A National Analysis of Trauma Care Proximity and Firearm Assault Survival among U.S. Police

Michael Sierra-Arévalo (Corresponding Author)
University of Texas at Austin
305 E 23rd St, A1700
RLP 3.306
Austin, TX 78712-1086
512-232-6300
msa@utexas.edu

Justin Nix*
University of Nebraska—Omaha
jnix@uomaha.edu

Bradley O'Guinn
University of Cincinnati
oguinnbj@mail.uc.edu

* NOTE: This is the authors' post-print (CC BY-NC-ND 4.0). Final version to be published in *Police Practice & Research* (Accepted 1/5/2022).

Abstract

Past research on factors influencing firearm assault (FA) mortality have not focused on police officers who, compared to other U.S. workers and the general public, experience especially high rates of firearm victimization. This study focuses on this unique population of FA victims and examines the relationship between travel time to the nearest trauma care facility and the probability of survival among officers shot on duty. Combining data on trauma care center location and 7 years of data on U.S. police officers fatally or non-fatally assaulted with a firearm, we use logistic regression to model the probability of FA fatality among police by proximity of the FA to the nearest trauma care facility. We find that travel time to trauma care was not associated with reduced FA mortality among police from 2014 to 2020. FA mortality was significantly lower in 2020 than the six years prior.

Keywords: policing, gun violence, trauma care, spatial methods

Introduction

Gun homicide accounts for more than a third of nearly 40,000 gun deaths per annum and is the leading cause of violent death in the United States (CDC, 2021; EFSGV & CSGV, 2021). Gun violence is also unequally distributed across the population (Braga et al., 2010; Papachristos & Wildeman, 2014). Among U.S. workers, police officers experience especially high levels of gun violence compared to other occupations and the general public. Though police make up less than .5 percent of the U.S. work force, they represent 13% of workplace firearm homicide victims (FBI, 2021; U.S. Bureau of Labor Statistics, 2021a, 2021b). On average, the rate of gun homicide per 100,000 police (6.25) is more than 1.6 times as large as the U.S. rate (3.8). The disparity in non-fatal firearm assaults is even greater. Compared to the U.S. rate per 100,000 (10.97), police experience a rate 2.7 times as large (Kaufman et al., 2021; Sierra-Arévalo & Nix, 2020).

Given that firearm assault (FA) accounts for the vast majority of felonious officer deaths (White et al., 2019), it is vital to understand the contextual determinants of FA survival among police shot in the line of duty. Research finds that FA survival among the general population is linked to gunshot wound location, wound severity, and firearm caliber (Altheimer et al., 2019; Beaman et al., 2000; Braga & Cook, 2018). Similar patterns are documented in FA survival among police, which is significantly related to wound location, whether an officer has body armor, and situational factors such as whether an officer was ambushed or had their firearm taken from them by a suspect. (Crifasi et al., 2016).

Another key determinant of FA survival is proximity of the victim to appropriate medical care. Timely and aggressive management of gunshot wounds increases FA survival rates (Meizoso et al., 2016). Research consistently finds that shorter distances and shorter travel time to trauma care are associated with increased FA survival rates (Circo, 2019; Circo & Wheeler, 2021; Crandall et al., 2013). Unfortunately, the role of trauma care proximity in FA survival has not been investigated with regard to police officers. Additionally, past research on trauma proximity and FA survival is restricted to a handful of city-level analyses, preventing generalizability outside these limited geographic areas.

To address this gap in existing research, we analyze 7 years of data that record fatal and non-fatal firearm assault on police across the United States. We use these in conjunction with data on the location of trauma care facilities across the entire U.S. to determine whether the proximity of a FA on a police officer is significantly related to the likelihood of an officer surviving.

Data and Methods

Data on FA on U.S. police used in this analysis were collected by the Gun Violence Archive (GVA). GVA is an independent non-profit that manually reviews social media platforms and monitors more than 7,500 news media, governmental, and law enforcement sources to identify gun violence incidents. In addition to incident date, geocoded location, and whether the officer was fatally or non-fatally shot, each GVA record includes URL links to online sources that allow for independent verification of each incident (GVA, 2020).

Following the case selection strategy used by Sierra-Arévalo and Nix (2020, p. 1045), we restrict our analysis to active, sworn local and state law enforcement officers whose person or equipment (excluding vehicles) were shot while on-duty. We also include officers from special jurisdictions, including transit, university, and tribal police. We exclude accidental and intentional self-inflicted firearm injuries as well as "blue-on-blue" shootings of one officer by another. We also exclude federal officers (e.g., FBI, DEA, ATF, Marshals), court officers, and probation agents whose duties depart from the routine investigation, patrol, and enforcement of local and state police. Finally, we restrict our analytic sample to cases in the 48 contiguous United States, excluding cases in Alaska (n=6) and Hawaii (n=4). Cases were selected from all incidents recorded in GVA of an officer being shot between January 1, 2014, and December 31, 2020, yielding an analytic sample of n=1,758.

Measures

FA Fatality. Our dependent variable is a dichotomous measure of whether an officer died after being shot (1 = yes). Roughly 16% of FAs on officers resulted in a fatality from 2014 to 2020. Descriptive statistics for the dependent variable and all other variables in the analysis are provided in Table 1.

[Table 1 about here]

Travel Time. Our primary independent variable is a measure of travel time to trauma care. For each shooting in the dataset, we calculated the average time (in minutes) it would take to transport the victim to the nearest adult Level I or II trauma care center. GVA provides geocoordinates for each shooting location. Data on trauma care facility location were scraped from publicly available records maintained by the American College of Surgeons (ACS, 2021). To ensure accuracy of geocoding results, any matches with an accuracy score <.9 were manually reviewed to assign precise geocoordinates. We restrict our sample to Level I and II trauma centers, both of which are equipped to provide immediate trauma care up to and including surgical intervention, 24-hours a day (ATS, 2021).

To calculate travel time between incidents of FA on police and the nearest trauma care center, we first used the “distGeo” command in the “geosphere” R package to calculate the geodesic distance—the “straight line” distance between two points on an ellipsoid surface—between each FA and every Level I/II adult trauma facility recorded by the ACS (Hijmans et al., 2019). Though geodesic distance allows for easy identification of trauma centers that are linearly proximate to each FA, geodesic distance does not capture real-world travel time via a non-linear road network. To address this, we selected the 5 trauma centers nearest to each FA by geodesic distance, calculated the travel time from each FA to the 5 nearest trauma centers via the street network (by car) using the “gmapsdistance” package and command (Melo et al., 2018), and retained the fastest travel time. This package queries the Google Maps API and its large-scale, historical traffic data to generate a precise, average travel time estimate that is robust to temporal variation in travel conditions (Google, 2021).

Analytic Strategy

Our analysis proceeded in three steps. First, we examined national-level trends in firearm assaults and fatalities across each year in our study period. Second, because prior research shows regional variation in patterns of FA on officers (Sierra-Arévalo & Nix, 2020), we examine average travel time to the nearest trauma center and FA fatality rates at the U.S. Census Division level. Third, we use logistic regression with robust standard errors to determine if travel time predicts the odds that a FA of a police officer results in death. We include dummy variables for the *New England, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain,* and *Pacific* divisions; *Middle Atlantic*, which has the lowest FA fatality rate, serves as the reference category. We control for whether the FA occurred in an *urban county* (1 = Yes) according to the US Department of Agriculture’s Economic Research Service 2013 Rural-Urban Continuum Code. Finally, we include monthly and yearly fixed effects. For the yearly fixed effects, 2020 serves as the reference category, given the unique confluence of the COVID-19 pandemic and historic protests against police brutality that might have affected our dependent variable (1 = 2020, 0 = 2014-19). There were 312 FAs on officers in 2020, 37 of which were fatal (11.9%).

Results

Figure 1 presents yearly frequencies of all FAs on U.S. police and the percentage of those assaults which were fatal. From 2014 to 2020, 283 police officers were fatally shot; 1,485 were non-fatally shot. FAs increased by 31% from 2018 to 2020, reaching their highest level since the start of data collection. However, Figure 1 also shows that the proportion of FAs resulting in death has followed a *downward* trend during this period, decreasing by approximately 36% from 2018 to 2020. These findings underscore prior discussion of the need to consider fatal and non-fatal violence against police—failure to incorporate non-fatal firearms assaults would exclude, on average, 84% of all FAs on police.

[Figure 1 about here]

Figure 2 plots the proportion of FAs that were fatal and the average travel time to trauma care across census divisions between 2014 and 2020. First, trends in the FA fatality rate vary markedly across time and space. For example, the proportion of FAs that were fatal from 2014 to 2020 decreased in both the Mid-Atlantic and Mountain divisions, while there was no clear pattern of FAs in the West South Central and South Atlantic divisions. Second, there was clear geographic variation in the average travel time from incidents of FA on police to the nearest trauma care facility. For instance, travel time was shortest in the East North Central and Middle Atlantic, and longest in the West South Central and East South Central divisions. Finally, Figure 2 shows no clear relationship between the proportion of FAs resulting in death and travel time to the nearest hospital. In the Mid-Atlantic, for example, the fatality rate gradually decreased over the 6-year period, yet the average travel time from a FA to the nearest trauma center remained stable. In other divisions, such as the Pacific, the proportion of FAs resulting in fatalities decreased as average travel time *increased*.

[Figure 2 about here]

Table 2 presents two logistic regression models predicting the likelihood of a FA on a police officer resulting in a fatality. In Model 1, we account for regional effects, whether FAs occurred in an urban county, and monthly and yearly fixed effects. Overall, this model is not statistically significant (LR χ^2 = 32.40, p = .18), indicating that the model is no better at predicting variation in FA fatalities than a constant only model.

We include travel time to the nearest level I/II trauma care center in Model 2. Again, the model is not statistically significant (LR χ^2 = 33.36, p = .19), and the R^2 value is almost identical (R^2 = .02), suggesting that the addition of travel time to the model does not substantively improve its explanatory power. This result is noteworthy given that past research consistently finds that, among non-police, shorter distances and travel times to trauma care significantly reduce FA mortality (Circo, 2019; Circo & Wheeler, 2021; Crandall et al., 2013). Also notable is that each of the year dummy variables was positive, and three were statistically significant (2014, 2016, and 2018), which indicates that FA were less likely to be fatal in 2020 relative to these years.

[Table 2 about here]

Discussion

Our findings suggest that the likelihood of an officer surviving a firearm assault is not significantly influenced by travel time to trauma care. On the one hand, this finding is surprising given that proximity to trauma care predicts survival of gunshot injury among the general public (Circo, 2019; Circo & Wheeler, 2021; Crandall et al., 2013). On the other, police have specialized equipment, such as ballistic vests and tourniquets, that can reduce gunshot wound severity and help them treat gunshot wounds in the field. Though GVA data does not reliably record the presence of body armor, it is plausible that body armor, emergency field medicine, or some combination of the two are implicated in the lack of a significant relationship between trauma care proximity and FA mortality in our analysis. Additionally, because our measure of travel time is an estimate of the *average* travel time between each FA and the nearest trauma center, it is possible that particular FAs occurred during outlier circumstances such as weather emergencies or large events (e.g., music festivals, major sporting events). In these cases, our travel time measure would likely underestimate travel time via the road network. Future research could incorporate data on body armor, as well as wound severity, wound location, firearm information (e.g., caliber), and incident details (e.g., distance between shooter and victim, time of day, weather conditions, proximity to large events) that are not recorded in GVA but which could plausibly mediate the effect of trauma care proximity on FA mortality among police.

The limitations of our data and analysis notwithstanding, our findings provide suggestive evidence of value in equipping all U.S. police officers with ballistic vests and mandating their use. Though use of "mandatory wear" policies has increased over time, nearly 30% of departments still do not require officers to always wear a vest while on duty (Reaves, 2015). Similarly, officers should be issued tourniquets and trained on their use. At present, tourniquet deployment lags behind ballistic vests: one survey of law enforcement personnel found only 30% of agencies issued tourniquets to officers (Aberle et al., 2015). Given that the life-saving value of tourniquets is now well-established (Pons et al., 2015), this technology—which stands to save the lives of both police and civilians to whom officers provide first aid—can and should be implemented without delay.

Finally, we consider the implications of our geographic and temporal findings. Whereas most divisions experienced flat or decreasing FA mortality over time, the Middle Atlantic saw a drop in FA mortality from 30% in 2015 to around 5% in 2020.[1] Also standing apart is the East South Central, where FAs were consistently further away from trauma care than those in other divisions. Alongside prior research showing that FA rates vary widely between states (Sierra-Arévalo & Nix, 2020), the underlying reasons for this geographic variation merit further investigation. Turning to temporal patterns, our finding that police in 2020 experienced significantly lower FA mortality than in prior years raises important questions. We note that 2020 marked a continuation of the trend from 2018 and 2019 of an increase in overall FAs with a decrease in the proportion that resulted in death. This decrease in mortality might be explained by longitudinal changes in vest-wearing behavior by officers who perceive an increase in violence against police (Nix et al., 2018), as well as changes in officer tactics driven by de-escalation training that emphasizes "time, distance, and cover" to enhance officer safety and reduce mortality (Engel et al., 2020, p. 5). Other factors, such as changes in the types of firearms used, the circumstances of FAs (e.g., ambushes, active shooters, barricaded suspects), number of shots fired, etc., might also be contributing to these longitudinal changes.

Unfortunately, delving into these questions will prove difficult without marked improvements to data collection on violence directed at police. Recent innovations like California's Use of Force database provides fine-grained data on FAs of police, including the reason for contact prior to a FA, firearm type, and wound location. At present, however, California stands alone; there remains no national data on agency-, officer-, suspect-, and incident-level factors that would enable rigorous investigation of what drives patterns in FAs and mortality among U.S. police. Alongside clear and present policies that require ballistic vest use at all times and distribution of emergency tourniquets to officers, investing in the collection and dissemination of high-quality

[1] New England experienced a single-year FA mortality spike in 2018. This spike is largely driven by a small number of overall FAs (n= 33).

data on violence directed at police is a key structural change that stands to enhance officer safety and wellness.

Table 1. Descriptive Statistics (*N*=1,758).

	Mean	SD	Min	Max
Dependent Variable				
Fatal Shooting	.16	-	0	1
Independent Variable				
Drive Time (minutes)	47.41	47.99	.05	297.90
Control Variables				
Middle Atlantic (Ref.)	.07	-	0	1
New England	.19	-	0	1
East North Central	.13	-	0	1
West North Central	.08	-	0	1
South Atlantic	.22	-	0	1
East South Central	.09	-	0	1
West South Central	.18	-	0	1
Mountain	.11	-	0	1
Pacific	.10	-	0	1
Urban County	.83	-	0	1
January (Ref.)	.07	-	0	1
February	.08	-	0	1
March	.08	-	0	1
April	.07	-	0	1
May	.09	-	0	1
June	.08	-	0	1
July	.09	-	0	1
August	.10	-	0	1
September	.09	-	0	1
October	.08	-	0	1
November	.09	-	0	1
December	.09	-	0	1
Year 2014	.11	-	0	1
Year 2015	.13	-	0	1
Year 2016	.16	-	0	1
Year 2017	.14	-	0	1
Year 2018	.13	-	0	1
Year 2019	.15	-	0	1
Year 2020 (Ref.)	.17	-	0	1

Table 2. Logistic regressions predicting officer fatalities conditional on being shot (*N*=1,758).

	Model 1			Model 2		
	Coef.	SE[a]	Marginal Effect	Coef.	SE	Marginal Effect
Independent Variable						
Drive Time (minutes)	-	-	-	-0.001	(0.002)	-.001[b]
Control Variables						
Middle Atlantic (Ref.)	-	-	-	-	-	-
New England	-0.033	(0.544)	-.004	-0.045	(0.545)	-.005
East North Central	0.019	(0.319)	.002	0.010	(0.319)	.001
West North Central	0.147	(0.352)	.019	0.147	(0.352)	.019
South Atlantic	0.021	(0.294)	.002	0.028	(0.295)	.003
East South Central	0.101	(0.348)	.013	0.142	(0.355)	.018
West South Central	0.338	(0.297)	.046	0.343	(0.298)	.047
Mountain	0.080	(0.325)	.010	0.083	(0.326)	.010
Pacific	0.015	(0.329)	.002	0.039	(0.332)	.005
Urban County	0.012	(0.182)	.001	-0.054	(0.197)	-.007
January (Ref.)	-	-	-	-	-	-
February	0.425	(0.355)	.049	0.416	(0.356)	.048
March	0.887*	(0.350)	.121	0.885*	(0.350)	.121
April	0.116	(0.393)	.012	0.106	(0.393)	.011
May	0.677	(0.348)	.086	0.675	(0.349)	.086
June	0.288	(0.374)	.032	0.279	(0.374)	.031
July	0.455	(0.347)	.053	0.445	(0.347)	.052
August	0.056	(0.370)	.006	0.058	(0.371)	.006
September	0.346	(0.363)	.039	0.333	(0.363)	.037
October	0.658	(0.352)	.083	0.651	(0.353)	.082
November	0.457	(0.356)	.053	0.455	(0.356)	.053
December	0.187	(0.365)	.020	0.179	(0.365)	.019
Year 2014	0.602*	(0.260)	.074	0.603*	(0.261)	.074
Year 2015	0.227	(0.262)	.024	0.230	(0.263)	.025
Year 2016	0.692**	(0.234)	.088	0.688**	(0.234)	.087
Year 2017	0.308	(0.256)	.034	0.312	(0.257)	.034
Year 2018	0.589*	(0.249)	.072	0.593*	(0.249)	.073
Year 2019	0.362	(0.251)	.041	0.367	(0.251)	.041
Year 2020 (Ref.)	-	-	-	-	-	-
Intercept	-2.578***	(0.439)	-	-2.472***	(0.453)	-
Pseudo R^2		0.0197			0.0201	
Likelihood Ratio χ^2	32.40			33.36		

Notes: * p<.05, ** p<.01, *** p<.001
[a] robust standard error reported in parentheses
[b] marginal effect reported for every 10 minutes

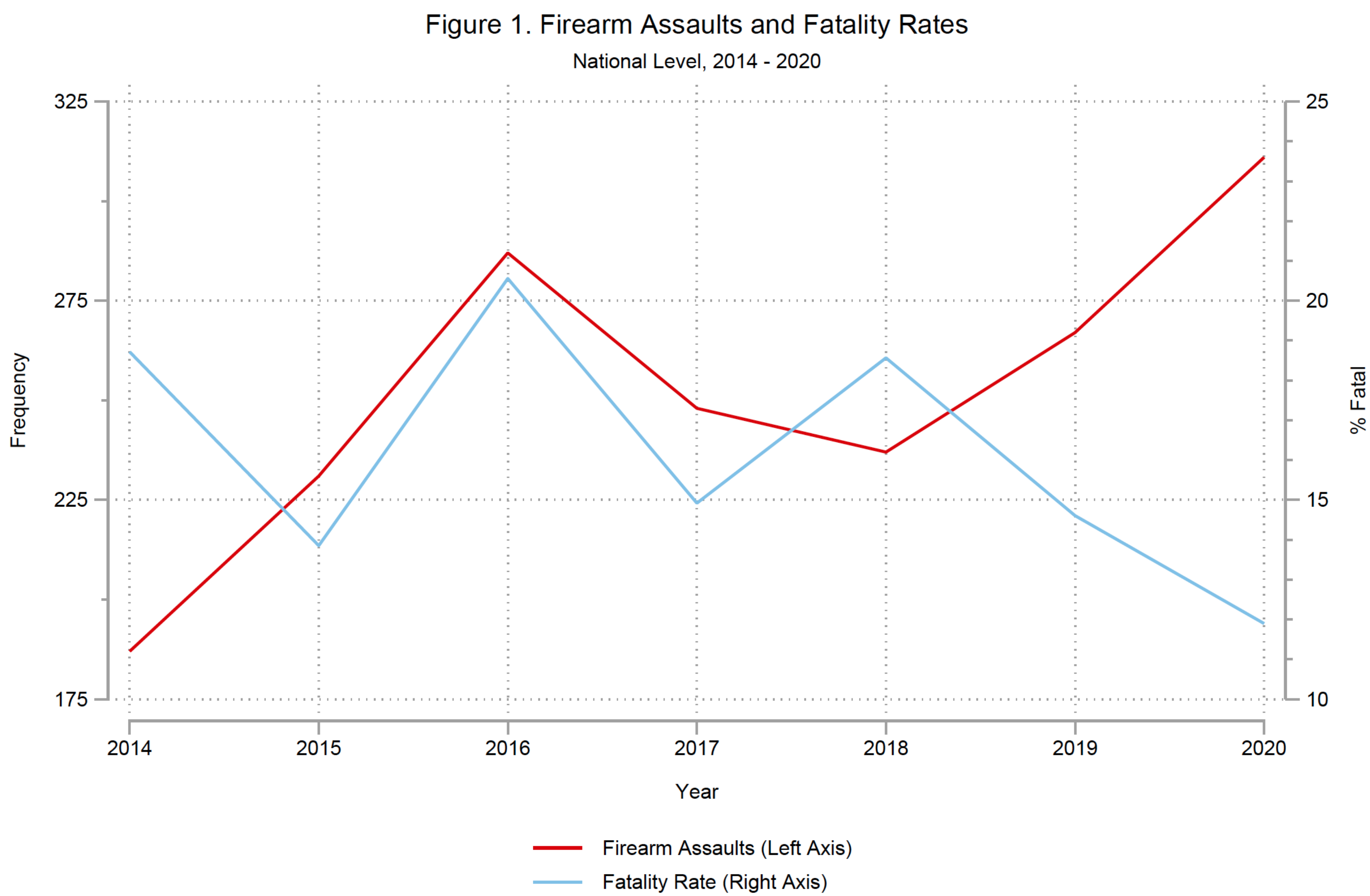
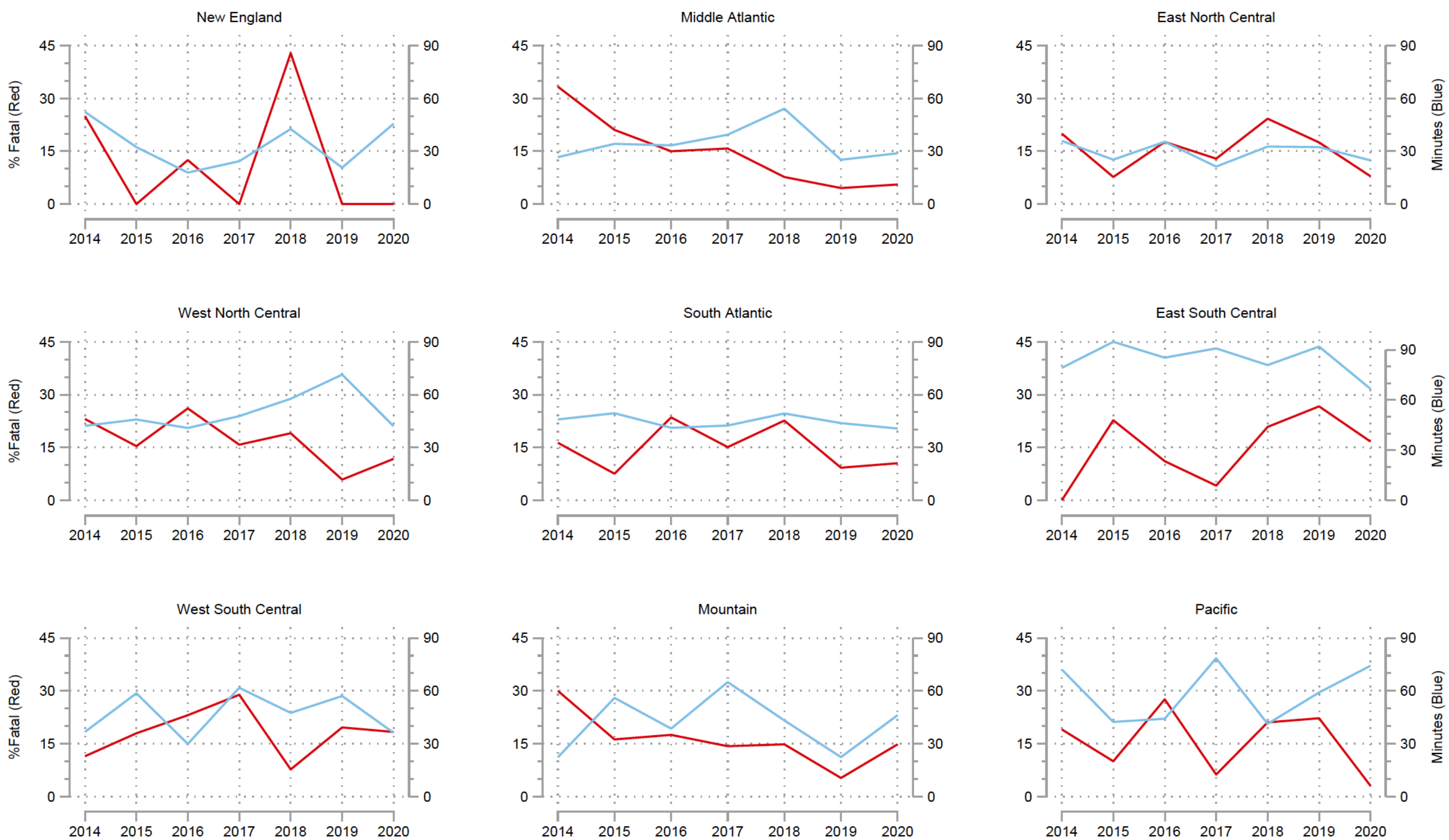


Figure 1. Firearm Assaults and Fatality Rates
National Level, 2014 - 2020
325
275
225
175
25
20
15
10
Frequency
% Fatal
2014
2015
2016
2017
2018
2019
2020
Year
Firearm Assaults (Left Axis)
Fatality Rate (Right Axis)

Figure 2. Fatality Rates and Average Drive Time to Nearest Level I/II Trauma Center (in minutes)

U.S. Census Division Level, 2014 - 2020



References

Aberle, S. J., Dennis, A. J., Landry, J. M., & Sztajnkrycer, M. D. (2015). Hemorrhage Control by Law Enforcement Personnel: A Survey of Knowledge Translation From the Military Combat Experience. *Military Medicine*, *180*(6), 615–620. https://doi.org/10.7205/MILMED-D-14-00470

ACS. (2021). *Trauma Centers*. American College of Surgeons. http://www.facs.org/search/trauma-centers?country=united%20states&distance=any

Altheimer, I., Schaible, L. M., Klofas, J., & Comeau, M. (2019). Victim Characteristics, Situational Factors, and the Lethality of Urban Gun Violence. *Journal of Interpersonal Violence*, *34*(8), 1633–1656. https://doi.org/10.1177/0886260516652264

ATS. (2021). *Trauma Center Levels Explained*. American Trauma Society. https://www.amtrauma.org/page/traumalevels

Beaman, V., Annest, J. L., Mercy, J. A., Kresnow, M., & Pollock, D. A. (2000). Lethality of firearm-related injuries in the United States population. *Annals of Emergency Medicine*, *35*(3), 258–266. https://doi.org/10.1016/S0196-0644(00)70077-1

Braga, A. A., & Cook, P. J. (2018). The Association of Firearm Caliber With Likelihood of Death From Gunshot Injury in Criminal Assaults. *JAMA Network Open*, *1*(3), e180833–e180833. https://doi.org/10.1001/jamanetworkopen.2018.0833

Braga, A. A., Papachristos, A. V., & Hureau, D. (2010). The Concentration and Stability of Gun Violence at Micro Places in Boston, 1980-2008. *Journal of Quantitative Criminology*, *26*, 33–53.

CDC. (2021, September 14). *National Center for Health Statistics: Assault or Homicide*. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/fastats/homicide.htm

Circo, G. M. (2019). Distance to trauma centres among gunshot wound victims: Identifying trauma 'deserts' and 'oases' in Detroit. *Injury Prevention*, *25*(Suppl 1), i39–i43. https://doi.org/10.1136/injuryprev-2019-043180

Circo, G. M., & Wheeler, A. P. (2021). Trauma Center Drive Time Distances and Fatal Outcomes among Gunshot Wound Victims. *Applied Spatial Analysis and Policy*, *14*(2), 379–393. https://doi.org/10.1007/s12061-020-09362-3

Crandall, M., Sharp, D., Unger, E., Straus, D., Brasel, K., Hsia, R., & Esposito, T. (2013). Trauma Deserts: Distance From a Trauma Center, Transport Times, and Mortality From Gunshot Wounds in Chicago. *American Journal of Public Health*, *103*(6), 1103–1109. https://doi.org/10.2105/AJPH.2013.301223

Crifasi, C. K., Pollack, K. M., & Webster, D. W. (2016). Assaults against U.S. law enforcement officers in the line-of-duty: Situational context and predictors of lethality. *Injury Epidemiology*, *3*(1), 29. https://doi.org/10.1186/s40621-016-0094-3

EFSGV & CSGV. (2021). *A Public Health Crisis Decades in the Making: A Review of 2019 CDC Gun Mortality Data*. Educational Fund to Stop Gun Violence and the Coalition to Stop Gun Violence. https://efsgv.org/wp-content/uploads/2019CDCdata.pdf

Engel, R. S., McManus, H. D., & Herold, T. D. (2020). Does de-escalation training work? *Criminology & Public Policy*, *19*(3), 721–759. https://doi.org/10.1111/1745-9133.12467

FBI. (2021). *Table 28: Law Enforcement Officers Feloniously Killed, Type of Weapon, 2010-2019*. FBI:UCR. https://ucr.fbi.gov/leoka/2019/tables/table-28.xls

Google. (2021). *Distance Matrix API*. Google Maps Platform. https://developers.google.com/maps/documentation/distance-matrix/overview

GVA. (2020). *General Methodology*. Gun Violence Archive. /methodology
Hijmans, R. J., Williams, E., & Vennes, C. (2019). *Package "geosphere."* CRAN. https://cran.r-project.org/web/packages/geosphere/geosphere.pdf
Kaufman, E. J., Wiebe, D. J., Xiong, R. A., Morrison, C. N., Seamon, M. J., & Delgado, M. K. (2021). Epidemiologic Trends in Fatal and Nonfatal Firearm Injuries in the US, 2009-2017. *JAMA Internal Medicine*, *181*(2), 237–244. https://doi.org/10.1001/jamainternmed.2020.6696
Meizoso, J. P., Ray, J. J., Karcutskie, C. A. I., Allen, C. J., Zakrison, T. L., Pust, G. D., Koru-Sengul, T., Ginzburg, E., Pizano, L. R., Schulman, C. I., Livingstone, A. S., Proctor, K. G., & Namias, N. (2016). Effect of time to operation on mortality for hypotensive patients with gunshot wounds to the torso: The golden 10 minutes. *Journal of Trauma and Acute Care Surgery*, *81*(4), 685–691. https://doi.org/10.1097/TA.0000000000001198
Melo, R. A., T, D. R., & Zarruk, D. (2018). *Package "gmapdistance."* CRAN. https://cran.r-project.org/web/packages/gmapsdistance/gmapsdistance.pdf
Nix, J., Wolfe, S. E., & Campbell, B. A. (2018). Command-level Police Officers' Perceptions of the "War on Cops" and De-policing. *Justice Quarterly*, *35*(1), 33–54. https://doi.org/10.1080/07418825.2017.1338743
Papachristos, A. V., & Wildeman, C. (2014). Network Exposure and Homicide Victimization in an African American Community. *American Journal of Public Health*, e1–e8. https://doi.org/10.2105/AJPH.2013.301441
Pons, P. T., Jerome, J., McMullen, J., Manson, J., Robinson, J., & Chapleau, W. (2015). The Hartford Consensus on Active Shooters: Implementing the Continuum of Prehospital Trauma Response. *The Journal of Emergency Medicine*, *49*(6), 878–885. https://doi.org/10.1016/j.jemermed.2015.09.013
Reaves, B. A. (2015). *Local Police Departments, 2013: Equipment and Technology* (NCJ 248767; pp. 1–17). Bureau of Justice Statistics. https://www.bjs.gov/content/pub/pdf/lpd13et.pdf
Sierra-Arévalo, M., & Nix, J. (2020). Gun victimization in the line of duty: Fatal and nonfatal firearm assaults on police officers in the United States, 2014–2019. *Criminology & Public Policy*, *19*(3), 1041–1066. https://doi.org/10.1111/1745-9133.12507
U.S. Bureau of Labor Statistics. (2021a). *Employment Level, 16 years and over* (No. LNS12000000). U.S. Bureau of Labor Statistics. https://data.bls.gov/pdq/SurveyOutputServlet
U.S. Bureau of Labor Statistics. (2021b). *Fatalities by primary source of injury, Event or exposure-Shooting by other person—Intentional* (FWUE1B0000XX8SN00). U.S. Bureau of Labor Statistics. https://data.bls.gov/cgi-bin/dsrv
White, M. D., Dario, L. M., & Shjarback, J. A. (2019). Assessing dangerousness in policing: An analysis of officer deaths in the United States, 1970–2016. *Criminology & Public Policy*, *18*(1), 11–35. https://doi.org/10.1111/1745-9133.12408