Less-Lethal Force

Less-lethal devices were deployed in 39.7 percent of fatal edged-weapon encounters; conducted energy weapons (CEWs) accounted for nearly three in four of those deployments. Cases in which less-lethal force was attempted were longer in duration and occurred at greater distances, but all ended in fatalities — underscoring that this dataset captures only the failure distribution of less-lethal intervention.

Status	Version	Date
Current	**1.0**	**26 October 2026**
Evidence grade	Data snapshot	Reviewed by
Data supported	**S-20261002**	**Under review**

Takeaway

From 2015 to 2024, less-lethal devices were documented in 783 of 1,970 fatal edged-weapon encounters (39.7%). Conducted energy weapons (CEWs — TASERs and equivalent devices) were by far the most commonly deployed device, appearing in 72.8 percent of less-lethal deployments and 29.0 percent of all encounters. Encounters in which less-lethal force was attempted were substantially longer (56.7% resolved within 90 seconds, vs. 79.6% in encounters without less-lethal deployment) and occurred at greater distances (mean 6.8 vs. 5.5 feet; contact-range rate 31.7% vs. 47.3%). The annual less-lethal deployment rate showed no consistent upward or downward trend over the decade. Because the dataset is conditioned on fatal outcomes, all findings here describe encounters in which less-lethal intervention was attempted but did not prevent death; they do not permit inference about how often less-lethal force succeeds in non-fatal encounters.

Background

Less-lethal force options — conducted energy weapons, impact munitions, OC spray, K9 deployment, and others — are routinely cited as tools for resolving edged-weapon encounters without resort to lethal force (MacDonald et al., 2009; Vilke & Chan, 2007). Their deployment in encounters that nonetheless ended fatally is informative for at least two reasons. First, the encounter characteristics associated with less-lethal deployment — more time, more distance, extended duration — can reveal the structural conditions that create space for intervention. Second, understanding the device mix and deployment patterns in fatal encounters provides a baseline against which the broader population of less-lethal deployments can eventually be compared.

The present report describes less-lethal deployment rates, device composition, and their relationship to encounter duration, engagement distance, call category, weapon type, and officer injury in the EWRL dataset.

It does not assess whether any specific less-lethal device or deployment pattern was associated with a better or worse outcome within this dataset; all outcomes in this dataset are fatal.

Research context

Less-lethal technologies — conducted energy weapons (CEWs), impact munitions, OC spray, and K9 deployment — were developed and deployed with the goal of providing force options that could resolve dangerous encounters without lethal consequence. Ariel et al. (2019) conducted a randomized controlled trial of TASER deployment across four English and Welsh police forces and found that equipping officers with TASERs reduced injuries to both officers and subjects and increased the probability of resolution without physical force — the strongest experimental evidence in the field [(Ariel et al., 2019)]. Bozeman et al. (2009, 2018) examined CEW safety profiles across large multi-agency case series and found that serious injuries from CEW deployment are uncommon under standard conditions, but that physiological risk factors — including stimulant intoxication, excited delirium, and restraint following discharge — substantially elevate risk of adverse outcome [(Bozeman et al., 2009; Bozeman et al., 2018)]. Terrill and Paoline (2012) found that CEW deployment was associated with lower citizen injury rates than hands-on force in a multi-site study, though the effect was moderated by encounter type and suspect resistance level [(Terrill & Paoline Iii, 2012)]. Nielsen et al. (2025) examined injury rates following CEW and other less-lethal deployments and found device-specific risk profiles that varied substantially by weapon type and encounter context [(Nielsen et al., 2025)].

The consistent finding across this literature is that less-lethal technologies are most effective when the encounter structure provides the distance and time required for their operation. CEW probe deployment requires a clear separation of approximately 15 to 25 feet — a condition that is absent in the contact-range and near-contact encounters that characterize the majority of fatal edged-weapon cases in the EWRL dataset. The finding that less-lethal deployment rates are highest in call categories that provide more time and distance (Mental Health/Crisis: 61.9%; Person with Knife: 51.3%) and lowest where encounters resolve at contact range is structurally consistent with this physics-of-deployment constraint.

Data and methods

Dataset. The analysis draws on the full Edged-Weapon Response Lab dataset (N = 1,970), covering fatal police encounters involving an edged weapon documented in the Washington Post Fatal Force database [(Washington Post, 2025)] and Mapping Police Violence [(Mapping Police Violence, 2026)] for January 2015 through December 2024.

Less-lethal flag (I_LessLethal). Set when at least one less-lethal device was documented as deployed during the encounter. The flag is present in 783 cases (39.7%).

Device sub-flags. Eleven device-level sub-flags are coded within less-lethal deployments: OC / CS spray (I_CS), baton (I_Baton), conducted energy weapon (I_CEW), less-lethal shotgun (I_LessLethalShotgun; includes

beanbag rounds, flexible baton rounds, and similar launched projectiles), extended-range impact weapon (I_ERIW; includes rubber bullets and similar), extended-range chemical weapon (I_ERCW), remote tether (I_RemoteTether), K9 deployment (I_K9), tear gas (I_TearGas), shield (I_Shield), and other or undetermined device (I_Other). Sub-flags sum to more than 783 because multiple devices may be deployed in a single encounter; see findings on device multiplicity below.

Engagement distance, encounter duration, call category, weapon type, and officer injury are defined in the EWRL research dataset (Machacynski, 2026).

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

Overall rate and temporal trend

Less-lethal devices were deployed in 783 of 1,970 fatal encounters (39.7%). The annual rate ranged from 32.4 percent (2021) to 45.1 percent (2022), with no consistent directional trend over the decade. The 2021 rate is the lowest observed; there is no obvious structural explanation in the dataset, though 2021 was an unusual operational year for US law enforcement by several measures. The three most recent full years — 2022 (45.1%), 2023 (44.0%), and 2024 (38.3%) — show values within the overall decade range, with no evidence of a sustained upward or downward shift.

Device composition

Among the 783 encounters with less-lethal deployment:

- Conducted energy weapon (CEW): 570 (72.8%)
- Less-lethal shotgun (beanbag / flexible baton): 145 (18.5%)
- Extended-range impact weapon (rubber bullet / similar): 91 (11.6%)
- K9: 77 (9.8%)
- OC / CS spray: 67 (8.6%)
- Shield: 57 (7.3%)
- Other / undetermined: 65 (8.3%)
- Tear gas: 19 (2.4%)
- Extended-range chemical weapon: 22 (2.8%)
- Baton: 16 (2.0%)
- Remote tether: rare (suppressed)

The CEW is the dominant device, present in nearly three in four less-lethal deployments. The CEW's dominance reflects both its prevalence in agency equipment inventories and its deployment profile as the primary less-lethal option in the 15- to 30-foot threat range — a range that appears more commonly in the encounter types associated with less-lethal deployment (see below).

Most deployments involved a single device (551 of 783, 70.4%). Two devices were deployed in 146 cases (18.6%), three in 60 cases (7.7%), four in 23 cases (2.9%), and five or more devices in fewer than five cases. Multi-device deployments may reflect either tactical escalation — initial devices failing to control the subject — or concurrent deployment by multiple officers.

Figure 1. Device composition of less-lethal deployments in fatal edged-weapon encounters, 2015–2024 (n = 783 deployments; devices sum to more than n because of multi-device deployments).

Encounter duration and engagement distance

The encounter duration profile differs substantially between cases with and without less-lethal deployment. Among encounters with a known duration, cases without less-lethal deployment resolved in the S band (under 90 seconds) in 79.6 percent of coded cases (748 of 940), while cases with less-lethal deployment resolved in the S band in only 56.7 percent of coded cases (397 of 700). The H band (90 minutes or more) accounted for 3.7 percent of non-less-lethal cases (35 of 940) and 8.4 percent of less-lethal cases (59 of 700). This pattern is consistent with less-lethal deployment requiring at least some time and distance — conditions that are present in longer encounters but largely absent in encounters that resolve in the first 90 seconds.

Engagement distance shows a parallel pattern. Among encounters with a known distance, the mean distance for non-less-lethal cases is 5.5 feet; for less-lethal cases it is 6.8 feet. Contact-range events account for 47.3 percent of non-less-lethal cases (389 of 823) but only 31.7 percent of less-lethal cases (183 of 578). Encounters that reached contact range before police force was used left no space for less-lethal deployment; encounters at greater distances — where less-lethal devices have operational range — were substantially more likely to involve a less-lethal attempt.

Figure 2. Encounter duration and engagement distance by less-lethal deployment status, 2015–2024 (cases with known values for each variable).

Less-lethal deployment by call category

Deployment rates vary substantially across dispatch categories, ranging from below 25 percent in the Suspicious / Erratic Person (17 of 67, 25.4%) and Stabbing (37 of 123, 30.1%) categories to above 50 percent in Mental Health / Crisis (26 of 42, 61.9%), Person with Knife / Edged Weapon (97 of 189, 51.3%), and Warrant / Apprehension (55 of 108, 50.9%).

Categories with the highest less-lethal rates — Mental Health / Crisis, Person with Knife / Edged Weapon, and Warrant / Apprehension — share structural features that facilitate less-lethal deployment: encounters that

begin at greater distances and in more controlled tactical circumstances, with more time available before a lethal threshold is crossed. The Stabbing category, where the act of violence is often the first information available to responding officers and encounters resolve rapidly, shows a low less-lethal rate consistent with limited tactical windows.

Figure 3. Less-lethal deployment rate by dispatch category, 2015–2024 (reportable categories only; overall rate shown for reference).

Less-lethal deployment by weapon type

Weapon types associated with larger average engagement distances show higher less-lethal deployment rates; weapon types associated with contact-range presentations show the lowest rates. Non-knife edged implements (57 of 102, 55.9%) and scissors (15 of 27, 55.6%) have the highest deployment rates. The unspecified knife category — with its high contact-range rate (65.6%) — has the lowest deployment rate (149 of 539, 27.6%), a direct consequence of the proximity that characterizes those encounters.

Officer injury

Officer injury rates are similar in encounters with and without less-lethal deployment: 69 of 783 (8.8%) with less-lethal and 115 of 1,187 (9.7%) without. The absence of a meaningful difference is consistent with the finding that less-lethal cases occur at greater distances — where there is more time for an attempt — rather than in the close-contact situations that account for the majority of officer injuries.

Interpretation

What the findings show. Less-lethal deployment in fatal edged-weapon encounters is associated with more time and more distance: it occurs disproportionately in longer-duration encounters and in encounters that had not yet reached contact range. The CEW is the dominant device in the less-lethal arsenal, accounting for nearly three-quarters of deployments. There is no secular trend in deployment rates over the decade, despite continued policy attention to less-lethal force options. These findings describe the structural conditions under which less-lethal intervention was attempted in encounters that nonetheless ended fatally.

What the findings do not show. This dataset cannot assess whether less-lethal deployment is associated with better outcomes across the full population of edged-weapon encounters, because it includes only the approximately 1,970 cases that ended in death. The rate of less-lethal deployment success — encounters in which a less-lethal device was deployed and the subject survived — cannot be estimated from this dataset. All findings here are conditioned on a fatal outcome. The observation that encounters with less-lethal deployment were longer and more distant does not imply that those features caused a better outcome; it implies only that those structural conditions created the opportunity for an attempt.

What would change the conclusion. Data on all edged-weapon encounters — including non-fatal resolutions — would allow computation of case-fatality rates by less-lethal deployment status, weapon type, and call category. Administrative data linking agency-level less-lethal deployment policies and training standards to outcome distributions would allow assessment of whether policy choices affect rates.

Limitations

Less-lethal deployment is coded from the same public record sources as all other variables. Under-documentation is possible: a CEW deployment not mentioned in available records would not be captured, and agency variation in the quality of use-of-force reporting may systematically affect which less-lethal deployments are recorded. The less-lethal flag is therefore a lower bound on true deployment prevalence.

The device sub-flags record deployment, not effectiveness. A CEW deployment that achieved incapacitation is coded identically to one that missed or failed to cycle. The relationship between deployment and effectiveness — particularly for the CEW, which is known to have reduced effectiveness against heavily clothed subjects or in certain physiological states — cannot be assessed from this dataset.

The annual deployment rate variability (32.4% to 45.1%) may partly reflect changes in record availability and documentation quality over the decade rather than true changes in less-lethal deployment practice.

How to cite

Machacynski, B. (2026). *Less-Lethal Force* (EWRL-26-007). In *Fatal Edged-Weapon Encounters, 2015–2024* (Version 1.0). Edged-Weapon Response Lab. https://droptheknife.org/reports/less-lethal-force

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