Engagement Distance and Encounter Duration

Most fatal edged-weapon encounters occur at contact range or within five feet, and most are resolved in under 90 seconds.

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Current	**1.0**	**2 October 2026**
Evidence grade	Data snapshot	Reviewed by
Data supported	**S-20261002**	**Under review**

> **Figures in this report** are drawn from snapshot `S-20261002`. All statistics are computed from the suppressed public aggregate; no case-level data are included. Cells with fewer than 5 records are suppressed (shown as —).

Takeaway

In the decade from 2015 to 2024, the majority of fatal police encounters involving an edged weapon were resolved within 90 seconds of first contact, and most involved a subject who reached contact range or within five feet of an officer or third party before a firearm was discharged.

Background

How close a subject gets to an officer or bystander before a firearm is used, and how quickly a fatal encounter unfolds, are foundational questions for police training and policy. The so-called 21-foot rule — the idea that a subject with an edged weapon within 21 feet poses an immediate threat — has shaped defensive-tactics training in North America for decades (Tueller, 1983), yet little longitudinal data exists on the distances actually recorded in fatal encounters.

The time available to an officer from first contact to the moment of force is equally contested. Crisis intervention models assume that time permits de-escalation; tactical models assume it does not. The distribution of encounter durations across a large, systematically coded sample speaks directly to that assumption.

The present report describes the distribution of engagement distance and encounter duration across 1,970 fatal edged-weapon encounters drawn from the Washington Post Fatal Force database (Washington Post, 2025) and Mapping Police Violence (Mapping Police Violence, 2026), covering January 2015 through December 2024.

Research context

The "21-foot rule" — the heuristic that a subject with an edged weapon within 21 feet poses an immediate lethal threat — originates with a 1983 demonstration by Sergeant Dennis Tueller showing that an average adult can cover that distance in approximately 1.5 seconds, roughly the time required to draw and fire from a holster (Tueller, 1983). This observation became foundational for defensive-tactics training across North America and has been widely cited in use-of-force litigation, but it was derived from a single demonstration rather than controlled research. Blair et al. (2011) reviewed the experimental literature on officer reaction time and found that response latency varies substantially by experience, alertness, and scenario conditions, with measured times ranging from under one second to well above 1.5 seconds — suggesting that the critical distance is better understood as a distribution than as a fixed threshold (Blair et al., 2011). Sandel et al. (2021) conducted the first systematic scientific examination of the 21-foot rule and confirmed that the critical distance is sensitive to weapon concealment, approach angle, officer position, and environmental constraints; no single distance can be treated as reliably safe against an edged-weapon charge (Sandel et al., 2021). Kantor and colleagues (2026) measured the interval from onset of a close-quarter concealed knife attack to weapon contact and found that attack-to-contact times are consistently shorter than standard training assumptions, particularly when the weapon is not visible before the attack begins (Kantor et al., 2026). Krajewski et al. (2024) examined threat dynamics in real use-of-force incidents and found that proximity at initial contact — rather than later tactical positioning — was the variable most strongly associated with the speed of force resolution (Krajewski et al., 2024).

The EWRL dataset extends this literature from laboratory and single-agency case study into a large, systematically coded longitudinal sample. It does not test whether any specific distance is safe; it documents the distribution of distances at which fatal outcomes actually occurred, and the distribution of encounter durations, providing an empirical baseline for the tactical assumptions embedded in training and policy.

Data and methods

Dataset. The Edged-Weapon Response Lab dataset (N = 1,970) captures every fatal police encounter involving an edged weapon documented in the two source databases for the period 2015–2024. Cases are identified by a researcher-assigned K-ID (K-0001 through K-1970). All figures in this report are drawn from public aggregate snapshot S-20261002 and contain no case-level data.

Engagement distance records the minimum pre-discharge threat distance: the closest straight-line separation, in whole feet, reached between the subject and the closest threatened person — an officer, bystander, or hostage — during the hostile sequence up to the moment of first police firearm discharge. Officer-contact events, where the subject's weapon or body made physical contact with an officer before the first shot, are coded as 1 ft by convention. This value acts as a category marker, not a measured separation. Distance could

not be determined for 569 records (28.9%), most commonly because no body-worn camera footage and no sufficiently detailed witness account was available.

Encounter duration classifies the elapsed time from first police contact to the first shot into three bands: S (up to 90 seconds), M (90 seconds to 90 minutes), and H (90 minutes or more). Duration was coded from continuous timestamps where available and from narrative accounts otherwise. Duration could not be determined for 330 records (16.8%).

Suppression. All counts are drawn from the suppressed public aggregate. Cells with fewer than five records are not displayed. For more information see EWRL Methods — Suppression and privacy (/methods/suppression-and-privacy).

Findings

Engagement distance

The figure below shows the distribution of engagement distance across the 1,401 encounters for which distance could be determined.

Contact-range events — those coded 1 ft because physical contact occurred between the subject and an officer before the first shot — are the largest single band. The data confirm that the majority of fatal edged-weapon encounters occur within the conventional 21-foot threshold. The distribution falls steeply at greater distances, with relatively few encounters recorded beyond 15 feet.

Figure 1. Engagement distance in fatal edged-weapon encounters, 2015–2024 (n = 1,401; 569 excluded because distance could not be determined).

Encounter duration

The figure below shows the distribution of encounter duration across the 1,640 encounters for which duration could be determined.

Encounters lasting up to 90 seconds (S band) represent the substantial majority of coded cases. Encounters lasting 90 seconds to 90 minutes (M band) make up most of the remainder, and encounters of 90 minutes or more (H band) — typically barricade situations — are a small proportion.

The dominance of the S band has direct implications for crisis intervention training: the majority of fatal edged-weapon encounters resolve so quickly that intervention models requiring extended time may not be applicable to most cases, though this finding describes fatal outcomes only and cannot characterize encounters that did not end in a death.

Figure 2. Encounter duration in fatal edged-weapon encounters, 2015–2024 (n = 1,640; 330 excluded because duration could not be determined).

Interpretation

What the findings show. Most fatal edged-weapon encounters are proximate and fast. The engagement distance distribution is strongly skewed toward close range, and the duration distribution is strongly skewed toward seconds.

What the findings do not show. This dataset is conditioned on fatal outcomes. It cannot show how often less proximate or longer encounters end without a death, nor can it establish that proximity or speed caused the fatal outcome. The findings describe the shape of fatal encounters, not the range of all edged-weapon encounters.

What would change the conclusion. A comparable dataset of non-fatal edged-weapon encounters — including those resolved by de-escalation, less-lethal force, or subject compliance — would be needed to assess whether the distributions reported here differ from the broader population of encounters.

Limitations

Distance was missing for 28.9% of records. The missing values are not random: encounters with no body-worn camera footage and limited witness accounts are more likely to have unknown distances, and those encounters may differ systematically from coded encounters. Duration missingness (16.8%) is similarly non-random.

The source databases document encounters that reached public attention. Encounters not reported by media and not captured in administrative records are not in the dataset. The dataset is conditioned on fatal outcomes and cannot represent all edged-weapon encounters with police.

How to cite

Machacynski, B. (2026). *Engagement Distance and Encounter Duration* (EWRL-26-001). In *Fatal Edged-Weapon Encounters, 2015–2024* (Version 0.1). Edged-Weapon Response Lab. https://droptheknife.org/reports/engagement-distance-and-duration

Data snapshot. S-20261002, deposited at Zenodo https://doi.org/10.5281/zenodo.22650264 (https://doi.org/10.5281/zenodo.22650264).

References

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Figures

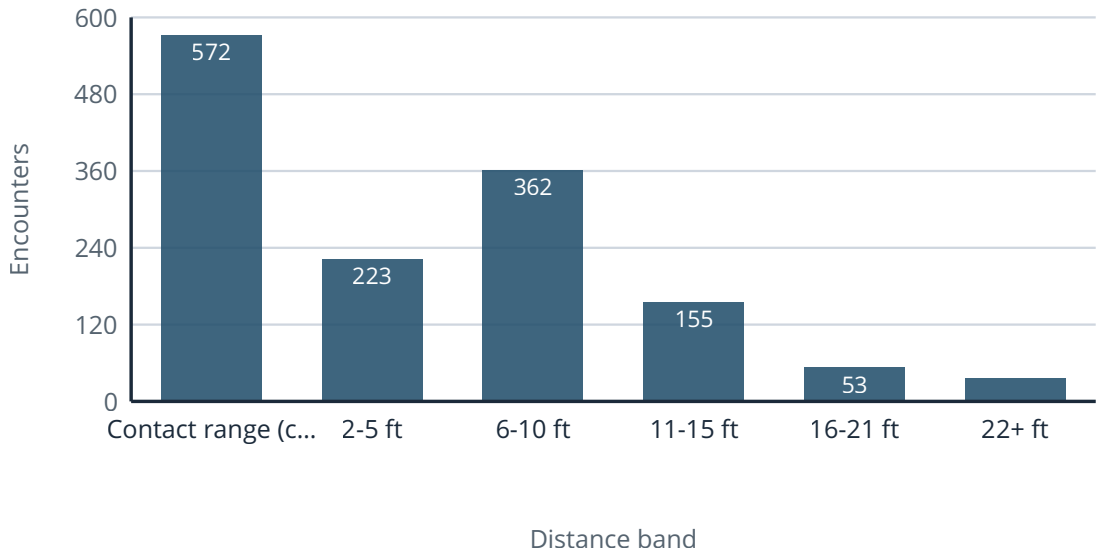

Figure 1. n = 1401. 569 records excluded because not coded. Contact-range events are coded as 1 ft by convention; that value is a category, not a measured separation. Excludes encounters where distance could not be determined.

Category	Encounters
Contact range (coded 1 ft)	572
2-5 ft	223
6-10 ft	362
11-15 ft	155
16-21 ft	53
22+ ft	36

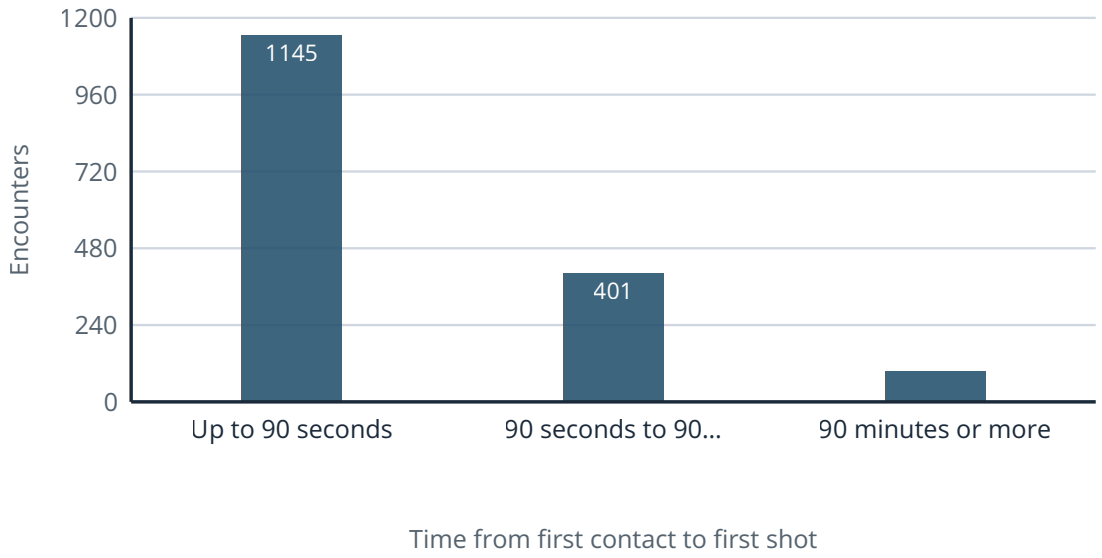

Figure 2. n = 1640. 330 records excluded because not coded. Excludes encounters where the timeline could not be determined.

Category	Encounters
Up to 90 seconds	1145
90 seconds to 90 minutes	401
90 minutes or more	94