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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  
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# Methodology



# 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



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# Non-Fatal Hospitalizations 2018-2020

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

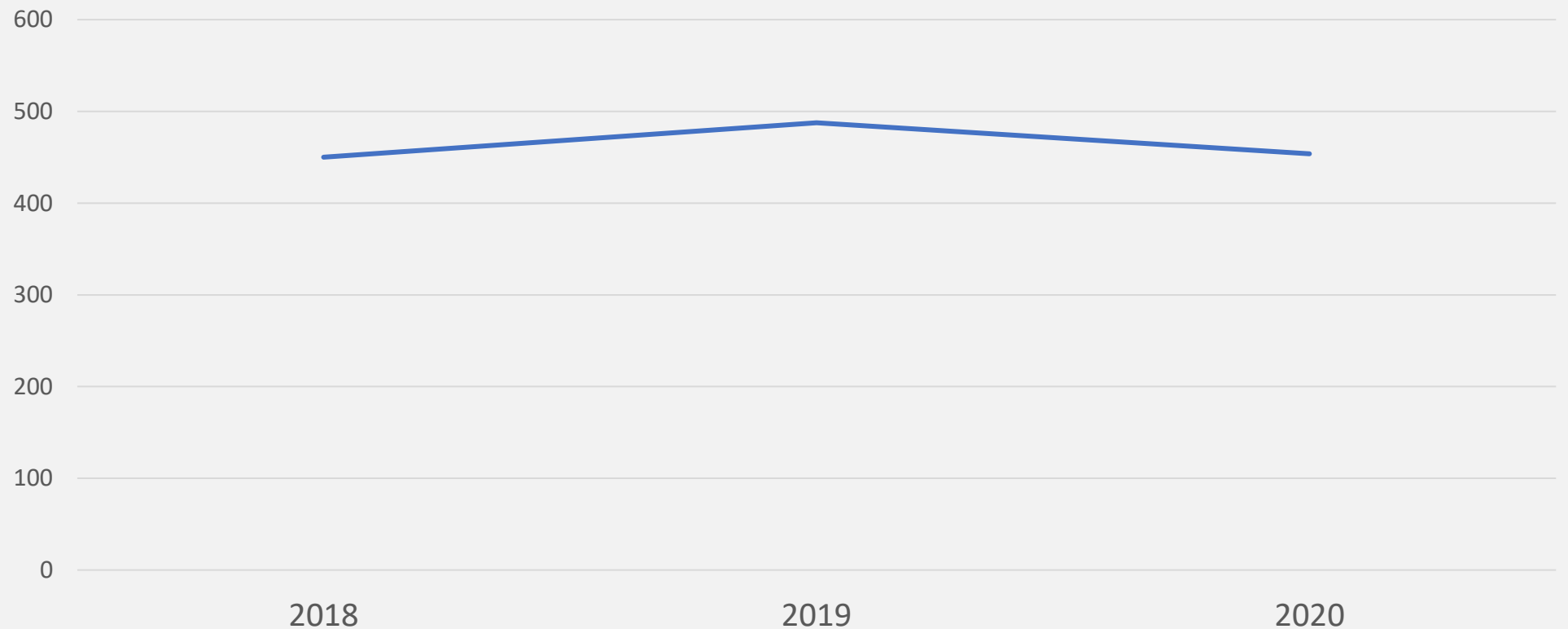
	Pediatric	
	Counts	Rates
2018	18,640	252.91
2019	20,105	270.32
2020	18,817	250.39





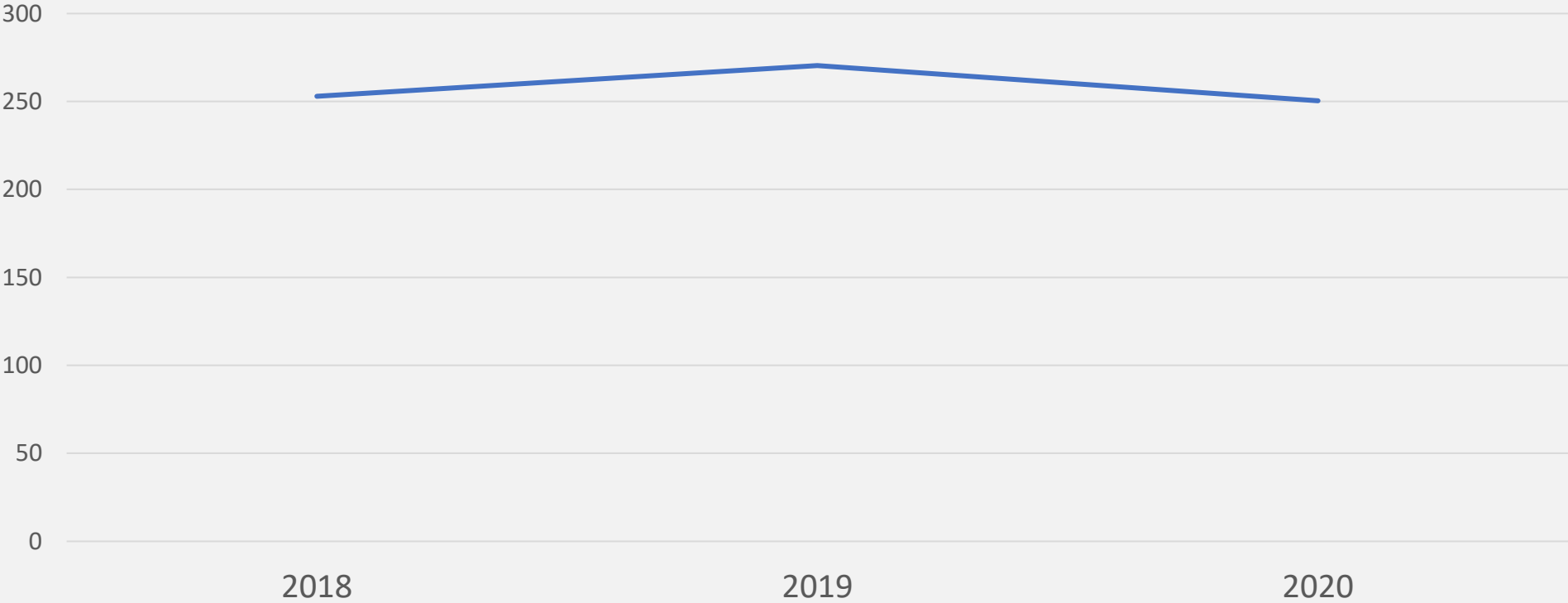
# Non-Fatal Rate per Year 2018-2020

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



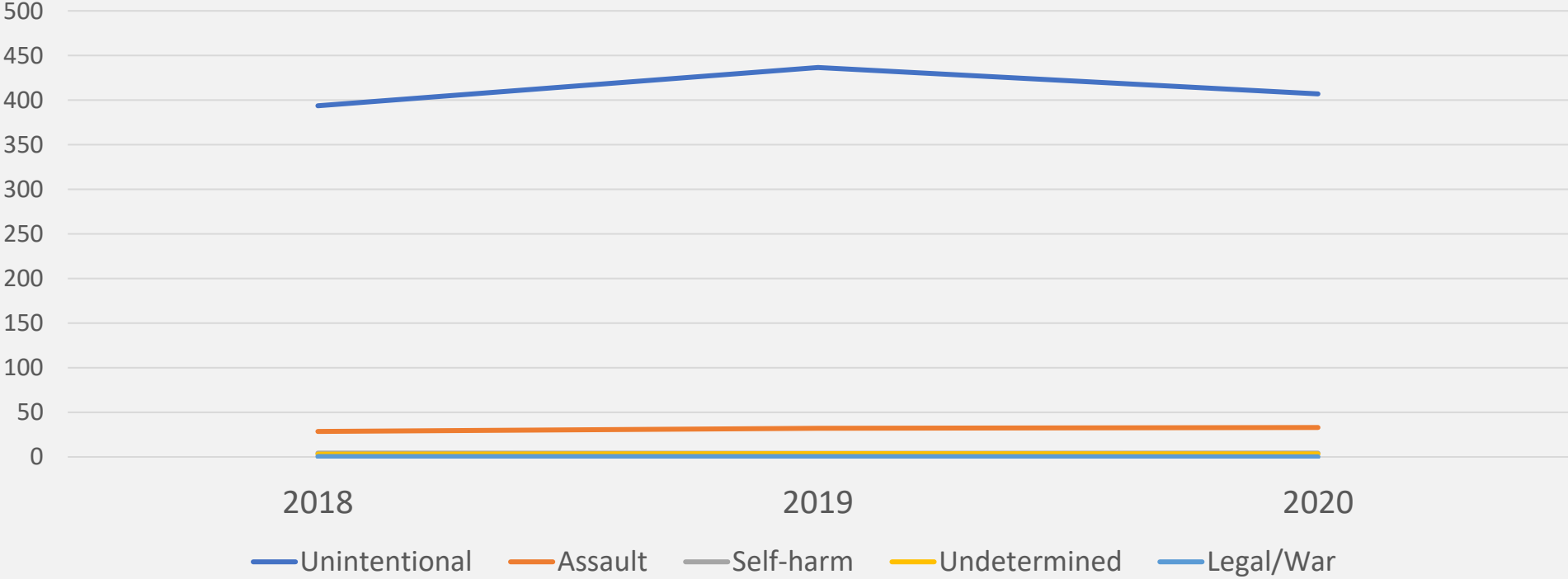
# Pediatric Non-Fatal Rate per Year 2018-2020

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



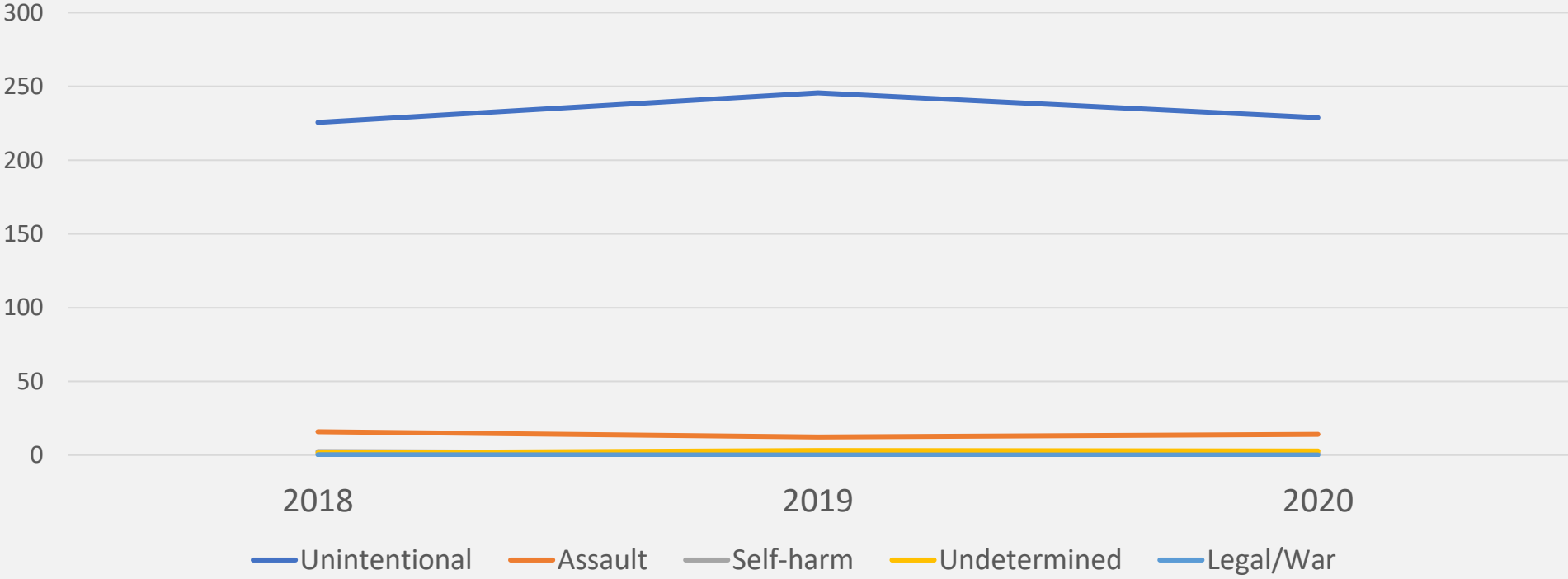
# Non-Fatal by Intent 2018-2020

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



# Pediatric Non-Fatal by Intent 2018-2020

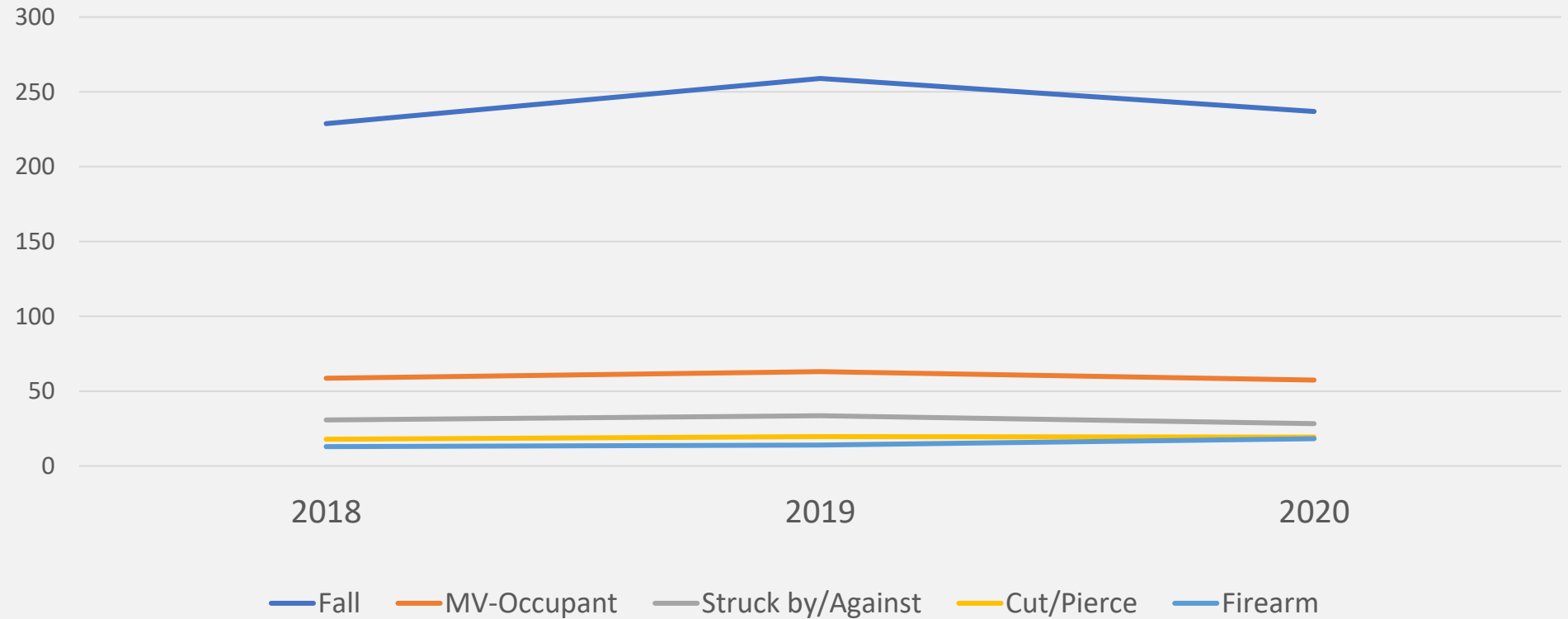
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Intent, 2018-2020



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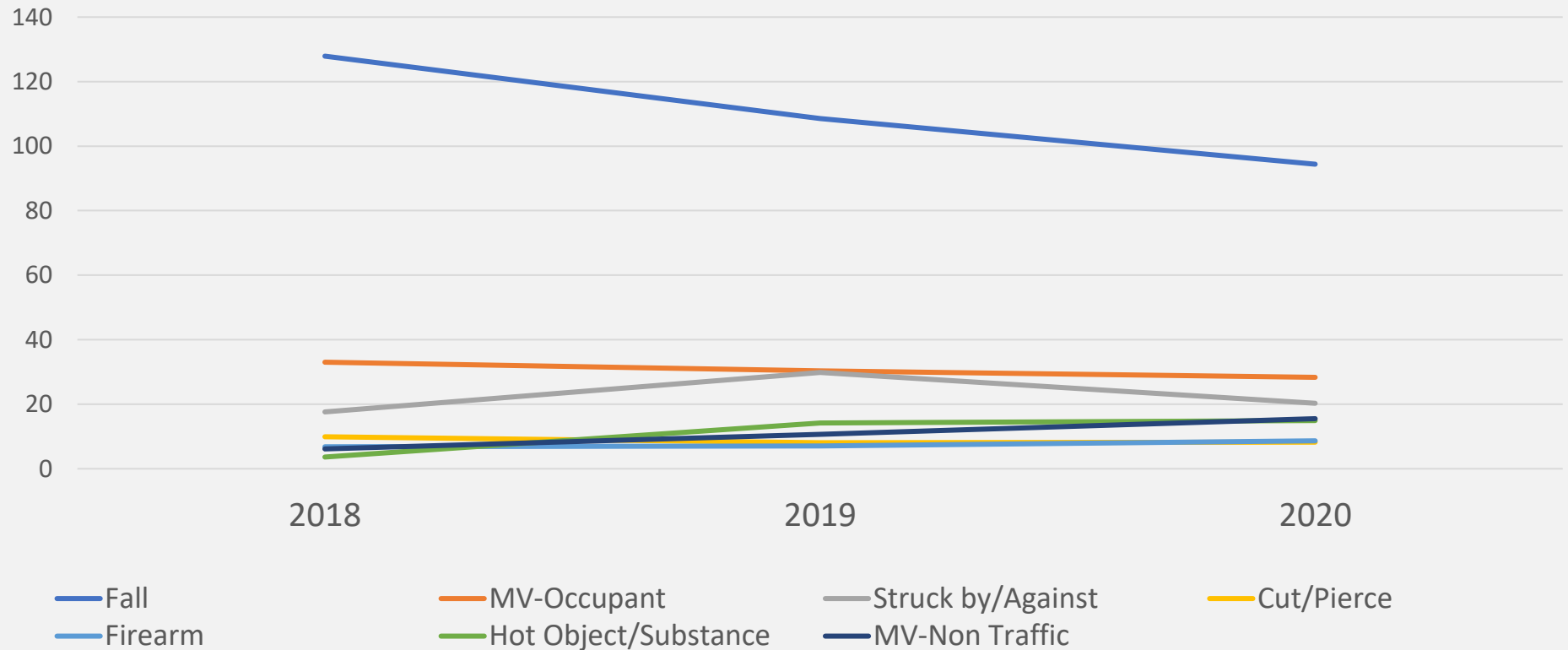
# Non-Fatal by Mechanism 2018-2020

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



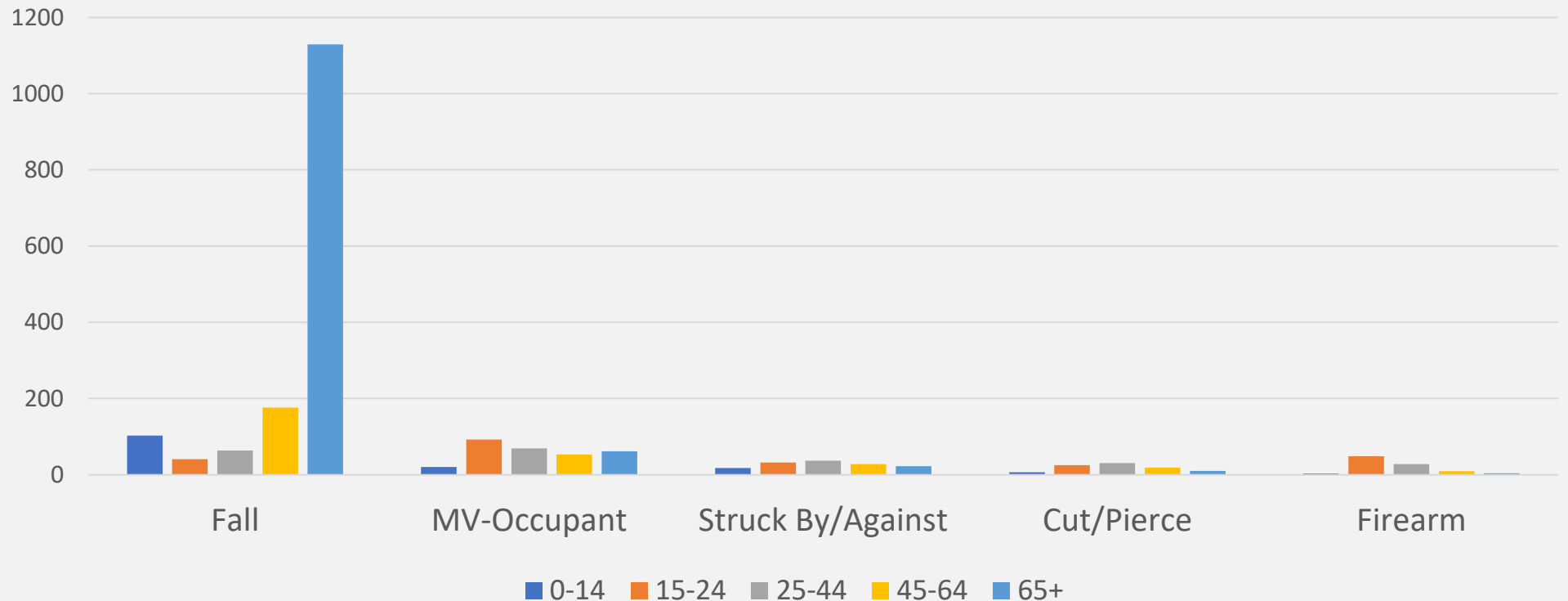
# Pediatric Non-Fatal by Mechanism 2018-2020

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



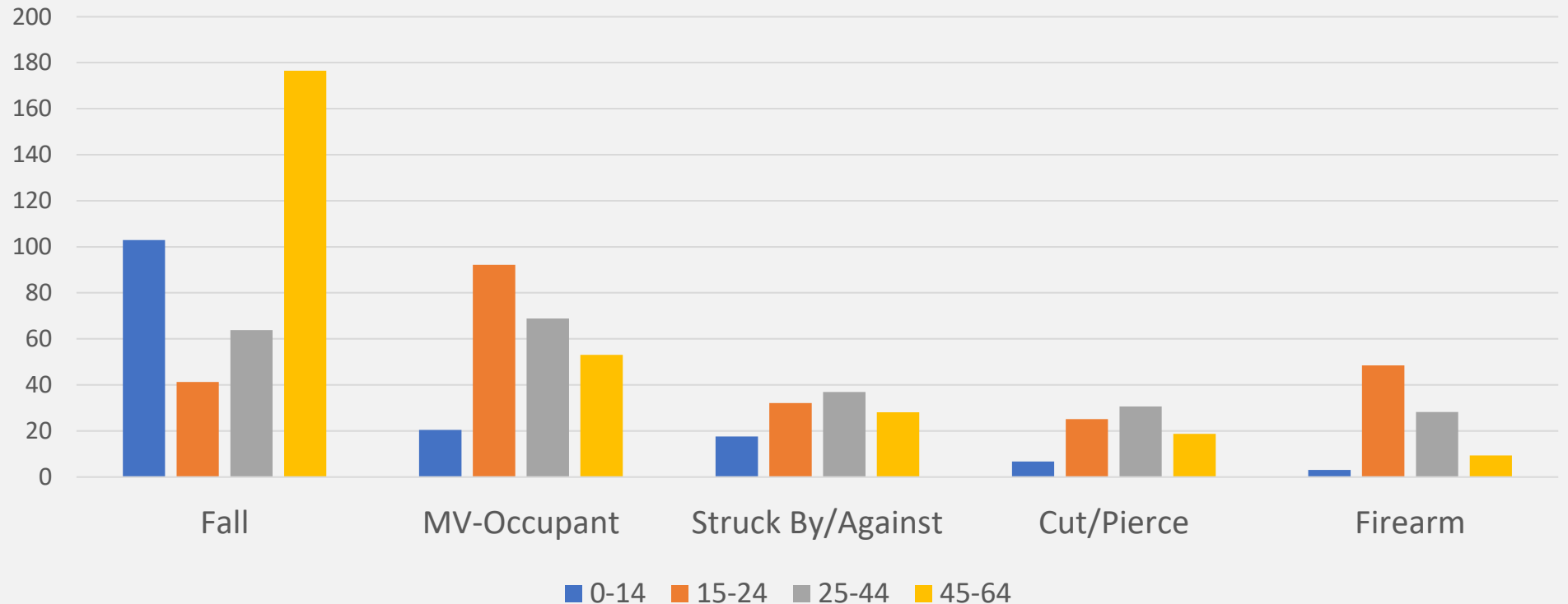
# Non-Fatal Mechanism by Age Group 2020

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



# Non-Fatal Mechanism by Age Group Excluding 65+ 2020

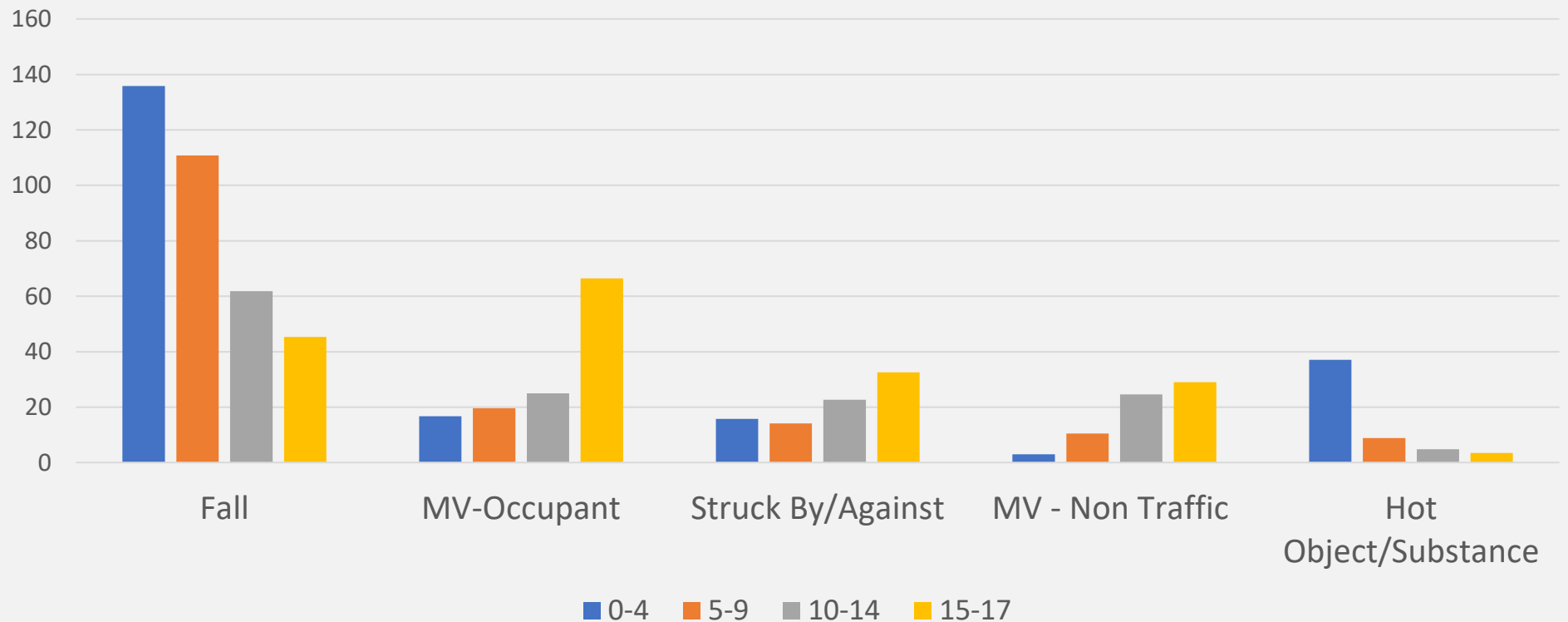
Non-Fatal Trauma Hospitalization Rate per 100,000 Population by  
Mechanism and Age, 2020





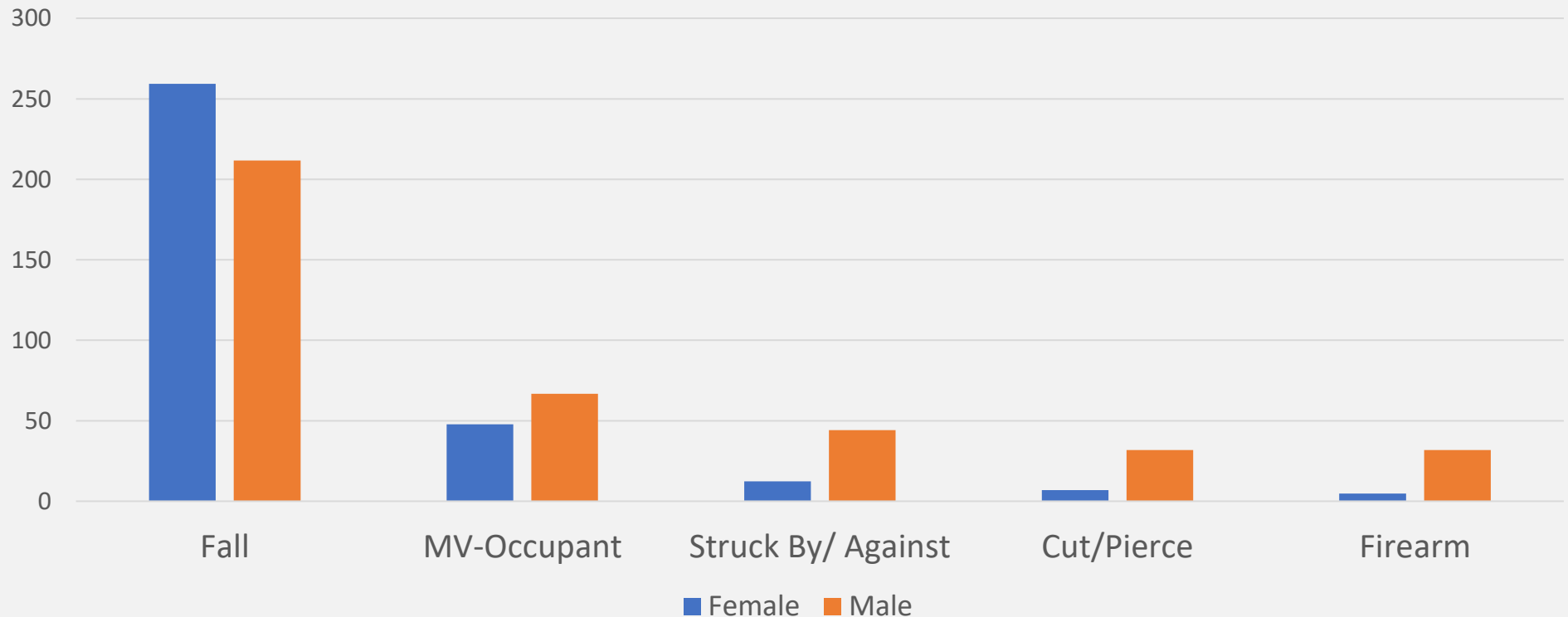
# Pediatric Non-Fatal Mechanism by Age Group 2020

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



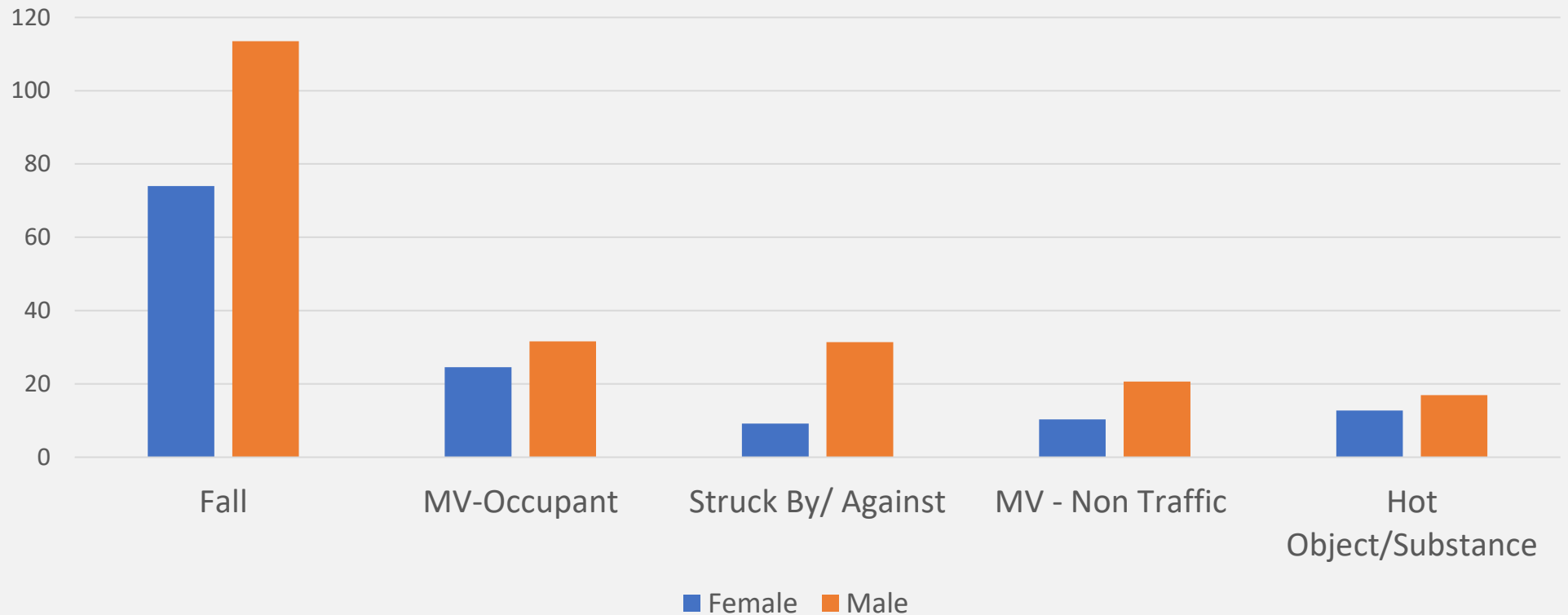
# Non-Fatal by Mechanism and Gender 2020

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



# Pediatric Non-Fatal by Mechanism and Gender 2020

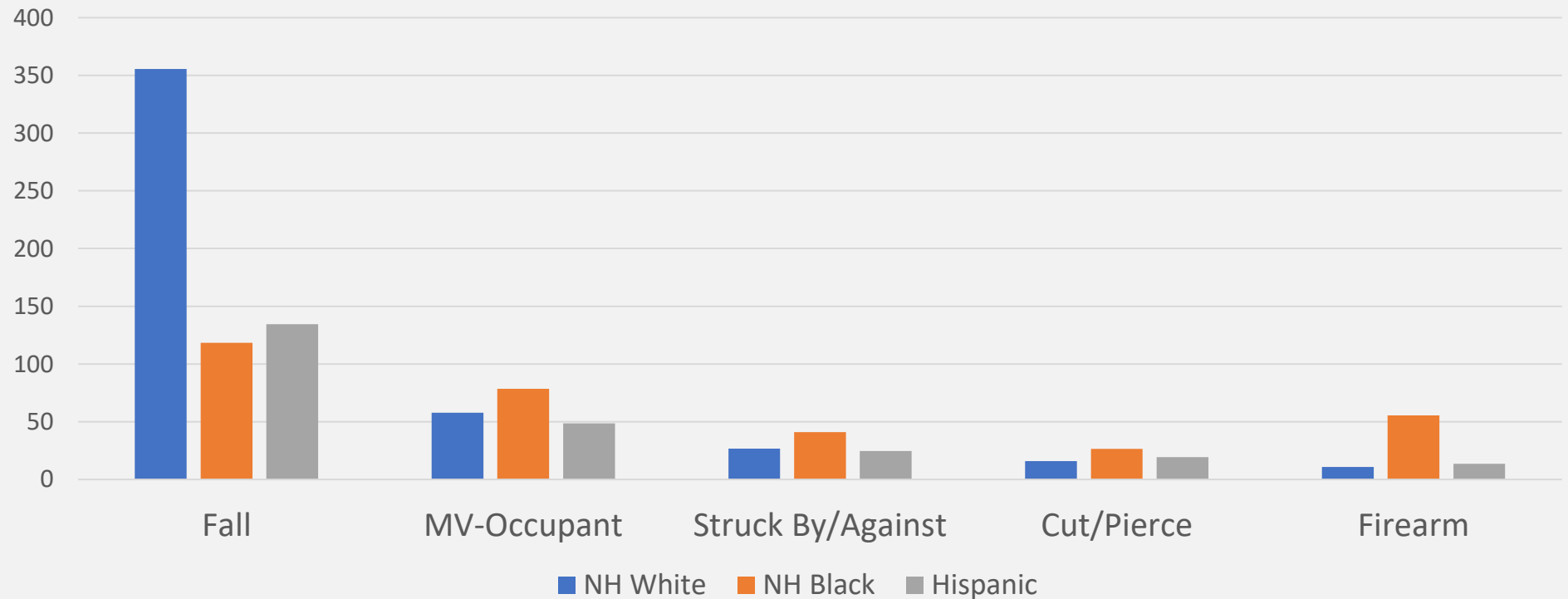
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



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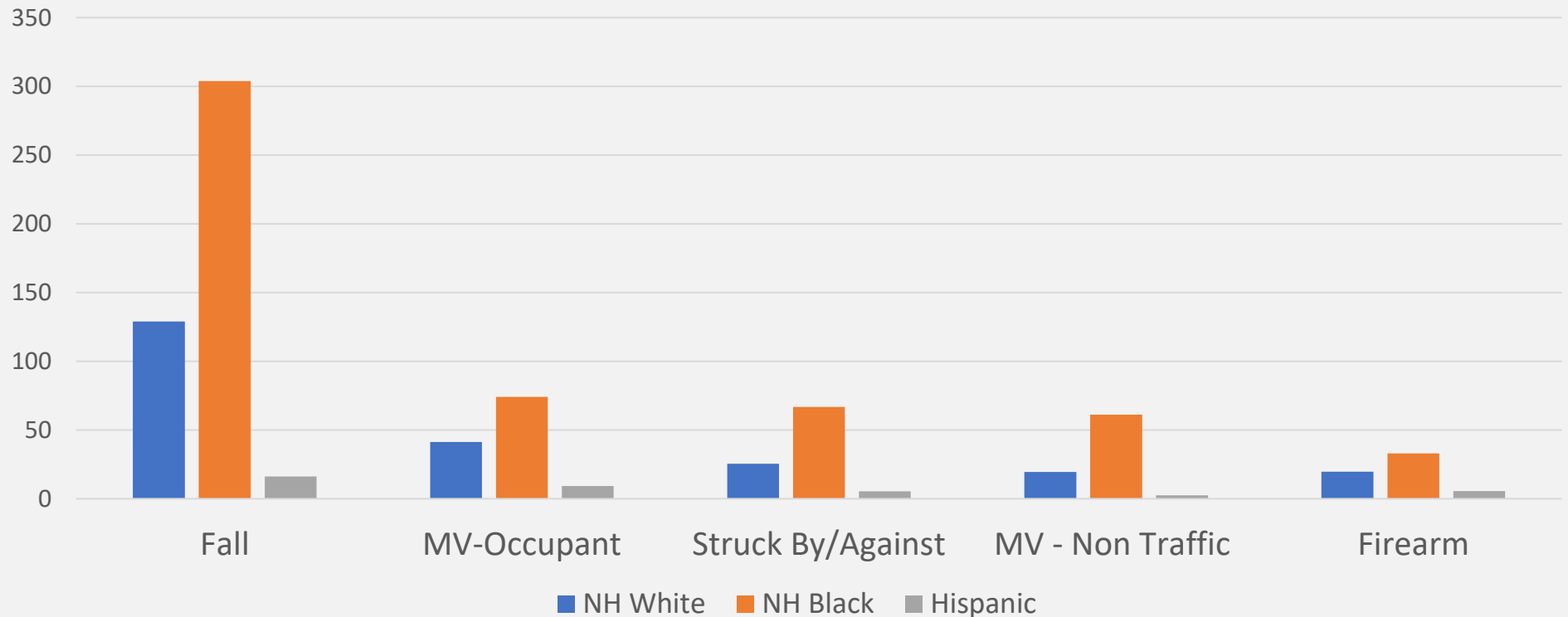
# Non-Fatal by Race and Ethnicity 2020

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



# Pediatric Non-Fatal by Race and Ethnicity 2020

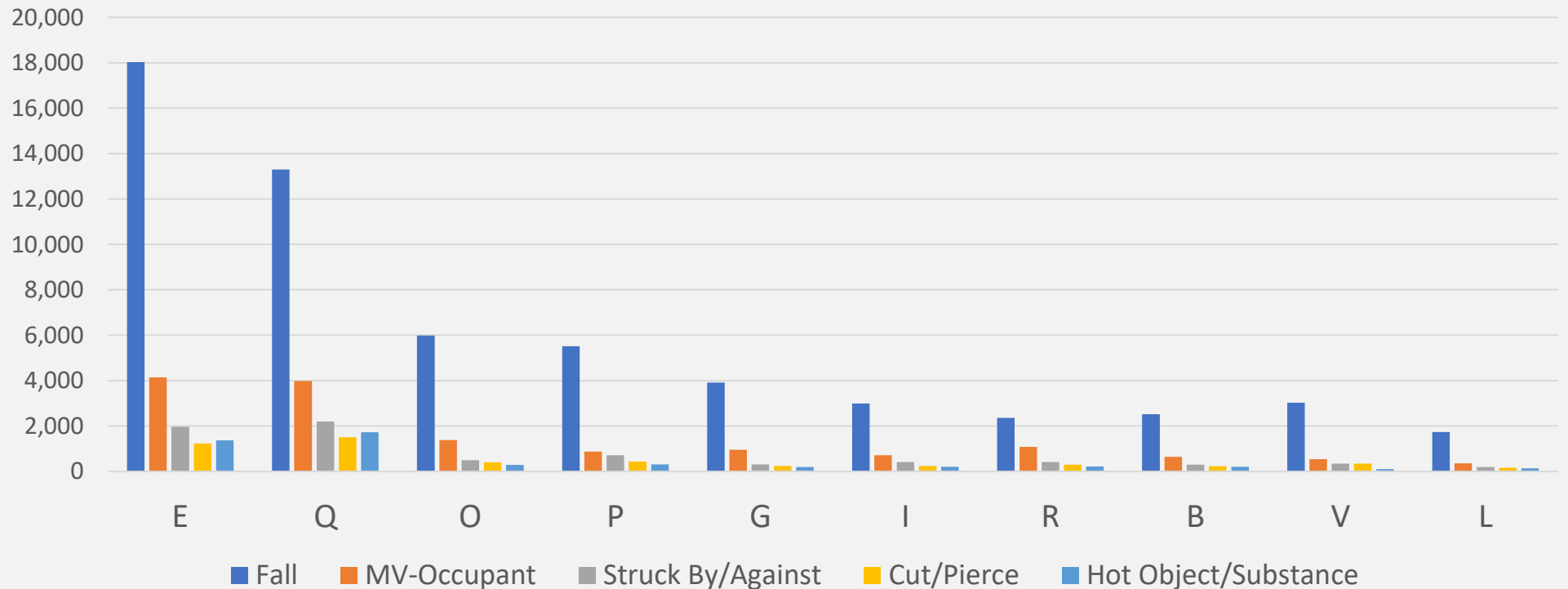
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by Race and Ethnicity, 2020



# Non-Fatal by TSA and Mechanism

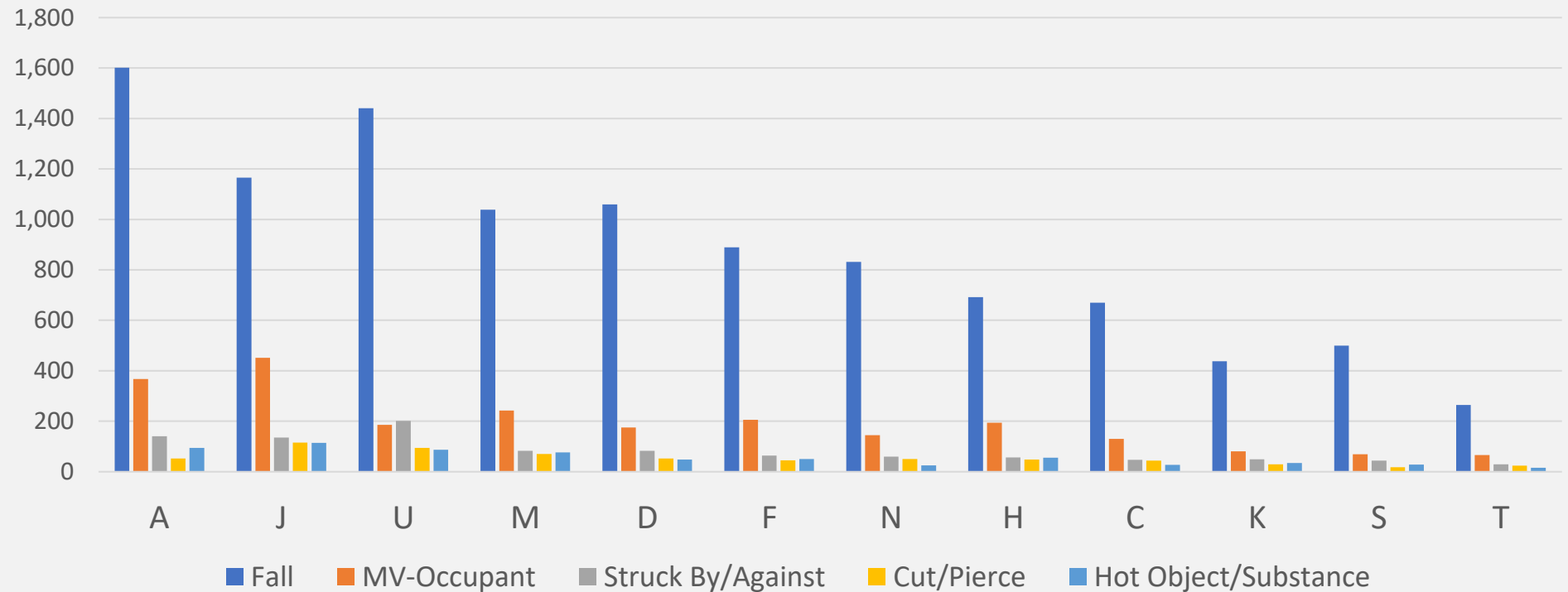
## 2020 – Top 10

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



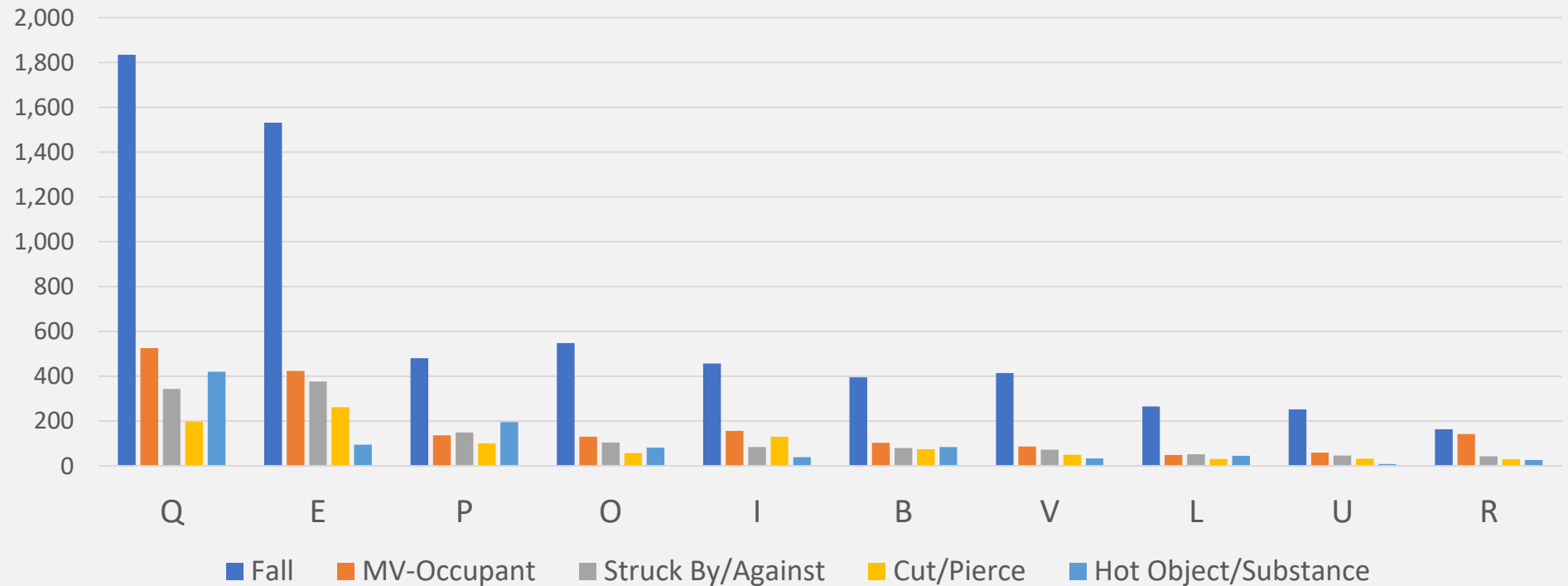
# Non-Fatal by TSA and Mechanism 2020 – Lower 12

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

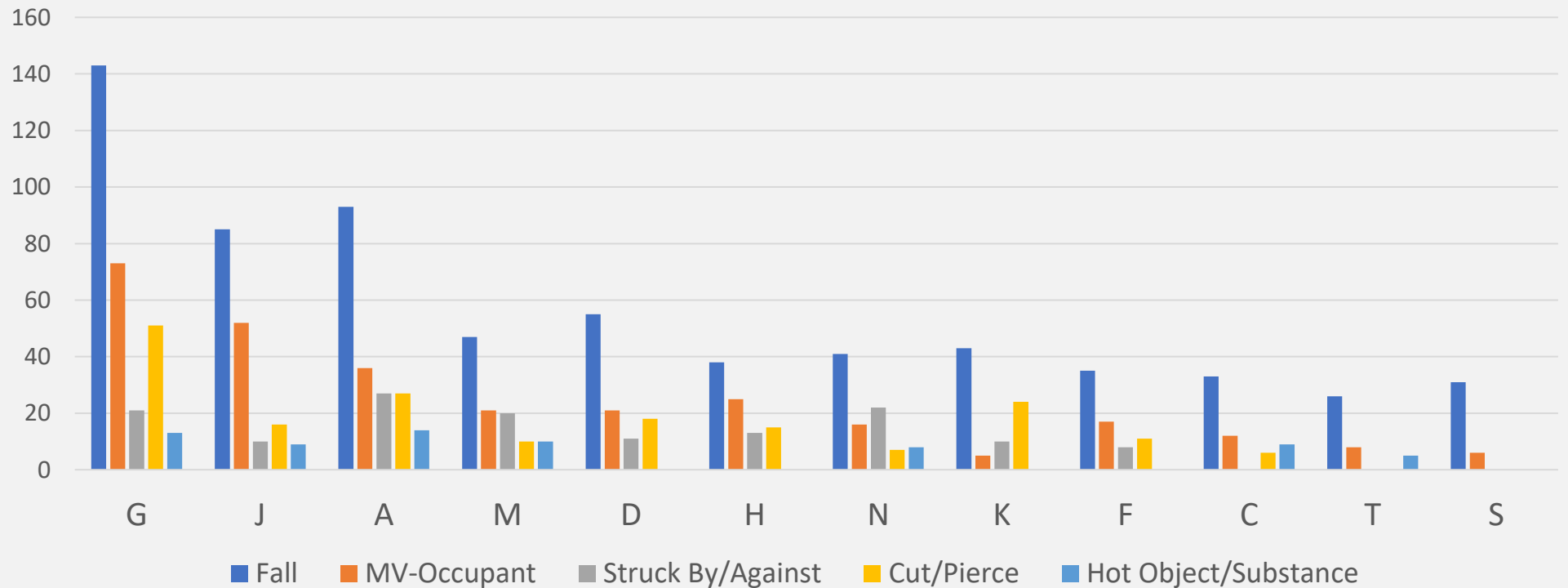
Pediatric Non-Fatal Trauma Hospitalization Rate per 100,000 Population by TSA and Mechanism of Injury, 2020





# 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



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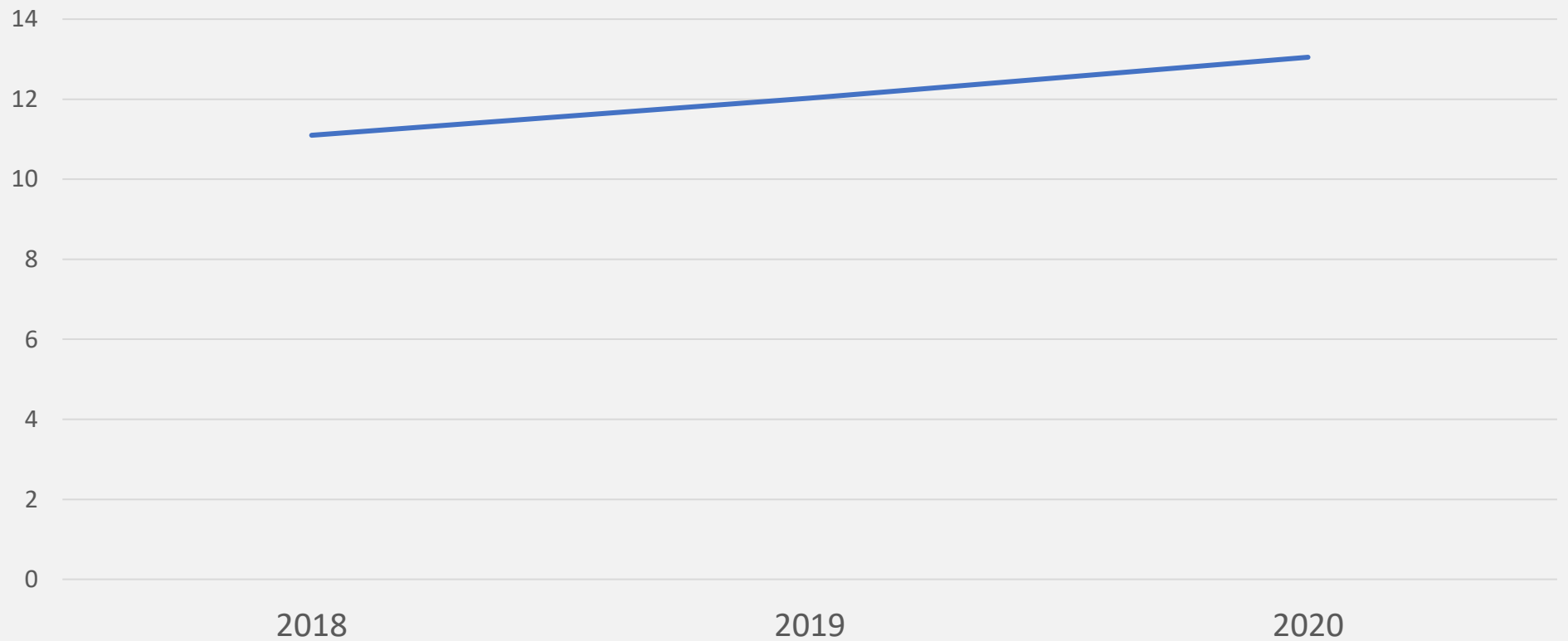
# Fatal Hospitalizations 2018-2020

	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

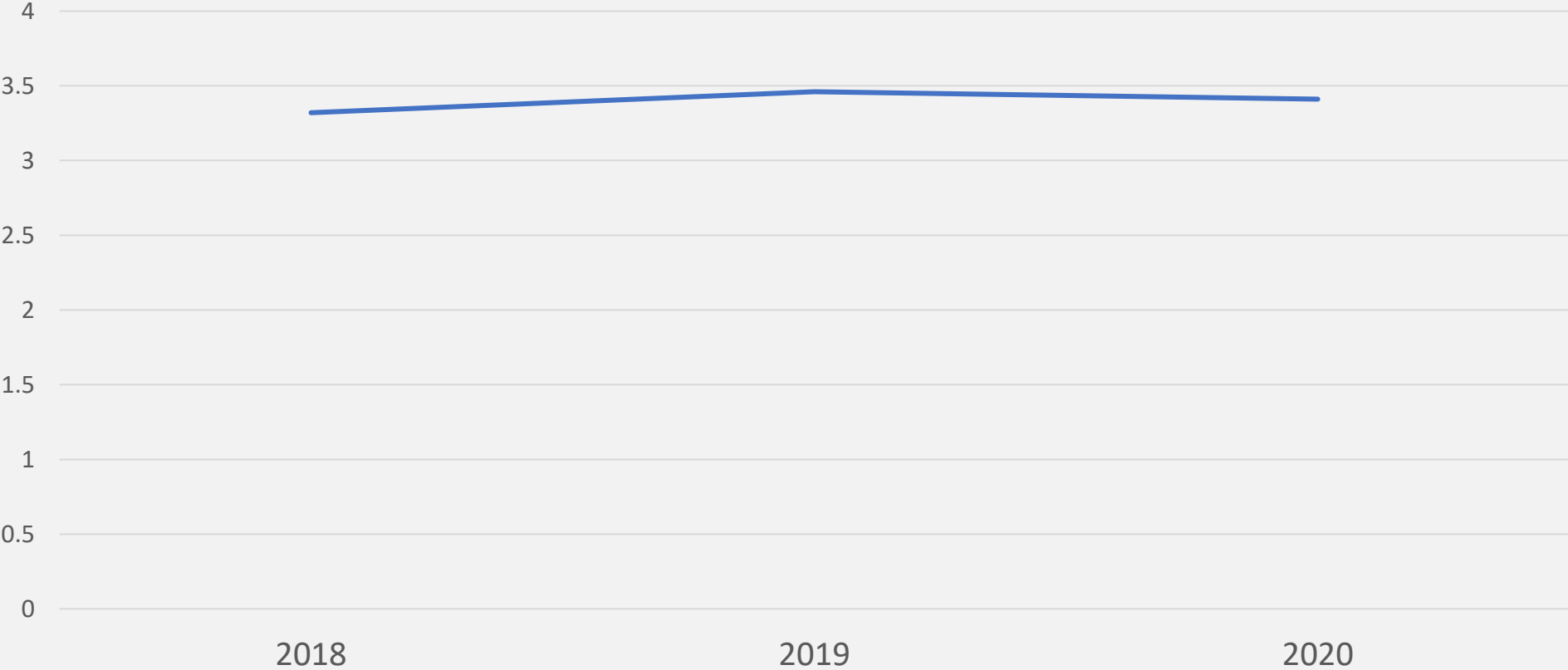
Fatal Trauma Hospitalization Rate per 100,000 Population



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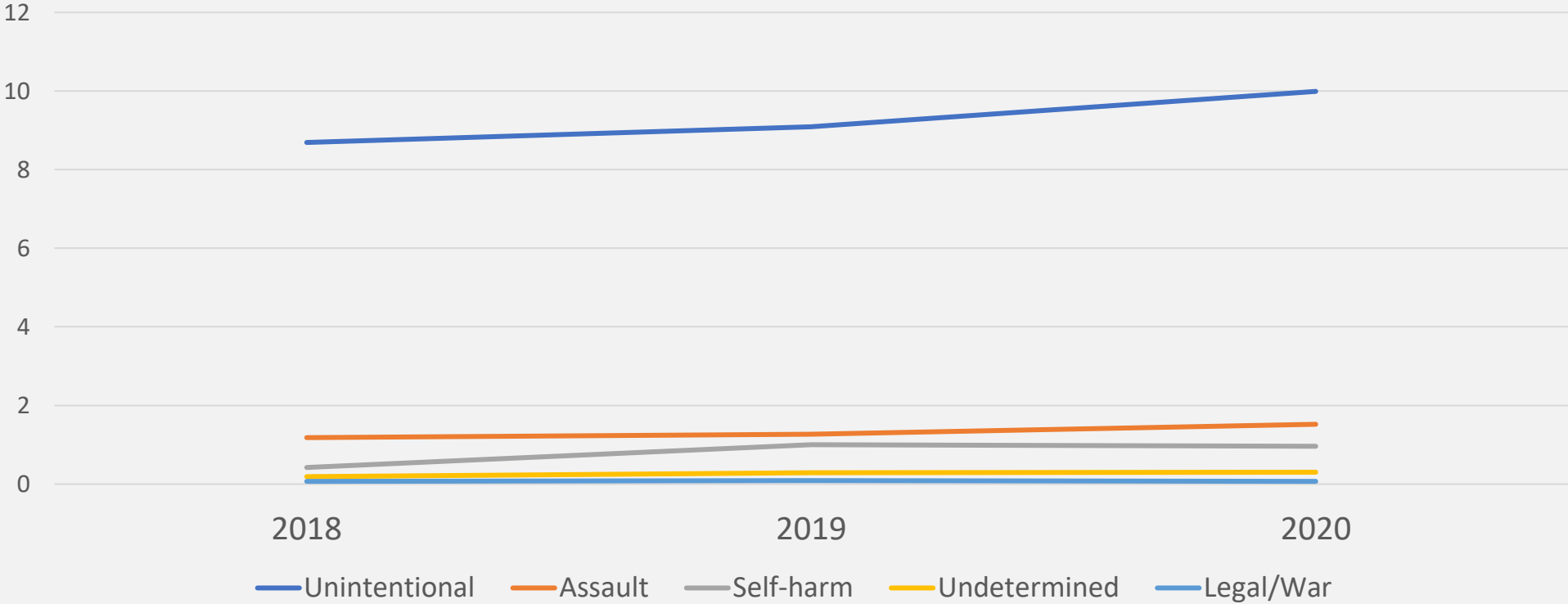
# Pediatric Fatal Rate per Year 2018-2020

Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population



# Fatal by Intent 2018-2020

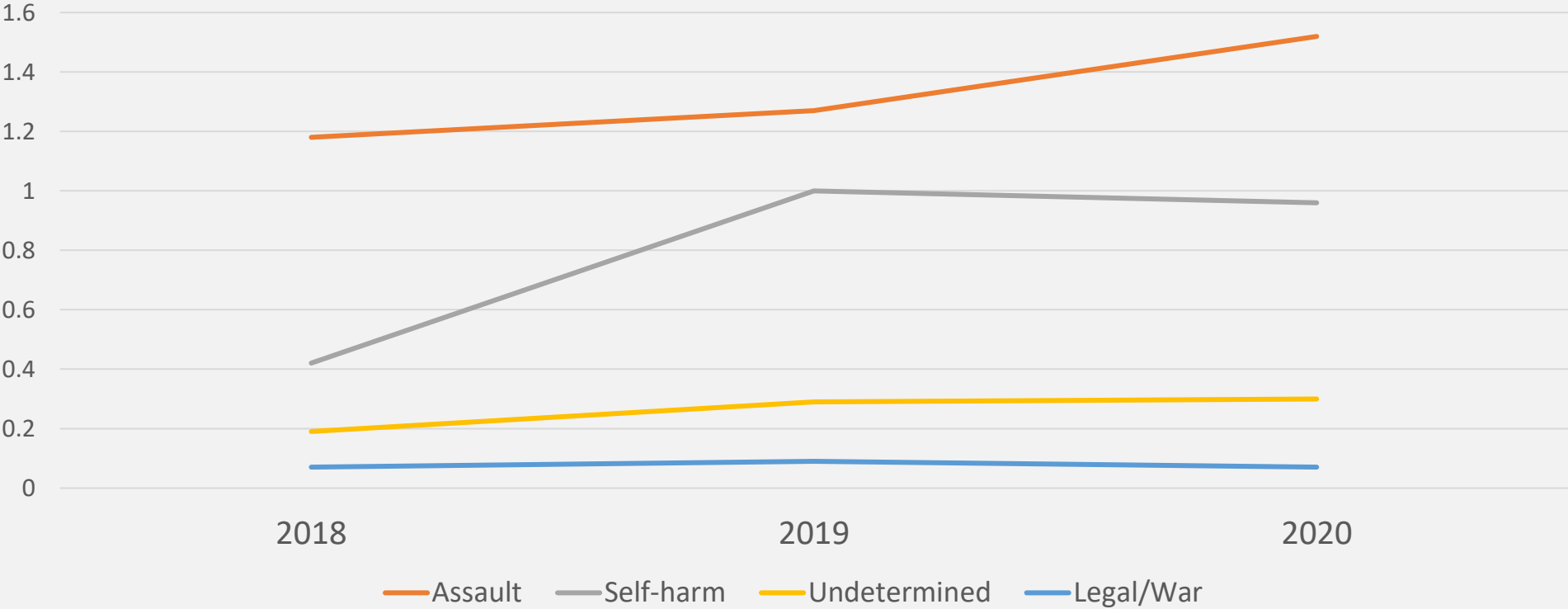
Fatal Trauma Hospitalization Rate per 100,000 Population by Intent





# Fatal by Intent removing unintentional 2018-2020

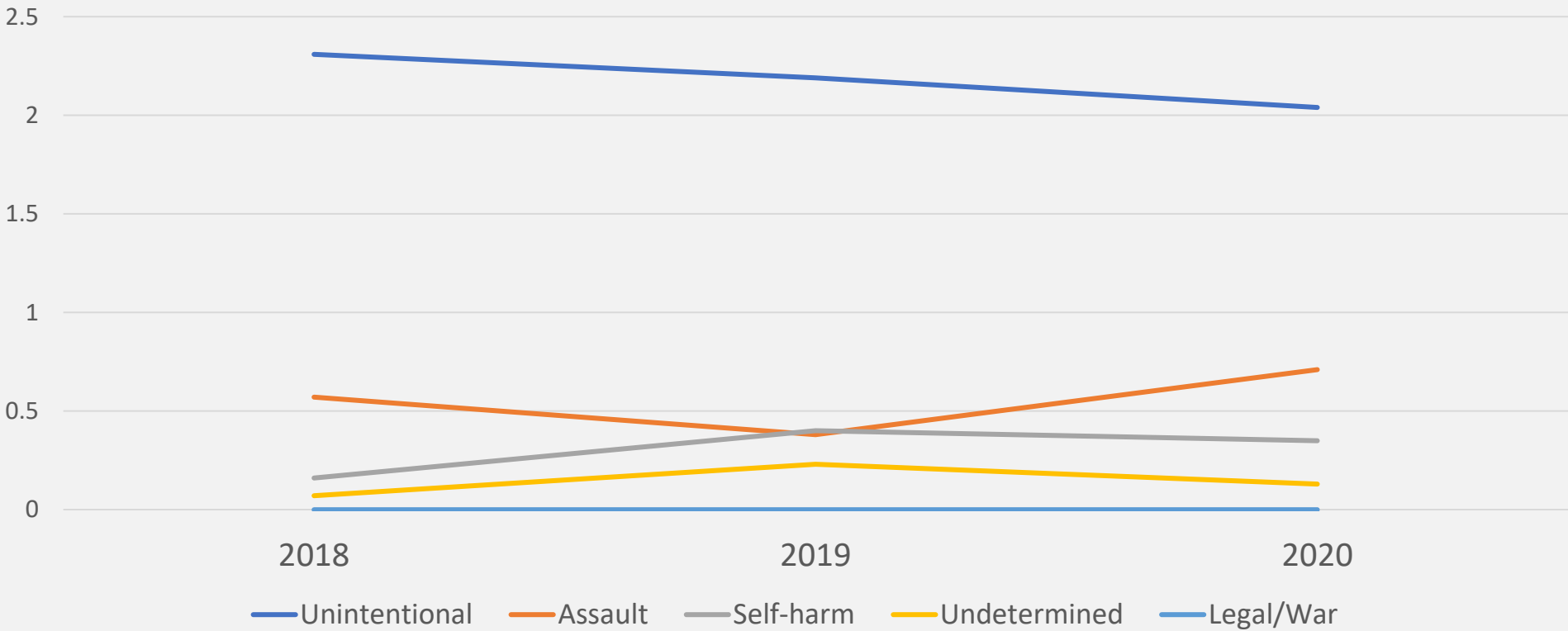
Fatal Trauma Hospitalization Rate per 100,000 Population by Intent



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# Pediatric Fatal by Intent 2018-2020

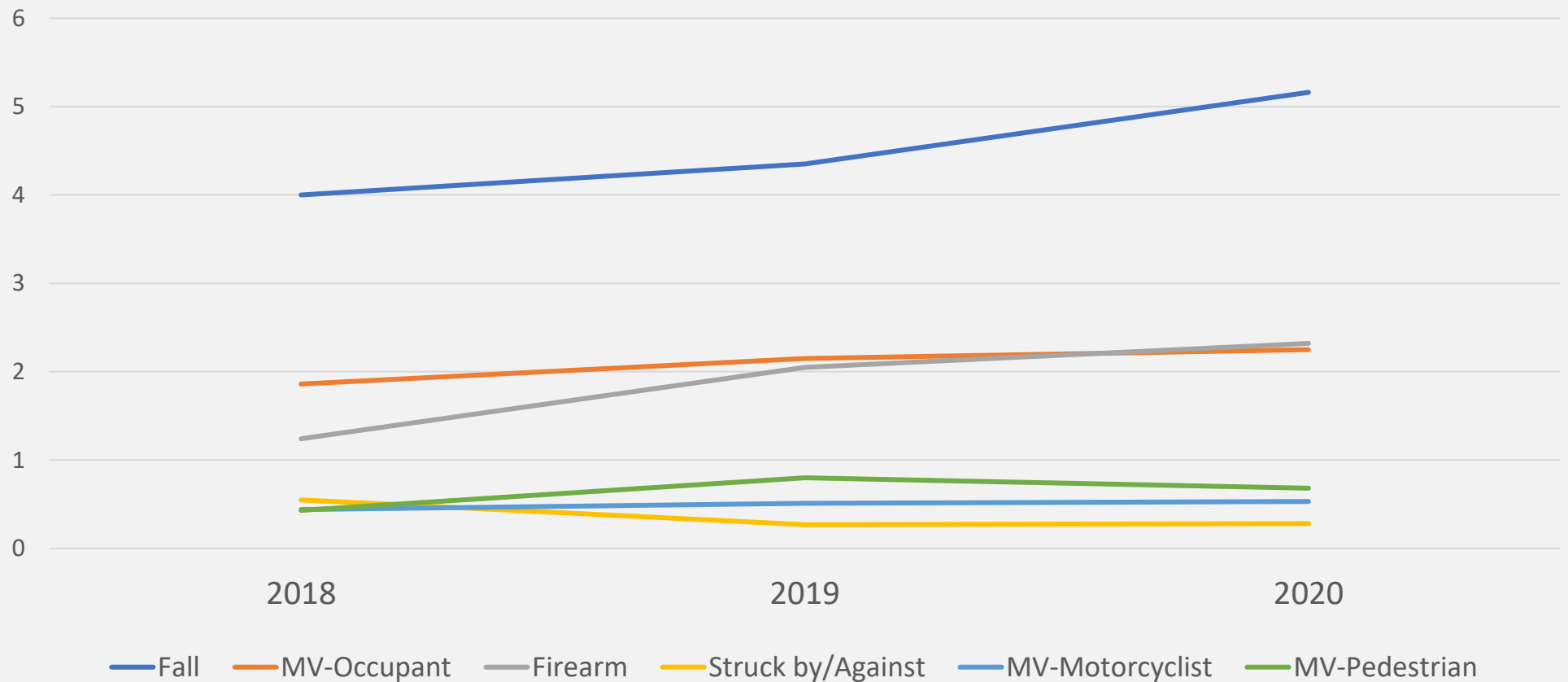
Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Intent



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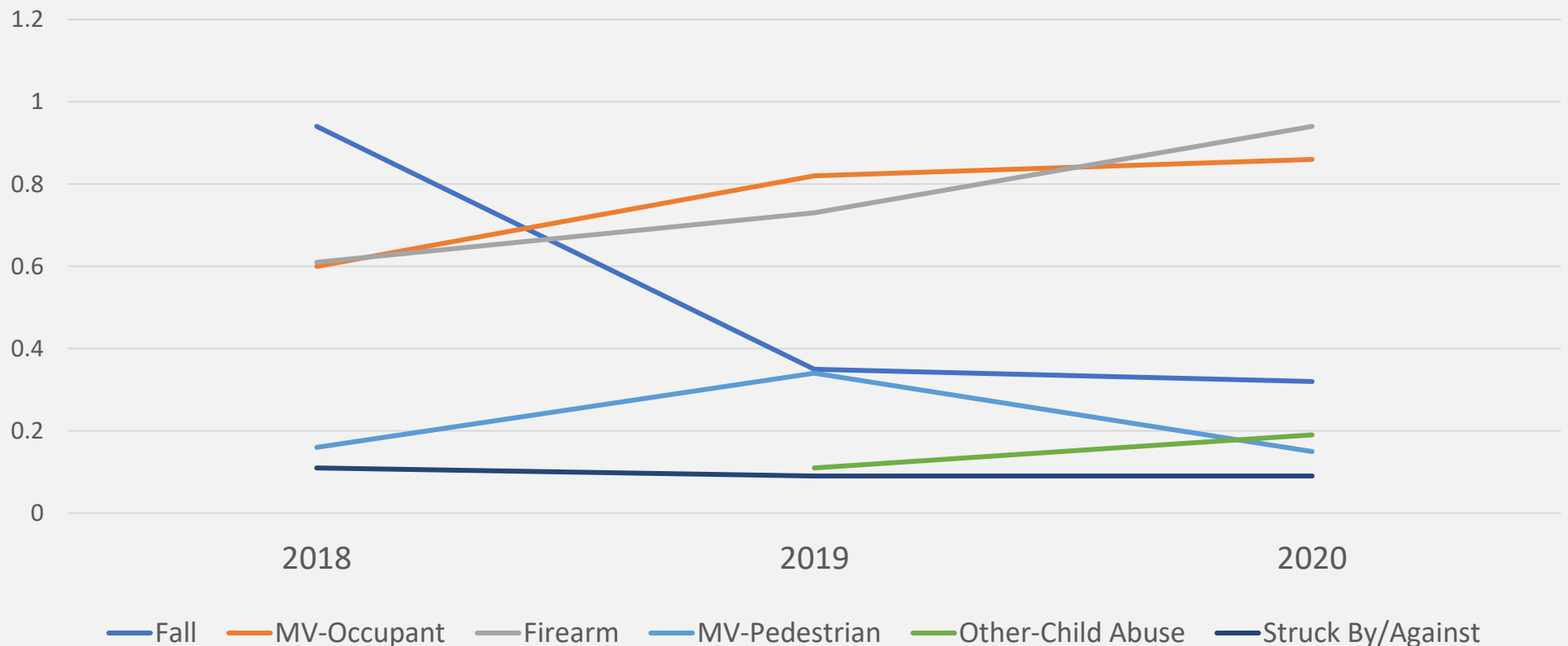
# Fatal by Mechanism 2018-2020

Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism



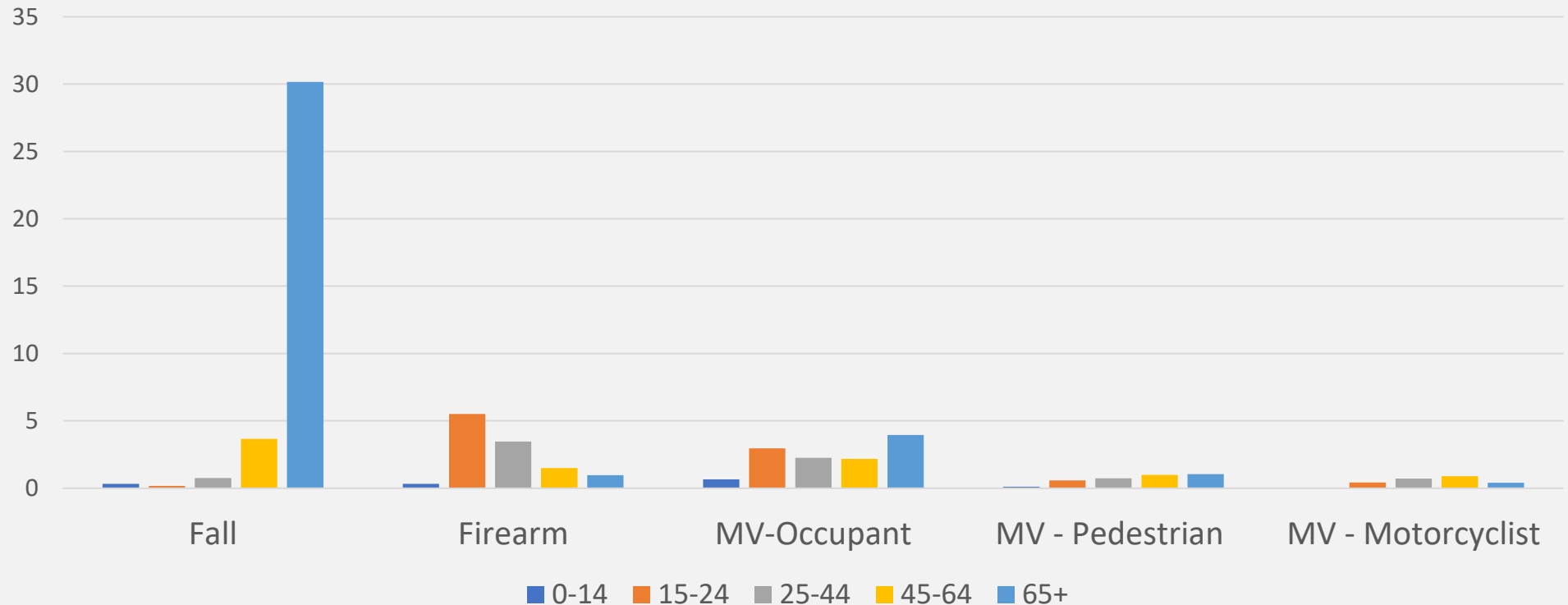
# Pediatric Fatal by Mechanism 2018-2020

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



# Fatal Mechanism by Age Group 2020

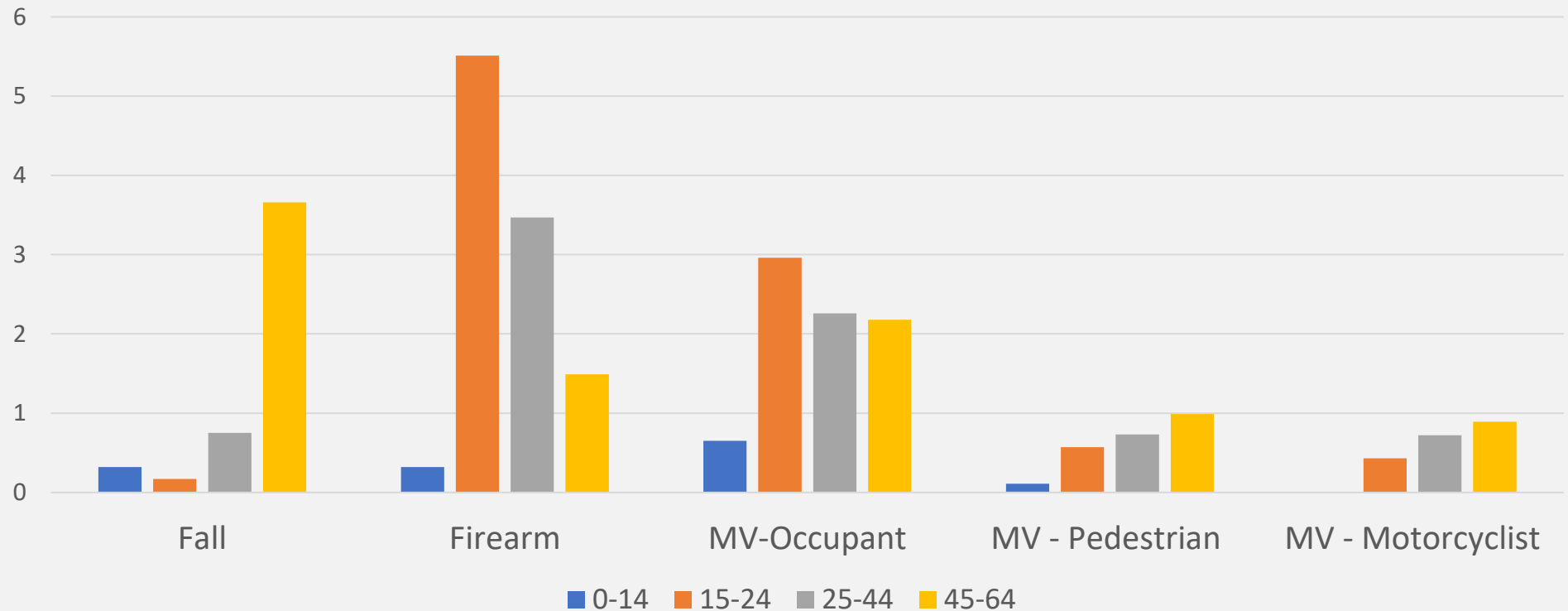
Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Age, 2020



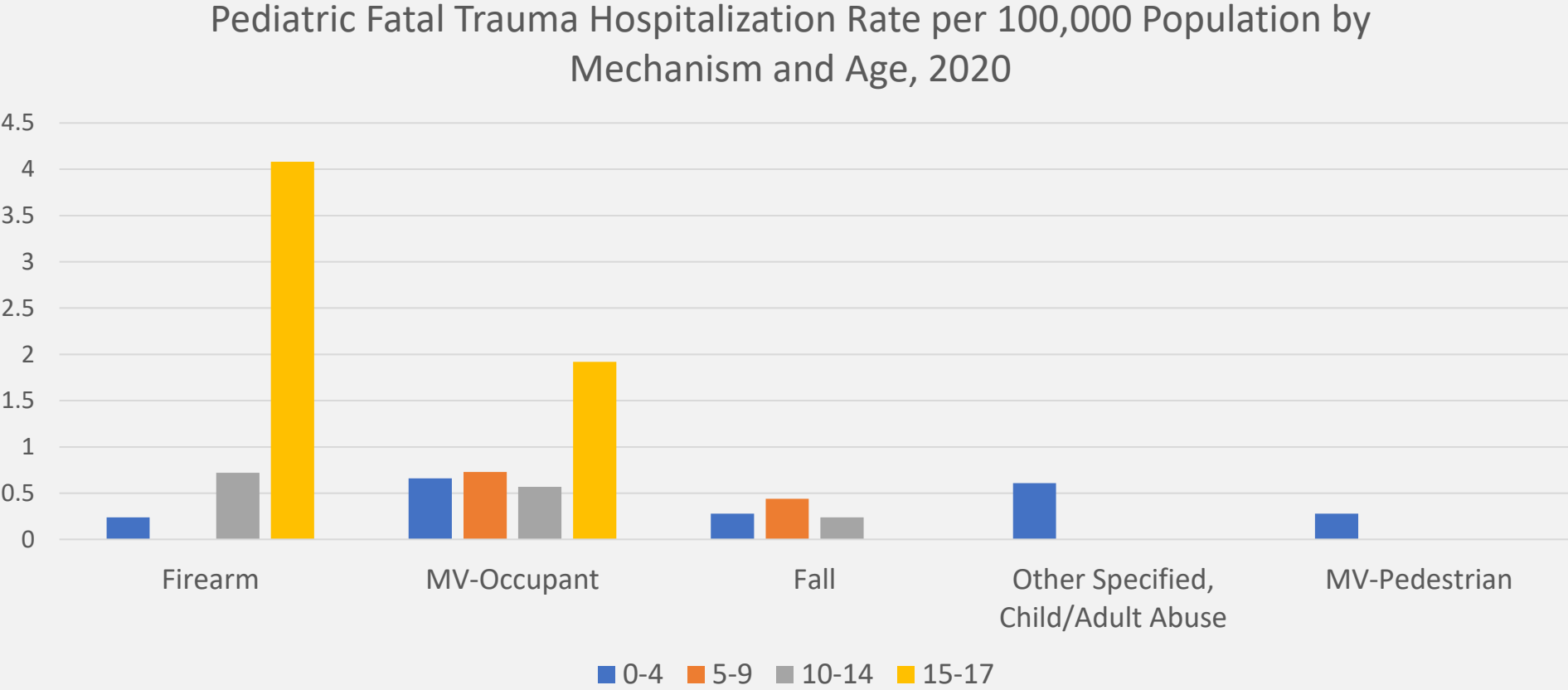
# Fatal Mechanism by Age Group

## Removing Ages 65+ 2020

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

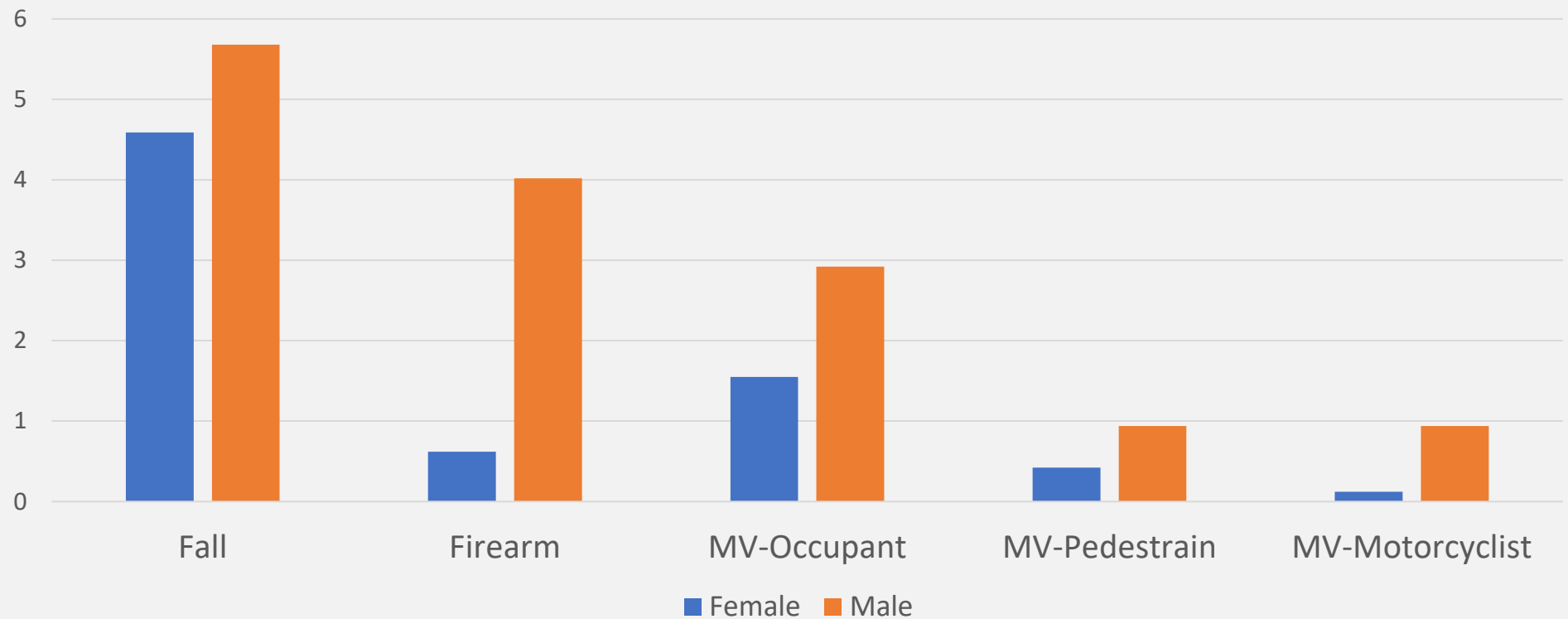


# Pediatric Fatal Mechanism by Age Group 2020



# Fatal by Mechanism and Gender 2020

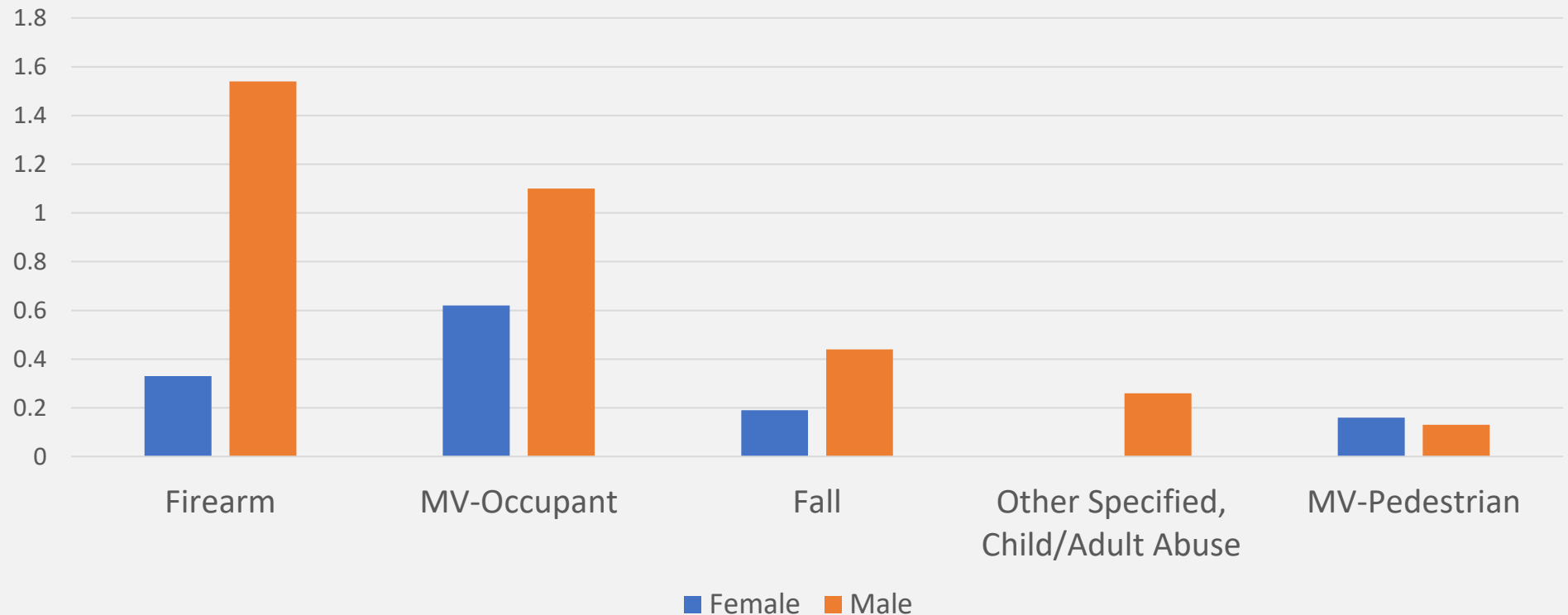
Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020





# Pediatric Fatal by Mechanism and Gender 2020

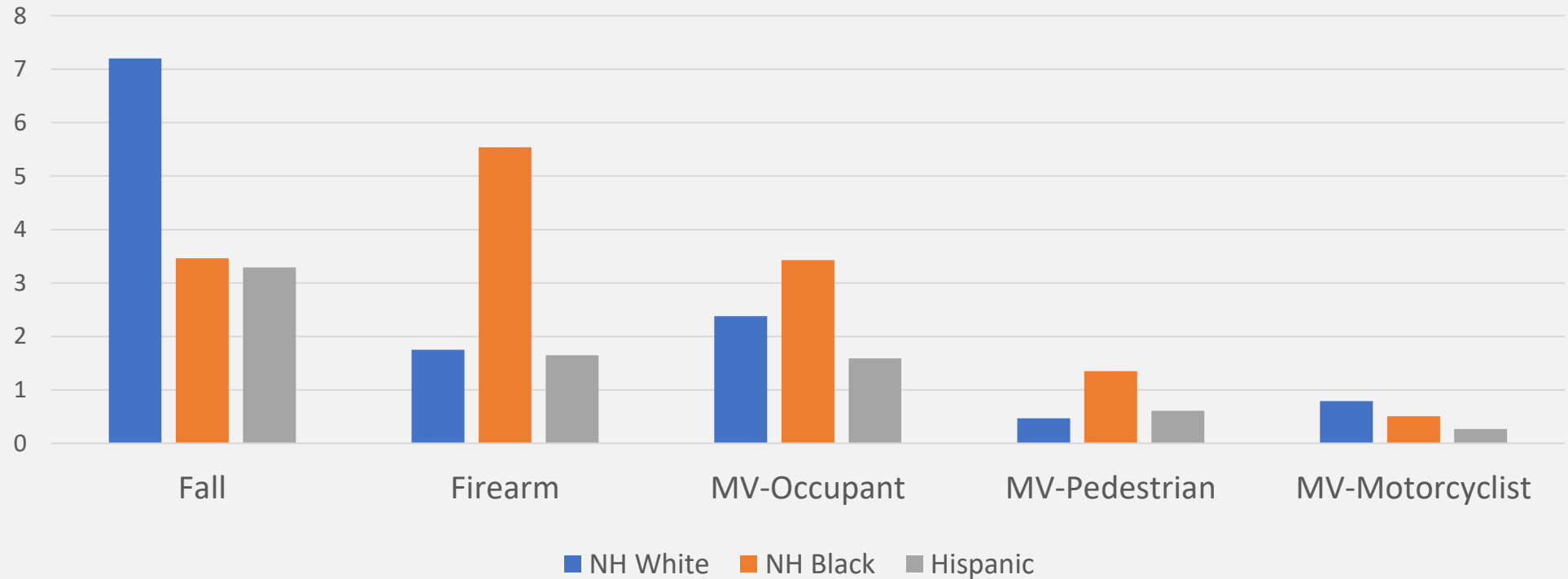
Pediatric Fatal Trauma Hospitalization Rate per 100,000 Population by Mechanism and Gender, 2020



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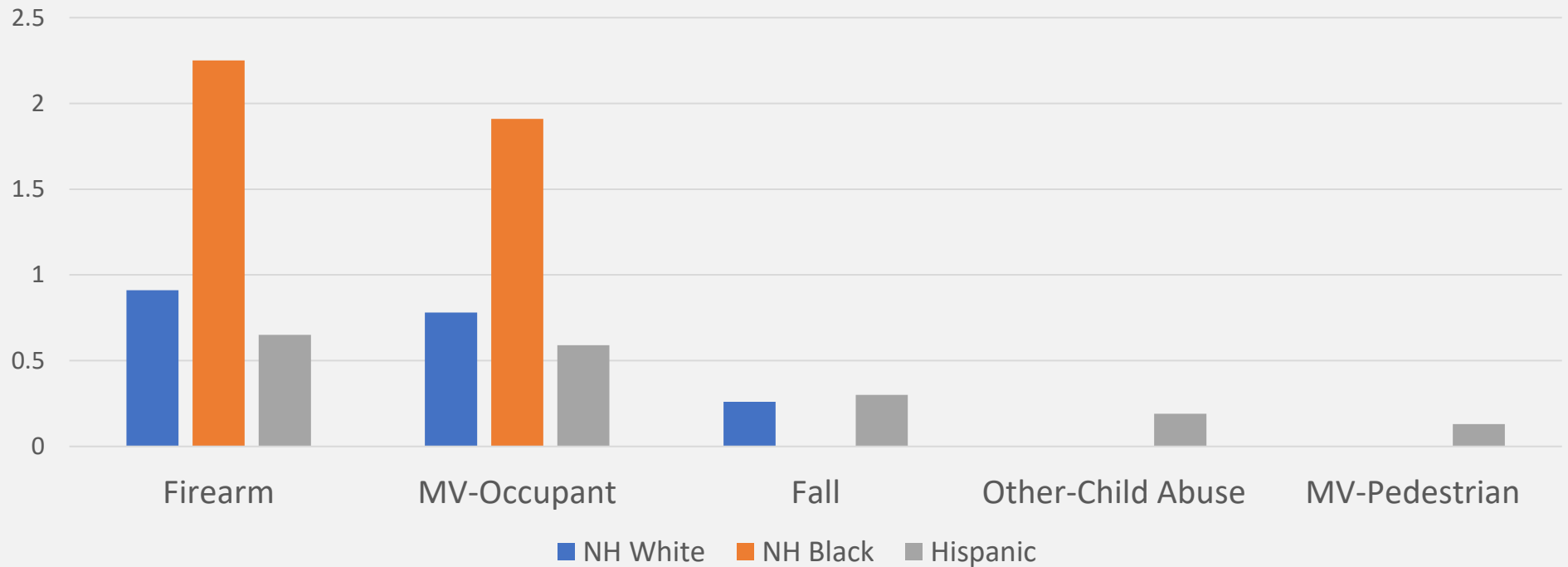
# Fatal by Race and Ethnicity 2020

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



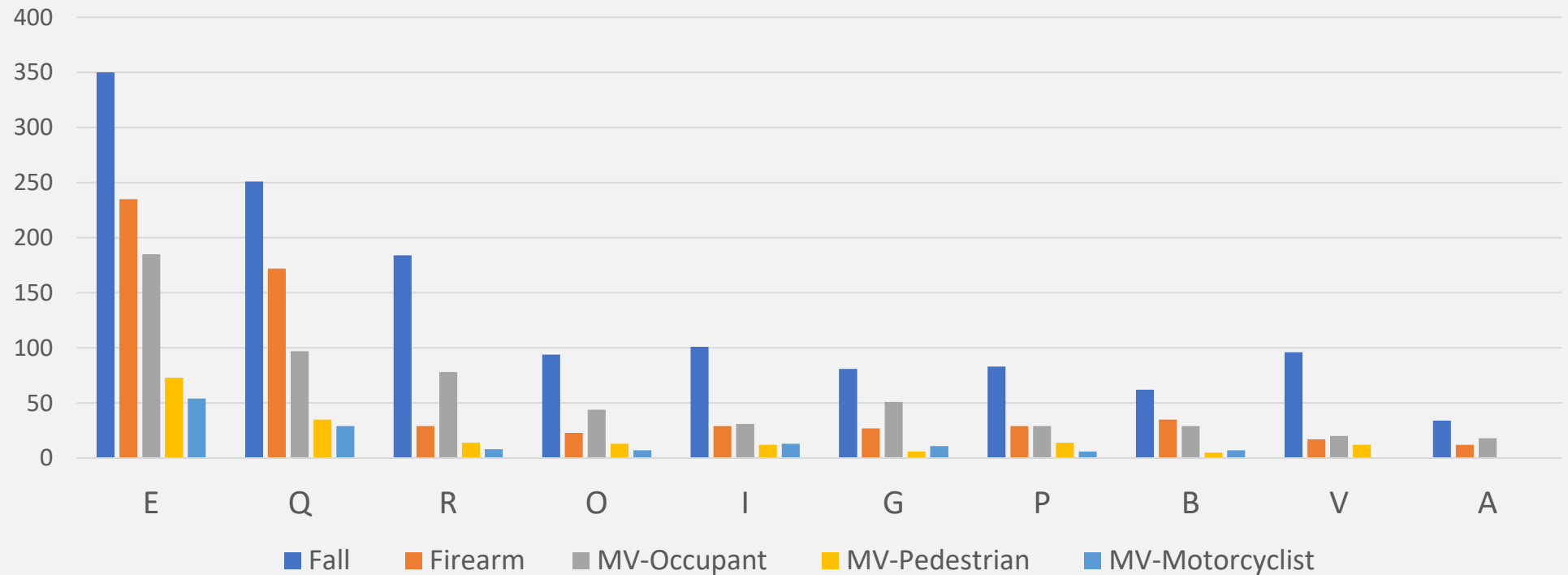
# Pediatric Fatal by Race and Ethnicity 2020

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



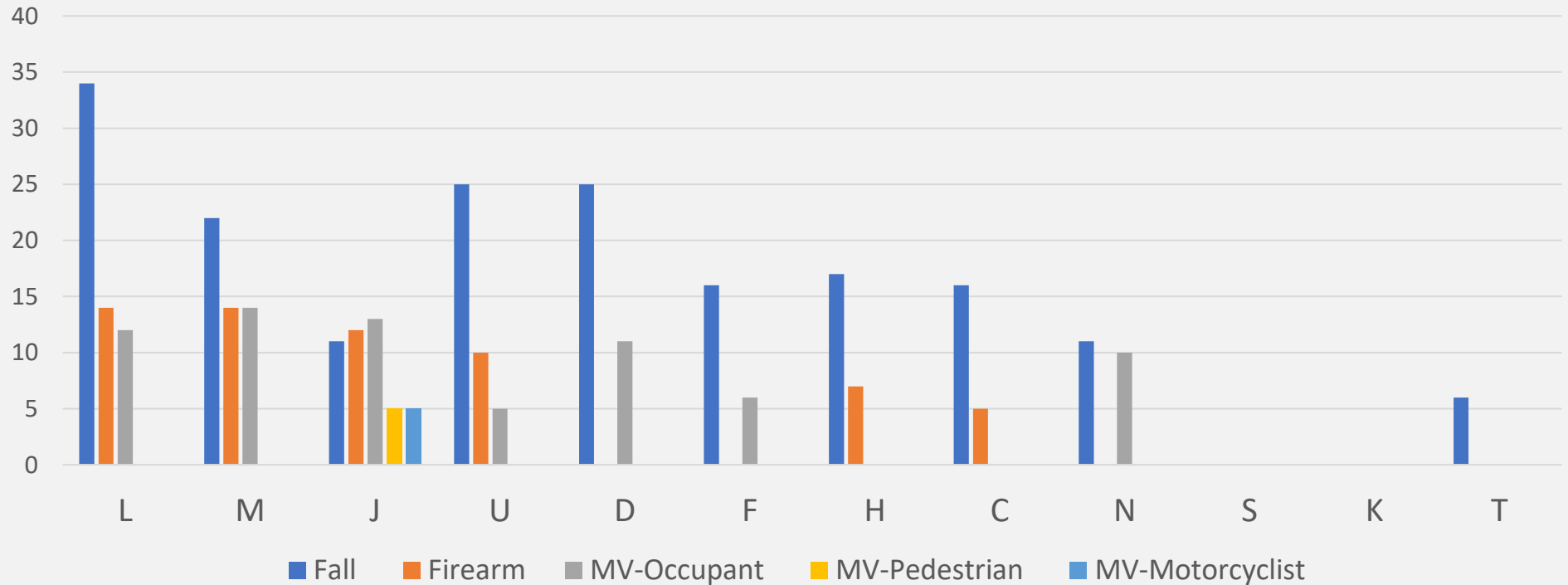
# Fatal by TSA and Mechanism 2020 – Top 10

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



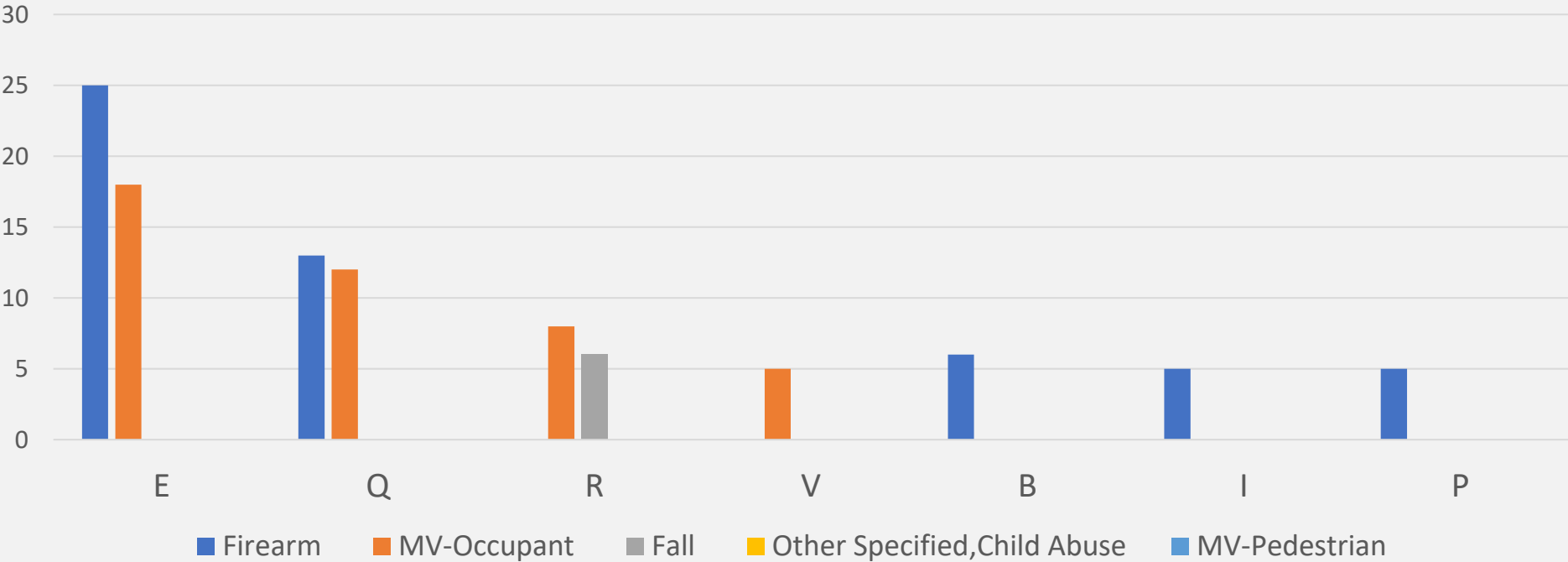
# Fatal by TSA and Mechanism 2020 – Lower 12

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



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# 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



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# 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

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