

# Deep Wound Sealant



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## Introduction

In 2020, 45,222 people died from gunshot wounds in the US, the highest since 1990. With this rise in gun violence, Armadillo Medical Devices researched medical devices that could decrease these deaths by firearms. By examining current products on the market, Armadillo Medical Devices came up with a solution to stop hemorrhaging and increase bleeding out time before reaching medical professionals.

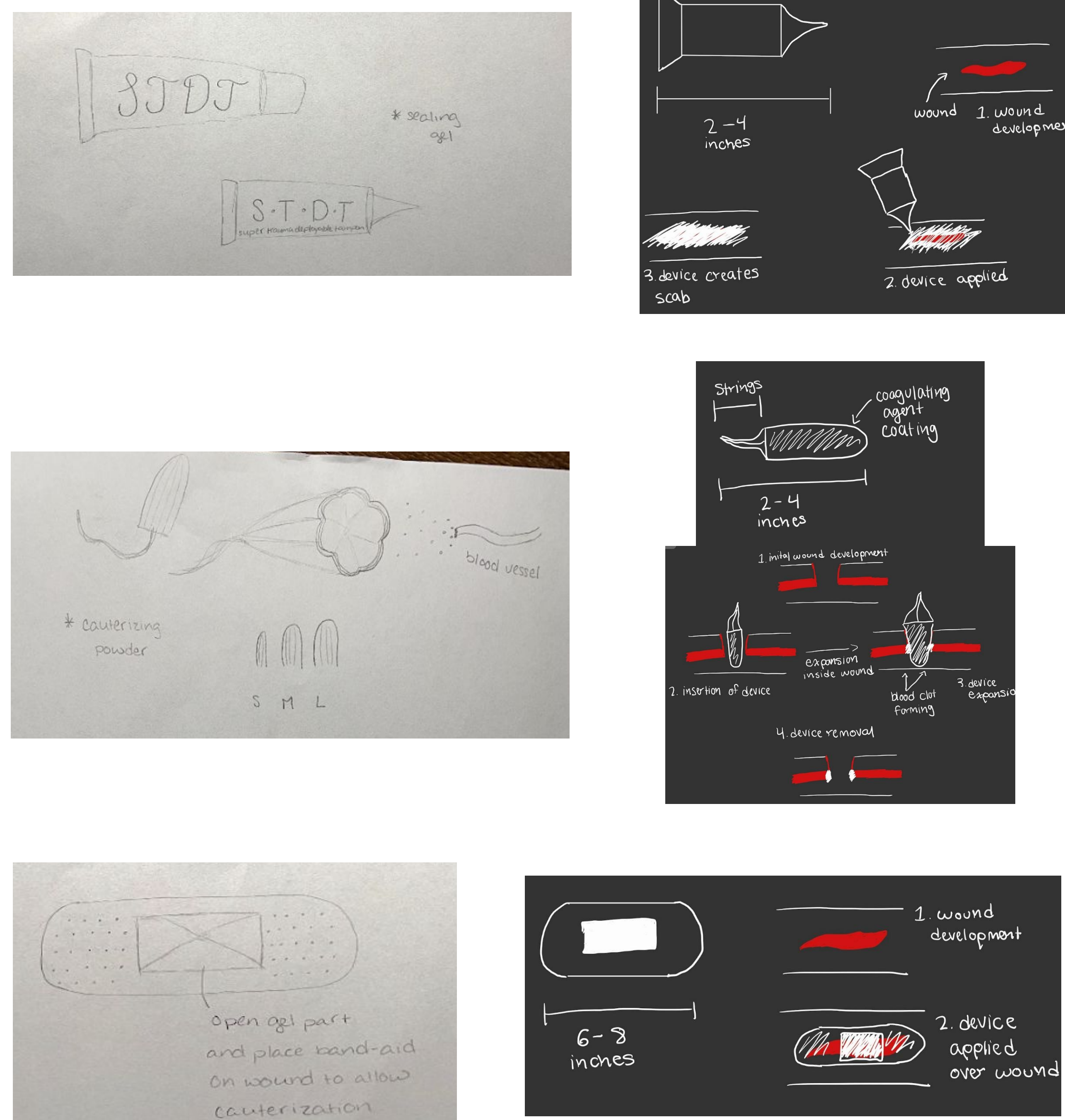
## Needs Statement

A way to address a lack of deep wound sealant applicators for gunshot wounds to increase blood coagulation (time before bleeding out)

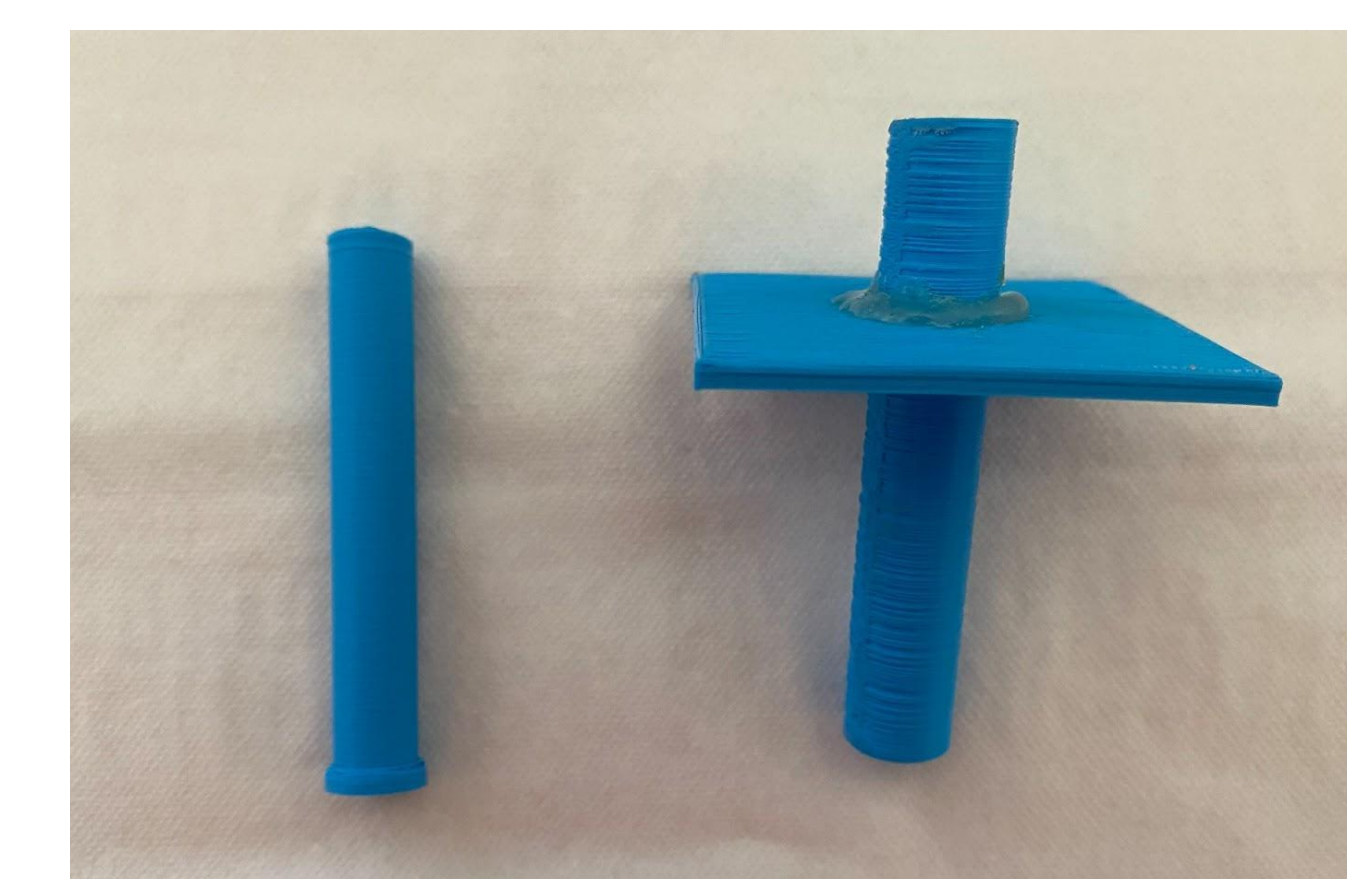
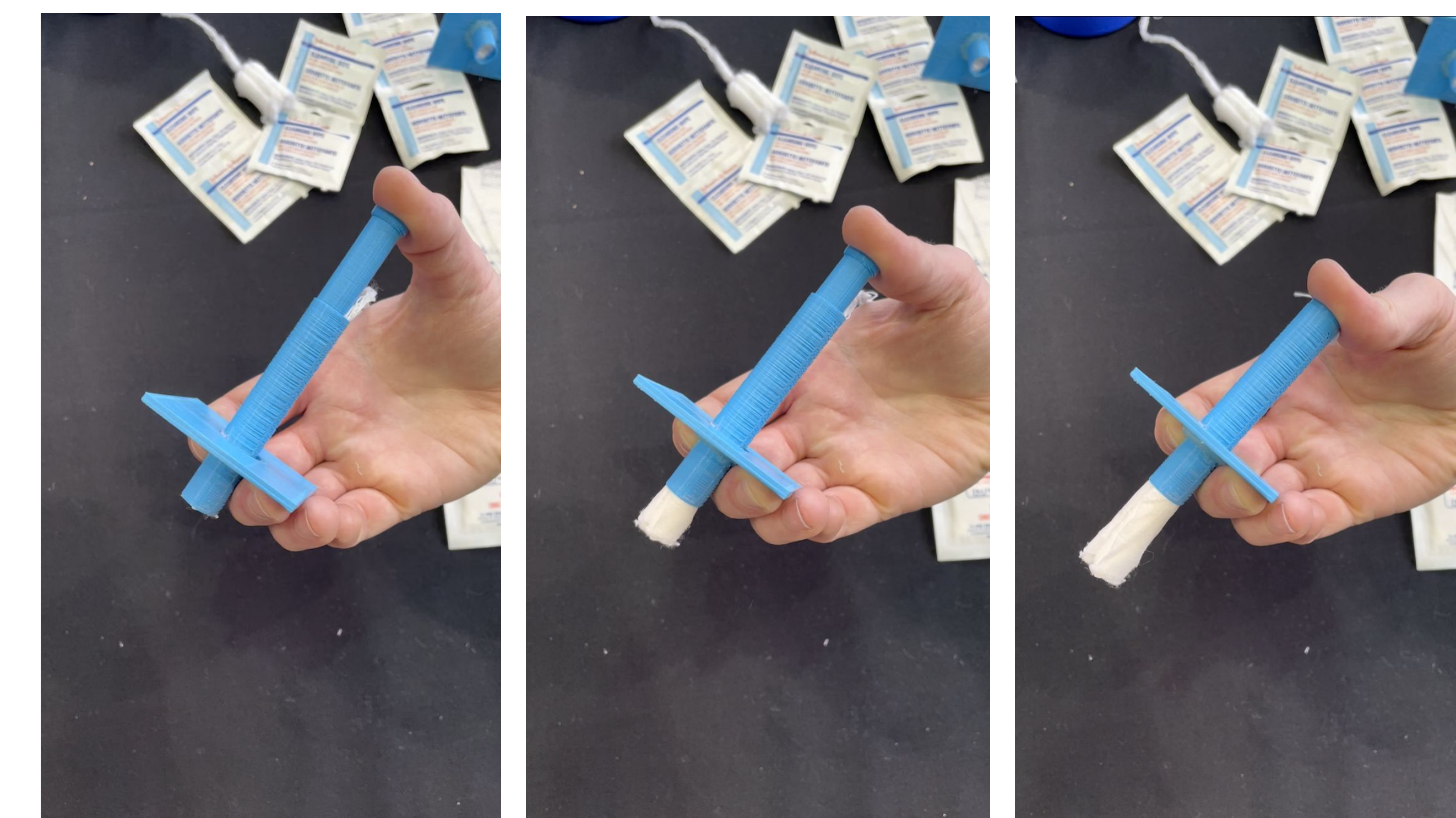
## Market Analysis

Target Markets	Estimated Growth	Average GSW Deaths	Current Solutions
<ul style="list-style-type: none"> <li>Hospitals</li> <li>EMS</li> <li>Military</li> <li>Law Enforcement</li> <li>Rural Communities</li> </ul>	<ul style="list-style-type: none"> <li>\$3 Billion/year with 8% growth</li> </ul>	<ul style="list-style-type: none"> <li>National average of 100,000 deaths</li> </ul>	<ul style="list-style-type: none"> <li>Tape</li> <li>Gauze</li> <li>Bandages</li> <li>\$381.1 Billion/year market</li> </ul>

## Design Concepts



## Prototype



- Final materials:
- Nylon PA-12
    - Medical grade plastic, can be 3D printed
    - Approximately \$1.30/unit
  - Cotton
    - Outsourced to Albaad
    - Approximately \$.05/insert
  - Overall cost will be \$1.35

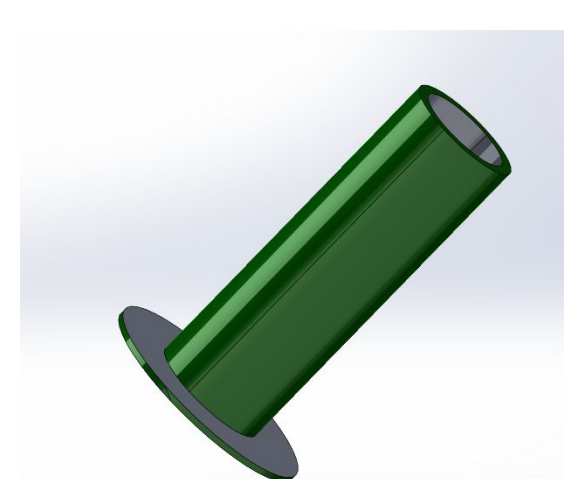
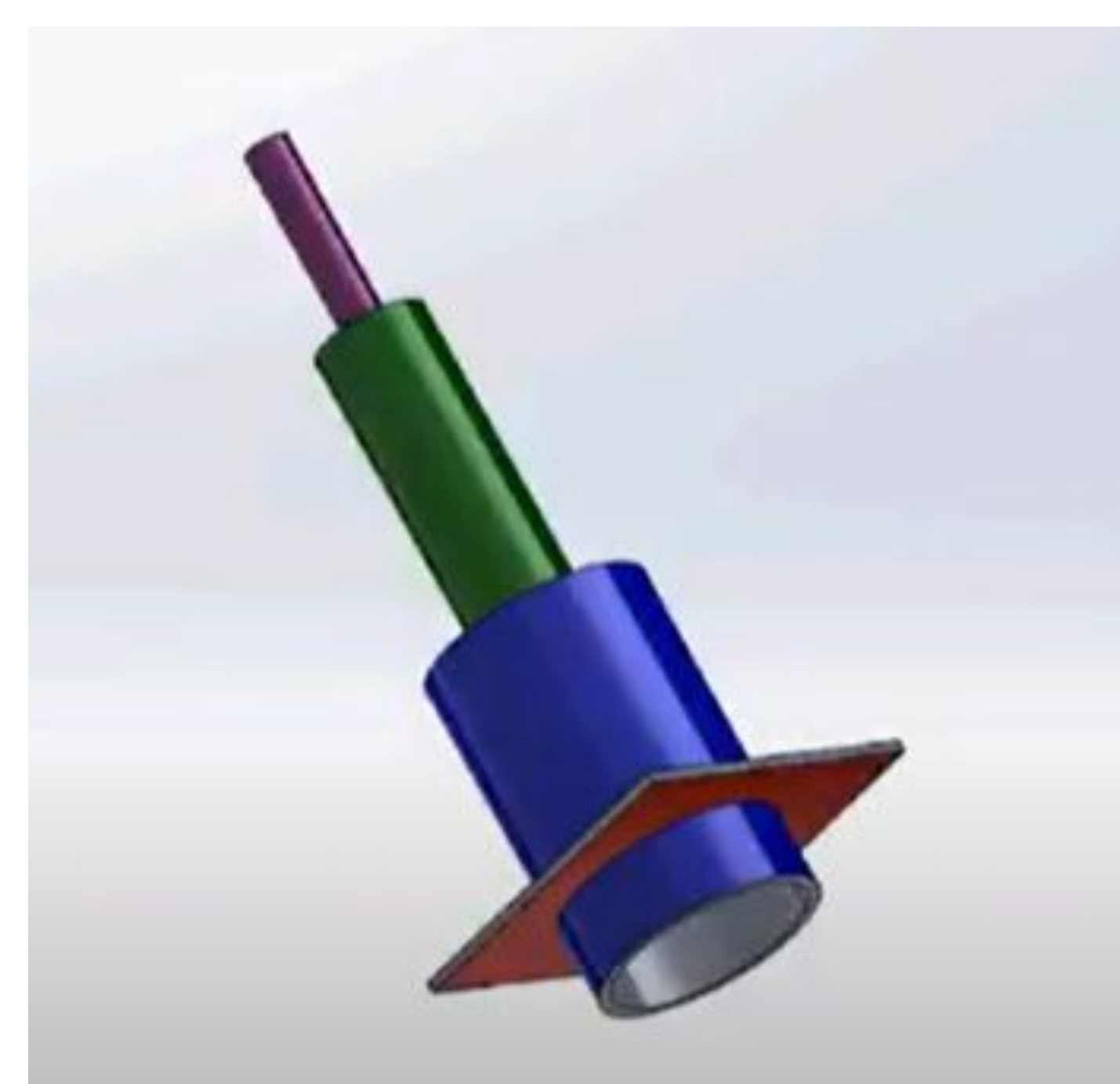
## Prototype Testing

The team was not able to test our device on live patients or animals because the device does not have FDA clearance. Cadaver testing would not be an accurate representation of the device and using blood proved to be a biohazard.

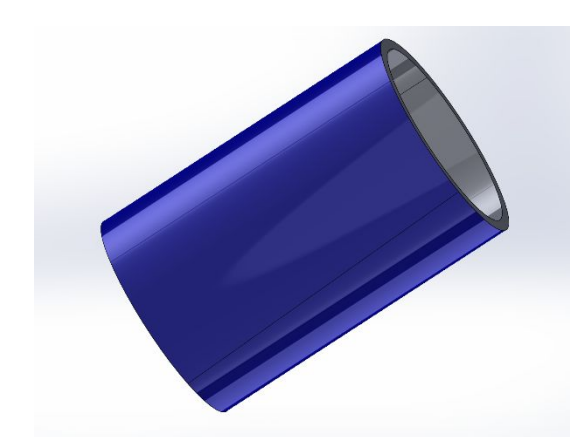
## Conclusion

In conclusion we expect our deep wound sealant to decrease the amount of deaths due to gunshot wounds. The device will need further testing and FDA approval before it is put on the market.

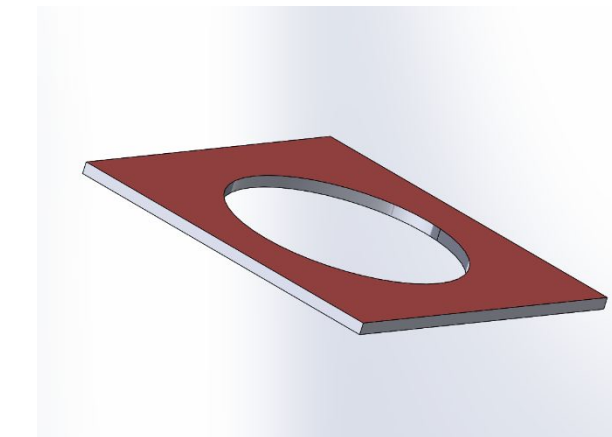
## Final Design



Plunger



Outer Barrel



Insertion Platform