



# **2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW**





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

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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

The 2019 report was written and compiled by the SNHD Regional Trauma Coordinator (Chad Kingsley, MD).



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## 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 the individual 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 function to 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.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## 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 Assistant. 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 being 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 has not been verified by the ACS-COT 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 contained 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. Additionally, in Clark County, as defined by its population, a hospital seeking designation must obtain a letter from the Southern Nevada District Board of Health that provisionally authorizes its designation. To be included in the Southern Nevada Trauma Catchment Areas, a hospital must be designated.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## 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.

## 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 trauma patients are based on the Clark County EMS Trauma Field Triage Criteria (TFTC-Appendix A), which are similar to the CDC's 2011 Guidelines for Field Triage of Injured Patients. The CDC's guidelines do not require the mandatory transport of all Step 4 patients to designated trauma centers.

## 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.



## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### 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 2019: 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.

Note: Mountain View Hospital, independent of NV DPBS and the Southern Nevada District Board of Health, pursued ACS-COT trauma center verification in 2019 following a prior ACS-COT consultation visit, but is not a designated trauma center by the NV DPBS or the Southern Nevada District Board of Health.





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## 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 the treatment of trauma in Clark County. During the 2019 state legislative session, NRS 450B.237 was altered. The overall designation process remained the same except that approval of a proposal for 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.



## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### 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.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## 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 (7<sup>th</sup> Character Modifier A, B, or C), T07, T14, T20-T28 (7<sup>th</sup> Character modifier A), T30-32, and T79.A1-T79.A9 (7<sup>th</sup> 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.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Trauma Field Triage Criteria (TFTC) 2019 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 they 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 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 provided by 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, which means 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.



## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### 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 the delivery of effective and efficient emergency medical care for injured patients. Recently, included in the additions to NRS 450B.237, a new trauma center's impact must be considered. Updating and interpreting data and regulations will be a focus of 2021.

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



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Population Data

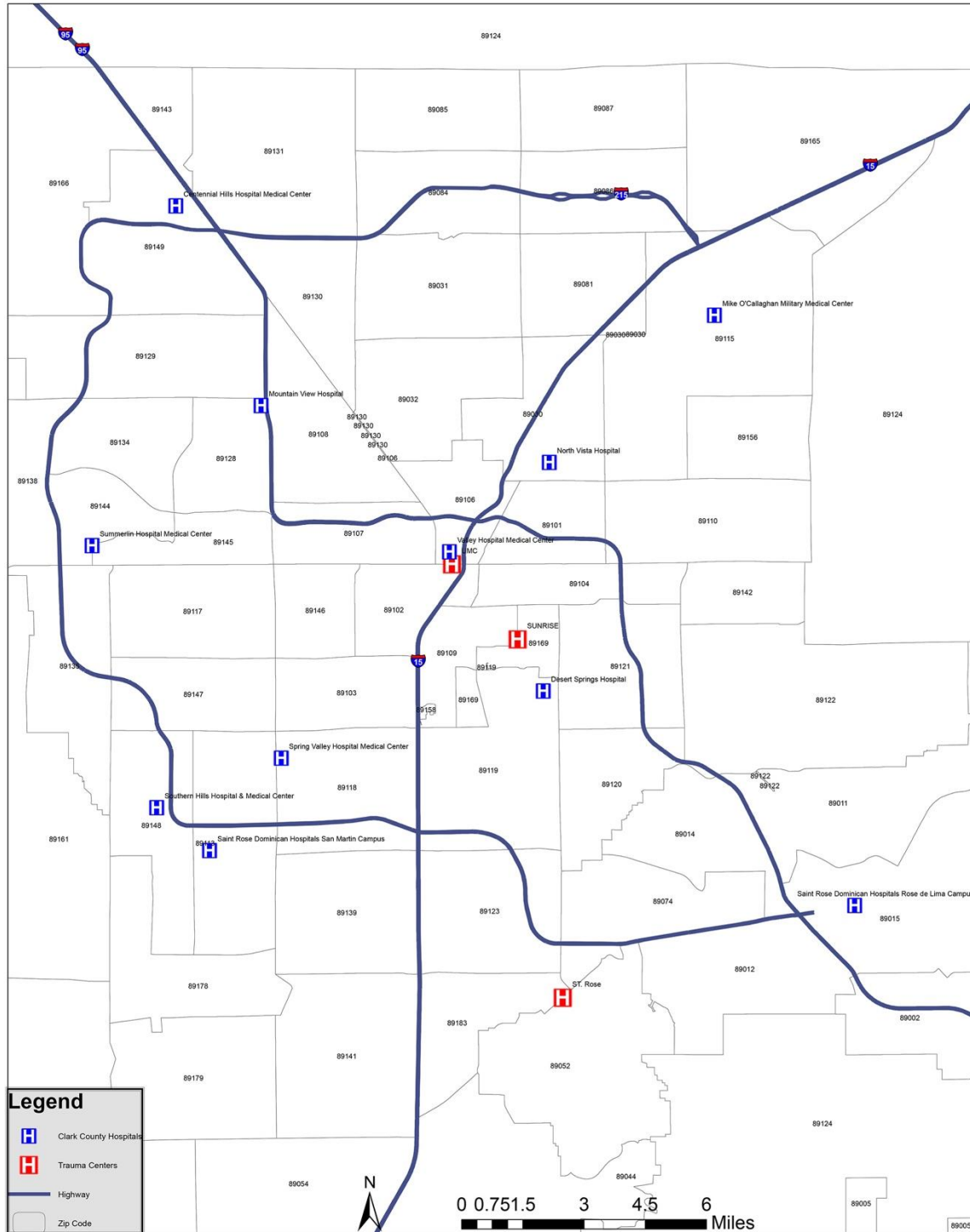
### Intent

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 congruently may affect but is not limited to roadways, infrastructure, emergency and healthcare providers, and socioeconomic factors.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County ZIP Code Map





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County Population Forecast: 2010-2060

Clark County Population Forecast: 2010 – 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 Historical Population by Zip Code, 2014-2019

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, 2014-2019

Zip	2019	2018	2017	2016	2015	2014	Absolute Growth 2014-2019	Growth Rate (%) 2014-2019
89002	37,804	36,793	36,154	35,209	34,626	33,776	4,028	11.93
89004	308	315	307	302	288	285	23	8.07
89005	16,398	16,104	16,508	16,570	16,011	15,852	546	3.44
89007	1,074	1,064	1,067	1,114	1,111	1,066	8	0.75
89011	34,521	31,074	29,387	27,640	25,405	24,460	10,061	41.13
89012	36,360	36,374	36,159	35,193	33,843	32,211	4,149	12.88
89014	42,753	42,471	41,767	41,629	41,137	40,341	2,412	5.98
89015	42,205	42,528	42,266	41,963	41,871	42,050	155	0.37
89018	1,300	1,153	1,294	1,280	1,251	1,238	62	5.01
89019	2,838	2,786	2,784	2,748	2,715	2,731	107	3.92
89021	3,544	3,554	3,240	3,151	3,090	3,075	469	15.25
89025	1,449	1,452	1,371	1,393	1,380	1,371	78	5.69
89027	21,020	20,158	18,994	18,256	17,471	16,885	4,135	24.49
89029	10,515	10,538	10,289	9,922	9,686	9,477	1,038	10.95
89030	56,328	54,973	54,953	54,445	53,220	52,336	3,992	7.63
89031	72,506	71,137	70,384	69,607	67,887	66,453	6,053	9.11
89032	47,941	46,542	46,124	45,910	45,330	44,893	3,048	6.79
89034	3,117	2,707	2,344	2,070	1,829	1,639	1,478	90.18
89039	227	206	206	204	200	197	30	15.23
89040	3,922	3,776	4,045	3,933	3,871	3,875	47	1.21
89044	25,971	23,420	21,325	19,653	18,373	17,467	8,504	48.69
89046	424	406	405	394	382	379	45	11.87
89052	60,356	58,648	57,998	57,421	55,337	54,426	5,930	10.90
89054	102	102	102	102	101	100	2	2.00
89074	54,863	55,455	55,163	52,803	51,807	51,080	3,783	7.41
89081	38,840	38,540	37,600	35,806	34,473	33,438	5,402	16.16
89084	29,726	28,263	27,434	26,499	25,213	24,647	5,079	20.61
89085	3,627	3,747	3,747	3,710	3,631	3,586	41	1.14
89086	6,037	5,103	5,103	5,085	4,977	4,918	1,119	22.75
89101	44,179	41,672	41,868	41,523	41,310	41,677	2,502	6.00
89102	40,100	38,181	36,838	36,476	36,475	36,084	4,016	11.13
89103	50,396	49,618	49,626	49,128	48,090	47,526	2,870	6.04
89104	39,691	37,032	37,046	36,656	36,186	35,824	3,867	10.79
89106	30,087	26,751	27,058	27,122	27,119	26,847	3,240	12.07
89107	39,340	40,580	40,580	40,562	39,955	39,481	-141	-0.36
89108	78,900	80,869	80,572	79,599	77,884	77,216	1,684	2.18
89109	6,464	5,539	5,539	5,484	6,422	6,346	118	1.86
89110	80,581	79,077	78,851	78,054	77,820	76,899	3,682	4.79
89113	33,936	31,853	30,881	29,114	24,334	23,799	10,137	42.59
89115	75,243	74,336	73,292	72,044	70,805	69,929	5,314	7.60
89117	57,184	58,913	58,915	58,818	57,139	56,271	913	1.62



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## (Cont.) Clark County Historical Population by Zip Code, 2014-2019

Zip	2019	2018	2017	2016	2015	2014	Absolute Growth 2014-2019	Growth Rate (%) 2014-2019
89118	26,417	25,884	25,293	25,717	25,666	25,252	1,165	4.61
89119	49,860	49,614	49,615	47,828	50,225	49,995	-135	-0.27
89120	26,026	24,506	24,371	24,341	24,272	24,059	1,967	8.18
89121	69,543	72,173	72,155	69,858	68,383	67,593	1,950	2.88
89122	56,498	55,750	55,227	54,348	52,362	51,206	5,292	10.33
89123	62,305	64,061	63,914	63,255	62,927	61,173	1,132	1.85
89124	7,202	7,169	7,573	7,760	7,426	7,164	38	0.53
89128	39,753	39,379	39,379	39,061	38,237	37,786	1,967	5.21
89129	54,566	56,848	56,646	56,533	55,619	54,667	-101	-0.18
89130	32,325	33,556	33,443	33,327	33,304	33,069	-744	-2.25
89131	50,176	49,455	48,902	48,165	47,551	46,451	3,725	8.02
89134	25,486	25,298	25,298	25,365	25,365	25,193	293	1.16
89135	32,617	32,316	31,224	30,515	28,654	27,636	4,981	18.02
89138	20,001	18,748	17,296	16,103	14,582	13,755	6,246	45.41
89139	42,064	41,653	40,705	39,085	36,936	34,619	7,445	21.51
89141	40,006	38,678	32,782	31,808	29,661	28,144	11,862	42.15
89142	36,391	37,609	37,118	36,891	36,584	35,284	1,107	3.14
89143	13,406	14,658	14,658	14,652	14,365	14,170	-764	-5.39
89144	20,162	19,824	19,824	19,641	19,225	18,996	1,166	6.14
89145	28,481	28,171	28,164	27,885	27,095	26,775	1,706	6.37
89146	19,918	19,739	19,745	19,747	19,462	19,232	686	3.57
89147	60,183	60,349	59,476	58,972	56,476	54,881	5,302	9.66
89148	68,749	66,931	62,538	57,723	50,735	47,296	21,453	45.36
89149	43,739	41,365	40,550	38,959	36,667	35,584	8,155	22.92
89156	31,514	30,418	30,379	30,081	29,227	28,887	2,627	9.09
89158	1,543	0	0	802	799	781	762	97.57
89161	502	506	471	478	469	465	37	7.96
89166	19,253	17,830	16,794	15,534	14,170	12,408	6,845	55.17
89169	27,047	24,946	24,946	24,708	26,053	26,256	791	3.01
89178	38,514	35,355	34,218	32,812	30,617	28,746	9,768	33.98
89179	11,422	9,740	9,325	8,619	7,458	6,049	5,373	88.82
89183	37,955	38,275	36,777	36,041	37,011	36,516	1,439	3.94
<b>Total</b>	<b>2,325,798</b>	<b>2,284,616</b>	<b>2,248,390</b>	<b>2,205,207</b>	<b>2,147,641</b>	<b>2,102,238</b>	<b>223,560</b>	<b>10.63</b>

(Run Date: 09/14/2020)

Clark County Department of Comprehensive Planning

Source: Southern Nevada Consensus Population Estimate, August - Roll Close 2019



## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### SNHD Trauma Field Triage Criteria (TFTC) Data

#### Intent

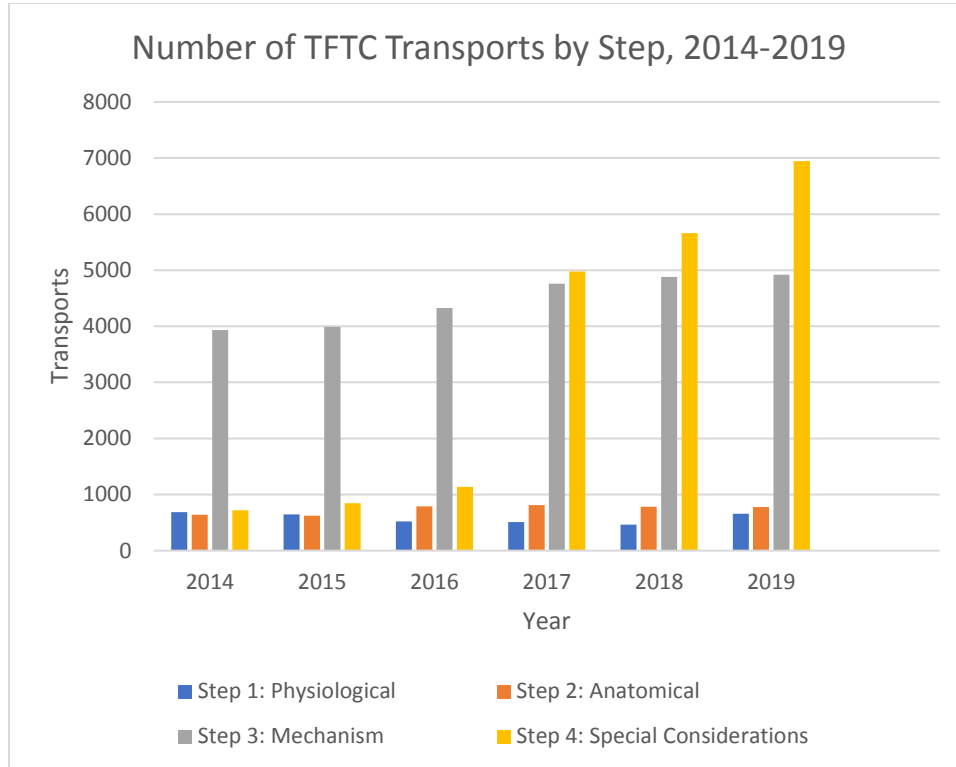
The intent of including TFTC data is to examine and determine the number of reported trauma cases at all designated Trauma Centers in Clark County. This data can then be used to analyze capacity, determine unmet needs, identify negative outcomes, and recognize barriers to access healthcare. TFTC data 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



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Number of TFTC Transports by Step, 2014-2019

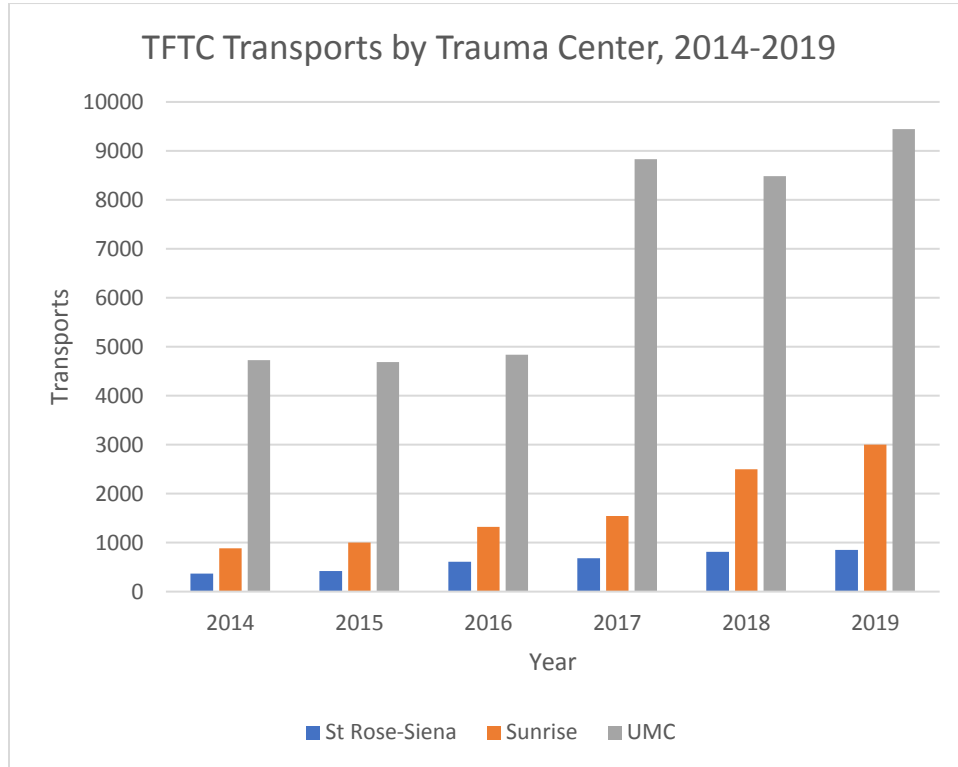


Number of TFTC Transports by Step, 2014-2019						
	2014	2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	685	645	522	509	466	655
<b>Step 2: Anatomic</b>	638	625	787	811	782	779
<b>Step 3: Mechanism</b>	3932	3992	4324	4761	4879	4921
<b>Step 4: Special Considerations</b>	720	847	1137	4979	5663	6946
<b>All</b>	5975	6109	6770	11060	11793	13301
<i>Source: SNHD TFTC Data</i>						
<i>Note: The total for all steps in 2018 includes 3 transports that were not classified. Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Transports by Trauma Center, 2014-2019

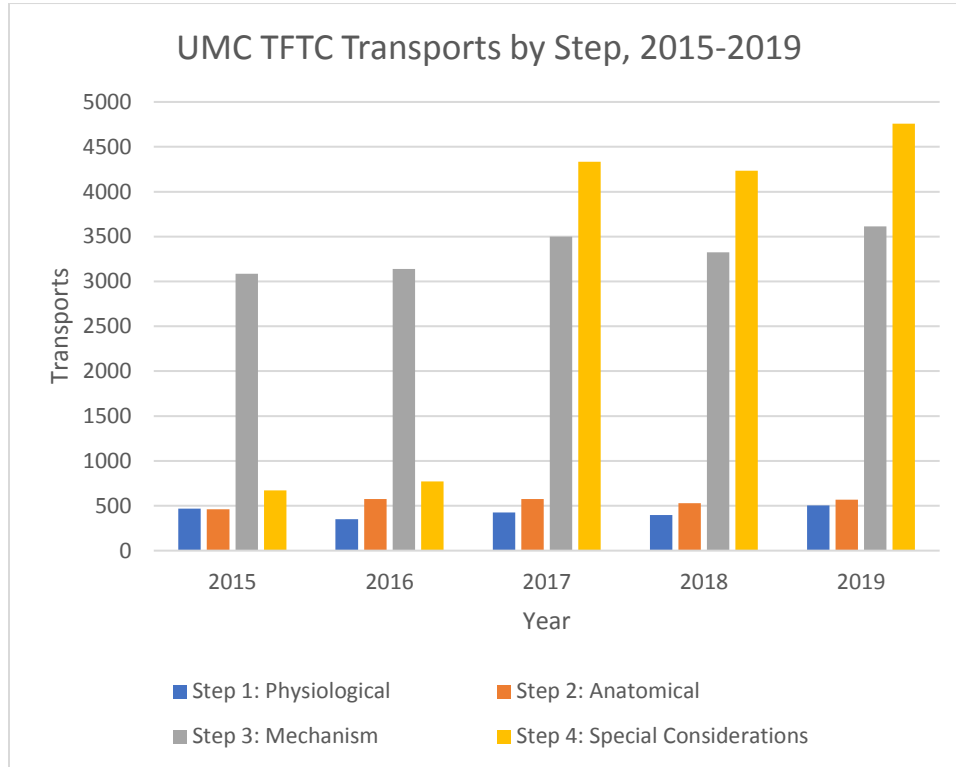


TFTC Incidents by Trauma Center, 2014-2019						
	2014	2015	2016	2017	2018	2019
<b>St Rose-Siena</b>	369	421	612	683	810	853
<b>Sunrise</b>	882	1001	1322	1545	2496	3003
<b>UMC</b>	4724	4687	4836	8832	8487	9445
<b>Total</b>	5975	6109	6770	11060	11793	13301
<i>Source: SNHD TFTC Data</i>						
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System.</i>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## UMC TFTC Transports by Step, 2015-2019

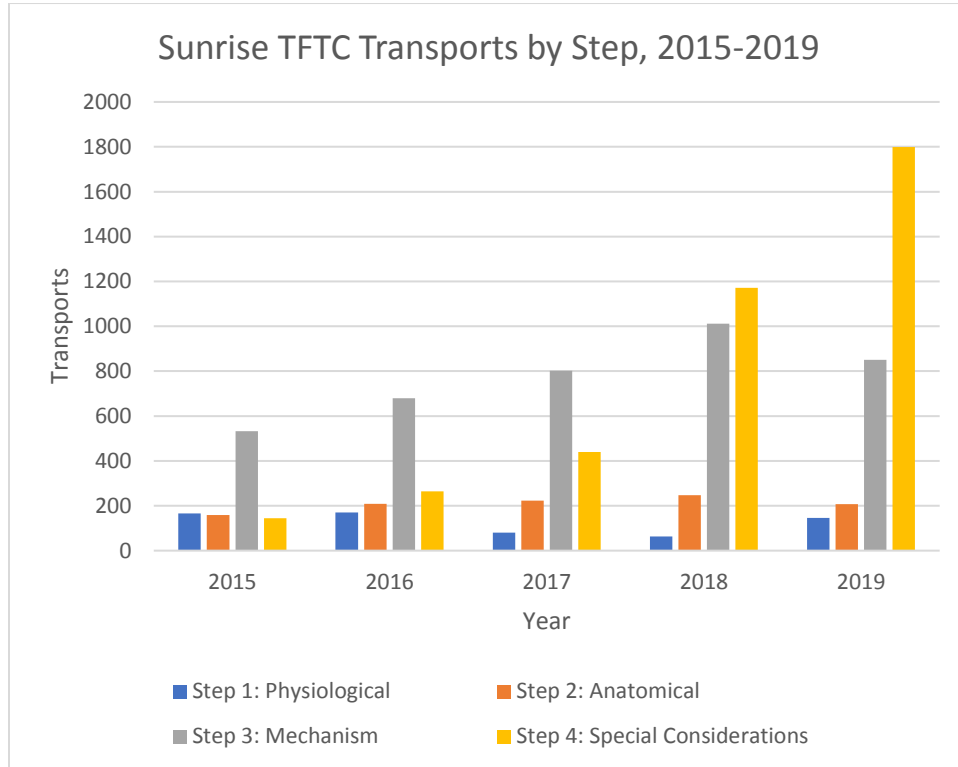


UMC TFTC Transports by Step, 2015-2019					
	2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	468	351	424	398	505
<b>Step 2: Anatomic</b>	461	576	576	529	569
<b>Step 3: Mechanism</b>	3086	3138	3499	3325	3613
<b>Step 4: Special Considerations</b>	672	771	4333	4235	4758
<b>Total</b>	4687	4836	8832	8487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



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Sunrise TFTC Transports by Step, 2015-2019



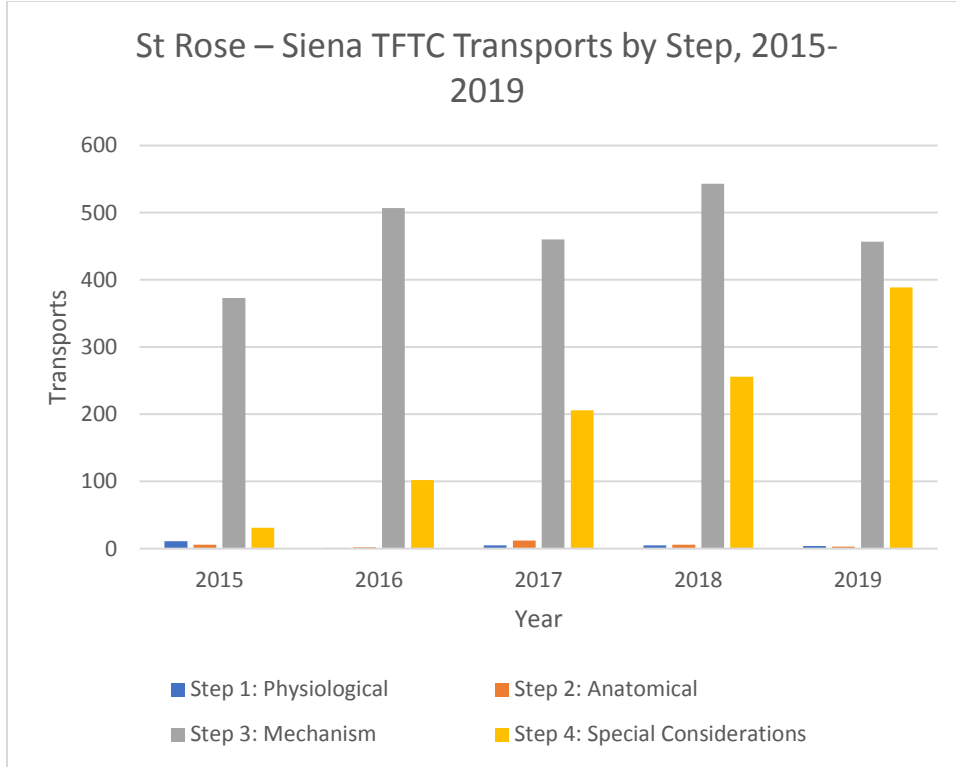
Sunrise TFTC Transports by Step, 2015-2019					
	2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	166	170	80	63	146
<b>Step 2: Anatomic</b>	158	209	223	247	207
<b>Step 3: Mechanism</b>	533	679	802	1011	851
<b>Step 4: Special Considerations</b>	144	264	440	1172	1799
<b>Total</b>	1001	1322	1545	2496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





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## St. Rose – Siena TFTC Transports by Step, 2015-2019

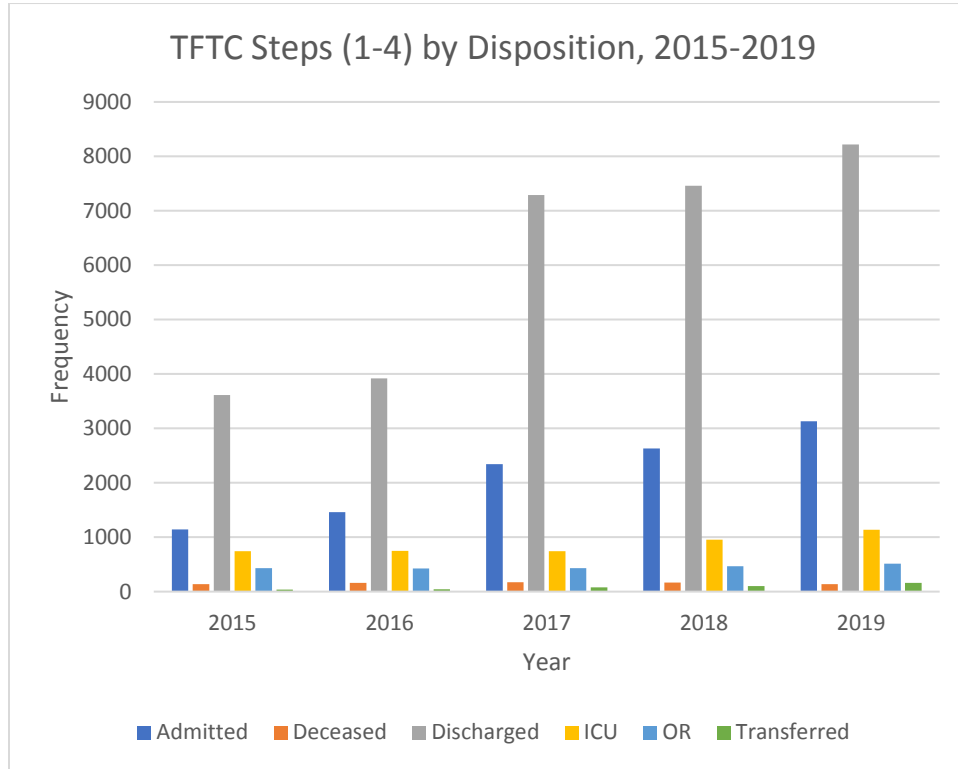


St. Rose – Siena TFTC Transports by Step, 2015-2019					
	2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	11	1	5	5	4
<b>Step 2: Anatomic</b>	6	2	12	6	3
<b>Step 3: Mechanism</b>	373	507	460	543	457
<b>Step 4: Special Considerations</b>	31	102	206	256	389
<b>Total</b>	421	612	683	810	853
<i>Source: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



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Steps (1-4) by Disposition, 2015-2019



TFTC Steps (1-4) by Disposition, 2015-2019					
	2015	2016	2017	2018	2019
<b>Admitted</b>	1141	1461	2341	2633	3129
<b>Deceased</b>	135	162	172	166	137
<b>Discharged</b>	3616	3918	7291	7461	8218
<b>ICU</b>	744	750	745	953	1139
<b>OR</b>	434	427	431	468	516
<b>Transferred</b>	38	44	80	104	158
<b>Total</b>	6108	6762	11060	11785	13297
<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 28 Frequencies</i>					



# 2019 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.

Appendix B: Southern Nevada Trauma Catchment Areas



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

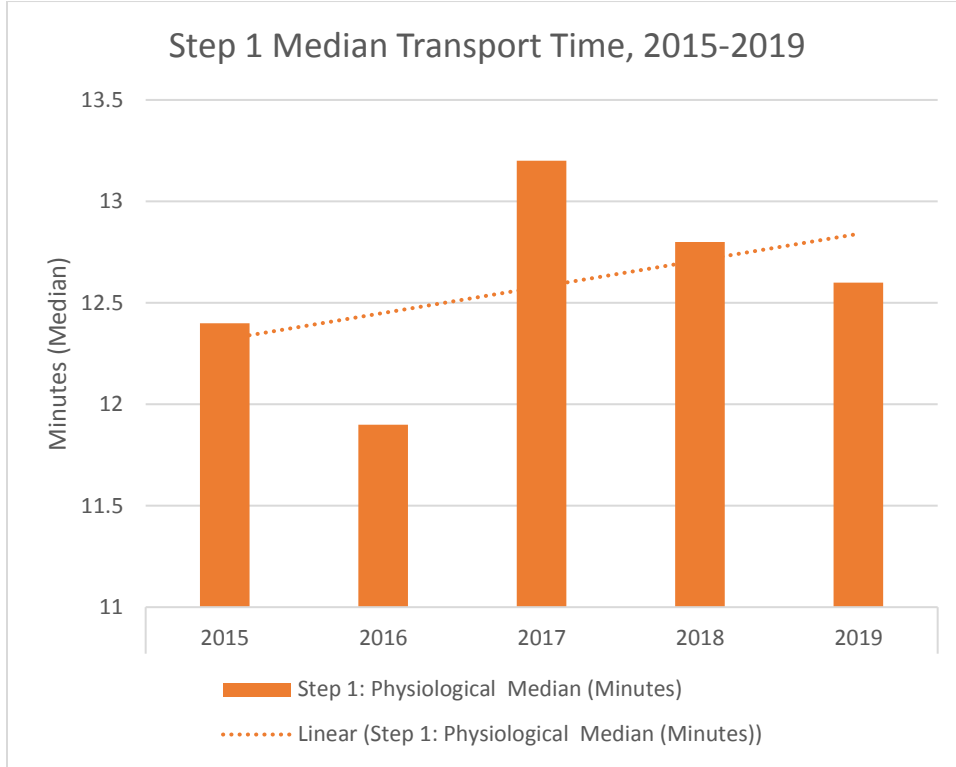
## Median Transport Time and Step (1-4), 2015-2019

		Year				
		2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	N	600	489	475	433	606
	Median (Minutes)	12m 24s	12m 0s	13m 12s	12m 48s	12m 36s
<b>Step 2: Anatomic</b>	N	606	762	784	758	732
	Median (Minutes)	11m 48s	12m 12s	13m 12s	12m 36s	12m 0s
<b>Step 3: Mechanism</b>	N	3726	4072	4528	4684	4654
	Median (Minutes)	15m 36s	15m 36s	15m 48s	16m 24s	15m 48s
<b>Step 4: Special Considerations</b>	N	814	1101	4885	5588	6812
	Median (Minutes)	15m 0s	15m 36s	16m 12s	16m 24s	15m 24s
<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 SNHD Trauma Field Triage Criteria (TFTC) Data.</i>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Step 1 Median Transport Time, 2015-2019

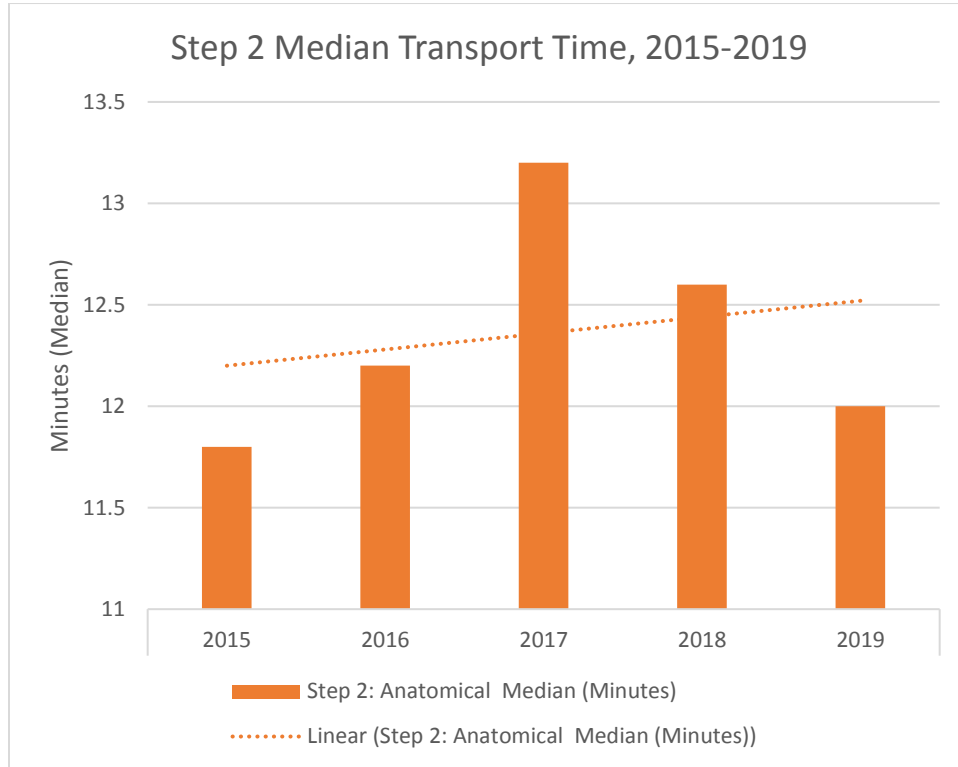


Step 1 Median Transport Time, 2015-2019		Year				
		2015	2016	2017	2018	2019
<b>Step 1: Physiologic</b>	N	600	489	475	433	606
	Median (Minutes)	12m 24s	12m 0s	13m 12s	12m 48s	12m 36s
Source: SNHD TFTC Data						
Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport 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.						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Step 2 Median Transport Time, 2015-2019

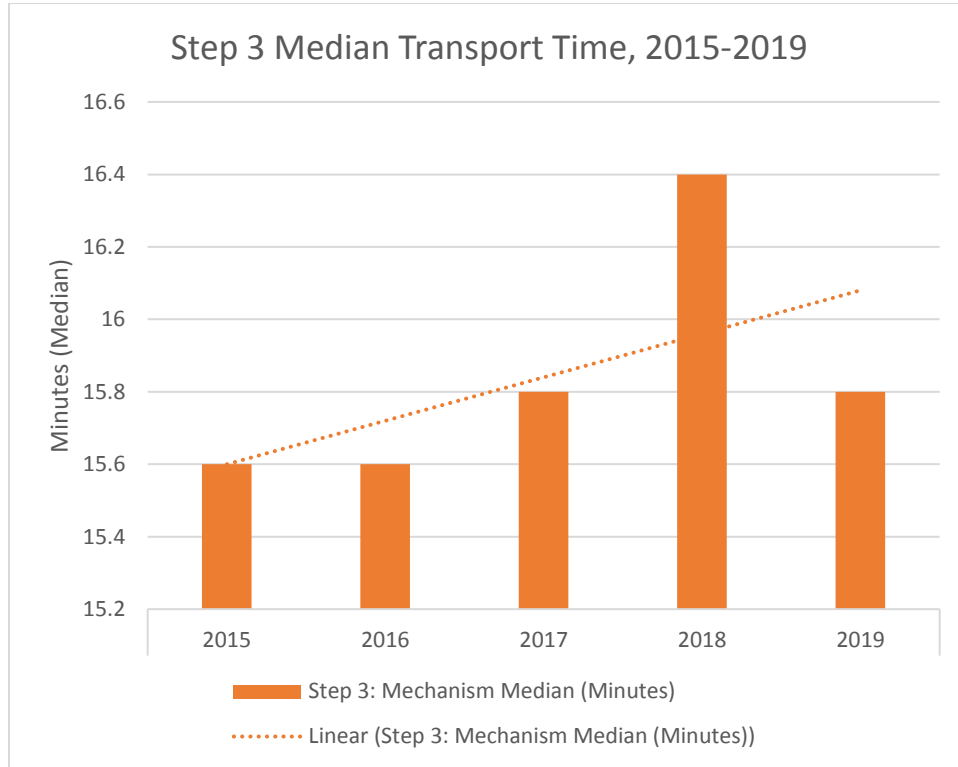


Step 2 Median Transport Time, 2015-2019		Year				
		2015	2016	2017	2018	2019
<b>Step 2: Anatomic</b>	N	606	762	784	758	732
	Median (Minutes)	11m 48s	12m 12s	13m 12s	12m 36s	12m 0s
Source: SNHD TFTC Data						
Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport time 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.						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Step 3 Median Transport Time, 2015-2019

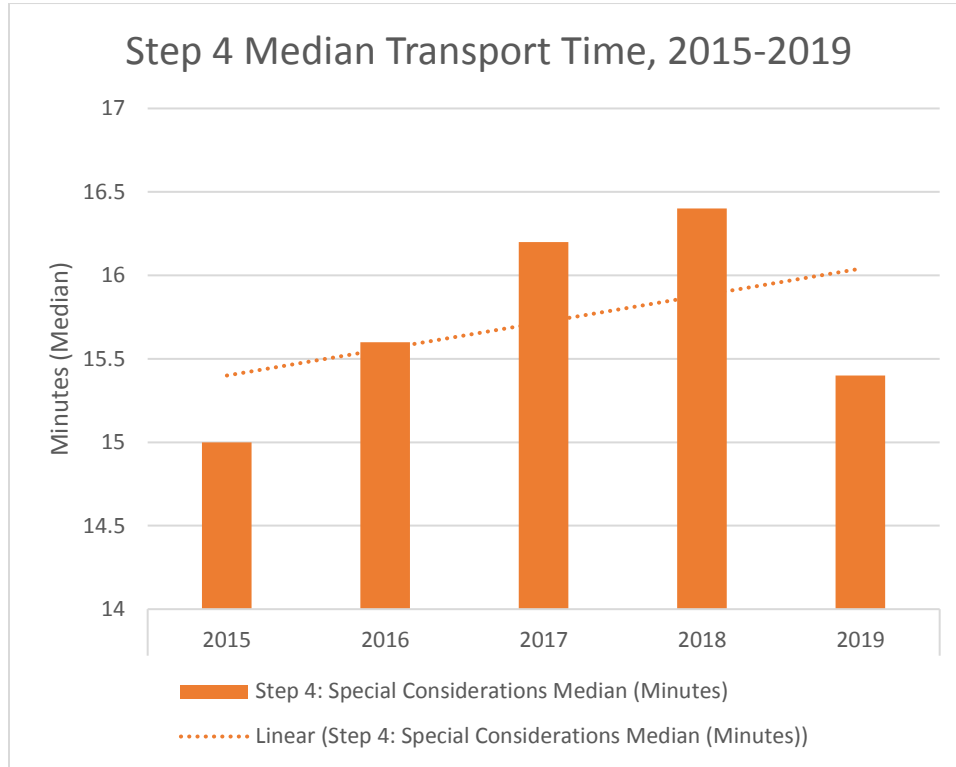


Step 3 Median Transport Time, 2015-2019		Year				
		2015	2016	2017	2018	2019
<b>Step 3: Mechanism</b>	N	3726	4072	4528	4684	4654
	Median (Minutes)	15m 36s	15m 36s	15m 48s	16m 24s	15m 48s
Source: SNHD TFTC Data						
Note: Includes all TFTC transports in the Southern Nevada Trauma System with a transport 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 Section A, 1-7.						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Step 4 Median Transport Time, 2015-2019



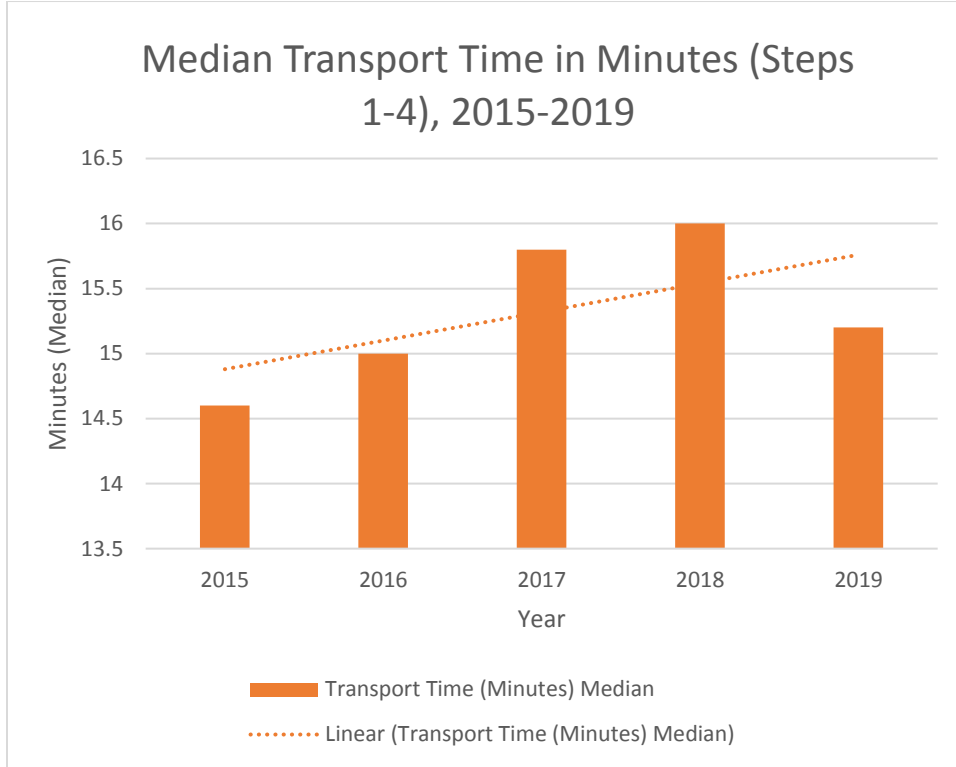
Step 4 Median Transport Time, 2015-2019		Year				
		2015	2016	2017	2018	2019
<b>Step 4: Special Considerations</b>	N	814	1101	4885	5588	6812
	Median (Minutes)	15m 0s	15m 36s	16m 12s	16m 24s	15m 24s
Source: SNHD TFTC Data						
Note: Includes all TFTC transports in the Southern Nevada Trauma System with 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.						





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Median Transport Time in Minutes (Steps 1-4), 2015-2019



Median Transport Time in Minutes (Steps 1-4), 2015-2019						
		2015	2016	2017	2018	2019
Transport Time (Minutes)	N	5746	6424	10672	11463	12804
	Median	14m 36s	15m 0s	15m 48s	16m 0s	15m 12s
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.						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

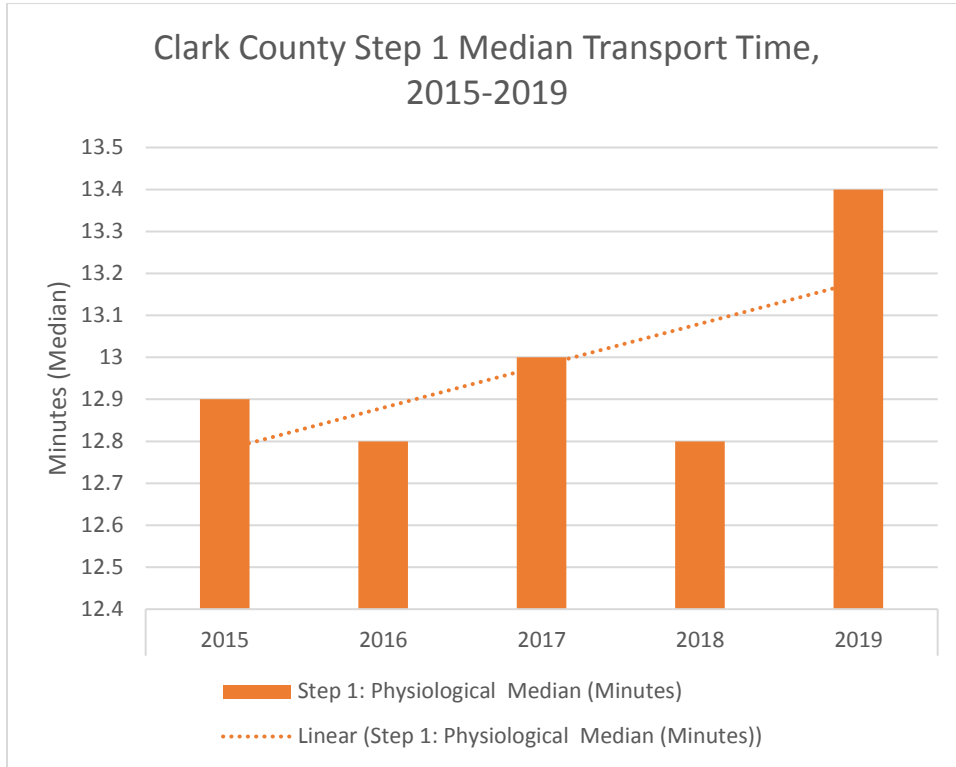
## Clark County Median Transport Time by Step (1-4), 2015-2019

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



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County Step 1 Median Transport Time, 2015-2019

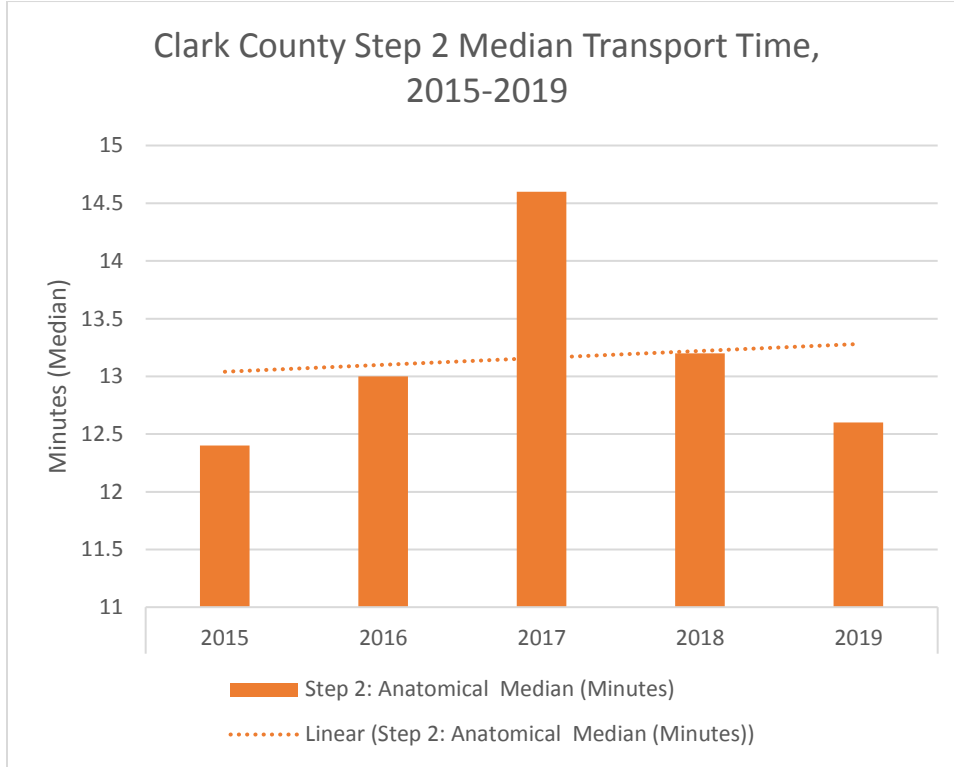


Clark County Step 1 Median Transport Time, 2015-2019						
		Year				
		2015	2016	2017	2018	2019
Step 1: Physiologic	N	502	382	416	385	504
	Median (Minutes)	12m 54s	12m 48s	13m 0s	12m 48s	13m 24s
Source: SNHD TFTC Data						
<p>Note: Data not listed if out of state or if zip code is unavailable. Service 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.</p>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County Step 2 Median Transport Time, 2015-2019

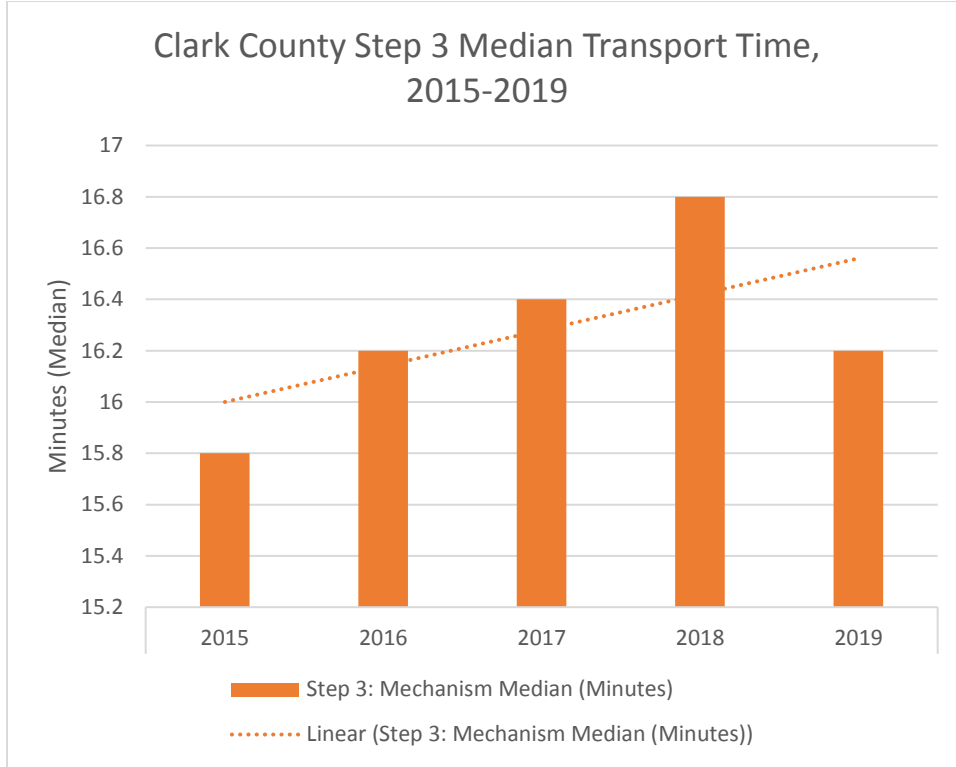


Clark County Step 2 Median Transport Time, 2015-2019						
		Year				
		2015	2016	2017	2018	2019
Step 2: Anatomic	N	525	629	631	668	631
	Median (Minutes)	12m 24s	13m 0s	14m 36s	13m 12s	12m 36s
Source: SNHD TFTC Data						
<p>Note: Data not listed if out of state or if zip code is unavailable. Service 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.</p>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County Step 3 Median Transport Time, 2015-2019

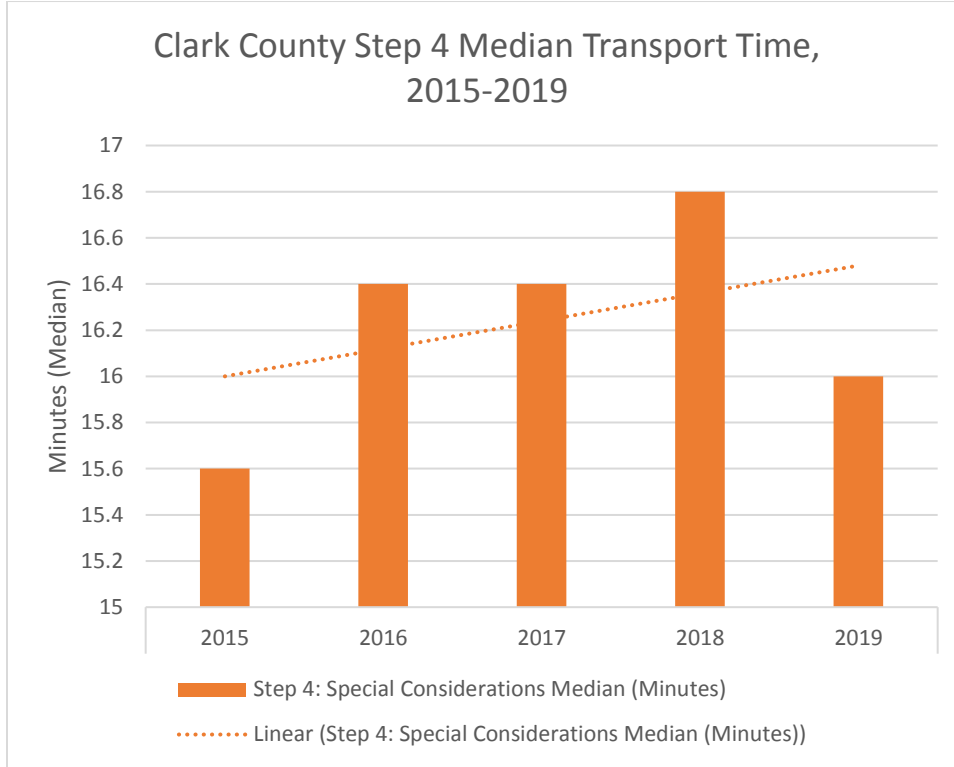


Clark County Step 3 Median Transport Time, 2015-2019						
		Year				
		2015	2016	2017	2018	2019
Step 3: Mechanism	N	3331	3494	3986	4093	4065
	Median (Minutes)	15m 48s	16m 12s	16m 24s	16m 48s	16m 12s
Source: SNHD TFTC Data						
<p>Note: Data not listed if out of state or if zip code is unavailable. 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.</p>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County Step 4 Median Transport Time, 2015-2019

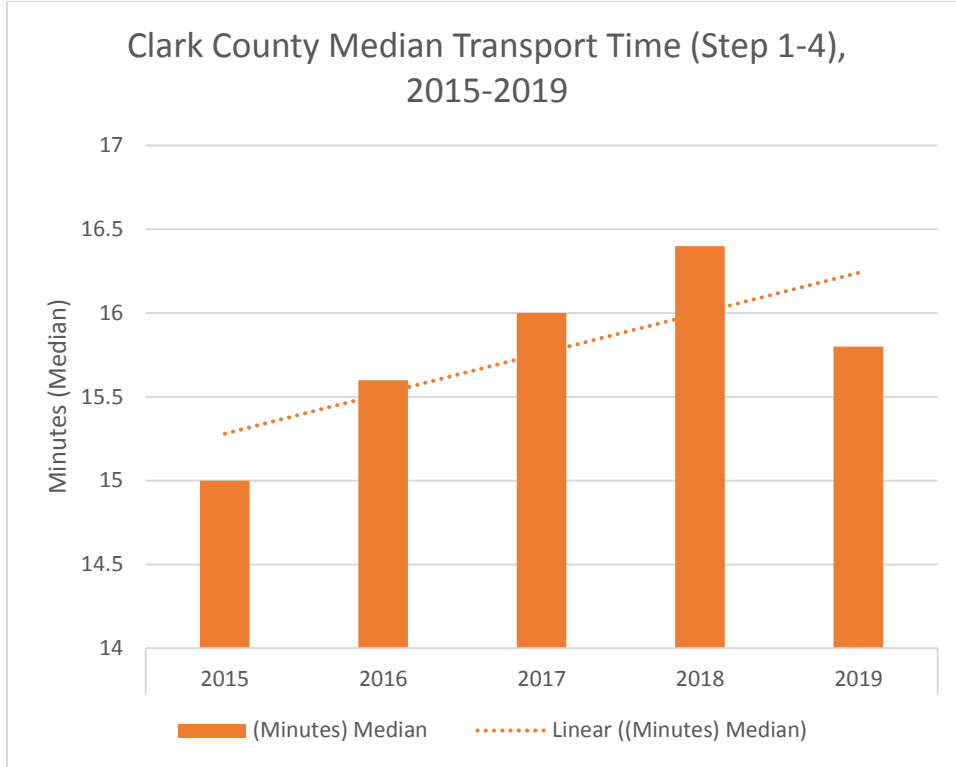


Clark County Step 4 Median Transport Time, 2015-2019						
		Year				
		2015	2016	2017	2018	2019
Step 4: Special Considerations	N	697	935	4370	4840	5730
	Median (Minutes)	15m 36s	16m 24s	16m 24s	16m 48s	16m 0s
Source: SNHD TFTC Data						
<p>Note: Data not listed if out of state or if zip code is unavailable. 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.</p>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Clark County (Composite) Median Transport Time by Step (1-4), 2015-2019

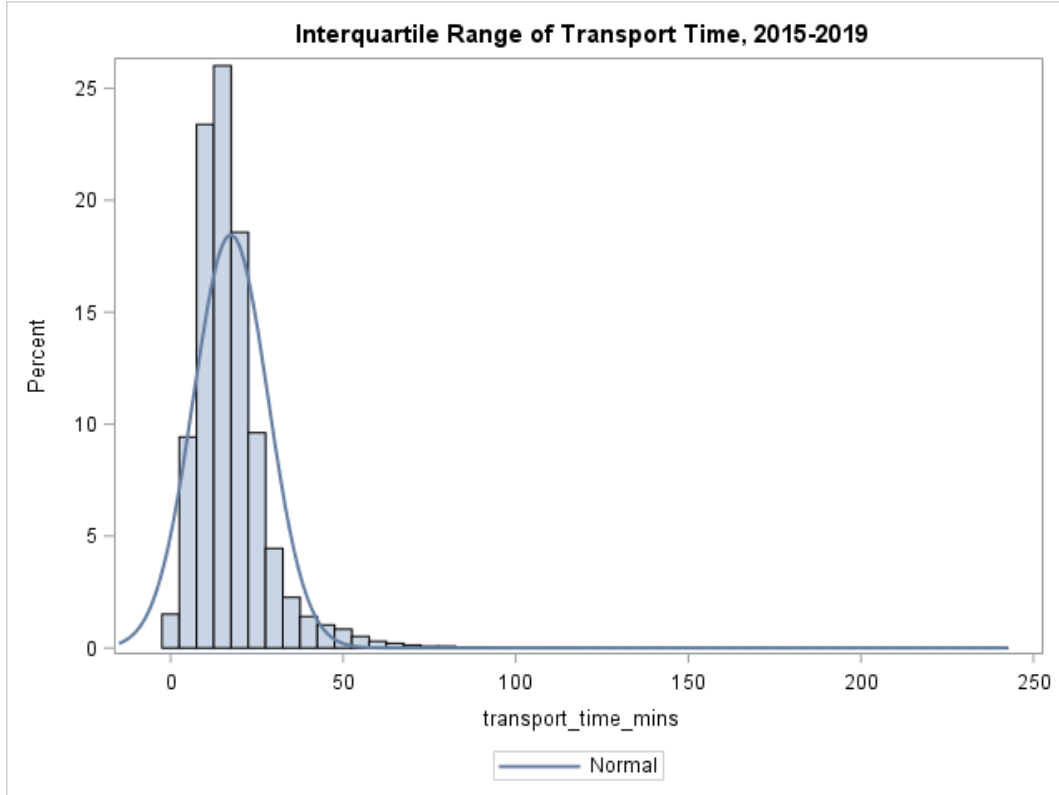


Clark County Median Transport Time (Step 1-4), 2015-2019		Year				
		2015	2016	2017	2018	2019
Transport Time (Minutes)	N	5060	5446	9414	9990	10931
	Median	15m 0s	15m 36s	16m 0s	16m 24s	15m 48s
Source: SNHD TFTC Data						
<p><i>Note: Data not listed if out of state or if zip code is unavailable. Service 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.</i></p> <p><i>Includes TFTC transports with a transport time greater than 0 seconds.</i></p>						



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Interquartile Range of Transport Time, 2015-2019



Interquartile Range of Transport Time, 2015-2019						
	Year					
	2015	2016	2017	2018	2019	2015-2019
<b>25<sup>th</sup> Percentile Transport Time (Minutes)</b>	10m 12s	10m 12s	11m 12s	11m 12s	10m 36s	10m 48s
<b>50<sup>th</sup> Percentile Transport Time (Minutes)</b>	14m 36s	15m 0s	15m 48s	16m 0s	15m 12s	15m 24s
<b>75<sup>th</sup> Percentile Transport Time (Minutes)</b>	20m 12s	20m 36s	21m 30s	21m 48s	21m 0s	21m 12s
<b>Quartile Range Transport Time (Minutes)</b>	10m 0s	10m 24s	10m 18s	10m 36s	10m 24s	10m 24s
<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.</i>						





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Incidents by Transport Time and Step, 2015-2019

TFTC Incidents by Transport Time and Step, 2015-2019					
	2015	2016	2017	2018	2019
<b>&gt;15 Minutes</b>					
<b>Step 1</b>	189	151	187	158	224
<b>Step 2</b>	204	259	328	271	253
<b>Step 3</b>	1951	2147	2474	2633	2475
<b>Step 4</b>	405	581	2710	3206	3547
<b>&gt;20 Minutes</b>					
<b>Step 1</b>	93	81	98	78	109
<b>Step 2</b>	98	128	159	142	123
<b>Step 3</b>	1044	1178	1419	1536	1417
<b>Step 4</b>	225	313	1508	1836	1942
<b>&gt;25 Minutes</b>					
<b>Step 1</b>	59	46	69	43	54
<b>Step 2</b>	56	75	85	82	50
<b>Step 3</b>	584	651	781	811	747
<b>Step 4</b>	114	172	798	966	954
<i>Source: SNHD TFTC Data</i>					
<i>Note: Includes all TFTC transports in the Southern Nevada Trauma System.</i>					



# 2019 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
<b>&lt;=15 Minutes</b>					
<b>Step 1</b>	408	334	285	272	375
<b>Total</b>	600	489	475	433	606
<b>%</b>	68	68.30	60	62.82	61.88
<b>Step 2</b>	396	499	450	480	474
<b>Total</b>	606	762	784	758	732
<b>%</b>	65.35	65.49	57.40	63.32	64.75
<b>Step 3</b>	1760	1906	2035	2021	2160
<b>Total</b>	3726	4072	4528	4684	4654
<b>%</b>	47.24	46.81	44.94	43.15	46.41
<b>Step 4</b>	405	513	2160	2359	3243
<b>Total</b>	814	1101	4885	5588	6812
<b>%</b>	49.75	46.59	44.22	42.22	47.61
<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. Missing 3 frequencies.</i>					



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Regional Incidents

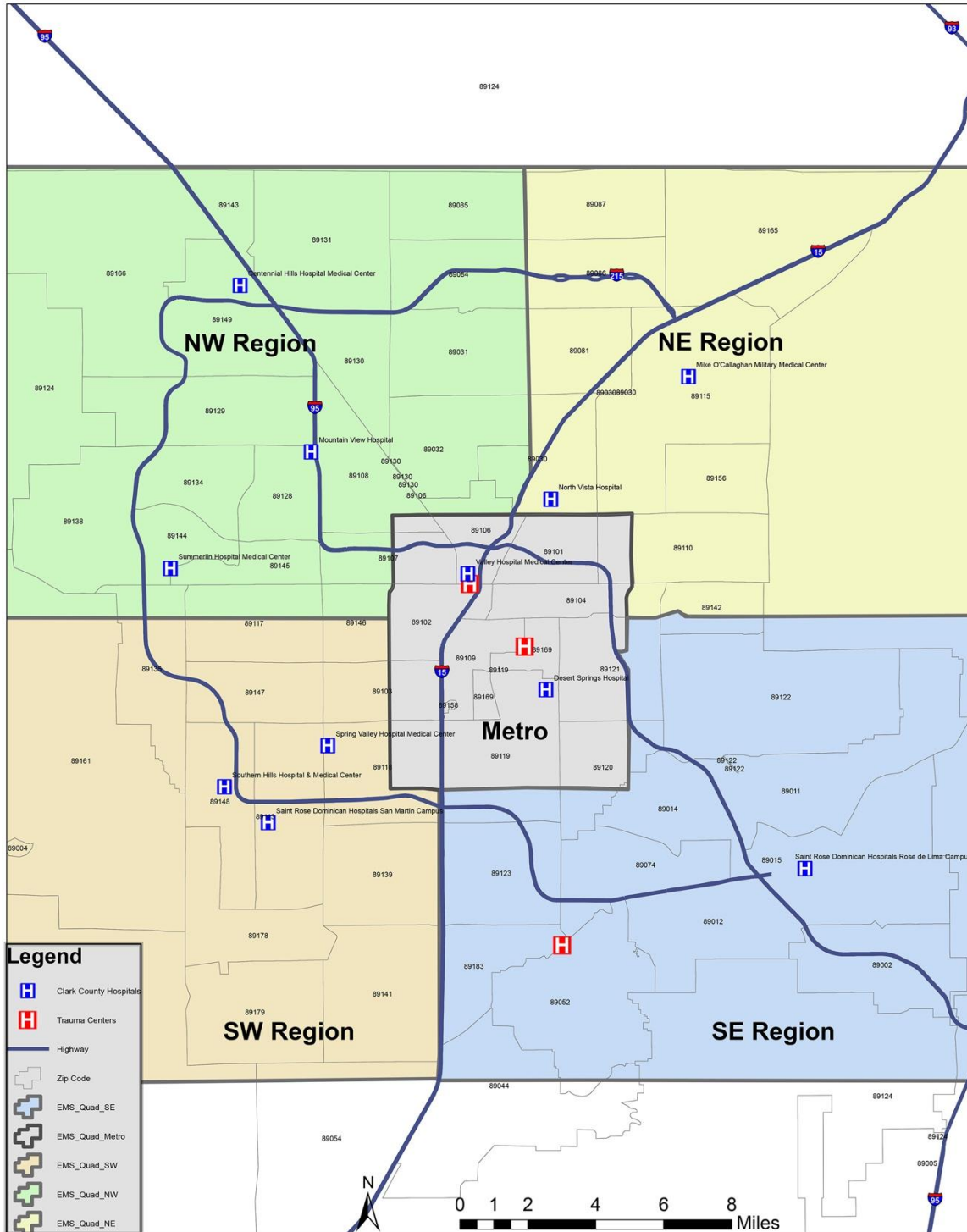
### Intent

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. (Note: These regions are not catchment areas.)



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

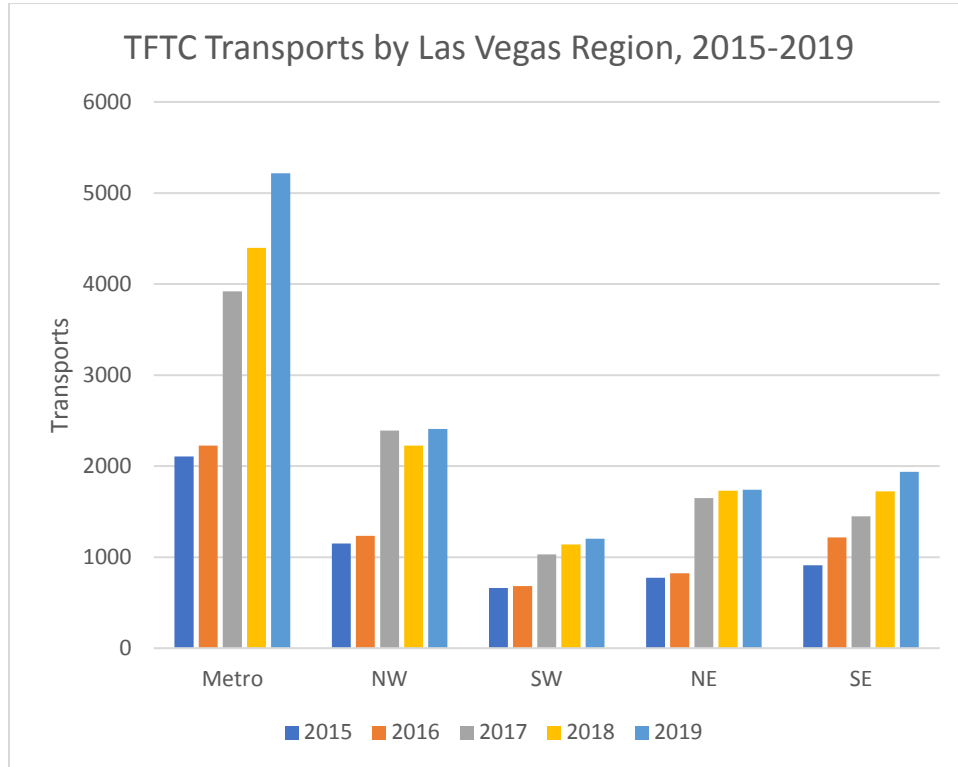
## TFTC Regional Map





# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Incident Total by Las Vegas Region, 2015-2019



TFTC Transports by Las Vegas Region, 2015-2019					
	2015	2016	2017	2018	2019
<b>Metro</b>	2105	2224	3918	4398	5218
<b>NW</b>	1149	1235	2392	2224	2407
<b>SW</b>	662	681	1030	1140	1201
<b>NE</b>	772	821	1649	1729	1741
<b>SE</b>	912	1216	1448	1724	1938
<b>Total</b>	5600	6177	10437	11215	12839

Source: SNHD TFTC Data



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## TFTC Transports by Las Vegas Region and Step, 2015-2019

TFTC Transports by Las Vegas Region and Step, 2015-2019					
	2015	2016	2017	2018	2019
<b>Step 1</b>					
<b>Metro</b>	256	212	181	171	230
<b>NW</b>	110	92	117	93	139
<b>SW</b>	56	48	57	41	73
<b>NE</b>	73	47	67	84	70
<b>SE</b>	95	79	56	44	84
<b>Step 2</b>					
<b>Metro</b>	237	333	337	305	290
<b>NW</b>	128	129	136	133	131
<b>SW</b>	34	56	62	53	58
<b>NE</b>	121	124	119	133	134
<b>SE</b>	85	113	119	123	113
<b>Step 3</b>					
<b>Metro</b>	1218	1249	1414	1515	1513
<b>NW</b>	736	779	954	880	913
<b>SW</b>	516	506	542	578	615
<b>NE</b>	495	517	606	615	614
<b>SE</b>	620	808	804	885	783
<b>Step 4</b>					
<b>Metro</b>	394	430	1986	2406	3185
<b>NW</b>	175	235	1185	1118	1224
<b>SW</b>	56	71	369	468	455
<b>NE</b>	83	133	857	895	923
<b>SE</b>	112	216	469	672	958
<i>Source: SNHD TFTC Data</i>					
<i>Note: 2018 Metro is missing 1 incident and 2018 NE is missing 2 incidents due to classification</i>					



# 2019 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.

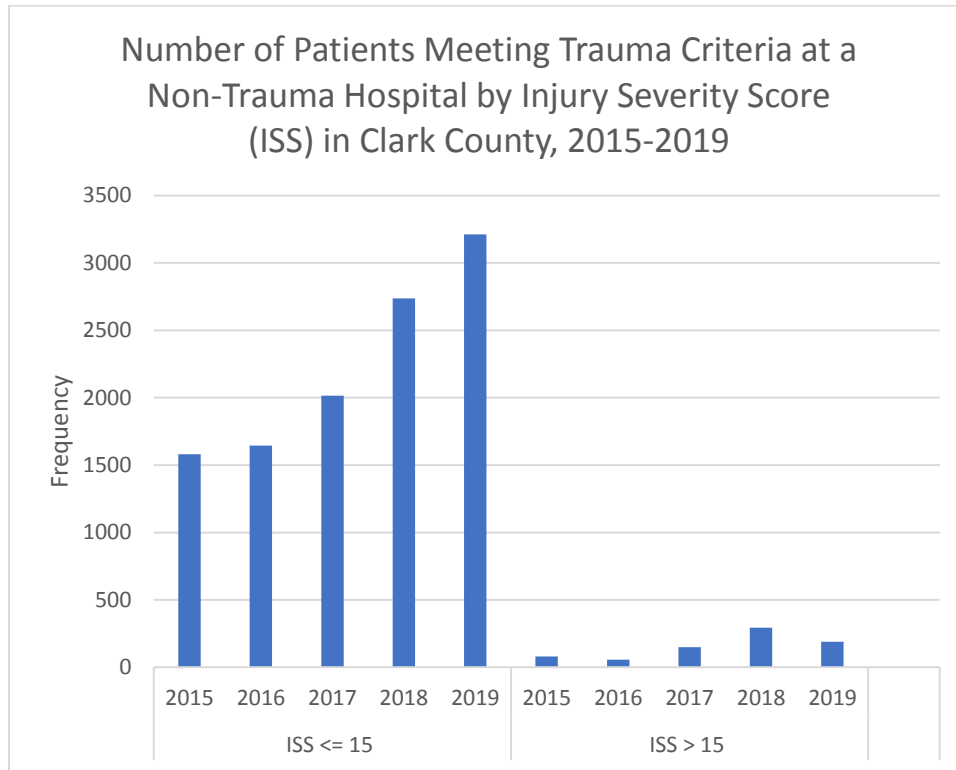
Non-Trauma Center Hospital Data is provided to analyze trauma outside of the three designated trauma centers. Due to the inclusion criteria and collection methods, the NV State Trauma Registry and the TFTC Trauma Center Trauma Registry are incompatible. Patients identified as meeting trauma inclusion 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.



# 2019 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, 2015-2019



Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital by Injury Severity Score (ISS) in Clark County, 2015-2019										
	ISS <= 15					ISS > 15				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
<b>All</b>	1580	1644	2016	2737	3213	79	57	149	294	188
<i>Source: State Trauma Registry data</i>										





## 2019 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, 2015-2019

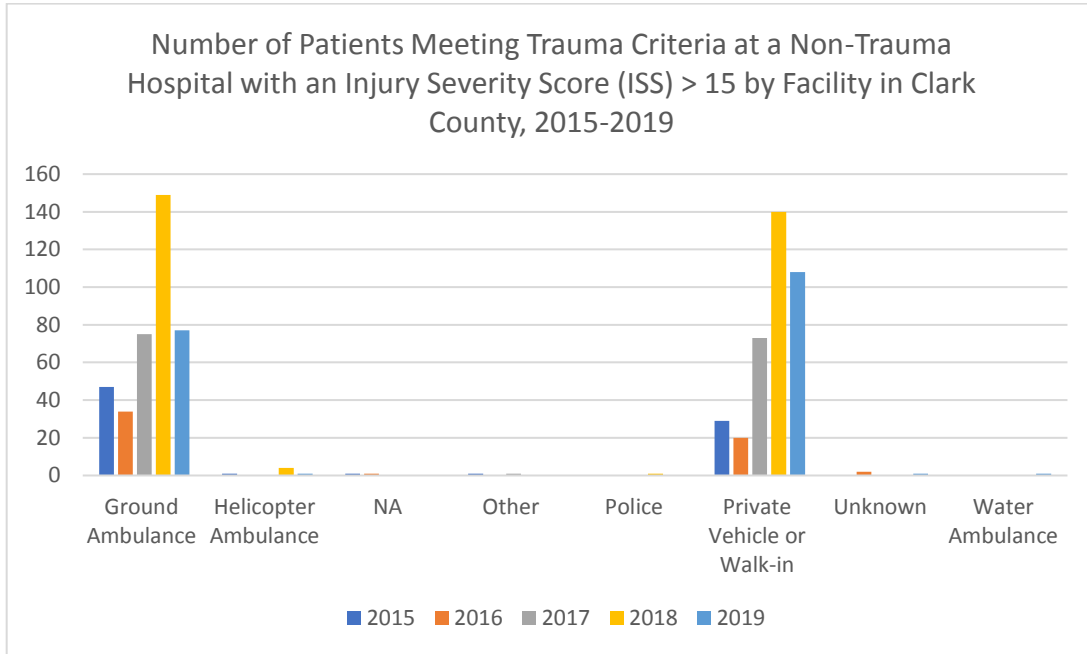
Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity Score (ISS) > 15 by Facility in Clark County, 2015-2019					
	2015	2016	2017	2018	2019
<b>Boulder City Hospital</b>	1	0	0	14	1
<b>Centennial Hills Hospital</b>	4	2	90	102	13
<b>Desert Springs Hospital Medical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

*Source: State Trauma Registry data*



# 2019 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, 2015-2019



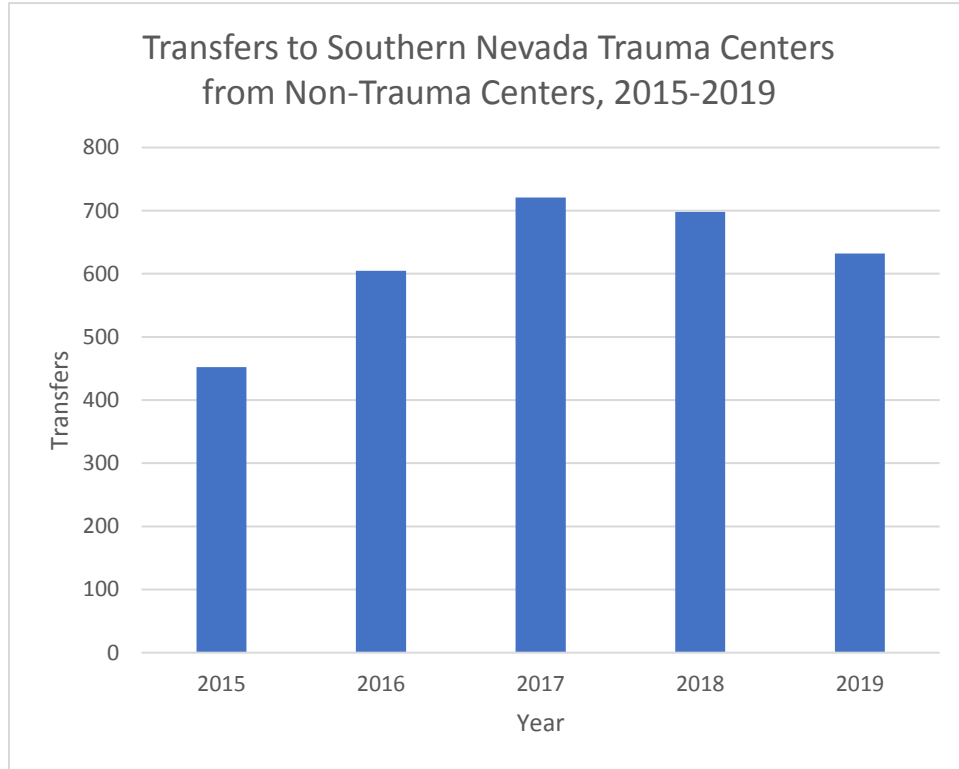
Number of Patients Meeting Trauma Criteria at a Non-Trauma Hospital with an Injury Severity Score (ISS) > 15 by Facility in Clark County, 2015-2019					
	2015	2016	2017	2018	2019
<b>Ground Ambulance</b>	47	34	75	149	77
<b>Helicopter Ambulance</b>	1	0	0	4	1
<b>NA</b>	1	1	0	0	0
<b>Other</b>	1	0	1	0	0
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

Source: State Trauma Registry data



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Transfers to Southern Nevada Trauma Centers from Non-Trauma Centers, 2015-2019



Transfers into Southern Nevada Trauma Centers from Non-Trauma Centers, 2015-2019					
	2015	2016	2017	2018	2019
<b>All</b>	452	605	721	698	632
<i>Source: State Trauma Registry data</i>					



## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### Emergency Department and Trauma Center Hours, 2016-2019

#### 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. A Trauma Center, even if an integrated part of an ED, 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.



# 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

## Operational Hours for Emergency Departments and Trauma Centers, 2016-2019

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

*Source: Juvare EMS Data System*

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

*Source: Juvare EMS Data System*

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

*Source: Juvare EMS Data System*

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

*Source: Juvare EMS Data System*



## 2019 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 2019, 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 2019, TMAC did not observe any delays in care in trauma services.
- For 2019, TMAC has not identified any significant change in trends in system performance.
- For 2019, TMAC did not observe any aberrations in out of hospital deaths, patients treated in non-trauma center hospitals, or prehospital services.
- For 2019, TMAC recommends reviewing the current Southern Nevada Trauma System Plan and update if deemed necessary.

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



# 2019 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.



# 2019 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.





## 2019 CLARK COUNTY TRAUMA NEEDS ASSESSMENT REVIEW

### 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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