

# Progress Report - Week 3

**Title:** Stabilizer Device for Intra-Cardiac Echocardiography (ICE) to Assist Structural Heart Interventional Procedures

**Client:** Dr. Amish Raval

**Advisor:** Dr. Darilis Suarez-Gonzalez

**Team:** Sara Morehouse (Leader)

Max Aziz (Communicator)

Noah Hamrin (BWIG & BPAG)

Kaden Kafar (BSAC)

**Date:** September 26, 2024

## Problem Statement:

Intracardiac echocardiography (ICE) is a technique commonly used during catheter-based interventional procedures to treat congenital heart disease, valvular heart disease and myocardial disease. Typically, the ICE catheter is advanced into the right atrial from a femoral vein, where it is positioned for imaging purposes. A separate catheter to perform the interventional procedure such as a transeptal needle or Watchman left atrial appendage occluder delivery system is then introduced. Many times, the ICE catheter drifts out of place, the imaging perspective is lost and the ICE catheter needs to be readjusted. Therefore, there exists a need for a simple re-sterilizable device to stabilize a variety of commercially available ICE catheters during interventional procedures. The device must prevent movement of the ICE catheter so that it does not migrate out of place when in use.

## Brief Status Update:

This week, the team worked on brainstorming design ideas and design criteria. We then came up with 3 design concepts that we evaluated with a design matrix. Looking ahead, we will solidify these design ideas and create a preliminary presentation of our work thus far. This will be presented on Friday, October 4.

## Difficulties / Advice Requests:

N/A at this time.

## Current Design:

N/A at this time.



Progress Reports	X	X	X											
PDS		X												
Design Matrix			X											
Prelim presentation														
Final Poster														
<b>Meetings</b>														
Client	X													
Advisor	X		X											
<b>Website</b>														
Update	X	X	X											

**Previous week’s goals and accomplishments:**

- Goal: Brainstorm design ideas
  - This was accomplished as the team was able to conceptualize three main ideas.
- Goal: Complete initial design modeling
  - The team was able to draft initial design sketches of each idea, and will work on modeling the designs in SolidWorks in the coming weeks.
- Goal: Compile designs into a design matrix and evaluate each design based on criteria
  - The designs are compiled into the matrix and evaluated. See attached Design Matrix for full details.

**Activities:**

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Sara	9/23/24 & 9/24/25	Brainstormed design ideas and worked on the design matrix.	2	2	7
Max	9/23/24 & 9/25/24	Met with team, drew design ideas, and helped with design matrix	2	2	7
Noah	9/23/24 & 9/25/24	Came up with several design ideas and worked on the design matrix	2	2	7
Kaden	9/23/23 & 9/25/24	Worked on the design matrix and brainstormed additional design ideas	2	2	6