

Laboratory management needs access to metrics

Fertility clinics always strive to perform to the highest standards. For laboratory management teams, the constant monitoring and analysis of lab performance is essential to gain insights into each clinic's day-to-day working practices. Manually collecting and interpreting metrics can be a time-consuming and difficult administrative task.

This use case unpacks the challenges fertility clinics face in data collection and analysis. It discusses how an electronic witnessing system (EWS) like CooperSurgical®'s RI Witness™ ART management system along with the upgraded RI Witness IQ™ Solution can help uncover valuable data insights to help improve standardization and clinic proficiency and play a central part in lab managerial decision-making.

Table of contents

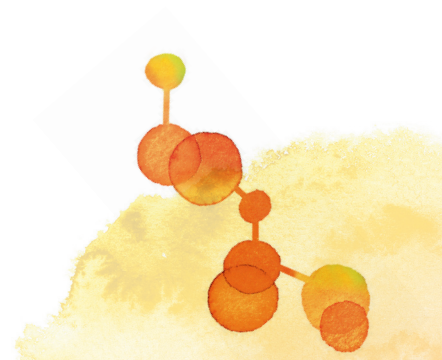
Challenge 1:
Underutilized data

Challenge 2:
Maintaining and monitoring quality control measures

Challenge 3:
Comprehensive tracking is a huge undertaking

Challenge 4:
Limited access to the metrics that matter most

Summary:
RI Witness IQ™ Solution – Intelligent oversight, greater transparency, tailored metrics



Challenge 1

Underutilized data

Case in point

A cross a group of clinics, varying success rates are noticed. Clinics may perform a manual review of data/documents, but there are no specific benchmarks established within the group to analyze lab performance across clinics. To analyze more closely, they must start a lengthy analog review to compare data points between clinics to search for any deviations in procedures.

Copious amounts of data for every IVF cycle

The ability to track various areas of lab performance is important if clinics are to continue to exceed competency and benchmark levels.¹ Some clinics may lack the time, tools, or processes needed to utilize collected data optimally, while others may not be collecting any data, and are therefore not able to determine how accurately they are following Standard Operating Procedures (SOPs) defined for the lab.²



Each laboratory should develop its own set of Key Performance Indicators (KPIs) founded on laboratory organization and processes, and develop a systematic, transparent and consistent approach to data collection and analysis and calculation of KPIs.³

*The Vienna consensus (ESHRE, 2017)



Continuous assessment of clinic SOPs can be overwhelming

Many clinics may rely on protocols and procedures that might not work as efficiently for their individual clinic setup. Without the means to collect, assess or troubleshoot protocols and procedures, keeping the clinic's SOPs current and evidence-based becomes a difficult task.³

Example on average procedure time by operator

Embryology 1, ICSI Prep

Operator	Count	Time	
Operator 1	25	02:10	
Operator 2	37	01:36	
Operator 3	32	01:22	
Operator 4	27	00:55	

This example shows a large variation in average procedure time between team members and could indicate the need for protocol review and additional training within the clinic.

RI Witness™ electronic witnessing system helps you utilize data that is important for your clinic

For every IVF cycle in the lab, the RI Witness™ System helps with the analysis of a clinic's IVF procedural parameters – comparison of clinic groups, real-time data accessibility, and lab competency review and equipment functionality.⁴

RI Witness System can provide clinics with a clearer overview of the front and back end of clinics to troubleshoot workflow bottlenecks to help ensure that SOPs are maintained, as well as tracking equipment and technical systems.⁵ While covering every step in the lab, the system can focus on a clinic's individual Performance Indicators (PIs) and KPIs to help with continuous improvement in lab performance.^{4,6}

Benefits of an electronic witnessing system based on a survey of 50 embryologists.⁴

Reduce errors in labeling issues



Improve sample traceability



Reduce the risk of sample mismatch errors by minimizing disruptions



Dr. Michael J.

“RI Witness System is many tools in one...When we can inspect performance outcomes, current and prospectively, we can create the opportunity to share best SOPs to improve industry standards and lead the way in integrity and transparency towards patients.”⁷

Dr. Michael J. Tucker – Scientific Director, Shady Grove Fertility, USA

Maintaining and monitoring quality control measures

Case in point

Trained as an embryologist, a lab manager working at a busy mediumsize fertility clinic has to divide their time between administrative and laboratory duties. Currently, lab managers are spending up to 80% of their time working in the lab alongside their colleagues. This means that only 20% of their time is available to gather, analyze, and document the clinical performance metrics that need to be shared with the lab staff to update IVF procedure protocols.

Data collection and analysis are laborious tasks

The role of the lab manager in a fertility clinic is the overall operational management of the IVF lab and clinic activities. They hold many responsibilities and are instrumental in the day-to-day management of lab operations, from protocol development and supervision of embryologists and other lab staff to data management, regulatory compliance and administrative responsibilities, including documentation and risk management. All of these tasks are vital to ensure that fertility clinics perform at the highest standards of care possible.

Johan Sterckx

“ Lab performance, particularly the timings of certain procedures need to be reviewed and protocols adjusted accordingly to ensure optimal outcomes. Due to the complexity of the lab manager’s role and the many hands-on tasks performed, administrative duties, which include data collection and analysis, become overwhelming tasks. ”

Johan Sterckx – Lab Quality Manager, Brussels IVF (largest fertility clinic in Belgium)

Lab performance, particularly the timings of certain procedures need to be reviewed and protocols adjusted accordingly to ensure optimal outcomes. Due to the complexity of the lab manager’s role and the many hands-on tasks performed, administrative duties, which include data collection and analysis, become overwhelming tasks.

RI Witness IQ™ Solution offers intuitive tracking to simplify workflow and drive performance

The RI Witness IQ™ Solution not only collects data throughout the lab journey but creates specific analytics to meet the needs of the individual fertility labs. With intelligent and automated monitoring, labs can optimize their management workflow to help reduce manual administrative duties and gain more time for hands-on tasks such as staff training and developing laboratory procedures.

The RI Witness IQ Solution gives lab management more time to review data, analyze trends and assess relevant clinical insights to adjust SOPs, if needed, and help improve lab performance.

Johan Sterckx

“Real-time data without having to do a big analysis of what’s happening saves me time.”⁸

Johan Sterckx – Lab Quality Manager, Brussels IVF



Challenge 3

Comprehensive tracking is a huge undertaking

Case in point

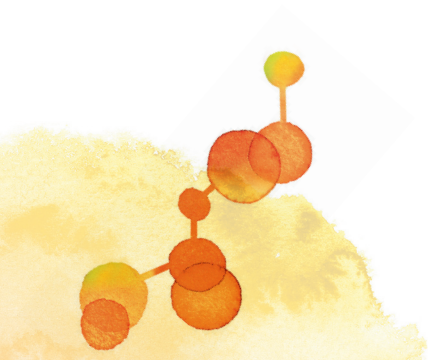
After noticing some inconsistencies in the timings of oocyte retrieval to denudation, the lab manager decides to allot extra time to figure out where the discrepancies are occurring. To review the analytics to assess lab performance, they must collect specific data and input it into a spreadsheet, a task that will require extra hours for administrative staff.

Lack of transparency limits decision-making

For IVF procedures, it is best practice in fertility clinics to follow a basic SOP, but these may vary slightly between different lab settings due to variations in workstation layout, operator training, and clinical reviews. Through data collection and analysis, the resultant differences in timings can be identified within the clinic or across a group of clinics.

With a high number of procedures taking place each month, a clinic should expect a consistent average in timings. If the average changes, this could indicate a need to review why there is a deviation from the norm.

To discover specific procedural pain points, lab managers rely on KPIs to assess overall clinic performance and PIs to evaluate individual steps in the IVF process, whether human or technological.³ These indicators help lab managers get a broader overview of clinics' ways of working but require gathering performance data and creating statistics, both of which are time-consuming tasks.⁹



The RI Witness IQ™ Solution helps build fact-based lab management

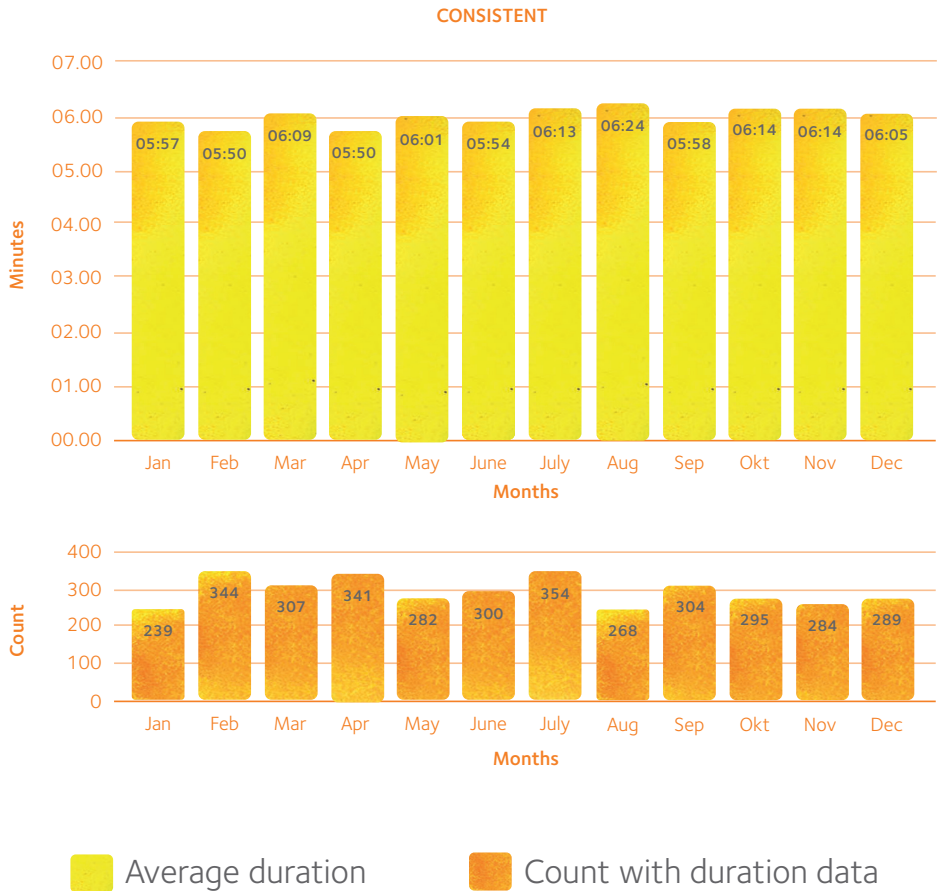
RI Witness IQ™ Solution provides more data transparency to help lab managers review laboratory procedural timings. This includes the ability to review time stamp intervals or to conduct deeper investigations into specific areas of interest, whether for intra-lab comparison or across a clinic group.

RI Witness IQ automates some manual processes to reduce administrative time spent on data collection and analysis. Advanced and customized lab monitoring helps to reinforce consistency in laboratory SOPs, create accurate benchmark targets and identify training opportunities for improved clinical performance.

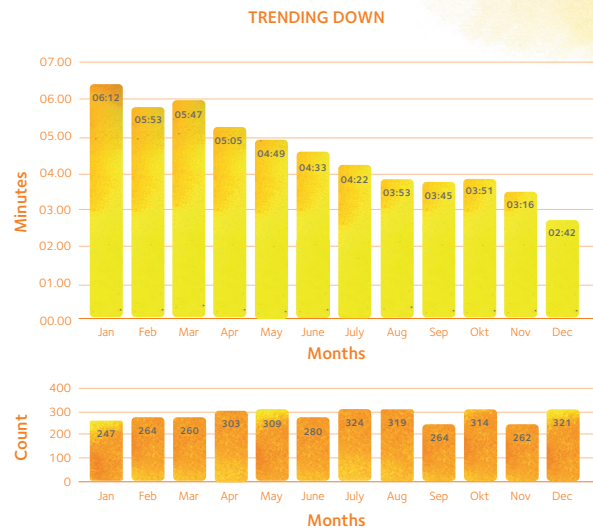
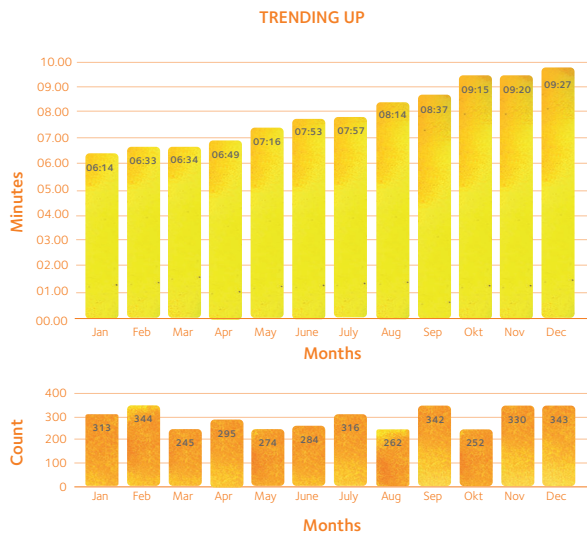
One example of a visual data tool is a historical chart; a graphical display of data that shows how the average duration of a procedure performed in an IVF Lab (e.g. oocyte retrieval, denudation, embryo transfer etc.) has changed over time.

Historical Average Event

Duration Example



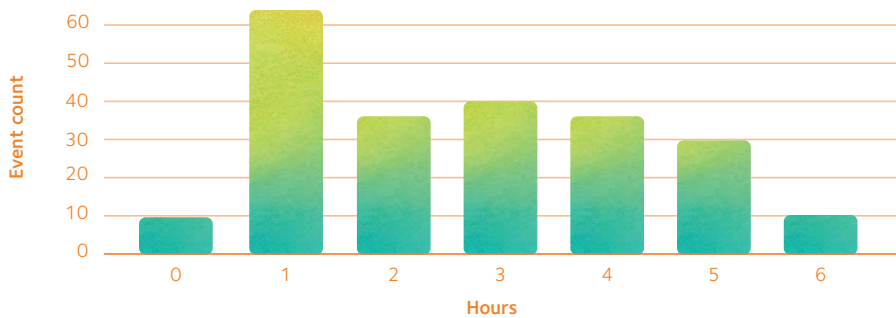
The historical chart illustrates a consistent average duration in a 12-month period.



These examples show a trending up or trending down in the procedural timings average. A variation from the average may correspond with a change in staff, change in SOP, or the introduction of new equipment, media or consumables and the effects of these will need to be reviewed.

Daily average event duration

Interval Histogram



Show outliers (Hiding 7 outliers)

This example of interval histogram data has been automatically binned into hours, and the dashboard includes an option to conceal outliers; this increases the likelihood of better visualizing any pattern or distribution in the data.

Limited access to the metrics that matter most

Case in point

A lab supervisor wants to conduct a review of the newest lab employees to ensure they are following the protocols of the lab and pinpoint any training requirements. To assess their competency and compare it to the lab average, specific metrics are needed so that they can be addressed immediately.

Broad overview lacks specificity to reveal irregularities

Lab management strategy requires strong data insights into clinical approaches. If a clinic is experiencing an undesirable performance difference among staff or equipment, a transparent and clear insight into the overall process must include the specific data points that an individual clinic deems important for their assessment.

The more precise and tailored to the individual clinic, the more accurate the evaluation of practices. Insights that are compiled must be presented as aggregated data to clinic staff to help increase the efficacy and efficiency of lab performance.

Naval Shah

“Manual errors are an important insight to look at; in terms of the green zone, yellow zone, and red zone, who is performing optimally, passable, or those who need immediate attention.”¹⁰

Naval Shah – Head of Quality Assurance and Training Indira IVF
(large clinic group of 100-plus locations in India)








The RI Witness IQ™ Solution delivers metrics tailored to your clinic's needs


RI Witness IQ™ Solution helps provide an accurate summary of IVF outcomes, with the ability to monitor different types of metrics, equipment functionality, and staff workstation timings.

RI Witness IQ can be configured to create customized reports based on selected metrics to ensure a comprehensive analysis of relevant data. With easier access to investigate historical data and specific metric trends, lab management can react to any outliers or changes in performance timings and make strategic decisions that can help streamline and optimize clinic workflow.

Average Duration of Events by location

Location	Count	AVG. Duration	
Embryology H	12	03:34	
Embryology J	35	02:16	
Embryology Q	15	01:56	
	62	02:17	

This example shows that Embryology H and Q work areas are not used optimally, which could indicate an issue with the equipment or set up of the work areas and the embryologists' avoidance of their use, impacting the capacity levels for the lab. This highlights that there may be additional capacity within the other work areas to increase productivity.



RI WITNESS IQ™ Solution



Intelligent oversight, greater transparency, tailored metrics

The RI Witness IQ™ Solution is the next step beyond witnessing with intelligent data collection and analysis for the transparency that clinics need for enhanced fact-based laboratory management.

Maintain and monitor quality control measures

- Automated and intuitive tracking
- Continual automatic witnessing
- Quickly implement lab protocol adjustments

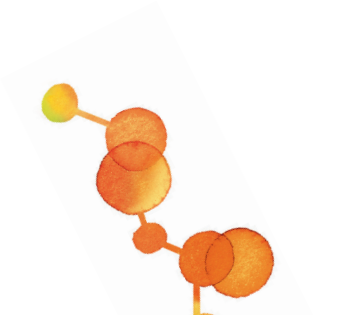
Ensure optimal productivity and efficiency

- Up to date lab activity overview
- Evaluate individual timings within a procedure
- Monitor and compare metrics within/and across clinics

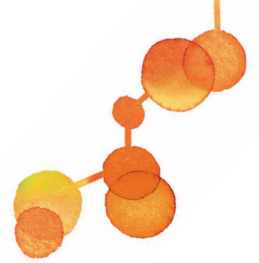
Strengthen standards of practice

- Customize metrics to track (staff/equipment and time/volume)
- Identify training requirements
- Standardize procedures across work areas or multiple labs

Decrease manual administrative tasks

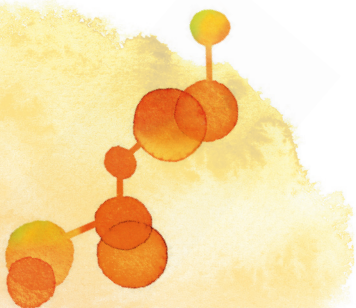
- Easier overview to pinpoint training opportunities
 - Tailored and combined metrics in reporting
 - Monthly customizable reports sent via email
- 

Learn more



About how the RI Witness IQ™ Solution can put your data to work for you.

Visit <https://fertility.coopersurgical.com/ri-witness-iq/> or send us an e-mail at: sales@coopersurgical.com



References

1. De Geyter C, Wyns C, Mocanu E, de Mouzon J, Calhaz-Jorge C. Data collection systems in ART must follow the pace of change in clinical practice. *Human Reproduction*. 2016;31(10):2160-3.
2. Pirtea P, de Ziegler D, Poulain M, Ayoubi JM. Which key performance indicators are optimal to assess clinical management of assisted reproduction cycles? *Fertility and Sterility*. 2020;114(1):24-30.
3. ESHRE. Special Interest Group of Embryology Alpha Scientists in Reproductive Medicine. The Vienna consensus: report of an expert meeting on the development of art laboratory performance indicators. *Human Reproduction Open*. 2017;Volume 2017(Issue 2).
4. Holmes R, Wirka KA, Catherino AB, Hayward B, Swain JE. Comparison of electronic versus manual witnessing of procedures within the in vitro fertilization laboratory: impact on timing and efficiency. *F&S Reports*. 2021;2(2):181-8.
5. Sakkas D, Barrett CB, Alper MM. Types and frequency of non-conformances in an IVF laboratory. *Human Reproduction*. 2018;33(12):2196-204.
6. Salinas M, López-Garrigós M, Gutiérrez M, Lugo J, Sirvent JV, Uris J. Achieving continuous improvement in laboratory organization through performance measurements: a seven-year experience. *Clinical Chemistry and Laboratory Medicine*. 2010;48(1):57-61.
7. CooperSurgical. How leading fertility groups are advancing laboratory security and safety. CooperSurgical Fertility Companies. 2021. [online]
8. CooperSurgical. How the RI Witness™ Solution with IQ can help improve standards and clinical outflow in a large fertility clinic. CooperSurgical Fertility Companies. 2022. [online]
9. Hammond ER, Morbeck DE. Tracking quality: can embryology key performance indicators be used to identify clinically relevant shifts in pregnancy rate? *Human Reproduction*. 2018;34(1):37-43.
10. CooperSurgical. How the RI Witness IQ™ Solution can help improve standards and clinical outflow across a clinic group. CooperSurgical Fertility Companies. 2022. [online]

* CooperSurgical has a development partnership with Brussels IVF