The Impact of Firearms on King County's Children: 1999 – 2012

November 25, 2013

401 Fifth Avenue, Suite 1300
Seattle, WA 98104
www.kingcounty.gov/health

Public Health
Seattle & King County

Acknowledgements

This brief was prepared by Public Health—Seattle & King County as a collaboration between the Assessment, Policy Development and Evaluation Unit and the Prevention Division. We wish to thank the King County Medical Examiner's Office for their assistance in this report as well as for their leadership role in Child Death Review.

Introduction

Every day in the United States, five children age 18 and under are killed by guns[1]. King County is not immune to this violence. Between 1999 and 2012, 68 King County children under the age of 18 died from gun violence, and another 125 children were injured and had to be hospitalized[2]. All of these deaths and injuries were preventable. This report describes what we know about these tragic deaths with the aim of informing what we can do to prevent other children from needlessly dying by gun violence.

In reviewing data from the Medical Examiner's Office and Child Death Review, **three key findings** emerge: 1) There is a paucity of data to inform policy and program decision making; 2) gun violence among children is really two problems, one being homicide and the other suicide, and each may require different approaches to prevent; and 3) the risk of a completed suicide by firearm among children is nine times greater in households where firearms are kept unlocked and are easily accessible.

Based upon these findings, we have **two major recommendations**:

1. King County has decided to take a public health approach to preventing gun violence, but there are barriers. If we want to move forward, we need changes in our systems to improve information gathering and sharing, to allow creation of a robust data system – the basis for developing and implementing effective interventions.

2. Every effort should be made to encourage and incentivize gun owners to safely store their firearms, away from the reach of children.

Background

The mass shooting of children at Newtown, CT struck a chord here in King County. Shortly after, King County Executive Dow Constantine issued an Executive Order directing Public Health – Seattle & King County to develop innovative, data-driven local strategies to prevent gun violence in King County. Executive Constantine called gun violence a public safety and public health crisis.

Just as it has been applied to reducing motor vehicle-related injuries or tobacco use, a public health approach may be our best chance for reducing gun deaths and injuries. A public health approach relies on data and rigorous evaluation to identify effective policies and strategies to prevent bad outcomes. In this case, the goal would be to prevent unnecessary deaths and injuries by firearms.

There is reason to believe that by using a public health approach, we can be successful. A comparison of the gun-related deaths and injuries among children in the U.S. to other Western countries reveals that American youth ages 15-19 have a 43 times higher firearm assault mortality compared to youth in the same age group in Western Europe[3]. In fact, across 23 high income countries, 87% of the firearm fatalities in children less than 14 years of age occurred in the United States[4]. The lower rates in other countries prove that it is possible, with the right policies and programs, to prevent firearm deaths.

Methods

Child firearm fatalities were identified through a report generated from the Medical Examiner's office (MEO) database for the years 1999-2012. A similar report was generated from the Child Death Review (CDR) database. The MEO and CDR lists were compared to ensure there were no missing cases and to create a final list of all firearm deaths of individuals less than 18 years of age. All incidents occurred in King County during the years 1999-2012. Each record was then reviewed and information extracted to tabulate data. Law enforcement records and narratives that were already included in the CDR system were reviewed to help complete the data.

King County age-specific rates of child (< 18 years) firearm homicide and suicide for the 14-year period, 1999-2012, were calculated using Washington State death certificate data (1999-2011) and King County MEO database (2012 deaths). Corresponding population estimates were obtained from Looking Glass Analytics and the Washington State Office of Financial Management (Feb 2012 release). The 2012 population estimates were assumed to be the same as the population estimates for 2011. Rates were calculated based on residence (decedent was resident of King County), rather than occurrence (where the event occurred).

Data on high school student access to guns comes from the Washington State Healthy Youth Survey for 2012.

Findings

There are two distinct problems of gun violence among children: homicide and suicide

From 1999-2012, 68 children younger than age 18 were killed by firearms in King County. Of these deaths, 62% were homicides and 37% were suicides. The manner of death for one firearm fatality was undetermined. The characteristics and factors associated with firearm-related homicide and suicide differ, as described below.

Homicide

Child firearm homicide victims

From 1999 to 2012, there were 42 firearm homicides of King County children under 18 years old. That accounts for 42% of the overall child homicides during this period. Firearm homicide victims were more likely to be male, Black, and between the ages of 15 and 17.

- Males were three times more likely than females to be firearm homicide victims.
- Black children were six times more likely than white children to be firearm homicide victims. (Fig. 1)
- Child homicide rates were higher in Seattle (1.8 per 100,000) and South King County (1.0 per 100,000) compared to North (0.3 per 100,000) and East King County (0.2 per 100,000). (Fig. 2)

Figure 1.

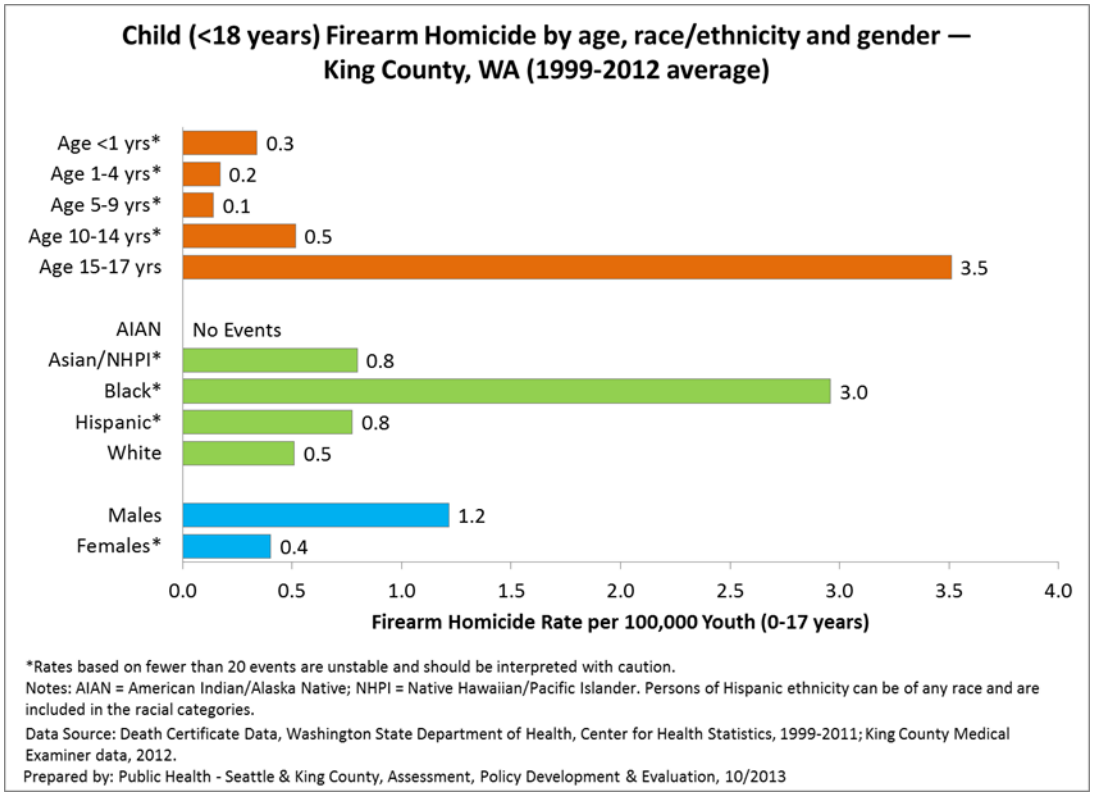
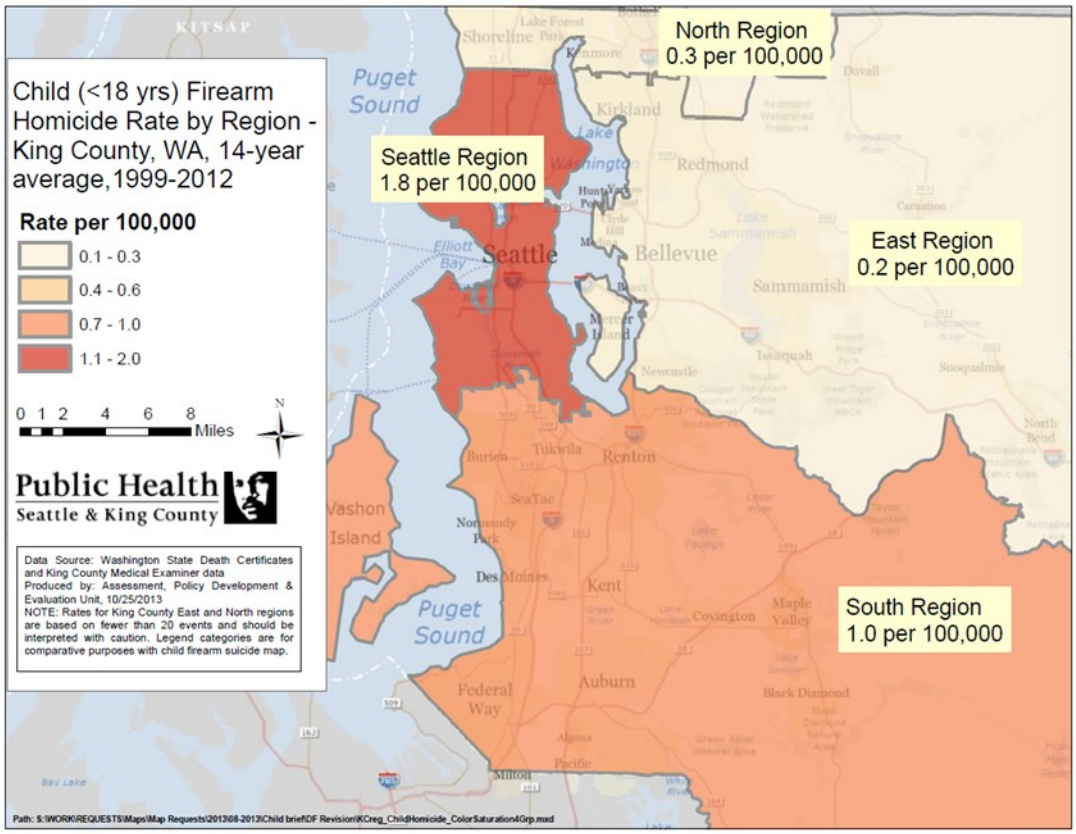


Figure 2.



Context and details of child firearm homicide incidents

- The type of firearm used is known in 76% of child homicides. Of the cases when the firearm type is known, 94% involve handguns. Two cases were committed with shotguns and hunting rifles.
- The relationship between the shooter and the victim is known in 69% of the cases. Of the cases where the relationship was determined, in 21% of incidents, the shooter was a family member; another 52% were friends or acquaintances.
- 29% of child firearm homicides were multiple-death incidents. All firearm homicides of children less than ten years of age also involved fatalities of adult family members.
- Drug and alcohol use appears common among *victims* of firearm homicides. Sixty-two percent of all child homicide victims tested positive for illegal drugs and/or alcohol. The most common drug detected was marijuana (38% of all child firearm homicides), followed by alcohol (14% of all child firearm homicides) and cocaine (12% of all child firearm homicides). Data on the shooters is not available.

What we don't know

Critical information is missing about the nature of these events. This report was limited to the data elements collected by the MEO or Child Death Review. Additional information may be available through other sources, such as law enforcement or court records; however, it often cannot be shared due to legal restrictions. Other information is not systematically collected by any agency.

Data that would help in understanding the nature of these incidents include answers to questions, such as:

- What are the reasons for the shootings? Are they gang-related incidents?
- Who are the shooters, and what are their motives?
- Where do the guns come from, and are they obtained legally?
- Were there histories of violence or interactions with law enforcement prior to these events?
- To what degree did violent media, such as video game or films, influence perpetrators to use firearms?

Suicide

Child firearm suicide victims

Between 1999 and 2012, 25 King County children under 18 years old committed suicide using a firearm. That accounts for 39% of the overall child suicides during this period. Firearm suicides were more common in the late teen years (ages 15-17) and more likely among males and Whites.

- Males were 3.5 times more likely than females to be a firearm suicide victim.
- White children were three times more likely than black children to be a firearm suicide victim. There were no firearm suicide victims during this period among Hispanic, Asian/NHPI, or Alaskan Native/American Indian children. (Fig. 3)
- Child firearm suicide rates were higher in East (0.7 per 100,000) and South (0.5 per 100,000) King County than in North (0.3 per 100,000) King County or the Seattle region (0.3 per 100,000). (Fig. 4)

Figure 3.

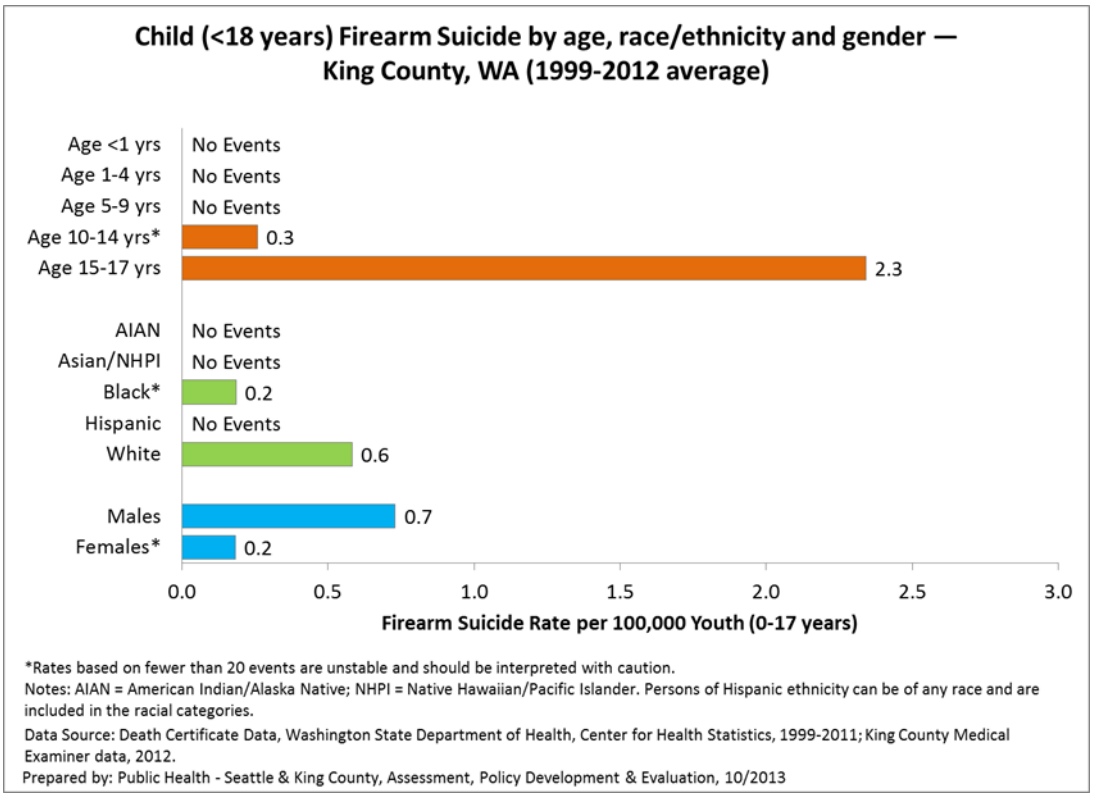
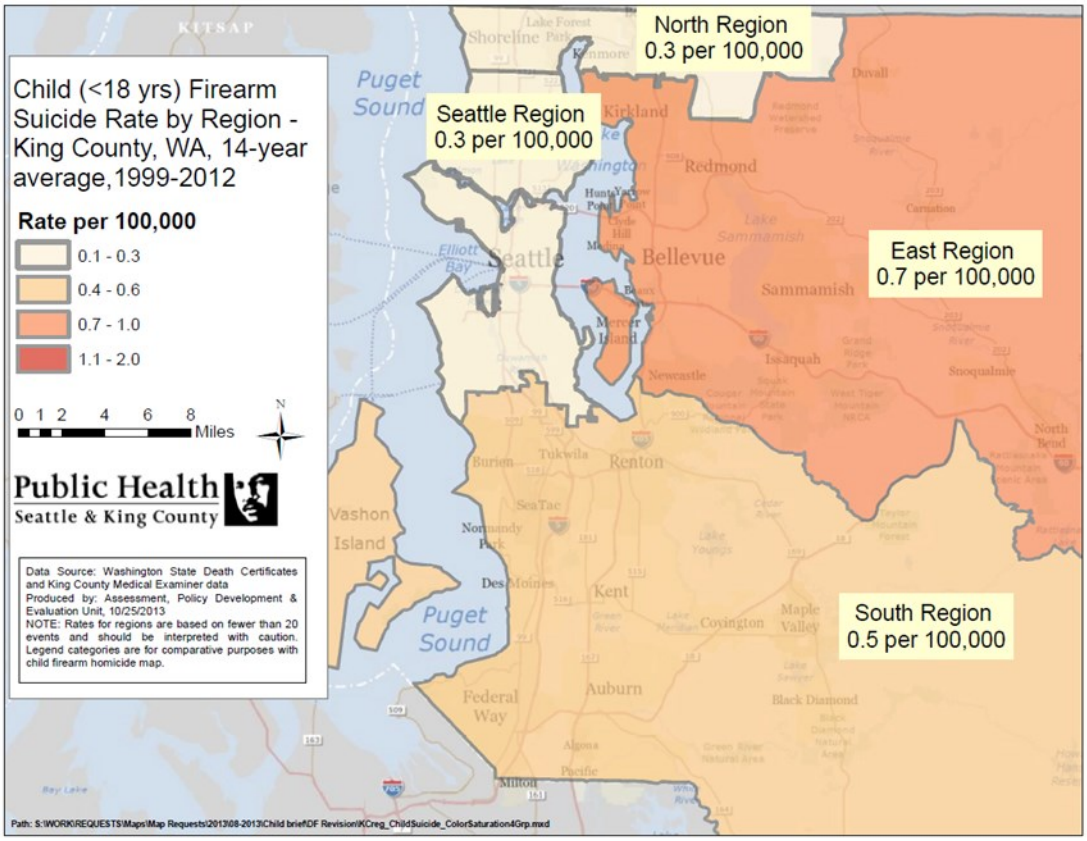


Figure 4.



Context and details of child firearm suicide incidents

- Of the child firearm suicides, handguns were used in 60% of the incidents while the remaining 40% involved a hunting rifle or shotgun.
- In 80% of cases, gun ownership was identified. Of the incidents where gun ownership was known, 25% of suicides were committed with a gun owned by the child, and 70% were committed with a gun owned by a family member.
- Only 16% of the guns used to commit suicides were stored in locked cabinets, and those children either knew the combination or where the key was kept.
- The risk of completed firearm suicides among King County children (< 18 years) is 9.2 times greater when firearms in or around the home are stored unlocked compared to when firearms are stored locked[5].
- Drugs and/or alcohol were involved in 32% of child firearm suicides. The most common drug detected was marijuana (20% of all child firearm suicides), followed by alcohol (8% of all child firearm suicides) and methamphetamine (8% of all child firearm suicides).

What we don't know

As with child firearm homicides, many details regarding child firearm suicides are not available. Much of the information that would help in understanding the nature of these incidents is not collected systematically, including answers to questions, such as:

- What causes children to use guns versus other methods to inflict self-harm?
- What are the factors that put some children at higher risk of firearm suicide?
- Do children who commit suicide by firearm have identified mental illness, and were they receiving treatment?
- Are there opportunities to identify children at risk of suicide and intervene?

Access to Firearms

National studies, as well as those from here in King County, indicate that having a gun in the home increases the risk of injury or death[6]. Although details regarding the origin and ownership of firearms involved in these specific child deaths are limited, additional information about general accessibility of firearms in King County is known:

- In King County, nearly one-quarter of all households have at least one firearm. Among households with firearms, an estimated 22% (40,800 households) stored them loaded, and 17% (31,200 households) stored them loaded and unlocked[7].
- In 2012, an estimated 2,500 King County high school students reported carrying a gun for purposes other than hunting in their communities at least once during the past 30 days.
- In 2012, an estimated 11,600 high school students in King County (which represents 14% of the entire public high school students population) reported that it would be very or sort of easy to get a handgun if they wanted to.
- During the 2011–2012 school year, 52 King County students were suspended or expelled for possessing a firearm on public school grounds[8]. Over the past 10 years there was no significant change in the total number of reported incidents of carrying guns in public schools statewide.

Conclusion

No region or community in King County is immune to gun violence, and there are too many children who die from firearms to consider that these are unique and unavoidable incidents. There are some notable trends; the data reveals that firearm homicide and suicide have different characteristics, both geographically and in terms of which communities are most impacted. Unfortunately, the data does not provide sufficient information to guide prevention efforts. A public health approach (and/or a public safety approach) that leads to successful interventions to reduce gun violence deaths and injuries will require many more details as to how and why these events occur.

Based upon what we know and don't know, we have two recommendations:

1. ***King County has decided to take a public health approach to preventing gun violence, but there are barriers. If we want to move forward, we need changes in our systems to improve information gathering and sharing, to allow creation of a robust data system.***

In a rational world, we would base policies, develop programs, and allocate resources based upon data and evidence. But there is scattered and incomplete data on gun violence, especially pertaining to children. If the goal is to make data-driven decisions, then all partners will need to put into place the components necessary to obtain the data for analysis. This includes developing procedures to collect additional data, creating or adjusting policies to allow broader sharing of information, and providing sufficient resources for these efforts. Additionally, it will require commitment and collaboration by partners such as public health, law enforcement, juvenile justice, the courts, and social service agencies.

Specific next steps for consideration include:

- Participating in the ***National Violent Death Reporting System*** or developing a similar system which systematically links variables from different sources, such as the medical examiner's office, law enforcement reports, and crime labs, to identify trends related to violent events.
- Supporting the full implementation of a ***youth shooting review*** based on Milwaukee's Homicide Review Commission with the aims of 1) using case review to identify trends and gain a better understanding of youth gun violence, 2) developing innovative and effective responses and prevention strategies, and 3) helping focus available prevention and intervention resources.

Both of these options would require instituting new efforts to gather standardized data beyond what is currently collected, as well as sharing the information in a way that allows linkage of case information across different sources. Only once we have more information can we scientifically identify trends and potential areas of intervention.

2. ***Even with incomplete data, the critical importance of storing firearms safely is evident. We should ensure that gun owners store their firearms safely and out of the reach of children.***

Keeping firearms out of the reach of children is an important step in preventing children from committing suicide and homicide. As noted earlier, there is a much greater risk of a completed suicide by firearm in homes where guns are kept unlocked. Some of the potential

steps that could be taken include:

- Assuring that gun owners have access to affordable safes and lockboxes and are educated on the critical importance of their use.
- Working with retailers to promote safe and responsible storage of firearms.

References and notes

1. Centers for Disease Control and Prevention. Injury prevention & control: Data & statistics (WISQARS™). www.cdc.gov/ncipc/wisqars.

2. Firearm injury hospitalization data comes from the Washington Comprehensive Hospital Abstract Reporting System (CHARS). CHARS contains coded hospital inpatient discharge information (derived from billing systems) available since 1987 and is used to collect information such as the age, sex, zip code and billed charges of patients, as well as the codes for their diagnoses and procedures among other items. Analysis focused on the period 1999-2011 and excluded King County youth who died while hospitalized.

3. Institute for Health Metrics and Evaluation. Global burden of disease (GBD) visualizations: GBD compare. http://www.healthmetricsandevaluation.org/gbd/visualizations/country.

4. Richardson EG, Hemenway D. Homicide, suicide, and unintentional firearm fatality: Comparing the United States with other high-income countries, 2003. *J Trauma*. 2011;70 (1):238-243. doi: 10.1097/TA.0b013e3181dbaddf.

5. The relative risk was 9.5 with a 95% confidence interval of 4.3 to 20.9. Unadjusted relative risk of completed firearm suicide by firearm storage practice (locked vs. unlocked) in or around the home was estimated using data from two sources: (1) Child Death Review (CDR) for number of completed firearm suicides by firearm storage practice and (2) Behavioral Risk Factor Surveillance System (BRFSS) for percentage of children (< 18 years) in homes with locked and unlocked firearms. The number of children in households with locked and unlocked firearms was estimated by multiplying the 3-year average prevalence from BRFSS with the King County, WA population <18 years. As a conservative approach, completed firearm suicides where storage was unknown (n=9, 36% of completed firearm suicides) were assigned to locked storage. Characteristics of households in the CDR data were assumed to be similar to characteristics of BRFSS respondents from households with children.

6. Kellermann AL, Reay DT. Protection or peril? an analysis of firearm-related deaths in the home. *N Engl J Med*. 1986;314(24):1557-1560. doi: 10.1056/NEJM198606123142406.

7.Washington State Department of Health. Behavioral risk factor surveillance system (BRFSS). http://www.doh.wa.gov/DataandStatisticalReports/HealthBehaviors/BehavioralRiskFactorSurveillanceSystemBRFSS.aspx. (Public Health – Seattle & King County is responsible for data analysis.)

8. State of Washington Office of Superintendent of Public Instruction. *Weapons and Schools Reports*. http://www.k12.wa.us/SafetyCenter/Weapons/default.aspx.