



# Using Longitudinal Curriculum to Improve Psychiatry Residents' Attitudes Regarding Firearm Anticipatory Guidance

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## Abstract

**Objective** Over the last decade, there has been an increased focus on firearm use in violent acts and suicides. There is no known published firearm safety curriculum specific to psychiatric training and limited guidance on curriculum development from national organizations. The authors' goals were to develop a firearm lecture series that would encompass essential knowledge related to firearm safety and risk assessments and assess its effect on psychiatric residents' interest and confidence in firearm safety guidance.

**Methods** The authors developed a six-lecture series on firearm safety that was conducted over all post-graduate year (PGY) training levels and a grand rounds on basic firearm safety. All levels of psychiatry residents at one urban academic center participated in a pre- and post-lecture series questionnaire designed to evaluate attitudes related to firearm safety guidance. They developed and administered the questionnaire through New Innovations collecting qualitative and quantitative data for analysis. The quantitative analysis was completed using paired *t*-test.

**Results** Forty-seven residents participated. Twenty-seven respondents met inclusion criteria: attended at least one lecture or the grand rounds, completed pre- and post-lecture surveys, and submitted their pre-lecture survey before their first lecture. After the educational intervention, there was a statistically significant increase ( $p < 0.05$ ) in interest in firearm safety, and confidence in all areas surveyed—risk assessment, safety guidance, and pertinent legislation.

**Conclusions** The curriculum increased residents' interest and confidence in providing firearm safety guidance. Areas of development include assessing the curriculum's impact on clinical practice.

**Keywords** Firearm safety · Resident education · Anticipatory guidance

Firearms and mental illness are inextricably linked in the USA, having relevance to both violence and suicide risk assessments. Firearms are the most common cause of suicide in this country with over 50% of deaths by suicide caused by firearm-related injury [1]. The prevalence of firearms in the USA presents a unique challenge when it comes to harm prevention. In 2020, the number of gun murders also reached an all-time high [2]. Though violence only has a minor association with mental illness, psychiatrists are tasked with assessing and mitigating violence risk [3–5].

Now more than ever is a need for firearm education specific to mental health professionals.

Psychiatrists are in a unique position to initiate change regarding firearm-related death and injury. Suicide is within the top 15 causes of death in America with firearms noted as the leading method [6]. On a per capita basis in the last decade, rates of gun murders have been increasing. According to the Federal Bureau of Investigation, active shooter incidents increased in the past two decades from 3 in 2000 to 40 in 2020 [2]. In all psychiatric treatment settings and subspecialties, there are opportunities for harm reduction. One study found gun storage practices improved in 25 to 31% of subjects after physician counseling [7]. While there is some vocal dissent from the public for physicians to “stay in [our] lane,” it is apparent that firearm safety is a public health issue that requires intervention [8]. This is reflected

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at all training levels in the medical community's view that firearm safety counseling is a professional duty. However, a majority refrain from discussing firearm safety with patients, in large part due to a perceived lack of knowledge [9–12]. Curricula for firearm counseling in medical schools [9] and broad online tools for clinicians [13] are beginning to be developed, but there remains no official published curriculum specific to psychiatric residents [10, 14].

The current study investigated psychiatry residents' interest and confidence in firearm safety knowledge and their ability to counsel patients and families on firearm safety before and after the implementation of a firearm safety curriculum. The curriculum involved every psychiatry resident at one academic center, with specific didactics geared toward residents' level of training. Topics ranged from firearm safety in general psychiatric practice and the role of firearm access in suicide and violence risk assessments to more specific subspecialty applications of firearm safety, geriatric and child safety, and the intersection of firearm laws and mental health.

## Methods

This study was discussed with the university institutional review board and was determined to not meet criteria for review as it was an educational case series. Based on conversations between psychiatrists across several subspecialties (child and adolescent, geriatric, and forensic), topics of learning were chosen for each post-graduate year (PGY) class, as well as a grand rounds presentation for all PGY levels and faculty. The topics were chosen to maximize residents' knowledge of firearm safety and empower residents to provide patients and families necessary education and counseling. The specialized lectures included suicide and violence risk assessment (PGY1), firearm safety for children and adolescents and for geriatric populations (PGY2), firearm safety in the outpatient setting (PGY3), and forensic psychiatry and firearm law (PGY4). All residents and faculty attended a grand rounds on general firearm safety. Lectures were developed by subspecialty faculty in the university's psychiatry department.

Participants were asked to submit survey responses before and after undergoing educational modules to gauge change in interest and confidence regarding firearm knowledge and ability to counsel patients and families about firearm safety. The surveys included questions regarding both the material covered and participant satisfaction:

1. How interested are you in these lectures?
2. How confident do you feel in discussing firearm safety with your patient and their family and/or supports?

3. How confident do you feel in performing a firearm risk assessment?
4. How confident do you feel in your knowledge of Federal and Pennsylvania laws related to firearms?
5. How useful do you think these lectures will be for your future practice?
6. Do you feel these lectures will change your future clinical practice? If so, list how so.
7. Any changes you would like to be made to these lectures? (Try to be as specific as possible, e.g., elements to cut and/or add, unclear sections, timing of the lectures).

Surveys were distributed and submitted electronically. Responses for questions 1 through 5 were numerical scores ranging from 1 to 5, with 1 being "not at all confident" and 5 being "extremely confident." Responses for questions 6 and 7 were free text responses. The pre-lecture survey consisted of questions 1 through 5 and an optional section for comments and feedback. The post-lecture survey consisted of questions 1 through 7. Participants could not submit multiple entries or select multiple answers on the questionnaire. Educational modules were 1 h long, and participants were given as much time as needed to submit their post-lecture survey after lectures for their class were concluded. These modules were completed during scheduled didactic sessions to maximize participation. A total of 47 residents participated in the study. Of those, 27 met inclusion criteria, which were that they all attended at least one lecture or the grand rounds, completed both pre- and post-lecture surveys, and submitted their pre-lecture survey before attending their first lecture. Nineteen residents were excluded. Of those that were excluded, 17 did not complete the pre-lecture survey prior to their first lecture and 2 did not attend any lectures.

Data was collected and analyzed using New Innovations software. New Innovations allows medical educators to collect and analyze data regarding educational tools created by staff. Data was exported into a Microsoft Excel document. Given the limited number of responses meeting inclusion criteria, all pre- and post-lecture responses were combined to be statistically significant. The pre- and post-lecture survey responses were then compared using paired *t*-tests. The statistical analysis was completed by the authors. Answers to the free response questions were used for educational purposes but not utilized in the statistical analysis.

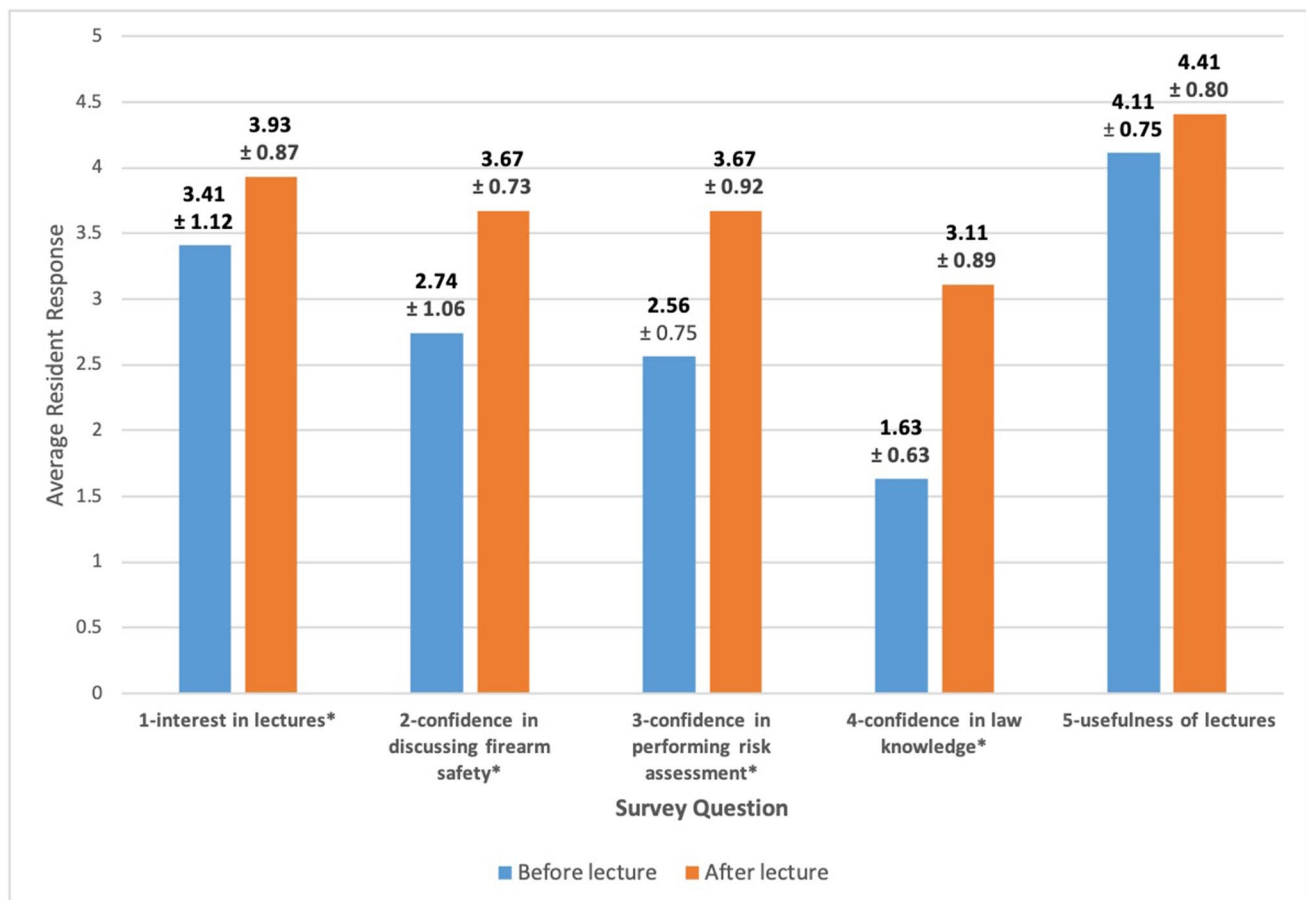
## Results

Twenty-seven psychiatry residents attended at least one lecture on firearm-related topics and completed pre- and post-intervention surveys. Of these, 2 residents were in their first year of training, 12 were in their second year, 9 were in their third year, and 4 were in their fourth year. Of those in their

second year, three missed the grand rounds, one missed the lecture on firearm safety for child and adolescent populations and one missed the grand rounds and lecture on firearm safety in the geriatric population. Of those in their third year of training, one resident missed the grand rounds. The residents in their first and fourth years of training all attended the grand rounds and all lectures for their class. Prior to attending lectures, 78% ( $n=20$ ) of residents described themselves as “somewhat,” “very,” or “extremely” interested in the lecture topics (answer choice of 3 or higher). Following the lectures, this value increased to 93% ( $n=25$ ). In pre-lecture surveys, residents revealed a relatively low degree of confidence in their abilities to discuss firearm safety and perform a firearm risk assessment with patients, families, and/or other supports, as well as in their knowledge of federal and state laws related to firearms, with 82% ( $n = 22$ ), 96% ( $n = 26$ ), and 100% ( $n = 27$ ) choosing “somewhat,” “not so,” or “not at all” confident (answer choice of 3 or lower) for each item, respectively. Conversely, in the post-lecture survey,

most residents were “somewhat,” “very,” or “extremely” confident in these areas. Specifically, 96% ( $n = 26$ ) were at least “somewhat” confident discussing firearm safety, 93% ( $n = 25$ ) were at least “somewhat” confident in performing firearm risk assessments, and 78% ( $n = 21$ ) were at least “somewhat” confident in their knowledge of firearm-related laws. Both before and after the lectures, 96% ( $n = 26$ ) of residents thought the lectures would be at least “somewhat” useful to their future practice. However, the percent of residents that considered the lectures to be “extremely” useful for future practice increased from 30% ( $n = 8$ ) to 56% ( $n = 15$ ) in the post-lecture survey.

Paired *t*-tests were used to compare resident survey responses before and after the lectures (Fig. 1). Following the lectures, residents’ responses indicated a statistically significant increase in their interest in the lecture topics ( $p=0.02$ ). There were also statistically significant increases in their self-reported confidence in discussing firearm safety with patients, families, and/or other supports ( $p=0.0002$ ),



**Fig. 1** Psychiatry residents’ confidence levels related to firearm safety guidance. Y-axis average ( $\pm$  standard deviation) of responses to survey questions from residents before and after attending lecture(s). Rating scale for resident responses respectively: 1 = not at all interested or confident; 2 = not so interested or confident; 3 = somewhat

interested or confident; 4 = very interested or confident; and 5 = extremely interested or confident. X-axis survey questions. An asterisk (\*) listed by the question response indicates a statistically significant ( $p<0.05$ ) change pre- and post-lecture

performing firearm risk assessments ( $p < 0.0001$ ), and knowledge of federal and state laws related to firearms ( $p < 0.0001$ ). Although there was an increase in perceived usefulness of the lectures for future practice, this change was not significant ( $p = 0.07$ ).

## Discussion

The incidence of firearm-related injury and death, including suicide, has increased at alarming rates, particularly in recent years [15]. Well-trained psychiatrists are in a unique position to mitigate this crisis. However, residents receive little education about federal and state firearm-related laws, firearm risk assessment, and counseling in clinical practice. Consequently, psychiatry residents lack confidence in these areas, hindering their ability to effectively intervene.

This study aimed to determine the efficacy of a directed, longitudinal lecture series to increase psychiatry residents' interest and confidence in their abilities to identify and educate patients at high risk for firearm harm. The findings indicated that psychiatry residents were interested in expanding their knowledge of firearm safety and believed it would help them in providing care to future patients. Furthermore, the strength of these beliefs increased significantly after attending educational lectures on this topic. Increased usefulness in clinical practice did not demonstrate statistical significance during the analysis, but this was likely because the perceived usefulness of the curriculum was already high before attending any lecture. Most notably, the study demonstrated that implementing a few short lectures in residency training significantly increased confidence in addressing firearm-related issues that may arise in patient care.

Limitations of this study include the small sample size and that all subjects were enrolled from a single training site, in an inner-city location subjected to high rates of firearm-related injury and death [16]. Increasing the number of subjects included in the study and incorporating residents from a diverse group of institutions would increase the power and generalizability of our findings.

Another limitation was that not all residents included in the sample attended the same lectures as this was the first year of the new longitudinal lecture series. The curriculum was designed so that residents would participate in 1–2 different lectures related to firearms each year of their training and in a residency-wide grand rounds, ultimately providing a comprehensive educational program prior to graduation. Each lecture and the grand rounds included all key aspects of the survey—interest in the topic, confidence in discussing firearm safety with patients and their families, confidence in assessing risk, and knowledge of federal and state laws. However, these aspects were covered to a different extent and from different perspectives depending on the

lecture. Replicating the current study after residents have completed all the lectures would standardize the intervention and increase the validity of our results.

Moreover, this study did not examine clinical outcomes. However, prior research has found that the likelihood physicians, including psychiatrists, will provide firearm anticipatory guidance significantly increases depending on their perceived self-efficacy and whether they have received training or information on firearm safety [17, 18]. Safe firearm storage has also been found to double for patients who receive firearm safety counseling from their family medicine physician versus no counseling [19].

This study offers a strong argument for incorporating firearm-related topics into resident education. Its success, as indicated by the pre- and post-lecture survey results, suggests it will be well-received and valuable to the psychiatric academic community by increasing psychiatrists' perceived confidence in discussing firearm safety with patients and their families and performing risk assessments. This will hopefully lead to greater safety for patients and those around them.

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## Declarations

**Disclosures** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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