Internal Proficiency Testing-

Ongoing Internal Quality Management

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Overview

- What is proficiency?
- Overall laboratory proficiency
- Individual technologist proficiency
- How do you measure proficiency
- Individual proficiency testing at GIVF

What is proficiency?

- **Definitions:**
  - well-advanced or competent in any art, science, or subject; skilled
  - an expert

What is proficiency?

- **When is someone ‘proficient’?**
  - Following a lab-approved training program, technologists would be considered proficient at the trained skills
- **Other questions?**
  - How long does proficiency last?
  - How do technologists stay proficient at trained skills?
  - How important is it to stay proficient?

Overall laboratory proficiency

- Most labs participate in some form of overall laboratory proficiency testing
  - Can include:
    - Peer to peer comparison of lab results
    - Organized proficiency testing from local or national accreditation bodies
    - Organized proficiency testing from local bodies such as the College of American Pathologists (CAP) or UK NEQAS

Overall laboratory proficiency

- What does an overall laboratory proficiency test measure?
  - Ability of a laboratory to accept and process samples
  - Ability of a laboratory to perform a requested test
  - Ability of a laboratory to report the results from the ordered test
  - Examination of the results then allows the laboratory to assess how they are doing compared to a standard and other laboratories

Overall laboratory proficiency

- What does **not** get measured?
  - **Individual** ability of the technical staff in the laboratory to…
    - Accept and process specimens
    - Perform testing
    - Report results
    - Intra-laboratory differences in the skill set of individual technical staff

Individual technologist proficiency

- Allows for assessment of…
  - **Individual** ability of the technical staff in the laboratory to…
    - Accept and process specimens
    - Perform testing
    - Report results
    - Assess intra-laboratory differences in the skill set of individual technical staff
    - Assess general understanding of base skill and knowledge set
    - Ensures that staff keep their skills at the highest level possible

How do you measure individual proficiency

- Blinded result scoring?
- Observational assessment of laboratory skills?
- Written testing on SOPs and general knowledge?
- Blinded/unannounced specimen runs?

Individual proficiency testing at GIVF

- Each year, the technical staff in the lab complete a 3 part proficiency test (FISH-based testing only)
  - Blinded scoring of single blastomeres and control slides previously run in clinical cases
  - Written short answer test made up of about 15-20 questions
  - Observational assessment of 5 laboratory skills by a supervisor

Individual proficiency testing at GIVF

- Blinded scoring of single blastomeres previously run in clinical cases
  - Slides are chosen from clinical cases and are blinded to the staff
  - Each probe set offered in the lab is represented
  - The original score on the clinical case is always assumed to be correct
  - Each technologist must score alone with no help or input from other staff
  - Usually score 10-15 nuclei per round of testing

Individual proficiency testing at GIVF

- Written short answer test made up of about 15-20 questions
  - Each technologist in the lab is asked to submit 5 questions (with answers) relating to work in the laboratory
  - Approximately 15-20 questions and answers are selected as the written portion of the test
  - Questions can cover general laboratory theory, FISH-based testing SOPs and theory, as well deeper 'thinking' questions meant to measure awareness of new things in the lab
  - Questions can be open or closed-book questions

Individual proficiency testing at GIVF

- Observational assessment of 5 laboratory skills by a supervisor
  - During training, a checklist is used to measure the trainee's progress
  - This same checklist is used to choose 'skills' that will be assessed for proficiency
  - A supervisor observes each technologist during regular clinical cases for each of the 5 skills and rates them as pass or fail

Individual proficiency testing at GIVF

- One supervisor is in charge of putting together the entire proficiency test
- A second proficiency test is made for the supervisor that put together the main test
- Once the tests are completed, they are scored and given back to each person on staff
- The following week, the entire test is reviewed at a lab meeting so that questions or concerns can be answered
- The test review is looked at as a learning experience for the entire staff

Individual proficiency testing at GIVF

- Sample questions…
  - What should you do if after adding probe and the coverslip to a slide, you find that you cannot remove a bubble from a critical area on the slide?
  - What should you do if after adding antifade and the coverslip to a slide, you find that you cannot remove a bubble from a critical area on the slide?
  - How many slides can one place in 0.4XSSC when stripping first round probes from the slide?
  - What do you check on the TRF when it arrives to make sure it is complete – Inside vs. Outside?
    - If information is missing, what do you do?

Individual proficiency testing at GIVF

- Sample questions…
  - Name the different chromosomes and the types of probes (e.g. LSI, CEP, telomere, etc.) used in the PB, Strip, PGT, and X,Y,21 mixes.
  - What do you do in the case where a control slide does not score within acceptable ranges?
  - What is the purpose of doing follow-up biopsies?
    - Would you spread an embryo in which we got an undetermined result? Explain your answer.

Individual proficiency testing at GIVF

Practical Scoring Example

View section A and B under the microscope. One section has been hybridized with our approved X, Y, 21 mix and the other with X, Y, 15. The probe fluors are identical in these mixes. Determine which section has been hybridized with each probe mix

Section A has been hybridized with the _____ mix.

Section B has been hybridized with the _____ mix.

Individual proficiency testing at GIVF

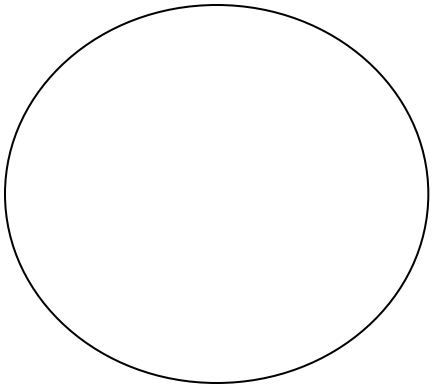
Practical scoring example

Slide A – 150.5 x 18.3 (X, Y, 15)

G___

A___

O___

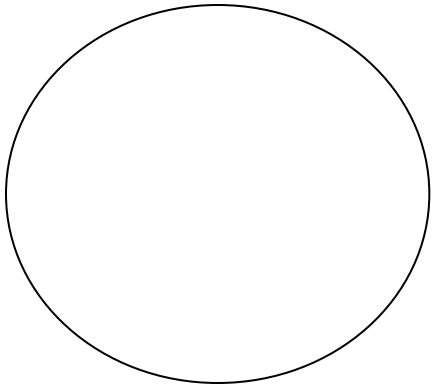


Slide D – 156.8 x 6.4 [t(13;14)]

G___

O__

R___



Individual proficiency testing at GIVF

- What happens if a technologist doesn't pass?
  - The technologist takes the secondary PT test along with the Supervisor
  - The same scoring criteria are used for the new test
  - If the technologist passes the second test, no other steps are taken
  - If the technologist fails a second time, remedial training in specific problem areas is undertaken
  - Following remedial training, the technologist is tested again

Individual proficiency testing at GIVF

- How does it work?
  - We have had one instance of a failed test that was followed up by remedial training
  - Following re-training, the technologist passed the follow-up PT with flying colors
  - We have had one further instance of ‘issues’ during the most recent PT
  - One technologist clearly had issues with one specific area of work
  - Technologist is currently receiving remedial training and will take another PT on that area of lab work shortly

Thank you…

- Local organizing committee
- ESHRE
- Genetics & IVF Institute
  - PGD lab
  - Embryology lab
  - Clinical genetics staff and genetic counselors