



Review articles

And the survey said.... evaluating rationale for participation in gun buybacks as a tool to encourage higher yields



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ABSTRACT

Background: Gun buyback programs represent one arm of a multipronged approach to raise awareness and education about gun safety.

Methods: The city of Worcester, MA has conducted an annual gun buyback at the Police Department Headquarters since 2002. We analyzed survey responses from a voluntary, 18-question, face-to-face structured interview from December 2009 to June 2015 using descriptive statistics to determine participant demographics and motivations for participation.

Results: A total of 943 guns were collected, and 273 individuals completed surveys. The majority of participants were white males older than 55 years (42.4%). Participants represented 61 zip codes across Worcester County, with 68% having prior gun safety training and 61% with weapons remaining in the home (27% of which children could potentially access). The top reasons for turning in guns were “no longer needed” (48%) and “fear of children accessing the gun” (14%). About 1 in 3 respondents knew someone injured/killed by gun violence. Almost all (96%) respondents claimed the program raised community awareness of firearm risk.

Conclusion: The Worcester Goods for Guns Buyback has collected more than 900 guns between 2009 and 2015. The buyback removes unwanted guns from homes and raises community awareness about firearm safety.

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Firearm safety is an important issue, given the significant number of guns in homes across the United States and the high incidence of firearm-related fatalities. In 2014, firearms were responsible for more than 81,000 injuries and 33,599 deaths, with suicide and homicide by firearm the top four and five overall causes of injury-related mortality [1]. An average of seven children and teens (<20 years old) are killed by guns every day [2]. Suicide is the second cause of death among teens and young people (age 10–25) [1]; firearms are estimated to be involved in 43% of teen suicides [1]. In a National Violent Injury Statistics System (NVISS) study of firearm suicides among youths <17 years old, more than 80% used a firearm belonging to a family member, usually a parent [3].

Gun buyback programs are one strategy for reducing firearm injuries and fatalities. These involve a government or private group reimbursing individuals to turn in guns, in exchange for cash, gift cards, or some other form of compensation. Buyback programs encourage participation by having a “no questions asked” policy, allowing for anonymous

disposal. Most criticisms of buybacks surround their failure to reduce criminal activity or reclaim the types of guns used in local crimes. However, buybacks are effective as one component of a multifaceted public health approach to injury prevention [4]. They also provide a means to educate the community about the potential dangers of owning guns, teach gun safety, and collect unwanted guns from homes.

In addition to reporting on the demographics of buyback participants between 2009 and 2015, we sought to explore the motivating factors for turning in the gun(s), source of the gun(s), and safety experience and habits among participants. Furthermore, we aimed to contribute to the discussion regarding the utility of gun buybacks as a part of a gun violence reduction strategy.

1. Methods

1.1. Gun buyback event

The Worcester County “Goods for Guns” Buyback program occurred annually in Worcester, Massachusetts between December 2009 and June 2015. It took place at the central Police Department in Worcester and was sponsored by the Worcester police, Worcester

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District Attorney's Office, Worcester Department of Public Health, and the City Council. The event was advertised in local newspapers, during a press conference aired on local radio and television stations, and organizer interviews on a local talk radio show.

On the day of the event, any person participating received immunity from carrying the gun and anonymity by the District Attorney. Guns were delivered unloaded, with ammunition stored separately. Police officers greeted participants and inspected the weapons. Gift certificates from local supermarkets were given for each working gun: \$25 for a long gun (shotgun or rifle), \$50 for a pistol or revolver, and \$75 for an automatic, semiautomatic long, or handgun. Participants were also offered free gunlocks. The event was run by both police officers and volunteers. A receipt for each firearm collected and a record of the number of participants were kept by the police.

The weapons were destroyed by the Police Department after the event. A small percentage of the guns have been saved for use in an art project called Guns for Art. At present, different organizations are working with city youth to develop designs for statues and sculptures using the weapons.

1.2. Surveys

A voluntary, face-to-face, structured interview was administered to participants who agreed to participate after weapon surrender. The 18-question survey aimed to determine participant demographics, motivation for turning in the weapon(s), safety experience, and safety habits with firearms. Participant zip code was also collected. Some survey questions changed between December 2009 and June 2015, so we have cross-walked survey questions in order to compare analogous variables across time. In 2015, four questions were added about mental health and domestic violence, with the aim of understanding the prevalence of mental health, suicide, and domestic violence history among participants.

1.3. Program cost

We identified the total number of guns collected and calculated the annual cost of the program per gun collected using buyback receipts over the years of the study.

1.4. Statistical analysis

Statistical analyses included descriptive statistics to survey questions, as described above. Chi-squared test of association (or Fisher's exact test when individual cell size is <5) and the Student's t-test were used to compare differences in demographics between groups of interest. Univariate logistic regression models were used to compare differences in demographics and various gun experience characteristics. All statistical analyses were performed using Stata/IC (Stata Corp., College Station, TX). Applying the zip code responses to a Global Positioning System (GPS) mapping software program, Maptitude, we were able to visualize the geographical distribution of participants over the years (Maptitude version 2010, Caliper Corp., Newton, MA).

IRB status exemption was obtained from the University of Massachusetts Medical School Institutional Review Board (H00008939).

2. Results

2.1. Demographics and weapon totals

A total of 943 firearms were turned in between December 2009 and June 2015 (Fig. 1). The average cost per gun retrieved was \$50 (Table 2). The total cost of the program during these six years was \$48,200. Among all gun donors, most people turned in one weapon (42%). The next largest group was those who turned in four weapons (26%). The range of weapons relinquished was 1–11, with a mode of 1. Among survey

participants specifically, most returned 1 weapon, with significant percentages turning in 4+ firearms (32.1% in 2009 and 15.1% in 2010, the years that question was asked).

Survey participants ($n = 273$) are representative of the demographics in Worcester County at large; however, few respondents were non-white and younger than 30 years. The largest demographic block was white males older than 55 years (42%). Table 1 details the demographics among the survey respondents. In all, 13% were females older than 45 years, and 23% were males younger than 55 years. Survey response rate across the six years was 73%. People hailed from across Worcester County, with a total of 61 zip codes represented by the 273 respondents (Fig. 2). About one in four (24%) respondents lived in rural zip codes, as classified by the State Offices of Rural Health (SORH). Zip code data were missing from 46 participants; 17 did not provide zip codes, and 29 were missing because the 2011 survey did not ask respondents for zip codes. Though questions were asked about personal or family mental health issues and domestic violence in 2015, all respondents declined to answer these questions.

2.2. Source of firearms

Most commonly, respondents reported inheriting the gun(s) they turned in (33%), followed by 17.6% who purchased the weapon. A small percentage (9.5%) received the weapon as a gift, and 10.6% responded with "other". Just more than one in four (28%) respondents did not answer this question. Women who turned in gun(s) were more likely than men to have inherited the weapon as opposed to having bought the gun(s) (OR = 1.96, p -value = 0.9).

There was a strong relationship between inheriting a gun and the reasons for turning in the gun. Respondents were 1.6 times (0.95–2.85) more likely to turn in a gun for safety reasons if they inherited the gun than if it was obtained any other way. Regardless of firearm source, 61% of participants reported that they had guns remaining in the home.

2.3. Reasons for turning in guns

Each year, approximately two out of three (62%) respondents cite turning in firearms for safety reasons. The majority of respondents turned in firearms because they did not need the weapon anymore; the next most cited reasons included fear that children would get the gun, general safety concerns, and the need for gift certificates (Table 3). In all, 31% of respondents reported personally knowing someone injured by a gun, and 155 (59%) felt that their homes were safer after turning in the weapon(s). A majority (77%) felt the buyback raised community awareness about the risk of gun violence.

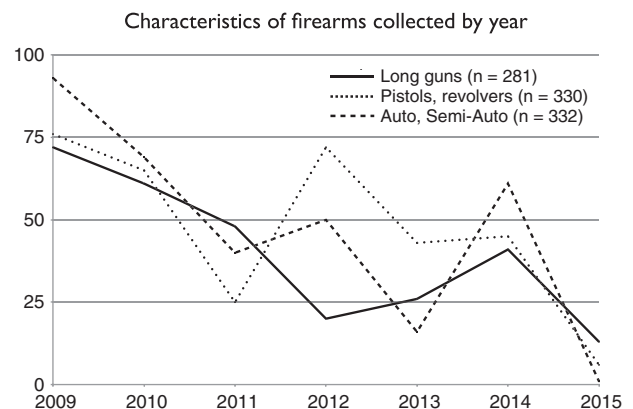


Fig. 1. Characteristics of firearms collected by year, 2009–2015.

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