HUMAN CIRCULATORY SYSTEM SIMULATION FOR EXTRACORPOREAL MEMBRANE OXYGENATION THERAPY

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Outline

1. Goals and objectives
2. Achievements and outcomes
3. Post Projects Plans
Goals and Objectives

• Develop a prototype for a cannulation simulator that is:
  ✓ low-cost
  ✓ user-friendly
  ✓ multi-functional high-fidelity
  ✓ easy to maintain

• Overcome the need of training ECMO abroad by contributing to the establishment of an Extracorporeal Membrane Oxygenation (ECMO) training center at Hamad Medical Corporation (HMC)
Achievements and outcomes

Achievements

- A low-cost prototype for a cannulation simulator that includes:
  - Anatomically accurate system
  - Procedural emergencies
  - Realistic flow

- Prototype tested at HMC by a multidisciplinary team

Outcomes

- Abstract journals: 3
- Conference Papers: 2
- Best Paper Awards: 2
- Full journal (in-progress): 1
Post Projects Plans

- Improve realism and interactivity of the system
- Introduce new procedural emergencies (e.g. tachycardia, seizure)
- Develop an instructor App to control and monitor procedural emergencies
- Conduct a conclusive study
- Fabrication of a custom cost-effective mannequin with additive manufacturing technology
- Commercialization prospects with patent application and international demand