

# Electronic Witnessing Platforms

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Has the time come for ART Programs to Abandon  
Human Independent Double Check?

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# Disclosures

- KOL Speaker – Irvine Scientific
- Advisory Board – Good Start Genetics
- Long time user of electronic witnessing

# Objectives:

- Why we make mistakes
- Review current 'witnessing' procedures in ART
- Introduce various electronic witnessing devices
- Pros and Cons of the various systems
- Encourage an open dialog

# Know your audience

- How many programs represented here have just one or two persons in the ART laboratory?
- How many programs represented here utilize a 'witnessing' process?
- How many programs represented here have a written SOP for their witnessing procedure?
- How many programs represented here utilize an electronic witnessing platform?

# Safety Critical Work

- Airline Pilots
- Air Traffic Controllers
- Train Engineers
- Transfusion Therapists
- Nurses
- ART Laboratory Staff



*To err is human*



Alexander Pope

1688 - 1744

## The Error Chain



- In aviation “error chain” is a term referring to the concept that many contributing factors typically lead to an accident (mishap)
- Should any of the links be “broken,” then the mishap probably will not occur
- It is up to each crewmember to recognize a link and break the error chain.



# Error Chain

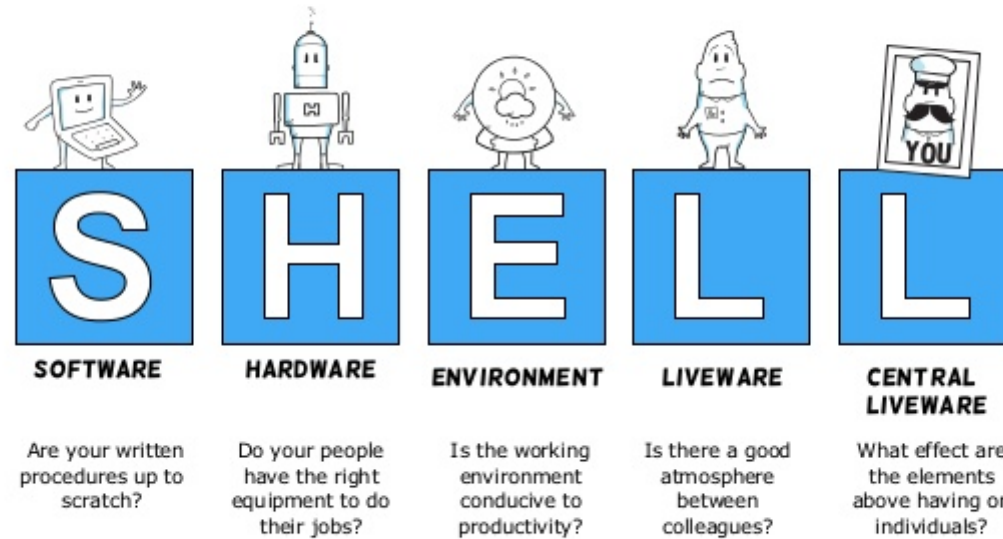
## Operational Clues

- Failure to meet targets
- Use of an undocumented procedure
- Departure from SOP
- Violating minimums
- No pilot

## Human Clues

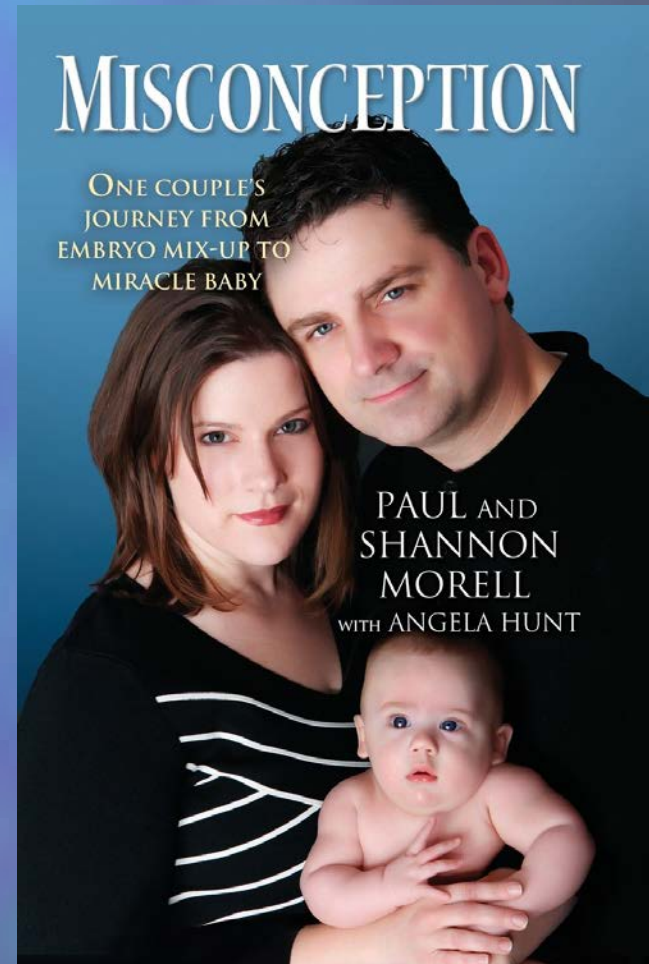
- Incomplete communications
- Ambiguity
- Unresolved discrepancies
- Preoccupation/Distraction
- Confusion or anxiety

## Introducing the SHELL Model



# Errors Lead To

- Complex Litigation
- Financial expense
- Reputational damage
- Emotional consequences
- Ethical consequences



# Why do we make mistakes?



- Human Automaticity
- ***Subconscious***
- Enhanced by trust and comfort
- Our brains are susceptible to read what we ***EXPECT*** to see, not what is actually in front of our eyes!

# Ambiguous Accountability



am•big•u•ous

doubtful, uncertain,  
unclear in meaning

# Stress



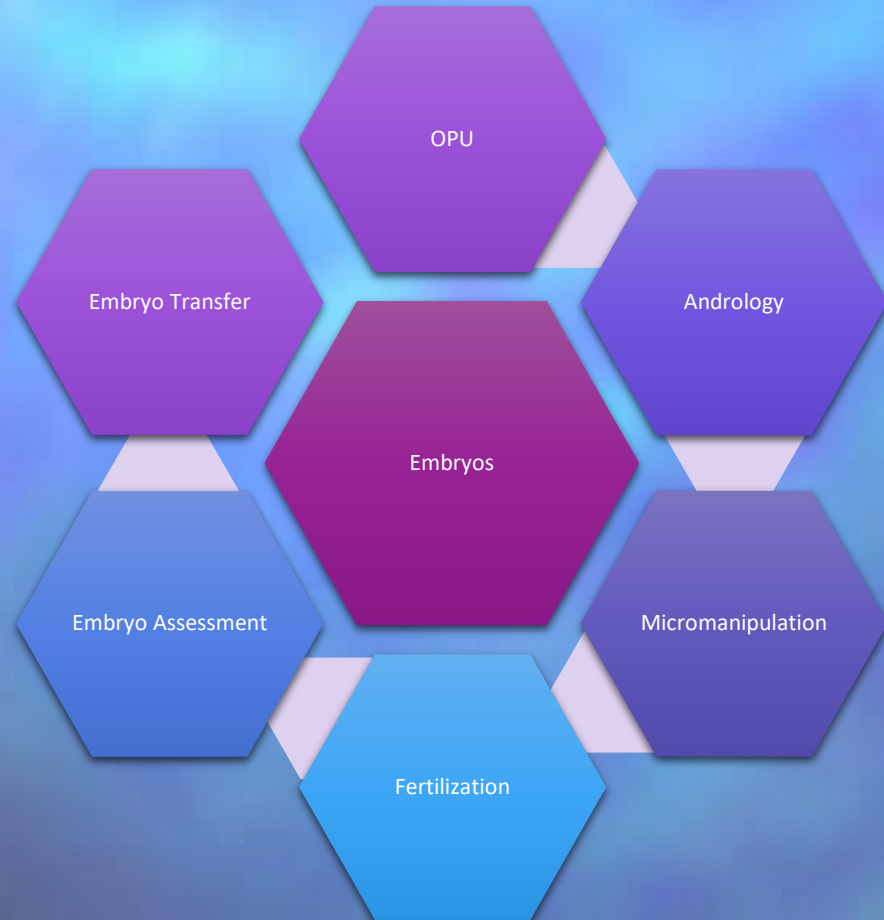
- Our jobs are stressful
- Staffing issues
- Pressure to succeed
- Lack of or limited control
- Funding

# Culture of Safety

- Environmental tools
- Individual performance parameters
- Multiple strategies
- Clearly defined SOPs
- Proper staffing



# An IVF cycle can have multiple points of contact



- Oocyte retrieval
- Sperm collection/processing
- Oocyte stripping
- ICSI or insemination
- Fertilization check
- Cleavage checks
- Embryo Transfer
- Embryo Vitrification
- Biopsy



# How can we minimize risks?

- Written procedures that have safe guards built in
- Written procedures that are followed
- Cultivate a culture that understands humans can make mistakes so that the impact of errors can be minimized by early reporting
- Proper staffing
- Proper training

# Independent Double Checks (IDC)

- Risk avoidance strategy widely promoted in healthcare to detect potentially harmful errors before they reach patients
- For maximum effectiveness double checks must be conducted independently
- Should be used only for selective high-risk tasks
- IDCs are a poor substitute for system improvements

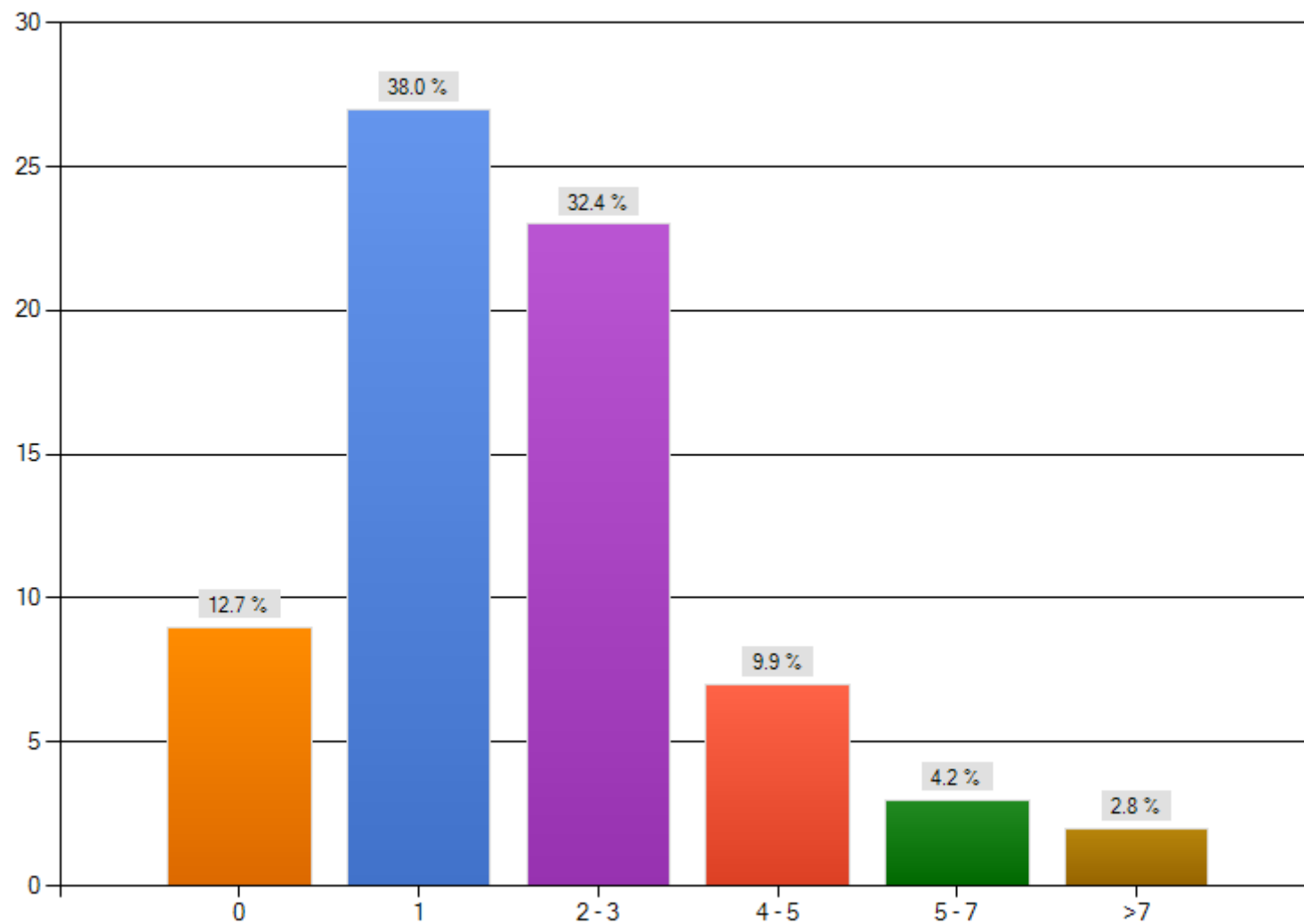
# Independent Double Checks (IDC)

- Inconsistent conceptualization of double checking
- Costly and time-consuming procedure
- Paucity of evidence to justify the practice
- Interruptions are challenging
- Processes to support double-checking

# IDCs in the ART Laboratory

- Do not have a defined process
- Poor documentation or *no* documentation
- Interruptions and distractions contribute to poor patient care
- High work loads and poor staffing contribute to superficial routine performance of IDC

### Number of full time embryologist(s) excluding laboratory director:



Adapted from SRBT salary survey data

# Witnessing Employee

	Low Wage	Medium Wage	Reasonable Wage
	\$7.25	\$12.00	\$18.00
Annual Salary	\$15,080	\$24,960	\$37,440
Onboarding	\$2600	\$2600	\$2600
Benefits	\$3317	\$5491	\$8236
Coverage	40 hrs/week	40 hrs/week	40 hrs/week
Total	20,997	33,051	42,876

# How can we minimize risks?

Utilize available technology to protect your practice



# Electronic Systems Provide

- Insurance against patient mis-match
- Not subject to automaticity
- Provides traceability of who what when and where
- Documentation of error resolution
- Can replace human independent double checking



# Electronic Systems Provide

- Limits the number of persons required to ***confidently*** perform all steps in a process
- Reduces laboratory traffic which has the added benefit of decreasing VOCs and dirt in the laboratory
- Reduces necessary manpower costs

# Types of IDC Systems

## BAR CODE BASED

- Matcher
- Gidget
- Fertiproof



# Types of IDC Systems



RFID BASED

- RI Witness

# Gidget

- Hand held bar code scanning
- QR code scanning enables multi-directional scanning
- EMR connectivity
- Workflow management
- Electronic witnessing
- Process mapping
- Batch/lot tracking
- Cryo management
- Reporting
- Training, Service, Support



# Fertiproof

- Intuitive Barcode Tracking System
- Modular, compact and flexible set-up
- One-step instant individual labelling
- Tablet, barcode readers and label printer
- Traceability and Audits



# Matcher

- Uses digital photo images to read the barcoded labels
- No lasers, radio frequency radiation, supplementary heating
- No equipment modifications
- Electronic witnessing
- Process mapping
- Batch/lot tracking
- Reporting



# Bar Code Based Systems

## Pros

- Provide IDC
- Do not require equipment modifications
- Provide additional management/QA information
- Less expensive



## Cons

- Bar code readers require direct line of site to read
- Process change required to incorporate scanning bar code
- Bar codes are ubiquitous
- Bar codes have no read/write capabilities
- Can be circumvented

# WITNESS



- Automatically reads tags any time a sample is out
- Constant monitor of all activity in the work areas
- Labels are linked for male and female patients
- Identity checks can NEVER be overlooked



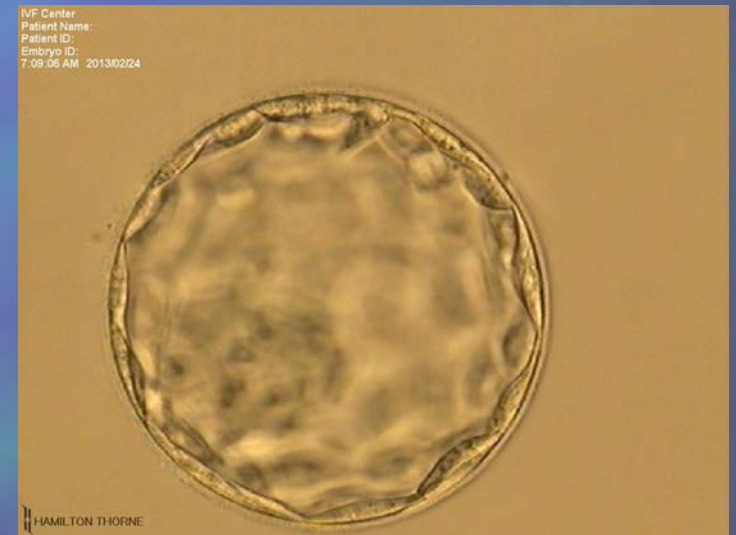
# RFID Based Systems

## Pros

- Provide IDC
- Cannot be circumvented
- No process change required for use
- Each label is unique
- Labels have read/write capabilities
- Multiple labels can be read at once
- Provide additional management/QA information

## Cons

- Readers have to be installed on all working microscopes
- RFID frequency theoretically can be damaging to embryos (?)
- Cost



# Electronic Witnessing

## PROS

- Provides independent double check
- Not subject to automaticity
- Electronic record of who, what, when
- Provides audible alerts if samples are mis-matched
- Improves patient satisfaction
- Provides additional management/QA information

## CONS

- Perception of complicated usage?
- Perception that processes must be changed to accommodate system?
- Bulky equipment?
- Cost?
- Not necessary?

# Thanks so much

- Manny Magno
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- Yuri Wagner



# Questions

