Objectives:

Review the epidemiology of firearm suicide

Illustrate the importance of lethal means access in suicide risk

Discuss the value of counseling patients on firearm access

(Bonus Objective) Forcing the issue: Extreme Risk Protection Orders

Disclosures: None
## Leading Causes of Death in US, by Age Group

<table>
<thead>
<tr>
<th>Rank</th>
<th>10-14 years</th>
<th>15-19 years</th>
<th>20-29 years</th>
<th>30-39 years</th>
<th>40-49 years</th>
<th>50-59 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Malignant Neoplasms</td>
</tr>
<tr>
<td>2</td>
<td><strong>Suicide</strong></td>
<td><strong>Suicide</strong></td>
<td><strong>Suicide</strong></td>
<td><strong>Suicide</strong></td>
<td>Malignant Neoplasms</td>
<td>Heart Disease</td>
</tr>
<tr>
<td>3</td>
<td>Malignant Neoplasms</td>
<td>Homicide</td>
<td>Homicide</td>
<td>Malignant Neoplasms</td>
<td>Heart Disease</td>
<td>Unintentional Injuries</td>
</tr>
<tr>
<td>4</td>
<td>Congenital Malformations</td>
<td>Malignant Neoplasms</td>
<td>Malignant Neoplasms</td>
<td>Heart Disease</td>
<td><strong>Suicide</strong></td>
<td>Liver Disease</td>
</tr>
<tr>
<td>5</td>
<td>Homicide</td>
<td>Heart Disease</td>
<td>Heart Disease</td>
<td>Homicide</td>
<td>Liver Disease</td>
<td>Chronic Lower Respiratory Ds</td>
</tr>
<tr>
<td>6</td>
<td>Heart Disease</td>
<td>Congenital Malformations</td>
<td>Diabetes Mellitus</td>
<td>Liver Disease</td>
<td>Diabetes Mellitus</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>7</td>
<td>Chronic Lower Respiratory Ds</td>
<td>Chronic Lower Respiratory Ds</td>
<td>Congenital Malformations</td>
<td>Diabetes Mellitus</td>
<td>Cerebro-Vascular</td>
<td><strong>Suicide</strong></td>
</tr>
<tr>
<td>8</td>
<td>Cerebro-Vascular</td>
<td>Cerebro-Vascular</td>
<td>Complicated pregnancy</td>
<td>Cerebro-Vascular</td>
<td>Homicide</td>
<td>Cerebro-Vascular</td>
</tr>
</tbody>
</table>

### 2018:
- **48,344 Suicides**
- **16,214 Homicides**

Suicide is the Overall 10th Leading Cause of Death in US

2nd most common cause of death for Young Americans
Suicide Deaths are Common and Increasing

**Annual US Suicide Rate:**

14.2 per 100K (2018)

Rates have been climbing throughout the 21st century.
Suicide is a **Behavior**

It is a choice which emerges from a variety of environmental and personal factors

- Some chronic, some acute
- Some **fixed**, some **modifiable**

Many important factors are immutable

- Family history of suicide
- Male sex, white race
- Terminal illness, etc.

Other important factors can be addressed

- Social isolation, Poverty
- **Access to lethal means**
- Mental Illness
  - Psychiatric disorders are among the most **significant** modifiable risk factors
Completed suicides are predominantly male (78%)

Caucasians complete suicide at almost triple the rate of African Americans

Rate peaks around age 50 and ages 80+
  - African Americans & AI/AN peak suicide rate at age 20
Suicide rates by state -- United States, 2001-2018

Paul Nestadt, MD
Johns Hopkins School of Medicine
Suicide rates by county -- Maryland, 1999-2016
Baltimore Suicides, by location and rate, 2003-2017
Suicide Attempts in the United States

Despite the suicide death rate being so high, it's still much smaller than the suicide attempt rate.

<table>
<thead>
<tr>
<th>In Past Year:</th>
<th>High Schoolers</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seriously Considered</td>
<td>17.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Made Plan</td>
<td>13.6%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Attempted</td>
<td>7.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Required Medical Attention</td>
<td>2.4%</td>
<td>---</td>
</tr>
<tr>
<td>Completed</td>
<td>0.008%</td>
<td>0.014%</td>
</tr>
</tbody>
</table>

Suicide Attempts in the United States

- Estimated **1.4M adults attempt suicide annually**
- About **0.5M adults** are admitted to the hospital for suicide attempts each year
- About **48,000 die** by suicide each year

- **Females** have higher suicide attempt rate
- **Males** have 3.5x the suicide death rate
- **Why?**
  - **Clue:** difference shrinks in physicians

Source: AFSP, CDC, and National Survey of Drug Use and Mental Health (2016)
With all of these attempts, how do so many survive?

- In general, suicide attempts have a relatively low fatality rate
- If a firearm is used in a suicide attempt, it will usually be fatal
- Men tend to use guns, as opposed to women who tend to overdose

<table>
<thead>
<tr>
<th>Method (2001)</th>
<th>Fatal</th>
<th>Nonfatal</th>
<th>% Fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firearm</td>
<td>16,869</td>
<td>2,980</td>
<td>85%</td>
</tr>
<tr>
<td>Suffocation</td>
<td>6,198</td>
<td>2,761</td>
<td>69%</td>
</tr>
<tr>
<td>Poisoning/OD</td>
<td>5,191</td>
<td>215,814</td>
<td>2%</td>
</tr>
<tr>
<td>Fall</td>
<td>651</td>
<td>1434</td>
<td>31%</td>
</tr>
<tr>
<td>Cut/pierce</td>
<td>458</td>
<td>62,817</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>1,109</td>
<td>35,089</td>
<td>3%</td>
</tr>
<tr>
<td>Unspecified</td>
<td>146</td>
<td>2097</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30,622</strong></td>
<td><strong>322,991</strong></td>
<td><strong>9%</strong></td>
</tr>
</tbody>
</table>

Vyrostek et al, 2001
Suicide Methods in The United States

5-6% of suicide attempts use guns. Those become half of all suicide deaths.

63% of firearm deaths are suicides. Only 33% are homicides.
Pathway and Key Risk Factors for Self Harm and Suicide

Hawton, 2012
The Choice of Method is a Consequence of Method Availability
Suicide Is A Powerful, But Brief Impulse

Simon (2001) interviewed 153 young high lethality suicide attempters and found that fully 87% of them had only decided to make the attempt within 24 hours of the attempt; and most had decided within the hour.

If a lethal method of suicide isn’t readily available, the impulse can pass and help can be sought.
Who uses a gun for suicide?

People who own guns.

CDC - WISQARS

NATIONAL MAP OF FIREARM SUICIDE RATES BY STATE - 2010
More Gun Access Has Repeatedly Been Shown To Increase Suicide

- **Individuals** with access to a firearm have 3.2x the risk of suicide (Anglemyer, 2014)

- **Areas** with more guns have 50% higher suicide rates (Miller, 2015)
  - 90% higher rates in kids
  - Higher ratios in kids: fewer readily available methods, requiring transport

- In urban counties, there is a 1% increase in suicides for each additional gun shop (Steelesmith, 2019)

- Soldiers who kept a loaded gun at home or carry off-duty have 4x odds of suicide (Dempsey 2019)
Knopov et al (2019) compared each state’s household gun ownership proportion to its youth suicide rate (age 10-19), controlling for other risk factors and youth suicide attempts.

In the multivariate model, they found for a 10% increase in household gun ownership, the youth suicide rate increased by 27%.
The Inevitability of Suicide (Substitution of Means?)

If we remove a lethal method, will attempters just find another way?

• Miller (2006) found that 74% of Americans surveyed believed that all or most GG Bridge jumpers would have found another way to complete suicide, if thwarted
  • Gun ownership and smoking were greatest predictors of this belief

• Betz (2010) found that among ED physicians and nurses, 54% believed similarly that if a firearm suicide decedent hadn’t had a gun, most or all of them would have just completed another way

Is this true?

• Seiden (1978) checked on 515 GG Bridge jumpers who were restrained/saved during an attempt and found that over a median f/u period of 26 years, only 4.9% of them ended up completing suicide (usually very soon after the failed attempt)

• Similarly, O’Donnell (1994) found that only 9.6% of the 94 attempters who miraculously survived jumping in front of a London Tube train reattempted and died over a 10 year f/u period
What happens when a popular, lethal, convenient method of suicide is removed?

- In the UK, coal gas in ovens were high in Carbon Monoxide (CO) and was a top method of suicide
- Throughout the 60’s and 70’s, CO content in ovens were reduced
- Both CO suicides AND total suicides decreased concurrently (no replacement methods)
Other Examples of Restricting Access to Lethal Means

- The most common suicide method in Sri Lanka was ingesting pesticides, because they were always available and some of them were terribly lethal.
- When the most lethal class of pesticides were banned in 1995, the suicide rate was cut almost in half.
- Similarly, when regulations forced pharmacies to pack paracetamol in blister packages, reducing access, UK poisoning suicides dropped by 22%.
- When Israeli soldiers were forbidden from storing their guns at home on weekends, their suicide rates fell 40%.
  - 70% drop in weekend rates, no change in weekday rates.

Vyrostek et al, 2001
Paul Nestadt, MD
Johns Hopkins School of Medicine
Regulations Which Reduce Gun Access Are Effective

► When DC began requiring gun licensing in 1976, firearm suicides dropped 23%, with no replacement (Loftin et al. 1991)

► Webster et al. (2004) found that child access prevention laws, requiring safe storage of firearms, decreased suicide rates among 14-17 year-olds by 8.3%

► Anestis & Anestis (2015) found that state laws that required guns to be stored locked, background checks, and restrictions to open carry all individually decreased suicide rates.

► Kaufman et al. (2018) used a composite score to rate the stringency of firearm regulations for each state. They found that the total suicide rate was decreased by 20% in states with more gun laws, such as dealer regulation, background checks for private sales, permit to purchase, junk gun regs, reporting requirements, and restrictions in number of firearms sold at a time.
In 1995, Connecticut enacted “Permit-to-Purchase” gun laws, increasing the wait time needed for a purchase and screening out certain ineligible individuals.

- **CT firearm suicide rates dropped by 15%,** relative to similar states without the law, with no increase in suicide by other means (total decrease)
- Gun homicides also decreased by 40%

In 2007, Missouri repealed their own “Permit-to-Purchase” gun laws.

- **MS firearm suicide rates increased by 16%,** with only a 4% increase in non-firearm suicides
- Gun homicides increased by 23%

Crifasi et al, 2015
Maryland as Laboratory

‘America in Miniature’

Unparalleled Statewide Medical Examiner System

Representative Urban-Rural Spectrum

Relatively Uniform Access to Care

Partnerships for Psych Autopsies

Balanced Firearm Policies
The Maryland Sample: Medical Examiner Determined

Maryland was first statewide ME system (1939)
- Systematized, protocol-driven diagnostic organization
- Post Mortem Board
  - Clear manner of death determinations
- No use of Coroners
- Autopsy and Toxicology on all decedents
- Dr. David Fowler
  - CME since 2002
  - Recent President of National Association of Medical Examiners
Rural Suicide

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Johns Hopkins School of Medicine
Rural Suicide Rates are Higher and Rising Faster than Urban Rates

Rural Rate: **19.7** per 100K

Central Urban: **12.7** per 100K

Ivey-Stephenson et al. (2017)
Urban-Rural Differences: Many Hypotheses

- Less access to MH services
- More social isolation
- Culture of stigma
- Economic disparities
- Prevalence of Firearms
Maryland Firearm and Non-Firearm Suicide Rates by Urbanicity

**6,196 Suicides**
(2003-2015)

2,947

3,249

Paul Nestadt, MD
Johns Hopkins School of Medicine

- **Total Suicides**
  - Urban (Metropolitan) Areas: 10.00
  - Rural (Non-Metro) Areas: 13.14

- **Firearm Suicides**
  - Urban (Metropolitan) Areas: 4.71
  - Rural (Non-Metro) Areas: 7.96

- **Non-Firearm Suicides**
  - Urban (Metropolitan) Areas: 5.29
  - Rural (Non-Metro) Areas: 5.18
Percent Increase in Suicide Rates In Rural vs. Most Urban Counties
(Taken from Incidence Rate Ratios)

Paul Nestadt, MD
Johns Hopkins School of Medicine
Percent Increase in Suicide Rates In Rural vs. Most Urban Counties
(Stratified by Sex, adjusted for Race and Age)

Paul Nestadt, MD
Johns Hopkins School of Medicine
Conclusions

- Higher suicide rates in rural areas are limited to firearm suicides and do not exist for non-firearm suicides
- Is this due to availability of firearms? Current county level firearm prevalence data is unavailable in MD, but studies have shown more firearms in rural areas
- Social factors, such as stigma, are not needed to explain the rate difference, as the difference vanishes after removing the firearm factor
Conclusions, con’t

- The **rural predominance of suicide**, and particularly firearm suicide, is much more pronounced in **men**

- **Female** suicide rates are **higher in urban settings**, regardless of means
  - Possibly the male preference for firearms drives this interaction

- **Suicide attempt rate data** for these counties would be helpful but is by its nature somewhat **unreliable** even when available
Long Guns

Paul Nestadt, MD
Johns Hopkins School of Medicine
Very little research has been done on gun type in suicide

- **80% of gun homicides** and 90% of nonfatal gunshots use **handguns**
- **Limited research** on gun type in suicide

- **Federally**, the laws around long gun access are much **looser than** those for **handguns**
- It is up to **individual states** to close this gap

- Hanlon (2019) reviewed gun types in 13 states (2005-2015) and found **27% of gun suicides used long guns**

- Need for state level investigation to **guide state firearm policies**
Long guns sales are less regulated than handgun sales

Maryland presents a unique concern:

- **Tighter handgun restrictions** than federally required
  - Background checks, permits, waiting period required even in private sale
  - **Increased minimum age** of possession 18→21

- **HOWEVER, long gun** access laws maintain relaxed federal minimum
  - Can be purchased **without checks, permits, or waits** through private sale
  - **NO minimum age** to possess

- As many **suicides are impulsive**, the rapid **availability of long guns**, especially to MD **youth and in rural areas**, make them a unique concern
► **March 2019:** Maryland failed to pass a bill that would have closed the ‘long gun loophole’
► Opponents pointed to the rarity of long guns in homicides and the lack of evidence for suicide use

► This study utilizes firearm data extracted from police narratives of all Maryland gun suicides and other manners of death, to directly answer this point

► Compared proportions of long gun suicides across demographics, rurality and alcohol use, as well as the impact of hunting season

► As legislation may distinguish between long gun type, we also examine use patterns in **rifles vs. shotguns**
Methods

- We partnered with the Office of the Chief Medical Examiner of Maryland to obtain information on all 3,994 non-homicide gun deaths in MD, 2003-2018
  - 3,931 suicides, 29 accidents, 34 deaths of undetermined manner
- Demographics, toxicology, and police and ME reports were extracted

- Police narratives included gun type in all but 46 unclear cases, of which 45 were resolved by review of the autopsy report and 1 was a mislabeled hanging

- Hunting season operationalized as weeks 49-50 each year, the busiest legal season (Dept Natural Resources)
Results: Gun Type by Manner

Proportion of Gun Deaths by Gun Type and Manner, 2003-2018

- **Rifle**: 30%
- **Shotgun**: 70%
- **Other**: 21%

Nestadt et al. (2020)

Paul Nestadt, MD
Johns Hopkins School of Medicine
Results: Characteristics

- Doubled odds of long gun use in males and whites

- Increasing rurality and younger age both strongly associated with increasing proportion of long guns

- Long gun use associated with alcohol intoxication

- During hunting season, firearm decedents were no more likely to have used a long gun

- However, rifle use was associated with hunting season ($X^2(1)=4.15, p=0.04$)

### Characteristics of Maryland Firearm Suicides 2003-2018, with Unadjusted Odds Odds Ratios

<table>
<thead>
<tr>
<th>Variables</th>
<th>Handgun n=2,815 (row %)</th>
<th>Long Gun n=1,116 (row %)</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>46 (55.4%)</td>
<td>37 (44.6%)</td>
<td>ref</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18-24</td>
<td>222 (62.9%)</td>
<td>131 (37.1%)</td>
<td>.73</td>
<td>.45 - .1.19</td>
<td>.209</td>
</tr>
<tr>
<td>25-44</td>
<td>749 (70.9%)</td>
<td>308 (29.1%)</td>
<td>.51</td>
<td>.33 - .80</td>
<td>.004</td>
</tr>
<tr>
<td>45-64</td>
<td>1,002 (69.5%)</td>
<td>439 (30.5%)</td>
<td>.54</td>
<td>.35 - .85</td>
<td>.008</td>
</tr>
<tr>
<td>65+</td>
<td>796 (79.8%)</td>
<td>201 (20.2%)</td>
<td>.31</td>
<td>.20 - .50</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>NCHS Rurality*</td>
<td></td>
<td></td>
<td>ref</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Urban (1)</td>
<td>233 (83.2%)</td>
<td>47 (16.8%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>1,986 (72.6%)</td>
<td>750 (27.4%)</td>
<td>1.87</td>
<td>1.35 - 2.59</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>3</td>
<td>206 (65.6%)</td>
<td>108 (34.4%)</td>
<td>2.60</td>
<td>1.76 - 3.84</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>4</td>
<td>130 (64.4%)</td>
<td>72 (35.6%)</td>
<td>2.75</td>
<td>1.79 - 4.20</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>5</td>
<td>46 (56.1%)</td>
<td>36 (43.9%)</td>
<td>3.88</td>
<td>2.27 - 6.64</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Rural (6)</td>
<td>46 (48.4%)</td>
<td>49 (51.6%)</td>
<td>5.28</td>
<td>3.17 - 8.79</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Alcohol (&gt; .08%)*</td>
<td>578 (68.0%)</td>
<td>272 (32.0%)</td>
<td>1.21</td>
<td>1.03 - 1.43</td>
<td>.022</td>
</tr>
<tr>
<td>Season</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hunting</td>
<td>2,720 (71.7%)</td>
<td>1,074 (28.3%)</td>
<td>ref</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hunting Season</td>
<td>95 (69.3%)</td>
<td>1,116 (30.4%)</td>
<td>1.12</td>
<td>.77 - 1.62</td>
<td>.549</td>
</tr>
</tbody>
</table>
## Results: Testing the Rurality Association

### Stepwise Logistic Regression Analysis with Odds for Predictors of Long Gun Use Among Firearm Suicides

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
<td>p</td>
</tr>
<tr>
<td>NCHS Rurality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large metro (1)</td>
<td>ref</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Large fringe metro (2)</td>
<td>1.87*</td>
<td>1.35 - 2.59</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Medium metro (3)</td>
<td>2.60**</td>
<td>1.76 - 3.84</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Small metro (4)</td>
<td>2.75**</td>
<td>1.79 - 4.20</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Micropolitan (5)</td>
<td>3.88**</td>
<td>2.27 - 6.64</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Noncore (6)</td>
<td>5.28**</td>
<td>3.17 - 8.79</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol &gt; .08%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunting Season</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results: Interaction between Age and Rurality

- Stratifying by rurality highlights the increasing proportion of long guns used with decreasing age.
- In logistic regression, a significant interaction was found between rural status and age category.
- The association of long gun use with age is stronger in rural areas.
Conclusions

► Long guns are used in a large proportion (28%) of Maryland firearm suicides, as well as accidents (21%) and deaths of undetermined manner (35%)
  ► May reflect weak legal barriers to access, more costly to store safely, or cultural familiarity

► Among firearm suicides, long gun use is more prevalent in rural areas, younger decedents, men, whites, and associated with alcohol intoxication
  ► Among kids, 45% use long guns in firearm suicide
  ► In rural areas, 80% of kids use them

► May be explained by greater long gun ownership in rural areas, legality of long guns at young ages, difficulty safely storing or hiding them from children

► For rifles, the most common deer hunting weapon, the proportion of use in suicides is 60% higher during deer hunting season
  ► This is a time that rifles are out of storage, being given as gifts, being used recreationally and generally are more accessible

Nestadt et al. (2020)
Implications

- Long guns should **not be exempted** from the laws in place to prevent handgun mortality

-Clinicians asking about firearm access and safe storage must specifically query on long guns, which **may not be considered dangerous by rural patients**
  - Similar to asking about OTC and supplements when taking a medication history

-Future studies may examine:
  - Does regulating long gun access **reduce youth suicide**?
  - How were long guns **accessed** for suicide? Recent purchase, family heirloom, unsafe storage?
  - Do **changes in legislation** which bring long gun safeguards in line with handguns reduce youth suicide rates?
Red Flag Laws
Exciting Progress: Red Flag Laws

“Red Flag” Laws allow police or family members to petition a court to remove temporarily firearms from individuals deemed a risk to themselves or others.

- CT Passed the first “risk warrant” in 1999 and other states followed, with the largest increase after Parkland in 2018.


Status of State ’Red Flag’ Laws

- Red flag law enacted (19 states)
- Red flag bill proposed (11)
- No laws or active bills (19)

Extreme Risk Protection Order (ERPO) is Effective

Swanson et al (2017) found that the CT’s version of the law saved one life for every 10.6 guns seized.

Kivisto & Phalen (2018) used a synthetic control model to estimate that IN’s law reduced firearm suicides by 7.5% over 10 years, without an increase in suicides by other means.

Though most prevented deaths are suicides, Wintemute (2019) reviewed 159 available ERPO records over a two year period in CA and identified 21 instances of the ERPO successfully stopping a mass shooting.

9/3/19: Pasadena ERPO led to confiscation of 146 guns from a man who had been threatening workplace shooting.
Maryland’s Extreme Risk Protection Order (ERPO)

- Maryland is the first state to allow clinicians to file these orders
  - (DC joined in May & Hawaii to follow)
- Much remains to be worked out, as far as liability, application, and effectiveness
- [http://mdcourts.gov/district/ERPO](http://mdcourts.gov/district/ERPO)
Maryland ERPO Basics

- Can be filed by family, cohabitant, romantic partner, police, or clinician (physician, psychologist, mental health worker, state health officer)
- EP can be filed simultaneously
- Filing requires the petitioner to go to hearing

- Respondent must pose an immediate and present danger to self or others by being armed

- The order results in police removing any guns and prevents the purchase of new guns

- Once filed, a judge can issue a temporary order without the respondent present at hearing
  - A final hearing is held within 7 days, at which the order can be extended up to 1 year and later extended a further 6 months if warranted
Maryland ERPO Pearls

- Can be filed against guardians of a **child in crisis**, if it is an adult’s gun in the house
- Illegal guns will not be returned (and are a qualifying reason for ERPO alone)
- Clinicians cannot be sued for filing; **May be sued for NOT filing**
- Avoids problems with having **family take guns**, which **may be illegal** in MD and leaves family on the hook for deciding when to return them
- Does **not** stop respondent from buying a **long gun** from a private dealer (no BG check)
1,767 ERPOs were filed in the first 23 months

- Comparatively, California filed <200 in the first two years, despite 6-7x MD’s population

- Highest rates of ERPO’s were in rural or semi-rural counties

- Despite our unique ability for clinicians to file, ~1% of ERPOs have been filed by clinicians
Why are physicians not using this tool?

- **Survey of 92 Hopkins Docs** in June 2019
  - One (psych) had filed an ERPO
  - Most had barely heard of it

- After a brief description, **92%** reported they saw patients appropriate for ERPO at least a few times per year
  - **60%** reported being **likely to file** on a qualifying patient

- **Barriers** were reported as **time** for paperwork, and threat to therapeutic alliance

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**How familiar are you with Extreme Risk Protection Orders?**

<table>
<thead>
<tr>
<th></th>
<th>ED n=26 (%)</th>
<th>Peds n=16 (%)</th>
<th>Psych n=50 (%)</th>
<th>Total n=92 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very familiar</td>
<td>2 (7.7)</td>
<td>0 (0)</td>
<td>2 (4.0)</td>
<td>4 (4.3)</td>
</tr>
<tr>
<td>Somewhat familiar</td>
<td>1 (3.8)</td>
<td>0 (0)</td>
<td>5 (10)</td>
<td>6 (6.5)</td>
</tr>
<tr>
<td>A little familiar</td>
<td>3 (11.5)</td>
<td>3 (18.8)</td>
<td>10 (20)</td>
<td>16 (17.4)</td>
</tr>
<tr>
<td>Not at all familiar</td>
<td>20 (76.9)</td>
<td>13 (81.3)</td>
<td>33 (66)</td>
<td>66 (71.7)</td>
</tr>
</tbody>
</table>

Frattaroli et al. (2019)
What can be done to increase utilization?

- Most felt that **training, consultation, and remote hearings** would help.

- **87%** reported that a **coordinator** to complete and follow through with the petition would be helpful.

- Such a model currently **exists for child abuse consults**.

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### What tools would help you file an ERPO petition?

<table>
<thead>
<tr>
<th>Tool</th>
<th>ED n=26 (%)</th>
<th>Peds n=16 (%)</th>
<th>Psych n=50 (%)</th>
<th>Total n=92 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training on ERPO</td>
<td>22 (84.6%)</td>
<td>16 (100%)</td>
<td>41 (82%)</td>
<td>79 (85.9%)</td>
</tr>
<tr>
<td>Consult with legal expert</td>
<td>19 (73.1%)</td>
<td>10 (62.5%)</td>
<td>30 (60%)</td>
<td>59 (64.1%)</td>
</tr>
<tr>
<td>Trained coordinator to complete and follow through the petition</td>
<td>25 (96.2%)</td>
<td>15 (93.8%)</td>
<td>40 (80%)</td>
<td><strong>80 (87%)</strong></td>
</tr>
<tr>
<td>Remote court hearings (i.e. by phone)</td>
<td>21 (80.8%)</td>
<td>8 (50%)</td>
<td>39 (78%)</td>
<td>68 (73.9%)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (11.5%)</td>
<td>1 (6.3%)</td>
<td>2 (4%)</td>
<td>6 (6.5%)</td>
</tr>
</tbody>
</table>

Frattaroli et al. (2019)
Gun Sales during COVID

Paul Nestadt, MD
Johns Hopkins School of Medicine
Firearm Sales Rocket in 2020

- The pandemic increases risk of suicide via impact on the economy, isolation, fear, Loss of supports, access to care, grief, job loss, etc.
- Concurrently, there has been a large spike in firearm purchases in the context of COVID-19

- March saw the second highest number of new firearm purchases since data recorded (41% increase compared to ’19)
- June broke that record
- July & August had >50% increases over ’19
- 40-67% of these are to new gun owners
Historically, sales spikes have been from policy changes. Those tend to be gun owners increasing their collection.

2020 spike is largely new gun owners, across the political spectrum. Bought for protection, not policy. Increase is most dramatic in blue states.

Lang & Lang (2020)
COVID Era Gun Owners

- Lyons et al. surveyed pandemic purchasers who were new gun owners
  - Half had never had any firearm safety training of any kind
- 42% reported at least one gun stored unlocked
- 53% reported kids in the house
- 33% had a household member with mood d/o
- 11% had a household member with dementia
- 15% had been laid off due to the pandemic
- 38% reported their mental health had gotten a little or a lot worse in the past month

Lyons et al. (2020)
Firearm Safety

- During a **mental health crisis** in the household, it is **doubly important** to remove the weapon from the house.

- Throughout **at risk** periods, guns must be **removed**, pills **locked up**, and depending on a risk assessment, the patient taken to an **emergency room**.

- **Families** play a large role in enacting these plans, including **holding/locking away weapons and medications**.
Providers should discuss safe storage of firearms in a non-judgmental way, similar to the discussions around other safety issues such as bicycle helmets, child safety locks, and impaired driving.
Action Items

- Clinicians must **screen for access to lethal means** (guns, medications, etc)
  - It is **never** illegal to ask

- **Gun owning patients** should be aware of the **risk to themselves** and family members
  - They are far **more likely** to turn the **gun on themselves** than to use it for protection

- Firearms should always be **stored locked** away, **separately** from locked **ammunition**

- Guns can **temporarily be stored** at police stations, shooting ranges, gun stores, or in **some states**, with a friend or relative
  - In extreme situations, **Extreme Risk Protection Orders** can be filed
Summary

► Suicide is a **leading cause of death**, rates are **rising**, and it is **preventable**

► Suicide can be **an impulsive act**, and people use what they have
  ► If attempters live, they have a **chance to get help**

► If what they have is **very lethal and accessible**, they are likely to **die in the attempt**

► In some places those lethal means have been **coal ovens, pesticides, or paracetamol**. In the **US**, the most available and lethal means are **guns**
  ► In **rural areas**, where firearm suicide is most prevalent, **long guns** play a larger role

► **Screening** for firearm access, **regulating** access to firearms, **requiring safe storage**, and generally **decreasing firearm prevalence** will likely save lives
Thanks to my collaborators:

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- Adam Kaplin (Psych)
- Patrick Triplett (Psych)

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- Holly Wilcox

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- Daphne Liu
- Kevin MacKrell (MS3)
- Jaclyn Nguyen (MS2)
- Julia Riddle (PGY4)
- Kira Riehm
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