

# The Prominence and Acceleration of Gun Deaths among Adolescents and Young Adult (AYA) Americans

- Since 2007, **bullets have killed more American AYAs 15 to 39 years of age than any other cause** (Fig. 1).
- The **firearm death rate in AYAs has accelerated** with statistically significant increases since early 2014 (Table 1, Figs. 2 & 3).
- Firearm deaths have replaced motor vehicle accidents as the #1 cause of deaths in AYAs (Table 1, Figs. 1-3).
- As of 2015, there were 56%-91% more firearm deaths than each of the next four most common causes of death<sup>1</sup> in AYAs (Fig. 1).
- The increase in firearm deaths is due to increases in both firearm-mediated suicides and homicides and has been occurring in both males and females (Table 1, Figs. 2 & 3).
- Since 2005-2007, the proportion of all deaths in AYAs due to firearm-mediated suicide has increased in both males and females (Fig. 4, A), and proportionately more firearms have been used for suicide, especially in females (Fig. 4, B).

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<sup>1</sup> 56% more than motor vehicle accidents, 70% more than opioid overdose deaths, 76% more than cancer deaths, and 91% more than suicides not mediated by firearms

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(continued)

- As of 2014-2015, the rate of firearm deaths was increasing at the same rate as opioid overdose deaths (Fig. 1), the latter receiving far more national attention.
- The U.S. is undergoing more of an increase in gun deaths in AYAs relative to other causes of death in AYAs than any other high-income country.
- The U.S. has 91% of the world's children and adolescents who die from guns in high-income countries.<sup>2</sup>
- Guns are the 3<sup>rd</sup> leading cause of death for all children between ages 1 and 17.<sup>2</sup>

## Why has the number of gun deaths accelerated in the U.S.?

- It's not the population increase for which the **AYA population has increased only 12%** since 1999<sup>3</sup> while the **gun sales have increased >200%** (Fig. 6).
- In part, it's the **availability and access to guns** (Figs. 7 & 8).
- The U.S. has more guns per capita in citizen hands than any other country.
- In 2015 the average **monthly purchase in the U.S. was 2.2 million guns**, more than 3x the average of 700,000 per month in 2007 (Fig. 5).

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<sup>2</sup> In Press: Fowler KA, Dahlberg LL, Haileyesus T, Gutierrez C, Bacon B.

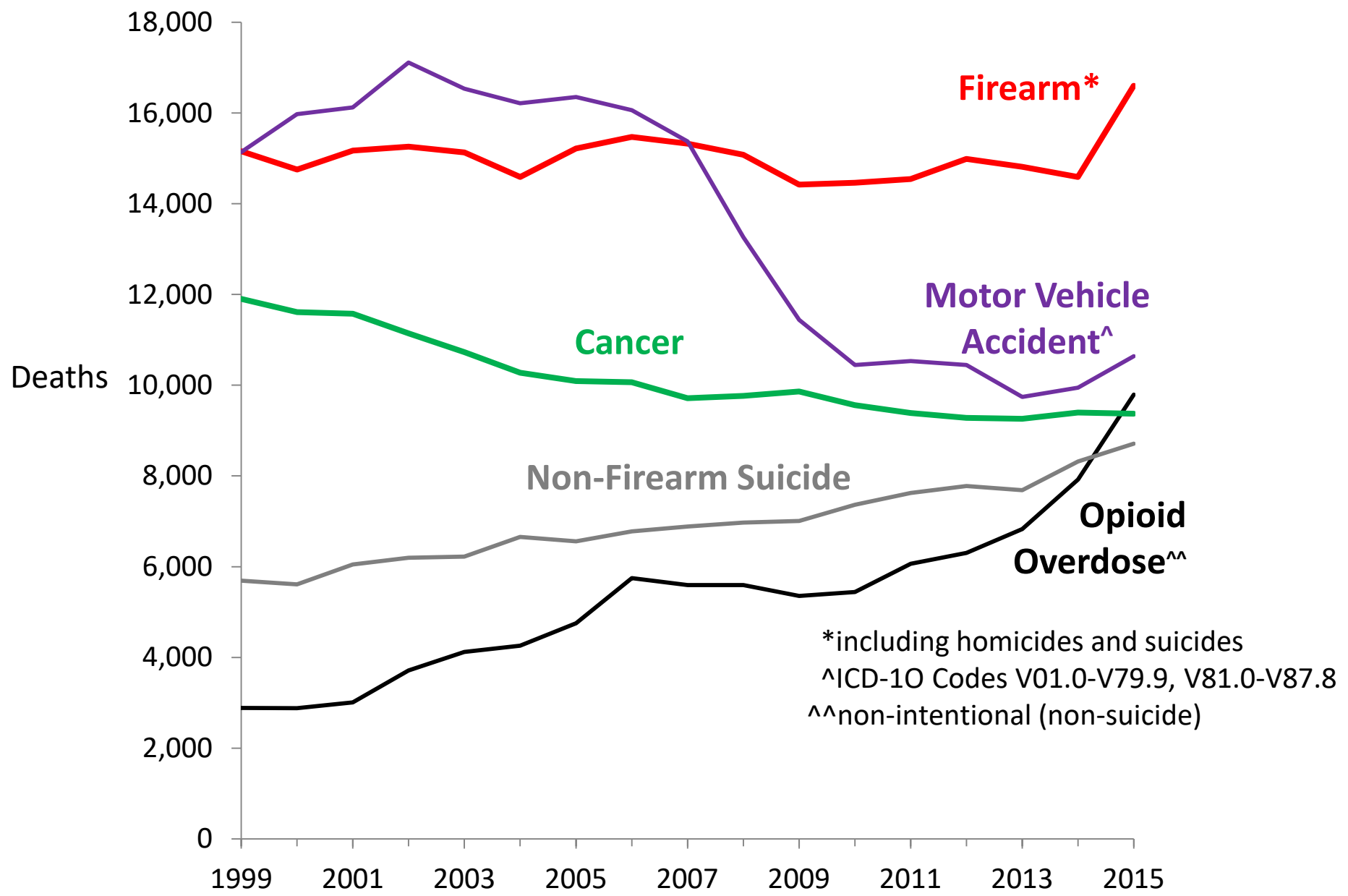
Childhood Firearm Injuries in the United States [Report from CDC]. Pediatrics, Jul 2017, e20163486

<sup>3</sup> U.S. Census data

**Fig. 1**

# Annual Deaths of Top Five Causes in AYAs, 1999-2015

CDC WONDER Online Database; <http://wonder.cdc.gov/ucd-icd10.html>. Accessed June 14, 2015



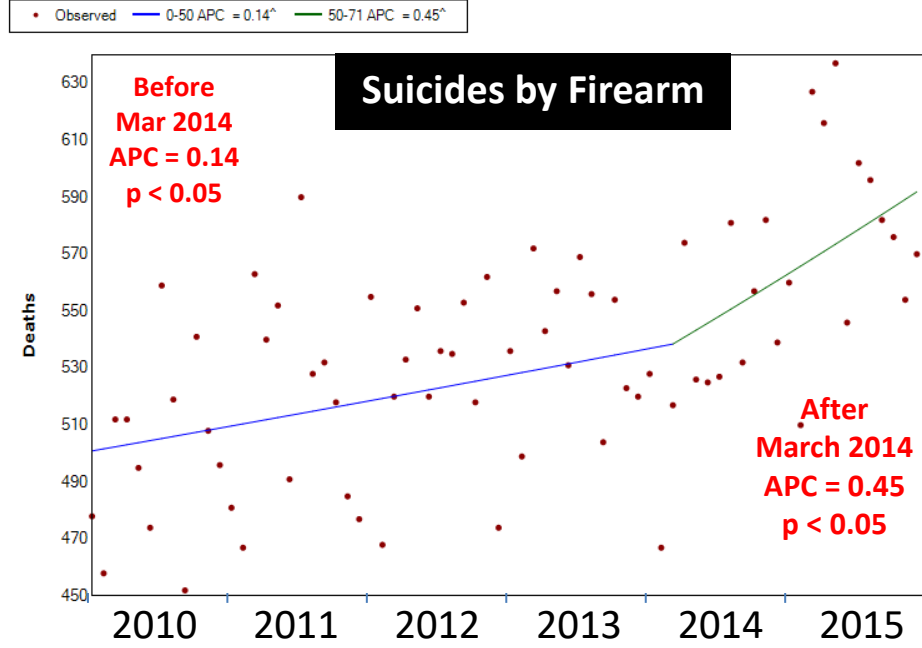
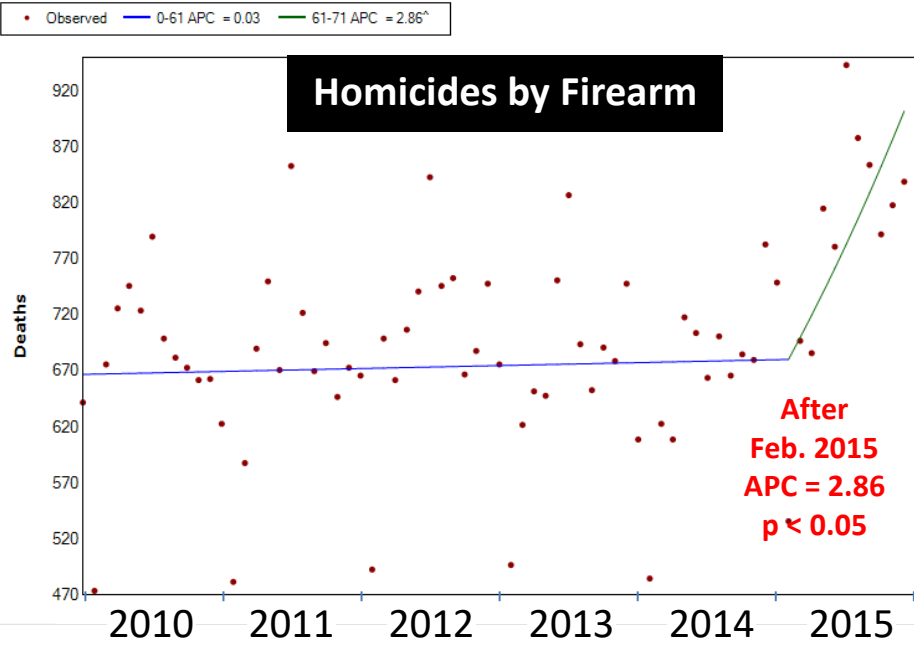
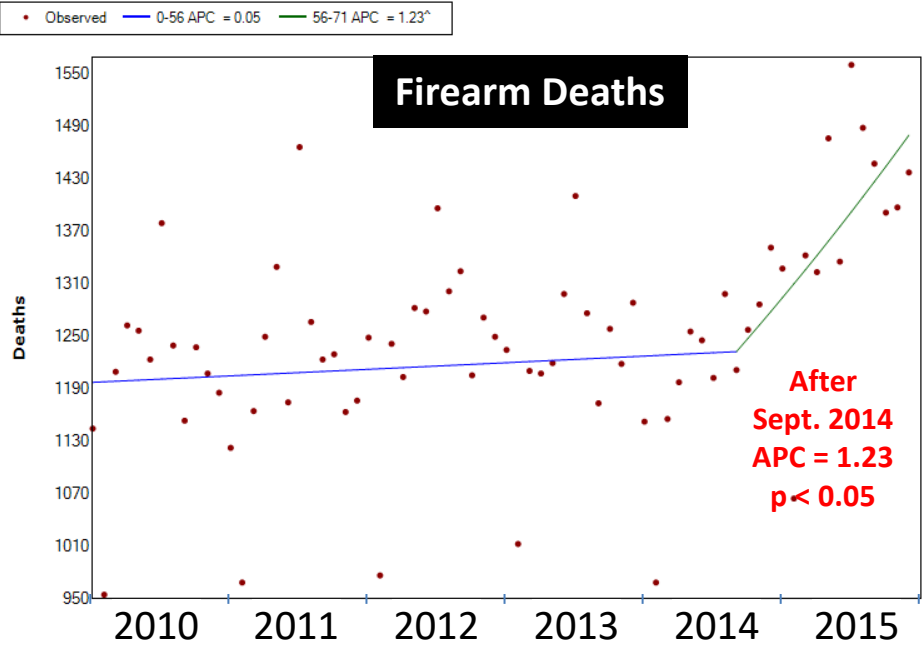
\*including homicides and suicides  
^ICD-10 Codes V01.0-V79.9, V81.0-V87.8  
^^non-intentional (non-suicide)

**Fig. 2**

# Joinpoint/APC\* Analysis of Monthly Deaths by Firearm in AYAs, 2010-2015, U.S., by Type of Death

<http://wonder.cdc.gov/ucd-icd10.html>

\*APC-Average % Change

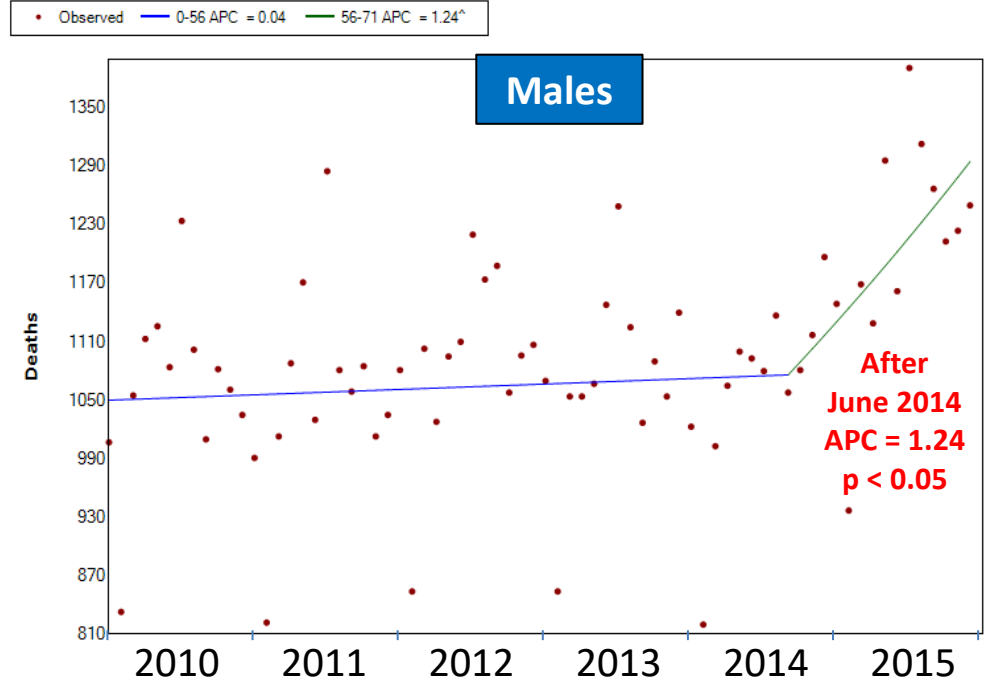
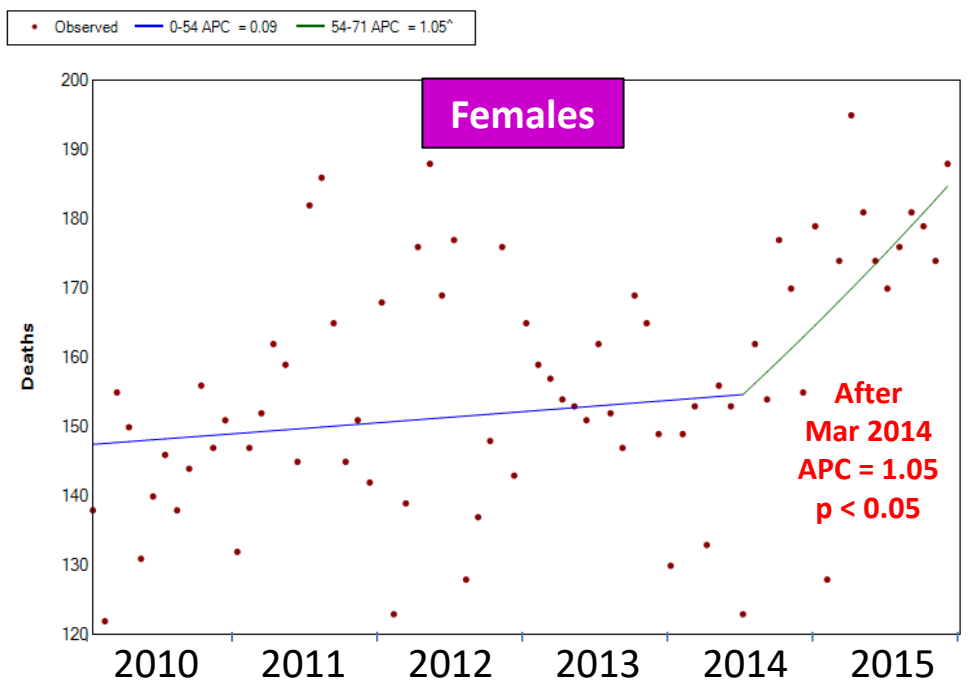


**Fig. 3**

# Joinpoint/APC\* Analysis of Monthly Deaths by Firearm in AYAs, 2010-2015, U.S., by Sex

<http://wonder.cdc.gov/ucd-icd10.html>

\*APC-Average % Change



**Table  
1**

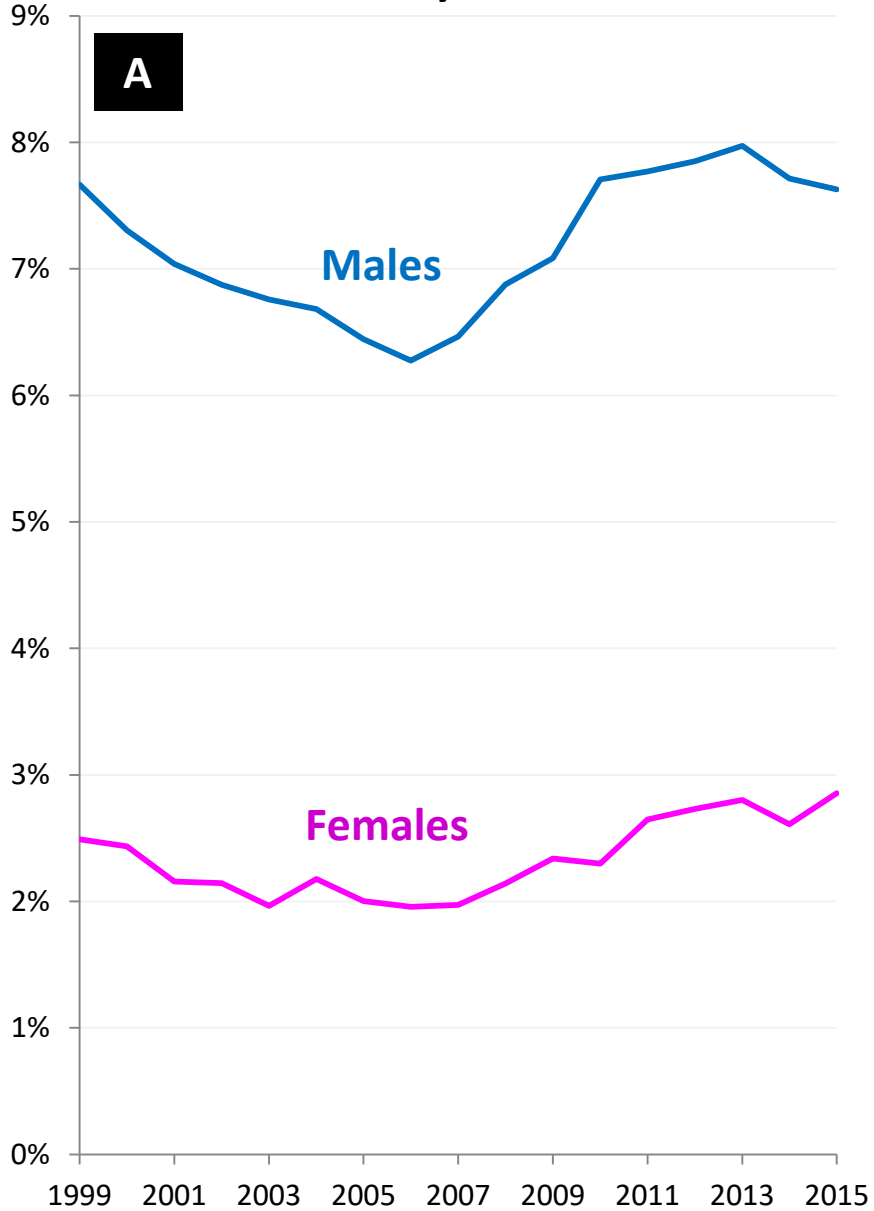
***Joinpoint/APC \* Analysis of Monthly Deaths by Firearm in AYAs (Age 15-39), 2010-2015, U.S., by Sex and Type of Death***

Deaths	Joinpoint (JP)	APC* before JP	APC* after JP
<i>All AYAs</i>			
All Firearm	September, 2014	0.05	1.23**
Suicides	March, 2014	0.14	0.45**
Homicides	February, 2015	0.03	2.86**
<i>Male AYAs</i>			
All Firearm	September, 2014	0.04	1.24**
Suicides	February, 2014	0.11	0.41
Homicides	February, 2015	0.04	3.00**
<i>Female AYAs</i>			
All Firearm	July, 2014	0.54	1.05**
Suicides	July, 2014	-0.06	1.34^
Homicides	July, 2014	-0.09	1.15

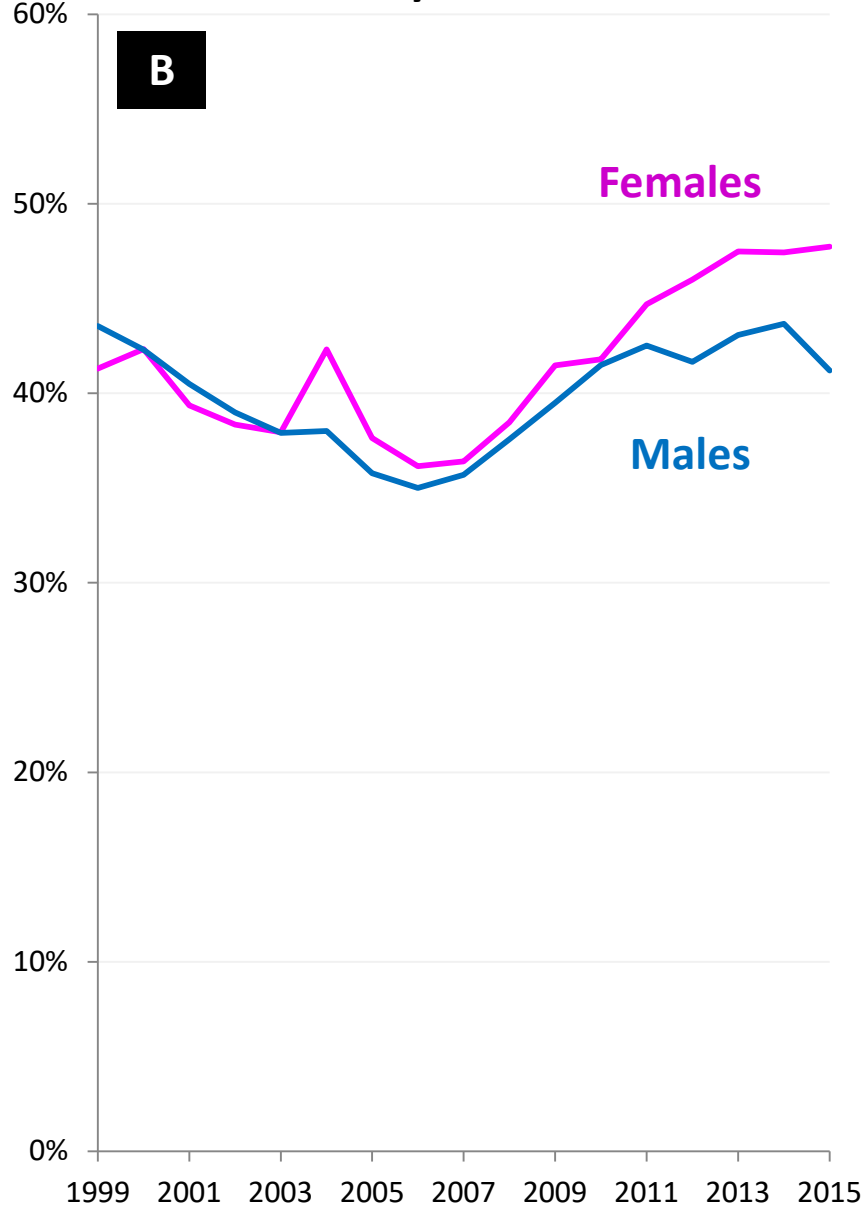
<http://wonder.cdc.gov/ucd-icd10.html>      \*APC-Average % Change      \*\*p< 0.05  
 ^2<sup>nd</sup> of 2 JPs with APC before JP for February 2011 to July 2014

**Fig. 4**

**Annual Proportion of All Deaths in AYAs Due To Firearm Suicide, 1999-2015, U.S., by Sex**



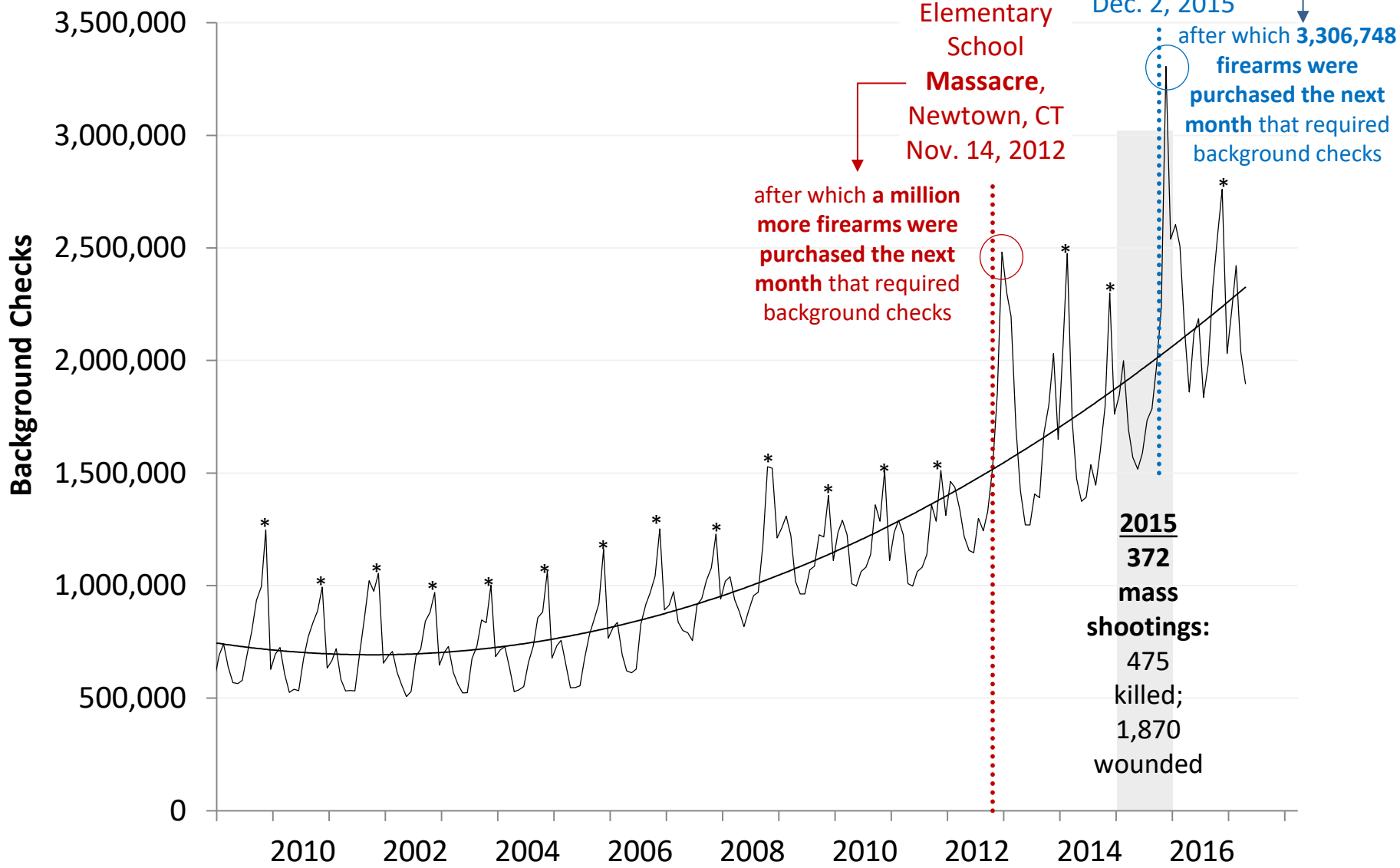
**Annual Proportion of Firearm Deaths in AYAs Resulting in Suicide, 1999-2015, U.S., by Sex**



**Fig. 5 Monthly Firearm Background Checks, January 1999 - May 2017**

**United States**

Regression = 3<sup>o</sup> polynomial



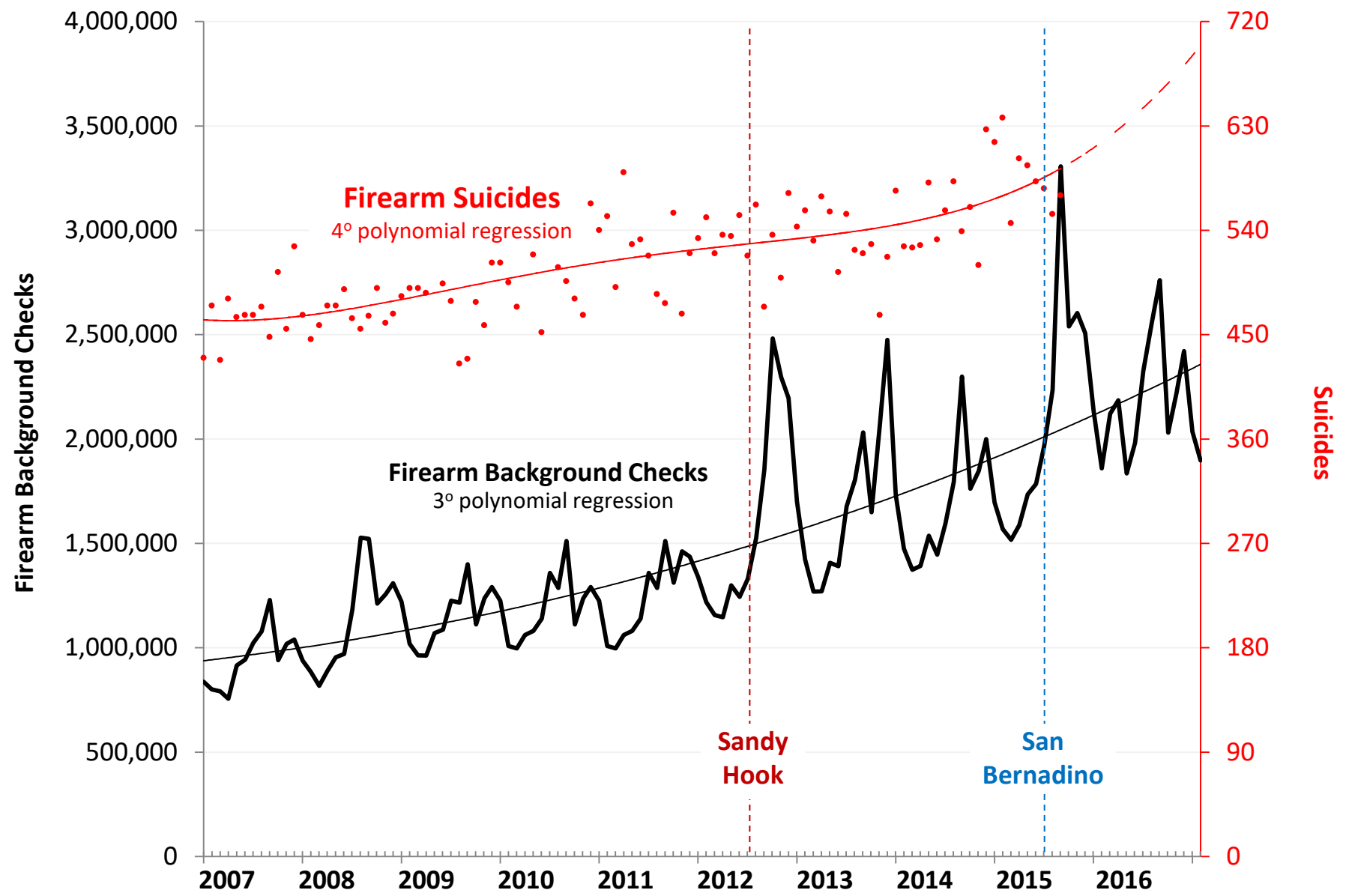
\*December peaks are in part due to Christmas gifts and end of year purchases



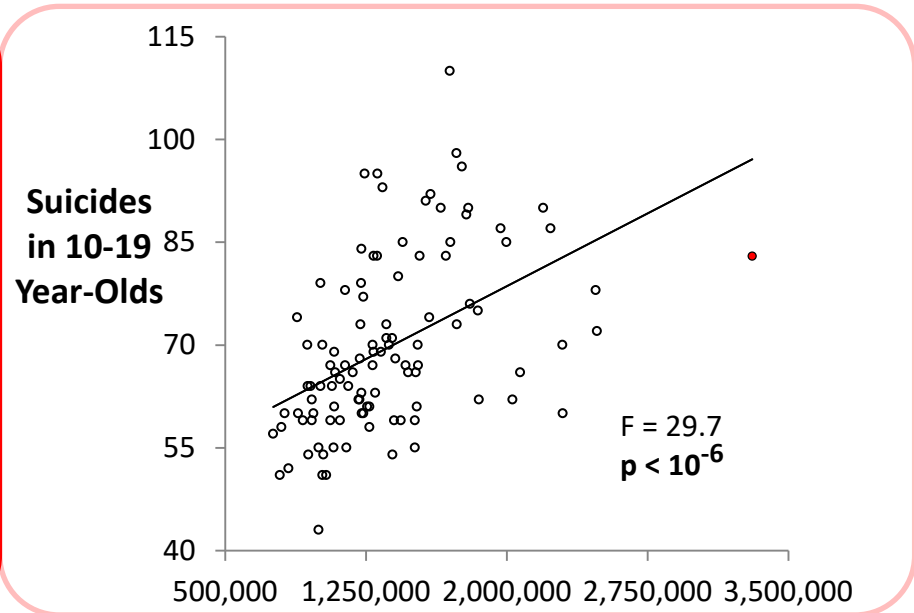
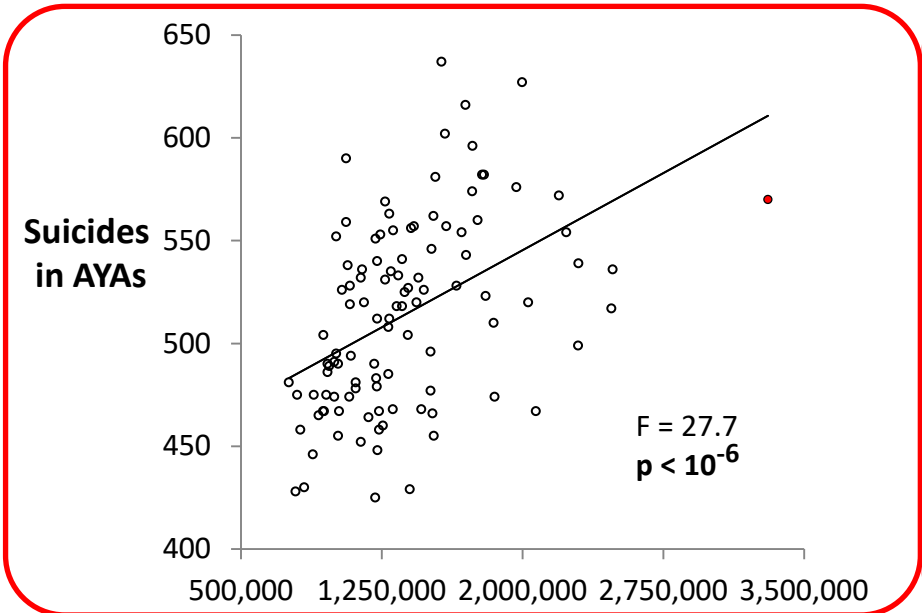
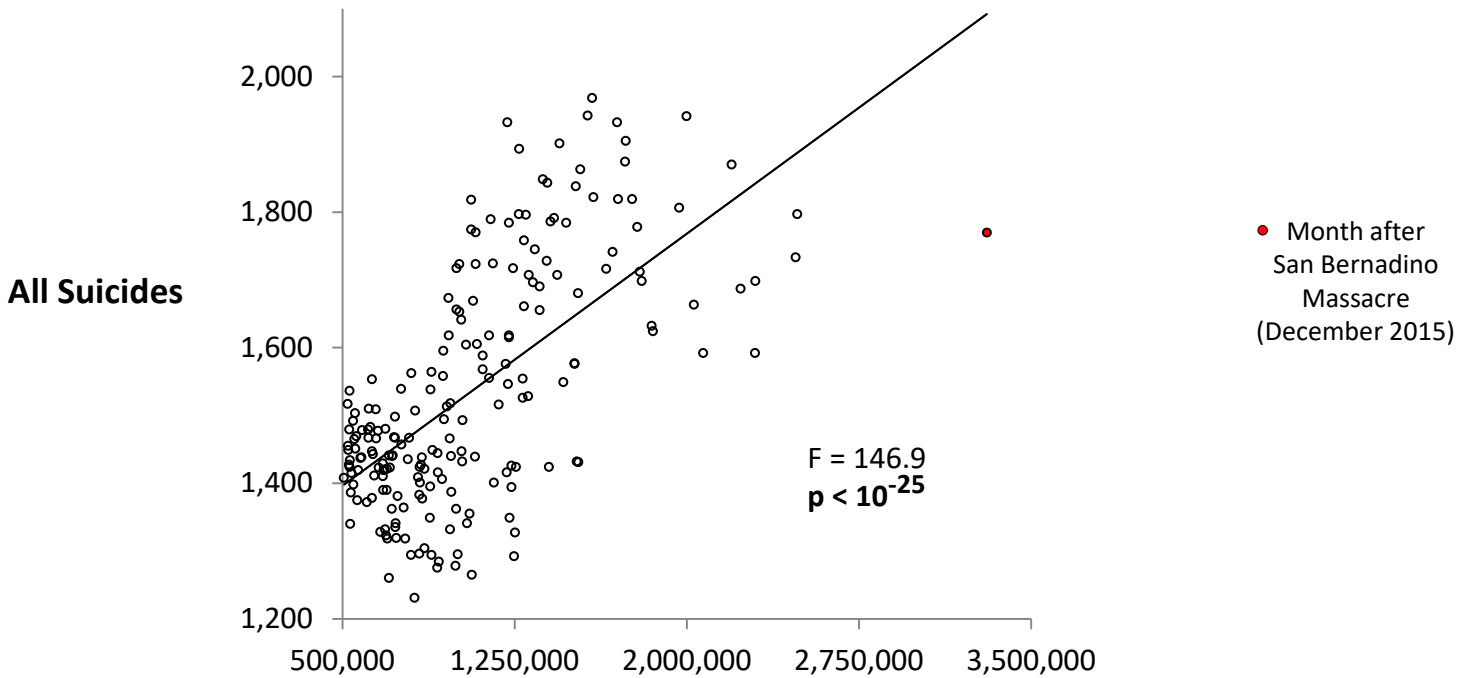
**Fig. 6**

**Monthly Firearm Suicides in AYAs, April 2007-December 2015,**

**and Monthly Firearm Background Checks, April 2007-May 2017, United States**



**Fig. 7 U.S. Firearm Suicides by Age vs. Firearm Background Checks, 1999-2015, by Month**



All-Age Firearm Background Checks

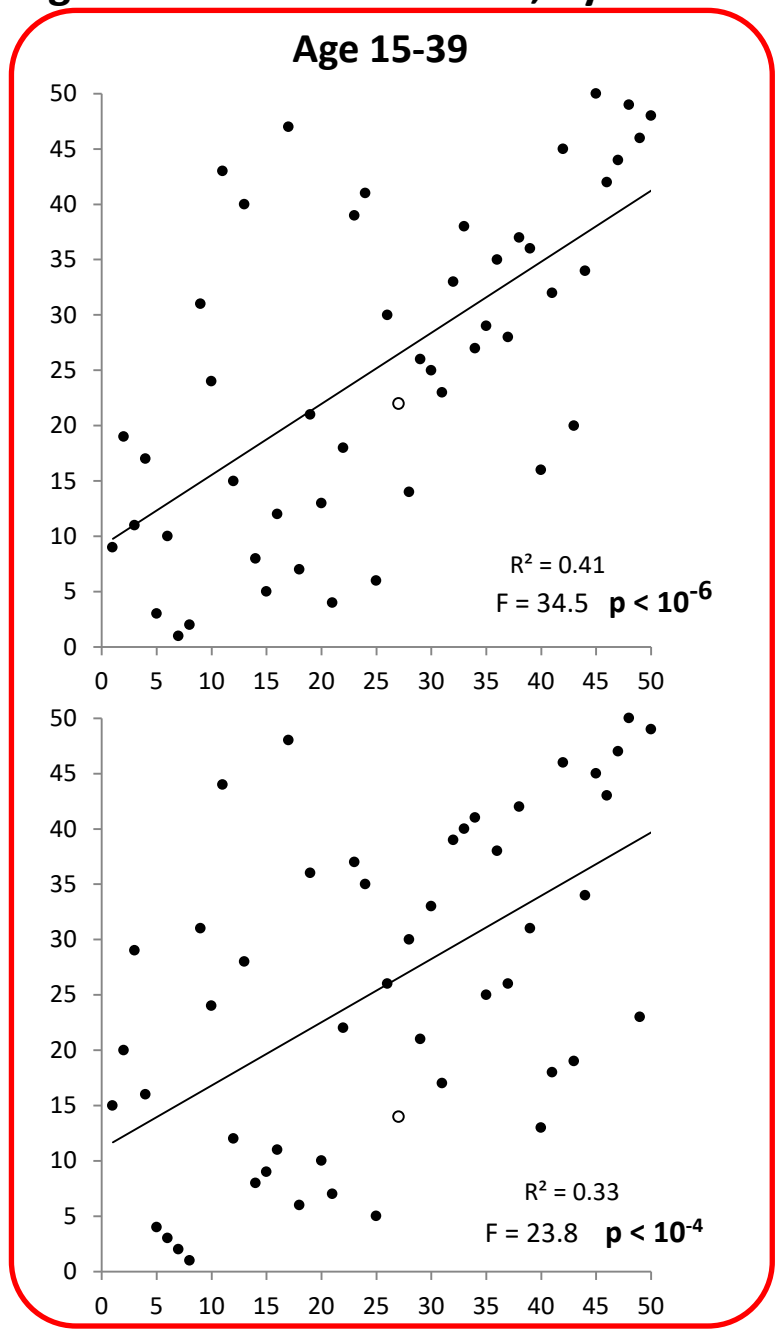
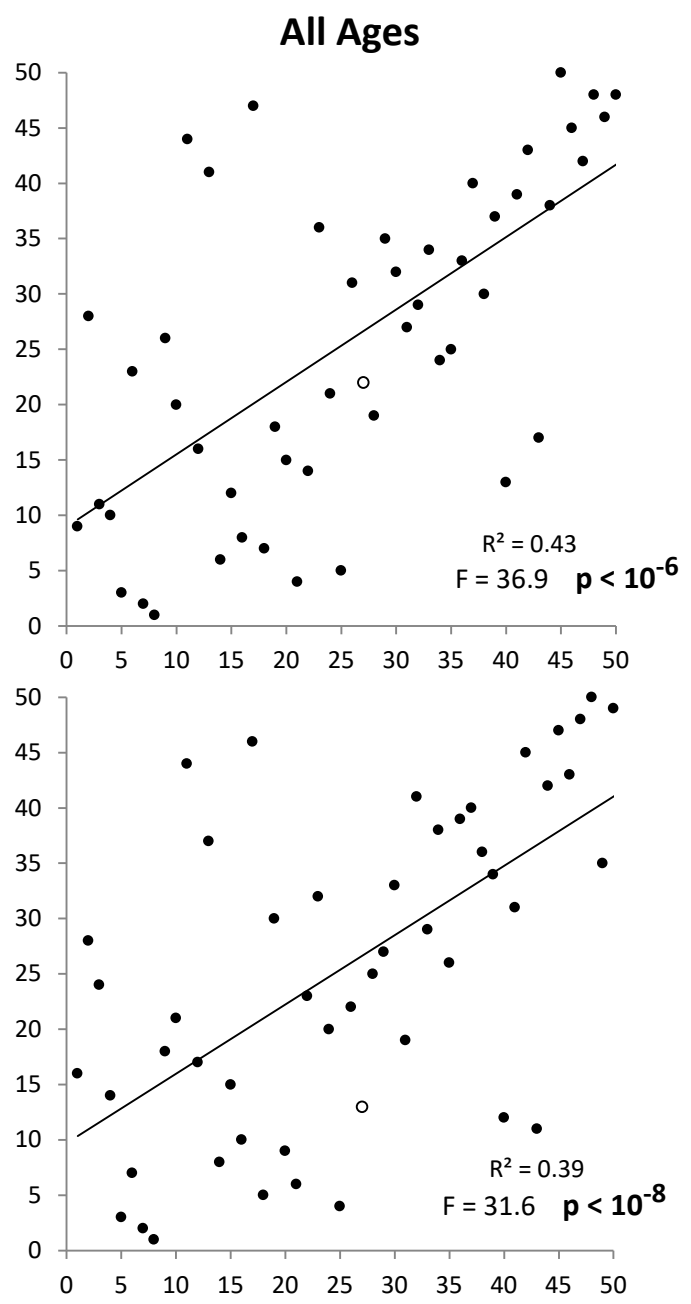
**Fig. 8** 2015 **Suicide Rate Rank** vs. 2015 **Firearm Background Check Rate Rank**, by State\*

**Firearm  
Suicides**

**Suicide  
Rank  
2015**

**All  
Suicides**

\*Of 50 states & DC  
Oregon is open circle



**All-Age Firearm Background Check Rank, 2015**