



# NOT ON MY WATCH

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A Meta Quest VR first-aid simulator that teaches CPR and wound care through guided practice, then tests response decisions in randomized emergency scenarios.

## Our Motivation

One of our members was able to survive a seizure due to her proximity to Trinity's Health Center. We wondered what would have happened if she hadn't been. In a true emergency, most people don't know what to do.

>350,000

individuals in the US experience a non-traumatic out-of-hospital cardiac arrest (OHCA)<sup>1</sup>

~31,000

injured Americans die of preventable bleeding<sup>3</sup>

60%

people who experience an OHCA don't get the immediate help that they need before professional help arrives<sup>2</sup>

#1

bleeding is the #1 cause of preventable death after injury<sup>4</sup>

## Key Features

### CPR mechanic

- 8-second breathing check
- Hand Y-position delta validates compression depth and rate against AHA guidelines (100–120 BPM)

### Wound care mechanic

- Spray coverage tracked against wound collider zone
- Bandage roll position projected onto limb cross-section plane accumulates cumulative wrap angle

### Core gameplay

- 4 patients triggered in fixed order; NPC waypoints shuffled each run randomly
- Per-patient countdown timer triggers failed state and score deduction on expiry
- AI chat assistant scoped to first-aid queries via system prompt
- Performance summary with response times, accuracy, and outcomes into a final score

## Technologies Used



Unity



Meta Quest 2



Claude API

## Practice Mode

Guided 3-5 min modules covering compression-only CPR and wound care. Hand-tracked VR actions with real-time feedback on accuracy and completion. Fully replayable for continued practice.



Player grabs the phone and dials 911 to initiate treatment. The operator panel delivers step-by-step instructions, with each next step unlocking only after the current action is completed.



Player follows visual guides (ghost hands in this image) that show exactly where to position themselves and perform each action.



Both CPR and wound care display a real-time feedback panel – tracking compression depth, rate, and count for CPR, and wrap progress and technique for bandaging, so players can correct their actions mid-treatment.



## Game Mode

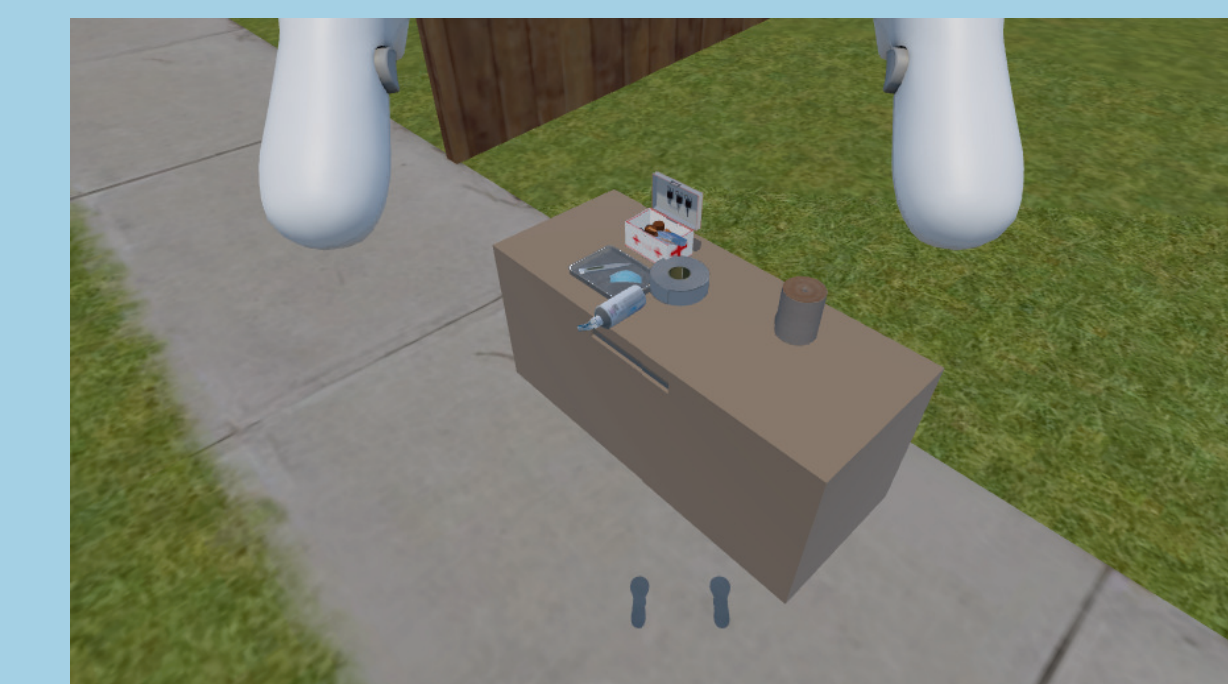
Open environment with randomized emergencies. Player identifies victims via audio and visual cues, assesses, and responds under time pressure. Wrong or slow choices deduct from the final performance score.



Player navigates a recreated Crescent Street on Trinity campus, with NPCs (non-player characters) populating the scene to ground each emergency in a realistic setting.



Player can pull up the AI assistant at any time to ask first-aid questions. Responses are strictly scoped to first-aid topics.



Multiple first-aid stations are scattered across the scene. Players must navigate to the nearest one to collect supplies before treating a wound-care patient under time pressure.



Player encounters multiple patients across the scene, each requiring the right treatment under time pressure. CPR patients vary by age (shown in this image), while wound care patients present with injuries in different positions.

## Future Work

- Add additional scenarios: choking, anaphylaxis, and AED use.
- Integrate a physical mannequin with the VR system to enhance realism and improve the accuracy of hands-on interactions.
- Integrate a database to store user performance, track progress over time, and enable personalized feedback and analytics.
- Incorporate adaptive difficulty that adjusts based on player performance and learning progress.

## References

- [1] "CPR Facts & Statistics." 2026. Red Cross.
- [2] "CPR Facts and Stats." 2026. Cpr.Heart.Org.
- [3] The Dallas Morning News. 2023. "Bleeding Out: Why so Many Americans Bleed to Death after a Traumatic Injury."
- [4] ACS Stop the Bleed. 2026.

## Acknowledgements

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