Title-Innovative Use of Leap Motion Technology for Cataract Surgery Simulation- A Wet Lab Training Model

Purpose-To demonstrate the innovative use of leap motion technology for cataract surgery training in the wet lab.

Methods
In this model user's hand, gestures are captured by a small USB peripheral device called Leap Motion. The data in terms of hand and finger movements, corresponding orientation, and coordinates are communicated to the host computer, which is analyzed by the Leap Motion controller. Hand Gesture recognition unity software's interactive 3D and 2D contents can be connected and accessed through scripting. Every action performed by a user has a specific outcome on the simulator. These outcomes are evaluated by the medical simulator engine to provide feedback to the users by altering the simulated environment.

Results
Supervised wet lab sessions allow faculty to identify surgically struggling residents early and hasten the cataract surgery learning curve. This model serves as a benchmark for trainees or beginner surgeons to practice simulation without the need for costly equipment. This model can be practiced from anywhere without the need for a wet lab training set up and helpful for trainees specially during pandemic like the COVID-19 pandemic.

Conclusions
Virtual reality surgical simulator training shortens the learning curve and reduce complication during cataract surgery.