

## 1. Project Idea

I started a small project called the Cardiac-Access Registry to learn more about how quickly people can get emergency heart care. I used public EMS data and hospital location information to see which areas in Texas might have longer response times or slower access to hospitals that can do heart procedures.

This is currently a pilot study focused on Texas, but the approach could be applied to other states or regions. The goal is to:

Highlight areas where people might wait longer for help

Explore how EMS and hospitals could improve care

Learn how this data could help research in heart care or engineering

## 2. Why I Did This

I'm interested in becoming a doctor and medical researcher. I learned that getting quick care for heart problems is very important. Some areas have fewer hospitals or slower EMS response, which can affect survival. I wanted to see if I could map these differences and learn from the data myself.

## 3. How I Did It

Data Sources:

Public EMS data (response times, locations)

Hospital information for Texas (PCI-capable centers)

## What I Did:

1. Collected EMS call info from public data
2. Looked at transport times and distances to hospitals
3. Made simple maps to see which areas might have longer delays
4. Made charts to show patterns across the state

Everything I used is public; I did not access any private health information.

## 4. What I Found So Far

- Some areas farther from hospitals have longer transport times
- Certain ZIP codes show more delay than others
- Maps can help see where emergency care might take longer

## 5. What I Want to Do Next

- Get feedback from professors or doctors about my project
- Learn how to make the registry more useful for research
- Explore ways this data could connect to bioengineering, hospital planning, or medicine
- Possibly work with a lab over the summer to learn more

## 6. Skills I'm Learning

- Collecting and organizing data
- Making maps and charts
- Reading research papers and learning about heart care
- Thinking about how data can help patients

## 7. Summary

- I'm motivated to learn about heart care and research, even as a freshman. Starting with Texas as a pilot allows me to test ideas on a manageable scale, with the plan to scale it nationally or to other regions in the future. I hope to get guidance from experts to improve my project and contribute to real research.