Officer-Involved Shooting Situations, Responses, and Data:

An Analysis of Information from Major City Police Agencies

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Arnold Ventures

NATIONAL POLICE FOUNDATION
Advancing Policing Through Innovation and Science

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PREFACE*

In 2016, the Laura and John Arnold Foundation** awarded the Police Foundation funding to collect and analyze detailed information on officer-involved shooting (OIS) incidents provided by Major Cities Chiefs Association agencies. The purpose of this analysis was to carry out an examination for four critical issue reports. The first report analyzes detailed data on the subjects, officers, and locations involved in OIS incidents. This report also contains three focused analyses examining the use of lethal and less lethal force during OIS incidents, situational and officer factors and use of force during OIS incidents, and predictors of subject fatalities and severe injuries during OIS incidents. The second report describes OIS incidents from the initiation to conclusion of the incident, and whether certain factors may predict certain outcomes, such as subject or officer injury. The third report catalogues and analyzes how agencies respond to these incidents regarding review, investigation, and actions taken for the officers involved. Finally, the fourth report discusses the efforts made to improve the quality of the data collected, as well as various obstacles reported by agencies in collecting and/or reporting certain variables.

* The authors would like to acknowledge the organizations and individuals that provided immeasureable support to this project. We are very thankful to the Laura and John Arnold Foundation for their support, and the Major Cities Chiefs Association and all participating agencies that provided their officer-involved shooting incident data. We also thank Breanne Cave, Amber Askey, Michelle Phillips, and Taryn Zastrow for all of their work and support in earlier versions of these reports.

** The views and opinions expressed in this report are those of the authors' and do not necessarily reflect the views or opinions of the Laura and John Arnold Foundation or Arnold Ventures.

CRITICAL ISSUE REPORT #1: OFFICER-INVOLVED SHOOTINGS AMONG MAJOR CITIES CHIEFS ASSOCIATION POLICE AGENCIES, 2015-2017

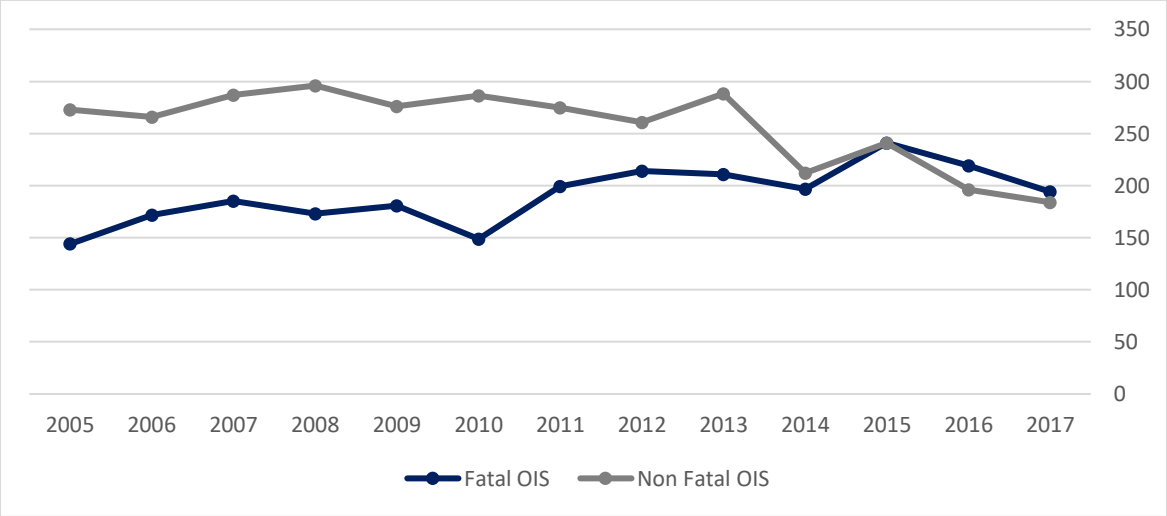
Introduction

Police use of deadly force has become a key issue in discussions on race, policing and community relations. The deaths of Michael Brown, Eric Garner, and Freddie Gray sparked protests and media attention on the police use deadly force, particularly use of deadly force in encounters involving African-American men. These incidents and the discussions that have followed highlight how little is known about police use of force and officer involved-shootings.

Historically, public debate about police use of force has taken place in the absence of reliable or complete data. In recent years, media organizations and federal agencies have become increasingly interested in improving the availability of data in this area, with the FBI, Bureau of Justice Statistics, Washington Post, and the Guardian all taking part in efforts to improve the data available about officer-involved shooting (OIS) incidents, police use of force, and deaths in police custody, though all but one limit their focus on fatal deadly force incidents, which represent only a portion of the deadly force incidents.

In 2015, the Major Cities Chiefs Association (MCCA) partnered to carry out a study of trends in OIS incidents among all MCCA member agencies. Figure 1, below, summarizes several key findings from the MCCA study. As Figure 1 shows, the number of fatal OIS incidents reported by member agencies increased from 2005 to 2017. The trendline for non-fatal OIS incidents is on a decline, while fatal OIS trends are inclining. However, 2015 through 2017 saw a downward trend for both types of OIS incidents.

Figure 1 Trends in OIS incidents among MCCA member agencies (MCCA data)



While this study was informative, it provided little context for understanding or explaining these general trends. Agencies needed a more fine-grained analysis about the factors that led to different OIS outcomes, which would require extensive and detailed data collection from many agencies over time. To this end, the Police Foundation and MCCA developed a partnership to conduct a more intensive OIS data collection effort, focusing on incidents that occurred during 2015, 2016, and 2017.

During the early stages of the project, the Police Foundation team reviewed existing research surrounding OIS incidents, as well as the literature on police use of force more generally, to identify relevant variables that could explain the context and outcomes of OIS encounters. Researchers have a longstanding interest in OIS incidents, as well as police use of force more generally. By reviewing this research and consulting research fellows and law enforcement professionals about measures and methodology, the Police Foundation team developed a comprehensive instrument to collect a wide range of measures of OIS incidents. We provide a brief summary of relevant research below. Additional emphasis was placed on collecting data that would be useful in responding to other national data collection efforts, assuming that if the questions were structured similarly, the data could be collected once but shared with many.

Collecting data on OIS incidents

Klinger, Rosenfeld, Isom, and Deckard provide guidelines for defining an OIS incident as a case "…in which American police officers fired their guns at fellow human beings and all cases in which any rounds accidentally discharged by any police officer struck anyone" (2016: 215-216). They also identify core elements that an OIS database should possess, including information about: 1) participants in the incident, 2) the jurisdiction and location of the incident, 3) the weapons involved, and 4) incident characteristics and outcomes. We will begin by briefly describing the research that informed our measurement of these key elements of an OIS incident. We drew heavily from the recent *Criminology & Public Policy* article by Klinger and colleagues (2016) and a systematic review of predictors of police use of force by Bolger (2015). Much of this discussion, as well as our selection of measures to include in the MCCA/ PF database, is drawn from these sources.

Incident participants

Subjects. We define a subject as a person who is fired upon by the police, regardless of whether they are suspected of a crime. Prior research has shown that factors such as citizen race, ethnicity, age, sex, as well as drug and alcohol use can predict police use of force (Bolger, 2015; Lawton, 2007; McCluskey, Terrill & Paoline, 2005; Sun & Payne, 2004; Terrill & Mastrofski, 2002).

Subject motivation also plays a role in determining police use of force and the likelihood of subject death during an OIS incident, as subjects may intentionally provoke an officer into using deadly force during 'suicide by cop' incidents (see e.g., Mohandie, Meloy & Collins, 2009; Parent, 1996). As Bolger (2015) notes, few studies have considered the impact of subjects' mental illness on police use of force. The work that has been done in this area finds that officers are no more likely to use force against persons with a mental or behavioral health disorder than other citizens; however, the effects of subject mental illness could be strongly correlated with subject resistance, which does have an impact on police use of force (Johnson, 2011; Terrill & Mastrofski, 2002). Klinger and colleagues (2016) also

recommend that data on subjects' criminal background be collected as a part of any national OIS data collection effort. Our measures of subject characteristics are drawn from this body of research.

Officers. Consistent with recommendations by OIS researchers, the MCCA/ PF database collects detailed data on all officers who discharged a firearm during an OIS incident (see e.g., Klinger et al., 2016). Klinger and colleagues recommend that officer characteristics such as race and ethnicity, rank, years of service, involvement in prior shootings, and duty assignment when the shooting occurred, be included in any national OIS data collection effort. Researchers have found that police officers with more education are less likely to use force (Paoline & Terill, 2004; Terrill & Mastrofski, 2002). Findings about the effect of officer experience on use of force are mixed, with some scholars finding that more experienced officers are less likely to use force (Kop and Euwema, 2001), while others finding no significant association between the two (McClusky, Terrill & Paoline, 2005; McCluskey & Terrill, 2005). We include all of these measures in our officer-level data collection.

Jurisdiction and location

Klinger and colleagues (2016) stress the importance of collecting information on the jurisdiction that employs the officer, as well as the specific location (address or intersection) where the shooting took place. Collecting agency identifying information allows for regional and national analyses of how police agencies in different locations use force. In turn, knowing the location of OIS incidents allows for research on the impact of community context on OIS incidents.

Research has found that communities with higher levels of violent crime also have more OIS incidents (Klinger et al., 2016; Terrill & Reisig, 2003), and some researchers have suggested that police may be more coercive in areas that they perceive to be dangerous (Bayley & Mendelsohn, 1969; Werthman & Piliavin, 1967; see also Bolger, 2015). Research is mixed about the effect of neighborhood demographic composition on police use of force, with some researchers finding no effect, and other researchers finding that neighborhood racial heterogeneity increases the use of coercion by the police (Smith, 1986; Bolger 2015; Lawton, 2007).

Weapons

Klinger and colleagues (2016) also recommend that OIS incident databases include information about the weapons that were used and possessed by both subjects and officers. Prior research has shown that subject weapon possession has a strong impact on police use of force (Bolger, 2015; Johnson, 2011; McCluskey et al., 2015; Paoline & Terrill, 2007), and that officer possession of less lethal weapons can reduce the likelihood of officer and subject injury during an OIS incident (Jenkinson, Neeson, & Bleetman, 2006; MacDonald, Kaminski, & Smith, 2009; Taylor & Woods, 2010). The MCCA/ PF database therefore collects information about the weapons possessed by each subject fired upon and officer firing a weapon in an OIS incident.

Incident characteristics and outcomes

Incident characteristics. In this project, we followed Bolger (2015) in describing incident (or encounter) characteristics as factors that relate to the perceived dangerousness of the situation and the nature of a subject's criminal activity. Bolger (2015) also notes that police are more likely to use force against subjects when evidence

of criminal behavior is present, when the subject possesses a weapon, when a subject resists an officer, when citizens are in conflict with one another on the scene, and when they make an arrest. The presence of bystanders on the scene is hypothesized to have an impact on police use of force decisions, but findings about the nature of this effect are mixed (Bolger, 2015; Rydberg & Terrill, 2010; Terrill, Leinfelt & Kwak, 2008). Lawton (2007) found that when multiple officers were involved in the incident, use of force was lower compared to incidents that involved only one officer. While some scholars have found that the nature of the incident's location does not relate to officer use of force (Engel et al., 2000; Johnson, 2011), others have found that premise type does impact officer decision making (Lee, Zhang, and Hoover, 2013). As Reiss (1980) notes, the information that officers are provided about a call from dispatch allows officers to prepare during their response calls for service. Therefore, the MCCA/ PF database collects information on how officers were dispatched to the precipitating call, as well as whether there was information that indicated that the subject was armed.

Incident outcomes. Finally, the MCCA/ PF database also collects information on injuries that result from OIS incidents—to subjects, officers who fired a weapon, and bystanders who were near the incident. Following Klinger and colleague's (2016) recommendations, measures such as injury severity, the source of the injury, and whether an officer was able to return to work after the incident are included in the MCCA/PF database.

Incidents reported by MCCA member agencies, 2015-2017

In this section, we summarize the characteristics of OIS incidents that have been reported by MCCA member agencies. These summaries are broken into six sections: 1) incident descriptions; 2) officer use of force; 3) officer background and demographics; 4) subject resistance; 5) subject characteristics; and 6) death and injury during OIS incidents. A series of graphical information sheets follow these brief descriptions of OIS incidents. Visual depictions of these data elements are provided following the descriptions (Figure 2).

1) Incident descriptions

Agencies throughout the United States contributed data for our analysis[1]. Of all OIS incidents reported by U.S. police agencies between 2015 and 2017, 21% were reported by agencies in the Northeast, 11% were reported by agencies in the Midwest, 31% were reported by agencies in the South, and 37% were reported by agencies in the West (including Alaska and Hawaii).

About 45% of OIS incidents were self-initiated by a police officer as opposed to a citizen call. Of the calls coming from the field, information indicating that a subject was armed occurred in approximately 70% of cases. OIS incidents were most commonly precipitated by calls for service or officer-initiated activity relating to armed person (18%), robbery (10%), and traffic stops (8.5%). OIS incidents were also commonly precipitated by 'other' types of calls that did not fit into pre-established

[1] Canadian agencies also contributed to this data collection effort; however only U.S. agency data is described and analyzed in these reports.

categories such as home invasions, welfare checks, vicious dogs, and evictions.

We did not see strong trends in the monthly, weekly, or hourly timing of OIS incidents. A smaller number of incidents were reported in November and December compared to other months, with the most incidents occurring in May. OIS incidents were least common on Mondays and most common on Wednesdays and Thursdays. These incidents were also most common during the afternoon and evening.

2) Officer use of force

An individual officer most commonly discharged between one and three rounds at a subject(s) during OIS incidents; it was very rare that any officer discharged more than ten rounds. In 75% of OIS incidents, there was more than one officer present, and in 67% of incidents, one officer on the scene discharged his or her weapon (as opposed to multiple officers firing). Less-lethal tactics and weapons, including physical restraint, conducted energy devices, and OC spray, were used in about 28% of incidents. We did not include verbal commands in our measure of less-lethal tactics, as officers gave verbal commands in nearly every OIS incident. Officers were an average of 32 feet away from subjects when the first round was discharged, however this is due to several incidents with very large distances. The median average distance for incidents was 15 feet. In half of incidents, the distance between officers and subjects was less than 15 feet.

3) Officer background and demographics

Of all officers who fired a weapon in OIS incidents, 77% were white, 13.5% were African American, and 21% were Hispanic or Latino.[2] Most officers had less than 9 years of law enforcement experience at the time of the incident, with 27% having between less than 4 years of experience, and 29% having between 5-9 years of experience. A smaller proportion of officers (20.5%) had between 10 and 14 years of experience. Officers with between 15-19 years and more than 20 years comprised of 13% and 11% of officers in the dataset, respectively. Most officers who fired a weapon were officers (77%), with sergeants (8.4%) and detectives (7.3%) less commonly firing weapons. When the data is reported, 20% of officers who fired a weapon during an OIS incident had been involved in a previous OIS incident.

We also examined the length of time that officers had been on shift prior to the incident. This ranged from less than an hour to 23.95 hours, with an average of 5.34 hours.

4) Subject resistance

The majority of OIS incidents (93%) involved a single subject who was fired upon by the police. In 96% of incidents, at least one subject possessed a weapon, including a knife, blunt object, vehicle used as a weapon, or firearm. At least one subject had a firearm in 63% of incidents.

Almost all incidents involved some form of resistance by a subject, although 1% of cases involved no reported subject resistance, and in 4.5% of incidents, subjects' resistance was passive or verbal. In 19% of cases, a subject's highest level of resistance was attempting to flee or escaping from the police. Subjects attempted to assault an officer in 29% of cases, initiated a standoff

[2] Race and ethnicity are captured as separate variables on the intake form.

with the police in about 12% of cases, and attempted to gain or gained possession of an officer's weapon in 2.5% of cases.

5) Subject characteristics

30% of subjects involved in OIS incidents were Hispanic or Latino, 50% were Black or African American, and 39% were Caucasian.[3] For all racial and ethnic groups, the overwhelming majority of subjects (over 95%) were male. 42.5% of subjects were between the ages of 20 and 29, and 24% were between 30 and 39. Eight percent of Hispanic and Latino subjects and 6.5% of African American subjects had a behavioral health concern, as compared to 19% of white subjects. More white subjects (20%) appeared to be under the influence of alcohol or drugs than subjects who were Hispanic or Latino (11%) or African-American (6%) It should be reiterated that the agencies sharing data for this analysis were all large urban agencies, which may have influenced some demographic outcomes.

6) Death and injury during OIS incidents

Seventy-eight percent of subjects were injured in OIS incidents, and 34% of subjects received fatal injuries.

At least one officer was injured in 11% of OIS incidents. Among the officers who were injured, 5% were killed, about 5% received a severe injury requiring intensive hospitalization and treatment, 19% received a serious injury that required hospitalization, 50% received an injury that did not require hospitalization, and about 18% received a minor injury. Of the officers injured as a result of the incident, 71% were injured by the subject, and 29% were injured as an incidental result of the event. Finally, one or more bystanders were injured in 4.4% of reported cases.

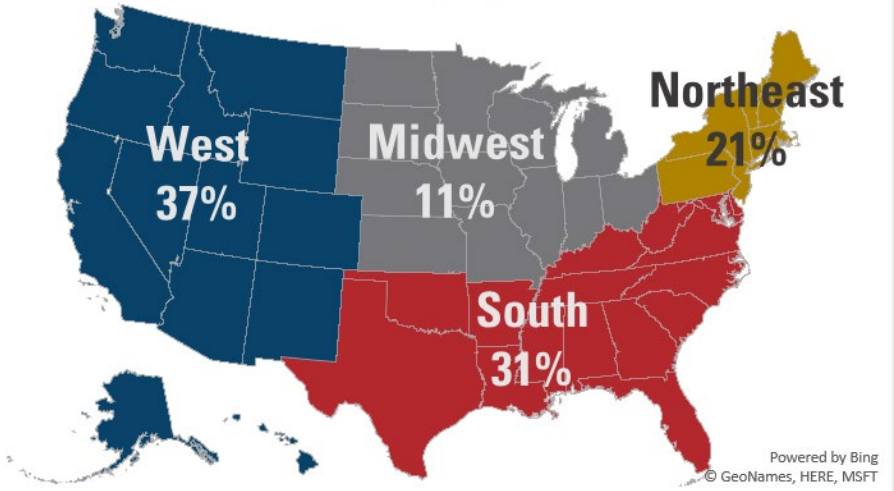
[3] Race and ethnicity are captured as separate variables on the intake form.

Officer-Involved Shootings

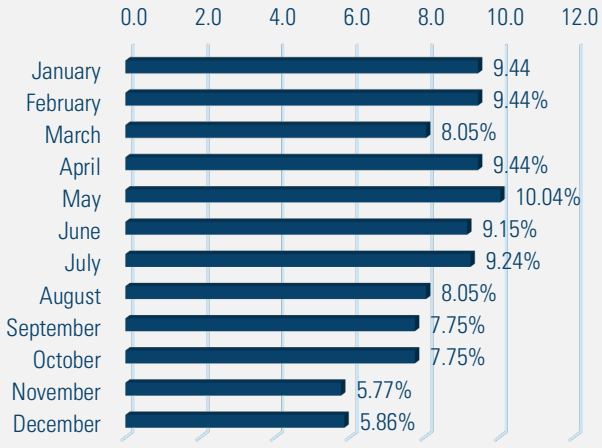
National Police Foundation in Partnership with MCCA OIS Database

Incident Descriptions

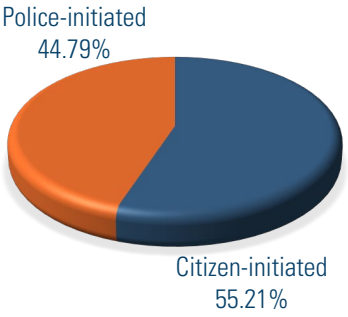
Incidents by Region



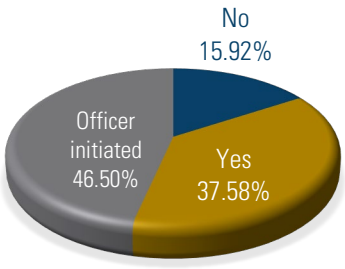
Incidents by Month



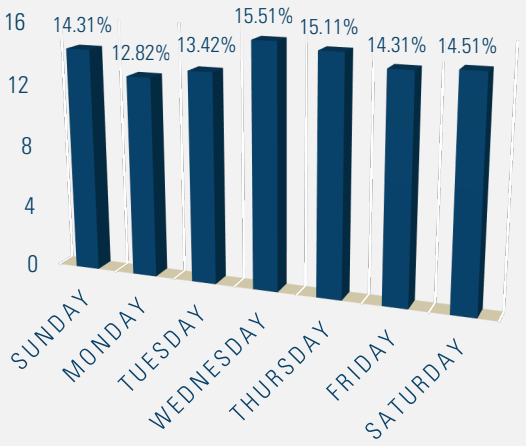
Police v. Citizen Initiated



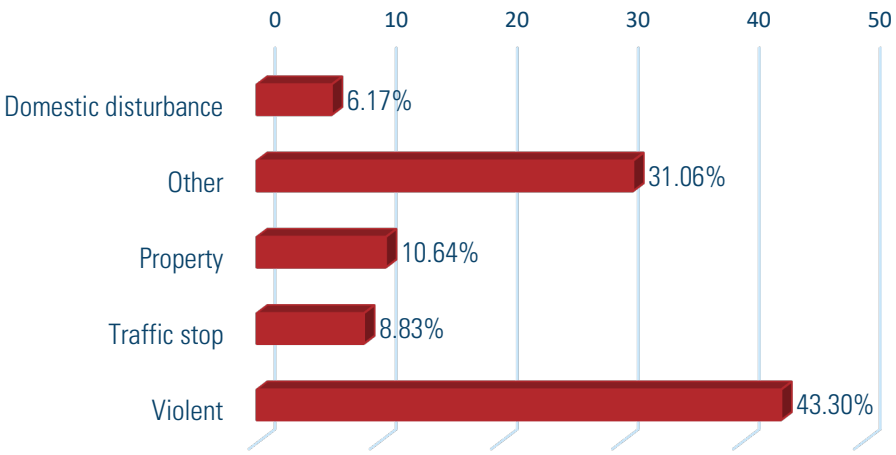
Dispatch Indicated Subject Was Armed



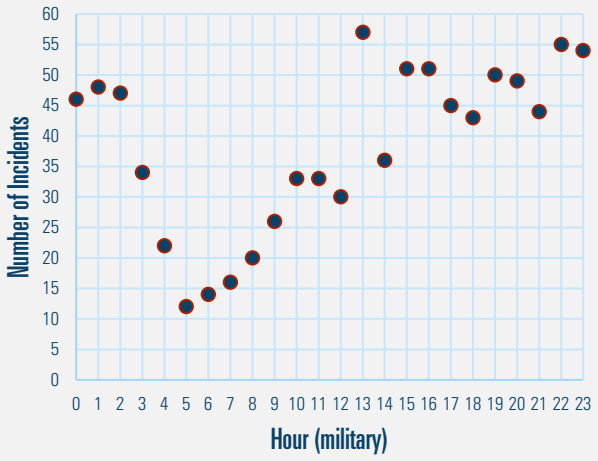
INCIDENTS BY DAY OF WEEK



Nature of Precipitating Call



Incidents by Hour

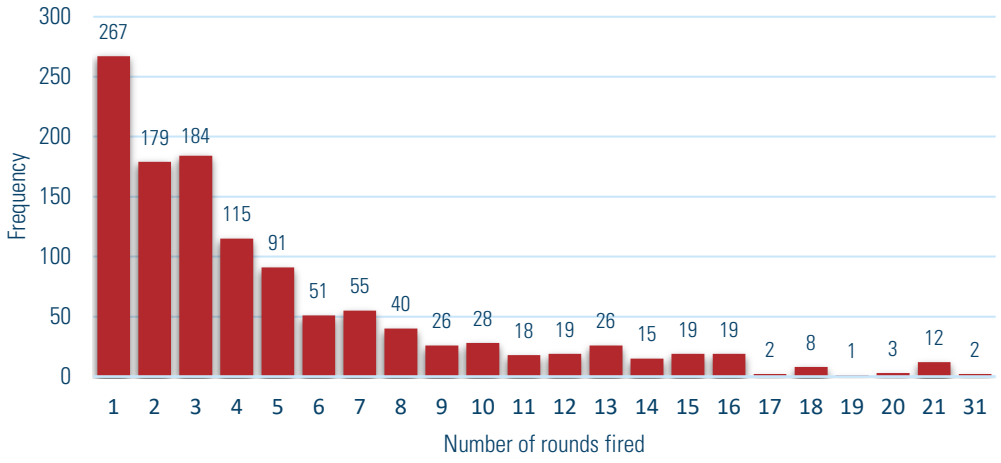


Officer-Involved Shootings

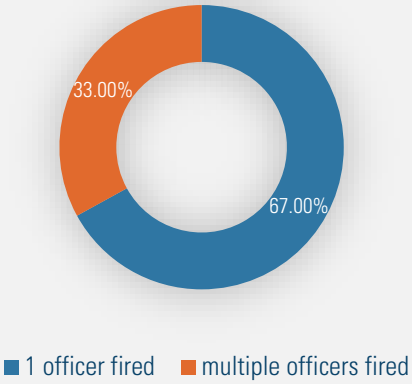
National Police Foundation in Partnership with MCCA OIS Database

Officer Use of Force

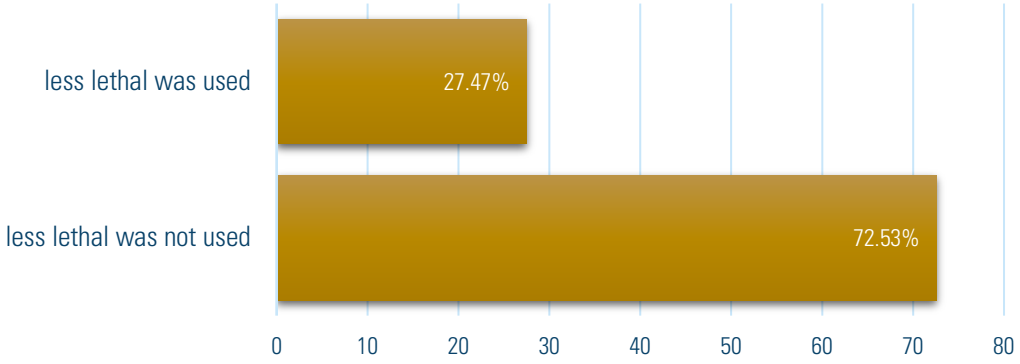
Rounds Fired by the Officer



Number of Officers who Fired During the Incident

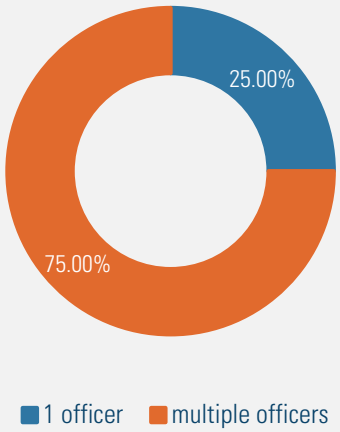


Use of ANY Less-lethal Force* (before, during, or after the officer fired)

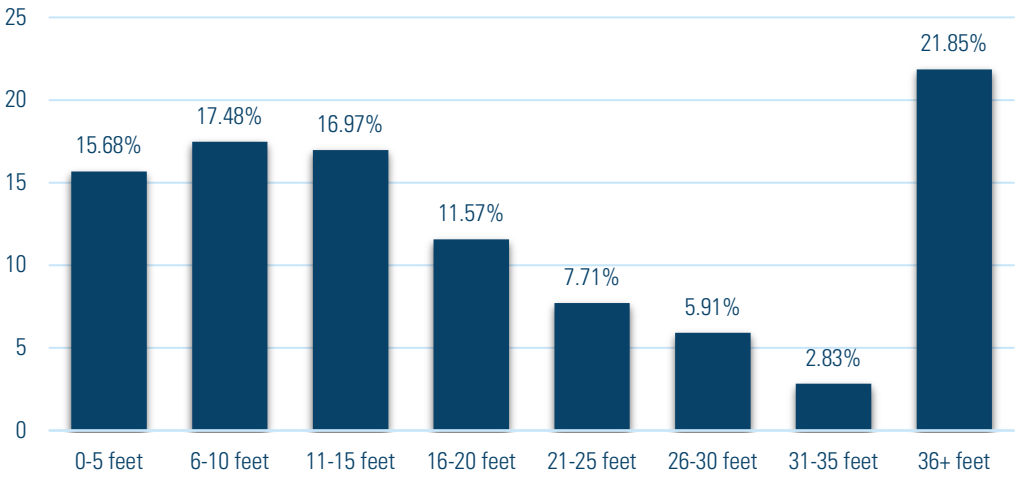


*Excluding verbal commands

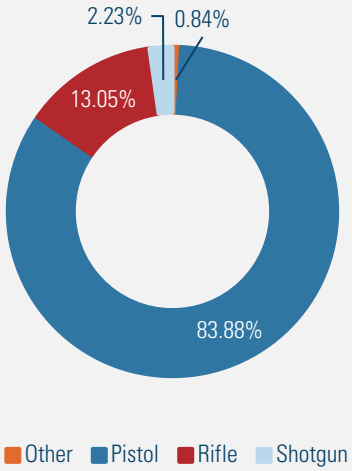
Number of Officers Present



Distance Between Officer and Subject When First Round was Fired



Officer Weapon Type

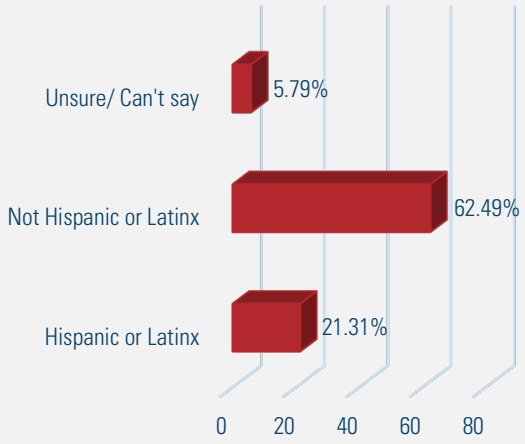


Officer-Involved Shootings

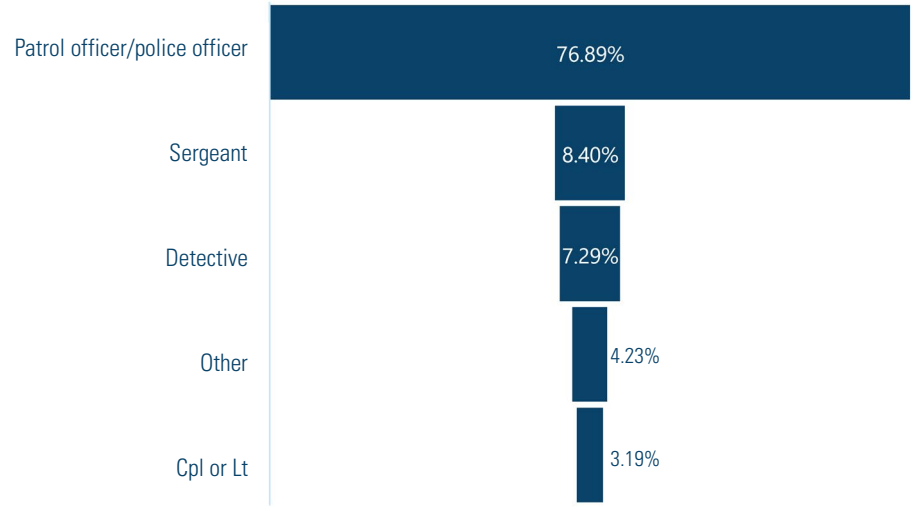
National Police Foundation in Partnership with MCCA OIS Database

Officer Characteristics

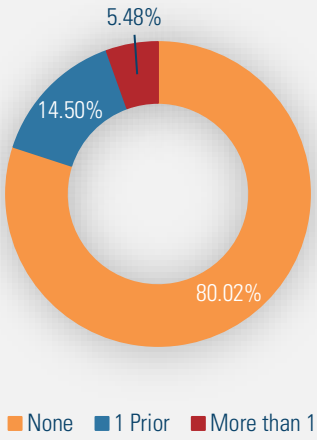
Officer Ethnicity



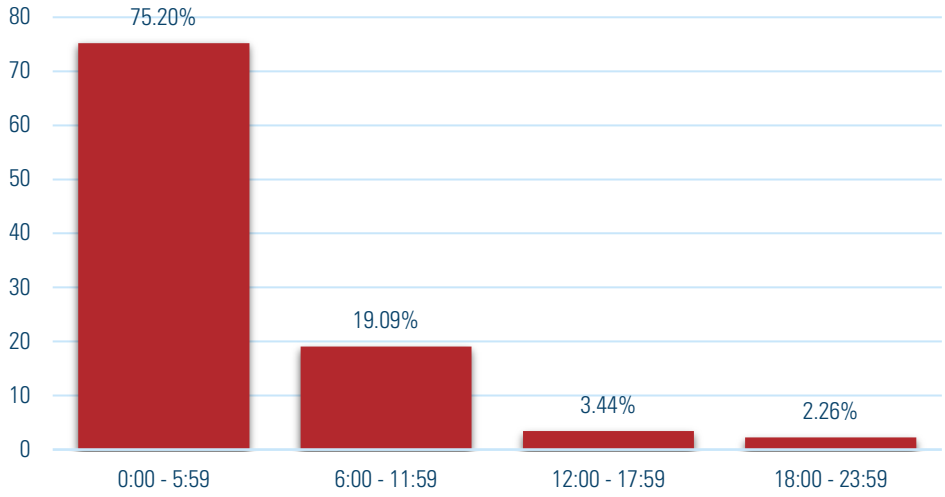
Officer Rank



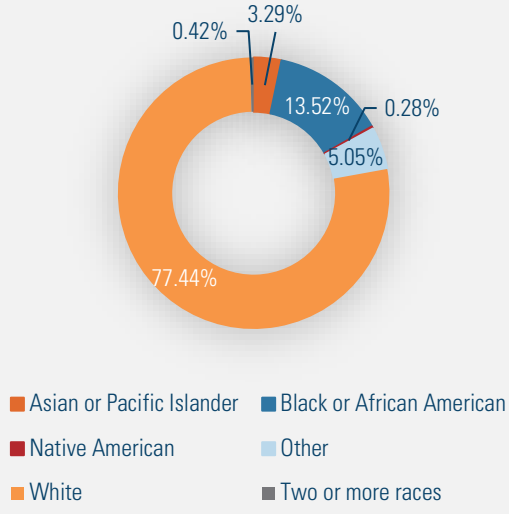
Officers Involved in Prior OIS Incidents



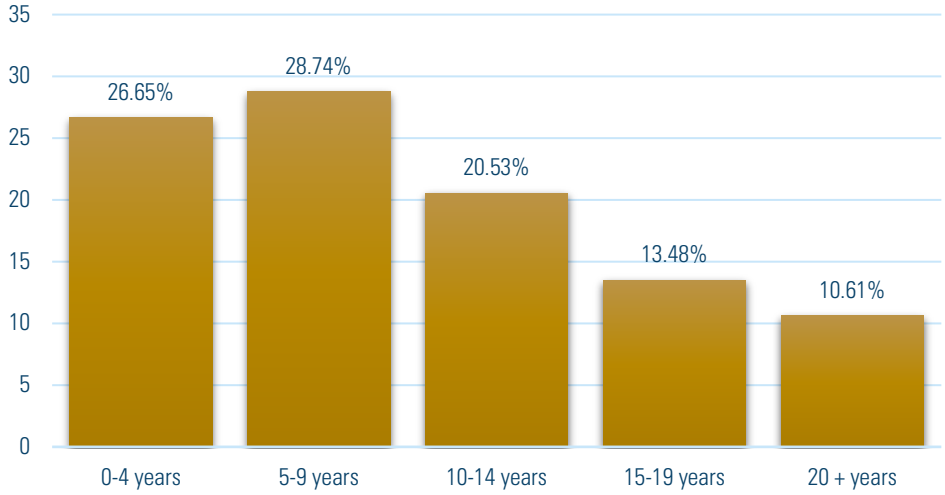
How Long Were Officers on Shift Prior to the Incident?



Officer Race



Officer Experience

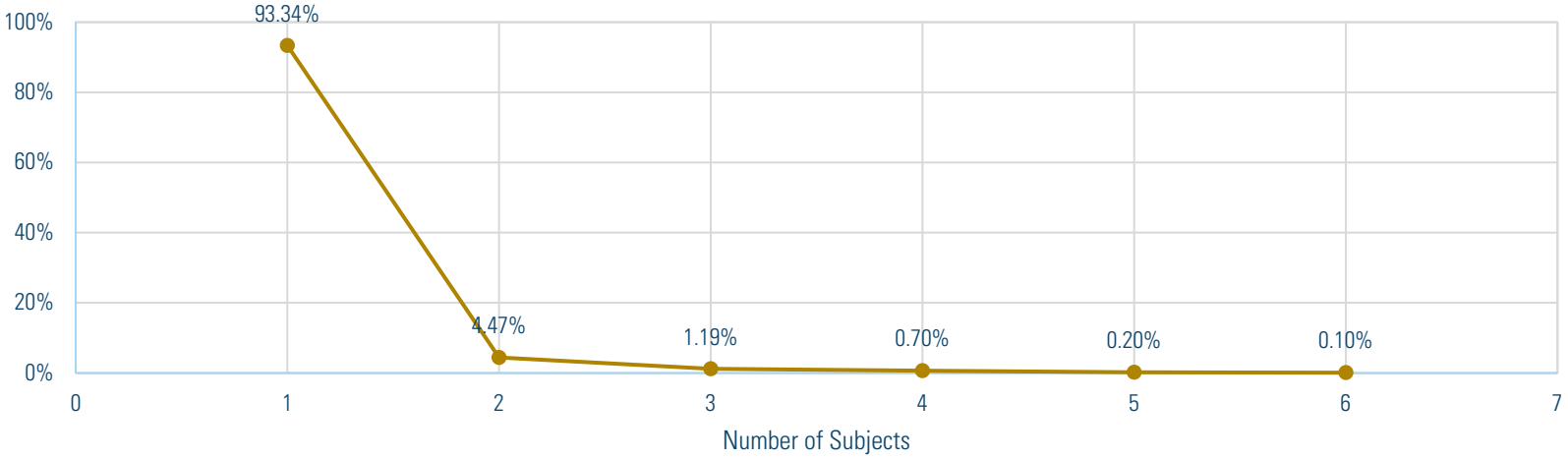


Officer-Involved Shootings

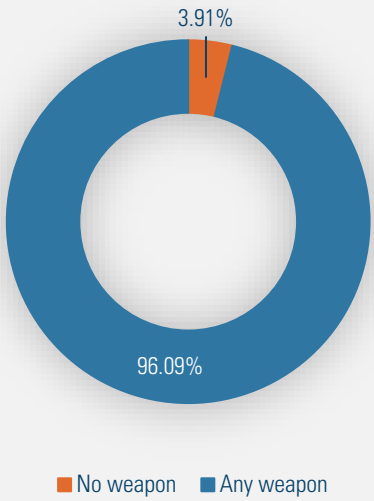
National Police Foundation in Partnership with MCCA OIS Database

Subject Resistance

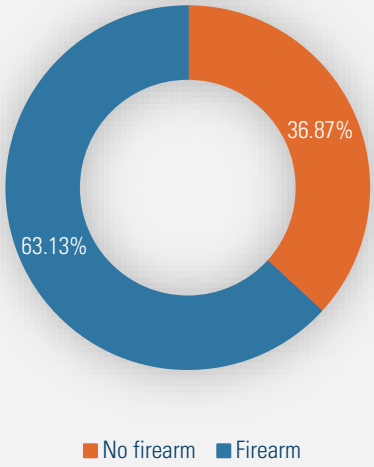
Number of Subjects Fired at by Police



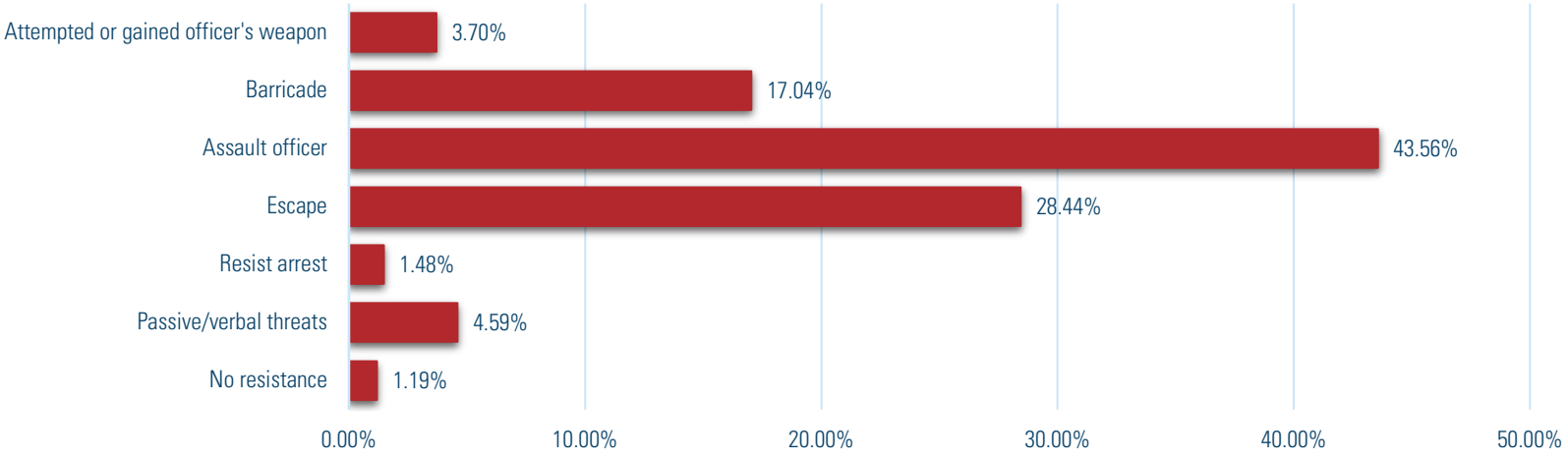
How Often Do Officers Encounter an Armed Subject?



Subjects Armed with a Firearm



Subject's Highest Level of Resistance

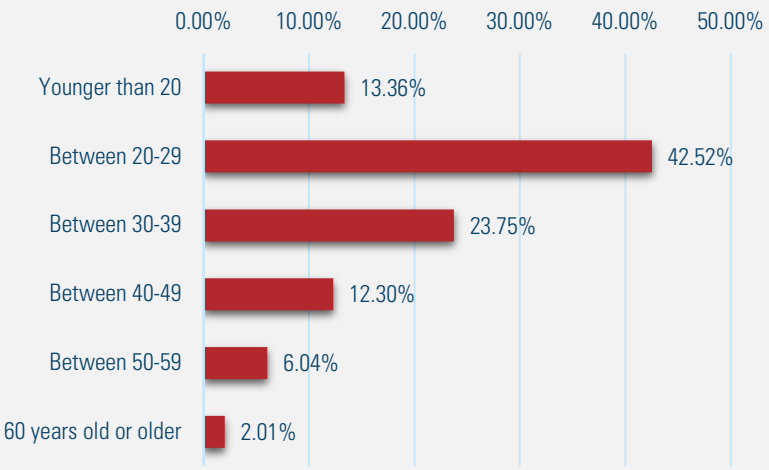


Officer-Involved Shootings

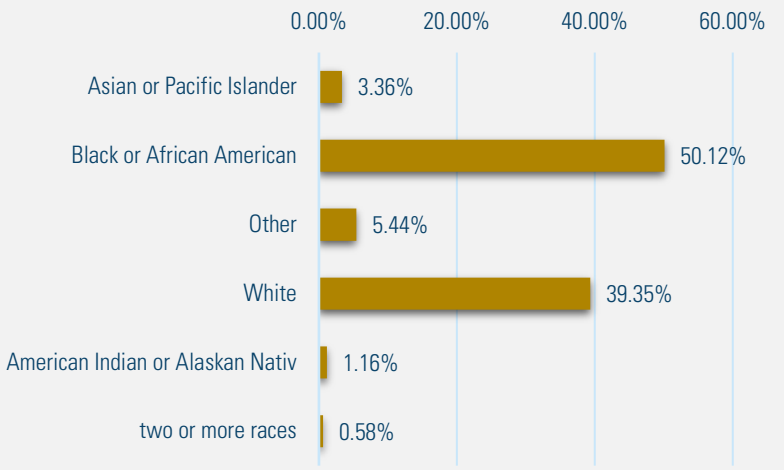
National Police Foundation in Partnership with MCCA OIS Database

Subject Race

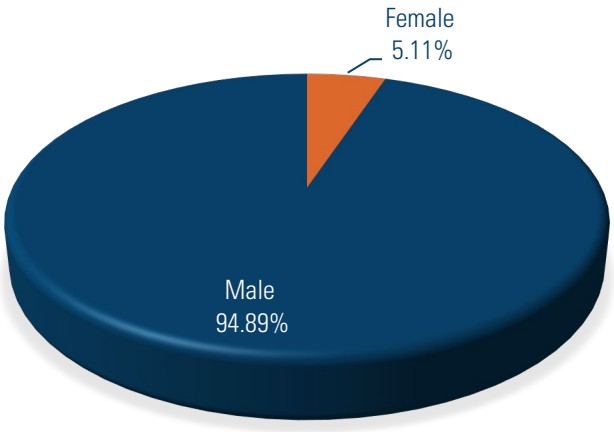
Subject Age



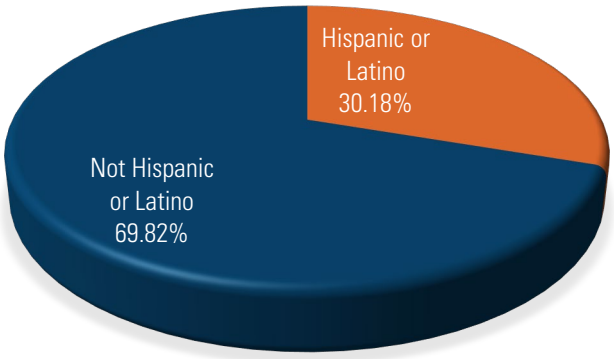
Subject Race



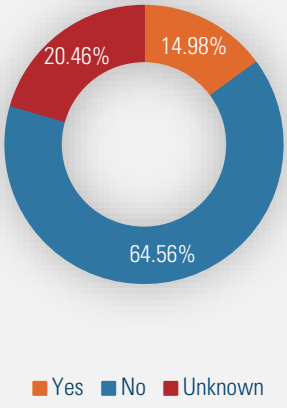
SUBJECT GENDER



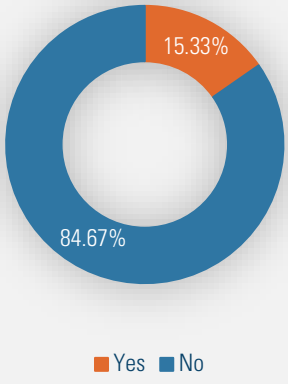
SUBJECT ETHNICITY



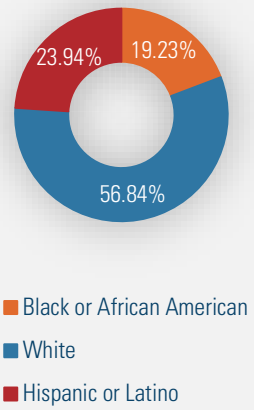
Impaired Mental Health



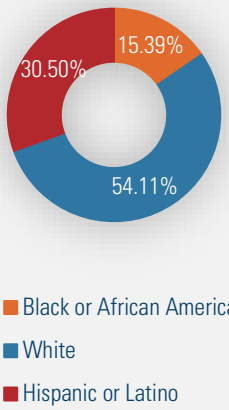
Under the Influence of Alcohol or Drugs



Percent of Mental Health Impairment



Percent of Alcohol or Drug Impairment

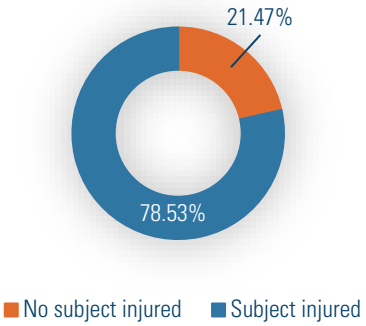


Officer-Involved Shootings

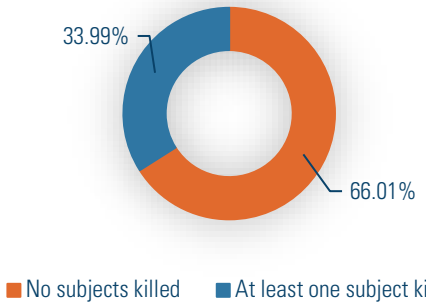
National Police Foundation in Partnership with MCCA OIS Database

Death and Injury

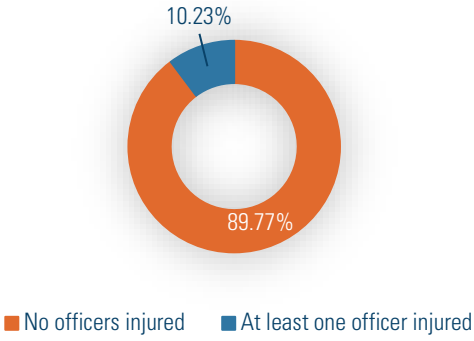
Subject Injuries



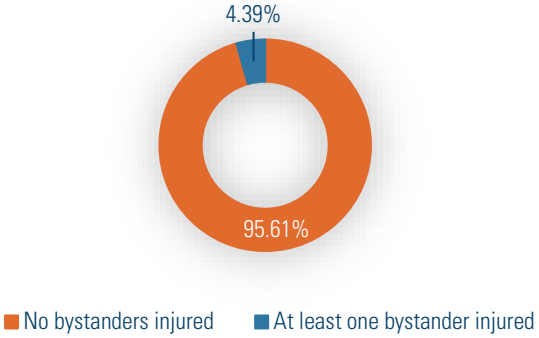
Subject Fatalities



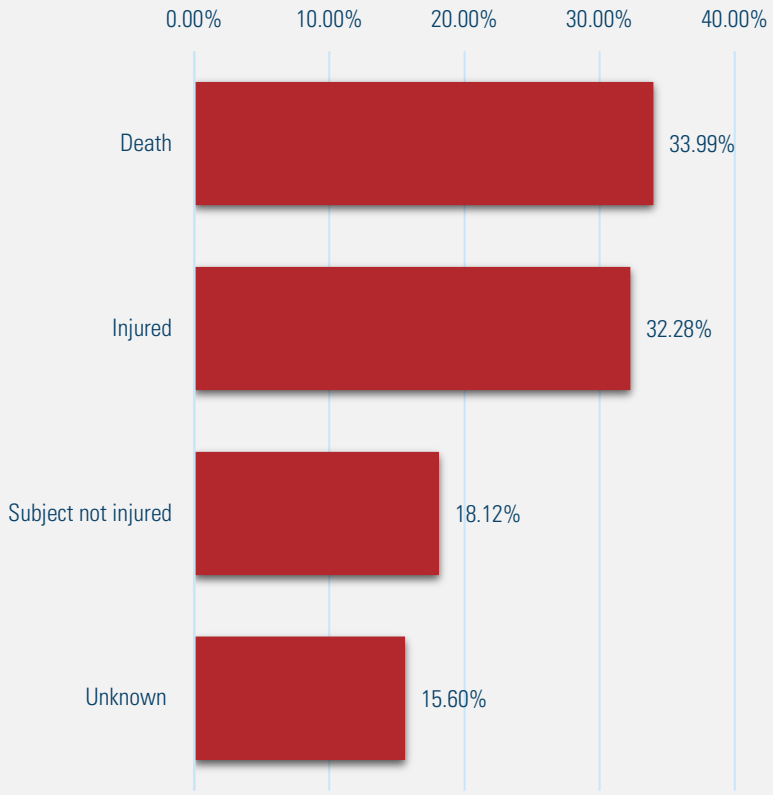
Officer Injuries



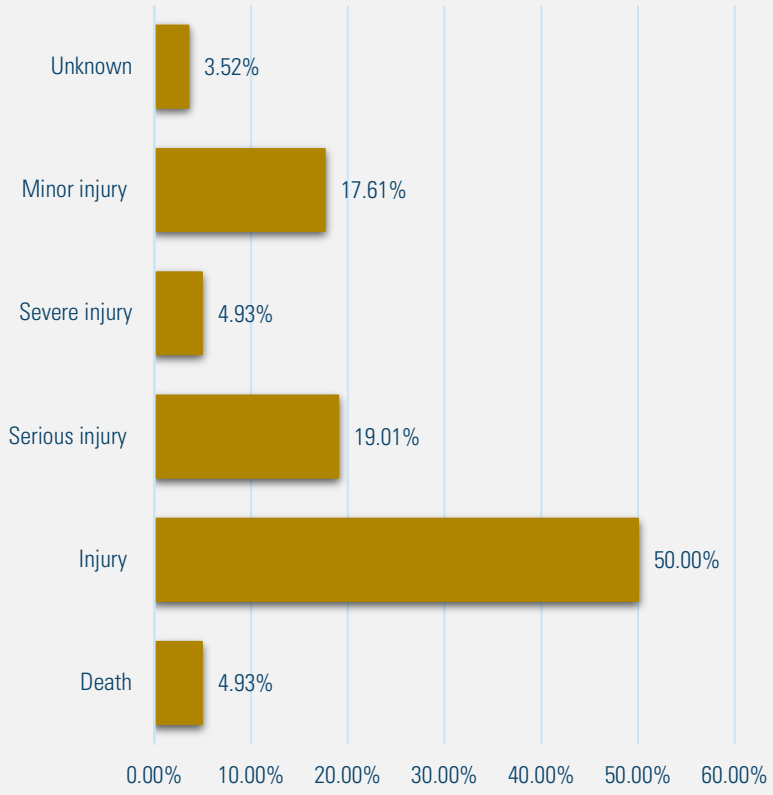
Bystander Injuries



Severity of Subject Injuries



Severity of Officer Injuries



Use of Deadly and Less Lethal Force During OIS Incidents

In this paper, we analyze whether subject characteristics and incident factors predict use of force during OIS incidents. Use of force measures included 1) the number of rounds fired by officers during the incident; 2) the use of less lethal force at any point during the incident; and 3) the number of officers who fired a weapon. Although subject demographics are not significant predictors of police use of force, indications of mental health disorders, the number of officers present, subject firearm possession, and (to a lesser extent) the nature of the precipitating call are significant predictors of police use of force during OIS incidents.

Review

Most researchers measure use of force on a continuous scale or 'use of force continuum'. However, there is disagreement concerning what constitutes police use of force and how force should be measured. When officers use several use of force tactics in a single encounter, many researchers characterize the incident based on the *highest* level of force used by the officer (Terrill & Reisig, 2003; Lawton 2007).

Measuring use of force in this manner ignores other types of force that the officer used in the incident that may be relevant in understanding the context, causes, and correlates of the encounter. Among incidents that involve the use of deadly force, various types and degrees of force are often used, both leading up to the use of deadly force and following it. Characterizing these incidents simply as 'deadly force encounters' ignores the fact that different types of deadly force incidents may be qualitatively distinct from each other. Factors that predict one form of use of force are not necessarily relevant to predicting other types (Bolger, 2015). Yet these issues are a crucial concern to police agencies who wish to improve policy and practice surrounding the use of deadly force.

The use of force literature provides insights about the factors that may influence how much force is used in a police-citizen encounter, and our prior review covers many relevant measures. In this analysis, we have focused on subject characteristics and incident factors as predictors of police use of force. We wished to examine not only how these measures performed in predicting officer use of force during OIS incidents, but also to explore how different variables are related to different types of use of force.

Data

Our ability to understand the causes and correlates of officer-involved shootings is hampered by the availability of detailed data at the national level. This study focuses on the sample of 1,006 OIS incidents provided by MCCA agencies in the United States. Because of missing data in several key measures, the number of cases that could be retained for each set of analyses varies. Appendix A shows the number of cases that were retained in each of the regression models, as well as how these cases compare to the total sample of 1,006 OIS incidents. As Table 1 and Appendix A show, about 57% of OIS incidents were excluded from this analysis due to missing data for one or more of the measures included in the regression models.

Analysis

Negative binomial and logistic regression

were used to predict three forms of use of force. This include:

(1) the count of rounds fired during the incident
(2) whether or not less-lethal tactics were used in the incident[4]
(3) whether one or more than one officer fired their weapon during the incident

Predictor variables consider characteristics of the subjects involved in the incident as well as incident level factors.

Subject characteristics include a binary variable for whether any subject in the incident was armed with a firearm (*firearm possession)*; binary variables reflecting whether any of the subjects involved in the incident were white, black or Hispanic (*white, black, Hispanic* respectively); binary variables indicating whether any of the subjects involved were perceived to have mental health issues (*mental health*) or were under the influence of drugs or alcohol (*drug/alcohol*).

Characteristics of the incident include the number of officers who were present in the incident, including officers who did not fire their weapon (*officers present)*; the precipitating call type (*precipitating call*); whether or not dispatch provided information that the subject on the scene was armed (*dispatch-armed subject*); and the type of location where the incident occurred (*location type*).

Results

Results of the regression models are displayed in Table 1. Results are reported in terms of an incident rate ratio, which is a measure of the percentage change in an outcome that results from a one-unit change in a predictor variable, and an odds ratio, which is a measure of percentage change of the likelihood of an event given a one-unit change in a predictor variable. Five critical findings emerged from these models:

1. Subject possession of a firearm increased the incident rate of rounds fired by 56%, decreased the use of less lethal force by 44%, and increased the odds that more than one officer would fire a weapon by 123%.
2. Each additional officer present at an OIS incident increased the incident rate of rounds fired overall by 9%, increased the odds of the use of less lethal force by 10%, and increased the odds that more than one officer would fire a weapon by 17%.
3. The nature of the precipitating call was a significant predictor of rounds fired during OIS incidents, increasing the incident rate of rounds fired by 49% in the case of violent crimes, relative to 'other' types of precipitating incidents.
4. The odds that an officer would use less lethal tactics increased by 92% when an OIS incident involved a subject with a perceived mental health concern. The incidence rate of rounds fired also decreased by 27%.
5. Compared to "other" premise types, an incident occurring at a commercial building increased the odds of the use of less lethal force by 183%.

[4] We do not include verbal commands in our measure of less-lethal force. Less-lethal force included searching the subject; handcuffing the subject; using arm/wrist lock, takedown techniques, OC spray, baton, Taser or CED; or other tactics.

Table 1 Use of deadly and less lethal force

	Rounds fired IRR (SE)	Less lethal OR (95% CI)	More than one officer firing a weapon OR (95% CI)
Subject firearm possession	1.56*** (1.26, 1.93)	0.56* (0.35, 0.91)	2.23** (1.36, 3.65)
Subject race/ ethnicity – White	1.08 (0.83, 1.41)	0.79 (0.41, 1.53)	1.04 (0.55, 1.99)
Subject race/ ethnicity – Black	0.87 (0.65, 1.15)	0.91 (0.45, 1.88)	0.73 (0.36, 1.5)
Subject race/ ethnicity – Hispanic	0.97 (0.74, 1.27)	0.94 (0.5, 1.79)	1.08 (0.59, 1.98)
Mental health	0.73* (0.56, 0.95)	1.92* (1.07, 3.44)	1.1 (0.59, 2.04)
Drug/alcohol	1.05 (0.79, 1.38)	1.8 (0.99, 3.26)	1.42 (0.77, 2.62)
Number of officers present	1.09*** (1.06, 1.12)	1.1** (1.04, 1.17)	1.17*** (1.1, 1.25)
Precipitating call (Ref = Other)			
Domestic disturbance	1.04 (0.71, 1.52)	1.27 (0.53, 3.02)	1.12 (0.46, 2.71)
Property	0.91 (0.63, 1.32)	0.71 (0.31, 1.62)	0.78 (0.31, 1.98)
Traffic stop	1.38 (0.92, 2.08)	0.8 (0.3, 2.1)	1.19 (0.47, 3.01)
Violent	1.49** (1.15, 1.93)	0.63 (0.35, 1.14)	1.49 (0.83, 2.68)
Dispatch type (Ref = Officer-initiated)			
No information about armed subject	1.06 (0.76, 1.46)	1.91^{t} (0.94, 3.91)	0.88 (0.42, 1.86)
Information about armed subject	0.83 (0.64, 1.06)	0.91 (0.49, 1.69)	0.7 (0.39, 1.26)
Location (Ref = Other)			
Highway, alley, street	0.9 (0.65, 1.24)	1.15 (0.53, 2.51)	0.85 (0.41, 1.74)
Parking lot or garage	1.07 (0.72, 1.61)	0.49 (0.17, 1.41)	1.25 (0.51, 3.04)
Residence or home	0.79 (0.57, 1.11)	1.22 (0.55, 2.69)	0.81 (0.38, 1.7)
Commercial building	0.71 (0.46, 1.07)	2.83* (1.08, 7.44)	0.53 (0.19, 1.43)
More than one location	0.79 (0.53, 1.17)	1.17 (0.46, 2.97)	0.4 (0.15, 1.04)
Constant	4.44 (2.9, 6.79)	0.39 (0.14, 1.11)	0.2 (0.07, 0.56)
N	429	428	436
Pseudo R^2	0.040	0.108	0.114

$^{t}p < 0.10$, *p < 0.05, **p < 0.01, ***p < 0.001

Conclusion

Different variables are relevant to explaining different types of use of force during officer-involved shootings. Our findings suggest that how police use of force is measured needs further refinement; categorizing incidents using the highest level of force employed by the officer may oversimplify police use of force. Future research could consider if similar variations exist among incidents that do not involve deadly force.

Bolger (2015) suggests in his meta-analysis of police use of force that subject mental illness is an important but understudied issue in police use of force research. Our models show that when police perceive that a person has a mental illness, they are more likely to use less lethal force during the encounter, and fired fewer rounds at the subject. These findings underscore the importance of the use of training to improve police recognition and response to symptoms of behavioral health issues. Our findings also imply that police departments could consider applying tactics that police use in those situations to other encounters that may result in police use of deadly force

Situational and Officer Factors and Use of Force during OIS Incidents

Scholars have a long-standing interest in the impact of situational factors and officer characteristics on both police actions during OIS incidents and police use of force more generally. In this paper, we examine the impact of time of day and officer time on shift on police use of force during OIS incidents, while controlling for other important incident factors and incident characteristics.

Review

Our prior review of research surrounding predictors of police use of force and OIS incidents has noted several factors that contribute to use of force by police. Scholars have found that officers' background and law enforcement experience, subject resistance and weapon possession, and the nature of the location where the incident occurred can impact police use of force.

Research about the impact of fatigue on police decision-making is limited. A Department of Justice report that examined the prevalence and potential effects of fatigue among patrol officers in four agencies found significant levels of fatigue among officers. Police officers report that they routinely work more consecutive hours than other public sector servants (Vila, Kenney, Morrison, & Reuland, 2000). While this report was unable to test for significance between fatigue and work-related accidents or injuries due to low numbers, it does report that half of the officers taking a type of fatigue test within two days of an accident or incident tested as impaired. Research in non-law enforcement settings highlights the mental depletion that occurs following consecutive decision-making activities (Baumeister, 2002; Danziger, Levav, & Avnaim-Pesso, 2011). Police officers make multiple decisions at the same time, especially during a potentially violent encounter, and are thus highly susceptible to decision-making fatigue.

Data

As reported above, this study used a sample of 1,605 officers who participated in 1,006 OIS incidents that occurred during 2015, 2016, and 2017. While approximately 67% of incidents involved one officer that discharged a firearm, 33% involved one or more. Although over 1,600 officers are included in our OIS dataset, approximately 600 officers were included in the below analysis due to missing data in several key measures. A summary table of the characteristics of these officers is included in Appendix B.

Analysis

This study used logistic regression models with standard errors clustered by incident to account for the dependencies in data from two or more officers involved in the same incident. Specifically, we examined two outcomes:

(1) Rounds fired (1-3 rounds versus 4 or more rounds)
(2) Whether an officer used less lethal force during an incident (excluding verbal commands)

Officer-level predictors include rank, years of experience as a law enforcement officer, hours on shift before the OIS incident occurred, and whether the officer had ever been involved in a prior OIS incident.

The first incident-level predictor is a binary variable of whether there was only one

officer involved in the incident or more than one. Other incident characteristics include the time of day when the incident occurred (broken into 3-hour blocks), whether the incident was dispatch-initiated (with or without a firearm indicated) or officer-initiated, and location type. Finally, we also created a measure of the highest level of subject resistance that occurred during the incident, including passive/verbal resistance, fleeing, physical resistance, and barricading and initiating a standoff with police.

Excluded from this analysis are several officer demographics commonly included in other types of research examining officer use of force predictors. Officer race and gender were found non-significant. Additionally, while education is often considered an important factor in predicting police use of force (see Bolger, 2015), unfortunately many agencies could not provide officer education measures, resulting in too much missing data to allow for inclusion of officer education variables.

We considered the type of call precipitating the OIS incident, as well as subject demographics such as race and age. These variables were not significant predictors of officer use of force in the officer-level models, and we omitted them from the analyses presented below to reduce problems of model overfitting given our relatively small sample size.

Results

Results of the regression models are displayed in Table 2. Results are reported in terms of an odds ratio, which is a measure of percentage change of the likelihood of an event given a one-unit change in a predictor variable. Five critical findings emerged from these models:

1) Officer rank predicted some types of use of force. When an officer was a corporal or lieutenant, the chance of them using less lethal force increased by 193%. Additionally, detectives were more likely to fire more than 3 rounds by 101%.
2) Having 1 prior OIS incident in the past increased the odds of an officer using less lethal force by 103%.
3) Having more than one officer on the scene and firing increased the odds of an officer firing more than 3 rounds by 232%.
4) Officers were 174% more likely to use less lethal force during the incident if dispatch did not indicate that a subject was armed.
5) Type of location may impact certain officer behaviors. If an OIS occurred at a residence, officers were 52% less likely to fire more than 3 rounds. Additionally, if an OIS occurred at a commercial building, officers were 479% more likely to use less lethal force than in other types of locations.

Table 2 Rounds fired and use of less lethal force during OIS incidents

	Rounds fired OR (95% CI)	Any less lethal force OR (95% CI)
Officer experience (Ref = 0-1 year)		
2-5 years	0.83 (0.22, 1.40)	1.23 (0.61, 2.48)
6-10 years	0.73 (0.37, 1.43)	1.04 (0.51, 2.1)
More than 10 years	0.49[t] (0.23, 1.03)	0.92 (0.43, 1.99)
Rank (Ref = Officer)		
Corporal or Lieutenant	0.55 (0.22, 1.40)	2.93* (1.13, 7.64)
Detective	2.01* (1.03, 3.89)	1.48 (0.48, 4.62)
Other	0.59 (0.21, 1.72)	1.11 (0.37, 3.28)
Sergeant	1.70[t] (0.93, 3.12)	1.21 (0.6, 2.45)
Prior OIS incidents (Ref = None)		
1 prior OIS	1.34 (0.76, 2.39)	2.03* (1.06, 3.88)
More than 1 prior OIS	0.65 (0.27, 1.56)	1.11 (0.39, 3.18)
Hours on shift prior to OIS	0.96[t] (0.92, 1.01)	1 (0.94, 1.07)
More than one officer firing	3.32*** (2.19, 5.01)	0.97 (0.54, 1.75)
Time of OIS incident (Ref = 0:00-2:59)		
3:00-5:59	1.14 (0.48, 2.68)	0.25* (0.08, 0.8)
6:00-8:59	0.63 (0.27, 1.47)	0.57 (0.18, 1.83)
9:00-11:59	1.14 (0.51, 2.56)	0.47 (0.14, 1.62)
12:00-14:59	1.92 (0.78, 4.75)	0.88 (0.29, 2.62)
15:00-17:59	1.05 (0.5, 2.2)	0.39[t] (0.15, 1.02)
18:00-20:59	1.56 (0.75, 3.24)	0.36* (0.13, 0.96)
21:00-23:59	1.26 (0.65, 2.45)	0.68 (0.29, 1.62)
Dispatch: Armed subject (Ref = officer-initiated)		
No	1.08 (0.59, 1.97)	2.74** (1.3, 5.77)
Yes	1.44 (0.9, 2.3)	1.19 (0.6, 2.37)
Type of resistance (Ref = passive/ verbal)		
Attempted to flee	0.86 (0.34, 2.13)	0.93 (0.3, 2.88)
Assaulted or physically resisted officer	1.06 (0.44, 2.55)	2.44[t] (0.85, 7.02)
Barricaded/ initiated standoff	0.6 (0.23, 1.54)	2.39 (0.76, 7.47)
Location type (Ref = Other/unknown)		
Highway/road/alley/street/sidewalk	0.5 (0.27, 0.93)	2.53 (0.95, 6.77)
Parking lot or garage	0.53 (0.25, 1.14)	1.84 (0.56, 6.09)
Residence or home	0.48* (0.25, 0.93)	3.33* (1.26, 8.75)
Commercial building	1.57 (0.6, 4.08)	5.79** (1.71, 19.58)
More than one location type	0.79 (0.4, 1.57)	2.17 (0.65, 7.22)
_cons	1.04 (0.28, 3.80)	0.12 (0.02, 0.62)
N	604	593
Pseudo R^2	0.103	0.113

[t]p<0.10; *p < 0.05; **p < .01; ***p <0.001

Conclusion

Our findings support the relevance of certain officer and incident characteristics predicting police use of force during OIS incidents, and implies that these considerations may be useful for studying police use of force more generally. Several aspects of OIS incidents were significant predictors of police use of force—including

the presence of more than one officer firing a weapon, and the availability of dispatch information about armed subjects. These are to some extent governed by policies and procedures established by police departments. Future research should consider how department policies in these areas relate to differences in police responses during use of force and OIS incidents. Such research may help to identify opportunities for training, deployment, and policy making that may improve police responses during OIS incidents.

Predictors of Subject Fatality and Severe Injury during Officer-Involved Shooting (OIS) Incidents

While police officers cannot avoid the use of deadly force in situations where their life, or the life of another citizen is at risk, police agencies nevertheless have an interest in preventing death whenever possible as the result of an OIS incident. Understanding the circumstances of an OIS encounter that are likely to result in one or more subject fatalities is therefore an important question in OIS research.

While many researchers have studied police use of force generally and OIS incidents specifically, little is known about the factors that increase the likelihood that an OIS incident will be fatal. This paper investigates the contribution of incident level factors, officer use of force, and subject resistance to subject fatality and severe injuries during OIS incidents. Findings show that situational factors and officer use of force are significant predictors of suspect death and serious injury, but subject resistance was not a significant predictor of subject injury or death.

Review

Prior analysis in this paper has shown that police use of deadly force against a subject resulted in subject death in 47.5% of incidents reported by MCCA member agencies between 2015 and 2017 There is limited research about factors that predict subject injury and death during police use of force incidents. As our prior review noted, researchers who have studied subject injury during police use of force incidents have largely focused on use of less lethal weapons, as well as subject motivation and resistance.

More broadly, research has shown that suspect socio-demographic characteristics and situational factors are important predictors of police use of force. Terrill & Mastrofski (2002), for example, found that police are more likely to use force against young male suspects and members of racial and ethnic minority groups. Lee, Zhang, and Hoover (2013) found that premise type impacts police arrest decisions during domestic violence situations, and other researchers have found that the nature of the precipitating call can have an impact on police use of force, in that disproportionate force was more frequently used in less serious calls. Our prior review also highlights the importance of subject weapon possession and resistance in predicting police use of force.

Analysis

This focuses on subject injury and death in a subset of the 1,006 OIS incidents that were reported by MCCA member agencies between 2015-2017. 494 cases were included in this study; these cases included all relevant measures of subject resistance, officer use of force, and situational factors that were used in our regression models[5].

Appendix C shows summary statistics for these measures for both the total sample (N=1,006) and the subset of cases used in the analysis (N=494). As the table shows, the OIS incidents in the sample of eligible cases are very similar to the 1,006 cases in

[5] We also created a set of models including subject demographics, but no subject demographic measures were significant in these models. Subject demographic characteristics were therefore omitted in the current analysis due to sample size and model over-specification concerns.

the main sample in terms of the variables included in this analysis.

Situational factors in these models included the premise type where the incident occurred, the precipitating call, and how the call originated (whether dispatched or officer-initiated). Subject resistance measures included the possession of a firearm, as well as a categorical measure of resistance type. Officer use of force included the total number of rounds fired, the type of weapon used by the officer, and whether any officer used less lethal force during the incident. We used logistic regression to test for the effects of these predictors on two outcomes: 1) the death of any subject during an OIS incident; and 2) the severe injury (excluding death) of any subject during an OIS incident.

Results

Results of the regression models are displayed in Table 3. Results are reported in terms of an odds ratio, which is a measure of percentage change of the likelihood of an event given a one-unit change in a predictor variable. Three critical findings emerged from these models:

1) The nature of the precipitating call may impact subject deaths. The odds of subject death during an OIS incident that was initiated because of a violent crime were 46% lower than subjects in an 'other' type of call. The odds of subject death were also significantly lower by 57% for property crimes. The 'other' category included incidents such as drug crimes, disorder incidents, and warrant services, among others.
2) The odds of subject death are 45% less in incidents in which at least one subject possessed a firearm.
3) The odds of subject death are higher when officers fire more rounds during the incident. The odds that one or more subject died increase 90% when the logged count of rounds increases one standard deviation. Interestingly, when examining only incidents in which at least one subject was injured (excluding deaths), we see that the odds of subject injury *decreased* 33% with more rounds fired – the only significant predictor for subject injury.

Table 3 Subject injury and death during OIS incidents

	One or more subject deaths OR (95% CI)	One or more severe subject injuries (excluding death) OR (95% CI)
Any long gun	1.47 (0.82, 2.62)	0.89 (0.48, 1.68)
Less lethal force	1.24 (0.79, 1.95)	1.32 (0.82, 2.15)
Location type (0 = Other type of location)		
Highway/road/alley/street/sidewalk	0.61 (0.31, 1.19)	1.26 (0.62, 2.56)
Parking lot or garage	0.58 (0.24, 1.4)	1.12 (0.45, 2.76)
Residence or home	1.42 (0.7, 2.89)	0.81 (0.37, 1.75)
Commercial	0.94 (0.38, 2.34)	0.79 (0.29, 2.15)
More than one location type	1.03 (0.44, 2.39)	1.72 (0.48, 2.84)
Precipitating call (0 = Other type of call)		
Domestic disturbance	0.5^{t} (0.22, 1.1)	1.31 (0.58, 2.96)
Property	0.43* (0.2, 0.92)	1.03 (0.49, 2.20)
Traffic stop	0.78 (0.33, 1.84)	0.89 (0.37, 2.12)
Violent	0.54* (0.32, 0.91)	1.04 (0.61, 1.77)
Dispatch: Armed subject (Ref = officer-initiated)		
No	1.36 (0.72, 2.55)	1.34 (0.72, 2.50)
Yes	1.52 (0.9, 2.56)	0.76 (0.44, 1.31)
Subject firearm possession	0.55** (0.36, 0.85)	1.06 (0.69, 1.65)
Subject resistance (0 = Passive/ verbal resistance)		
Attempted to flee	0.64 (0.27, 1.54)	1.51 (0.56, 4.07)
Physical / assaulted officer	0.81 (0.35, 1.87)	1.45 (0.55, 3.81)
Barricaded self / standoff	0.74 (0.29, 1.87)	1.43 (0.49, 4.12)
Total rounds fired by officers (logged)	1.9*** (1.55, 2.32)	0.77* (0.63, 0.94)
Constant	0.64 (0.2, 2.05)	0.31 (0.08, 1.35)
N	494	494
Pseudo R^2	0.109	0.03

$^{t}p < 0.10$, *p < 0.05, **p < 0.01, ***p < 0.001

The finding that subjects were less likely to be killed during OIS incidents that were initiated by a violent crime were in some respects surprising and somewhat counterintuitive. We considered several explanations for these findings. One potential explanation is that police use different types of tactics when responding to violent crime or domestic disturbance calls that reduce the likelihood of subject injury.

Our data have limited information about police tactics during OIS incidents, but does include a measure of the distance between the officer and subject when rounds were fired. Descriptive statistics on the distance between officer and subject when the round was fired as well as data regarding the type of precipitating call for the 389 cases that have these data are reported in Table 4.

As Table 4 shows, the average distance between subjects and officers was greatest for violent crimes (42 feet), domestic disturbances (36 feet), and property crimes (26 feet), and smallest for traffic stops. This means that officers were on average further away from subjects during these types of

calls when they discharged their weapon. There may be many reasons for this greater distance—for instance, it may be more likely that a victim or other disputant was present during these incidents whom the subject could threaten, leading officers to attempt to shoot the subject from further away. Or, those incidents may make officers feel that they are at greater risk, making them more likely to stay farther away from the subject.

Our data cannot shed light on the specific tactical considerations that lead certain types of OIS incidents to be more or less fatal or injurious, but do suggest that police agencies could consider whether the tactics used by officers in those situations could be applied to other types of OIS incidents.

Table 4 Distance in feet between subjects and officers

	Mean	Median
Domestic (n = 33)	35.97	15
Other crime (n = 121)	23.14	15
Property crime (n = 34)	25.67	13.5
Traffic stop (n = 28)	17.39	11.5
Violent crime (n = 173)	41.72	20

Conclusion

This paper shows that the situation surrounding an OIS incident, as well as the number of rounds that an officer fires during the incident, are significant predictors of severe subject injury and death during these incidents. Also, that tactical decisions about when police fire their weapons may be linked to these differences in subject injury and death outcomes. Police executives and professionals should continue to review OIS cases internally and interview officers to understand how police responses during these different types of scenarios lead to differences in OIS outcomes.

Our findings are among the first to shed light on how situational and officer behavior factors contribute to injury and death of subjects, and we will continue to refine these models as new data become available. We hope that this study will generate interest in research on subject injury and death during OIS incidents. While police use of deadly force is unavoidable in some situations, further research in this area may identify avenues for policy and training that will reduce injury and loss of life.

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CRITICAL ISSUE REPORT #2: PROGRESS OF OIS INCIDENTS REPORTED BY MAJOR CITIES CHIEFS ASSOCIATION AGENCIES, 2015- 2017

Introduction

As the previous report noted, prior studies of Officer Involved Shooting (OIS) incidents have examined how situational factors, subject characteristics, and officer background impact OIS outcomes. However, a lack of detailed data on OIS incidents has limited the ability of researchers to examine how these events proceed from the beginning of the call to the end of the incident. This paper focuses on describing how these incidents progress from the initiation to the close of the call.

We present findings in two phases. First, we present descriptive results that trace the progress of incidents from the initiation of the call to key OIS outcomes. Second, we test the salience of incident factors in predicting these outcomes using regression analysis. In contrast to the regression models that we examined in the previous report, we are concerned here with understanding how subjects' and officers' actions during OIS incidents predict key incident outcomes.

The outcomes examined in this report are officer injury and subject death. These outcomes are analyzed at the incident level. Thus, the measure of subject resistance in this report refers to the 'highest' or most intensive level of subject resistance, officer injury is indicated when one or more officers are injured, and subject death refers to cases where one or more subject is killed during the course of the incident.

This report measures officer injury at the incident level, distinguishing any incidents in which at least one officer was injured. We used a very broad measure of officer injury, including cases where an officer received minor injuries such as scrapes, bruises, or sprains, cases where officers were severely injured and required hospitalization, and cases where an officer was killed during the incident.

We also focus on subject death as a result of OIS incidents. This measure distinguishes between cases when one or more subjects was killed, and cases where no subject was killed. Our analysis is presented in the next section.

Officer Injury

Officer injury is a key outcome of interest in OIS incidents. We considered three key issues concerning the sequence of events leading to an officer injury. First, we wished to examine whether the initiating event type impacts the proportion of officers injured during OIS incidents. Second, we also considered whether officers are more likely to be injured during the course of an officer-initiated incident compared to a citizen-initiated call. Third, we examine the impact of subject weapon possession on officer injury.

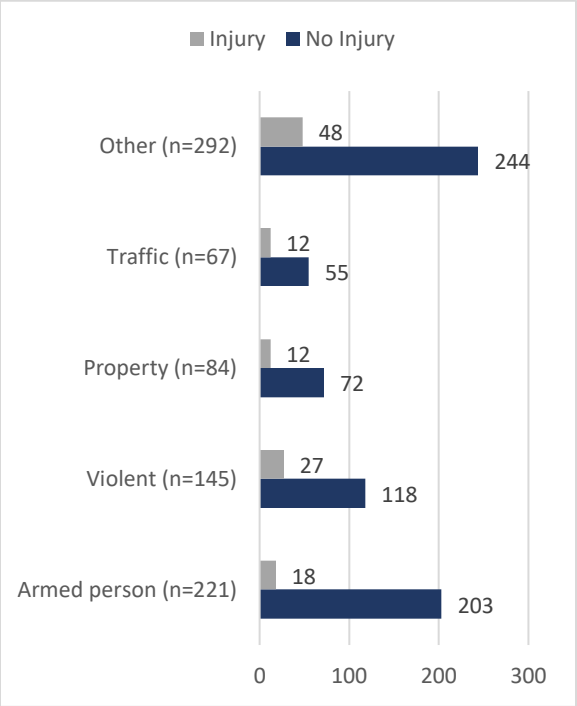
Do some types of initiating events more commonly lead to officer injury than other types of initiating events?

Figure 3 provides a breakdown of call types and officer injuries. 'Other' and armed person calls account for the majority of incidents, while 'other' and violent calls account for the majority of incidents in which an officer was injured (48 and 27 incidents, respectively). While less frequent than any other call type, traffic calls had a relatively high *percentage* of officer injuries

(17.9%), second only to violent calls (18.6%).

Armed person calls account for a relatively large number of incidents, but a small *percentage* of these cases resulted in an officer injury (8.14%). This was the smallest percentage of any call type. For property crime calls, officer injury cases account for 14.29% of all incidents.

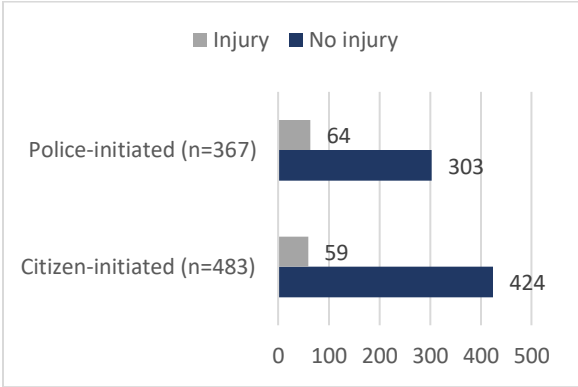
Figure 3 Officer injury by call type



Does initiation method (officer vs. citizen) impact officer injury during OIS incidents?

Next, we examine whether one or more officers are likely to be injured during an officer or citizen-initiated incident. 483 incidents were citizen-initiated (about 55%), and 367 were officer-initiated. Overall, a larger number of officer-initiated incidents (64) resulted in an officer injury than citizen-initiated incidents (59). While 17.4% of officer-initiated incidents resulted in officer injury, 12.2% of citizen-initiated resulted in officer injury. Thus, the method of call initiation is consequential for officer injury outcomes. Figure 4 shows the count of officers injured during OIS incidents by type of initiating call.

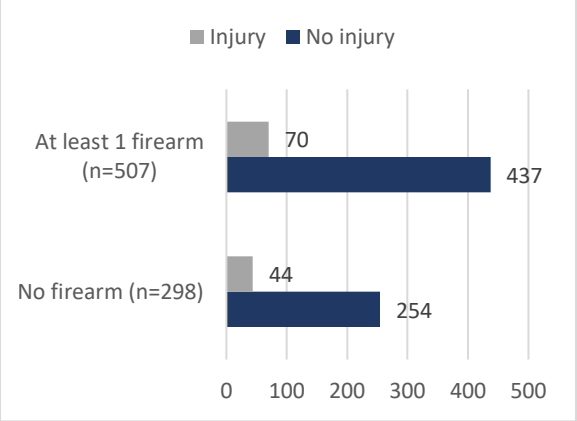
Figure 4 Officer injury by call initiation



Does subject firearm possession differ in incidents that result in an officer injury?

Officers were injured in 13.8% of cases when at least one subject had a firearm and 14.7% of OIS incidents when no subjects had a firearm. These figures are less surprising when considering that the number of incidents in which at least one subject had a firearm is much higher than incidents in which subjects do not possess a firearm (298 vs 507). Unsurprisingly, the majority of officers who *were* injured, were injured following an encounter with a subject who had a firearm (61.4%). Figure 5 shows the count of these incidents. As the figure shows, one or more subjects possessed a firearm in the majority of cases (63.1%).

Figure 5 Officer injury by subject weapon possession



These basic descriptives show that police seem to be injured in a larger percentage of OIS incidents that result from violent crimes, and 'other' crime types, when incidents are officer-initiated, and when at least one subject is armed with a firearm.

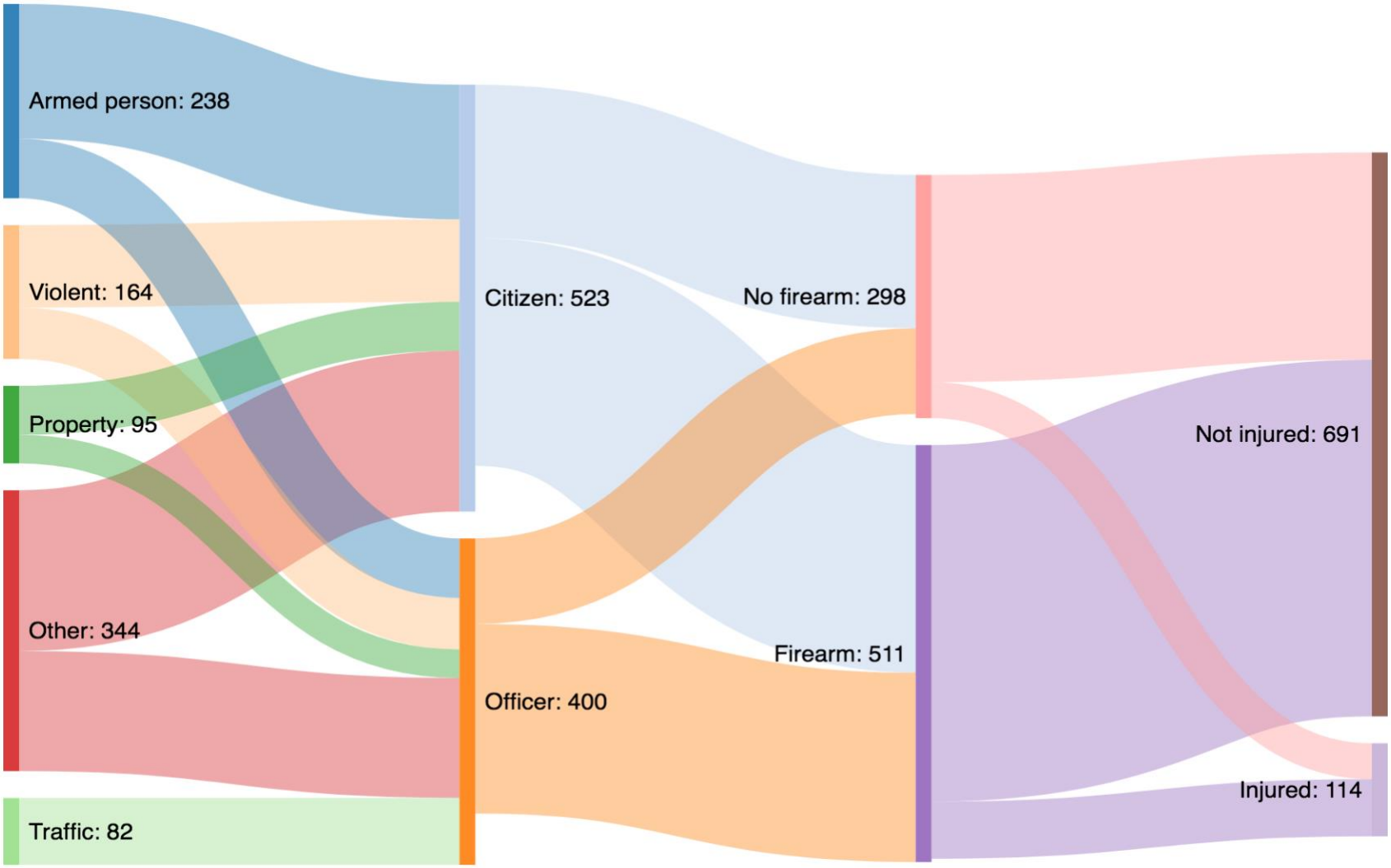
These figures suggest differences in the risk of officer injury for different types of OIS incidents. In order to address key questions about how OIS incidents unfold from beginning to end, we developed a series of alluvial diagrams to illustrate the progression of cases with and without officer injuries from initiation to end.

It should be noted that the following diagram only includes data for incidents in which none of the relevant variables were missing. Thus, our data allow us to analyze the series of events leading to an officer injury in only 805 cases (meaning that initiating call, weapon, and injury data were all available). At least one officer was injured or killed in 14% of these 805 incidents. Figure 6 shows an alluvial diagram of the OIS incidents described in the above section. In this figure, case bands are colored according to their source. The alluvial diagram allows the intersections between the effects of call type, contact, and firearm possession on officer injury outcomes to be depicted.

As we might expect based on the initial descriptives, a large proportion OIS incidents where officers were injured involved 'other' incidents that were officer-initiated. These incidents account for 147 of the 805 cases in the sample (18%). One or more officers were injured in 29 of these officer-initiated 'other' incidents, or about 25% of officer injury cases overall. This was true even though subjects were not more likely to be armed with a firearm during these types of incidents. Violent, citizen-initiated calls are another relatively large subgroup that accounted for 9 cases where one or more officer was injured.

In contrast to the above two incident categories of incidents (violent and 'other'), armed person calls were less likely to result in officer injury as a result of OIS incident. Although armed person incidents comprise 25.43% of OIS incidents as a whole, they only account for 15.38% of cases when officers were injured.

Figure 6 Officer injury during OIS incidents



Analysis

Finally, we developed a regression model predicting officer injury on the basis of the incident factors. We included call type and subject weapon possession in these models but excluded the method of call initiation because of its close correspondence to call type—for instance, no traffic stops were citizen-initiated in this dataset.

Logistic regression was used to predict officer injury. Predictor variables considered call type, subject possession of a firearm, number of officers on scene, whether a single officer on scene fired a weapon, whether there was more than one subject, types of subject resistance, and whether the incident was officer-initiated. Appendix D shows summary statistics for these measures for both the total sample (N=1,006) and the subset of cases used in the analysis (N=524).

Table 5 shows the result of the regression analysis. One caveat with these models is that officer injuries are relatively rare events during OIS incidents, and our models may therefore lack the statistical power to detect effects that are present. For that reason, we discuss effects as statistically significant even though they are significant at only the $p < 0.10$ level.

As Table 5 shows, incident factors included in this analysis explain about 5.6% of the variance in officer injury outcomes. Call types indicating an armed person significantly predicted lower officer injuries than 'other' call types, as did traffic incidents. The number of officers on scene was a significant predictors of officer injury during an OIS incident at the 0.10 level, as was type of subject resistance.

The odds of an officer injury were about 57% lower in armed person call, and 77% lower for traffic incidents. The odds of an officer injury were decreased by 43% in cases when there was more than one officer on scene. Lastly, the odds of an officer injury were 73% higher for incidents in which the type of subject resistance was "attack", compared to passive resistance.

Table 5 Incident factors predicting officer injury

	Odds ratio (95% CI)
Type of call (0 = Other)	
Armed person (1)	0.43* (0.20, 0.93)
Violent (2)	1.18 (0.62, 2.28)
Property (3)	1.16 (0.51, 2.64)
Traffic (4)	0.23t (0.05, 1.03)
Subject possessed a firearm	1.15 (0.66, 2.01)
>1 officer on scene	0.57 t (0.30, 1.10)
Single officer fired a weapon	0.78 (0.42, 1.47)
More than one subject	0.99 (0.54, 1.80)
Resistance (0 = passive/ escape)	
Attack (1)	1.73 t (0.96, 3.14)
Barricade (2)	0.84 (0.34, 2.08)
Officer-initiated	1.19 (0.69, 2.07)
N	524
Pseudo R^2	0.056

t p < .10; *p < .05; **p < .01; ***p < .001

We will discuss the implications of these models more fully following the next section, which focuses on subject death during OIS incidents.

Subject death

Subject death was a second key outcome of interest for our OIS incidents. Overall, about 44% of the incidents we examined resulted in a subject death where data was provided. Again, we are limited to incidents in which all relevant data is provided; our data allow for an initial descriptive analysis in 793 cases that contain sufficient information on relevant predictors of this outcome.

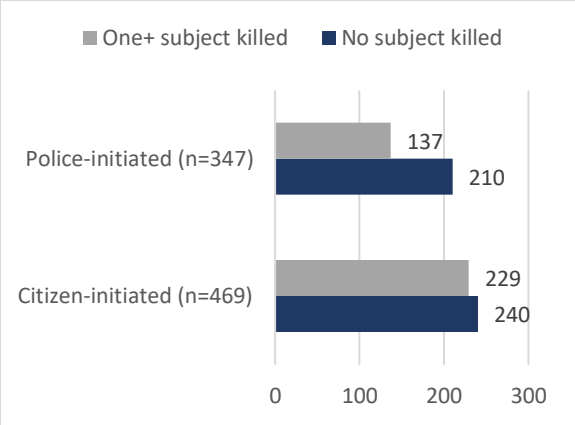
Factors that predicted subject death differed from those that predicted officer injury, and in this section, we focus on the manner of call initiation, whether or not an incident involved a pursuit, and whether a single officer fired a weapon (as opposed to multiple officers firing) as predictors of subject death during OIS incidents. Similar to the examination of officer injury, we narrowed our focus on a few key questions when examining subject death during OIS incidents.

How does the manner of call initiation relate to the subject death during an OIS incident?

We first considered the relationship between call initiation and subject death during an OIS incident. As previously noted, the majority of OIS incidents in our sample were initiated by citizens. Figure 7 shows the frequency of police and citizen-initiated calls, split by the frequency of subject death in both groups.

Overall, 55.2% of incidents were citizen-initiated. In general, subjects in citizen-initiated OIS incidents were more likely to be killed than subjects in officer-initiated incidents. That is, citizen-initiated calls resulted in the death of one or more subjects in an OIS incident in 48.8% of cases, as compared to the 39.5% of officer-initiated calls. This is a direct contrast to our previous findings on officer injury outcomes, which shows that police are slightly more likely to be injured in officer-initiated OIS incidents than citizen-initiated incidents.

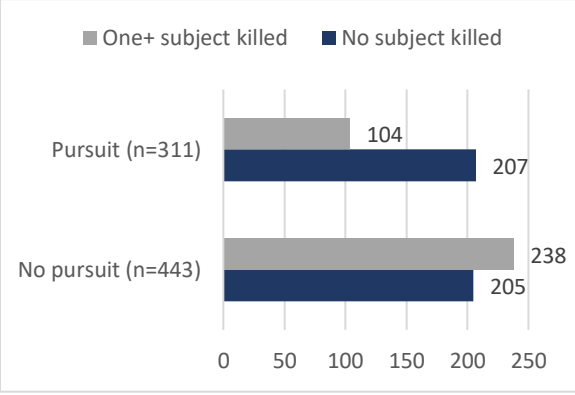
Figure 7 Subject death by method of initiation



Are subjects more likely to be killed during incidents that involve a foot or vehicle pursuit?

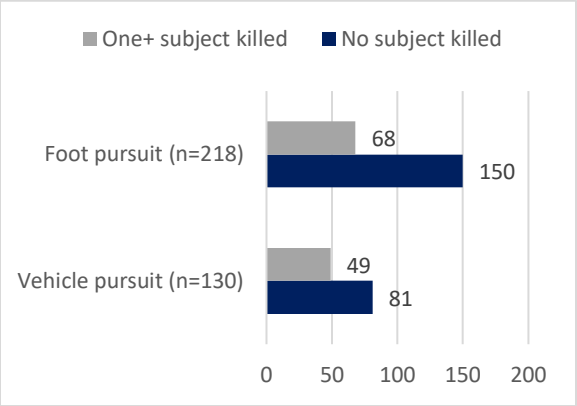
The percentage of subjects who were killed during an OIS incident also varied for cases that did and did not involve a subject pursuit. As Figure 8 shows, 33.4% of incidents involving a foot or vehicle pursuit resulted in one or more subject deaths. This compares to incidents that did not involve a pursuit; 53.7% of these incidents involved the death of one or more subjects.

Figure 8 Subject death and police pursuits in selected OIS incidents



We also examined subject death broken out by type of pursuit. Figure 9 provides this data. Approximately one-third of incidents with a foot pursuit resulted in at least one subject fatality, and one-third of incidents with a vehicle pursuit resulted in a subject fatality. It should be noted that these pursuit types are not exclusive of one another; 45 incidents included both types of pursuit.

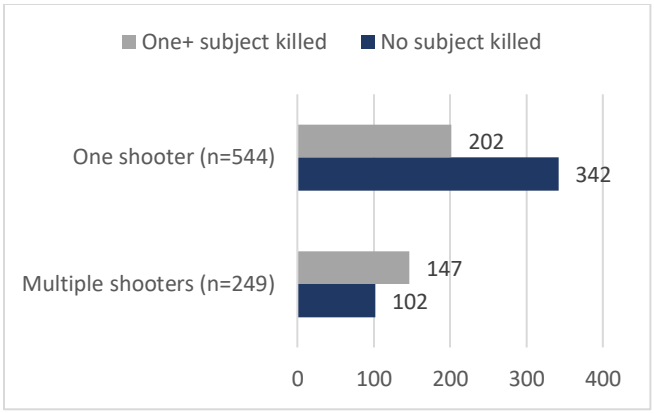
Figure 9 Subject death and pursuit type



Does the number of officers who fire a weapon on the scene have an impact on subject death?

Finally, we also examined differences in subject death outcomes in OIS incidents where a single officer (as opposed to multiple officers) fired on the subject(s) in Figure 10. Overall, the majority of OIS incidents involved a single officer firing a weapon (70%). One or more subjects was killed in 37.1% of these cases. While more incidents with a single shooter resulted in subject death, examining percentages paints a different picture. Subjects were far more frequently killed in incidents where multiple officers discharged their firearms, with 59% of these incidents resulting in the death of one or more subjects compared to 37% of incidents with one shooter resulting in subject death.

Figure 10 Subject death and number of officers firing



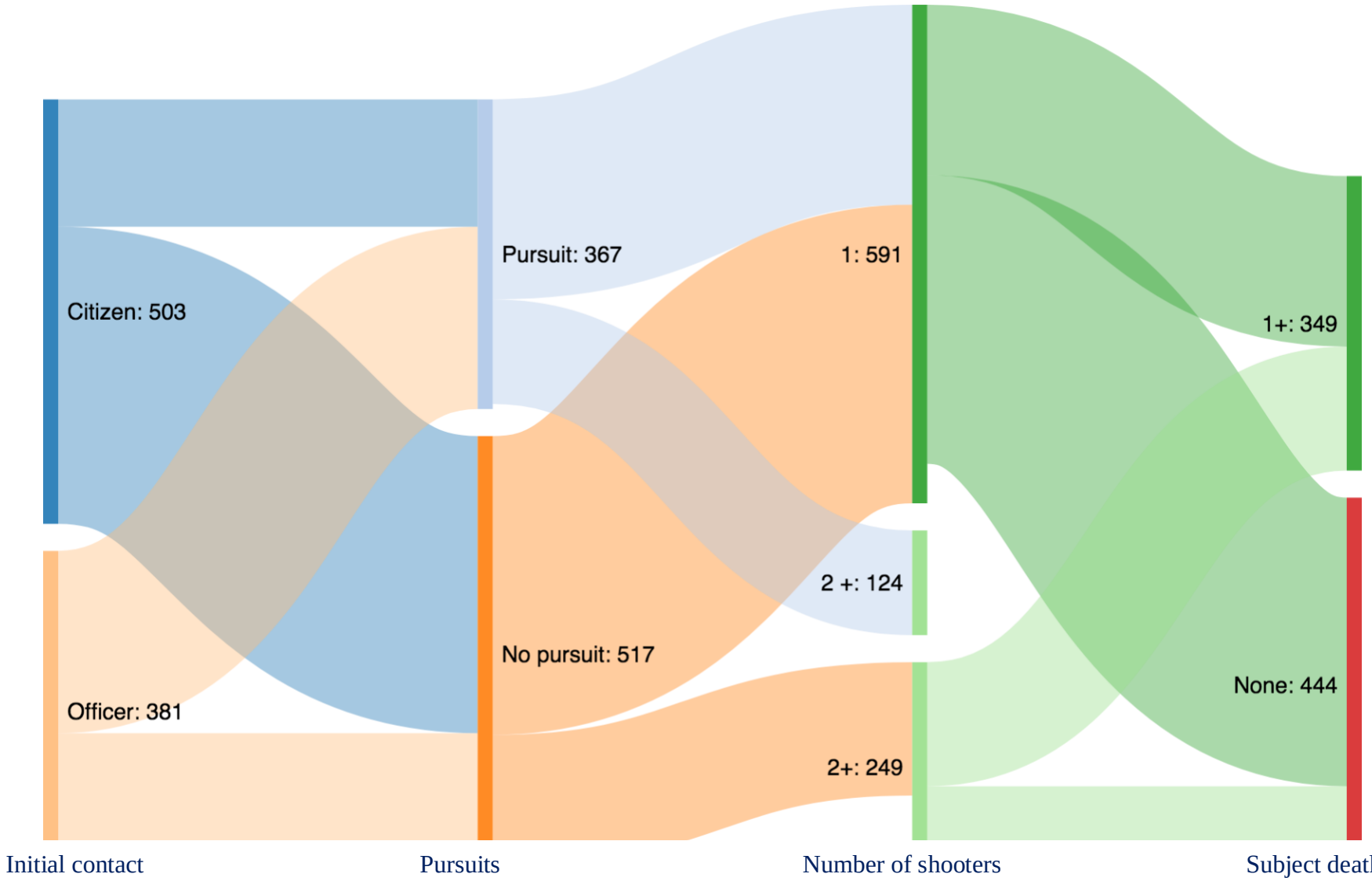
An alluvial diagram was again used to illustrate differences in subject death outcomes by case characteristics (Figure 11). Again, this diagram helps us to trace the flow of events during an OIS incident and understand how prior conditions impact incident outcomes.

Tracing the flow of incidents from initiation to subject death or survival, we begin with the observation that a smaller percentage of citizen-initiated calls resulted in a pursuit than do officer-initiated calls (30% vs. 56.7%). Overall, pursuits that result from citizen-initiated incidents involved multiple shooters at a similar percentage of cases as officer-initiated incident pursuits (36.3% vs 33.6%), and the incidence of subject death are slightly higher in citizen-initiated pursuit cases overall (36.9%) than officer-initiated pursuit cases (30.3%). This is consistent with overall trends in subject death showed by the basic descriptives in that citizen-initiated calls are generally more likely to result in death than officer-initiated calls.

The diagram also allows us to more closely consider the link between pursuit and subject death outcomes, and whether these effects are conditioned in some way by the presence of multiple shooters as compared to single shooters. The previous section noted that subjects were killed in a higher

percentage of cases that involved no pursuit as compared to those that involved a pursuit, and that incidents with multiple officers firing were more likely to result in subject death than incidents with a single officer firing. Unsurprisingly, a small percentage of incidents result in a subject death when a single officer pursues a subject (25.6%), whereas a multi-officer pursuit case results in a subject death in 45.7% of cases. However, non-pursuit incidents involving a single officer are just as fatal (45.9%). Lastly, multi-officer cases that do not involve a pursuit result in a subject death 69.1% percent of the time.

Figure 11 Alluvial diagram of subject fatalities



Analysis

Lastly, we used a regression model to assess the salience of incident factors for predicting subject death outcomes. Table 6 shows results of this analysis. Given the importance of the source of initial contact for predicting subject death outcomes that we observed in our analysis so far, we wished to include this variable in the model. However, there are no citizen-initiated traffic stop incidents, which introduces a strong multicollinearity concern, and so we excluded traffic stop incidents from the analysis that we present.

Logistic regression was used to predict subject death. Predictor variables considered call type, whether the contact was citizen-initiated, subject possession of a firearm, whether there was more than one officer on scene, whether a single officer fired a weapon, types of subject resistance, and pursuit types. Appendix E shows summary statistics for these measures for both the total sample (N=1,006) and the subset of cases used in the analysis (N=474).

As Table 6 shows, several predictors of subject death outcomes that we have discussed so far are statistically significant when other aspects the incidents are accounted for. For instance, the odds of a subject dying following an OIS incident are 152% (note: $p < .10$) higher in citizen-initiated incidents as compared to officer-initiated incidents.

The odds of subject death are 55% lower for incidents resulting from a property call for service, and the odds of a subject death during an OIS incident are 54% lower in incidents that involve a foot pursuit.

The odds of a subject death are 78% lower in incidents where a single officer fired a weapon as compared to incidents where multiple officers fired. Interestingly, the odds of subject death are 43% lower in incidents in which a subject possesses a firearm.

Overall, the model explains about 11% of variance in subject death outcomes.

Table 6 Incident factors predicting subject death

	Odds ratio (95% CI)
Type of call (0 = Other)	
Armed person (1)	0.73 (0.45, 1.20)
Violent (2)	0.89 (0.52, 1.53)
Property (3)	0.45* (0.22, 0.93)
Citizen-initiated contact	1.52[t] (0.97, 2.37)
Subject possessed a firearm	0.57* (0.37, 0.88)
Officers on scene	0.75 (0.44, 1.28)
Single officer fired	0.22*** (0.14, 0.36)
More than one subject	0.88 (0.55. 1.43)
Resistance (0 = passive/ escape)	
Attack (1)	1.13 (0.70, 1.81)
Barricade (2)	0.97 (0.53, 1.78)
Vehicle pursuit	1.13 (0.55, 2.30)
Foot pursuit	0.46* (0.27, 0.77)
N	474
Pseudo R^2	0.111

[t] $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Conclusion

Our focus in this report has largely been on describing the flow of events during OIS incidents more fully than has been possible in previous research. We think that this work has promise for both practice and future research in this area. For instance, our

findings show that police are injured less often in armed person calls than ‘other’ calls for service. As we have noted in other papers based on this data, these differences may occur because police are better equipped to defend themselves if they are aware that a subject is armed before an encounter begins and go into armed person encounters with the expectation that the subject may pose a lethal threat to their safety.

Our findings also imply that different factors are in play in determining officer and subject safety outcomes during OIS incidents. For instance, one might expect that both officers and citizens are at significantly higher risk of injury or death in certain types of incidents, such those that involve a foot or vehicle pursuit. Yet foot pursuits were associated with a significant decrease in the likelihood of a subject dying during an OIS incident.

Having more than one officer on the scene was associated with a significant decrease in an officer being injured, providing implications for policy regarding certain call types as well. However, due to the low number of officer injuries in our dataset, additional research is needed with complete data to provide a more comprehensive picture of the situational factors leading to various outcomes of injury and death.

CRITICAL ISSUE REPORT #3: DEPARTMENT RESPONSE TO OIS INCIDENTS REPORTED BY MAJOR CITIES CHIEFS ASSOCIATION, 2015-2017

Introduction

Following an OIS incident, agencies may carry out two types of investigations – one administrative, and one criminal. Our OIS data collection tool captures information about the results of administrative investigations and the organizations carrying them out.

We present descriptives relating to how departments respond to these incidents in two ways. First, the type of agency review, and variations in reviews conducted. We then discuss administrative actions taken by agencies. Additional information regarding incident and officer characteristics relating to types of review and actions will be presented.

How do police departments respond to officer-involved shootings?

Police use of deadly force is a contentious topic in policing—while officers have the right and even the obligation to use deadly force in certain situations, the use of deadly force produces tension with the sanctity of life philosophy. As such, the use of deadly force has been described as the most critical decision law enforcement officers will make in their careers. Officers have the responsibility to use deadly force in ways that align with the law and departmental policy.

Following an OIS incident, agencies carry out an investigation to review the facts of the case and determine whether an officer's use of force was aligned with department policies. Our officer-involved shooting survey captures information about this review process and the results of these investigations. The analyses that follow investigates the departmental responses to 1,605 officer actions involving the use of deadly force.[6] Topics include the type of reviews that are commonly conducted following an OIS incident and the circumstances surrounding deadly force encounters that result in a department finding that improper use of force occurred.

Agency Review (Internal vs External)

Law enforcement agencies have policies that require all incidents involving the use of deadly force be reviewed.[7] Criminal investigations are intended to determine whether the officer violated the law or if criminal charges should be filed against the officer. An administrative review is used to determine if the officer violated department policy during the incident. Administrative reviews can be done internally using police staff from Internal Affairs, Special Investigations or the Homicide unit (IACP, 2016). These investigations could also be done by external agencies such as a neighboring police jurisdiction, the state, or a citizen review board.

We reviewed cases to determine the prevalence and type of review that typically followed an OIS incident.

[6] Of the 1,605 officers, 42% were the only officer firing at the scene, and 15% of the officers were the only officer present at the scene.

[7] http://useofforceproject.org/database/

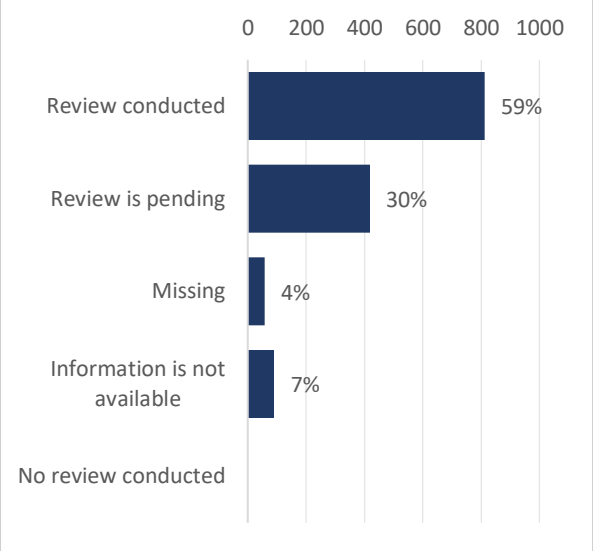
Did the agency review the officer's behavior for compliance with departmental policy and state or local laws?

Our OIS survey instrument includes a question about whether officer behavior was reviewed for compliance with relevant departmental policy and state or local laws.

Survey Question
Did your department or an external organization review this officer's action for compliance with relevant departmental policy, and state or local laws? ○ Review conducted ○ No review conducted ○ Review is pending ○ Information unavailable

Responses are provided in Figure 12 (n=1,379). For all of the 1,605 officers who used deadly force in our sample, zero agencies indicated that a review was not was conducted following the shooting incident. All survey responses indicated either a review was conducted, a review is pending, or information about the review process is not available. In about 5% cases, this question was skipped, and no information was provided.[8]

Figure 12 Was a review conducted?



What type of review was conducted?

Our survey requested information about the type of review that was conducted—whether it was an internal investigation or whether it involved an external agency—external agencies included citizen review boards or other city/county agencies.

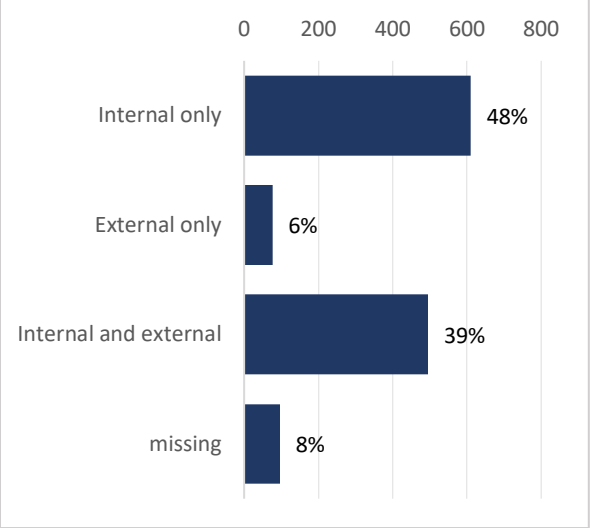
Unfortunately, agencies reported this information inconsistently. The type of review conducted was skipped 8% of the time.[9] Figure 13 provides responses to this question (n=1,277).

Survey Question
Who carried out the review? (Select all that apply) ○ Internal staff or investigatory units ○ External agency ○ Other: Please describe: _____

[8] We excluded four agencies from this analysis since they did not provide sufficient information about the department response to these incidents. The figure indicating 4% of missing data does not include cases reported by those five agencies. Collectively, 225 officers were involved in an OIS encounter in those agencies.

[9] This figure does not include cases reported by five agencies who chose not to report this information for any of the OIS incidents they submitted.

Figure 13 Type of review conducted



Among cases where this information was reported, we find that the actions of officers who use deadly force are reviewed by an external agency about 48% of the time (either internal only or external and internal); the remaining cases were reviewed only by internal staff or investigatory units.

Interestingly, although just about half of officer actions are reviewed using an external review, our findings indicate agencies *rarely* rely exclusively on external reviews; only 6% of cases were only reviewed through an external process. Instead, it appears agencies are more likely to use an internal review process or use external reviews to complement or supplement/give credibility to an internal investigation.

We investigated whether or not the decision to use an external review is driven by agency level factors or policies. This was accomplished by comparing the type of review used within each participating agency. These results are described next.

Agency variations in type of review

We found that many agencies appear to review officer behaviors in deadly force encounters using the same review process. When examining officer-level use of force responses, eight agencies use only internal reviews for every instance, and another nine agencies always use *both* internal and external review. Interestingly, no agencies indicated through these reports that officer actions are subject to external review in every case. These agencies may have policies in place that mandate a specific type of review process for all officers who discharge their weapon.

Many agencies appear to primarily rely on an internal review process (primary method defined as 78% or more of cases used internal reviews). Table 7 provides information about how agencies conducted their reviews.[10] Agency #1, for instance, used an internal review process for 79% of the officers who use deadly force; however, 21% of the officers in this agency underwent both internal and external reviews. Agency #18, on the other hand, appears to primarily use external reviews (87.5% of all officer reviews were external reviews), and only rarely conducts an internal review (12.5% of reviews were internal).

We found many agencies who consistently use both internal and external reviews following an OIS. Agencies #21 - #29 use both internal and external reviews for 100% of cases, and several others clearly use both types of reviews predominantly. Although there do appear to be some exceptions, these agencies generally appear to consistently use both types of review processes.

[10] This table only reflects agencies that provided information about officer reviews

Finally, we also identified many agencies that appear to exhibit variation in the type of review that was implemented to review the officer's actions (Agencies #35 - #42).

Table 7 Agency reviews

Agency	# officers reviewed	External only	Internal and External	Internal only
Primarily internal				
Agency #1	14	0%	21.43%	78.57%
Agency #2	28	0%	3.57%	96.43%
Agency #3	49	0%	2.04%	97.96%
Agency #4	6	0%	16.67%	83.33%
Agency #5	158	1.27%	1.27%	97.47%
Agency #6	12	0%	25%	75%
Agency #7	20	0%	25%	75%
Agency #8	26	7.69%	3.85%	88.46%
Agency #9	9	0%	11.11%	88.89%
Agency #10	41	0%	0%	100%
Agency #11	14	0%	0%	100%
Agency #12	12	0%	0%	100%
Agency #13	38	0%	0%	100%
Agency #14	1	0%	0%	100%
Agency #15	2	0%	0%	100%
Agency #16	43	0%	0%	100%
Agency #17	32	0%	0%	100%
Primarily external				
Agency #18	16	87.50%	0%	12.50%
Agency #19	31	61.29%	3.23%	35.48%
Agency #20	12	75%	25%	0%
Primarily both internal and external				
Agency #21	55	0%	100%	0%
Agency #22	73	0%	100%	0%
Agency #23	18	0%	100%	0%
Agency #24	18	0%	100%	0%
Agency #25	19	0%	100%	0%
Agency #26	23	0%	100%	0%
Agency #27	6	0%	100%	0%
Agency #28	2	0%	100%	0%
Agency #29	2	0%	100%	0%
Agency #30	26	0%	96.15%	3.85%
Agency #31	28	0%	78.57%	21.43%
Agency #32	36	0%	80.56%	19.44%
Agency #33	43	9.30%	83.72%	6.98%
Agency #34	65	16.92%	76.92%	6.15%
Mix across incidents				
Agency #35	34	0%	52.94%	47.06%
Agency #36	8	0%	50%	50%
Agency #37	42	0%	30.95%	69.05%
Agency #38	42	0%	30.95%	69.05%
Agency #39	12	0%	66.67%	33.33%
Agency #40	43	0%	48.84%	51.16%
Agency #41	24	0%	70.83%	29.17%
Agency #42	16	0%	37.5%	62.5%

We do suspect our points of contact within each agency may be interpreting this survey question differently, or may be unclear about what is meant by 'external review'. It is also possible the person answering the survey did not realize they could select more than one option when answering this question (although, this is unlikely since the question clearly stated more than one option could be selected), or they simply were not aware of the external review that took place. It is also possible the external review was conducted after the survey was submitted and the respondent never went back to update the record.

Many researchers have found evidence that administrative actions and policies at the organization level can reduce police use of deadly force. Lee and Vaughn (2010) concluded that managerial principals and administrative policies are related to police use of deadly force. Similarly, Fyfe (1979) found that restrictive guidelines and procedures at the agency level may have reduced the frequency of deadly force incidents in New York City. Furthermore, Milton and colleagues (1979) found significant variation in deadly force policies and rates of shootings across agencies. Together, these findings suggest agency responses to these incidents may vary, and that agency level characteristics can be used to explain deadly-force encounters to some extent.

Types of actions taken

The OIS survey included one question that allows us to compare the different types of agency responses to these incidents. As a result of the internal or external review process, a number of agencies were able to provide information about any administrative or disciplinary actions taken against the officer who used deadly force.

Survey Question
Did this officer receive any of the following administrative or disciplinary actions as a result of this incident? (Select all that apply) o No action o Non-disciplinary training to ensure continued compliance with policy and law, or to improve future outcomes o Review is ongoing o Incident referred for further investigation o Disciplinary action o Counseling or mental health services o Temporary assignment to other duties o Other: please describe: _____

This current section focuses on specific actions taken for officers following an OIS incident. These actions can include any combination of non-disciplinary training, counseling or mental health services or temporary assignment to other duties. In many instances, more than one type of action was taken.

Counseling

For officers in which data on actions taken was provided, 17% received counseling or mental health services. While many departments require officers involved in a fatal use of force incident to meet/debrief with a psychologist or psychiatrist, a smaller number of officers receive follow-up counseling.

A report by the International Association of Chiefs of Police recognizes that officers react to these traumatic events in different ways and that agencies and their staff should be prepared to help officers cope with these events (IACP, 2016). Counseling and mental health services are one such coping method. Among officers who received counseling services, most of them were involved in a fatal OIS incident. Of the 214 officers who did receive counseling, 61% of them were involved in an incident where at least one subject was killed. Counseling was less frequent among officers who were involved in incidents that did not involve fatalities.

Non-disciplinary training
9% of officers received non-disciplinary training. After reviewing a number of case studies that showed success in reducing excessive use of force, many researchers have concluded that training is effective in reducing force in police-citizen encounters (Prenzler et al., 2013). For instance, in one agency, a three-day training program to improve 'dispute resolution' tactics was found to reduce the amount of force officers used. Specifically, officers who received the training used 25% less force in incidents compared to the amount of force they used before the training (Klinger, 2010). Other agencies have also linked training programs to reductions in use of force.

Temporary assignment
14.7% of officers received temporary assignment to other duties.

Disciplinary action
For officers in which review actions were provided to us, nineteen officers (1%) received disciplinary action of some sort.

Multiple actions
Departmental responses to these events are not mutually exclusive. In many cases, officers received more than one type of action—counseling plus non-disciplinary training, for instance. In fact, 16% of officers received multiple actions.

No specific action taken
For officers in which data on actions taken was provided, 40% received no specific action. Officer-involved shooting incidents can trigger extreme emotional responses, as highlighted by the COPS office Officer-Involved Shooting Guide for Law Enforcement. It is important that officers feel supported during this time. The emotional toll these stressful incidents have on officers is depicted in a recent documentary *Officer Involved* (Shaver, 2017). In this film, officers reported feeling isolated and unsupported by their department in the aftermath of a shooting.

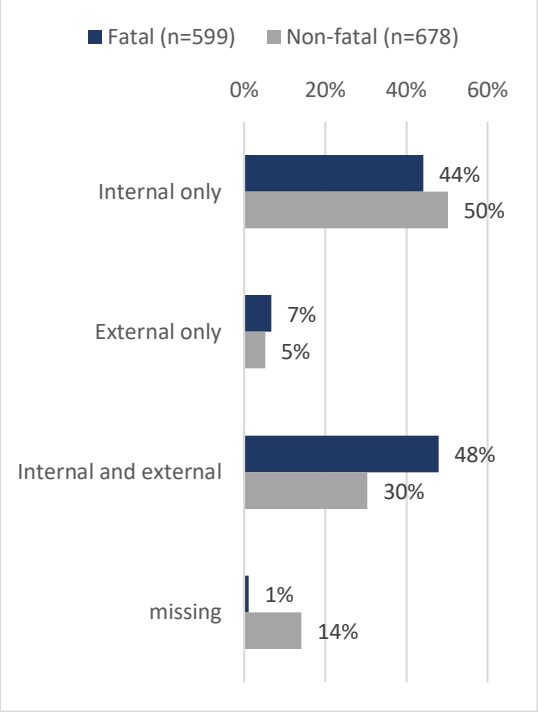
Administrative actions following an officer-involved shooting varies, both across and within agencies. An agency level comparison reveals this variance is more common in some agencies compared to others. While some agencies appear to mandate counseling, reassignment, or non-disciplinary training following an OIS, other agencies rarely take these actions.

Incident characteristics

In reviewing a sample of agency policies on use of force review processes, we most commonly found that OIS incidents that occur within a jurisdiction are reviewed using the same process. For instance, one agency mandates that all officer-involved shooting incidents be immediately reported to the District Attorney's office.

We reviewed how subject fatalities influence the type of review that was conducted (see Figure 14, n = 1,286). Fatal incidents were slightly more likely to involve some type of external review process compared to non-fatal incidents. Officers who fired in fatal OIS incidents were reviewed by an external agency 55% of the time (7% external + 48% internal and external). This compares to just 35% of non-fatal shootings (5% + 30%).

Figure 14 Type of review by fatalities



Actions Taken

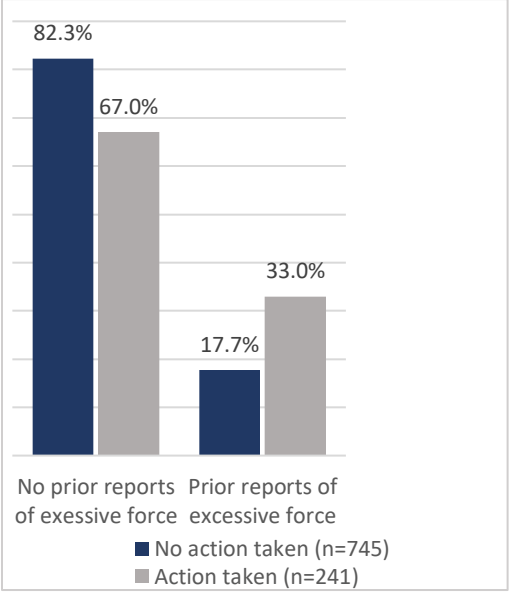
This section examines officer and incident characteristics that led to some sort of action being taken following an OIS incident. In this report, "action taken" includes disciplinary action, non-disciplinary training, and counseling or mental health services.

We received information from agencies reporting 19 officers that received disciplinary action, 118 officers received non-disciplinary training to ensure continued compliance with policy and law, and 214 officers received counseling. When combined together, the number of officers with an "action taken" following their OIS involvement is 254.[11]

Officers in which action was taken were predominantly involved in citizen-initiated incidents (63%) as opposed to officer-initiated (37%) ones. 36% of officers with an action taken were involved in an incident with a foot and/or vehicle pursuit. 84% of these officers were involved in incidents in which they were in the company of other officers at the time of the shooting, and 54% were involved in incidents in which other officers discharged their weapons.

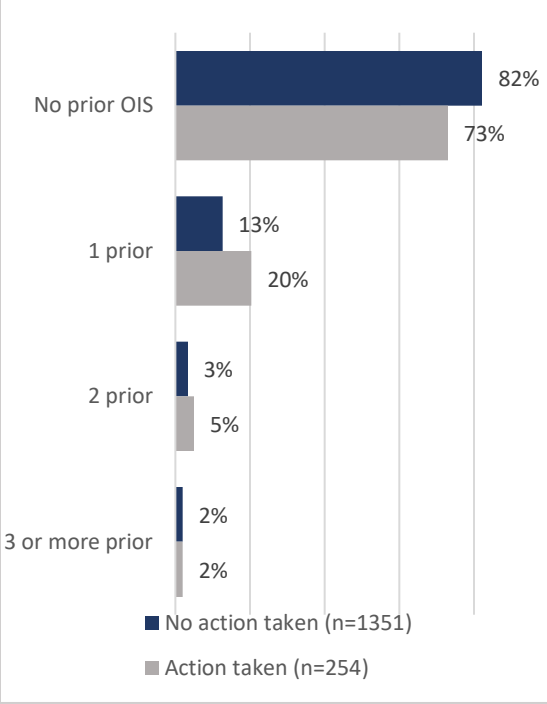
A larger proportion of officers receiving an action following their OIS had a prior report of excessive force (see Figure 15), as well as one prior OIS (see Figure 16). However, when examining the number of prior OIS incidents across officers, we do not see a difference between officers that had an action taken and other officers when it comes to two or more prior OIS incidents.

Figure 15 Force reports among officers with action taken



[11] This number does not reflect the previous actions added together due to a number of officers receiving multiple actions.

Figure 16 Prior OIS incidents among officers with action taken



Officers that received an action following their OIS incident also appear to have been more involved in incidents in which there was suspicion of subject mental illness or subject drug/alcohol use (see Figures 17 and 18). Many of these findings are explored further through regression analysis in the following section.

Figure 17 Mental illness incidents, officers with action taken

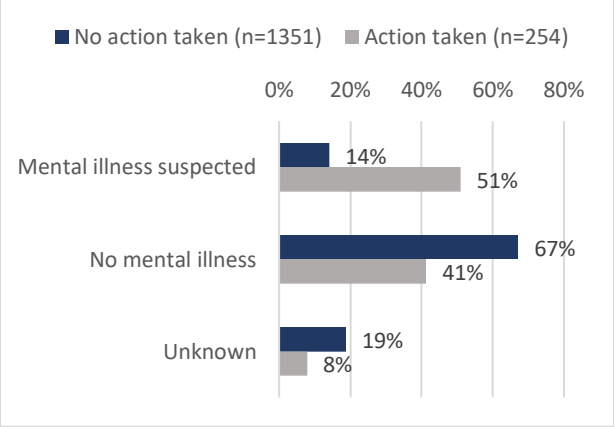
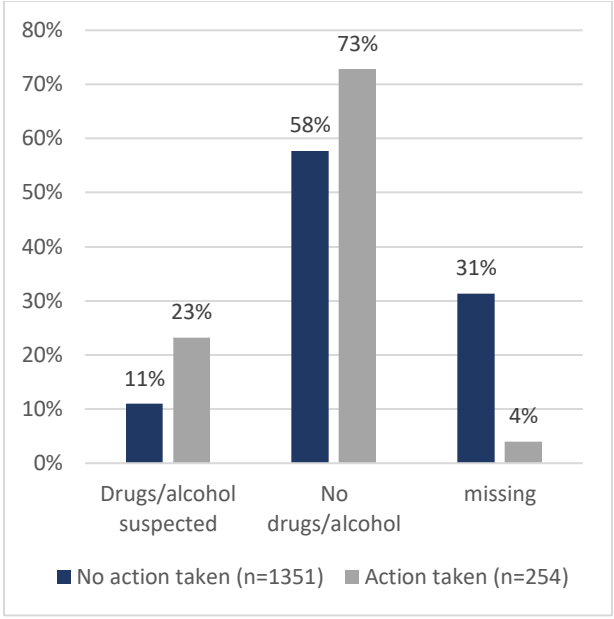


Figure 18 Drugs/alcohol incidents, officers with action taken



Analysis

This study focuses on the sample of the 1,605 officers involved in OIS incidents. Because of missing data in several measures, the number of cases retained for the analysis is limited to 782. Appendix D shows the number of cases retained in the following regression as well as how those officers compare to the total sample.

A regression model was developed predicting an action taken at the officer level (disciplinary action, non-disciplinary training, and/or counseling) while examining various incident and officer-level variables.

Excluded from this analysis are several officer demographics commonly included in other types of research examining officer use of force predictors. Officer race and gender were found non-significant in this model. The number of subjects fired upon, presence of bystanders, and whether a subject possessed a firearm were also examined, and were not found to be significant predictors of an action being taken following an OIS. These variables were omitted from the

analyses presented below to reduce problems of model overfitting given our relatively small sample size.

Logistic regression was used to examine predictors of an officer receiving some sort of disciplinary or non-disciplinary action following an OIS incident. Incident-level predictors include the presence of a pursuit, whether more than one officer was present on the scene, whether more than one officer discharged their weapon, whether there was an indication that a subject was suffering from a mental illness, and whether there was an indication that a subject was under the influence of drugs or alcohol.

Officer-level predictors include the amount of time an officer was on shift when the OIS occurred, the number of rounds fired by the officer, officer experience, whether the officer has been involved in a prior OIS, and whether the officer has been investigated or received reports about excessive force.

Results

Results of the regression model is displayed in Table 8. Three critical findings emerge from this model:

1. Officer experience was a significant predictor in an action being taken following an OIS. Compared to officers with one or less years of experience, more experienced officers were significantly less likely to have an action taken against them. For example, officers with 2-5 years of experience were 54% less likely to have an action taken, and officers with more than 20 years of experience were 69% less likely to have an action taken.
2. The odds that an officer would have an action taken increased by 67% when that officer had a prior OIS experience.
3. The odds that an officer would have an action taken increased by 727% when that officer had some sort of investigation or report about past excessive use of force.

Table 8 Actions taken regression

	Odds ratio (95% CI)
Pursuit	0.76 0.52, 1.12)
>1 officer firing	1.28 (0.82, 2.01)
>1 officer present	1.03 (0.58, 1.83)
Mental illness	0.94 (0.55, 1.61)
Drugs/alcohol	0.90 (0.52, 1.55)
Hours on shift prior to OIS	0.99 (0.96, 1.04)
Rounds fired	1.01 (0.97, 1.06)
Officer experience (Ref = 1 year or less)	
2-5 years	0.46 (0.25, 0.86)*
6-10 years	0.25 (0.13, 0.48)***
11-15 years	0.28 (0.13, 0.57)***
16-20 years	0.29 (0.13, 0.65)**
> 20 years	0.31 (0.12, 0.82)*
Prior OIS	1.67 (1.03, 2.73)*
Excessive force	8.27 (5.39, 12.68)***
N	782
Pseudo R^2	0.152

[t] p < .10; *p < .05; **p < .01; ***p < .001

The odds ratio for a prior excessive force report was so large, the regression model was re-run with the variable excluded in order to ascertain whether the considerable relationship was masking other significant predictors, but none were found.

It should be noted, however, that when running initial univariate analyses, the suspicion of subject mental illness and subject substance use both showed to be significantly related to an action being taken on an officer when examined independently of the additional variables.

Conclusion

The agencies reporting their data to this collection effort are conducting a review following an officer-involved shooting incident, or have a review pending. The President's Task Force on 21st Century Policing final report highlights the importance of policies that mandate the use of *external and independent investigations* in officer-involved shooting cases. The report emphasizes independent reviews are crucial if a department wishes to convey transparency and build trust between the community and the police.

Based on the examination of the above, it is evident that some agencies still have some work to do implanting the recommendations made in the President's Task Force on 21st Century Policing report. While many agencies do report using an external review process, our review indicates there are many law enforcement agencies that only conduct internal reviews. It is worth noting, however, that the task force report was published in 2015 so it may take some time before agencies are able to set up and implement new policies to review officer behaviors following their use of deadly force.

For all officers in this dataset, 13% received counseling following their use of deadly force, and counseling was less frequent among officers not involved in fatal OIS incidents. According to the IACP "…best practices suggest that officers be required to participate in one post-shooting debriefing with a qualified mental health professional." (International Association of Chiefs of Police, 2016: 27). However, some research has indicated many officers do not have positive experiences with mandatory counseling. David Klinger interviewed 80 officers involved in 113 shootings to explore how officers respond to officer-involved shootings (Klinger, 2002). Of the 113 shooting incidents, 93 involved department-mandated counseling. Many officers admitted to lying to the counselors because they did not trust that the sessions were confidential. Many officers felt the counselors were incompetent and felt their department mandated the sessions to protect itself from legal liabilities and were not genuinely interested in the officer's wellbeing. Despite these negative reactions, officers did find peer-sessions with fellow officers to be helpful. Klinger concludes that peer counseling may be more beneficial than sessions with professional counselors.

Over one-third of officers in our data received "no action" as a result of their deadly force, and few officers received disciplinary action specifically. When examining the 254 officers who received some sort of action, some interesting findings occurred. More experience was found to be a significant predictor of an officer not receiving an action, whereas experience with a prior OIS or with an excessive force investigation significantly increased the odds of an action being taken. Ridgeway matched officers at a shooting incident to examine officer-level features and their relationship to whether an officer shoots or does not shoot, and found that accumulation of negative marks in an officer's file leads to greater risk of shooting in an incident (Ridgeway, 2016). While not entirely related to these findings, this current research contributes to knowledge regarding officer characteristics and discipline following the use of deadly force.

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CRITICAL ISSUE REPORT #4: OFFICER-INVOLVED SHOOTING DATABASE BARRIERS AND LIMITATIONS TO REPORTING OIS INCIDENTS BY MAJOR CITIES CHIEFS ASSOCIATIONS, 2015-2017

Introduction

Officer-involved shooting incidents, while rare, have lasting impacts on all individuals involved, as well as the community overall and the associated agency. In order to better understand OIS incidents, agencies should strive to collect relevant data on the incident, subject(s), officer(s), and location(s) involved in order to track any patterns or relationships that could provide vital information to an agency's approach to these incidents. The previous reports have provided descriptive and analytical findings from an intensive data collection effort.

However, throughout the data collection and analysis phases of this project, it became evident that missing data proved to be a more significant barrier than initially expected. In the summer of 2018, we launched another data collection initiative aimed at reducing the prevalence of missing data in our database for 2015-2017 incidents. At the time, the overall completion percentage for all variables was 76%, and ranged from 5% to 100% completion across 48 agencies (54 when including six Canadian agencies). This report outlines steps taken to improve the existing dataset through extensive agency outreach. We then explore the legal and practical barriers to a complete data collection of OIS incidents across participating organizations.

Summer Data Collection Initiative

The primary focus for the summer data collection was a selection of 24 variables deemed most critical in their ability to provide relevant data for both research and practitioner purposes. These critical variables are broken out across four categories – incident, subject, officer, and location data. Table 9 provides a list of these variables.

Table 9 Critical variables

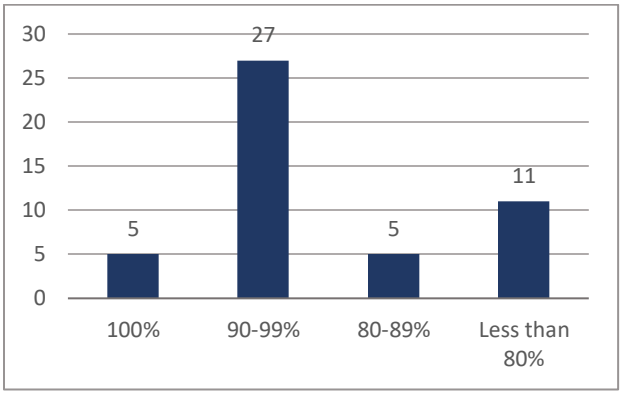
Incident Data
Date & Time of Incident
Existence of Dispatch Information Indicating Armed Subject
Use of Less Lethal Force
Type of Police Pursuit, if any
Subject Information
Estimated Age
Ethnicity
Race
Mental Health Status
Use of Intoxicants
Behavior/Level of Resistance
Injuries
Possession of Firearm
Possession of Other Types of Weapons
Weapon Use
Officer Information
Gender
Ethnicity
Race
# of Rounds Fired
# of Prior OIS Involvement
Prior Excessive Force Reports or Investigations
Department Response to Officer Behavior
Officer-Subject Initial, Closest, and Farthest Distances/Proximity
Injuries
Incident Location Data
Street Address/Intersection/GPS Coordinates of Each Location

In June 2018, plans and preparations began for an aggressive data collection effort utilizing four interns, the project's Project Coordinator, and Subject Matter Expert, Darrel Stephens. Darrel Stephens initiated the process by contacting each participating Chief to confirm their designated point of contact (POC) and inform them of their current completion percentage and potential missing cases.[12]

After this initial round of contact, the Project Coordinator and team of interns created an outreach plan in mid-July that included target dates and a call script.[13] The team also developed a triage system for contacts. First, the Project Coordinator contacted each agency POC through email and provided them with an audit of the reports they had submitted to the database. This audit was automatically created using the data provided to the online database, and statistical syntax that created a document providing each individual agency a table that included the incident number, incident date, percentage of completeness for that incident, and a web link allowing data enterers to go into the system and edit/add to that incident directly in our online system.

The Project Coordinator also solicited whether the POC had experienced any barriers or limitations to providing 100% of the variables requested. A list of POCs who did not respond (29) to the initial email after one week was distributed to the four interns. The intern team called each POC, and upon reaching them, would provide audits, and update any contact information if necessary. If they were not successful after three attempts (which was the case for 11 agencies), the contact information was forwarded to Darrel Stephens for follow up with the Chief in that agency. Toward the end of the data collection period, Darrel Stephens reached out to all agencies who were below 80% completion on critical variables, improving our rates once again. Through these efforts, we connected with 43 agencies who then worked to achieve 100% completion, or provided us with reasons, both legal and practical, that prevented them from doing so.

Figure 19 Agencies providing critical variables



This initiative proved to be rather successful. The average case completion increased to 85% (from 76%). More importantly, the amount of missing data for key variables in our dataset was reduced. The average completion for these critical variables went from 83.92% to 86%, with most agencies providing over 90% of these key variables, as shown in Figure 19 above.

Table 10 below provides a breakdown of completion of critical variables (averaged across incidents) for participating U.S. agencies. As this table indicates, even after extensive outreach, some agencies' overall critical variable completeness remained

[12] Missing cases were determined based on what the department had already submitted to the database, media reports, and annual MCCA reporting.
[13] See appendix G.

lower than anticipated, with five agencies completion under 50%. However, with 32 agencies providing over 90% of critical variables, we were able to complete several analyses for the preceding reports previously thought to be impossible due to missing data elements.

Table 10 Agency completion - critical variables

Agency #	% complete	Agency #	% complete
1	99.09	*25*	99.58
2	95.37	*26*	99.74
3	94.26	*27*	48.92
4	80.64	*28*	100
5	82.79	*29*	100
6	100	*30*	93.89
7	99.67	*31*	98.17
8	95.77	*32*	99.54
9	96.78	*33*	99.45
10	84.43	*34*	88.18
11	95.88	*35*	91.31
12	97.15	*36*	88.46
13	98.54	*37*	95.75
14	51.77	*38*	94.18
15	100	*39*	93.69
16	98.92	*40*	77.72
17	79.91	*41*	98.67
18	75.23	*42*	90.99
19	95.65	*43*	29.98
20	95.2	*44*	44.72
21	92.93	*45*	54.21
22	100	*46*	46.51
23	92.95	*47*	38.46
24	95.52	*48*	56.79

Agency Limitations

Throughout the summer data collection efforts, the project team solicited information on any barriers they encountered in providing us with each of the variables the survey inquired about. While not all agencies provided reasons for their inability to fill out every part of the survey, those who did provided important insight into some of the barriers we inquired about. The following describes the legal and practical limitations to collecting and/or providing officer-involved shooting incident data to an outside organization.

Legal Limitations

Some of the variables requested in the survey ask for potentially sensitive data, or information that could have harmful implications were it not kept confidential. This created some legal barriers in agencies whose state or local laws prohibit them from providing this information to external entities. For example, a few agencies we spoke with explained that due to state law, they could not release information until a case is closed completely. They stressed that this could cause a delay of anywhere from a few months to a year following an incident, therefore delaying the input of data into our database for a significant amount of time. Other agencies described local laws prohibiting them from providing any potentially identifying information on officers or subjects, such as full legal name and date of birth (for subjects), or personal demographics information that could potentially be identifying (for officers).

Practical Limitations

Some agencies run into practical obstacles that limit the amount of information they can input into the database. For example, at times certain pieces of information are simply unknown, such as if a subject flees the scene and is never identified. In these cases, agencies are not able to provide us

with any subject-level data requested. In other instances, a department may choose not to release certain information due to preference of the Chief, or pushback from the union. Still, many agencies described issues primarily related to personnel or data organization that contribute to barriers to reporting.

Many of the agencies who provided feedback cited that the unit tasked with inputting the information is too busy to keep up with the data entry, particularly due to the information requested being housed in various databases. For example, in order to fully complete the data entry, information is needed from an incident report, likely a use of force report, personnel records, investigation reports, and court records. Much of this data is not easily obtained by the individual assigned to data entry, or not provided to the data enterer until the investigation is complete. As mentioned above, if the data enterer is not provided all of the data until a case is closed, providing the data to us would be compounded by the length of any investigation.

Finally, sometimes agencies do not have access to supplemental information. For some agencies, external groups take over an investigation after the agency completes its preliminary report. For example, the Florida Department of Law Enforcement investigates many OIS incidents occurring state-wide, and in Canada, the Independent Investigations Office of British Columbia handles OIS incidents across all agencies.

The participating agencies worked diligently to connect the team with these organizations, but unfortunately no state agencies were able to provide the information requested within the appropriate timeframe for the summer data collection initiative.

Survey Limitations

Along with the legal and practical obstacles that agencies encountered, respondents indicated that there were some issues with the survey itself that likely contributed to a lower completion percentage. Some of these issues had to do with the structure of the instrument itself, and others had to do with the technology behind the survey.

Some agencies stated that description boxes did not appear as expected. For some questions, if the respondents select "other", a text box should display with the direction "Other (please describe)". Several respondents reported encountering a number of issues with this box either not displaying, or the results from those items not appearing in audits sent to data enterers (thereby creating an inaccurate completion percentage). One way to handle this in the future would be to include the text response directly next to the answer choice "other", or troubleshoot the survey to ensure the display logic is set up correctly.

In some instances, the wording of the questions was confusing to some agencies. For example, there are a series of questions about subject weapon use.

Survey Question
Did the subject possess a firearm? ○ Yes ○ No ○ Unknown

The first asks, "did the subject possess a firearm". The next question is, "did the subject use or threaten to use any other type of weapon," which displays a variety of options including "subject had no weapon". This caused confusion for those who had

selected "yes" when asked if the subject was in possession of a firearm.

Survey Question
Did the subject use or threaten to use any other type of weapon? (Select all that apply) ○ Knife or cutting instrument ○ Blunt object ○ Motor vehicle ○ Personal weapons (hands, feet, teeth) ○ Toy firearm ○ Replica firearm ○ Other item intended or used as a weapon ○ Subject had no weapon

Changing the phrasing to "subject had no *other* weapon" would have clarified this for individuals choosing "yes" but may make the question confusing for those who selected "no". One way to deal with this would be to use an additional set of display logic in the online survey to show the more appropriate wording depending on if the selection was "yes", "no", or "unknown". The points of contact also noted that some questions were not clear, and there was a need for more "unknown" or "unavailable" options throughout the survey instrument.

A final issue with the survey tool is that agencies, and the National Police Foundation, are unsure of what information is actually missing unless they provide the agencies with audit documents outlining *all* missing data, followed by a conversation with the data enterer about the data that is able to be provided at the agency level. These audits are also problematic, however. The technology behind them is not always completely accurate, thus they may not always reflect all the information that was entered by the agency. Additionally, sometimes there is a delay from when the data is entered to when it shows in the output of the survey instrument, although this is uncommon. One possible way to deal with the audit quality issue would be to recode the syntax that processes the audits to better capture all pieces of information provided, including text provided in "other" answer categories. Another is to examine the data directly and let the agencies know what appeared to be missing (by hand, as opposed to the current use of statistical syntax). This does add, however, to the amount of staff time needed in order to create non-automated audit documents for agency POCs.

Conclusion

The project team has been able to improve the quality of the OIS dataset through an intensive outreach endeavor, but there are still several limitations that agencies encountered in providing all of the data requested. Some of these issues are agency related, and others are limitations due to the survey instrument itself. Several of the agency issues cannot easily be overcome, particularly when they are faced with legal limitations to the information they can provide. One thing that researchers can do, however, is take the feedback provided into account and offer agencies with guidance in data entry methods, while also improving the data collection instrument, and implementing better communication protocol to ensure consistent interaction with the point of contact to ensure that they know, in a timely manner, what information is missing from their agency's data.

Appendix A. Descriptive statistics for incidents included in use of force models

	Rounds fired n=429	Less-lethal n=428	Firing officers n=436	Total sample n=1,006 *
Firearm possession (%)	59.67	60.05	59.63	63.13
White (%)	43.82	43.22	43.58	40.57
Black (%)	42.42	42.99	42.66	46.94
Hispanic (%)	19.81	19.16	19.72	27.67
Mental health (%)	21.68	21.96	22.02	18.55
Drug/alcohol (%)	17.02	17.06	17.20	14.90
Officers present (mean)	3.93	3.94	3.91	3.65
Precipitating Call (%)				
Domestic disturbance	9.32	8.88	9.17	6.17
Other	28.44	28.50	28.44	31.06
Property	10.02	9.58	9.86	10.64
Traffic stop	7.46	7.94	7.80	8.83
Violent	44.76	45.09	44.72	43.30
Dispatch-Armed subject (%)				
Officer initiated	35.9	35.98	36.01	46.5
No information of armed subject	15.62	15.42	15.37	15.92
Information of armed subject	48.48	35.98	36.01	37.58
Location type (%)				
Highway, alley, street	29.37	29.44	29.36	34.51
Parking lot or garage	10.49	10.51	10.55	8.40
Residence or home	27.97	27.80	28.21	28.22
Commercial building	9.09	9.11	8.94	9.06
More than one location	11.66	11.68	11.47	8.66
Other	11.42	11.45	11.47	11.15

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.

Appendix B. Descriptive statistics for officers included in use of force models

	Rounds fired n=604	Less lethal tactics n=593	All officers n=1605*
Amount of time on shift (mean hours)	5.31	5.34	5.33
Officer rank (%)			
Officer	74.01	73.86	76.89
Corporal or Lieutenant	3.64	3.71	3.19
Detective	6.46	6.58	7.29
Other	4.97	4.72	4.23
Sergeant	10.93	11.13	8.40
Officer experience (%)			
< 1 year	8.77	8.60	8.60
2-5 years	29.80	29.85	23.16
6-10 years	30.13	30.52	28.74
More than 10 years	31.29	31.03	39.50
Officer prior OIS (%)			
No prior OIS	83.61	83.64	80.02
1 prior OIS	11.59	11.47	14.50
2 or more prior OIS	4.80	4.89	5.48
Number of officers involved (%)			
1 officer involved	40.90	40.64	41.99
More than 1 officer involved	59.10	59.36	58.01
Time of incident (%)			
0:00-2:59	14.74	14.67	17.74
3:00-5:59	7.78	7.93	7.07
6:00-8:59	6.79	6.24	6.80
9:00-11:59	10.43	10.46	9.52
12:00-14:59	11.42	11.47	12.71
15:00-17:59	14.74	15.01	15.09
18:00-20:59	14.24	14.33	14.48
21:00-23:59	19.87	19.90	16.59
Dispatch type (%)			
Officer initiated	38.41	38.28	47.31
No information of armed subject	17.72	17.54	13.97
Information of armed subject	43.87	44.18	38.72
Location type (%)			
Highway, alley, street	30.13	30.35	33.36
Parking lot or garage	9.93	9.95	8.53
Residence or home	26.99	26.64	28.60
Commercial building	5.13	5.23	8.53
More than one location	13.41	13.66	12.79
Other	14.40	14.17	8.19
Subject resistance (%)			
Passive or verbal	6.29	6.41	6,27
Attempted to flee	29.14	28.84	25.43
Physical / assaulted officer	40.40	40.30	46.32
Barricaded self / standoff	24.17	24.45	21.98

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.

Appendix C. Descriptive statistics for incidents included in subject injury and death models

	Subject injury & death n=494	All incidents n=1,006*
Any long gun (%)	17.61	16.08
Any less lethal tactics (%)	72.67	67.24
Location type (%)		
Highway, alley, street	33.81	34.51
Parking lot or garage	9.51	8.40
Residence or home	27.94	28.22
Commercial building	7.49	9.06
More than one location	10.53	8.66
Other	10.73	11.15
Precipitating call (%)		
Domestic disturbance	8.30	6.17
Other	29.15	31.06
Property	9.51	10.64
Traffic stop	7.09	8.83
Violent	45.95	43.30
Dispatch method (%)		
Officer initiated	37.65	46.50
No information of armed subject	17.21	15.93
Information of armed subject	45.14	37.58
One or more subjects armed (%)	59.72	63.13
Resistance (%)		
Passive or verbal	6.07	5.78
Attempted to flee	29.76	28.44
Physical / assaulted officer	44.13	48.74
Barricaded self / standoff	20.04	17.04
Rounds fired by police (mean)	7.96	7.59

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.

Appendix D: Descriptive statistics for incidents included in officer injury model

	Officer injured n=534	All incidents n=1,006*
Type of call (%)		
Armed person	26.91	25.43
Violent	19.27	17.87
Property	10.5	10.64
Traffic	7.63	8.83
Other	35.69	37.23
Subject possessed a firearm (%)	61.26	63.13
>1 officer on scene (%)	77.29	75
Single officer fired a weapon (%)	65.84	70.06
More than one subject (%)	24.05	25.13
Resistance (%)		
Passive/escape	34.92	34.22
Attack	46.95	48.74
Barricade	18.13	17.04
Officer-initiated (%)	37.6	43.54

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.

Appendix E. Descriptive statistics for incidents included in subject death model

	Subject death n=474	All incidents n=1,006*
Type of call (%)**		
Armed person	29.96	28.02
Violent	21.31	19.7
Property	11.39	11.72
Other	37.34	40.56
Citizen-initiated contact (%)	32.7	44.79
Subject possessed a firearm (%)	60.76	63.13
>1 officer on scene (%)	78.48	75
Single officer fired a weapon (%)	64.98	70.06
More than one subject (%)	24.26	25.13
Resistance (%)		
Passive/escape	34.81	34.22
Attack	45.36	48.74
Barricade	19.83	17.04
Vehicle pursuit (%)	13.08	15.31
Foot pursuit (%)	39.66	37.28

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.
**Excluding traffic calls

Appendix F. Descriptive statistics of incidents included in use of force model

	Action taken model n = 782	Total sample n = 1,605*
Pursuit (%)	45.14	40.00
>1 officer firing (%)	41.94	41.99
>1 officer present (%)	14.19	13.21
Mental illness (%)	15.35	12.15
Drugs/alcohol (%)	16.11	12.90
Hours on shift prior to OIS (mean)	5.37	5.34
Rounds fired (mean)	5.06	4.87
Officer experience (%)		
1 year or less	9.46	8.6
2-5 years	28.90	23.16
6-10 years	29.67	28.74
11-15 years	15.98	18.20
16-20 years	10.23	12.63
> 20 years	5.75	8.68
Prior OIS (%)	16.24	19.98
Excessive force (%)	19.18	11.84

*Missing values for these variables are excluded. Percentages reflect the percent of cases in the non-reference category.

Appendix G. Data Collection Outreach Plan

Timeline

Initial Outreach to Executives – Darrel Stephens

- Confirm Point of Contact
- Alert of commitment to 100% variable completion

Follow up email to confirmed points of contact – Terri Robbins

Wednesday, July 25, 2018

- Include:
    - Audit of all OIS incidents in one Word Document with completion rate and web link to update incident (to be compiled with

assistance of interns)

    - Call to action to provide 100% completed variables
    - Make aware of 24 most critical variables
    - Let them know DS will follow up with executives

Phone call follow ups – Interns (Melissa Alberto, Heather Blevins, Riley Clark, and Jacqueline Nguyen)

Thursday, August 2, 2018 – Friday, August 10, 2018

- Follow script upon approval of wording
- Follow triage process (interns make initial call, escalate as necessary -> Terri -> Darrel)
- If no response with three messages, escalate to Terri who will determine whether to reach out or involved Darrel

Comments

- A spreadsheet will be created for tracking contacts and notes
- Terri will create priority lists using completion rates
- Agencies will be divided up evenly among interns in terms of priority, and number of incidents for each agency
- There will be weekly contact between Terri and Darrel to assess status of the project
- Reports will be updated weekly

Call Script

Hi *insert name of POC at the agency*, my name is _____ and I'm with the Police Foundation calling to follow up on the OIS database email that was sent on July 25th.
We are striving to reach 100% completion in an attempt to improve that quality of our data for incidents from 2015-2017.

Right now, your agency has an overall completion rate of _____%.

The deadline to have all of our data is August 15th, and Darrel Stephens is going to be working with the executive staff to seek their commitment in providing this information as well.
Are there barriers your agency has come across from getting the missing data and are there ways we can help?

Alternative if voicemail:

Hi *insert name of POC at the agency*, my name is _____ and I'm with the Police Foundation calling to follow up on the OIS database email that was sent on July 25th.

We are striving to reach 100% completion in an attempt to improve that quality of our data for incidents from 2015-2017.

Right now, your agency has an overall completion rate of _____%.

The deadline to have all of our data is August 15th, and Darrel Stephens is going to be working with the executive staff to seek their commitment in providing this information as well.

If there are barriers your agency has encountered collecting the data and would like further assistance, please do not hesitate to reach out to Terri Robbins at TRobbins@policefoundation.org, or (202) 721-9776.

Thank you and have a great day!