

IMPLEMENTATION AND EFFECTIVENESS OF CONNECTICUT'S RISK-BASED GUN REMOVAL LAW: DOES IT PREVENT SUICIDES?

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I

INTRODUCTION

Developing practical, effective, and legally sustainable policies to separate firearms from people at risk of harming themselves or others represents a potentially important, but challenging public health opportunity for gun violence prevention in the United States. Risk-based, time-limited, preemptive gun removal is a type of legal tool that three states—Connecticut, Indiana, and California—have adopted, and which has recently attracted considerable interest among policymakers in other jurisdictions. To date, there has been little empirical scrutiny of these laws in practice, and there are important unanswered questions about how they work: What are the legal and logistical barriers to implementing risk-based gun removal laws? Do they tend to target the right people, and are the laws fair? Do they actually help reduce gun deaths?

In 1999, following a highly publicized mass shooting,¹ Connecticut became the first state to pass a law authorizing police to temporarily remove guns from individuals

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when there is probable cause to believe they pose a significant risk of harm to others or self.² Connecticut's innovative statute thus established the legal practice of preemptive gun removal as a civil court action based on a "risk warrant," a process that neither requires nor generates a record of criminal or mental health adjudication as its predicate. Our research study provides an analysis of the characteristics, implementation, and outcomes of gun removals conducted under Connecticut's risk warrant law during the period 1999-2013. This article summarizes key features of the study in an effort to inform other states that are considering the adoption of similar gun-seizure laws.

Part II of the article sketches the relevant policy landscape in order to demonstrate that point-of-purchase background checks are a necessary but insufficient component of a strategy to reduce gun violence in the U.S., and that risk-based preemptive gun removal schemes provide a complementary policy to bridge the gap. Part III briefly recounts the history of enactment and gradual implementation of Connecticut's risk-based gun removal law, beginning with the high-profile homicide that drove public opinion to support the law. Part IV describes our research study's quantitative and qualitative methods and data sources. Part V presents the results of the study. It first describes the characteristics of gun removal cases in Connecticut. Next, it summarizes views of stakeholders regarding the effectiveness and fairness of gun removal, as well as particular challenges faced in implementing the risk-warrant law. It then turns to an analysis of suicides committed by the individuals from whom firearms had been seized, in an effort to determine whether the policy saved lives, and concludes with an estimate of the number of gun removal cases that are necessary to avert one suicide. Finally, Part VI summarizes the findings and draws out key conclusions and policy implications.

II

THE POLICY LANDSCAPE: THE LIMITS OF BACKGROUND CHECKS AND THE POTENTIALLY IMPORTANT ROLE OF RISK-BASED PREEMPTIVE GUN REMOVAL LAWS

Intentional gun violence in the United States remains a daunting public health problem—diverse in its surrounding circumstances, complex in its causal pathways,

1. See Jonathan Rabinovitz, Rampage in Connecticut: Connecticut Lottery Worker Kills 4 Bosses, Then Himself, *New York Times*, March 7, 1998

2. CONN. GEN. STAT. § 29-38c. (1999). Seizure of firearms of person posing risk of imminent personal injury to self or others.

far-reaching in its social and economic consequences.³ How to solve the problem remains the subject of a contentious and partisan political debate, pitting the interests of public safety against the Second Amendment right.⁴ The 1994 Brady Law's⁵ requirement of point-of-purchase background checks for firearm sales from federally licensed dealers has long been the mainstay of federal and state efforts to prevent gun violence; this is arguably a necessary, but insufficient policy approach.⁶ Wide variation in the operational criteria for gun restrictions across states, inconsistencies in local policies and practices that apply these criteria to individual cases, and major gaps in state authorities' reporting of gun-disqualifying records to the National Instant Criminal Background Check System (NICS), all contribute to inefficient identification of people who should not have guns.⁷

Existing statutory schemes thus fall short of the practical goal of implementing gun prohibitions for "dangerous" people, as most states lack authority to close point-of-purchase loopholes and, with few exceptions, have no policies in place to proactively remove guns from legally prohibited persons. At a more fundamental level, the federal prohibiting criteria themselves, as defined in the 1968 Gun Control Act⁸ and mirrored in many states' statutes, tend to correlate poorly with actual risk of violence and suicide. The rules are both over- and under-inclusive, insofar as they prohibit guns from many people at very low risk of violence while failing to identify many others who *are* at high risk.⁹

3. Gun-related violence and suicide claimed the lives of approximately 33,599 people in the United States in 2014; an additional 84,258 sustained nonfatal gun injuries. See Centers for Disease Control and Prevention (CDC). Injury Prevention and Control: Data and Statistics Web-based Injury Statistics Query and Reporting System (WISQARS™). www.cdc.gov/injury/wisqars/index.html, last visited August 15, 2016. See also Garen Wintemute. *The Epidemiology of Firearm Violence in the Twenty-First Century United States*. *Annu. Rev. Public Health* 36, 5–19 (2015).

4. See generally PHILIP J. COOK & KRISTIN A. GOSS. *THE GUN CONTROL DEBATE* (2014). The appropriate role of gun control in reducing gun-related violence is the subject of a long-running policy debate.

5. PUB.L. 103–159, 107 STAT. 1536 (1993). Brady Handgun Violence Prevention Act.

6. See Philip J. Cook and Jens Ludwig. *The Limited Impact of the Brady Act: Evaluation and Implications*, In *REDUCING GUN VIOLENCE IN AMERICA: INFORMING POLICY WITH EVIDENCE AND ANALYSIS* (Daniel W. Webster & Jon S. Vernick eds., 2013).

7. Federal firearms law is nested in widely variable state civil commitment practices. See Paul S. Appelbaum & Jeffrey W. Swanson. *Gun Laws and Mental Illness: How Sensible Are the Current Restrictions?* *PSYCHIATRIC SERVICES*, 652–654 (2010)

8. 18 U.S.C. § 922(d)(4) (2006). Gun Control Act of 1968.

9. See Jeffrey W. Swanson, Allison G. Robertson, Linda K. Frisman, Michael A. Norko, Hsiu-ju Lin, Marvin S. Swartz, & Phillip J. Cook, *Preventing Gun Violence Involving People with Serious Mental Illness*, In *REDUCING GUN VIOLENCE IN AMERICA: INFORMING POLICY WITH EVIDENCE AND ANALYSIS* (Daniel W. Webster & Jon S. Vernick eds., 2013). There is limited evidence that background checks can reduce gun violence risk in people with serious mental illness. In our recent study in Connecticut, we matched and merged mental health, court, and arrest records for 23,292 persons diagnosed with schizophrenia, bipolar disorder, or major depression who were receiving services in the state's public behavioral healthcare system. We found a 6 percent reduction in violent crime in gun-disqualified individuals attributable to Connecticut's initiating a policy of reporting records to NICS in 2007.

The current epidemic of suicide in the U.S.¹⁰ illustrates a huge loophole in the mental-health-related criteria for restricting at-risk individuals from buying guns.¹¹ Over half of suicides in the US are completed with guns,¹² and many of those guns are legally obtained. Most people who complete suicide suffer from a mental disorder such as depressive illness, but only a small proportion of them have a record of involuntary civil commitment or other gun-disqualifying mental health or criminal adjudication. Similarly, a substantial proportion of those at risk for committing violent crimes with guns do not have a record that would prohibit them from purchasing or possessing firearms.¹³

The sheer number of privately owned firearms already in existence in the U.S.—an estimated 357,000,000 guns¹⁴—further limits the effectiveness of any policy that relies solely on stopping a risky person from acquiring a new gun (i.e., without a concomitant means of gun removal.) Guns are extremely durable devices that many owners retain indefinitely and pass down through generations. Meanwhile, US gun manufacturers have continued to increase their output of new guns, particularly in recent years – from 5.6 million guns produced in 2009, to 10.9 million guns in 2013.¹⁵ This means there are actually now more guns than there are people in the U.S., though guns are not evenly

However, while the NICS-reporting effect was statistically significant, it turned out to be substantively trivial; the policy affected only 7% of the study population of persons with serious mental illness, while 96 percent of the violent crimes recorded for that population were committed by persons who were not exposed to the policy, i.e., not disqualified on the basis of a mental health adjudication history. As a result, the estimated net reduction in violent crime in the population was miniscule—a tiny fraction of 1 percent.

10. Sally C. Curtin, Margaret Warner, and Holly Hedegaar. *Increase in Suicide in the United States, 1999–2014*. <http://www.cdc.gov/nchs/products/databriefs/db241.htm>

11. Appelbaum & Swanson, *supra* note 7. See also Jeffrey W. Swanson, Paul S. Appelbaum, & Richard J. Bonnie. *Getting Serious about Preventing Suicide: More “How” and Less “Why”*. *JAMA* 314, 2229 (2015)..

12. CDC WISQARS™, *supra* note 3. Suicide accounted for 41,149 deaths in 2013; 51 percent were gun suicides.

13. See Jeffrey W. Swanson, Michele M. Easter, Allison G. Robertson, Marvin S. Swartz, Kelly Alanis-Hirsch, Daniel Moseley, Charles Dion, & John Petrila. *Gun Violence, Mental Illness, and Laws that Prohibit Gun Possession: Evidence from Two Florida Counties*. *HEALTH AFFAIRS* 35, 1067-1075 (2016). In our recent Florida study, 72 percent of severely mentally ill gun suicide victims were found to be legally eligible to purchase a firearm on the day they used one to end their own life; 38 percent of those arrested for violent, gun-involved crimes were not prohibited from firearms at the time. See also Lesley C. Hedman, John Petrila, William H. Fisher, Jeffrey W. Swanson, Dierdre A. Dingman, and Scott Burris. *State Laws on Emergency Holds for Mental Health Stabilization* *PSYCHIATR SERV.* 67(5):529-35. (2016). In many states, police commonly detain persons in a mental health crisis and transport them to a treatment facility, where they are briefly held before either being discharged or persuaded to sign into a hospital voluntarily. Neither of those dispositions currently results in gun disqualification in most states, notwithstanding elevated risk of harm to self or others that may coincide with involuntary hospitalization.

14. See Christopher Ingraham. *There Are Now More Guns than People in the United States*. *WASHINGTON POST*, October 5, 2015. Reported estimates were compiled by the Congressional Research Service, combining Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) data on manufacturing, importing and exporting of firearms with U.S. Census estimates of population. <https://www.washingtonpost.com/news/wonk/wp/2015/10/05/guns-in-the-united-states-one-for-every-man-woman-and-child-and-then-some/>. Last visited August 24, 2016.

15. *Id.*

distributed in the population. Therefore, individuals at high risk of violence commonly have access to firearms at home, even if they would not qualify to buy a gun themselves, because they live in a household with guns legally purchased by family members or others.

An estimated 9 percent of adults in the U.S. have problems with impulsive, angry behavior and have access to firearms at home; these are individuals who admit that they “break and smash things” when they get angry, and many of them would meet diagnostic criteria for a mental health problem such as a personality disorder.¹⁶ However, less than 10 percent of these angry, impulsive, gun-possessing adults have ever been hospitalized for a mental health problem, and thus would never have lost their gun rights by dint of a mental-health-based restriction.¹⁷ One such angry individual was Craig Stephen Hicks, the legal owner of a cache of about a dozen firearms who, in a fit of irrational rage, shot three Muslim young people in the head in Chapel Hill, NC, in February, 2015.¹⁸ It is notable that with respect to Hicks, federal and state background check policies had succeeded perfectly in making sure that guns were not sold to a legally ineligible individual; Hicks was not a gun-prohibited person.¹⁹ At the same time, the policy utterly failed in its essential public safety purpose; it did not keep guns away from a very dangerous man, who went on to use one of those legally obtained firearms to carry out a horrifying multiple homicide.

What went wrong in the Hicks case? It would be tempting to see it simply as an egregious example of the mismatch between our gun-disqualifying criteria and actual risk. After all, Hicks’ neighbors were well aware that he had a serious anger problem, and that he had guns; it appears that people were quite afraid of Craig Stephen Hicks. Would more inclusive criteria for restricting such people from purchasing guns have saved the lives of the three young people? Probably not, because Hicks already had a dozen guns sitting in his apartment. Rather, in order to effectively deter and prevent people like Hicks from using guns in a harmful way, a different kind of law would have been needed: a legal tool to effectively remove guns from a dangerous person who may

16. See Jeffrey W. Swanson, Nancy A. Sampson, Maria V. Petukhova, Alan M. Zaslavsky, Paul S. Appelbaum, Marvin S. Swartz, & Ronald C. Kessler. *Guns, Impulsive Angry Behavior, and Mental Disorders: Results from the National Comorbidity Survey Replication (NCS-R)*. BEHAV. SCI. LAW 33, 199-212 (2015).

17. *Id.*

18. See Sarah Kaplan. *Suspect In Chapel Hill Killings Described as Troublemaker, Obsessed with Parking*. WASHINGTON POST, February 12, 2015. <https://www.washingtonpost.com/news/morning-mix/wp/2015/02/12/alleged-chapel-hill-killer-described-as-neighborhood-bully-obsessed-with-parking-and-noise/>. Last visited August 24, 2016.

19. See Anne Blythe. *Craig Hicks Becomes Symbol in Gun Politics*. NEWS & OBSERVER, April 11, 2015. <http://www.newsobserver.com/news/local/counties/orange-county/article18279290.html#storylink=cpy>. Last visited August 24, 2016.

already possess them, i.e., a preemptive, risk-based gun seizure law that would apply to “dangerous-but-not-otherwise-gun-prohibited” persons.

III

BRIEF HISTORY OF A RISK-BASED PREEMPTIVE GUN REMOVAL LAW IN CONNECTICUT

On March 6, 1998, a disgruntled accountant with the Connecticut Lottery Corporation used a 9mm Glock pistol and a knife to murder four co-workers before shooting himself in the head. Matthew Beck, 35, had previously attempted suicide and was being treated for depression. In response to the public outcry over this incident as well as the infamous Columbine shooting the following year, state lawmakers passed Public Act 99-212, which was signed into law in June of 1999. Connecticut thus became the first state to authorize seizure of firearms from putatively dangerous persons who are not otherwise legally prohibited from purchasing or possessing guns, and *before* they have committed an act of violence.^{20,21,22}

The proposal for the new law emerged from policy discussions in Connecticut focused on having psychiatrists evaluate mentally ill individuals for safety to possess

20. Only two months after the lottery shooting, on May 4, 1998, the Connecticut General Assembly passed PA 98-129, AN ACT CONCERNING HANDGUN SAFETY, which required the creation of a protected database regarding civil commitments and gun permits. The gun seizure provision began as a minor modification of gun permit statutes (C.G.S. 29-28 to 29-32) introduced in January, 1999. After the Columbine shootings on April 20, 1999, the Bill was expanded to permit gun seizures with a warrant (PA 99-212, S. 18); the bill passed and was signed into law on June 29, 1999, and is encoded in statute under CONN. GEN. STAT. § 29-38c. *See* Michael A. Norko, Madelon Baranoski. *Gun Control Legislation in Connecticut: Effects on Persons with Mental Illness*. CONNECTICUT LAW REVIEW 46: 1609-1631 (2014)

21. In 2006, Indiana enacted a similar law, Ind. Acts 445, codified as amended in IND. CODE § 35-47-14-3 (2013). Indiana’s allows police to seize guns from “dangerous persons” without a warrant, pending a judicial hearing. The state has the burden of showing, by clear and convincing evidence, that the person was dangerous at the time of the firearm seizure. If the court retains a person’s firearm, the individual may petition for its return 180 days after each court hearing. If the court retains a firearm and receives no request for its return over a period of 5 years, it may order the destruction of the firearm after a final hearing.

22. In 2014, California became the third state to pass a risk-based gun removal law, called a Gun Violence Restraining Order (GVRO). Elliott Rodger was the legal owner of three 9mm pistols when he embarked on a killing spree in Isla Vista, CA, in May, 2014, leaving 6 dead and 14 injured before turning a gun on himself and ending his own troubled life. Rodger’s parents had been concerned enough about their son to ask the police to check on him. Law enforcement officers paid a social welfare visit to Rodger’s residence but determined that he did not meet criteria to be detained. However, advocates for risk-based preemptive gun removal laws have argued that if such a law had been in place at the time, police could have searched for and seized Rodger’s firearms. In the aftermath of the shooting, the California State Assembly passed and Governor Brown quickly signed CAL. COM. CODE § A.B. 1014, legislation authorizing the GVRO. *See* Shannon S. Frattaroli, Emma E. McGinty, Amy Barnhorst, & Sheldon Greenberg. *Gun Violence Restraining Orders: Alternative or Adjunct to Mental Health-Based Restrictions on Firearms?* BEHAV. SCI. LAW 33, 290-307 (2015). *See also* Joshua Horwitz, Anna Grilley, & Orla Kennedy. *Beyond the Academic Journal: Unfreezing Misconceptions About Mental Illness and Gun Violence Through Knowledge Translation to Decision-Makers*. BEHAV. SCI. LAW 33, 356-365 (2015) (on the role of research evidence in advocating for this law).

firearms. However, mental health stakeholders were concerned that such a law might stigmatize people with mental illness.²³ As the draft of the law evolved, it was written deliberately to exclude mental illness *per se* from among the reasons for attributing risk sufficient to remove someone's guns. In the end, the proposal for a gun removal scheme based solely on "imminent risk" regardless of mental health history was seen as less stigmatizing.

Specifically, the Connecticut statute allows police, after independently investigating and determining probable cause, to obtain a court warrant and remove guns from anyone who is found to pose an imminent risk of harming someone else or him- or herself. In confirming probable cause and determining imminent risk, the judge must consider recent threats or acts of violence and recent acts of cruelty to animals. The judge may also consider: reckless gun use or display; a history of the use, attempted use or threatened use of physical force against other persons; prior involuntary psychiatric hospitalization; and illegal use of drugs or alcohol abuse.²⁴

When gun seizures proceed according to the law on the books in Connecticut, the typical case begins with a call to the police concerning a person who is thought to pose risk of harming someone with a gun. The police take the report and conduct an independent investigation. If the police find probable cause to believe that the individual of concern indeed poses an imminent risk of harming others or self (as defined in statute), they swear out a statement to this effect, and the form is signed by two officers as co-affiants. The evidence in the statement is then submitted to the State's Attorney, who reviews the evidence and decides whether to request a risk warrant. The request goes to a Superior Court Judge for the geographical area, who issues the warrant in an expedited fashion. The warrant then goes back to the police, who proceed to the residence of the subject, at which they may search for guns and seize the guns and ammunition they find.²⁵

The police also must make a decision about what to do with the person of concern. Options include arresting the person if there is evidence they have committed a crime, transporting the person to a hospital emergency department for evaluation if there is evidence they are in a dangerous mental health crisis and might meet commitment criteria, or leaving the person alone. If the person is arrested, criminal proceedings will follow, and if the person is taken to a hospital, they may be admitted or released. Within a period not to exceed 14 days from the date of gun removal, the court must hold a hearing to decide whether to return guns to the person or hold the

23. Norko & Baranoski, *supra* note 20.

24. *Id.*

25. While this describes the procedure *de jure*, there is also a *de facto* practice in which police often take guns initially as part of "securing the scene" and apply for the warrant later. This is described in Part V., section B. of the article, in the words of a police officer who was interviewed for the study.

guns for up to one year. Although the standard for the initial police seizure is probable cause, at the hearing the state must prove by clear and convincing evidence “that the person poses a risk of imminent personal injury to himself or herself or to other individuals.”²⁶

Those whose guns are removed also become ineligible to hold a permit that is required to purchase or possess a firearm in Connecticut.²⁷ A gun owner subjected to firearm seizure under C.G.S. § 29-38c has challenged the constitutionality of the law, arguing that it violates the second amendment to the United States constitution. The Connecticut Supreme Court has recently rejected this argument:

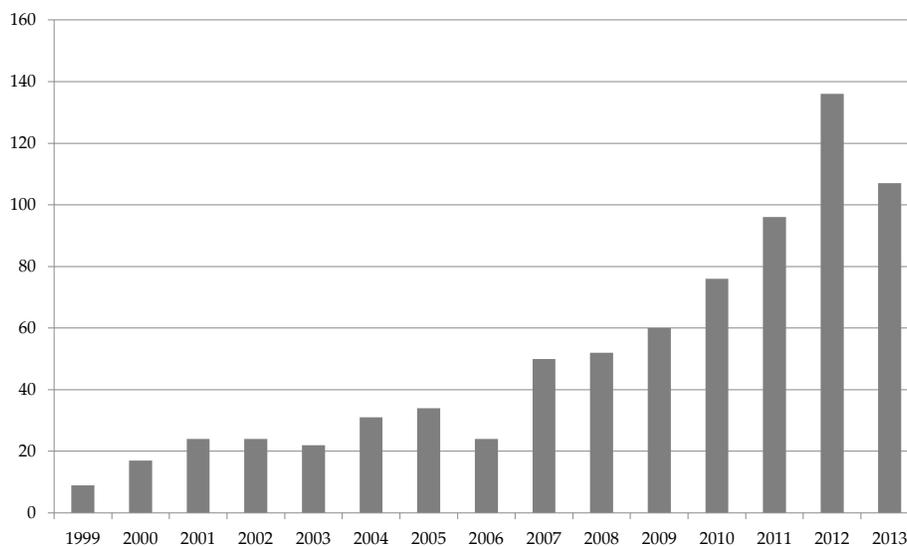
“Section 29-38c does not implicate the second amendment, as it does not restrict the right of law-abiding, responsible citizens to use arms in defense of their homes. It restricts for up to one year the rights of only those whom a court has adjudged to pose a risk of imminent physical harm to themselves or others after affording due process protection to challenge the seizure of the firearms. The statute is an example of the longstanding ‘presumptively lawful regulatory measures’ articulated in *District of Columbia v. Heller*. . . . We thus conclude that § 29-38c does not violate the second amendment.” *Hope v. State*, 133 A.3d 519, 524-25 (Conn. App. Ct. 2016).

Despite initially high expectations that C.G.S. § 29-38c would be widely used, very few gun removals were carried out during the first 8 years after the law went into effect—fewer than 10 per year, on average, as shown in Figure 1. This may have been due to the complexity and time-consuming nature of the removal procedures, as we shall see in what follows. However, following 2007 (the year of the mass shooting at Virginia Tech University), the annual number of gun removals increased more than tenfold—to about 100 cases per year—reaching a cumulative total of 762 by the end of 2013. The next section describes the available sources of data on these cases, and our research study’s methods.

26. CONN. GEN. STAT. 29-38c(d). The Connecticut Supreme Court has described the “clear and convincing evidence” standard as follows: “The clear and convincing standard of proof is substantially greater than the usual civil standard of a preponderance of the evidence, but less than the highest legal standard of proof beyond a reasonable doubt. It ‘is sustained if the evidence induces in the mind of the trier a reasonable belief that the facts asserted are highly probably true, that the probability that they are true or exist is substantially greater than the probability that they are false or do not exist.’” *Miller v. Comm’r of Correction*, 242 Conn. 745, 794 (1997) (internal citations and emphasis omitted).

27. CONN. GEN. STAT. 29-36f(b) addresses pistols and revolvers; CONN. GEN. STAT. 29-37p(b) addresses long guns. The gun owner must appear before the Board of Firearms Permit Examiners in order to have the firearms permit reinstated. This additional process was the reason the appeal in *State v. Hope* 133 A.3d 519 was not considered moot despite the firearms having been returned to the owner more than a month before the appeal was heard.

Figure 1. Number of gun removal cases in Connecticut under C.G.S. § 29-38c, by year, 1999-2013 (Total N = 762)



IV

THE STUDY'S RESEARCH METHODS AND DATA SOURCES

Our study employed a mix of quantitative and qualitative research methods, combining descriptive analysis of semi-structured key informant stakeholder interviews with statistical analysis of merged administrative records for the population of persons subjected to gun removal in Connecticut (N=762 from 1999-2013).²⁸ Wide-ranging, open-ended interviews were conducted and audio-recorded with 11 individuals who were strategically selected to provide in-depth information relevant to gun seizure policy implementation and practice. These informants included judicial and law enforcement officers and administrators, mental health professionals, advocates, and a family member of a young adult diagnosed with schizophrenia. For this paper, we quote and comment on selected passages from interviews that were particularly illustrative of legal actors' perspectives on the purpose of the gun removal law; the need to balance public safety interests with individual rights; practical and legal barriers to using the law, and how these barriers might be addressed.

State courts provided data on all gun seizures conducted under C.G.S. § 29-38c during the study period. We created a systematic database of descriptive characteristics

28. Unless otherwise cited, the source of all statistics reported in the article is the authors' original analysis of the data described in Section IV.

of all individuals whose guns were removed and the circumstances surrounding gun seizure in these cases. We matched and merged these gun seizure cases with statewide arrest records, services utilization records in the public behavioral health system, and death records including cause of death, with a specific focus on suicides using guns vs. other methods. We assembled records of arrest leading to conviction and public behavioral health service encounters for the period beginning 12 months before, and ending 12 months after the gun seizure event. We explored the features of risk-based gun removal, and the characteristics of the population subjected to it, by conducting descriptive statistical analyses of all gun removal cases, as well as longitudinal analysis of criminal arrest and behavioral health treatment in these cases, comparing the period before and after gun removal.

We conducted a quasi-experimental analysis of the effect of the gun seizure policy on suicides by: 1) using the known case fatality ratios for different methods of suicide to estimate the total number of suicide attempts represented by the recorded number of deaths by suicide; 2) extrapolating a counterfactual number of would-be suicide deaths, i.e., excess deaths that would have occurred if the gun seizure subjects had kept their guns and used them in suicide attempts at the same rate as other gun-owning men in the U.S.; 3) estimating the number of lives saved by subtracting the actual number from the counterfactual estimate of suicide deaths; and 4) calculating the number of gun removal cases needed for each averted suicide, by dividing the total number of removal cases by the estimated number of prevented suicides.²⁹

The Connecticut Department of Mental Health and Addiction Services (DMHAS) coordinated the process of matching and merging the gun seizure database with other state agencies' longitudinal records pertaining to these individuals. The Judicial Branch provided data on court hearing outcomes. The Department of Emergency Services and Public Protection (DESPP) provided records for arrests resulting in convictions, with statutory charges. The Department of Correction (DOC) provided data on any incarcerations. The Department of Health provided death records, including cause of death, with a special focus on suicides and whether guns were involved. Finally, DMHAS itself provided data on psychiatric diagnoses and services utilization for mental health and substance use disorders. The study was reviewed and approved by the Duke Medicine IRB, the State of Connecticut Department of Mental Health and Addiction Services IRB, and the Yale University IRB.

29. Equations were as follows: Estimated N suicide attempts = $\sum_{K=1}^M (N_k * (\frac{1}{cfr_k}))$, where N=number of recorded suicides, K=suicide method (1 to m), and *cfr* is the case fatality ratio. Counterfactual N suicide deaths = $\sum_{K=1}^M (A_k * p_k * cfr_k)$, where A=estimated number of suicide attempts, K=suicide method (1 to m), and *cfr* is the case fatality ratio. Estimated number of lives saved = Counterfactual N – Actual N suicide deaths. Estimated number-needed-to-remove = N total removals/ estimated number of lives saved.

V

RESULTS OF THE RESEARCH STUDY

**A. PREVALENCE AND CHARACTERISTICS OF RISK-BASED GUN
REMOVAL CASES IN CONNECTICUT**

The aggregate demographic characteristics of the study population (N=762) provide a profile of the typical gun seizure subject in Connecticut as a middle-aged or older married man. Almost all (92 percent) of gun removal subjects were male. Of those whose marital status was known and reported, 81 percent were married or cohabiting. Five percent were military veterans, and 31 percent of these veterans had been deployed in the year before gun removal. Subjects ranged across the adult age spectrum, with an average age of 47 years at the time of gun removal; the oldest was 94. In three cases, a minor was listed as the person of concern on the risk warrant, as the law was invoked as a means to remove unsecured guns from the possession of adults due concern for the safety of an at-risk child.³⁰

About half (49 percent) of the gun removal cases were initially reported to the police by an acquaintance of the person of concern; 41 percent of reports came from family members and 8 percent from employers or clinicians. The other 51 percent were reported by people who did not know the person of concern, or did not disclose their relationship to the police. The social circumstances and emotional features of risk that led to these gun removal actions were diverse—ranging from anger and conflict between intimate partners, to emotional distress over financial reversals of fortune, to the sadness of loss in old age.

There were 702 gun-removal cases where the specific information written by police on the risk-warrant petitions was available for review. Suicidality or self-injury threat was listed as a concern in 61 percent of these cases. Risk of harm to others was a concern in 32 percent of cases, and there was some overlap with suicidality: in 9 percent of cases, risk of harm to both self and others was noted. In 16 percent of cases, the risk-warrant form did not indicate the type or object of risk that was being alleged, leaving unspecified whether the concern for gun removal was potential harm to self, others or both. Such cases tended to involve persons who appeared to the police to be severely psychotic, intoxicated, emotionally agitated, or some combination of these states, raising general safety concerns. Examples from brief narratives include:

30. These particular cases may not have been in the minds of the legislators who enacted the law and may reach beyond the class of cases the legislators expressly intended to cover. Whether the statute should be construed to include them raises an interesting issue of statutory interpretation, on which Connecticut judges appear to have differed. While some judges were willing to issue such warrants, another judge stated in an interview that he had refused to issue risk warrants to remove guns from households in cases where a child was named as the subject of the warrant request; in this judge's view, such cases should instead have been referred to child welfare authorities.

- extremely paranoid and delusional, set up wooden device to barricade door to house
- hx[history] of bipolar, diabetic, intoxicated and yelling, went from paranoid to agitated to upset
- highly intoxicated, disorganized and paranoid, references to firearms and officer involved shooting on [name of place], dx[diagnosis] of mental illness although no medicine according to mother
- emotionally sick and not eaten for past 4 days, mother in hospital, despondent and intoxicated
- 82 year old woman, disoriented, did not want to go to hospital, evidence of dementia, wanted to bring gun to hospital

Police found and removed guns in 99 percent of cases when they conducted a search, and they removed an average of 7 guns from each risk-warrant subject. In 17 percent of cases, the gun removal process culminated in a concurrent arrest. This could have been due to the subject's uncooperative response during the police encounter. Only 4 percent were convicted in connection with an arrest on the day of the gun seizure. Most gun removal subjects were not involved with the criminal justice system; about 88 percent had no other arrests leading to conviction for any crime during the year before or after the gun removal event.

Six percent had been arrested in the year before seizure, and 6 percent were arrested in the year after; 2 percent were arrested both in the year before and year after gun seizure.³¹ By contrast, in 55 percent of cases police were sufficiently concerned about the mental health or intoxicated condition of the subject that they transported the individual to a hospital emergency department for evaluation. In 27 percent of cases, the individual was not detained—was neither transported to a hospital nor arrested—following gun seizure.

Most risk-warrant subjects were not known to DMHAS, the state's public behavioral health system at the time of gun removal; only about 12 percent were found to have received treatment for a mental health or substance use disorder in the DMHAS system during the year *before* gun seizure. However, many of these individuals came into contact with DMHAS as an indirect result of the gun removal action, so that 29 percent received treatment in the system during the year *following* gun seizure. Of the 348 cases with any (lifetime) matched record in DMHAS, 45 percent were diagnosed with a mental illness only (no substance use disorder)³², 26 percent with a substance use disorder only (no mental illness), and 29 percent with a co-occurring mental illness and substance use disorder.

Treatment entry in many cases occurred because police found the subject of the risk warrant in an apparent mental health crisis and transported the individual to a

31. The study could only obtain records of arrests that led to a criminal conviction. Thus, these figures clearly underestimate the number of police encounters before and after the gun seizure.

32. Thirty-nine percent of those with a mental health diagnosis had a serious mental illness. Of those with a serious mental illness, 17 percent had schizophrenia, 23 percent had bipolar disorder, and 60 percent had major depression.

hospital emergency department for evaluation, where they were admitted for an acute inpatient stay and then discharged to outpatient behavioral health treatment follow-up in the community. These data suggest, then, that the gun removal intervention sometimes functioned as a signal event and a portal into needed treatment, in addition to being a public safety action to remove lethal weapons at a time of high risk.³³

Outcome of court hearings challenging gun removal was known for 30 percent of cases; most of the others failed to appear in court and, importantly, lost their legal gun access by default. Among cases with known outcomes at hearing, results were as follows: guns held by police, 60 percent; guns ordered destroyed or forfeited, 14 percent; guns returned directly to the subject, 10 percent; guns transferred to another individual known to the subject and legally eligible to possess guns, 8 percent; other, 8 percent.

B. THE PRACTICE OF GUN REMOVAL IN CONNECTICUT: STAKEHOLDERS' PERSPECTIVES ON POTENTIAL BENEFITS AND BARRIERS TO IMPLEMENTATION

To obtain a more textured and nuanced understanding of the gun removal policy in Connecticut, we interviewed a variety of informants, including police supervisors and front-line police officers, prosecutors, judges, a mental health clinician, and a family member of a young adult with schizophrenia who had a history of violent behavior. We explored their perspectives on the need for, and purpose of the gun removal law, its intended target population, practical limitations and legal barriers to its use, police responses to these barriers, and the perceived effectiveness of gun removal as a tool for reducing gun violence and suicide. In what follows, we quote and comment on interviews that were particularly illustrative of legal actors' views of the gun seizure law—its purpose and process, as well as challenges to implementation and how these challenges can be addressed.

One respondent was a former prosecutor who had participated in many risk-warrant gun removal proceedings under C.G.S. § 29-38c. He described a hypothetical case in which the law could be used to separate guns from an individual who clearly poses a significant risk of harm to self or others, but has not committed a crime, does not necessarily have a mental illness, and would not otherwise be legally prohibited from purchasing and possessing a firearm:

A lot of times the people who have their weapons seized are not having a bad life—they're having a bad moment. A lot of times they're in darkness for a day It's the wife just told him, 'We're getting a divorce,' and they begin drinking, or they [make] suicidal comments to

33. It must be noted that still more seizure incidents may have resulted in private mental health care—for which records were not available to the study.

somebody.... [Let's say] my wife [and I] had a disagreement. I have two pistols and a rifle, and what I did was I left the house, and she saw me leave the house. I put the guns in my car and the last thing I said to her was, 'You know what? I am done here. I'm done with everybody. I'm finished.' And I had a couple of gin and tonics in me, and I said 'I'm going to go to my favorite place and no one's ever going to see me again.' She calls the police. I've committed no crime; I haven't threatened anybody. She calls the police and gives the police identifying information of the truck I left in. She knows that my favorite place as a little boy was Penwood State Park. The police department goes down and finds my truck at the Penwood State Park. You know what I was doing? I was just having a couple more gin and tonics at the present time. They roll up on me. 'Sir, is everything okay?' 'Yeah everything's just fine. Why?' 'Well, we got a call that you were a little disconsolate.' They do a warrant. They secure the guns. (Former prosecutor)

The attorney further articulated the law's rationale by noting its public safety purpose and its specific applicability to cases where the police would otherwise lack clear authority to intervene and to remove guns—i.e., situations where people have, as he put it, "*violent propensities that do not rise to [the level of] a criminal event for an arrest, but nonetheless [we] have to take these guns from them for the protection of themselves and the public.*" While thus noting that the law primarily serves the public's interest in safety, the attorney also emphasized the need to be reasonable and fair to the individual respondent in gun removal actions—highlighting the importance of legal due process protections commensurate with abridging an individual right and removing a person's private property. Such legal safeguards, in his view, motivate both the temporary, time-limited feature of gun seizures and the conditioning of rights restoration upon evidence of reduced risk:

Politically, I believe that [gun removal under C.G.S. § 29-38c] is what the public wants us to do. They want us to take affirmative steps, [but let people] have their day in court. No one's saying... 'We're taking your property and you're never going to get it back.' That's not fair. That's not reasonable. [We are saying] you'll have a day in court when you're no longer in crisis. When you're receiving treatment, you may get those weapons back. (Former prosecutor)

To the concern that gun removal might be carried out unfairly in reliance on a single police officer's biased report of risk, the attorney noted a system of checks in the risk warrant's requirement that a series of three observers concur; this, he believed, should reassure those who fear that the power to remove guns could be abused:

[I]t gives them a certain amount of reassurance that they're not just counting on the police to make this determination. You have three sets of eyes [that] have looked at this. You have the police who are on the scene, the State's Attorney who is going to...read a report and see if [evidence of risk] is there, and then a third set [of eyes], the judge, who is now going to look at it, and again—separate from being on the scene and being there—reading over just a report within those four corners, making a determination as to whether you can do something which is rather large, in that you are going to remove a person's Constitutional rights. So, having three sets of eyes I think is probably important. (Former prosecutor)

And yet, despite this nod to fairness and due process, the former prosecutor also seemed to allow for discretion—even some manipulation of the legal rules—based on

the legal actors' own perceptions of a subject's character and the nature of the risk at stake. Indeed, rather than relying too much on an adversarial system of legal representation to ensure fairness in every case, he described a kind of collaborative application of leverage by the State's lawyer and the judge—almost implying that this was somehow appropriate because the action in question involves only a civil deprivation and not a criminal sanction. Specifically, in response to a question about whether the subjects of gun removal should have access to legal representation, the attorney gave this answer:

It's not a criminal matter; it is a civil matter.... You [as a subject of gun removal] have an option. One, you can roll your dice with the hearing. Two, you can say to me [as the State's lawyer] right now, 'I am not comfortable going forward without an attorney.' And I will go up and tell the judge you would like counsel. And [you] would be told, 'We are not going to have the hearing [now] and you're not going to get the guns back.' And then [people think,] 'Oh, I'm going to have to pay for an attorney now to get my guns back?' [So the hearing goes forward.] That happens most of the time... I would then go into chambers and lay it out for the judge exactly what we talked about. I would say, 'Look, I think this guy is a good guy,' or 'I think this guy is a borderline guy.' (Former prosecutor)

Despite such efforts to make the law work at the judicial level, there are significant barriers to carrying out these gun removal actions at the policing level; this has hampered broader implementation of the statute. When asked to explain why such a small number of gun removals have been completed throughout the state (i.e., less than 50 cases per year, on average, since C.G.S. § 29-38c was enacted in 1999), the attorney pointed to a mismatch between available police staffing resources in most departments and the statutory requirement that two officers appear as co-affiants before a judge to obtain the risk warrant:

Most law enforcement agencies in this state are less than forty officers. [That] means that for any one given shift, you have a supervisor and two patrol officers. With [the requirement of] two affiants that have to appear in front of a judge, you have no police on the street. So a supervisor or a law enforcement executive is going to say, 'Do you really need to do that warrant? Do you really need to draft it right now, at 3:00 in the morning on Halloween? Okay? We don't have the staff for that.' So that goes to the wayside and you run, or you roll the dice. [If you] roll, you run the risk of whether this person's going to go out and be violent. (Former prosecutor)

Other logistical issues may impede wider use of the gun removal law. A police administrator was among several interviewees who identified the problem of gun storage as a significant barrier:

[If we take someone's gun], we now have a piece of property...and we're stuck with it. What do we do with it for the next 200 years? It sits in our gun cabinet. So we may look at other alternatives, you know—[store it with] family members who have the legal right to own firearms. (Police administrator)

A former police officer likewise expressed concerns about the law's implementation and effectiveness, pointing first to the statute's "obscure" nature and the cumbersome aspects of the risk-warrant process:

Do I think 29-38C—when it was written, when it was drafted, and how it had been utilized pre-Sandy Hook—was effective? No, I don't believe it was effective. Why? It was an obscure statute. It was something that was labor-intensive. It was something that required an affiant, a co-affiant, supervisor's review, State's attorney's office review, and approval and a judge's signature and then, of course, execution on that warrant. Okay, so I didn't think it was a streamlined, timely process. I know that traditionally with a lot of this stuff, the state will come up with something and the citizenry and law enforcement doesn't even know it exists. And that has happened time and time again. (Former police officer)

The former officer seemed to imply that the gun removal statute has amounted to little more than another unworkable policy concocted by obtuse state lawmakers and bureaucrats, promulgated top-down without properly informing either the rank-and-file officers who would be expected to carry out the policy in the real world or the public that might be affected by it.

As if to illustrate the possible perverse consequences of what he sees as a poorly implemented law, the former officer went on to describe a particular case in which two things had gone wrong: the police had seized a citizen's guns without following the required legal procedures, and a judge had then improperly decided to retain the guns at the hearing anyway, notwithstanding evidence of the police officers' illegal removal action. Despite expressing some human understanding for a risk-averse judge's improper decision in the case, the respondent argued that the ultimate result of such official malfeasance is loss of public trust in the legal system, and a sense of betrayal especially among law-abiding gun owners who are otherwise inclined to trust the police; this is a point that he thinks is lost, ironically, on many lawmakers and judges:

Just from a human point of view I understand, you know, if you're a judge, you don't want to give the guns back and have something happen the next day and be on the front page. But you still should follow the law....The judge didn't [follow the law], and we got all this embarrassing testimony.... Firearms owners especially feel put-upon. I don't think the legislature, I don't think the judiciary realizes how, how strongly offended people are by that....These are people that have trust in the system....These are people that support the police, were in the military, you know, read the paper and when somebody is arrested they assume he's guilty because 'the police don't arrest people who aren't guilty.' I mean, that's who these people are. And then they come up with stuff like this, their whole universe is shaken, you know, and that's very distressful for people. Nobody recognizes that. (Former police officer)

Still, some police supervisors and field officers who were interviewed did express general support for the risk-warrant law, as they explained how they carried out its legal requirements in practice on a fairly routine basis. The police administrator described in detail how the police can, in many cases, quickly fill out the required form,

obtain a warrant from a judge on call, and carry out a gun removal action within a few hours' time:

I mean, most of it is a 3-5 line narrative. You know, 'We got a report of a guy wanted to commit suicide. I showed up, he was sitting in the corner with a loaded .357. He said to me, he wanted to commit suicide. I talked to him and he put it down. We sent him to the hospital. He owns additional firearms [and] we want to take them all.'....So you take this...down to a judge, and there are judges on call in the State of Connecticut 24 hours a day...and [we] have a very regular working relationship with them. The judge's phone rings at 2 o'clock in the morning, it's us, and one of us drives over there with a warrant. He reviews it, signs off on the bottom of it, we go back and we take all the guns. In the meantime, officers are sitting at the location where all the guns are, and securing it, our subject is gone to the hospital. We get the warrant signed, we go back to the house and we collect everything related to the gun...firearms, obviously, ammunition, components for making ammunition, gun powder and those kinds of things, because if they are there, anybody with the internet in 20 minutes could build something... (Police administrator)

In the same interview, however, this police supervisor explained how police officers often circumvented the risk-warrant process out of an immediate concern for safety at the scene. In pressing circumstances, it seems that police have other justifications for removing guns, and may need the risk-warrant only to continue holding the weapons once the immediate risk of the scene has passed:

The process of obtaining control over firearms [can] happen very quickly...in the absence of a warrant, as a matter of fact. It can happen that way. What we end up doing is following up with one of these warrants [after seizing the guns], and then we serve it on ourselves, basically. We serve it on the caretaker of the records department. She has control of the guns once we get them here, and we end up serving her with the warrant. And then that starts the documentation of what we did....'This is what we seized as a result of this warrant,' and then we file it with the court...We are at that point compelled to complete the return of service, provide the copy of the entire thing to the subject of the warrant. Our guy is going to be locked up in evaluation at that point in time....So we have to go to the civil court clerk...and so the civil clerk would get a copy of our warrant now. They stamp the receiving of the warrant, and create a record, where the individual who is the subject of the warrant now gets notification that in 2 weeks, this day, you're going to have a hearing about these guns. (Police administrator)³⁴

Regarding the problem of delay in obtaining a risk warrant, one lawyer suggested that a solution would be to change the law to resemble provisions currently available under domestic violence circumstances, in which the officer merely needs probable cause to believe that significant risk exists in order to seize weapons; the warrant can be obtained later:

Officers have the ability to short circuit that whole warrant process under domestic violence circumstances in which a weapon was used, present, or on-scene at the time of the incident.

34. An additional illustration of this alternative process is found in *State v. Hope* 133 A.3d 519, 521. In that case the firearms were seized by police responding to a call of concern by the owner's wife. Four days later, the warrant was issued.

Officers can seize those and take them for safekeeping. What we would like to see is a...scheme like the domestic violence provisions [where]...once probable cause is determined we've met that 4th amendment threshold. Okay? Once probable cause is determined, the officers, if there's a weapon on scene, or there's availability of weapons, we can seize. They can go back and do the warrants later. (Attorney)

In summary, the shared perspectives of key informants in the gun removal process helps us to better understand both the potential benefit that a risk-based gun removal law may offer in terms of public safety, as well as some of the key reasons why it is challenging to widely implement such a law while safeguarding individual rights and ensuring legal due process in every gun seizure case.

C. SUICIDE OUTCOMES IN CONNECTICUT'S GUN SEIZURE POPULATION

A match of gun removal cases to state death records revealed that 21 individuals had completed suicide at some time following the gun removal event. This equates to an annualized suicide rate of 482 per 100,000 in the study population, based on an average of 5.7 years at risk per person. This rate is approximately 40 times higher than the average suicide rate of 12 per 100,000 per year in the general adult population of Connecticut during the same period. Importantly, however, only 6 of the 21 suicides in the study were carried out with guns, while 15 used other means: 10 by suffocation or hanging, 2 by vapor poisoning, 2 by drug overdose, and 1 by a self-inflicted stab wound to the chest.

The proportion of these suicides that involved guns (29 percent) was lower than the corresponding gender-matched proportion for all adults in Connecticut, averaged across the same years (35 percent)³⁵ and much lower than would have been expected in a population of gun owners (at least 65 percent);³⁶ this is consistent with a gun-deterrent effect associated with removal. Police had removed an average of 6 guns from each of these individuals.

35. CDC WISQARS™, *supra* note 3.

36. The proportion of suicides that use guns, i.e., the number of firearm suicides (FS) divided by the total number of suicides (S), or FS/S, has been shown to be highly and reliably correlated with the rate of (survey-reported) gun ownership at the state level: $r =$ (approximately) 0.81. Indeed, the correlation is so strong that researchers have used the time-varying FS/S proportion as a proxy measure of change in state gun ownership rates. *See* Deborah Azrael, Philip J. Cook, & Matthew Miller Miller, State and local prevalence of firearms ownership: measurement, structure and trends. *J. QUANT. CRIM.* 20, 43-62 (2004). To illustrate, in the 10 states (including Connecticut) with the lowest household gun ownership rate (average 17 percent), guns were involved in 39 percent of male suicides and 16 percent of female suicides. In contrast, in the 10 states with the highest household gun ownership rate (average 56 percent), guns were involved in 69 percent of male suicide and 44 percent of female suicides. With respect to these gun seizure subjects in Connecticut, then, the FS/S rate arguably should have been even higher than in these high gun-owning states, since the baseline rate of gun ownership was, by definition, 100 percent (absent the intervening gun seizure.)

Considering the initial court hearing decisions in these cases, 3 of the 6 eventual gun suicides involved individuals whose guns had been “held pending further action.” In the other 3 cases, the hearing outcome was listed as “unknown,” presumably because they failed to appear and thus lost their gun rights for 12 months by default. Among those who used other means of suicide, the initial court hearing decisions were: “held pending further action,” 3; and “unknown,” 12.

Of note, none of the 6 gun suicides occurred during the 12-month period following gun seizure when the law allowed guns to be retained by police; rather, all of these gun suicides occurred after the date when these individuals would have become eligible to have their guns returned or to once again legally purchase guns. Regarding the timing of suicide in those who used *other* means besides guns, 5 of the non-gun suicides occurred within 12 months of the seizure event; 4 additional non-gun suicides occurred within 16 months. Overall, the time from the date of gun removal to date of death by suicide was considerable longer for those who used guns (average 3.7 years) than for those who used other means (average 2.2 years.) This finding is consistent with the explanation that gun removal effectively delayed access to guns for use in suicide (typically for 12 months or more), while those who used other means would have had access at any time.³⁷

Eighteen of the suicide victims were men; 3 were women. Their ages at death ranged from 33 to 75 years, with an average of 50 years. Two were US military veterans, one who had served in the Vietnam War and the other in the Iraq-Afghanistan War, deployed in the year before his guns were removed. Seven of these individuals were reported to be intoxicated at the time of the seizure event (6 with alcohol, 1 with a prescription drug.)

Eleven of the 21 suicide victims had been transported to a hospital emergency department in conjunction with their gun removal event. Nine of them had received treatment in Connecticut’s public behavioral health system, and 3 had been involuntarily committed to a psychiatric hospital. Of those with treatment records, 5 were diagnosed with a serious mental illness and 5 with a substance use disorder. Three had a co-occurring serious mental illness and substance use disorder. While 6 had a matching historical record with the Department of Correction, none had been convicted of a crime in the 12 months preceding the removal event. However, one

37. Two stories with different endings illustrate this finding. In the first case, police received a call from a man in his early 30s who “sounded very depressed, said he had consumed alcohol and explicitly threatened to kill himself with one of his firearms. Police seized 4 rifles and 2 shotguns in the case. The man eventually did complete suicide with a firearm—but not until 6 years later. In the second case, a middle-aged man threatened to shoot himself after his wife asked for a divorce. His guns were removed and ordered “held pending further action.” This second man also completed suicide, just over 1 year later, but by means of hanging—not with a gun.

individual had an arrest resulting in conviction in connection with the gun removal event itself, and 2 had an arrest resulting in conviction during the 12 months following gun removal.

When people have their guns removed and go on to commit suicide anyway, it would seem that the policy has obviously failed in these particular cases. However, since the majority (71 percent) of the suicide completers in the study used methods other than guns—and specifically used methods that are known to be less lethal than guns—it is possible that the policy was beneficial overall, and that there would have been even more suicides without the policy in place. To test this, we estimated the total number in the sample who *attempted* suicide by alternative means and survived. We then estimated the additional number who would have died if their guns had not been taken away, based on independent evidence as to the proportion that would have used a gun instead of a less lethal means in their suicide attempt.

More specifically, using the known case fatality ratios associated with each of the suicide methods used, we extrapolated the number of suicide *attempts* represented by each completed suicide, according the following formula:

$$\text{Estimated N suicide attempts} = \sum_{K=1}^M (N_k * (\frac{1}{cfr_k})) \text{ where } N=\text{number of recorded suicides,}$$

$$K=\text{suicide method (1 to } m), \text{ and } cfr \text{ is the case fatality ratio.}$$

Table 1 displays the result of these calculations.

Table 1. Completed suicides and estimated number of suicide attempts, by method of self injury, among Connecticut gun seizure cases

Method of intentional self-injury	Completed suicides	Case fatality ratio	Estimated nonfatal attempts	Estimated total attempts
Firearm	6	87.0%	1	7
Hanging/strangulation	10	72.7%	4	14
Poisoning - gas	2	37.5%	3	5
Poisoning - drugs	2	2.7%	72	74
Incision/cut	1	2.4%	41	42
Total	21	14.6%	121	142

* Source: Centers for Disease Control and Prevention: Injury prevention and control data and statistics: fatal injury data and nonfatal injury data. <http://www.cdc.gov/injury/wisqars/index.html>, (last visited August 15, 2016)

Using this calculated number of suicide attempts, we created a counterfactual data array to estimate the additional number of suicide deaths that would have occurred in the absence of the gun seizure policy. Construction of the counterfactual required making an assumption about what proportion of gun-owning men³⁸ in the baseline (pre-intervention) target population who are inclined to attempt suicide would use a gun in their suicide attempt. In our study, the target population could best be described as follows: *men who own multiple guns and are deemed to pose a high risk of harming themselves or others with a gun*. There are no precise data for this specific population as to the distribution of preferred suicide methods. However, we were able to estimate this information for our study population using state-level, year-specific data on the frequency of different suicide methods among men; the estimated number of suicide attempts for each method in each state, based on known case fatality ratios; and the linear correlation of the (survey-derived) rate of gun ownership in each state³⁹ with the estimated proportion of gun involvement in adult male gun suicides in each state.⁴⁰

Specifically, the state-level linear correlation between the probability of gun ownership for any adult in a given state and the proportion of adult male suicide attempts using guns was $r=0.79$. We used the resulting regression equation to calculate the probability that any adult male who owns a gun and attempts suicide will use a gun in doing so, rather than some other method. That result— $p=0.39$ —was used, in turn, to create the counterfactual hypothesis to estimate the number of excess fatalities that could have been expected in the absence of gun seizure, and then the number of gun seizure cases needed to prevent 1 suicide: the result for the latter was approximately 20.⁴¹

We consider that this initial estimate—i.e., 20 gun seizures for every averted suicide—is likely to be the most conservative, because it does not account for whatever excess risk of gun suicide is associated with being identified as a gun seizure candidate and determined by a judge to be at high risk of harming self or others specifically with a gun. Indeed, it would seem reasonable to lay much higher odds than 39 percent that such a high-risk, multiple-gun-owning, male gun-seizure candidate would have chosen a gun, and not something else, as the preferred method of suicide, if his guns had not been removed by the police. Rather than speculating on this, we calculated the mathematical relationship between the expected proportion of gun use in suicides in a

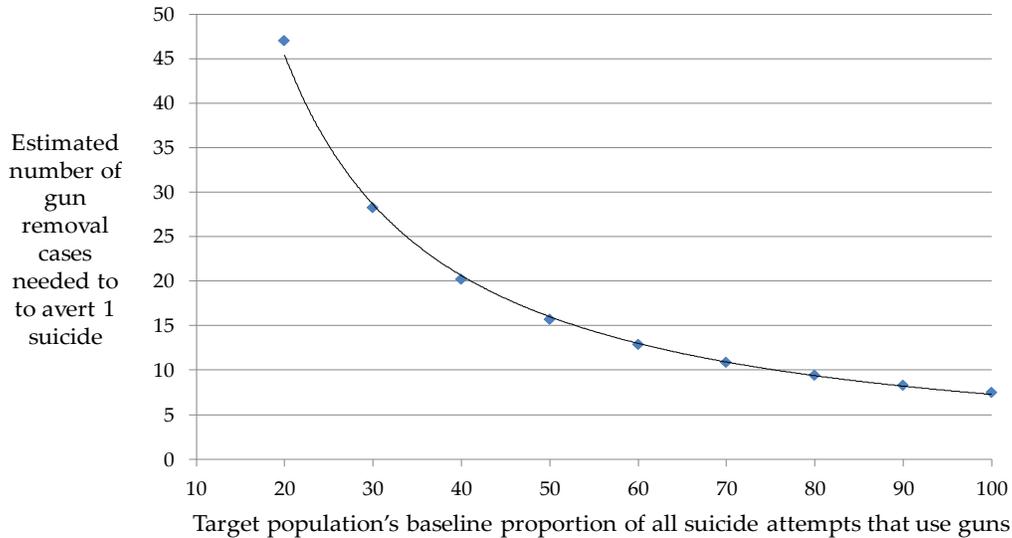
38. The large majority (92 percent) of gun seizure cases were men.

39. See Bindu Kalesan, Marcos D. Villarreal, Katherine M. Keyes, & Sandro Galea. *Gun Ownership and Social Gun Culture*. INJ PREV 22, 1-5 (2015).

40. CDC WISQARS™, *supra* note 3.

given target population, and the corresponding number of gun seizures that would be needed to avert a single suicide in that population. The model assumes that the hypothetical target population resembles the research study population of gun-removal cases in Connecticut with respect to the underlying prevalence of suicide attempts. The association follows a curvilinear form and is displayed in Figure 2.

Figure 2. Estimated number of gun removal cases needed to prevent 1 suicide in a population at high risk for suicide, as a function of the target population’s baseline proportion of all suicide attempts that use guns



* Estimate is derived from a state-level regression of the proportion of suicides that involve guns on the household gun ownership rates, and by extrapolation of the number of suicide attempts from case fatality ratios applied to reported suicides by different methods in each state.

This graph can be used to illustrate that a gun seizure policy in any particular jurisdiction would be expected to be more or less efficient in preventing suicide as a predictable function of how often guns tend to be used in suicide attempts in the target population. If the law is applied to a population at risk in which guns are used very rarely as a method of suicide, it may be necessary to conduct a great many gun removals in order to prevent a single suicide. However, when the law is applied to a population at high risk of using guns in any suicide attempts, it may take far fewer gun removal cases to prevent one suicide.

As an example, if approximately 70 percent of the estimated 142 gun seizure suicide attempters in the Connecticut gun seizure database had used guns, we would have expected 101 gun suicide attempts, resulting in 88 completed gun suicides. Assuming that the remaining 41 non-gun suicide attempters had used alternative means in the same proportions as observed in the actual data, and applying the appropriate weighted average of lethality rates to those other means of suicide, we would have expected an additional 5 non-gun suicides, for a total of 93—or 71 more suicides than

the 21 that actually occurred. Dividing the total number of gun seizures by this estimated number of averted gun suicides, or 762/71, yields an estimate of approximately 1 averted suicide for every 10 to 11 gun seizure cases. That calculation is illustrated in Table 2.

Table 2. Estimated suicide prevention effect of Connecticut's gun removal policy

	Suicide outcomes for actual gun removal cases		Counterfactual (hypothetical) data assuming no gun removal ¹		Estimated policy effect	
	Attempts	Fatalities	Attempts	Fatalities ²	Number of averted suicides	Number needed to remove
Firearm	7	6	101	88		
Other means	135	15	41	5		
Total	142	21	142	93	72	10.6

¹ Counterfactual assumes that gun-owning men who attempt suicide in Connecticut would be as likely to use a gun in their suicide attempt as all men who attempt suicide in a high gun-ownership state.

² Estimated number of fatalities based on firearm suicide rates among Connecticut adults, 1999-2013, are reported by Centers for Disease Control and Prevention. Injury prevention & control: data & statistics. Web-based Injury Statistics Query and Reporting System (WISQARS™). Fatal Injury Data and Nonfatal Injury Data, 2014. <http://www.cdc.gov/injury/wisqars/index.html>.

VI

SUMMARY, CONCLUSION, AND IMPLICATIONS

Every day in the United States, more than 230 people are injured in gunfire and about 90 of them die—60 of those by their own hand. Those who survive a suicide attempt are likely to die from some other cause at an older age, but if they use a firearm in the attempt, they almost never get that second chance. Using the law to prohibit a suicidal person from purchasing a gun is a good idea, but one that will not work—even with a comprehensive background check system—as long as those who are inclined to harm themselves do not fall into some category of persons prohibited from possessing or purchasing firearms under federal or state law. New research evidence suggests that people who die from a self-inflicted gunshot wound, even those suffering from a serious mental illness, typically have *no* gun-disqualifying record of any criminal or

mental health adjudication; indeed, the large majority of them would have been able legally to buy a gun on the day they used one to end their own life.⁴²

In a country where guns are highly prevalent and where the right to purchase and possess them is constitutionally protected,⁴³ it would seem only prudent for states to adopt carefully tailored, non-criminalizing, public-safety-minded laws designed to separate guns from dangerous people—laws specifically targeting those few individuals who pose a clear and present risk of harm to themselves or others but who are not otherwise restricted from purchasing or possessing guns. The exercise of state authority to remove guns from private citizens under such risk-based regimes must, of course, be checked by appropriate due-process protections commensurate with abridging a constitutional right, including the opportunity for timely restoration of gun rights when risk recedes. Connecticut pioneered the use of these time-limited preemptive gun removal laws, but research has been lacking to inform other jurisdictions as to the particular challenges of implementing such laws; whether the laws are effective, and if so at what personal cost to individual liberty (by the measure of abridging the gun rights of people who must cherish guns, one might assume, by the fact that they tend to own so many of them.)

This article has presented the results of an extensive, mixed-methods empirical study of Connecticut's experience with its pioneering gun removal law. We find a considerable shift between the original impetus for the statute—its enactment having been driven by public concern over a highly publicized homicide—and the actual use of the law, where the concern in a majority of cases has involved harm to self and the risk of suicide, with referrals often coming from family members. We find that this law took several years to begin to work itself into routine practice as a useful tool for public safety and suicide prevention. Considerable barriers to implementation, such as the real and perceived time burden placed on police officers, seem to have prevented more extensive application.

Is the risk-warrant law being implemented and enforced fairly in Connecticut? We learned of the not-uncommon practice of “securing the guns first, getting the warrant later.” While this reversed sequence might appear to raise due-process concerns, it was clear from our interviews that police officers often justified it on the basis of an immediate risk to public safety at the scene. To the extent that some officers may also deviate from the statutory process for reasons of expediency and convenience, there could be some benefit in systematic education through DESPP focused on the risk

42. Swanson et al., *supra* note 13.

43. Following the Supreme Court's interpretation of the 2nd amendment right as articulated in *Heller v. District of Columbia*, 554 U.S. 570 (2008) and *McDonald v. City of Chicago* 561 U.S. 742 (2010), the limited role of law in preventing gun violence in the United States is mainly to keep guns out of the hands of dangerous individuals.

warrant law, as well as development of specific gun removal protocols to improve police practice in this area.

Is the risk-warrant law targeting the right people, and does it actually work to reduce gun-related violence and suicide? It is difficult to answer the question about violence to others without more cases to study, given the low base rate of gun-related aggravated assault and homicide in the population.⁴⁴ Also, the validity of the measure of this outcome was weakened by the fact that our study only had access to the records of arrest resulting in conviction—and we know independently that the majority of gun-related arrests in Connecticut do not result in convictions.⁴⁵ Still, that almost 9 out of 10 gun seizure subjects had no convictions during the year before or after the gun removal event suggests that the policy is not targeting criminally involved individuals. This stands to reason, since a criminal background often precludes legal gun ownership in the first instance; police would not typically need to invoke a civil risk-warrant statute to separate guns from a known or accused criminal offender.

With respect to suicide, however—and suicide concern was the most common type of risk motivating these gun removals—the data from Connecticut may provide the basis for a productive policy discussion. First, it is obvious that the law in Connecticut *de facto* has targeted a population of people at exceedingly high risk of suicide: about 40 times higher than that of the general population of the state. And to summarize the key finding: the study found that 21 individuals in the gun seizure database had died from suicide—6 of them with guns and 15 by other means. Using Connecticut population data on the case fatality ratio associated with various means of suicide, we estimated that these 21 suicides represented 142 suicide attempts, 121 of them being nonfatal. This, in turn, allowed us to calculate by extrapolation how many additional fatalities could have been expected if these individuals had retained their guns, and had alternatively used a gun to attempt suicide. In this manner, we estimated that approximately 10 to 20 gun seizures were carried out for every averted suicide. Are those numbers low or high? Is this a fair public health tradeoff? That may be for policymakers to decide; our data can help frame what is in the balance here between risk and rights.

Gun violence in America remains a multifaceted public health problem whose long-term solution calls for evidence-based public policies to address a range of contributing factors—from gun safety concerns to illegal trafficking and access, to the social and psychological determinants of assaultive and self-injurious behavior. But in a nation with a constitutionally protected individual right to bear arms, a gun-celebrating

44. CDC WISQARS™, *supra* note 3. Connecticut's annual rate of gun homicide is approximately 2 per 100,000 inhabitants.

45. Swanson et al., *supra* note 9.

culture, powerful political and corporate gun interests, and a very high prevalence of private gun ownership, there are stiff headwinds facing any form of firearms regulation. That guns are “here to stay” in America implies that efforts to reduce gun violence must be mainly about preventing dangerous behavior and restricting access to guns by individuals who demonstrate a significant risk of harming themselves or others. How to do that effectively and fairly, given the legal requirements for removing gun rights, on the one hand, and the inherent scientific difficulty of predicting violent behavior, on the other hand, is the essential challenge for policymakers and researchers.

Many current policies in the field of gun violence prevention are focused on improving the efficacy of background checks to identify and deter prospective gun purchasers who are legally prohibited from firearms. However, background checks alone may fail to prevent gun violence in some cases, because the prohibiting criteria correlate poorly with risk, and because guns are often acquired in private transactions not subject to background checks; thus, many individuals at risk have ready access to firearms—sometimes multiple firearms—in their homes. In a country with more privately owned guns than people and with large percentages of households having firearms in many states, strategies to prevent gun violence must consider ways to mitigate the risk posed by existing guns that are possessed by persons who may be inclined to harm others or themselves.

Laws that authorize police to remove guns from persons at risk of violence or suicide appear to be a logical and complementary approach to background checks in preventing gun violence. Our study advances the field of gun violence prevention by providing new information regarding the challenges to implementation of these laws in one state. Potential changes to the law, such as allowing police to remove guns immediately with probable cause (as is the case in domestic violence situations), could streamline the process and make it easier for police to take preventive action when appropriate. Our study does suggest that risk-based gun removal laws, even as currently implemented in Connecticut, can be at least modestly effective in preventing suicide. Expanded police training in the features of such a law and police protocols for safely removing guns from persons at risk of harm to self or others might further enhance the law’s utility and public safety benefit.