Guest editorial

Children shooting guns: a failure in product design

Mention of the equalization between the US death rates involving motor vehicles and firearms has quickly become *de rigueur* in lectures and publications on injury epidemiology. But what should we make of this phenomenon of mortality statistics? How does the crossing of two lines on a graph inform us with regard to the policy of injury prevention?

Imagine, please, the following scenarios:

A 4 year old child left in a car with its engine idling while her mother runs into the drug store shifts the gear into 'drive'. The car moves down the sloping street and hits a pedestrian before striking a tree; both pedestrian and child are seriously injured.

A 14 year old boy is depressed by the loss of his girlfriend to another. He finds the keys to the family car and, although unlicensed, drives it intentionally into a bridge abutment, determined to kill himself.

An 18 year old and several of his friends become intoxicated, steal a car, and drive down the wrong side of a highway at an excessive rate of speed, endangering the lives of others on the road.

What interventions do we expect would be successful in preventing the injuries that might occur with these scenarios? For the first scenario, newer cars usually require the driver to put a foot on the brake before the car can be put into gear, an operation usually beyond the ability of a young child. For the second scenario, while it is difficult to prevent a 14 year old from operating a car, if the car has an air bag, his life might be saved in the foreseeable crash. For the third scenario, we can provide our cars with a number of built-in, antitheft devices, including locks, sirens, and mechanisms that disable the car if the driver does not possess an authorised user's key.

Let's now change the scenarios by altering the vehicle of death. In each case, let's substitute a handgun for the car, so that the 4 year old finds a handgun in the home one morning; the depressed 14 year old attempts to take his life by gunfire; and the intoxicated 18 year old is brandishing a stolen handgun in public. What now are the preferred interventions?

In these cases, popular opinion in the US seem to favor punishment of parents, teaching children to be careful around guns, or imprisonment of older children for the endangerment of others. How well are the motor vehicle related interventions working compared to these firearm related interventions?

In general, the US has been very successful in reducing the number and rate of motor vehicle related deaths. Between 1986 and 1993, the annual number of these deaths dropped from 46 867 to 40 880. In sharp contrast, however, during the same time period, the annual number of gun related deaths increased from 33 400 to 40 230.

Many of the firearm related deaths claim the lives of young people. Between 1986 and 1992, firearm deaths among ages 0–19 in the US climbed from 3376 to 5379, an increase of 59%. In the 15–19 age group, the firearm homicide rate more than doubled during these six years.

Based on this comparison one might argue that we should try the same types of interventions for gun deaths that have been relatively successful in reducing highway fatalities. There exist some firearm related interventions that are product oriented like our motor vehicle interventions, and that have not been adequately tried. For example, the 4 year old child would not be able to operate the handgun if all handguns were required to be childproof. The technology to childproof handguns has existed for more than 100 years, but it is not currently employed. The suicidal 14 year old and the larcenous 18 year old would not be able to operate their handguns if the handguns were personalized, so that only the authorized user could operate the weapon. This is now possible by the use of low technology combination locks or high technology electric or magnetic sensory mechanisms.

These product oriented interventions go untested because firearms are unregulated consumer products. Decisions on the design of handguns made in the US and exported by the US are based on profit to the manufacturer, and are unhindered by any considerations of the public's safety. No governmental agency regulates the design of handguns for safety.

This is unacceptable. We are now putting in the hands of our children and adolescents, instruments that allow them to take lives with the flick of a finger. The very young child, the depressed teenager, and the incapacitated adolescent can, with ease, operate found and stolen handguns. It is easier for a 4 year old to discharge a weapon than it is to open an aspirin bottle.

Handgun makers need an incentive to redesign their products with the public's safety in mind. The incentive can be supplied through legislation or regulation, but the likelihood of this happening in the near future is small. The threat of litigation can also provide an incentive. Injuries caused by the unauthorised use of handguns are foreseeable and preventable by product modification. Handgun manufacturers need to exercise their moral, financial, and legal obligations to provide us with products less likely to be misused.

STEPHEN P TERET

Johns Hopkins Center for Gun Policy and Research

SUSAN P BAKER

*Johns Hopkins Center for Injury Research and Policy,
Johns Hopkins School of Hygiene and Public Health,
624 North Broadway, Baltimore,
MD 21205, USA*