

Below follow the updates from the week of 9/14:

The group met with Dr. Eghtesady this week to confirm the goals of the project. Overall, the client is asking for a specialized clamp that would be used during the Norwood Procedure. The main goals of the created device are as follows:

1. The handle of the device should be not obstruct the surgeon's view of the operating field
2. The device should remove debris and fluid from the operating cavity
3. The device should allow for adequate blood flow to the lower body.

The client also talked about another lower priority goal: the clamp should not damage the vessel during or after the operation. After doing research, we found there was no such product that follows the specifications provided by the client. The closest analog to our product is the JAVID carotid artery clamp, which is for the carotid artery in older patients and stops the flow of blood in the vessel.

Product Specifications:

- Artery Diameter: 7-10 mm
- Thickness of artery: ~0.5mm
- Max force/area for arterial failure:
- Diameter of operating incision: 2 cm
- Average volumetric flow rate of suction pump: 40-60 mL/min
- Weight/Trace of clamp:
- Clamp thickness:
- Material used: either titanium or stainless steel
- Cost: Name of CNC machine shop -- Ron Casey Total Titanium
- Right vs Left Handed: Either works
- Specific procedure used for bypass/shunt: Sano shunt/BT shunt
 - Sano shunt used more often
 - BT shunt causes more problems because of larger pulmonary blood flow
- AVOID PRESSURE OF ~100 mmHg

Questions:

- What are the max force/area for arterial failure, weight/trace of clamp, clamp thickness?
- What is a good way to quantify weight distribution?
- Is a clamp the only device that can meet the client's needs?
- What are ways we can test the device before using it in the surgery?