Oregon Injury & Violence Prevention Program,
Public Health Division,
Oregon Health Authority

Oregon Injury Community Planning Group

OREGON INJURY AND VIOLENCE PREVENTION PLAN

2016-2020

Oregon Health Authority

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Introduction

Injury is the third leading cause of death in Oregon, behind only cancer and heart disease. It is also among the leading causes of hospitalization. It is typical to consider some causes of death—cancer, heart disease, stroke—as mainly affecting Oregonians in older age groups. However, everyone is affected by injury, regardless of age, sex, race, or ethnicity. In fact, injury is the leading cause of death among Oregonians 1 to 44 years of age. In 2013, 2,595 Oregonians died as a result of injury.

What is injury?

While **unintentional injuries** often result from a rapid transfer of energy from object to person (e.g. being struck by a motor vehicle), **intentional injuries** are the result of intentional harm imposed upon one person by another, or upon oneself (e.g. suicide). In other words, injury includes violence. Although injuries can be categorized in multiple ways—where they occur, how they occur, etc.—it is typical to categorize injuries in terms of both **mechanism** and **intent**. Mechanism (or "cause") typifies how the injury occurred—for instance, by motor vehicle, firearm, struck by an object, falling, etc. Intent is classified as unintentional or intentional (or else unknown, or undetermined).

It is common to consider injuries as accidents or random events. However, this implies that injuries are unpredictable and unpreventable. Actually, injuries are preventable at the population level through public health actions like policy change or interventions, and there is a need to make injury prevention a top public health prevention priority.

How big is the problem?

In 2013, 2,595 Oregonians died as the result of injuries. This made injury the third leading cause of death in 2013, just behind cancer and heart disease. For persons 1 to 44 years of age, it is *the* leading cause of death, though it is also among the top three causes of death for persons 45 to 64 years of age. Even for people 65 and older, injury still remains in the top ten causes of death. As a leading cause of death for younger age groups, injury has a substantial impact on the population of the state.

Years of Life Lost. In order to fully understand the burden of injury on Oregonians, the years of potential life lost (YPLL)—a measure of the number of the years of potential life lost due to premature death—should be assessed alongside indicators such as the crude number of deaths or the rates of injury death per 100,000 people. YPLL is an estimate of the average number of years a person would have lived had they not died prematurely (before 75 years of age). YPLL quantifies social and economic loss and gives more weight to deaths that occur among younger people. YPLL by leading causes of death in Oregon are displayed for 2013 in Figure 1.

Although injury accounted for less than half of Oregon deaths, injuries resulted in the highest number of years of potential life lost in 2013.

Figure 1. Leading causes of years of potential life lost (YPLL), Oregon, 2013

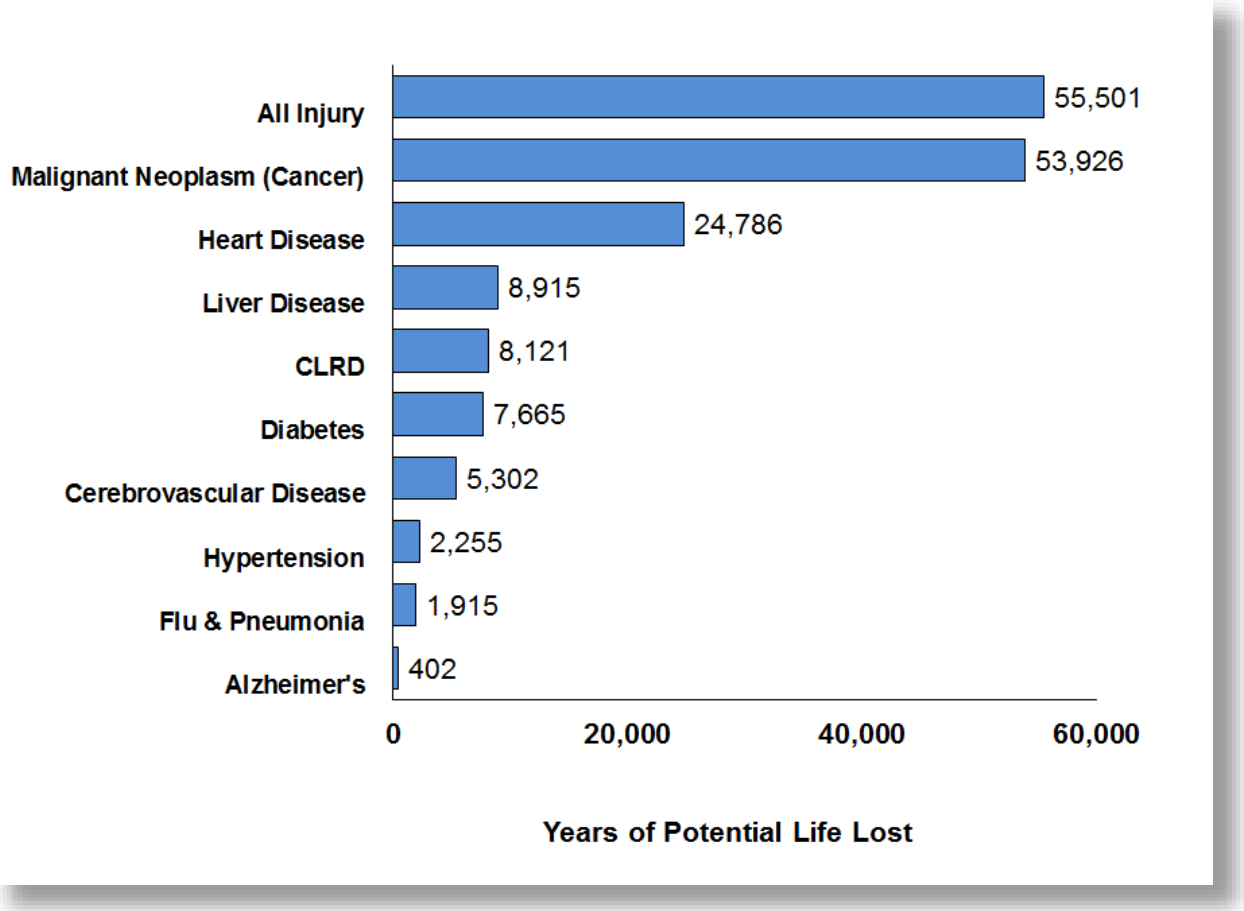


Table 1. Leading causes of death by age (years), Oregon, 2013 (counts shown).

Rank	Age Groups (Years)									
	<1	1–4	5–14	15–24	25–34	35–44	45–54	55–64	65+	Total
1	Perinatal Conditions	**All Injury**	**All Injury**	**All Injury**	**All Injury**	**All Injury**	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms
	122	**15**	**27**	**214**	**289**	**301**	479	1,502	5,612	7,797
2	Congenital Anomalies	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	**All Injury**	Heart Disease	Heart Disease	Heart Disease
	44	5	6	18	42	133	**360**	613	5,533	6,497
3	SIDS	Congenital Anomalies	Congenital Anomalies	Heart Disease	Heart Disease	Heart Disease	Heart Disease	**All Injury**	Chronic Low Respiratory Disease	**All Injury**
	23	4	3	7	24	65	251	**368**	1,721	**2,595**
4	**All Injury**	Heart Disease	Heart Disease	Congenital Anomalies	Diabetes	Liver Disease	Liver Disease	Chronic Low Respiratory Disease	Cerebro-vascular	Chronic Low Respiratory Disease
	11	1	2	5	13	38	133	236	1,567	2,025
5	Diarrhea & Gastroenteritis	Chronic Low Respiratory Disease	Diabetes	Chronic Low Respiratory Disease	Liver Disease	Diabetes	Diabetes	Liver Disease	Alzheimer's Disease	Cerebro-vascular
	2	1	1	2	12	26	86	192	1,302	1,769
6	*	Influenza & Pneumonia	Influenza & Pneumonia	Diabetes	Congenital Anomalies	HIV/AIDS	Cerebro-vascular	Diabetes	**All Injury**	Alzheimer's Disease
		1	1	2	12	12	56	175	**1,010**	1,311
7	*	*	Septicemia	Pregnancy & Birth	Cerebro-vascular	Cerebro-vascular	Chronic Low Respiratory Disease	Viral Hepatitis	Diabetes	Diabetes
			1	2	6	10	52	147	808	1,111
8	*	*	*	Influenza & Pneumonia	Pregnancy & Birth	Congenital Anomalies	Viral Hepatitis	Cerebro-vascular	Influenza & Pneumonia	Liver Disease
				1	5	10	50	129	430	547
9	*	*	*	Septicemia	HIV/AIDS	Chronic Low Respiratory Disease	Hypertension	Hypertension	Hypertension	Hypertension
				1	4	9	34	60	428	523
10	*	*	*	*	Chronic Low Respiratory Disease	Three tied	Influenza & Pneumonia	Septicemia	Parkinson's	Influenza & Pneumonia
					3	5	23	40	384	501

Leading Causes of Injury Death.

Four causes of injury accounted for 79% of all injury deaths in 2013—suicide, falls, poisoning/overdose, and motor vehicle traffic (MVT) deaths (Figure 2). In 2013, the leading cause of injury mortality in Oregon was suicide, at 17.7 deaths per 100,000. This was 697 deaths in 2013.

The next leading cause of injury death in 2013 was unintentional falls, at a rate of 16.3 deaths per 100,000. Unintentional falls are a common manner of death among

older persons. In fact, in 2013, the rate of fall mortality among persons 85 years of age and older was 443 per 100,000 persons—27 times higher than the fall mortality rate among the general population.

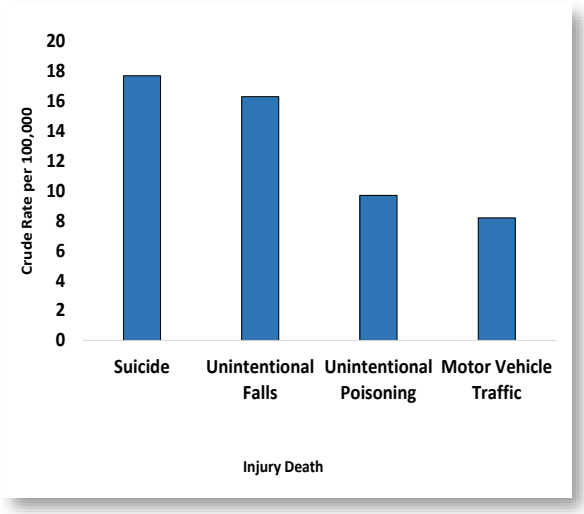


Figure 2. Leading Causes of Injury Mortality, Oregon, 2013.

Unintentional (and undetermined manner) poisonings are the third leading cause of injury death. In 2013 there were 382 poisonings in Oregon, at a rate of 9.7 per 100,000. There are now more poisoning deaths in Oregon each year than deaths related to car crashes. The majority of those poisonings are due to drugs, both licit and illicit. In fact, 41% of those deaths were associated with prescription painkillers.

Motor vehicle traffic deaths (vehicle occupants, pedestrians, motorcyclists, etc.) were the fourth leading cause of injury death in Oregon in 2013: 324 deaths were due to MVT, at a rate of 8.2 per 100,000.

Many of these leading causes of injury death involved traumatic brain injury (TBI)[1], and in fact, although TBI is not considered a cause of death independent of the injuries that lead to TBI, 34% (870 injury deaths) of all injury deaths in 2013 involved TBI.

Leading Causes of Injury Hospitalization. The leading causes of injury death in Oregon correlate with the leading causes of hospitalizations. In 2013, there were more than 20,380 injury hospitalizations in Oregon. More than 14,000 of these (70%) were due to falls, suicide attempts, MVT, and poisoning. The leading cause of injury hospitalizations was falls—8,664 Oregonian's were hospitalized in 2013 due to falls, mostly among older adults. Suicide attempts were second, with 2,146 hospitalizations. The third leading cause of injury hospitalization was MVT, with 1,843 hospitalizations. Finally, poisonings caused 1,415 hospitalizations in 2013, making poisoning the fourth leading cause of injury hospitalization overall.

Health disparities

Injury is the third leading cause of death among Oregonians, regardless of race. In 2013, 2,394 whites, 46 Black or African-Americans, 52 American Indian or Alaska natives, and 42 Asian or Pacific Islanders died due to injury. Forty one (41) injury deaths occurred among persons of

[1] TBI is defined as any jolt, blow, or penetration to the head that disrupts brain function.

unknown race. Likewise, injury was the third leading cause of death for both Hispanics and non-Hispanics.

Cost of injuries

Injuries impose a significant financial burden on families and communities. Injury-related deaths in Oregon in 2013 resulted in an estimated total cost of more than $2.1 billion[2]. Unintentional injury deaths accounted for 63 percent of the total cost; suicide 31 percent; and homicide 5 percent.

Injury-related hospitalizations in Oregon resulted in an estimated total cost of $1.1 billion[3]. Unintentional injuries accounted for 90 percent of the total cost.

Injuries across the lifespan

Many injury outcomes and risk factors overlap, and focusing on where overlaps occur helps build synthesis into injury prevention activities. For example, substance abuse leads to injuries such as unintentional motor vehicle crash deaths and drug overdose deaths, but substance abuse also erodes stable and nurturing family relationships and environments, which contributes to child maltreatment. Victims of child maltreatment are at increased risk for adverse health and social outcomes, including injuries and violence, even decades after the abuse occurred. Identifying and building prevention strategies around areas of overlap will increasingly be part of the way public health injury prevention programs and initiatives work.

The public health approach to injury

Public health is a population-based health approach where health issues are addressed primarily at the community level, versus at the individual level. Prevention of adverse outcomes, rather than treatment after outcomes have already occurred, is a primary goal of this approach. Therefore, efforts to prevent adverse outcomes (i.e. injuries), target communities over individuals. Since the whole community is the focus of prevention, many different solutions to preventing injuries can be applied to the many different types of injury.

The public health approach to injury prevention is a process that involves:

1. Identifying and defining the problem
2. Identifying risk and protective factors
3. Developing and testing prevention strategies
4. Assuring widespread adoption of effective strategies

Rather than address injuries that occur among individuals on a one-to-one basis,

[2] Cost estimates included average medical-related costs and average work loss cost by cause of injury.

[3] Cost estimates included average medical-related costs and average work loss cost by cause of injury.

broad causes and prevention solutions are the focus of injury prevention in public health. Instead of focusing on individuals and the treatment of individual injuries as they arise, it is the whole community, the community's whole health, and community-level prevention which defines the public health approach.

Sometimes, prevention at the community level involves changing the environment in which injuries occur—for example: installing traffic signals at intersections, or requiring certain products to be fire safe. At other times, prevention at the community level involves education—such as informing school sports programs about preventing head injuries, or providing information to guide changes in health policies or laws. Although the public health workforce may not always directly provide prevention services, public health agencies identify the

important conditions and patterns that contribute to injury at the community level, and identify and leverage solutions through community partnerships to promote prevention.

Who should be involved in injury prevention?

Many organizations, institutions, agencies and individuals work toward injury and violence prevention. Many people working on similar issues in injury prevention might seem to complicate prevention efforts; however, this is actually beneficial to prevention. Here's why: the most effective means of reducing the burden of injury relies on levels of action from the individual all the way up to the public policies implemented as a society. This is sometimes called the **ecological model** of prevention (Figure 3). Although individuals are at the heart of the model, the other levels of the

Figure 3. The ecological model of injury prevention.

model—relationships, community, and societal context all influence the choices made by individuals, as well as interact with other levels in the model. It takes efforts and actions at all levels to really have an impact on the burden of injury.

The Oregon Injury Prevention Program works with an Injury Community Planning Group (ICPG) to identify areas where prevention can be effective. Partnerships made up of diverse organizations and individuals help to bridge communication

between levels of prevention, further benefiting prevention efforts.

The state Injury Prevention Program has a unique role in injury prevention, designed to:

- Build a solid infrastructure for injury and violence prevention in Oregon
- Collect and analyze injury and violence data
- Design, implement, and evaluate programs
- Provide technical support and training for partners in prevention
- Affect injury prevention policy

What are the prevention priorities in Oregon?

The Oregon Injury and Violence Prevention Program closely follows the injury priorities set out by the Centers for Disease Control and Prevention (CDC), in conjunction with those prioritized by the Oregon Injury Prevention Planning Group. Injury prevention priorities change over time, as some types of injury decrease at the population level, and other new injury problems emerge. An example is the recent prescription drug overdose epidemic. Prior to the 1990's, prescription painkiller drugs were not as widely available, and poisonings/overdoses due to these types of drugs were not as common as they are today. In fact, for nearly a decade, there have been more deaths annually in Oregon due to poisonings/overdoses than deaths due to motor vehicle traffic. Injury data are used to frame recent trends in injury incidence, to better understand emerging injury problems, and how they might be prevented from becoming 'epidemics'.

Since public health resources are limited, we set priorities in order to focus on the most pressing and alterable injury problems. These priority areas have been identified based on national injury priorities and on the overall impact of different types of injury in Oregon. Data are used to assess:

- The alignment of injuries in Oregon with national injury prevention priorities
- The relative rank of mortality for different injuries
- The number of hospitalizations that result from different types of injury
- Years of potential life lost (YPLL) due to various types of injury death
- Trends (concerning trend of increase)
- The potential for reducing the impact of various types of injury through the application of specific evidence-based prevention efforts (where evidence-based prevention programs exist)
- Capacity of the Injury and Violence Prevention Program to address particular injury issues

It is important that data inform injury prevention priorities, which is why public health surveillance for injuries forms the foundation of injury prevention. Without data to inform how prevention efforts are prioritized, the limited resources for injury

prevention can be pulled in many directions. Although media reports and stories may provide dramatic details of unusual events or health threats, many injury outcomes quietly accumulate in the population with little acknowledgement. Every year in the US, over 35,000 people are killed in motor vehicle traffic, about 38,000 die from unintentional poisoning, over 30,000 (mostly older adults) die from fall-related injuries, and 40,000 die from suicide. A large number of these injuries can be prevented, but the limited resources for preventing injuries must be carefully allocated to achieve impact where it matters most.

The priorities that this plan focuses on are:

- **Prescription drug poisonings**
- **Motor vehicle traffic**
- **Traumatic brain injury (TBI)**
    - **Youth sports concussion**
    - **Falls among older adults**
- **Child maltreatment**
- **Suicide**

How to use this plan

This plan was developed to guide strategies for injury prevention in Oregon and is intended as a guide for the Injury and Violence Prevention Program, its partners, and the community at-large. Priority prevention goals were integrated into a state prevention plan that includes both process and outcome goals aimed at directing objectives and resources toward decreasing the burden of injury in Oregon. Both the vision and mission from the previous five year state prevention plan were carried over to the current plan.

The Oregon Injury and Violence Prevention Program (IVPP) works with many partners to fulfill a vision of an injury-free Oregon. The state Injury Community Planning Group (ICPG) is made up of partners from a broad spectrum of organizations and agencies that have a stake in injury prevention. The development of this plan was carried out through a partnership of the Oregon Violence and Injury Prevention Program and the ICPG. IVPP developed the plan 'concept', and ICPG provided expertise in prevention strategies, policies and guidance.

In order to provide a straightforward approach, the plan is divided into sections by injury type (e.g. suicide, motor vehicle, etc.). Each section provides four components: a prevention **goa**l around the specific injury outcome, a prevention **target**, a description of the extent of the **problem** and why it is worth addressing, and possible **strategies** for achieving the targets and goals. The 'targets' for action are based on Healthy People 2020 objectives, where applicable. The timeline implied by this plan is that objectives can be reached by 2020 if prevention strategies are effective.

Prescription Drug Poisoning/Overdose

The goal

Reduce deaths from prescription drug overdose/poisonings (PDO).

The target

Reduce pharmaceutical opioid poisoning deaths (unintentional and undetermined intent) to less than 2.5 deaths per 100,000 persons per year, or approximately fewer than 75 deaths per year. (The peak in 2006 was 238 deaths—a rate of 6.5 per 100,000).

Reduce methadone-related poisoning deaths (unintentional and undetermined intent) to less than 30 per year. (The peak number in 2006 was 140 deaths).

National Healthy People 2020 Objectives

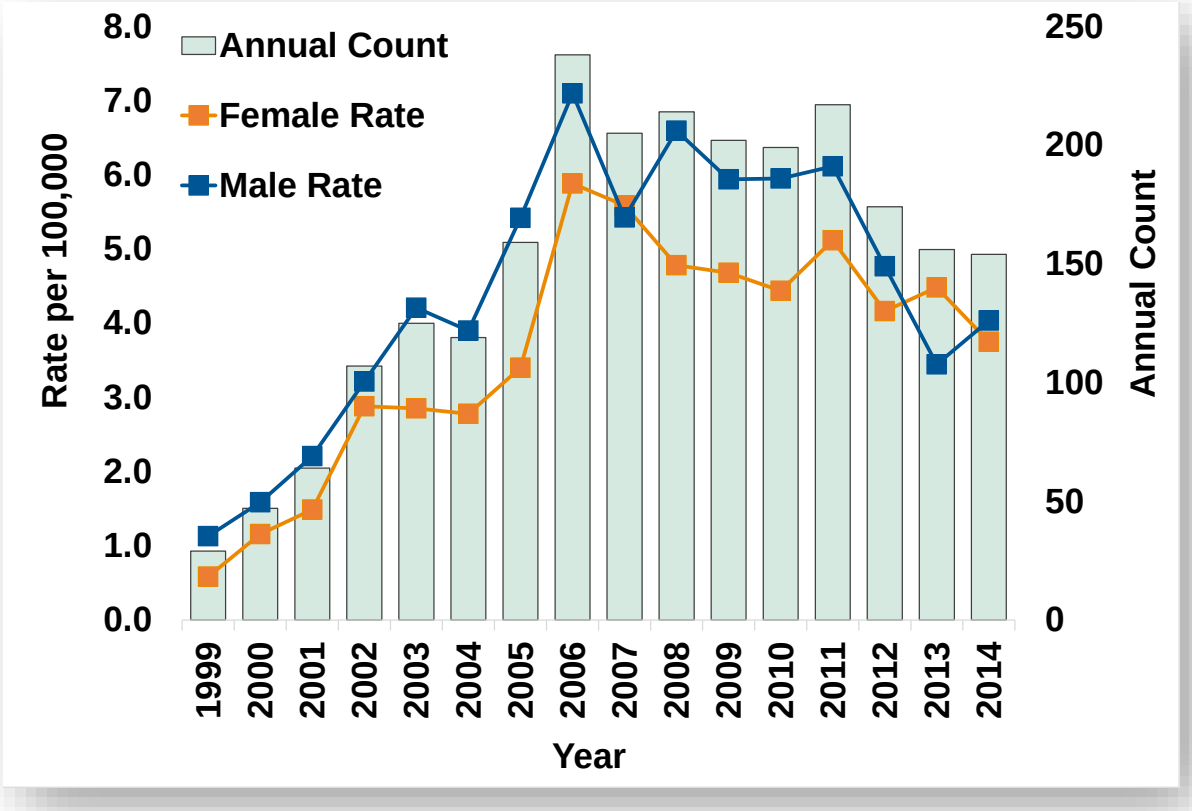
- Prevent an increase in poisoning deaths caused by unintentional or undetermined intent among all persons
- Prevent an increase in poisoning deaths caused by unintentional or undetermined intent among persons 35 to 54 years of age.

The problem

In Oregon in 2013, more drug poisoning deaths involved prescription opioids than any other type of drug, including methamphetamines, heroin, cocaine, and alcohol. Since 1999, statistics show a dramatic increase in prescription controlled substance sales, illicit and prescribed drug use, misuse, dependency, and overdose due to drugs of all types in Oregon. New data from Oregon's Prescription Drug Monitoring Program (PDMP) shows that prescribed opioid use is endemic among Oregonians. In 2013, almost 1 in 4 Oregonians received a prescription for opioid medications, and in a recent national survey[4], Oregon ranked 2nd among all states in non-medical use of pain relievers (i.e. prescription pain medication).

[4]http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/ChangeTabs/NSDUHsaeShortTermCHG2013.htm

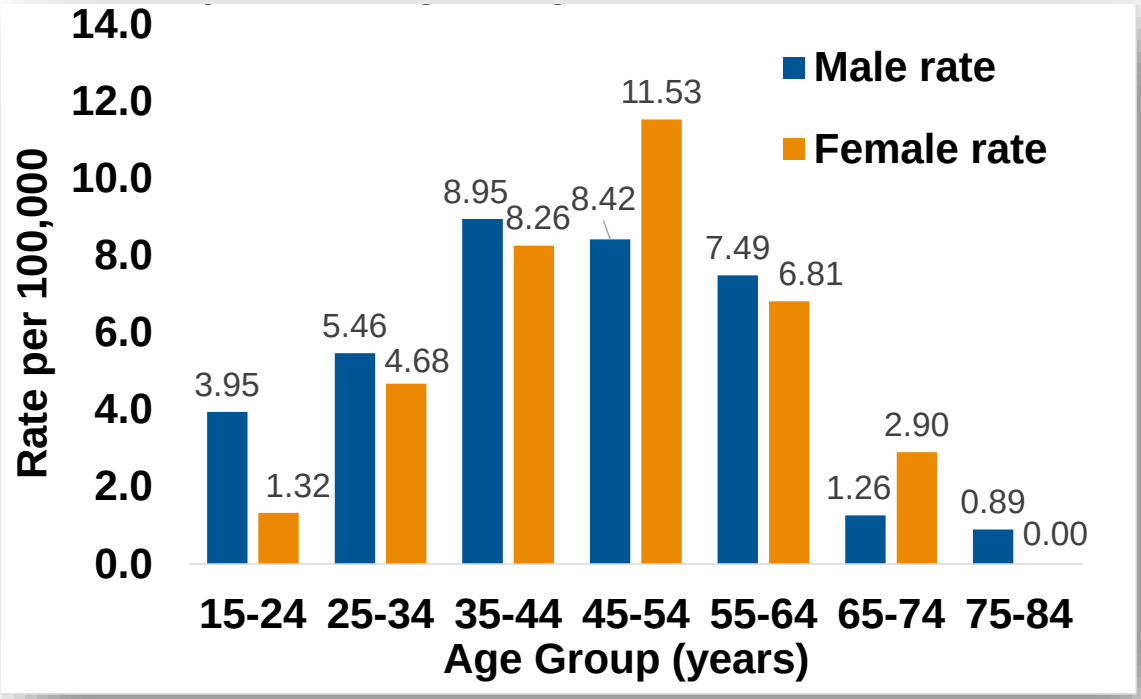
Figure 4. Unintentional and undetermined prescription opioid poisoning deaths and death rates, Oregon, 1999-2014.



While many drugs and medicines have potential for overdose, the use of both prescription opioids and heroin (often taken in combination with other medicines and drugs) has increased since 1999. With increased use of opioids, communities have seen increases in overdose hospitalizations and deaths, and need for treatment. Data on the sales of legally prescribed medicines (opioids in particular) and data on overdose hospitalizations and deaths can be used to illustrate the progression of an epidemic of overdose hospitalizations and deaths in Oregon.

Public health, behavioral health, health systems, academic institutions, policy makers, and law enforcement officials are working to reduce this problem. However, the problem is complex. The etiology and prevention of drug overdose is a complex issue, as it involves individuals, businesses, health care systems and prescribers, law enforcement, public health, and behavioral health programs.

Figure 5. Unintentional and undetermined prescription opioid poisoning, average annual rates of mortality by age (years) and sex, Oregon, 2011-2013.



Oregonians use a wide variety of medications and drugs to both treat medical/psychiatric conditions and for recreation. Medicine and drug use is highly regulated by the federal government and states to protect people from harm. Many safety measures, including regulations, are in place to protect people from overdosing on prescription drugs:

- Regulations require pharmaceutical companies to place warnings on packaging of over the counter and prescribed medicines.
- Federal and state regulations control who can prescribe medicines that have a high risk for abuse.
- Medical training institutions teach students to prescribe controlled substances and over the counter medicines safely.
- Schools of pharmacy teach pharmacists to dispense medicines safely.
- Pharmaceutical boards regulate the practice of dispensing medicines.
- Most states require prescriber education on pain and the use of pharmaceutical medicines to control pain.
- Federal and state laws establish penalties to control and punish infractions of laws and regulations by individuals (patients, prescribers,

and pharmacists), institutions, corporations, and criminal organizations that promote and control drug trade.

Yet all of these laws and regulations have not prevented misuse, abuse, addiction, and overdoses due to the use of prescribed medicines. In fact, CDC estimates that in 2012, providers in the US prescribed enough prescription painkillers for every American to have a bottle of pills.

Some basic facts about prescription opioid poisoning in Oregon:

- Between 2000 and 2014, 2,226 people died in Oregon due to unintentional and undetermined prescription opioid overdose.
- Unintentional and undetermined prescription opioid overdose death rates appear to have peaked in 2006 at 6.5 per 100,000 and declined to 4.0 per 100,000 in 2013. Preliminary data for 2014 indicates that this trend of decrease continues. Nonetheless, the overdose death rate in 2013 remains 2.8 times higher than in 2000.
- The use of prescription opioids is widespread in Oregon. An analysis of 2013 PDMP data showed that over 918,000 Oregonians (24% of Oregon's population) received a prescription for an opioid in one year.
- In 2013, one prescription drug overdose death occurred for every: 1,900 methadone prescriptions dispensed; 20,300 opioid prescriptions dispensed (excluding methadone); 125,000 benzodiazepine prescriptions dispensed.
- The mortality rates due to heroin overdose increased from 0.8 per 100,000 in 2000 to 3.2 per 100,000 in 2012. Although there is some concern that heroin overdoses generally rise as prescription opioid overdoses wane, this does not seem to be the case in Oregon. Heroin overdose deaths appear to be in decline. In 2014, there were 72 heroin overdose deaths, down from 124 in 2012.
- Unintentional and undetermined deaths due to methadone (which is frequently prescribed for pain) overdose peaked in 2006 (3.8 per 100,000) and declined to 1.6 per 100,000 in 2013. Nonetheless, the methadone overdose death rate is still more than two times higher than the rate in 2000.
- In 2006, methadone accounted for 52% of all prescription opioid overdose deaths in Oregon. In 2013, methadone accounted for 40% of all prescription opioid overdose deaths.
- The rate of overdose death due to prescription opioids averages 1.7 times higher among males when compared to females, and the highest rates for both males and

females are among persons 35-54 years of age.

- The highest rates of death due to unintentional and undetermined drug overdose occurred among Caucasian and non-Hispanic Oregonians for every type of drug.

Although many drugs cause overdose deaths and hospitalizations in Oregon, prescription opioids have been the focus of prevention for the past decade, mainly due to the dramatic increase in prescription opioid deaths between 2000 and 2006. This dramatic increase was observed throughout the US.

Although the cited numbers are daunting in consideration of prevention, the good news is that prescription opioid poisoning has already decreased dramatically in Oregon. Although the rate of PDO increased 364% between 2000 and 2006 (1.4 per 100,000 to 6.5 per 100,000), the rate has declined 38% between 2006 and 2013 (to 4.0 per 100,000). The rate of death associated with methadone poisoning decreased 58% between 2006 and 2013, from 3.8 to 1.6 per 100,000.

The true burden of the prescription opioid epidemic is more penetrating than mortality alone. CDC estimates[5] that for each death there are:

- 10 treatment admissions for abuse;
- 32 emergency department visits for misuse or abuse;
- 130 who abuse or are dependent;
- 825 non-medical users.

What Oregon has done to reduce PDO

Unlike nearly every state that has experienced a surge in prescription opioid deaths, the mortality rate in Oregon has begun to decrease. The state Legislature enacted legislation to establish a Prescription Drug Monitoring Program (PDMP) in 2009, and the PDMP was operational by 2011. Oregon's PDMP is housed in public health, and is focused on helping health care providers assess the

[5] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. 2014. Policy Impact: Prescription Painkiller Overdoses. http://www.cdc.gov/HomeandRecreationalSafety/pdf/PolicyImpact-PrescriptionPainkillerOD.pdf

controlled substances prescription history of their patients, and to identify concerning behaviors (e.g. multiple prescriptions from multiple providers and pharmacies, high doses of opioids or opioids for extended periods of time, etc.) that lead to substance misuse or overdose.

In 2013, the legislature passed a law that allowed the establishment of medically-supervised lay-person (non-medical professional) naloxone rescue, which has been shown to prevent deaths among people who have already overdosed. The legislature also adjusted Oregon PDMP statute to allow delegates of healthcare providers and pharmacists to use the PDMP. Additionally, local public health authorities and Coordinated Care Organizations have organized a prescriber group in Jackson County (Jackson County/southern Oregon Pain Guidance Group) to improve health care practice around opioid prescribing, increase patient safety, and coordinate efforts across systems of care. This practice model is being adopted by other prescribers.

The State Pharmacy Program removed methadone as a "preferred" pain treatment drug from the state Medicaid formulary, effective January 1, 2014. Non-preferred drugs (the new designation for methadone) requires a provider to ensure the drug is being prescribed for a Medicaid funded condition and does not exceed the dosing threshold of 120 MED (morphine equivalents daily). In addition, prescribers are asked to consider switching to a preferred drug.

The Oregon Addictions and Mental Health Services Program is expanding the use of a brief screening and intervention tool known as Screening Brief Intervention, Referral and Treatment statewide (SBIRT).

Members of Oregon's academic community and medical researchers are engaged in activities to develop new knowledge and disseminate knowledge about drug overdose, pain care, drug and alcohol abuse and dependency, and drug policy.

The Governor's office sent a team to the National Governor's Association Policy Academy on Prescription Drug Abuse. The team developed a policy paper to guide policy development in Oregon on overdose prevention.

Since 2008, through fact sheets and data reports, IVPP has educated policy-makers and stakeholders regarding the problem of prescription opioid overdose, especially around methadone overdose.

Strategies for prevention

Although progress has been made in the effort to reduce prescription drug-related deaths, much remains to be done. Reducing prescription drug poisonings is a complex problem with complex solutions. In addition, as a relatively recent epidemic, there are no "evidence-based" prevention measures that can be readily implemented. Nevertheless, a key element for identifying prescription opioid misuse is in place in

Oregon—the Prescription Drug Monitoring Program (PDMP). The key to assuring the effectiveness of the PDMP is in promoting PDMP use, improving access, and utilizing PDMP data to inform policy. In addition, community-level interventions aimed at curbing inappropriate prescription opioid use will address the problem at the local level.

The following strategies are part of the prevention framework to reduce prescription opioid and other prescription overdoses:

- Use PDMP data to create routine reports to assist prescribers to track high risk behavior, prescribing thresholds, and dangerous co-prescribing, and use of multiple prescribers and pharmacies.
- Automate PDMP prescriber notifications that identify when medicines dispensed to patients might endanger patient safety and health.
- Establish best practice recommendations for the use of the PDMP.
- Monitor overdose by producing annual reports and special reports using PDMP data.
- Evaluate the public health impact (prescribing, deaths) of removing methadone as a preferred pain treatment drug form the state Medicaid drug formulary.
- Require insurers to pay for non-pharmacological care for chronic non-cancer pain treatment.
- Encourage Coordinated Care Organizations (CCOs) and other prescribers to increase the use of non-opioid pain management.
- Encourage Coordinated Care Organizations (CCOs) to provide medication assisted therapy (MAT) for addiction on a population-basis.
- Increase and improve the infrastructure of naloxone rescue.
- Implement PDMP guidelines in health systems.
- Implement opioid prescribing guidelines in health systems.
- Develop the PDMP to allow for notifications to providers regarding at-risk patients (e.g. four or more providers providing painkiller prescriptions, > 120 mg Morphine Equivalent Dose, etc.).
- Encourage CCOs to adopt Prescribing Guidelines similar to those used by the Southern Oregon's Pain Guidance Group.
- Local public health authorities and CCOs should organize prescriber groups such as the Southern Oregon Pain Guidance Group to improve practice, increase patient safety, and coordinate efforts across systems of care.

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Motor vehicle traffic injuries

The goal

Reduce deaths and injuries caused by motor vehicle traffic (MVT).

The target

Reduce the overall MVT mortality rate to below 7 per 100,000.

Reduce MVT deaths among older drivers (65 years of age and older) to < 10 per 100,000.

National Healthy People 2020 Objectives

- Reduce motor vehicle death rate from 13.8 to no more than 12.4 per 100,000 and reduce from 1.3 to 1.2 deaths per 100 million vehicle miles traveled.
- Reduce pedestrian deaths on public roads from 1.4 pedestrian deaths to 1.3 deaths per 100,000.
- Reduce pedal cyclist deaths on public roads from 0.24 pedal cyclist deaths to 0.22 deaths per 100,000.
- Reduce nonfatal injuries caused by motor vehicle crashes from 771.5 to 694.4 nonfatal injuries per 100,000.
- Reduce nonfatal pedestrian injuries on public roads from 22.6 to 20.3 nonfatal injuries per 100,000.
- Increase use of safety belts from 84 percent to 92.4 percent.
- Increase age-appropriate vehicle restraint system use in children:
  - Increase the percent of children aged 0 to 12 months who are restrained in rear-facing child safety seats from 86 to 95.
  - Increase the percent of children aged 1 to 3 years who are restrained in front-facing child safety seats from 72 to 79.
  - Increase the percent of children aged 4 to 7 years who are restrained in booster seats from 43 to 47.
  - Increase the percent of children aged 8 to 12 years who are restrained in safety belts from 78 to 86.
- Increase the proportion of motorcycle operators and passengers using helmets from 67 percent to 73.7 percent. Increase the number of states and the District of Columbia with “good” graduated driver licensing (GDL) laws from 35 to 51 states.
- Increase the number of states and the District of Columbia with laws requiring bicycle helmets for bicycle riders from 19 to 27 states.

The problem

Motor vehicle traffic (MVT) injuries are one of the leading causes of death and hospitalization in Oregon. Every year, more than 300 Oregonians are killed in motor vehicle traffic incidents, and over 1,800 are hospitalized.

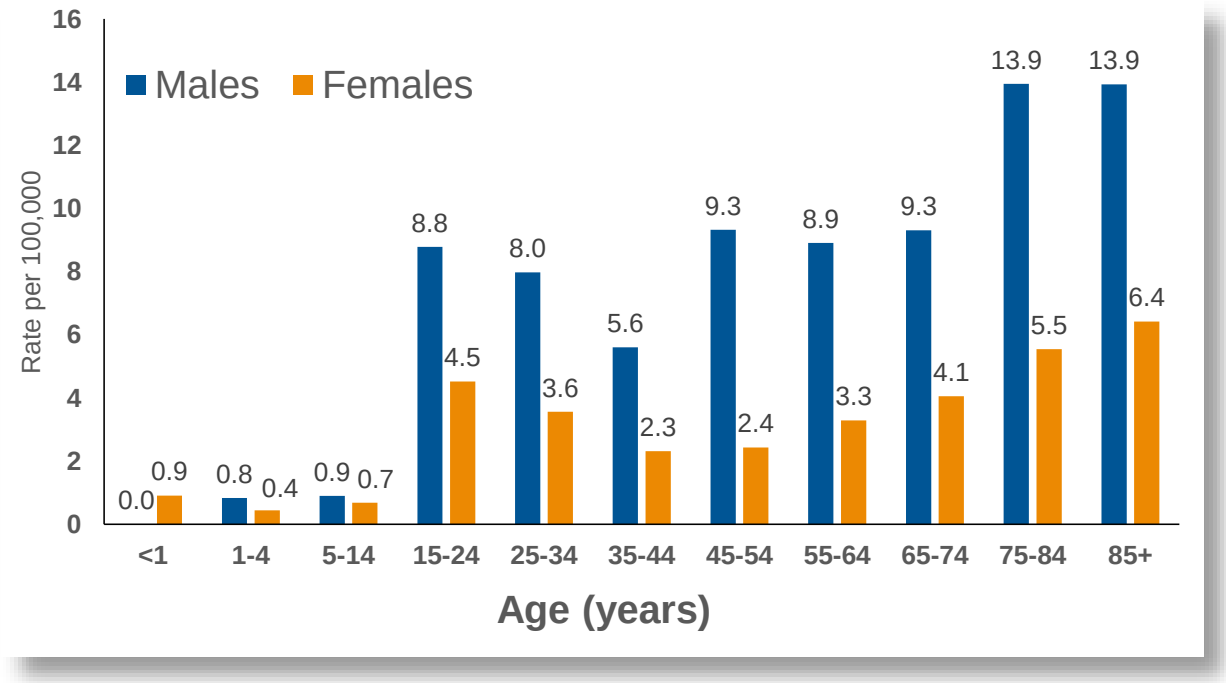
Motor vehicle traffic injuries include all those involving automobiles, trucks, vans, motorcycles and motorized cycles traveling on public roadways. The major categories of motor vehicle traffic involvement include vehicle occupants, motor cyclists, pedal cyclists, and pedestrians, depending specifically on the decedent's or patient's involvement.

In 2000, the mortality rate from MVT was 13.4 per 100,000. Since then, the mortality rate has decreased to 8.2 per 100,000 in 2013—a reduction of 39%. In fact, major inroads have been made in preventing MVT-related deaths in Oregon, especially for at-risk age groups. The rate of mortality for adults 65 and older decreased between 2000 and 2013 from 19.6 deaths per 100,000 population to 12.2 deaths per 100,000 in 2013 (a decrease of 38%). The mortality rate among teens 15-19 decreased from 24.9 to 8.1 deaths per 100,000 between 2000 and 2013 (a decrease of 67%). The rate of MVT death among children 14 and younger decreased from 3.9 to 1.0 per 100,000 between 2000 and 2013 (a decrease of 74%). Still, much progress in reducing the rate of mortality could still be made.

Some basic facts about MVT injuries in Oregon:

- The rate of MVT death among males is more than twice that of females; in 2013, the rate of death among males was 11.8 compared to 4.8 per 100,000 among females.
- The highest MVT mortality rates between 2011-2013 occurred among males 75 years of age and older.
- In 2013, nearly 48% of MVT deaths involved vehicle occupants; pedestrian deaths accounted for 17% of all MVT deaths.
- The rate of MVT hospitalization in Oregon was 46.9 per 100,000 persons in 2013, down from 67.4 per 100,000 in 2000.
- Similar to MVT deaths, the risk of MVT hospitalization is higher among males compared to females.
- The highest MVT hospitalization rates are among persons age 15-24 years.

Figure 6. Average annual rates of motor vehicle traffic mortality by age and sex, Oregon, 2011-2013.



- The MVT injury hospitalization rate among teens age 15-19 years declined 59% between 2000 and 2013— from 132.0 to 53.7 per 100,000 persons.
- In 2013, 58% of MVT hospitalizations involved vehicle occupants.
- 33.5% of Oregon MVT fatalities in 2013 involved alcohol.

The current burden of mortality is not the same across the population. The rate of motor vehicle traffic mortality is significantly higher for males overall compared to females. The death rates among teens and older adults are still higher than the general population.

Three age groups stand out for MVT injury prevention—children, teens, and older adults. Motor vehicle traffic is a leading cause of injury death for children 1-14 years of age. Between 2000 and 2013, 304 Oregon children under 15 died as a result of motor vehicle traffic injuries. Oregon teens have the highest rate of MVT hospitalization, and among the highest rates of motor vehicle traffic mortality. Nationally, motor vehicle traffic mortality and hospitalization rates for teens are known to be high, and Oregon reflects similar trends.

Risk factors for MVT injury include:

- Alcohol impaired driving/substance use
- Aggressive driving
- Speeding
- Inexperienced driving
- Distracted driving
- Hazardous road conditions

- Failure to use safety equipment (i.e. seat belts)
- Dementia and other impairments
- Sleep deprivation
- Visual impairments
- Low pedestrian visibility

Strategies for prevention

Active transportation and community design can improve health and health equity by increasing physical activity, reducing air pollution, and improving traffic safety and access to community resources. The Oregon Public Health Division is partnering with ODOT to help ensure that all Oregon communities, and especially communities with fewer resources, have options for walking, biking, or taking transit to destinations they access daily – like school, work, parks, health care services, places of worship, and stores.

The Oregon Public Health Division and our health partners bring expertise in measurement of health risks and outcomes, planning to improve health outcomes, and rigor in community engagement and assessment.

IVPP plans to partner with the Oregon Department of Transportation to link emergency department, hospitalization, and mortality data to crash event data, with the objective of developing data-driven prevention policies.

Impaired driving. Promote and maintain effective measures to reduce impaired driving. The Task Force on Community Preventive Services, an independent, nonfederal panel of community health experts, has recently issued recommendations that outline effective measures to reduce impaired driving that include:

- Sobriety checkpoints
- "Zero tolerance" laws for young drivers
- Reducing legal blood alcohol concentration to 0.08%
- Minimum legal drinking age laws and server intervention training programs
- Mass media campaigns aimed at reducing alcohol-impaired driving
- School-based health promotion programs to promote avoiding riding with impaired drivers
- Multifaceted community-based programs.[6]

Impaired driving contributes substantially to MVT injuries in Oregon. In 2012, 33.5% of MVT fatalities in Oregon involved alcohol.[7] Each alcohol-related fatality costs an estimated $3.6 million in monetary and quality of life costs, while the estimated cost per survivor of alcohol-related crashes is $108,000.[8] In light of the approximately

[6] Guide to Community Preventive Services: www.thecommunityguide.org/mvoi/, CDC: www.cdc.gov/ncipc/duip/mvsafety.htm

[7] http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/41_OR/2013/41_OR_2013.htm

[8] National Highway Traffic Safety Administration (NHTSA), available from

300 MVT deaths, and 1,800 hospitalizations in Oregon each year, the costs of MVT injuries are enormous.

Other strategies include:

- Increasing taxes on alcohol reduces MVT deaths and generates cost savings to society.[9,10]
- Placing children in age- and size-appropriate restraint systems, which reduce fatal and serious injuries by more than half.[11] Child safety seats reduce the risk of death in passenger cars by 71% for infants, and by 54% for children ages 1-4 years.[12]

Oregon is one of only two states that require interlocks for first-time convicted offenders. Ignition locks work by reducing repeat offenses by persons and reduce repeat impaired driving offenses by 70% while in use. In a multistate evaluation, CDC has found[13] that increasing interlock use can occur through just one program key, including:

- Requiring or incentivizing use
- Levying strong penalties
- Monitoring interlocks to ensure proper use
- Implementing uniformity across the state
- Coordination across agencies
- Educating stakeholders about the program
- Providing adequate resources
- Using data for action

Older drivers. The risk of being injured or killed on a public roadway generally increases with age—people 85 years of age and older had the highest motor vehicle traffic (MVT) fatality and hospitalization rates in Oregon in 2013.[14]

Although older adults are less likely than younger people to have a license, those that do are keeping their licenses longer and are driving more miles than in the past.[15] Increased susceptibility to injury

www.nhtsa.dot.gov/people/injury/alcohol/impaired_driving_pg2/OR.htm

[9] Wagenaar AC, Tobler AL, Komro KA. Effects of alcohol tax and price policies on morbidity and mortality: a systematic review.. Am J Public Health. 2010 Nov;100(11):2270-8. Epub 2010 Sep 23. Review.

[10] Injury Prevention: What Works? A Summary of Cost-Outcome Analysis for Injury Prevention Programs (2010 Update). Children's Safety Network, 2010.http://www.childrenssafetynetwork.org/publications_resources/PDF/data/InjuryPreventionWhatWorks.pdf

[11] Department of Transportation (US), National Highway Traffic Safety Administration (NHTSA). BoosterSeat.gov. Washington (DC): NHTSA; 2006d. Available from www.boosterseat.gov.

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[13]http://www.cdc.gov/motorvehiclesafety/impaired_driving/ignition_interlock_states.html

[14]http://public.health.oregon.gov/DiseasesConditions/InjuryFatalityData/Documents/Injury%20in%20Oregon_V2.2.pdf

[15] Insurance Institute for Highway Safety (IIHS). Fatality facts 2013, Older People. Arlington (VA): IIHS; 2014.

among older persons is largely what accounts for increased MVT fatality among older persons, rather than an increased likelihood of getting into MVT crashes.[16] A crash that a younger person may simply walk away from could lead to serious or fatal injuries for an older adult. Nationally, driver involvement rates in fatality-related crashes are lowest among adults 65 years of age and older, compared to other driver age groups.[17] Despite this fact, age-related declines in health (e.g. cognitive function, medical problems, hearing or vision loss) can and do affect the driving ability of older adults.[18] Driving is a complex task that requires attention, judgment, and quick reaction. These are, of course, the resources we begin to lose with age. However, the ability to safely drive must be based on function, not on age.

Health care professionals play a major role in preventing unsafe drivers from getting behind the wheel. In Oregon, some providers are required to refer patients to DMV when an impairment that affects driving becomes severe and uncontrollable.[19] An Oregon law passed in 2014 confers immunity from civil liability for physicians and health care providers that voluntarily report at-risk drivers to DMV.

Anyone can refer a driver to the DMV At-Risk Driver Program, who evaluates reports when there is concern about a driver's ability to drive safely. The program is not age-based, but assesses a driver's physical, cognitive, and medical limitations that may affect driving ability. In addition, the program aims to preserve driver independence, so that mobility can be maintained for as long as safely possible. For many older adults, the ability to drive is a lifeline to social connections and services. Family, friends and health care providers of older drivers should discuss the alternatives to driving before it becomes a crisis.

Pedestrian Injury. While progress has been made decreasing deaths among occupants in motor vehicle crashes, progress has not been made decreasing pedestrian deaths and injuries. Between 2000 and 2014, 750 Oregonians have died as a result of pedestrian-vehicle crashes, and over 3,100 have been hospitalized between 2000-2013. The ICPG Policy Subcommittee identified pedestrian safety as a key policy effort to address.

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http://www.iihs.org/iihs/topics/t/older-drivers/fatalityfacts/older-people/2013

[16] Li, G.; Braver, E.R.; and Chen, L.H. 2003. Fragility versus excessive crash involvement as determinants of high death rates per vehicle-mile of travel among older drivers. Accident Analysis and Prevention 35:227-35.

[17] http://www-nrd.nhtsa.dot.gov/Pubs/812005.pdf

[18] Owsley C. Driver Capabilities in Transportation in an Aging Society: A Decade of Experience. Technical Papers and Reports from a Conference: Bethesda, MD; Nov. 7–9, 1999. Washington, DC, Transportation Research Board; 2004.

[19] Oregon DMV At-Risk Driving Program: http://www.oregon.gov/ODOT/DMV/pages/driverid/medical.aspx

Pedestrian safety is an important health issue. Safety creates walkable neighborhoods, with many health benefits. Safer streets mean pedestrian friendly streets and better accessibility for people of all ages and abilities. Safer streets help increase the rates of physical activity which results in a decrease in cancer, diabetes, and heart disease. With more people walking, there is improved air quality resulting in a reduction in respiratory disease and cancer. Walking in communities also increases community interaction, security and social cohesion.

Pedestrian safety cannot be addressed by one field alone. A multi-disciplinary approach involving engineering, public safety, traffic safety, city and county planning, school safety and public health is needed to improve pedestrian safety.

The ICPG Policy Subcommittee identified pedestrian safety as a key policy effort to address. Members of the ICPG Policy Subcommittee include representatives from the fields of engineering, public health, public education, law enforcement and data collection/evaluation. In 2012, stakeholders created the Oregon Pedestrian Safety Policy and Systems Change Strategies plan for 2012-2015. Strategies were developed in four categories: built environment and engineering, law enforcement, public education, and data collection and evaluation. The identified priority strategies to implement, monitor and evaluate included:

1. Provide stipends for students who cannot afford drivers education.
2. Require DMV to post ODOT's Oregon Pedestrian, Bicycle and Driver Rules online and maintain the link.
3. Revise local and state transportation fee and funding structure language to allow for multi-modal (pedestrian) improvements.
4. Include health and safety as a primary goal in ODOT policy and Oregon statutory language (e.g. duties of commission in preparing and implementing state transportation policy ORS 184.618)
5. Ensure that state-funded transportation system plans incorporate transportation safety plans which include policy and project level initiatives to address pedestrian safety.
6. Encourage local jurisdictions to implement a policy to ensure community roads are planned, designed, and constructed for safe walking, biking and driving.
7. Establish data workgroup to inventory current systems at local and State levels, define gaps, and optimize data collection and sharing to inform pedestrian safety strategies and policies.

The ICPG Policy Sub-committee is continuing to meet and have identified additional strategies to implement, monitor and evaluate for 2016-2020.

Additional resources

Oregon DMV At-Risk Driving Program: http://www.oregon.gov/ODOT/DMV/pages/driverid/medical.aspx

Oregon DMV At-Risk Program for Medical Professionals: http://www.oregon.gov/ODOT/DMV/pages/at-risk_program_index.aspx

Oregon Department of Transportation http://www.oregon.gov/ODOT/TS/pages/pedestrian.aspx

Older Drivers Solutions Center: https://www.caring.com/older-drivers

Parents are the Key (CDC teen driver information): http://www.cdc.gov/parentsarethekey/

How to have a discussion about "handing over the keys" (National Safety Council): https://s3.amazonaws.com/APreports/NatSaveCouncilFSH_Fall2012_Older+Drivers.pdf

How to Understand and Influence Older Drivers (National Highway Traffic Safety Administration): http://www.nhtsa.gov/people/injury/olddrive/UnderstandOlderDrivers/

Physicians Guide to Assessing and Counseling Older Drivers (NHTSA): http://www.nhtsa.gov/people/injury/olddrive/olderdriversbook/pages/contents.html

National data on teen drinking and driving: http://www.cdc.gov/vitalsigns/teendrinkinganddriving/index.html

University of Michigan, Transportation Research Institute: Driving Decisions Workbook

AAA Foundation for Traffic Safety: Senior Driver Web Site

AAA National: AAA Roadwise Review: A Tool to Help Seniors Drive Safely Longer

National Highway Traffic Safety Administration: Active Aging Programs

AARP: Driver Safety Program

Community Transportation Association of America: Senior Transportation

National Highway Traffic Safety Administration (NHTSA): Pedestrian Safety: http://www.nhtsa.gov/Pedestrians

Federal Highway Administration/ Safe Routes to School Program: http://www.fhwa.dot.gov/environment/safe_routes_to_school/

Safe Kids Worldwide : http://www.safekids.org/

Pedestrian and Bicycle Information Center: http://www.pedbikeinfo.org/

America Walks! http://www.americawalks.org/

Traumatic brain injuries (TBI)

The goal

Reduce TBI deaths, fall-related TBI deaths, and youth sports concussions.

The targets

Reduce TBI deaths to less than 15 per 100,000.

Reduce fall-associated TBI deaths to 5.0 per 100,000.

Reduce youth sports concussions.

Healthy People 2020 Goals

Reduce fatal traumatic brain injury.

Reduce non-fatal TBI hospitalizations.

Reduce ED visits for non-fatal TBI.

The problem

Traumatic brain injury is often at the intersection of many types of injury, since many types of injury can result in TBI. Traumatic brain injury is defined as any jolt or blow to the head, or a head penetrating injury, disrupting brain functioning. There are two types of TBI: closed and penetrating. Closed head TBI is an injury to the brain caused by movement of the brain within the skull. Common causes include falls, motor vehicle crash, or being struck by or with an object.

Penetrating TBI is an injury to the brain caused by a foreign object entering the

skull. Causes of penetrating TBI include firearm injuries or being struck with a sharp object.

The CDC estimates that nationally 50,000 deaths per year are associated with TBI, 235,000 people are hospitalized, and 2.5 million are treated and released from emergency departments.[20] Nationally, the leading causes of TBI are falls, motor vehicle traffic crashes, struck by/against objects or persons (such as in sports), and assault.

TBI is a considerable public health problem because of the individual and social impacts resulting from TBI. It is estimated that 5.3 million persons in the US require either life-

[20] Centers for Disease Control, TBI Fact Sheet, http://www.cdc.gov/traumaticbraininjury/get_the_facts.html

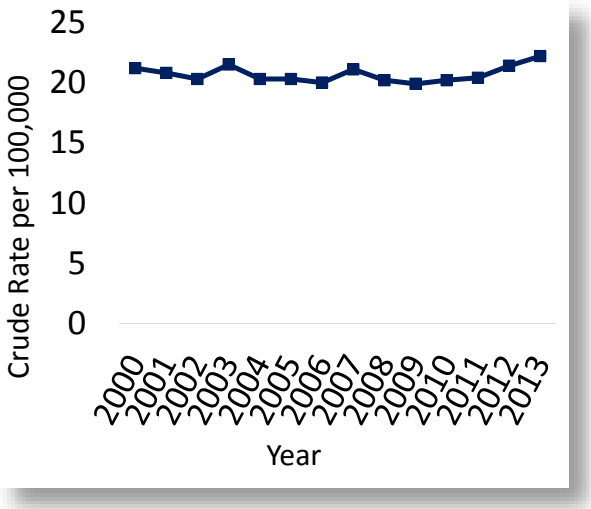
long or long-term assistance in performing activities in daily living due to TBI, and the annual direct and indirect medical costs of TBI are estimated at $76.5 billion (2010).[21]

Despite the estimated burden of TBI, it remains an under-recognized problem due to failure to screen and identify TBI in clinical care settings. In addition, there is a general lack of training for clinicians to screen and identify TBI, which means gaps exists in the care and rehabilitation of persons with TBI.

Preventing TBI and the personal and social impacts of TBI largely means preventing the types of injury that lead to TBI in the first place. To understand TBI, we first must look at the types of injuries that are commonly associated with TBI. Generally, TBIs are considered a contributing cause of death where injury deaths are concerned, and therefore TBI deaths are associated with some of the leading causes of injury death in Oregon (i.e. MVT, falls).

There were 873 TBI-related deaths and 2,811 TBI-related hospitalizations in Oregon in 2013. The rate of TBI-associated mortality in 2000 was 21.2 per 100,000, and 22.2 per 100,000 in 2013, indicating little change between these two time periods (Figure 7).

Figure 7. TBI mortality rates, Oregon, 2000-2013.



The leading causes of TBI death indicate that falls lead among unintentional injuries, followed by MVT (Table 2). Firearms are the leading cause among intentional injuries (suicides and homicides).

[21] Finkelstein E, Corso P, Miller T and associates. The Incidence and Economic Burden of Injuries in the United States. New York (NY): Oxford University Press; 2006.

Coronado, McGuire, Faul, Sugerman, Pearson. The Epidemiology and Prevention of TBI. 2012.

Table 2. TBI-related deaths in Oregon, 2011-2013.

TBI deaths, Oregon, 2011-2013			
Cause	**Intent**		
	Unintentional	**Suicide**	**Homicide**
Fall	447	15	0
Motor Vehicle traffic	275	0	0
Not specified	22	1	19
Transport (land), other	18	2	0
Other specified, classifiable	16	6	0
Struck by/against	13	0	7
Other specified, not elsewhere classifiable	13	3	8
Pedestrian, other (non-MVT)	10	0	0
Firearm	9	660	56
Transport, other	7	0	0
Pedal cyclist, other	4	0	0
Machinery	3	0	0
Drowning	2	1	0
Natural/environmental	2	0	0
Suffocation	2	0	1
Cut/pierce	0	1	4
Poisoning	0	1	0
Total	**843**	**690**	**95**

The rate of TBI mortality is higher in males than females, typically more than two times the female rate from year to year. In 2013, the male rate was 32.3 per 100,000 compared to the female rate of 12.3 per 100,000. The high rate among older men generally reflects the higher risk and mortality due to falls, motor vehicle traffic deaths, and firearms, all of which demonstrate higher rates among older men compared to older women.

The age distribution of TBI mortality rates indicates that TBI mortality generally increases with age. The highest TBI mortality rates are among males 85 and older. In 2013, the rate for males in this age group was 219.7 per 100,000 population, while the rate for females in the same age group is 97.4 per 100,000.

The leading causes of unintentional TBI hospitalizations (Table 3) between 2011-2013 were falls, MVT, non-MVT pedal cyclist injuries, other transport (e.g. ATV), and injuries resulting from being struck (e.g. sports). Assault-related TBI hospitalizations were also common—383 hospitalizations occurred between 2011-2013, due to struck by/against injuries.

Table 3. Five leading causes of TBI-associated hospitalization, Oregon, 2011-2013.

TBI hospitalizations, Oregon, 2011-2013			
Cause	**Intent**		
	Unintentional	**Suicide**	**Assault**
Falls	4,192	15	2
Motor vehicle traffic	1,870	3	3
Pedal cyclist (non-MVT)	395	0	0
Other transport (e.g. ATV)	320	0	0
Stuck by/against	250	0	383

TBI and Youth

TBI can significantly impact the quality of life for individuals that sustain these kinds of injuries. For youth, especially, TBI injuries can lead to increased risk of social problems

and reduction in the quality of life throughout the lifetime due to TBI-related disability. This is what makes preventing TBI among youth so important.

The leading causes of TBI mortality and hospitalization among persons 17 years of age and younger are shown in Tables 4 and 5. The most common TBI-related mortality for youth was MVT and firearm suicide. For hospitalizations, the most common TBI-related injuries were falls, MVT, struck by/against (unintentional), non-MVT bicycle injuries, and other transport (e.g. ATV). There were 39 TBI hospitalizations for assault. Among children 0-4 years of age, assault is the leading cause of TBI hospitalization.

Table 4. Leading causes of youth (< 18 years of age) TBI death, 2011-2013.

Cause	Unintentional	Suicide	Homicide
Motor Vehicle traffic	15	0	0
Pedestrian, other	4	0	0
Transport (land), other	3	0	0
Other specified, classifiable	2	0	0
Fall	1	1	0
Firearm	1	21	9
Machinery	1	0	0
Natural/environmental	1	0	0
Other	0	0	4

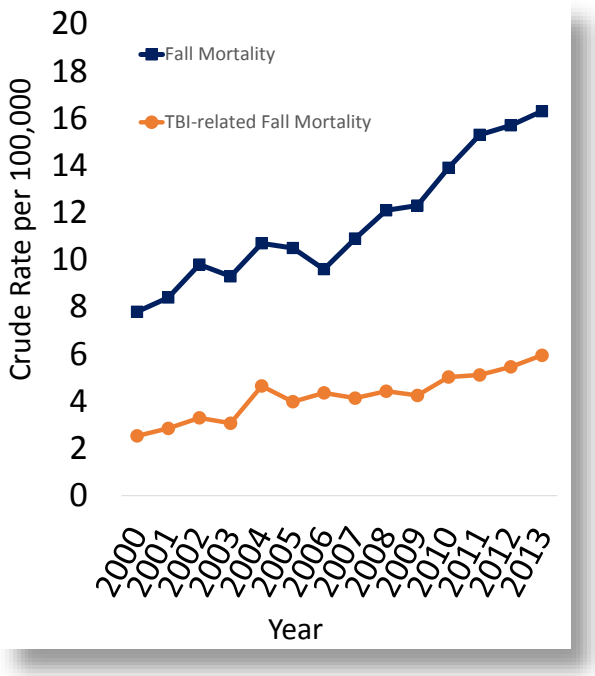
Table 5. Leading causes of youth (< 18 years of age) TBI hospitalization, 2011-2013.

Cause	Unintentional	Suicide	Assault
Falls	408	4	0
Motor vehicle traffic	211	0	0
Stuck by/against	92	0	20
Pedal cyclist (non-MVT)	66	0	0
Other transportation (e.g. ATV)	56	0	0
Other natural environment	11	0	0
Not specified	11	0	19

Falls and TBI

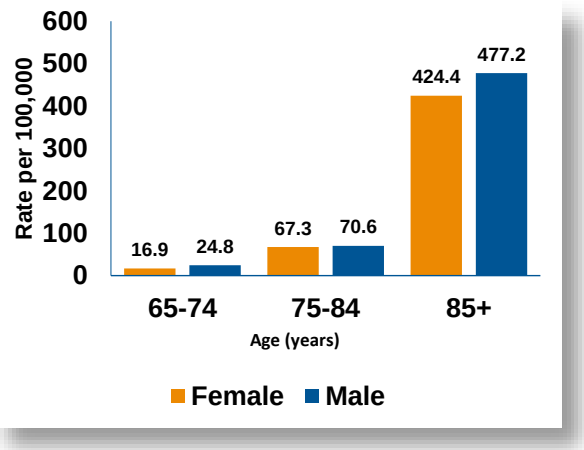
TBI deaths and hospitalizations are largely driven by falls. Therefore, falls prevention must be a keystone of TBI prevention. Most fall deaths (85%) and hospitalizations are among older adults (persons 65 years of age and older). In 2013, 37% of fall deaths and 16% of fall hospitalizations involved TBI. The rate of fall-related deaths among older adults in Oregon is increasing, as the population ages (Figure 8), and fall death rates associated with TBI parallel that trend. Unless older adult falls can be prevented, TBI rates will likely increase.

Figure 8. Fall and TBI-related fall mortality rates, Oregon, 2000-2013.



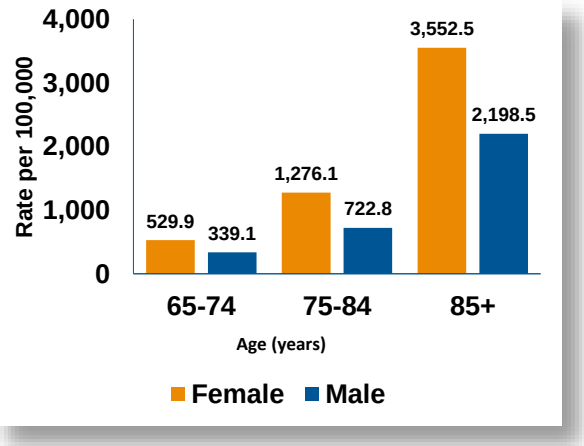
The rate of fatal falls among adults 65 and older was 91.9 per 100,000 in 2013, an increase of 46% since 2000. Older men have a higher risk of fatal fall, compared to women within the same age group. The rate of fatal falls among persons 85 and older is 21 times greater than for those 65–74. An aging population, combined with increased life expectancy means fatal falls will likely continue to increase in the future.

Figure 9. Fall mortality rate by age groups (years) and sex, Oregon, 2013.



The rate of fall hospitalization in Oregon was 964.4 per 100,000 seniors. Women are hospitalized more often than men. There were 1,230.5 hospitalizations per 100,000 senior women in 2013, compared to 643.8 per 100,000 senior men.

Figure 10. Fall hospitalization rate by age group (years) and sex, Oregon, 2013.



Hospitalization increases with age; those 85 and older are 7 times more likely to be hospitalized than those 65-74. In 2013, over 5,800 Oregon adults 65 and older were

hospitalized as the result of a fall at a cost of more than $219 million.

Falls are not an inevitable part of aging—many falls can be prevented. As many as 30 percent of older adults who fall suffer significant injuries that may increase the risk of or limit the ability to live independently.

Risk factors include:

- A history of falls
- Impaired mobility, strength, and balance
- Delirium
- Use of multiple medications or improper dosages; recently changed medication, or use of medications that cause drowsiness;
- A history of hypotension
- Impaired vision
- A history of low or unstable blood sugar
- Other conditions such as arthritis or stroke
- Excessive use of alcohol or withdrawal from alcohol or other drugs.

Strategies for prevention

The key to reducing TBI in Oregon is reducing the injuries that are associated with TBI. This means preventing falls, motor vehicle traffic injuries, suicides, and head injuries among youth that associated with sports. There are many ways in which the chances of sustaining a traumatic brain injury can be reduced. These include[22]:

- Always wearing a seatbelt while riding or driving in a motor vehicle.
- Never drive, or ride in the vehicle with someone under the influence of alcohol and drugs
- Use the correct safety seat, booster seat, or seatbelt for children. Oregon's laws require that infants ride in rear-facing seats until one year of age **and** 20 lbs. Children over one year **and** between 20 and 40 lbs must be secured with a forward-facing child safety seat up to a minimum of 40 lbs, or the weight limit of the seat. Children weighing over 40 lbs. must be secured in a booster seat until they are 8 years of age **or** 4' 9" in height. Children 8 years of age and older, **or** taller than 4' 9" must ride properly secured with the vehicle safety belt system.
- Everyone should wear helmets when engaged in riding bicycles, scooters, motorcycles, all-terrain vehicles, snowmobiles, skateboards, or when using inline skates. Helmets should also be worn when engaged in contact sports (football, ice hockey, boxing), and sports such as baseball and softball when running or batting. Other outdoor activities also

[22] Adapted from CDC prevention recommendations: www.cdc.gov/ncipc/tbi/Prevention.htm

require helmets for safety, including skiing and snowboarding, and horseback riding.
- Make living and play spaces safer for children. This includes installing window guards and safety gates that can prevent falls down stairs or through open windows.
- Older adults (65 and older) should undergo clinical assessments for falls at every primary health care visit.
- Make living spaces safer for older adults. by removing tripping or stumbling hazards such as throw rugs or clutter in walkways; installing non-slip mats in tubs and showers and grab bars next to toilets, tubs, and showers; installing handrails on both sides of stairways; improving lighting in the household.
- Raise community awareness by participating in Brain Injury Awareness Month, in March.

Preventing TBI related to falls among older adults. Fall prevention should largely focus on the population of older adults in Oregon, due to the high rate of mortality and hospitalization and the existence of evidence-based prevention programs. Fall prevention should focus on addressing modifiable risk factors—strength, gait and balance, vision, home safety, and medication management. Strategies include:

In Public Health and the Community:

- Implement evidence-based group exercise that decreases falls, and increases strength, mobility, coordination, balance, and overall physical fitness.
- Educate older adults and their families about falls.
- Conduct environmental assessments to reduce fall hazards and improve safety in the homes of older adults and in institutions.

In the Healthcare Sector:

- Screen each senior for falls at every primary care visit for fall risk. Use the STEADI Toolkit (http://1.usa.gov/13g00kP) for falls screening, assessments, referrals, and patient education.
- Promote regular eye exams for seniors.
- Conduct medication review and assess for dangerous interactions in primary care, pharmacies, and other settings.
- Educate older patients, caregivers and their families about fall prevention strategies.
- Refer at-risk patients to evidence-based falls prevention programs in the community.
- Health insurers should cover falls prevention as a member benefit.
- Health systems should host on-site falls prevention programs for organization members.
- Health systems should work to institutionalize the use of STEADI

for screening, assessments, and referrals in electronic health records.

Preventing TBI-related fall injuries among children. For falls among children, strategies include:

- Make sure playground equipment your child uses is properly designed and maintained and there's a safe, soft landing surface below.
- Use home safety devices, such as guards on windows that are above ground level, stair gates, and guard rails. These devices can help keep a busy, active child from taking a dangerous tumble.
- Make sure your child wears protective gear when playing active sports, such as wrist guards, knee and elbow pads, and a helmet.
- Supervise young children at all times around fall hazards, such as stairs and playground equipment.

Preventing Sports Concussion among Youth.

- Quantify the burden of youth sports concussion by integrating hospital, death, trauma, and ED data.
- Promote HEADS-UP in youth sports.

Additional public health actions.

- Work with health systems to make improvements to TBI rehabilitation services. Use ED data to better measure the burden of TBI, especially around youth sports injuries, and use ED data to drive systems-level policies around preventing TBI (e.g. schools, health care systems).
- Work with the Veterans Administration in Oregon to better understand the impact of TBI on military personnel through data access and analysis.
- Work to promote the use of HEADS UP tools among health care professionals (http://www.cdc.gov/traumaticbraininjury/prevention.html)
- Although preventing TBI is critical, secondary prevention – reducing the severity of TBI, is also important. A useful tool in assessing TBI outcomes is a state TBI registry. It is therefore important to develop a state TBI registry, and to use the TBI registry for 1) surveillance to better understand TBI outcomes and risks and inform prevention; 2) connecting TBI patients to services to support healthy lifestyles and rehabilitation.

Additional resources

Brain Injury Alliance of Oregon: http://biaoregon.org/

CDC, NIH, DoD, and VA Leadership Panel. Report to Congress on Traumatic Brain Injury in the United States: Understanding the Public Health Problem among Current and Former Military Personnel. Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Department of Defense (DoD), and the Department of Veterans Affairs (VA). 2013. www.cdc.gov/traumaticbraininjury/pdf/Report_to_Congress_on_Traumatic_Brain_Injury_2013-a.pdf

Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. Report to Congress on mild traumatic brain injury in the United States: steps to prevent a serious public health problem. Atlanta (GA): Centers for Disease Control and Prevention; 2003.

Centers for Disease Control and Prevention. Nonfatal Traumatic Brain Injuries Related to Sports and Recreation Activities Among Persons Aged ≤19 Years — United States, 2001–2009. MMWR 2011; 60(39):1337–1342.

Centers for Disease Control and Prevention. (2014). Report to Congress on Traumatic Brain Injury in the United States: Epidemiology and Rehabilitation. National Center for Injury Prevention and Control; Division of Unintentional Injury Prevention. Atlanta, GA.

CDC has published guidelines on evidence-based programs that reduce falls called *CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults, 3rd Edition:* http://www.cdc.gov/homeandrecreationalsafety/Falls/compendium.html, and *Preventing Falls: A Guide to Implementing Effective Community-Based Fall Prevention Programs:* http://www.cdc.gov/homeandrecreationalsafety/Falls/community_preventfalls.html

Faul M, Xu L, Wald MM, Coronado VG. Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2010.

HEADS UP toolkit: http://www.cdc.gov/HEADSUP/

Langlois JA, Rutland-Brown W. Traumatic Brain Injury in the United States: The Future of Registries and Data Systems. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2005.

National Resource Center for Traumatic Brain Injury: http://www.tbinrc.com/

Period of Purple Crying, preventing shaken baby Syndrome and other Infant Abuse: http://www.purplecrying.info/

Understanding Brain Injury, A Guide for Employers: http://www.brainline.org/content/2008/10

/understanding-brain-injury-guide-employers.html

Child Maltreatment

The goal

Decrease child maltreatment

The target

Reduce the rate of assault hospitalizations among children ages 0-4 to <20 per 100,000.

National Healthy People 2020 Objectives

- Reduce child maltreatment victims from 9.4 in 2008 to 8.5 per 1,000 children under age 18 years.
- Reduce child maltreatment fatalities from 2.4 in 2008 to 2.2 per 100,000 children under age 18 years.

The problem

Child maltreatment refers to any act or failure to act on the part of a parent or a caregiver that results in harm, potential for harm, or threat of harm to a child.[23] It includes physical, sexual, and emotional abuse, neglect, and endangerment. Child abuse and neglect causes direct suffering and long-term consequences for children and their communities.

Child maltreatment is a significant public health problem in terms of its magnitude, severity, and societal costs. CDC estimates that approximately 14% of children suffer from abuse.[24]

Table 6. Number of child maltreatment victims by age (years), Oregon.

Year	Fiscal Year 2012		Calendar Years 2003-2012	
Age (years)	Reported Child Maltreatment	%	Deaths due to physical abuse	%
<1	1,219	12.1	25	28.4
1	781	7.8	13	14.8
2	740	7.4	15	17.0
3	752	7.5	3	3.4
4	688	6.8	8	9.1
5	703	7	7	8.0
6	607	6	3	3.4
7	539	5.4	3	3.4
8	520	5.2	2	2.3
9	460	4.6	3	3.4
10	436	4.3	2	2.3
11	431	4.3	2	2.3
12	419	4.2	0	0.0
13	435	4.3	1	1.1
14	410	4.1	0	0.0
15	369	3.7	1	1.1
16	330	3.3	0	0.0
17	215	2.1	0	0
TOTAL	10,054	100.0	88	100.0

In 2012, Oregon Department of Human Services, Child Protective Services received 69,096 reports of child abuse and neglect (CA/N); nearly 30,850 reports were referred for investigation.[25]

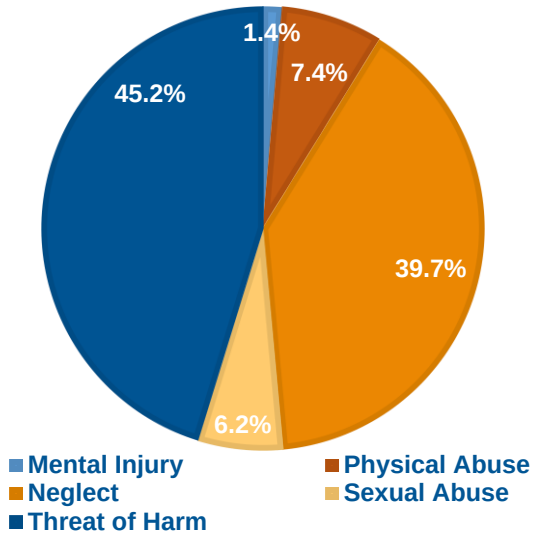
[23] Leeb RT, Paulozzi L, Melanson C, Simon T, Arias I. Child Maltreatment Surveillance: Uniform Definitions for Public Health and Recommended Data Elements, Version 1.0. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2008.

[24] http://www.cdc.gov/violenceprevention/childmaltreatment/consequences.html

[25] 2012 Child Welfare Data Book, prepared by Children, Adults, and Families Division, DHS; 2003-2012 deaths

- 6,332 referrals were founded for abuse or neglect—involving 10,054 victims.
- 12.1 percent of victims were infants; nearly half of the victims were under 6 years old (Table 1).
- Physical/sexual abuse accounted for 13.6 percent of incidents; nearly 45 percent of the incidents were for threat of harm; and about 40 percent of them were neglect. Some victims might have experienced more than one type of maltreatment (Figure 11).

Figure 11. Types of child abuse/neglect, Oregon, 2012.



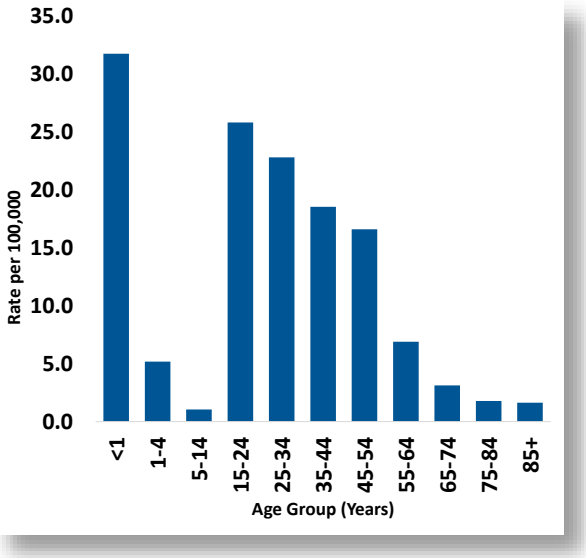
These numbers represent only the tip of the iceberg—the incidents that are reported.

The most severe outcomes of child maltreatment include assault injuries resulting in hospitalization and death. From 2003 to 2012, 88 child fatalities in Oregon were due to physical abuse. Among the 88 deaths, 15 children died from shaken baby syndrome.

- 28.4 percent of deaths occurred among infants; more than half of the victims were under 3 years of age (Table 1).
- 61% of children were killed by their biological parents; 23% of children were killed by a boyfriend/girlfriend of the child's parent.

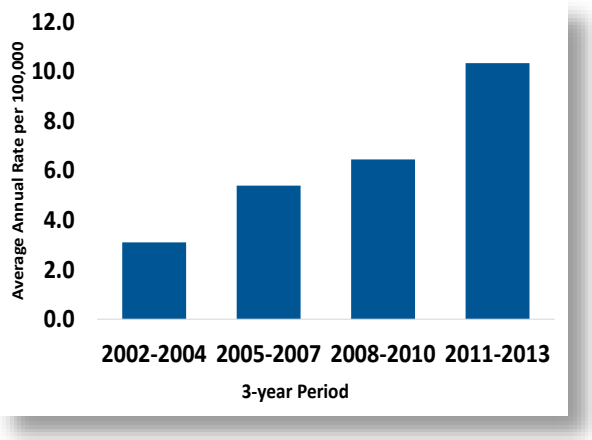
In 2013, the highest rate of assault hospitalization in Oregon was among infants (children < 1 year of age, Figure 12).

Figure 12. Average annual rate of assault hospitalization by age group, Oregon, 2011-2013.



The hospitalization rates among children 0-4 years of age have increased steadily since 2002. Figure 13 shows trends in the average annual rate of assault hospitalizations among children 0-4 between 2002 and 2013 (due to variability in data year-to-year, rates are combined in 3-year periods).

Figure 13. Average annual rate of assault hospitalization among children <5 years of age, Oregon, 2002-2013.



In a 2013 survey, about 23% percent of Oregon 11th graders reported that an adult intentionally hit or physically hurt them, at some point in their lives, and 7% reported that an adult had sexual contact with them at some point.[26]

Child maltreatment and neglect cause long-term damage to physical and emotional wellbeing. Across the lifespan, experienced child abuse and neglect increase the risks of:

- Emotional difficulties
- Social maladjustment
- Substance abuse
- Adolescent pregnancy
- School underperformance or failure
- Suicide attempts
- Poor mental and physical health
- Juvenile delinquency and adult criminality

Exposure to any form of child maltreatment is considered an "Adverse Childhood Experience" (ACE) which research shows can lead to immediate and enduring negative health consequences.[27] Longer-term effects of childhood maltreatment include increased risks for mental illnesses such as depression, obesity, criminal behavior, and parenting difficulties. The negative physical and psychological impacts increase substantially as the number of adverse childhood experiences accumulate, and can include increased risk for chronic heart, lung and cancer diseases, even decades later.

It is difficult to assess the overall economic burden of child maltreatment, although it has been estimated to be approximately $124 billion in the US.[28] Regardless of the economic burden of child maltreatment, it is impossible to overstate the tragic and avoidable consequences experienced by children that have been abused.

[26] Oregon Health Teens Survey, 2013: http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/Documents/2013/2013_OHT_State_Report.pdf

[27] Felitti, V., Anda, R., Nordenberg, D., Williamson, D., Spitz, A., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. Am J of Preventive Medicine, 14(4):245–258.

[28] Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. Child Abuse & Neglect, 36(2), 156–165.

Preventing child maltreatment—what works?

Child maltreatment is a complex problem that stems from unhealthy social environments and relationships. Safe and nurturing environments for children and families can prevent child maltreatment. Safe and nurturing environments are fostered through increasing the factors that protect children. Creating safe and nurturing environments is not a simple undertaking however, as it requires changes at the individual, relationship, and societal level. As a complex problem with complex solutions, a range of needs and approaches is needed. The good news is that there are programs that show evidence of substantially reducing child maltreatment. Some **evidence-based programs** that help foster changes in individual behaviors, relationships among families and neighbors, community involvement, and the culture of our society are listed below, along with website URLs for more information on specific programs.

Child-Parent Centers. Focused primarily on engaging parents in their children's education to promote better socialization and education outcomes, Child-Parent Centers (CPCs) are programs that provide comprehensive educational and family support to economically disadvantaged children and their parents. Implemented in schools, child-cares and preschools, CPCs emphasize an individualized, child-centered approach to social and cognitive development. CPCs have shown effectiveness in improving a range of outcomes for both children and adolescents, including a reduction in child maltreatment among participants. One study showed a 52% reduction in child maltreatment among participants. Information about this program can be found at: http://www.promisingpractices.net/program.asp?programid=98

Durham Family Initiative. Duke University, Center for Child and Family Policy, implemented a program that reduced community-wide rates of child maltreatment by at least 50% (in the pilot county). The Durham Family Initiative is a community-based effort aimed at improving family well-being and reducing child maltreatment by coordinating services for high-risk families. At-risk children are identified through home visits after birth or through referrals from pre-kindergarten, schools, and clinics. The program relies on collaboration across agencies to implement a shared information system, standardized data collection, cross-training, and integration of services across organizations. Information about this program can be found at: https://childandfamilypolicy.duke.edu/project/durham-family-initiative/

Nurse-Family Partnership. Nurse-Family Partnership is a program that connects families to home-visiting nurses. The

program is for low-income, first-time parents and their children. The program begins at birth and continues through a child's first two years of life. Visiting nurses help new parents learn healthy behaviors, teach parenting skills, and link parents to community services. Research shows that the program can reduce child maltreatment by 48%.
http://www.nursefamilypartnership.org/

Parent-Child Interaction Therapy. Parent-Child Interaction Therapy (PCIT) focuses on changing parent-child interaction patterns by teaching parents the skills to build a nurturing and secure relationship with their children. This program is treatment (therapy) for children with emotional and behavioral disorders. However, participants of the program have shown fewer incidents of physical abuse compared to non-participants receiving social services, and can reduce future child welfare reports to child protective services agencies.
http://www.pcit.org/

Triple P. Typically delivered through a health care system, Triple P is a multi-level system of parenting interventions based on need. Research showed that Triple P slowed growth of confirmed child abuse cases (22% lower), led to fewer child out-of-home placements (16% lower), and also led to fewer hospitalizations and emergency room visits for child injuries (17% lower) in the South Carolina counties where the program was implemented.[29]

SEEK. Also implemented in health systems, the Safe Environment for Every Kid (SEEK) program screens parents of children (birth to 5 years of age) in pediatric primary care to identify parental exposure to substance abuse, partner violence, and mental illness, and provides referrals. Research shows that participants had lower rates of child maltreatment compared to non-participants. Information about this program can be found at:
http://umm.edu/programs/childrens/services/child-protection/seek-project

Current IVPP activities

Early childhood home visiting programs have strong evidence of their effectiveness in reducing child maltreatment among high-risk families. IVPP has partnered with the state Child and Maternal Health Program on the Nurse Family Partnership (NFP) grant to provide hospitalization and emergency department outcomes data for validation to the self-reported data the NFP collects. Additionally, IVPP replaced the state Child Fatality Review data system with the national CDR online data system in 2013, which now includes several Oregon specific questions on child maltreatment. IVPP continues to work with county-level partners to promote standardized data

[29] Prinz RJ, Sanders MR, Shapiro CJ, Whitaker DJ, Lutzker JR. Population-based prevention of child maltreatment: the U.S. Triple P System Population Trial. *Prev Sci*. 2009;10(1):1–12.

collection for the CFR data system, and local partner use of CFR data for promoting child maltreatment prevention.

Recommended actions for IVPP

Heath care reform will complement and build on current efforts in identifying and referring suspected cases of child maltreatment to CPS. However, identification and referral alone will not reduce the problem or help to alleviate the long term consequences. Research has found the risk for child maltreatment is associated with adverse familial, social, and environmental conditions. Prevention research also demonstrates that preventing or mitigating the impact of adverse familial and social conditions can reduce a range of serious and costly co-occurring psychological, behavioral, and physical health problems associated with child maltreatment. This points to a need to consider a new strategy that moves beyond focusing on those believed to be at risk of child maltreatment or those already being abused or neglected, to a strategy that seeks to intervene before they are at risk or the abuse or neglect happens. The following strategies will be pursued by IVPP and partners to reduce child maltreatment as a continuation of goals and objectives from the previous state prevention plan:

1. Continue to design and refine a Safe and Nurturing Environments (SNE) framework and facilitate its adoption and integration across program areas within the Oregon Public Health Division's Center for Prevention and Health Promotion (CP&HP).

- Develop a collaborative leadership team within CP&HP to research and select an evidence-based framework to allow for coordination of efforts to promote protective and resiliency factors for mental, emotional, and behavioral health.
- Engage with internal and external partners (e.g., ELC, DHS, CCOs) to share strategies and find opportunities for alignment.
- Implement the framework across all CP&HP programs and in the OPHD Strategic Plan. Engage Oregon Health Authority and local health departments in a process to share ideas and strategies.

2. Improve analysis and population-based surveillance of problems and assets of child maltreatment to continuously inform prevention policies and strategies.

- Establish a multi-agency Data Workgroup to improve operationalization, measurement and monitoring of the SNE framework.
- Assess and select metrics to measure nurturing families and school environments, ACEs, and other risk and protective factors.
- Identify opportunities to connect to and utilize partner agency data.
- Continue to collaborate with Oregon Maternal and Child Health, home

visiting program, to collect benchmark data on Nurse Family Partnership.

- Engage the research community to include measures of child maltreatment prevention in community-based research.
- Monitor county implementation of the national Child Death Review online data system in Oregon by offering technical assistance and prevention training.
- Improve the ability to monitor child maltreatment resulting in death through the Oregon Violence Death Reporting System by linking cases to the National Center for Child Death Review.

3. Create the context for healthy children and families through norms change and programs.

- Coordinate with home visiting programs (Babies First, Cocoon, Nurse Family Partnership, Maternity Case Management) to improve child maltreatment identification and referral, and to improve and enhance parenting skills among clients.
- Connect families who qualify to services and supports. Enhance availability and awareness of services and supports in areas with high rates of CM and DV.
- Implement evidence-based programs for parents and caregivers, such as Nurse Family Partnership, and adopt evidence-based strategies for preventing CM by promoting SNE.

4. Build community receptivity, capacity, and competence to implement evidence-based approaches to preventing CM. Public systems that encounter families struggling with addiction, mental health issues, and domestic violence will coordinate efforts.

- Ensure screening and referrals for child maltreatment happen within CCOs and primary care settings.
- Work with Head Start, Early Learning Councils, Maternity Case Management programs and other child-based agencies to incorporate screening for child maltreatment.
- Create a community context that supports effective parenting.
- Engage primary care physicians in screening for ACE's and providing referrals.
- Develop prevention and strategy tools for communities and organizations

Additional strategies include:

- Continue to work and lead the State Child Fatality Review (CFR) with other key partners.

- Compile and disseminate research and information on the overlap of relationships between unintentional injuries, child maltreatment, substance abuse, and ACEs to facilitate strengthened

collaborations and relationships among stakeholders.

- Work with stakeholders to create and disseminate consistent messages around evidence-based primary prevention of child maltreatment for use in state and local prevention campaigns.

Additional resources

Colman, R., Widom, C. (2004). Childhood abuse and neglect and adult intimate relationships: A prospective study. *Child Abuse and Neglect*,*28*(11):1133–1151.

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Oregon Violent Death Reporting System: http://public.health.oregon.gov/diseasesconditions/injuryfatalitydata/pages/nvdrs.aspx

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Suicide

The goal

Decrease suicides

The target

Increase the adoption of "Zero Suicides" by health care and community support systems that provide services and support to defined patient populations.[30]

National Healthy People 2020 Objectives

- Reduce the suicide rate to 10.2 per 100,000
- Reduce suicide attempts by adolescents (grades 9-12) to 1.7 per 100,000

The problem

Nearly 2 people in Oregon die every day from suicide. About 700 people die by suicide annually in Oregon, and about 2,000 are hospitalized due to a suicide attempt. Suicide is one of Oregon's most persistent, yet largely preventable, public health problems. Suicide was the second leading cause of death among Oregonians aged 15 to 34 years, and the eighth leading cause of death among all Oregonians in 2012.[31] The

financial and emotional impacts of suicide on family members and the broader community are devastating and long-lasting.

Some basic facts of suicide in Oregon:

- In 2012, the age-adjusted suicide rate among Oregonians was 17.7 per 100,000, 42 percent higher than the national average.
- The rate of suicide among Oregonians has been increasing since 2000.
- Suicide rates among adolescents aged 10 to 17 years have risen since 2011 after decreasing from 1990 to 2010.
- Suicide rates among adults aged 45 to 64 years rose more than 50 percent from 18.1 per 100,000 in 2000 to 28.7 per 100,000 in 2012. The rate increased more among females aged 45 to 64 years than among males of the same age during this period.
- Suicide rates among males aged 65 years and older decreased approximately 18 percent from

[30] http://zerosuicide.sprc.org/

[31] Reported data are from the Oregon Violent Death Reporting System (NVDRS), in which the latest data are from 2012. The NVDRS include risk factor data and other context data not available from vital records data used in other sections of this report.

nearly 50 per 100,000 in 2000 to 42 per 100,000 in 2012.

- From 2003 to 2012, males were 3.6 times more likely to die by suicide than females. The highest suicide rate occurred among males aged 85 years and older (72.4 per 100,000). Non-Hispanic white males had the highest suicide rate among all racial/ethnic groups (27.1 per 100,000).
- Approximately 25 percent of suicides occurred among veterans. Male veterans had a higher suicide rate than non-veteran males (45.5 for male veterans, 29.0 per 100,000 for non-veteran males). Significantly higher suicide rates were identified among male veterans aged 18 to 24 years, 35 to 44 years and 45 to 54 years, when compared to non-veteran males. Veteran that died by suicide were reported to have more physical health problems than non-veteran males.
- Psychological, behavioral, and health problems co-occur and are known to increase suicide risk. Approximately 70 percent of people that died by suicide in 2012 had a diagnosed mental disorder, alcohol and /or substance use problems, or depressed mood at time of death. Despite the high prevalence of mental health problems, less than one third of males, and less than 60 percent of female, were receiving treatment for mental health problems at the time of death.
- Interpersonal conflicts (problems with an intimate partner and poor family relationships) are commonly reported circumstances in the incident of suicide.
- Eviction/loss of home was a factor associated with 199 deaths by suicide (7%) between 2009 and 2012.
- Firearms were the most common mechanism of injury among males who died by suicide, which accounted for 61 percent of deaths among males in 2012.
- Baker, Coos, Curry, Douglas, Grant, Harney, Jackson, Josephine, Klamath, Lincoln and Tillamook counties had a higher than state average suicide rate; and Benton, Clackamas, Hood River, Polk, Washington, and Yamhill counties had a lower than state average suicide rate.

For suicide prevention strategies, it is important to consider both risk factors and protective factors. Risk factors include:

- Depression and other mental disorders, and/or substance-abuse disorder
- Stressful life events in combination with other risk factors, such as depression
- Prior suicide attempt

- Family history of mental disorder or substance abuse, suicide, violence (including sexual abuse)
- Firearms in the home
- Incarceration
- Exposure to the suicidal behavior of others (e.g. family members, peers, or media)

Protective factors include:

- Effective clinical care for mental, physical, and substance abuse disorders
- Limited access to lethal means
- Easy access to a variety of clinical interventions and support for help seeking
- Family and community support/connectedness
- Support from ongoing medical and mental health care relationships
- Skills in problem solving, conflict resolution, and nonviolent way of handling disputes
- Cultural and religious beliefs that discourage suicide and support instincts for self-preservation

Strategies for prevention

Is suicide really preventable? Yes. It takes commitment at the societal level for suicide prevention. The evidence-based programs that prevent suicide are too numerous to name here, but fall into two general categories: treatment, and education/training (the Suicide Prevention Resource center maintains a registry of best practices, including evidence-based practices, that can be reviewed on their website: http://www.sprc.org/bpr). One example is a program that has been recently introduced in Oregon to train educators to recognize at-risk youth and to connect students with professional help. The program is a web-based training course called Kognito. (http://www.kognito.com/).

Universal, "upstream" strategies reduce the chances that youth will become suicidal. These strategies have a greater potential to reduce suicide rates than strategies targeting youth already at risk. Examples include effective parenting, nurse home visits, and the Good Behavior Game.

There has been much effort in Oregon recently to transform health care access to achieve the "triple aim" of better health, better care and lower costs. With increased health care access, the focus of suicide prevention can also shift to include prevention within health care systems. One program that focuses on preventing suicide within health care systems patients is Zero Suicide (http://zerosuicide.sprc.org/), a set of specific strategies and tools intended for health systems that are committed to preventing suicide. Zero Suicide was implemented in the Henry Ford Health System in Detroit, and since that time, the suicide rate among their mental health patients dropped from 89 per 100,000 to 16 per 100,000.[32] Prevention in health systems

[32] http://www.theguardian.com/society/2015/feb/18/detroi

largely means mass screening for the risk factors for suicide and ensuring everyone in the system is trained and able to interact with suicidal patients. This is largely a change in institutional culture, not cost-prohibitive changes in business processes.

If the suicide rate in Oregon is to be reduced, it will take a commitment from health care systems to achieve success.

Primary / upstream prevention. Recent research has demonstrated that the risk for suicide is established early in life as children experience adverse familial, social, and environmental conditions. Preventing or mitigating the impact of adverse familial and social conditions in childhood can reduce a range of serious and costly co-occurring psychological, behavioral, and physical health problems[2,33]. One example – first grade implementation of the Good Behavior Game can prevent suicide ideation, substance use problems, smoking, antisocial personality disorder, delinquency, and incarceration for violent crimes through the age 21[34].

Older adults. Some of the highest suicide rates occur among older adults, especially older men. For older adults, strategies include:

- Promote awareness that suicide is a public health problem that is preventable.
- Develop broad-based support for suicide prevention.
- Develop and implement strategies to reduce the stigma associated with aging and with being a senior consumer of mental health, substance abuse and suicide prevention services.
- Develop and implement community-based suicide prevention programs for older adults.
- Promote efforts to reduce access to lethal means and methods of self-harm by older adults.
- Implement training for recognition and assessment of at-risk behavior in and delivery of effective treatment to older adults.
- Develop and promote effective clinical and professional practices for suicide prevention.
- Improve reporting and portrayals of suicidal behavior, mental illness, and substance abuse among older adults in the entertainment and news media.
- Promote and support research on late life suicide and suicide prevention.

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t-suicide-taboo-depression-screening-mental-health-henry-ford

[33] O'Connell M.E., Boat T., and Warner K.E., Editors. Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities. 2009. The National Academies Press, Washington, D.C.

[34] Biglan A., Flay B.R., Embry D.D., Sandler I.N. The Critical Role of Nurturing Environments for Promoting Human Well-Being. American Psychologist. 2012, 67(4):257-272

- Improve and expand surveillance systems and evaluation of prevention programs for suicidal behavior.

Adults. Considering the population size of adults aged 25-64, the majority of suicides (68 percent among men and 78 percent among women) occurs among this group. Prevention of suicide must focus on this age group. Strategies for preventing adult suicide include:

- Promote awareness that suicide is a public health problem that is preventable.
- Develop broad-based lifespan support for suicide prevention.
- Identify and implement evidence-based and culturally appropriate practices that address depression and suicidality among adult males to enable men to identify depression as a manageable health condition.
- Promote efforts to reduce access to lethal means and methods of self-harm by adults.
- Implement training for recognition and assessment of at-risk behavior in and delivery of effective treatment to adults.
- Develop and promot effective clinical and professional practices for suicide prevention.
- Adopt Zero Suicide as an institutional policy.

Youth. If the incidence of suicide is to be reduced, an overall strategy that recognizes and considers the life course of individuals must be considered. This will mean, in part, focusing on youth—where the downstream effects of suicidal behavior can be addressed early in the life course. Strategies for preventing youth suicide include:

Communities:

- Establish comprehensive prevention programs in schools, such as RESPONSE
- Reduce harassment in schools and communities
- Enhance crisis services
- Establish and maintain crisis response teams
- Support suicide survivors
- Eliminate the stigma associated with behavioral health care
- Support efforts to reduce youth access to lethal means of self-harm
- Expand “gatekeeper” training
- Provide Spanish language suicide prevention materials in schools and through migrant education programs
- Develop and distribute a resource tree for communities that includes specific emergency, subacute, crisis, and longer term help for youth at-risk for suicide
- Explore suicide prevention strategies through the poison control hotline

Individuals:

- Get involved in community-based suicide prevention efforts
- Recognize and respond appropriately to troubled youth that vocalize plans for suicide
- Parents: increase awareness of suicide risk factors, and restricting lethal means for at-risk youth

The health care community:

- Screening all youth 12-18 years of age for major depressive disorder when seen by a pediatrician, and when there are adequate resources for follow-up
- Improve follow-up care and outreach to suicide attempters
- Refer all attempters for follow-up care. Oregon statute requires that all youth presenting to a hospital following a suicide attempt must be referred for follow-up care
- Improve access to affordable behavioral health care
- Establish screening programs in settings where youth are seen (e.g. drug and alcohol treatment, juvenile justice, mental health services)
- Require training of mental health care providers in suicide prevention, assessment, management, and ongoing care for suicidal patients
- For all age groups, providers in primary care should routinely ask about suicidal thoughts when depression or other indicators are present. Patients with positive screens should be referred to appropriate behavioral health providers. In addition, providers should be aware that veterans are a group with increased risk of suicide.
- Adopt Zero Suicide as an institutional policy.

Additional resources

American Association of Suicidology: http://www.suicidology.org/

American Foundation for Suicide Prevention: www.afsp.org/

ASIST (Applied Suicide Intervention Skills Training): https://www.livingworks.net/

Biglan, et al. (2012). The Critical Role of Nurturing Environments for Promoting Human Well-Being. American Psychologist, 67, 4, 257-271.

Make The Connections (support for veterans): http://maketheconnection.net/conditions/suicide

Means Matter: Lethal Means Reduction: http://www.hsph.harvard.edu/means-matter/

Mental Health First Aid: http://www.mentalhealthfirstaid.org/cs/

National Depression Screening Day: http://www.nmha.org/conditions/national-depression-screening-day

National Strategy for Suicide Prevention: Goals and Objectives or Action: www.surgeongeneral.gov/library/reports/national-strategy-suicide-prevention/index.html

National Suicide Prevention Lifeline (1-800-273-TALK): http://www.suicidepreventionlifeline.org/
Oregon Youth Suicide Prevention: public.health.oregon.gov/PreventionWellness/SafeLiving/SuicidePrevention/Pages/index.aspx

Oregon Addictions & Mental Health Services: www.oregon.gov/OHA/amh/pages/index.aspx

Oregon county crisis lines: http://public.health.oregon.gov/PreventionWellness/SafeLiving/SuicidePrevention/Pages/cntymap.aspx

Oregon Injury & Violence Prevention Program: http://public.health.oregon.gov/PHD/Directory/Pages/program.aspx?pid=10

Oregon Youth Suicide Prevention Network (listserv): http://listsmart.osl.state.or.us/mailman/listinfo/yspnetwork

Oregon Youth Suicide Prevention Program: http://public.health.oregon.gov/PreventionWellness/SafeLiving/SuicidePrevention/Pages/index.aspx

QPR Institute (Question, Persuade, Refer; intervention training): http://www.qprinstitute.com/

Recommendations for reporting on suicide (for the media): http://reportingonsuicide.org/

RESPONSE (a comprehensive high school based suicide prevention program designed to increase awareness, heighten sensitivity to depression and suicidal ideation, change attitudes, train all staff to recognize suicidal

behaviors and be able to intervene, offer response procedures to refer a student at risk for suicide, and increase help-seeking among youth and their peers):

http://www.columbiacare.org/Page.asp?NavID=99

Service Member & Family Support, Oregon National Guard: www.orng-smfs.org/

Suicide Prevention Resource Center: www.sprc.org/

World Suicide Prevention Day: http://www.timeanddate.com/holidays/un/world-suicide-prevention-day

Zero Suicide: http://zerosuicide.sprc.org/

Injury Prevention Plan: Goals, Objectives, Implementation, and Evaluation

The goals and targets shown in the previous section are presented in a structured prevention plan (below) around the 5 focus areas (PDO, MVT, TBI, child maltreatment, suicide). The prevention plan is divided into three sections. Section 1 describes the state injury plan goals and objectives. Section 2 describes the implementation plan: how IVPP in conjunction with partners, will achieve the goals and objectives described in Section 1. Finally, Section 3 describes the evaluation plan: how and when we will know we have achieved our objectives and goals.

Section 1: Focus area (PDO, MVT, TBI, child maltreatment, suicide) injury prevention goals and objectives.

Goal	Objective	Goal and objective descriptions	
1.1	**Reduce the prescription drug overdose mortality rate.**		
	1.1.A	Reduce the rate of unintentional and undetermined prescription opioid deaths to less than 3.0 per 100,000 by 2020.	Benchmark: 3.9 per 100,000 in 2014
	1.1.B	Reduce the number of methadone-associated PDO deaths to < 30 annually (2014 benchmark: 47 deaths).	Benchmark: 47 deaths in 2014
2.1	**Reduce the rate of MVT mortality.**		
	2.1.A	Reduce the percent of MVT deaths associated with impaired driving to < 30% annually.	Benchmark: 34% in 2012
	2.1.B	Reduce the MVT mortality rate among older adults to < 10 per 100,000 by 2020.	Benchmark: 12 per 100,000 (2013)
3.1	**Reduce fall-related TBI deaths among older adults.**		
	3.1.A	Reduce the mortality rate of TBI-associated fall deaths to < 5 per 100,000 by 2020.	Benchmark: 6.0 per 100,000 in 2013
3.2	**Increase the recognition of TBI in clinical care.**		
	3.2.A	Engage partners to implement policy that increases TBI screening and assessment in medical care.	Benchmark: No legislation that mandates training for TBI identification screening exists.
3.3	**Increase the dissemination and uptake of TBI data to inform prevention policy.**		
	3.3.A	Develop a state TBI registry and use data to inform prevention and rehabilitation policy.	Benchmark: TBI data use is currently limited to mortality and hospitalization data
4.1	**Reduce child maltreatment.**		
	4.1.A	Reduce the rate of child maltreatment hospitalizations (assault) to < 8 per 100,000 by 2020.	Benchmark: 10.3 per 100,000 (2011-2013 average annual rate)
5.1	**Reduce suicide**.		
	5.1.A	Increase the number of health systems that adopt “Zero Suicide” as an aspirational goal.	Benchmark: No Coordinated Care Organizations (CCOs) in Oregon have adopted Zero Suicide as an institutional policy

Section 2: Implementation plan. Project Period: August 1, 2016 - July 31, 2020.

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
1.1.a. By October, 2016, The Oregon Public Health Division will convene an opioid initiative task force.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: State Health Division leadership, IVPP	4, 5, 6
1.1.b. By September, 2016, engage PHD policy office in collaboration to develop policies that require CCOs and insurers to adopt PDO prevention as a health systems improvement project.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer, OR-CRM	3, 4
1.1.c. By September of 2016, engage PHD policy office in collaboration to remove methadone as a preferred pain treatment drug from insurer prescription formularies.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer	3, 4, 5
1.1.d. By January, 2017, develop a grant application toolkit to aid local health departments in applying for US DOJ Harold Rogers PDO intervention grants.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP, PDMP	3, 4, 5, 6
1.1.e. By January, 2017, develop a grant application toolkit to aid local law enforcement agencies in applying for US DOJ naloxone rescue program development grants.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP, PDMP	3, 4, 5, 6
1.1.f. By January of 2017, evaluate the impact that removal of methadone from the state Medicaid formulary had on prescribing behavior.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP; partners: OHSU	2, 5
1.1.g. Update the state prescription drug overdose report by January 2019 (current report from 2014 to be updated on 5-year cycle) to inform stakeholders and PDO prevention partners.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP	2, 5
1.1.h. By December, 2016, begin abstracting medical examiner records from unintentional and undetermined drug overdose deaths, and collect detailed data on these deaths	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP	2

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
with the NVDRS system module.			
1.1.i. By September, 2019, complete implementation of community-based PDO prevention in 13 of 36 counties (72% of the Oregon population). The community-level interventions will involve convening regional pain guidance groups (PGGs), and interdisciplinary action teams (IATs) made up of health systems, behavioral health, public safety, prescribers, and local health departments in these 13 high-burden (PDO) counties. PGGs and IATs will focus on adopting opioid prescribing guidelines, expanding naloxone rescue programs, increasing availability of medically-assisted therapy, and implementing health systems-level policies that prevent PDO.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP	4
1.1.j. By September, 2019, PDMP enrollment in community intervention project sites will reach 95% of top prescribers of controlled substances (23% of prescribers who write 81% of all controlled substance prescriptions).	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: regional PDO prevention coordinators, IVPP	1, 2, 4
1.1.k. By September 30, 2016, the PDMP will be easier to use and access by accelerating the sign up process during the license renewal process.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: IVPP	1, 2, 4
1.1.l. By August, 2019, increase to 16 the number of CCOs that have adopted PDMP use guidelines.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: local health departments, PHD policy office, regional PDO prevention coordinators, IVPP	4, 5
1.1.m. By August, 2019, increase the number of CCOs that adopt model opioid prescribing guidelines for non-cancer chronic pain	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: local health departments, PHD policy office, regional PDO prevention coordinators, IVPP	4, 5

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
1.1.n. By December, 2016, develop a framework for measuring the availability of medication assisted treatment for opioid dependence. Track and disseminate MAT availability as a metric.	Goal 1.1, Objectives 1.1.A, 1.1.B	Lead: state opioid authority, local health departments, regional PDO prevention coordinators, IVPP	2, 4, 5
2.1.a. By September, 2016, actively collaborate with ODOT to identify data sources, and data linkages that can drive changes in policy that improve the state interlock program uptake.	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: ODOT/IVPP	3, 4
2.1.b. In project year 01 of the BIC grant, continue to work with the ICPG on a strategic policy plan for pedestrian safety in 4 priority areas (built environment, law enforcement, data collection and evaluation, and education)	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: ICPG/IVPP	1, 4
2.1.c. In project year 01 of the BIC grant, work with stakeholders to identify agencies and opportunities for implementing best-available policy strategies related to pedestrian safety, and collect implementation evaluation data.	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: IVPP	4, 5
2.1.d. By December 2016, engage partners in Aging and People with Disabilities Division to implement older driver risk screening in health care systems.	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: APDD, ODOT	3, 4
2.1.e. Between By August 2017, and July, 2019, actively collaborate with ODOT to link data sources that will inform the development of the new 5-year state transportation safety plan.	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ODOT	2, 6
2.1.f. Engage with and support PHD policy office to increase the state tax on alcohol by 10%.	Goal 2.1, Objectives 2.1.A, 2.1.B	Lead: PHD policy office	3, 4
3.1.a. In project year 01 of the BIC grant, collaborate with	Goal 3.1 & 3.3	Lead: IVPP; partners:	3, 4

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
partners in the Governor's TBI Task Force to develop and introduce a legislative concept that facilitates TBI recognition training in health care systems.	Objectives 2.1.A, 2.1.B	PHD Policy Office, Governor's TBI Task Force	
3.1.b. Between September, 2016, and July, 2019, continue assisting health systems to implement STEADI screening and assessment tools in electronic health records systems.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP	3, 4, 6
3.2.a. By August 2017, incorporate trauma system TBI data into core injury data analysis and reporting.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP	1, 2
3.2.b. By August 2017, develop a conceptual and infrastructural framework for implementing a state TBI registry based on the state trauma data system.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP	1, 2
3.2.c. By December 2016, the Oregon Trauma Registry will have a quality improvement project in place to provide training that assures trauma registrars at Oregon trauma hospitals are training to accurately and consistently enter coded data for TBI.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP	2, 6
4.1.a. By August 2017, develop a framework with partners for Safe and Nurturing Environments that encourages CCOs to adopt best-practice screening, referral, and treatment guidelines.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD MCH Program	4
4.1.b. By August 2017, engage HCDP around identifying areas of SNE that overlap with chronic disease prevention and health promotion (e.g. upstream prevention of diabetes through SNE exposure early in life).	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD MCH Program	4
4.1.c. By August 2017, convene a SNE data group that identifies, reviews, and integrates state data on child maltreatment.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer	2, 4, 6
4.1.d. By January, 2016, engage the state Office of Adult	Goal 3.1 & 3.3	Lead: OAAPI, IVPP	2, 4

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
Abuse Prevention and Investigations (OAAPI) to link state-level data on adult abuse, child protective services, and death and hospitalization. Leverage data findings to drive improvements in service delivery and state policy around violence and abuse prevention.	Objectives 2.1.A, 2.1.B		
4.1.e. By December 2016, the Oregon Trauma Registry will have a quality improvement project in place to provide training that assures trauma registrars at Oregon trauma hospitals are training to accurately and consistently enter data into the system when child maltreatment has been identified.	Objectives 2.1.A, 2.1.B	Lead; IVPP	2, 4
5.1.a. By August 2017, engage the public health policy office to encourage health systems and CCOs in Oregon to adopt Zero Suicides as an institutional model. 1a. Identify champions within health systems. 1b: work with champions to support access to information about Zero Suicide, including the toolkit.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer	1, 3, 4, 5
5.1.b. By August 2017, engage CCOs and health systems who adopt Zero Suicides to support data analytics to track impact over time	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer	2, 5, 6
5.1.c. During Year 01 of the BIC grant, support Washington County's Suicide Prevention Coordinator their Suicide Prevention Council to encourage health systems and CCOs within their county to adopt Zero Suicides as an institutional model.	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: Washington County Suicide Prevention Coordinator, Washington County Health Systems SP Council Members,	1, 3, 4, 5
5.1.d. By October 1, 2019, host an Oregon Zero Suicide implementation training with national Zero Suicide experts	Goal 3.1 & 3.3 Objectives 2.1.A,	Lead: IVPP, Washington County	6

Sub-Objectives	Goals and Objective(s) that this action supports	Lead and Partners	Supported by injury program core component(s)*
for committed teams of appropriate health systems' decision-makers from at least 4 counties or CCOs.	2.1.B	Suicide Prevention Coordinator and Suicide Prevention Council; GLS-funded counties	
5.1.c. August 2017, develop publically-viewable data dashboard that shows where Zero Suicides has been adopted, and connect suicide attempt and suicide outcomes data with program implementation data at the geographical level	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP	2, 5
5.1.d. Between September, 2016, and July, 2019, engage suicide prevention partners to guide the development and implementation of a suicide attempt follow-up process (calling attempters at intervals, post-attempt).	Goal 3.1 & 3.3 Objectives 2.1.A, 2.1.B	Lead: IVPP; partners: ICPG, PHD Policy Office, AMH, State Health Officer	3, 4

*State injury program core components include:

1) Build and sustain a solid, stable infrastructure;

2) Collect, analyze and disseminate injury and violence data;

3) Select, implement, and evaluate effective policy and program strategies;

4) Engage partners for collaborations;

5) Effectively communicate information to key stakeholders;

6) Provide training and technical assistance.

Section 3: Evaluation and performance metrics.

Section 3, Part 1: Outcome metrics:

Goal: 1.1. Reduce the prescription drug overdose mortality rate.					
	Metric Benchmark: 3.9 per 100,000 in 2014.				
Objective:	2016	2017	2018	2019	2020
1.1.A. Reduce the rate of unintentional and undetermined prescription opioid deaths to less than 3.0 per 100,000 by 2020 (2014 benchmark: 3.9 per 100,000)					
	Metric Benchmark: 47 deaths in 2013.				
	2016	2017	2018	2019	2020
1.1.B. Reduce the number of methadone-associated PDO deaths to <30 annually (2014 benchmark: 47 deaths).					
Goal: 2.1. Reduce the rate of MVT mortality.					
	Metric Benchmark: 34% in 2012.				
Objective:	2016	2017	2018	2019	2020
2.1.A. Reduce the percent of MVT deaths associated with impaired driving.					
	Metric Benchmark: 12 per 100,000 in 2013.				
	2016	2017	2018	2019	2020
2.1.B. Reduce the MVT mortality rate among older adult divers (≥65) to < 10 per 100,000 by 2020					
Goal: 3.1. Reduce fall-related TBI deaths among older adults.					
	Metric Benchmark: 6 per 100,000 in 2013.				
Objective:	2016	2017	2018	2019	2020
3.1.A. Reduce the mortality rate of TBI-associated fall deaths to <5 per 100,000 by 2020.					

Goal: 3.2. Increase the recognition of TBI in clinical care.					
	Metric Benchmark: No legislation that mandates training for TBI identification screening exists.				
Objective:	2016	2017	2018	2019	2020
3.2.A. Engage partners to implement policy that increases TBI screening and assessment in medical care.					
Goal: 3.3: Increase the dissemination and uptake of TBI data to inform prevention policy.					
	Metric Benchmark: TBI data use is currently limited to mortality and hospitalization data.				
Objective:	2016	2017	2018	2019	2020
3.3.A. Develop a state TBI registry and use data to inform prevention and rehabilitation policy					
Goal: 4.1: Reduce child maltreatment.					
	Metric Benchmark: 10.3 per 100,000 (2011-2013 average annual rate).				
Objective:	2016	2017	2018	2019	2020
4.1.A. Reduce the rate of child maltreatment hospitalizations (assault) to < 8 per 100,000 by 2020.					
Goal: 5.1: Reduce suicide.					
	Metric Benchmark: No Coordinated Care Organizations (CCOs) in Oregon have adopted Zero Suicide as an institutional policy.				
Objective:	2016	2017	2018	2019	2020
5.1.A. Increase the number of health systems that adopt “Zero Suicide” as an institutional policy.					

Section 3, Part 2: Performance metrics

Key evaluation questions for Goal 1.1:

1. Were any new policies created that address CCO adoption of PDO prevention?
2. Was PHD policy office engaged in collaboration to remove methadone as a preferred pain treatment drug from insurer prescription formularies?
3. Was a grant toolkit created for counties to support them in applying for BJA intervention grants?
    1. If yes, how many counties used the toolkit?
    2. If used, how many counties obtain grants?
4. Was an evaluation conducted of the impact of removal of methadone from the state Medicaid formulary?
5. Was the state prescription drug overdose report updated?
6. Were medical examiner records from unintentional and undetermined drug overdose deaths abstracted, and were detailed data on these deaths entered in the NVDS system module?
    a. Were those data used to inform prevention policies?

Key evaluation questions for Goal 2.1:

1. Did IVPP work with ODOT to improve interlock uptake and/or identify weaknesses in the interlock system?
2. Did IVPP continue to work with the ICPG on a strategic policy plan for pedestrian safety in 4 priority areas (built environment, law enforcement, data collection and evaluation, and education).
3. Did IVPP work with stakeholders to identify agencies and opportunities for implementing best-available policy strategies related to pedestrian safety, and collect implementation evaluation data?
4. Did IVPP work with partners in Aging and People with Disabilities division to implement older driver risk screening in health care systems?
5. Did data linkage between ODOT and IVPP improve?

Key evaluation questions for Goals 3.1 – 3.3:

1. Did IVPP work with partners in the Governor's TBI Task Force to implement a legislative concept that facilitates TBI recognition training in health care systems?
2. Did IVPP assist health systems to implement STEADI screening tools in electronic health records systems?
3. Did IVPP incorporate trauma system TBI data into core injury data analysis and reporting?

4. Did IVPP develop a framework for implementing a state TBI registry based on the state trauma system.

Key evaluation questions for Goal 4.1:

1. Did IVPP engage partners to develop a framework for Safe and Nurturing Environments that encourages CCOs to adopt best-practice screening, referral, and treatment guidelines for adults?
2. Did IVPP engage HCDP on the areas of SNE that overlap with injury prevention (e.g. upstream prevention of diabetes through SNE exposure early in life)?
3. Did IVPP convene a SNE data group that identifies, reviews, and integrates state data on child maltreatment?

Key evaluation questions for Goal 5.1:

1. Did IVPP work with the public health policy office to encourage health systems and CCOs in Oregon to adopt Zero Suicides as an institutional model. 1a. Identify champions within health systems. 1b: work with champions to support access to information about Zero Suicide, including the toolkit.
2. Was a Zero Suicide training held for at least 4 counties?
3. Work with CCOs and health systems who adopt Zero Suicides to support data analytics to track impact over time. 5.1.c. Develop publically-viewable data dashboard that shows where Zero Suicides has been adopted, and connect suicide attempt and suicide outcomes data with program implementation data at the geographical level
4. Work with Lines for Life to implement a suicide attempt follow-up process (calling attempters at intervals, post-attempt).

Appendix

Other Resources

- Injury and Violence Prevention Program, Oregon Public Health Division: http://public.health.oregon.gov/PHD/Directory/Pages/program.aspx?pid=10
- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control: www.cdc.gov/ncipc/
- National Center for Injury Prevention and Control, Division of Violence Prevention: Essentials for Childhood: Steps to Create Safe, Stable, and Nurturing Relationships: www.cdc.gov/violenceprevention/childmaltreatment/essentials.
- Safe Kids Oregon: www.safekidsoregon.org
- Safe Kids Worldwide: www.safekids.org
- American Academy of Pediatrics: www.aap.org/default.htm
- Safe States Alliance: www.safestates.org
- United States Consumer Product Safety Commission: www.cpsc.gov/
- Partnership Against Violence Network: www.pavnet.org/
- Suicide Prevention Resource Center: www.sprc.org
- Society for the Advancement of Violence and Injury Research: www.savirweb.org
- Brain Injury Association of Oregon: www.biaoregon.org
- Attorney General's Task Force on Sexual Assault: www.oregonsatf.org
- Preventing Falls among older adults: http://public.health.oregon.gov/PreventionWellness/SafeLiving/FallPrevention/Pages/index.aspx
- *Oregon Youth Suicide Prevention Plan:* http://www.oregon.gov/DHS/ph/ipe/ysp/docs/YSuicide.pdf
- *Oregon Older Adult Suicide Prevention Plan:* http://www.oregon.gov/DHS/ph/ipe/esp/docs/plan.pdf
- Zero Suicides Initiative: **zerosuicide**.sprc.org

Data Sources

State data sources: The primary sources of injury data used by IVPP are mortality data, which are obtained from the Oregon Center for Health Statistics, and hospitalization data, which are obtained from all non-federal Oregon acute-care inpatient facilities. Hospitalization data do not contain personal identifiers that would facilitate identification of multiple admissions, and may include re-admissions, transfers, and deaths.

Hospitalization data do not contain information about persons treated in emergency departments and released. Hospitalization data relies on the International Classification of Diseases version 9 (ICD-9). In 1999, a change occurred in the way the causes of death are coded, from the International Classification for Diseases (ICD) version 9 to ICD version 10. The change in coding means that mortality data prior to 1999 are not directly comparable to data from 1999 and thereafter, although these data can give an idea of general trends in types of injuries over time.

Unless otherwise noted, all rates presented in this document are crude rates. Age-adjusted rates are weighted by a standard population so that the rate in question can be compared to rates from other locations or groups (the Oregon rate of suicide compared to the national rate of suicide, for instance). Crude rates show the actual number of events in the population in question (i.e. population of Oregon), although crude rates do not account for differences in population structures between populations that might explain differences between the rates.

Population data: Between census years, population estimates are used as denominators for rates. Denominators for this report are based on national center for Health Statistics intercensal estimates.

Behavioral Risk Factor Surveillance System (BRFSS): The BRFSS, administered and supported by the Behavioral Surveillance Branch (BSB) of the CDC, is an on-going data collection program designed to measure behavioral risk factors in the adult population 18 years of age or over living in households.

www.dhs.state.or.us/dhs/ph/chs/brfs/index.shtml

Oregon Healthy Teens Survey: OHT monitors risk behaviors and other factors that influence the health and well-being of Oregon's children and adolescents

www.dhs.state.or.us/dhs/ph/chs/youthsurvey/index.shtml

Web-based Injury Statistics Query and Reporting System (WISQARS): Available online from the centers for Disease Control and Prevention, WISQARS is in interactive database system that

provides customized reports of injury data at the national and state level:
www.cdc.gov/ncipc/wisqars/