system should make certain that clinical pathways are used consistently to ensure the organized application of interventions to prevent or limit stroke progression or secondary complications.

A stroke system should identify the roles played by each type of hospital in the system and define the responsibilities inherent in those roles.

SUB-ACUTE STROKE CARE AND SECONDARY PREVENTION

A stroke system should use organized approaches (e.g., stroke teams, stroke units, and written protocols) to ensure that all patients receive appropriate sub acute care.

A stroke system should adopt approaches to secondary prevention that address all major modifiable risk factors and that are consistent with the national guidelines for all patients with a history or suspected history of stroke or transient ischemic events.

A stroke system should ensure that stroke patients and their families receive education about stroke risk factors, warning signs, and the availability of time-sensitive therapy, as well as the appropriate method for activating EMS in their area.

A stroke system should ensure a smooth transition from inpatient to outpatient care, including timely transfer of hospital discharge information to the subsequent treating physician and a clear method of appropriate follow-up.

REHABILITATION OF STROKE PATIENTS

A stroke system should ensure that all stroke patients receive a standardized screening evaluation during the initial hospitalization to identify patients with residual impairments so that these patients receive appropriate rehabilitation.

A stroke system should periodically assess its level of available rehabilitation services and resources.

Stroke patients should be referred to an inpatient facility (acute and non-acute), an outpatient facility, or a home care service that provides for their medical and functional needs.

A stroke system should establish support systems to ensure that patients discharged from hospitals and other facilities to their homes have appropriate

follow-up and primary care arranged on discharge.

CQI INITIATIVES

A stroke system should strive to optimize the overall effectiveness of the system and each of its individual components. This goal should be accomplished by identifying performance measures for each component and for the system function as a whole (both process and outcomes measures) and by employing CQI strategies in collaboration with key stakeholders.

FUTURE DIRECTIONS AND CONSIDERATIONS

At the present time (2008) and with the full implementation of the Stroke Audit Committee, the EMS Agency with the Stroke Audit Committee is assessing the potential for changes to the system. Currently there are on average 252 patients monthly who arrive at Santa Clara County's PSC's presenting with symptoms of acute stroke. Of those patients on average 45% are diagnosed with an ischemic stroke. An additional 17% of these transports are diagnosed with Hemorrhagic Stroke, while another 20% are diagnosed with a Transient Ischemic Attack. (See attached graphs). There has been discussion at the Stroke Audit Committee of designation of Comprehensive Stroke Centers. Currently JC only has a certification for Primary Stroke Centers. The certification for Comprehensive Stroke Centers (by JC) may be developed in the future and the LEMSA would support any facility that would like to pursue this certification. It is not currently a requirement and such certification would be voluntary.

The most pressing issue identified by the Stroke system stakeholders is that of timely transfer of stroke patients who need interventional care which may not be provided in all PSC's. It is the EMS Agency's plan to work with the system stakeholders and the local ambulance providers to identify best practices for timely transfer of patients who need interventional care.

SECTION V

Intercounty Stroke Center Agreements

At the current time, Santa Clara County is the first County in California to develop a inclusive, organized Stroke system. Currently Santa Clara County is in the process of developing intercounty agreements for Stroke Care, however no agreements exist.

Once formal regulations are promulgated, Santa Clara will execute agreements with any county which requests this type of agreement.

SECTION VI

Objectives

The objectives of the Santa Clara Stroke System are to improve and standardize the key aspects of Stroke patient care.

The inclusive system for Stroke patient care developed for people of the County of Santa Clara; shall provide a framework for a full range of activities, services, care givers and support networks that coordinate and promote patient access to prevention, treatment, rehabilitation and recovery assistance.

The following areas shall be addressed:

- Primordial Primary prevention
- Community Education
- Notification and response of EMS
- Acute stroke treatment, including the hyper acute and Emergency Department phases
- Sub acute stroke treatment and secondary prevention
- Rehabilitation
- Continuous quality improvement activities

Stroke System goals include but are not limited to:

- Designate and facilitate the accreditation of all qualified licensed acute care hospitals as Primary Stroke Centers.
- Incorporate all medical personnel and facilities into a stroke resource network that facilitates prevention, identifies treatment and recovery of stroke patients.
- Encourage data collection and research on stroke-related topics.
- Solicit cooperation for ongoing education about stroke issues for the general public.
- Increase the survival rate and minimize stroke disabilities and sequelae.
- Develop a safety net of facilities that can deliver timely, safe and effective emergency area for stroke victims.
- Encourage the examination of the costs associated with the treatment of stroke.

SECTION VII

Implementation Plan: Timelines 2005

The following implementation plan covers the initial startup and six (6) month evaluation phases. At the end of six months the Stroke Audit Committee will conduct a system evaluation to determine what, if any, adjustments to the program need to be made.

1. Finalize Stroke Task Force Recommendations and Implementation Plan January
2. Review Grant Opportunities January-March
3. Prepare Hospital Contracts and data collection guidelines January-February
4. Distribute and Collect Readiness Surveys January-February
5. Establish a Stroke Audit Committee June-August
6. Evaluate Readiness Surveys June-August
7. Prepare Stroke Awareness Training to Paramedics June
8. Designate Primary Stroke Centers June-September
9. Provide Stroke Training and Redirection Policy June
10. Begin Ambulance Redirection to PSCs September
11. Collect pre-hospital and hospital data for 100% of cases TBD
12. Convene Stroke Audit Group, perform system evaluation TBD

SECTION VIII

Fiscal Impact

The direct costs associated with establishing an effective stroke system are balanced with the potential public fiscal/societal benefit of minimization of stroke disability care costs. The following was reported to the Board of Supervisors in August of 2005 concerning Stroke System costs. It reads in part:

“No County General Funds are required as a result of this action. There are no costs associated with the agreements between the County and the designated Stroke Care hospitals. The Stroke Awareness Foundation will procure and provide, at no cost to the County, technical assistance and expert consultative services to assist in the development and implementation of the Comprehensive Stroke Management System”.

SECTION IX

Policy Development

Exhibit A

****STROKE CENTER STANDARDS**

| Criteria |
|--|
| 1. Acute Stroke Teams: HOSPITAL shall have an Acute Stroke Team that includes a physician with experience in diagnosing and treating cerebrovascular disease. An Acute Stroke Team shall be available around-the-clock, seven days a week in order to evaluate within 15 minutes any patient who may have suffered a stroke. |
| 2. Written Care Protocols: HOSPITAL shall have written procedures to streamline and accelerate the diagnosis and treatment of stroke patients. The availability of such protocols is a key step in reducing time to treatment as well as complications from treatment. |
| 3. Emergency Medical Services: Emergency medical services (EMS) providers have a vital role in the rapid transportation and survival of stroke patients. Improved coordination between hospitals and EMS is a cornerstone of a Primary Stroke Center. HOSPITAL shall maintain an effective method for communications between EMS personnel and HOSPITAL during rapid transport of a patient experiencing a stroke. |
| 4. Emergency Department: The emergency department staff shall have training in diagnosing and treating stroke and have good lines of communications with both EMS and the acute stroke team. |
| 5. Stroke Unit: A Primary Stroke Center wishing to provide care beyond the initial life-threatening period shall have a Stroke Unit where patients can receive specialized monitoring and care. Some hospitals may choose to stabilize patients and transfer them to another facility. |
| 6. Neurosurgical Services: Primary Stroke Centers shall be able to provide neurosurgical services to stroke patients within two hours of when the services are deemed necessary. |
| 7. Support of Medical Organization: The facility and its staff, including administration, shall be committed to the Primary Stroke Center. This may be demonstrated by letters of commitment from applicable facility and staff leaders. This comprehensive commitment ensures the delivery of high quality and efficient care to acute stroke patients. |

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| <p>8. Neuroimaging: The ability to perform brain imaging studies on acute stroke patients is vital for physicians to make a fast, accurate diagnosis of stroke patients. Brain imaging studies include CT scans. A Primary Stroke Center must be capable of performing an imaging study within 25 minutes of the physician's order. The image shall be evaluated by a physician within 20 minutes of completion.</p> |
| <p>9. Laboratory Services: Standard laboratory services shall be available around-the-clock, seven days per week at a Primary Stroke Center. Standard laboratory services include rapidly performing and reporting blood counts, blood chemistries and coagulation studies. A Primary Stroke Center also shall be able to rapidly obtain ECG and chest x-rays.</p> |
| <p>10. Outcomes/Quality Improvement: Primary Stroke Centers shall have a database or registry for tracking the number and type of stroke patients seen, their treatments, timeline for treatments and some measurement of patient outcome.</p> |
| <p>11. Education Programs: The professional staff of a Primary Stroke Center shall receive at least eight hours per year of continuing medical education credit. In addition to professional education, the Primary Stroke Center shall plan and implement at least two annual programs to educate the public about stroke prevention, diagnosis and availability for emergency treatment.</p> |

** Brain Attack Coalition Recommendations for Establishment of Primary Stroke Centers.

SECTION X
WRITTEN LOCAL APPROVAL

- * 8. Considered recommendations relating to Santa Clara County Behavioral Risk Factor Survey services, and took the following actions:
- a. Approved Agreement with ORC Macro Corporation relating to providing data collection for Behavioral Risk Factor Survey in an amount not to exceed \$183,506 for period September 15, 2005 through June 30, 2006.
 - b. Approved delegation of authority to Director of Public Health, or designee, to execute subsequent contract amendments, extensions or renewals relating to ORC Macro Corporation contract in an amount not to exceed \$183,506, for period September 15, 2005 through June 30, 2006, following approval by County Counsel as to form and legality, and approval by Office of the County Executive. Delegation of authority shall expire on June 30, 2006.
- * 9. Considered recommendations relating to designation of Stroke Centers and technical assistance, and took the following actions:
- a. Adopted Resolution delegating authority to Director of Public Health to negotiate and execute agreements and subsequent amendments with local hospitals relating to implementating the comprehensive Stroke Management System and designating stroke centers within Santa Clara County for period September 13, 2005 through June 30, 2008 following approval by County Counsel as to form and legality, and approval by Office of the County Executive. Delegation of authority shall expire on June 30, 2008.
 - b. Approved delegation of authority to Director of Public Health, or designee, to negotiate and execute Agreement and subsequent amendments with Stroke Awareness Foundation relating to the provision of technical assistance and consultative support at no cost to the County for period September 13, 2005 through June 30, 2007, following approval by County Counsel as to form and legality, and approval by Office of the County Executive. Delegation of authority shall expire on June 30, 2007.
10. Considered recommendations from Emergency Medical Services (EMS) Agency regarding "Trauma System Assessment Report–Santa Clara County 2005," and took the following actions:

**RESOLUTION OF THE BOARD OF SUPERVISORS
OF THE COUNTY OF SANTA CLARA
DELEGATING AUTHORITY FOR THE EXECUTION OF AGREEMENTS
WITH HOSPITALS FOR STROKE CENTER DESIGNATION**

WHEREAS, the Board of Supervisors authorized the implementation of a Comprehensive Stroke Management System in Santa Clara County;

WHEREAS, the designation of Stroke Centers is a critical component of the Comprehensive Stroke Management System;

WHEREAS, the Board of Supervisors has designated the Santa Clara County Emergency Medical Services Agency as the County’s local emergency medical services (EMS) agency pursuant to Section 1797.200 of the California Health & Safety Code;

WHEREAS, pursuant to Section 1797.204 of the California Health & Safety Code, “[t]he local EMS agency shall plan, implement and evaluate an emergency medical services system...consisting of an organized pattern of readiness and response services based on public and private agreements”;

WHEREAS, certain hospitals are prepared to execute agreements with the County for the purpose of becoming a designated Stroke Center;

WHEREAS, the Board may delegate contracting authority to County officials, and has done so from time to time as deemed necessary and in the interest of the County; and

WHEREAS, delegating authority to the Director of the Public Health Department to negotiate and execute agreements with hospitals for stroke center designation is appropriate, considering the multiple contractual arrangements required to facilitate the implementation of the program;

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NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors delegates authority to the Director of the Public Health Department to negotiate and execute contracts and contract amendments with hospitals for the purposes of implementing the comprehensive Stroke Management System and designating stroke centers within Santa Clara County, from September 13, 2005 through June 30, 2008, following approval by County Counsel as to form and legality and approval by the Office of the County Executive. This delegation of authority shall expire June 30, 2008.

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Clara, State of California, this thirteenth day of September, 2005, by the following vote:

AYES: Supervisors

NOES: Supervisors

ABSENT: Supervisors

Liz Kniss, Chair
Board of Supervisors

Signed and certified that a copy of this document has been delivered by electronic or other means to the Chair, Board of Supervisors.

ATTEST:

Phyllis Perez, Clerk of the Board of Supervisors

APPROVED AS TO FORM AND LEGALITY:

Susan Konecny Branch 8/24/05
Susan Konecny Branch
Deputy County Counsel

County of Santa Clara

Emergency Medical Services Agency

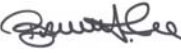
Public Health Department
645 South Bascom Avenue
San Jose, California 95128
(Tel) 408.885.4250
(Fax) 408.885.3538




IMPORTANT INFORMATION

February 3, 2006

To: Santa Clara County EMS System Stakeholders

From: Bruce H. Lee 
EMS Director

David Ghilarducci, MD  MD
EMS Medical Director

Subject: Santa Clara County EMS Stroke Care System
Effective March 1, 2006

As you may be aware, Santa Clara County is about to implement a Stroke Care System. In cooperation with area hospitals and stroke specialists, the County will be implementing a first ever program in the State of California of redirecting ambulances to stroke centers, which also features a comprehensive data and quality management plan. We would like to take this opportunity to briefly review the history of this initiative and operational aspects as we move toward our March 1, 2006 implementation.

Stroke is the 3rd leading cause of death and is the leading cause of disability affecting 700,000 persons nationally each year. These numbers can be greatly reduced when stroke patients receive rapid screening and treatment, yet most people do not arrive in time to be treated and less than 10% of patients who are eligible for treatment actually receive treatment. Hospitals certified as Primary Stroke Centers (PSCs) have demonstrated the ability to rapidly evaluate, treat, and improve outcomes for patients stricken by an acute stroke.

About two years ago, Santa Clara County had two PSCs, including one of the first in the nation. In the interest of optimizing the care provided for stroke patients, the EMS Agency convened a task force to determine if stroke policies should be modified to redirect acute stroke patients directly to these PSCs. In January, 2005 the task force issued a report that recommended the following: 1) patient redirection for field identified stroke patients to PSCs, 2) two eligibility tracks for stroke center certification and, 3) system-wide data sharing and quality improvement activities.

Since the Task Force report was issued, Santa Clara County has been fortunate to see the certification of four more Primary Stroke Centers (PSCs) with another two who are close to certification. Thanks to the tremendous efforts of our partner hospitals, our county now has half of all PSCs in the entire state of California, and more PSCs than 33 other states.

Santa Clara County Designated Primary Stroke Centers (PSC)

| | |
|---------------------------------------|---------------------------|
| o Stanford University Medical Center | o El Camino Hospital |
| o Kaiser Santa Clara | o O'Connor Hospital |
| o Valley Medical Center | o Good Samaritan Hospital |
| o Regional Medical Center of San Jose | o Kaiser Santa Teresa |

Stroke Center Diversion

The Stroke System depends on the receiving facility's ability to assess a potential stroke patient with a CT scan. Therefore, a new Service Advisory "**CT/Stroke**" status will be added to the ED status on EMSsystem for the times that a facility's CT scanner is not available.

911 System patients (ALS and BLS), meeting Stroke Alert Criteria, shall be immediately transported to the closest, open (green or yellow) PSC. Stroke Alert patients shall not be transported to PSC hospitals on Service Advisory-CT/Stroke (orange) or Closed (red) status at any time.

South County Considerations

If onset of symptoms > 2.5 hours and transport time > 30 min, consider air medical transport to a PSC, or ground transport to the closest appropriate non-PSC emergency department.

Please see attached EMS policies that have been revised consistent with new stroke care system requirements. The language changes have been highlighted.

Please contact Robbie Faford, Trauma and Clinical Programs Manager, at (408) 885-4250, for further information or questions.

Attachments: Revised Policy 602 and Policy 603



Emergency Medical Services Agency Prehospital Care Manual **Policy 602**

PREHOSPITAL PATIENT DESTINATION

Effective Date **March 1, 2006**
Replaces **June 22, 2005**
Review Date **2008**

Resources

None

I. Purpose

To assure that all patients who require emergency ambulance service are transported, consistent with the patient's health care rights, to the approved facility most appropriate for their needs **and regardless of their ability to pay.**

II. In-Extremis Patient Destination

- A. In-extremis patients shall be transported to the Most Appropriate/Accessible Receiving (MAR) facility.
- B. Basic Life Support Ambulances shall always transport in-extremis and emergency patients to the closest facility if unaccompanied by paramedics.

III. Specialty Care Destination

- A. Major Trauma Victim (MTV)
 - 1. Patients identified as a Major Trauma Victim, in accordance with the Prehospital Trauma Triage Policy.
 - 2. Catchment areas are established to assist in the appropriate routing of trauma patients to assist in ensuring that 911 patients do not unnecessarily overwhelm any one Trauma Center (Refer to Policy 403).

B. Psychiatric Hold

1. Psychiatric patients shall be transported to a facility equipped to provide appropriate care. Psychiatric patients in need of medical evaluation shall be transported to the facilities identified on the attached table.
2. Patients who require psychiatric services shall be transported to appropriate facility in accordance with their medical needs as a priority. The receiving facility may transfer the patient to a psychiatric facility after stabilization.
3. Patients with no medical complaint may be transported to the destination established by the law enforcement agency responsible for executing the 5150 hold including direct admit to Emergency Psychiatric Services (EPS).

C. Burn

1. Patients identified for triage to the Burn Center in accordance with the burn treatment protocol are to be transported to a recognized burn center.

D. Suspected Sexual Assault

1. Adult and pediatric patients identified as victims of a suspected recent sexual assault (<72 hours) should be transported to a designated Sexual Assault Response Team (SART) facility.
2. If transport to a SART facility would adversely affect the patient's medical condition, the prehospital care provider may select a closer facility.

E. Stroke

1. Patients meeting Stroke Alert Criteria, in accordance with the stroke treatment protocol, are to be transported to the closest approved Primary Stroke Center in accordance with Policy 603 – Emergency Department Diversion & Trauma Center Bypass.

- F. Pregnant patients greater than twenty-four (24) weeks gestation shall be transported to a facility providing obstetrical services.

IV. Special Circumstances

- A. Under certain circumstances, destination determination may be altered including:
 - 1. Multi-Casualty Incidents
 - 2. Direction provided by the Base Hospital or Agency
 - 3. Hospital Diversion

V. Census Alert

- A. Acute care hospitals may elect to alert prehospital care providers when census levels are high. In such cases, and when not to the detriment of the patient, the prehospital care provider shall advise the patient of alternate facilities that are not on a census alert. The patient may select the facility to which they wish to be transported.
- B. In cases where a facility is Yellow to Census and the unit continues to transport to that facility, documentation must be made in the PCR that the patient was advised of the status and offered alternatives based on their chief complaint.

VI. Patients Rights

- A. Patients shall be transported to the patient's facility of choice if travel time and services are equivalent to those of the MAR facility, regardless of their ability to pay.
- B. Patients who are alert and oriented shall be advised of all of the available means of transportation to the hospital, based on the chief complaint and condition. This may include private vehicle, taxi, family, etc. The patient shall be provided adequate information to make an informed health care destination decision.

Policy 602 – Schedule A Approved Facilities

(Bold indicates facilities located in Santa Clara County)

| <i>Facility</i> | <i>ID</i> | <i>Facility</i> | <i>ID</i> |
|---------------------------------------|------------|--|------------|
| Dominican Sisters Hospital | DOM | O'Connor Hospital | OCH |
| El Camino Hospital | ECH | Palo Alto Veterans Hospital | PAV |
| Emergency Psychiatric Services | EPS | Regional Medical Center of San José | RSJ |
| Good Samaritan Hospital | GSH | Saint Louise Hospital | SLH |
| Hazel Hawkins Hospital | HHH | Santa Teresa Hospital | STH |
| Kaiser - Fremont | KFF | Sequoia Hospital | SEQ |
| Kaiser - Santa Clara | KSC | Stanford University Hospital | SUH |
| Kaiser - Redwood City | KRC | Valley Medical Center | VMC |
| Los Gatos Hospital | LGH | Washington Township Hospital | WTH |

Approved Services

| <i>Service</i> | <i>Facility</i> |
|--|--|
| Basic Emergency Facility (*Comprehensive) | DOM, ECH, GSH , HHH, KSC , KFF, KRC, LGH, OCH, PAV, RSJ , SEQ, SLH, STH, SUH, VMC* , WTH |
| Burn Center | VMC |
| Psychiatric Receiving Facility | ECH, EPS, PAV, SUH, VMC |
| Obstetrics | DOM, ECH, GSH , HHH, KSC , KRC, LGH, OCH, RSJ , SEQ, SLH, STH, SUH, VMC , WTH |
| Primary Stroke Centers | ECH, GSH, KSC, OCH, RSJ, STH, SUH, VMC |
| Sexual Assault Response Team | DOM, VMC , WTH (Adult Only) |
| Trauma Center | SUH, VMC, RSJ |



Emergency Medical Services Agency Prehospital Care Manual **Policy 603**

EMERGENCY DEPARTMENT DIVERSION & TRAUMA CENTER BYPASS

Effective Date **March 1, 2006**
Replaces June 22, 2005
Review Date **2006**

Resources
None

I. Purpose

Facility diversion is a management tool that may be used temporarily by local hospitals when the patient load exceeds emergency department or specialty center resources.

Facility diversion is a last resort when emergency department/specialty center resources continue to be overwhelmed after internal procedures to manage the situation have been implemented.

Facility diversion does not replace the need for effective patient volume management procedures or plans to address seasonal patient volume increases.

II. ED Diversion/Trauma Bypass Requirements

- A. Emergency Departments and Trauma Centers may request 911-System ambulance diversion/bypass in accordance with the following:
 - 1. The facility shall have an Agency approved patient volume management plan that utilizes the guidelines established by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) as a minimum. This plan shall be revised and submitted annually for review and approval by the Agency.

2. The facility has determined, based on the approved patient volume management plan that it can no longer care for additional patients in the emergency department or specialty care areas. Lack of in-patient or ICU beds is not sufficient cause to implement ambulance diversion.
 3. All Santa Clara County Emergency Departments and Trauma Centers must use EMSsystem for maintaining availability status. As such, the following must occur:
 - a. EMSsystem must be monitored at all times in each facility. This includes ensuring audible and visual alerting tools are activated and functioning at all times.
 - b. Facility personnel must be aware of the content of this Policy including the criteria for implementing ED Diversion and Trauma Center Bypass.
- B. A hospital may close to all patients (both walk-in and ambulance) if the facility or a portion of the facility is in a state of Internal Disaster as defined by the California Department of Health Services. In such cases, the facility shall attempt to change to Black (Internal Disaster) status via EMSsystem. If it is not possible to change the status via this method, contact County Communications immediately. The facility shall report this status to the Department of Health Services in accordance with applicable requirements.

III. ED 911 System Ambulance Diversion Process

- A. In order to fully realize the benefits of an ambulance diversion program, all hospitals in the County must be included in the program (excluding Saint Louise Regional Medical Center).

The Palo Alto Veterans Administration (PAVA) Hospital is federally exempt from this requirement but would continue to receive 911 System patients who request transport to PAVA. The facility will assist in the case of multi-casualty incidents/disaster situations.

- B. All hospitals in the County (exception of Saint Louise Regional Medical Center) are able to divert 911-System ambulance traffic (not including those in-extremis).

- C. One (1) facility may be on ambulance diversion (red) at any one time in a Diversion Zone. If an additional hospital within the same Diversion Zone wants requests 911-System ambulance diversion status at the same time, they must wait until the red hospital opens and then make the change through EMSsystem.

| |
|--|
| <p style="text-align: center;"><u>Northern Diversion Zone</u> Stanford University Hospital El Camino Hospital Kaiser Santa Clara</p> <p style="text-align: center;"><u>Downtown Diversion Zone</u> Regional Medical Center of San Jose Santa Clara Valley Medical Center O'Connor Hospital</p> <p style="text-align: center;"><u>Western Diversion Zone</u> Los Gatos Community Hospital Good Samaritan Medical Center Kaiser Santa Teresa Hospital</p> |
|--|

- D. Facilities may remain on ambulance diversion status for no more than 90 minutes per occurrence. A hospital that has closed to ambulance diversion must remain open for at least 90 minutes before being able to divert again.
- E. When the EMS System is being negatively affected by ambulance diversion, the EMS Agency may require a Zone or all hospitals to open as necessary.
- F. Saint Louise Regional Hospital may not divert due to the extended travel time to the next closest facility.
- G. When the facility is directed by the Agency and/or County Communications to open/remain open, they shall do so immediately. If facility staff considers the direction inappropriate, they may discuss the situation with the Agency during regular business hours; however, additional diversion time shall not be granted.
- H. Each facility shall request no more than thirty-six (36) hours of 911-System ambulance diversion within a calendar month.
- I. The facility shall immediately notify County Communications of any/all changes in facility status via EMSsystem. County Communications will not make any status changes by phone or radio unless EMSsystem has failed.

- J. Agency staff may perform unannounced site visits to hospitals to ensure compliance with these requirements.
- K. Failure to fulfill these requirements may result in the facility losing its diversion privilege.

IV. Emergency Department Receiving Status

The following status conditions apply to Emergency Departments that request the diversion of 911-System ambulances.

A. Open (Green)

Accepting all 911-System ambulance patients.

B. Service Limitation Advisory – CT Scanner Not Available (Orange)

Identifies that the CT scanner is not available, allowing prehospital personnel to make a destination determination for patients having a need for immediate CT scans. Stroke Alert patients shall not be transported to facilities without CT scanner services.

C. Census Level Advisory (Yellow)

Census levels are high and the patient may expect delays in service at the facility. In such cases the prehospital care providers shall advise the patient of alternate destinations (when the patients condition permits alternatives).

D. Diverting 911-System Ambulances (Red)

Diverting all 911-System ambulance patients, except those in extremis. The receiving facility's Emergency Department is no longer able to accept additional patients due to the number and/or acuity of patients currently being treated. Patients who are in-extremis shall be accepted by the facility regardless of the facility's status.

- E. A facility's status at the time the ambulance begins transport (not when the prehospital provider contacts the hospital with a "ring-down") will apply to that transport regardless of any subsequent status changes.

Facilities may *not* direct ambulances to other facilities or refuse to accept the patient for any reason other than those in Section 2-B.

- E. If a facility is diverting 911-System ambulance traffic, no EMS team will communicate with the facility to determine their ability to accept a patient or to request exceptions except the EMS Duty Chief/Agency.

Exception: An ambulance transporting an in-extremis patient to a “red” facility will notify that hospital of their pending arrival.

- F. No 911-System, ambulance will transport a patient, other than interfacility transfers and those who are in-extremis, to a facility that is on 911-System ambulance diversion.

V. Trauma Center Bypass Process

- A. One facility may be on Trauma Bypass status (red) or the same Service Limitation status (orange) at the same time.
- B. In the event that a second Trauma Center requests Bypass status, the Trauma Center Medical Directors and the EMS Agency must agree to an interim patient management solution prior to the second Trauma Center executing Bypass status. This option shall be reserved for extreme circumstances only as the countywide impacts may be significant.

The requesting facility shall notify the EMS Agency Duty Chief of the intention to use “Bypass”. The EMS Duty Chief will discuss the rationale for the request including verification that the status cannot be addressed through an Advisory Status (Orange) or Internal Disaster (Black). If not, then the EMS Duty Chief will then contact the Trauma Center currently on Bypass and determine if they are able to open earlier. If not, the EMS Duty Chief may authorize a second Trauma Center to be on Bypass at one time.

The EMS Agency will then consult with the Trauma Center Medical Directors and take any appropriate actions to ensure the safety and welfare of the public.

- C. A Trauma Center may not remain on “Bypass” for more than (60) sixty minutes. A Trauma Center must remain open for at least (60) sixty minutes before they may execute Bypass status subsequent times.

VI. Trauma Center Receiving Status

The following statuses apply to Trauma Center availability:

A. Open (Green)

Accepting all 911-System ambulances as directed by clinical protocols and Trauma Center Catchments Areas.

B. Service Limitation Advisory (Orange)

The Trauma Center must identify which of the following limitations are in effect.

1. No available operating rooms, **or**:
2. No Neurosurgery

Advanced Life Support personnel (flight crews and paramedics) shall consider the specific type of service limitation and may either (1) continue transport to the destination or (2) bypass the facility and go to the next closest and most appropriate Trauma Center. Paramedics shall evaluate the need for helicopter or ambulance transportation with red lights and siren, if appropriate, to honor service advisories.

C. Bypass (Red)

Diverting all 911 Ambulance Traffic (except those in extremis).

- D. A Trauma Center's status at the time the ambulance begins patient transport (not when the prehospital provider contacts the hospital with a "ring-down") will apply to that transport regardless of any subsequent status changes.

Facilities may *not* direct ambulances to other facilities or refuse to accept the patient for any reason.

- E. If a facility is diverting 911-System ambulance traffic, no EMS team will communicate with the facility to determine their ability to accept a patient or to request exceptions except the EMS Duty Chief/Agency.

Exception: An ambulance transporting an in-extremis patient to a "red" facility will notify that hospital of their pending arrival.

SECTION XI
DATA COLLECTION

LEMSA in cooperation with the PSC's shall design a Stroke Registry for collection of performance improvement markers that will both assist in the evaluation of care delivery and assess the effectiveness of the system. As changes occur on the state and national level the registry shall reflect those additions.

SECTION XII

STROKE SYSTEM EVALUATION

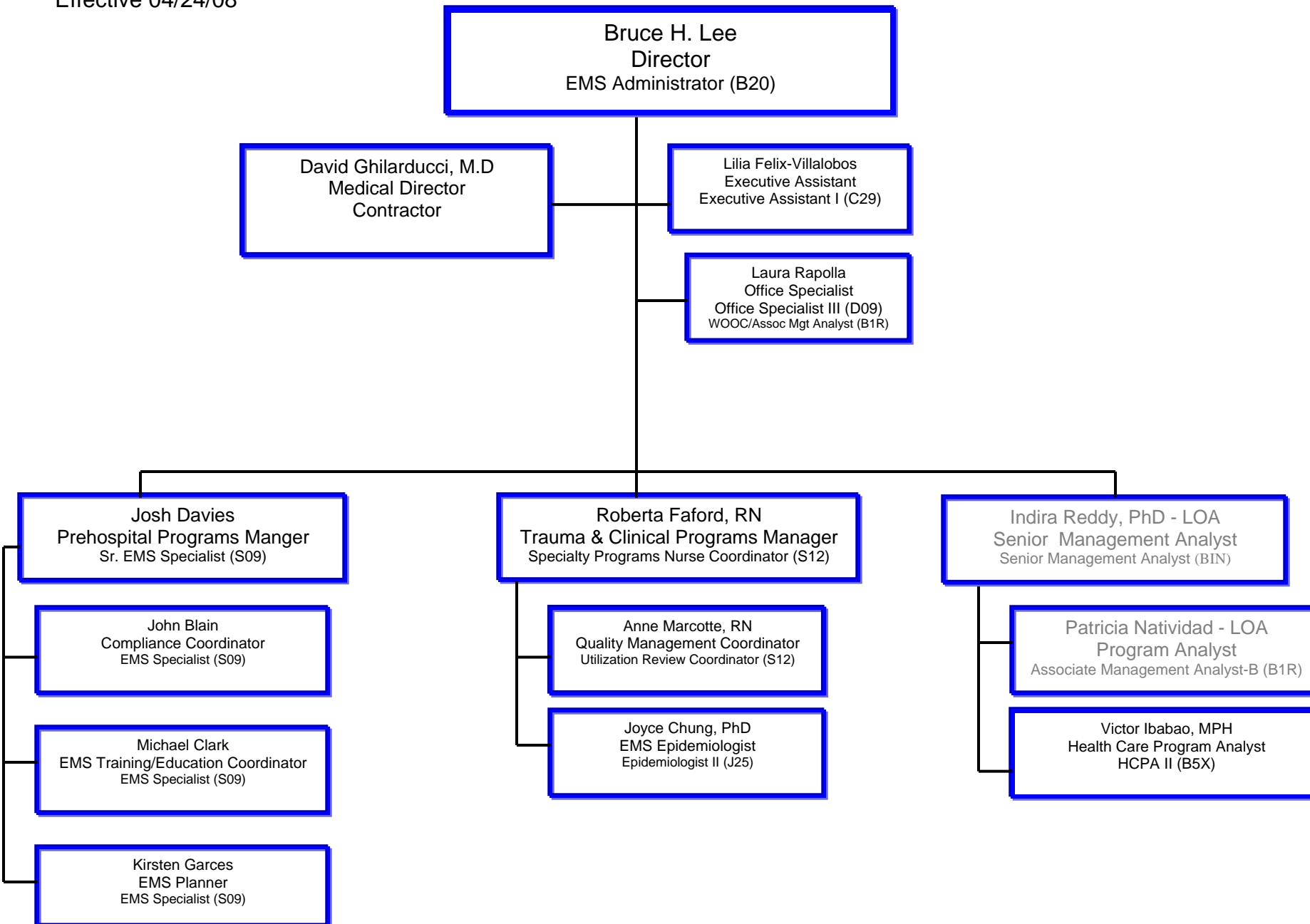
System evaluation shall be continuous. The Stroke Audit Committee (SAC) a body of multidisciplinary medical care experts familiar with the evidence-based practice shall perform stroke medical care oversight, from field to hospital discharge. They shall work closely with all system participants in the continuous quality improvement of stroke patient management. The SAC shall develop best practice approaches that shall be widely disseminated. It shall support ongoing research opportunities in stroke care and provide PSC's with benchmark data to evaluate and improve their individual approaches to stroke patient care.

Additionally, each PSC shall have a multidisciplinary quality improvement body that evaluates the care delivered in its facility and makes recommendations as to changes in approaches to care delivery and resource utilization. EMSA will continue to monitor the quality of the care delivered by dispatchers, first responders and pre-hospital personnel is supporting optimal care of the stroke victim. While self-assessment is continuous, the support of national experts may be utilized for evaluation of system effectiveness and design recommendations.

APPENDIX A

- I. Agency Organizational Chart
- II. Operation Stroke
- III. Stroke Audit Committee
- IV. Stroke Audit Committee Policy
- V. 2007 Stroke System Report
- VI. NSA Stroke Train the Trainer Program

Santa Clara County
Emergency Medical Services Agency
Organization Chart
Effective 04/24/08



OPERATION STROKE

Operation Stroke is an initiative of the **American Stroke Association**, a division of the **American Heart Association**. The program has four objectives:

- To educate the general public about the warning signs of stroke.
- To encourage the general public to call 9-1-1 when these warning signs are experienced by themselves or someone around them.
- To advocate for EMS systems to upgrade the coding for transport of stroke patients, to train EMS personnel to assess for stroke, to advocate for medical dispatcher training, and to implement outcomes tracking systems.
- To advocate for acute care medical facilities to implement stroke protocols, stroke teams and stroke units, and to implement outcomes tracking systems.

Program overview

A new treatment for acute ischemic stroke has the potential to raise standards of care in communities by reducing disability caused by this disease. This treatment promises to help improve the medical outlook for the thousands of people who suffer a new or recurrent stroke each year.

This promise can only be realized if the "stroke survival steps" are firmly in place in communities nationwide.

- Citizens must fully understand the symptoms of stroke - and why it's critical to seek rapid treatment when they experience them.
- EMS personnel dispatchers, emergency medical technicians, paramedics, and fire and police officials must be educated and motivated to respond quickly to the public's raised consciousness about stroke.
- Once a patient has been swiftly transported to the hospital, it's imperative that emergency department physicians, nurses and lab personnel are empowered to immediately evaluate and treat stroke.

By educating and motivating emergency medicine professionals and raising public awareness of stroke symptoms, the programs of Operation Stroke have the potential to substantially reduce crucial delays in stroke treatment.

Current situation

Less than 5 percent of stroke patients currently receive the only early acute treatment for stroke that needs to be administered within three hours of the onset of symptoms, because...

- Most patients wait, on average, 22 hours to get help.
- Nationally, only 26 percent of the general public can name one or more of the warning signs of stroke.
- Transport systems have been slow to change how they transport stroke patients to acute care facilities.
- Medical professionals are reluctant to use the acute care treatment because of its risk and because it hasn't been used extensively.

Key audiences

The American Stroke Association's Operation Stroke program will focus on impacting three key audiences in the stroke survival steps to recovery: healthcare professionals, emergency transport systems and residents of the community. The goal of the committee will be to motivate...

- **Professional activism.** Through communication activities designed and implemented by the Operation Stroke committee, pre- and in-hospital professional audiences will be challenged to make identifying and rapidly treating stroke a priority.
- **Community education.** The Operation Stroke program will reach out to educate community residents about stroke in the following ways, with particular emphasis on reaching high-stroke-risk populations including stroke and heart survivors, adults 55+, high-risk African Americans, high-risk Hispanics and women.
- **A campaign of ongoing, independent, customized communications.**
- **Year-round community-wide events** designed to significantly raise public awareness.

An American Heart Association "champion" will lead each Operation Stroke site, which will include representatives of prominent community organizations and medical experts. These representatives will be identified and recruited based on their expressed interest in improving the awareness of stroke, its symptoms, treatment and recovery in the community.

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The information contained in this American Heart Association (AHA) Web site is not a substitute for medical advice or treatment, and the AHA recommends consultation with your doctor or health care professional.

Operation Stroke: Communities working together to save lives

Knowing the signs and getting emergency assistance can help stop America's No. 3 killer

DALLAS, Oct. 1 — The medical outlook for Americans who suffer a new or recurrent stroke may significantly improve thanks to **Operation Stroke**, a community-based program of the American Stroke Association, a division of the American Heart Association. **Operation Stroke**, a grassroots initiative to raise awareness of stroke warning signs and the critical need for immediate emergency treatment, is implemented by a coalition of local volunteer healthcare professionals and civic leaders.

Operation Stroke is designed to reduce the amount of time it takes stroke patients to get to the hospital and be assessed for possible treatment with t-PA, a potentially life-saving clot-busting drug. This revolutionary drug, which was approved by the Food and Drug Administration in 1996, significantly reduces the chances of death and disability from stroke, but it must be administered within three hours from the onset of stroke symptoms.

Currently, about 5 percent of stroke patients arrive at the hospital in time to receive potentially life-saving treatment for stroke because most people don't know the warning signs or don't realize they should seek medical help immediately. According to a survey conducted by the American Stroke Association, over 75 percent of Americans cannot name the most common stroke warning sign (sudden numbness or weakness of face, arm or leg, especially on one side of the body).

The American Stroke Association is leading a massive awareness campaign with the implementation of **Operation Stroke** in 51 U.S. cities, and is expanding to over 125 cities by 2003. In just one year, the five pilot sites reported an increase in stroke protocols and teams, which in turn increased the community's ability to treat stroke.

"Improving early recognition of stroke, reducing the time to treatment and controlling the risk factors for stroke are our best defenses in the war against stroke," said Edgar J. Kenton, III, M.D., the chair of the American Stroke Association Advisory Committee. "Immediate medical attention can make all the difference between life and death and in the quality of life for a stroke survivor.

Santa Clara County Stroke System

By knowing the warning signs and calling 9-1-1, we can all help reduce the devastating effects of stroke," added Kenton.

In addition to the general public, the **Operation Stroke** program is targeting high-risk populations such as the elderly, African Americans and women. Many members of these populations have two or more risk factors or a higher death rate for stroke.

The symptoms of stroke are: 1) sudden weakness or numbness of the face, arm and leg, especially on one side of the body; 2) sudden confusion, trouble speaking or understanding; 3) sudden trouble seeing in one or both eyes; 4) sudden trouble walking, dizziness, loss of balance or coordination; and 5) sudden severe headache with no known cause.

The chance of suffering a stroke can be reduced by practicing a healthy lifestyle, including controlling high blood pressure, preventing high cholesterol, being physically active, avoiding obesity, stopping smoking and working with a doctor to prevent or treat atrial fibrillation (the rapid, uncoordinated beating of the heart's upper chambers) and carotid artery disease (a disease affecting the blood vessels that supply the brain).

In addition to public education, **Operation Stroke** is designed to educate emergency medical system personnel (dispatchers, emergency transport drivers, paramedics, fire and police officers, emergency room physicians, nurses, neurologists, neurosurgeons and many others) about the importance of rapid treatment. Operation Stroke is working to increase the number of hospitals equipped and staffed to deal with the specific needs of stroke patients.

Stroke is the third leading cause of death in the United States, and a leading cause of severe, long-term disability. On average, someone in this country suffers a stroke every 53 seconds. Every 3.3 minutes someone dies of a stroke.

A stroke occurs when a blood vessel bringing oxygen and nutrients to the brain bursts or is clogged by a blood clot or other particle. This rupture or blockage keeps part of the brain from getting the oxygen it needs. Without oxygen, nerve cells in the affected area cannot function and die within minutes. The part of the body that these brain cells control also cannot function, which can lead to death. Those who survive a stroke may find their quality of life drastically reduced because the death of brain tissue can have a profound effect on intellectual capacity, ability to communicate and physical mobility.

The American Stroke Association was created in November 1998 as part of a strategic decision to emphasize the importance of stroke, and spotlight and strengthen the American Heart Association's effort to reduce death and disability from stroke through research, education, fund raising and advocacy. In its 1998-

1999 fiscal year, the American Stroke Association spent \$54 million on stroke-related research and programs — more than any other nonprofit organization.

To learn more about stroke, call **1-888-4STROKE** or visit the American Stroke Association Web site at www.strokeassociation.org. American Heart Association

Stroke Audit Committee Mission and Objectives

I. Definition of Stroke Audit Committee:

Stroke Audit Committee is defined as a multi-disciplinary peer-review committee, comprised of representatives from the Stroke Centers and other professionals designated by the EMS Agency, which audits the stroke care system, makes recommendations for system improvements, and functions in an advisory capacity on other stroke system issues. Committee members designated by the EMS Agency may include, but are not limited to, stroke medical directors, representatives from other local hospitals, radiologists, neurosurgeons, emergency medicine sub-specialists, stroke program managers, and representatives from ground and flight emergency services providers.

II. Purpose:

The Stroke Audit Committee provides several critical functions:

A. Audits the Stroke Care System

The scope of the review to be conducted by the Committee may include, but not be limited to, a review of

1. Appropriateness of triage of Stroke Patients
2. Bypass – statistics review.
3. Inter-hospital – transports of Stroke Patients
4. Prehospital Stroke training and performance.
5. Communication system effectiveness.
6. Public education and Stroke prevention.

B. Makes recommendations for system improvements

C. Functions in an advisory capacity to the EMS Medical Director on other stroke system issues.

III. Objectives:

- Enable the stroke system to ensure effective interaction and collaboration among the agencies, services, and people involved in providing prevention and the timely identification, transport, treatment, and rehabilitation of individual stroke patients in a locality or region.

- Promote the use of an organized, standardized approach in each facility and component of the system.
- Assist the stroke system to identify performance measures (both process and outcomes measures) and include a mechanism for evaluating effectiveness through which the entire system and its individual components continue to evolve and improve

IV. Responsibility of members:

- HOSPITAL shall monitor compliance with Stroke Center Standards on a regular and ongoing basis. Documentation of such efforts shall be available to the EMS Agency upon request
- HOSPITAL shall actively and cooperatively participate as a member of the Stroke Audit Committee, and such other related committees that may, from time to time, be named and organized by the EMS Agency
- HOSPITAL shall, as may be reasonably requested by the EMS Agency, participate in evaluations and/or research designed to show the effectiveness of the countywide Stroke Care System; and shall submit reports and materials on its stroke services as reasonably requested by the EMS Agency. These reports, evaluations and studies shall be used by the EMS Agency to analyze and generate aggregate statistical reports on the countywide Stroke Care System performance.
- The EMS Agency will provide, or cause to be provided to HOSPITAL and/or the Stroke Audit Committee, prehospital system data related to stroke care.
- The EMS Agency will strive to optimize the overall effectiveness of the Stroke Care System and its individual components through the development of performance measures for each component and for the system function as a whole (both process and outcomes measures) and by employing continuous quality improvement strategies and collaboration with stakeholders.

STROKE AUDIT COMMITTEE

Effective Date **April 22, 2007**
Replaces **New**

Resources

Health and Safety Code, Division 2.5, Sections 1797.204 and 1798
Evidence Code of the State of California, Sections 1040, 1157.5 and

I. Purpose

Stroke Audit Committee is defined as a multi-disciplinary peer-review committee, comprised of representatives from the Stroke Centers and other professionals designated by the EMS Agency, who:

- audits the stroke care system,
- makes recommendations for system improvements,
- functions in an advisory capacity on other stroke system issues.

II. Principles

A. Internal Stroke Center Quality Improvement

Each Primary Stroke Center shall have a formal and fully functional internal medical quality improvement program for their stroke service.

Responsibility for the Stroke Care at each PSC as well as compliance with the Santa Clara County Emergency Medical Services Stroke Center Standards is that of the Medical Director of the Stroke Service at the PSC.

B. External System-wide Quality Improvement

Stroke audit process will be based on a review of cases, which meet criteria as selected by members of the Stroke System and medical communities. Cases for review shall be selected by the Stroke Audit Screening Committee, consisting of a representative from the Stroke Medical Directors, a representative from the Stroke Center Coordinators group, the LEMSA Quality Management

Coordinator and the Santa Clara County EMS Medical Director, using the Quality Improvement Standards developed by the Stroke Audit Committee. This review may include any Prehospital patient who is identified as a Stroke Patient.

III. Membership of the Committee

- A. EMS Agency Medical Director
- B. EMS Staff (Quality Management Coordinator
- C. EMS Epidemiologist
- D. Stroke Medical Directors from each PSC
- E. Stroke Program Coordinators* from each PSC
- D. Interventional Radiologists**

IV. Meetings

Meetings shall be quarterly

V. Attendance

Members shall notify the chairperson of the committee in advance of the meeting if unable to attend.

Resignation from the committee shall be submitted to the EMS Medical Director in writing, and shall be effective on receipt

At the discretion of the SAC chairperson and/or County EMS, other invitees may participate in the medical audit review of cases where their expertise is essential to make appropriate determinations.

These invitees may include but are not limited to the following:

- A. Paramedic agency representatives (other than members)
- B. Law Enforcement
- C. EMTs
- D. Paramedics
- E. Nurses
- F. Physicians
- G. PSAP representatives
- H. CCT-P Provider QI Representative

VI. Election of Officers

Committee officers shall consist of two co-chairpersons, one of which is a physician. Elections shall take place at the last meeting of the calendar year and officers shall assume duties at the first meeting of the next year. Officers shall serve for a period of two years.

VII. Voting

Occasional issues may require a voting process. These issues shall be identified as voting issues by the Chairperson. A simple majority will constitute a decision.

VIII. Minutes

Minutes of all meetings will be kept by the EMS Agency, and distributed to the members at each meeting. Due to the confidential nature of the Committee, all minutes and materials will be collected at the end of each meeting. No copies of minutes or materials may be made or processed by members.

X. Confidentiality

- A. All proceedings, documents and discussions of the Prehospital Audit Committee are confidential, and thus protected from discovery under sections 1040, and 1157.5 of the Evidence Code of the State of California. This prohibition relating to the testimony provided to the committee shall be applicable to all of the proceedings and records of this committee, which is one established by a local government agency as a professional standards review organization which is organized in a manner that makes available professional competence to monitor, evaluate and report on the necessity, quality and level of specialty health services, including but not limited to Prehospital care services.
- B. Guests may be invited to the Prehospital Audit Committee to discuss specific cases and issues in order to assist the committee to make final case or issue determinations. Guests may only be present for the portions of the meeting about which they have been requested to review or discuss.
- C. All members will be asked to sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through the Prehospital Audit Committee membership. Prior to the invited guests participating in the meeting, the Chairperson is responsible for explaining, and obtaining, a signed confidentiality agreement from the guest.

*Stroke Program Coordinator is a generic title used by the LEMSA which denotes the nurse who is responsible for management of the Stroke Program at each PSC. Other titles included but not limited to in this category may be Clinical Nurse Specialist, Nurse Practitioner, or Quality Manager

**Interventional Radiologists include Neurointerventionalists as well as other interventional radiologists who may not be specifically neurointerventional radiologists.

County of Santa Clara
Emergency Medical Services Agency
STROKE SYSTEM

2007 ANNUAL REPORT

January 2007-December 2007

| | ECH | GSH | KSC | OCH | RSJ | STH | SUH* | VMC | Totals |
|------------------------------|------------|------------|------------|------------|------------|--------------|-------------|-------------|---------------|
| Total Number Stroke Patients | 376 | 307 | 344 | 136 | 462 | 338** | 512 | 565^ | 3072 |
| Stroke type | | | | | | | | | |
| Ischemic | 249 | 212 | 200 | 46 | 245 | 183 | 267 | 178 | 1580 |
| Hemorrhagic | 50 | 59 | 46 | 14 | 84 | 72 | 143 | 25 | 493 |
| Subarachnoid | 9 | 8 | 2 | 3 | 37 | 13 | 146 | 27 | 245 |
| Transient Ischemic Attack | 68 | 71 | 96 | 18 | 96 | 69 | 129 | 82 | 629 |
| Mode of Arrival | | | | | | | | | |
| Ambulance | 153 | 204 | 170 | 75 | 292 | 185 | 127 | 162 | 1253 |
| All other | 223 | 103 | 174 | 61 | 170 | 153 | 385 | 403 | 1819 |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |

The information in this document is derived from self-reported data provided by the Primary Stroke Centers to the Santa Clara County EMS Agency, sent in each quarter.

* Stanford University Hospital also receives patients from San Mateo County and they may be included in this total.

** Santa Teresa had one patient that they reported as having an “other” stroke diagnosis that is not included in the totals below

^ Valley Medical Center reported that of this total there were 253 patients who had “non-stroke” diagnoses which are not included in the totals reflected below.



Outline of NSA EMS Training program:

- All attendees will take a pre and post stroke awareness tests. To measure level of knowledge before and after training.
- 1-2 hour training on content from NSA EMS manual (please view table of contents). The manual is modular so presenter can customize the training for the particular community.
- Survey from attendees.

Here are some facts about NSA's Pilot Program:

- Program is "Train the Trainer" we are hoping that the attendees of our training will go back to their agencies and train others.
- All program expenses (food, materials, give-aways, faculty honorarium and travel, and meeting room, if necessary) will be paid by National Stroke Association.
- NSA will manage the event including coordination of venue, food, faculty and materials.
- NSA has a formal program including a training manual with pre and post- testing.
- Content will be customized to communities needs.
- NSA will invite and compensate local faculty members.
- NSA anticipates that this program will be accredited by CECBEMS in March.
- NSA will provide local public relations including media coverage wherever possible
- All 17 pilot meetings are to be completed by the end of June 2005.

Participating site representatives may be asked to:

- Guide NSA to local EMS organizations for invitation purposes
- Recommend local faculty
- Suggest locations for meeting and vendors for food and beverages
- Identify areas of content that require additional focus for your region
- Provide access to hospital, fire house, etc. for possible media coverage
- Provide a summary by survey post event; Attend post pilot teleconference