



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW





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Acknowledgments

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- American College of Surgeons Committee on Trauma
- Nevada State Division of Health
- Regional Trauma Advisory Board
- Trauma Medical Audit Committee
- University Medical Center
- Sunrise Hospital & Sunrise Children's Hospital
- St. Rose Dominican Hospitals - Siena Campus

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Southern Nevada Trauma System Review

Introduction

This Clark County Trauma Needs Assessment Review comprehensively describes the ongoing development, operation, and maintenance of the Southern Nevada Trauma System using a 5-year calendar review. Since its inception in 2005, trauma system leadership continues to make significant strides to provide a well-coordinated trauma system to serve the trauma transport and treatment of Southern Nevada residents, bordering states, and visitors each year.

The Need for a Trauma System

Injuries, intentional and unintentional, are a leading cause of death and disability in the United States each year. They generate significant social and economic expenses for medical treatment and lost victims' productivity. The recognition of the considerable impact that traumatic injury has on individuals and society has led to a greater emphasis on developing trauma care systems as an identified public health problem. Trauma systems conduct daily operations to optimize patient outcomes and readily adapt to manage an influx of injured patients.

What is a Trauma System?

A trauma system is an organized, coordinated, comprehensive injury response network of essential resources that promote injury prevention and control initiatives and provides specialized care for the injured. The system facilitates appropriate triage and transportation of trauma patients through the emergency medical services system to designated health care facilities that possess the capability, competence, and commitment to providing optimum care for trauma victims. It also promotes rehabilitation services to decrease the likelihood of long-term disability and maximize injured patients' potential to return to their prior functional capacity and reintegration into the community.

The goals of a trauma care delivery system are to:

- reduce the incidence and severity of injuries;
- improve the health outcome of those who are injured by ensuring equitable access to the most appropriate health care resources promptly;
- promote efficient, cost-effective delivery of care;
- implement performance improvement activities to ensure quality care throughout the system; and
- advocate for sufficient resources to meet the needs of the injured in the community.



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Trauma System Components

Prehospital Emergency Medical Services

The prehospital component of the trauma system is designed to provide initial assessment and management of injured patients at the scene of an emergency with safe and efficient transport to the most appropriate health care facility.

Level I

A Level I trauma center provides comprehensive care for the most severely injured patients. The required clinical resources include emergency medicine, general and subspecialty surgical, and anesthesia services. A Level I trauma center is expected to provide leadership in trauma system planning, education, and research. The center must also meet specific volume performance standards (at least 1200 patients annually). A 24-hour in-house availability with a 15-minute maximum acceptable response is required for the highest-level trauma activation.

Level II

A Level II trauma center provides comprehensive trauma care based on the environment of the region. In population-dense areas, Level II should supplement the Level I facility's clinical activity and expertise. A Level II trauma center is expected to provide initial and definitive trauma care for severely injured patients, including all the clinical services provided by a Level I trauma center except hand and microvascular surgical services. A 24-hour in-house availability with a 15-minute maximum acceptable response is required for the highest-level trauma activation.

Level III

A Level III trauma center typically serves communities without immediate access to Level I or II resources. When multiple trauma centers function within a community (e.g., metropolitan area), a Level III trauma center may be required to participate within a trauma system (see Level III- Southern Nevada Trauma System). The required resources include emergency medicine and general and orthopedic surgical services to treat and stabilize all the Center for Disease Control guidelines for trauma triage (Steps 1-4). The other subspecialties are desired but not required. Level III trauma centers then transfer injured patients that exceed the facility resources to Level I and Level II trauma centers. As such, participation in a regional trauma system is essential. A 24-hour in-house availability with a 30-minute maximum acceptable response is required for the highest-level trauma activation.

Pediatric Level I or Level II

A Pediatric Level I or Level II trauma center is a health care facility that has committed the necessary resources and expertise to meet the pediatric population's specialized needs. A pediatric trauma center is expected to assume a leadership role in the care of injured children within their community.

Rehabilitation, Data Collection, Injury Prevention, Performance Improvement

All trauma centers commit to an optimal performance that includes these four key points. The rehabilitation of injured patients reduces costs; each trauma center establishes local agreements with rehabilitation centers to provide post-trauma care. Data collected to analyze and evaluate system performance is used to improve responses, conserve resources, implement prevention strategies, and comply with reporting statutes.



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Southern Nevada Trauma System

The establishment of a Trauma System is mandated by Nevada law. The authority to plan, implement, and monitor the Southern Nevada Trauma System was delegated to the Southern Nevada District Board of Health (Board). The Board has established and adopted a comprehensive trauma system plan and regulations. As the lead regulatory agency in Clark County, the Southern Nevada Health District plays a central role in acquiring and analyzing trauma system data. Through the Office of Emergency Medical Services & Trauma System (OEMSTS), the Health District provides a continuous assessment of the trauma system. In addition, the Regional Trauma Advisory Board (RTAB) and Trauma Medical Advisory Committee (TMAC) share responsibility for interpreting the data to evaluate the system's efficiency and effectiveness. In Clark County, all trauma centers are verified by the American College of Surgeons Committee on Trauma (ACS-COT) and designated by the Nevada Division of Public and Behavioral Health (DPBS) every three years. With a population of over 700,000, the Board must participate in the designation process.

Office of Emergency Medical Services & Trauma System

OEMSTS is comprised of a Manager, Supervisor, Regional Trauma Coordinator, EMS Project/Program Coordinators, EMS Field Representatives, Senior Administrative Assistants. Additionally, the Health District contracts a licensed physician to serve as the EMS Medical Director. OEMSTS receives direction from the District Health Officer and Director of Community Health.

American College of Surgeons Committee on Trauma

ACS-COT focuses on improving injured patients' care. Their developed guidelines were developed for a verification process whereby a hospital could be evaluated to determine if all the needed criteria to function as a trauma center are met.

Optimal vs. Minimal Standard

The American College of Surgeons Committee on Trauma (ACS-COT) has developed a classification system to verify the necessary resources to provide optimal care to injured patients. It is not a ranking of medical care provided by a health care facility but the recognition of the depth of resources available within the institution. In Nevada, any healthcare facility that the ACS-COT has not verified meets a minimum standard, through state and federal industry certifications, and not an optimal standard. Nevada Administration Code (NAC) 450B.819 requires ACS-COT verification to be considered for designation.

Verification vs. Designation

Verification: A hospital verified by the ACS-COT demonstrates it meets the criteria in *Resources for Optimal Care of the Injured Patient*. This verification process requires an on-site visit by the ACS-TOS to determine if all criteria are optimally met. Any hospital seeking to be designated to perform as a Trauma Center in Clark County must be verified.

Designation: The regulatory and bureaucratic process needed by a Hospital to be designated as a Trauma Center is performed by the Nevada Division of Public and Behavioral Health of the Department of Health and Human Services. To be included in the Southern Nevada Trauma Catchment Areas, a hospital must be designated. Additionally, in Clark County, as defined by its population, a hospital seeking designation must



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obtain a letter from the Southern Nevada District Board of Health that provisionally authorizes its designation.

Clark County Verified and Designated Trauma Centers

- University Medical Center Level I and Pediatric Level II Trauma Center;
- Sunrise Hospital Level II Trauma Center;
- St. Rose Dominican Hospitals – Siena Campus Level III Trauma Center.

ACS-COT consultation or verification visits outside of regulated state and county processes do not grant a trauma center designation.

Clark County Emergency Medical Services

In Clark County, six public fire departments provide emergency medical services (EMS): Boulder City Fire Department, Clark County Fire Department, Henderson Fire Department, Las Vegas Fire & Rescue, Mesquite Fire & Rescue, and North Las Vegas Fire Department. The private franchised EMS agencies serving the area are American Medical Response, Community Ambulance, Guardian Elite Medical Services, and MedicWest Ambulance. Air ambulance services are provided by AirMed Response (fixed wing) and Mercy Air Service Inc. (rotor wing).

Level III Trauma Center – Southern Nevada Trauma System

A Level III trauma center is generally not found in an urban or suburban area where Level I and II resources exist. In consideration of the addition of a Level III trauma center to Clark County, trauma system leadership incorporated the trauma center to create a nationwide unique inclusive system. Furthermore, any subsequent hospital seeking initial designation may only apply as a Level III (NAC 450B.817). Therefore, participation as a Level III trauma center in the Southern Nevada Trauma System is supplemental to the Level I and II Trauma Centers' activity and expertise. In most occurrences, this entails providing definitive care to the less severely injured patients in the immediate area (Steps 3-4) and allowing for more severe trauma cases and the resources needed to serve them to be prioritized at a Level I and II trauma center.

Southern Nevada Trauma Catchment Areas

In the interest of facilitating the timely transportation of trauma patients from the scene of an emergency to the closest appropriate trauma center, the Office of Emergency Medical Services & Trauma System (OEMSTS) creates and determines geographic catchment areas (Appendix B). One of the Regional Trauma Advisory Board (RTAB) responsibilities is to monitor trauma patients' distribution to ensure patients are matched with the appropriate resources while providing sufficient volume to each trauma center to provide stability within the trauma system. Prehospital emergency services triage for trauma patients is based on the CDC 2011 Guidelines for field triage of injured patients.

Non-Trauma Center Hospitals

The Southern Nevada Trauma System recognizes that hospital facilities that provide emergency services contribute to its inclusive trauma system. These facilities are known as Non-Trauma Center Hospitals and provide prompt assessment, resuscitation, emergency operations, and stabilization and also arrange for transfer to a designated trauma center. Most trauma patients arrive at Non-Trauma Center Hospitals by self-delivery or by EMS provider judgment exemptions. If an injured patient meets state-defined trauma criteria, they may be transferred through inter-local agreements to a designated Trauma Center. All patients at Non-Trauma Center Hospitals that do not meet state-defined trauma criteria are treated and released.



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Clark County Non-Trauma Center Hospitals

In Clark County, the following non-trauma center hospitals have reported trauma patients and participated in the treatment of trauma patients during 2020: Boulder City Hospital, Centennial Hills Hospital, Desert Springs Hospital Center, Henderson ER at Green Valley Ranch, Henderson Hospital, Mesa View Regional Hospital, Mountain View ER at Aliante, Mountain View Hospital, North Vista Hospital, Southern Hills ER at Blue Diamond, Spring Valley ER at Blue Diamond, Spring Valley Hospital Medical Center, St. Rose Dominican Hospital (Blue Diamond, De Lina Campus, North Las Vegas, San Martin Campus, West Flamingo, West Sahara), Summerlin Hospital, Valley Hospital Medical Center.



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Leadership and Legislation

The Administrator of the Division of Public and Behavioral Health has the authority to designate a health care institution as a Level I, II, or III trauma center or Pediatric Level I or II trauma center based on a proposal that must include a verification of the American College of Surgeons classification system and approval of a district board of health in any county whose population is 700,000 or more. During the 2005 state legislative session, Nevada Revised Statute (NRS) 450B.237 was promulgated, authorizing the Southern Nevada District Board of Health to establish and adopt a comprehensive trauma system plan concerning trauma treatment in Clark County. During the 2020 state legislative session, NRS 450B.237 was altered. The overall designation process remained the same except that approval of a new Level III trauma center must come from the Nevada State Health Division's Administrator after they have conducted a comprehensive assessment of needs. Additionally, the Southern Nevada District Board of Health cannot approve the proposal unless regulations and a trauma plan are adopted. Furthermore, those plans shall include considerations of and plans for future county trauma needs, designation of new trauma centers, the impact of a new trauma center on the existing system, and the most effective way to provide trauma services.

The Health District's Regional Trauma Coordinator, as part of OEMSTS, provides administrative oversight of the Southern Nevada Trauma System. With the assistance of local trauma leaders and community stakeholders, the Southern Nevada Trauma System regulations were first adopted by the District Board of Health in May 2007. Current regulations are now being updated to reflect the recent legislative changes adopted by the passage of AB317 in 2019.

To assist the District Health Officer and OEMSTS in fulfilling the responsibilities defined in regulations, the RTAB was created. The primary mission of the RTAB is to support the District Health Officer to ensure a quality system of patient care for the victims of trauma within Southern Nevada. The trauma board makes recommendations and assists in the ongoing design, operation, evaluation, and revision of the trauma system from initial patient access to definitive patient care. The members of the RTAB include a trauma surgeon and trauma program manager from each designated trauma center; the chairman of the Health District's Emergency Medical Services Medical Advisory Board; an administrator from a non-trauma hospital; a person representing the public providers of advanced emergency care; a person representing the private franchised providers of advanced emergency care; a person representing health education and prevention services; a person representing the payors of medical benefits for the victims of trauma; and a person representing the general public. RTAB meets monthly or quarterly according to the trauma system's needs.



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Trauma System Evaluation and Performance Improvement

An essential component of any trauma system is a continuous, comprehensive, multidisciplinary, data-driven assessment process. This process monitors and evaluates the trauma system's structure and outcome measures through all phases of care. The Southern Nevada Trauma System Improvement Plan consists of three major elements: 1) internal performance improvement and patient safety program within each trauma center; 2) scheduled independent evaluations of trauma care by trauma care experts from the American College of Surgeons every three years; and quarterly trauma system review and analysis by the Trauma Medical Audit Committee; and 3) ongoing data collection, management, and analysis at the local, state and national level to ensure system effectiveness and identify trends and needs within the system.

The cornerstone of the Southern Nevada Trauma System medical review process is the Trauma Medical Audit Committee (TMAC). It is a peer review committee that meets quarterly to review, monitor, and evaluate trauma system performance and make recommendations for system improvements. The TMAC derives its authority and privilege from NRS 49.117 - 49.123; NRS 49.265; and NRS 450B.237. The members of the TMAC include the trauma medical director and program manager from each designated trauma center; the Clark County medical examiner or designee; the Health District's Regional Trauma Coordinator; a neurosurgeon; an anesthesiologist; an orthopedic surgeon; and an emergency physician not affiliated with a trauma center.

Effectively evaluating trauma system performance is contingent upon appropriate data collection, management, analysis, and reporting. NRS 450B.238 requires each designated trauma center to provide data on any person who sustains an acute injury, which has the potential of being fatal or producing major disability to the state trauma registry managed by the State Health Division, Bureau of Health Planning and Statistics. The State Trauma Registry is one source of valuable information needed to describe injured patients with an ISS greater than 15 within the Southern Nevada Trauma System.

Each designated Trauma Center also voluntarily provides data to the National Trauma Data Bank maintained by the ACS-COT and the OEMSTS. This data includes patients evaluated for trauma by the mechanism of injury and special considerations not included in the State Trauma Registry. This criterion is based on Physiologic, Anatomic, mechanism, and special considerations outlined in the Clark County EMS System Trauma Field Triage Criteria Protocol (TFTC). In addition, injury mortality data provided by the Clark County Coroner's Office is used by the TMAC to evaluate trauma system resource utilization and planning for improved system effectiveness and efficiency.



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Purpose of Clark County Trauma Needs Assessment Review

To provide a data-driven assessment of the Southern Nevada Trauma System, the Regional Trauma Coordinator produces the annual Clark County Trauma Needs Assessment Review. Where able, a 5-year data-set will be used to present the most current information available. All sources are chosen to provide an overview of injury and trauma system utilization at the local level. As defined in NRS, the District Board of Health shall consider plans for future county trauma needs, designation of new trauma centers, and the most effective way to provide trauma services. This assessment is intended as a tool for the Southern Nevada Trauma System's subject-matter experts to review the overall system to recognize trends and provide decision-makers with informed guidance.

Data Sources

The Center for Business and Economic Research University of Nevada, Las Vegas

Clark County Department of Comprehensive Planning

Nevada State Trauma Registry

The Nevada Trauma registry is a depository of trauma incident data from across the state. All hospitals within Nevada are required to submit data quarterly. To be classified as a trauma, a series of criteria identified by the American College of Surgeons must be met. For an incident to be classified as a trauma, the patient must have:

- At least one diagnostic code for injury:
 - ICD-10 code from the following ranges: S00-S99 (7th Character Modifier A, B, or C), T07, T14, T20-T28 (7th Character modifier A), T30-32, and T79.A1-T79.A9 (7th character modifier A) and the patient must have:
- At least one of the following criteria:
 - Patient was in the hospital for at least 24 hours due to injuries;
 - Injury resulted in death; or
 - Patient was transferred between hospitals using EMS or air ambulance.



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Trauma Field Triage Criteria (TFTC) 2020 Data

The three trauma centers in Clark County submit data to the OEMSTS related to patients transported according to the Health District's EMS Operations Trauma Field Triage Criteria Protocol criteria. The TFTC algorithm is a triage decision scheme developed by the American College of Surgeons Committee on Trauma.

Prehospital professionals are trained to perform a physical assessment of trauma patients and recognize specific injuries and injury mechanisms that are likely to cause severe injury. The data, verified through First Watch, includes:

- day and time;
- address with longitude and latitude coordinates;
- injury code;
- (5) time-stamps;
- Transport destinations;
- out-of-area.

Patients are transported to area trauma centers based on these criteria:

Step 1 (Physiologic): A trauma patient whose injury is so severe that their vital signs or level of consciousness are abnormal.

Step 2 (Anatomic): A trauma patient whose vital signs and level of consciousness are within normal limits but have sustained an obvious serious injury; for example, an open or depressed skull fracture, pelvic fracture, or paralysis.

Step 3 (Mechanism): A trauma patient whose vital signs and level of consciousness are within normal limits. They do not appear to have an obvious serious injury. Still, they have experienced a high energy impact to the body that may have caused a severe injury that is not immediately obvious.

Step 4 (Special Considerations): A trauma patient whose circumstances merit special considerations, for example, older adults, children, anticoagulants/bleeding disorders, and pregnancy.

Limitations

One of the most critical limitations of the trauma system report is the lack of consistency in trauma data collection at the state and local levels. Variability was noted in disease classification coding, case definitions, and inclusion criteria among the organizations that collect injury data. There is also a lack of data from non-trauma hospitals for Step 3 and Step 4 within the state trauma registry. These unreported trauma cases are essential to calculate overtriage and undertriage as an ACS-COT defined assessment measure. The data reported are not representative of all trauma cases in the system.

It is the desire of the OEMSTS and members of the RTAB to be evidence-based in making decisions regarding future planning, development, and modification of the Southern Nevada Trauma System. The stakeholders are working diligently to improve needs assessment activities specific to Clark County.



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The Trauma System During COVID-19

The trauma system functioned as intended during the COVID-19 pandemic without interruption of services. Complications arose when ACS-COT was unable to provide in-person verification visits. This required the ACS-COT to develop web-based verification visits. Siena Level III Trauma Center was reverified as part of the pilot web-based verification process. Sunrise Level II Trauma Center was reverified via the web-based verification process. All three trauma centers were granted one-year extensions to their designations by the Administrator of the Nevada Department of Health and Human Services due to the ACS-COT delays.

During the COVID-19, trauma case numbers and type relatively remained the same, though initially, there appeared to be an increase in non-accidental trauma (e.g., stabbings). The increase was attributed to a decrease in other injuries (e.g., automobile accidents) that subsequently raised the percentage of certain injuries without an actual increase in cases.

Plans for the Future

The trauma system's future evolution depends on a reliable surveillance system to monitor trends, identify opportunities for improvement, and provide valuable information to health care leaders, emergency managers, and policy-makers. Access to quality data contributes to the accurate assessment of current resources and assists in developing comprehensive, evidence-based, and integrated strategic plans to promote effective and efficient emergency medical care for injured patients.

The OEMSTS, during 2021, will be focused on the following:

- Update of county trauma regulations per Nevada Revised Statutes (NRS)
- Review of Trauma System Plan following county regulation update
- Inclusion of trauma burn data to the Clark County Trauma Registry
- Review of trauma system data

The Office of Emergency Medical System & Trauma System appreciates our community partners' contributions and support in maintaining the Southern Nevada Trauma System and has committed to building on the achievements to date.



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Population Data

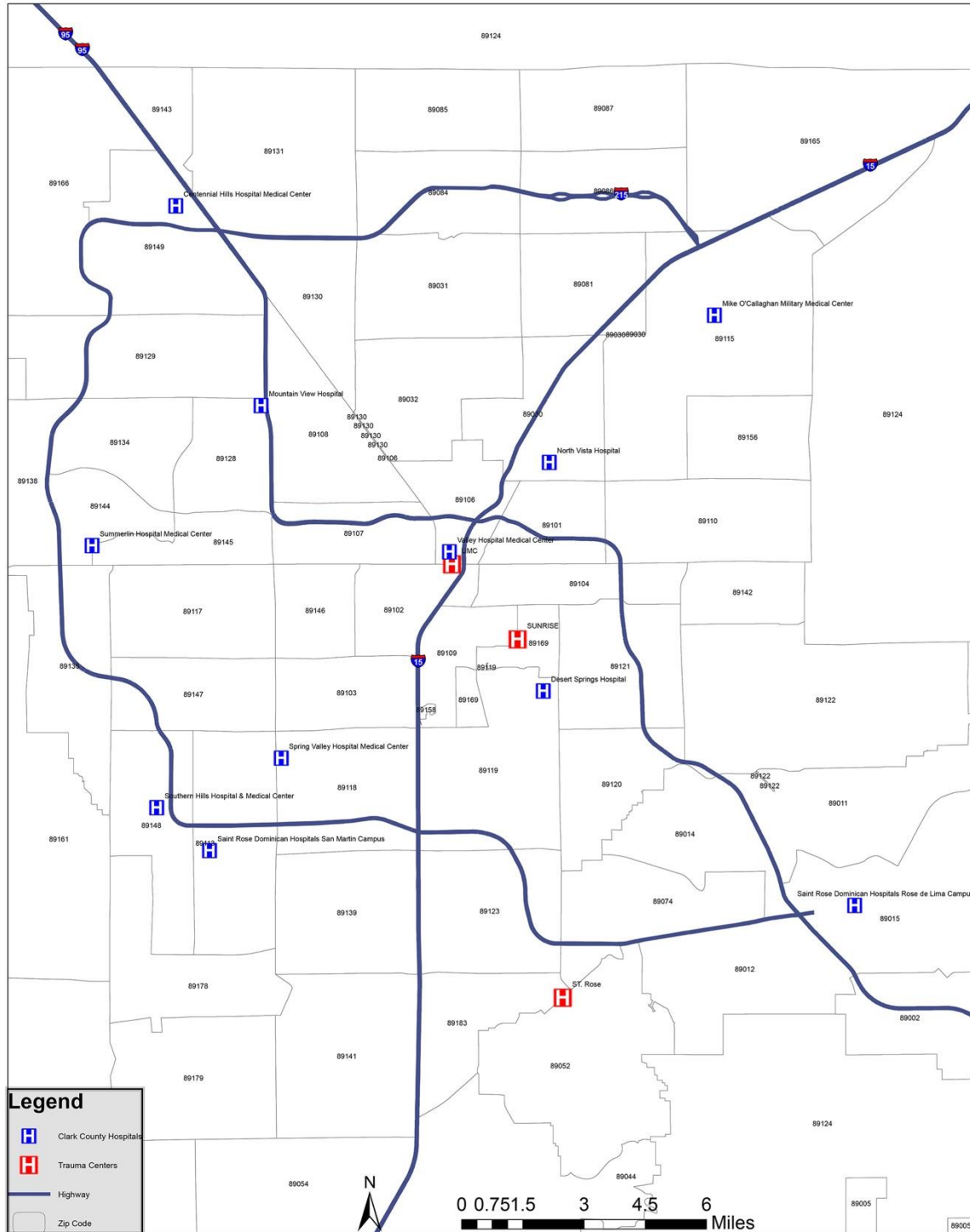
Intent

The intent of including population data is to examine if there has been statistically significant population growth or decline and determine if population changes will impact patient care. The data is populated to provide evidence of where growth or decline is happening, how fast, and if it is expected to continue. While population changes are not always associated with increased or decreased trauma volumes, the change needs to be identified to consider its impact. When a population change occurs, it may affect but is not limited to roadways, infrastructure, emergency and healthcare providers, and socioeconomic factors.



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Clark County ZIP Code Map





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Clark County Population Forecast: 2020-2060

Clark County Population Forecast: 2020 – 2060			
Year	Population Forecast	Change in Population Forecast	Growth in Population (Percent)
2010	1,951,269*	-55,078	-2.7%
2011	1,966,630**	15,361	0.8%
2012	2,008,654**	42,024	2.1%
2013	2,062,253**	53,599	2.7%
2014	2,102,238**	39,985	2.0%
2015	2,147,641**	45,403	2.2%
2016	2,205,207**	57,566	2.7%
2017	2,248,390**	43,183	2.0%
2018	2,284,616**	36,226	1.6%
2019	2,325,798**	41,182	1.8%
2020	2,341,000	15,202	0.7%
2021	2,361,000	20,000	0.9%
2022	2,403,000	42,000	1.8%
2023	2,458,000	55,000	2.3%
2024	2,509,000	51,000	2.1%
2025	2,555,000	46,000	1.8%
2026	2,598,000	43,000	1.7%
2027	2,636,000	38,000	1.5%
2028	2,671,000	35,000	1.3%
2029	2,702,000	31,000	1.2%
2030	2,731,000	29,000	1.1%
2031	2,757,000	26,000	1.0%
2032	2,781,000	24,000	0.9%
2033	2,804,000	23,000	0.8%
2034	2,826,000	22,000	0.8%
2035	2,847,000	21,000	0.7%
2036	2,866,000	19,000	0.7%
2037	2,885,000	19,000	0.7%
2038	2,903,000	18,000	0.6%
2039	2,920,000	17,000	0.6%
2040	2,936,000	16,000	0.5%
2041	2,952,000	16,000	0.5%
2042	2,966,000	14,000	0.5%
2043	2,981,000	15,000	0.5%
2044	2,994,000	13,000	0.4%
2045	3,008,000	14,000	0.5%
2046	3,020,000	12,000	0.4%
2047	3,033,000	13,000	0.4%
2048	3,045,000	12,000	0.4%



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(Cont.) Clark County Population Forecast: 2020-2060

2049	3,056,000	11,000	0.4%
2050	3,067,000	11,000	0.4%
2051	3,078,000	11,000	0.4%
2052	3,089,000	11,000	0.4%
2053	3,099,000	10,000	0.3%
2054	3,109,000	10,000	0.3%
2055	3,119,000	10,000	0.3%
2056	3,129,000	10,000	0.3%
2057	3,137,000	8,000	0.3%
2058	3,146,000	9,000	0.3%
2059	3,153,000	7,000	0.2%
2060	3,161,000	8,000	0.3%

*2010 U.S. Census.

** SNRPC consensus population estimate.

Source: The Center for Business and Economic Research University of Nevada, Las Vegas

Note: The average annual forecasted growth rate is 0.8 percent.



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Clark County Historical Population by Zip Code, 2015-2020

Zip	2020	2019	2018	2017	2016	2015	Absolute Growth 2015-2020	Growth Rate (%) 2015-2020
89002	38,425	37,804	36,793	36,154	35,209	34,626	3,799	10.97%
89004	303	308	315	307	302	288	15	5.21%
89005	16,505	16,398	16,104	16,508	16,570	16,011	494	3.09%
89007	1,068	1,074	1,064	1,067	1,114	1,111	-43	-3.87%
89011	37,424	34,521	31,074	29,387	27,640	25,405	12,019	47.31%
89012	36,607	36,360	36,374	36,159	35,193	33,843	2,764	8.17%
89014	42,773	42,753	42,471	41,767	41,629	41,137	1,636	3.98%
89015	42,658	42,205	42,528	42,266	41,963	41,871	787	1.88%
89018	1,353	1,300	1,153	1,294	1,280	1,251	102	8.15%
89019	2,908	2,838	2,786	2,784	2,748	2,715	193	7.11%
89021	3,610	3,544	3,554	3,240	3,151	3,090	520	16.83%
89025	1,453	1,449	1,452	1,371	1,393	1,380	73	5.29%
89027	21,955	21,020	20,158	18,994	18,256	17,471	4,484	25.67%
89029	10,931	10,515	10,538	10,289	9,922	9,686	1,245	12.85%
89030	56,289	56,328	54,973	54,953	54,445	53,220	3,069	5.77%
89031	73,842	72,506	71,137	70,384	69,607	67,887	5,955	8.77%
89032	48,263	47,941	46,542	46,124	45,910	45,330	2,933	6.47%
89034	3,601	3,117	2,707	2,344	2,070	1,829	1,772	96.88%
89039	231	227	206	206	204	200	31	15.50%
89040	4,023	3,922	3,776	4,045	3,933	3,871	152	3.93%
89044	27,455	25,971	23,420	21,325	19,653	18,373	9,082	49.43%
89046	437	424	406	405	394	382	55	14.40%
89052	62,576	60,356	58,648	57,998	57,421	55,337	7,239	13.08%
89054	102	102	102	102	102	101	1	0.99%
89074	55,749	54,863	55,455	55,163	52,803	51,807	3,942	7.61%
89081	39,622	38,840	38,540	37,600	35,806	34,473	5,149	14.94%
89084	32,752	29,726	28,263	27,434	26,499	25,213	7,539	29.90%
89085	3,671	3,627	3,747	3,747	3,710	3,631	40	1.10%
89086	6,679	6,037	5,103	5,103	5,085	4,977	1,702	34.20%
89101	45,257	44,179	41,672	41,868	41,523	41,310	3,947	9.55%
89102	41,080	40,100	38,181	36,838	36,476	36,475	4,605	12.63%
89103	51,624	50,396	49,618	49,626	49,128	48,090	3,534	7.35%
89104	39,826	39,691	37,032	37,046	36,656	36,186	3,640	10.06%
89106	30,767	30,087	26,751	27,058	27,122	27,119	3,648	13.45%
89107	39,331	39,340	40,580	40,580	40,562	39,955	-624	-1.56%
89108	79,111	78,900	80,869	80,572	79,599	77,884	1,227	1.58%
89109	6,608	6,464	5,539	5,539	5,484	6,422	186	2.90%
89110	80,441	80,581	79,077	78,851	78,054	77,820	2,621	3.37%
89113	34,803	33,936	31,853	30,881	29,114	24,334	10,469	43.02%
89115	77,533	75,243	74,336	73,292	72,044	70,805	6,728	9.50%
89117	57,174	57,184	58,913	58,915	58,818	57,139	35	0.06%



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

(Cont.) Clark County Historical Population by Zip Code, 2015-2020

Zip	2020	2019	2018	2017	2016	2015	Absolute Growth 2015-2020	Growth Rate (%) 2015-2020
89118	27,433	26,417	25,884	25,293	25,717	25,666	1,767	6.88%
89119	51,001	49,860	49,614	49,615	47,828	50,225	776	1.55%
89120	26,647	26,026	24,506	24,371	24,341	24,272	2,375	9.78%
89121	69,532	69,543	72,173	72,155	69,858	68,383	1,149	1.68%
89122	56,994	56,498	55,750	55,227	54,348	52,362	4,632	8.85%
89123	63,176	62,305	64,061	63,914	63,255	62,927	249	0.40%
89124	6,891	7,202	7,169	7,573	7,760	7,426	-535	-7.20%
89128	39,749	39,753	39,379	39,379	39,061	38,237	1,512	3.95%
89129	55,755	54,566	56,848	56,646	56,533	55,619	136	0.24%
89130	32,836	32,325	33,556	33,443	33,327	33,304	-468	-1.41%
89131	50,474	50,176	49,455	48,902	48,165	47,551	2,923	6.15%
89134	25,486	25,486	25,298	25,298	25,365	25,365	121	0.48%
89135	33,828	32,617	32,316	31,224	30,515	28,654	5,174	18.06%
89138	22,074	20,001	18,748	17,296	16,103	14,582	7,492	51.38%
89139	44,127	42,064	41,653	40,705	39,085	36,936	7,191	19.47%
89141	43,865	40,006	38,678	32,782	31,808	29,661	14,204	47.89%
89142	36,888	36,391	37,609	37,118	36,891	36,584	304	0.83%
89143	13,409	13,406	14,658	14,658	14,652	14,365	-956	-6.66%
89144	20,160	20,162	19,824	19,824	19,641	19,225	935	4.86%
89145	28,594	28,481	28,171	28,164	27,885	27,095	1,499	5.53%
89146	20,057	19,918	19,739	19,745	19,747	19,462	595	3.06%
89147	60,934	60,183	60,349	59,476	58,972	56,476	4,458	7.89%
89148	71,877	68,749	66,931	62,538	57,723	50,735	21,142	41.67%
89149	44,504	43,739	41,365	40,550	38,959	36,667	7,837	21.37%
89156	31,508	31,514	30,418	30,379	30,081	29,227	2,281	7.80%
89158	1,549	1,543	0	0	802	799	750	93.87%
89161	502	502	506	471	478	469	33	7.04%
89166	20,957	19,253	17,830	16,794	15,534	14,170	6,787	47.90%
89169	28,273	27,047	24,946	24,946	24,708	26,053	2,220	8.52%
89178	40,314	38,514	35,355	34,218	32,812	30,617	9,697	31.67%
89179	11,688	11,422	9,740	9,325	8,619	7,458	4,230	56.72%
89183	38,786	37,955	38,275	36,777	36,041	37,011	1,775	4.80%
Total	2,376,688	2,325,798	2,284,616	2,248,390	2,205,207	2,147,641	229,047	10.67%

Clark County Department of Comprehensive Planning

Source: Southern Nevada Consensus Population Estimate, August - Roll Close 2020



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

SNHD Trauma Field Triage Criteria (TFTC) Data

Intent

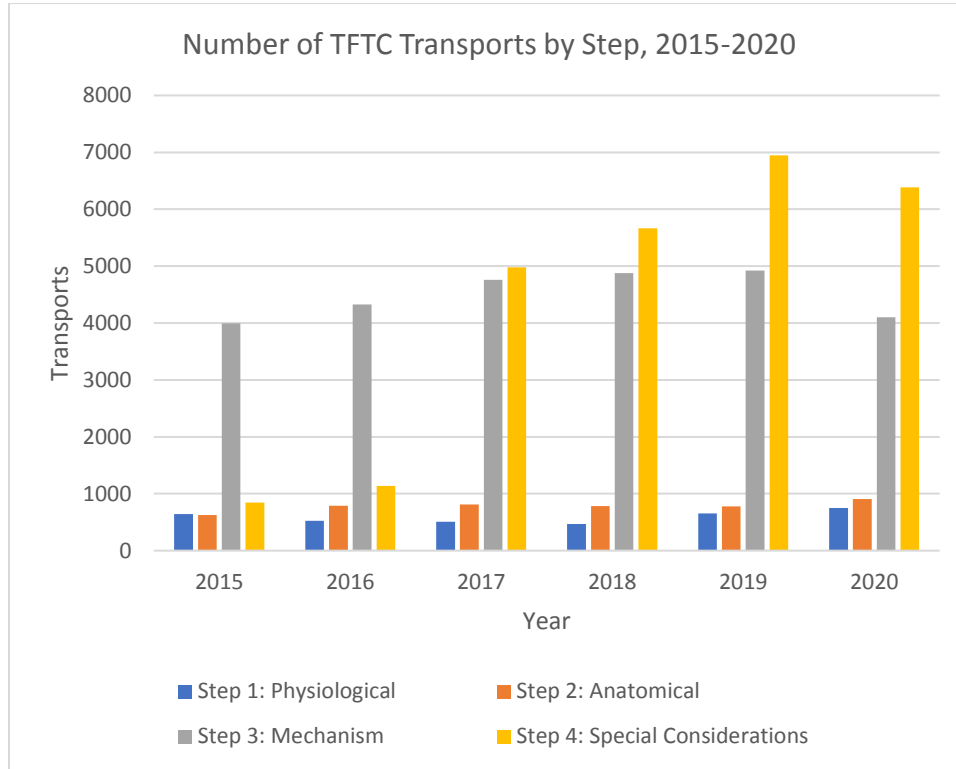
The intent of including TFTC data is to examine and determine the number of reported trauma cases at all designated Trauma Centers in Clark County. This data can then be used to analyze capacity, determine unmet needs, identify negative outcomes, and recognize barriers to access healthcare. TFTC data is abstracted by trained data extractors to be reported, compiled, verified, and generated by a collaborative effort between designated trauma centers and the Office of Emergency Medical Services and Trauma System (OEMSTS). This data is separate from the data criteria required and submitted to the Nevada State Trauma Registry. All data points include a date, time, location, injury code, transporting agency, and receiving facility. Current Clark County TFTC is guidance provided by the CDC modified in 2018 by the Medical Advisory Board.

Appendix A: Trauma Field Triage Criteria



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Number of TFTC Transports by Step, 2015-2020



Number of TFTC Transports by Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
Step 1: Physiologic	645	522	509	466	655	750
Step 2: Anatomic	625	787	811	782	779	904
Step 3: Mechanism	3992	4324	4761	4879	4921	4101
Step 4: Special Considerations	847	1137	4979	5663	6946	6383
All	6109	6770	11060	11793	13301	12172

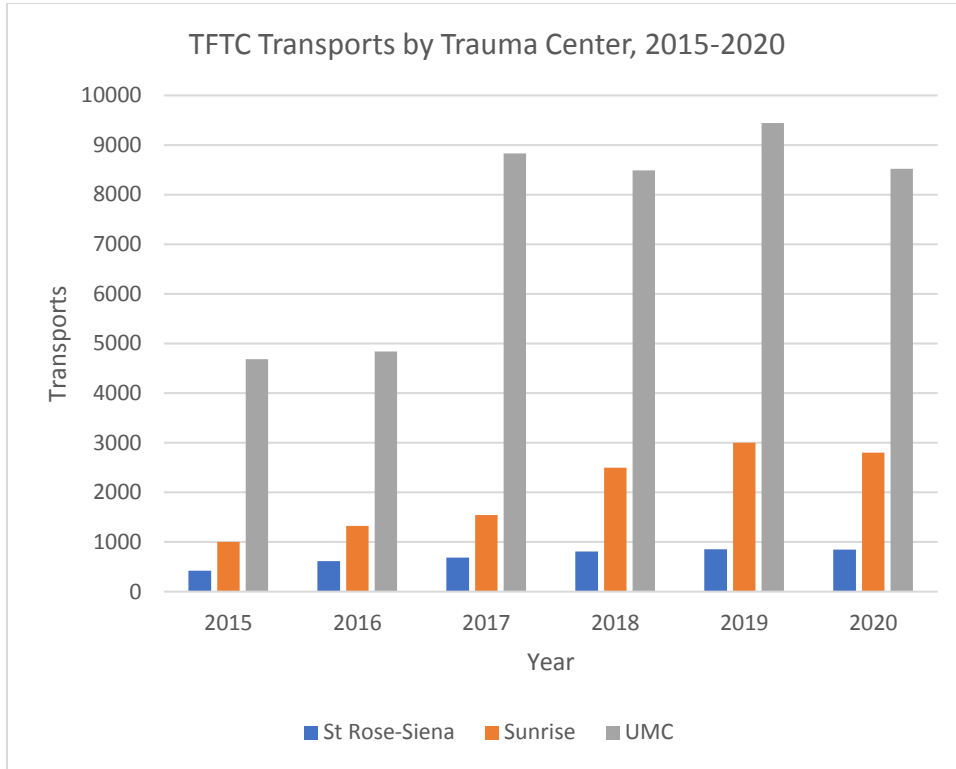
Source: SNHD TFTC Data

Note: The total for all steps in 2018 includes 3 transports that were not classified. The total for all steps in 2020 includes 34 transports that were not classified. Includes all TFTC transports in the Southern Nevada Trauma System.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Transports by Trauma Center, 2015-2020



TFTC Incidents by Trauma Center, 2015-2020						
	2015	2016	2017	2018	2019	2020
St Rose-Siena	421	612	683	810	853	844
Sunrise	1001	1322	1545	2496	3003	2803
UMC	4687	4836	8832	8487	9445	8522
Total	6109	6770	11060	11793	13301	12169

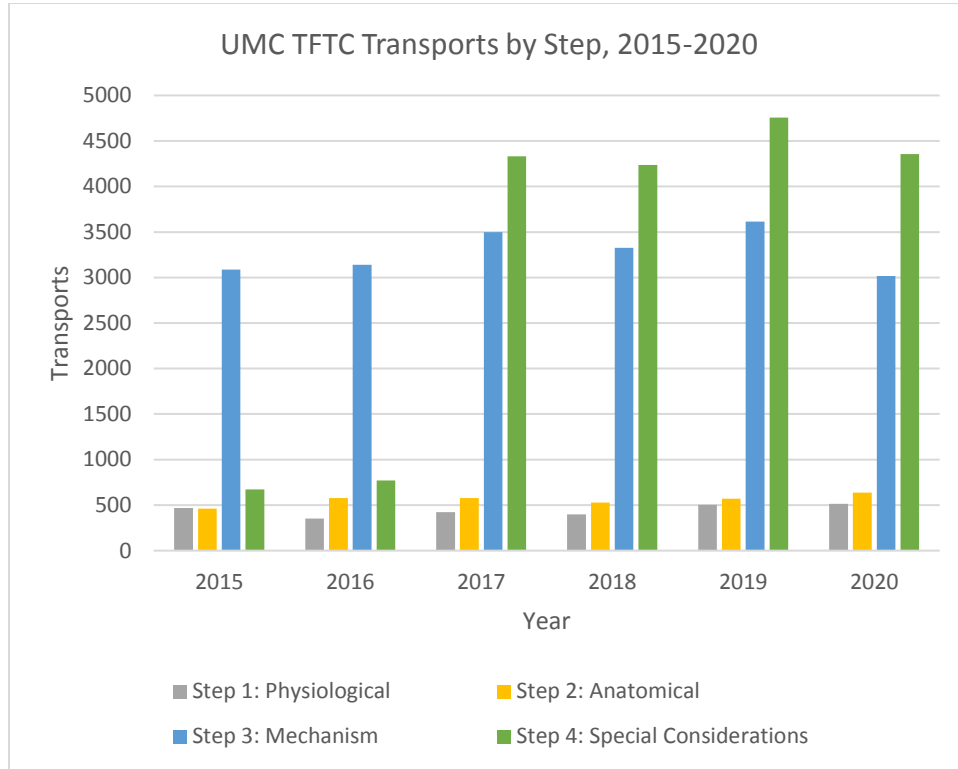
Source: SNHD TFTC Data

Note: Includes all TFTC transports in the Southern Nevada Trauma System. The total in 2020 includes 3 transports that were not classified.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

UMC TFTC Transports by Step, 2015-2020

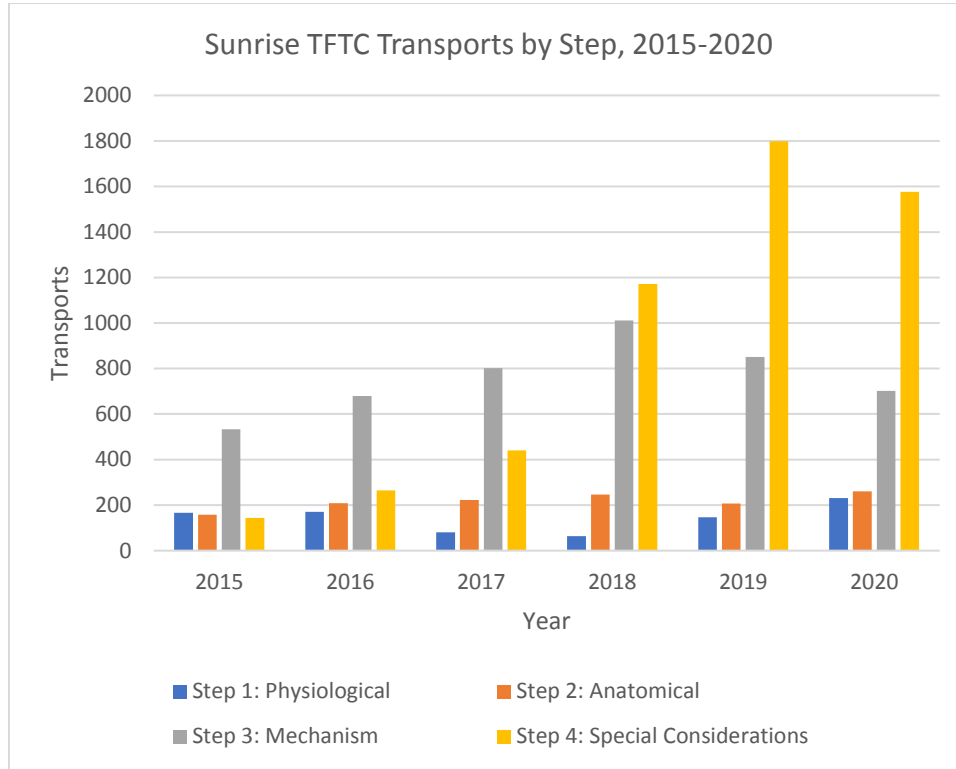


UMC TFTC Transports by Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
Step 1: Physiologic	468	351	424	398	505	513
Step 2: Anatomic	461	576	576	529	569	637
Step 3: Mechanism	3086	3138	3499	3325	3613	3016
Step 4: Special Considerations	672	771	4333	4235	4758	4356
Total	4687	4836	8832	8487	9445	8522
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Sunrise TFTC Transports by Step, 2015-2020

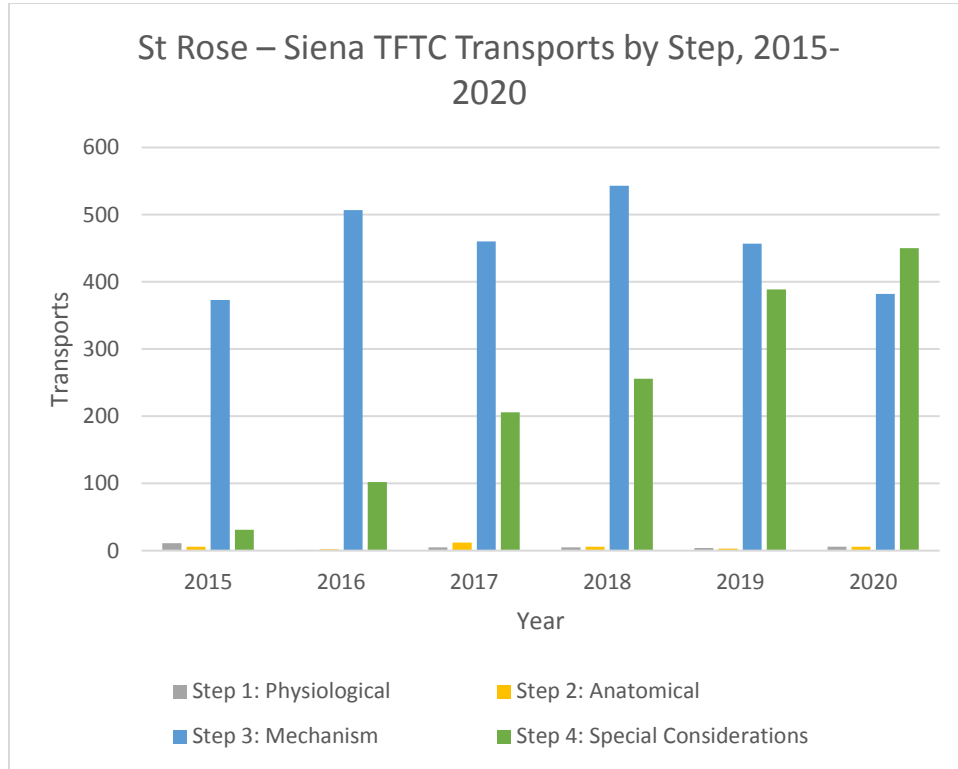


Sunrise TFTC Transports by Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
Step 1: Physiologic	166	170	80	63	146	231
Step 2: Anatomic	158	209	223	247	207	261
Step 3: Mechanism	533	679	802	1011	851	702
Step 4: Special Considerations	144	264	440	1172	1799	1577
Total	1001	1322	1545	2496	3003	2803
<i>Source: SNHD TFTC Data</i>						
<i>Note: Sunrise includes 3 unclassified steps in 2018 and 32 unclassified steps in 2020. Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

St. Rose – Siena TFTC Transports by Step, 2015-2020

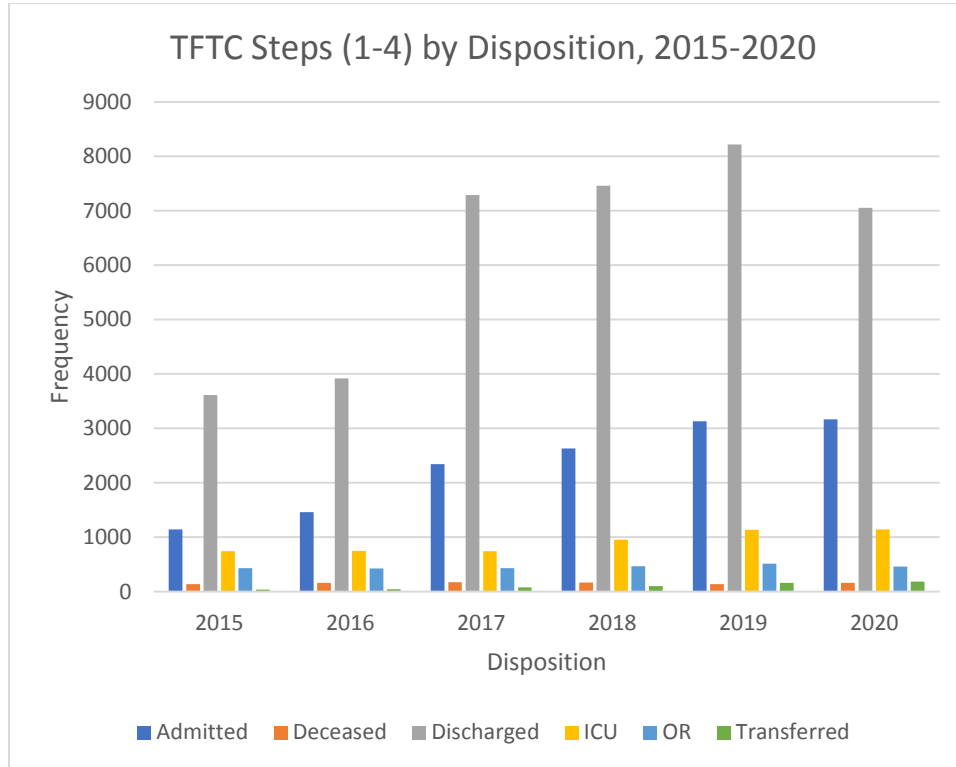


St. Rose – Siena TFTC Transports by Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
Step 1: Physiologic	11	1	5	5	4	6
Step 2: Anatomic	6	2	12	6	3	6
Step 3: Mechanism	373	507	460	543	457	382
Step 4: Special Considerations	31	102	206	256	389	450
Total	421	612	683	810	853	844
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Steps (1-4) by Disposition, 2015-2020



TFTC Steps (1-4) by Disposition, 2015-2020						
	2015	2016	2017	2018	2019	2020
Admitted	1141	1461	2341	2633	3129	3166
Deceased	135	162	172	166	137	161
Discharged	3616	3918	7291	7461	8218	7052
ICU	744	750	745	953	1139	1144
OR	434	427	431	468	516	460
Transferred	38	44	80	104	158	184
Total	6108	6762	11060	11785	13297	12168
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a Documented Disposition</i>						
<i>Note: Missing 32 Frequencies</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Steps (1-4) by Disposition & Step, 2015-2020

TFTC Steps (1-4) by Disposition & Step, 2015-2020		2015	2016	2017	2018	2019	2020
Step 1: Physiological	Admitted	70	73	118	91	129	171
	Deceased	115	92	80	84	86	96
	Discharged	83	58	100	56	106	125
	ICU	282	234	171	190	265	291
	OR	89	64	38	41	67	66
	Transferred	6	0	2	4	2	1
Step 2: Anatomical	Admitted	115	168	225	178	167	208
	Deceased	8	36	45	46	25	47
	Discharged	250	316	305	264	278	318
	ICU	69	82	89	101	112	118
	OR	180	184	144	190	196	209
	Transferred	3	0	3	3	1	4
Step 3: Mechanism	Admitted	696	859	938	919	916	777
	Deceased	9	29	36	30	21	11
	Discharged	2822	2957	3352	3400	3485	2865
	ICU	306	318	286	358	342	326
	OR	132	133	120	131	115	88
	Transferred	27	25	29	41	42	36
Step 4: Special Considerations	Admitted	260	361	1060	1445	1917	1998
	Deceased	3	5	11	6	5	6
	Discharged	461	587	3534	3738	4349	3732
	ICU	87	116	199	304	420	406
	OR	33	46	129	106	138	96
	Transferred	2	19	46	56	113	143
Total		6108	6762	11060	11785	13297	12170
<i>Source: SNHD TFTC Data</i>							
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a Documented Disposition</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Transport Times

Intent

The intent of analyzing Trauma Field Triage Criteria (TFTC) transport times is to evaluate patient transport time to identify if a barrier exists to the prompt treatment of trauma. The goal of a trauma system is to get the right patient the right care in the right place at the right time. Prompt trauma treatment may shorten the recovery period and return a patient to pre-accident functionality. Patients transported by EMS providers to trauma centers must satisfy TFTC. These patients vary in the severity of the mechanisms of injury. The less severe, which represent a larger number of patients, are awake, alert, and have normal vital signs. While they appear less injured, some patients have significant, often occult injuries. Most will be discharged home after evaluation, but some require life-saving interventions identified by expedited resources available at trauma centers. There are no established or scientifically defined optimal transport times. Therefore, for Clark County, transport times are provided to subject-matter-experts to allow for analysis based on, but not limited to, geographic layout and infrastructure for the community's needs. For reference, the transport times of 15, 20, and 25 minutes were chosen as a baseline and represent the point in time a trauma leaves the injury scene and arrives at the trauma center. Several points must be considered when interpreting these transport times, many of which are subjective and unique to Clark County.

Appendix B: Southern Nevada Trauma Catchment Areas



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Median Transport Time and Step (1-4), 2015-2020

Median Transport Time by Step (1-4), 2015-2020		Year					
		2015	2016	2017	2018	2019	2020
Step 1: Physiologic	N	600	489	475	433	606	687
	Median (Minutes)	12m 24s	12m 0s	13m 12s	12m 48s	12m 36s	13m 0s
Step 2: Anatomic	N	606	762	784	758	732	863
	Median (Minutes)	11m 48s	12m 12s	13m 12s	12m 36s	12m 0s	11m 48s
Step 3: Mechanism	N	3727	4072	4531	4684	4654	3871
	Median (Minutes)	15m 36s	15m 42s	15m 48s	16m 24s	15m 48s	15m 12s
Step 4: Special Considerations	N	815	1101	4886	5588	6812	6220
	Median (Minutes)	15m 0s	15m 36s	16m 12s	16m 24s	15m 24s	14m 48s

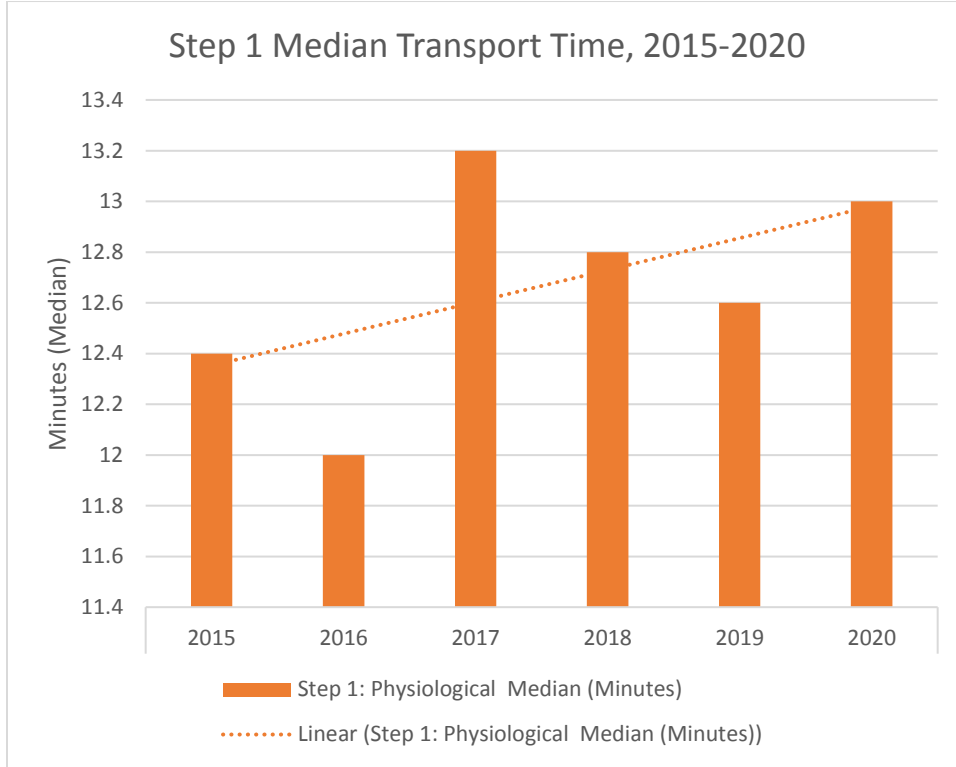
Source: SNHD TFTC Data

Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented in SNHD Trauma Field Triage Criteria (TFTC) Data.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Step 1 Median Transport Time, 2015-2020

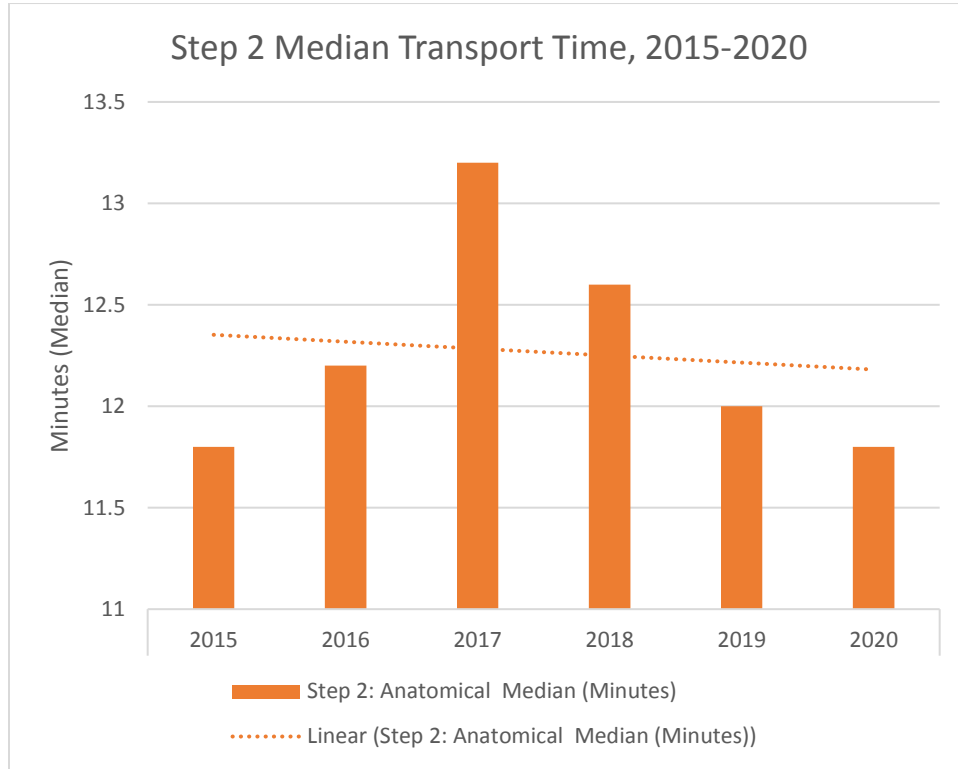


Step 1 Median Transport Time, 2015-2020		Year					
		2015	2016	2017	2018	2019	2020
Step 1: Physiologic	N	600	489	475	433	606	687
	Median (Minutes)	12m 24s	12m 0s	13m 12s	12m 48s	12m 36s	13m 0s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented on pages 21-27.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Step 2 Median Transport Time, 2015-2020

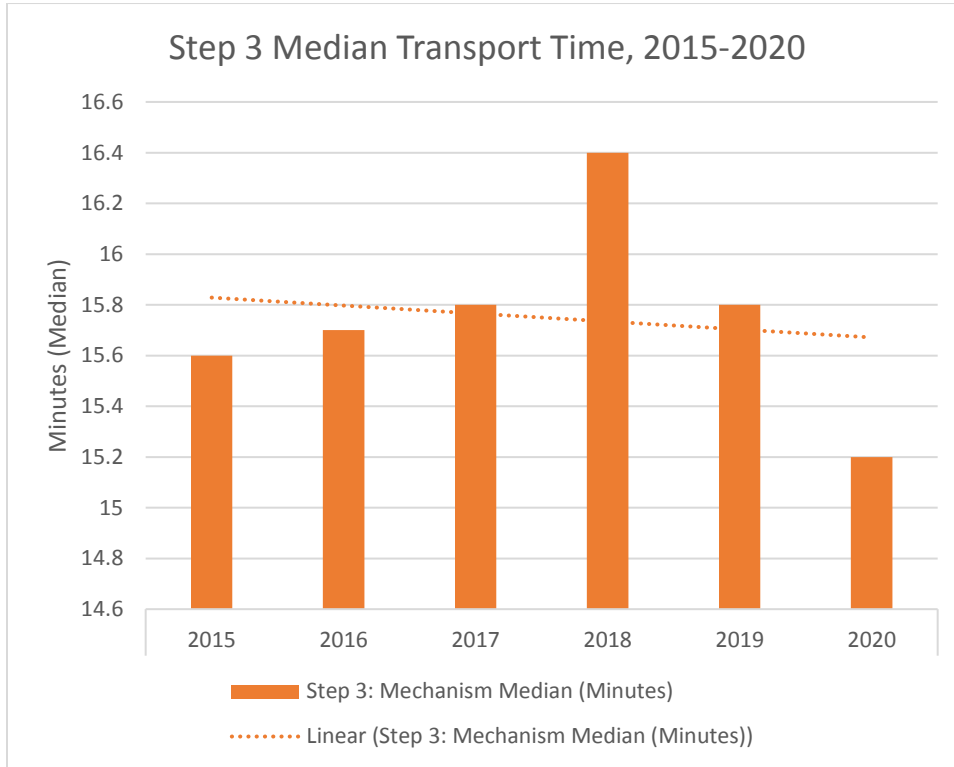


Step 2 Median Transport Time, 2015-2020		Year					
		2015	2016	2017	2018	2019	2020
Step 2: Anatomic	N	606	762	784	758	732	863
	Median (Minutes)	11m 48s	12m 12s	13m 12s	12m 36s	12m 0s	11m 48s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented on pages 21-27.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Step 3 Median Transport Time, 2015-2020

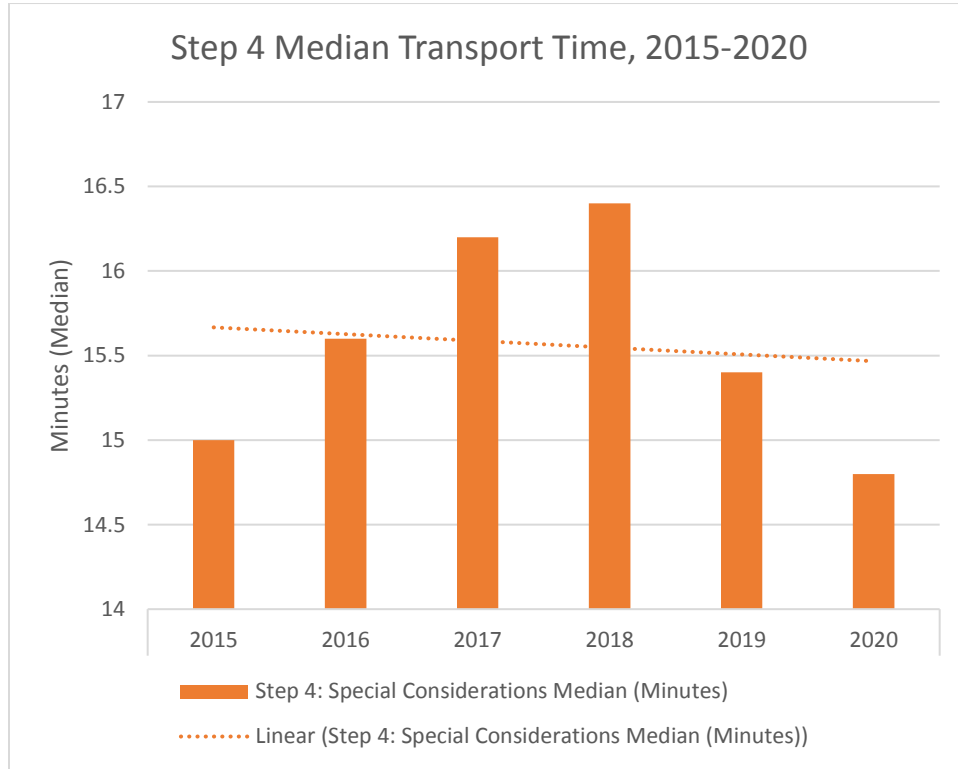


Step 3 Median Transport Time, 2015-2020		Year					
		2015	2016	2017	2018	2019	2020
Step 3: Mechanism	N	3727	4072	4531	4684	4654	3871
	Median (Minutes)	15m 36s	15m 42s	15m 48s	16m 24s	15m 48s	15m 12s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented in Section A, 1-7.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Step 4 Median Transport Time, 2015-2020

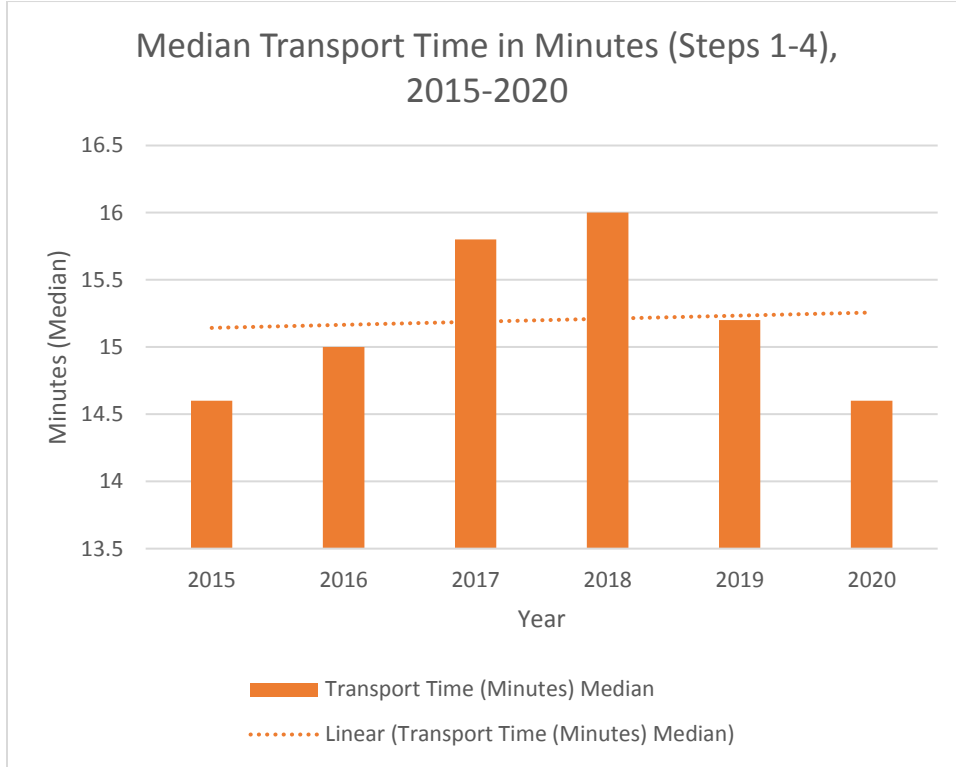


Step 4 Median Transport Time, 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Step 4: Special Considerations	N	815	1101	4886	5588	6812	6220
	Median (Minutes)	15m 0s	15m 36s	16m 12s	16m 24s	15m 24s	14m 48s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented in Section A, 1-7.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Median Transport Time in Minutes (Steps 1-4), 2015-2020



Median Transport Time in Minutes (Steps 1-4), 2015-2020							
		2015	2016	2017	2018	2019	2020
Transport Time (Minutes)	N	5748	6424	10676	11466	12804	11653
	Median	14m 36s	15m 0s	15m 48s	16m 0s	15m 12s	14m 36s
Source: SNHD TFTC Data							
Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. Since the step totals only include transport times greater than 0 seconds, the step totals are different than the totals presented in Section A, 1-7.							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County Median Transport Time by Step (1-4), 2015-2020

Clark County Median Transport Time by Step (1-4), 2015-2020		Year					
		2015	2016	2017	2018	2019	2020
Step 1: Physiologic	N	502	382	416	385	504	591
	Median (Minutes)	12m 54s	12m 48s	13m 0s	12m 48s	13m 24s	13m 48s
Step 2: Anatomic	N	525	629	631	668	631	718
	Median (Minutes)	12m 24s	13m 0s	14m 36s	13m 12s	12m 36s	12m 42s
Step 3: Mechanism	N	3331	3494	3986	4093	4065	3507
	Median (Minutes)	15m 48s	16m 12s	16m 24s	16m 48s	16m 12s	15m 24s
Step 4: Special Considerations	N	697	935	4370	4840	5730	5430
	Median (Minutes)	15m 36s	16m 24s	16m 24s	16m 48s	16m 0s	15m 24s

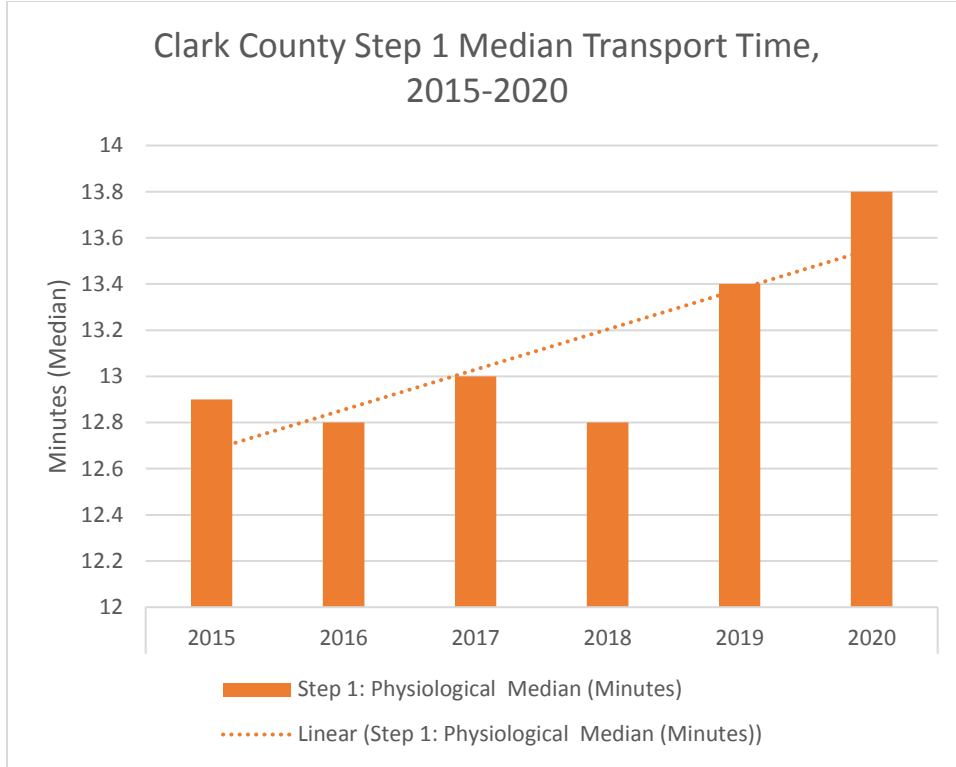
Source: SNHD TFTC Data

Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County Step 1 Median Transport Time, 2015-2020

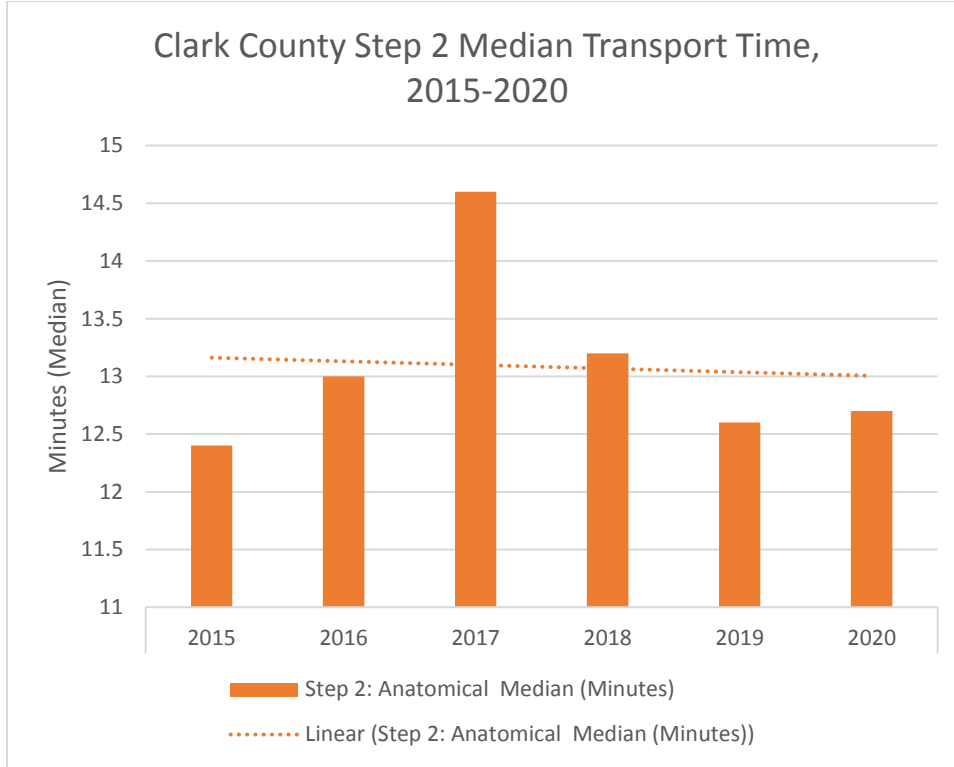


Clark County Step 1 Median Transport Time, 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Step 1: Physiologic	N	502	382	416	385	504	591
	Median (Minutes)	12m 54s	12m 48s	13m 0s	12m 48s	13m 24s	13m 48s
<i>Source: SNHD TFTC Data</i>							
<p><i>Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.</i></p>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County Step 2 Median Transport Time, 2015-2020

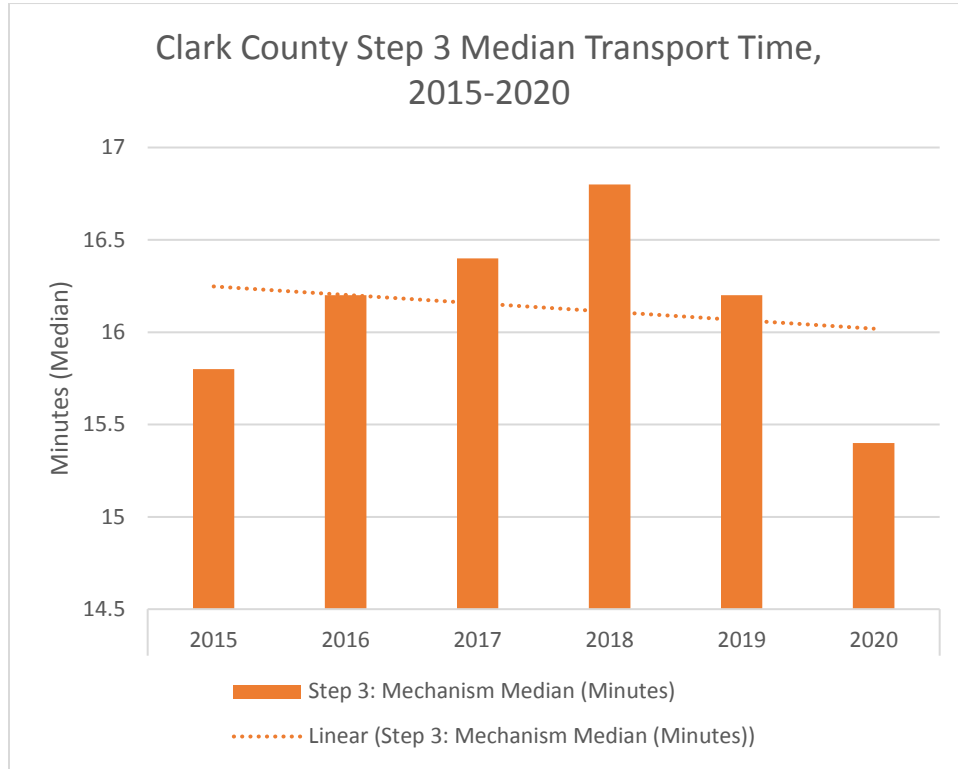


Clark County Step 2 Median Transport Time, 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Step 2: Anatomic	N	525	629	631	668	631	718
	Median (Minutes)	12m 24s	13m 0s	14m 36s	13m 12s	12m 36s	12m 42s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County Step 3 Median Transport Time, 2015-2020

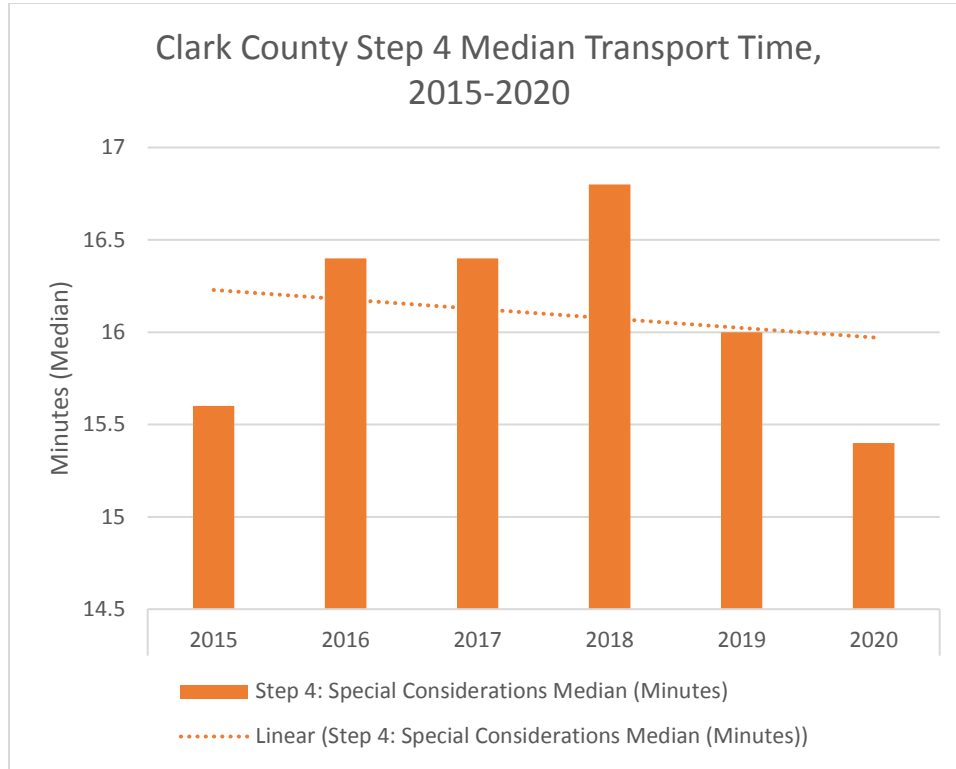


Clark County Step 3 Median Transport Time, 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Step 3: Mechanism	N	3331	3494	3986	4093	4065	3507
	Median (Minutes)	15m 48s	16m 12s	16m 24s	16m 48s	16m 12s	15m 24s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County Step 4 Median Transport Time, 2015-2020

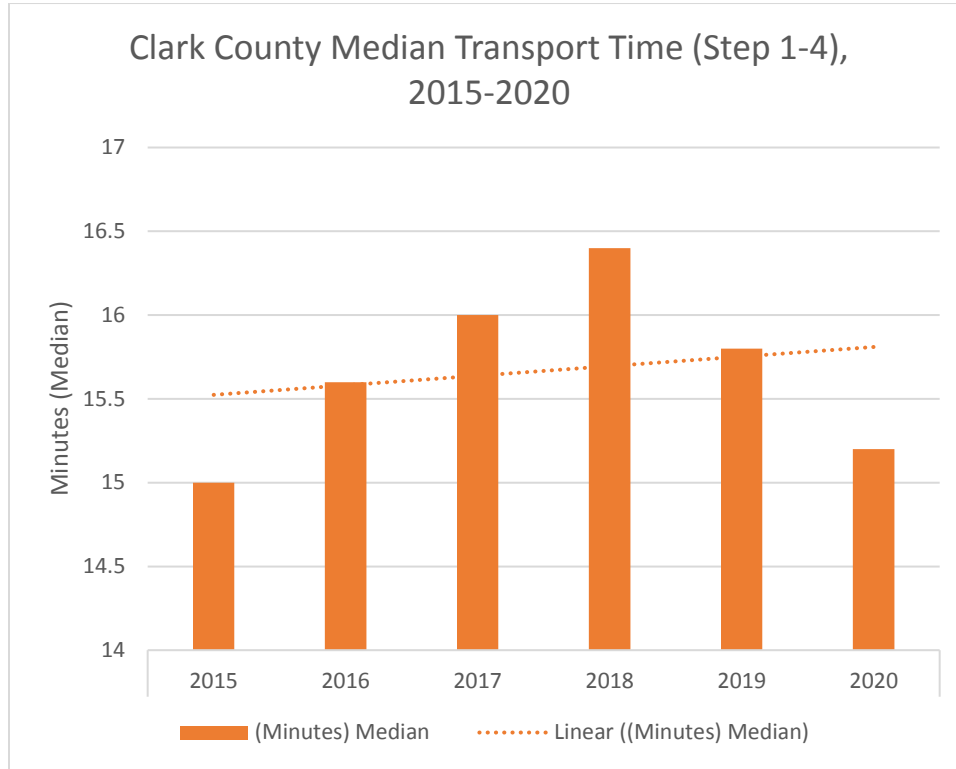


Clark County Step 4 Median Transport Time, 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Step 4: Special Considerations	N	697	935	4370	4840	5730	5430
	Median (Minutes)	15m 36s	16m 24s	16m 24s	16m 48s	16m 0s	15m 24s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Clark County (Composite) Median Transport Time by Step (1-4), 2015-2020

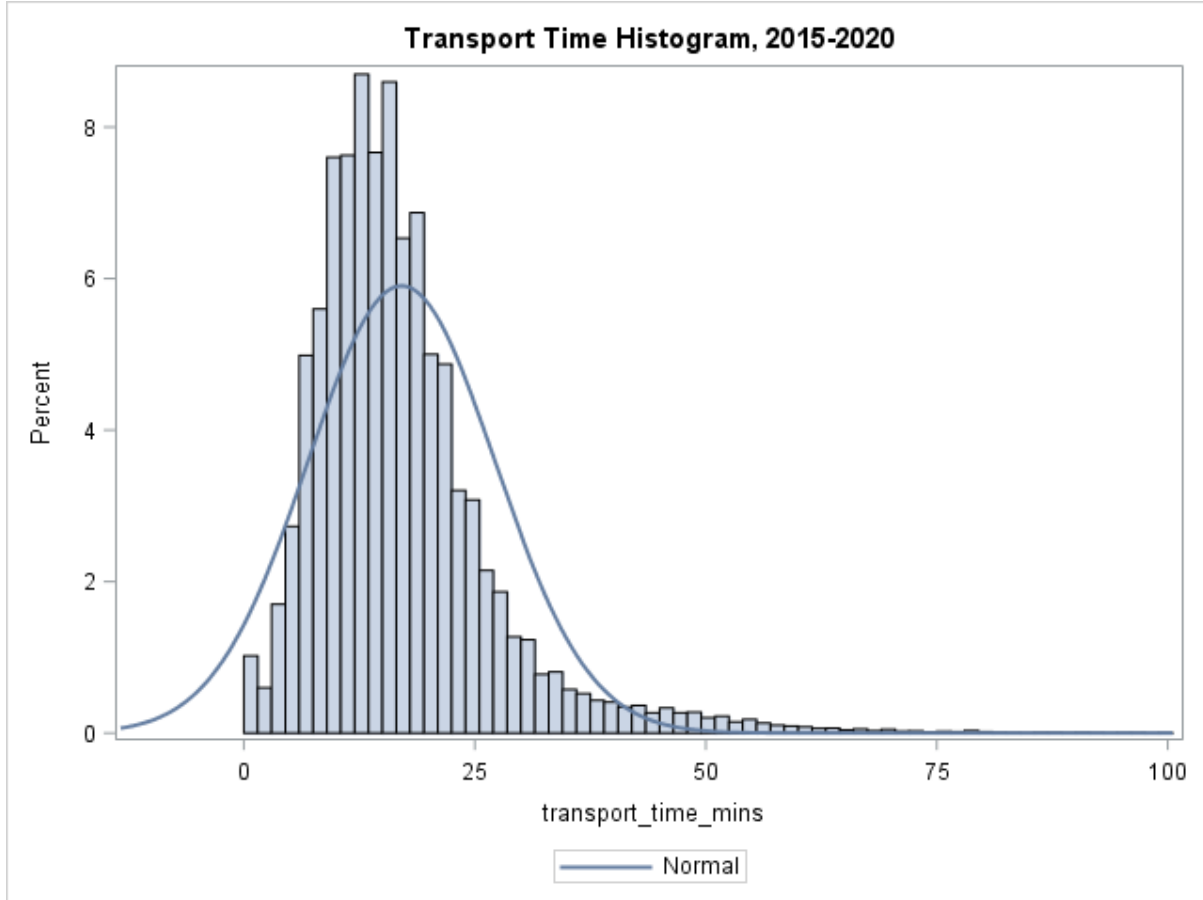


Clark County Median Transport Time (Step 1-4), 2015-2020							
		Year					
		2015	2016	2017	2018	2019	2020
Transport Time (Minutes)	N	5055	5440	9403	9988	10930	10255
	Median	15m 0s	15m 36s	16m 0s	16m 24s	15m 48s	15m 12s
<i>Source: SNHD TFTC Data</i>							
<i>Note: Data not listed if out of state or if zip code is unavailable. Service area for Clark County includes the following zip codes where the injury took place: 89002, 89004, 89005, 89007, 89011, 89012, 89014, 89015, 89018, 89019, 89021, 89027, 89029, 89030, 89031, 89032, 89034, 89039, 89040, 89044, 89046, 89052, 89054, 89074, 89081, 89084, 89085, 89086, 89101, 89102, 89103, 89104, 89106, 89107, 89108, 89110, 89113, 89115, 89117, 89118, 89120, 89121, 89122, 89123, 89124, 89128, 89129, 89130, 89131, 89134, 89135, 89138, 89139, 89141, 89142, 89143, 89144, 89145, 89146, 89147, 89148, 89149, 89156, 89161, 89166, 89178, 89179, and 89183. Includes TFTC transports with a transport time greater than 0 seconds.</i>							



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Histogram and Interquartile Range of Transport Time, 2015-2020



Interquartile Range of Transport Time, 2015-2020

	Year						
	2015	2016	2017	2018	2019	2020	2015-2020
25th Percentile Transport Time (Minutes)	10m 12s	10m 12s	11m 12s	11m 12s	10m 36s	10m 12s	10m 36s
50th Percentile Transport Time (Minutes)	14m 36s	15m 0s	15m 48s	16m 0s	15m 12s	14m 36s	15m 12s
75th Percentile Transport Time (Minutes)	20m 12s	20m 36s	21m 30s	21m 48s	21m 0s	19m 48s	20m 48s
Quartile Range Transport Time (Minutes)	10m 0s	10m 24s	10m 18s	10m 36s	10m 24s	9m 36s	10m 12s

Source: SNHD TFTC Data

Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Incidents by Transport Time and Step, 2015-2020

TFTC Incidents by Transport Time and Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
>15 Minutes						
Step 1	189	151	187	158	224	254
Step 2	204	259	328	271	253	255
Step 3	1952	2147	2477	2633	2475	1943
Step 4	406	581	2711	3206	3547	3035
>20 Minutes						
Step 1	93	81	98	78	109	122
Step 2	98	128	159	142	123	120
Step 3	1045	1178	1421	1536	1417	1017
Step 4	226	313	1508	1836	1942	1515
>25 Minutes						
Step 1	59	46	69	43	54	57
Step 2	56	75	85	82	50	64
Step 3	585	651	783	811	747	507
Step 4	114	172	798	966	954	682
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Percentage of TFTC Incidents with Transport Time <=15 Minutes

Percentage of TFTC Incidents with Transport Time <=15 Minutes						
	2015	2016	2017	2018	2019	2020
<=15 Minutes						
Step 1	411	338	288	275	382	433
Total	600	489	475	433	606	687
%	68.50%	69.12%	60.63%	63.51%	63.04%	63.03%
Step 2	402	503	456	487	479	608
Total	606	762	784	758	732	863
%	66.34%	66.01%	58.16%	64.25%	65.44%	70.45%
Step 3	1775	1925	2054	2051	2179	1928
Total	3727	4072	4531	4684	4654	3871
%	47.63%	47.27%	45.33%	43.79%	46.82%	49.81%
Step 4	409	520	2175	2382	3265	3185
Total	815	1101	4886	5588	6812	6220
%	50.18%	47.23%	44.51%	42.63%	47.93%	51.21%
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time greater than 0 seconds. There are 3 incidents not classified in 2018 and 12 incidents not classified in 2020.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Regional Incidents

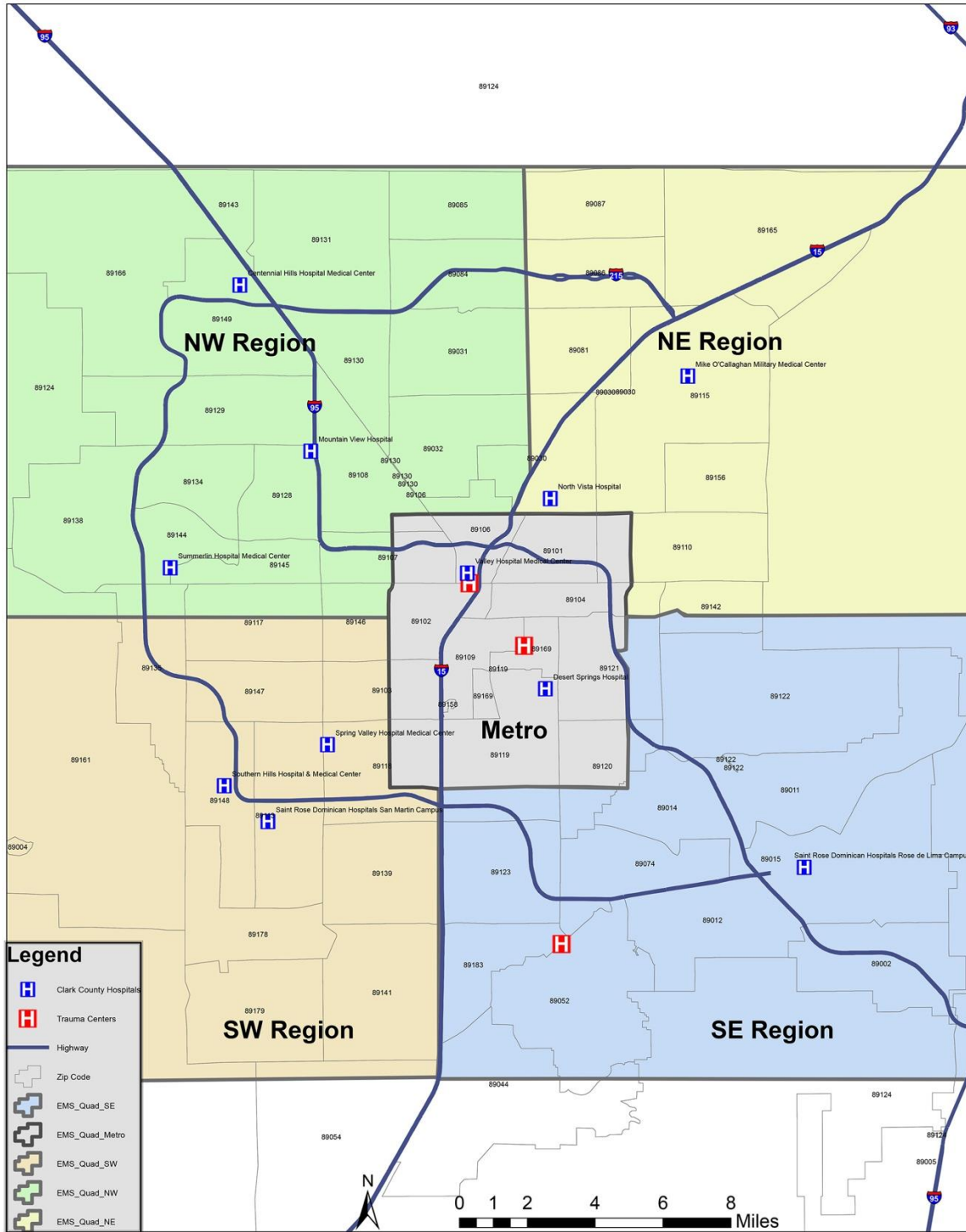
Intent

TFTC Regional Incidents is provided to analyze trauma in Clark County's metropolitan area. Divided into five regions that contain unique geographical, socioeconomic, and infrastructure, the transport times and number of incidents are intended to identify barriers to access to care. This further develops an approach to monitor for unmet needs to create new capacity when and where needed. The five regions were agreed upon by the RTAB, TMAC, and generated by OEMSTS. Each region was determined by factors unique to Clark County that include, but are not limited to governmental borders, private/county EMS provider regions, infrastructure layout, demographics, and familiarity of experience. (Note: These regions are not catchment areas.)



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

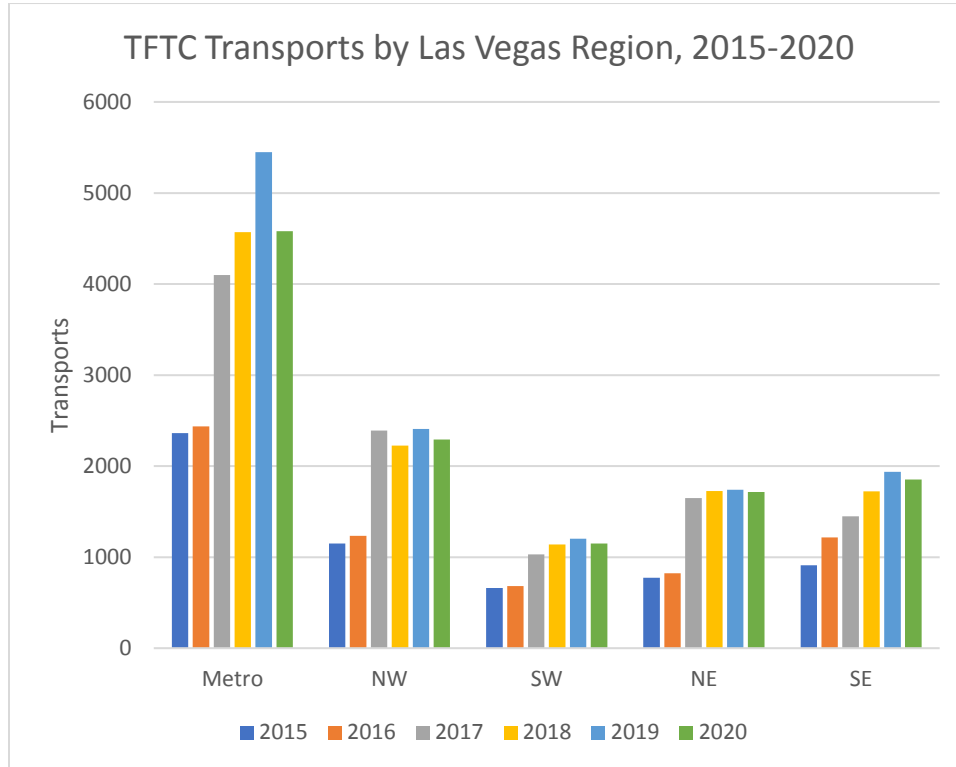
TFTC Regional Map





2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Incident Total by Las Vegas Region, 2015-2020



TFTC Transports by Las Vegas Region, 2015-2020						
	2015	2016	2017	2018	2019	2020
Metro	2361	2436	4099	4568	5448	4579
NW	1149	1235	2392	2224	2407	2292
SW	662	681	1030	1140	1201	1149
NE	772	821	1649	1727	1741	1716
SE	912	1216	1448	1724	1938	1851
Total	5856	6389	10618	11383	12735	11587
<i>Source: SNHD TFTC Data</i>						
<i>Note: Only includes transports with a step designation</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

TFTC Transports by Las Vegas Region and Step, 2015-2020

TFTC Transports by Las Vegas Region and Step, 2015-2020						
	2015	2016	2017	2018	2019	2020
Step 1						
Metro	256	212	181	171	230	254
NW	110	92	117	93	139	136
SW	56	48	57	41	73	59
NE	73	47	67	84	70	106
SE	95	79	56	44	84	121
Step 2						
Metro	237	333	337	305	290	357
NW	128	129	136	133	131	149
SW	34	56	62	53	58	57
NE	121	124	119	133	134	163
SE	85	113	119	123	113	125
Step 3						
Metro	1218	1249	1414	1515	1513	1158
NW	736	779	954	880	913	785
SW	516	506	542	578	615	512
NE	495	517	606	615	614	561
SE	620	808	804	885	783	684
Step 4						
Metro	394	430	1986	2406	3185	2556
NW	175	235	1185	1118	1224	1222
SW	56	71	369	468	455	521
NE	83	133	857	895	923	886
SE	112	216	469	672	958	921
<i>Source: SNHD TFTC Data</i>						
<i>Note: Only includes transports with a step designation.</i>						



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Non-Trauma Center Hospital Data

Intent

The Southern Nevada Trauma System recognizes that hospital facilities that provide emergency services contribute to its inclusive trauma system. These facilities are known as Non-Trauma Center Hospitals and provide prompt assessment, resuscitation, emergency operations, and stabilization and also arrange for transfer to a designated trauma center. Most trauma patients arrive at Non-Trauma Center Hospitals by self-delivery or by EMS provider judgment exemptions. If an injured patient meets state-defined trauma criteria, they may be transferred through inter-local agreements to a designated Trauma Center. Most trauma patients seen at Non-Trauma Center Hospitals that do not meet state-defined trauma criteria are treated and released.

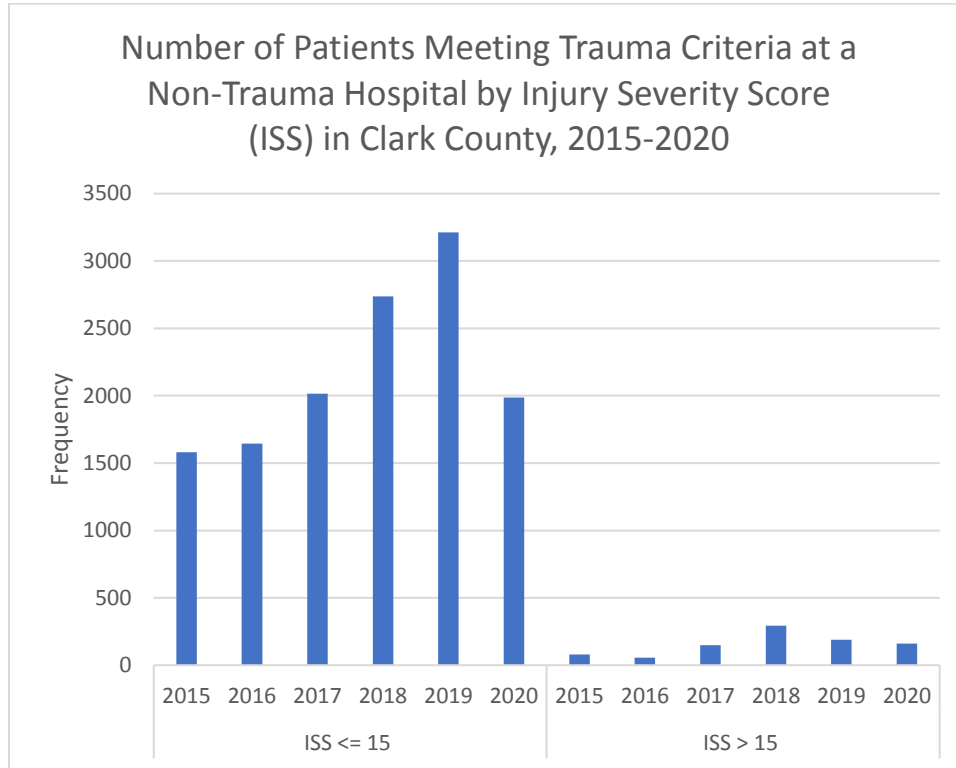
Non-Trauma Center Hospital Data is provided to analyze trauma outside of the three designated trauma centers. Due to the inclusion criteria and collection methods, the NV State Trauma Registry and the TFTC Trauma Center Trauma Registry are incompatible. Patients identified as meeting trauma inclusion criteria at non-trauma hospitals are still part of Clark County's inclusive trauma system. Since the two data sets cannot be combined, an accurate calculation of overtriage and undertriage is not possible. Still, it is important to capture and analyze all trauma within our community to determine capacity and injury prevention needs.

Note: The Injury Severity Score (ISS) is a system for numerically stratifying injury severity, which correlates with mortality, morbidity, and other severity measures. The risk of death increases with a higher score. It requires extensive training and experience to calculate and determine the score. This report categorizes an ISS score that is equal to or less than 15 as minor or moderate. A score greater than 15 is considered severe to very severe.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital by Injury Severity Score (ISS) in Clark County, 2015-2020



Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital by Injury Severity Score (ISS) in Clark County, 2015-2020												
	ISS <= 15						ISS > 15					
	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020
All	1580	1644	2016	2737	3213	1986	79	57	149	294	188	160

Source: State Trauma Registry data



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity (ISS) >15 by Facility in Clark County, 2015-2020

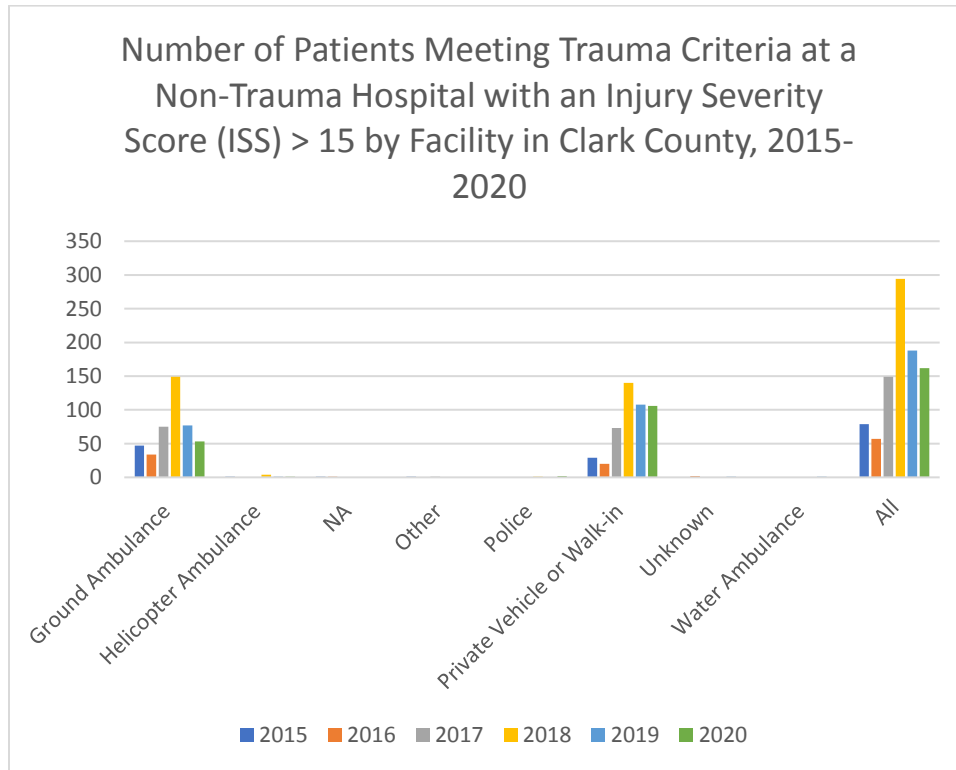
Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity Score (ISS) > 15 by Facility in Clark County, 2015-2020						
	2015	2016	2017	2018	2019	2020
Boulder City Hospital	1	0	0	14	1	1
Centennial Hills Hospital	4	2	90	102	13	4
Desert Springs Hospital Medical Center	0	1	2	0	0	0
Henderson Hospital	0	0	0	0	4	3
Henderson Hospital - ER at Green Valley	0	0	0	0	3	0
Mesa View Regional Hospital	29	9	5	1	0	1
Mountain View Hospital	12	26	24	36	37	18
North Vista Hospital	3	5	10	75	97	113
Southern Hills - ER at the Lakes	0	0	0	0	0	1
Southern Hills Hospital Medical Center	2	0	8	0	3	3
Spring Valley Hospital Medical Center	6	2	3	32	4	3
St. Rose Dominican Hosp North Las Vegas	0	0	0	1	0	0
St. Rose Dominican Hospital De Lima Campus	15	3	2	4	3	0
St. Rose Dominican Hospital San Martin Campus	1	0	0	2	1	0
St. Rose Dominican Hospital West Flamingo	0	0	0	1	0	0
Summerlin Hospital Medical Center	6	8	4	26	19	9
Valley Hospital Medical Center	0	1	1	0	3	4
All	79	57	149	294	188	160

Source: State Trauma Registry data



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity Score (ISS) >15 by Transport Mode in Clark County, 2015-2020



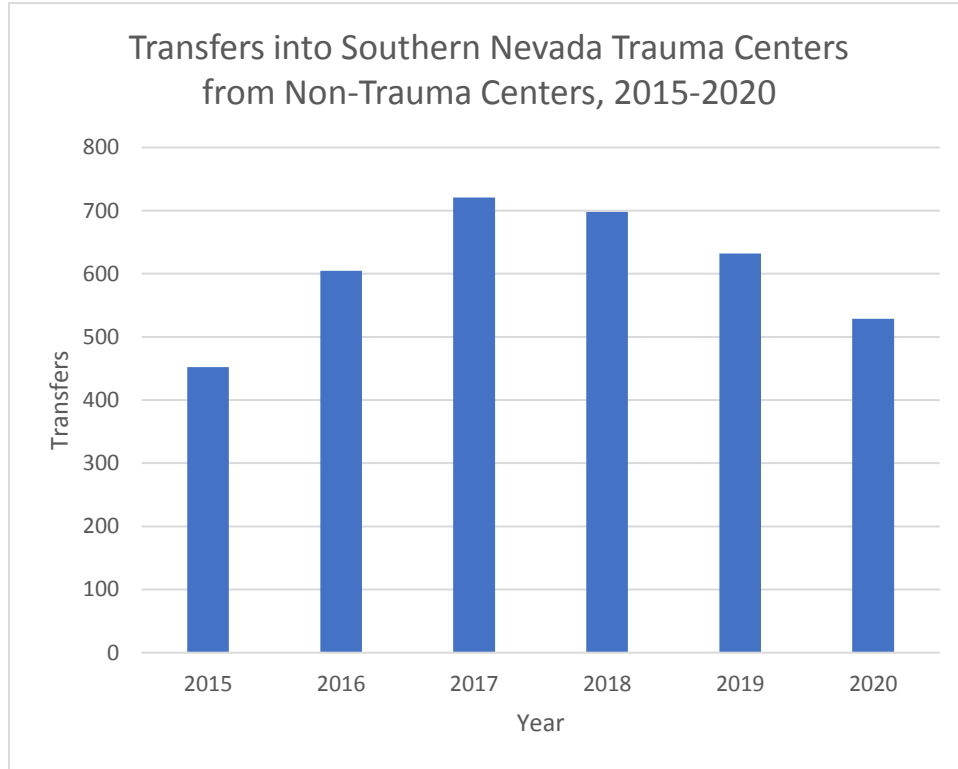
Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity Score (ISS) > 15 by Facility in Clark County, 2015-2020						
	2015	2016	2017	2018	2019	2020
Ground Ambulance	47	34	75	149	77	53
Helicopter Ambulance	1	0	0	4	1	1
NA	1	1	0	0	0	0
Other	1	0	1	0	0	0
Police	0	0	0	1	0	2
Private Vehicle or Walk-in	29	20	73	140	108	106
Unknown	0	2	0	0	1	0
Water Ambulance	0	0	0	0	1	0
All	79	57	149	294	188	162

Source: State Trauma Registry data



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Transfers to Southern Nevada Trauma Centers from Non-Trauma Centers, 2015-2020



Transfers into Southern Nevada Trauma Centers from Non-Trauma Centers, 2015-2020

	2015	2016	2017	2018	2019	2020
All	452	605	721	698	632	529

Source: State Trauma Registry data



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Emergency Department and Trauma Center Hours, 2016-2020

Intent

Clark County's inclusive trauma system includes designated Trauma Centers and Non-Trauma Center Hospitals (Emergency Departments). Traditionally an Emergency Department (ED) is capable of meeting the demands of trauma-related injuries. Trauma Centers were developed to provide an expedited resource for the optimal care of trauma patients. When there is a designated Trauma Center, the trauma system is designed to transport the patient to the most appropriate destination, bypassing EDs that may be closer. Most Trauma Centers are integrated into EDs but function separately. All hospitals (EDs & Trauma Centers) must develop protocols to manage a crisis that may require closure. The crisis may be that capacity is met, and no additional patients can be received, or that an internal disaster/failure (e.g., infrastructure, technology, medical professionals) requires closure. The protocols developed to manage the closure of an ED and Trauma Center are separate. An ED may declare it is on Internal Disaster, but that declaration would never include the Trauma Center. Even if an integrated part of an ED, a Trauma Center will remain open and be able to receive trauma patients while the ED is closed. When a Trauma Center closes, it is called Trauma Bypass. It is rare for a Trauma Center to close. As part of the ACS-COT verification process, a Trauma Center must not be on bypass more than 5 percent of the time.

Definitions specific to Clark County Trauma System and Emergency Medical System:

Trauma Bypass- Closure of a Trauma Center. If on Trauma Bypass, which is a mandated reported requirement, the center cannot take patients. All EMS agencies can view this real-time status via telemetry. The time spent on trauma bypass is regularly reviewed at TMAC and is part of ACS-COT criteria.

Internal Disaster- Closure of an Emergency Department. If on Internal Disaster, the ED is not able to take patients. All EMS agencies can view this real-time status via telemetry.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Operational Hours for Emergency Departments and Trauma Centers, 2016-2020

University Medical Center (UMC) ED and Trauma Center Operational Hours					
	2016	2017	2018	2019	2020
ED Open Total Hours	7816	8113	8437	8683	8634
ED Closed Total Hours	967	647	323	77	149
ED % of Total Hours Open	89%	93%	96%	99%	98%
Trauma Center Bypass Event Hours	0	0	0	0	0
Trauma Center % Open	100%	100%	100%	100%	100%

Source: Juvare EMS Data System

Sunrise ED and Trauma Center Operational Hours					
	2016	2017	2018	2019	2020
ED Open Total Hours	8774	8754	8756	8760	8784
ED Closed Total Hours	10	7	3	0.2	0
ED % of Total Hours Open	99%	99%	99%	100%	100%
Trauma Center Bypass Event Hours	0	6	0.5	0	0
Trauma Center % Open	100%	99.9%	100%	100%	100%

Source: Juvare EMS Data System

St. Rose-Siena ED and Trauma Center Operational Hours					
	2016	2017	2018	2019	2020
ED Open Total Hours	6168	7658	8433	8530	8400
ED Closed Total Hours	2616	1102	327	230	383
ED % of Total Hours Open	70%	87%	96%	97%	95%
Trauma Center Bypass Event Hours	0	0	0	0	0
Trauma Center % Open	100%	100%	100%	100%	100%

Source: Juvare EMS Data System

Southern NV Hospitals ED and Trauma Centers Operational Hours					
	2016	2017	2018	2019	2020
ED Open Total Hours	144k	169k	201k	220k	236k
ED Closed Total Hours	9480	3105	4672	9094	1330
ED % of Total Hours Open	94%	98%	98%	96%	99%
Trauma Centers Bypass Event Hours	0	6	0.5	0	0
Trauma Centers % Open	100%	99.9%	100%	100%	100%

Source: Juvare EMS Data System



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Trauma Medical Audit Committee

The Trauma Medical Audit Committee (TMAC) is a multidisciplinary closed medical peer review committee of the District Board of Health that meets quarterly. Its purpose is to review the Southern Nevada Trauma system by evaluating trauma care, monitoring trends, and making system improvements recommendations.

- For 2020, TMAC has reviewed trauma cases as an evaluation of trauma care. In a review of those cases, TMAC has not found any significant trauma protocols or regulations variance.
- For 2020, TMAC did not observe any delays in care in trauma services.
- For 2020, TMAC has not identified any significant change in trends in system performance.
- For 2020, TMAC did not observe any aberrations in out-of-hospital deaths, patients treated in non-trauma center hospitals, or prehospital services.

As part of the TMAC's purpose to implement improvement activities to ensure quality care throughout the trauma system, it reports that the current trauma system is functioning efficiently. TMAC recognizes the importance of controlled and appropriate growth of the trauma system for future sustainability.

Dr. Chris Fischer
TMAC Chair



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Appendix

Appendix A: Trauma Field Triage Criteria

Trauma Field Triage Criteria

A licensee providing emergency medical care to a patient at the scene of an injury shall use the following procedures to identify and care for patients with traumas:

1. Step 1 – Measure vital signs and level of consciousness. If the patient's:
 - A. Glasgow Coma Scale is 13 or less;
 - B. Systolic blood pressure is less than 90 mmHg; or
 - C. Respiratory rate is less than 10 or greater than 29 breaths per minute (less than 20 in infant aged less than 1 year), or is in need of ventilatory supportthe adult patient **MUST** be transported to a Level 1 or 2 center for the treatment of trauma in accordance with the catchment area designated. The pediatric patient **MUST** be transported to a pediatric center for the treatment of trauma.
2. Step 2 – Assess anatomy of injury. If the patient has:
 - A. Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee;
 - B. Chest wall instability or deformity (e.g. flail chest);
 - C. Two or more proximal long-bone fractures;
 - D. Crushed, degloved, mangled, or pulseless extremity;
 - E. Amputation proximal to wrist or ankle;
 - F. Pelvis fractures;
 - G. Open or depressed skull fractures; or
 - H. Paralysisthe adult patient **MUST** be transported to a Level 1 or 2 center for the treatment of trauma in accordance with the catchment area designated. The pediatric patient **MUST** be transported to a pediatric center for the treatment of trauma.
3. Step 3 – Assess mechanism of injury and evidence of high-energy impact, which may include:
 - A. Falls
 - 1) Adults: greater than 20 feet (one story is equal to 10 feet)
 - 2) Children: greater than 10 feet or two times the height of the child
 - B. High-risk auto crash
 - 1) Motor vehicle was traveling at a speed of at least 40 miles per hour immediately before the collision occurred;
 - 2) Intrusion, including roof: greater than 12 inches occupant site; greater than 18 inches any site;
 - 3) Ejection (partial or complete) from automobile;
 - 4) Motor vehicle rolled over with unrestrained occupant(s);
 - 5) Death in same passenger compartment
 - C. Motorcycle crash greater than 20 mph
 - D. Auto vs pedestrian/bicyclist thrown, run over, or with significant (greater than 20 mph) impactThe patient **MUST** be transported to a Level 1, 2, or 3 center for the treatment of trauma in accordance with the catchment area designated. For patients who are injured outside a 50-mile radius from a trauma center, the licensee providing emergency medical care shall call and consider transport to the nearest receiving facility.



2020 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

Trauma Field Triage Criteria (Cont.)

4. Step 4 – Assess special patients

- A. Older adults
 - 1) Risk of injury/death increases after age 55 years
 - 2) SBP less than 110 mmHg might represent shock after age 65 years
 - 3) Low impact mechanisms (e.g. ground level falls) might result in severe injury
- B. Children should be triaged preferentially to a trauma center.
- C. Anticoagulants and bleeding disorders: Patients with head injury are at high risk for rapid deterioration.
- D. Burns
 - 1) Without other trauma mechanisms: transport in accordance with the Burns protocol
 - 2) With trauma mechanism: transport to UMC Trauma/Burn Center
- E. Pregnancy greater than 20 weeks
- F. EMS provider judgment

The patient **MUST** be transported to a Level 1, 2, or 3 center for the treatment of trauma in accordance with the catchment area designated. For patients who are injured outside a 50-mile radius from a trauma center, the licensee providing emergency medical care shall call and consider transport to the nearest receiving facility.

The person licensed to provide emergency medical care at the scene of an injury shall transport a patient to a designated center for the treatment of trauma based on the following guidelines:

St. Rose Dominican Hospital - Siena Campus (Level 3 Trauma Center) Catchment Area

All trauma calls that meet Step 3 or in the provider's judgment meet Step 4 of the Trauma Field Triage Criteria Protocol and occur within the City of Henderson or the geographical area bordered by Interstate 15 to the west and Sunset road to the north, and the county line to the east, are to be transported to St. Rose Dominican Hospital – Siena Campus and the medical directions for the treatment of the patient must originate at that center;

Sunrise Hospital & Medical Center (Level 2 Trauma Center) Catchment Area

All adult trauma calls and pediatric Step 3 trauma calls that meet the Trauma Field Triage Criteria Protocol and occur within the geographical area bordered by Paradise Road to the west, Sahara Avenue to the north, Sunset Road to the south, and the county line to the east, are to be transported to Sunrise Hospital & Medical Center and the medical directions for the treatment of the patient must originate at that center;

In addition, adult trauma calls that meet Step 1 or 2 of the Trauma Field Triage Criteria Protocol and occur within the St. Rose Dominican Hospital – Siena Campus Catchment Area, City of Henderson, or the geographical area bordered by Paradise Road to the west continuing along that portion where it becomes Maryland Parkway, Sunset Road to the north, and the county line to the east, are to be transported to Sunrise Hospital & Medical Center and the medical directions for the treatment of the patient must originate at that center.

University Medical Center (Level 1 Trauma Center and Pediatric Level 2 Trauma Center) Catchment Area

All trauma calls that meet the Trauma Field Triage Criteria and occur within any other area of Clark County are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.

All pediatric Step 1 and Step 2 trauma calls that occur within Clark County are to be transported to University Medical Center/Trauma and medical directions for the treatment of the patient must originate at that center.

In addition, adult trauma calls that meet Step 1 or 2 of the Trauma Field Triage Criteria Protocol and occur in the geographical area bordered by Paradise road to the east, Sunset Road to the north, Interstate 15 to the west, and the county line to the south, are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.

Trauma Field Triage Criteria (Cont.)

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Trauma Field Triage Criteria (Cont.)

All trauma calls that meet the Trauma Field Triage Criteria Protocol, regardless of location, that are transported by air ambulance are to be transported to University Medical Center/Trauma and the medical directions for the treatment of the patient must originate at that center.

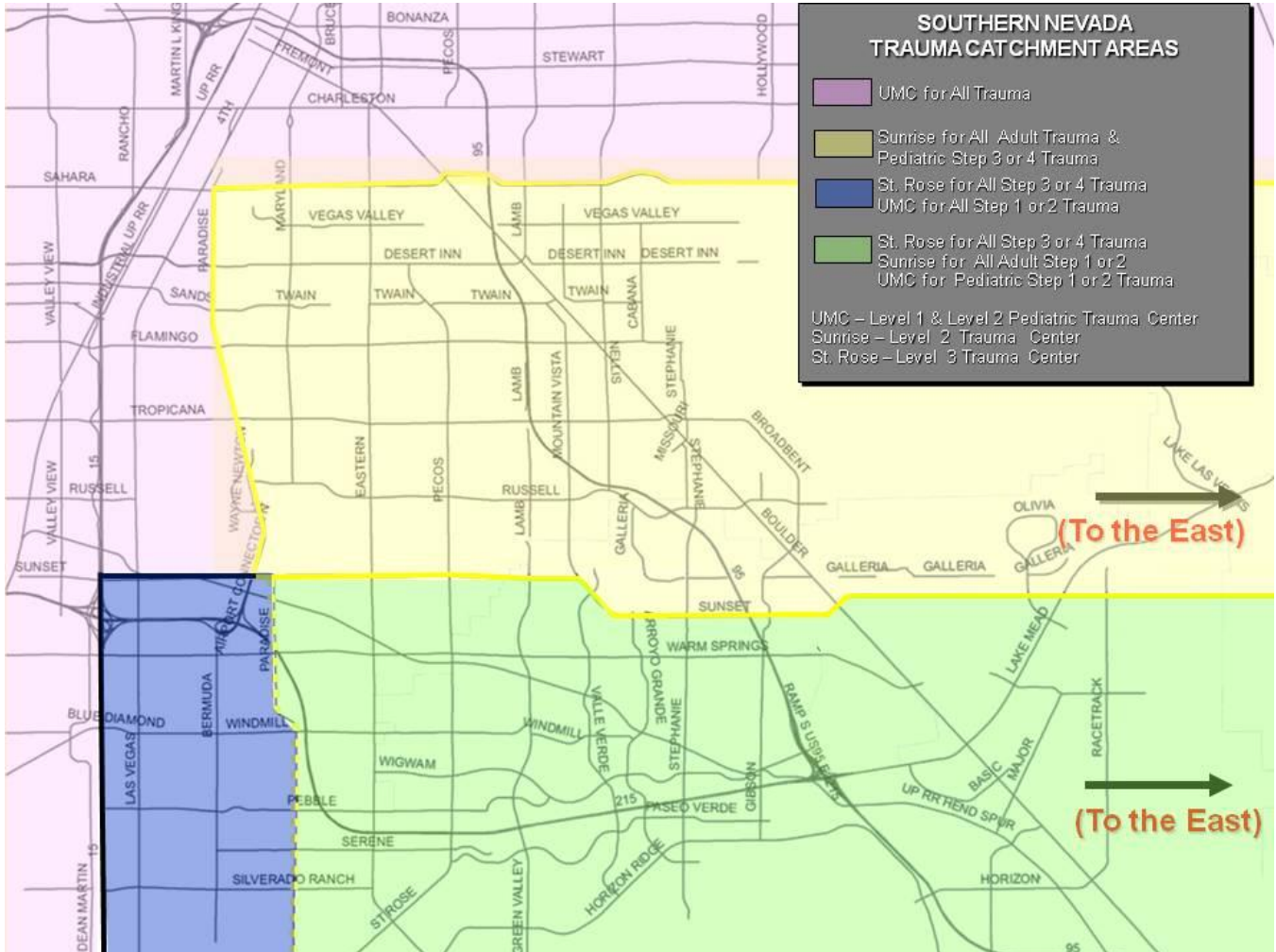
EXCEPTIONS:

1. Nothing contained within these guidelines precludes transport to any trauma facility if, in the provider's judgment, time to transport to the designated center would be unduly prolonged due to traffic and/or weather conditions and might jeopardize the patient's condition.
2. Additionally, nothing contained within these guidelines precludes transport to the closest facility if, in the provider's judgment, an ability to adequately ventilate the patient might result in increased patient mortality.



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Appendix B: Southern Nevada Trauma Catchment Areas





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SERIOUS INJURIES • SUPERIOR CARE
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Southern Nevada Trauma System

www.SouthernNevadaTraumaSystem.org

