FIREARM DEATHS AMONG RESIDENTS OF KING COUNTY AND SEATTLE

2012-2016

March 2019

Public Health
Seattle & King County

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Introduction

- The first step in developing strategies to decrease deaths from firearms is to understand current data and trends.

- This chart pack provides data on firearm deaths **among residents of King County and Seattle, WA**, including population demographics and trends.

- The data snapshots in this chart pack covers 2012 to 2016, the most recent five years of available data; while the trend analyses cover 2000 to 2016.

- Location data reflect the **decedents' residence at the time of death**, not necessarily where the death occurred.[*]

  - For firearm deaths that **occurred in King County**, see the King County Medical Examiner Annual Report:
  https://www.kingcounty.gov/depts/health/examiner/annual-report.aspx

- Firearm violence prevention programs require comprehensive multi-sector research and funding. We hope that this chart pack further informs program planning, policies, as well as ongoing and future investments.

- Data on non-fatal firearm injuries and risk factors will be released in future chart packs.

[*] Since the King County Medical Examiner Annual Report includes all firearm deaths in King County whereas the data in this chart pack includes firearm deaths for King County residents only, the data presented may be different, however, differences may not be very large and generally within +/- 10%.

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Key findings

- From 2012 to 2016, 747 King County residents died by firearms, representing over 30,500 years of potential life lost. This represents about 150 firearm deaths per year. In comparison, there were about 130 firearm deaths per year from 2006 to 2010.[*]

- In King County, firearm suicide rates remained steady from 2000 to 2016; firearm homicide rates were steady from 2000 to 2007, appeared to decrease slightly from 2007 to 2010, but by 2016 had increased to baseline 2000 rates.

- In King County, among firearm deaths, there were almost three times as many suicides as homicides; there were about 106 suicides and 37 homicides per year on average.

- Young adults ages 18-24 were most likely to die by firearm homicide; adults ages 65+ were most likely to die by firearm suicide.

- Males were more likely than females to die by firearm homicide and firearm suicide.

- While firearm suicides were similar across all income levels, firearm homicide rates were highest in high-poverty neighborhoods.

- Residents of South King County had the highest rates of firearm homicide and firearm suicide, while Seattle residents had the lowest rates of firearm suicide.

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*See 2013 report:
https://www.kingcounty.gov/~/media/depts/health/data/documents/gun-violence-in-king-county-2013.ashx

How to read this chart pack

- Injury deaths are classified according to intent as unintentional, suicide, homicide, undetermined, or other (legal intervention/war). The majority of this chart pack focuses on firearm homicide and suicide deaths. Deaths with undetermined, unintentional, or other intent are included in the totals but are not categorized separately due to the relatively small numbers.

- Since all homicides and suicides are deaths, these deaths are referred to simply as "homicides" and "suicides" in this chart pack, rather than homicide or suicide deaths.

- All King County rates include Seattle.

- This chart pack shows trends in how rates of firearm homicides and suicides are changing over time as well as point-in-time estimates.

- Unless otherwise noted, all charts show the number of deaths per 100,000 residents. All death rates are age-adjusted to account for population changes over time *(see slide 34 for details).*

- Maps are based on King County regions and Health Reporting Areas (HRAs). Multiple HRAs are combined when the number of deaths in an HRA is small.

- The lines on each bar chart represent the **95% confidence interval** for the estimated death rate. A 95% confidence interval is the range of values that includes the true rate 95% of the time. When confidence intervals of two estimates do not overlap, the estimates are considered statistically significantly different – meaning that any difference is not likely due to chance alone but rather due to another factor.

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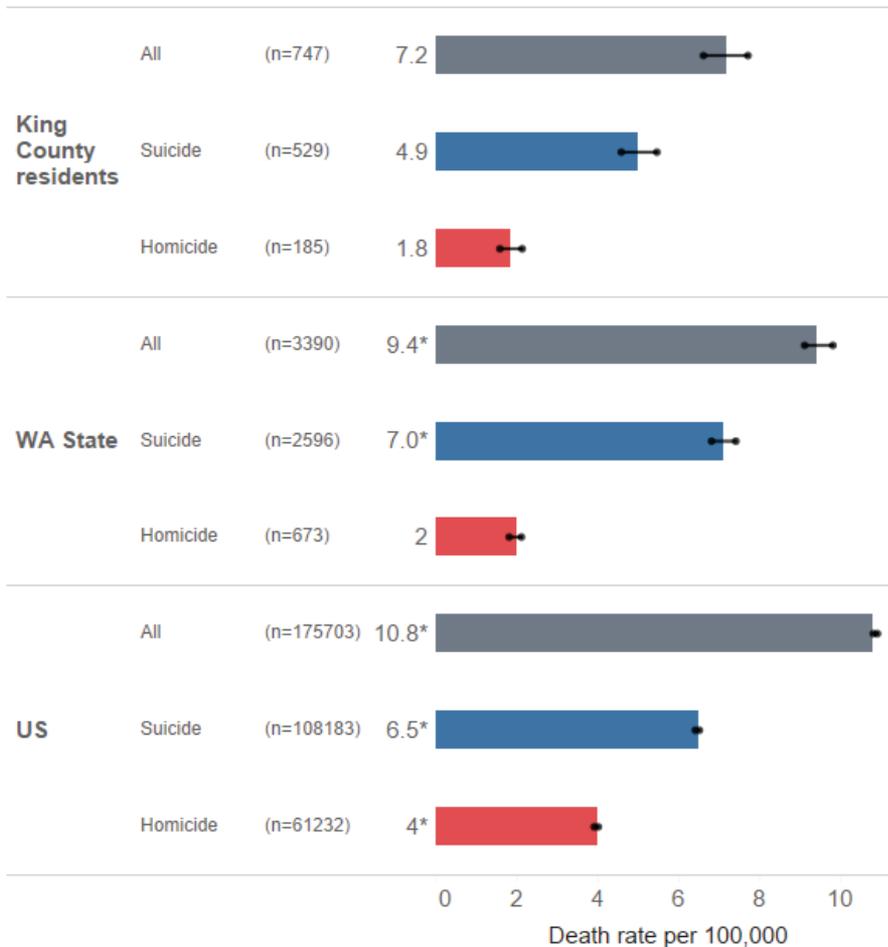
FIREARM DEATH OVERVIEW AND TRENDS

Overview: firearm deaths in King County, WA, and US

- Firearm deaths continue to be a significant and growing public health issue in King County.

- While firearm death rates are lower in King County compared to Washington state and the US overall, disparities exist across age and racial/ethnic groups.

- King County's firearm homicide rate is more similar to the Washington state rate than the US rate.

- King County's firearm suicide rate is lower than Washington state & US rates.

- This chart pack updates data previously included in a 2013 report.[**] Despite the policies and programs implemented to reduce firearm violence since 2013, death rates in King County have not decreased at the population level and in some cases disparities between groups have increased.

**See 2013 report:
https://www.kingcounty.gov/~/media/depts/health/data/documents/gun-violence-in-king-county-2013.ashx

Firearm death rates by type and geography (average: 2012-2016)

			Death rate per 100,000
King County residents	All	(n=747)	7.2
	Suicide	(n=529)	4.9
	Homicide	(n=185)	1.8
WA State	All	(n=3390)	9.4*
	Suicide	(n=2596)	7.0*
	Homicide	(n=673)	2
US	All	(n=175703)	10.8*
	Suicide	(n=108183)	6.5*
	Homicide	(n=61232)	4*

* = Significantly different than King County rate
Sources: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at http://wonder.cdc.gov/ucd-icd10.html on Dec 31, 2018.

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King County trends for firearm homicides and suicides differ

- Countywide, firearm suicide rates remained steady from 2000 to 2016.*

- For unclear reasons, the firearm homicide rate appeared to decrease from 2007 to 2010 but has since returned to baseline, with the 2016 rate similar to the 2000 rate.

- The firearm suicide rate was more than double the firearm homicide rate throughout the 17-year period.

Trends in firearm death rates by type, King County (2000-2016)

Dots = firearm death rates
Lines = trend regression models

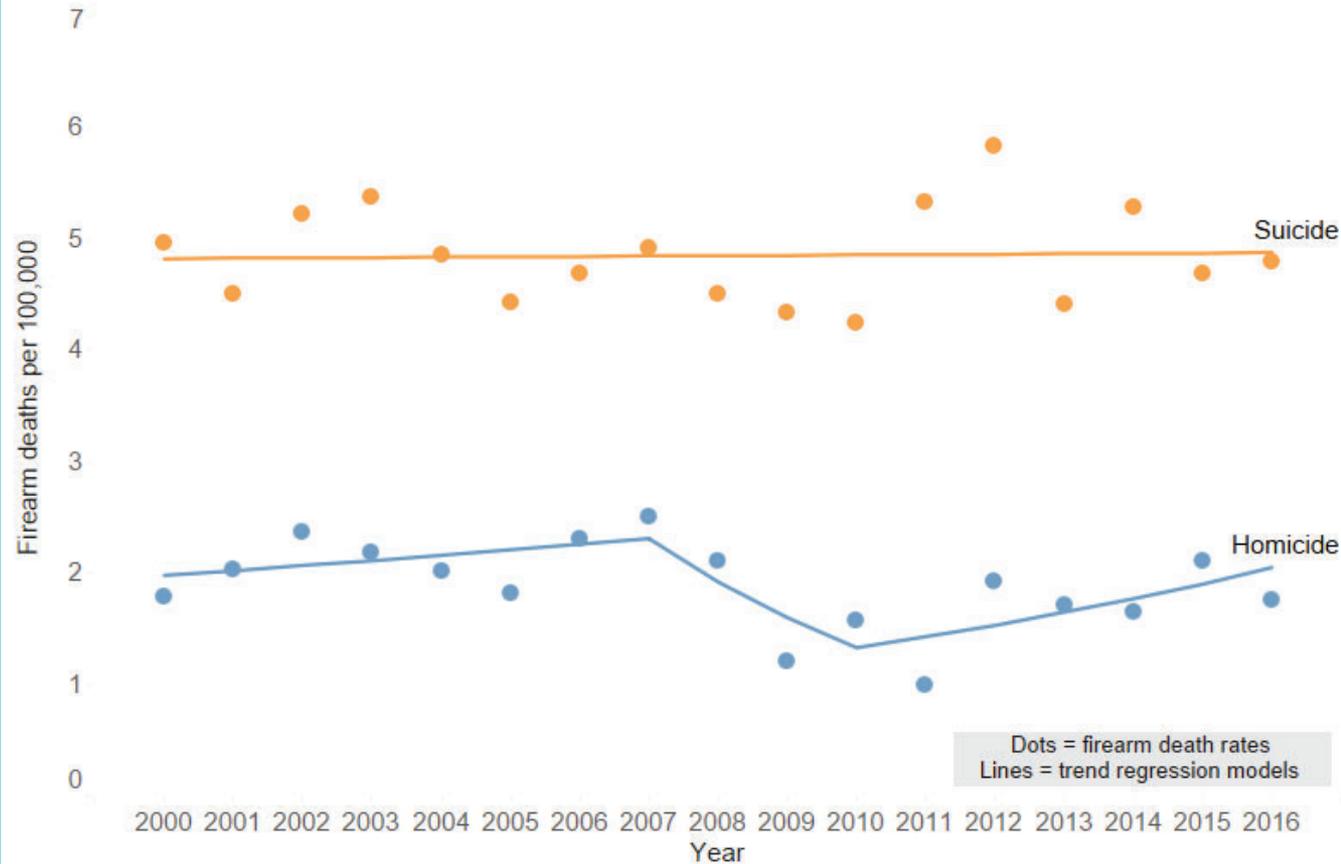Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

* See appendix at the end of the chart pack for annual counts of firearm deaths among residents of King County by intent from 2000-2016.
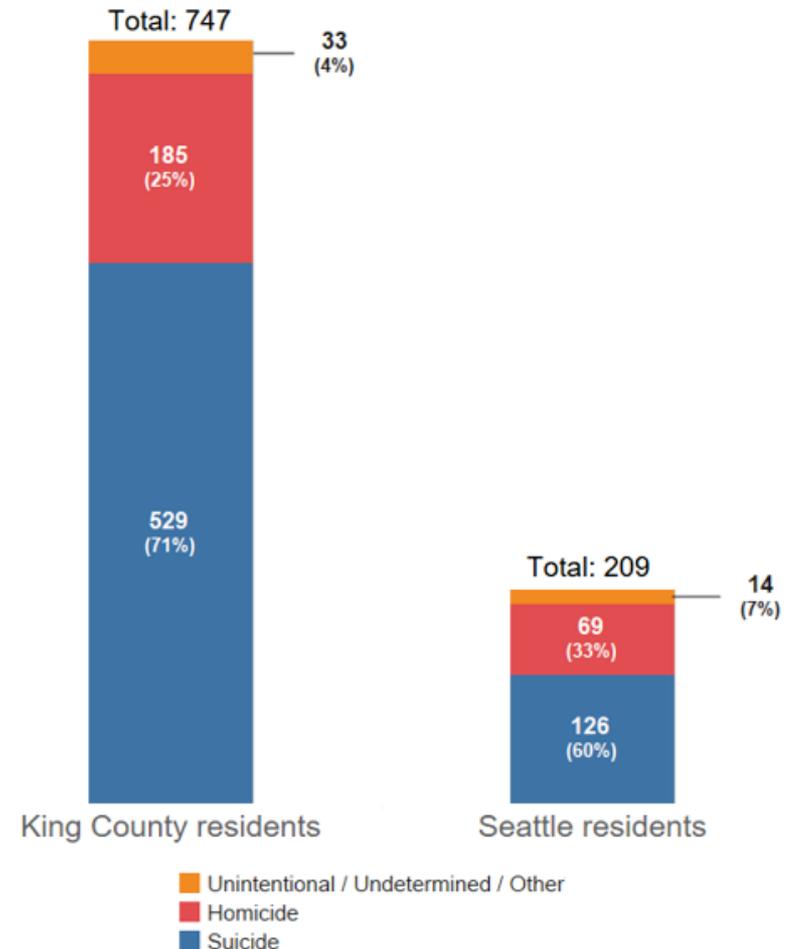
COMPARING FIREARM HOMICIDES AND SUICIDES

747 King County residents died by firearms from 2012 to 2016, including 209 Seattle residents
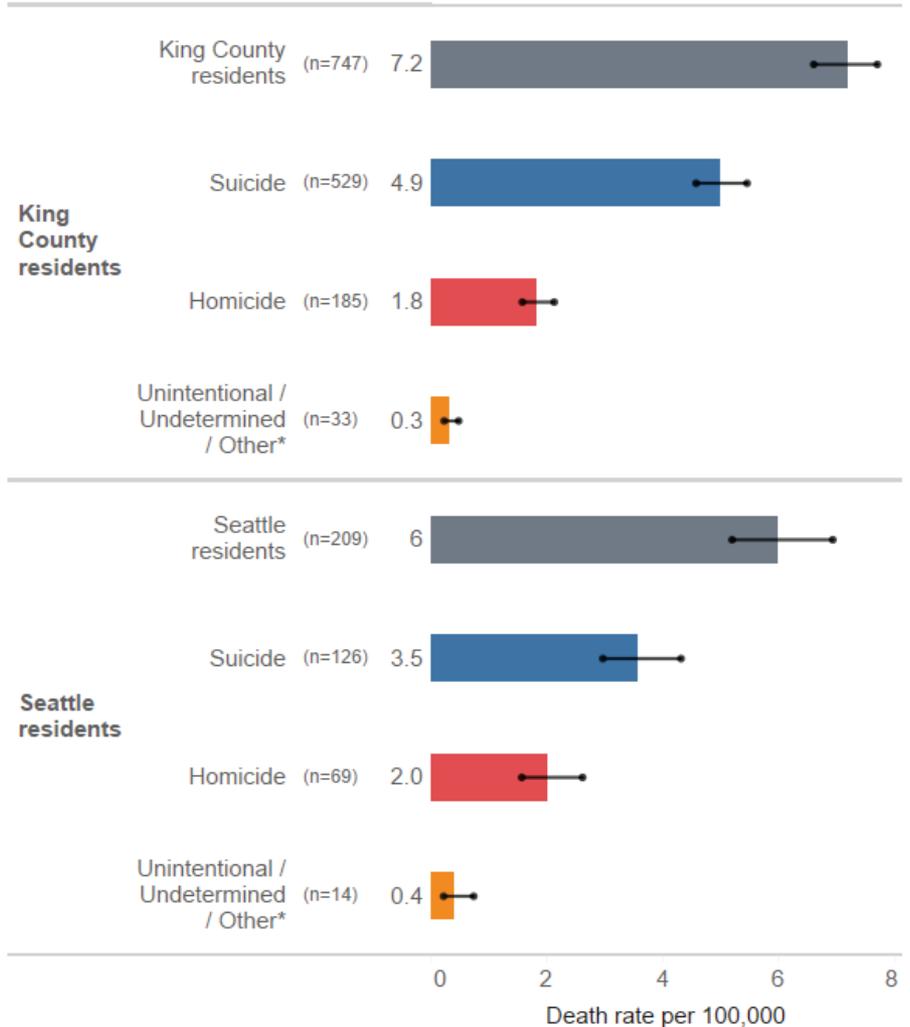
- In King County, there were about 106 suicides and 37 homicides per year on average.

- Firearm suicides are the most common cause of firearm deaths for King County and Seattle residents, accounting for 71% and 60% of all firearm deaths, respectively.

- Firearm homicides represented 33% of firearm deaths among Seattle residents, compared to 25% of firearm deaths among King County residents.

- A small percent of firearm deaths were considered to be unintentional, undetermined, or other *(see slide 5)*.

- Firearms were used in 41% of all King County suicides and 66% of all King County homicides from 2012-2016 *(data not shown)*.

- The proportion of firearm homicides has increased over time; 61% of King County homicides from 2006 to 2010 were due to firearms *(data not shown)*.

Number of firearm deaths by type among residents of King County and Seattle, WA (2012-2016)

King County residents — Total: 747
- 33 (4%) Unintentional / Undetermined / Other
- 185 (25%) Homicide
- 529 (71%) Suicide

Seattle residents — Total: 209
- 14 (7%) Unintentional / Undetermined / Other
- 69 (33%) Homicide
- 126 (60%) Suicide

Legend:
- Unintentional / Undetermined / Other
- Homicide
- Suicide

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Suicide was the leading type of firearm death among residents of King County and Seattle

- Firearm suicide rates were higher among residents of King County overall than among Seattle residents.

- Death rates from firearm homicide, unintentional injury, undetermined, and other intent combined were about the same for residents of King County and Seattle.

Note: Due to the small number of firearm deaths by unintentional injury, undetermined, and other intent, the remaining slides focus on firearm homicide and suicide.

Firearm death rates by type among King County residents & Seattle residents (average: 2012-2016)

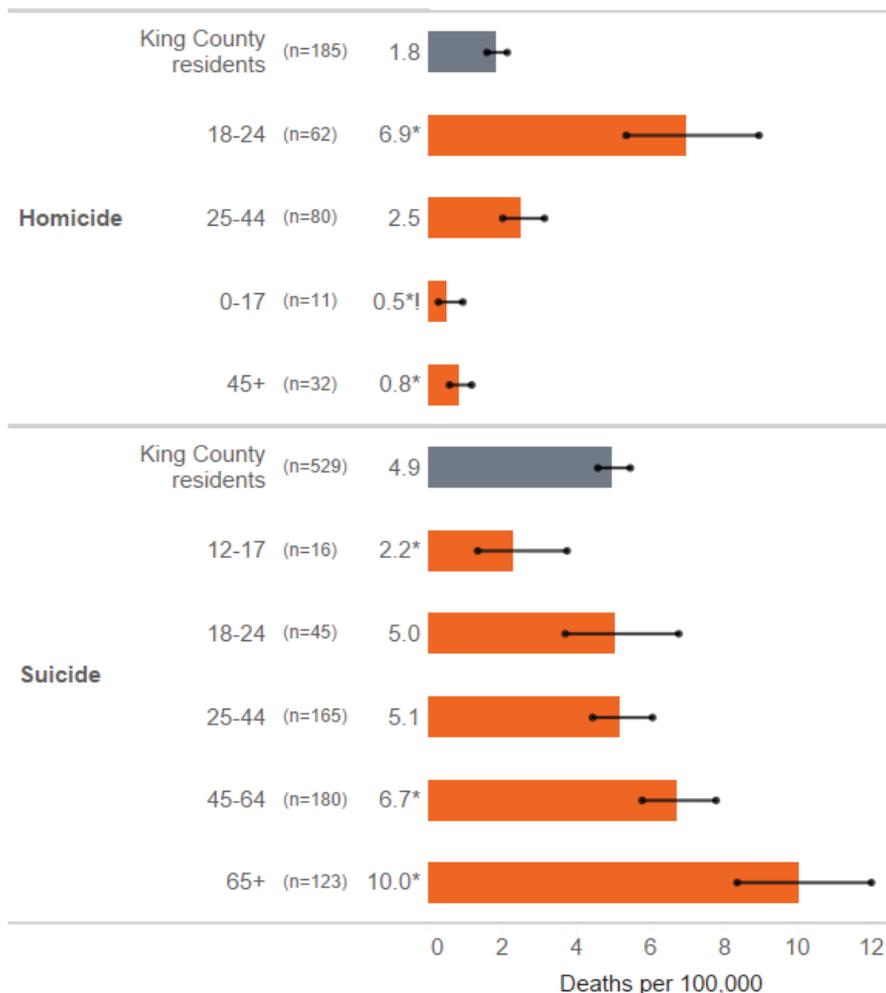|		
King County residents		
King County residents (n=747)	7.2	
Suicide (n=529)	4.9	
Homicide (n=185)	1.8	
Unintentional / Undetermined / Other* (n=33)	0.3	
Seattle residents		
Seattle residents (n=209)	6	
Suicide (n=126)	3.5	
Homicide (n=69)	2.0	
Unintentional / Undetermined / Other* (n=14)	0.4	

Death rate per 100,000

* "Other" intent includes shootings by law enforcement officers
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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In King County firearm homicide rates were highest among young adults; firearm suicides increased with age

- Firearm homicide rates were highest among young adults ages 18 to 24.

- Firearm suicide rates increased with age, with the highest rates among adults ages 65+.

- There are no significant differences for trends by age group *(data not shown)*.

- Firearm homicide and suicide rates followed a similar pattern by age among Seattle residents *(see slides 16 and 24)*.

Firearm death rates by age among King County residents (average: 2012-2016)

Deaths per 100,000

Homicide:
- King County residents (n=185): 1.8
- 18-24 (n=62): 6.9*
- 25-44 (n=80): 2.5
- 0-17 (n=11): 0.5*!
- 45+ (n=32): 0.8*

Suicide:
- King County residents (n=529): 4.9
- 12-17 (n=16): 2.2*
- 18-24 (n=45): 5.0
- 25-44 (n=165): 5.1
- 45-64 (n=180): 6.7*
- 65+ (n=123): 10.0*

* = Significantly different than King County / Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018
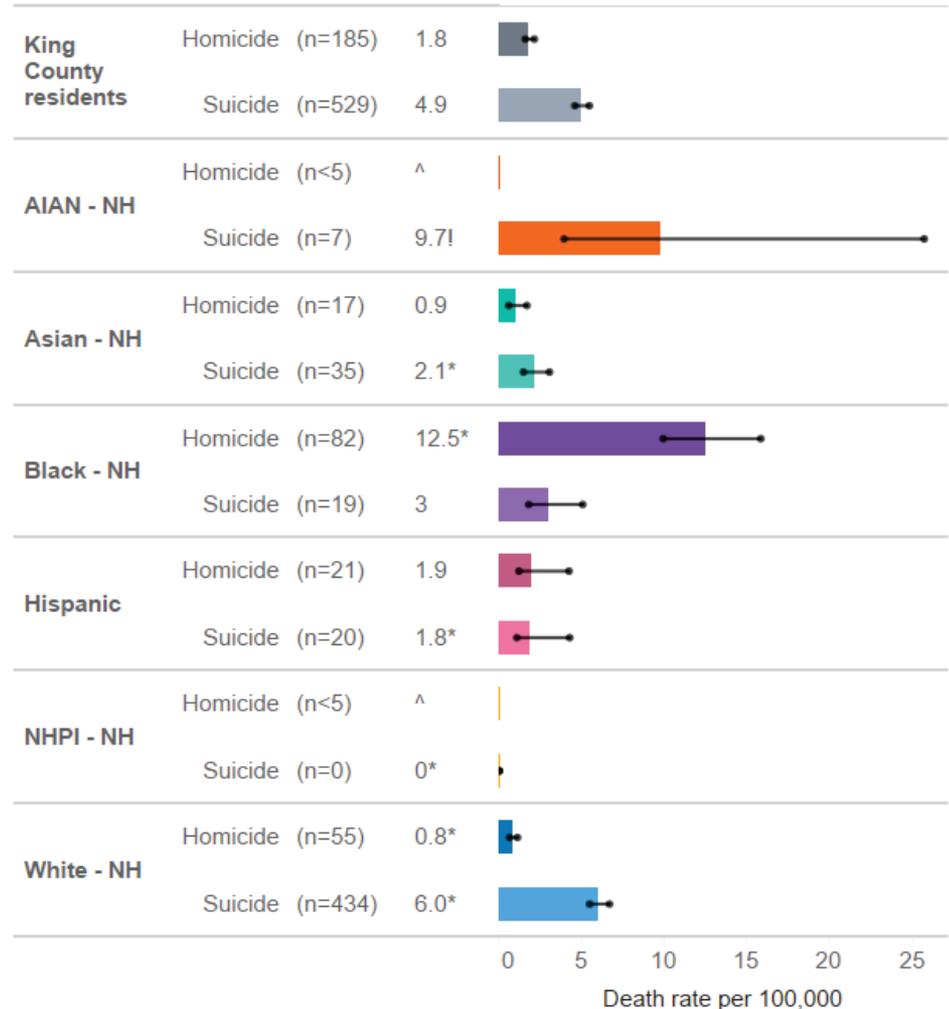
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In King County, firearm homicide and suicide rates differ by race and ethnicity

- Black residents were disproportionately affected by firearm homicide.

- While there is not enough local data to discern a pattern, *statewide,* American Indian/Alaska Native residents have twice the firearm homicide rate compared to all Washington state residents (*4.2/100,000 vs. 2.0/100,000*).

- Locally, there were no firearm suicides among Native Hawaiian/Pacific Islander residents.

- American Indian/Alaska Native and white residents were disproportionately affected by firearm suicide.

- Firearm homicide and suicide rates in Seattle followed a similar pattern by race/ethnicity as King County (*see slides 18 and 26*).

AIAN = American Indian/Alaskan Native
NHPI = Native Hawaiian/Pacific Islander
NH = Non-Hispanic

Note: Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race. See slide 35 for more information.

Firearm death rates by race/ethnicity among King County residents (average: 2012-2016)

Group	Cause	n	Rate
King County residents	Homicide	(n=185)	1.8
	Suicide	(n=529)	4.9
AIAN - NH	Homicide	(n<5)	^
	Suicide	(n=7)	9.7!
Asian - NH	Homicide	(n=17)	0.9
	Suicide	(n=35)	2.1*
Black - NH	Homicide	(n=82)	12.5*
	Suicide	(n=19)	3
Hispanic	Homicide	(n=21)	1.9
	Suicide	(n=20)	1.8*
NHPI - NH	Homicide	(n<5)	^
	Suicide	(n=0)	0*
White - NH	Homicide	(n=55)	0.8*
	Suicide	(n=434)	6.0*

Death rate per 100,000

* = Significantly different than King County rate
! = Interpret with caution; sample size is small, so estimate is imprecise
^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

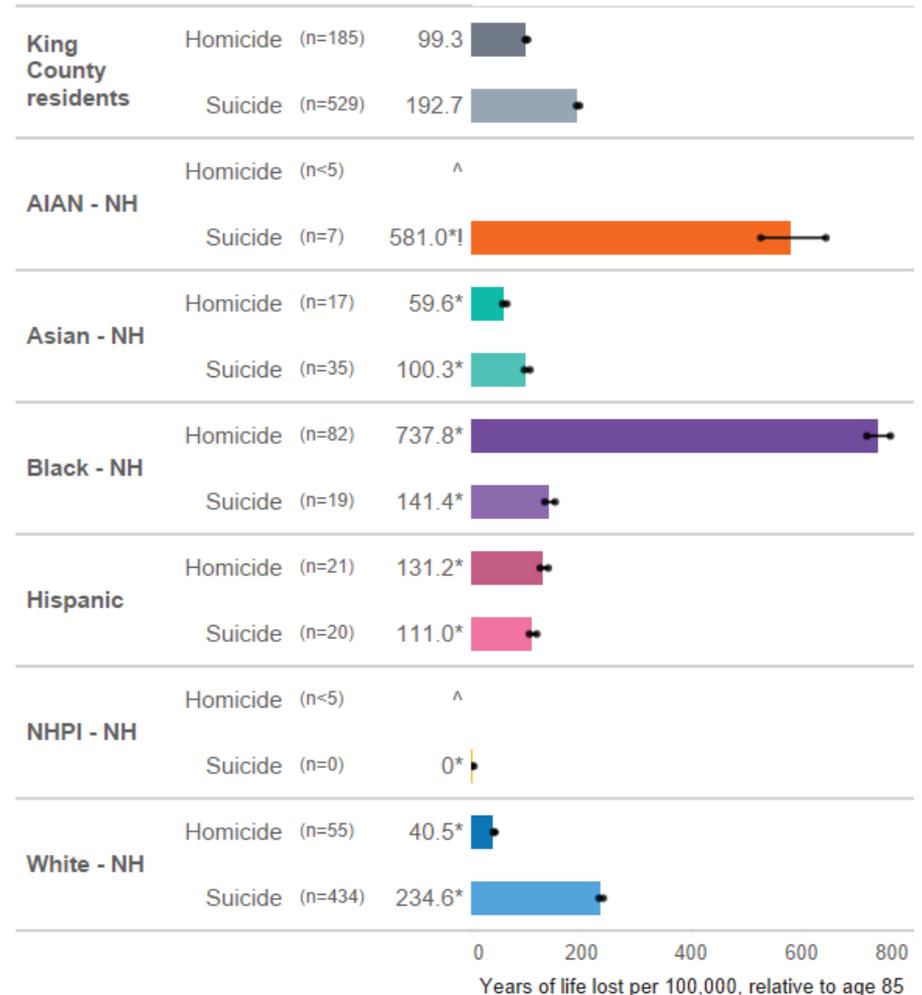Public Health
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Black and American Indian/Alaska Native residents experienced a high burden of premature death due to firearm homicide and suicide, respectively

- Black residents experienced the greatest rates of years of potential life lost due to firearm homicide.

- American Indian/Alaska Native residents experienced the greatest rates of years of potential life lost due to firearm suicide *(see slide 35 for limitations)*.

- Homicides represented 25% of all firearm deaths in King County but accounted for 33% of years of potential life lost. Overall, this is because firearm homicide victims tend to be younger than firearm suicide victims, though patterns may differ by race/ethnicity *(data not shown)*.

AIAN = American Indian/Alaskan Native
NHPI = Native Hawaiian/Pacific Islander
NH = Non-Hispanic

Note: Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race. See slide 35 for more information.

Years of potential life lost due to firearm homicide and suicide in King County, by race/ethnicity (average: 2012-2016)

Group	Cause	n	Rate
King County residents	Homicide	n=185	99.3
	Suicide	n=529	192.7
AIAN - NH	Homicide	n<5	^
	Suicide	n=7	581.0*!
Asian - NH	Homicide	n=17	59.6*
	Suicide	n=35	100.3*
Black - NH	Homicide	n=82	737.8*
	Suicide	n=19	141.4*
Hispanic	Homicide	n=21	131.2*
	Suicide	n=20	111.0*
NHPI - NH	Homicide	n<5	^
	Suicide	n=0	0*
White - NH	Homicide	n=55	40.5*
	Suicide	n=434	234.6*

Years of life lost per 100,000, relative to age 85

* = Significantly different than King County / Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise
^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018
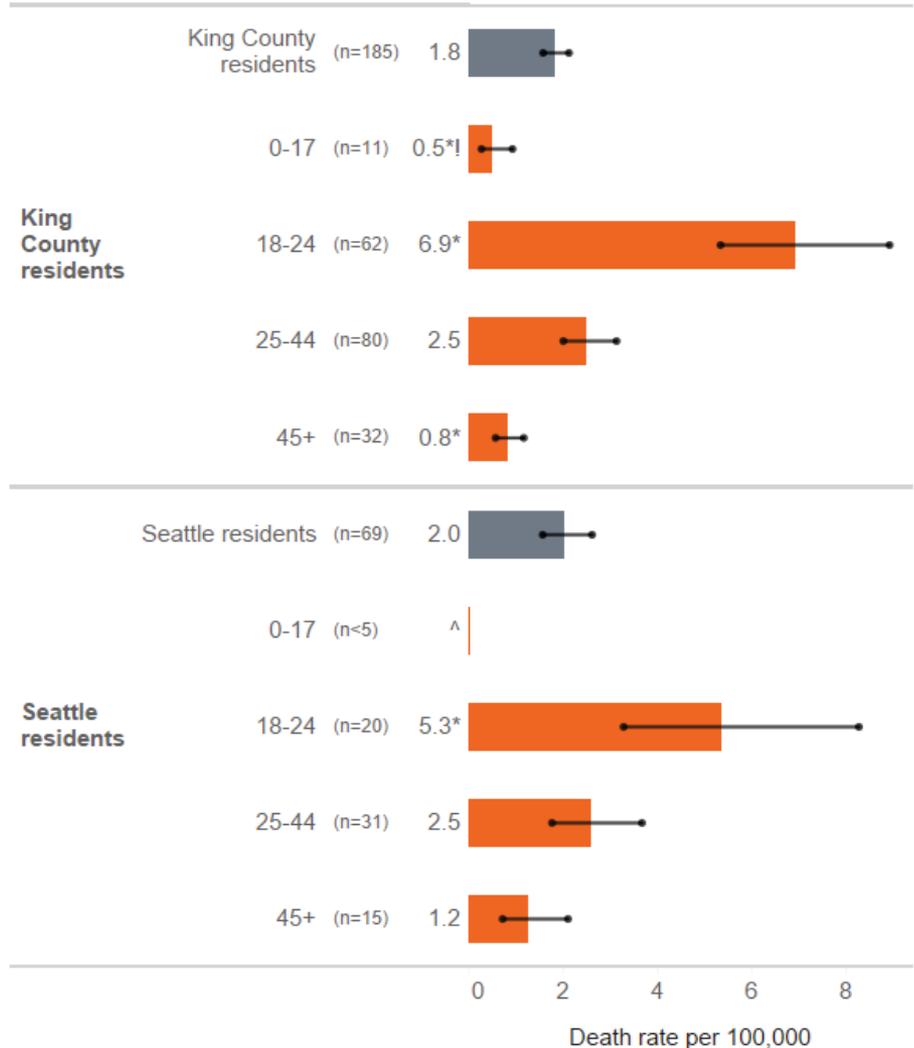
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FIREARM HOMICIDES

Young adults were the most likely to die by firearm homicide

- Among King County and Seattle residents, the firearm homicide rate was highest among young adults ages 18-24.

- Firearm homicides were rare among children younger than 18.

- These age differences are consistent with age differences in firearm homicide across WA state.**

**See Washington State Injury Tables for state data:
https://www.doh.wa.gov/Portals/1/Documents/Pubs/689152.pdf

Firearm homicide rates by age (average: 2012-2016)

			Death rate per 100,000
King County residents	(n=185)	1.8	
King County residents 0-17	(n=11)	0.5*!	
18-24	(n=62)	6.9*	
25-44	(n=80)	2.5	
45+	(n=32)	0.8*	
Seattle residents	(n=69)	2.0	
Seattle residents 0-17	(n<5)	^	
18-24	(n=20)	5.3*	
25-44	(n=31)	2.5	
45+	(n=15)	1.2	

Death rate per 100,000: 0 2 4 6 8

* = Significantly different than King County / Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise
^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

Males were more likely than females to die by firearm homicide

- Among residents of Seattle and King County, males were significantly more likely to die from firearm homicide than females.

- This is consistent with the pattern observed from 2006 to 2010 as well as with state and national data.**

**See previous King County data:
https://www.kingcounty.gov/~/media/depts/health/data/documents/gun-violence-in-king-county-2013.ashx
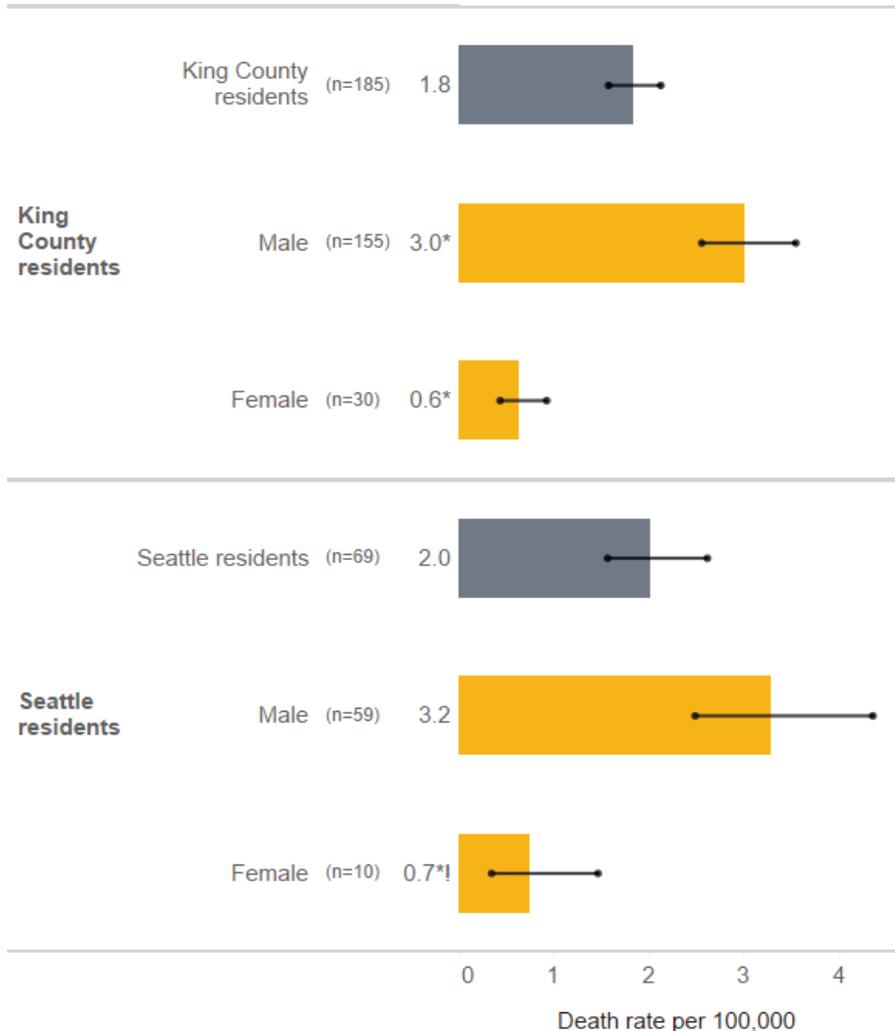See Washington Tracking Network for state data:
https://fortress.wa.gov/doh/wtn/WTNPortal/
See CDC Wonder for national data:
https://wonder.cdc.gov/ucd-icd10.html

Note: The death certificate form has space to indicate biological sex but not gender, making it difficult to capture death data for trans and gender-nonconforming people.

Firearm homicide rates by sex (average: 2012-2016)

King County residents	(n=185)	1.8
King County residents — Male	(n=155)	3.0*
King County residents — Female	(n=30)	0.6*
Seattle residents	(n=69)	2.0
Seattle residents — Male	(n=59)	3.2
Seattle residents — Female	(n=10)	0.7*!

Death rate per 100,000

* = Significantly different than King County / Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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Black residents experienced the highest homicide rates and the disparity between black and white residents have increased over time

- In both King County and Seattle, firearm homicide rates were significantly higher for black residents compared to other races.

- This disparity has increased over time; the homicide rate was 15 times higher in black than white residents in King County from 2012 to 2016, compared to 7 times higher from 2006 to 2010.[+]

- While there is not enough local data to make comparisons, *statewide,* the homicide rate was 3 times higher among American Indian/Alaska Native than white residents *(4.2/100,000 vs. 1.3/100,000).*
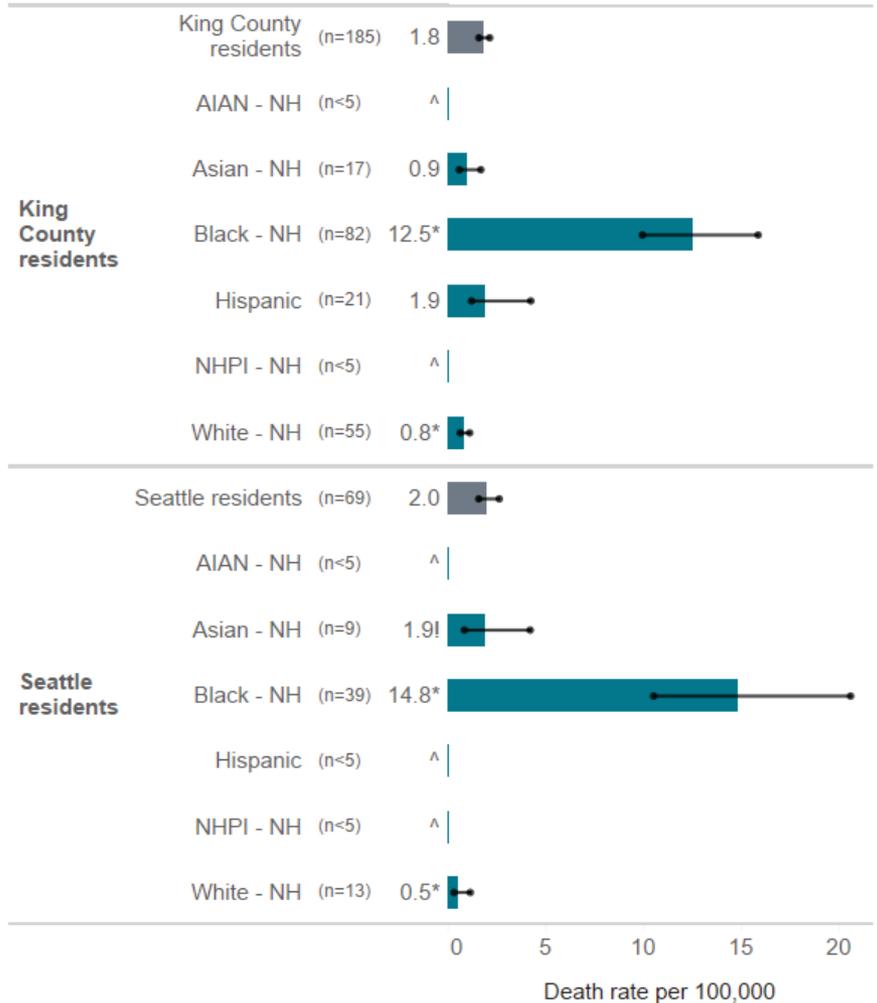
[+]See 2013 report:
https://www.kingcounty.gov/~/media/depts/health/data/documents/gun-violence-in-king-county-2013.ashx

AIAN = American Indian/Alaskan Native
NHPI = Native Hawaiian/Pacific Islander
NH = Non-Hispanic

Note: Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race. See slide 35 for more information.

Firearm homicide rates by race/ethnicity (average: 2012-2016)

		Rate
King County residents	(n=185)	1.8
AIAN - NH	(n<5)	^
Asian - NH	(n=17)	0.9
Black - NH	(n=82)	12.5*
Hispanic	(n=21)	1.9
NHPI - NH	(n<5)	^
White - NH	(n=55)	0.8*
Seattle residents	(n=69)	2.0
AIAN - NH	(n<5)	^
Asian - NH	(n=9)	1.9!
Black - NH	(n=39)	14.8*
Hispanic	(n<5)	^
NHPI - NH	(n<5)	^
White - NH	(n=13)	0.5*

Death rate per 100,000

* = Significantly different than King County / Seattle rate
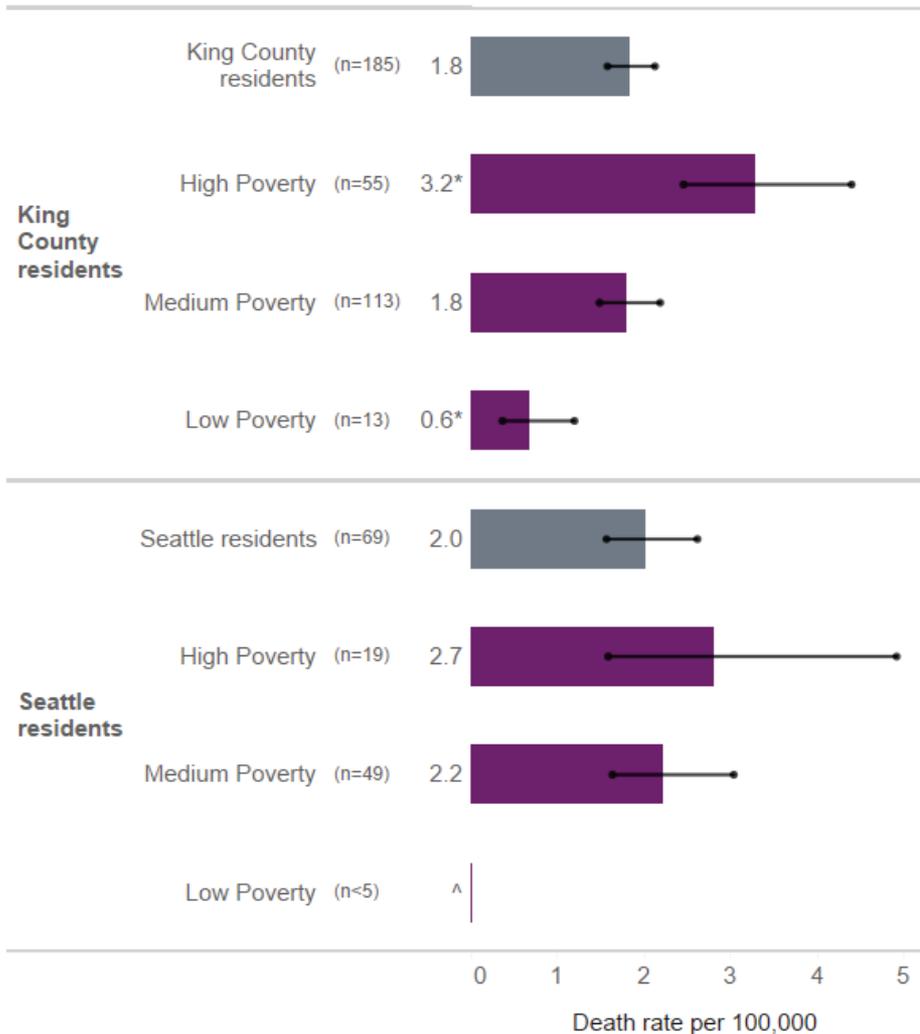! = Interpret with caution; sample size is small, so estimate is imprecise
^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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High-poverty neighborhoods experienced the highest rates of firearm homicide

- Throughout King County, residents of high-poverty neighborhoods had higher rates of firearm homicide than those in low- or medium-poverty neighborhoods.

See Discussion and Notes on slides 32 and 34 for discussion of economic disadvantage as a community risk factor for violence and definitions of high-, medium-, and low-poverty neighborhoods.

Firearm homicide rates by neighborhood poverty (average: 2012-2016)

King County residents

King County residents (n=185)	1.8	
High Poverty (n=55)	3.2*	
Medium Poverty (n=113)	1.8	
Low Poverty (n=13)	0.6*	

Seattle residents

|		
Seattle residents (n=69)	2.0	
High Poverty (n=19)	2.7	
Medium Poverty (n=49)	2.2	
Low Poverty (n<5)	^	

Death rate per 100,000

* = Significantly different than King County / Seattle rate
^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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The firearm homicide rate was highest among residents of King County's South Region

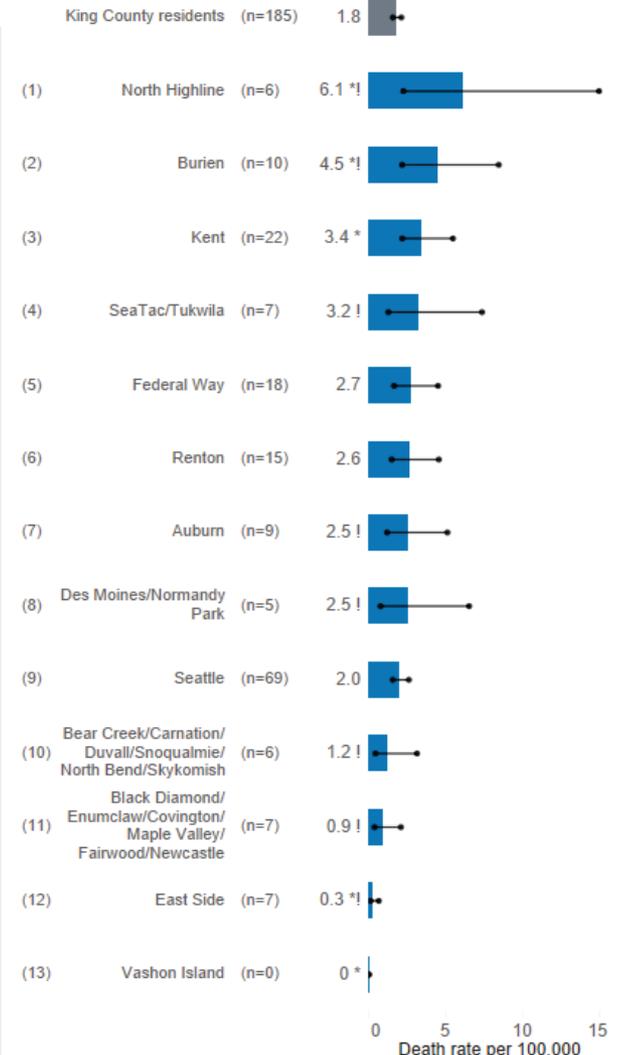Firearm homicide rates by King County region (average: 2012-2016)
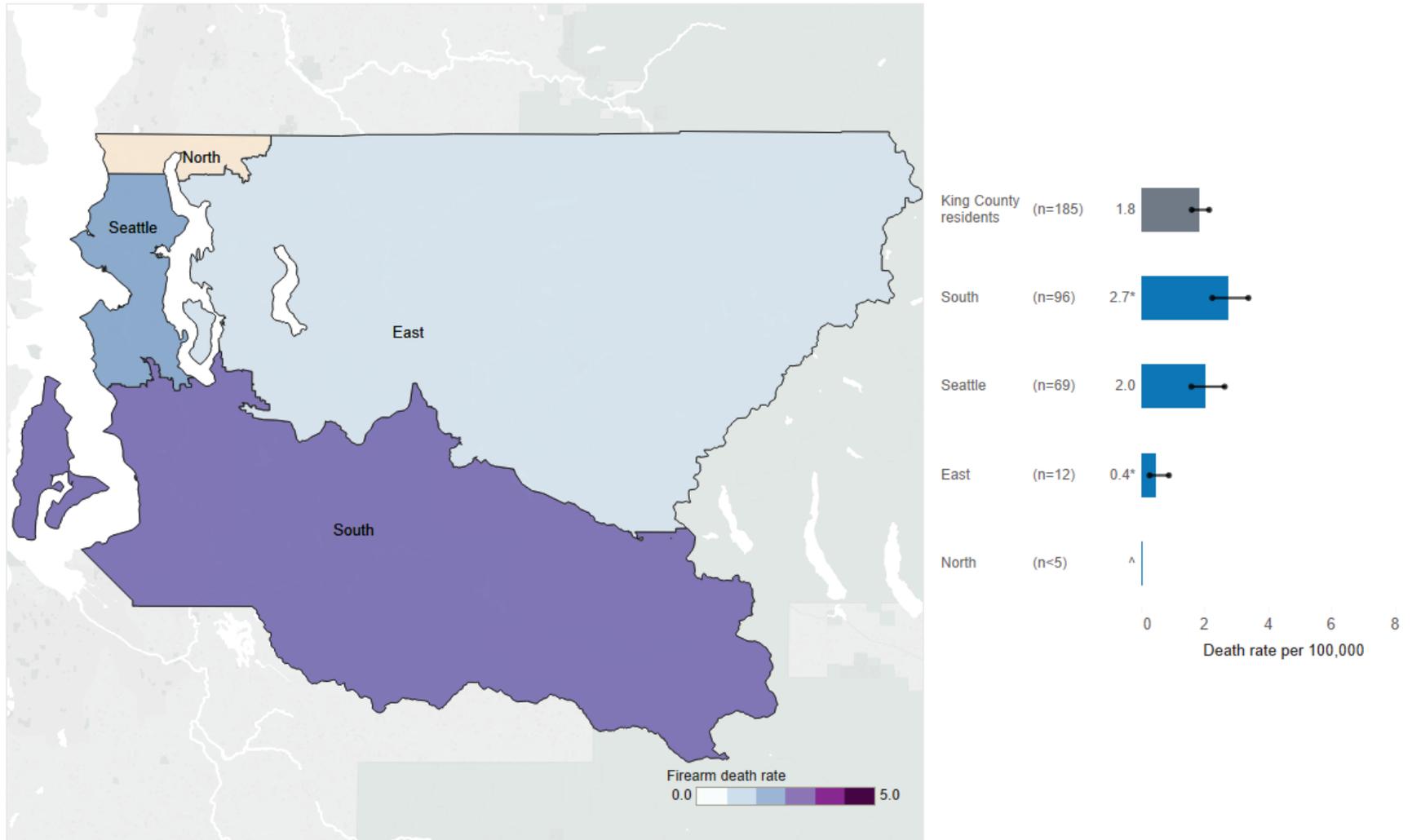
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

* = Significantly different than King County rate
^ = Too few cases to protect confidentiality and/or report reliable estimates

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Among King County cities and neighborhoods, firearm homicide rates were highest for residents of North Highline, Burien, and Kent

Firearm homicide rates by cities/neighborhoods, King County (average: 2012-2016)

			Death rate
	King County residents	(n=185)	1.8
(1)	North Highline	(n=6)	6.1 *!
(2)	Burien	(n=10)	4.5 *!
(3)	Kent	(n=22)	3.4 *
(4)	SeaTac/Tukwila	(n=7)	3.2 !
(5)	Federal Way	(n=18)	2.7
(6)	Renton	(n=15)	2.6
(7)	Auburn	(n=9)	2.5 !
(8)	Des Moines/Normandy Park	(n=5)	2.5 !
(9)	Seattle	(n=69)	2.0
(10)	Bear Creek/Carnation/ Duvall/Snoqualmie/ North Bend/Skykomish	(n=6)	1.2 !
(11)	Black Diamond/ Enumclaw/Covington/ Maple Valley/ Fairwood/Newcastle	(n=7)	0.9 !
(12)	East Side	(n=7)	0.3 *!
(13)	Vashon Island	(n=0)	0 *

Firearm death rate
0.0 — 6.2
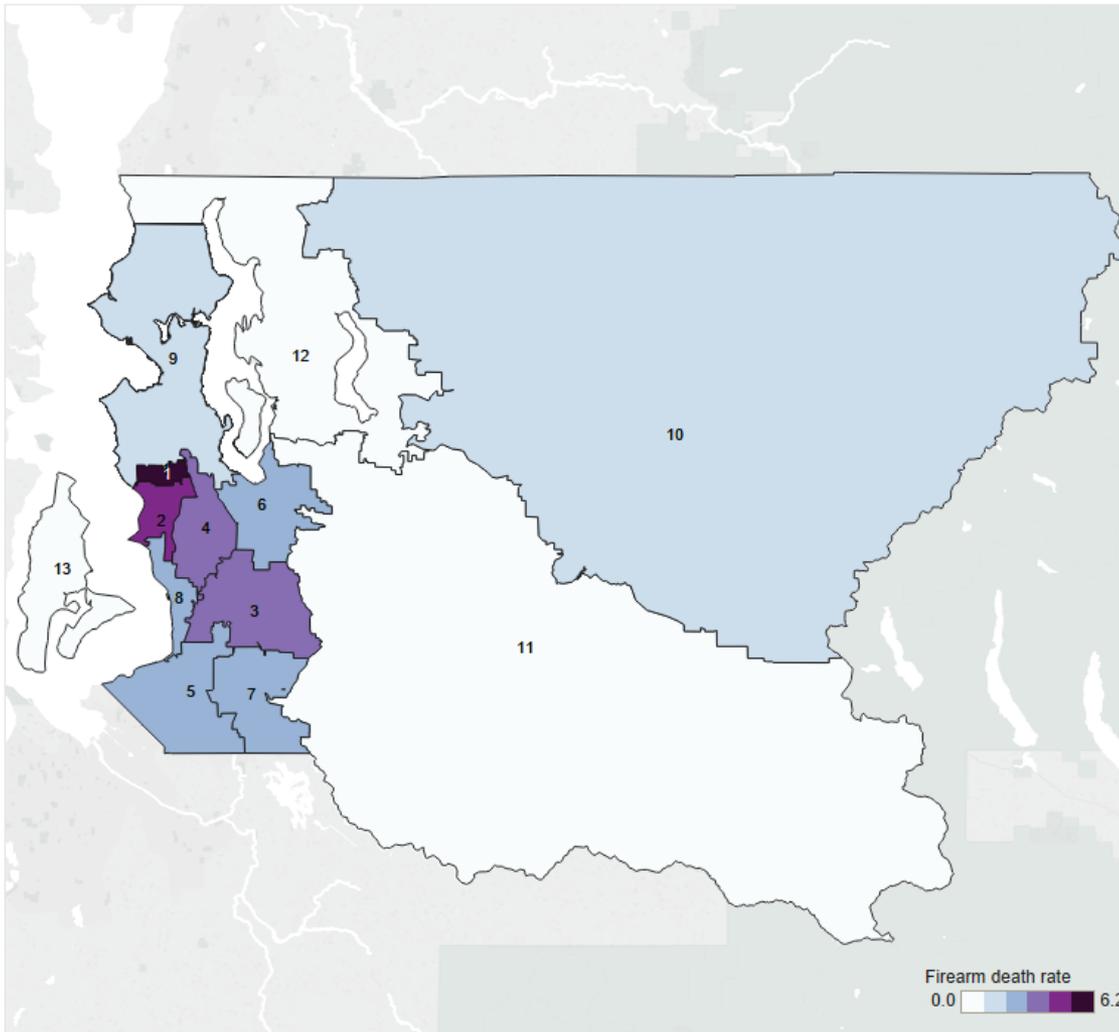
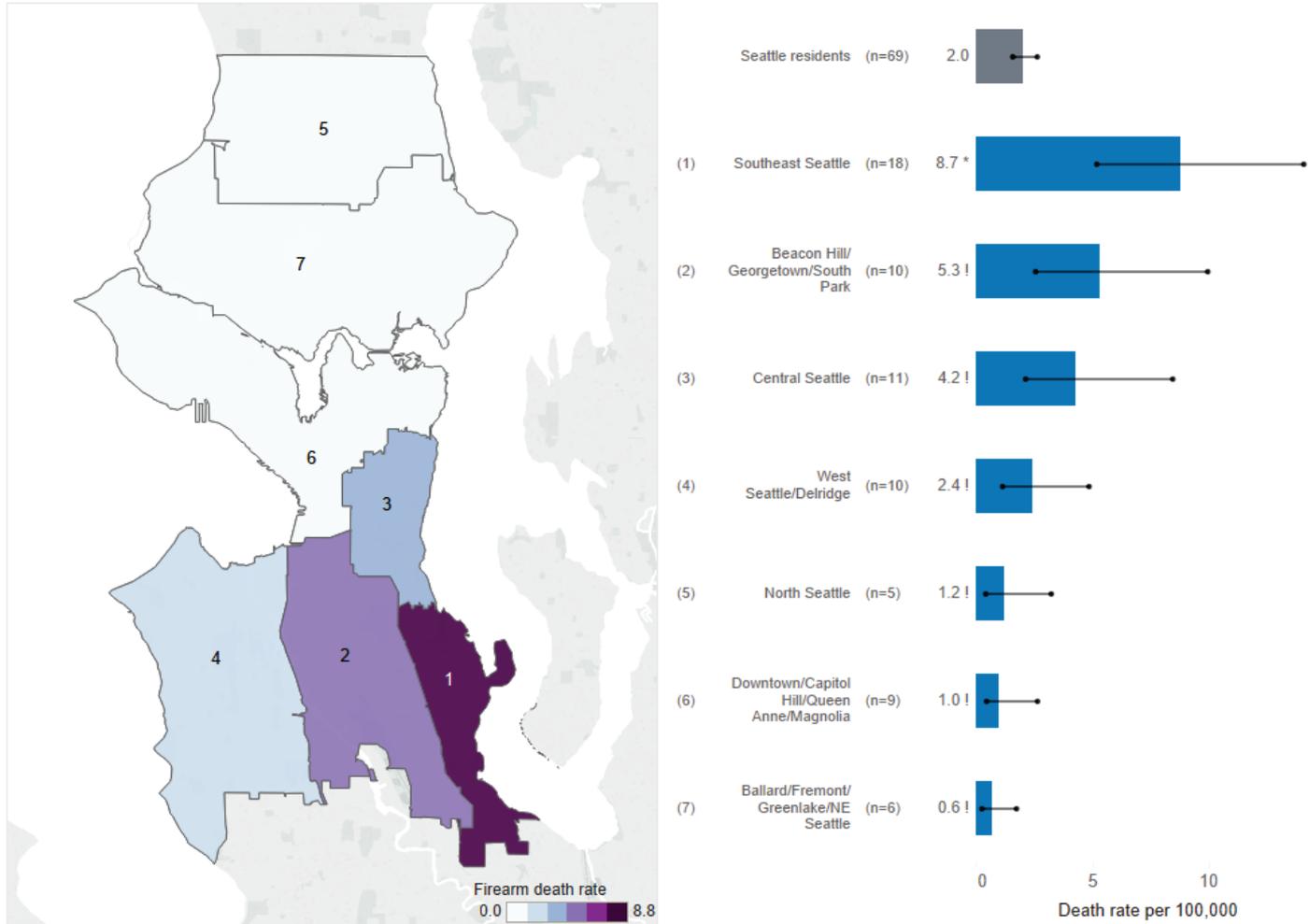Death rate per 100,000

Number label corresponds to ranking.
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

*Significantly different than King County rate
! = Interpret with caution; sample size is small, so estimate is imprecise

Note: the overall rate for King County residents includes all King County cities/neighborhoods. Rates vary by city/neighborhood; many with small counts and overlapping confidence intervals.

In Seattle, firearm homicide rates were highest among residents of Southeast Seattle neighborhoods

Firearm homicide rates by neighborhood, Seattle (average: 2012-2016)

	Seattle residents	(n=69)	2.0
(1)	Southeast Seattle	(n=18)	8.7 *
(2)	Beacon Hill/ Georgetown/South Park	(n=10)	5.3 !
(3)	Central Seattle	(n=11)	4.2 !
(4)	West Seattle/Delridge	(n=10)	2.4 !
(5)	North Seattle	(n=5)	1.2 !
(6)	Downtown/Capitol Hill/Queen Anne/Magnolia	(n=9)	1.0 !
(7)	Ballard/Fremont/ Greenlake/NE Seattle	(n=6)	0.6 !

Death rate per 100,000

Firearm death rate 0.0 — 8.8

Number label corresponds to ranking.
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

*Significantly different than Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise

Note: the overall rate for Seattle residents includes all Seattle neighborhoods.
Rates vary by neighborhood; many with small counts and overlapping confidence intervals.

FIREARM SUICIDES

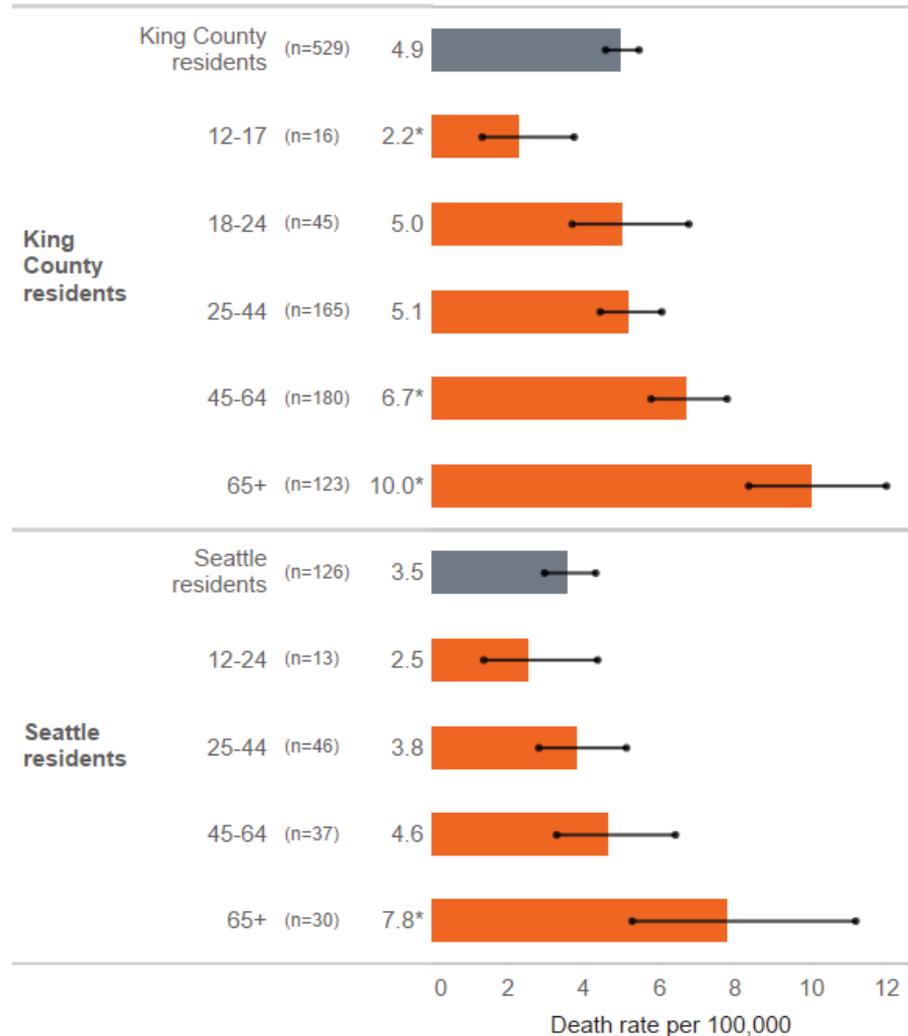# Firearm suicide rates increased with age

- Among all firearm suicides, rates increase with age with the highest rates among older adults ages 65+, though patterns may differ by race/ethnicity.

- Statewide data suggest that suicide methods vary by age, with older adults more likely to use firearms.**

**See WA Injury Tables for state data: https://www.doh.wa.gov/Portals/1/Documents/Pubs/689152.pdf

Note: Medical Examiner does not typically designate cause of death as suicide for population under age 12.
Ages 12-17 and 18-24 are combined for Seattle due to small number of firearm suicides among youth ages 12-17.

Firearm suicide rates by age (average: 2012-2016)

King County residents	(n=529)	4.9
King County residents 12-17	(n=16)	2.2*
King County residents 18-24	(n=45)	5.0
King County residents 25-44	(n=165)	5.1
King County residents 45-64	(n=180)	6.7*
King County residents 65+	(n=123)	10.0*
Seattle residents	(n=126)	3.5
Seattle residents 12-24	(n=13)	2.5
Seattle residents 25-44	(n=46)	3.8
Seattle residents 45-64	(n=37)	4.6
Seattle residents 65+	(n=30)	7.8*

Death rate per 100,000

* = Significantly different than King County / Seattle rate
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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Males were more likely than females to die by firearm suicide

- Among residents of King County and Seattle, males were more likely to die from firearm suicide.

- This sex difference is consistent with state and national data** as well as with previous data on firearm suicides in King County.
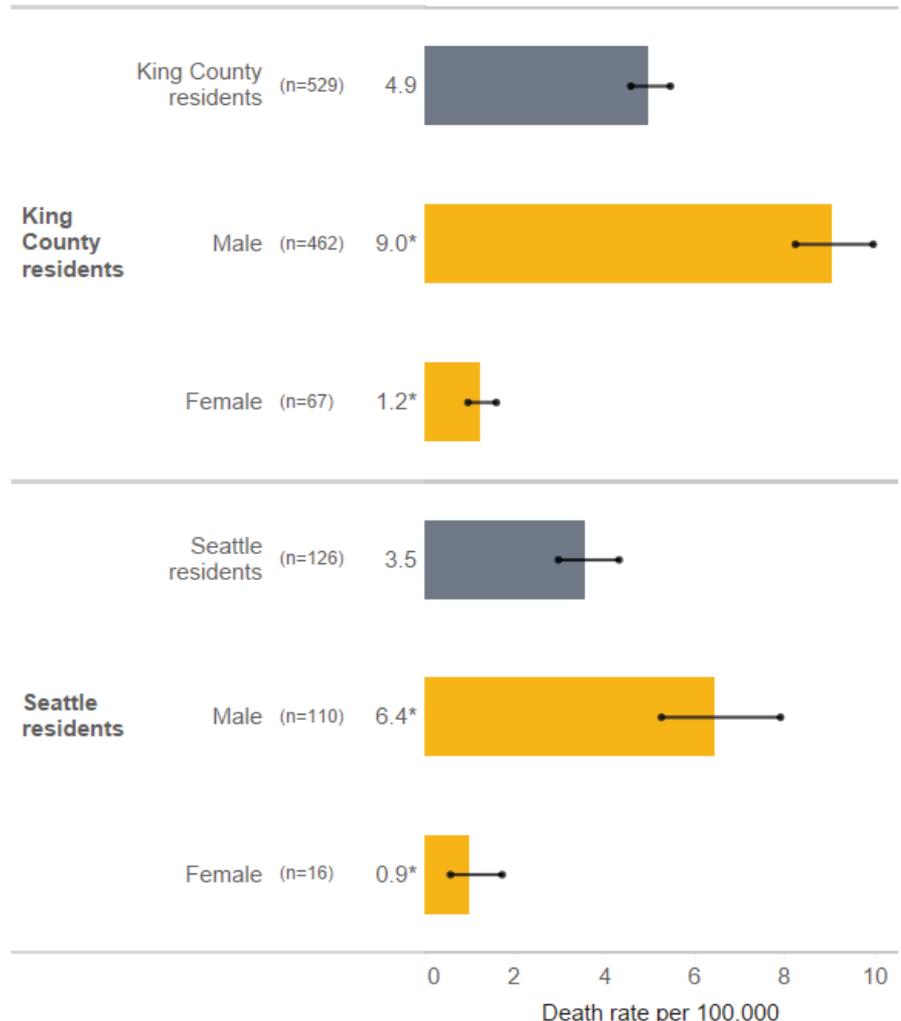
**See Washington Tracking Network for state data:
https://fortress.wa.gov/doh/wtn/WTNPortal/
See CDC Wonder for national data:
https://wonder.cdc.gov/ucd-icd10.html

Note: The death certificate form has space to indicate biological sex but not gender, making it difficult to capture death data for trans and gender-nonconforming people.

Firearm suicide rates by sex (average: 2012-2016)

King County residents	(n=529)	4.9
King County residents Male	(n=462)	9.0*
Female	(n=67)	1.2*
Seattle residents	(n=126)	3.5
Seattle residents Male	(n=110)	6.4*
Female	(n=16)	0.9*

Death rate per 100,000

* = Significantly different than King County / Seattle rate
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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AIAN and white King County residents were more likely to die by firearm suicide than other racial or ethnic groups
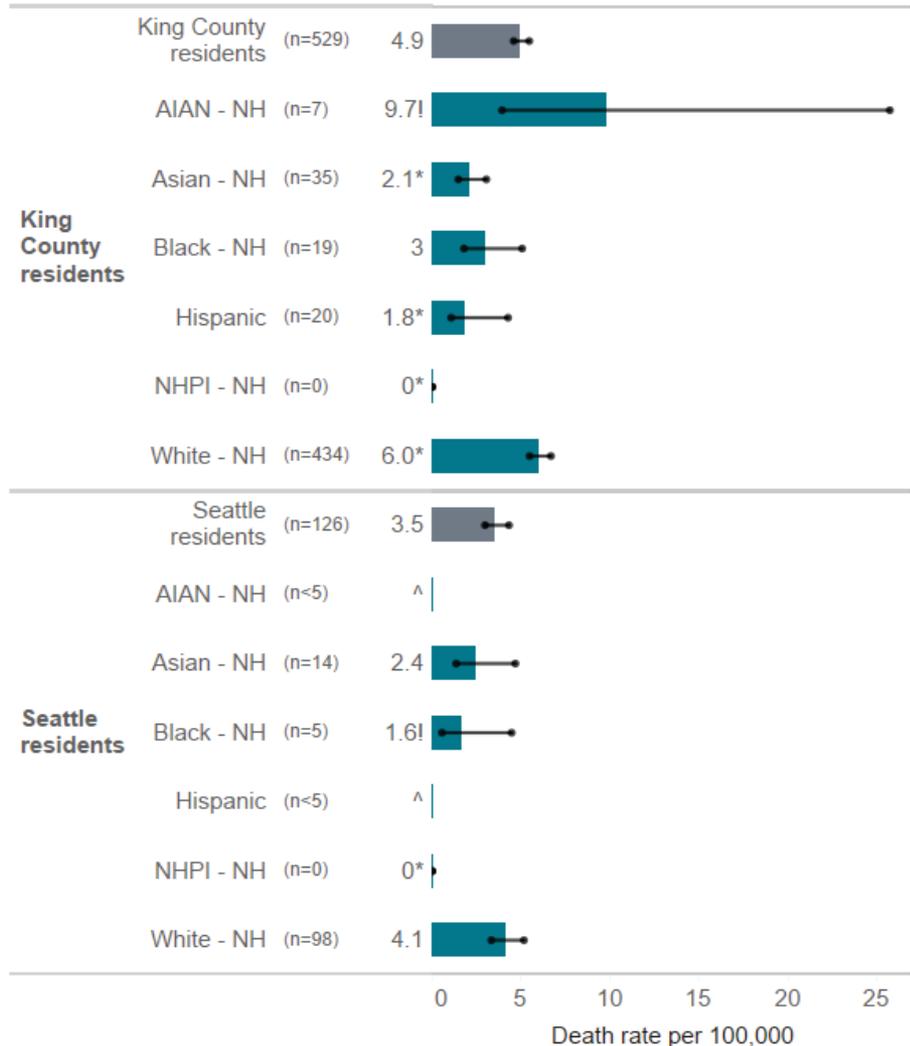
- The firearm suicide rate was high for American Indian/Alaska Native residents in King County although not significantly different from the rates for black, Hispanic, or white residents.
  - High rates of firearm suicide among American Indian/Alaska Native residents is consistent with state and national data [+]
  (see slide 35 for limitations).

- Locally, there were no firearm suicides among Native Hawaiian/Pacific Islander residents.

- The firearm suicide rate for white King County residents was significantly higher than for King County residents overall, while the firearm suicide rate for Asian residents was significantly lower.

- Firearm suicides rates were significantly lower among Seattle residents than King County residents overall.

- Among Seattle residents, firearm suicide rates did not differ significantly between race/ethnic groups.

[+] See CDC Wonder for national data: https://wonder.cdc.gov/ucd-icd10.html

AIAN = American Indian/Alaskan Native
NHPI = Native Hawaiian/Pacific Islander
NH = Non-Hispanic

Note: Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race. See slide 35 for more information.

Firearm suicide rates by race/ethnicity (average: 2012-2016)

King County residents

Group	n	Rate
King County residents	n=529	4.9
AIAN - NH	n=7	9.7!
Asian - NH	n=35	2.1*
Black - NH	n=19	3
Hispanic	n=20	1.8*
NHPI - NH	n=0	0*
White - NH	n=434	6.0*

Seattle residents

Group	n	Rate
Seattle residents	n=126	3.5
AIAN - NH	n<5	^
Asian - NH	n=14	2.4
Black - NH	n=5	1.6!
Hispanic	n<5	^
NHPI - NH	n=0	0*
White - NH	n=98	4.1

Death rate per 100,000

* = Significantly different than King County / Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise
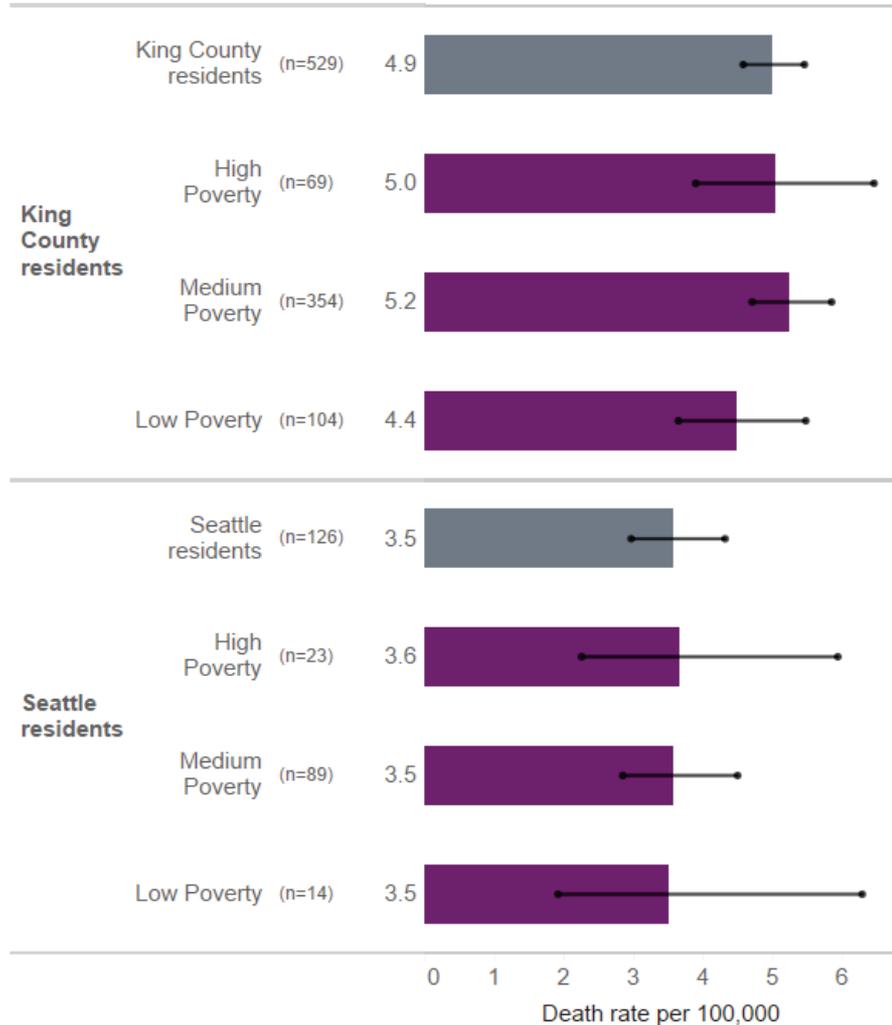^ = Too few cases to protect confidentiality and/or report reliable estimates
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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Firearm suicides were similar across all levels of neighborhood poverty in King County and Seattle

- Firearm suicide rates did not differ significantly by neighborhood poverty, indicating that all neighborhoods had similar rates of firearm suicides regardless of socioeconomic status.

See Discussion and Notes on slides 32 and 34 for discussion of economic disadvantage as a community risk factor for violence and definitions of high-, medium-, and low-poverty neighborhoods.
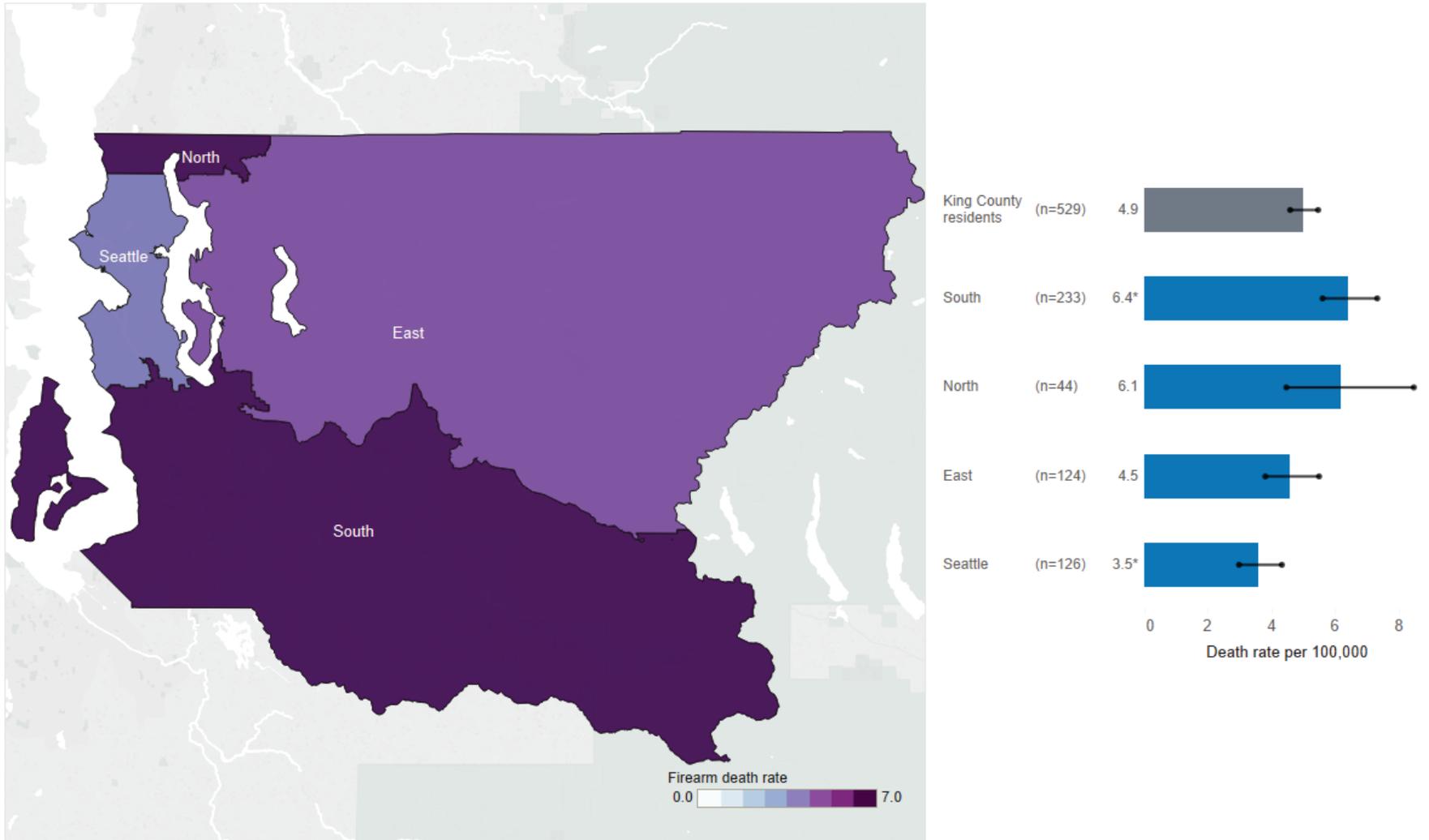
Firearm suicide rates by neighborhood poverty (average: 2012-2016)

		Death rate per 100,000
King County residents (n=529)	4.9	
King County residents High Poverty (n=69)	5.0	
Medium Poverty (n=354)	5.2	
Low Poverty (n=104)	4.4	
Seattle residents (n=126)	3.5	
Seattle residents High Poverty (n=23)	3.6	
Medium Poverty (n=89)	3.5	
Low Poverty (n=14)	3.5	

Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

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Firearm suicide rates were higher among residents of King County's South Region than Seattle and the East Region

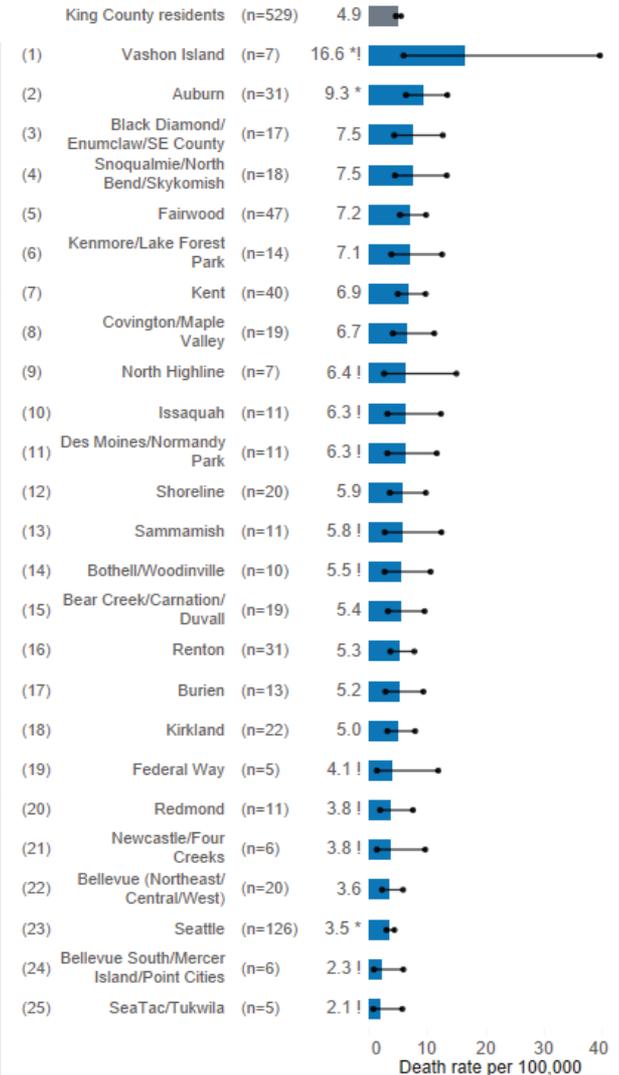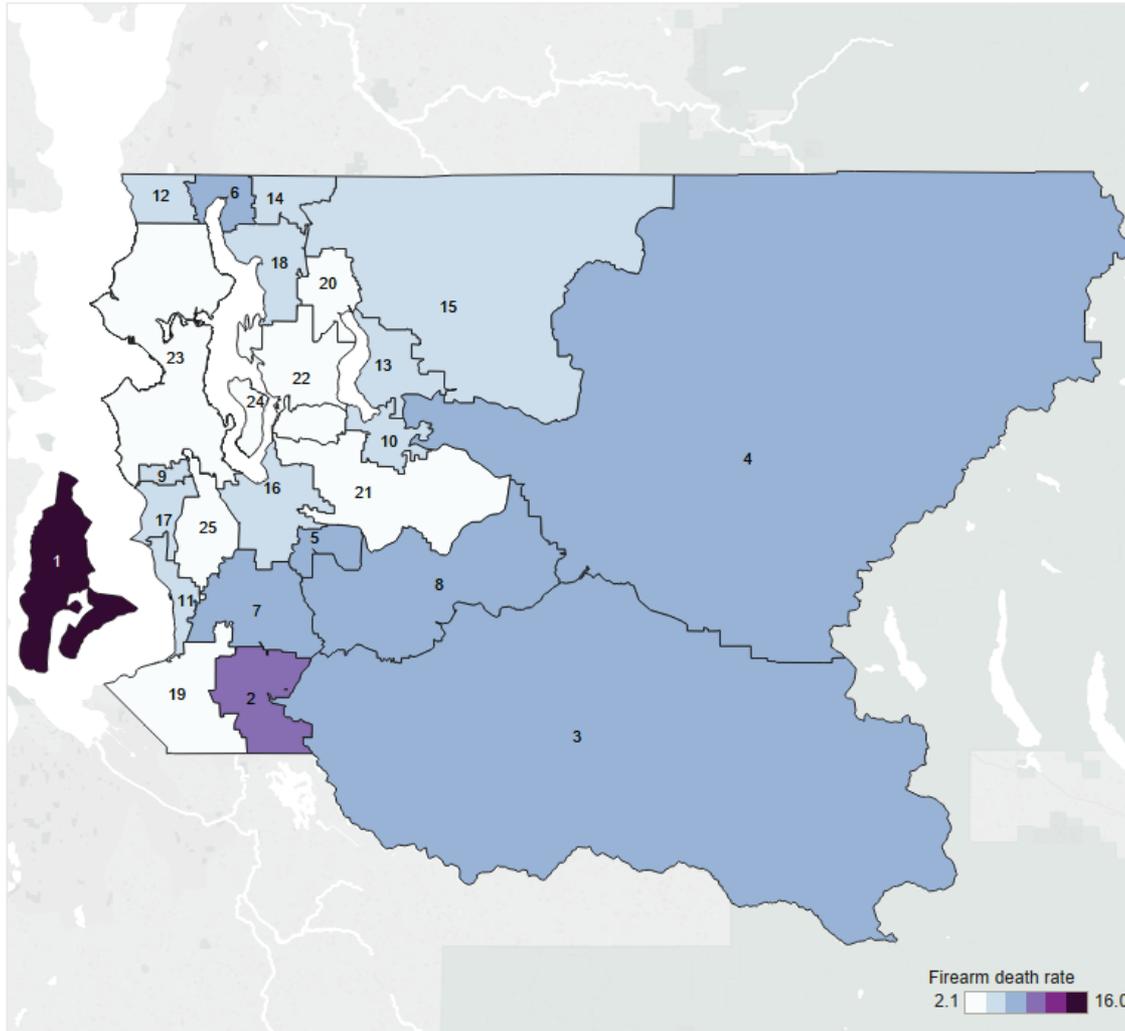Firearm suicide rates by King County region (average: 2012-2016)

* = Significantly different than King County rate

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Among King County cities and neighborhoods, firearm suicide rates were highest among residents of Vashon Island and Auburn

Firearm suicide rates by cities/neighborhoods, King County (average: 2012-2016)

			Rate
	King County residents	(n=529)	4.9
(1)	Vashon Island	(n=7)	16.6 *!
(2)	Auburn	(n=31)	9.3 *
(3)	Black Diamond/Enumclaw/SE County	(n=17)	7.5
(4)	Snoqualmie/North Bend/Skykomish	(n=18)	7.5
(5)	Fairwood	(n=47)	7.2
(6)	Kenmore/Lake Forest Park	(n=14)	7.1
(7)	Kent	(n=40)	6.9
(8)	Covington/Maple Valley	(n=19)	6.7
(9)	North Highline	(n=7)	6.4 !
(10)	Issaquah	(n=11)	6.3 !
(11)	Des Moines/Normandy Park	(n=11)	6.3 !
(12)	Shoreline	(n=20)	5.9
(13)	Sammamish	(n=11)	5.8 !
(14)	Bothell/Woodinville	(n=10)	5.5 !
(15)	Bear Creek/Carnation/Duvall	(n=19)	5.4
(16)	Renton	(n=31)	5.3
(17)	Burien	(n=13)	5.2
(18)	Kirkland	(n=22)	5.0
(19)	Federal Way	(n=5)	4.1 !
(20)	Redmond	(n=11)	3.8 !
(21)	Newcastle/Four Creeks	(n=6)	3.8 !
(22)	Bellevue (Northeast/Central/West)	(n=20)	3.6
(23)	Seattle	(n=126)	3.5 *
(24)	Bellevue South/Mercer Island/Point Cities	(n=6)	2.3 !
(25)	SeaTac/Tukwila	(n=5)	2.1 !

Death rate per 100,000

Firearm death rate
2.1 — 16.0

Number label corresponds to ranking.
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018
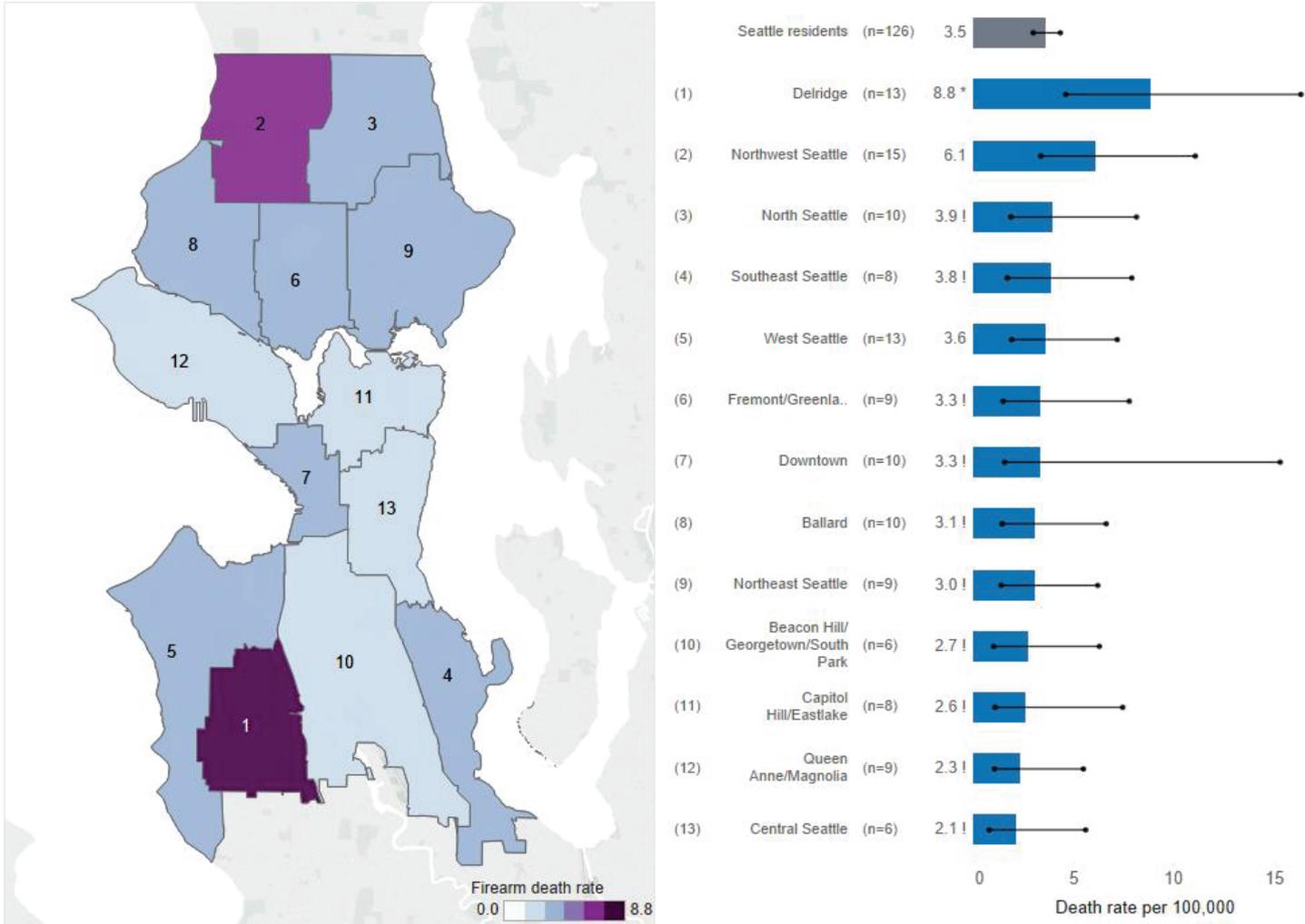
*Significantly different than King County rate
! = Interpret with caution; sample size is small, so estimate is imprecise

Note: the overall rate for King County residents includes all King County cities/neighborhoods. Rates vary by city/neighborhood; many with small counts and overlapping confidence intervals.

Among Seattle neighborhoods, the firearm suicide rate was higher among Delridge residents than Seattle residents overall

Firearm homicide rates by neighborhood, Seattle (average: 2012-2016)

Number label corresponds to ranking.
Source: Death certificate data, WA State Department of Health, Center for Health Statistics. PHSKC, APDE; 11/2018

*Significantly different than Seattle rate
! = Interpret with caution; sample size is small, so estimate is imprecise

Note: the overall rate for Seattle residents includes all Seattle neighborhoods.
Rates vary by neighborhood; many with small counts and overlapping confidence intervals.

Conclusions

- From 2012 to 2016, firearm death represented a persistent public health issue in King County and Seattle.

- In King County, firearm suicide rates remain consistently higher than homicide rates and unchanged over the 17-year period.

- There are disparities in firearm death rates by race/ethnicity as well as age, sex, and geography. To understand the impact of firearm deaths, it is important to understand the context in which they occur, including risk/protective factors and behaviors.

- For estimates that are suppressed and/or based on small numbers, additional research through qualitative work may be especially helpful in understanding firearm deaths.

- Firearm deaths do not capture the full impact of firearm violence on families and communities. Future chart packs will focus on non-fatal firearm injuries as well as risk and protective factors for firearm violence.

- Safely storing firearms can prevent injuries and deaths. Learn more about King County's **LOCK IT UP** program, which works with firearm retailers, law enforcement agencies and the community to promote safe storage, and other efforts to address firearm violence at http://lockitup.org.

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Discussion of race/ethnicity and neighborhood poverty

- Race/ethnicity and neighborhood poverty results included in this chart pack should be interpreted in the context of many additional complex social, economic, and political factors that can influence environmental and individual health outcomes.*

- Many communities of color have experienced social and economic discrimination and other forms of racism. This can contribute to concentrated economic disadvantage—a community risk factor for interpersonal violence—and can negatively affect the health and well-being of these communities.**

- Recognizing that firearm violence cannot be extricated from generations of racial and other forms of systemic oppression, it is important to be aware of racial and ethnic group disparities in premature deaths.

- We are using this analysis to inform our work and the work of our community partners so that all communities are safe, supported, and have opportunities to thrive. We hope this will lead to strategies that address these issues, as well as the social and economic inequities which underlie them.

*The CDC's *Comprehensive Technical Package for the Prevention of Youth Violence and Associated Risk Behaviors* discusses concentrated poverty and other neighborhood disadvantage measures as risk factors for violence. https://www.cdc.gov/violenceprevention/pdf/yv-technicalpackage.pdf

**The Prevention Institute's *Adverse Community Experiences and Resilience* provides a framework for the relationship between violence and community trauma. https://www.preventioninstitute.org/publications/adverse-community-experiences-and-resilience-framework-addressing-and-preventing

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NOTES, LIMITATIONS, DATA SOURCES, AND ACKNOWLEDGEMENTS

Notes

- Neighborhood poverty levels are based on the proportion of households in a census tract with annual household income (as reported in the US Census Bureau's American Community Survey) below the federal poverty threshold.[*] The federal poverty threshold for a family of four in 2016 was $24,230. Neighborhood poverty is used as a proxy when data sources don't have income information for individuals. The three groups are:

  - High poverty: 20% or more households below poverty threshold.
  - Medium poverty: 5% to 19% of households below poverty threshold.
  - Low poverty: fewer than 5% of households below poverty threshold.

- Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race.

- Trends were tested for statistical significance using JoinPoint: JoinPoint Regression Program, Version 4.6.0 – April 2018; Statistical Methodology and Application Branch, Surveillance Research Program, National Cancer Institute.
  - The auto correlated errors option was used to account for potential peer influences by geography and age.

- Years of potential life lost were estimated relative to age 85 based on age at time of death.

- Per the National Center for Health Statistics recommendations, all death rates are age adjusted to the 2000 US standard population to control for population changes over time.[**]

* See https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html for more information about the federal poverty thresholds.
** See https://www.cdc.gov/nchs/data/statnt/statnt20.pdf for more information about age adjustment.

Limitations

- **Small numbers:** Some racial/ethnic groups and geographies in King County have small populations, making it difficult to reliably describe their health data and compare them with larger populations. Slides that use "!" in charts signify that results should be interpreted with caution since the sample size is small so the estimate is imprecise.

- **Race/ethnicity:**
  - Race and ethnicity are reported on the death certificate by the next of kin or the medical examiner and may be based on observation rather than an individual's self-reported identity.
  - Race/ethnicity groups are reported as mutually exclusive categories and reflect identification with a single race.
  - Multiple-race deaths are not reported since the data are not accurately reported on death certificates and are not recommended for analysis.
  - American Indian/Alaskan Natives are particularly likely to experience the issue of incorrect classification of race on death certificates or identify with more than one race.[*]

- **Sex:** The death certificate form collects biological sex but not gender, making it difficult to capture death data for trans and gender-nonconforming people and creating a challenge in describing death disparity data among these populations.

- **Geography:** Some geographic regions, such as ZIP codes and census tracts, overlap county boundaries, making population estimates imprecise in some cases. In addition, some addresses could not be geocoded, so the number of deaths in different regions or cities may not add up to the total number in the county.

*See Urban Indian Health Institute Urban *Indian Health* data limitations for discussion of racial misclassification http://www.uihi.org/urban-indian-health/data-dashboard/ and 2010 Census Briefs, *The Two or More Races Population: 2010 (Sept 2012)* for estimates of American Indian/Alaskan Natives identifying with more than one race. https://www.census.gov/prod/cen2010/briefs/c2010br-13.pdf.

See DOH guidelines for death data: https://www.doh.wa.gov/Portals/1/Documents/Pubs/422-155-WADeathFile2017DataUsersGuide.pdf
See DOH guidelines for racial and ethnic groupings (page 26): https://www.doh.wa.gov/Portals/1/Documents/1500/RaceEthnGuidelines.pdf

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Data Sources and acknowledgements

- Data were provided by the following organizations:
  - **Deaths:** Washington State Department of Health, Center for Health Statistics, Death Certificate Data, 1990 – 2017, Community Health Assessment Tool (CHAT), September 2018.
  - **Population estimates**: Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001 – 2009; 2011 – 2018, Community Health Assessment Tool (CHAT), September 2018.
  - **American Community Survey**: US Census Bureau
- All analyses were conducted by Public Health — Seattle & King County
- This chart pack is designed to be shared. If you use information from this chart pack, please cite this chart pack as: Firearm Deaths among Residents of King County and Seattle: 2012-2016. January 2019. Public Health — Seattle & King County; Assessment, Policy Development & Evaluation Unit.

For additional information, please contact the
Assessment, Policy Development & Evaluation Unit
Email: data.request@kingcounty.gov
Phone: 206-263-8786

Appendix:
Annual counts of firearm deaths by intent in King County (2000-2016)

	Firearm Deaths among Residents of King County by Intent, 2000-2016							
	Homicide		Suicide		Unintentional, Undetermined, or Other		Total	
Year	Count	Rate	Count	Rate	Count	Rate	Count	Rate
2000	32	1.8	88	5.0	<5	^	122	6.9
2001	37	2.0	79	4.5	<5	^	116	6.5
2002	45	2.4	95	5.2	<5	^	142	7.7
2003	42	2.2	97	5.4	<5	^	140	7.6
2004	37	2.0	88	4.9	5	0.3	130	7.1
2005	36	1.8	83	4.4	5	0.3	124	6.5
2006	45	2.3	90	4.7	<5	^	139	7.2
2007	50	2.5	92	4.9	<5	^	144	7.5
2008	40	2.1	88	4.5	<5	^	130	6.7
2009	25	1.2	87	4.3	7	0.4	119	5.9
2010	30	1.6	86	4.2	7	0.4	123	6.2
2011	19	1.0	107	5.3	8	0.4	134	6.7
2012	39	1.9	118	5.8	<5	^	159	7.9
2013	34	1.7	95	4.4	8	0.4	137	6.5
2014	33	1.7	110	5.3	11	0.5	154	7.5
2015	41	2.1	101	4.7	<5	^	146	7.0
2016	38	1.8	105	4.8	8	0.4	151	6.9

^Categories with <5 deaths are suppressed to protect confidentiality.

Rate = age-adjusted death rate per 100,000