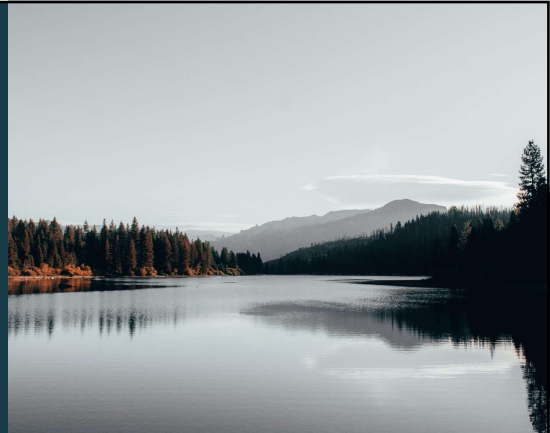


The Epidemiology of Gun Violence and Firearm Injury in Oregon: A Public Health View

Kathleen Carlson, MS, PhD
Professor, OHSU-PSU School of Public Health
Director, OHSU Gun Violence Prevention Research Center
Investigator, VA Portland Healthcare System

Community Violence Intervention Grantee Summit
May 14, 2024



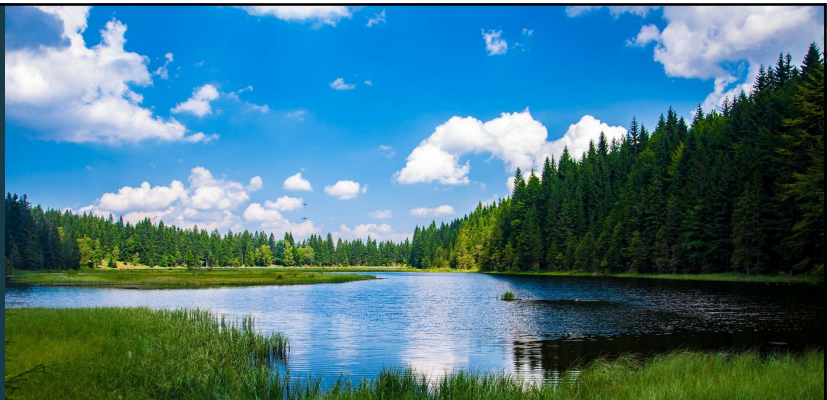
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U.S. Department of Veterans Affairs
Veterans Health Administration

1

Take Care...



National Suicide Prevention Lifeline call or text 988
Veterans Crisis Line call or text 988
National Public Distress Helpline 1-800-985-5990; text
“TalkWithUs” to 66746
Everytown Survivor Network
<https://everytownsupportfund.org/everytown-survivor-network/resources-for-victims-and-survivors-of-gun-violence/>

2

Overview/Learning Objectives

In this presentation, we will:

- 1) Examine the epidemiology of **firearm injury/gun violence**;
- 2) Discuss the **public health approach** to firearm injury/gun violence prevention; and
- 3) Describe our efforts to contribute to the **science of firearm injury prevention** locally and nationally

3

1

Epidemiology of Firearm Injury/Gun Violence



4

Leading Causes of Death in US, 2022

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 3,978	Unintentional Injury 1,291	Unintentional Injury 731	Unintentional Injury 933	Unintentional Injury 14,861	Unintentional Injury 33,558	Unintentional Injury 37,589	Malignant Neoplasms 33,438	Malignant Neoplasms 105,363	Heart Disease 568,548	Heart Disease 794,863
2	Short Gestation 2,900	Congenital Anomalies 444	Malignant Neoplasms 492	Suicide 495	Ischemic Stroke 6,306	Suicide 6,708	Heart Disease 12,308	Heart Disease 32,462	Heart Disease 86,274	Malignant Neoplasms 403,016	Malignant Neoplasms 609,308
3	SIDS 1,333	Ischemic Stroke 343	Congenital Anomalies 241	Malignant Neoplasms 449	Suicide 6,062	Ischemic Stroke 6,770	Malignant Neoplasms 11,217	Unintentional Injury 31,933	Unintentional Injury 34,620	Covid-19 146,633	Unintentional Injury 228,922
4	Unintentional Injury 1,337	Malignant Neoplasms 271	Ischemic Stroke 180	Ischemic Stroke 368	Malignant Neoplasms 1,440	Heart Disease 3,814	Suicide 8,228	Covid-19 9,712	Covid-19 24,335	Cerebrovascular 142,751	Covid-19 187,002
5	Maternal Pregnancy Comp. 1,222	Influenza & Pneumonia 129	Influenza & Pneumonia 77	Congenital Anomalies 205	Heart Disease 852	Malignant Neoplasms 3,663	Liver Disease 5,517	Liver Disease 9,432	Diabetes Mellitus 17,495	Chronic Low Respiratory Disease 125,936	Cerebrovascular 165,738
6	Placenta Cord Membranes 656	Heart Disease 106	Heart Disease 74	Heart Disease 146	Covid-19 492	Liver Disease 1,790	Ischemic Stroke 4,808	Suicide 7,819	Chronic Low Respiratory Disease 17,179	Alzheimer's Disease 118,569	Chronic Low Respiratory Disease 147,569
7	Bacterial Sepsis 643	Covid-19 101	Covid-19 62	Covid-19 69	Congenital Anomalies 413	Covid-19 1,644	Covid-19 3,852	Diabetes Mellitus 7,388	Liver Disease 16,549	Unintentional Injury 72,863	Alzheimer's Disease 120,166
8	Respiratory Distress 457	Perinatal Period 82	Chronic Low Respiratory Disease 49	Chronic Low Respiratory Disease 58	Diabetes Mellitus 325	Diabetes Mellitus 1,191	Diabetes Mellitus 2,887	Cerebrovascular 5,585	Cerebrovascular 14,239	Diabetes Mellitus 72,104	Diabetes Mellitus 101,410
9	Intrauterine Infection 365	Septicemia 60	Cerebrovascular 45	Cerebrovascular Influenza & Pneumonia	Chronic Low Respiratory Disease 198	Cerebrovascular 602	Cerebrovascular 2,164	Chronic Low Respiratory Disease 2,396	Suicide 7,894	Nephritis 47,138	Nephritis 58,022
10	Circulatory System Disease 257	Cerebrovascular 49	Septicemia 33	55	Influenza & Pneumonia 149	Complicated Pregnancy 395	Nephritis 1,030	Ischemic Stroke 2,774	Nephritis 6,689	Parkinson's Disease 38,942	Liver Disease 54,967
11	Neonatal Intoxicosis 255	Chronic Low Respiratory Disease 39	Anemia 21	Benign Neoplasms 35	Complicated Pregnancy 166	Congenital Anomalies Influenza & Pneumonia	Septicemia 1,029	Nephritis 2,689	Septicemia 6,185	Influenza & Pneumonia 38,098	Suicide 49,686



<https://wisqars.cdc.gov/data/lcd>

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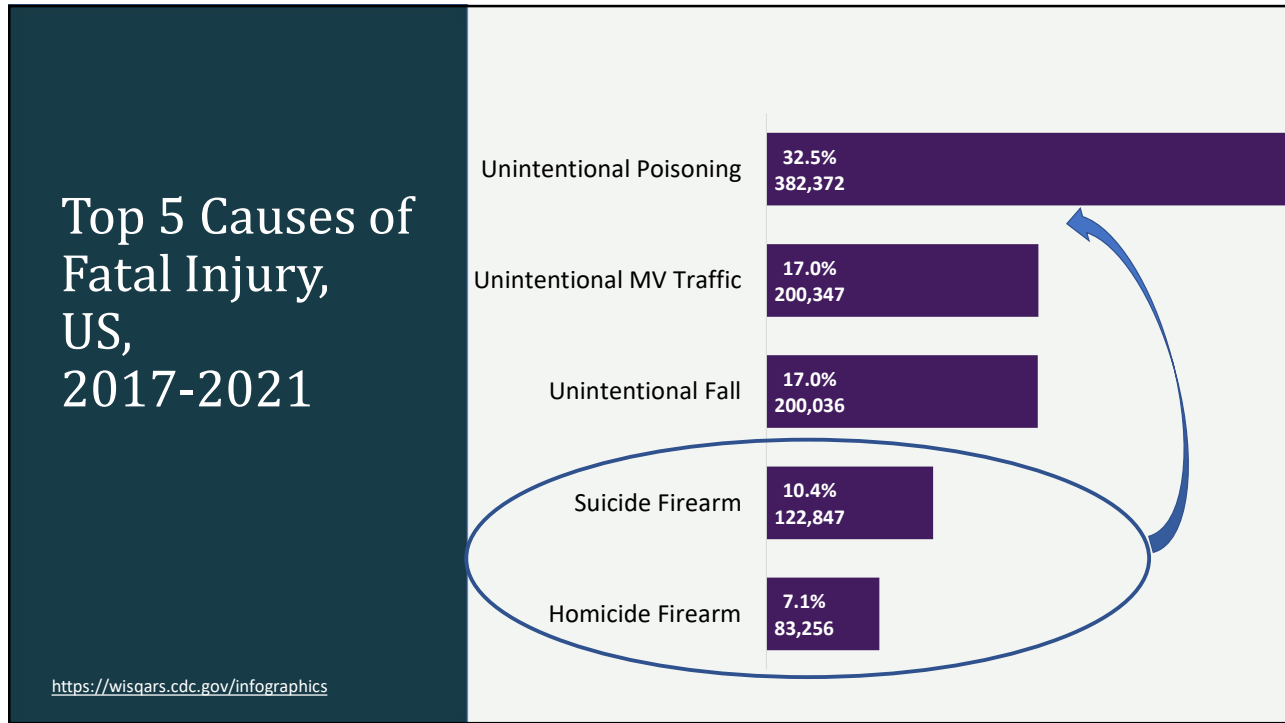
Leading Causes of Death in OR, 2020-2022

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 101	Unintentional Injury 27	Unintentional Injury 26	Unintentional Injury 32	Unintentional Injury 333	Unintentional Injury 1,040	Unintentional Injury 1,146	Malignant Neoplasms 1,177	Malignant Neoplasms 3,957	Heart Disease 19,853	Malignant Neoplasms 25,364
2	Short Gestation 68	Malignant Neoplasms 11**	Malignant Neoplasms 10**	Suicide 20**	Suicide 285	Suicide 457	Malignant Neoplasms 412	Unintentional Injury 1,095	Heart Disease 2,269	Malignant Neoplasms 18,985	Heart Disease 23,346
3	SIDS 58	Congenital Anomalies -	Congenital Anomalies -	Malignant Neoplasms 11**	Ischemic Stroke 107	Ischemic Stroke 149	Suicide 385	Heart Disease 772	Unintentional Injury 1,205	Cerebrovascular 6,444	Unintentional Injury 8,840
4	Maternal Pregnancy Comp. 42	Ischemic Stroke -	-	Congenital Anomalies -	Malignant Neoplasms 90	Malignant Neoplasms 144	Heart Disease 314	Liver Disease 468	Covid-19 968	Alzheimer's Disease 6,006	Cerebrovascular 7,191
5	Unintentional Injury 34	Heart Disease -	Cerebrovascular -	Cerebrovascular Chronic Low Respiratory Disease	Influenza & Pneumonia -	Heart Disease 29	Heart Disease 100	Covid-19 240	Covid-19 433	Liver Disease 864	Covid-19 5,933
6	Placenta Cord Membranes 22	Covid-19 -	Covid-19 -	Ischemic Stroke -	Diabetes Mellitus 13**	Liver Disease 69	Covid-19 187	Suicide 411	Diabetes Mellitus 340	Chronic Low Respiratory Disease 4,977	Alzheimer's Disease 6,085
7	Intrauterine Infection 14**	Influenza & Pneumonia -	Influenza & Pneumonia -	Heart Disease -	Covid-19 13**	Covid-19 54	Ischemic Stroke 124	Diabetes Mellitus 277	Chronic Low Respiratory Disease 742	Unintentional Injury 3,762	Chronic Low Respiratory Disease 5,890
8	Bacterial Sepsis -	-	Pneumonitis -	Covid-19 -	Congenital Anomalies -	Diabetes Mellitus 90	Diabetes Mellitus 195	Cerebrovascular 175	Cerebrovascular 472	Diabetes Mellitus 3,094	Diabetes Mellitus 4,332
9	Labor / Delivery Complications -	Cerebrovascular -	Acute Bronchitis -	Cerebrovascular -	Chronic Low Respiratory Disease -	Complicated Pregnancy 23	Cerebrovascular 71	Chronic Low Respiratory Disease 115	Suicide 402	Hypertension 1,765	Liver Disease 2,650
10	Neonatal Hemorrhage -	Perinatal Period -	Diabetes Mellitus -	Diabetes Mellitus -	-	Cerebrovascular -	Chronic Low Respiratory Disease -	Chronic Low Respiratory Disease 29	Hypertension 82	Hypertension 252	Parkinson's Disease 1,749

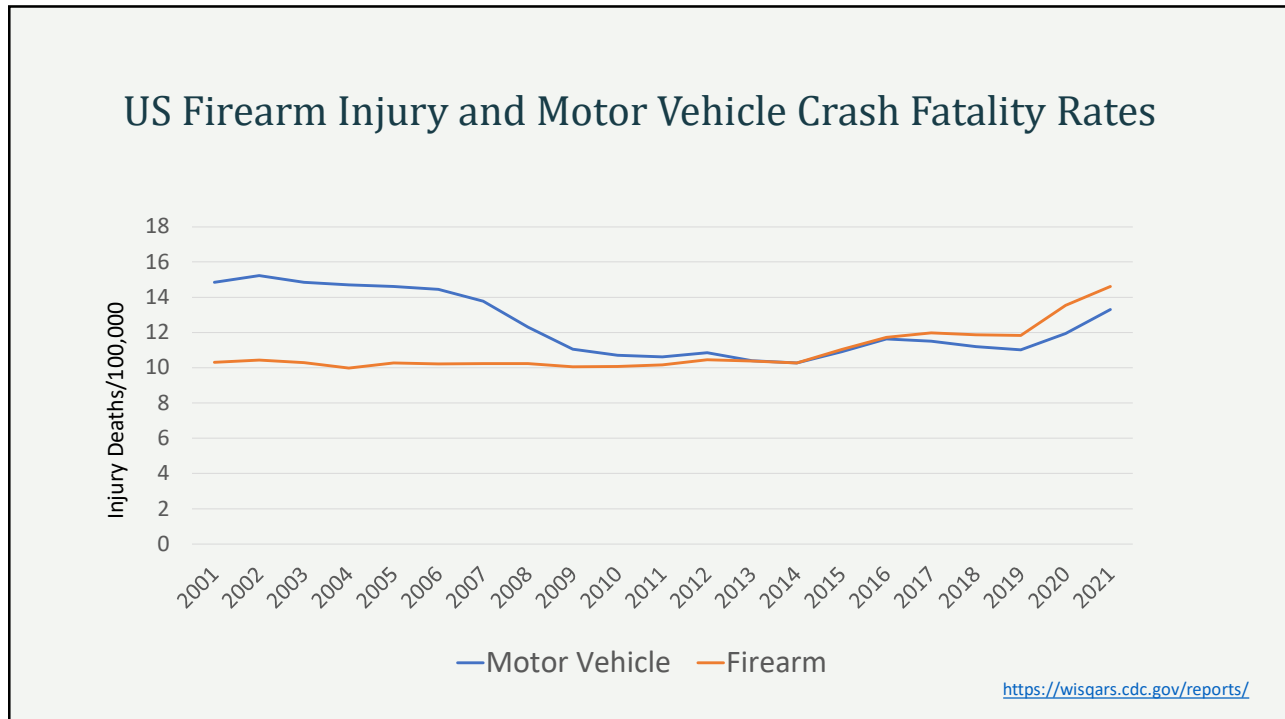


<https://wisqars.cdc.gov/data/lcd>

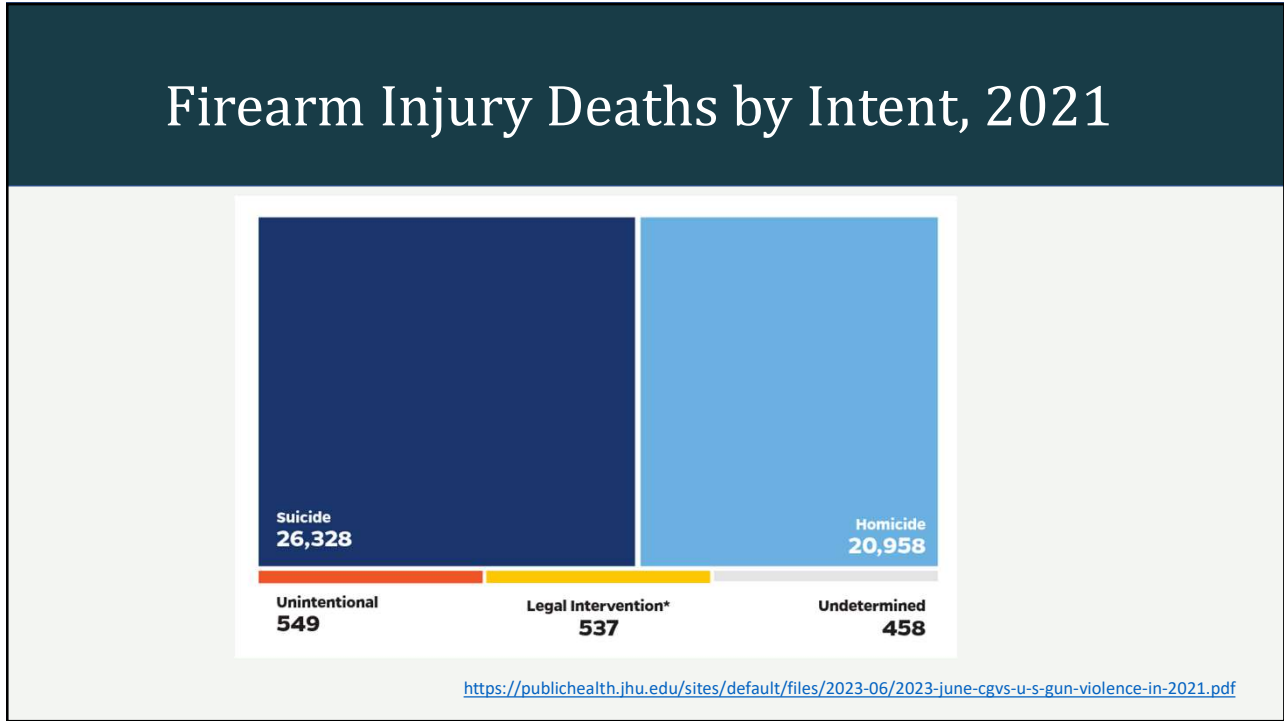
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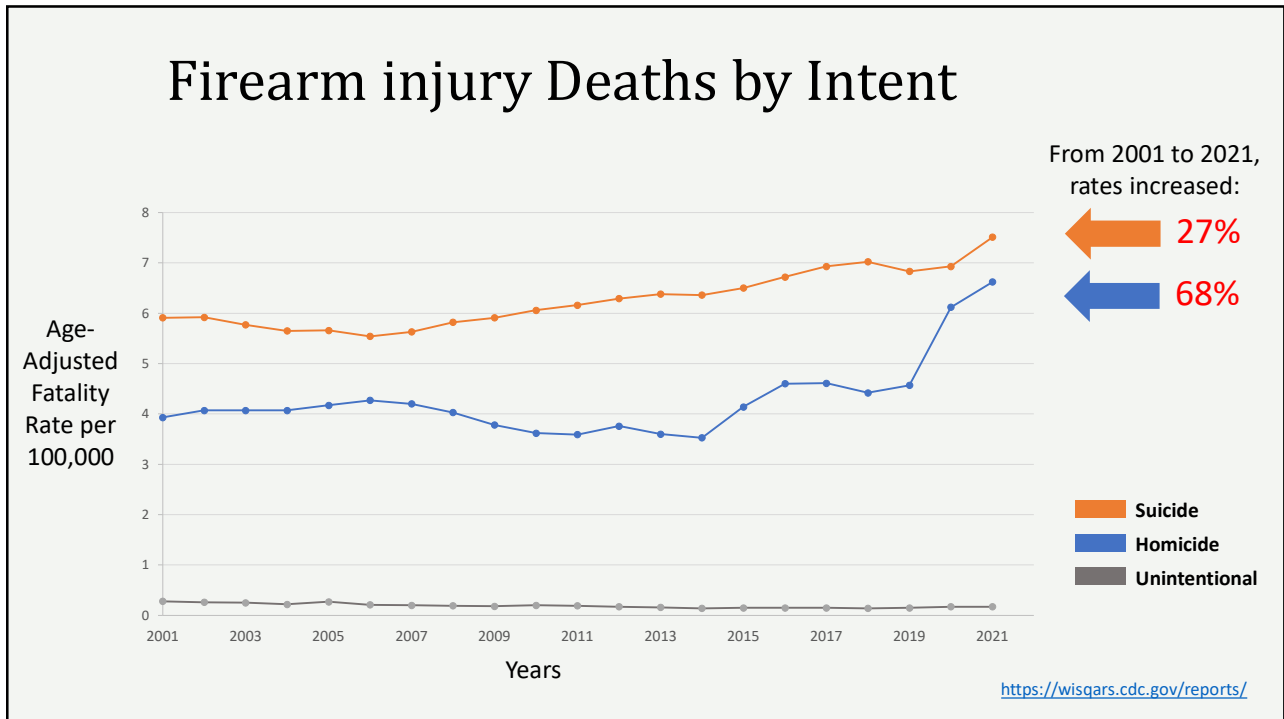
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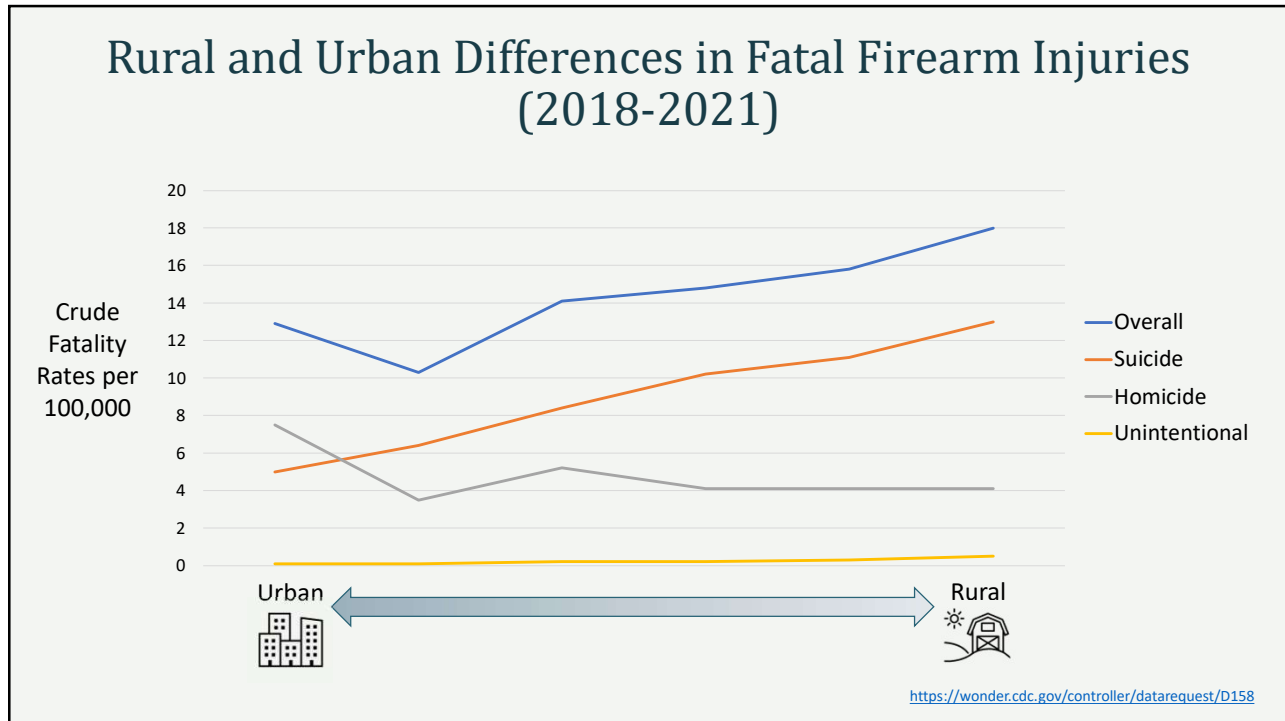
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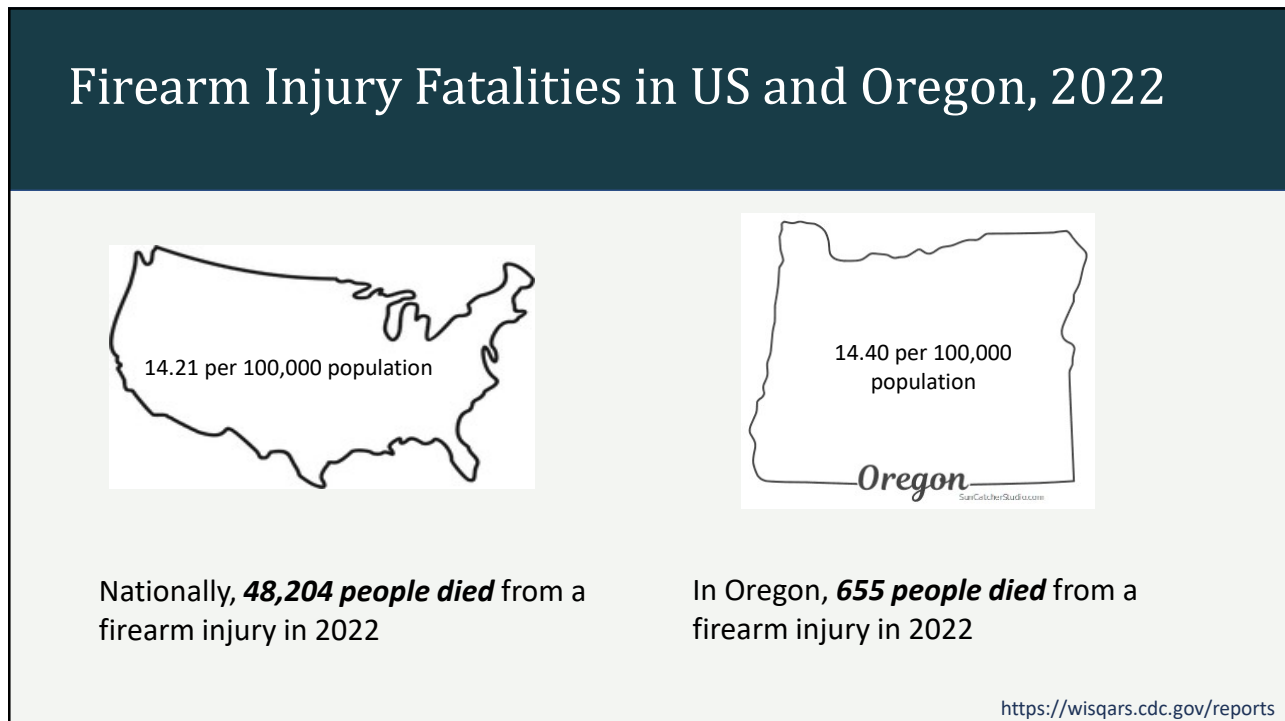
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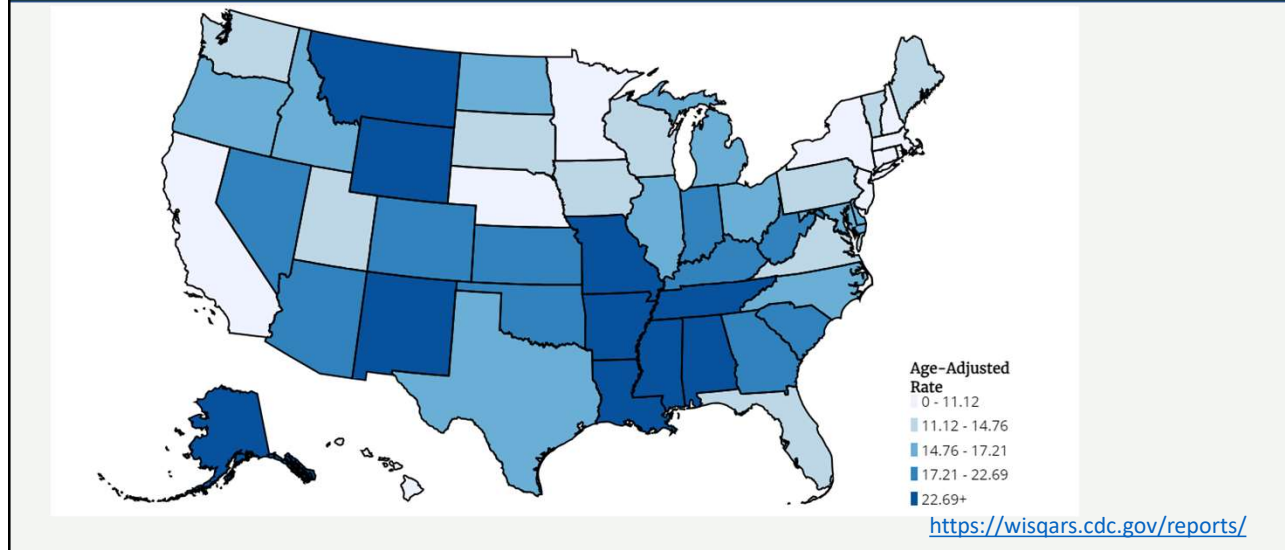


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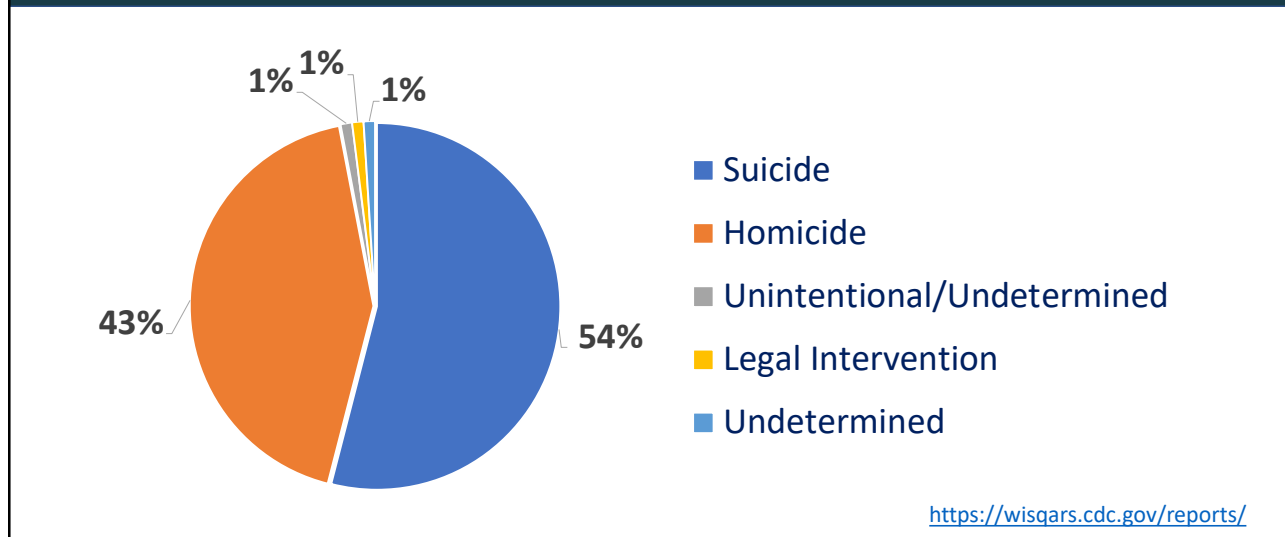
12

Fatal Firearm injuries/100,000 Population, by State, 2021



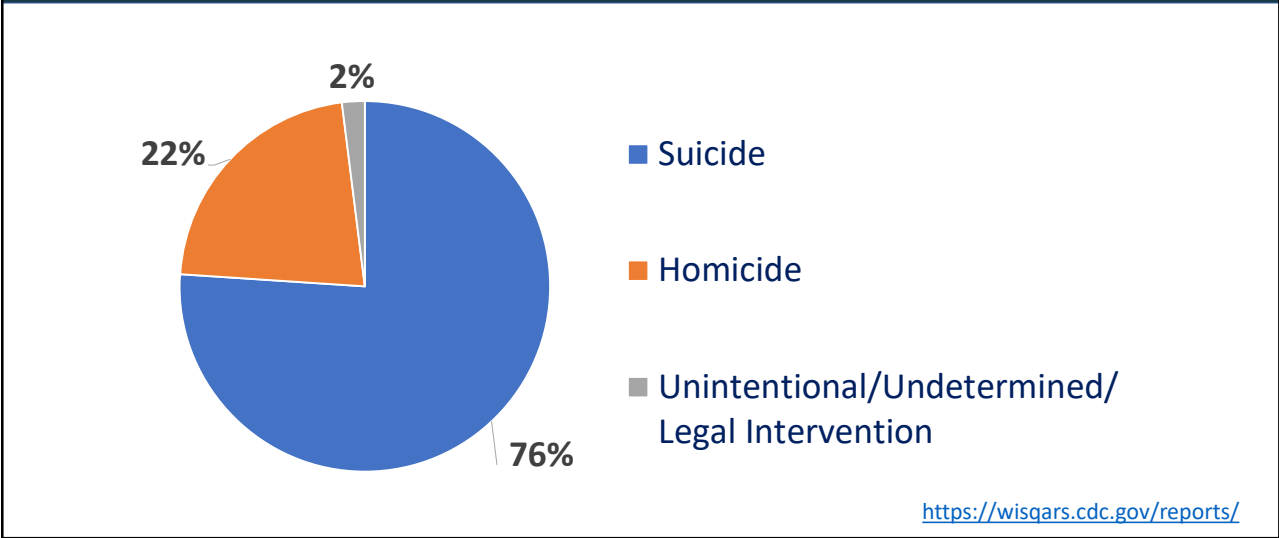
13

Firearm Injury Fatalities by Intent, US, 2021



14

Firearm Injury Fatalities by Intent, Oregon, 2021

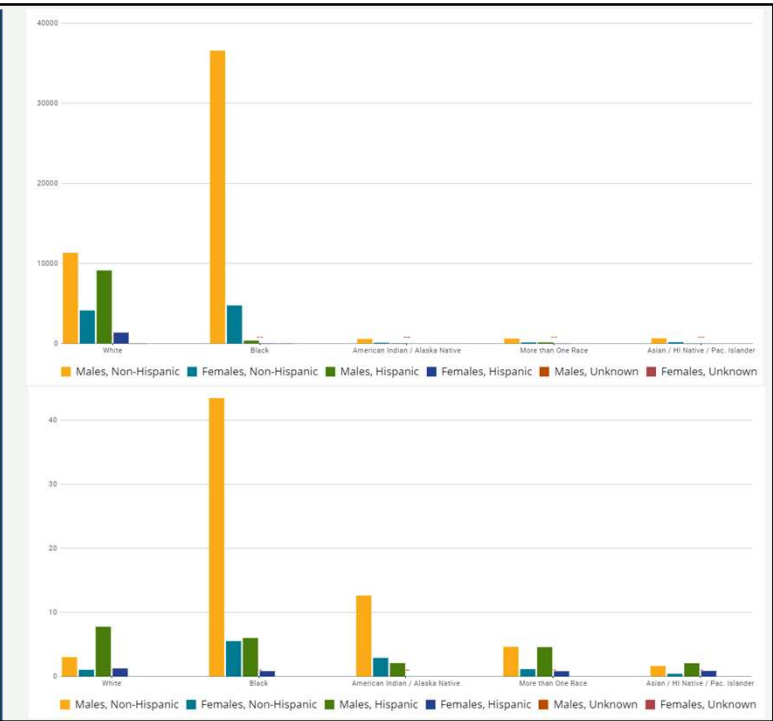


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Homicide-related Firearm Deaths, U.S., 2018-2021

Comparing Counts vs. Rates

US, 2018-2021
<https://wisqars.cdc.gov/reports/>



16

Homicide-related Firearm Deaths, Oregon, 2018-2021

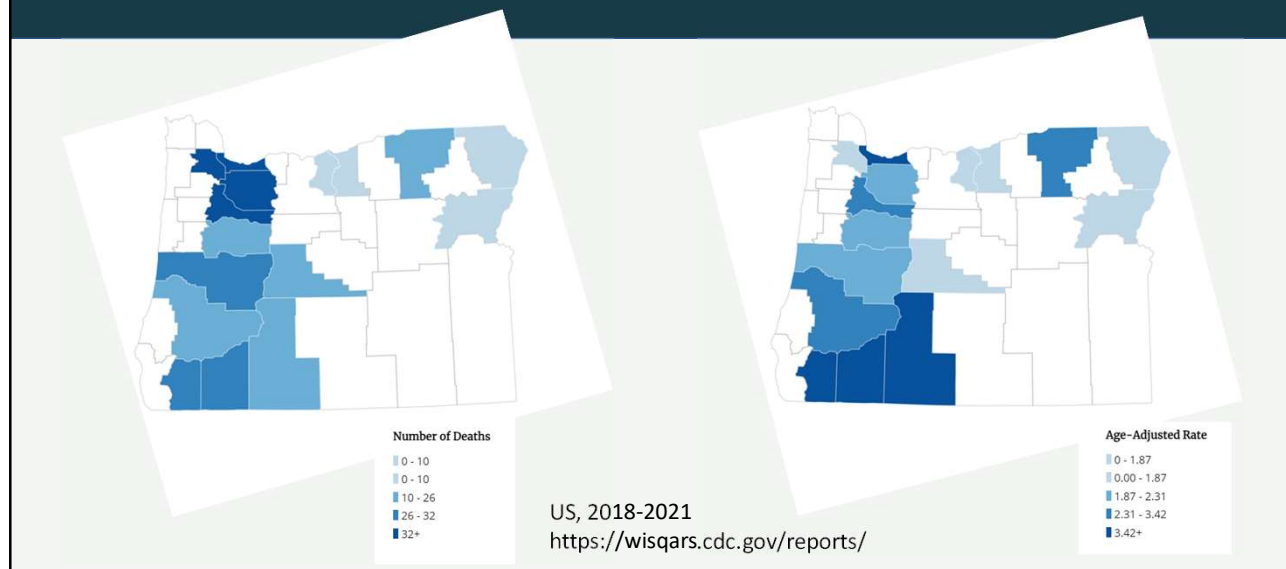
Comparing Counts vs. Rates

US, 2018-2021
<https://wisqars.cdc.gov/reports/>

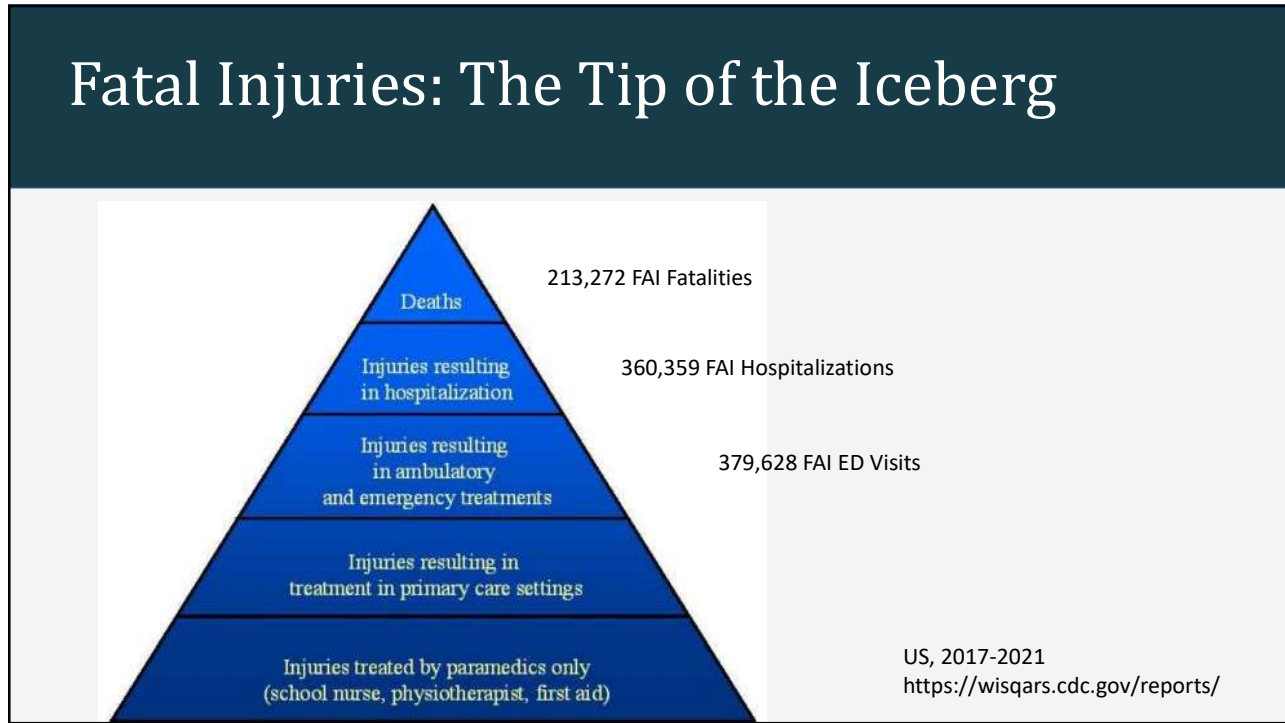


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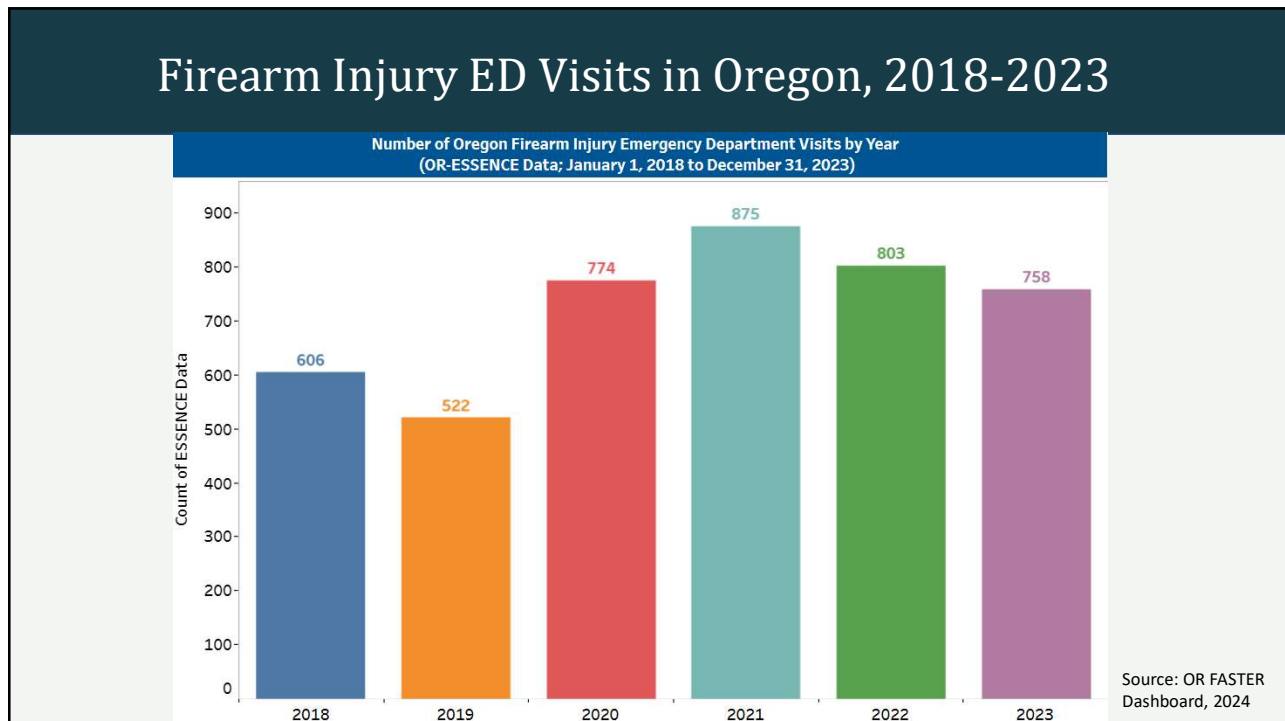
Homicide-related Firearm Deaths, Oregon, 2018-2021 ~ Counts vs. Rates



18

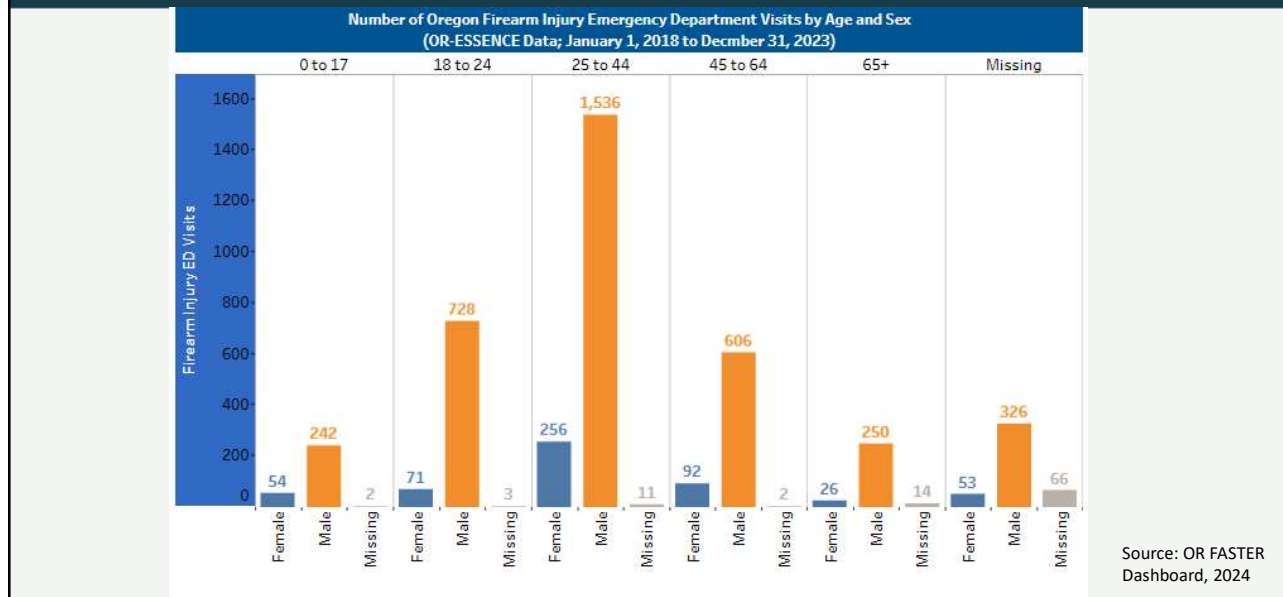


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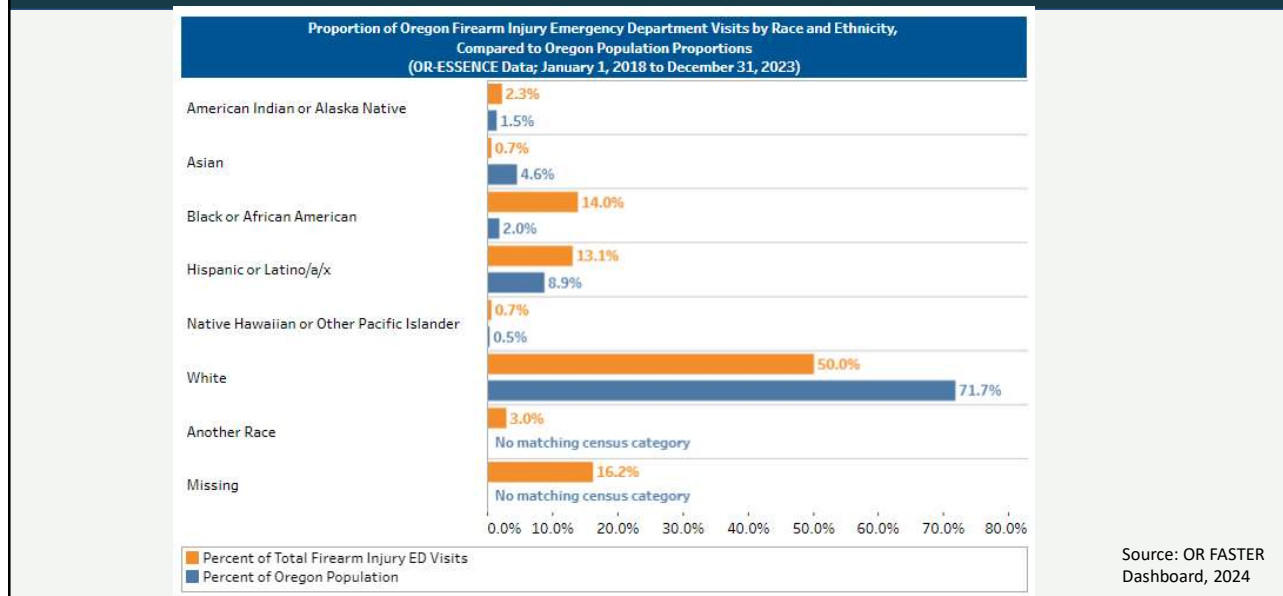
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Firearm Injury ED Visits in Oregon, 2018-2023



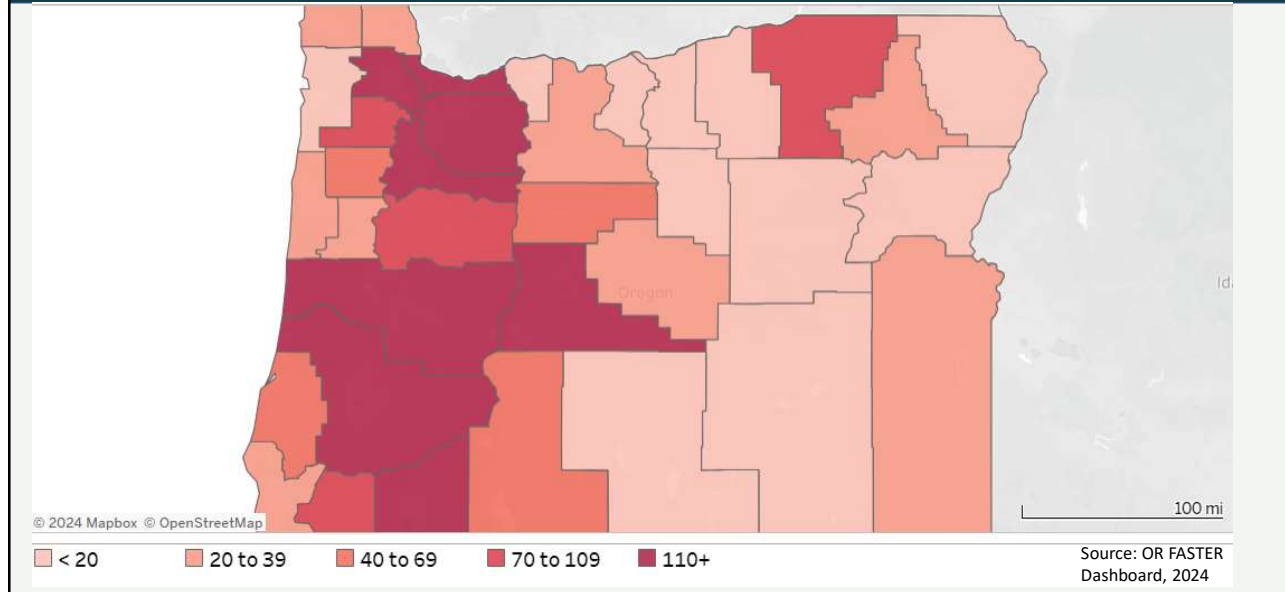
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Firearm Injury ED Visits in Oregon, 2018-2023



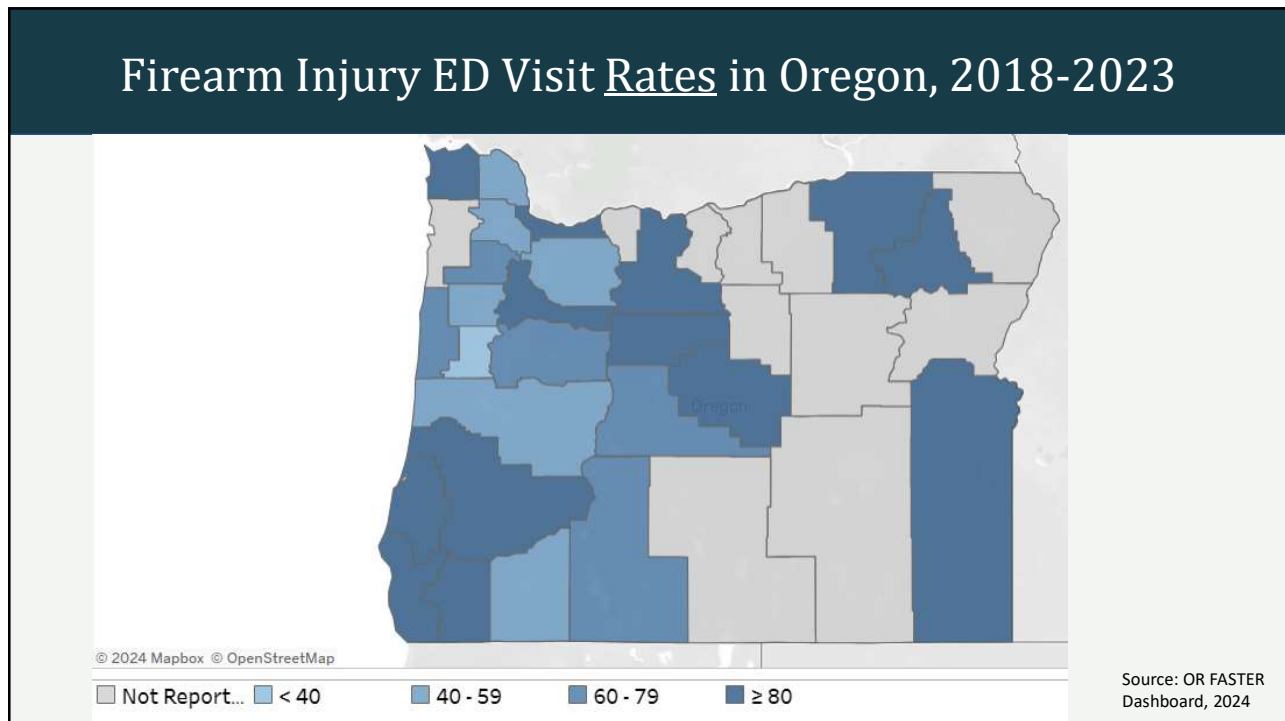
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Firearm Injury ED Visit Counts in Oregon, 2018-2023



23

Firearm Injury ED Visit Rates in Oregon, 2018-2023



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2

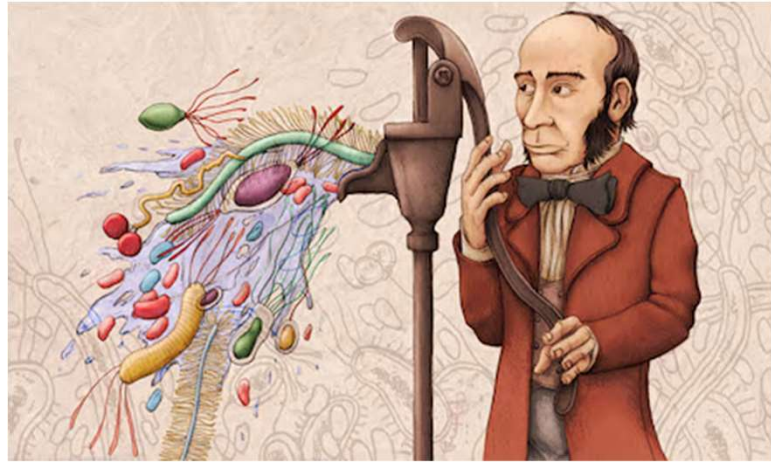
Public Health
Approach

Illustration: Alexander Bertram Powell

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What is Public Health?

Public health takes a scientific approach to a public health problem:

What is the problem?

Define and monitor

What is the cause?

Identify risk and protective factors

What works?

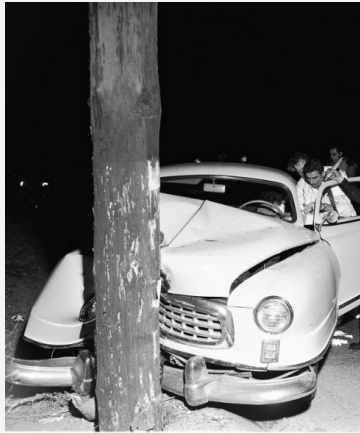
Develop/test prevention strategies

How do you do it?

Implement effective strategies

26

Motor Vehicle Crashes and Injury Prevention



<https://www.vintag.es/2018/03/traffic-accidents-of-california-from-the-1950s.html>



<https://www.oldcarsweekly.com/features/wreck-of-the-week-1955-buick-century>

27

Organizations for Motor Vehicle and Highway Safety



<https://www.iihs.org/>



<https://www.nhtsa.gov/recalls>



<https://mynatsa.org/category/fmcsa/>



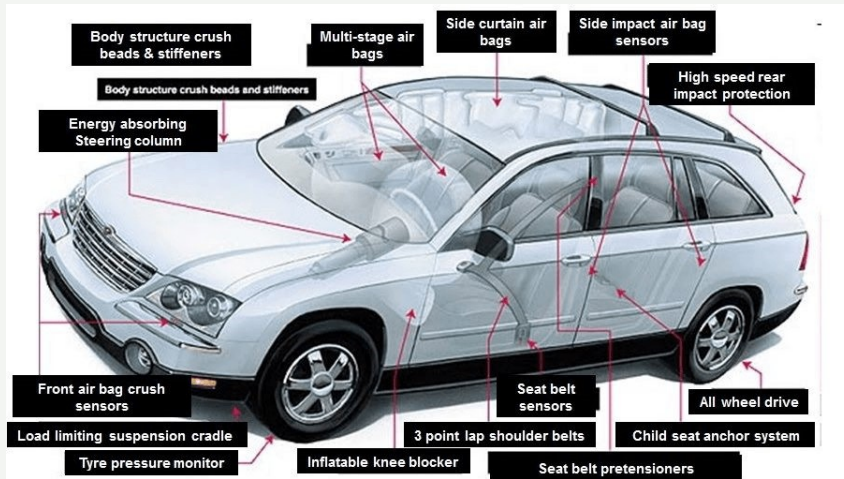
<https://highways.dot.gov/>



<https://www.cpsc.gov/>

28

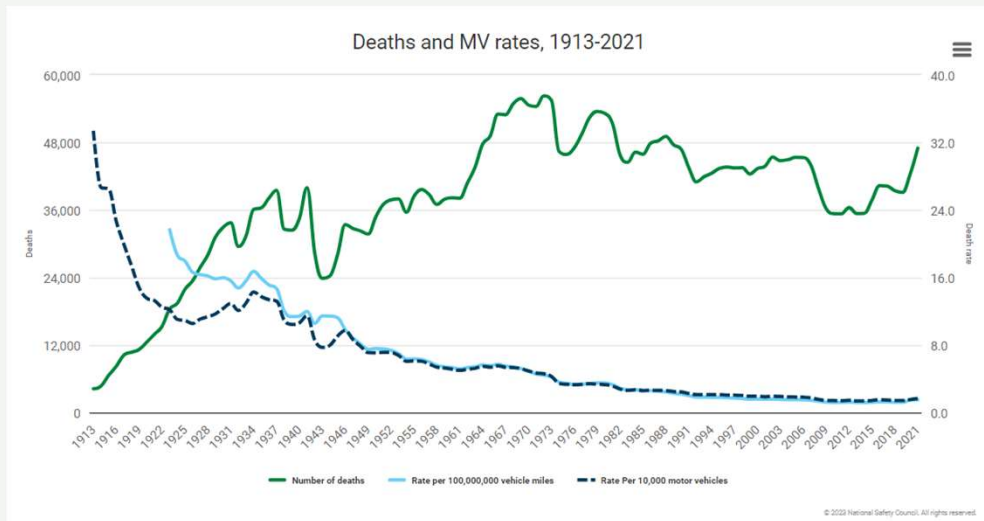
Not an "Accident" Motor Vehicle Crashes and Injury Prevention



<https://techstory.in/car-features/>

29

US Motor Vehicle Crash Fatalities Over Time



<https://injuryfacts.nsc.org/motor-vehicle/historical-fatality-trends/deaths-and-rates/>

30

Reframing Firearm Safety as a Public Health Issue

- Cars are here to stay...so are firearms
- Many different views and values on firearm ownership
- Focus on safety and harm reduction
- Coalition building
- Recognizing trauma



<https://www.pexels.com/photo/silhouette-of-man-and-child-near-white-hyundai-tucson-suv-during-golden-hour-1134857/>

31

Partners in the Public Health Approach



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Diverse Perspectives with Common Goals

Goal: to decrease firearm injury and death

Ages



Political Parties



Backgrounds



Socioeconomic Status



Opinions on Firearms



Occupations



State and hometown



33

Culture Change is Possible



<https://tobacco.stanford.edu/cigarettes/>

34

Culture Change is Possible



<https://www.vintag.es/2019/09/1960s-chevy-infant-storage-solution.html>



<https://www.countryliving.com/life/kids-pets/g4906/things-60s-kids-did-that-would-horrify-us-now/>

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Injuries are NOT Accidents!

Also...some say:

Interpersonal violence is a normative, adaptive response to abnormal and maladaptive structures/systems



36

Social Determinants of Firearm Injury and Gun Violence

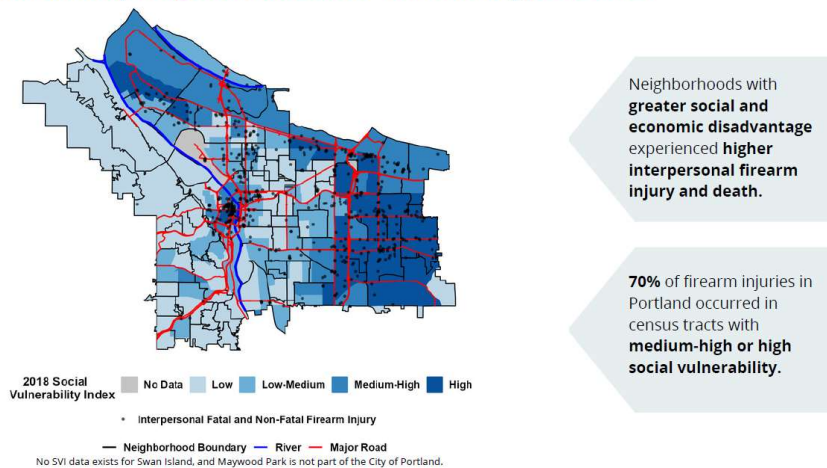


<https://www.cdc.gov/publichealthgateway/sdoh/index.html>

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Social Determinants of Firearm Injury and Gun Violence

Fatal and Non-Fatal Interpersonal Firearm Injuries in Portland by Neighborhood Social Vulnerability, 2018-2021

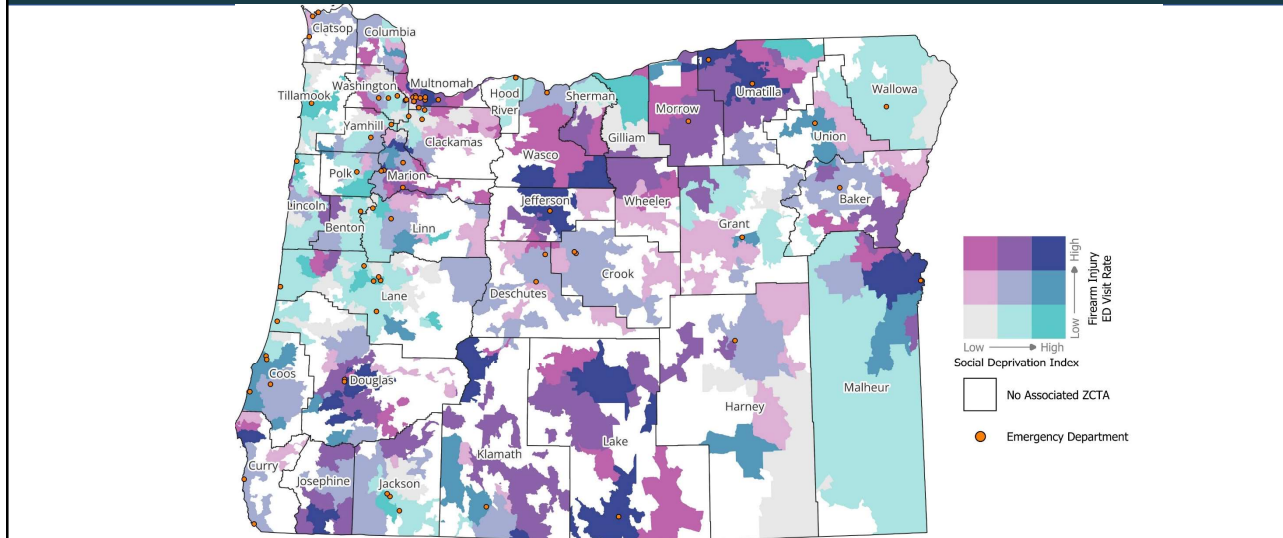


Neighborhoods with **greater social and economic disadvantage** experienced **higher interpersonal firearm injury and death**.

70% of firearm injuries in Portland occurred in census tracts with **medium-high or high social vulnerability**.

38

Social Determinants of Firearm Injury and Gun Violence Oregon; 2018-2023



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Social Ecological Model



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Social Ecological Model

COMMUNITY
Settings where people live, work, learn, and play

- Create physical environments that reduce violence with cost-effective, place-based interventions that are structural, scalable, and sustainable
- Eliminate racial segregation and the impact of gentrification on established neighborhoods
- Address areas with high density alcohol outlets
- Strengthen and coordinate faith and social service organizations
- Strengthen educational systems and vocational training
- Promote community cohesion
- Employ policing that is evidenced-based, transparent, and subject to civilian review
- Provide safe firearm storage opportunities in the community

SOCIETAL
Social and economic policies and cultural norms

- Support policies for financial stability that address economic inequalities
- Assure equitable access to quality healthcare and education, affordable housing, employment, and healthy connected neighborhoods
- Strengthen anti-violence norms and supportive peer relationships
- Support policies that restrict access to guns for people at risk of harming themselves or others, e.g., enhance use of extreme risk use protection (ERPO) law, enforce safe storage law, remove firearms from people with domestic violence restraining orders
- Increase the objectivity, transparency, and impartiality of the justice system

RELATIONSHIPS
Connection to family members, peers, partners, and other social networks

- Increase pro-social bonds
- Provide parenting or family-focused prevention programs
- Provide mentoring and peer programs
- Engage and support youth through programs that focus on employment, job mentorship and training, educational supports and behavioral interventions

INDIVIDUAL
Personal circumstances and history

- Enhance problem-solving skills, life skills, and resilience
- Improve sense of belonging and self-worth
- Identify and treat mental health problems and substance misuse
- Rehabilitate people with violent backgrounds
- Educate firearm owners about safe firearm storage and provide storage devices at reduced cost

Prevention strategies that act across all four levels, at the same time, are needed to sustain and achieve gun violence prevention at the population level.

References: CDC, WHO, CUNY, John Jay College of Criminal Justice

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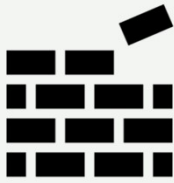
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OHSU-PSU SPH Gun Violence Prevention Research Center

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Building a Center for Gun Violence Prevention Research

- Infrastructure



- Dissemination



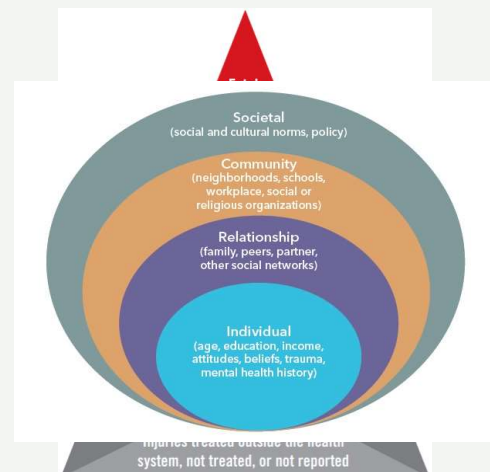
- Training



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Overall Focus of FAI/Gun Violence Research Program

- **Epidemiology of fatal and nonfatal firearm injuries**
- **Causes and consequences of firearm injuries**
 - Social ecological
- **Effectiveness of interventions**
 - ERPO
 - HVIPs and HHP-PDX
- **Dissemination of data to advocates and policy makers**



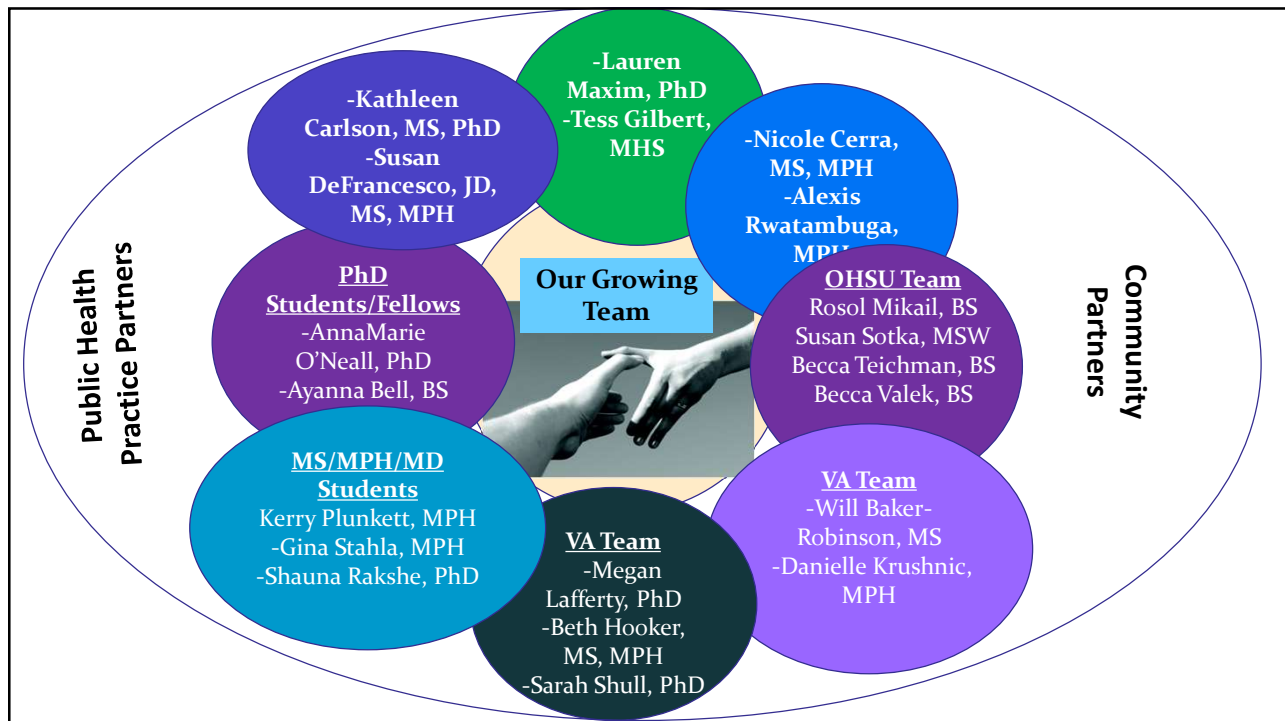
44

Our Growing Body of Work

- OHA Comprehensive Suicide Program ERPO Eval (2024)
- City of Portland Safer Summer Evaluation (2023)
- OCJC Gun Violence Review Commission for MultCo (2022)
- OHSU Faculty Excellence and Innovation Award (2022)
 - ERPO Evaluation Project
 - OHSU/Legacy Trauma Data Analysis
- OR Violent Death Reporting System Project (2022)
- SPH Catalyst/Trunkey Center Award (2022/2023)
- CDC/APHA Data Science Grant (2021)
- CDC/OHA FASTER Project (now AVERT) (2020)
- VA Rural Health Project (2020)
 - DIPEX Supplemental Project (2020)
- OHSU-PSU GVPHI Advisory Committee (2016)
- NIH Grant (2015)



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Key Takeaways

- 1) Data are fundamental (but so are stories...)
- 2) Public health, social determinants, and trauma-informed principles are not well understood – we must take the time to explain
- 3) Continue building the networks of CVI and strengthening our data collaborative so that we can evaluate our work in Oregon

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Thank You



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Acknowledgments

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 OHSU-PSU SPH Catalyst Award
 OHSU Trunkey Trauma Center

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Take Care...



"TalkWithUs" to 66746

Everytown Survivor Network

<https://everytownsupportfund.org/everytown-survivor-network/resources-for-victims-and-survivors-of-gun-violence/>

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