

EMERGENCY FIRST AID RESPONSE

USER EXPERIENCE DESIGN/SPRING 2023

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INTRODUCTION

PROJECT BACKGROUND

This project is built around the vulnerability of people in rural settings, especially those without access to prompt medical response during emergency traumas. Using the recorded instructions spoken by Automated External Defibrillators (AEDs) as an inspiration, this app would walk individuals through how to use specific supplies when they are the only option for rendering first aid.

RESEARCH GOALS

Investigate potential avenues for clearly communicating first aid instructions to a population that has little to no preexisting knowledge.

RESEARCH QUESTIONS

How does the delivery of step-by-step instructions affect the ability of an individual to render first aid?

What steps can be taken to facilitate that learning?

Does in-person instruction on how to use the app affect the speed and efficacy of delivering first aid?

KEY PERFORMANCE INDICATORS

- **First aid is successfully rendered in under 5 minutes.**
- **Each step of the process is successfully completed.**
- **Correct material choices should be made.**

METHODOLOGY

BRIEF EXPLORATORY SURVEY

Each participant would be asked to fill out a short Google Form survey to gauge preexisting knowledge and experiences rendering first aid in different scenarios.

ROLE-PLAYING SCENARIO

Participants will be asked to render first aid to a victim with a fictitious laceration. A cut banana will be used in the place of a bleeding person. This will be repeated twice, once without the app and once with, in order to compare the results. Individuals will be timed and materials used will be noted.

EXPLORATORY EXIT INTERVIEWS

Individuals would be given the opportunity to share their thoughts and criticism of the app's utility and ease of use.

CONTROLLED ENVIRONMENT

Research will be conducted without the stress or panic that individuals may experience during an actual emergency.

LIMITATIONS

- Attention to address the size of QR code and the size and color of icons used.

LIMITATIONS

CONTROLLED ENVIRONMENT (cont.)

- Attention to be paid to the inflection, volume, and speed of narration.
- Materials must be maintained in a consistent and organized manner.

PARTICIPANT POOL

Research will be conducted with a group of individuals who are limited to specific geographical, ethnic, and socio-economic backgrounds.

- This research will only gauge the ability levels of the students and faculty at small, Title I high school in the Pacific Northwest. Every individual in the participant pool is fluent in English and comfortable using technology. In order to accurately expand this project's scope and scale, a much larger, more eclectic participant pool should be used.

PARTICIPANT POOL DEMOGRAPHICS

- **Student participants will come from a variety of academic abilities and low to middle class socio-economic backgrounds.**
- **Half of the homeless student population of the county attends classes in this school district.**
- **Faculty participants will have formal CPR training as a part of their licensure.**
- **The geographic location is considered fringe rural with a city population of 6500. The high school consists of 300 students and 20 faculty/support staff.**

FINAL RESEARCH OBJECTIVE

Develop a response to traumatic emergency medical situations that allow for untrained individuals to begin rendering first aid before the arrival of medical professionals or first responders.

FUTURE CONSIDERATIONS

EXPANDED ACCESS

Future revisions could include translations into languages other than English.

DIVERSE APPLICATIONS

This project will focus on rendering aid in a specific situation (severe laceration) but could include lacerations in different areas of the body, arterial bleeding -or- different types of injuries like burns or broken bones.

RESEARCH: DEVELOPMENT AND RESULTS

GOOGLE FORM/EXPLORATORY SURVEY

Respondents were asked the following questions:

How do you feel you learn things the easiest?

- *You hear someone talking about a subject.*
- *You see pictures or videos about a subject.*
- *You are physically doing something alongside an instructor.*

If you were in a situation where you needed to learn a new skill immediately, what source would you turn to first?

- *I would call or ask someone I know for advice.*
- *I would use social media (Tik Tok, Instagram, Facebook, etc.) to figure it out.*
- *I would Google it.*
- *I would find videos on YouTube.*

How often do you use the included instructions to put something together?

- *I read and study every bit religiously.*
- *I try to work through things on my own, but I'll check them out if I hit a wall.*
- *I will follow along with the pictures if there are any, but I don't read them.*
- *I never use instructions.*

Do you have access to an internet-ready smart phone right now?

- *Yes*
- *No*

Is it physically on your person?

- *Yes*
- *No*

Have you ever scanned a QR code in public before?

- *Yes*
- *No*

Have you ever taken any first aid training?

- *Yes—I have had formal training (CPR certification, EMT training, CNA classes, etc.)*
- *I'm not sure—I've had some training, but I don't know how formal it is. (Outdoor classes, conversations, etc.)*
- *No*

Have you ever had to help someone with an injury beyond a simple cut, burn, or pulled muscle/sprain?

- *Yes*
- *No*

Are you 18 or younger?

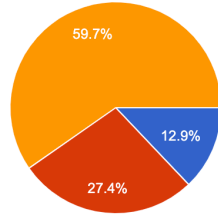
- *Yes*
- *No*

RESEARCH: DEVELOPMENT AND RESULTS

SURVEY RESPONSES:

How do you feel you learn things the easiest?

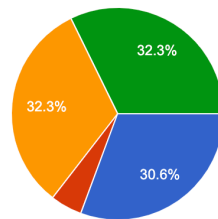
62 responses



- You hear someone talking about a subject.
- You see pictures or videos about a subject.
- You are physically doing something alongside an instructor.

If you were in a situation where you needed to learn a new skill *immediately*, what source would you turn to first?

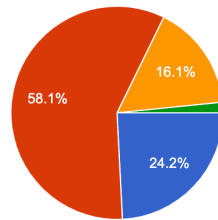
62 responses



- I would call or ask someone I know for advice
- I would use social media (Tik Tok, Instagram, Facebook, etc.) to figure it out.
- I would Google it.
- I would find videos on YouTube.

How often use instructions needed to put something together?

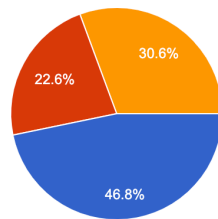
62 responses



- I read and study every bit religiously
- I try to work through things on my own, but I'll check them out if I hit a wall.
- I will follow along with the pictures if there are any, but I don't read them.
- I never use instructions.

Have you ever taken any first aid training?

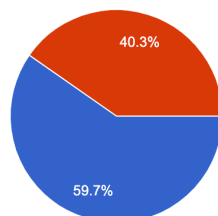
62 responses



- Yes – I have had formal training (CPR certification, EMT training, CNA classes, etc.)
- I'm not sure – I've had some training, but I don't know how formal it is. (Outdoor classes, conversations, etc.)
- No

Have you ever had to help someone with an injury beyond a simple cut, burn, or pulled muscle/sprain?

62 responses



- Yes
- No

CONCLUSIONS:

Most people surveyed lean toward in-person instruction.

There is a relatively even split between respondents excluding social media.

Two thirds would consult an online source to self-educate.

Most people choose to work through things independently, but still consult formal instruction.

While most people have had some kind of training, this data is unreliable because every faculty member is required to be CPR certified.

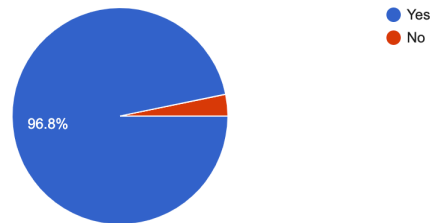
Three fifths of people surveyed have had some experience. The data derived from this question is a little ambiguous because it does not suggest the severity of injury.

RESEARCH: DEVELOPMENT AND RESULTS

SURVEY RESPONSES:

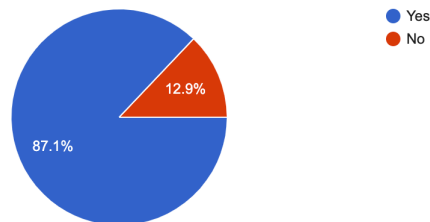
Do you have access to an internet-ready smart phone right now?

62 responses



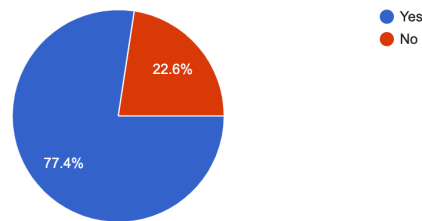
Is it physically on your person?

62 responses



Have you ever scanned a QR code in public before?

62 responses



CONCLUSIONS:

An overwhelming majority of individuals surveyed had immediate access to an internet-ready smartphone.

QR codes are very familiar to the targeted population.

RESEARCH

SURVEY CONCLUSIONS

- The respondents are comfortable consulting online sources when faced with a problem.
- When asked to learn, respondents prefer a demonstration with an instructor.
- Respondents will use instructions but prefer to work through things independently.
- Using smartphones and QR codes would be a quick delivery system for any instruction.

RESEARCH: DEVELOPMENT AND RESULTS

ROLE-PLAYING SCENARIO

Five individuals were asked to imagine that a cut, honey-filled banana was a bleeding injury that they were responsible for treating.

To create the wound, a banana was cut in half, a 2"-3" gash was gouged out, and the cavity was overflowed with honey.

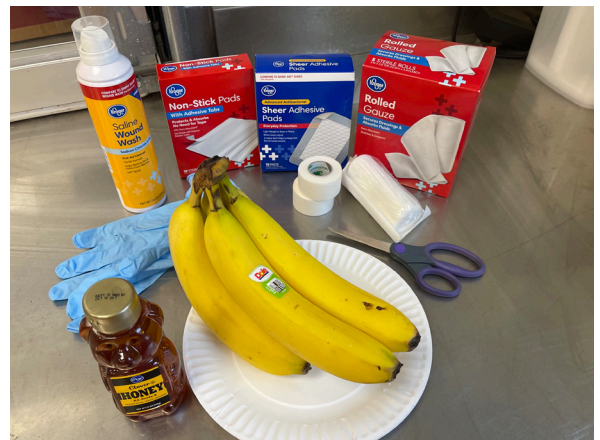
Each individual was a student between 15-18 years old. They were all given access to the same supplies, and timed until they were finished. No time limit was given.

FIRST AID MATERIALS PROVIDED

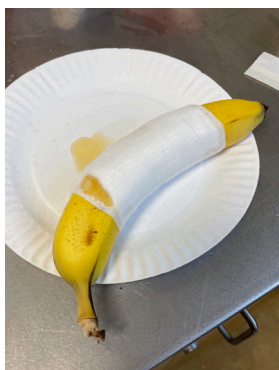
- Rolled Gauze
- Non-stick Gauze Pads
- Saline Wash
- Sheer Adhesive Pads
- First Aid Tape
- BandAids
- Nitrile Gloves
- Scissors

SCENARIO RESULTS

Notes were taken and color coded for each participant. Everyone took less than 5 minutes, the threshold of a proper response time. Most of the materials used overlapped between participants, *but instead of treating the wound, they were used to clean it. No real first aid was rendered beyond simply covering the wound with bandaging.*



NAME	MATERIALS	TIME	NOTES
ALEXA	X X X SALINE	1:31	CUT GAUZE, WRAP (NO PADS)
TANA		4:48	GAUZE TO CLEAN/MOP (4X10)
MAGALY	BAND-AIDS		ROLLED GAUZE FOR PADDING, PAD OPENED AND THROWN OUT
SETH	X X X X GLOVES	3:04	CLEANED WOUND
HALIE	X X X ROLLED GAUZE	3:13	STICKY PAD FOR WOUND
	X X X X ADHESIVE PADS	1:04	ROLLED GAUZE/TAPE IN PLACE
	X N.S. PADS		JUST ADHESIVE PADS AND TAPE
	X X X X TAPE		NO ONE PUT PRESSURE ON OR PACKED WOUND; THEY CLEANED IT



*** Student examples above

SCENARIO CONCLUSIONS

- Supplies were used to clean vs. treat in part because students did not have sufficient knowledge.
- The presentation of the wound may have contributed to the casual response students had toward the role-play.
- While the honey worked well as a blood substitute, the lack of any active oozing or spurting may have also been part of the impulse to clean vs. treat.

RESEARCH: OTHER CONSIDERATIONS

SIMILAR PRODUCTS

STOP THE BLEED

STOP THE BLEED is a worldwide movement begun by the American College of Surgeons to train the general public to stop severe bleeding injuries.

In addition to online training and certification, there is in-person instruction and brand specific first aid kits available.

STOP THE BLEED also actively pursues creating legislation that would require kits to be installed in public spaces (similar to CPR defibrillators).

Over 2.6 million people have learned to STOP THE BLEED

You can, too! The American College of Surgeons STOP THE BLEED® program has prepared over 2.6 million people worldwide on how to stop bleeding in a severely injured person.

Learn More →

Registered Instructors
INSTRUCTOR LOGIN →

Legislative Updates

Learn about recent legislation, including a major new law in California that requires the installation of trauma bleeding control kits in newly constructed public and private buildings throughout the state.

Learn More →

GET TRAINED LEARN MORE RESOURCE HUB SHOP

STOP THE BLEED® Individual Trainer Kit - Enhanced
As low as \$54.00

Enhanced STOP THE BLEED® Training Kit - Light & Deep Tone
As low as \$1,065.00

STOP THE BLEED® Station
As low as \$540.00

Enhanced STOP THE BLEED® Stations
As low as \$660.00

Individual Personal STOP THE BLEED® Stations
As low as \$120.00

Individual Premium Personal STOP THE BLEED® Stations
As low as \$130.00

Enhanced Individual Personal STOP THE BLEED® Stations
As low as \$130.00

Enhanced Individual Premium Personal STOP THE BLEED® Stations
As low as \$140.00

Help

Quick View

NAR Wound Management Simulator

As low as \$355.00

STOP THE BLEED offers a wound simulator that has several types of wounds to train individuals on how to provide treatment.

RESEARCH: OTHER CONSIDERATIONS

SIMILAR PRODUCTS

First Aid for Severe Trauma (FAST)

FAST is an extension of the STOP THE BLEED training through the American Red Cross that is specifically meant to be taught in schools. Its curriculum caters toward older students and its digital materials and coursework are free of charge for students under the age of 19.

Like STOP THE BLEED, FAST also offers supplemental kits and materials. FAST moves beyond the training of STOP THE BLEED by including coursework on communication basics, personal safety, and emergency preparedness.

First Aid for Severe Trauma™ (FAST)

A person can die from severe blood loss in less than 5 minutes. Would you know what to do if faced with a life-threatening bleeding emergency?

Learn handling control skills with First Aid for Severe Trauma (FAST), a national STOP THE BLEED™ course from the American Red Cross. While FAST is available for anyone, the course and digital materials will be offered at no charge to high school students under the age of 19.

FAST Course Content

FAST is the first national STOP THE BLEED™ course designed specifically for high school students, but anyone can take the course and benefit from the training.

- You can save a life: Prepping for bleeding emergencies, recognizing that a bleeding emergency exists, emergency action steps, deciding to act in an emergency.
- Safety in emergency situations: Keeping yourself safe in an emergency, helping others to safety, violent situations.

Communicating in emergency situations: Communication basics, communicating with others of the scene, communicating with the emergency dispatcher.

Caring for a person with life-threatening bleeding: Apply pressure to stop bleeding, applying direct pressure, using a tourniquet, offer the bleeding stops.

ORGANIZATIONS BEHIND THE COURSE

American Red Cross, NCDMPH (National Center for Disease Prevention and Public Health), Maryland Department of Health, hosa (Homeless, Older, Student, and Technology) STOP THE BLEED Program, U.S. Department of Homeland Security, U.S. Department of Science and Technology.

Course Specifications

DURATION	135 minutes total.
Instructor-Led	135-minute course consists of instruction and skills- and scenario-based learning.
Blended Learning	90-minute online portion may be given as homework, 45 minutes in the classroom for skills- and scenario-based learning.
Online-only	90-minute course results in a completion certificate (not certification).
AGE RANGE	FAST was designed for high school students; however, students from middle school onwards and adults can take the course and benefit from the course material.
STUDENT TO INSTRUCTOR RATIO	One instructor may teach up to 24 students in one class.
PRICING	Thanks to grant support from the Department of Homeland Security Science and Technology Directorate, the course and digital materials will be offered at no charge to high school students under the age of 18. Training providers should fit out the webinars to be completed about pricing for non-high school students. Digital materials (instructor manual, participant handbook, ready reference cards) available as free downloads. Course videos available at no cost for downloading, streaming or embedded within the course presentation, and a DVD is available through the Red Cross Store and in the Classroom Kit for a fee. Training supplies for skills- and scenario-based learning required. Classroom Kits are available through the Red Cross Store.

FAST Classroom Kit

An in-person psychomotor skills session is necessary to build the muscle memory required to finalize a participant's training. Participants will need to practice using both direct pressure and a tourniquet.

The Red Cross has built a FAST Classroom Kit consisting of the following elements and suitable for up to 24 students:

- 4 tourniquets
- 1 First Aid for Severe Trauma Instructor's Manual
- 1 First Aid for Severe Trauma DVD
- 24 First Aid for Severe Trauma Ready Reference Cards

Become an Instructor

The FAST program has three instructor training options:

- The free **Instructor Bridge** is for individuals who are current, certified Red Cross Instructors or other approved training agencies who have not been certified in the use of tourniquets.
- The **Instructor Crossover with Skills** benefits for individuals who are current, certified Red Cross Instructors or other approved training agencies but have not been certified in the use of tourniquets.
- The full instructor course is for individuals who are first-time instructors or do not have completed an instructor or professional educators. This is only available through approved Red Cross training providers.

Add FAST to Your School's Curriculum

Your school will need to become a Red Cross Training provider in order to access our Learning Management System and add the program to your school's curriculum. Complete this webinar and information about becoming a Red Cross training provider for the FAST program will be sent to you.

FAST for Your Workplace or Community

While the course and digital materials will be provided at no charge to high school students under the age of 19, there will be a charge for classes taught to others. If you are interested in Red Cross training provider, ask that the FAST program be added to your organization. To become a Red Cross training provider, complete this webinar and information will be sent to you.

Get More Information

Download the information below for details on the FAST program. Share the marketing materials with others to empower and inform.

- FAST Frequently Asked Questions
- FAST Product Information Sheet
- FAST Testimonials
- FAST Marketing Materials

What is Life-threatening Bleeding?

What is bleeding? Blood starts to ooze out of a wound when you get hurt. Blood is pouring.

RESEARCH

FINAL THOUGHTS: CONCLUSIONS AND OBJECTIVES

While there is a need for public education surrounding first aid response, the market only has training and curriculum that is **proactive** not **reactive**. Until there are enough individuals trained in first aid and enough materials to instantaneously respond -or- until we develop a universal, immediate way to render aid in these situations, we have an opportunity and obligation to develop a way for people to help themselves.

Some of the key takeaways of the research:

- Individuals overwhelmingly had access to smart phones and would consult online sources to learn new skills.
- Individuals were comfortable using QR codes as a means to access new information.
- Individuals prefer to learning side-by-side with an instructor.
- The roleplaying scenario did not gauge a response to active bleeding.

The final deliverable for this project could be something that expands the STOP THE BLEED and FAST programs instead of competing with it. Using established CPR and defibrillator training as an inspiration, there are three facets of this project worth investigating:

FIRST AID APP/WEBSITE

Create an online resource for first aid kits that connect individuals with immediate training through their smart phones. This could app could:

- alert first responders to locations and situations.
- be specific to anatomical location and injury type.
- easily be accessed through a QR code.

INTERACTIVE ROLEPLAY

STOP THE BLEED already has mannequins that are used to simulate wound types, but there is a lack of urgency. The roleplay from this research reinforced that.

What if a mannequin were developed that required the user to actually *stop its bleeding*?

IN-PERSON ON-BOARDING

Using CPR certification with an AED as an inspiration, instructor-led training would not only teach STOP THE BLEED principles, but could also walk users through how to use the online resource. In an actual emergency, the training would be reinforced by the app's diagnostic, visual, and spoken cues.