

## **32: DEVELOPMENT OF A MOBILE COMPETENCY ASSESSMENT PLATFORM FOR IVF LABORATORY QUALITY MANAGEMENT SYSTEMS.**

CURCHOE, CAROL LYNN<sup>1</sup>; GEKA, ASHLEY<sup>1</sup>; BORMANN, CHARLES<sup>2</sup>

<sup>1</sup>Andrology and IVF Laboratory, San Diego Fertility Center, San Diego, California, USA.,

<sup>2</sup>Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Massachusetts General Hospital, Harvard Medical School, Boston, MA 02114, USA.

Staff competency is a crucial component of the IVF laboratory quality management system because it impacts clinical outcomes and informs the key performance indicators (KPIs) used to continuously monitor and assess culture conditions.

### **Objective**

We designed and implemented a HIPAA compliant mobile (smart phone) application to assess the clinical decision making of ART laboratory staff for more than 80 common andrology and embryology procedures, track new staff competency during employee on-boarding and annually thereafter, and provide statistics for staff-related IVF cycle parameters.

### **Design**

The MySQL database, REST API, and administrator panel were developed with the HIPAA compliant laravel framework. Passport authentication, bio-metric log in and login with authentication, and encryption protect every aspect of the application. The andrology and embryology competency modules (ACM and ECM) provided standardized instruction to test-takers and were used to measure inter and intra- technologist variability between senior embryologists.

### **Materials and Methods**

Over 80 competency assessment modules were created for sperm and embryo morphology, quality, viability and common clinical decision timepoints. Briefly, ACM used 32 images of PAP-stained morphology slides, and ECM used 112 cleavage stage images captured on EmbryoScope 66 hours post insemination, and 168 blastocyst stage images captured on EmbryoScope 115 and 139 hours post insemination. Each slide was rotated and repeated 3 times throughout the modules to allow for intra-observer variability measurements.

### **Results**

The mobile (smart phone) application was programmed and validated on both iOS (Apple) and Google/ Android mobile devices at three different high volume IVF clinics. Highly trained senior embryologists completed the assessments to design a scoring rubric for ACM and ECM. Inter and intra-technician variability among senior staff was assessed to refine the competency assesment design for the next phase of the project; a multi-center validation trial.

### **Conclusion**

Our mobile application is a novel new tool to monitor staff related quality assurance parameters in an IVF laboratory.

### **Support**

None