

## EDITORIALS



## Handgun Violence, Public Health, and the Law

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Firearms were used to kill 30,143 people in the United States in 2005, the most recent year with complete data from the Centers for Disease Control and Prevention.<sup>1</sup> A total of 17,002 of these were suicides, 12,352 homicides, and 789 accidental firearm deaths. Nearly half of these deaths occurred in people under the age of 35. When we consider that there were also nearly 70,000 non-fatal injuries from firearms, we are left with the staggering fact that 100,000 men, women, and children were killed or wounded by firearms in the span of just one year. This translates into one death from firearms every 17 minutes and one death or nonfatal injury every 5 minutes.

By any standard, this constitutes a serious public health issue that demands a response not only from law enforcement and the courts, but also from the medical community. In this issue of the *Journal*,<sup>2</sup> Wintemute provides an analysis of the important public health implications of gun violence in America.

On March 18, the U.S. Supreme Court heard oral arguments in *District of Columbia v. Heller*,<sup>3</sup> which questions the constitutionality of the District's 1976 statutes banning or otherwise controlling handguns. A lower federal court struck down the statutes, ruling that the Second Amendment protects an individual right to keep and bear arms. The District of Columbia then appealed to the Supreme Court. The Court's decision in this case is likely to have major impact on handgun-control laws throughout the country. As noted by Wintemute, a court decision that broadened gun rights "could weaken the framework of ordered liberty."

The Second Amendment to the U.S. Constitution states that "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed." These 27 words have been the focus of endless analysis. Do they protect an individual right to arms? Or only the collective right of a state militia? Gun-rights advocates staunchly adhere to the first interpretation, and proponents of gun control favor the second. As noted by Tushnet,<sup>4</sup> a distinguished legal scholar, in this issue of the *Journal*, the language of the Second Amendment can be interpreted to provide substantial support for both points of view.

Whether the right to keep and bear arms is individual or collective, there has been overwhelming agreement for more than two centuries that government has a legitimate interest in regulating the kinds of arms that are protected. As with other fundamental rights guaranteed by the Constitution, such as speech and assembly, government has wide latitude with regard to regulation. Like the right to free speech, which is not unlimited, the right to keep and bear arms has been subjected to close regulation throughout our nation's history. As Justice Breyer pointed out during the oral arguments, "Blackstone [in his *Commentaries on the Laws of England*, 1765–1769] describes it as a right to keep and bear arms 'under law.' And since he uses the words 'under law,' he clearly foresees reasonable regulation of that right."

In deciding on the constitutionality of the District of Columbia statutes, we hope that the justices will consider not only the intricacies and ambiguities of language in the Second Amend-

ment but also the potential public health consequences, as outlined by Hemenway<sup>5</sup> in a *Journal* audio interview, of a decision to uphold the lower court's ruling. Polls continue to show that a majority of Americans favor the regulation of firearms to prevent injury and death. What would be the consequences to the public welfare of reopening the District of Columbia to handguns? We can only speculate about the human and economic costs. Health care professionals, whose responsibility it is to treat the wounded and the dying, have special reason to be concerned.

This article (10.1056/NEJMe0802118) was published at [www.nejm.org](http://www.nejm.org) on March 19, 2008.

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## Does ENHANCE Diminish Confidence in Lowering LDL or in Ezetimibe?

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In this issue of the *Journal*, Kastelein et al.<sup>1</sup> report the results of a 2-year study comparing daily therapy with 80 mg of simvastatin plus either placebo or 10 mg of ezetimibe on the average change in carotid intima-media thickness in patients with familial hypercholesterolemia. The study, called the Ezetimibe and Simvastatin in Hypercholesterolemia Enhances Atherosclerosis Regression (ENHANCE) trial, showed no significant between-group differences in any of several end points with respect to intima-media thickness (a commonly used risk surrogate for vascular disease) or clinical results, despite a between-group difference in levels of low-density lipoprotein (LDL) cholesterol of 51 mg per deciliter (1.32 mmol per liter).

This seemingly rigorous and well-executed study of a combination therapy that has been approved by the Food and Drug Administration dramatically contradicts our expectations. "Lower is better" has been the mantra with respect to LDL cholesterol for the past two decades. During a period of 3 to 6 years, most controlled trials of statins, resins, or partial ileal bypass have shown clinical or imaging benefits that correlated with the concurrent reduction in LDL cholesterol.<sup>2</sup>

A seemingly perfect analogue of the ENHANCE trial, the Atorvastatin versus Simvastatin on Atherosclerosis Progression (ASAP) trial,<sup>3</sup> compared daily therapy with 80 mg of atorvastatin with therapy with 40 mg of simvastatin in 325 patients with familial hypercholesterolemia. The patients in the two studies were virtually identical in age

(48 years) and in baseline levels of both LDL cholesterol (315 mg per deciliter [8.15 mmol per liter]) and high-density lipoprotein (HDL) cholesterol (46 mg per deciliter [1.19 mmol per liter]). The two studies also used nearly identical methods for measuring carotid-artery intima-media thickness, with measurements performed in the same central laboratory. In the control groups of the two trials, the in-treatment level of LDL cholesterol was 193 mg per deciliter (4.99 mmol per liter) among patients receiving 80 mg of simvastatin in the ENHANCE trial and 186 mg per deciliter (4.81 mmol per liter) among those receiving 40 mg of simvastatin in the ASAP trial. At 2 years, the increases in carotid-artery intima-media thickness were 0.0058 mm in the ENHANCE trial and 0.036 mm in the ASAP study.

However, the intensive-therapy groups in the two studies differed in their responses. Among patients in the ENHANCE study who had an LDL cholesterol level of 178 mg per deciliter (4.60 mmol per liter) while receiving combination therapy with simvastatin plus ezetimibe, the carotid intima-media thickness progressed by 0.0111 mm. With a similar level of LDL cholesterol (167 mg per deciliter [4.32 mmol per liter]) during therapy with 80 mg of atorvastatin in the ASAP study, intima-media thickness regressed substantially, by 0.031 mm. Three differences between the two trials might explain this substantial discrepancy: First, the baseline intima-media thickness was 0.695 mm in the ENHANCE study, as