

REVIEW ARTICLE

Challenges Facing Quality Assurance (QA)/Quality Control (QC) Measures of Pathology Laboratories in Iraq

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Definition of Quality Assurance, Quality Control, and Quality Improvement

- Quality assurance in pathology and laboratory medicine is the practice of assessing performance in all steps of the laboratory testing cycle including pre-analytic, analytic, and postanalytic phases to promote excellent outcomes in medical care.
- Quality control is an integral component of quality assurance and is the aggregate of processes and techniques to detect, reduce, and correct deficiencies in an analytical process.
- Quality improvement is the practice of continuously assessing and adjusting performance using statistically and scientifically accepted procedures.

Phases of Quality Control

- Pre-analytic phase
- Analytic phase
- Post analytic phase
- Turnaround times (TAT)

A. Pre-analytic Phase:

1. Specimen fixation
2. Specimen delivery
3. Specimen identification
4. Adequacy of clinical history
5. Accessioning errors

B. Analytic Phase:

1. Intra-operative frozen section
2. Frozen section – permanent section concordance
3. Final diagnosis
4. Peer review error rate
5. Quality of histologic sections
6. Specimens lost in processing
7. Histology turnaround time (TAT)
8. Block labeling

9. Slide labeling

10. Extraneous tissue

11. Immunohistochemistry

Analytic Phase (cont.):

12. Frequency and causes of repeat IHC stains

13. Immunohistochemistry TAT

14. Integration of IHC stains with morphologic diagnosis

15. Annual review of antibody supply and frequency of use
 16. Enrolment in external proficiency testing should be considered particularly for tests that directly impact patient therapy such as Her2/neu immunostaining.

16. Other ancillary study monitors may be used as needed, include monitors for FISH, EM, other molecular studies.

C. Post-analytic Phase :

1. Transcription errors

2. Verification errors

3. Report delivery errors

4. Incomplete reports

5. Diagnostic finding correlation with ancillary studies (IHC, EM, FISH)

D. Turn Around Times (TAT) For:

1. Frozen section

2. Biopsy

3. Large specimen

4. Preliminary and final autopsy reports

Approach to Quality Control in Surgical Pathology

Intradepartmental Consultation

Intraoperative Consultation

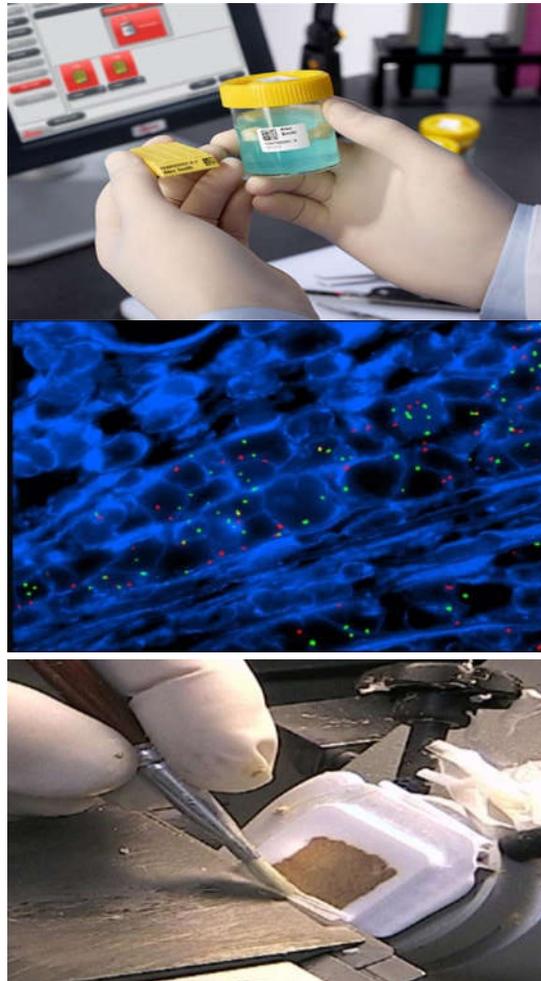
Random Case Review

Clinical Indicators

Intra- and Interdepartmental Conferences

Pathology Turnaround Times

Specimen Adequacy and Histology QC



Challenges facing pathology services and quality control measures in Iraq

In Iraq, pathology services being a highly specialized branch of medicine, are mainly limited to large teaching hospitals.

Such hospitals invariably are government funded and hence depend on annual budget votes and government oversight of all funding.

This is made more difficult with the state of financial austerity and years of military battle against ISIS, with its associated corruption especially in previously occupied areas and all over the country, ultimately leading to deterioration in basic social services; as such transportation, potable water, electricity, health care delivery, and communications.

Several quality control measures are in place but largely not formalized. These may need to be better organized into an auditable format.

Residency training should also emphasize quality control in the preanalytic, analytic, and postanalytic phases and encourage accurate documentation of processes.

Central to issues such as quality control (including turn-around time), quality assurance, follow up of patients with previous biopsies, and correlation with patients' electronic medical record is an integrated laboratory information system.

None of the hospitals with a major pathology department has an operational laboratory information system.

As such pathology requisitions and final reports are still performed strictly on a paper-based format in the absence of a centralized hospital electronic medical record system.

The difficulties mentioned earlier are the main obstacles to achieve proper quality control in surgical pathology labs. in Iraq in addition to the following challenges:

A. Increased demand for pathology services; in diagnostic surgical pathology this has not only been in order to deal with the increased number of biopsies, but also to comply with guidelines for cancer case reporting and with the various recommendations of specimen handling and additional testing.

B. The need to improve turnaround time as a critical element in clinical management.

C. Ancillary Techniques

Ancillary techniques are the means to achieve specific aims, be it for the diagnostic service or for research.

In our labs, most of the specimens are evaluated largely with routine hematoxylin-eosin stains with only limited histochemical stains.

Most centers do not use ancillary techniques to aid diagnosis as funds, resources, and materials are not available and patients cannot afford to pay for these additional techniques.

Residents therefore become proficient at morphologic diagnosis but not with disease subclassification, which often is predictive of prognosis, appropriate follow up therapy, and, of course, research.

Also other ancillary methods that are easily available elsewhere (e.g. in situ hybridization, flow cytometry, molecular testing, cytogenetics) have not yet been incorporated as part of residency training.

D. The need to comply with the constitutional requirements of the various laboratory accreditation and quality assurance regulatory bodies.

E. The explosion in the number of rapidly evolving new techniques.

F. Advances in information technology and digital imaging.

G. Continuing Medical Education Consideration should be given to free or highly discounted subscriptions for practicing pathologists to proficiency programs. Also proficiency programs for histotechnologists and cytotechnologists should be developed.

Continuation of funded attendance at international meetings of the International Academy of Pathology by pathologists and pathology trainees from the developing countries should be encouraged.

H. The rising trend of subspecialisation within the clinical specialties. The advantages of subspecialisation include.

- 1) Increased experience and skill of the pathologists at interpreting challenging cases within their own subspecialties.
- 2) Maximising clinical efficiency through enhanced team work and communications with the corresponding subspecialised clinical services.
- 3) Creation of an environment in which research can be successfully planned and performed and optimisation of teaching.

However, subspecialisation has its demanding requirements and it cannot be applied in all pathology laboratories. The main disadvantages include:

- 1) Decreased staffing flexibility in comparison to laboratories which provide a wider general service.
- 2) Difficulties in evaluating the efficiency of the pathologists' work due to weights and indicators varying from one subspecialty to another.
- 3) The need for more staffing which remains the biggest factor hindering the wider development of subspecialisation.

I. Intraoperative Consultation/Diagnosis (Frozen Sections)

Changing trends in the practice of pathology have significantly contributed to the decline in the frequency of the pathologists' exposure to frozen section materials. The main trends responsible for this are subspecialisation and the availability of radiologically guided biopsies.

Frozen section procedure has become even more challenging for the less experienced pathologist. The problem is further compounded by the requesting clinicians being unfamiliar with the difficulties and limitations of the procedure.

J. Multidisciplinary Team Meetings (MDTs)

MDTs have increased awareness among other health professions of the speciality of pathology and its important role in the management of cancer patients.

It is also regarded as part of continual professional development so that although it is a time consuming duty it is often welcomed.

K. The Autopsy

The availability of an autopsy service is a necessity both within the health and forensic services.

However, while it is essential to have proper autopsy training, it is not essential that all trainees in pathology should have such training. Making autopsy training an “elective” subspecialty will ensure that only genuinely interested trainees are able to get the proper experience from the declining pool of autopsies.