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# Provider Attitudes Surrounding Implementation of a Firearm Safety Program in the Pediatric Intensive Care Unit

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# Background

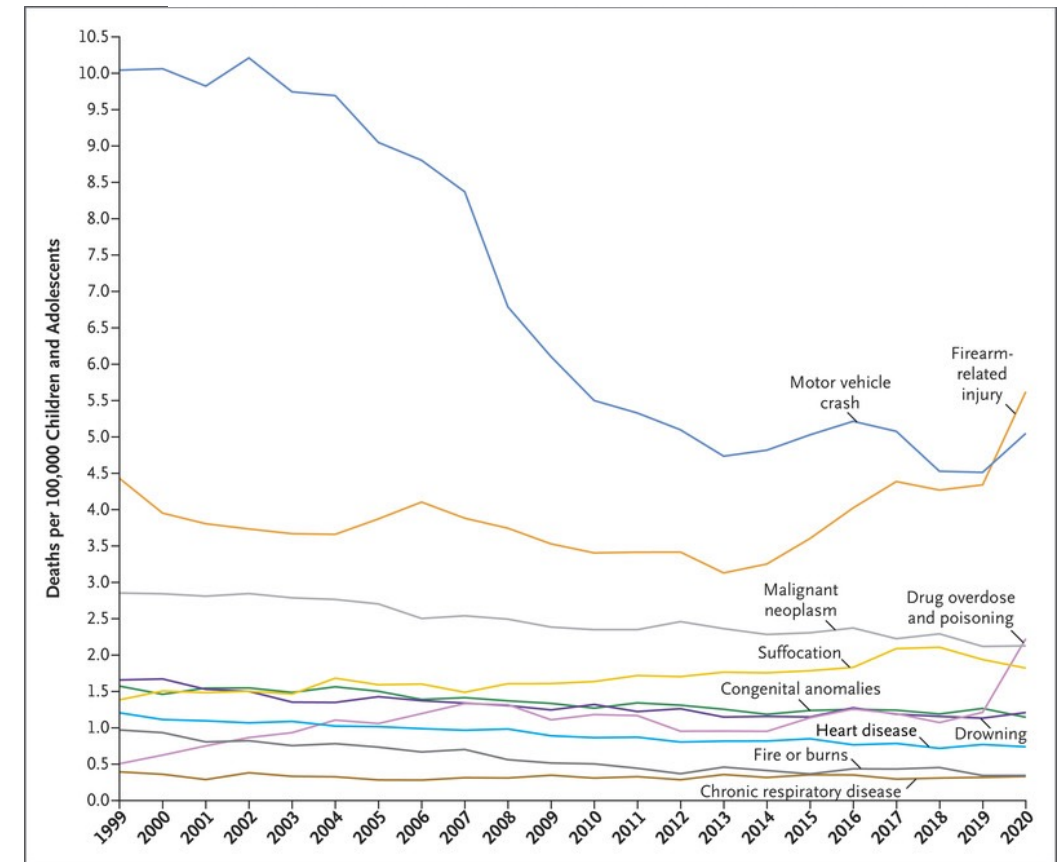
- **Firearm-related deaths are the leading cause of death among children and adolescents<sup>1</sup>**
- Safe storage of firearms is a **modifiable** health behavior and safety counseling with gun lock distribution in an **evidence-based intervention** to reduce firearm injury and death<sup>2</sup>
- Safe storage programs are in primary care and emergency department settings; few, if any, have investigated the pediatric intensive care unit (PICU) as a potential setting

1. Goldstick JE, Cunningham RM, Carter PM. Current Causes of Death in Children and Adolescents in the United States. *New England Journal of Medicine*. 2022;386(20):1955-1956. doi:10.1056/NEJMc2201761
2. Barkin SL, Finch SA, Ip EH, et al. Is office-based counseling about media use, timeouts, and firearm storage effective? Results from a cluster-randomized, controlled trial. *Pediatrics*. 2008;122(1):e15-e25.

The New York Times

## *Gun Deaths Rising Sharply Among Children, Study Finds*

Firearm injuries are a leading cause of death among young children and teenagers in the United States.



# Background

- Translation of an evidence-based practice to a novel setting is well suited for an **implementation science** approach, which is “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice”<sup>3</sup>

## Objective

To measure acceptability, feasibility, and appropriateness, as well as assess facilitators and barriers, to a firearm safety program in the PICU

# Methods



**Design:** Survey of interdisciplinary PICU providers

**Setting:** Large, academic quaternary pediatric intensive care unit between February 7-March 3, 2023

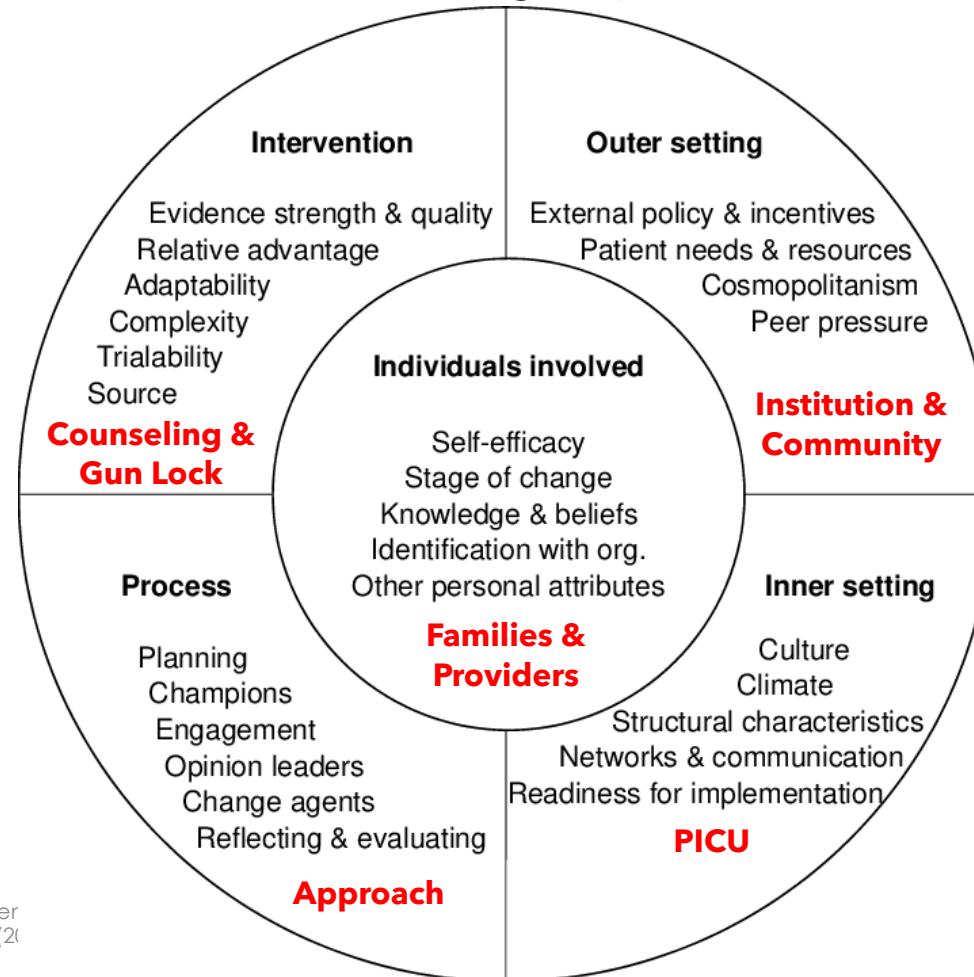
**Inclusion Criteria:** Attendings, fellows, advanced practice providers, nurses, social workers in the PICU (rotating residents excluded)

**Tool:** Acceptability of Intervention and Feasibility of Intervention (AIM-IAM-FIM)

**Primary Outcome:** Acceptability, Appropriateness, Feasibility and description of barriers/facilitators

# Framework

- We used the **Consolidated Framework for Implementation Research (CFIR)**<sup>4</sup> to identify **facilitators and barriers** influencing implementation



4. Damschroder, L.J., Aron, D.C., Keith, R.E. et al. Fostering implementation science. Implementation Sci 4, 50 (2009)

# Results

Table 1: Characteristics of Survey Respondents

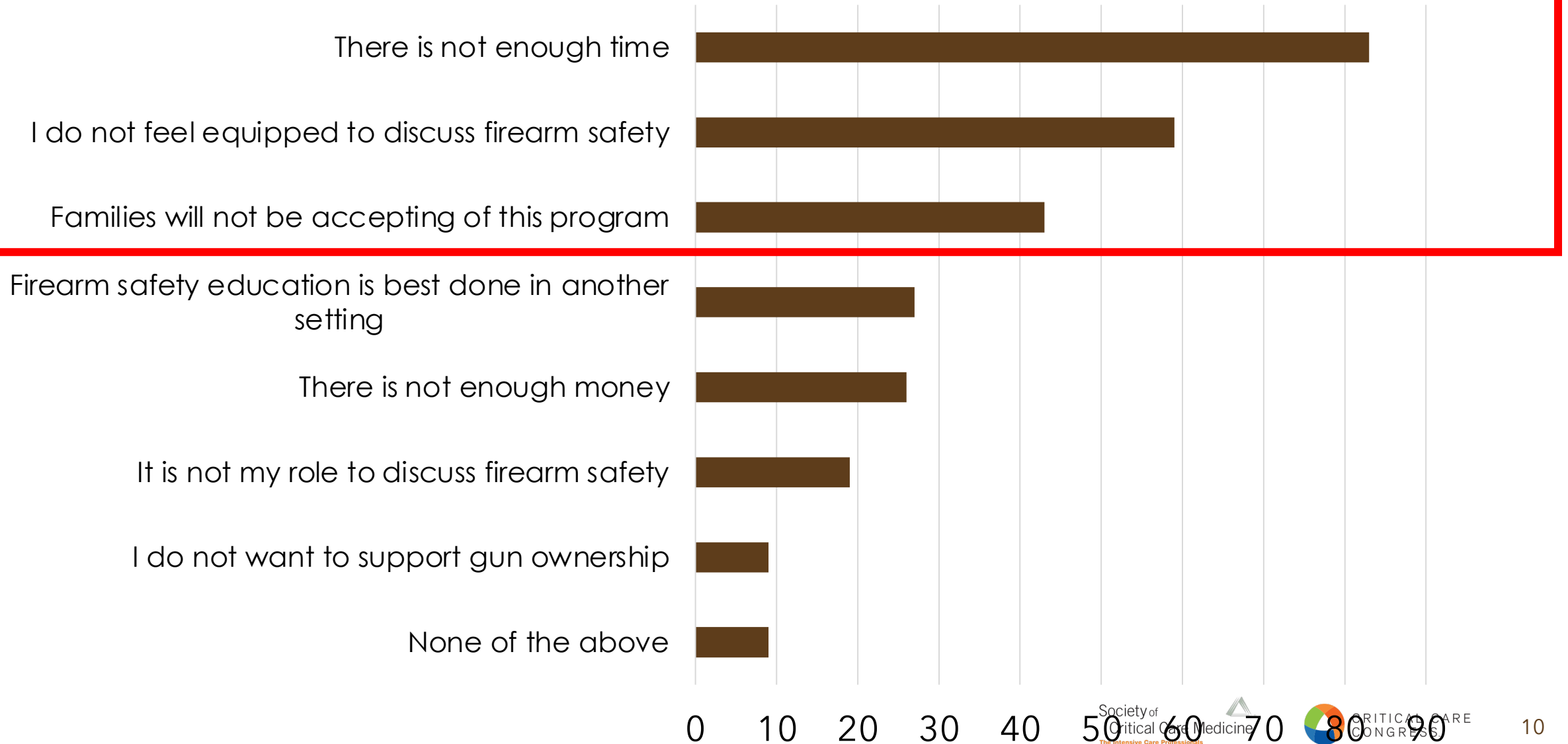
Characteristics	Total N=127 (%)
<b>Role</b>	
Attending/Fellow (total 66) Attending/Fellow Response Rate: 68%	45 (35%)
Advanced Practice Provider or Hospitalist (total 53) Advanced Practice Provider/Hospitalist Response Rate: 36%	19 (15%)
Nurse (total 353) Nursing Response Rate: 17%	61 (48%)
Social Work (total 4) Social Work Response Rate: 50%	2 (2%)
<b>Years in PICU</b>	
0-5 Years	57 (45%)
5-10 Years	27 (21%)
10+ Years	43 (34%)
<b>Are there children in your home?</b>	
No	75 (59%)
Yes	52 (41%)
<b>Is there a firearm in your home?</b>	
No	98 (77%)
Yes	26 (20%)
Prefer not to answer	3 (2%)
<b>Is your firearm stored safely?</b>	
No	3 (12%)
Yes	22 (85%)
Prefer not to answer	1 (3%)
<b>Have you cared for a patient with firearm injury in the PICU</b>	
No	13 (10%)
Yes	114 (90%)



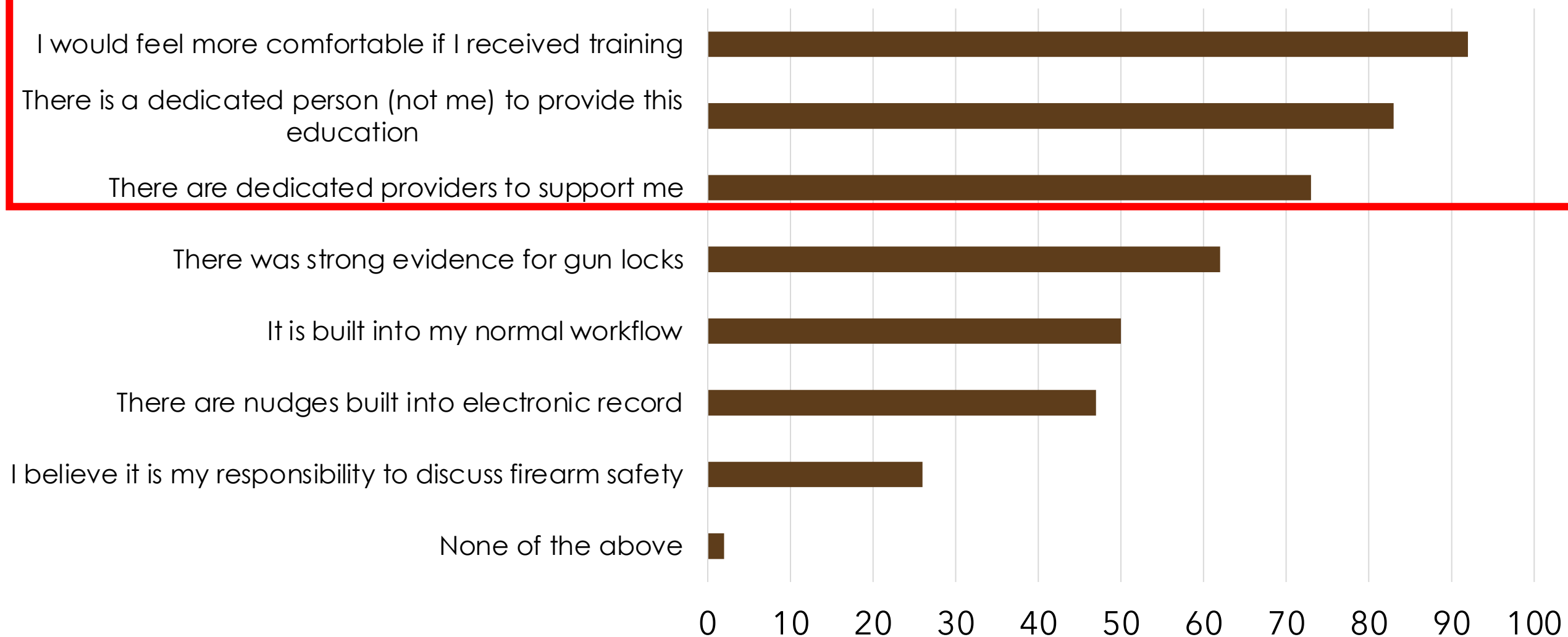
Table 2: Acceptability, Appropriateness & Feasibility of Firearm Safety Program in the PICU

Survey Item	All Respondents N=127	Non-Firearm Owners* N=98	Firearm Owners N=26*	p-value	
<b>Firearm-related injury and death is a significant problem that affects children</b>				0.043	<b>Significance</b>
<b>No</b>	2 (2%)	0 (0%)	2 (8%)		
<b>Yes</b>	125 (98%)	98 (100%)	24 (92%)		
<b>The issue of firearm safety is important to me</b>				1.00	
<b>No</b>	2 (2%)	2 (2%)	0 (0%)		
<b>Yes</b>	125 (98%)	96 (98%)	26 (100%)		
<b>PICU providers should be involved in firearm safety education</b>				0.77	<b>Acceptability Average = 90%</b>
<b>No</b>	21 (17%)	16 (16%)	5 (19%)		
<b>Yes</b>	106 (83%)	82 (84%)	21 (81%)		
<b>Implementing a firearm safety program in the PICU is appealing to me</b>				0.40	
<b>No</b>	23 (18%)	19 (20%)	3 (12%)		
<b>Yes</b>	103 (82%)	78 (80%)	23 (88%)		
<b>I welcome a firearm safety program in the PICU</b>				1.00	<b>Appropriateness Average = 71.5%</b>
<b>No</b>	9 (7%)	7 (7%)	2 (8%)		
<b>Yes</b>	117 (93%)	91 (93%)	24 (92%)		
<b>I have no objection to a firearm safety program in the PICU</b>				0.60	
<b>No</b>	6 (5%)	4 (4%)	2 (8%)		
<b>Yes</b>	121 (95%)	94 (96%)	24 (92%)		
<b>A firearm safety program seems like a good match for the PICU environment</b>				0.63	<b>Feasibility Average = 63%</b>
<b>No</b>	35 (28%)	28 (29%)	6 (23%)		
<b>Yes</b>	92 (72%)	70 (71%)	20 (77%)		
<b>A firearm safety program seems suitable for the PICU environment</b>				0.81	
<b>No</b>	36 (29%)	27 (28%)	8 (31%)		
<b>Yes</b>	89 (71%)	70 (72%)	18 (69%)		
<b>Implementing a firearm safety program in the PICU seems possible</b>				0.25	<b>Feasibility Average = 63%</b>
<b>No</b>	23 (18%)	15 (15%)	7 (27%)		
<b>Yes</b>	104 (82%)	83 (85%)	19 (73%)		
<b>It would be easy to implement a firearm safety program in the PICU</b>				1.00	
<b>No</b>	71 (56%)	55 (56%)	14 (54%)		
<b>Yes</b>	56 (44%)	43 (44%)	12 (46%)		

# Barriers to Implementation



# Facilitators



# Strengths & Limitations

## Limitations:

- Low-response rate (68% attending/fellows, 50% social workers, 36% advanced practice providers/hospitalists, 17% nurses)
- Single-center data in an academic, urban setting where firearm-related injury and death is prevalent

## Strengths

- Large interdisciplinary sample
- Data are novel and a crucial first step in understanding how PICU providers may successfully incorporate firearm safety education

# Conclusions

- Interdisciplinary PICU providers at our single center reported high acceptability and appropriateness of a firearm safety program
- Lessons learned based on contextual inquiry included
  - Training PICU providers in how to counsel families (58 providers trained to date)
  - Offering education to all families without screening for presence of a firearm
  - Piloting with trained, dedicated staff to support PICU providers

## **Next steps**

- Real-time adaptation of safe storage counseling and gun lock distribution in the PICU
- Post-implementation survey

# Thank You!

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