



COUNTY OF SAN DIEGO

AGENDA ITEM

BOARD OF SUPERVISORS

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Fifth District

DATE: August 27, 2024

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TO: Board of Supervisors

SUBJECT

RECEIVE REPORTS DETAILING A COMPREHENSIVE EVALUATION OF THE COUNTY'S BASE STATION HOSPITALS AND TRAUMA CENTER CATCHMENT AREA DESIGNATIONS, AND AUTHORIZE STAFF TO COORDINATE WITH LOCAL STAKEHOLDERS TO JOINTLY DEVELOP AND PILOT CHANGES FROM THE REPORTS (DISTRICTS: ALL)

OVERVIEW

The San Diego County Emergency Medical Services Office (County EMS), a division of San Diego County Fire, is the Board of Supervisors-designated Local Emergency Medical Services Agency (LEMSA), as identified by Board Policy K-12 under California Health and Safety Code 1797.200 and is responsible for ongoing oversight of the region's Emergency Medical Services (EMS) system. The LEMSAs medical director is responsible for the establishment of effective medical direction processes and quality improvement programs, among other critical oversight functions (HSC 1798 (a)). This oversight includes the designation of Base Station Hospitals, Trauma Center Hospitals, and Trauma Catchment Areas. Seven of the 22 emergency department hospitals in the region are also Base Station Hospitals, which provide real-time medical direction to EMS professionals responding to 9-1-1 calls in the field and assist in directing patients to their final destinations. A Trauma Center provides specialized care to patients suffering from significant traumatic injuries. Trauma Center Hospitals vary in their specific capabilities, are identified by level designations, and have defined geographic boundaries known as Trauma Catchment Areas, which determine where paramedics will transport a patient with significant traumatic injuries for specialized trauma care.

On November 17, 2020 (20), and February 9, 2021 (5), the Board of Supervisors (Board) directed the Chief Administrative Officer (CAO) to develop a plan for a comprehensive evaluation of the Base Station Hospital system and Trauma Center Catchment Area Designations. The Base Hospital System was established in 1978 and has not been comprehensively reviewed since its inception. Trauma Center Catchment Area Designations were last updated twenty years ago, and since then there has been significant population growth and traffic pattern changes. Following a competitive procurement process, Public Consulting Group (PCG) was selected in 2022 to perform this comprehensive evaluation to ensure that the region's prehospital EMS system is meeting both resident and workforce needs.

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The PCG evaluation reports provides recommendations that would modify and modernize the prehospital and Base Station Hospital system and make incremental updates to the existing Trauma Catchment Area Designations. For Base Station Hospitals, the report conveys opportunities to improve individual patient care and increase efficiencies in the prehospital setting by reducing unnecessary radio calls, instead proposing to rely on pre-approved standing medical orders, leveraging technology, and bolstering the decision-making process in the field. The report also recommends enhancements to provide real-time hospital status and allow coordinated ambulance patient destination management to address emergency department overcrowding, improve access to high-quality and consistent medical direction, and enhance quality assurance and quality improvements (QA/QI) to facilitate a system with the highest standards of emergency medical care. Specific to the Trauma Catchment Area Designation, the consultant's report found that San Diego County has a well-developed trauma care system with multiple trauma centers designated at various levels to provide comprehensive care for injured patients, but greater collaboration among the leadership of the six Trauma Center Hospitals is needed to address recurring trauma cases, utilizing upgraded technology to determine the most accessible Trauma Center Hospital, and improving the accuracy of the data being collected.

Today's actions include receiving the *Comprehensive Evaluation of the Base Station Hospital System Report* and the *Comprehensive Evaluation of Trauma Center Catchment Area Designations Report*. In addition, today's action directs County staff, in coordination with local stakeholders, to develop and pilot changes to the EMS delivery system. These enhancements will be informed by the recommendations from these reports, and will improve quality assurance and clinical improvement, access to real-time medical direction, and comprehensive, countywide EMS system coordination. A stakeholder driven process can foster a culture of collaboration, transparency, and communication that enhances the quality of care provided to the community. The LEMSA medical director has the statutory authority to implement many of the changes that come out of the stakeholder process. However, staff will return to the Board with any proposals that require action by the Board of Supervisors, and staff will also report back to the Board with an update within the next 12 months.

RECOMMENDATION(S)

CHIEF ADMINISTRATIVE OFFICER

1. Receive the *Comprehensive Evaluation of the Base Station Hospital System Report* and the *Comprehensive Evaluation of Trauma Center Catchment Area Designations Report (Reports)*.
2. Direct the Chief Administrative Officer (CAO), through the Director of San Diego County Fire, or designee, to coordinate with local stakeholders to develop changes to the Emergency Medical Services delivery system that improve patient care, safety, coordination, data gathering, quality assurance, quality improvements, and overall equity in access to emergency care, informed by recommendations from the Reports, and report

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back to the Board with an update within the next 12 months. Staff will return to the Board with any proposals that require action by the Board of Supervisors.

EQUITY IMPACT STATEMENT

A comprehensive evaluation of the region's Base Station Hospital System and Trauma Catchment Areas were conducted with an equity lens, by having diverse voices participate throughout the process, to advance an Emergency Medical Services (EMS) system that provides all communities better access to timely and appropriate health services. To ensure that all EMS stakeholders, including the public, were able to provide input for this study, the consultant conducted extensive outreach through surveys and listening sessions. In addition, a survey identified differences in how other California LEMSAs provide these key functions, as compared to the San Diego County EMS system.

SUSTAINABILITY IMPACT STATEMENT

Today's recommendations support the County's Sustainability Goal of providing just and equitable access to County services, by advancing an emergency medical services system in which all communities have access to timely and appropriate emergency medical services.

FISCAL IMPACT

There is no fiscal impact related to today's requests for the Board to receive the *Comprehensive Evaluation of the Base Station Hospital System Report* and the *Comprehensive Evaluation of Trauma Center Catchment Area Designations Report*. There will be no change in net General Fund cost and no additional staff years. There may be fiscal impacts from county staff in collaboration with community stakeholders based on recommendations from the reports. Staff will return to the Board of Supervisors for consideration and approval with funding source(s) identified.

BUSINESS IMPACT STATEMENT

N/A

ADVISORY BOARD STATEMENT

Regular process and progress updates were provided to the Board of Supervisors Emergency Medical Care Committee and its subcommittees, as well as the Emergency Medical Services (EMS) Medical Director's Advisory Committee, the Trauma Medical Audit Committee, and EMS community-based committees, including the County Paramedic Agencies Committee, the Base Hospital Nurse Coordinator's Committee, and the San Diego County Fire Chiefs Association.

BACKGROUND

The San Diego County Emergency Medical Services Office (County EMS), a division of San Diego County Fire, is the Board of Supervisors-designated Local Emergency Medical Services Agency (LEMSA), as identified by Board Policy K-12 under California Health and Safety Code (HSC) 1797.200 and is responsible for ongoing oversight of the region's Emergency Medical

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Services (EMS) system. The LEMSA is led by a qualified physician medical director, board-certified in emergency medicine. The LEMSA medical director is responsible for the establishment of effective medical direction processes and quality improvement programs, among other critical oversight functions (HSC 1798 (a)). LEMSA oversight includes the designation of Base Station Hospitals, Trauma Center Hospitals, and Trauma Catchment Areas.

On November 17, 2020 (20), and February 9, 2021 (5), the Board of Supervisors (Board) directed the Chief Administrative Officer (CAO) to develop a plan for a comprehensive evaluation of the Base Station Hospital system and Trauma Center Catchment Area Designations using a consultant. The consultant conducted extensive outreach through surveys and listening sessions, which included interviews with over 100 stakeholders; 13 in-person and virtual listening sessions; and completed on-site visits with a multitude of hospitals (including non-Base Station Hospitals) and local ambulance providers, to observe the work performed firsthand.

Base Station Hospitals

Base Station Hospitals provide real-time medical direction to Emergency Medical Technicians (EMTs) and paramedics responding to 9-1-1 calls. Mobile Intensive Care Nurses, under the direction of a physician, provide guidance to the EMTs and paramedics and assist in determining the appropriate destination for each patient. The seven hospitals currently designated as Base Station Hospitals are Tri-City Medical Center, Palomar Medical Center, Scripps Memorial Hospital La Jolla, Scripps Mercy Hospital Hillcrest, Sharp Memorial Hospital, UCSD Medical Center Hillcrest, and Sharp Grossmont Hospital. These Base Station Hospitals’ Mobile Intensive Care Nurses field radio calls from paramedics for virtually every 9-1-1 ambulance transport, 24 hours a day, 7 days a week – and respond to more than 250,000 calls annually. Each Base Station Hospital is responsible for providing these specialized nurses, as well as a Base Hospital Medical Director, a key role in quality assurance activities and other administrative support. Base Station Hospital Mobile Intensive Care Nurses, in addition to providing medical direction for complex patient care needs and patient destination recommendations, record the medical information conveyed by paramedics for tracking, quality assurance, and other uses.

Findings and Recommendations of the *Comprehensive Evaluation of the Base Station Hospital System Report*

The report found that although San Diego’s Base Station Hospital system has worked successfully in the past, opportunities exist for improved patient care, improved efficiencies in the EMS delivery system, and for more focused, high-quality EMS care in the field. In addition, opportunities exist to reduce hospital emergency department overcrowding and long patient off-load times from ambulances. Findings include:

- High volume of 9-1-1 calls, coupled with Mobile Intensive Care Nurses staffing shortages are straining Base Station Hospitals. In 2022, 86% of the quarter million paramedic radio calls did not require clinical medical direction by Base Station Hospital staff. Base Station

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Hospital contacts for real-time clinical advice are less frequent, and the remainder of these tasks could be managed through other non-clinical methods.

- The labor-intensive nature of Base Station Hospital staff recording and entering data received from long radio reports, some lasting several minutes, is largely duplicative and can contribute to paramedic patient care delays.
- Lack of coordination to optimize ambulance patient routing and load management coordination.
- Fragmented data collection and reporting, resulting in the County EMS Office not receiving all statutorily required Electronic Patient Care Reporting (ePCR) data.
- Varied responsiveness among agencies to quality assurance and quality improvement plans, making standardization and improvements to the system challenging.

The report provides the following recommendations that will enhance patient care, experience and outcomes, improve the workflow for staff in the field and at the Emergency Department, and strengthen data analysis and quality assurance:

- Improve access to real-time medical direction, increase radio availability time, and reduce strain on any single facility or prehospital agency.
- Limit Base Station radio reports to incidents that require medical direction/orders from a physician.
- Leverage technology enhancements to improve communication, ambulance traffic, and situational awareness. These enhancements may include internet-based communication tools, real-time healthcare capacity status displays, telemedicine, and other technologies to improve patient centered clinical decision making.
- Develop a core group of emergency medical physicians to provide medical direction to paramedics.
- Have all hospitals designate an EMS Liaison for communication and coordination with both the County EMS Office and EMS agencies.
- Require EMS agencies to provide the necessary ePCR data to meet the County EMS Office's Local Emergency Medical Services Information System (LEMSIS) reporting compliance requirements.
- Develop a standardized Quality Assurance/Quality Improvement Plan and routine reporting requirements to provide actionable data for prehospital care enhancements.
- Create a single Emergency Medical Command and Control Center (EMCCC) for medical direction, Mass Casualty Incidents (MCI) patient distribution, patient load leveling, patient destination guidance, and other services and explore funding options including state and federal grants, service fees, and other revenue options.

Trauma Center Hospitals and Trauma Catchment Areas

As a region, San Diego County has a robust system of emergency, specialty, and trauma medical care through its cooperating hospitals. Trauma Center Hospitals in San Diego County provide

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excellent patient care and have little variation in capabilities. Appropriate and timely treatment by the specially trained Trauma Center Hospital staff reduces the likelihood of death and permanent disability for patients. All trauma centers are identified by nationally standardized levels. Level I and II Trauma Centers have similar personnel, services, and resource requirements with the greatest difference being that Level I Trauma Centers are research and teaching facilities. San Diego's six Trauma Centers meet the Level I or Level II standards, which are the highest designations a Trauma Center Hospital can achieve. In San Diego County, this highly effective trauma system benefits from clearly defined geographic boundaries designating which trauma center will receive a severely injured ambulance patient; these are known as Trauma Catchment Areas. Factors used to determine the Trauma Catchment Area boundaries include population, projected population trends, ambulance drive time, EMS response time, and other factors, as determined by the County EMS Office. These Catchments also serve to ensure an optimal patient balance for each Trauma Center. Listed in the table below are the six (6) designated Trauma Center Hospitals in San Diego County, along with their Trauma Level.

Trauma Center Hospitals	
Hospital	Trauma Level
Palomar Medical Center Escondido	Level II
Rady Children's Hospital (The designated Countywide Pediatric Trauma Center)	Level I
Scripps Memorial Hospital - La Jolla	Level I
Scripps Mercy Hospital - Hillcrest	Level I
Sharp Memorial Hospital	Level II
UCSD Medical Center - Hillcrest	Level I

Findings and Recommendations of the *Comprehensive Evaluation of the Trauma Center Catchment Area Designations Report*

This evaluation examines the boundaries of the current Trauma Center Catchment Area Designations to ensure the even, equitable, and appropriate distribution of trauma patients to Trauma Center Hospitals. Overall, the report finds that San Diego County has a well-developed trauma care system with multiple trauma centers designated at various levels to provide comprehensive care for injured patients. These trauma centers collaborate closely with EMS agencies, the County EMS Office, community hospitals, and other healthcare providers, to ensure timely access to appropriate care for trauma patients throughout the region.

The report identified the following findings, highlighting areas to improve services and overall efficiency:

- Incomplete location information related to the origin of trauma cases complicates the accurate capture of volume data by each Trauma Catchment Area.

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- Limited data related to air ambulance transports, as reflected by the lack of air ambulance data included in the Trauma Registry and other LEMSA databases.
- In the North County area, prehospital providers commented that a trauma center outside of the designated catchment area, at times, is closer based on traffic and travel time.
- An increase of serious trauma-related incidents at the US-Mexico border has been identified by the Trauma Center Hospital staff. This increase and the associated patient destination assignments have had an impact on the Trauma Centers in the southern area of the County.

To address these challenges, the report makes the following recommendations that will improve the Trauma Center Catchment Area Designation:

- Greater collaboration among the leadership of the six (6) Trauma Center Hospitals to address trauma cases occurring at the US-Mexico border to minimize strain on any single facility.
- Use of app-based tools to improve communication between paramedic crews and receiving trauma teams. This could also assist in determining the most appropriate Trauma Center Hospital to speed transfer to hospital-based care.
- Improve overall Trauma Registry data by also capturing air ambulance transportation data to improve the use of air ambulances.
- Utilization of the latitude and longitude format when reporting trauma case locations to accurately capture data volume in the correct Trauma Catchment Area, allowing boundaries drawn for Trauma Center Hospitals to be more reflective of need.

Today's action requests the Board to receive the *Comprehensive Evaluation of the Base Station Hospital System Report* and the *Comprehensive Evaluation of Trauma Center Catchment Area Designations Report*. In addition, today's action directs County staff, in coordination with local stakeholders, to develop and pilot changes to the EMS Delivery System based on the recommendations from the reports, intended to improve quality assurance, quality improvements, medical control, and countywide comprehensive system coordination. A stakeholder driven process can foster a culture of collaboration, transparency, and communication that enhances the quality of care provided to the community. The LEMSA medical director has the statutory authority to implement many of the changes that will come out of the stakeholder process. However, staff will return to the Board with any proposals that require action by the Board of Supervisors, and staff will also report back to the Board with an update within the next 12 months.

LINKAGE TO THE COUNTY OF SAN DIEGO STRATEGIC PLAN

Today's proposed actions support the Community and Equity Strategic Initiatives of the County of San Diego's 2024-2029 Strategic Plan by addressing the provision of robust, equitable, and accessible emergency medical services throughout the region.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Andrew Strong", with a long horizontal line extending to the right.

Andrew Strong for

EBONY N. SHELTON
Chief Administrative Officer

ATTACHMENT(S)

Attachment A - Comprehensive Evaluation of the Base Station Hospital System Report
Attachment B - Comprehensive Evaluation of Trauma Center Catchment Area Designations Report