Abstract
This study used the FBI’s National Incident Based Reporting System (NIBRS) to examine 18,873 homicide incidents involving 25,180 victims who were either killed or injured from 2005 through 2010. Multiple casualty homicides are surprisingly common events, but most occurred at a residence rather than a public location. Firearms were strongly associated with increased numbers of victims, but multiple casualty homicides were not statistically distinguishable after three victims. Shootings with multiple victims were more likely than non-shootings to involve acquaintance and stranger victims.

Rationale
Multiple casualty homicides, such as those in Sandy Hook, CT and Aurora, CO, generate national concern, but there is little research to inform prevention efforts. Previous research has been limited to small samples of incidents with multiple fatalities, but there is a larger pool of incidents in which at least one person was killed and other victims who may have been killed or injured. Study of such incidents can yield useful information because the distinction between injury and homicide is often a matter of chance or the availability of emergency medical care. In the NIBRS data used for this study, the primary offense was a homicide, but additional victims may have suffered either injury or fatality. Our study questions:

1) How prevalent are multiple casualty homicides in comparison to single casualty homicides?
2) How do offense characteristics change as the number of victims increases?
3) How do shootings differ from other multiple casualty homicides?

Methods
The study used the Federal Bureau of Investigation’s (FBI’s) National Incident Based Report System (NIBRS) data from 2005-2010. NIBRS is limited to 32 states, but includes more detailed information about homicides than the FBI’s Uniform Crime Reports (UCRs). The sample included 18,873 homicide incidents from locations representing 29% of the U.S. population and 27% of the nation’s reported crime.

The records included offender demographics (sex, age, and race), homicide year and time of day, location, offender-victim relationship, and weapon. Categorical variables were dummy coded for regression analyses. Location type used residence as the reference category, and weapon type used knife/blunt object as the reference.

Results
78% of homicide incidents had one victim, 15% (2,912 incidents) had 2 victims, 4% (735) had 3 victims, 1.5% (281) had 4 victims, and the remaining 1% (200) had 5+ victims. For the 18,873 homicide incidents, most offenders were male (90%) between 18-39 years old (69%). Most incidents involved a firearm (68%) and took place at a residence (52%). They most often occurred at night between 10 pm and 3 am (39%) versus in the morning (19%), afternoon (21%), or evening (21%). Primary victims were classified as close relations (38%), acquaintances (46%), or strangers (16%). Consistent with single homicides, most multiple casualty homicides occurred a residence. Restaurant/bars comprised 8.5% of incidents with 4 or more victims, versus 2.3% of one-victim homicides.

Logistic regressions (see table below) examined differences between homicides with (1) one victim versus two or more victims; (2) two victims versus three or more victims; and (3) three victims versus four or more victims.

Consistent with single homicides, most multiple casualty homicides were not statistically distinguishable after three victims, which is contrary to the convention of using four victims as a cut-off. Research using a more inclusive definition of multiple casualty homicides with 3 or more victims might be more informative. Multiple victim incidents most often occur in residences rather than public settings. Among public settings, incidents were more likely to occur in restaurants/bars than locations such as schools and religious establishments, which receive more media attention. Prevention efforts and resources should focus on the most common locations.

Compared to multiple casualty homicides not involving a firearm, shootings were more likely to involve more offenders and have victims who were acquaintances or strangers, as compared to close relations.

To improve research on multiple casualty homicides, NIBRS should be expanded nationwide, with more consistent coding across an expanded set of variables, such as offender motives and homicide circumstances.

Conclusions
Multiple victim homicides are more prevalent than news reports would suggest. From 2005 to 2010, 22% of NIBRS homicide incidents had two or more victims and 7% had three or more victims.

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These results can inform policy prevention efforts. Public locations were not consistently associated with increasing numbers of victims, except for restaurants/bars. Furthermore, firearms were the predominant weapon across multiple casualty homicides. This suggests that prevention may be less about fortifying public locations, such as schools, and more about minimizing the number of casualties that are associated with firearms.