Mechanisms of traumatic injury by demographic characteristics: an 8-year review of temporal trends from the National Trauma Data Bank

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ABSTRACT

Background/purpose This 8-year retrospective study of the National Trauma Data Bank describes temporal trends of traumatic injury by mechanism of injury (MOI) by demographic characteristics from 2012 to 2019 for adult patients 18 years and older.

Methods Overall, 5 630 461 records were included after excluding those with missing demographic information and International Classification of Disease codes. MOIs were calculated as proportions of total injury by year. Temporal trends of MOI were evaluated using two-sided non-parametric Mann-Kendall trend tests for (1) all patients and (2) within racial and ethnic groups (ie, Asian, 2% of total patient sample; Black, 14%; Hispanic or Latino, 10%; Multiracial, 3%; Native American, <1%; Pacific Islander, <1%; White, 69%) and stratified by age and sex.

Results/outcomes For all patients, falls increased over time (p=0.001), whereas burn (p<0.01), cut/pierce (p<0.01), cyclist (p=0.01), machinery (p<0.001), motor vehicle transport (MVT) motorcyclist (p<0.001), MVT occupant (p<0.001) and other blunt trauma (p=0.03) injuries decreased over time. The proportion of falls increased across all racial and ethnic groups and significantly for those aged 65 and older. There were further differences in decreasing trends of MOI by racial and ethnic categories and by age groups.

Conclusions These results suggest that falls are an important injury prevention target with an ageing US population across all racial and ethnic groups. Differing injury profiles by racial and ethnic identity indicate that injury prevention efforts be designed accordingly and targeted specifically to individuals most at risk for specific MOIs.

Study type Level I, prognostic/epidemiological.

INTRODUCTION

Over the past 40 years, steadily rising injury rates across the world have revealed an urgency around traumatic injury prevention.[1–3] In the USA from 2001 to 2020, intentional (eg, homicide and suicide) and unintentional (eg, motor vehicle crashes and falls) injury are in the top five causes of death for all age groups across sex and race (accessed 10 October 2022).[4] Increasing rates of injury over the last few years have led to decreased overall life expectancy in the USA and increasing financial and economic burden within the healthcare system.[5 6] Moreover, an ageing US population has and will continue to shift priorities in the current healthcare system.[7]

WHAT IS ALREADY KNOWN ON THIS TOPIC
⇒ Global and US national traumatic injury rates have been rising over the past 40 years.

WHAT THIS STUDY ADDS
⇒ Novel longitudinal analysis of the National Trauma Data Bank; description of the differential trends of mechanism of injury at the US national level according to race and ethnicity, age and sex.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY
⇒ Clear injury prevention targets for communities affected by specific mechanisms of traumatic injury.

Shifts in injury rates present opportunities for updates to injury prevention strategies nationally. For example, technological innovations have improved general safety in day-to-day accidents.[8–12] Alternatively, rising violence and longstanding and new civil unrest[13 14] present clear avenues to redirect resources and investment towards systemic factors leading to unrest to prevent injury. Injury prevention is a core focus of the Centers for Disease Control and Prevention (CDC) through their National Center for Injury Prevention and Control which funds Injury Control Research Centers around the country.[15] Furthermore, injury prevention is a national priority of the US Department of Health and Human Services Healthy People 2030 initiative.[16]

Disparities in trauma care and outcomes have been reported by race and ethnicity, place of residence, age, sex and insurance status,[17–20] yet few studies have analysed disparities with respect to shifts in mechanisms of injury over time in the USA. With a changing national landscape, there is a clear need to understand the scope of the shift in injury patterns to tailor prevention programmes in the USA. Comprehensive characterisation of the evolution of injury burden and trends both past and present can help researchers, clinicians and public health officials to target prevention and intervention of injury. The objective of this study was to describe temporal trends of traumatic injury over an 8-year period for adult patients by mechanism of injury (MOI), race and ethnicity, age, sex, injury severity and hospital discharge disposition.

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Table 1 Traumatic injuries by year

	Overall	2012	2013	2014	2015	2016	2017	2018	2019	Z	P
Total injuries (N)	5 630 461	618 454	617 920	638 868	658 524	667 814	768 411	801 731	858 739	3.09	.001**
Mechanism (%)											
Burn	1.57	1.81	1.79	1.77	1.61	1.40	1.42	1.50	1.36	−2.59	**0.009****
Cut/pierce	4.81	5.21	4.99	4.97	4.77	4.63	4.79	4.75	4.55	−2.59	**0.009****
Cyclist	2.19	2.59	2.52	2.55	2.43	2.48	1.48	1.46	2.31	−2.35	**0.01***
Fall	45.61	40.71	42.75	44.20	44.85	44.36	46.56	49.08	49.73	3.09	**0.001****
Firearm	4.82	5.06	4.91	4.69	4.88	5.04	5.01	4.63	4.49	−1.60	0.10
Machinery	1.00	1.91	1.24	1.17	1.13	0.89	0.90	0.83	0.79	−2.84	**0.004***
MVT motorcyclist	5.04	6.00	5.50	5.51	5.41	4.77	4.73	4.57	4.31	−3.09	**0.001****
MVT occupant	19.28	21.13	20.55	19.66	19.75	19.15	18.75	18.45	17.74	−3.09	**.0001****
MVT other	5.31	5.44	5.16	5.14	5.15	6.63	5.86	4.43	4.86	−0.86	0.38
Other blunt trauma	6.70	7.16	6.97	6.69	6.44	6.91	6.78	6.56	6.29	−2.10	**.03***
Pedestrian	3.61	3.64	3.59	3.59	3.53	3.68	3.67	3.68	3.50	0.12	0.90
Intent (%)											
Assault	10.43	11.66	11.21	10.67	10.55	10.62	10.41	9.82	9.23	−3.09	**.001****
Other	0.14	0.22	0.24	0.22	0.19	0.15	0.16	0.16	0.15	−1.85	0.06
Self-inflicted	1.48	1.79	1.76	1.75	1.71	1.59	1.59	1.53	1.44	−3.09	**.001****
Undetermined	0.35	0.27	0.27	0.29	0.33	0.66	0.62	0.59	0.60	1.85	0.06
Unintentional	87.58	86.06	86.52	87.06	87.22	86.98	87.21	87.90	88.58	2.59	**.009***
Injury type (%)											
Blunt	88.10	87.90	88.29	88.56	88.74	88.92	88.76	89.09	89.57	3.09	**.001****
Burn	1.59	1.82	1.80	1.78	1.61	1.41	1.43	1.51	1.37	−2.59	**.009***
Other/unspecified	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	2.08	**.03***
Penetrating	9.68	10.28	9.91	9.67	9.65	9.67	9.80	9.39	9.05	−2.24	**.02***
Race and ethnicity (%)											
Asian	1.84	1.74	1.76	1.88	1.92	1.79	1.84	1.89	1.90	1.85	0.06
Black	14.32	14.36	14.23	14.05	14.45	14.62	14.43	14.22	14.24	0	1
Hispanic or Latino	9.94	8.73	8.74	9.32	9.61	10.68	10.46	10.58	10.78	2.84	**.004***
Multiracial	2.69	2.73	2.67	2.56	2.45	2.69	2.69	2.77	2.86	1.24	0.21
Native American	0.83	0.72	0.89	0.87	0.77	0.82	0.87	0.87	0.81	0	1
Pacific Islander	0.20	0.16	0.17	0.17	0.17	0.26	0.22	0.22	0.23	2.18	**.02***
White	70.17	71.54	71.53	71.15	70.63	69.14	69.49	69.46	69.18	−2.59	**.009***
Age group (%)											
18–24	11.97	14.78	13.76	13.02	12.56	12.30	11.13	10.11	9.68	−3.34	**.0008****
25–44	26.09	27.84	27.15	26.62	26.36	26.25	25.81	24.96	24.66	−3.34	**.0008****
45–64	27.58	28.55	28.54	28.42	28.02	27.46	27.18	26.75	26.50	−3.34	**.0008****
65+	34.34	28.83	30.55	31.94	33.06	33.99	35.89	38.18	39.16	3.34	**.0008****
Female (%)	38.82	37.06	37.92	38.13	38.40	38.94	39.33	40.42	40.36	3.09	**.001***

Z, two-sided Mann-Kendall trend test statistic; P, Mann-Kendall test p-value; boldface values indicate statistically significant Mann-Kendall tests, *p<0.05, **p<0.001.
MVT, motor vehicle transport.

METHOD

The National Trauma Data Bank (NTDB) is the largest aggregation of trauma registry data in the USA and is maintained by the American College of Surgeons (ACS) for the purposes of injury surveillance, hospital benchmarking, research and quality improvement.[21] The NTDB includes patient characteristics, injury data, treatment and discharge disposition, among other variables, entered by designated and trained data registrars using consistent and established data definitions. Inclusion in the NTDB is based on clinical coding for traumatic injuries. The data are audited as part of the ACS trauma centre verification programme, which ensures data integrity and quality. Data from the NTDB from 2012 to 2019 for adult patients 18 years and older were considered for analysis (N=7 555 334). The timeframe 2012–2019 was chosen as it represents a contemporary data set prior to the onset and subsequent influence of the COVID-19 pandemic. Only traumatic injuries were extracted, defined as injuries sustained from a physical force outside the body, and designated by International Classification of Disease (ICD) external cause codes. ICD-9 codes were used from 2012 to 2015, and ICD-10 codes were used from 2016 to 2019. MOI and intent of injury were determined according to categories outlined in respective ICD injury matrices.[22] Traumatic MOIs were condensed across ICD codes (see Supplement) to yield the following 11 categories: burns, cuts/pierces, falls, firearms, machinery, cyclist, motor vehicle transportation (MVT) motorcyclist, MVT occupant and MVT other (eg, non-traffic, stationary incidents), pedestrian stuck and other blunt trauma injuries (eg, fight or brawl, projected or falling object). Injury intent was coded in five categories: assault, other, self-inflicted, unintentional and undetermined.

Sex (male or female), age and race and ethnicity were the primary demographic variables of interest and the only variables consistently reported across NTDB years. Race and ethnicity were organised to reflect US census categories[23]: Asian, Black, Hispanic or Latino, Multiracial, Native American, Pacific Islander and White. Records with non-traumatic injury and missing ICD codes or demographic variables were excluded, injury burden by MOI were calculated as proportions of total injury within respective years.

Table 2 Mann-Kendall results of MOI trends by race and ethnicity and age group

Mechanism	Race and ethnicity							Age group				Sex
	Asian	Black	Hispanic or Latino	Multi-racial	Native American	Pacific Islander	White	18–24	25–44	45–64	65+	Female
Burn	−1.36	−1.85	0.86	−1.60	−2.84*	−1.36	−2.59*	−3.09*	−2.84*	2.35*	3.09*	0.61
Cut/pierce	−1.60	−2.35*	−2.84*	−2.10	−1.11	1.36	−2.35*	−3.34**	2.84	1.85	3.34**	3.09*
Cyclist	−2.59*	−0.86	−2.35*	−1.60	−0.37	−1.60	−2.10	−2.84*	−2.35	1.99	2.84*	−0.12
Fall	3.09*	2.59*	2.84*	3.09*	3.34**	2.59*	3.34**	−3.34**	−3.34**	−3.34**	3.34**	2.59*
Firearm	−1.85	−1.11	−2.10	0.12	0.37	−0.61	−1.11	−3.09*	3.09*	0.12	2.24	3.09*
Machinery	−1.60	−1.85	−2.35*	−1.60	−1.36	−0.61	−3.09*	−1.85	2.35*	−1.85	0.86	0.37
MVT motorcyclist	−2.10	−2.10	−0.86	−1.36	−1.11	−1.11	−3.34**	−0.12	1.85	−2.84*	3.34**	−2.99*
MVT occupant	−2.84*	1.36	−2.10	−1.85	−1.60	−2.10	−3.34**	−3.34**	2.84*	1.36	3.34**	1.85
MVT other	−0.37	1.85	0.61	0.12	−1.11	−0.37	−1.11	−2.84*	−0.61	0.37	2.74*	1.36
Other blunt trauma	0.86	−1.60	−3.09*	−2.59*	−2.35*	−2.59*	−1.85	−3.34**	0.61	2.84*	3.09*	0.86
Pedestrian	−0.86	1.85	−2.35*	0.61	1.60	−0.37	−2.10	−3.34**	2.59*	−0.61	3.34**	2.99*

Values represent Mann-Kendall z-statistics; negative values indicate decreasing injury, positive values indicate increasing injury from 2012 to 2019; boldface values indicate statistically significant Mann-Kendall tests, *p<0.05, **p<0.001.
MOI, mechanism of injury; MVT, motor vehicle transport.

Where available, abbreviated injury score-derived injury severity scores (ISS; 2% missing) and hospital discharge disposition (7% missing) were assessed by MOI over time. ISS was grouped into three categories: low,(scores 1-14) moderate (15-25) and high (26+). Hospital discharge disposition was grouped according to four categories: deceased, routine discharge to home, other discharge (ie, discharged from hospital to other facility for further care) and discontinued care against medical advice.

A waiver from the Medical College of Wisconsin Institutional Review Board was obtained for this study.

Statistical analysis

Injury proportions were calculated each year within each MOI. Temporal trends of MOI were evaluated using two-sided non-parametric Mann-Kendall trend tests for (1) all patients, (2) within racial and ethnic groups and (3) stratified by age or sex. Mann-Kendall trend tests were used due to the non-normal distribution of injury burden over time particularly when stratified by demographic factors. Injury profiles according to MOI and intent were compared among racial and ethnic groups. ISS and hospital discharge disposition trends were also evaluated using Mann-Kendall tests.

RESULTS

Demographic characteristics of injured patients

Over the 8-year period, N=5 630 461 injury records met study inclusion criteria and had complete demographic and MOI data (74% of total records identified). Of these, 1.8% were Asian, 14.3% were Black, 9.9% were Hispanic or Latino, 2.69% were Multiracial, <1% were Native American, <1% were Pacific Islander and 70.2% were White. Overall, 12% of patients were 18–24 years old, 26.1% were 25–44, 27.6% were 45–64 and 34.3% were 65+ year old. The majority of patients were men (61.1%).

Temporal trends by patient characteristics

Across all MOI, there was a significant increase in injury over time for Hispanic or Latino (p=0.004) and Pacific Islander patients (p=0.02), and a significant decrease for White patients (p=0.009) (table 1). There was a significant increase in the proportion of overall injuries over time for female patients (p<0.001) and a corresponding decrease in injuries for male patients. There was a significant decrease in traumatic injury over time for age groups 18–24, 25–44 and 45–64 (all p<0.001), and a significant increase for those 65+ year old (p<0.001).

Across all patients, trend analysis results for MOI showed a significant increase in falls over time (p=0.001), whereas there were decreasing trends of burn (p<0.01), cut/pierce (p<0.01), cyclist (p=0.01), machinery (p<0.001), MVT motorcyclist (p<0.001), MVT occupant (p<0.001) and other blunt trauma (p=0.03; table 1). No other MOI showed significant changes in temporal trends. Across all patients, trend analysis results for intent showed decreases over time in assault (p<0.001) and self-inflicted injury (p<0.001) and an increase in unintentional injury (p<0.05).

MOI by race and ethnicity

Changes in MOI over time by racial and ethnic group are reported in table 2 and respective longitudinal injury trends are shown in figure 1. Fall-related injuries increased across all racial and ethnic groups. There was no change in firearm injury or MVT other across all racial and ethnic groups. For all, other MOI
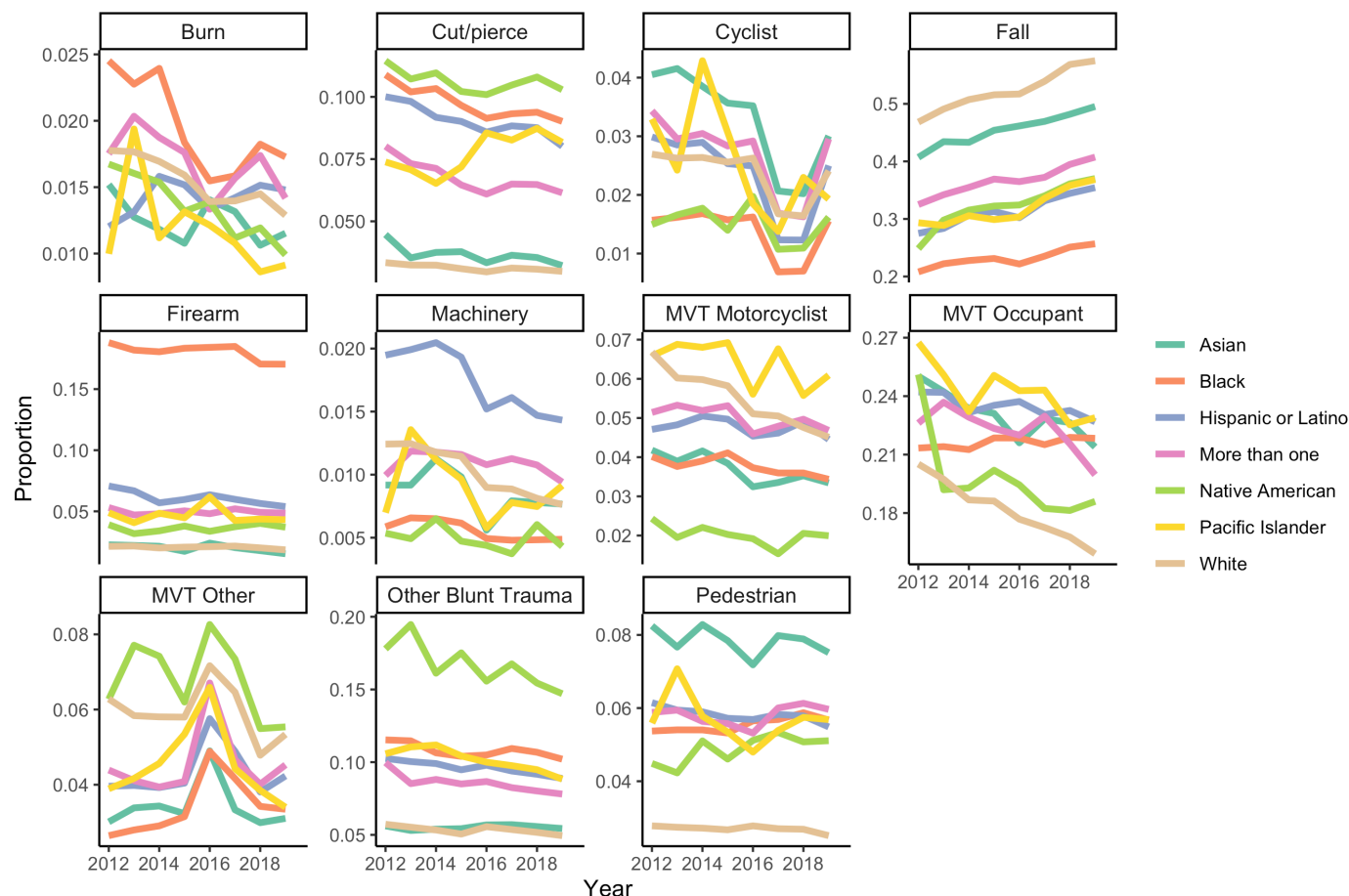
Figure 1 Proportion of injuries over time stratified by race and ethnicity and mechanism of injury. Proportions calculated each year within each MOI. Note y-axes are plotted on different scales for each MOI to better visualise group differences in trends. MOI, mechanism of injury; MVT, motor vehicle transport.

changes in injury were mixed and varied by racial and ethnic group. Burns decreased for Native American and White patients. Cuts/pierces decreased for Black, Hispanic or Latino, and White patients. Cyclist injuries decreased for Asian, and Hispanic or Latino patients. Machinery injuries decreased only for Hispanic or Latino and White patients. MVT motorcyclist injuries decreased only for White patients. MVT occupant decreased for Asian and White patients. Other blunt trauma injuries decreased for Hispanic or Latino, Multiracial, Native American and Pacific Islander patients. Pedestrian injury decreased for only Hispanic or Latino patients.

Further examination of injury profiles indicated stark differences in relative proportions of injury by race and ethnicity (figure 1). There are consistent and predominant patient populations with disproportionately high burdens of injury by MOI: other blunt trauma injury among Native American patients; falls among White patients; firearm injury among Black patients; machinery injury among Hispanic or Latino patients and pedestrian injury among Asian patients.

MOI by age
Changes in MOI over time by age group are depicted in table 2 and figure 2. Results indicated decreasing injuries for patients aged 18–24 years for all MOI except for machinery and MVT motorcyclist which showed no change over time. Of patients 25–44 years old, there were increasing proportions of firearm, machinery, MVT occupant and pedestrian injuries, decreasing

proportions of burn and fall injuries and no change in any other MOI. Of patients 45–64 years old, there were increases in burn and other blunt trauma injuries, decreases in falls and MVT motorcyclist injuries, and no change in any other MOI. For those 65+ years, there were increases in all MOI, except firearm, which showed no change over time.

MOI by sex
Male patients accounted for the majority of those injured across all MOIs, except for falls and MVT occupant injuries (figure 3). Among female patients, there was an increase over time in cut/pierce ($p < 0.01$), fall ($p < 0.01$), firearm injuries ($p < 0.01$) and other blunt trauma ($p < 0.01$), and a decrease in MVT motorcyclist injuries ($p < 0.01$).

MOI by ISS
High ISS injuries increased over time for burn ($p = 0.002$), cut/pierce ($p = 0.03$), fall ($p = 0.01$), firearm ($p = 0.004$) and pedestrian ($p = 0.03$). High ISS decreased over time for machinery ($p = 0.009$) injuries (online supplemental figure 1). Moderate ISS increased for MVT occupant ($p = 0.01$) and pedestrian ($p = 0.03$). Moderate ISS decreased for fall ($p = 0.02$) and machinery ($p = 0.02$). MOI with greatest proportions of high ISS included firearm (~12%), MVT motorcyclist (~11%) and pedestrian (~13%).
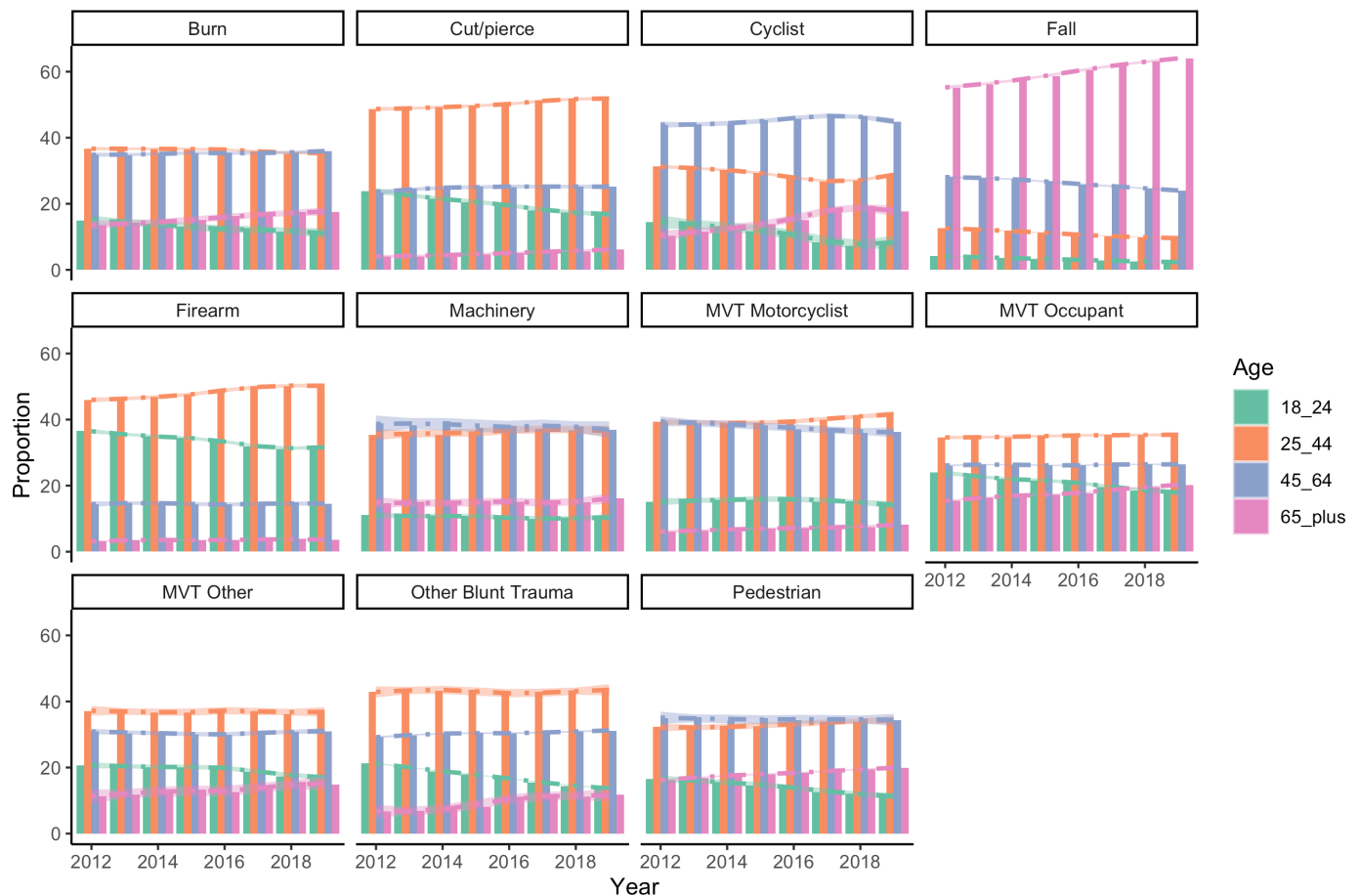
Figure 2 Proportion of injuries over time stratified by age group and mechanism of injury. Proportions calculated each year within each MOI. Dashed lines depict regression via local polynomial to aid visualisation of trends. MOI, mechanism of injury; MVT, motor vehicle transport.

MOI by hospital discharge disposition

For all MOI except machinery, there was a decrease in routine discharges and an increase in discharges to other facilities and additional care (online supplemental figure 2). Routine discharges increased over time for machinery (p=0.004) and decreased for all other MOI. Mortality in hospital decreased for falls (p=0.001) and machinery (p<0.001). The greatest number of in hospital deaths resulted from firearm (∼9%), pedestrian (∼6%) and burn (∼3%) injuries.

DISCUSSION

Evolution of injury patterns is an important aspect of public health surveillance. Assessing shifts in injury patterns can inform injury prevention initiatives and opportunities for trauma system performance improvement to reduce the injury burden in the USA. This analysis illustrates trends in injuries and changes in MOI by age, sex and race and ethnicity in over 5 million injured patients across an 8-year study period. Overall, while the proportion of many MOIs decreased from 2012 through 2019, a significant increase in falls was observed. The proportion of injuries by year also increased over time among Hispanic or Latino and Pacific Islander patients and decreased for White patients. Injuries decreased among younger patients and increased among older adults (≥ 65 years). Female patients also experienced increased proportions of injuries over time. These findings align with national reports from similar timeframes but different data sources. The National Safety Council noted that falls have remained the leading cause of preventable injuries in

the USA, with over 8 million non-fatal injuries from falls each year from 2012 to 2019, and accounting for approximately one-third of non-fatal injuries in 2020.[24] The CDC's non-fatal injury rates, derived from the National Electronic Injury Surveillance System,[25] noted increased rates of injury among those age 65–69 and 75–79 years and decreased injury rates among White, non-Hispanic individuals. Male patients have tended to comprise the majority of those injured, but the increased proportion of female patients may warrant additional research, particularly for the changes observed in the current results across cut/pierce, fall, firearm-related and other blunt trauma.

When evaluating specific MOIs by race and ethnicity, decreases over time were noted for select MOI in each group. Falls, however, significantly increased consistently across all racial and ethnic groups over time. The proportions of injuries by year were variable; certain MOI illustrated a higher injury burden for some groups. These included other blunt trauma injuries among Native American patients, firearm injuries among Black patients, machinery injuries among Hispanic or Latino patients and pedestrian injuries among Asian patients. The contributing factors for these increased MOIs among select groups are difficult to determine. Motor vehicle crashes are among a leading cause of mortality among Native American and Alaska Native communities[26]; however, the other blunt trauma MOI indicates an injury event outside of driving or riding in a motorised vehicle. This is an area that can be further explored through partnerships with tribal communities. Differences in firearm injuries have been noted based on race and ethnicity.
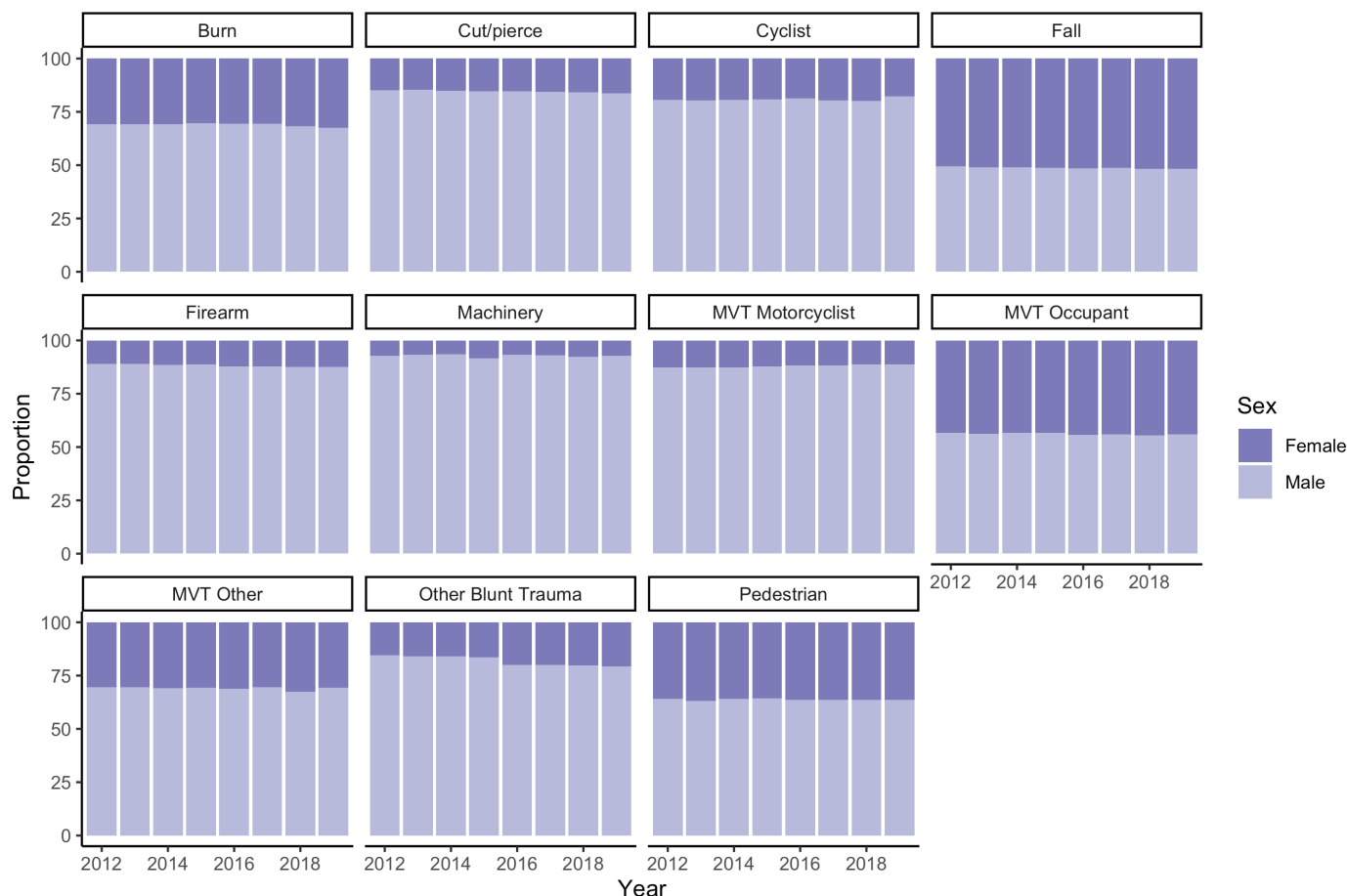
Figure 3 Proportion of injuries over time stratified by sex and mechanism of injury. Proportions calculated each year within each MOI. MOI, mechanism of injury; MVT, motor vehicle transport.

The highest rates of firearm mortality have been reported among non-Hispanic Black patients.[27] Intent for firearm injuries has also differed, where self-inflicted firearm injuries are more common in older white men and assault-related firearm injuries were more common in younger, non-Hispanic Black individuals compared with Hispanic or non-Hispanic White individuals.[27 28] Firearm violence is also influenced by geospatial patterns, including neighbourhood characteristics and social networks.[29–31] This indicates a need for investment in injury prevention and policies at a community level. Machinery injuries among Hispanic or Latino patients may be related to occupational hazards. The US Bureau of Labor Statistics has noted an increased proportion of Hispanic or Latino workers who were fatally injured through contact with objects or equipment.[32] This may indicate a need for enhanced safety training or protocols in this group. Racial disparities in pedestrian injuries have been shown, but in contrast to this analysis, prior research indicated that Black, Hispanic and Multiracial or other race/ethnic groups had the highest rate of pedestrian injury hospitalisations.[33] Given these observations, further investigation into geospatial data and contextual factors surrounding injuries may be needed. Injury prevention efforts using a community-engaged approach should be tailored to those most at risk for specific MOIs.

Traumatic injuries remain the leading cause of death in Americans under 45 years old.[34] Interestingly, this analysis demonstrated a decrease in all MOI studied among those age 18–24 years and an increase in the majority of MOIs among those age 65 and older, which may be explained by an ageing national population.[7] While the decreasing MOIs among younger patients

is encouraging, the increase in older adults is of concern, particularly as the US population continues to age. For those age 25–44 years, decreases in falls and burns were observed, with increases in firearm, machinery, MVT occupant and pedestrian injuries. In those age 45–64 years, decreases in falls and MVT motorcycle injuries were noted, while burn and other blunt trauma injuries increased. The 25–44-year and 45–64-year old age groups are those who comprise much of the workforce. This may account for some of the increases noted in machinery, MVT occupant and pedestrian injuries based on work hazards and daily commuting or travel patterns. The increases in burn, firearm and other blunt trauma MOIs may require further exploration. Falls in older populations result in significant morbidity and mortality and remain a complex issue. Contributing factors for falls include physical and mobility limitations, medication interactions and tripping or slipping hazards within the home or living environment, among others. Recommendations for fall prevention have been established,[35] but further integration of falls assessment within healthcare could expand this. Tailoring falls prevention at the community level through outreach and leveraging technology can help reach groups across race and ethnicity.

This study has several limitations, including the inherent reliance on accurate coding and complete data entry for large datasets. In particular, the shift from ICD-9 to ICD-10 coding systems may have introduced a degree of variability in coding injury, particularly for MVT MOI, that is difficult to quantify. Participation in the NTDB is voluntary and, therefore, does not include all trauma centres with trauma registry data. Patients included in the data set are those who survived injury to present to a participating trauma centre. Those

who died prior to emergency room presentation as well as those who either did not seek care or were definitively treated at a non-trauma centre or other facility would not be captured in the dataset; as such, these data may under-represent the actual injury burden. It is also difficult to make direct comparisons to other national-level injury data that are generated from various sources using different coding schemes. Finally, it is important to note that race is a social construct but serves as a surrogate for systematic and structural factors faced by some racial groups that may influence injury burden. Despite these limitations, this analysis is based on clinical data for injured patients treated at trauma centres within the USA and is an important adjunct to the existing national statistics that either report only injury fatalities based on death certificates, or injury data based solely on coding data from administrative databases. These data provide insight from a large national sample to illustrate changes in injuries over time as well as changes in mechanisms of injury overall and by race and ethnicity, age and sex. Continued evaluation of these data is needed to tailor injury prevention initiatives in an equitable manner, and additional research on the social, behavioural, community and systemic factors that may contribute to increases in specific MOIs by demographic characteristic is paramount to inform prevention.

CONCLUSIONS

Over an 8-year study period, decreases in many MOI were observed, yet increases in injury from falls significantly increased. Patterns of MOI differed by age, sex, race and ethnicity, indicating a need to tailor injury prevention strategies. While most MOIs analysed decreased in younger patients, there were significant increases in older adults, demonstrating the need for further support for this population. The results of the current study further underscore the need for trauma centres to report census numbers according to demographic factors such as race and ethnicity. If trauma systems and centres intend to address health disparities in injury, census numbers cannot be evaluated in aggregate.

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