



Perspectives from firearm stakeholders on firearm safety promotion in pediatric primary care as a suicide prevention strategy: a qualitative study

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Abstract The primary objective of the current study was to examine the perspective of firearm stakeholders, including firearm safety course instructors, members of law enforcement, and firearm retailers, with regard to the implementation of an evidence-based approach to firearm safety promotion, the Firearm Safety Check, as a universal suicide prevention strategy in pediatric primary care. Twelve firearm stakeholders participated in semi-structured interviews. Using an integrated analytic approach, several themes emerged from the interviews. With regard to acceptability of the intervention, participants generally

found counseling caregivers to store firearms safely and the provision of firearm locking mechanisms to be acceptable, but expressed concern about screening for firearm ownership in health systems. Participants identified distinct roles of responsibility for firearm advocacy groups, firearm owners, healthcare clinicians, and caregivers with regard to the promotion and execution of safe firearm storage. Participants called for partnerships between healthcare systems and firearm stakeholders, and also identified potential threats to these partnerships, including lack of trust firearm owners may have in health systems and the government.

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Finally, participants suggested strategies for preventing firearm-related suicides. Findings support a growing body of literature suggesting the value in researchers, health systems, and firearm stakeholders partnering around a shared agenda of firearm safety promotion as a strategy to prevent suicide.

Keywords Firearm safety · Primary care · Suicide prevention · Evidence-based practice

Introduction

As the second leading cause of death for youth aged 10–24, adolescent suicide is a major public health problem (CDC, 2005). Firearms are the most common and lethal means of suicide attempts, with up to 91% of attempts by firearm resulting in death (e.g., Cunningham et al., 2018; Miller et al., 2004). The presence of a firearm in the home confers risk for suicide even when controlling for clinical (e.g., psychiatric diagnosis, psychological distress, history of suicide attempts) and socioeconomic (e.g., degree of urbanization, poverty, education, and unemployment) factors (e.g., Hepburn et al., 2007; Miller et al., 2012). The risk of suicide extends beyond the firearm owner to all household members, including youth (Cummings et al., 1997; Wintemute et al., 1999).

Reducing access to suicide means is one of the few effective approaches for reducing suicide. Specifically, safe firearm storage practices are associated with decreased risk for suicide in youth (e.g., Grossman et al., 2005). Thus, a broad range of medical groups, including the American Academy of Pediatrics (Dowd & Sege, 2012), the American College of Physicians (Butkus et al., 2018), and the American College of Surgeons (Talley et al., 2019), recommend counseling caregivers to reduce access to firearms in the home as a first-line universal suicide prevention strategy. Pediatric primary care has been identified as an ideal setting for suicide prevention given that over 75% of young people who die by suicide visit pediatric primary care in the year preceding their death (Luoma et al., 2002). *Safety Check* is one evidence-based approach tested in pediatric primary care and found to promote safer parental firearm storage in youth aged 2–11 (Barkin et al., 2008). In its original form, the firearm component of *Safety Check* (heretofore referred to as *Firearm Safety Check*) was bundled with other strategies (e.g., reduced screen time, time outs) and included: (1) screening for the presence of firearms in the home; (2) brief motivational interviewing-informed counseling regarding safe storage; and (3) provision of free cable locks.

Despite expert recommendations and an established evidence base, firearm safety promotion in pediatric pri-

mary care remains underused (Beidas et al., 2018). Although such a research-to-practice gap is not unique to firearm safety promotion, it is likely that interventions such as the *Firearm Safety Check* are associated with distinct barriers to implementation that distinguish them from other safety initiatives, such as the promotion of seatbelts and smoke detectors. Reluctance to adopt firearm safety promotion in pediatric primary care may be due in part to the perception that interventions focused on safe storage of firearms may appear to be an endorsement of firearm control efforts (Barber & Miller, 2014).

Community-academic partnerships have long been considered an essential mechanism for bridging the research-to-practice gap and bringing together the perspectives of different groups around a common goal (e.g., Chambers & Azrin, 2013; Pellecchia et al., 2018; Wallerstein et al., 2018). Community-partnered research incorporates the perspectives of various stakeholder groups with the goal of developing interventions that are feasible, acceptable, and sustainable in the settings in which they will ultimately be used (Pellecchia et al., 2018). Given the sensitive nature inherent in the consideration of wide-scale implementation of firearm safety promotion in healthcare settings, garnering the perspectives of all stakeholder groups who would be affected by implementation is especially important.

Research has begun to assess the needs of several stakeholder groups who would be impacted by the implementation of an evidence-based approach to firearm safety promotion in pediatric primary care, including firearm-owning and non-firearm-owning parents, clinicians (including physicians, nurses, and nurse practitioners), leaders of pediatric primary care and behavioral health practices, leaders of quality improvement initiatives in health systems, health system leaders, third-party payers, and members of national credentialing bodies (Wolk et al., 2018). However, to date little is known about the perspectives of firearm stakeholders, including firearm safety course instructors, members of law enforcement, and firearm retailers. This gap in the literature is concerning given that, collectively, this stakeholder group is particularly well suited to inform the development of culturally-sensitive interventions for firearm safety promotion as a suicide prevention strategy (Barber et al., 2017).

A growing body of literature has demonstrated the value of involving firearm stakeholders, including those who advocate for firearm rights, retailers, and firearm owners, as active participants in identifying and enacting solutions to the problem of firearm-facilitated suicides in partnership with researchers, health professionals, and suicide prevention groups (e.g., Barber et al., 2017; Vriniotis et al., 2014). However, to our knowledge, research has yet to systematically include the voices of firearm safety course

instructors, law enforcement, or retailers in conversations regarding the implementation of firearm safety promotion in health systems for youth.

The primary aim of the current study was to use a qualitative approach to examine barriers and facilitators to the potential implementation of an evidence-based firearm safety promotion intervention in pediatric primary care settings from the perspective of firearm stakeholders, including firearm safety course instructors, law enforcement, and firearm retailers.

Methods

Participants

We operationally defined firearm stakeholders as firearm safety course instructors, members of law enforcement, and firearm retailers. One additional participant was a firearm stakeholder of another nature that cannot be described in further detail due to potential risk to confidentiality. A subset of participants also self-identified as members of firearm advocacy groups. There were no exclusion criteria.

We used both purposive and snowball sampling and recruited via telephone and email for a total sample of 12 individuals. Given that this study was a part of a larger study conducted in two health systems in the Midwest and South (Beidas et al., 2018; Wolk et al., 2017, 2018), we first invited firearm shop owners and safety course instructors in these regions to participate in the study. We identified firearm shop owners via internet searches and called or emailed all shops in the identified regions. To identify safety instructors, we contacted individuals listed in publicly available directories of safety instructors, either by phone or email, depending on the contact information that was available. To ensure that we achieved thematic saturation, we also expanded our area of recruitment for safety course instructors to include other regions of the US. We used snowball sampling to recruit additional participants, including members of law enforcement, who were located across the country. We asked all participants and study investigators to suggest potential firearm stakeholders for us to contact. Potential participants were emailed up to two times and called no more than three times. Across sampling methods, we reached out to 92 potential participants and received responses from 38 (41%) potential participants. Of these 38 individuals, 21 declined to participate and 17 asked us to contact them at a later date but did not respond to our follow-up attempts to schedule interviews.

Procedure

All procedures were approved by our institution's IRB as well as those of the two additional health systems involved in the study. During the consent process, the intentions of the research team were shared and informed consent was obtained from all individual participants included in the study. No one withdrew from the study following informed consent.

This study was conducted as part of a larger parent project examining the perspectives of various stakeholder groups about the acceptability, as well as barriers and facilitators, of an evidence-based strategy for firearm safety promotion, *Firearm Safety Check* (Barkin et al., 2008; Beidas et al., 2018; Wolk et al., 2017, 2018). To capture shared experiences across firearm stakeholders, we developed a semi-structured interview guide (see Table 1). Experts in firearm safety promotion research reviewed and provided feedback on the guide. Of note, this interview guide differed from those used in the parent study, which focused on stakeholders employed or receiving services within health systems (Wolk et al., 2018). Specifically, the guide for the current study was tailored to be most relevant to the firearm stakeholder group and focused less on specific issues related to healthcare systems (e.g., who should implement screening in pediatric primary care) and more broadly on the role of health systems in firearm safety promotion for youth.

During the first part of the interview, the interviewer introduced *Firearm Safety Check* and provided information about its effectiveness (Barkin et al., 2008). The remainder of the interview included questions about: experiences with and thoughts about strategies for suicide prevention and firearm safety promotion; perceptions of the role of firearm stakeholders in efforts to promote safe firearm storage and suicide prevention; the role of the healthcare system in promoting safe firearm practices; the culture around firearms in the participants' communities; how to disseminate information about firearm safety; and how to effectively implement *Firearm Safety Check*.

Study staff and investigators (RSB, CAG, SJH, AEL, PS, CBW) conducted one-time interviews privately over the telephone. Eighty-three percent of interviewees were female; 50% had PhDs in clinical psychology and 50% had advanced graduate training (i.e., one masters in public health, one masters in social work, and one masters in counseling in progress). Interviewees had no previous relationships with interviewees. At the end of each interview, participants were asked about demographic information according to the recommended categories for federal data collection purposes and as requested by the National Institutes of Health. Each participant was offered \$25 for participation.

Table 1 Firearm stakeholder interview guide

Introduction: We are interested in hearing your thoughts about an intervention to reduce youth suicides by firearms. The specific intervention we'd like to talk to you about today is adapted from an evidence-based program that was originally developed as an office-based violence-prevention intervention. We have adapted the intervention to focus specifically on firearm safety and suicide prevention and to be delivered to guardians of all youth (aged 10–24) presenting in primary care. The name of the program is Firearm Safety Check. Firearm Safety Check consists of three components: a) healthcare providers asking all guardians of youth who present for well and/or sick visits in primary care about the presence of firearms in their home (screening), (b) providing brief counseling (< 1 min) around safe gun storage to the guardians of all youth who present for well and/or sick visits, and (c) providing gunlocks, as needed, for firearm safe storage to the guardians of all youth who express interest during well and/or sick visits. I'm interested in your perspective on the appropriateness of Firearm Safety Check for primary care and how such an intervention might be perceived by firearm owners. It's important for you to know that there are NO right or wrong answers. I'm really interested in your opinion and perceptions.

Q (Participant Information): First, could you tell me your role in _____ and briefly what you do in this position?

Q (Firearm Suicide Prevention): Estimates from the Center for Disease Control suggest that approximately, 5900 youth in the US die by suicide each year, with 2600 of those deaths carried out by firearms. We are interested in your thoughts as a firearm stakeholder about how to reduce those deaths. Tell me your thoughts about the best ways to reduce youth suicide by firearm. What strategies, if any, do you think would be appropriate for reducing youth suicide by firearm? Have you participated or had any experiences with suicide prevention efforts?

Q (Firearm Safety): [If not already covered] Tell me your thoughts about the role of firearm owners in efforts to promote safe firearm storage and/or suicide prevention.

Q (Firearm Stakeholders/Health Researchers Partnership): Tell me your thoughts about the role, if any, that the healthcare system should play in promoting safe firearm practices.

Q (Health System/Primary Care and Firearms Counseling/Suicide Prevention): [If not already covered] What do you think about health care providers (specifically, pediatric primary care providers) discussing gun safety and safe gun storage with families as a suicide prevention strategy?

Are there any other individuals (e.g., gun shop owner, police officer, friends) from whom you would feel more comfortable receiving information about safe gun storage?

[If participant finds Firearms Safety Check to be unacceptable:] Do you have any suggestions for changes that could be made to Firearm Safety Check to make it more acceptable? **[If not already covered]** Would you prefer any alternative ways to disseminate information about safe gun storage other than through primary care (e.g., courses through the NRA)?

Q (Firearm Culture): [If not already covered] How might the culture around firearms in this country and in your community impact how a program such as Firearm Safety Check, a program to increase safe firearm storage to reduce youth suicide, would be perceived?

Q (Positions/Safety Promotion): Tell me about any work you have been involved with to promote firearm safety. How effective was that effort?

Q (Safety Check): [If not already covered] How would a program like Firearm Safety Check align or not align with any firearm safety promotion work you've been involved with? If consistent, what actions might firearm owners and advocates take to support wide-scale implementation?

Interviewer: Probe about what positions the person or their affiliated organizations has taken with respect to youth suicide prevention and/or firearm safety, or what advocacy work they have done in these areas?

Q (D&I): Tell me your thoughts on how to most effectively disseminate information about firearm safety. **[If participant finds Firearms Safety Check to be acceptable].** What about your thoughts about how to most effectively implement a program such as Safety Check. (Probe specifically about barriers and facilitators)

Q (Champions): Do you know of any other potential champions of firearm safety or people that may be concerned about youth access to firearms who I should talk to?

All interviews were audio-recorded and lasted, on average, 1 h. Research assistants at the University of Pennsylvania transcribed all interviews and uploaded the transcripts into the NVivo QSR 10 qualitative data analysis software program for storage and data analysis. All transcriptions were read and checked by the project coordinator. Of the 70 interviews that were conducted as part of the parent study, 29 (41%) were listened to and verified by two people. The transcribers for the current study also transcribed interviews for the parent study.

No field notes were recorded. The interviewers met regularly to discuss thematic saturation. Consistent with previous research (Guest et al. 2006), thematic saturation occurred within the 12 interviews that were conducted. We

followed the COnsolidated criteria for REporting Qualitative research (COREQ; Tong et al., 2017).

Data analysis

Because the questions and content of the interviews differed from the parent study, we used an inductive process of iterative coding to ascertain recurrent relationships, themes, and categories unique to this stakeholder group. An integrated approach guided our rigorous and systematic identification of codes and themes across study participants (Bradley et al. 2007). During the first phase of data analysis, members of the analytic team reviewed all 12 transcripts, identified emergent themes, and developed a draft

codebook. The codebook was iteratively refined through team discussion and finalized. During the second phase, members of the research team (YVB, SN, HLL) used the codebook to independently code three interviews. They compared applications of the coding system to assess robustness ($\kappa = .98$). Two members of the research team then coded all remaining interviews (one coded 5 additional interviews and the other coded 4). All told, one team member coded 8 interviews, one coded 7, and one coded 3.

Results

Demographics of participants

The sample was comprised of 12 participants, all of whom were male, with an average age of 51.17 ($SD = 9.41$) years. Of these individuals, 10 (83%) identified as White, 1 (8%) endorsed more than one race, and 1 (8%) did not disclose his race; none identified as Hispanic and/or Latino.

Themes

See Table 2 for quotes from qualitative interviews presented by theme.

Acceptability of intervention

Participants shared their perspectives on the individual components of the *Firearm Safety Check*: screening, counseling, and the provision of cable locks.

Screening

The majority of participants expressed skepticism about healthcare clinicians asking caregivers about the presence of firearms in the home. Several reasons were provided, including the belief that firearm ownership status is private, potentially sensitive information that patients may not want to share with healthcare clinicians. An additional concern was related to documentation of firearm ownership in the medical record given the potential for it to be misused in the future as a way to create a registry of firearm owners. Participants noted that clinicians are not typically experts in firearm safety and are often perceived to hold “anti-firearm” beliefs. However, a minority of participants suggested that screening for firearms in pediatric primary care would be acceptable if bundled with other questions (e.g., questions about access to other means for suicide, such as a prescription medication or illicit drugs that could be used to facilitate suicide by overdose; questions related to other areas of child safety).

Counseling

Participants were generally more open to clinicians providing firearm safe storage counseling. Specifically, they suggested that clinicians could provide information about how to store firearms safely without asking about firearm ownership. Participants also suggested that clinicians refer patients to local firearm safety instructors or firearm advocacy groups who are experts in firearm safety to obtain information on safe firearm storage.

Provision of cable locks

Participants were also generally more open to clinicians providing firearm safe storage devices, specifically cable locks. Most respondents stated that it would be acceptable for health care organizations to offer cable locks. However, they also expressed doubt in the utility of this practice based on the perception that individuals rarely take free firearm locks provided by firearm retailers.

Responsibility

Participants generally agreed that firearm advocacy groups, firearm owners, healthcare clinicians, and caregivers each have distinct areas of expertise, and in turn, different responsibilities related to firearm safety. First, participants noted that firearm advocacy groups are most expert in firearm safety and bear the responsibility of providing high-quality firearm safety training. In contrast, healthcare clinicians were perceived as having little expertise in firearm-related matters, and thus, were not viewed as responsible for addressing firearm safety with patients or caregivers of patients. Participants noted that firearm owners are responsible for storing their own firearms safely and preventing “unauthorized access” to their firearms. Participants also noted that caregivers are responsible for detecting if their children are at elevated risk for suicide and responding accordingly. Experts on suicide prevention, such as mental health professionals, were viewed as responsible for providing appropriate treatments and resources to individuals at risk for suicide. Finally, some respondents suggested that it might be appropriate for entities such as the police and schools to disseminate information regarding firearm safety.

Lack of trust

Many participants reported that the culture around firearms in the United States would significantly impact the acceptability and implementation of *Firearm Safety Check*. Respondents noted that firearm ownership is a divisive

Table 2 Quotes from qualitative interviews by theme

Theme	Example quotes
Acceptability	Coaching is fine, but the questions of what you have and what you don't have is no one's business
	As soon as my pediatrician starts asking me about guns in my home, I'm like 'uh oh, here we go. Now my pediatrician's office is all about this'
	Bundling it in with other questions... that pertains [sic] to child safety, just throwing it kind of in the middle... that's a better way to do it because it's a soft blow. It's not like hitting them right in the forehead kind of thing
	I think that's the way a good intervention is set up. So you screen to see if it's pertinent and then, if it is, then you counsel them on it, and then if...you know after you've done the counseling, to actually give them something that's useful to help drive that home of a gun lock is, I mean, the way it should be. So I wouldn't make any changes [to the intervention]
	Any vehicle that will give out gun locks to people, especially anonymously, to people that need a gun lock, want a gun lock, I applaud that so much
	You'd be surprised at how many people, before they leave my shop, take the lock out of the box and throw it on the counter and say 'throw this away'
	There's nothing new and unique about asking the question "Are your guns properly secured?" And if you need a gun lock just check with the nurse's station on the way up
Responsibility	If you have guns in the home, are they properly locked up? Are they properly secured? That's a yes or no. And I think that part would be well received because it's already out there. It's already common knowledge to gun owners
	The highest responsibility of any firearms owner, if you choose to own it, is you have to prevent unauthorized access to your firearm and that's a broad sweeping comment, which we go on to define as unauthorized access to your firearm means don't let somebody steal it. It means don't let your kids find it and have an accident with a gun. Don't let a distraught family member or somebody who is addicted to drugs or alcohol or somebody in a drunken stupor access this. Don't let, you if you have an anger management problem with you know the wife, the husband, the daughter, the son whoever...basically it comes down to if you're going to have the gun, no unauthorized use should have access to it, so whatever it takes to make sure that that doesn't happen, is completely part of when you make the decision to purchase it you have to...that has to be part of your plan
	I do not believe that it is the pediatrician or medical doctors' responsibility, nor is it any of their business, if someone owns or possess firearms...
	Well, I think that it's important to talk to the patient but it is also important to talk to those around the patient. Whether it's a parent or whether it's loved ones or siblings. When you know that there's potential for self-harm, it should be one of the topic areas that is addressed in briefing the family members that 'Hey, this is something that you must look into and this is something that you must make safe in your home.' And you can suggest whether it's locking up the weapons or getting rid of the weapons or those kind of recommendations. Ultimately, it's up to the parent or family member to do this or not do it, but I think it's very important for the clinician to infer the consequence if you don't
	I think gun owners are actually the experts in firearm storage and accident prevention. If you want to fix a car, you go to a mechanic. If you want to talk about firearms, you go talk to somebody who owns firearms
	So far as suicide prevention, it is not really in our belly work... other than to be responsible, take responsibility, and secure them [firearms] properly. None of us are psychologists
Lack of trust	The huge thing is that people are worried about being put into a database. Anyone that they associate with a database, like law enforcement or medical, they're probably not going to answer honestly to, I'm assuming[...]
	... if the [name of government agency redacted for publication] were not so anti, and they have proven in the past that they are anti-gun ownership, that's why I question their metrics, I question their data[...]
	Well I think right now our country is split between those that interpret that they need to have their weapons to protect themselves and their property versus those that see the potential harm that weapons can do and I think that our legislatures are not doing enough [...]
	The [medical association redacted for publication], in general, on anything promulgate has not been particularly sympathetic with gun ownership. As a matter of fact. I think it viewed gun ownership as a positive evil
	I know many physicians that do own firearms that aren't open about it because they will be tagged which is why I do not want private citizens to also tag it themselves in that same way because then things will get recorded, HIPAA rules go out the window and the federal government comes in
Suggested approaches	So for example, imagine the following scenario. A little pamphlet stand in the pediatrician's office that says 'Own a gun? If so, get training and learn about safety. Here are 5 [name of firearm organization redacted for publication] certified instructors that are available within 5 miles of this office and this contact info for them.' So you're not saying 'guns are good, guns are bad,' you're saying 'do you have one of these things? Why don't you get some training? Here's some people who can help you get that training'
	A better program I think would be maybe, if the doctor wanted to do it, is to refer to somebody in the community if they can find it because there's plenty of us that are trained by the [name of firearm organization redacted for publication]...to show them how to be safe and handle [their guns]. The doctors already have enough to do, especially pediatricians. I see their workload; it's just incredible

Table 2 continued

Theme	Example quotes
	It would be useful if gun safety, taught by a certified instructor, became part of the public school curriculum. This is the best play that I can think of to reach youngsters...to teach them about the dangers of mishandling firearms and benefits of safe handling firearms
	You cannot do that [develop an intervention to promote firearm safety and suicide prevention] without the gun owners. You've got to make them part of the equation because if you exclude the gun owners, you're not going to get anywhere with your program
	It's good to speak to someone that's wanting to, really wanting to help without telling me I shouldn't have a gun
	I do think there would be some benefit to it [collaborative approach with pediatricians and gun advocates] where doctors and instructors could get together every so often and try to get their parents and their kids in some kind of educational...seminar. It wouldn't take long, an hour or less would do it. It's not a lot of time to spend to help protect against the accidents and mental problems
	I think that gun locks are probably the best option, but I'm not sure how many people would be willing to actually go for it
	Why don't we try engagement? Why don't we try to find a way where we get on the same side of this issue, leverage our training and safety infrastructure, review the content, make sure it's consistent with the message you're trying to deliver, and see if in some small geography, we can lever it and study it

topic, with individuals who support the right to own firearms typically viewed in opposition to those who advocate for firearm safety. Participants stated that firearm-owning constituents may perceive healthcare clinicians and systems as advocates for firearm control, which might make firearm-owning caregivers reluctant to speak with clinicians about firearm-related matters. Similarly, participants identified the government as motivated to restrict firearm ownership. Despite the general skepticism about the government supporting rights to firearm ownership, some participants cited existing legislation perceived to be helpful in promoting safe firearm practices, including laws mandating safety training for new firearm owners. Finally, respondents also suggested that individuals they described as “anti-firearm” likely misperceive the mission of firearm advocacy groups. For example, they are likely not aware of the National Rifle Association's [NRA] dedication to promoting firearm safety and preventing firearm-related injuries and casualties.

Suggested approaches

Participants shared a number of suggested strategies to reduce youth suicide deaths by firearm. The most frequently reported suggestions focused on potential partnerships between the healthcare community and firearm rights advocacy organizations. Many respondents described organizations, such as the NRA, as leading experts in firearm safety practices, with developed educational programs to promote safe firearm use and storage practices. As such, participants suggested that healthcare clinicians interested in firearm safety promotion would benefit from meeting with members of the gun advocacy community who are engaged in this work. Other participants suggested that, rather than provide firearm safety counseling them-

selves, healthcare clinicians should refer interested patients to organizations that specialize in the promotion of firearm safety. Several participants trained as firearm safety instructors noted that they have partnered with various institutions, such as schools and churches, to provide training, but have not received similar invitations from healthcare organizations. Additionally, participants suggested that educational materials developed by firearm advocacy groups could be displayed in hospitals and doctors' offices or distributed to caregivers. Beyond the healthcare system, participants suggested that legislation stipulating mandatory firearm safety training for new firearm owners could potentially lead to fewer firearm-facilitated suicides. Finally, one respondent suggested utilizing the media to deliver messages about safe firearm storage.

Discussion

There is growing interest in the roles that clinicians and health systems can play in firearm safety promotion given the increasing rate of firearm injury and mortality in youth in the United States (Fowler et al., 2017). The major objective of this project was to understand the perspective of firearm stakeholders, including firearm safety course instructors, members of law enforcement, and firearm retailers, about firearm safety promotion in pediatric primary care as a universal suicide prevention strategy. This project is among the first to recruit these stakeholders, including individuals who also identified as firearm advocates, in the conversation about firearms safety promotion as a primary care-based suicide prevention strategy.

Often, the narrative has been that firearms stakeholders and public health researchers are on separate sides of a debate, and that firearm stakeholders are not willing to

partner with public health researchers and vice versa (National Rifle Association Institute for Legislative Action, 2018). Our experience directly challenges that narrative—the firearm stakeholders who participated in this study were willing to take part in federally-funded research and discuss firearm safety within the context of youth suicide. Other key findings include suggestions on how to approach a partnership around youth firearm safety, potential threats to this partnership, and recommendations from this important stakeholder group with regard to necessary adaptations to the *Firearm Safety Check*.

A number of concrete recommendations were made with regard to partnership and bringing together an interdisciplinary and multi-perspective group of individuals with the shared agenda of reducing youth suicides by firearms. First was the importance of creating a coalition of stakeholders, including firearm safety course instructors, law enforcement, advocacy groups, caregivers, clinicians, mental health experts, and schools to educate one another about their areas of expertise and to leverage combined expertise to develop a shared agenda. This is consistent with the approach taken by more than 20 states who have formed collaborations dedicated to finding common ground between firearm stakeholders, suicide prevention advocates, and other relevant stakeholders to inform the development and implementation of effective, culturally-sensitive prevention and intervention efforts. For example, following a cluster of suicides facilitated by recently-purchased firearms in New Hampshire in 2009, public health practitioners, firearm retailers, and local firearm safety instructors formed the New Hampshire Firearm Safety Coalition focused on preventing suicide in firearm owners (Barber et al., 2017; Vriniotis et al., 2014). The Coalition's primary goal is to develop and share guidelines about how to avoid selling or renting firearms to suicidal individuals, as well as encourage firearm retailers and firing range owners to display and distribute suicide prevention materials specifically tailored to their customers. Other states have formed similar partnerships, including the Colorado Firearm Safety Coalition, a group comprised of firearm safety course instructors, firearm retailers, members of the Colorado Department of Public Health and Environment, and public health researchers devoted to education about the prevention of suicide and firearm safety. One of the founding members, Dr. Betz, has also facilitated trainings for physicians and medical students to become familiar with how to use and store firearms (Gordon, 2018). Partnerships have formed at the national level as well, including a joint suicide-prevention initiative developed by the American Foundation of Suicide Prevention (AFSP) and the National Shooting Sports Foundation (NSSF; AFSP, 2016). Both local and national efforts to create these kinds of coalitions are necessary. Second, firearm stake-

holders suggested that clinicians and health systems consider partnering with local firearm safety instructors or firearm advocacy groups as credible experts in firearm safety. For example, firearm advocacy groups can create materials to hang in doctors' offices or pamphlets describing the importance of firearm safety. To our knowledge, this specific strategy has yet to be implemented or examined empirically and we suggest that future research explore its effectiveness.

Our findings demonstrate that some firearm stakeholders support the role of legislation in reducing firearm injury and mortality, suggesting that such legislation may be more acceptable across stakeholder groups than previously believed. Examples of legislation include laws requiring a safety course in order to purchase a gun, as well as child access prevention laws that impose liability on adults who allow children unsupervised access to firearms. A legislative approach is consistent with emerging findings that policy can have a real impact on youth firearm injury and mortality (Chapman et al., 2016; Kaufman et al., 2018).

Although the individuals we interviewed stressed the importance of partnership between health systems and firearm stakeholders, they also raised potential threats to partnership. Our results suggest the need for clinicians and health systems to consider firearm culture in the United States when designing and implementing firearm safety promotion with parents of youth and other patients. For example, consistent with previous research, we found that patients may assume that clinicians are not reliable sources for information about firearms and are not likely to be familiar with or accepting of firearms or firearm culture (Olson et al., 2007). As such, it is important for clinicians to develop "cultural competence" related to firearm ownership (Betz & Wintemute, 2015; Pirelli & Witt, 2017). To achieve this aim, clinicians must be trained to conduct conversations related to firearm safety promotion in a non-judgmental manner that communicates respect for firearm owners' values (Marino et al., 2018). Approaches that emphasize both protecting second amendment rights and protecting oneself and one's family from harm have been found to be most effective (Marino et al., 2018). In addition, approaches focused on providing information, such as statistics about the risk of suicide in the presence of unsecured firearms, in an empathic manner and without explicit orders about what to do may be particularly effective (Betz & Wintemute, 2015; Olson et al., 2007). Decision aid tools, such as the Lock to Live decision aid (Betz et al., 2018), that allow clinicians to discuss different safe storage options with parents can assist clinicians in these discussions. Other suggestions for increasing firearm cultural competence in health systems include having the 13–41% of physicians who own firearms provide leader-

ship to their peers around developing competencies in firearm safety counseling (Betz & Wintemute, 2015).

As part of our larger project, we also interviewed a diverse group of participants from multiple stakeholder groups, including both firearm-owning and non-firearm owning clinicians, parents, and healthcare leaders, to understand their perspectives on the role of clinicians and health systems in firearm safety promotion for youth suicide prevention (Wolk et al., 2018). It is of note that, although some themes were common across stakeholder groups (e.g., need for partnership), many of the themes that emerged from the firearm stakeholders diverged from those raised by other stakeholder groups. For example, although firearm stakeholders did not generally suggest many adaptations to counseling or the provision of cable locks, the majority of participants in this stakeholder group expressed serious reservations about documenting firearm ownership in the electronic health record. This was not a concern voiced by other stakeholder groups (other stakeholder groups identified the provision of cable locks as the least acceptable of the three intervention components). Given these reservations among firearm stakeholders, removing the screening component may increase the cultural sensitivity and acceptability of the intervention. Other data lend support to this potential adaptation given that screening has not been identified as the critical component of firearm safety promotion (in contrast, provision of firearm locking mechanisms has been identified as the potential active ingredient; Rowhani-Rahbar et al., 2016). In addition, removing one of the intervention steps would streamline it, making it easier for health systems to implement. Further, in the original *Safety Check* trial, counseling and provision of cable locks were implemented regardless of the result of the screen (e.g., parents were asked “how many cable locks would you like?” even if they denied owning a firearm upon screening). Future trials studying the effectiveness of the *Firearm Safety Check* without screening for firearms in the home is suggested. The suggestion that clinicians and health systems partner with local firearm safety instructors or firearm advocacy groups as more credible firearm safety experts was also unique to this stakeholder group.

This study had limitations. First, although we reached thematic saturation (Guest et al., 2006), our sample size of 12 was relatively small and the rate of participation was low given the number of individuals to whom we reached out. Second, given that the focus of our study was on youth suicide prevention, our findings may not extend to other firearm safety promotion efforts (e.g., unintentional injury, homicide). Future research will benefit from expanding the scope to include both intentional and interpersonal injury across the pediatric age span. Third, the firearm stakeholders who participated in this study represent a hetero-

geneous group and perspectives may vary by subgroup. For example, it is possible that the views of individuals representing firearm advocacy groups may differ from those in law enforcement. Similarly, firearm safety course instructors and retailers may differ in their perspectives from the broader category of firearm owners. Our small sample size precluded sub-analyses examining potential differences between subgroups of firearm stakeholders, and future research would benefit from a more granular inquiry. Fourth, as our stakeholders were recruited from a limited number of states, our sample is not nationally representative. Finally, our sample consisted of primarily White males. Although White males are most likely to be gun owners (48% of White American men own guns), a significant minority of non-White men (24%), White women (24%), and non-White women (16%) also own guns (Pew Research Center, 2017). Future research with more representative samples is necessary.

This study incorporates the perspectives of firearm safety course instructors, members of law enforcement, and firearm retailers in the discussion around the role that clinicians and health systems can play in firearm safety promotion. Our findings build upon prior research, suggesting the potential for researchers, physicians, and health systems to partner with firearm stakeholders around a shared agenda of firearm safety promotion in an effort to prevent youth suicide. However, there is a pressing need for additional research to inform the development, sustainability, and effectiveness of these partnerships in reducing the number of youth who die by suicide.

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Compliance with ethical standards

Conflict of interest Shari Jager-Hyman, Courtney Benjamin Wolk, Brian K. Ahmedani, John E. Zeber, Joel A. Fein, Gregory K. Brown, Y. Vivian Byeon, Hannah Listerud, Courtney A. Gregor, Adina Lieberman, and Rinad S. Beidas declare that they have no conflict of interest.

Human and animal rights and informed consent All procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

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