



TEXAS
Health and Human
Services

**Texas Department of State
Health Services**

Leading Causes of Injuries 2018-2020 and Double Transfers 2020

Prepared by the Office of Injury Prevention
March 11, 2022

Jia Benno, MPH

Office of Injury Prevention Manager

Methodology



TEXAS
Health and Human
Services

Texas Department of State
Health Services

Emergency Medical Services/Trauma Registries - notes

- The data used were traumatic injuries reported by hospitals. (Specified in Texas Administrative Code, Title 25, Chapter 103)
- The data used were reported to the Emergency Medical Services/Trauma Registries (EMS/TR) through a passive surveillance system. Non-fatal and fatal data was based on the trauma dataset, not hospitalization or death files.
- Transfers between hospitals resulted in more than one record as each hospital must independently report to EMS/TR.
- Non-missing cells with nonzero values less than 5 were suppressed and noted by an asterisk.



Variables Identified 2018-2020

Non-fatal and Fatal Trauma Hospitalizations

- Intent
- Unintentional
- Assault
- Self-harm
- Undetermined
- Legal/War

Mechanism

- Fall
- Motor Vehicle – Occupant
- Firearm
- Struck by/Against
- Cut/Pierce
- Hot Object/Substance
- Motor Vehicle – Motorcyclist
- Motor Vehicle - Pedestrian

Demographics



Texas Population 2018-2020

All Ages Population Estimates

- 2018 – 28,702,243 (State Demographer)
- 2019 – 29,001,602 (State Demographer)
- 2020 – 29,527,941 (Census quick facts)

Pediatric Population Estimates (Ages 0-17)

- 2018 – 7,370,193 (Census)
- 2019 – 7,437,514 (Census)
- 2020 – 7,515,129 (Census)

NON-FATAL TRAUMA HOSPITALIZATIONS



TEXAS
Health and Human
Services

Texas Department of State
Health Services

Non-Fatal Hospitalizations 2018-2020

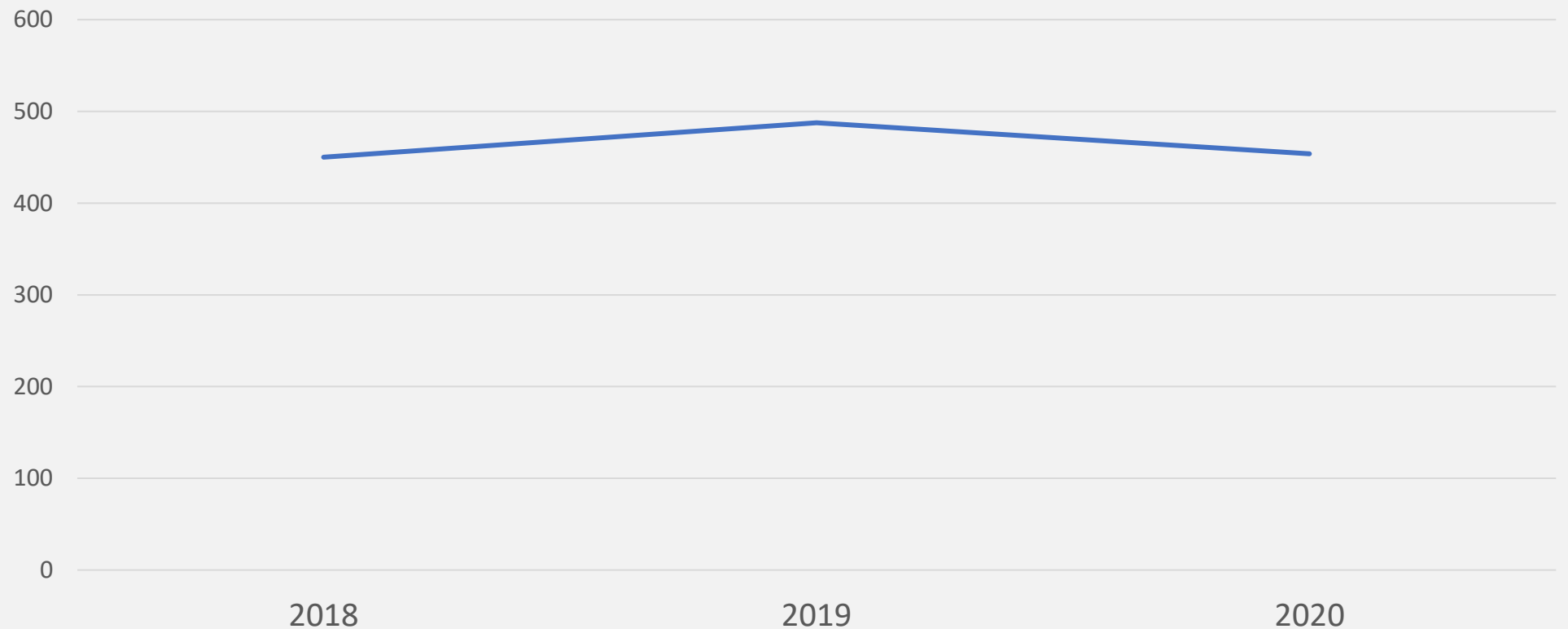
	All Ages	
	Counts	Rates
2018	129,222	450.22
2019	141,437	487.69
2020	133,973	453.72

	Pediatric	
	Counts	Rates
2018	18,640	252.91
2019	20,105	270.32
2020	18,817	250.39



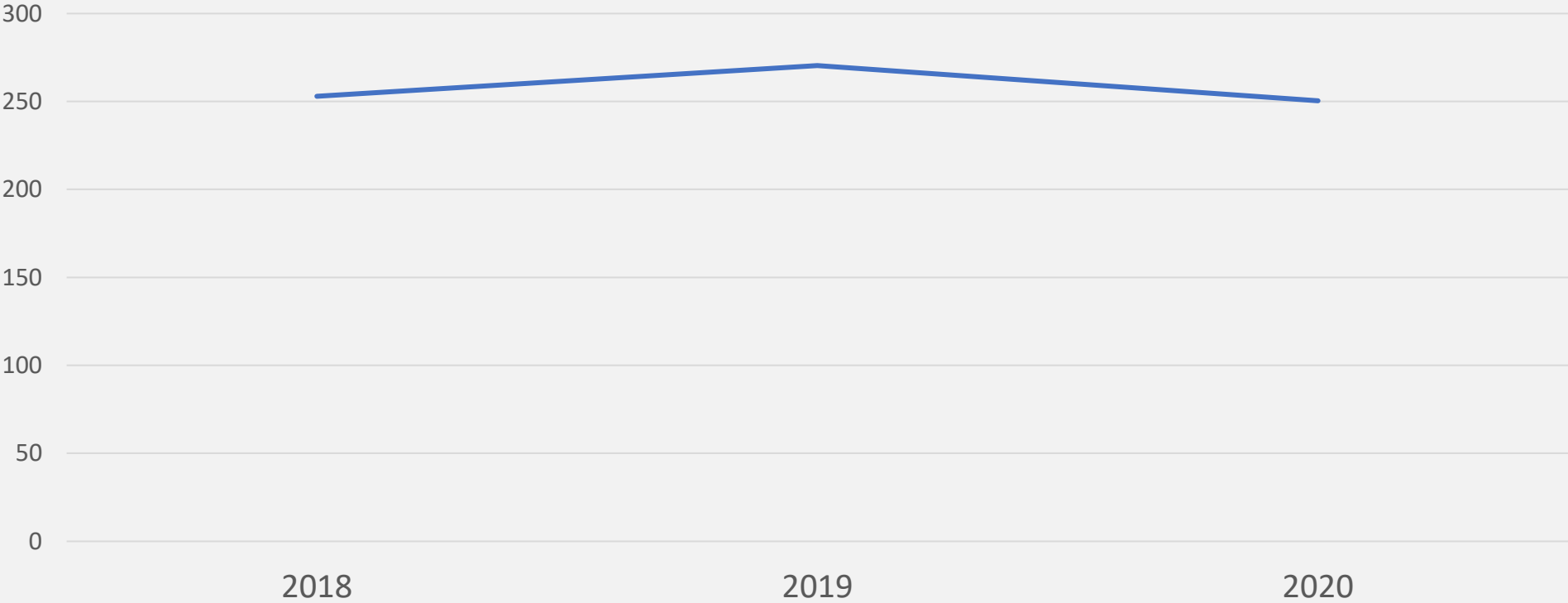
Non-Fatal Rate per Year 2018-2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population, 2018-2020



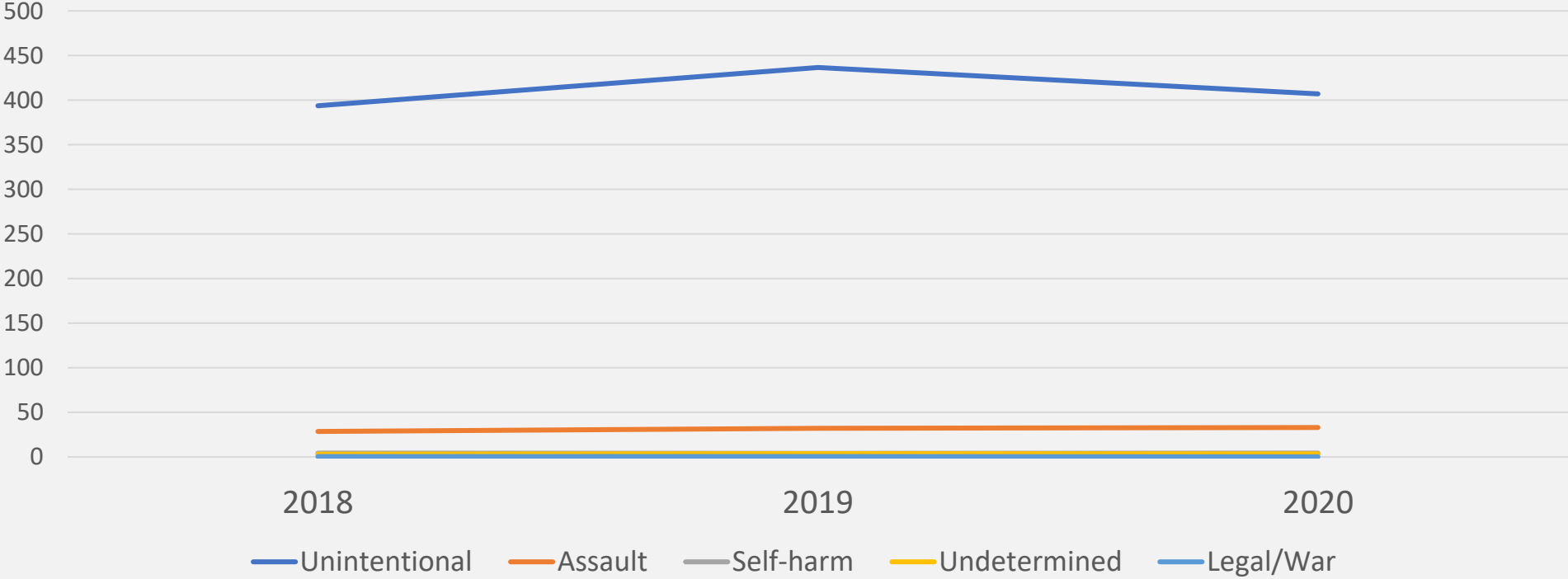
Pediatric Non-Fatal Rate per Year 2018-2020

Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population,
2018-2020



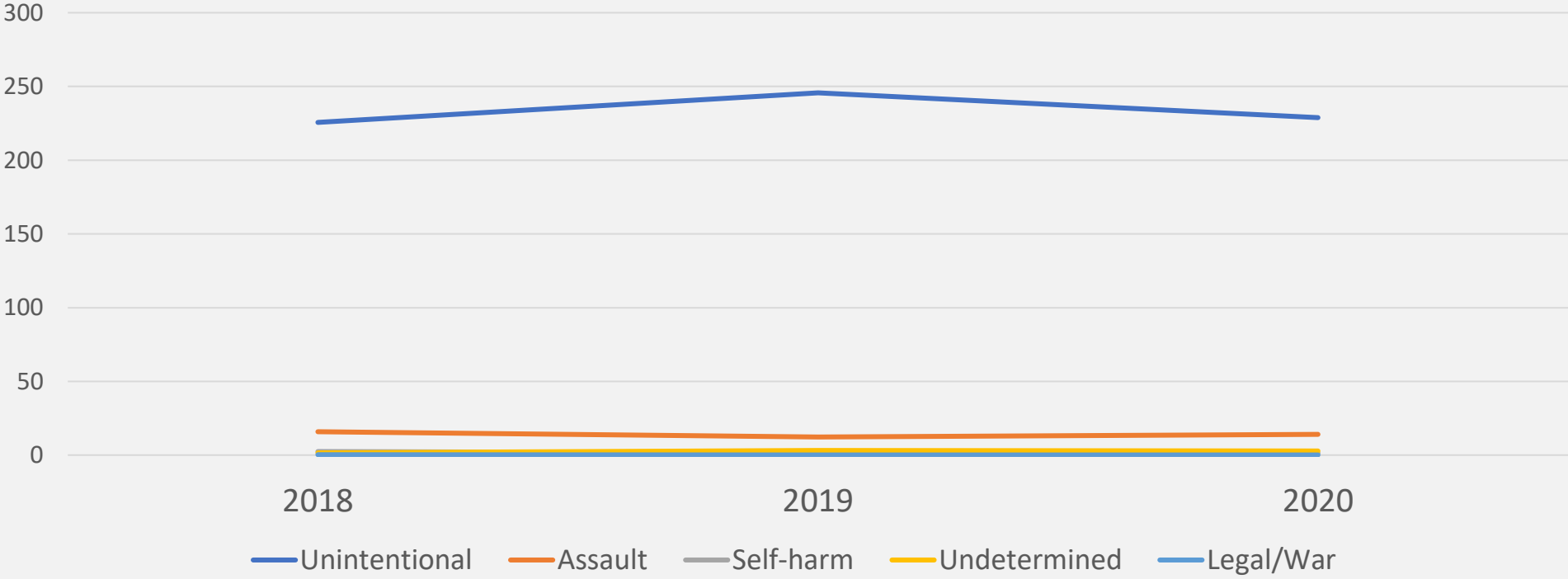
Non-Fatal by Intent 2018-2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Intent, 2018-2020



Pediatric Non-Fatal by Intent 2018-2020

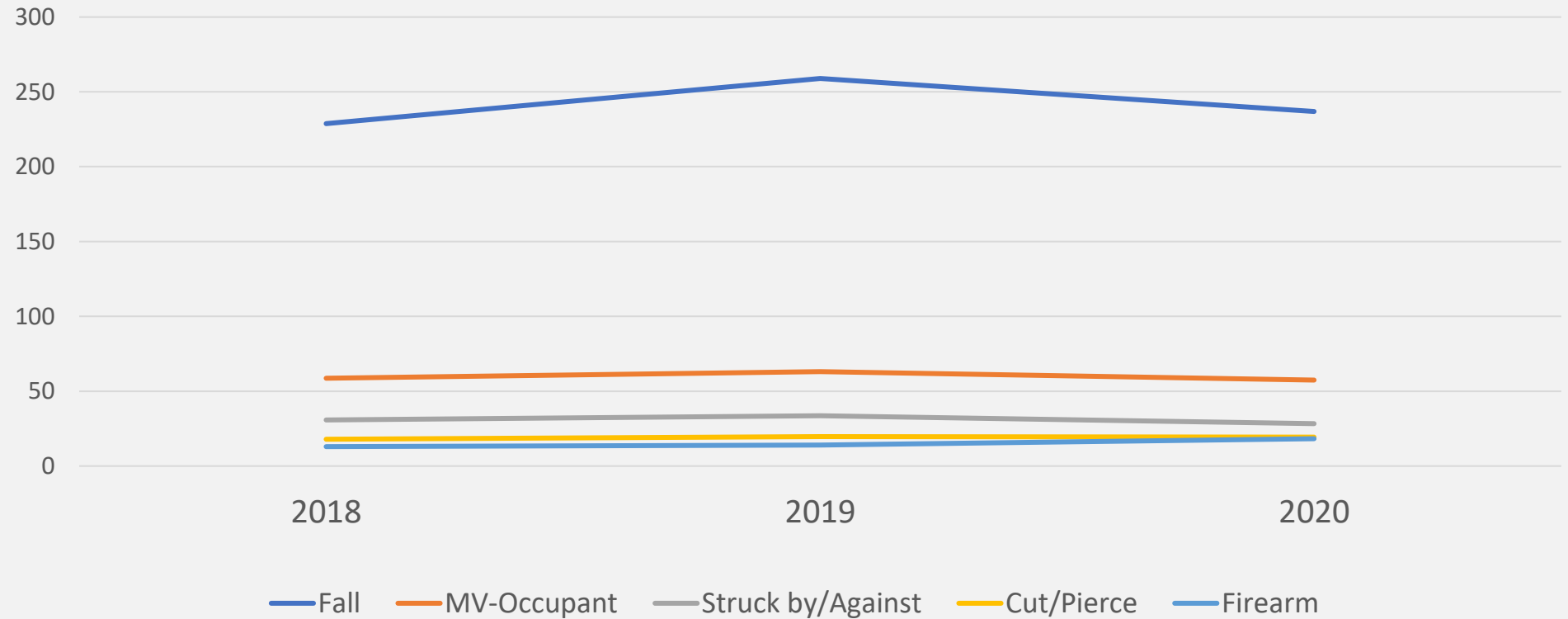
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Intent, 2018-2020



Texas Department of State Health Services

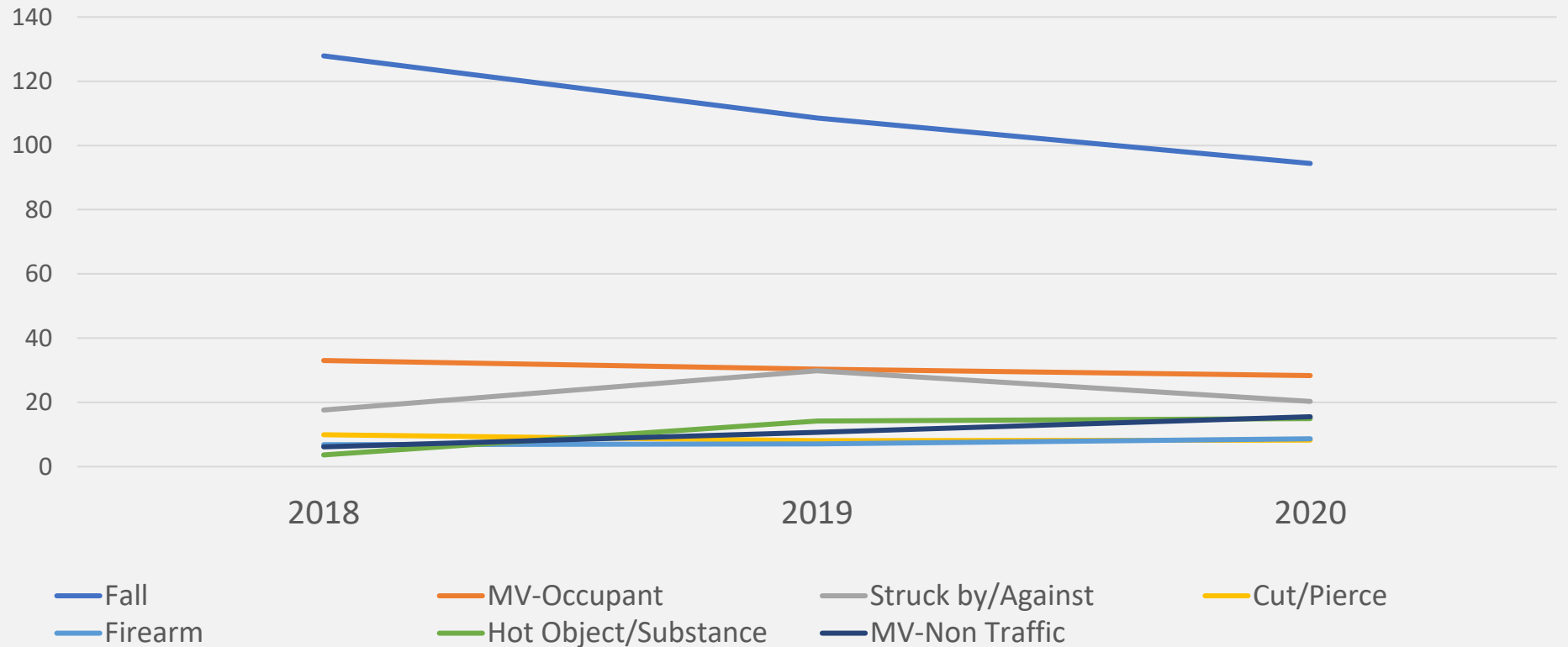
Non-Fatal by Mechanism 2018-2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism, 2018-2020



Pediatric Non-Fatal by Mechanism 2018-2020

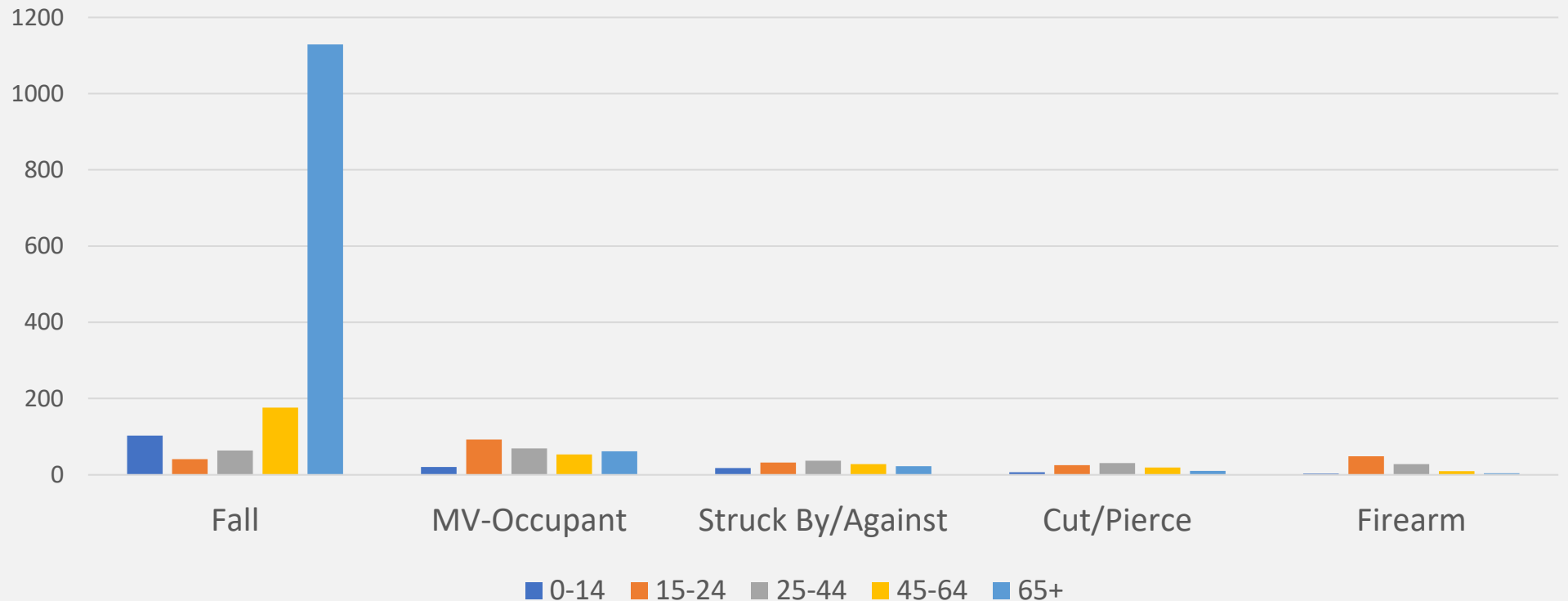
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population
by Mechanism, 2018-2020



Texas Department of State
Health Services

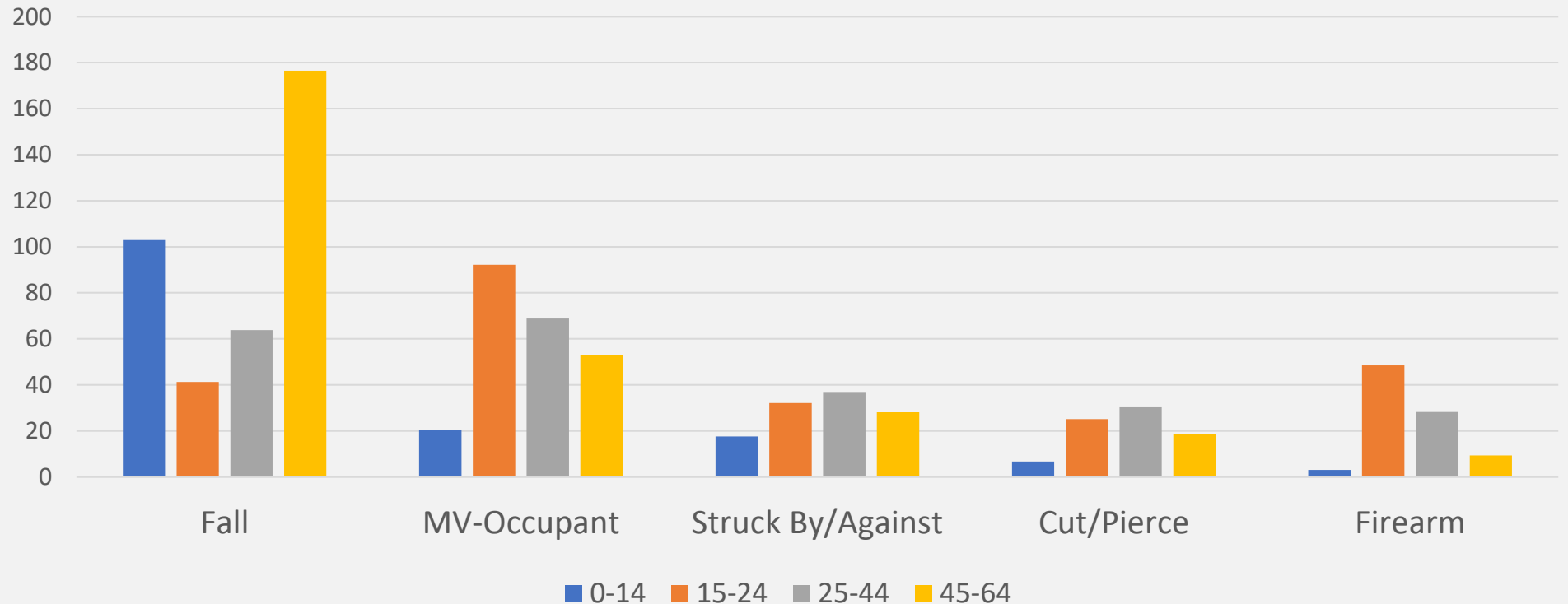
Non-Fatal Mechanism by Age Group 2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



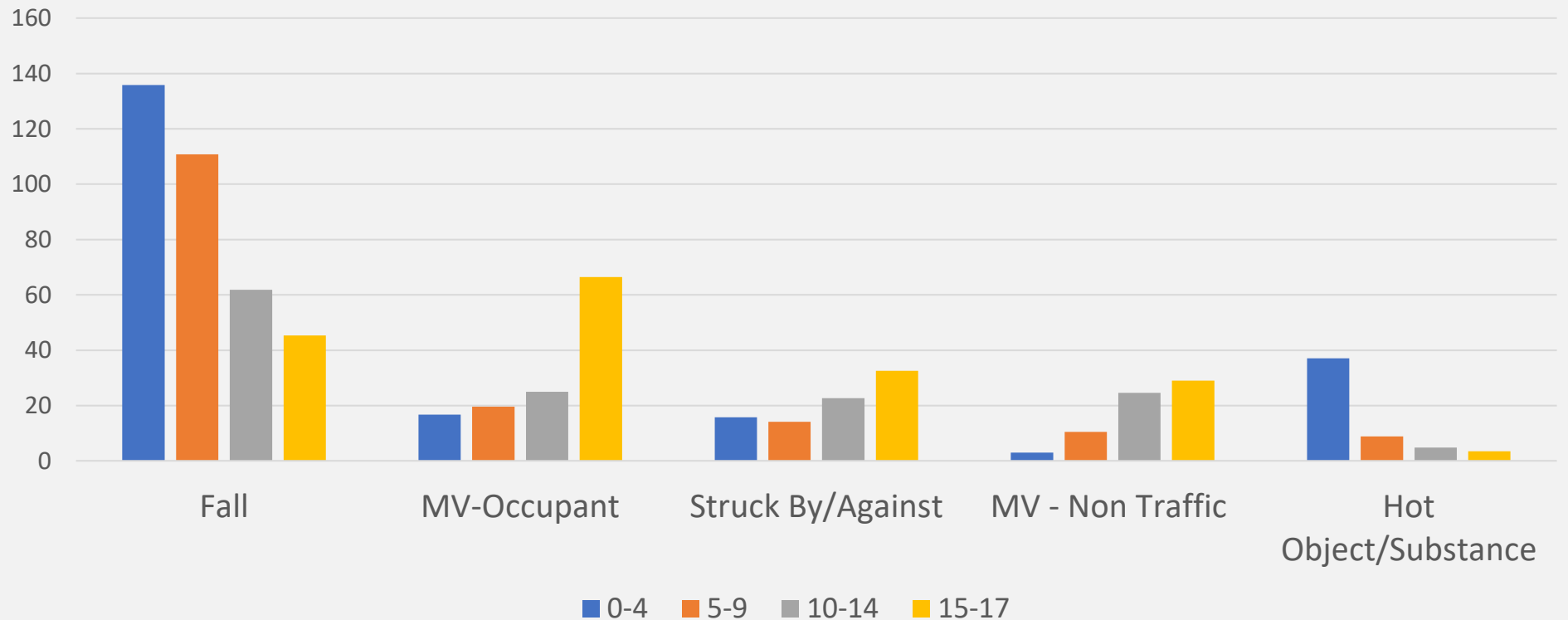
Non-Fatal Mechanism by Age Group Excluding 65+ 2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by
Mechanism and Age, 2020



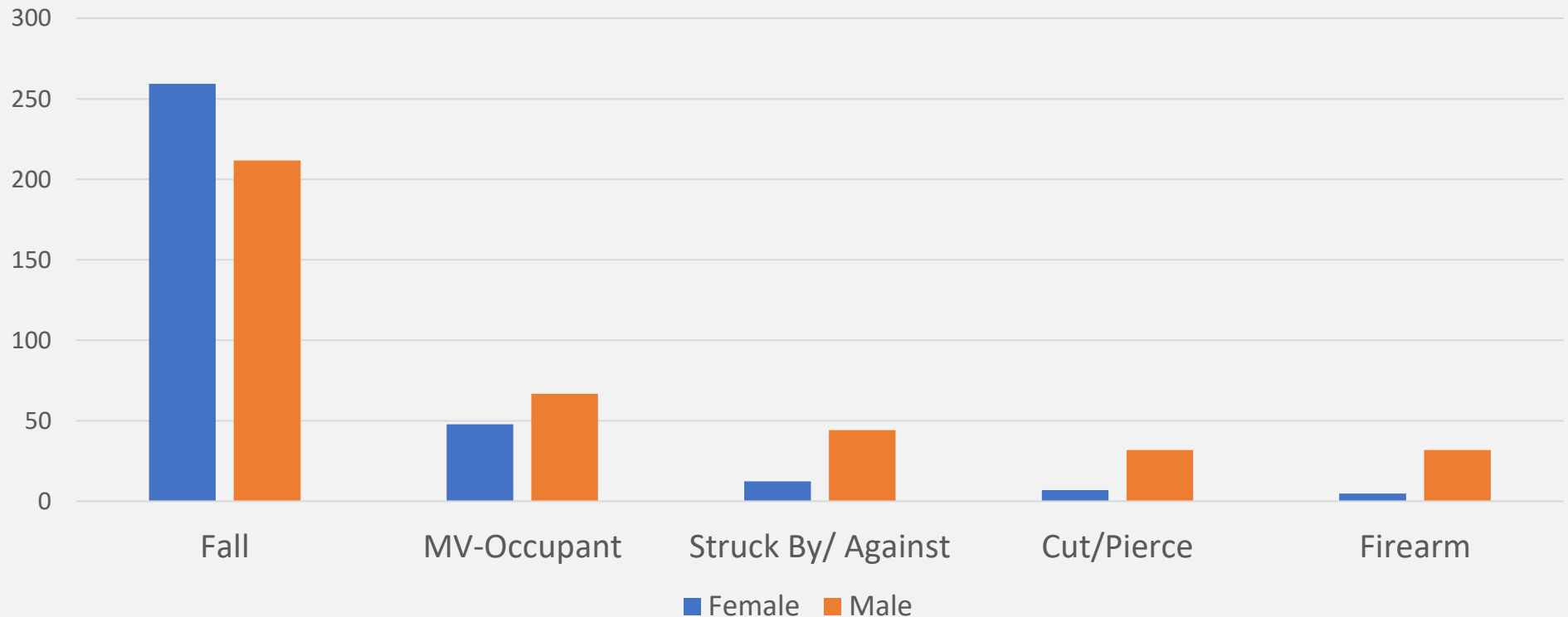
Pediatric Non-Fatal Mechanism by Age Group 2020

Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



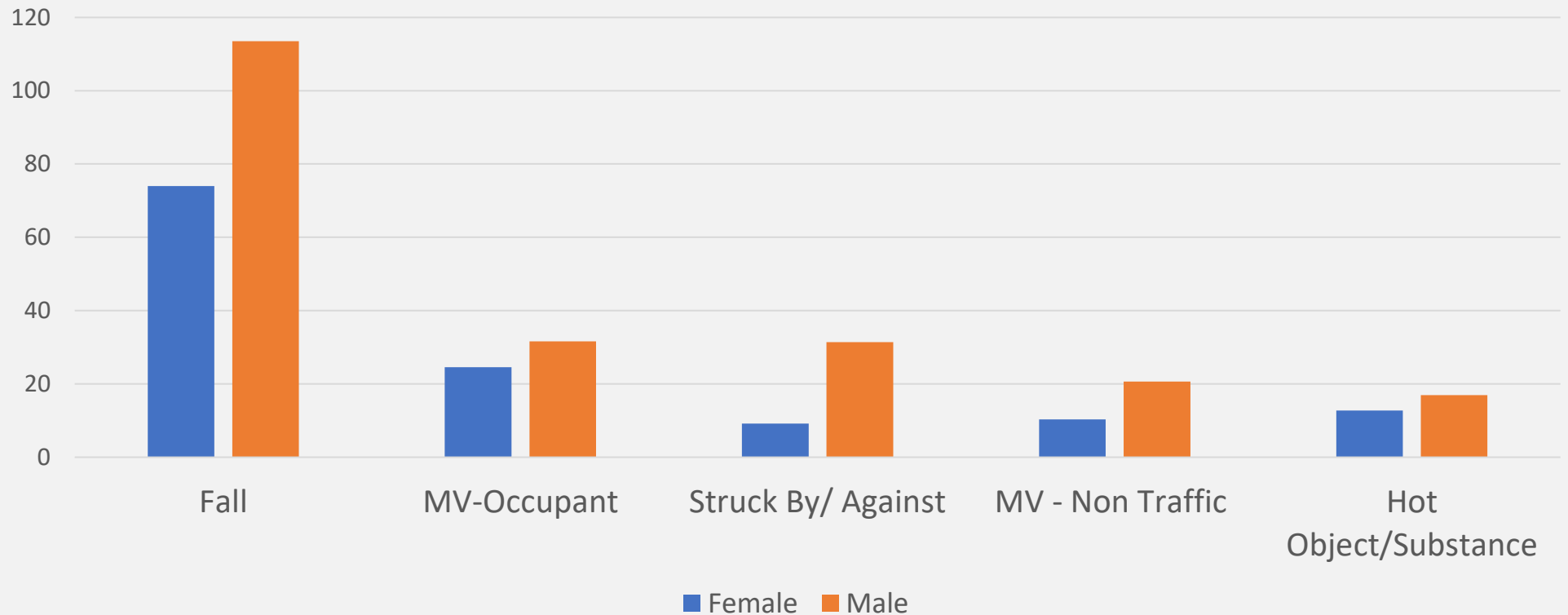
Non-Fatal by Mechanism and Gender 2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



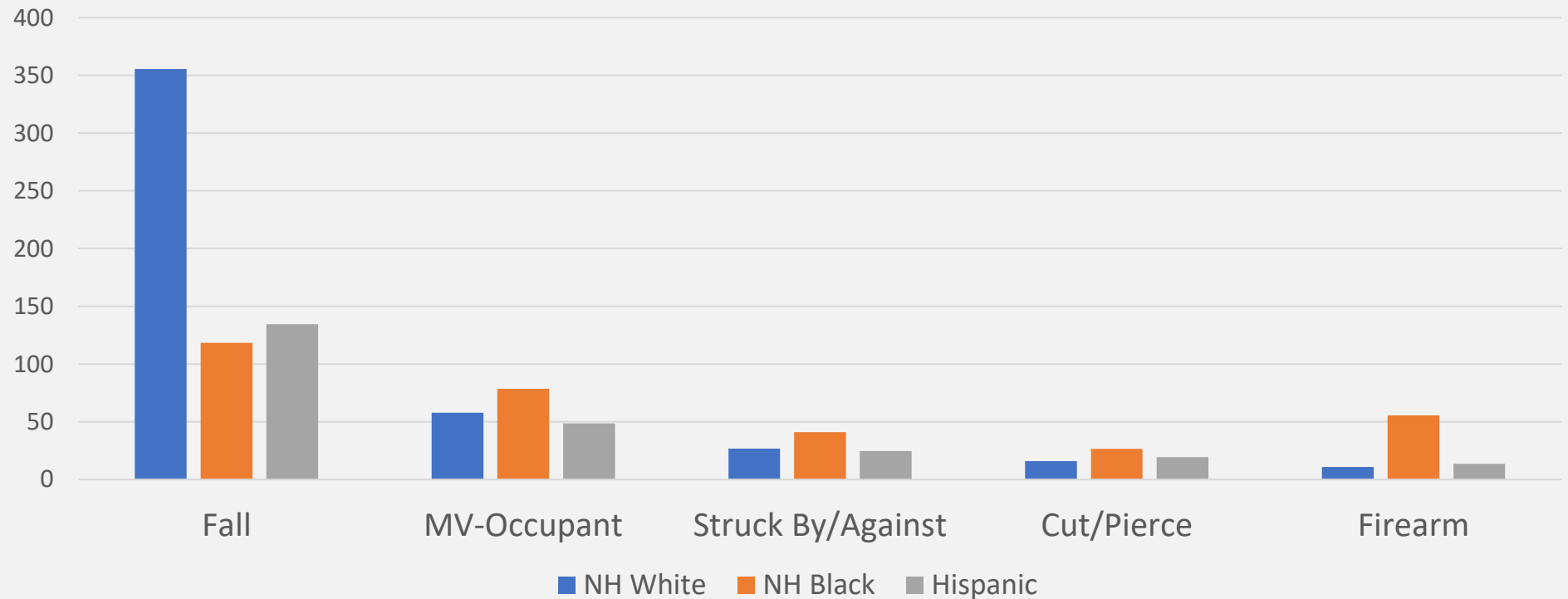
Pediatric Non-Fatal by Mechanism and Gender 2020

Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



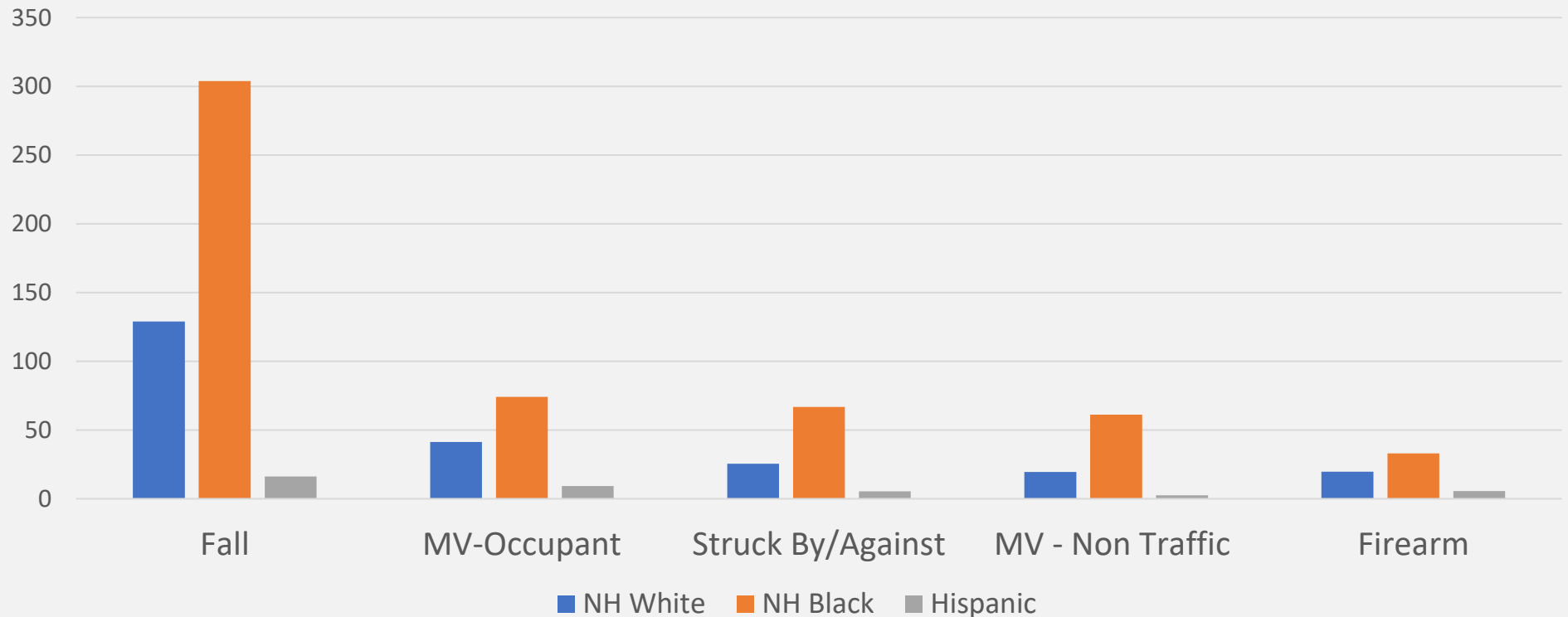
Non-Fatal by Race and Ethnicity 2020

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Race and Ethnicity, 2020



Pediatric Non-Fatal by Race and Ethnicity 2020

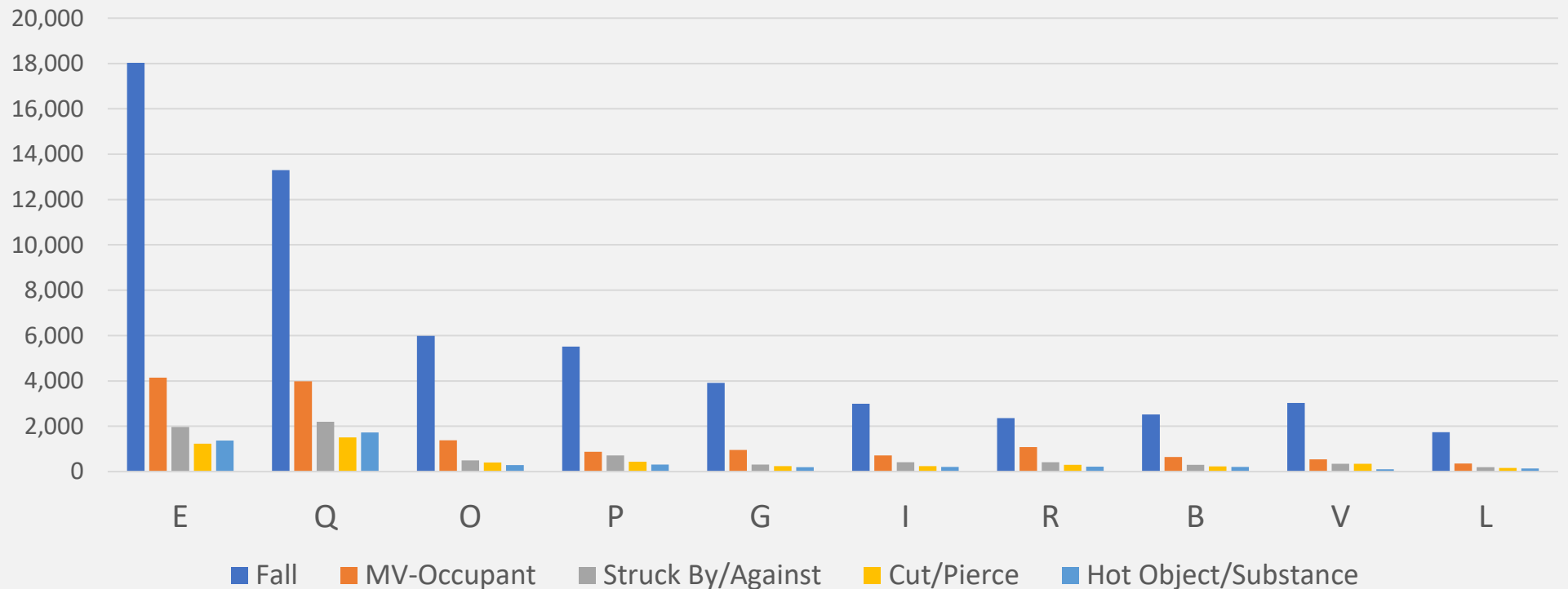
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Race and Ethnicity, 2020



Non-Fatal by TSA and Mechanism

2020 – Top 10

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020

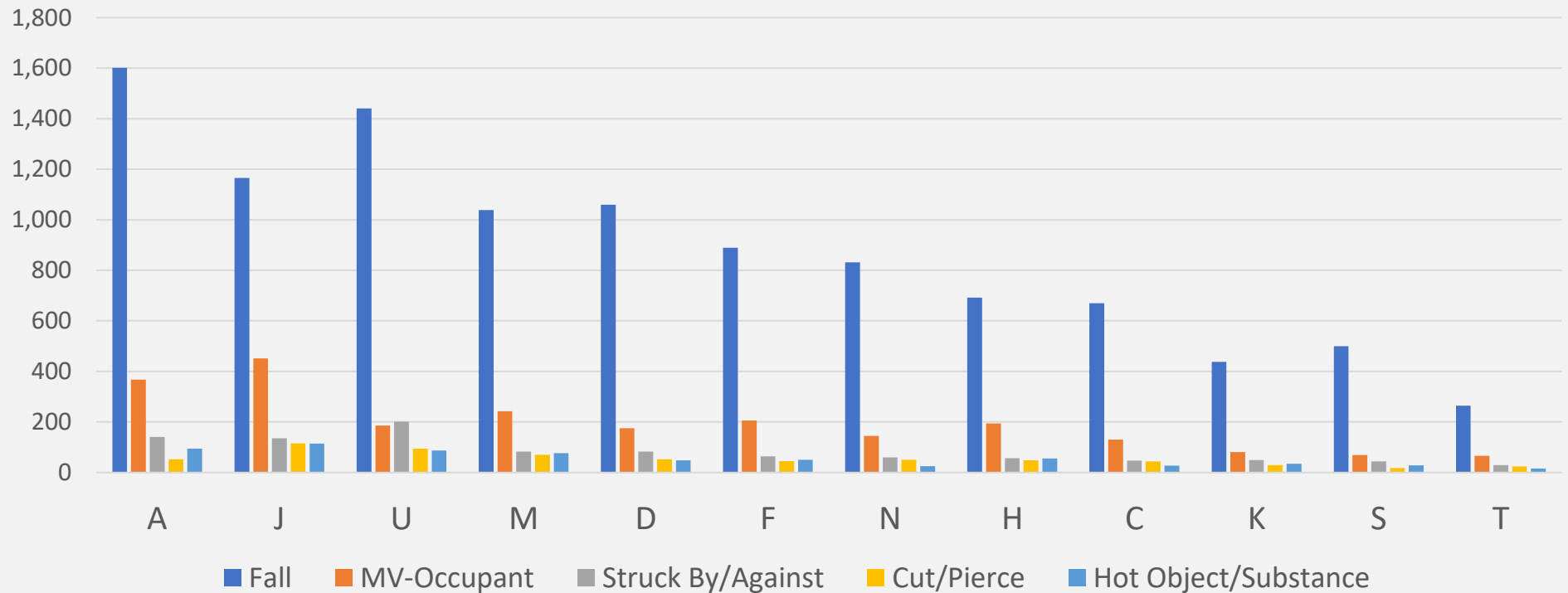


Texas Department of State Health Services

Non-Fatal by TSA and Mechanism

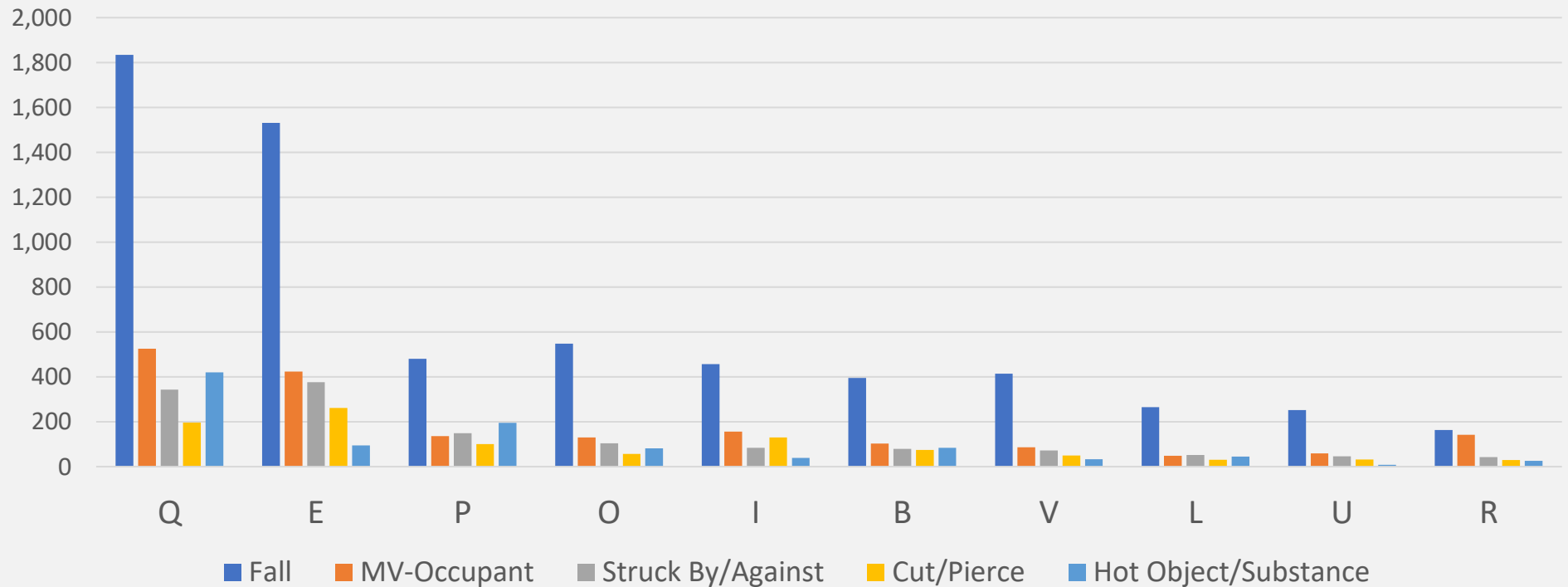
2020 – Lower 12

Non-Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



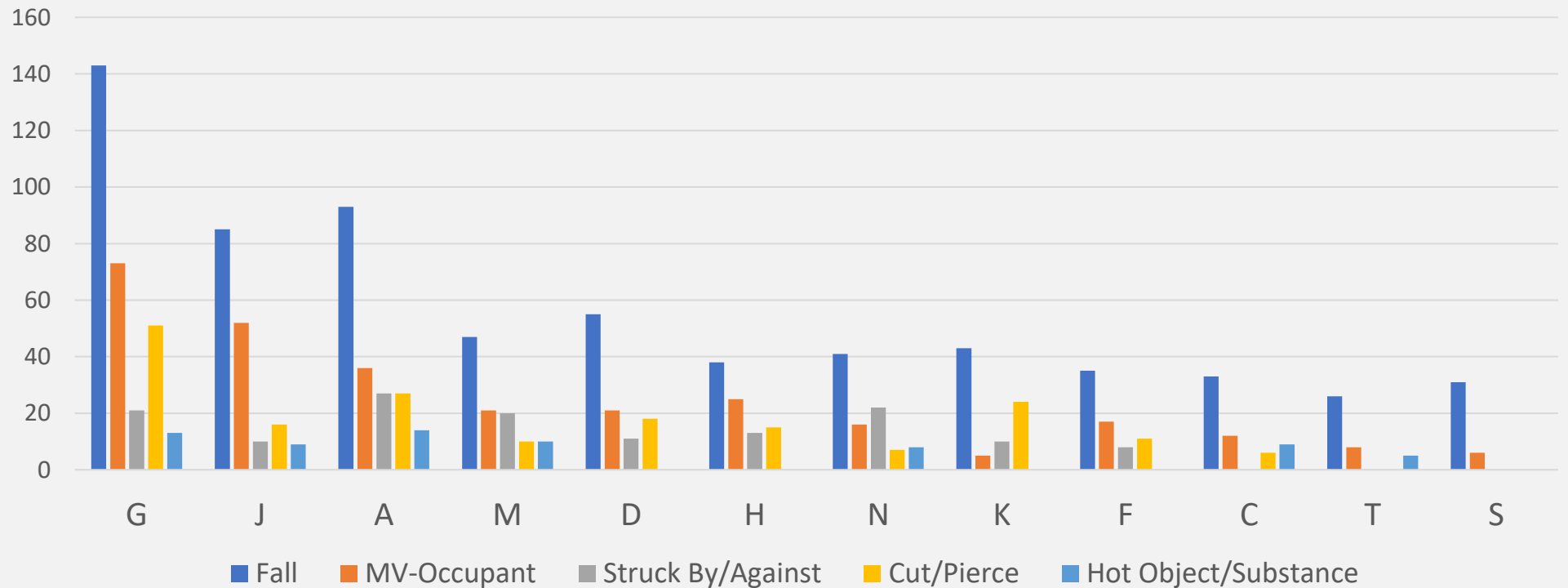
Pediatric Non-Fatal by TSA and Mechanism 2020 – Top 10

Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



Pediatric Non-Fatal by TSA and Mechanism 2020 – Lower 12

Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



Summary of Non-Fatal Data All Ages

- Non-fatal rates remained relatively constant from 2018-2020.
- Unintentional injury was the leading intent across the three-year period.
- Falls were the leading mechanism of injury.
- Adults 65+ had the highest rate of falls; Ages 15-24 had the highest rate of MV-occupant and firearm.
- Females had higher rates of non-fatal falls, while males had higher rates of non-fatal MV-occupant, struck by/ against, cut/ pierce, and firearm.
- Non-Hispanic Whites had higher rates of non-fatal falls; Non-Hispanic Blacks had higher rates for all other mechanisms (MV-occupant, struck by/ against, cut/pierce, and firearm).

Summary of Non-Fatal Data Pediatric

- Non-fatal rates remained relatively constant for 2018-2020.
- Unintentional injury was the leading intent.
- Falls were the leading mechanism of injury. Rate of falls decreased significantly between 2018 and 2020.
- Ages 0-4 had the highest rate of non-fatal falls and hot object/ substance; Ages 15-17 had the highest rate of non-fatal MV-occupant; struck by/ against, and MV-non-traffic.
- Males had higher rates for all mechanisms of non-fatal injuries.
- Non-Hispanic Black children had higher rates for all mechanisms of non-fatal injuries.

FATAL TRAUMA HOSPITALIZATIONS



TEXAS
Health and Human
Services

Texas Department of State
Health Services

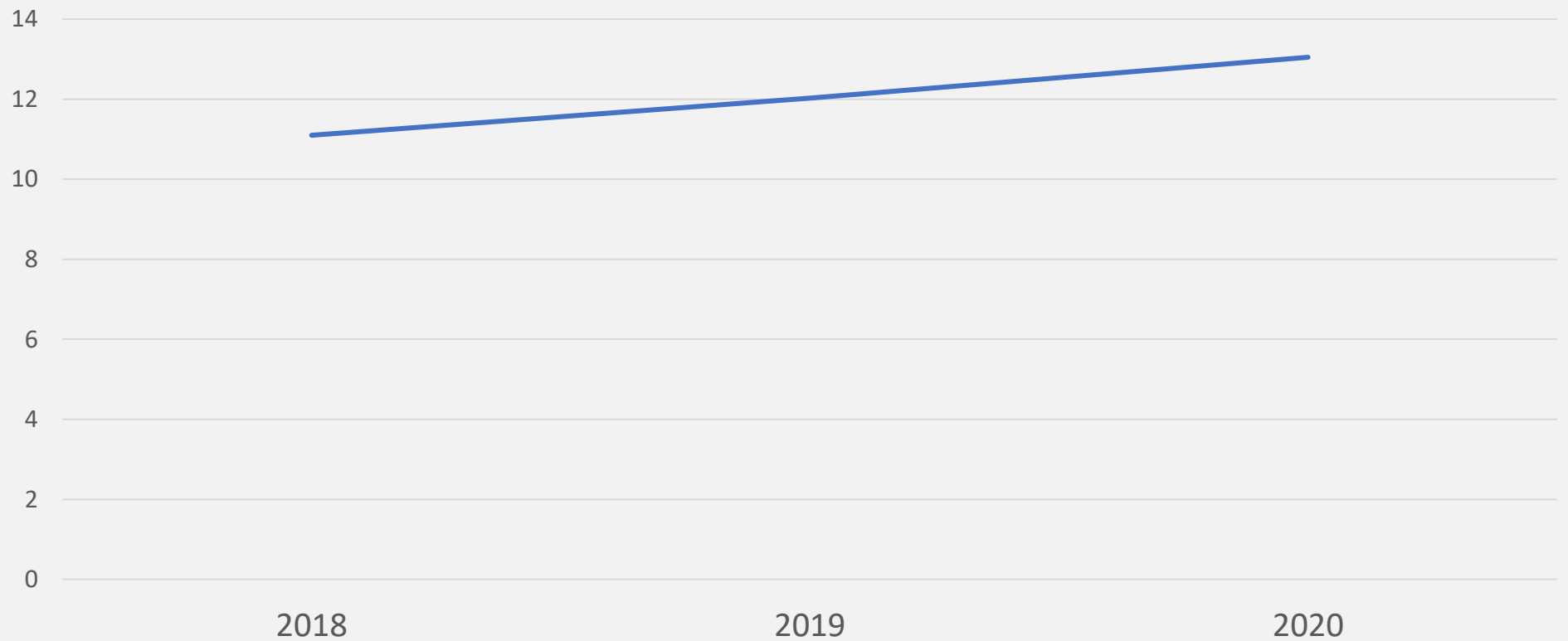
Fatal Hospitalizations 2018-2020

	All Ages	
	Counts	Rates
2018	3,185	11.10
2019	3,489	12.03
2020	3,853	13.05

	Pediatrics	
	Counts	Rates
2018	245	3.32
2019	257	3.46
2020	256	3.41

Fatal Rate per Year 2018-2020

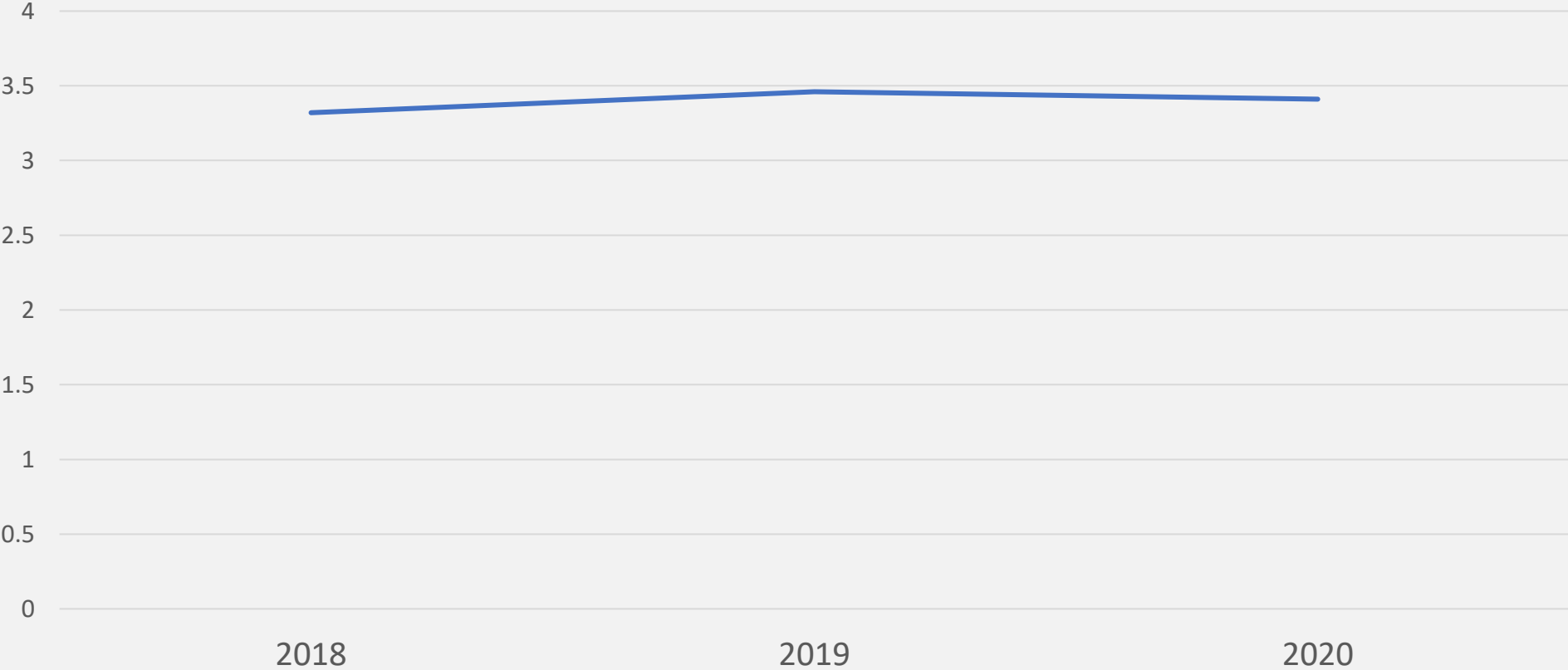
Fatal Trauma Hospitalization Rate per 100,000 Population



Texas Department of State
Health Services

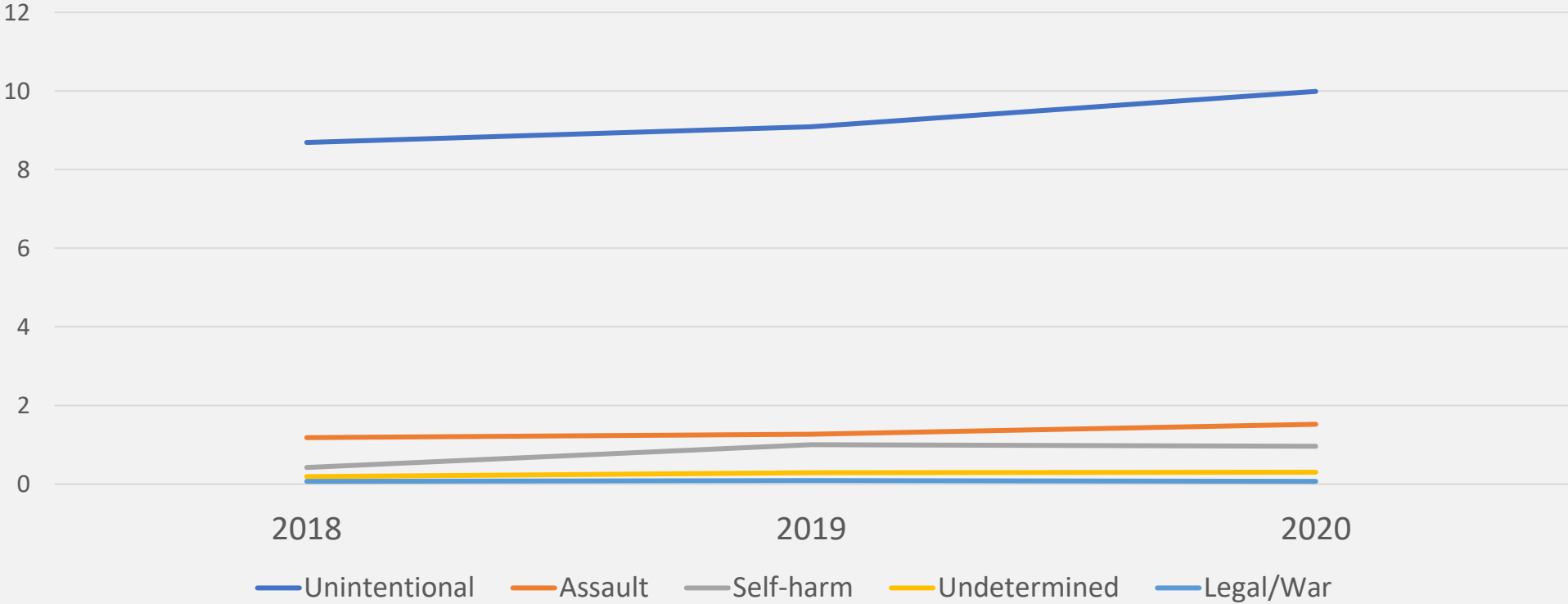
Pediatric Fatal Rate per Year 2018-2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population



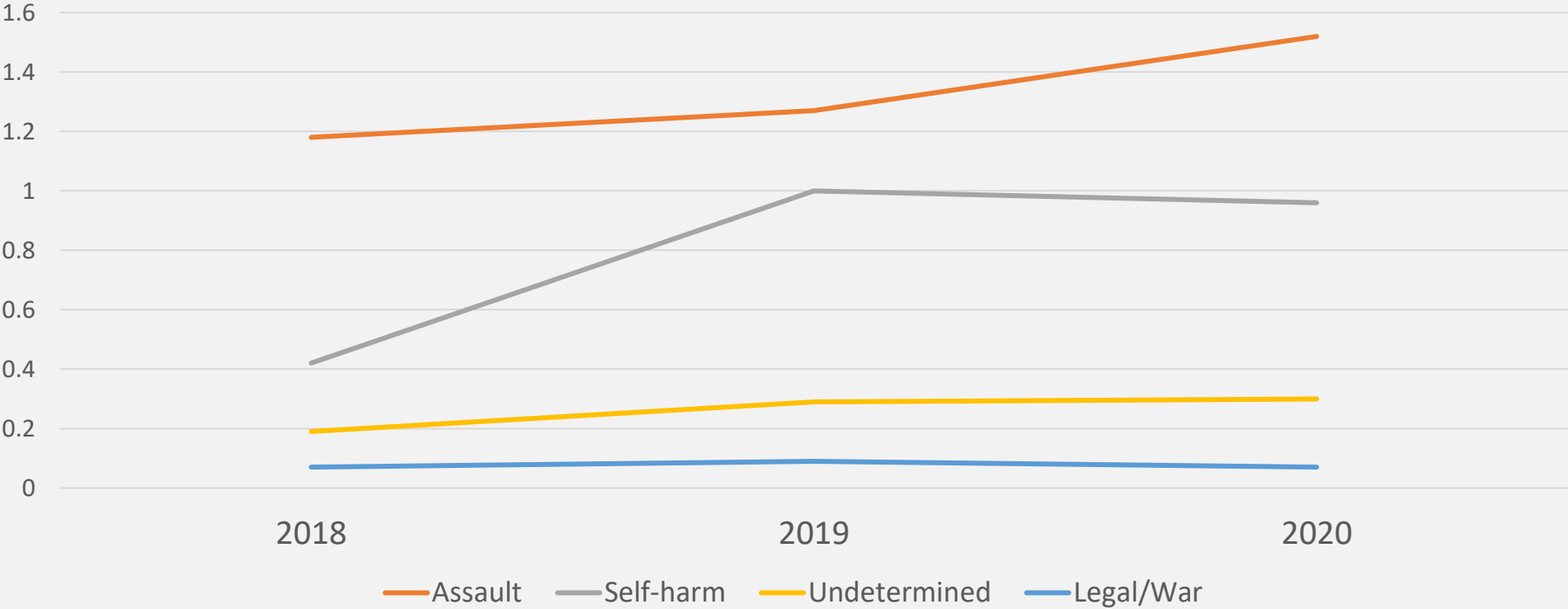
Fatal by Intent 2018-2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Intent



Fatal by Intent removing unintentional 2018-2020

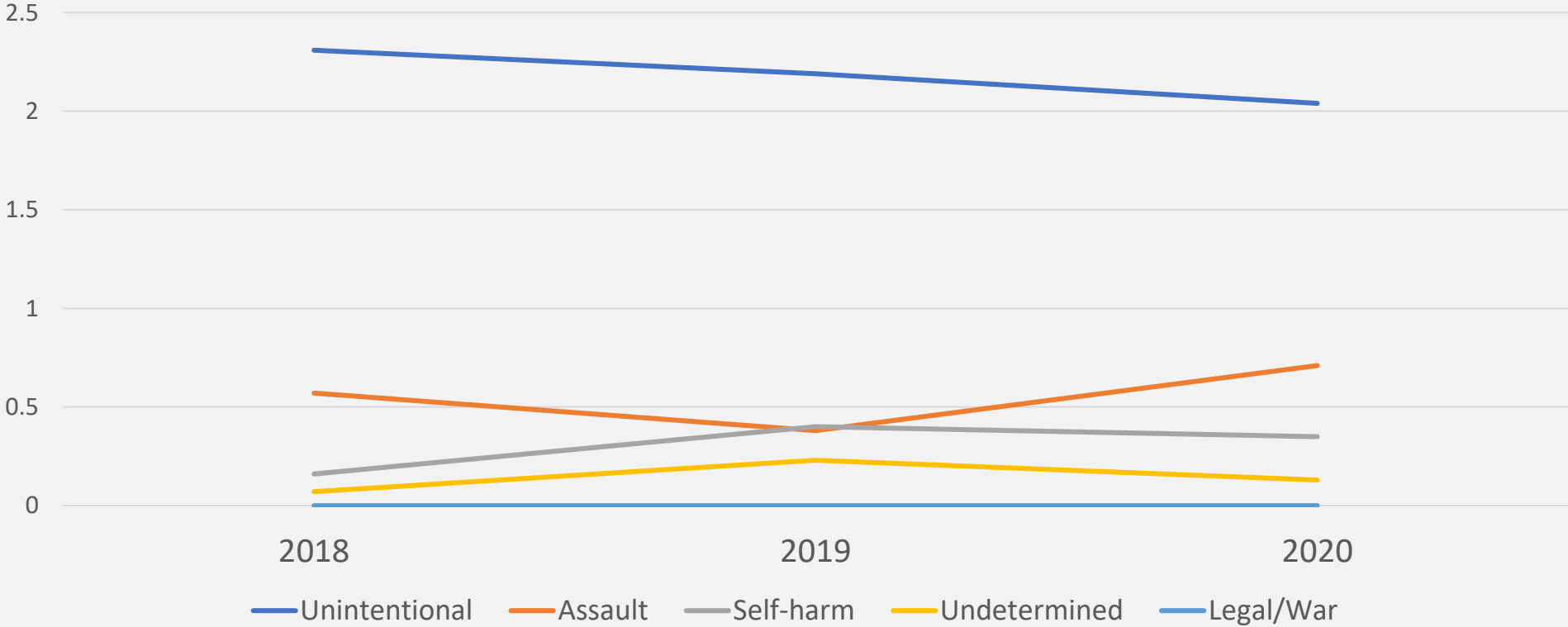
Fatal Trauma Hospitalization Rate per 100,000 Population by Intent



Texas Department of State Health Services

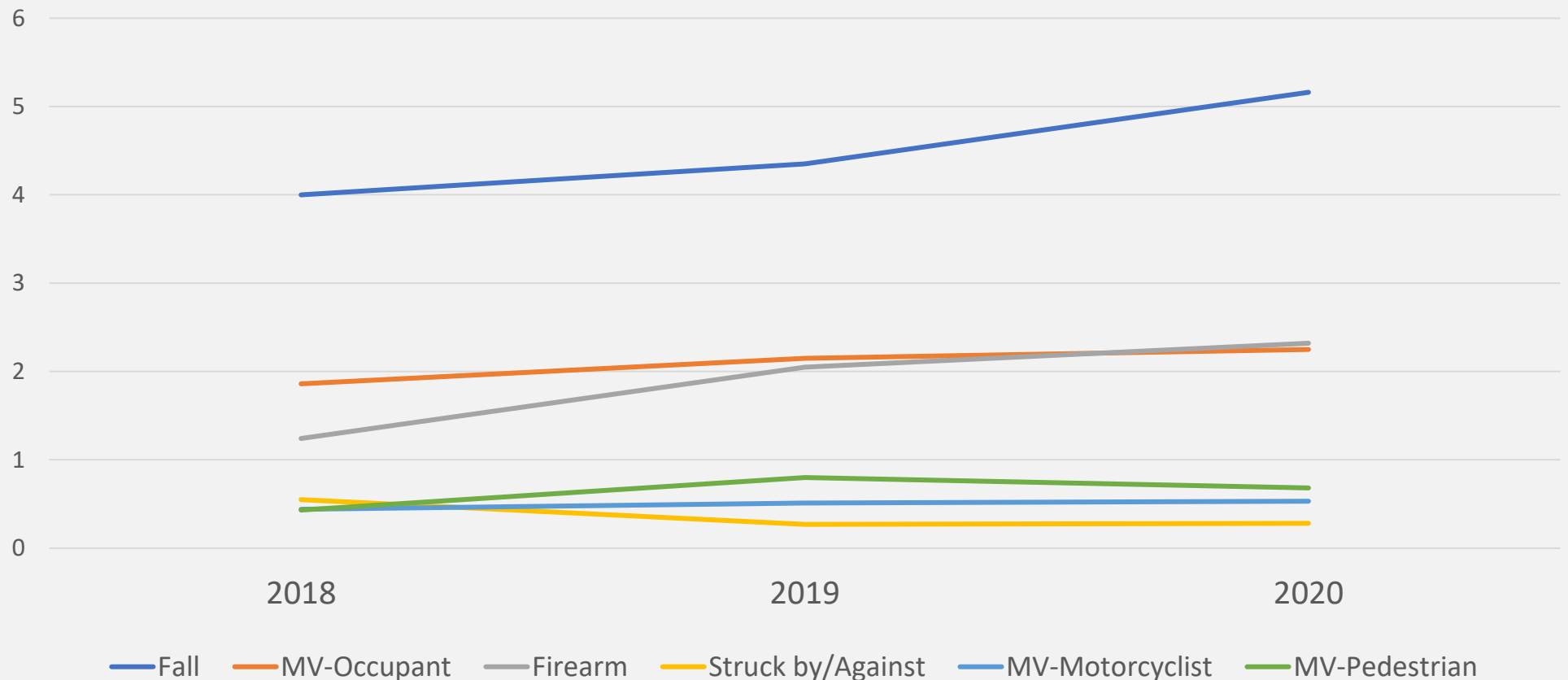
Pediatric Fatal by Intent 2018-2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Intent



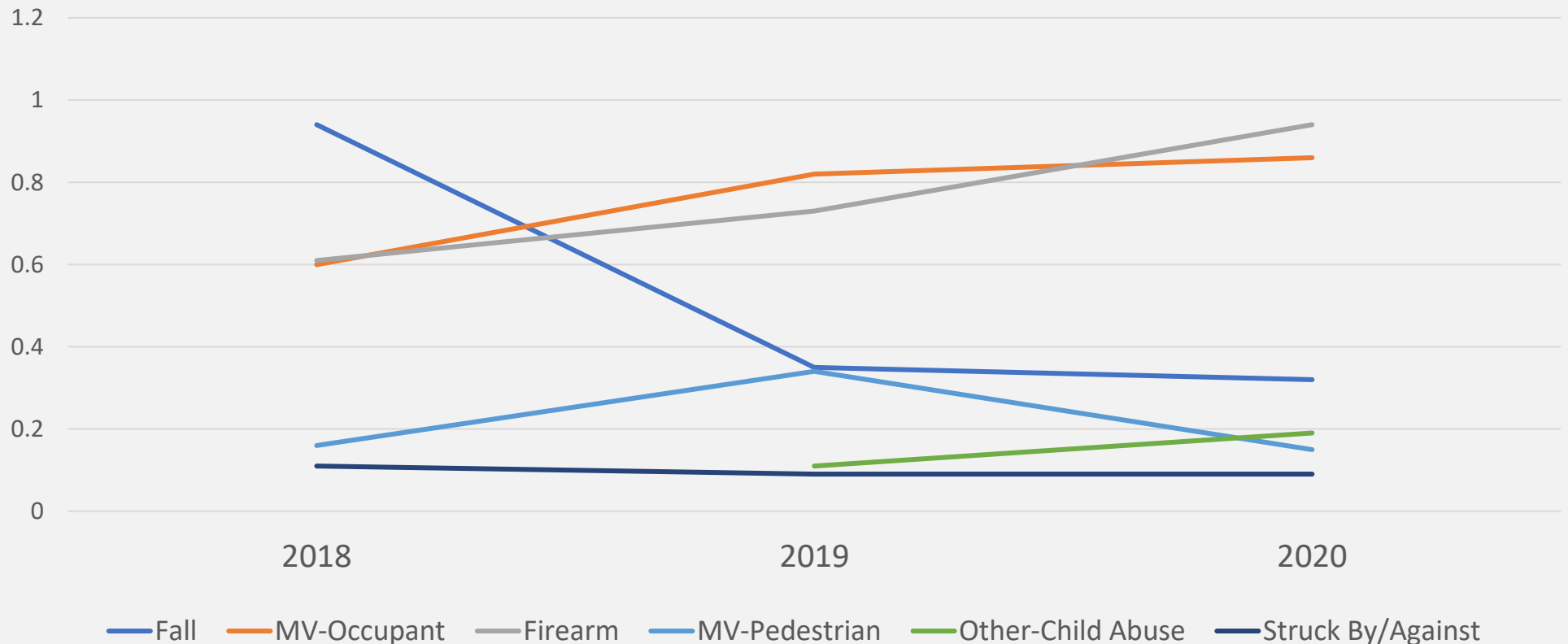
Fatal by Mechanism 2018-2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism



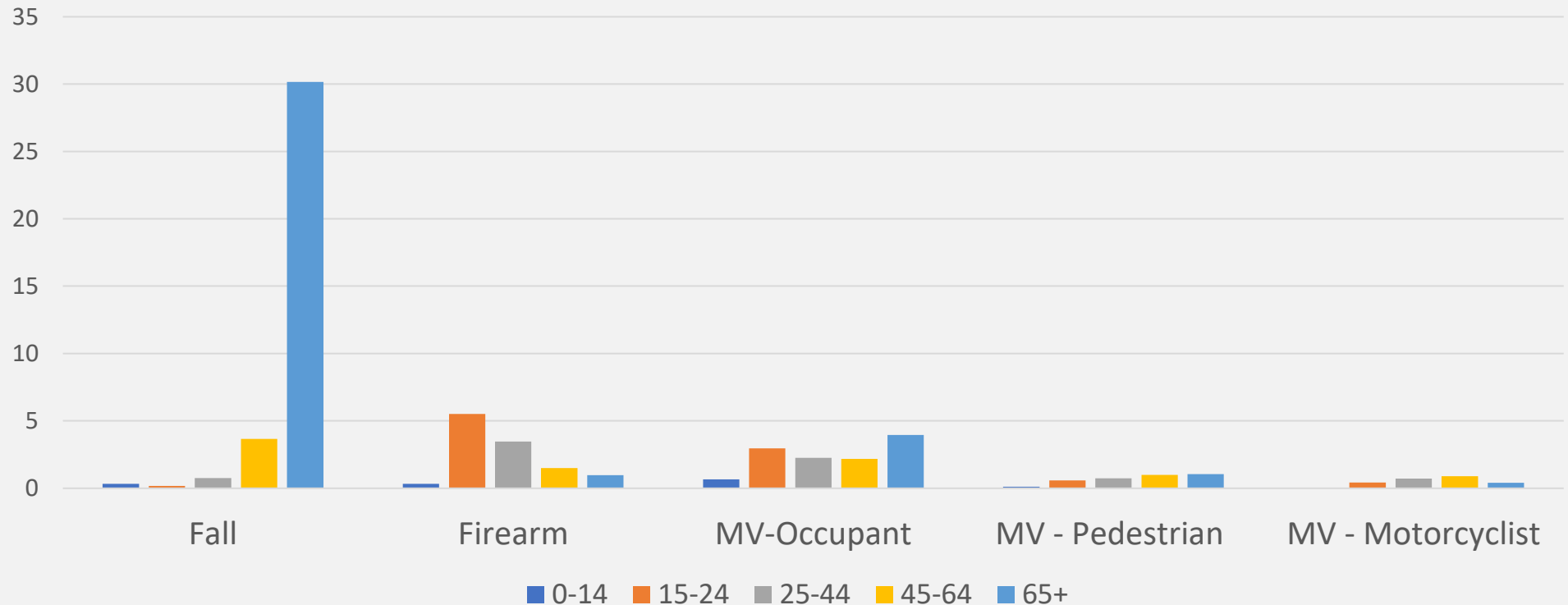
Pediatric Fatal by Mechanism 2018-2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism



Fatal Mechanism by Age Group 2020

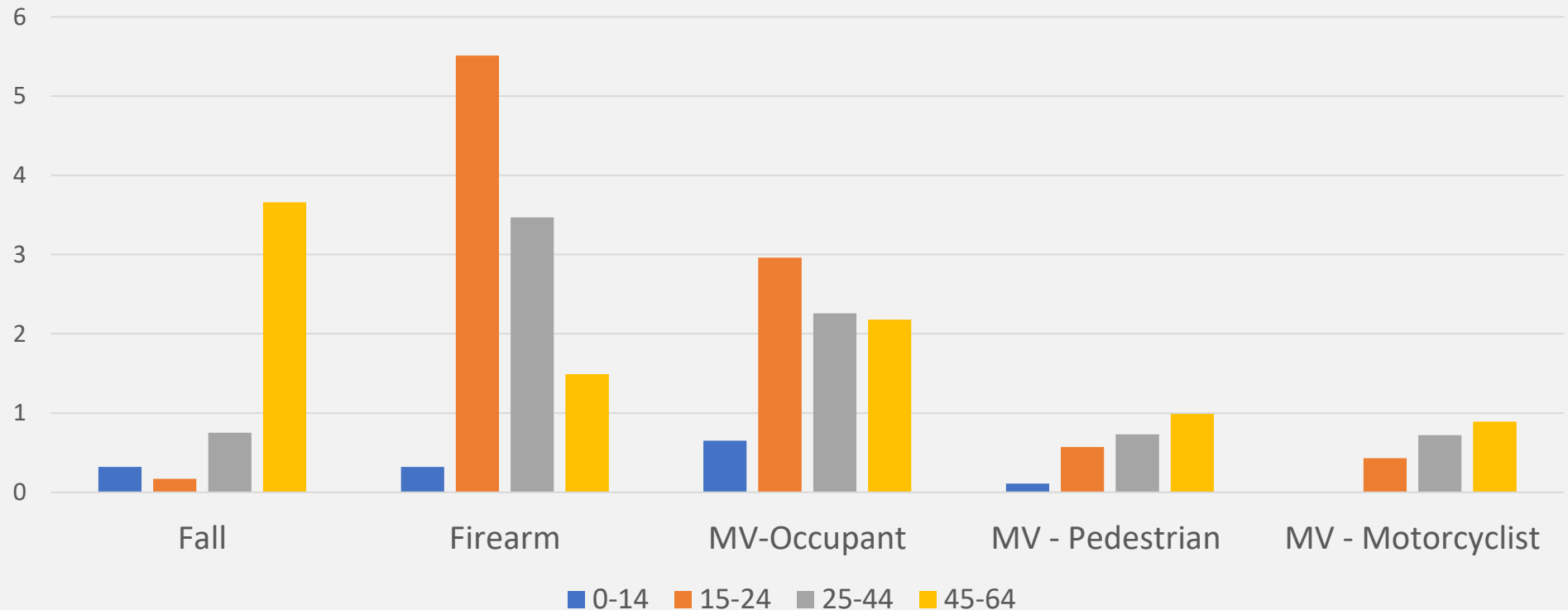
Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



Fatal Mechanism by Age Group

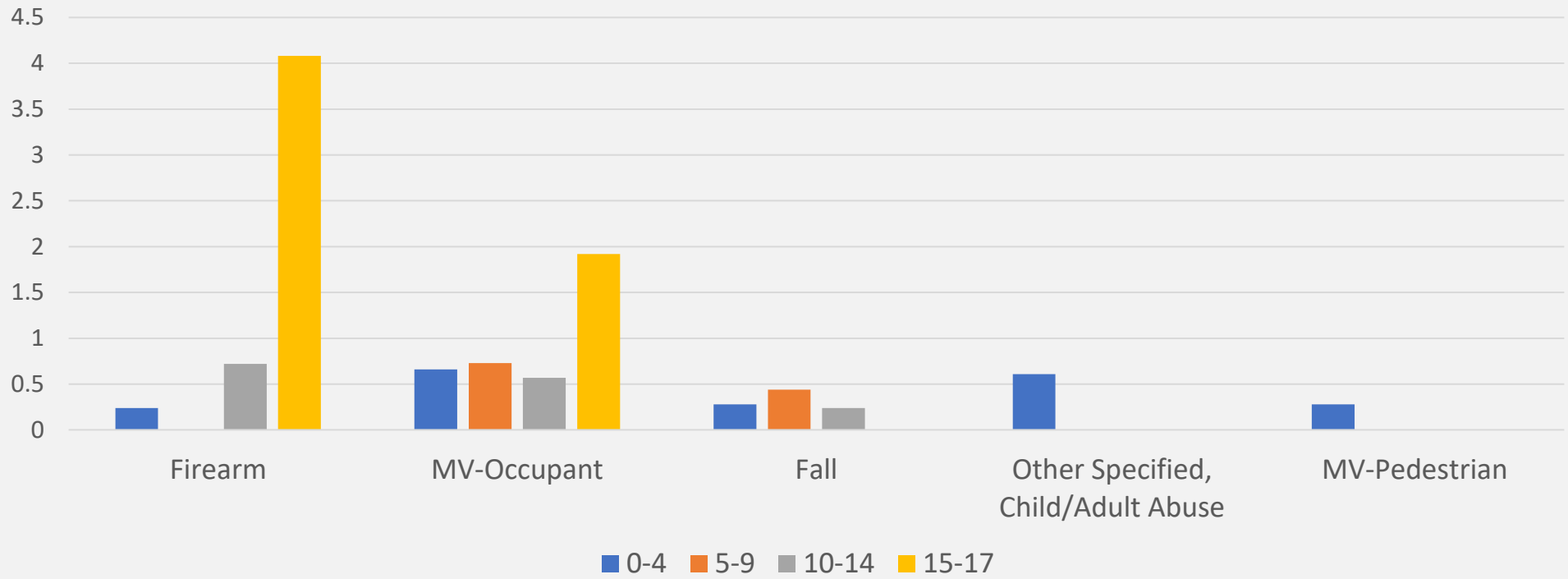
Removing Ages 65+ 2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



Pediatric Fatal Mechanism by Age Group 2020

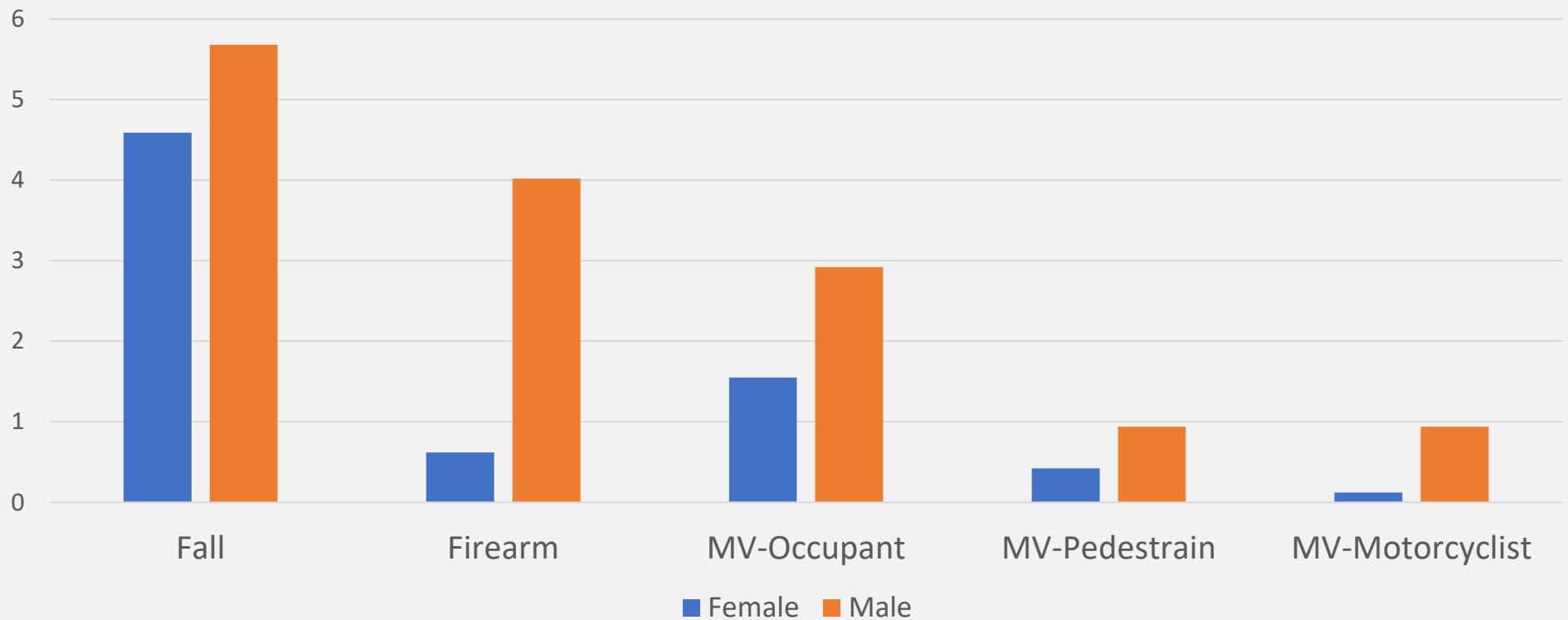
Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



Texas Department of State Health Services

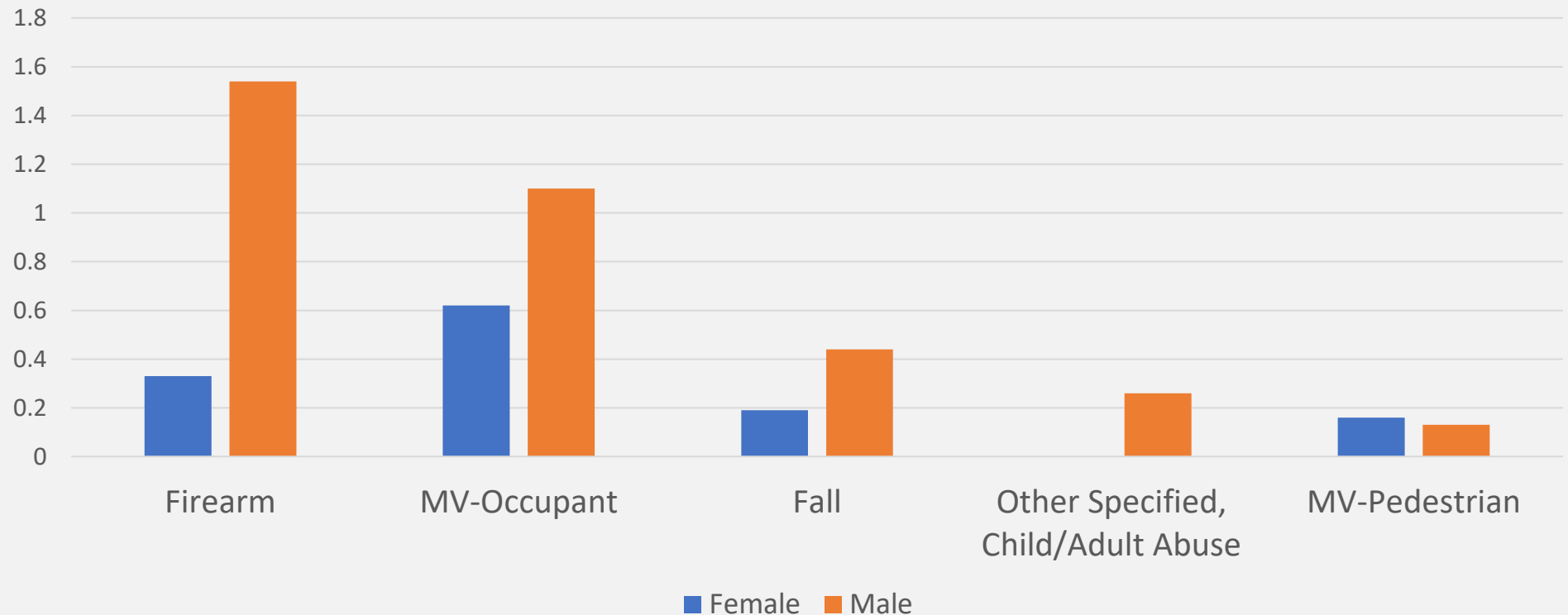
Fatal by Mechanism and Gender 2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



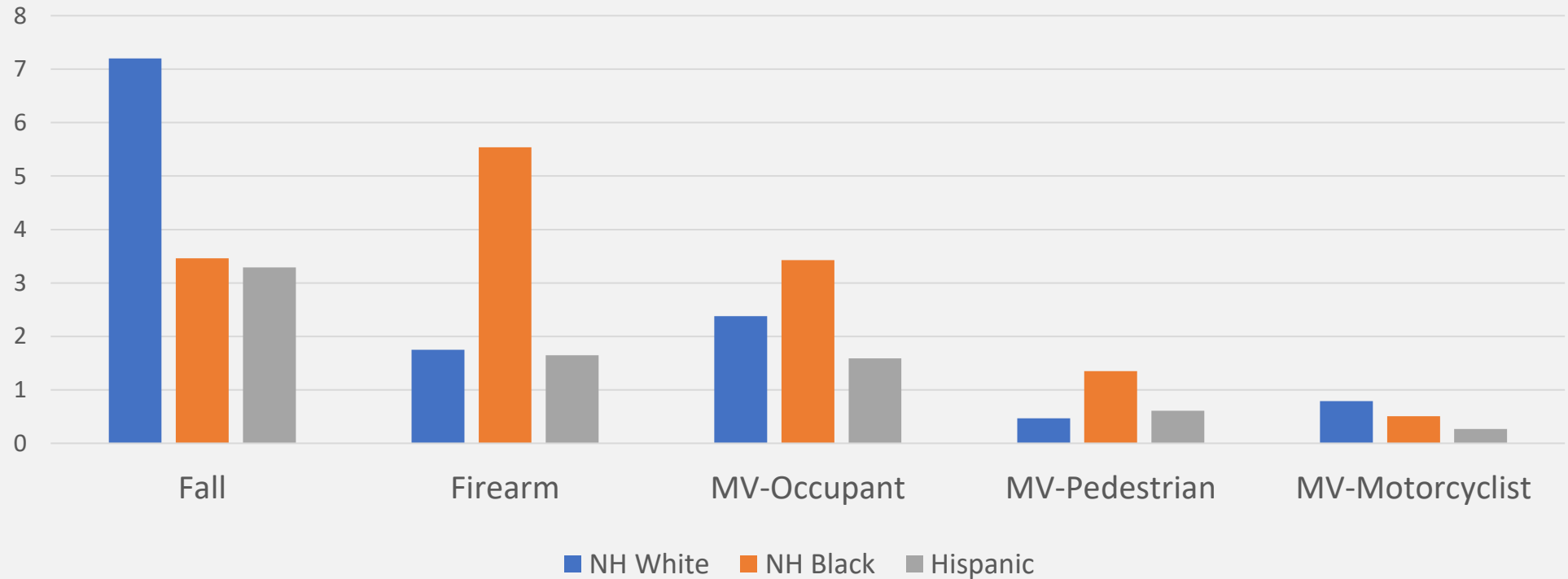
Pediatric Fatal by Mechanism and Gender 2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



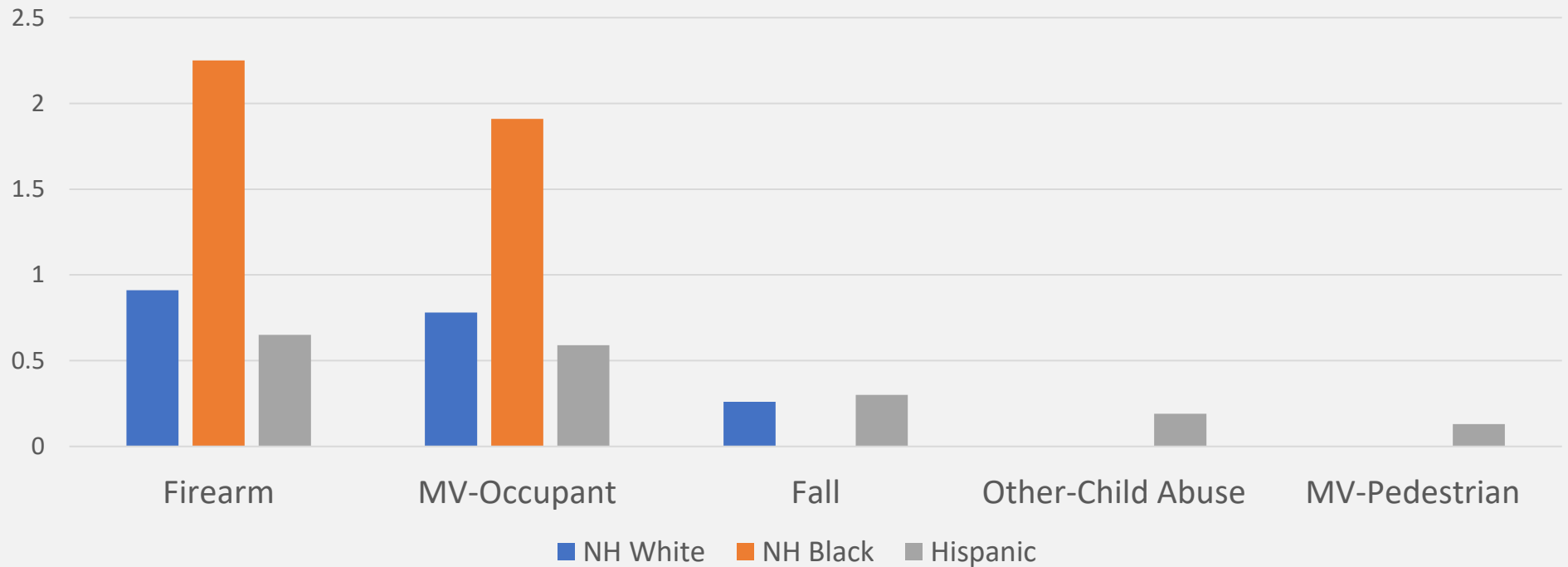
Fatal by Race and Ethnicity 2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Race and Ethnicity, 2020



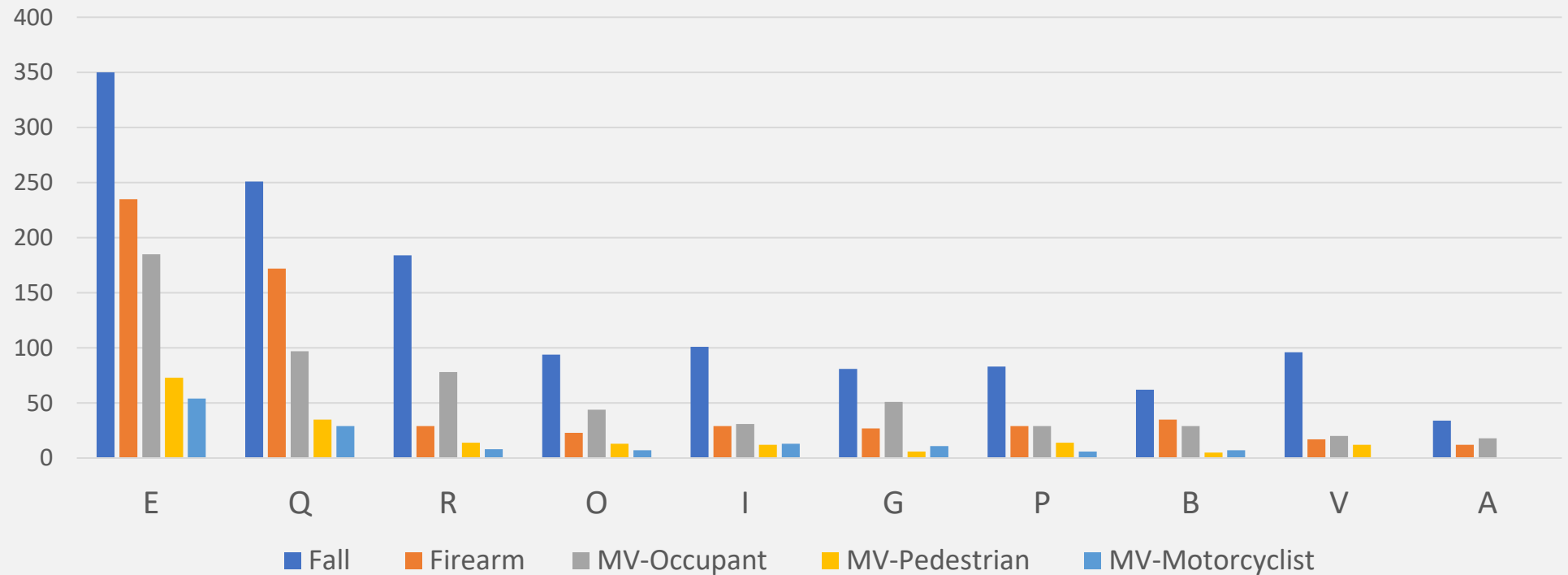
Pediatric Fatal by Race and Ethnicity 2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Race and Ethnicity, 2020



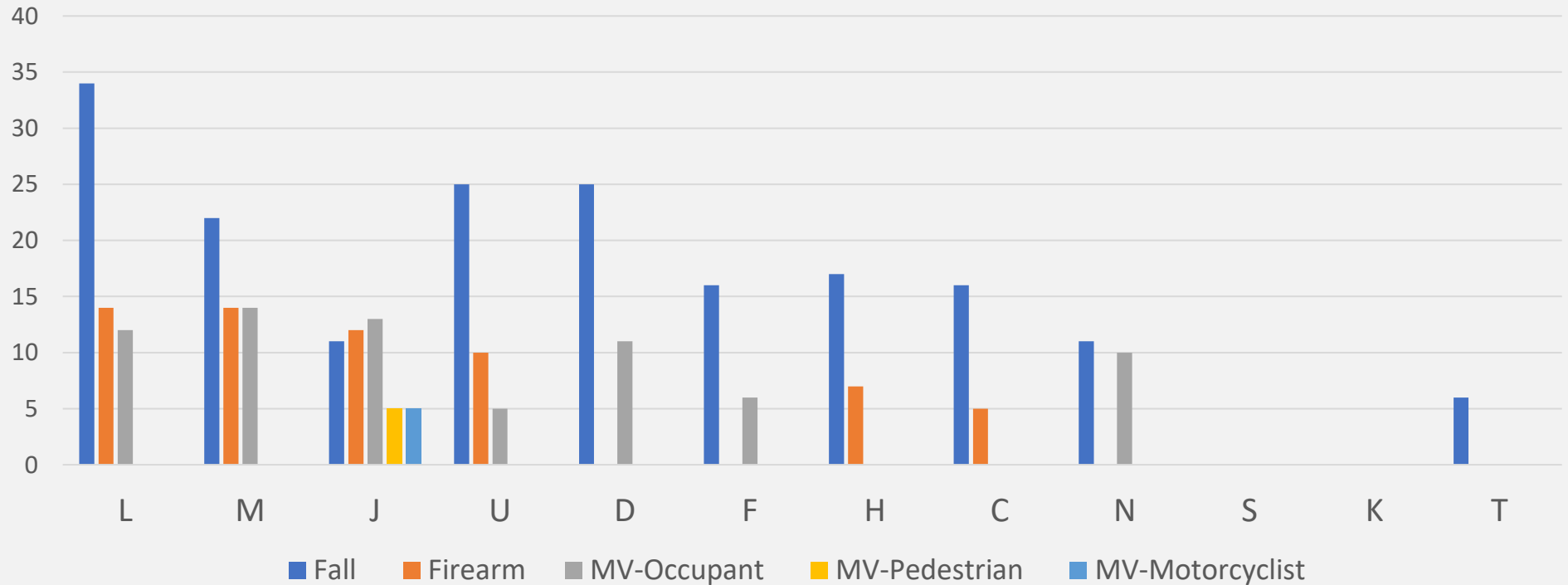
Fatal by TSA and Mechanism 2020 – Top 10

Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



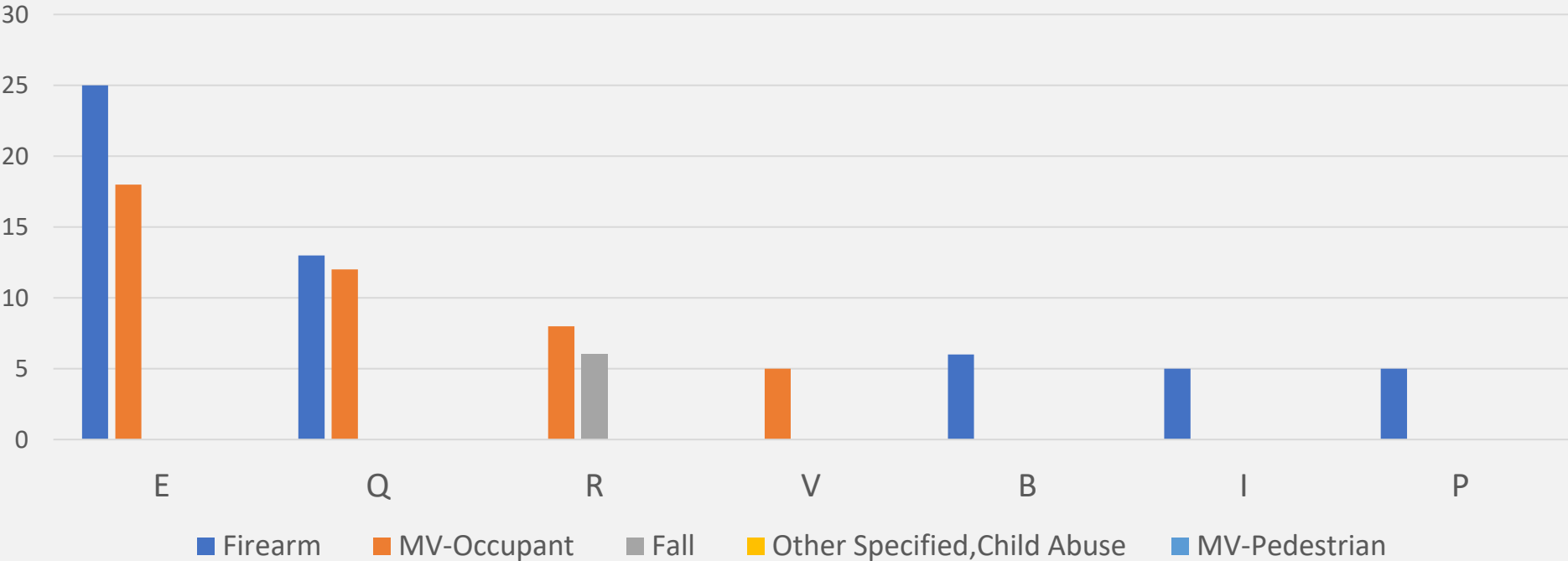
Fatal by TSA and Mechanism 2020 – Lower 12

Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



Pediatric Fatal Hospitalizations by TSA and Mechanism 2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020



Note: the remaining TSAs are not displayed as the corresponding records are all under 5 and would all need to be suppressed.



Summary of Fatal Data All Ages

- Fatal rates increased steadily from 2018-2020.
- Unintentional injury remained the leading intent. Increase in rate of assault and self-harm between 2018 and 2020.
- Falls were the primary injury mechanism and increased steadily over the three-year period.
- Adults 65+ had the highest rate of fatal falls, MV-occupant, and MV pedestrian; Ages 15-24 had the highest rate of fatal firearm.
- Males had higher rates for all mechanisms.
- Non-Hispanic Whites had more fatal hospitalizations due to falls or MV-motorcyclists; Non-Hispanic Blacks had more fatal hospitalizations due to firearm, MV-occupant, and MV-pedestrian.

Summary of Fatal Data Pediatric

- Fatal rates remained constant from 2018-2020.
- Unintentional injury remained the primary intent and decreased steadily over the three-year period.
- In 2018, falls were the primary mechanism for all ages, but the rate decreased between 2018 and 2019/2020. For 2019 and 2020, MV-occupant and firearm were the leading mechanisms for fatal pediatric hospitalizations.
- Ages 15-17 had the highest rates of fatal firearm and MV-occupant.
- Males had higher rates of firearm, MV-occupant, fall, and child abuse.
- Non-Hispanic Blacks had higher rates of fatal firearm and MV-occupant.

Double Transfers 2020 Data



TEXAS
Health and Human
Services

Texas Department of State
Health Services

Double Transfers Methodology

Double Transfers include patients who are discharged from one facility to either a:

- Short-Term General Hospital for Inpatient Care;
- Intermediate Care Facility (ICF); or
- Another Type of Institution not Defined Elsewhere.

Non-missing cells with nonzero values less than 5 were suppressed and noted by an asterisk.



Trauma Related Hospital Dispositions 2020

N=137,679

Hospital Dispositions	Counts
Discharged/Transferred to a Short-Term General Hospital for Inpatient Care	960
Discharged/Transferred to an Intermediate Care Facility (ICF)	519
Discharged/Transferred to Another Type of Institution not Defined Elsewhere	192



Texas Department of State
Health Services

Double Transfers by Age 2020

	Age Categories in Years									
	0-14		15-24		25-44		45-64		65+	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	75	7.81%	123	12.81%	157	16.35%	201	20.94%	404	42.08%
Intermediate Care Facility (ICF)	*	*	7	1.35%	9	1.73%	50	9.63%	452	87.09%
Another Type of Institution not Defined Elsewhere	12	6.25%	15	7.81%	30	15.63%	39	20.31%	96	50.00%

Length of Stay in Age Groups Combined 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	545	56.77%	181	18.85%	121	12.60%	113	11.77%
Intermediate Care Facility (ICF)	20	3.85%	93	17.92%	265	51.06%	141	27.17%
Another Type of Institution not Defined Elsewhere	42	21.88%	55	28.65%	45	23.44%	50	26.04%

Length of Stay in Age Group < 15 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	55	73.33%	14	18.67%	*	*	5	6.67%
Intermediate Care Facility (ICF)	*	*	*	*	*	*	*	*
Another Type of Institution not Defined Elsewhere	*	*	*	*	*	*	*	*

Length of Stay in Age Group 15 – 24 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	83	67.48%	14	11.38%	13	10.57%	13	10.57%
Intermediate Care Facility (ICF)	*	*	*	*	*	*	5	71.43%
Another Type of Institution not Defined Elsewhere	6	40.00%	*	*	*	*	5	33.33%

Length of Stay in Age Group 25 – 44 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	94	59.87%	25	15.92%	17	10.83%	21	13.38%
Intermediate Care Facility (ICF)	*	*	*	*	*	*	7	77.78%
Another Type of Institution not Defined Elsewhere	7	23.33%	13	43.33%	5	16.67%	5	16.67%

Length of Stay in Age Group 45 – 64 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	114	56.72%	36	17.91%	26	12.94%	25	12.44%
Intermediate Care Facility (ICF)	*	*	10	20.00%	19	38.00%	17	34.00%
Another Type of Institution not Defined Elsewhere	9	23.08%	6	15.38%	9	23.08%	15	38.46%

Length of Stay in Age Group 65+ 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	199	49.26%	92	22.77%	64	15.84%	49	12.13%
Intermediate Care Facility (ICF)	12	2.65%	83	18.36%	245	54.2%	112	24.78%
Another Type of Institution not Defined Elsewhere	16	16.67%	30	31.25%	28	29.17%	22	22.92%

Pediatric Hospital Dispositions 2020

N = 19,064

Hospital Dispositions	Counts
Discharged/Transferred to a Short-Term General Hospital for Inpatient Care	112
Discharged/Transferred to an Intermediate Care Facility (ICF)	*
Discharged/Transferred to Another Type of Institution not Defined Elsewhere	16

Length of Stay for Pediatric Patients 2020

	Length of Stay							
	< 1 Day		2-3 Days		4-7 Days		8+ Days	
Hospital Dispositions	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Short-Term General Hospital for Inpatient Care	86	76.79%	15	13.39%	5	4.46%	6	5.36%
Intermediate Care Facility (ICF)	*	*	*	*	*	*	*	*
Another Type of Institution not Defined Elsewhere	6	37.5%	*	*	*	*	*	*

Summary of Double Transfers

- Patients 65 and over had the most double transfers across hospital dispositions.
- The majority (56.77%) of double transfers (all ages) to a short-term general hospital for inpatient care were transferred in less than one day.
- Most double transfer pediatric patients were transferred to a short-term hospital for care.
- Over 75% of pediatric double transfers to a short-term hospital for inpatient care were transferred within one day.

Next Steps

- Double Transfers identified by Regional Advisory Council (RAC)
- Double Transfers identified by trauma center level
- Fatal Injury data by trauma center level
- Portions of the complete presentation will be shared with Injury Prevention/Public Education and Pediatric subcommittees
- Data Presentations for May GETAC meeting



Resources

- National Trauma Data Bank (NTDB) data dictionary:
<https://www.facs.org/quality-programs/trauma/tqp/center-programs/ntdb/ntds>
- Injury Indicators Case Definitions: Thomas KE, Johnson RL. State injury indicators report: Instructions for preparing 2019 data. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2021.
 - Coding is based on the ICD10CM (International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM))



QUESTIONS?



Thank you!

Leading Causes of Injuries 2018-2020 and
Double Transfers 2020

Jia Benno, OIP Manager

Injury.web@dshs.texas.gov