



To Chairperson Floyd Prozanski and Committee members of the Senate Judiciary Committee,

My name is Dr. Ryan Hassan MD MPH FAAP and I represent the Oregon Pediatric Society. I am a pediatrician practicing at Oregon Pediatrics in Happy Valley, and I am writing to you to express my emphatic support for legislation enforcing minimum age requirements for buying firearms, and requiring gun-owners to safely store their guns. If passed, this legislation will reduce the number of children injured or killed in Oregon each year.

Two years ago, I was working in a Pediatric Intensive Care Unit, when I admitted a 5-year-old boy named Alex for a gun injury. Alex had found his father's loaded gun on the kitchen counter, picked it up, and shot himself in the head. For the month that I cared for him, he was mostly comatose. He needed assistance breathing, so we had to place a tube down his throat connected to a ventilator. A few days into his hospitalization, his heart could no longer adequately pump blood to his lungs and body, so we had to cut into the jugular vein in his neck and connect him to a machine that pumped his blood out of his heart and back to his body, in a process called Extracorporeal Membrane Oxygenation (ECMO). At this point in his care he was so covered in tubes and other medical devices that it was difficult to even see his small body in the hospital bed underneath it all, and even more difficult to imagine him as the young boy in the pictures around his bed who was playing soccer, hiking, and laughing with his family.

Scope of the Problem

Though it has been highly politicized, gun violence is a public health issue. Guns are now the leading cause of fatal injury in the US, more common than motor vehicle collisions. Here are the numbers:

In 2017 in the US, 486 people died of unintentional gun injuries, 23,854 people committed suicide with a gun, and 14,542 people were intentionally killed by gun injuries. About 10% of these deaths occur in children. Among US adolescents 15-19 years old, gun homicides are the second leading cause of death; gun suicides are the third (1). For every child who dies by a gun, hundreds more are injured. Over 7000 children were hospitalized for gun injuries in 2009 (3). In 2010, 15,576 children were treated for gun injuries in US Emergency Departments, and 1,970 of them died (1). Of those children who are hospitalized and live, about half will be discharged with a disability, as was the case for my patient, Alex, who went home after over a month in the hospital, and required physical, speech, feeding, and psychological therapies for months afterwards.

This appears to be a uniquely American problem. Forty-nine times as many young adults die by guns in the US compared to other high-income countries. In fact, for every 10 children under age 15 killed by guns globally, 9 live in the US (2). This is not a reflection of our rates of mental illness, as gun interest groups try to claim. Other countries with similar rates of mental illness and stricter gun laws have significantly lower rates of gun deaths than the US. This year, there will be more than 35,000 people who die from gun injuries in the US, including about 3000 children. Today, 7 children will wake up ready for a normal day, and be shot and killed.

Financial Burden

Though the greatest cost of gun violence is measured in lives lost, it also poses a significant financial burden. Gun violence costs Americans more than \$730 million per year in hospital costs, most of which comes from Medicaid and the self-paying poor (6). The medical cost of treating gun injuries in children alone was over \$330 million in 2010 (1). The cost of lost productivity from gun violence is significantly higher. In 2000, the cost of lost productivity was \$16.6 billion for gun assaults and homicides, and \$16.3 billion for self-inflicted gun injuries and suicide (7).

Risks of Gun Ownership

Despite these stark statistics, many Americans insist on keeping guns in their home, often times in the belief that doing so makes them safer. The evidence paints a different picture. Guns in the home in urban areas are associated with three times the risk of homicide and five times the risk of suicide (19, 20). Guns in the home are also 22 times more likely to be used in domestic homicide, suicide, or an unintentional shooting than to be used in self-defense (8). Carrying a gun during an assault increases the risk of being shot by 400% (21).

Perhaps the greatest risk of gun ownership is the risk of pediatric suicide. Multiple individual-level and ecologic studies have found that adolescents' risk for

suicide increases as their access to guns does (11-16), even for adolescents without prior psychiatric diagnoses. The risk for suicide is even greater when guns are stored loaded (17, 18). We know that suicides in children are typically impulsive, and more likely to be successful when they have easy access to lethal weapons: 90% of suicide attempts with guns are successful, compared to less than 5% of suicide attempts using less lethal means, like medications or sharp objects (9, 10). The risk for unintentional injury and suicide in children is reduced by 73% when guns are kept locked, and by 70% when they are kept unloaded (28). Therefore, if we reduce children's access to guns, we can reduce their risk for death.

Gun Storage Practices

Unfortunately, many gun owners continue to underestimate the dangers guns pose, and do not store their guns safely. Less than 50% of parents of kids 4-12 years old store their guns safely (locked and unloaded) (25), and only 6% of parents of fifth graders store their guns safely (26). A national random sample of gun-owning parents of kids under 18 found that 21.7% of parents stored a gun loaded, 31.5% stored it unlocked, and 8.3% stored at least one gun unlocked and loaded, as was the case for Alex's family (27).

Parents may store their guns unsafely because they don't think their children are likely to find or touch them. They are wrong on both counts. Although 75% of parents think their children would not touch a gun (25), this myth was shattered by the terrifying 2001 study, "Seeing is Believing", in which a majority of children handled a gun they found in a room, and 50% of them pulled the trigger (23). This study was recreated and filmed as part of an ABC 20/20 special, "Young Guns", that is viewable on YouTube, and is harrowing to watch. In a survey of children under age 10 living with guns, 73% knew where their parents' guns were kept, and 36% admitted to handling the weapons. Meanwhile, 39% of those children's parents incorrectly thought their children didn't know where their gun was stored, and 22% incorrectly thought their child had never handled their gun (22, 24). Clearly, we need to find ways to improve gun storage practices.

Effects of Legislation

Epidemiologists have studied gun legislation directly, and found that it can be quite effective. Stricter gun laws are significantly associated with reduced firearm related deaths on national and state levels (29, 30), while laws that relax gun restrictions are associated with more gun deaths (31). States with the strictest gun laws also have the lowest numbers of hospital visits for gun injuries (30). Laws that specifically reduce children's access to guns reduce deaths from unintentional shootings by as much as 23% and suicides by as much as 8.3% (32-34). These laws also lead families with preschool-aged children to store their guns more safely (35), and

reduce the number of students who report carrying a gun in the last 30 days (37). When we regulate guns, our children are safer.

Bottom Line

When car crashes became a leading cause of death in the US, the automobile industry blamed the crashes on drivers. When we found lead in our water and our children's blood, industries that produced leaded gasoline and leaded paint attempted to squelch the data. When we learned that tobacco causes lung cancer, the tobacco industry claimed smoking was safe. In each of these cases, public health professionals and legislators found the courage to fight back against corporate greed for the sake of our children, and passed seat belt and car seat laws, removed lead from American products, and regulated the sale of tobacco, and as a result, tens of thousands of lives have been saved. Today we have an opportunity to find that same courage, and pass legislation that will reduce the number of Oregon children dying from guns each year; because even one dead child is too many.

References:

1. Centers for Disease Control and Prevention. Injury prevention and control: data and statistics (WISQARS) National Center for Health Statistics system. Available at: www.cdc.gov/injury/wisqrs/index.html. Accessed 3/30/19.
2. Grinshteyn E, Hemenway D. Violent death rates: the US compared with other high income OECD countries, 201. *Am J Med.* 2016; 129(3):266-273
3. Leventhal JM, Gaither JR, Sege R. Hospitalizations due to firearm injuries in children and adolescents. *Pediatrics.* 2014; 133(2):219-225
4. Centers for Disease Control and Prevention. Leading causes of death reports: 1981-1988.
5. DiScala C, Sege R. Outcomes in children and young adults who are hospitalized for firearms-related injuries. *Pediatrics.* 2014; 133(2):219-225
6. Spitzer SA, Staudenmayer KL, Tennakoon L, Spain DA, Weister TG. Costs and financial burden of initial hospitalizations for firearm injuries in the United States, 2006-2014. *Am J Public Health.* 2017; e1-e5
7. Corso PS, Mercy JA, Simon TR, Finkelstein EA, Miller TR. Medical costs and productivity losses due to interpersonal and self-directed violence in the United States. *Am J Prev Med.* 2007; 32(6):474-482
8. Kellermann AL, Rivara FP, Rushforth NB, et al. Gun ownership as a risk factor for homicide in the home. *N Engl J Med.* 1993; 329(15):1084-1091
9. Elnour AA, Harrison J. Lethality of suicide methods. *Inj Prev.* 2008; 14(1):39-45
10. Gould MS, Greenberg T, Velting DM, Shaffer D. Youth suicide risk and preventive interventions: a review of the past 10 years. *J Am Acad Child Adolesc Psychiatry.* 2003; 42(4):386-405

11. Miller M, Hemenway D. The relationship between firearms and suicide: a review of the literature. *Aggress Violent Behav.* 1999; 4(1):59-75
12. Miller M, Lippmann SJ, Azrael D, Hemenway D. Household firearm ownership and rates of suicide across the 50 United States. *J Trauma.* 2007;62(4):1029-1034; discussion 1034-1035
13. Kung HC, Pearson JL, Wei R. Substance use, firearm availability, depressive symptoms, and mental health service utilization among white and African American suicide decedents aged 15 to 64 years. *Ann Epidemiol.* 2005; 15(8):614-621
14. Wiebe DJ. Homicide and suicide risks associated with firearms in the home: a national case-control study. *Ann Emerg Med.* 2003; 41(6):771-782
15. Miller M, Azrael D, Hepbrun L, Hemenway D, Lippmann SJ. The association between changes in household firearm ownership and rates of suicide in the United States, 1981-2002. *Inj Prev.* 2006;12(3):178-182
16. Miller M, Hemenway D, Azrael D. Firearms and suicide in the northeast. *J Trauma.* 2004; 57(3):626-632
17. Brent DA, Perper JA, Moritz G, Baugher M, Schweers J, Roth C. Firearms and adolescent suicide. A community case-control study. *Am J Dis Child.* 1993; 147(10):1066-1071
18. Brent DAPJ, Perper J, Moritz G, Baugher M, Allman C. Suicide in adolescents with no apparent psychopathology. *J Am Acad Child Adolesc Psychiatry.* 1993; 32(3):494-500
19. Kellermann AL, Rivarrra FP, Simes G, et al. Suicide in the home in relation to gun ownership. *N Engl J Med.* 1992; 327(7):467-472
20. Bailey JE, Kellermann AL, Simes GW, Banton JG, Rivara FP, Rushforth NP. Risk factors for violent death of women in the home. *Arch Intern Med.* 1997; 157(7):777-782
21. Branas CC, Richmond TS, Culhane DP, Ten Have TR, Wiebe DJ. Investigating the link between gun possession and gun assault. *Am J Public Health.* 2009; 99(11):2034-2040
22. Parikh K, et al. *Hosp Pediatr.* May 23, 2017, <http://hosppeds.aappublications.org/content/early/2017/05/19/hped.2016-0146>
23. Jackman GA, Farah MM, Kellermann AL, Simon HK. Seeing is believing: what do boys do when they find a real gun? *Pediatrics.* 2001; 107(6):1247-1250
24. Baxley F, Miller M. Parental misperceptions about children and firearms. *Arch Pediatr Adolesc Med.* 2006; 160(5):542-547
25. Farah MM, Simon HK, Kellerman AL. Firearms in the home: parental perceptions. *Pediatrics.* 1999; 104(5 pt 1):1059-1063
26. Schwebel DC, Lewis T, Simon TR, et al. Prevalence and correlates of firearm ownership in the homes of fifth graders: Birmingham, AL, Houston, TX, and Los Angeles, CA. *Health Educ Behav.* 2014; 41(3):299-306
27. Johnson RM, Miller M, Vriniotis M, Azrael D, Hemenway D. Are household firearms stored less safely in homes with adolescents? Analysis of a national random sample of parents. *Arch Pediatr Adolesc Med.* 2006; 160(8):788-792
28. Grossman DC, Mueller BA, Riedy C, et al. Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA.* 2005; 293(6):707-714
29. Santaella-Tenorio J, Cerda M, Villaveces A, Galea S. What do we know about the association between firearm legislation and firearm-related injuries? *Eidemiol Rev.* 2016; 38(1):140-157
30. Simonetti JA, Rowhani-Rahbar A, Mills B, Young B, Rivara FP. State firearm legislation and nonfatal firearm injuries. *Am J Public Health.* 2015; 105(8):1703-1709

31. Kalesan B, Mobily ME, Keiser O, Fagan JA, Galea S. Firearm legislation and firearm mortality in the USA: a cross-sectional, state-level study. *Lancet*. 2016; 387(10030):1847-1855
32. Cummings P, Grossman DC, Rivara FP, Koepsell TD. State gun safe storage laws and child mortality due to firearms. *JAMA*. 1997; 278(13):1084-1086
33. Webster DW, Vernick JS, Zeoli AM, Manganello JA. Association between youth-focused firearm laws and youth suicides. *JAMA*. 2004; 292(5):594-601
34. Hepburn L, Azrael D, Miller M, Hemenway D. The effect of child access prevention laws on unintentional child firearm fatalities, 1979-2000. *J Trauma*. 2006; 61(2):423-428
35. Prickett KC, Martin-Storey A, Crosnoe R. State firearm laws, firearm ownership, and safety practices among families of preschool-aged children. *Am J Public Health*. 2014; 104(6):1080-1086
36. Eaton DK, Kann L, Kinchen S, et al; Center for Disease Control and Prevention (CDC). Youth risk behavior surveillance - United States, 2011. *MMWR Surveill Summ*. 2012; 61(4):1-162
37. Xuan Z, Hemenway D. State gun law environment and youth gun carrying in the United States. *JAMA Pediatr*. 2015; 169(11):1024-1031