

# TTTS and Technology: Breaking Down Educational Barriers



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## BACKGROUND

### Twin-to-Twin Transfusion Syndrome (TTTS):

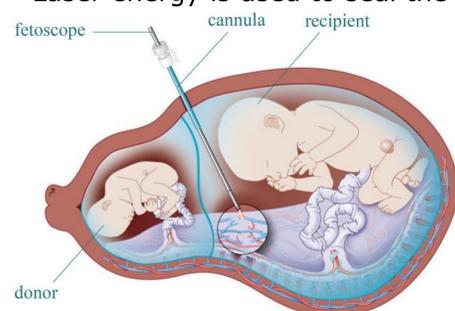
- Occurs in 15% of **monochorionic, diamniotic** twin pregnancies (shared placenta, separate amniotic sacs) <sup>1</sup>
- Causes **uneven blood flow between babies** due to their blood vessels fusing together (anastomosis)

### TTTS Diagnoses are Stressful:

- Without treatment, risk of dual fetal demise is > 80% <sup>2</sup>
- Both parents and physicians perceive a fetal anomaly as very stressful, and **are usually not prepared for it**
- Women with fetal anomalies tend to report **higher psychological distress, depression, and anxiety** <sup>3</sup>

### Selective Fetoscopic Laser Photocoagulation:

- Considered the preferred treatment for TTTS (fetal survival: 76-87%) <sup>2</sup>
- Laser energy is used to seal the anastomoses



**Figure 1.** Characteristic SFLP procedure on a set of TTTS-affected twins

## RATIONALE

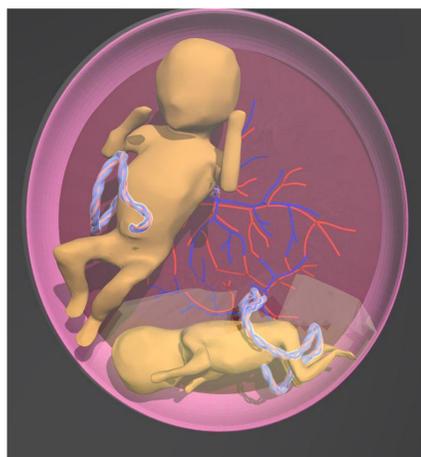
### Research Question:

Does educating parents about TTTS with a physician-approved 3-D model increase their retention of information?

The information presented to families during consultations is complex and often hard to understand.

Physicians commonly struggle communicating scientific information to patients in a way that makes sense.

Understanding medical information and terminology is very important for making decisions regarding pregnancy and overall health.



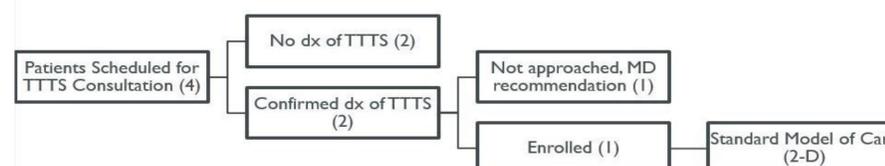
**Figure 2.** Screenshot of the 3-D model used in this study

## METHODS

**Table 1. Study Demographics**

Eligibility Criteria	English-speaking pregnant women (18+ y/o) and parenting partner (if present)
	Multi-fetal pregnancy
	Confirmed Diagnosis of TTTS
	Referral and treatment at Colorado Fetal Care Center

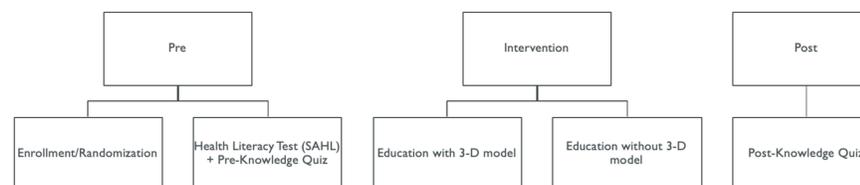
### Randomization and Enrollment of Participants



### MATERIALS

- The "Short Assessment of Health Literacy" (SAHL) test
  - Contains 18 questions that test the ability to understand common medical terms
- A "knowledge quiz" with 3 questions aimed at testing parents' knowledge of TTTS:
  - What is TTTS?
  - Why is TTTS bad for both twins?
  - What does laser treatment do?
  - The quiz was given before AND after the parents' consultation with their doctor to test their retention of information.

### PROCEDURE



### ANALYSES

- Pre and post quizzes will be graded against an answer key by two independent scorers.
- Inter-rater reliability of the quiz will be assessed using Cohen's kappa
- Unfortunately, there is insufficient data at this point to analyze the pre-post differences and the inter-rater reliability

## DISCUSSION

Because this is a pilot study in its early stages, not enough data has been collected to determine pre-post differences, nor inter-rater reliability

### STUDY IMPORTANCE

Previous studies have examined the efficacy and quality of 3-D models in medical settings, BUT these studies have either:

- used physical 3-D printed models, or
- used 3-D virtual models to visualize the cardiovascular system

**This study is the first of its kind** to apply virtual models to the fields of OG/GYN and perinatology

### LIMITATIONS

Due to the relative rarity of TTTS in the general population, the number of women who are referred to the CFCC for treatment is low

## REFERENCES

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## ACKNOWLEDGEMENTS

Thank you to Dr. Allison Dempsey and the research team for their mentorship

Thank you to Emmaly Perks, Merlin Ariefdjohan, and the PMHI for the opportunity to engage in the PURPLE program this summer.

This pilot study is not funded by any internal or external parties.