

Financial barriers and facilitators to secure firearm and medication storage among veterans with elevated suicide risk: a qualitative study

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ABSTRACT

Objective To explore financial barriers and facilitators to promoting secure firearm and medication storage among patients at risk for suicide.

Methods Veterans seeking care in Veterans Affairs emergency care settings (N=28) participated in qualitative interviews on barriers and facilitators to adopting secure firearm and medication storage behaviours. Thematic analysis with inductive and iterative coding was used to identify themes pertaining to financial barriers and facilitators. Interviews were double-coded for reliability.

Results We identified four themes—two related to financial barriers and two to financial facilitators. Barrier-related themes included: (1) the high cost of firearms and medications made owners less likely to dispose of medications, relinquish ownership of firearms or pursue out-of-home storage for firearms; (2) the high cost of out-of-home storage and preferred locking devices were barriers to secure storage. Facilitator-related themes included: (1) no-cost services or locking devices may help motivate secure firearm and medication storage and (2) preferences varied for no-cost locking devices versus coupons for devices.

Conclusions Addressing financial barriers and leveraging financial facilitators may motivate secure storage of lethal means, which could enhance suicide prevention efforts.

Firearm injury and poisoning, often by medication overdose, account for most deaths by suicide among the general population (65%) and US military veterans (80%¹). Lethal means counselling (LMC) is an evidence-based intervention in which clinicians encourage patients to limit their access to lethal means of self-injury (eg, firearms, potentially toxic medications) to reduce their suicide risk. However, LMC interventions have had varied impact in encouraging secure firearm and medication storage,^{2,3} and there are multiple barriers that hinder patients' ability and willingness to adopt these recommendations.⁴

Decades of research, particularly in behavioural economics, have examined strategies to motivate behaviour change to align individuals' behaviours more closely with clinical recommendations and their health goals. Studies have found that financial incentives increase adoption of health behaviours like exercise and vaccination,⁵ and that individuals are more likely to change their behaviours

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Financial incentives increase adoption of health behaviours, but little work has explored financial barriers or facilitators that may promote secure firearm or medication storage among individuals at elevated risk for suicide.

WHAT THIS STUDY ADDS

⇒ The high cost of firearms and medications make owners less likely to relinquish ownership or store firearms outside their homes, and the expenses of both in and out-of-home storage options are barriers to secure storage. The provision of no-cost or discounted services or locking devices, however, could help motivate secure firearm and medication storage.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Healthcare systems should consider efforts that decrease the cost and inconvenience of in and out-of-home firearm and medication storage as well as disposal of unneeded medications. Practices and policies that address financial barriers and leverage financial facilitators may promote secure storage and help prevent suicide.

if the costs and inconvenience of these changes are minimised.⁶ Furthermore, a 2022 systematic review demonstrated that patients' hesitation to use locking devices was related to perceptions that the least costly devices were inconvenient or not secure enough, and that more secure and higher quality devices were too expensive.⁴ Consistent with these findings, a nationally representative survey of firearm owners confirmed that one of the top considerations for selecting a firearm locking device is its cost.⁷ Aside from preliminary work from our team showing the potential acceptability of using financial incentives to motivate secure firearm and medication storage,⁸ little work has explored financial barriers or facilitators that may impact implementation of LMC or promote secure firearm and medication storage decisions more broadly.

The aim of the parent project providing data for the current study was to explore barriers and facilitators to the implementation of LMC in emergency care settings.⁹ One set of themes to emerge from these interviews was the identification of cost as a barrier to limiting access to firearms and



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medications and the role of financial facilitators in promoting secure storage. The present study examined these themes among at-risk veterans seeking treatment in Veterans Affairs Medical Centers (VAMC).

METHODS

Procedures were approved by the Colorado Multiple Review Board. Participants were US veterans seeking care in VAMC emergency department or urgent care settings in Colorado or Wyoming between 2021 and 2023 who were identified as having elevated suicide risk. Elevated suicide risk was defined as either the presence of psychiatric or substance use diagnoses or suicidal ideation reported on the Columbia Suicide Severity Rating Scale Screener, completed by all patients seeking care in VAMC emergency care settings.¹⁰ Participants were identified through health records as having received emergency care in the previous 3 months and sent letters; interested veterans were screened by phone. Veterans with access to firearms, prescribed or over-the-counter medications, or drugs (eg, opioids) were eligible for inclusion. Semistructured interviews were conducted via Microsoft Teams to better understand participants' perspectives on LMC interventions. Interviews were guided by the Health Belief Model,¹¹ which describes factors contributing to health-related decision-making. Recruitment and procedures have previously been described.⁹ All data were deidentified and linked with an ID number; identified data (ie, consent forms) were stored on a secure network.

Interviews were audio-recorded and transcribed and analysed with Atlas.ti software using thematic analysis¹² with inductive and iterative coding (see supplementary file 1). Interviews were double-coded for reliability, bracketing was used to increase trustworthiness of results,¹³ and the analysis team met regularly to discuss coding decisions. Three authors (GK, ES, and JAS) initially read through five interview transcripts and identified points at which veterans mentioned financial barriers or facilitators to secure firearm and medication storage. Subsequently, these authors reviewed all interviews and coded any mention of the cost or value of firearms or medications or the benefits of coupons that could be used to purchase locking devices, no-cost devices or incentives. One author (GK) subcategorised these instances into the themes described below, which were refined through discussions with the two other coders.

Patient and public involvement

Prior to enrolment, we presented procedures and materials to veterans and members of the firearm community for their feedback. The interview guide was iteratively adapted based on participants' perspectives communicated to study staff during interviews.

RESULTS

The sample included 28 veterans (86% men; 86% white, 4% black/African American and 10% other/declined; 11% Hispanic/Latine; age=55.87 (14.91)). Of these veterans, 23 discussed financial-related content and were included in the present analysis.

We identified four themes—the first two related to financial barriers and the second two to financial facilitators to secure firearm and medication storage (table 1). First, veterans noted that the high cost of firearms and their status as investments made owners less likely to relinquish ownership altogether or store pursue out-of-home storage. Patients were also reluctant to dispose of unneeded medications due to the high cost of

reacquiring them if needed. While suicide prevention was infrequently mentioned as a motivation for secure storage, preventing theft was an important motivator. Second, veterans stated that storing firearms outside of their homes (eg, at a gun shop) or purchasing preferred locking devices like gun safes or lockboxes was expensive and that these costs were a significant barrier to secure storage. Additionally, veterans expressed a preference for expensive locking devices like gun safes and those rated as fireproof.

Third, veterans noted that no-cost services or devices could help motivate secure firearm and medication storage. They stated that they would be more likely to return unused medications to the VAMC, if doing so were convenient and cost-free, and that they would be even more likely to do so if they were paid per medication returned. Veterans also said that provision of no-cost, high-quality locking devices or a no-cost location to store firearms would motivate secure storage and demonstrate the VA's investment in their care. At the same time, veterans expressed doubts that the VA would be willing to provide these resources due to their cost. Some veterans also highlighted the importance of maintaining control over how and when they secured their firearms and medications. Fourth, veterans' preferences for no-cost locking devices versus coupons varied, with some suggesting that veterans should be given a choice between these options. While some veterans preferred coupons to maximise their choice of locking devices, others preferred the convenience of being offered a locking device and the guarantee of not needing to spend their own money.

CONCLUSIONS

In qualitative interviews conducted with at-risk veterans seeking treatment in VAMC emergency care settings, we identified four themes relevant to financial barriers and facilitators to the promotion of secure firearm and medication storage. The monetary value of firearms and medications made owners less likely to relinquish ownership or pursue out-of-home storage, and the high cost of out-of-home storage and preferred locking devices served as a barrier to secure storage. However, the provision of no-cost services or devices could help motivate secure firearm and medication storage, and veterans were open to both receiving coupons for locking devices or no-cost locking devices.

These findings align with behavioural economic studies showing that offering financial incentives and decreasing the costs and effort associated with behaviour change increase the likelihood of individuals following through on these changes.^{5,6} These findings also align with previous research showing that many firearm owners prefer higher quality locking devices like lockboxes rather than cheaper devices like cable locks, that provision of locking devices likely increases the effectiveness of LMC, and that distribution of locking devices even without LMC may encourage more secure firearm storage.^{2,3,7,14,15} Therefore, healthcare systems should consider efforts that decrease the cost and inconvenience of in and out-of-home storage as well as disposal of unneeded medications. Providing theft-resistant locking devices may also increase motivation to use them. Offering coupons for locking devices or no-cost devices are both viable options, and ideally patients would be able to choose between them. Other options include providing coupons or discounts for out-of-home storage options (eg, storage at gun shops, ranges or storage facilities) as well as easily accessible information on local, out-of-home storage options (eg, storage maps¹⁶). Additionally, offering incentives for returned medications may increase willingness to expend effort to do so.

Table 1 Themes related to financial barriers and facilitators to secure firearm and medication storage derived from qualitative interviews

Theme	Description	Quotations
Financial barriers to secure storage		
The monetary value of firearms and medications makes owners less likely to dispose of medications, relinquish ownership of firearms or store firearms outside of their homes.	<ul style="list-style-type: none"> ▶ Firearms are expensive and often considered an investment, which makes firearm owners less inclined to store them offsite or relinquish ownership altogether. ▶ Medications are expensive, which dampens enthusiasm for disposing of them but increases motivation to lock them up. ▶ Veterans are motivated to store firearms or medications in safes or lockboxes to prevent theft and not necessarily for suicide prevention. A locking theft-resistant locking device may therefore increase uptake. 	<p><i>'There's a monetary value associated with firearms that could be necessary for the survival of the veteran.'</i></p> <p><i>'You have to understand that firearms are an investment.'</i></p> <p><i>'I don't have... sketchy people coming into my house (who might) go to my medicine cabinet and steal my drugs for street value... But I understand I'm unique in that way... there are households that have that.'</i></p>
The high cost of out-of-home storage and locking devices is a barrier to secure storage.	<ul style="list-style-type: none"> ▶ It is expensive to store firearms at a gun shop or to purchase preferred, high-quality locking devices like gun safes or desired lockboxes. This expense is a significant barrier to secure storage. ▶ There is a preference for expensive locking devices like gun safes and those that are fireproof. 	<p><i>'If they could make firearm safes available at a reasonable cost; because honestly that's one of the biggest hindrances to a lot of veterans having their weapons locked up. The [expletive] is expensive! Like thousands more than the gun.'</i></p> <p><i>'If I did, it would be put in a fireproof safe which I can't afford right now.'</i></p>
Financial facilitators to secure storage		
No-cost services or devices could help motivate secure firearm and medication storage.	<ul style="list-style-type: none"> ▶ Veterans would be more likely to return unused medications if doing so were easy (eg, stamps were not required) and cost-free, and even more so if they were paid per medication returned or provided with incentives. ▶ The VAMC providing no-cost, high-quality locking devices or a no-cost location to store firearms might motivate veterans to store their firearms more securely and demonstrate that the VA is invested in their care. However, veterans were unsure that the VA would be willing to provide these resources due mainly to their cost. Some veterans also mentioned the importance of the veteran themselves maintaining control of the process (eg, deciding how they would store their firearms and who would have access to them). 	<p><i>'I mean, truly, if there was a cash deposit on the bottles of pills then I'd be bringing all of mine empty, you know, like useless meds back up there to get my money.'</i></p> <p><i>'If it was something that was just provided to the individual like a lockbox I do think that could be beneficial. You know, just because then it's still the individual maintains sovereignty over their life, you know, and their firearms... it's an easy way to lock it up without a big imposition to the individual's life.'</i></p> <p><i>'If the VA is willing to spend money on gun safes, I am willing to take said money and buy a gun safe. But that gun safe will be in my home. The VA will not have access to said gun safe.'</i></p> <p><i>'That would be nice if the VA provided us all with a safe. But that will never happen.'</i></p>
Preference for receiving no-cost locking devices vs coupons for devices varies.	<ul style="list-style-type: none"> ▶ Some veterans preferred coupons to maximise their options of locking devices, but others preferred no-cost locking devices as receiving devices themselves would make the process easier and/or cheaper. ▶ Coupons could be specific to a type of locking device, or veterans could be given a choice between the coupon and no-cost locking device. 	<p><i>'It would probably be easier if they had like, a coupon to where they felt like they had some kind of control over... what they were getting.'</i></p> <p><i>'If you give them a coupon for a quarter of what the safe costs, how many of them are going to – well a lot of them are going to have the money – but how many of them are going to actually buy it?'</i></p>

VAMC, Veterans Affairs Medical Centers.

Distribution of locking devices or coupons for defraying the cost of locking devices and/or out-of-home storage options should be considered as part of efforts to implement LMC¹⁷. Additionally, health systems should consider the benefits of helping patients acquire preferred, higher quality locking devices like lockboxes versus cheaper locking devices like cable locks that are currently the norm. Consistent with these findings, the VA is piloting programmes to reimburse patients for returning unused opioid medications and to provide no-cost firearm lockboxes to those at elevated suicide risk.

Importantly, while these strategies assist in overcoming some obstacles to secure storage, other barriers remain. For example, veterans' desire for expensive locking devices like gun safes, which can range in cost from hundreds to thousands of dollars, and fireproof locking devices may make the provision of these devices at a large-scale cost prohibitive. It will also be important to establish methods of confirming use of locking devices following their distribution. Additionally, future work is needed to evaluate the relationship between quality and cost of storage options and willingness to store firearms and medications securely; whether the provision of devices and/or coupons leads to measurable improvements in secure storage; and the benefits

versus costs of investing resources into the provision of no-cost or discounted locking devices.

The study's main limitation is that it was conducted with only 28 patients, most of whom identified as men and white. Nonetheless, knowledge gained may be transferable to other lethal means safety efforts.¹⁸ Strengths include the study's novelty, the potential widespread applicability of the themes identified and the natural emergence of these themes in interviews without specific prompting. In sum, the present study highlights a potential role for addressing financial barriers and leveraging financial facilitators to promote secure storage of firearms and medications among patients at elevated risk for suicide. Research on financial interventions to motivate behaviour change following LMC is warranted.

Contributors GK: conceptualisation, formal analysis, writing—original draft, writing—review and editing. ES: formal analysis, writing—review and editing. ST: investigation, data curation, writing—review and editing, project administration. LAB: writing—review and editing, supervision. JAS: conceptualisation, formal analysis, investigation, resources, writing—review and editing, supervision, funding acquisition.

Competing interests ES has provided consulting services to Peraton, which were unrelated to this paper. LAB reports grants from the VA, DOD, NIH, and the State of

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Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by Colorado Multiple Institutional Review Board protocol 20-2859. Participants gave informed consent to participate in the study before taking part.

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Supplemental Methods File

We chose to use thematic analysis because of its flexibility, focus on identifying patterns across data sources, and ability to provide a detailed account of a set of themes (in our case, themes related to financial barriers and facilitators to firearm and medication storage; 1). As we were interested in understanding participants' perceptions of financial barriers and facilitators to secure storage without fitting these perceptions into a pre-existing framework, we used an inductive coding strategy in which our themes were based on the data. Study authors work in Veterans Affairs Medical Centers in suicide prevention, and have experience in mixed-methods research and lived experience related to firearm use and suicide. We used bracketing to increase trustworthiness of results (2). Interviews were double-coded for reliability and the analysis team met regularly to discuss coding decisions. The study was approved by the Colorado Multiple Institutional Review Board, and all participants provided informed consent prior to participation. The study team met regularly to review findings and interviews were conducted until thematic saturation was reached (3).

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