Running the Numbers

A Periodic Feature to Inform North Carolina Health Care Professionals About Current Topics in Health Statistics

The Impact of the COVID-19 Pandemic on Disparities in Motor Vehicle Traffic Deaths and Injuries among North Carolina American Indians

Background

It is the mission of the North Carolina Department of Health and Human Services (NCDHHS) to improve the health, safety, and well-being of all North Carolinians. Average life expectancy is a measure that can help shed light on the overall health of a population and has therefore been identified among the Healthy North Carolina 2030 (Healthy NC 2030) indicators, with a goal of improving the average life expectancy from 77.6 years to 82 years in this decade [1]. In North Carolina, injury and violence remain the leading causes of premature death among residents aged 1–54 [2].

Over 10,000 North Carolina residents of all ages die from their injuries each year. Motor vehicle traffic-related (MVT) injuries are the second leading cause of injury death in the state, after unintentional overdoses (18.5% and 25.4% of injury deaths, respectively), greatly affecting the average life expectancy within the state (unpublished analysis of North Carolina State Center of Health Statistics 2019 death certificate data, analyzed by the North Carolina Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit).

The COVID-19 pandemic has had wide-reaching effects on non-COVID conditions and health outcomes, including injuries. Severe injuries and fatalities from motor vehicle crashes surged during the pandemic, despite a reduction in the number of vehicle miles traveled in 2020 [3]. An analysis conducted by the National Highway Traffic Safety Administration found that these fatalities were driven in part by risky behaviors like impaired driving, speeding, and failure to wear a seat belt [3, 4].

One of the goals NCDHHS has outlined to meet its mission is to advance health equity by reducing disparities in opportunity and outcomes for historically marginalized populations [5]. Addressing health equity is also pivotal to successfully improving life expectancy within the state, and for all the other Healthy NC 2030 indicators.

North Carolina has the largest percentage of residents who identify as American Indian in the country, at 2.8%, with eight state-recognized tribes, one of which—the Eastern Band of Cherokee Indians—is also federally recognized [6]. Additionally, North Carolina has the second-largest rural population in the country, with most of the Tribal homelands in North Carolina located in rural communities across the state [7, 8]. Non-Hispanic (NH) White residents in the state live almost three years longer than American Indian residents on average [1]. Significant disparities exist for American Indians across a number of health outcomes in North Carolina that fuel this difference, particularly those that are exacerbated by rural residence, such as MVT injuries. Additionally, American Indian residents generally fare worse with social determinants of health indicators experiencing, for example, some of the highest levels of poverty in the state [9, 10].

Methods

Death certificate and hospital discharge data for 2019 and 2020 from the North Carolina State Center for Health Statistics, as well as emergency department (ED) visit data from the North Carolina Disease Event Tracking and Epidemiologic

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Collection Tool (NC DETECT), were used to examine rates of deaths, hospitalizations, and ED visits related to MVT injuries for NH American Indians compared to other racial/ethnic groups in North Carolina during the pandemic. Rates were calculated per 100,000 population using National Center for Health Statistics population estimates. Additionally, years of potential life lost (YPLL) were calculated for MVT and other injury deaths by race/ethnicity using Centers for Disease Control and Prevention (CDC) WISQARS as a measure of premature death to better understand the impacts of MVT injuries on life expectancy among North Carolina residents [11].

TABLE 1.
Unintentional Motor Vehicle Traffic Injuries Among North Carolina Residents, 2019–2020

Race/ Ethnicity	2019 Number	2019 Rate	2020 Number	2020 Rate	2019-2020 Rate Percent Change
Deaths					
Hispanic	121	11.8	153	14.5	22.9
White-NH	966	14.5	960	14.3	-1.4
Black-NH	419	18.1	508	21.7	19.9
American Indian-NH	33	26.5	47	37.8	42.6
Asian-NH	18	5.2	17	4.6	-11.5
Other-NH	8	-	16	-	-
Unknown	2	-	0		
Total (NC)	1567	14.9	1701	16	7.4
Hospitalizations					
Hispanic	464	45.2	578	54.9	21.5
White-NH	4343	65.1	4511	67.2	3.2
Black-NH	1773	76.4	2129	90.8	18.8
American Indian-NH	93	74.6	107	86.1	15.4
Asian-NH	66	18.9	70	19	0.5
Other-NH	104	-	135	-	-
Unknown	159	-	136	-	-
Total (NC)	7002	66.8	7666	72.3	8.2
ED Visits					
Hispanic	10,631	1036.3	8486	806.3	-22.2
White-NH	52,729	790.7	40,198	599	-24.2
Black-NH	53,410	2302.0	41,188	1756.9	-23.7
American Indian-NH	622	499	652	524.4	5.1
Asian-NH	1023	293.2	726	196.9	-32.9
Other-NH	4274	-	3067	-	-
Unknown	1888	-	2607	-	-
Total (NC)	124,577	1187.8	96,924	914.3	-23.0

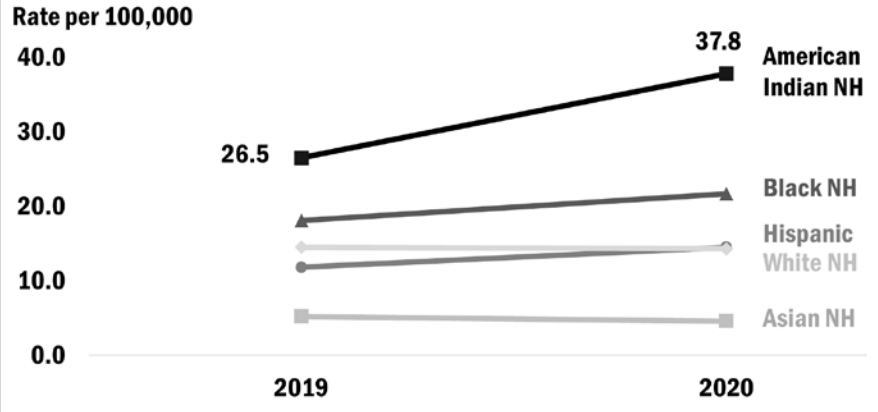
NH - Non-Hispanic
Source. North Carolina State Center for Health Statistics, death certificate data and hospital discharge data (2019-2020); NC DETECT emergency department visit data (2019-2020) Analysis by the Injury Epidemiology, Surveillance, and Informatics Unit

Results

In 2019, there were 8487 injury deaths (80.9 per 100,000) among North Carolina residents, with the rates of injury being highest among the NH American Indian population (112.3 per 100,000), followed by NH White and NH Black residents (91.0 and 76.8 per 100,000, respectively). MVT injury was also the second leading cause of injury death overall and among NH American Indian residents after unintentional overdose (23.6% and 37.1%, respectively). NH American Indian residents experienced the highest MVT injury death rate (23.3 per 100,000) compared to all other racial/ethnic groups in the state. American Indian residents experienced similar disparities for MVT injury hospitalizations in 2019, with NH American Indians having the second-highest rate of hospitalizations for MVT-related injuries after NH Black residents (74.6 per 100,000 and 76.4 per 100,000, respectively). Rates of MVT-related injury ED visits also differed by race/ethnicity in 2019. NH American Indians had among the lowest rates of MVT-related ED visits among all race/ethnic groups (499.0 per 100,000 compared to 1,036.3 per 100,000 for Hispanic residents, 790.7 per 100,000 for NH White residents, and 2,302.0 per 100,000 for NH Black residents).

In 2020, similar patterns were observed in overall MVT injury deaths in North Carolina that were noted nationally [3]. Despite stay-at-home orders that were in effect beginning in March 2020, MVT injury deaths in North Carolina increased from 1567 in 2019 to 1701 in 2020, a rate increase of 7.4% (14.9 and 16.0 per 100,000, respectively). This increase did not impact all racial/ethnic groups equally across the state. NH American Indian residents experienced the largest rate increase of 42.6% for MVT injury deaths from 2019 to 2020 (from 26.5 to 37.8 per 100,000). NH Black and Hispanic residents also saw smaller increases in the rate of MVT injury death between 2019 and 2020 (19.8%, 22.9%), while rates of MVT injury deaths decreased for NH White and NH Asian

FIGURE 1.
Unintentional MVT Injury Deaths by Race/Ethnicity among North Carolina Residents, 2019-2020



residents (-1.4% and -11.5% change from 2019 to 2020, respectively), as shown in Figure 1. Among NH American Indian residents, rates of MVT death in 2020 were higher across all age groups and genders (Figure 2). Rates were highest among young adults aged 19–24 (68.8 per 100,000), three times higher than the overall rate of MVT death for that age group for the state as a whole (23.3 per 100,000). When looking at 2020 MVT injury hospitalization rates by race/ethnicity, increases occurred across all racial and ethnic groups, with the greatest increases occurring among Hispanic (21.4%), NH Black (18.8%), and NH American Indian (15.4%) populations. Rates of MVT injury hospitalizations remained highest for NH Black and NH American Indian residents in 2020 (90.8 and 86.1 per 100,000, respectively).

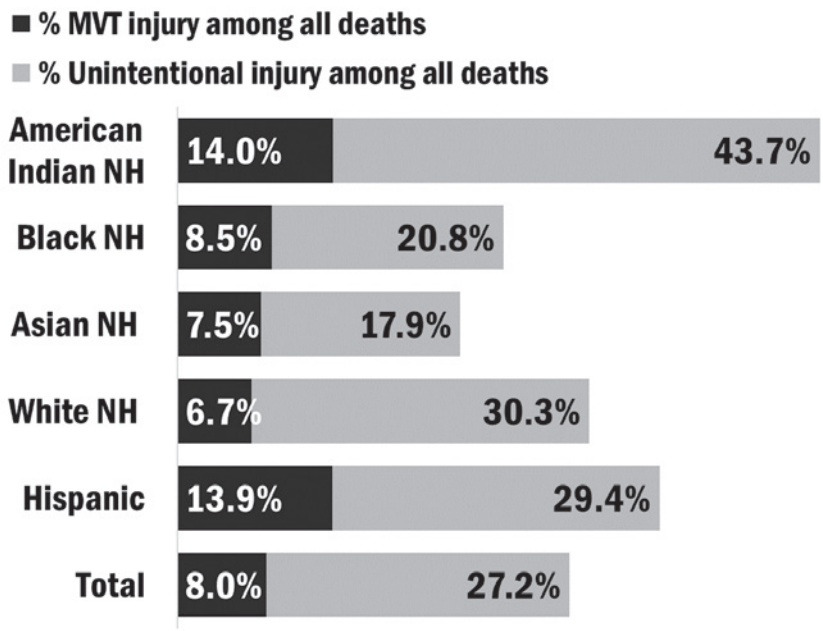
Another side effect of the pandemic during 2020 was a decrease in ED utilization. There was an 18% reduction in the number of total ED visits for any cause in North Carolina from 2019 to 2020. This was reflected in the rates of MVT injury ED visits for all racial and ethnic groups other than NH American Indian; decreases ranged from -22.2% to -32.9% for other racial/ethnic groups while rates increased by 5.1% for NH American Indian residents. There are also known issues with misclassification of race/ethnicity in the ED visit setting where race/ethnicity may not be self-identified and instead classified based on perceptions of physical characteristics, particularly if a patient is incoherent or unconscious upon arrival and there is no available next of kin to provide the information [12, 13].

The impact of these increases in MVT-related injury deaths on life expectancy in 2020 is substantial. In 2020, unintentional injuries were the leading cause of YPLL in North Carolina before age 65, followed by malignant neoplasms (cancer; 10.6%), heart disease (9.7%), suicide (6.2%), and homicide (5.8%). These unintentional injury deaths represented over 132,000 (27.2%) of YPLL in 2020, an increase from 2019 when unintentional injury accounted for 24.6% of YPLL. Among NH American Indians in the state, the proportion of YPLL attributed to unintentional injuries increased even more substantially, from 28% in 2019 to 43.7% in 2020. In addition to losing more years of potential life to unintentional injuries, NH American Indian residents experienced a disproportionate loss of life to MVT injuries compared to other racial and ethnic groups in the state; MVT injuries accounted for 14.0% of all deaths and 32.1% of unintentional injury deaths, as shown in Figure 2 [12]. MVT injury was the second-leading cause of injury related YPLL among American Indians after unintentional poisonings (includes both drug and non-drug overdose), which represented 27.6% of all deaths and 63.1% of unintentional injury deaths [11].

Conclusions

These data highlight a significant racial/ethnic disparity within MVT-related injury, with more severe outcomes—including hospitalization and

FIGURE 2.
Years of Potential Life Lost (YPLL) for Motor Vehicle Traffic (MVT) and Total Unintentional Injury Deaths by Race/Ethnicity, North Carolina, 2020



death—occurring among NH American Indians compared to other populations. These findings indicate a need for education and policy initiatives specific to Tribal communities to promote safe driving practices. These efforts should incorporate initiatives focused on the following outcomes, which are known to be effective in preventing MVT injuries and deaths and should be implemented in a culturally competent manner to ensure they are appropriately adapted for the focus population: 1) reducing alcohol-impaired driving; 2) increasing the use of child safety seats; 3) increasing the use of motorcycle helmets; 4) increasing the use of safety belts [14]. North Carolina is a Vision Zero state; the NC Vision Zero Initiative is a statewide program aimed at eliminating all deaths on the roadway through data-driven, evidence-based strategies, multidisciplinary collaboration, and systems approaches to traffic safety [16]. NC Vision Zero provides community resources and safety procedures to develop and implement a community plan toward Vision Zero. Eleven communities across the state, including Robeson County—which has a large American Indian population—have adopted Vision Zero initiatives to prevent roadway deaths in their communities [15].

American Indians disproportionately die from injury in North Carolina, with MVT injuries representing the leading cause of injury for this population and the leading cause for YPLL. Rates of MVT injury death are not only higher among American Indian populations, but younger American Indian residents aged 19–24 and 25–44 are dying from MVT injuries at a much higher rate than other racial/ethnic groups within those age ranges across the state, greatly affecting the life expectancy of American Indians in North Carolina. To reach the Healthy NC 2030 goal of moving from an average life expectancy of 77.6 years to 82 years, we must not only work to prevent motor vehicle injuries, but also reduce the disparities in MVT injury that have long existed between racial/ethnic populations in the state and were further exaggerated by the COVID-19 pandemic. NCMJ

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