

# INCREASING LETHAL MEANS SAFETY AND SUICIDE PREVENTION IN VERMONT

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Feb. 9, 2023



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Teaches courses in Biostatistics, Global Mental Health and Program Evaluation at UVM

Led the Young Adults in Transition and Vermont Youth Treatment Enhancement Project evaluations.

Program Evaluator for statewide suicide prevention projects funded by CDC and US SAMHSA.

# OVERVIEW

Overview of recent suicide and self-harming trends

Increasing safety for intentional self-poisoning

Promoting firearm safe storage as a suicide prevention strategy

Role of healthcare providers in firearm safe storage counseling

Vermont educational modules

The SAFER project

Statewide safe storage efforts

Key take-home points

# SUICIDE TRENDS IN THE US

## Vital Statistics Rapid Release

Report No. 24 ■ September 2022

### Provisional Numbers and Rates of Suicide by Month and Demographic Characteristics: United States, 2021

Sally C. Curtin, M.A., Division of Vital Statistics; Matthew F. Garnett, M.P.H., Division of Analysis and Epidemiology; and Farida B. Ahmad, M.P.H., Division of Vital Statistics

#### Abstract

*Objectives*—This report presents provisional numbers of deaths due to suicide by month and demographic characteristics (age and sex) for 2021 and compares them with final numbers for 2020. Age-adjusted and age-specific suicide rates are presented by sex and compared with final 2020 rates.

*Methods*—Data are based on 99% of all 2021 death records received

rates increased for males aged 15–24, 25–34, 35–44, and 65–74. For females, all age-specific rates were statistically unchanged between 2020 and 2021.

**Keywords:** cause of death • intentional self-harm • COVID-19 • National Vital Statistics System

#### Introduction

Suicide is a major contributor to

typically require a death investigation, provisional suicide rates typically are computed using death data after a 6-month lag following date of death, which is longer than the 3-month lag used to compute rates for most other causes of death (3). For this report, 2021 data for all months had at least a 6-month lag except for December, which had a 5 ½-month lag based on the data cutoff. Particularly, the method of the suicide plays a role in the timing

47,646 deaths in 2021

4% overall increase 2021 compared to 2020

Very close to 2018 peak rates

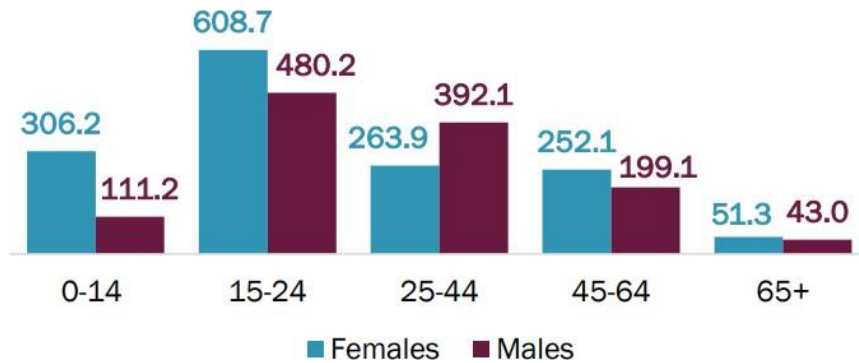
#### Changes:

- Males 18-24, 8% increase
- 3% increase in males overall
- 2% increase in females
- No decreases seen in any age group

# VERMONT DATA: SELF HARM

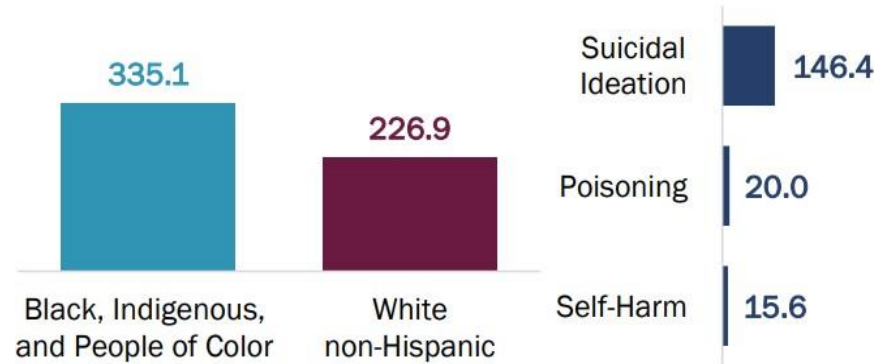
## ED visit rates for suicidal ideation and self-directed violence by sex and age group, through June 2022.

ED Visit Rates per 10,000 male and female ED visits



## Year to date rates by race and ethnicity, and discharge diagnosis.

Rates per 10,000 Visits



# INTENTIONAL SELF-POISONING

Ingestion or inhalation of a specified amount of substance associated with significant risk of self-harm

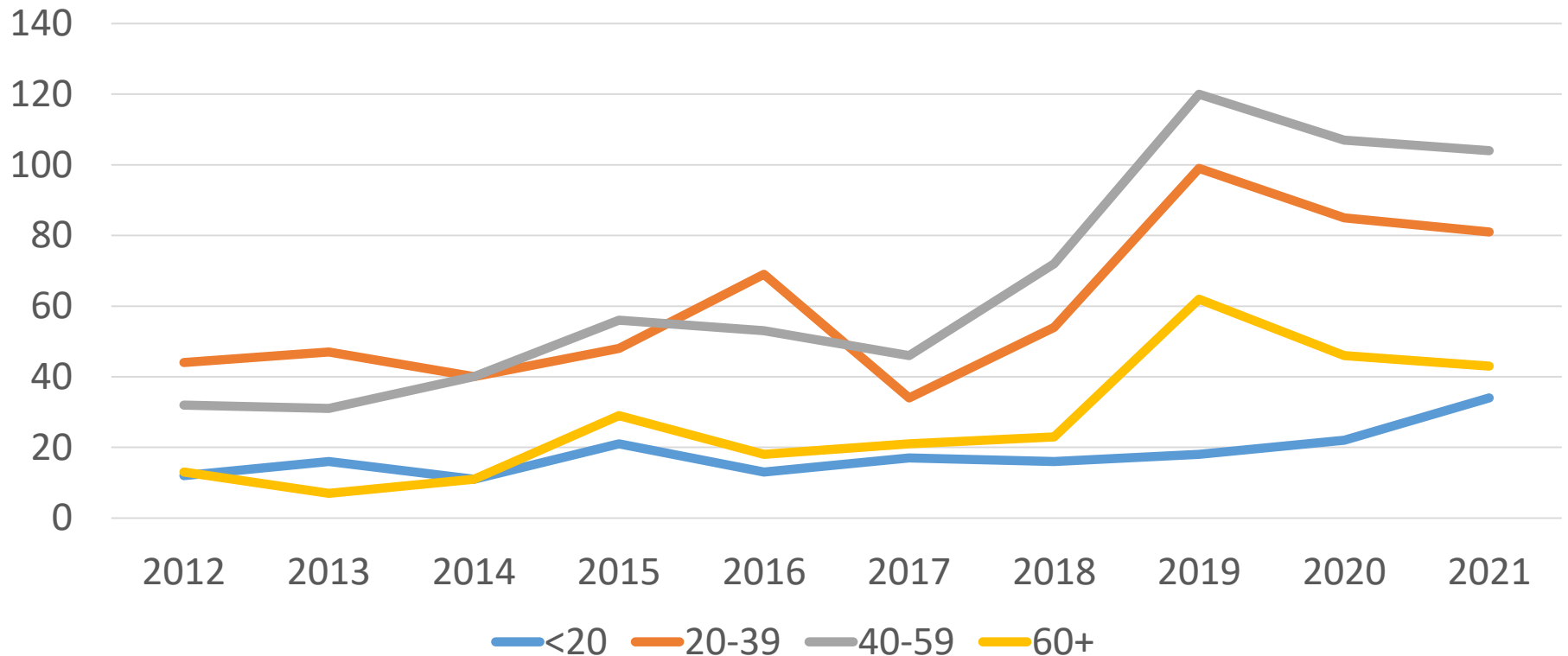
- Usually nonfatal in younger people; higher mortality at older ages
- Does not include people whose intent was to become intoxicated
- An “undercounted” phenomenon since many episodes do not end up as calls to poison centers or visits to medical facilities

Research suggests can be upstream of future suicide attempts and death:

- Individuals who engage in intentional self-harm, regardless of suicidal intent, have a 1.5x greater likelihood of dying by suicide
- 80% of young people who died by intentional self-poisoning had engaged in self-harming behaviors in the year prior to their death

# INTENTIONAL SELF-POISONING: TRENDS

NNEPC Self-Harm Cases  
Resulting in Life-Threatening Effects or Death  
Age Group by Year



# INTENTIONAL SELF-POISONING: OPPORTUNITIES

Supporting professionals (especially health care providers) to start asking about intentional self harming behaviors, including self-poisoning.

- Vast majority of primary care providers have had patients who engaged in self-harming behaviors, including suicide attempts.
- 80% of adolescents visited a healthcare provider within the year prior to death by suicide

But we know that many health care providers were not trained on identifying or treating self-harming behaviors, and may lack the necessary tools and training.



## ISP Prevention Toolkit

- Free, including no cost continuing educational credits
- Developed and reviewed by VT-based content experts
- Aimed at Health Care providers but applicable to other professions

## Other Strategies

- Distribution of free or low-cost medication lock boxes
- Targeted education for parents/caregivers on medication hazards



# Youth Self-Poisoning & Medication Safety Toolkit

for Vermont  
Health Care  
Providers



SAFE  
K:IDS  
VERMONT



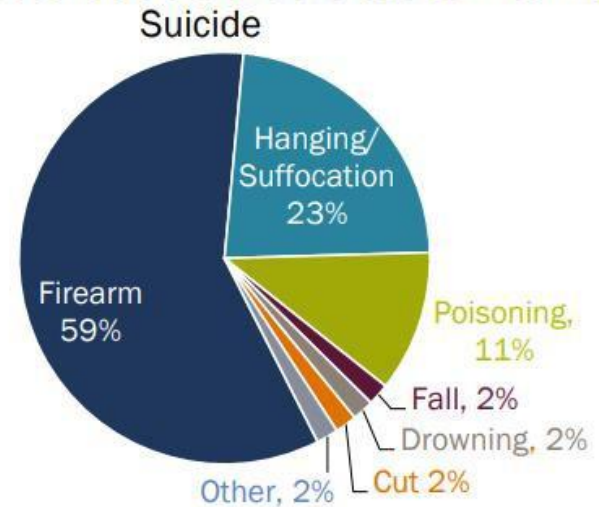
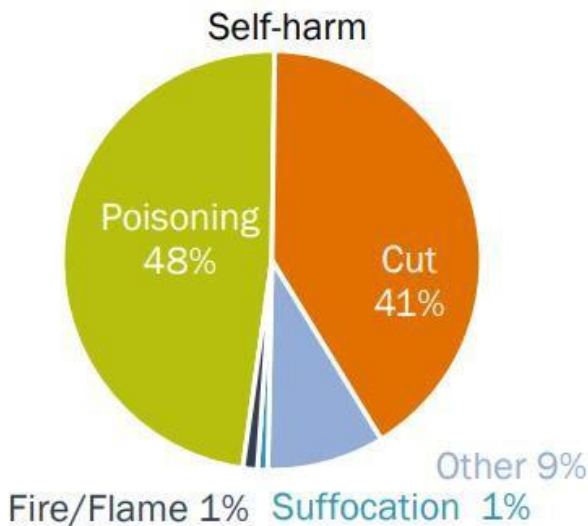
2022



Northern New England  
Poison Center

# SELF-HARM VS SUICIDE DEATHS IN VT

**Most hospital visits for self-harm are poisonings. Most suicide deaths are due to firearms.**

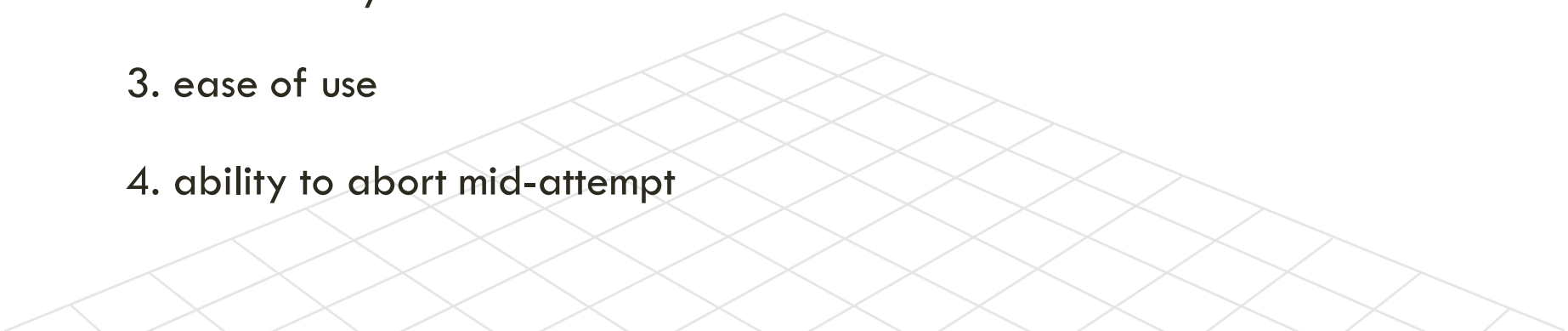


Source: Vermont Vital Statistics 2020, Vermont Uniform Hospital Discharge Data Set 2020

# LETHALITY — MEANS MATTER

The outcome of suicide death is most strongly predicated on the lethality of the method used – not on a history of depression or other mental illness.

Lethality of method is determined by:

1. inherent deadliness
  2. accessibility
  3. ease of use
  4. ability to abort mid-attempt
- 

# Characteristics of Impulsive Suicide Attempts and Attempters

Thomas R. Simon, PhD, Alan C. Swann, MD, Kenneth E. Powell, MD, MPH,  
Lloyd B. Potter, PhD, MPH, Marcie-jo Kresnow, MS,  
and Patrick W. O'Carroll, MD, MPH

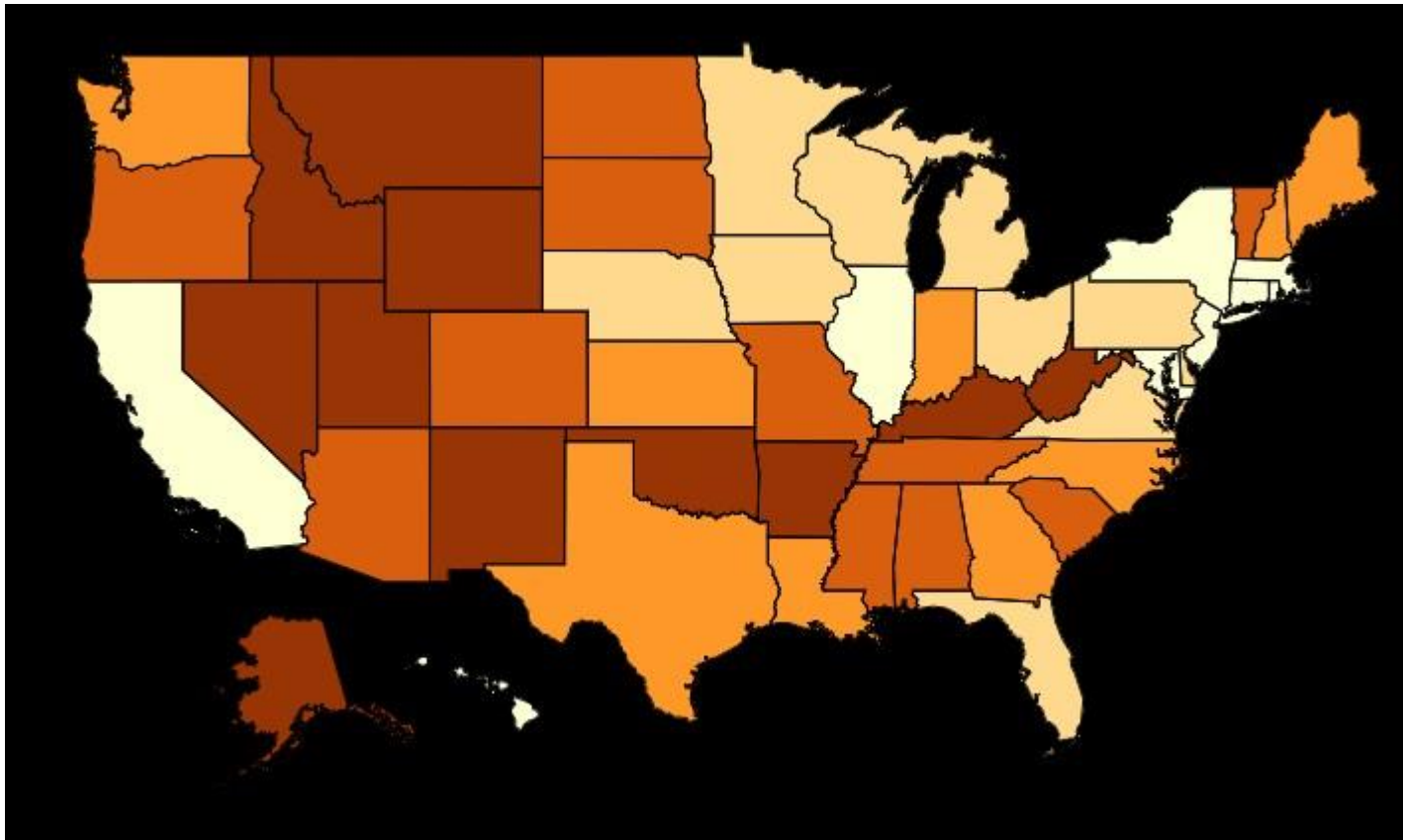
**S**uicide attempts often are impulsive, yet little is known about the characteristics of impulsive suicide. We examined impulsive suicide attempts within a population-based, case-control study of nearly lethal suicide attempts among people 13-34 years of age. Attempts were considered impulsive if the respondent reported spending less than 5 minutes between the decision to attempt suicide and the actual attempt. Among the 153 case-subjects, 24% attempted impulsively. Impulsive attempts were more likely among those who had been in a physical fight and less likely among those who were depressed. Relative to control subjects, male sex, fighting, and hopelessness distinguished impulsive cases but depression did not. Our findings suggest that inadequate control of aggressive impulses might be a greater indicator of risk for impulsive suicide attempts than depression.

## Survivors of near-lethal suicide attempt:

- 24% spent <5 mins between decision and attempt
- Impulsive attempts more likely to be violent
- Impulsive attempters less likely to be depressed

# FIREARM FATALITIES - SUICIDE

2010-2020, ALL AGES



Crude rate

Legend

1.4 to 5.3

5.3 to 7.3

7.3 to 9.2

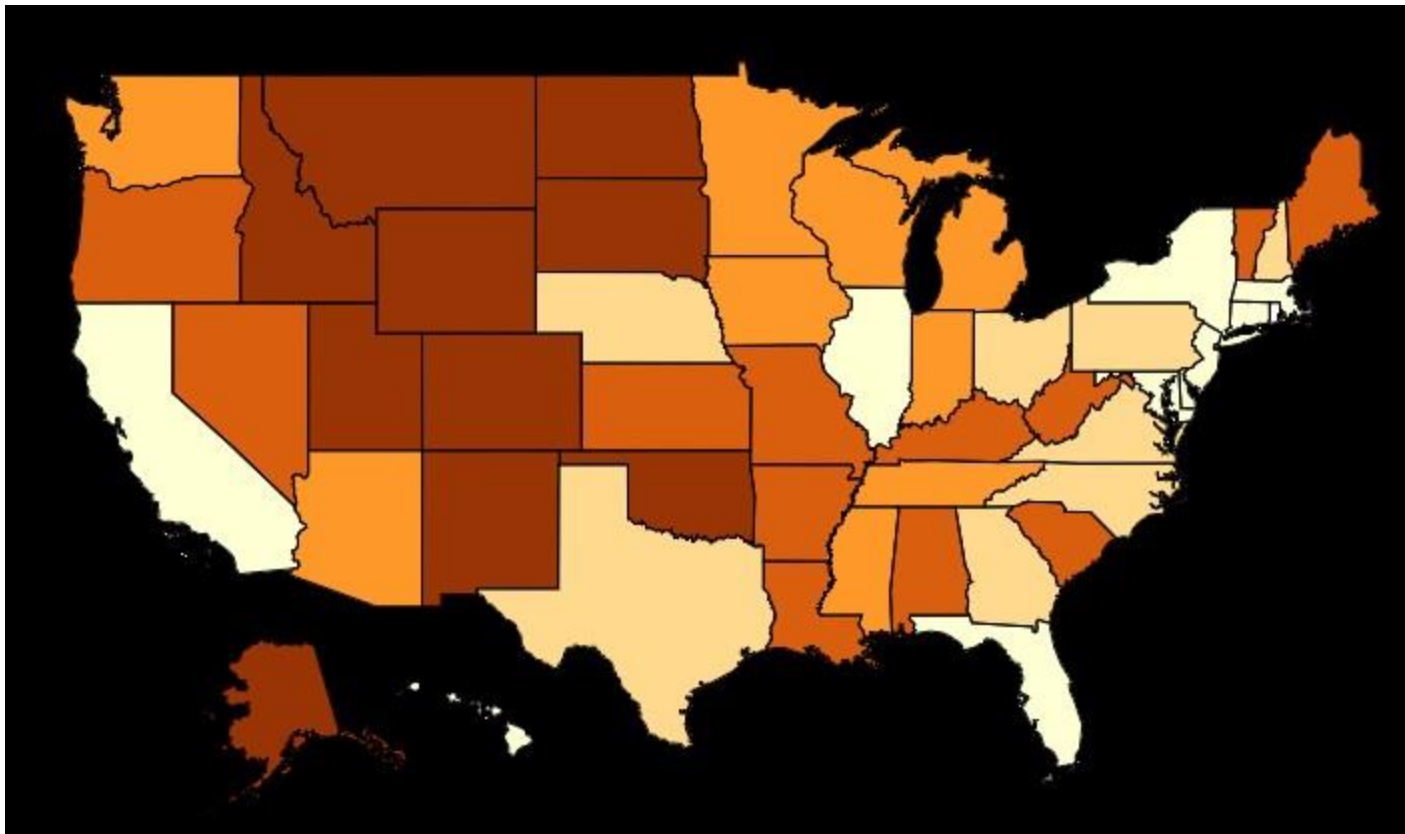
9.2 to 10.2

10.2 to 16.4

Suppressed Value

# YOUTH FIREARM FATALITIES - SUICIDE

2010-2020, 0-18 YEARS OLD



Crude rate

Legend

- 0.2 to 1.0
- 1.0 to 1.2
- 1.2 to 1.4
- 1.4 to 1.8
- 1.8 to 4.1
- Suppressed Value



## How do states compare?

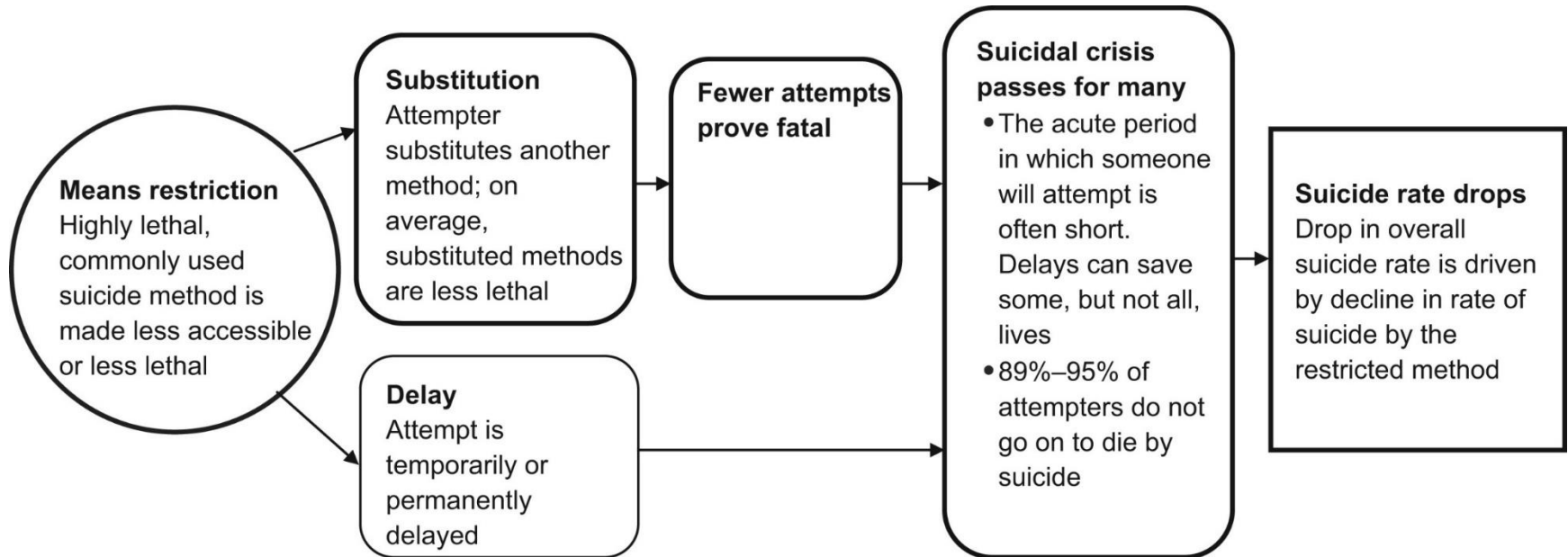
### Suicide in States with the Highest and Lowest Gun Ownership Levels, 2000-2002

	High-Gun States *	Low-Gun States **
Population	39 Million	40 Million
<b>% Of Adults With A Gun At Home</b>	<b>47%</b>	<b>15%</b>
<b>Male</b>		
Firearm Suicide	8,489	2,430
Non-Firearm Suicide	3,572	4,007
Total Suicide	12,061	6,437
<b>Female</b>		
Firearm Suicide	1,260	176
Non-Firearm Suicide	1,488	1,439
Total Suicide	2,748	1,615

\*WY, SD, AK, WV, MT, AR, MS, IO, ND, AL, KY, WI, LA, TN, UT

\*\* HI, MA, RI, NJ, CT, NY

# RATIONALE FOR MEANS RESTRICTION





# REDUCING FIREARM SUICIDES USING PUBLIC HEALTH STRATEGIES

- Data and research-informed approaches
- Involving firearm-owning communities
- Focus on prevention
- Public policy changes
- Focus on access
  - Delay, Distract, Dissuade
  - Promote safe storage: three key steps



**Store **unloaded** firearms in a **locked** location inaccessible to children and unauthorized users, such as a safe.**



**Lock firearms with a device that requires a key or combination to access or fire it.**



**Store ammunition in a **locked** location **separate** from firearms.**

## Gun Storage Practices and Risk of Youth Suicide and Unintentional Firearm Injuries

*JAMA.* 2005;293(6):707-714.

David C. Grossman, MD, MPH

Beth A. Mueller, DrPH

Christine Riedy, PhD, MPH

M. Denise Dowd, MD, MPH

Andres Villaveces, MD, PhD

Janice Prodzinski, BA

Jon Nakagawara, MHA

John Howard, MD

Norman Thiersch, MD

Richard Harruff, MD

Case-control study

Cases: incident where child/adolescent <20yo shot a firearm intentionally or unintentionally injuring self or others

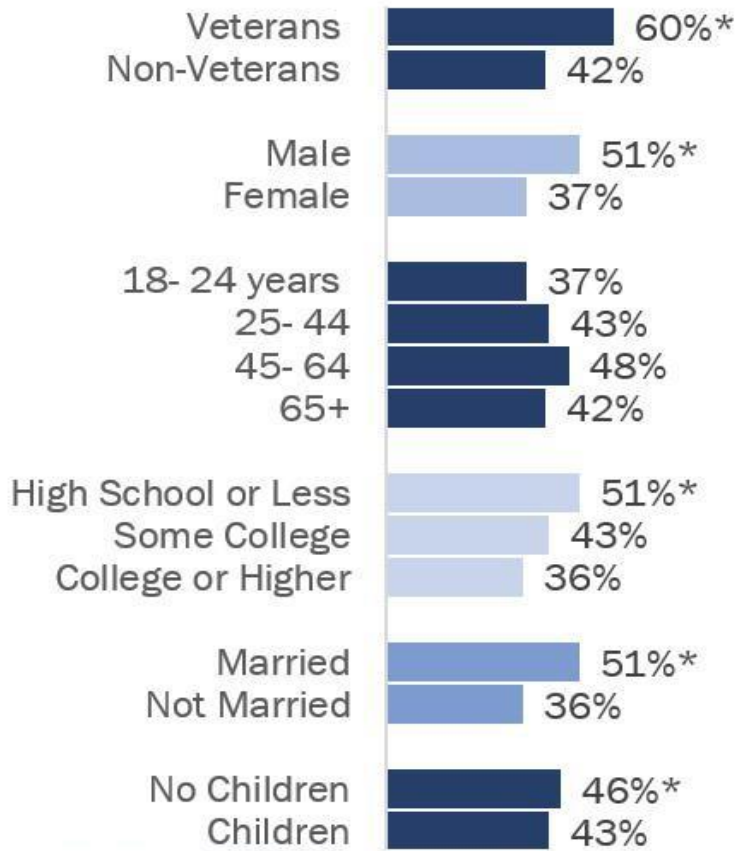
Controls: homes with children and firearms without shooting incident

Conclusion: 4 methods of storage each had protective plus additive safety effect:

- Storing gun locked
- Storing gun unloaded
- Storing ammunition locked
- Storing ammunition in separate location

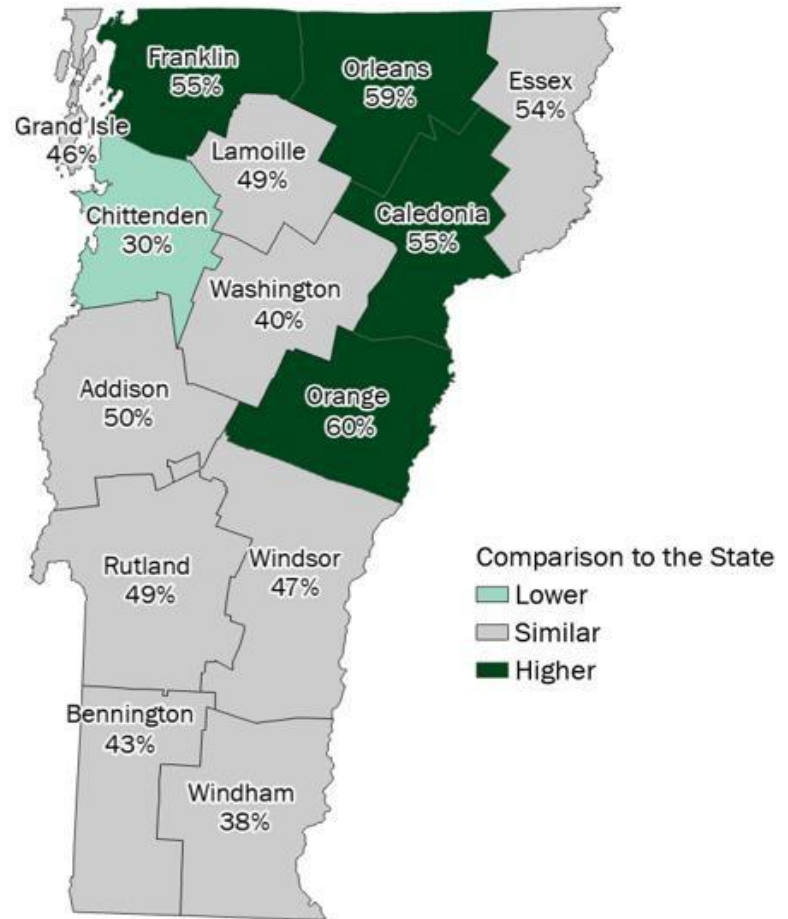
# VT BRFSS DATA: FIREARMS IN THE HOME

## Prevalence of Firearms in or around the Home



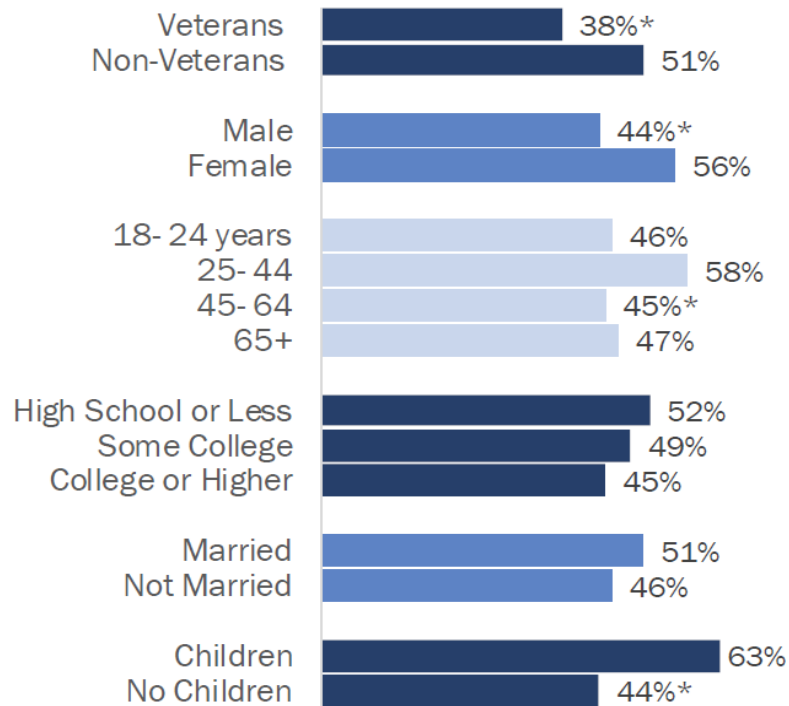
\*notes a statistical difference

Source: (left) BRFSS, 2020; (right) BRFSS 2018-2020



# VT BRFSS DATA: SAFE STORAGE PRACTICES

## Prevalence of Households with Firearms that Store them Locked and Unloaded.



\*Notes a statistical difference

Source: BRFSS, 2020

## Key Points from 2018 and 2020 BRFSS:

- Only half (49%) of VT households with firearms store them locked and unloaded.
- Safe storage is less common in specific groups

# FIREARMS & SUICIDE

Across all methods used, 90% of people who survive near-lethal suicide attempts do not go on to die by suicide

Those who attempt suicide with firearms (compared to other methods):

- Almost always die
- More likely to have made the attempt impulsively
- Are less likely to have a history of depression
- Less likely to have made prior suicide attempts

Important to screen for accessibility to firearms among all patients/clients – even if not exhibiting suicidal ideation

Young people who use firearms in a suicide are often experiencing a crisis, and these are often transient.



## Firearm Storage Safety 2018 Behavioral Risk Factor Surveillance System

December 2019

**On average, in Vermont,  
firearms cause:**

**39**

**ED Visits and  
Hospitalizations, and**

**74**

**Deaths** each year.

# ROLE OF PROVIDER IN FIREARM SAFE STORAGE SCREENING AND COUNSELING

Healthcare providers are in a strong position to support families around safely storing firearms.

- Typically see children at least annually
- Conducting safety screenings already
- Evidence for the effectiveness of firearm safe storage interventions
- But, screening and counseling are not occurring as often as they could

Reasonable to expect that similar screening and counseling efforts by non-physician providers will also provide a benefit

# ROLE OF PROVIDER: POSSIBLE BARRIERS

## Barriers to effective screening and counseling:

- Lack of provider knowledge/confidence regarding firearm safe storage
- Not knowing an effective approach to starting the conversation
- Not wanting to alienate patients/clients

Promising solution: Self-directed e-learning modules on firearm safe storage





# Vermont Child Health Improvement Program

## Provider Counseling on Firearm Safe Storage



# UNIQUE COMPONENTS OF LEARNING TOOL

Short

Concisely reviews firearm safe storage options

Focuses on “How” to counsel rather than “Why”

Demonstrations of scripts with unique components:

“How are firearms stored in and around the home?”

- Presumes firearms present
- Open-ended question to facilitate discussion
- No active recording of response

Discuss prevention of theft as motivator for safe storage

Encourages families without firearms to ask about unsecured firearms where their kids play

# FIREARM STORAGE OPTIONS




To prevent avoidable injury and to protect our families and children, firearm safety must be a priority. You can help to ensure that firearms do not get into the wrong hands by using proper firearm storage in your household. The 5 most common storage solutions available are listed here for your review.

## CABLE LOCK

PRICE RANGE | \$10-\$20



A cable runs through the barrel or action of a firearm to prevent it from being accidentally fired, requiring either a key or combination to unlock it.

 Long cables may be threaded through several guns; inexpensive.


 Thin cables could be cut.


## TRIGGER LOCK

PRICE RANGE | \$5-\$35



A trigger lock is a two-piece lock that fits over the trigger guard so that the trigger cannot be pulled. A push-button keypad, combination, or key will open the lock.

 Inexpensive; widely available; quick access (keypad models).

 Some models will not prevent access by older children or teens; may not prevent theft, as some locks may be removed later; may break easily.

## LOCK BOX

PRICE RANGE | \$40-\$200+



A lock box is a small safe designed to store a handgun and other valuables. Using a key, a push-button, or a combination unlocks the safe. Electronic lock boxes are also available and allow access through a digital keypad or fingerprint.

**+** Quick access if the lock is push-button or digital; difficult to steal if permanently mounted; may allow storage for more than one handgun; keeps gun out of sight.

**-** Costs more than trigger locks or chamber locks.

## GUN VAULT / SAFE

PRICE RANGE | \$100-\$2,000



A gun vault or safe allows for the safe storage of multiple firearms in one place. Safes come in a variety of sizes designed to store long guns, handguns, or other valuables. Access is gained through a push-button, combination, or digital key pad.

**+** Allows storage of numerous long guns and handguns; difficult to steal; allows storage of other personal items; Usually fire resistant; keeps valuables out of sight.

**-** Costs more than chamber locks or lock boxes; heavy and difficult to move.

## PERSONALIZED LOCK

PRICE RANGE | \$200+



Gun makers or owners can install a permanent safety device on their gun. These types of special locks vary. Some locks may be a built-in key or combination lock, while others are specially designed with a magnetic or electronic lock that only the owner can fire while wearing a special ring or bracelet. Some personalized locks use fingerprint recognition technology.

**+** The safety device is permanently attached to the gun.

**-** Custom addition to a gun and often expensive.

# Firearm Storage

Storing firearms responsibly saves lives



THE  
University of Vermont  
MEDICAL CENTER



**Vermont's rate of suicide among adults and youth is higher than the national average.**

Storing firearms unloaded and locked with the ammunition locked and stored separately decreases the risk of firearm injury and death



## HOME STORAGE

### CABLE LOCK

Price: \$

Works with most firearms. The cable runs through the barrel or action of the firearm preventing it from being fired. Can be combination or key style.

### TRIGGER LOCK

Price: \$

Is a two-piece lock that fits over the trigger guard. It can be push-button, combination, or key style.

### GUN CASE

Price: \$

Comes in a variety of materials, like plastic, fabric, or metal. Not all gun cases come with a lock, but you can purchase one to use with it.

### LOCK BOX

Price: \$\$

Has a built in lock. The style of lock can be manual like a key or combination, or electric with a code or biometric scan.

### GUN SAFE

Price: \$\$\$

Can store multiple firearms and other valuables in your home. They can have a single lock or dual locks, and be bolted to the floor for extra security.

## BENEFITS OF SAFE STORAGE

- **Prevent Damage** Like any personal belonging, it's important to keep your firearms in good shape. Properly stored firearms are protected from damage during transportation and even from some disasters like fires.
- **Protect against Theft** Between 200,000 to 500,000 firearms are stolen each year in the US. Most are stolen from private owners. Safe storage lowers your risk of firearm theft.
- **Keep your Family Safe** Whether from intentional or unintentional discharge, safe storage protects the lives and wellbeing of everyone in your family.

Did you know? 4 out of 10 Vermont homes with children have firearms.

## MORE TIPS

- Store firearms unloaded and locked with the ammunition locked and stored separately.
- Adults are responsible for proper storage and handling of firearms.
- Store firearms behind a lock and keep the key location or access code a secret.
- Youth should never have unsupervised access to firearms, even if they have experience with firearms
- Teach children to inform an adult if an unsecured firearm is found at home, a friend's house, or anywhere.

## ON THE GO AND MORE

### VEHICLE CONSOLE STORAGE

Price: \$\$

A custom-fitted device that conceals and stores your firearm in your vehicle, compatible with most vehicle consoles, including motorcycles.

### VEHICLE CARGO AREA STORAGE

Price: \$\$\$

Available for a variety of vehicles like sedans, SUVs, and trucks and provides secure storage and transportation of multiple firearms.



### ELECTRONIC HOLSTERS

Price: \$\$\$

A form of secure storage that can be mounted or worn that uses finger or biometric scans to allow for quick access.

### WIRELESS GUN SAFE MONITOR

Price: \$\$

Can let you know when someone opens or attempts to open your safe. Some models are Wi-Fi enabled with push alerts and can monitor humidity and temperature.

# CALM and Safer Online Courses

ONLINE COURSE

**CALM for Pediatric Providers: Counseling on Access to Lethal Means to Prevent Youth Suicide**

**PediaLink**  
The AAP Online Learning Center



**CALM for Pediatric Providers: Counseling on Access to Lethal Means to Prevent Youth Suicide**

MOC

**AVAILABLE:**  
07/28/2022 - 07/27/2025

[DESCRIPTION & LEARNING OBJECTIVES](#) | [CREDIT INFORMATION](#) |  
[COURSE DETAILS](#) | [TECHNICAL REQUIREMENTS](#)

FORMAT:

Online Course

ONLINE COURSE

**Safer:  
Storing Firearms  
Prevents Harm**

**PediaLink**  
The AAP Online Learning Center



[AAPEXPERIENCE.ORG](https://www.aapexperience.org) | [#AAP2022](https://twitter.com/AAP2022)

**AAP**  
experience

# Safer: Storing Firearms Prevents Harm

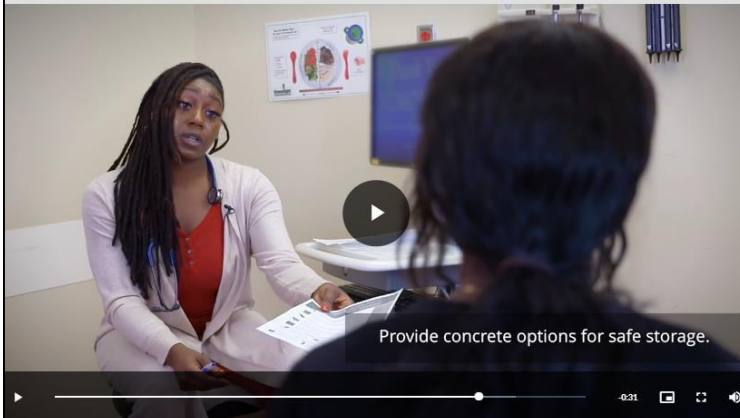


A Steering Committee of firearm injury prevention experts, firearm owners, and patient families created the *Safer* platform which launched in June 2021

*Safer* is an online, interactive training platform developed for pediatric providers to gain evidence-based knowledge of universal firearm safety screening and learn skills to engage families in firearm safety counseling

Let's take a look at a clinical counseling scenario "Range of Solutions".

In this video, you will see a discussion about firearm safe storage, and a response to family context and questions about storage devices.

A video player showing a clinical counseling scenario. A healthcare provider in a white coat is sitting at a desk, talking to a patient whose back is to the camera. The provider is holding a document and pointing to it. A play button is overlaid on the video. The video player has a progress bar and a volume icon.

Provide concrete options for safe storage.

Counseling Tips

1. Ask questions to understand the patient's perspective.
2. Encourage the patient to ask questions.





If we apply the Good/Better/Best framework, we can work with families to improve storage habits through small harm reduction steps, rather than suggesting drastic changes that the family might not be ready to implement.

Photo supplied by AAP Media, & Public Relations

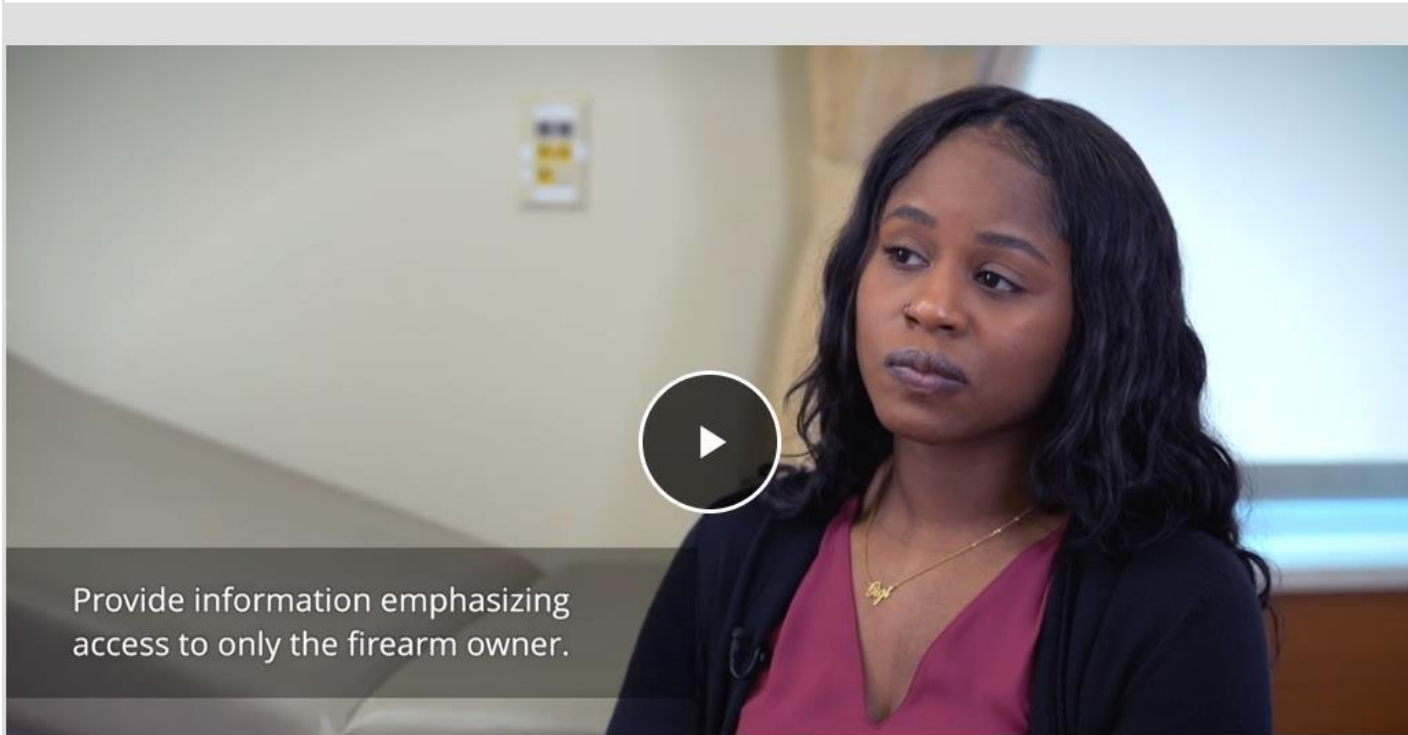
**What may be good, better, or best varies based on each family's situation.**

If locked+unloaded+ammunition stored separately is too daunting for a family that is concerned about personal protection, just taking the step to store their firearms in a lock box, even if they are loaded, is a safer situation than leaving the firearms unlocked and loaded.



## Let's take a look at a clinical counseling scenario "From Secret to Safer".

In this video, you will see a family with firearms who are less interested in a conversation about firearm safer storage. The provider demonstrates how to apply a good, better, best approach.



Provide information emphasizing  
access to only the firearm owner.



## Teens + Hunting Rifle

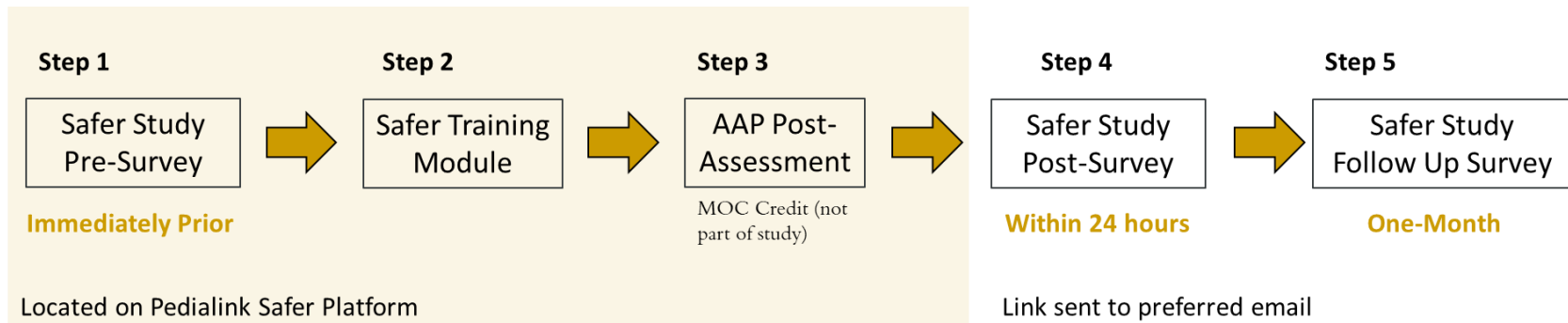
A provider has a two-part conversation with a teen who has a new hunting rifle and his guardian about safe storage. (Teens)



Involve the patient and family  
in finding a solution.

# Methods: Design & Population

Brief surveys were offered as an optional component to those accessing *Safer* from February to June 2022



# Methods: Primary Outcomes

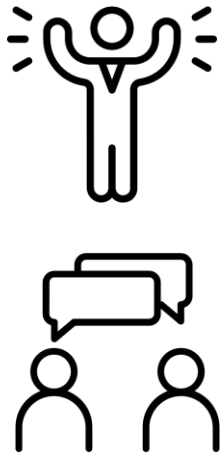
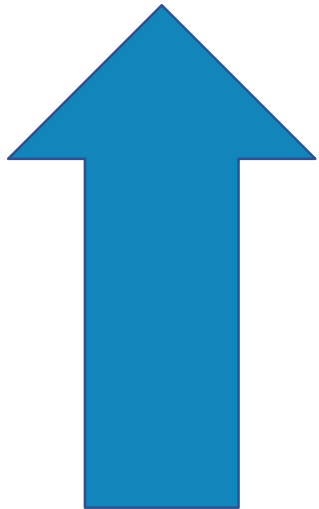


Firearm safe storage  
counseling self-efficacy



Firearm safe storage  
counseling frequency

# Conclusion



I really enjoyed watching the videos as practitioners modeled the different ways to discuss gun storage and safety. **I plan to begin to cover gun storage and safety in my practice.** It is hard to have the time to do everything!!!

Safer training was concise and informative. I'm ten years out of residency so I never saw videos of firearm counseling. **I feel more confident** about approaching families and educating them about firearm safety in the exam room.

# UVM HEALTH NETWORK SUICIDE CARE PATHWAY PROJECT

Currently underway - Development of a suicide care pathway within Electronic Medical Record system that includes:

- screening tools
- risk assessment and stratification
- referral prompts and pathways

Across patient care settings beginning with ED and inpatient settings

Includes all clinical sites in the UVM Health Network

Assessment of utilization and outcomes

# GunSafeVT.org

Coming soon!



## Sponsored by

U.S. Attorney's Office for the District of Vermont

UVM Medical Center

Bureau of Alcohol, Tobacco, Firearms and Explosives

Vermont State Police

Vermont Attorney General's Office

Vermont Sheriff's Association

Vermont Department of Fish and Wildlife

Vermont's Office of the Director of Violence Prevention





## Keep Your Guns Safe, Keep Your People Safe

### Radio and TV Public Service Announcements

#### Safe storage of firearms

- Unloaded, locked, away from ammunition

Free gun lock locations throughout VT

If concerned for crisis – keep guns stored  
outside of the home



*Keep your guns safe. Keep your people safe*

**FIND TEMPORARY SAFE STORAGE SITES  
OUTSIDE OF YOUR HOME**

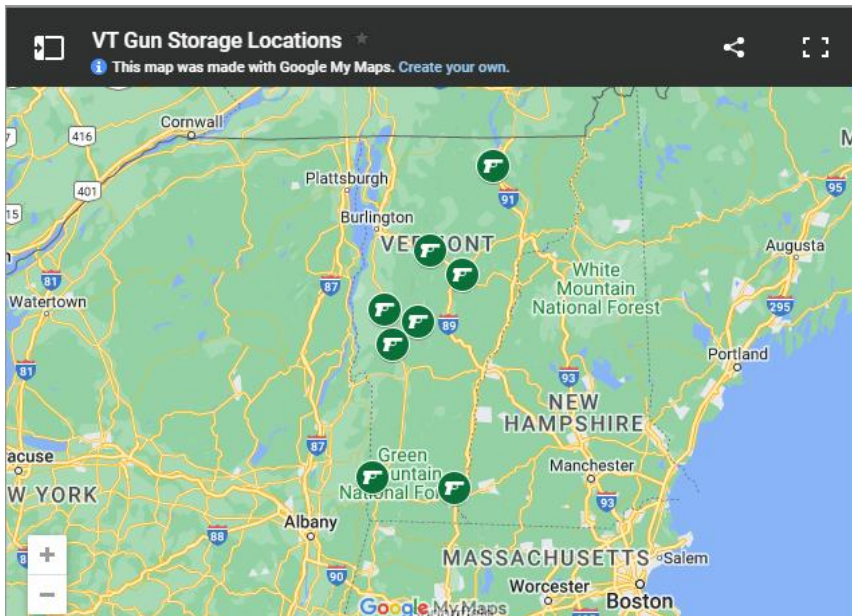
**GUNSAFEVT.ORG**



## Firearms Storage Program

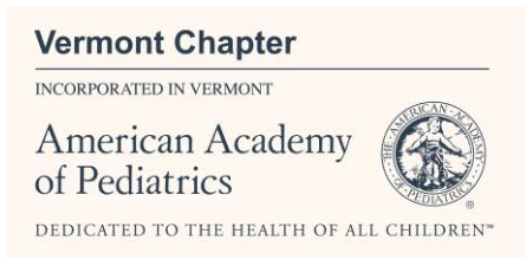
### Why do gun owners sometimes store firearms away from the home?

- Someone in the home is experiencing mental health or substance use concerns.
- A teenager in the home is in crisis and at risk for suicide.
- They are travelling out of state and want to keep firearms secure while they are away.
- Grandchildren or young children are visiting.
- There is a history of domestic violence or threats of domestic violence or self-harm.
- The homeowner is listing the home for sale and wants firearms to be secure while showings occur.



Site also includes info and links on:

- Relief from abuse orders
- Extreme Risk Protection Orders



Vermont Medical Professionals support policy to augment our efforts to keep Vermonters safe from firearm injury and death including:

- Safe Storage/Child Access Prevention Laws
- Waiting period to purchase firearms



# VT Suicide Prevention Center

988 funding

Additional DMH funding to expand Zero Suicide

Creation of Suicide Fatality Review Board

Peer respite system

School-based initiatives

# KEY TAKE-AWAY POINTS

Vermont suicide death rates are consistently higher than the U.S. average in recent years

Intentional Self-Poisoning is increasing in Vermont, especially youth and females

Firearms are used in the majority of suicide deaths in Vermont

Impulsivity is a major factor in firearm suicide deaths

- keeping people safe during temporary crises can save lives

Safe storage of firearms is a key aspect of reducing firearm suicide risk

- only half of VT firearm owners store firearms locked and unloaded

Multiple learning modules now available for health care providers and others on firearm safe storage counseling

Interdisciplinary efforts underway to promote safe storage, distribute free gun locks, make storage available outside the home, educate public about relief from abuse and ERPO procedures