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Anatomic Pathology Checklist

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ON-LINE CHECKLIST AVAILABILITY

Participants of the CAP accreditation programs may download the checklists from the CAP website (www.cap.org) by logging into e-LAB Solutions. They are available in different checklist types and formatting options, including:

- Master — contains ALL of the requirements and instructions available in PDF, Word/XML or Excel formats
- Custom — customized based on the laboratory’s activity (test) menu; available in PDF, Word/XML or Excel formats
- Changes Only — contains only those requirements with significant changes since the previous checklist edition in a track changes format to show the differences; in PDF version only. Requirements that have been moved or merged appear in a table at the end of the file.

SUMMARY OF CHECKLIST EDITION CHANGES
Anatomic Pathology Checklist
08/21/2017 Edition

The information below includes a listing of checklist requirements with significant changes in the current edition and previous edition of this checklist. The list is separated into three categories:

1. New
2. Revised:
   - Modifications that may require a change in policy, procedure, or process for continued compliance; or
   - A change to the Phase
3. Deleted/Moved/Merged:
   - Deleted
   - Moved — Relocation of a requirement into a different checklist (requirements that have been resequenced within the same checklist are not listed)
   - Merged — The combining of similar requirements

NOTE: The listing of requirements below is from the Master version of the checklist. The customized checklist version created for on-site inspections and self-evaluations may not list all of these requirements.

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INTRODUCTION

This checklist is used in conjunction with the All Common (COM) and Laboratory General Checklists to inspect an anatomic pathology laboratory section or department.

Laboratories that do not file slides on-site (e.g. "read-only" laboratories) must retain a sample of cases and all associated slides on-site for review by the inspector on all days when the laboratory is subject to its regular on-site inspection. The sample must, at a minimum, include all cases and associated slides accessioned over a continuous 2-week period within the previous 2 years.

If telepathology is used by the pathologist to review slides or images for primary diagnosis, frozen section diagnosis, formal second-opinion consultations, ancillary techniques in which the pathologist participates in interpretation of images, or real-time evaluation of FNA specimens for triaging and preliminary diagnosis, refer to the Telepathology and Remote Data Assessment section of the Laboratory General Checklist for additional requirements. Telepathology occurs when a pathologist views digitalized or analog video or still image(s), or other data files (e.g. flow cytometry files) at an off-site or remote location and an interpretation is rendered that is included in a formal diagnostic report or recorded in the patient record. Requirements for remote data assessment do not apply to testing performed within the laboratory using the laboratory’s validated software (e.g. pathologist office using a network or virtual private network (VPN) connection).

Note for non-US laboratories: Checklist requirements apply to all laboratories unless a specific disclaimer of exclusion is stated in the checklist.

GENERAL ANATOMIC PATHOLOGY

Do NOT use this Checklist if the laboratory does NOT perform any on-site preparation or examination of anatomic pathology specimens, but refers all submitted material to an outside laboratory, or if the laboratory’s involvement in anatomic pathology is limited to filing of reports and/or slides.

SAFETY

Inspector Instructions:

- Sampling of formaldehyde and xylene vapor monitoring records

ANP.08216  Formaldehyde and Xylene Safety  Phase II

Formaldehyde and xylene vapor concentrations are maintained below the following maxima, expressed as parts per million, in all areas of the Anatomic Pathology Department where formaldehyde or xylene are used.

NOTE: Formaldehyde and xylene vapor concentrations must be monitored in all areas where these reagents are used: e.g. surgical pathology gross dissection room, frozen section area, histology laboratory, autopsy room, etc. Xylene vapor concentration monitoring in histology
laboratories should include manual and automated coverslipping areas, as these locations are often not ventilated. Initial monitoring involves identifying all employees who may be exposed at or above the action level or at or above the STEL and accurately determining the exposure of each employee identified. Further formaldehyde monitoring is mandated at least every six months if results of the initial monitoring equal or exceed 0.5 ppm (8 hr time-weighted exposure, the “action level”) or at least once per year if the results exceed the short term exposure limit (STEL) 2.0 ppm. The laboratory may discontinue periodic formaldehyde monitoring if results from two consecutive sampling periods taken at least seven days apart show that employee exposure is below the action level and the short-term exposure limit, and 1) no change has occurred in production, equipment, process or personnel or control measures that may result in new or additional exposure to formaldehyde, and 2) there have been no reports of conditions that may be associated with formaldehyde exposure.

Formaldehyde monitoring must be repeated any time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde for any employee involved in the activity. If any personnel report signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the laboratory must promptly monitor the affected person’s exposure.

Xylene must be monitored initially, but there is no requirement for periodic monitoring of xylene. Repeat monitoring should be considered when there is a change in production, equipment, process, personnel, or control measures likely to increase exposure levels.

<table>
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<td>Xylene</td>
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Evidence of Compliance:
✓ Written policy for formalin and xylene safety including action limits, criteria for discontinuation of monitoring and criteria for resumption of monitoring AND
✓ Records of initial formalin and xylene monitoring and repeat monitoring when indicated AND
✓ Records of corrective action when exposure limits are exceeded

REFERENCES
4) Occupational Safety and Health Administration. 29CFR1910.1048 and 1450, revised July 1, 1998

SURGICAL PATHOLOGY

QUALITY MANAGEMENT

Many technical and procedural quality control items are covered elsewhere in this Checklist. They are integral components of comprehensive quality management and should be included within the defined program. This section determines if there is an active program of surveillance of the quality of surgical pathology activities, particularly the diagnostic reports. How this is accomplished depends upon the number of departmental staff, as well as the volume and type of diagnostic material. Such a program must include appropriate combinations of activities such as the use of intra- and extra-departmental consultations, circulation of diagnostic material (random or by case type), periodic review of completed surgical pathology reports, and participation in self-assessment and performance improvement programs.
Inspector Instructions:

**Sampling of the following records:** previous/current material review, intra-departmental consultations, extra-departmental consultations

**ASK**

- Does your laboratory exclude any specimen types from routine submission to the pathology department?
- What is your laboratory’s course of action when a significant disparity exists between the initial intra-operative consultation and final pathology diagnosis?

**REVISED** 08/21/2017

**ANP.10016 Surgical Pathology Exclusion**

There is a policy that lists specimens that an institution may choose to exclude from routine submission to the pathology department for examination, where applicable.

NOTE: This policy should be made in conjunction with the hospital administration and appropriate medical staff departments and must be in compliance with national, federal, state, and local laws and regulations. The laboratory director should have participated in or been consulted by the medical staff in deciding which surgical specimens are to be sent to the pathology department for examination.

The policy must comply with state or local laws. For example, the California Department of Health Care Services requires all tissues and objects removed during surgery to be submitted for pathology examination, unless a specific request is submitted to the state requesting a variance.

This checklist item is not applicable if 1) all specimens are submitted to pathology, or 2) the laboratory is not part of an institution that provides surgical services.

**REFERENCES**

2) Zarbo RJ, Nakhleh RE. Surgical pathology specimens for gross examination only and exempt from submission. A College of American Pathologists Q-Probes study of current policies in 413 institutions. *Arch Pathol Lab Med*. 1999;123:133-139

**ANP.10032 Surgical Pathology Microscopic Exemptions**

There is a policy regarding what types of surgical specimens (if any) may be exempt from microscopic examination.

NOTE: Irrespective of any exemptions, microscopic examination should be performed whenever there is a request by the submitting or attending physician, or at the discretion of the pathologist when indicated by the clinical history or gross findings. If there is such a policy, it should be approved by the medical staff or appropriate committee. Typical exempt specimens include foreskins in children, prosthetic cardiac valves without attached tissue, torn meniscus, varicose veins, tonsils in children below a certain age, etc.

**REFERENCES**

7) Zawro RJ, Nakleh RE. Surgical pathology specimens for gross examination only and exempt from submission. A College of American Pathologists Q-Probes study of current policies in 413 institutions. Arch Pathol Lab Med. 1999;123:133-139

ANP.10038 Tissue Sample Quality

There is a procedure that describes the process by which histotechnologists provide feedback to submitting pathologists and pathology assistants on the quality of the gross tissue sections received for tissue processing.

NOTE: Inadequate fixation, overly thick tissue sections, non-decalcified bone, the presence of staples, etc., can lead to poor quality histologic sections and/or poor quality special stains/special studies.

This requirement applies to both laboratories that gross tissue and perform all processing onsite, as well as laboratories that gross tissue and send it to another laboratory for processing, embedding, and sectioning (regardless of the outside laboratory's accrediting organization).

Records of such feedback and corrective action taken when problems are identified may be incorporated into the laboratory's quality management program.

Evidence of Compliance:
✓ Records of feedback and corrective action for problems identified with tissue quality

ANP.10042 Histologic Prep Quality

There is a written procedure that describes the process by which pathologists or their designees provide feedback to the histology laboratory on the quality of histologic preparations. This procedure must include the daily recording of the quality of the histologic preparations for each day of tissue processing and slide preparation.

NOTE: Histologic preparations refer to H & E sections, histochemical stains, immunohistochemistry preparations, and in situ hybridization preparations.

This requirement applies to laboratories that process and interpret histologic preparations at the same location, as well as laboratories that interpret histologic preparations processed at another laboratory (regardless of that outside laboratory's accrediting organization).

Records of such feedback and corrective action taken when problems are identified may be incorporated into the laboratory's quality management program.

Specific quality control requirements for special stains, immunohistochemistry, and other special studies are found elsewhere in this checklist.

Evidence of Compliance:
✓ Records of feedback and corrective action for problems identified with histologic prep quality

REFERENCES

ANP.10050 Previous/Current Material Review

Whenever appropriate, pertinent previous cytologic and/or histologic material from the patient is reviewed with current material being examined.

NOTE: Because sequential analysis of cytologic and histologic specimens may be critical in patient management and follow-up, efforts must be made to routinely review pertinent previous material. Records of the retrospective review should be included in the current patient report.
REFERENCES
1) Bozzo P. Implementing quality assurance. Chicago, IL: American Society of Clinical Pathology, 1991;72-74

ANP.10100 Intra-operative/Final Diagnosis Disparity Phase II
When significant disparity exists between initial intra-operative consultation (e.g., frozen section, intra-operative cytology, gross evaluation) and final pathology diagnosis, it is reconciled and recorded in the surgical pathology report and in the departmental quality management file.

REFERENCES

ANP.10150 Intra and Extra-Departmental Consultations Phase I
The laboratory has a procedure for handling intra- and extra-departmental consultations in the patient's final report.

NOTE: Intra-departmental consultations may be included in the patient's final report, or filed separately. The pathologist in charge of the surgical pathology case must decide whether the results of intra-departmental consultations provide relevant information for inclusion in some manner in the patient's report.

Records of extra-departmental consultations must be readily accessible within the pathology department. The method used to satisfy this requirement is at the discretion of the laboratory director, and can be expected to vary according to the organization of the department. These consultations can be maintained with the official surgical pathology reports or kept separately, so long as they can be readily linked.

REFERENCES

ANP.10250 Extra-Departmental Consultation Phase I
When extra-departmental cases are submitted to the laboratory for consultation, they are accessioned according to the standard practices of the laboratory, and a final pathology report is prepared, with a copy sent to the originating laboratory.

NOTE: In most cases, original materials including slides and blocks should be promptly returned to the original institution. However, in some situations (for example, when the patient is receiving ongoing care at the referral institution pending tumor resection, etc.) it may be appropriate for the referral laboratory to retain slides/blocks for a period of time. In such situations, a letter should be sent to the originating laboratory along with the consultation report, requesting permission to retain the slides/blocks and accepting transfer of stewardship of the patient materials from the original laboratory to the referral institution.

Evidence of Compliance:
✓ Written procedure for handling and reporting of extra-departmental cases
REFERENCES

ANP.10255 Professional Competency Phase II
The laboratory director ensures the professional competency of pathologists who provide interpretive services to the anatomic pathology laboratory.

NOTE: The mechanism for competency assessment must be pertinent to the type of interpretive services provided. There must be a written policy for assessing professional competency, criteria for the assessment, and records of the assessment must demonstrate review by the laboratory director.

Evidence of Compliance:
✓ Policy for assessing professional competency AND
✓ Participation in a peer educational program (e.g. CAP Educational Anatomic Pathology Programs) or intra-departmental or inter-institutional peer review program OR
✓ Metrics developed from diagnostic quality management reports (ANP.10100, ANP.10150, ANP.12075, etc.) OR
✓ Quality management records (internal audits, error reports, etc.) OR
✓ Individual assessment according to defined criteria

ANP.10260 Slide/Block Handling Phase I
There is a written procedure for the handling of original slides/blocks for consultation and legal proceedings.

NOTE: This must include appropriate handling and accurate records of the use, circulation, referral, transfer, and receipt of original slides and blocks. The laboratory must have a record of the location of original slides and blocks that have been referred for consultation or legal proceedings.

ANP.10270 Off-Site Autopsies Phase I
As applicable, there is a policy for performance of autopsies off-site.

NOTE: If feasible, the autopsy room should be located within the institution. Requirements in the Autopsy Pathology section that relate to the physical facility, dissection and handling of organs and tissues apply only to those cases that are performed at the site under CAP accreditation. The pathologist should encourage off-site locations where autopsies are performed (e.g. Funeral homes) to provide facilities that meet the standards expected for accredited autopsy rooms.

REFERENCES

QUALITY CONTROL

SURGICAL SPECIMEN EXAMINATION

Inspectors and laboratories are reminded that requirements relating to collection and accessioning of specimens are covered in the Laboratory General Checklist. During the on-site inspection, the handling of surgical specimens must be evaluated.
Laboratories that do not file slides on-site (for example, some “read-only” laboratories) must retain a sample of cases and all associated slides on-site on all days when the laboratory is subject to its regular on-site inspection. The sample must, at a minimum, include all cases and all associated slides accessioned over a continuous two-week period within the previous two years.

**Inspector Instructions:**

- Sampling of surgical specimen handling and retention policies and procedures
- Sampling of sub-optimal specimen records/log
- Sampling of records of daily review of histologic slide quality
- Sampling of non-pathologist performance evaluations
- Records of non-pathologist personnel education and experience

- Sampling of slides (quality, labeling)
- What is your course of action when you receive sub-optimal specimens?
- How does your laboratory ensure specimen identity throughout processing and examination?
- How does your laboratory ensure quality testing when non-pathologists assist in gross examinations?

---

**ANP.11250 Adequate Storage**

Refrigerated storage is available for large or unfixed specimens.

**ANP.11275 Radioactive Material Handling**

There are specific policies and procedures for the safe handling of tissues that may contain radioactive material (e.g. sentinel lymph nodes, breast biopsies, prostate "seeds," etc.).

**NOTE:** These procedures should be developed in conjunction with the institutional radiation safety officer, and must comply with any state regulations for the safe handling of tissues containing radionuclides. The policy should distinguish between low radioactivity specimens such as sentinel lymphadenectomy and implant devices with higher radiation levels.

The pathology department may wish to monitor these specimens for radioactivity, with safe storage of specimens until sufficient decaying has occurred, before proceeding with processing in the histology laboratory.

**REFERENCES**


**ANP.11525 Tissue Assessment Record**

Phase I
If a statement of adequacy, preliminary diagnosis, or recommendations for additional studies is provided at the time of tissue specimen collection, records of that statement are maintained.

NOTE: Records might include a note in the patient's medical record or in the final pathology report.

ANP.11550 Specimen Retention  
**Phase I**

Gross specimens are retained until at least two weeks after the final reports are signed and results reported to the referring physician.

**Evidence of Compliance:**
✓ Written policy for specimen retention

**REFERENCES**
2) Travers H. Q&A Section. Savage RA, editor. CAP Today, November 1993:86-87  
3) Tracey ME. Hospital takes closer look at specimen returns. CAP Today, July 1992:81

ANP.11600 Gross Examination - Pathologist  
**Phase II**

All macroscopic tissue gross examinations are performed by a pathologist or pathology resident, or under the supervision of a qualified pathologist.

NOTE: Specific requirements for supervision of non-pathologists who assist in grossing specimens, are given below.

**Evidence of Compliance:**
✓ Written procedure with defined criteria for macroscopic examination

ANP.11605 Gross Examination - Non-Pathologist  
**Phase II**

When individuals other than a pathologist or pathology resident assist in gross examinations, the extent of their activities and the nature of supervision (direct vs. indirect) is defined in a written protocol.

NOTE: This protocol must list the specific types of specimens for which non-pathologists are permitted to assist in the gross examination. The nature of the supervision must be established individually, for each non-pathologist. The laboratory director is responsible for this protocol. For Mohs surgery a dermatologist is also qualified to perform the gross examination and to supervise non-pathologists.

**REFERENCES**
2) Cibull ML. Q&A. Northfield, IL: College of American Pathologists CAP Today. 1997;11(7):112  

ANP.11610 Gross Examination Qualifications  
**Phase II**

If individuals other than a pathologist or pathology resident assist in gross examinations, such individuals qualify as high complexity testing personnel under CLIA regulations.

NOTE: Grossing is defined as a tissue examination requiring judgment and knowledge of anatomy. This includes the dissection of the specimen, selection of tissue, and any level of examination/description of the tissue including color, weight, measurement or other characteristics of the tissue. The laboratory director may delegate the dissection of specimens
to non-pathologist individuals; these individuals must be qualified as high complexity testing personnel under the CLIA regulations. The minimum training/experience required of such personnel is:

1. An earned associate degree in a chemical or biological science or medical laboratory technology, obtained from an accredited institution, OR
2. Education/training equivalent to the above that includes the following:

- 60 semester hours or equivalent from an accredited institution. This education must include 24 semester hours of medical laboratory technology courses, OR 24 semester hours of science courses that includes six semester hours of chemistry, six semester hours of biology, and 12 semester hours of chemistry, biology or medical laboratory technology in any combination, AND
- Laboratory training including either completion of a clinical laboratory training program approved or accredited by the ABHES, NAACLA, or other organization approved by HHS (note that this training may be included in the 60 semester hours listed above), OR at least three months of recorded laboratory training in each specialty in which the individual performs high complexity testing.

It is the responsibility of the laboratory director to determine whether an individual’s education, training and experience satisfy the requirements of this checklist requirement.

This checklist requirement applies only to laboratories subject to US regulations.

Evidence of Compliance:
✓ Records of qualifications including degree or transcript and work history in related field

REFERENCES

ANP.11640 Competency Assessment of Non-Pathologists Phase II

The competency of non-pathologist(s) who assist in the performance of gross tissue examinations is assessed by the pathologist at least annually.

NOTE: Please refer to GEN.55500, Competency Assessment, in the Laboratory General checklist for a list of criteria and frequency for competency assessment. Not all six elements may apply in all cases.

For Mohs surgery a dermatologist is also qualified to perform the gross examination and evaluate non-pathologists.

Evidence of Compliance:
✓ Written procedure and schedule for assessing competency of non-pathologists AND
✓ Records of competency assessment performed at a defined frequency

REFERENCES
1) Cibull ML, Q&A. Northfield, IL: College of American Pathologists CAP Today. 1997;11(7):112

ANP.11650 Mohs Diagnosis Phase II

Mohs surgically excised tissue diagnoses are made by a dermatologist, dermatopathologist, or pathologist.

REFERENCES

ANP.11660 Pathologist Diagnosis Phase II
All surgical tissue diagnoses are made by a pathologist.

NOTE: Anatomic pathology services must be provided by a qualified anatomic pathologist, i.e. a physician who successfully completed an approved graduate medical education program in pathology. The only exception is that Mohs surgery specimens may be interpreted by a dermatologist.

Evidence of Compliance:
✓ Pathology reports signed by diagnosing pathologist

REFERENCES
1) Cibull ML. Q&A. Northfield, IL: College of American Pathologists CAP Today. 1997;11(7):112

**NEW** 08/21/2017

ANP.11670 Specimen - Gross Examination Phase I

Written instructions or guidelines are readily available in the laboratory for the proper dissection, description, and histologic sampling of various specimen types (e.g. mastectomy, colectomy, hysterectomy, renal biopsy, etc.).

NOTE: The guidelines should address large or complicated specimen types and smaller specimens requiring special handling, such as muscle biopsies, renal biopsies, and rectal suction biopsies for Hirschsprung's disease. Guidelines serve an important educational function in departments with postgraduate (residency) programs. However, they also are useful in providing consistency in the handling of similar specimen types in departments without such training programs.

ANP.11680 Cross Contamination Phase II

There is a written procedure to prevent cross-contamination of specimens during grossing.

NOTE: At a minimum, cleaning (e.g. wiping or rinsing) of forceps and scalpel blades between cases is required. In addition, if a laboratory processes both small specimens (e.g. biopsies) and large specimens (e.g. surgical resections), cleaning of instruments and cutting surfaces must be performed between cases. Avoid re-using cotton swabs/applicator sticks on multiple specimens or "double-dipping" the cotton swab/applicator in the ink. Some laboratories may choose to use disposable surfaces (e.g. formalin absorbent pads, butcher paper, etc.) for large cases. Grossing of similar types of specimens sequentially should be avoided, if feasible.

REFERENCES

ANP.11716 Paraffin Microtomy Phase II

There is a written procedure that indicates the sectioning thickness of paraffin embedded tissue for various tissue types and procedures.

NOTE: Paraffin embedded sections are routinely sectioned at 4-5 microns. Some tissues (e.g. renal biopsy) may require thinner sections, while some special stain techniques (e.g. congo red stain) may require thicker sections. Use of the recommendations in the table below is at the discretion of the laboratory director.
<table>
<thead>
<tr>
<th>Tissue</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Paraffin</td>
<td>4 to 5 microns</td>
</tr>
<tr>
<td>Renal Sections</td>
<td>1 to 3 microns</td>
</tr>
<tr>
<td>Bone Marrow</td>
<td>2 to 3 microns</td>
</tr>
<tr>
<td>Nerve histochemical staining</td>
<td>6 to 15 microns</td>
</tr>
<tr>
<td>Amyloid demonstration</td>
<td>6 to 12 microns</td>
</tr>
</tbody>
</table>

**ANP.11734 Slide Quality**  
**Phase II**  

**Slides are of sufficient quality for diagnosis.**

**NOTE:** Histopathology slides must be of adequate technical quality to be diagnostically useful. Criteria to evaluate include adequate tissue fixation, processing, thickness of sections, absence of interfering tissue folds and tears, and good staining technique and cover slipping. For hematoxylin and eosin and other routine stains, the patient slide serves as the internal control to ensure adequate staining technique. The sections must be cut from sufficient depth in the block to include the entire tissue plane.

**INTRA-OPERATIVE CONSULTATION (RAPID DIAGNOSIS)**

**NOTE:** This checklist subsection applies to intra-operative consultations including gross examination of specimens, frozen sections, touch preparations, scrape preparations, etc.

**Inspector Instructions:**
- Sampling of policies and procedures (gross examinations, frozen sections, touch preps, scrape preps)
- Sampling of verbal report records
- Sampling of final intra-operative consultation reports
- Sampling of cryostat decontamination records
- Sampling of reagents and slides (labeling)
- Sampling of frozen section cases (quality of sectioning and staining)
- What is your laboratory's course of action regarding residual frozen tissue?

**ANP.11756 Reagents**  
**Phase II**

**All solutions and stains are properly labeled and changed on a defined schedule.**

**NOTE:** All solutions and stains must be properly labeled with the contents, and, if applicable, date they are changed/filtered and expiration date. All solutions and stains should be changed or filtered following a defined process, determined by the usage of the reagents.

**Evidence of Compliance:**
- Written policy defining reagent labeling requirements **AND**
✓ Written records of reagent change process OR records of reagent change on a QC log

ANP.11810  Frozen Section Preparation Quality
Phase II
Frozen section, touch and scrape preparations are adequate for intra-operative diagnosis.

ANP.11850  Intra-Operative Results
Phase II
The results of intra-operative surgical consultations are recorded and signed by the individual who rendered the diagnosis.

NOTE: The intent of this requirement is for the laboratory to maintain a contemporaneous report of the consultation. This may be a handwritten, signed report or a computer-generated report with electronic signature.

ANP.11900  Verbal Reports
Phase II
If verbal reports are given, the pathologist is able to speak directly with intra-operative medical/surgical personnel.

Evidence of Compliance:
✓ Records of verbal reports

ANP.11950  Verbal Report/Patient ID
Phase II
The patient’s identification is checked and confirmed before delivery of any verbal report.

Evidence of Compliance:
✓ Written policy for reporting intra-operative consultation (e.g. frozen section, etc.) results

ANP.12000  Final Report
Phase II
All intra-operative consultation reports are made a part of the final surgical pathology report.

ANP.12050  Frozen Section Slides
Phase II
All frozen section, touch and scrape preparation slides are permanently stained, mounted, properly labeled, and retained with the rest of the slides from the case.

Evidence of Compliance:
✓ Written procedure for handling and retention of frozen section preparations

REFERENCES

**REVISED** 08/17/2016
ANP.12075  Residual Frozen Tissue
Phase I
Following frozen section examination, the residual frozen tissue is routinely processed into paraffin, and a histologic section prepared and examined for comparison with the frozen section interpretation.

NOTE: The laboratory must prepare a paraffin block and stained slide(s) from each frozen section block.

Correlation of frozen section findings with a permanent section prepared from routinely fixed and processed residual frozen tissue is an important quality improvement mechanism. Evaluation
of such permanent sections provides important feedback on the accuracy of frozen section
diagnoses and improves recognition of specific frozen section morphologic alterations.

The only exceptions to this requirement are as follows: 1) Frozen tissue that must be submitted
for specialized studies; 2) Mohs frozen sections. However, the CAP strongly recommends
preparation of paraffin sections from frozen tissue used for Mohs frozen sections, with retention
of the block for 10 years.

Evidence of Compliance:
✓ Written procedure for the processing and examination of residual frozen tissue including
correlation of the findings

REFERENCES
1) Rickert RR. Quality assurance goals in surgical pathology. Arch Pathol Lab Med. 1990;114:1157-1162
2) Association of Directors of Anatomic and Surgical Pathology. Recommendations on quality control and quality assurance in anatomic
of 90,538 cases in 461 institutions. Arch Pathol Lab Med. 1996;120:804-809

FINE NEEDLE ASPIRATE (FNA) SPECIMENS

NOTE: This checklist section applies if FNA specimens are evaluated and reported in the Surgical Pathology
section.

If FNA slides are screened by cytotechnologists, the Cytopathology Checklist must be used.

Inspector Instructions:

- Sampling of FNA policies and procedures
- Sampling of slides (approximately five cases for labeling, quality)
- Sampling of primary specimen containers (labeling)
- How do you ensure there is no cross contamination of FNA specimens?

**REVISED** 08/17/2016
ANP.12094 FNA Error Prevention

If the pathologist performs FNA procedures, there is a written procedure to verify patient
identification using at least two patient identifiers, the procedure site, and the procedure
to be performed.

REFERENCES
GP-33A. Clinical and Laboratory Standards Institute, Wayne, PA; 2010.
FNA Cross Contamination

There is a procedure to prevent cross contamination of FNA specimens during processing and staining.

**NOTE:** Methods to minimize this problem may include cytocentrifuge, filter and monolayer preparations. Smears made from highly cellular cases should be stained after the other cases, and the staining fluids must be changed or filtered at appropriate intervals. One procedure to detect contamination is to insert a clean blank slide in each staining run and examine it for contaminating cells.

**Evidence of Compliance:**

✓ Written procedure for staining FNA specimens, including methods to prevent cross contamination

**REFERENCES**


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**SURGICAL PATHOLOGY REPORTS**

**Inspector Instructions:**

- Sampling of records of communication of significant/unexpected findings
- Sampling of surgical pathology reports for completeness, including required CAP cancer protocol data elements, pathologist review and ASR disclaimer, when appropriate
- How does your laboratory correlate the results of specialized studies with the morphologic diagnosis?

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Report Review

All reports are reviewed and signed by the pathologist.

**NOTE:** The inspector must review a broad sampling of surgical pathology reports issued since the previous on-site inspection, representing at least the most common types of specimens seen in the laboratory. When diagnostic reports are generated by computer or telecommunications equipment, the actual signature or initials of the pathologist may not appear on the report. It is nevertheless essential that the laboratory have a procedure that ensures and records that the responsible pathologist has reviewed and approved the completed report before its release. In the occasional situation when the diagnosing pathologist is not available for timely review and approval of the completed report, the laboratory may have a procedure for review and approval of that report by another pathologist. In that circumstance, the names and responsibilities of both the pathologist who made the diagnosis and the pathologist who performs final verification must appear on the report.

**REFERENCES**


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Mohs Report

There is a written report generated for each Mohs surgical procedure.
NOTE: A written note, report, or diagram must be included in the patient's medical record or operative report. The report should include required elements such as gross description, accession number, designation of relationship of blocks to the slides, and clear diagnosis on each specimen.

ANP.12175 Significant/Unexpected Findings

There is a policy regarding the communication and recording of significant and unexpected surgical pathology findings.

NOTE: Certain surgical pathology diagnoses may be considered significant and unexpected. Such diagnoses may include: malignancy in an uncommon location or specimen type (e.g. hernia sac, intervertebral disk material, tonsil, etc.), or change of a frozen section diagnosis after review of permanent sections. There should be a reasonable effort to ensure that such diagnoses are received by the clinician, by means of telephone, pager or other system of notification. There must be records of the date of communication of these diagnoses.

The pathology department may designate certain surgical pathology diagnoses for prompt communication to the clinician. Such diagnoses may include, for example, neoplasms causing paralysis, or fat in an endometrial curettage.

Diagnoses to be defined as “significant and unexpected,” and those for prompt communication should be determined by the pathology department, in cooperation with local clinical medical staff.

Records of communication of these diagnoses may be included in the pathology report, or in other laboratory records.

This requirement takes the place of critical result notification in the All Common Checklist (COM.30000 and COM.30100).

Evidence of Compliance:
✓ Records of date of communication of significant/unexpected findings

REFERENCES
3) Silverman JF, Pereira TC. Critical values in anatomic pathology. Arch Pathol Lab Med. 2006;130:638-640
4) LiVolsi VA. Critical values in anatomic pathology; how do we communicate? Am J Clin Pathol 2004;122:171-172

**REVISED** 08/17/2016

ANP.12185 Amended Reports

Amendments to reports that would significantly affect patient care are reported promptly to the responsible clinician(s).

NOTE: Records of notification must include date and person notified, and preferably appear in the amended report. Periodic evaluation of amended reports is commonly included as part of the quality management program.

The format of amended anatomic pathology reports is at the discretion of the laboratory. For extensive interpretive or textual data (e.g. surgical pathology reports), replicating the entire original and amended pathology reports may be cumbersome and render the report difficult to
interpret. In such cases, a comment in the amended report summarizing the previous information and the reason for the amendment may be provided.

**ANP.12200 Gross Description Reporting**

Phase II

All surgical pathology reports include gross descriptions, information essential for diagnosis and patient care, and record-essential processing information.

**NOTES:**

1. Descriptions should include information regarding type, number, dimensions and/or weight of specimens, measurements and extent of gross lesions.
2. Processing information should include a summary of block/slide designations.
3. Annotated drawings and photographs are valuable tools for recording gross findings, but are not adequate replacements for a text description

**Evidence of Compliance:**

✓ Written procedure for the reporting of the gross examination findings on the surgical pathology report

**REFERENCES**


**ANP.12350 Cancer Protocols**

Phase II

All data elements required in applicable CAP Cancer Protocols are included with appropriate responses in at least 90% of the surgical pathology reports from definitive resection specimens for primary invasive malignancies, as well as cases of ductal carcinoma in situ of the breast, with an audit performed annually to ensure that all required elements are included.

**NOTE:**

1. This checklist requirement is not applicable to:
   • Diagnostic biopsy specimens, including cervical cone biopsies and bone marrow biopsies and aspirates
   • Cancer for which no CAP Cancer Protocol applies
   • Transurethral resections of the prostate (TURP) or bladder (TURBT)
   • Resection specimens done for positive margins on a previous definitive resection specimen (even if residual cancer is found)
   • Hematopathology lymph node specimens
   • Definitive resection specimens that do not contain cancer (e.g. following neoadjuvant chemotherapy)
   • Metastatic tumors
   • Cytology specimens
   • Special studies, including biomarker testing performed in another laboratory

2. Reports must include the required data elements from the current edition of the CAP Cancer Protocols. The laboratory has up to eight months from the posting date of the CAP Cancer Protocol to implement data element changes.

3. The audit of reports performed by the laboratory must include review of a random sample of at least 10% of the eligible surgical pathology reports, or a total of 150 cases per year (whichever is less stringent). If less than 90% of reports contain
all of the required elements from the CAP Cancer Protocols, the laboratory must implement and record appropriate corrective action.

4. Laboratories outside of the US may use regionally produced cancer reporting datasets.

Evidence of Compliance:
✓ Surgical pathology reports with required data elements AND
✓ Procedure for performing report audit AND
✓ QM records of annual audit AND
✓ Records of corrective action and result, if deficiencies were identified

REFERENCES

**REVISED** 08/21/2017

ANP.12385 Synoptic Reporting Phase I

Data elements required by applicable CAP Cancer Protocols are reported using a synoptic format in at least 90% of the eligible surgical pathology reports.

NOTE:
1. This checklist requirement is only applicable to surgical pathology reports as defined in ANP.12350
2. All required data elements outlined on the currently applicable surgical case summary from the cancer protocol that are included in the report must be displayed in synoptic format
   • Synoptic reporting is defined by the data element: followed by its answer (response), e.g. "Tumor size: 5.5 cm." Outline format without the paired "data element: response" format is not considered synoptic.
   • Each diagnostic parameter pair (data element: response) is listed on a separate line or in a tabular format to achieve visual separation with the following allowable exceptions:
      ☐ Anatomic site or specimen, laterality, and procedure
      ☐ Pathology Staging Tumor Node Metastasis (pTNM) staging elements
      ☐ Negative margins, as long as all negative margins are specifically enumerated where applicable
   • The synoptic portion of the report can appear in the diagnosis section of the pathology report, at the end of the report or in a separate section, but all data element and responses must be listed together in one location
   • The synoptic report may be produced either manually or by a commercial electronic reporting tool or specialized software.
4. Organizations and pathologists may:
   • List the required data elements in any order
   • Choose to use additional methods in order to enhance or achieve visual separation such as use of headers, indentations, or bolding and/or font variations
   • Add additional items within the synoptic report as needed
   • Have required elements in a summary format elsewhere in the report IN ADDITION TO but not as replacement for the synoptic report i.e. all required elements must be in the synoptic portion of the report in the format defined above

REFERENCES

**REVISED** 08/21/2017

**ANP.12425** ASR Disclaimer

If patient testing is performed using Class I analyte-specific reagents (ASRs) obtained or purchased from an outside vendor, the patient report includes the disclaimer statement required by federal regulations.

NOTE: ASRs are antibodies, both polyclonal and monoclonal, specific receptor proteins, ligands, nucleic acid sequences, and similar reagents which, through specific binding or chemical reaction with substances in a specimen, are intended for use in a diagnostic application for identification and quantification of an individual chemical substance or ligand in biological specimens.

An ASR is the active ingredient of a laboratory-developed test system. Class I ASRs are not subject to preclearance by the US Food and Drug Administration or to special controls by the FDA.

If the laboratory performs patient testing using Class I ASRs, federal regulations require that the following disclaimer accompany the test result on the patient report:

"This test was developed and its performance characteristics determined by (laboratory name). It has not been cleared or approved by the US Food and Drug Administration."

The CAP recommends additional language, such as "The FDA does not require this test to go through premarket FDA review. This test is used for clinical purposes. It should not be regarded as investigational or for research. This laboratory is certified under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high complexity clinical laboratory testing."

The disclaimer is not required for tests using reagents that are sold in kit form with other materials and/or an instrument, and/or with instructions for use, and/or when labeled by the manufacturer as Class I for in vitro diagnostic use (IVD), Class II IVD, or Class III IVD.

The laboratory must establish the performance characteristics of tests using Class I ASRs in accordance with the Method Performance Specifications section of the All Common Checklist.
The laboratory may put a single ASR disclaimer on the patient report for all immunostains and ISH studies collectively used in a particular case. Separately tracking each reagent used for a case and selectively applying the disclaimer to only the class I ASRs is unnecessary.

REFERENCES

**REVISED** 08/21/2017
ANP.12500 Record Retention

Surgical pathology records and materials are retained for an appropriate period.

NOTE 1: There must be a written policy for protecting and preserving the integrity and retrieval of surgical pathology materials and records. The retention period should be extended, when appropriate, to provide records for adequate quality control and medical care.

Policies for retention of records and materials must comply with federal, state, and local laws and regulations, and with the retention periods listed below, whichever is most stringent.

<table>
<thead>
<tr>
<th>Type of Record/Material</th>
<th>Retention Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession log records</td>
<td>2 years</td>
</tr>
<tr>
<td>Wet tissue (stock bottle)</td>
<td>2 weeks after final report</td>
</tr>
<tr>
<td>Paraffin blocks</td>
<td>10 years (subject to Notes 2 and 3 below)</td>
</tr>
<tr>
<td>Glass slides (including control slides)</td>
<td>10 years - slides must remain readable for this period</td>
</tr>
<tr>
<td>Surgical pathology reports *</td>
<td>10 years</td>
</tr>
<tr>
<td>Reports of outside consultations on laboratory cases (whether or not requested by the laboratory)</td>
<td>10 years after the date that the original report was issued</td>
</tr>
<tr>
<td>Fluorochrome-stained slides</td>
<td>At the discretion of the laboratory director</td>
</tr>
<tr>
<td>Fine needle aspiration slides</td>
<td>10 years</td>
</tr>
<tr>
<td>Images or permanent slides of ISH studies</td>
<td>10 years for neoplastic disorders</td>
</tr>
<tr>
<td>Images for Circulating Tumor Cells</td>
<td>20 years for constitutional disorders (Subject to Notes 4 and 5 below)</td>
</tr>
<tr>
<td>Digital images used for primary diagnosis</td>
<td>10 years if original glass slides are not available</td>
</tr>
<tr>
<td>Datasets from In-Vivo Microscopy (IVM) or Ex Vivo Microscopy (EVM) systems used to aid in interpretation or diagnosis</td>
<td>10 years - data must be retrievable for this period (Subject to Note 6 below)</td>
</tr>
</tbody>
</table>

* Pathology reports may be retained in either paper or electronic format. If retained in electronic format alone, the reports must include a secure pathologist electronic signature. Images of paper reports, such as microfiche or PDF files are acceptable.
NOTE 2: Paraffin blocks used for patient diagnostic purposes must be kept for at least 10 years and be stored in a manner that preserves their integrity. Such blocks may be released for research purposes if all of the following criteria are met:

1. For laboratories subject to US regulations, formal written authorization is obtained in accordance with the requirements of HIPAA if identifiable patient information is released.
2. The laboratory retains sufficient blocks to support the diagnosis for the full 10-year period.
3. Provision is made for retrieval by the laboratory of any blocks or material that remain after use in research, if the blocks or material are needed for diagnostic, legal, or other legitimate purposes.
4. In the event of limited material (e.g. only one diagnostic block), tissue microarray (TMA) cores or portions of the block may be released for research or clinical trials, as long as the original lab retains control or access to the diagnostic material if clinically needed.
5. The laboratory meets other relevant requirements including but not limited to the requirements of the institution, the directives of any applicable institutional review board (IRB) or similar entity; and state and local laws and regulations.

The restriction on release of blocks does not prohibit release of blocks for purposes of treatment, diagnosis, prognosis, etc., for patients on research protocols as long as release is consistent with patient privacy regulations (e.g. HIPAA) and applicable state and local regulations; and there is IRB approval, as applicable.

NOTE 3: Given that patient survival rates are increasing and the continued emergence of treatment based on biomarker testing, which at times may be required on the original tissue, it is recommended that, whenever feasible, tissue block retention from patients with diagnosed malignancies be retained beyond the 10 year requirement.

NOTE 4: There is no retention requirement for images of slide preparations when the source slides remain readable for the required retention period.

NOTE 5: For an ISH assay with a normal result, retain an image of at least one cell illustrating the normal probe signal pattern. For an ISH assay with an abnormal result, retain images of at least two cells illustrating each relevant abnormal probe signal pattern.

NOTE 6: In Vivo Microscopy (IVM) and Ex Vivo Microscopy (EVM) systems include confocal microscopy, optical coherence tomography, multiphoton microscopy, optical spectroscopy/ spectroscopic imaging, and similar technologies. These systems may be used by physicians during procedures (IVM) or by the laboratory in the evaluation of specimens that have been removed from the patient (EVM). The dataset refers to digitized or analog video or still images or other data (e.g. spectroscopic data) generated by an IVM or EVM system. If such data is used to aid in interpretation or diagnosis, record retention requirements apply. Stored data should include, at a minimum, the data used to aid in interpretation or diagnosis.

Evidence of Compliance:
✓ Written record and specimen retention policy(ies)

REFERENCES


HISTOLOGY LABORATORY

The current histochemical test menu should be made available to the inspector. The inspector should select a variety of stained slides from the menu and evaluate for quality.
Inspector Instructions:

- Sampling of specimen preparation records
- Sampling of histology QC policies and procedures
- Sampling of QC records (immunologic, FISH/ISH methods, histochemical)

- Sampling of tissue blocks
- Sampling of slides (quality)
- Sampling of reagents (expiration date)

- If problems are identified during the review of histology procedures, further evaluate the laboratory’s responses, corrective actions and resolutions
- Select a representative specimen and follow from receipt in the department through accessioning, grossing, processing, time reported and availability in the LIS

GENERAL QUALITY CONTROL

ANP.21350 Specimen Preparation Records Phase II

The histology laboratory maintains records of the number of blocks, slides, and stains prepared.

*NOTE:* Laboratories must be capable of demonstrating volumes for any given period of time.

ANP.21360 Automated Stainer Phase II

There is a schedule to change the solutions in automated stainers.

*NOTE:* Solutions must be changed at intervals appropriate for the laboratory’s workload. Changing, filtering, or addition to solutions should be recorded when performed.

Evidence of Compliance:

✓ Written procedure defining frequency of changing staining solutions AND
✓ QC records for solution changes

ANP.21382 Reagent Expiration Date Phase II

All reagents are used within their indicated expiration dates.

*NOTE:* The laboratory must assign an expiration date to any reagents that do not have a manufacturer-provided expiration date. The assigned expiration date should be based on known stability, frequency of use, storage conditions, and risk of contamination.

This checklist requirement applies to all reagents used in the laboratory (histochemical, immunohistochemical, and immunofluorescent reagents, and reagents used for molecular tests).

The acceptable performance of histochemical stains is determined by technical assessment on actual case material, use of suitable control sections, and as part of the pathologist’s diagnostic evaluation of a surgical pathology or autopsy pathology case.
An exception to the above is that some histochemical reagents used in the histology laboratory are not subject to outdating, so that assignment of expiration dates may have no meaning. The acceptable performance of such reagents should be confirmed at least annually by technical assessment, as described above. (If the manufacturer assigns an expiration date, it must be observed.)

For laboratories not subject to US regulations, expired reagents may be used only under the following circumstances: 1. The reagents are unique, rare or difficult to obtain; or 2. Delivery of new shipments of reagents is delayed through causes not under control of the laboratory. The laboratory must record verification of the performance of expired reagents in accordance with written laboratory policy. Laboratories subject to US regulations must not use expired reagents.

Evidence of Compliance:
✓ Written policy for evaluating reagents lacking manufacturer’s expiration date

REFERENCES


**REVISED** 08/17/2016
ANP.21395 Special Stains/Studies Phase II

For special stains, including histochemical stains, and studies using immunologic and ISH methodology, positive and negative controls are verified and recorded as acceptable prior to or concurrent with the reporting of patient results and records maintained.

NOTE: Controls must be verified and recorded as acceptable by a pathologist or designee (provided the designee meets high complexity testing qualifications).

Positive tissue controls must contain the component specific to the special stain that is being applied to the specimen.

Immunohistochemical tests using polymer-based detection systems (biotin-free) are sufficiently free of background reactivity to obviate the need for a negative reagent control and such controls may be omitted at the discretion of the laboratory director following appropriate validation.

If interpretation of the special stain or study is performed by a different laboratory, there must be a procedure for the laboratory performing the stain or study to verify the acceptability of the controls before transfer, if the controls are not sent with the patient slides (regardless of the outside laboratory’s accrediting organization). Records of this verification must be readily available to the laboratory performing the interpretation.

Evidence of Compliance:
✓ Records for verification of control acceptability (prior to completion of associated cases)

REFERENCES


IMMUNOFLOUORESCENCE MICROSCOPY

Inspector Instructions:

- IF QC policy or procedure
- Sampling of IF QC records

ANP.21850 QC - Immunofluorescence Phase II

For immunofluorescence microscopy, appropriate positive and negative controls are performed.

*NOTE*: Internal antigens serve as positive controls (e.g. IgA in tubular casts, IgG in protein droplets and C3 in blood vessels). When internal positive controls are absent, daily external positive controls are required. Non-reactive elements in the patient specimen may serve as a negative tissue control. A negative reagent control in which the patient tissue is processed in an identical manner to the test specimen, but with the primary antibody omitted, should be performed for each patient test specimen at the discretion of the laboratory director.

Evidence of Compliance:

- Written procedure for immunofluorescence QC AND
- Records of immunofluorescence QC

REFERENCES


IMMUNOHISTOCHEMISTRY

Inspector Instructions:

- Sampling of IHC policies and procedures
- Sampling of new antibody validation records
- Sampling of new reagents/shipment confirmation of acceptability records
- Sampling of antibody QC records
- Sampling of buffer pH records
- Sampling of batch control records

- Sampling of slides (quality)

- How does your laboratory validate new antibodies?
- How does your laboratory confirm the acceptability of new reagent lots?
- How does your laboratory distinguish non-specific false-positive staining from endogenous biotin?
**ANP.22300 Specimen Modification**

If the laboratory performs immunohistochemical staining on specimens other than formalin-fixed, paraffin-embedded tissue, the written procedure describes appropriate modifications, if any, for other specimen types.

**NOTE:** Such specimens include frozen sections, air-dried imprints, cytocentrifuge or other liquid-based preparations, decalcified tissue, and tissues fixed in alcohol blends or other fixatives.

**REFERENCES**


**ANP.22500 Buffer pH**

The pH of the buffers used in immunohistochemistry is routinely monitored.

**NOTE:** pH must be tested when a new batch is prepared or received.

**Evidence of Compliance:**

- Written procedure defining pH range for each buffer in use
- Records of initial and subsequent QC on each buffer

**ANP.22550 QC - Antibodies**

Positive tissue controls are used for each antibody.

**NOTE:** Positive controls assess the performance of the primary antibody. They are performed on sections of tissue known to contain the target antigen, using the same epitope retrieval and immunostaining protocols as the patient tissue. Results of controls must be recorded, either in internal laboratory records, or in the patient report. A statement in the report such as, “All controls show appropriate reactivity” is sufficient.

Ideally, the positive control tissue would be the same specimen type as the patient test specimen (e.g. small biopsy, large tissue section, cell block), and would be processed and fixed in the same manner (e.g. formalin-fixed, alcohol-fixed, decalcified) as the patient specimen. However, for most laboratories, it is not practical to maintain separate positive control samples to cover every possible combination of fixation, processing and specimen type. Thus, it is reasonable for a laboratory to maintain a bank of formalin-fixed tissue samples as its positive controls; these controls can be used for patient specimens that are of different type, or fixed/processed differently, providing that the laboratory can show that these patient specimens exhibit equivalent immunoreactivity. This can be accomplished by parallel testing a small panel of common markers to show that specimens of different type, or processed in a different way (e.g. alcohol-fixed cytology specimens, decalcified tissue) have equivalent immunoreactivity to routinely processed, formalin-fixed tissue.

A separate tissue section may be used as a positive control, but test sections often contain normal elements that express the antigen of interest (internal controls). Internal positive controls are acceptable for these antigens, but the laboratory manual must clearly state the manner in which internal positive controls are used.

A positive control section included on the same slide as the patient tissue is optimal practice because it helps identify failure to apply primary antibody or other critical reagent to the patient test slide; however, one separate positive control per staining run for each antibody in the run (batch control) may be sufficient provided that the control slide is closely scrutinized by a qualified reviewer.
Ideally, positive control tissues possess low levels of antigen expression, as is often seen in neoplasms. Exclusive use of normal tissues that have high levels of antigen expression may result in antibody titers of insufficient sensitivity, leading to false-negative results.

Evidence of Compliance:
✓ Written procedure for the selection and use of positive tissue controls for each antibody AND
✓ Patient reports or worksheet with control results

REFERENCES
1) O'Leary TJ. Standardization in immunohistochemistry. *Appl Immunohistochem Molecul Morphol* 2001;9:3-8

ANP.22570 QC - Antibodies

**Phase II**

Appropriate negative controls are used.

**NOTE:** Negative controls must assess the presence of nonspecific staining in patient tissue as well as the specificity of each antibody with the exception listed below. Results of controls must be recorded, either in internal laboratory records, or in the patient report. A statement in the report such as, “All controls show appropriate reactivity” is sufficient.

For laboratories using older biotin-based detection systems, it is important to use a negative reagent control to assess nonspecific or aberrant staining in patient tissue related to the antigen retrieval conditions and/or detection system used. A separate section of patient tissue is processed using the same reagent and epitope retrieval protocol as the patient test slide, except that the primary antibody is omitted, and replaced by any one of the following:

- An unrelated antibody of the same isotype as the primary antibody (for monoclonal primary antibodies)
- An unrelated antibody from the same animal species as the primary antibody (for polyclonal primary antibodies)
- The negative control reagent included in the staining kit
- The diluent/buffer solution in which the primary antibody is diluted

In general, a separate negative reagent control should be run for each block of patient tissue being immunostained; however, for cases in which there is simultaneous staining of multiple blocks from the same specimen with the same antibody (e.g. cytokeratin staining of multiple axillary sentinel lymph nodes), performing a single negative control on one of the blocks may be sufficient provided that all such blocks are fixed and processed identically. This exception does not apply to stains on different types of tissues or those using different antigen retrieval protocols or antibody detection systems. The laboratory director must determine which cases will have only one negative reagent control, and this must be specified in the department's procedure manual.

The negative reagent control would ideally control for each reagent protocol and antibody retrieval condition; however, large antibody panels often employ multiple antigen retrieval procedures. In such cases, a reasonable minimum control would be to perform the negative reagent control using the most aggressive retrieval procedure in the particular antibody panel. Aggressiveness of antigen retrieval (in decreasing order) is as follows: pressure cooker; enzyme digestion; boiling; microwave; steamer; water bath. High pH retrieval should be considered more aggressive than comparable retrieval in citrate buffer at pH 6.0.

Immunohistochemical tests using polymer-based detection systems (biotin-free) are sufficiently free of background reactivity to obviate the need for a negative reagent control and such controls may be omitted at the discretion of the laboratory director following appropriate validation.

It is also important to assess the specificity of each antibody by a negative tissue control, which must show no staining of tissues known to lack the antigen. The negative tissue control is processed using the same fixation, epitope retrieval and immunostaining protocols as the patient tissue. Unexpected positive staining of such tissues indicates that the test has lost specificity,
perhaps because of improper antibody concentration or excessive antigen retrieval. Intrinsic properties of the test tissue may also be the cause of "non-specific" staining. For example, tissues with high endogenous biotin activity such as liver or renal tubules may simulate positive staining when using a detection method based on biotin labeling.

A negative tissue control must be processed for each antibody in a given run. Any of the following can serve as a negative tissue control:

1. Multitissue blocks. These can provide simultaneous positive and negative tissue controls, and are considered “best practice” (see below).
2. The positive control slide or patient test slides, if these slides contain tissue elements that should not react with the antibody.
3. A separate negative tissue control slide.

The type of negative tissue control used (i.e. separate sections, internal controls or multitissue blocks) must be specified in the laboratory manual.

Multitissue blocks may be considered best practice and can have a major role in maintaining quality. When used as a combined positive and negative tissue control as mentioned above, they can serve as a permanent record of the sensitivity and specificity of every stain, particularly when mounted on the same slide as the patient tissue. When the components are chosen appropriately, multitissue blocks may be used for many different primary antibodies, decreasing the number of different control blocks needed by the laboratory. Multitissue blocks are also ideal for determining optimal titers of primary antibodies since they allow simultaneous evaluation of many different pieces of tissue. Finally, they are a useful and efficient means to screen new antibodies for sensitivity and specificity or new lots of antibody for consistency, which should be done before putting any antibody into diagnostic use.

Evidence of Compliance:
✓ Written procedure for the selection and use of negative reagent (as appropriate) and tissue controls for IHC AND
✓ Patient reports or worksheet with control results

REFERENCES
7) Department of Health and Human Services, Centers for Medicare and Medicaid Services. Clinical laboratory improvement amendments of 1998; final rule. Fed Register. 2003(Jan 24); [42CFR493.1273(a)]

ANP.22615 Endogenous Biotin Phase I

If the laboratory uses an avidin-biotin complex (ABC) detection system (or a related system such as streptavidin-biotin or neutravidin-biotin), there is a procedure that addresses nonspecific false-positive staining from endogenous biotin.

NOTE: Biotin is a coenzyme present in mitochondria, and cells that have abundant mitochondria such as hepatocytes, kidney tubules and many tumors (particularly carcinomas) are rich in endogenous biotin. Biotin-rich intranuclear inclusions are also seen in gestational endometrium and in some tumors that form morules. If steps are not included in the immunostaining method to block endogenous biotin before applying the ABC detection complex, nonspecific false-positive staining may occur, particularly when using heat-induced epitope retrieval (which markedly increases the detectability of endogenous biotin). This artifact is often localized to tumor cells and may be easily misinterpreted as true immunoreactivity.
Blocking endogenous biotin involves incubating the slides with a solution of free avidin (which binds to endogenous biotin), followed by incubation with a biotin solution (which saturates any empty biotin-binding sites remaining on the avidin). Biotin-blocking steps should be performed immediately after epitope retrieval and before incubation with primary antibody.

REFERENCES

**REVISED** 08/17/2016
ANP.22660 Control Slide Review

When batch controls are run, the laboratory director or designee reviews all control slides each day of patient testing.

NOTE: Records of this daily review must be maintained and should clearly show that positive and negative controls for all antibodies stain appropriately. Batch control records must be retained for two years.

Immunohistochemical tests using polymer-based detection systems (biotin-free) are sufficiently free of background reactivity to obviate the need for a negative reagent control and such controls may be omitted at the discretion of the laboratory director following appropriate validation.

The batch control slides must be readily available to pathologists who are signing out cases. The location of the slides should be stated in the procedure manual.

REFERENCES

ANP.22750 Antibody Validation

The laboratory has records of validation of new antibodies, including introduction of a new clone, prior to use for patient diagnosis or treatment.

NOTE: The performance characteristics of each assay must be appropriately validated before being placed into clinical use. The initial goal is to establish the optimal antibody titration, detection system, and antigen retrieval protocol. Once optimized, a panel of tissues must be tested to determine the assay's sensitivity and specificity. The scope of the validation is at the discretion of the laboratory director and will vary with the antibody.

Means of validation may include, but are not limited to: 1) correlating the results using the new antibody with the morphology and expected results; 2) comparing the results using the new antibody with the results of prior testing of the same tissues with a validated assay in the same laboratory; 3) comparing the results using the new antibody with the results of testing the same tissue in another laboratory with a validated assay; or 4) comparing the results using the new antibody with previously validated non-IHC tests or testing previously graded tissue challenges from a formal proficiency testing program.

For an initial validation, laboratories should achieve at least 90% overall concordance between the new test and the comparator test or expected results.

For validation of a nonpredictive assay, the validation should test a minimum of 10 positive and 10 negative tissues. For validation of predictive markers (with the exception of HER2, ER and PgR), the laboratory should test a minimum of 20 positive and 20 negative tissues. In either situation, when the laboratory director determines that fewer validation cases are sufficient for a specific marker (e.g. a rare antigen or tissue), the rationale for that decision needs to be
recorded. Positive cases in the validation set should span the expected range of clinical results (expression level), especially for those markers that are reported quantitatively.

When possible, laboratories should use validation tissues that have been processed using the same fixative and processing methods as cases that will be tested clinically. If IHC is regularly done on specimens that are not fixed or processed in the same manner as the tissues used for validation (e.g. alcohol fixed cell blocks, cytologic smears, formalin postfixed tissue, or decalcified tissue), the laboratory should test a sufficient number of such tissues to ensure that assays consistently achieve expected results. The laboratory director is responsible for determining the number of positive and negative cases and the number of predictive and nonpredictive markers to test.

Refer to the subsection "Predictive Markers" for specific validation requirements for HER2 and ER/PgR testing in breast carcinoma.

Evidence of Compliance:
✓ Written procedure for the evaluation/validation of new antibodies
✓ Records of validation, if applicable

REFERENCES

ANP.22760 New Reagent Lot Confirmation of Acceptability Phase II

The performance of new lots of antibody and detection system reagents is compared with old lots before or concurrently with being placed into service.

NOTE: Parallel staining is required to control for variables such as disparity in the lots of detection reagents or instrument function. New lots of primary antibody and detection system reagents must be compared to the previous lot using at least one known positive control and one known negative control tissue. This comparison should be made on slides cut from the same control block.

Evidence of Compliance:
✓ Written procedure for the confirmation of acceptability of new reagent lots prior to use AND
✓ Records of confirmation of new reagent lots

**REVISED** 08/21/2017
ANP.22780 IHC Assay Performance Phase I

Laboratories confirm assay performance when conditions change that may affect performance.

NOTE: Laboratories should confirm assay performance with at least two known positive and two known negative cases when an existing validated assay has changed in any of the following ways: antibody dilution, antibody vendor (same clone), or the incubation or retrieval times (same method).

Laboratories must confirm assay performance by testing a sufficient number, determined by the laboratory director, of cases to ensure that assays consistently achieve expected results when any of the following have changed: fixative type, antigen retrieval protocol (e.g. change in pH, different buffer, different heat platform), antigen detection system, tissue processing or testing
equipment, environmental conditions of testing (e.g. laboratory relocation), or laboratory water supply.

If significant changes are made in testing methods (e.g. antibody clone, antigen retrieval protocol or detection system, probe or pretreatment protocol), revalidation is required.

For specific validation requirements for HER and ER/PgR testing in breast carcinoma, refer to the subsection “Predictive Markers.”

**ANP.22900** Slide Quality

**Phase II**

**The immunohistochemical stains produced are of acceptable technical quality.**

**NOTE:** The inspector must examine examples of the immunohistochemical preparations offered by the laboratory. A reasonable sample might include 5-10 diagnostic antibody panels.

**REFERENCES**


**IN SITU HYBRIDIZATION (ISH)**

The use of the term in situ hybridization (ISH) in this section applies to all ISH methods, including fluorescence (FISH), chromogenic (CISH), silver (SISH), and brightfield (BRISH) in situ hybridization.

**Inspector Instructions:**

- Sampling of ISH policies and procedures
- Sampling of probe validation records
- Sampling of QC records
- Sampling of patient test reports

- How are ISH cut-off values established?
- How does your laboratory validate assay performance prior to test implementation?
- What is your course of action when a probe does not produce an internal control signal?

**REVISED** 08/17/2016

**ANP.22956** ISH Probe Validation

**Phase II**

There are policies, procedures, and records of validation of all in situ hybridization probes.

**NOTE:** Refer to ANP.22978 for specific validation requirements for HER2 testing in breast carcinoma. Additional requirements for test method validation are in the All Common Checklist.

**Evidence of Compliance:**

✓ Written procedure for validation of ISH probes

**REFERENCES**


**NEW** 08/17/2016

APN.22957 Interphase ISH - Cut-off Value Phase II

For interphase in situ hybridization (ISH), the laboratory establishes a normal cut-off value for results for each probe used, when applicable.

NOTE: Refer to the All Common Checklist for specific test method validation requirements. Cut-off values are usually required when ISH testing uses locus-specific probes against nuclear DNA.

Evidence of Compliance:
✓ Written procedure for establishing normal cut-off values AND
✓ Records from cut-off value studies

REFERENCES

**NEW** 08/17/2016

APN.22958 New Reagent Lot - ISH Probes Phase II

Each lot of in situ hybridization (ISH) probe(s) is checked for acceptable performance.

Evidence of Compliance:
✓ Written procedure for the verification of new lot of ISH probes prior to use AND
✓ Records of verification

**NEW** 08/17/2016

APN.22959 ISH Assay Performance Phase I

There are records of in situ hybridization (ISH) performance for each assay.

NOTE: Assay performance should include monitoring hybridization efficiency, probe signal intensity and overall assay results, including controls, as applicable.

Evidence of Compliance:
✓ Written procedure defining acceptance criteria for ISH assay performance AND
✓ Records of QC monitoring of ISH assay performance at defined frequency

**NEW** 08/17/2016

APN.22960 ISH Probe Intended Target Phase I

There is a system in place to ensure that the in situ hybridization (ISH) probe used is for the intended target.

NOTE: Examples can include (but may not be limited to): 1) concurrent analysis of any available metaphase cells in an interphase cell analysis; 2) inclusion of an internal or external target that results in a positive signal for each hybridization; 3) written protocols that ensure the respective probe is applied to the intended specimen.

Evidence of Compliance:
✓ Written policy defining the system for ensuring use of the appropriate ISH probe AND
✓ Records confirming intended target

**REVISED** 08/17/2016
**ISH Scoring**

When applicable, there are written procedures for scoring *in situ* hybridization (ISH) results, including the number of cells scored and all analyses are scored according to these procedures.

**NOTE:** Refer to ANP.23002 for specific requirements on the scoring criteria for HER2 testing in breast carcinoma.

**REFERENCES**

1) American College of Medical Genetics Laboratory. Standards and guidelines for clinical genetics laboratories, 2nd ed. Bethesda, MD: ACMG, 1999


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**ISH Controls**

Controls (internal and/or external) are used and recorded for each *in situ* hybridization (ISH) analysis.

**NOTE:** What functions as a control depends on the specific assay, signal pattern present, and sample type. For example, assays designed to detect deletions may use internal controls that include both the probe of interest and a control locus probe, both of which map to the same chromosome. In this situation, there are two internal controls, the signal for the probe of interest on the normal homolog and the control locus signals on both the normal and deleted homolog. For a dual fusion assay, the probe signals on each of the normal homologs function as internal controls. If a probe is used that does not produce an internal control signal (e.g. a Y chromosome probe in a female), another sample that is known to have the probe target must be run in parallel as an external control with the patient sample. In addition, many ISH assays use an external control(s). For FDA-cleared or approved ISH assays, laboratories must follow manufacturer’s instructions for quality control at minimum.

**Evidence of Compliance:**

✓ Written policy defining use of control loci with each ISH analysis AND

✓ Records of QC results

**REFERENCES**


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**Retention - Images and Slides**

Photographic or digitized images or permanent slides are retained of all *in situ* hybridization (ISH) assays for an appropriate period.

**NOTE:** Images of ISH assays for neoplastic disorders must be retained for 10 years; images of ISH assays for constitutional disorders must be retained for 20 years. For an ISH assay with a normal result, retain an image of at least one cell illustrating the normal probe signal pattern. For an ISH assay with an abnormal result, retain images of at least two cells illustrating each relevant abnormal probe signal pattern.

There is no retention requirement for retaining images of slide preparations when the source slides remain readable for the required retention period.
**Evidence of Compliance:**

✓ Written retention policy

**REVISED** 08/17/2016

**ANP.22966**  ISH Interpretation  

Phase II

If an *in situ* hybridization (ISH) study requires consultation with a pathologist and/or a cytogeneticist for an accurate interpretation, the appropriate expert is consulted and their involvement is recorded.

**PREDICTIVE MARKERS**

This checklist section applies only to immunohistochemical and *in situ* hybridization (ISH) tests used to predict responsiveness to a specific treatment independent of other histopathologic findings. This section does not apply to tests performed to determine tumor or cell lineage. For example, this section applies to estrogen receptor testing used to determine eligibility for hormonal treatment of breast carcinoma, but does not apply to estrogen receptor testing used solely to assist in determining the primary site of origin of a metastatic neoplasm.

**Inspector Instructions:**

- Sampling of predictive markers policies and procedures
- Sampling of patient reports for completeness, including ASCO/CAP scoring when applicable
- Records of annual benchmark comparison
- HER2, ER, PgR proficiency testing policy
- HER2, ER, PgR proficiency testing records
- Review of HER2, ER and PgR assay validation studies

**ANP.22969**  Report Elements  

Phase I

For immunohistochemical and *in situ* hybridization (ISH) tests that provide independent predictive information, the patient report includes information on specimen processing, the antibody clone/probe, and the scoring method used.

**NOTE:** For immunohistochemical and ISH studies used to provide predictive information independent of other histopathologic findings (e.g. hormone receptors in breast carcinoma, HER2), the laboratory must include the following information in the patient report:

1. The type of specimen fixation and processing (e.g. formalin-fixed paraffin-embedded sections, air-dried imprints, etc.).
2. The antibody clone or probe and general form of detection system used (e.g. LSAB, polymer, proprietary kit, etc.; information on the vendor name or type of equipment used is not necessary)
3. Criteria used to determine a positive vs. negative result, and/or scoring system (e.g. percent of stained cells, staining pattern, etc.)
Evidence of Compliance:
✓ Written procedure for reporting IHC results for tests involving predictive markers OR report template containing all required elements AND
✓ Copies of patient reports confirming inclusion of the required elements

REFERENCES

NOTE: THE REMAINING ITEMS ON PREDICTIVE MARKERS APPLY ONLY TO ASSAYS PERFORMED ON BREAST CARCINOMA.

**REVISED** 08/21/2017
ANP.22970 Annual Result Comparison Phase II

For immunohistochemical and in situ hybridization (ISH) tests performed on breast carcinoma that provide independent predictive information, the laboratory at least annually compares its patient results with published benchmarks, and evaluates interobserver variability among the pathologists in the laboratory.

NOTE: With specific reference to estrogen and progesterone receptor studies: in general, the overall proportion of ER-negative breast cancers (invasive and DCIS) should not exceed 30%. The proportion is somewhat lower in postmenopausal than premenopausal women (approximately 20% vs. 35%). The proportion of ER-negative cases is considerably lower in well-differentiated carcinomas (<10%) and certain special types of invasive carcinomas (<10% in lobular, tubular, and mucinous types). The proportion of PgR-negative cases is 10-15% higher than for ER-negative in each of these settings. Investigation is warranted if the proportion of ER-negative or PgR-negative cases varies significantly from the published benchmarks.

With specific reference to HER2 studies, the overall proportion of HER2 positive breast cancers is 10-25%. Laboratories must monitor their results. Consideration is warranted if the proportion of HER2 positive cases varies significantly from published data.

Individuals interpreting the assay must also have their concordance compared with each other and this concordance should also be at least 95%.

REFERENCES

**REVISED** 08/21/2017
ANP.22973 PT for HER2, ER, and PgR Phase II

The laboratory is enrolled in the appropriate CAP Surveys, or other CAP-accepted proficiency testing (PT) program, for HER2, ER, and PgR testing for breast predictive markers.

NOTE: HER2 PT is method specific, and laboratories performing HER2 testing by multiple methods must participate in PT for each method. Details are available on the CAP website http://www.cap.org/. Satisfactory performance requires correct responses on at least 90% of graded challenges in each testing event (mailing).
Anatomic Pathology Checklist

If the laboratory interprets HER2, ER, and/or PgR test results from immunohistochemical stains prepared at another facility, the laboratory must:

- Enroll in an appropriate PT survey,
- Send PT materials to the staining facility for preparation, and
- Interpret the resulting stains using the same procedures that are used for patient specimens.

If the laboratory interprets in situ hybridization stains for HER2 (ERBB2) prepared at another facility, the laboratory must not participate in PT, but must perform an alternative assessment of the test twice annually.

Evidence of Compliance:
✓ Records such as CAP order form or purchase order indicating that the laboratory is enrolled in CAP Surveys for HER2 PT OR record of completed/submitted result forms

REFERENCES

**REVISED** 08/17/2016

ANP.22976 ER/PgR Validation Phase II

If the laboratory performs immunohistochemistry for estrogen receptor (ER) and/or progesterone receptor (PgR) as a prognostic/predictive marker on breast carcinoma, the laboratory has records of validation for the assay(s).

NOTE: Test validation must include a minimum of 40 cases (20 positive and 20 negative cases) for FDA-cleared/approved tests; or 40 positive and 40 negative samples for laboratory-developed tests (LDTs). Laboratories should consider using higher numbers of test cases if a Laboratory Developed or Laboratory Modified Test is to be validated. Validation should be performed by comparing the laboratory’s results with another assay that has been appropriately validated. Acceptable concordance levels are 90% for positive results and 95% for negative results.

If significant changes are made to the testing methods (e.g. antibody clones, antigen retrieval protocol or detection system), revalidation is required.

This requirement is applicable to both new and existing assays. If review of the initial validation does not meet the current standard, it must be supplemented and brought into compliance. It is possible to do this retroactively by review and documentation of past proficiency testing challenges or by sending unstained slides from recent cases to a referral laboratory for correlation. If no documentation exists from the initial validation, the assay must be fully revalidated.

REFERENCES

**REVISED** 08/17/2016

ANP.22978 HER2 Assay Validation Phase II

If the laboratory performs HER2 testing (HER2 protein over-expression by immunohistochemistry or HER2 (ERBB2) gene amplification by in situ hybridization [e.g. FISH, CISH, SISH, etc.]), the laboratory has records of validation for the assay(s).

NOTE: This requirement applies to both new and existing assays. Test validation must be performed on a minimum of 20 positive and 20 negative samples for FDA-cleared/approved assays; or 40 positive and 40 negative samples for laboratory-developed tests (LDTs). Equivocal
samples need not be used for validation studies. If the initial validation of existing assays does not meet the current standard, it must be supplemented and brought into compliance. It is permissible to do this retroactively by review of performance on past proficiency testing challenges or by sending unstained slides from recent cases to a referral laboratory for correlation. If there are no records of the initial validation, the assay must be fully revalidated and records retained.

Validation may be performed by comparing the results of testing with a validated alternative method (i.e. IHC vs. ISH) either in the same laboratory or another laboratory, or with the same validated method performed in another laboratory; validation testing must be done using the same set of cases in both labs. The validation records should identify the comparative test method(s) used.

The validation data should clearly show the degree of concordance between methods (e.g. for IHC: 0, 1+, 3+; for FISH, CISH, SISH: positive, negative, as defined by the cut-offs listed in the latest version of the CAP/ASCO guideline).

The characteristics of the cases used for validation should be similar to those seen in the laboratory's patient population (i.e. core biopsies vs. open biopsy material, primary vs. metastatic tumor, etc.).

Samples used for validation must be handled in conformance with the guidelines in this checklist. If specimens are fixed in a medium other than 10% neutral buffered formalin, the validation study must show that results are concordant with results from formalin-fixed tissues.

If significant changes are made in testing methods (e.g. antibody clone, antigen retrieval protocol or detection system, probe or pretreatment protocol), revalidation is required.

This checklist requirement applies to laboratories that perform the technical testing of specimens for HER2 (ERBB2) amplification. Patient specimens should be fixed in the same manner as the specimens used for the validation study(ies).

**Evidence of Compliance:**
✓ Records of validation data including criteria for concordance

**ANP.22979 HER2 Testing**

*Phase I*

At least one tumor sample from all patients with invasive breast cancer (early-stage, recurrent, or metastatic disease) is tested for either HER2 protein expression (IHC assay) or HER2 (ERBB2) gene expression (ISH assay) using a validated HER2 test if tissue is available.

NOTE: HER2 testing should be repeated on another specimen or block if: 1) the initial HER2 result is discordant with the histologic features of the tumor, or 2) in a core biopsy, the initial result is negative when the amount of tumor used for testing was limited, or the result is equivocal by IHC and ISH.

The following checklist item applies to laboratories that perform the technical testing of specimens for HER2, estrogen receptor and/or progesterone receptor tests.

**ANP.22983 HER2; ER/PgR - Fixation**

*Phase I*

If the laboratory assesses HER2 protein over-expression by immunohistochemistry, HER2 (ERBB2) gene amplification by *in situ* hybridization, or estrogen/progesterone receptor expression by immunohistochemistry, there is a written procedure to ensure appropriate specimen fixation time.

NOTE: Specimens subject to these tests should be fixed in 10% neutral buffered formalin for at least six hours and up to 72 hours. The volume of formalin should be at least 10 times the volume of the specimen. Decalcification solutions with strong acids should not be used. For
cases with negative HER2 results by IHC that were fixed outside these limits, consideration should be given to performing confirmatory analysis by in-situ hybridization.

Laboratories must communicate the following fixation guidelines to clinical services:

1. Specimens should be immersed in fixative within one hour of the biopsy or resection.
2. If delivery of a resection specimen to the pathology department is delayed (e.g. specimens from remote sites), the tumor should be bisected prior to immersion in fixative. In such cases, it is important that the surgeon ensure that the identity of the resection margins is retained in the bisected specimen; alternatively, the margins may be separately submitted.
3. The time of removal of the tissue and the time of immersion of the tissue in fixative should be recorded and submitted to the laboratory.

Communication may be through memoranda, website, phone, face-to-face meetings, or other means. The laboratory should consider monitoring compliance and contacting clients when these guidelines are not met.

If specimens are fixed in a medium other than 10% neutral buffered formalin, the laboratory must perform a validation study showing that results are concordant with results from formalin-fixed tissues.

Laboratories testing specimens obtained from another institution should have a policy that addresses time of fixation. Information on time of fixation may be obtained by appropriate questions on the laboratory’s requisition form.

Reports should qualify any negative results for specimens not meeting the above guidelines. Reports containing ER, PgR or HER2 results for their predictive characteristics must specify the type of fixative used and the cold ischemia time. In addition, any treatment that may potentially alter immunoreactivity, such as decalcification, must be included.

**REVISED** 08/21/2017

ANP.22985 Predictive Marker Testing - Decalcified Tissue Phase I

If the laboratory performs in situ hybridization (ISH) and/or immunohistochemistry for ER, PgR, and/or HER2 on decalcified tissues, the assay was validated for decalcified specimens or the results include a disclaimer noting that these assays have not been validated on decalcified specimens.

NOTE: Decalcification may adversely affect patient results. If the assay has not been validated for decalcified specimens, a disclaimer must be included in the patient report, such as, "This assay has not been validated on decalcified tissues. Results should be interpreted with caution given the possibility of false negative results on decalcified specimens.

REFERENCES

ANP.22999 HER2 by IHC - Scoring Phase II

If the laboratory interprets HER2 protein over-expression by immunohistochemistry (IHC), results are reported using either the manufacturer’s instructions or the ASCO/CAP scoring criteria.

NOTE: The report should note which method of scoring is used, and if ASCO/CAP scoring criteria are used, the report includes the ASCO/CAP reference including the year of publication.

REFERENCES
HER2 (ERBB2) by ISH - Scoring

If the laboratory interprets HER2 (ERBB2) gene amplification by in situ hybridization (e.g. FISH, CISH, SISH), results are reported using either the ASCO/CAP scoring criteria or the manufacturer’s instructions.

NOTE: The table below contains the ASCO/CAP scoring criteria used to determine HER2 (ERBB2) gene status by in-situ hybridization.

Careful attention should be paid to the recommended exclusion criteria for performing or interpreting in situ hybridization for HER2 (ERBB2) (e.g. signal obscured by background; for FISH, difficulty in defining areas of invasive carcinoma under UV light).

Variable ISH positivity (heterogeneity) must also be considered when analyzing ISH studies. ISH slides are scanned at low power prior to counting to determine if there is a discrete population of amplified cells representing more than 10% of the invasive tumor cells in that area; such cases are reported as HER2 (ERBB2) positive (amplified).

For FDA-cleared or approved test systems that use different scoring criteria, the manufacturer’s instructions may be followed.

<table>
<thead>
<tr>
<th>Method</th>
<th>Result</th>
<th>Ratios of HER2 (ERBB2) to CEP17**</th>
<th>Average HER2 (ERBB2) Copy Number (Signals/Cell)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>HER2 (ERBB2) ISH - Test systems with internal control probe</td>
<td>Positive (amplified)</td>
<td>≥2.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;2</td>
<td>≥6.0</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>&lt;2.0</td>
<td>&lt;4.0</td>
</tr>
<tr>
<td></td>
<td>Equivocal</td>
<td>&lt;2.0</td>
<td>≥4.0 and &lt;6.0</td>
</tr>
<tr>
<td>HER2 (ERBB2) ISH - Test systems without an internal control probe</td>
<td>Positive (amplified)</td>
<td>N/A</td>
<td>≥6.0</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>N/A</td>
<td>&lt;4.0</td>
</tr>
<tr>
<td></td>
<td>Equivocal</td>
<td>N/A</td>
<td>≥4.0 and &lt;6.0</td>
</tr>
</tbody>
</table>

**Criteria in both columns must be met for tests with internal reference probes. For example, for a result to be negative, the ratio must be <2.0 and the average copy number must be <4.0.

REFERENCES


Receptor Reporting

Immunohistochemical estrogen receptor and/or progesterone receptor test results are reported using the ASCO/CAP scoring criteria.

NOTE: The ASCO/CAP scoring guidelines are as follows:
1. A positive test is defined as positive staining of greater than or equal to 1% of tumor cell nuclei.
2. A negative test is defined as staining of less than 1% of tumor cell nuclei.
3. The report includes the percentage/proportion of positive-staining tumor cells. The percent of positive-staining tumor cell nuclei may be determined by estimation or quantification.
4. In addition to the above, for positive tests the report includes an estimate of the intensity of staining over the entire tumor present on the tissue section. Staining intensity is reported as weak, moderate, or strong.*
5. A test result is defined as "indeterminate" if there is a problem in specimen handling, processing or staining that compromises test reliability, in the judgment of the pathologist.

The laboratory should consider adding a qualifying note to the test report, when, 1) there are negative results for tumor types that are usually positive--for example, invasive tubular, lobular and mucinous carcinomas, and low grade invasive carcinomas; 2) the estrogen receptor test is negative and the progesterone receptor test is positive (which raises the possibility of a false negative estrogen receptor test, or a false positive progesterone receptor test); 3) results are negative in a breast specimen, in the absence of internal controls; 4) there is weak staining, or staining of few cells, in a small sample (e.g. less than 100 tumor cells). In the above four circumstances, consideration should be given to repeating the test on a different tissue block, if available, or resection specimen.

For specimens containing both duct carcinoma in situ (DCIS) and invasive carcinoma, estrogen receptor, and progesterone receptor tests should be scored only for the invasive component. The staining status of the DCIS component may be reported in a comment, at the option of the pathologist.

*Calculation of an intensity score (e.g. Allred, H or Quick score) is optional.

REFERENCES

DIGITAL IMAGE ANALYSIS

This section applies to laboratories using digital image analysis to quantify specific features in a tissue section image following enhancement and processing of that image, including but not limited to, IHC, morphometric analysis, FISH/ISH and DNA ploidy. This checklist section does not apply to laboratories that are imaging slides for manual scoring or review by an individual.
VALIDATION AND CALIBRATION

Inspector Instructions:

- Sampling of validation and calibration policies and procedures
- Sampling of validation/calibration records

- Sampling of calibration materials (labeling)
- Sampling of calibration slides (labeling)

- What is your course of action if calibration is unacceptable?

ANP.23004 Preanalytic Testing Phase Validation

There are records showing that the preanalytic phase of the test system has been validated for each assay, including definition of acceptable specimen preservation, fixation and processing, and definition of how microscopic fields are selected for analysis.

NOTE: Test results may be affected by fixation parameters, including time of fixation, type of fixative used, hemorrhage, necrosis, and autolysis of tissue.

REFERENCES

ANP.23009 Calibration

Appropriate slides are used for calibration.

NOTE: There are two types of image analysis systems in current use in anatomic pathology. The first evaluates pixels without regard for pixel location (e.g. nucleus, cytoplasm, extracellular areas, etc.). The second initially identifies objects (the nucleus, for example) in an image and then classifies the object as positive or negative.

For pixel-based systems, calibration is accomplished by use of a slide that includes all of the possible intensity values that a pixel can occupy; this slide is then run for verification of calibration. For some systems, the vendor provides the calibration slide and calibration must be verified before a patient sample can be analyzed.

For object-based systems, calibration must address two processes: 1) capturing or ignoring objects, as appropriate; and 2) correct classification of captured objects, with establishment of the minimum threshold for scoring an object as positive. Typically calibration slides are used to adjust for object detection based on minimum or maximum size, shape, etc. Then the minimal staining threshold is established for classifying an object as positive, by comparing to background staining and counter staining for each run of patient specimens. A weakly expressed antigen
should be used to establish the threshold (e.g. secretory endometrium for estrogen receptor). The calibration of the imaging system may be confined to the type of analysis e.g. nuclear, membrane or cytoplasm, etc.

Calibration should include adjustment of light output, if applicable, to ensure that output is matched to the sensor's dynamic range.

(This requirement does not apply to systems that feature “internal calibration.” The Quality Control requirements below, however, do apply.)

REFERENCES

QUALITY CONTROL

Controls are samples that act as surrogates for patient/client specimens. They are periodically processed like a patient/client sample to monitor the ongoing performance of the analytic process.

Inspector Instructions:

- Sampling of QC policies and procedures
- Sampling of QC records

- How do you determine when QC is unacceptable and corrective actions are needed?

- Select several occurrences in which QC is out of range and follow records to determine if the steps taken follow the laboratory procedure for corrective action

ANP.23018 Quality Control - Digital Image Analysis

Control materials at more than one expression (level) are run concurrently with patient specimens.

NOTE: Controls should check test performance at relevant decision points. For many tests, a positive and a negative control are sufficient. Controls need be run only on days when patient specimens are tested. For immunohistochemistry, the laboratory must follow the control requirements in the Immunohistochemistry section of this checklist.

Evidence of Compliance:
- Written QC policy AND
- Records of QC results

REFERENCES
ANP.23020 QC Handling  
Phase II

Control specimens are tested in the same manner and by the same personnel as patient/client samples.

NOTE: QC specimens must be analyzed by personnel who routinely perform patient/client testing - this does not imply that each operator must perform QC daily, so long as each instrument and/or test system has QC performed at required frequencies, and all analysts participate in QC on a regular basis. To the extent possible, all steps of the testing process must be controlled, recognizing that pre-analytic and post-analytic variables may differ from those encountered with patient/clients.

Evidence of Compliance:
✓ Records reflecting that QC is run by the same personnel performing patient testing

REFERENCES

ANP.23021 Positive Threshold Level  
Phase II

A negative control is used to ensure that non-staining areas are scored as negative.

NOTE: The negative control may be a separate slide or an area on the patient test slide that is known to be negative.

Evidence of Compliance:
✓ Written procedure for defining threshold for positive-staining cells

ANP.23022 QC Confirmation of Acceptability  
Phase II

The results of controls are reviewed for acceptability before reporting results.

NOTE: Control results must be reviewed before reporting patient/client results. It is implicit in quality control that patient/client test results will not be reported when controls do not yield acceptable results.

Evidence of Compliance:
✓ Written policy stating that controls are reviewed and acceptable prior to reporting patient results AND
✓ Evidence of corrective action taken when QC results are not acceptable

REFERENCES

ANP.23025 Monthly QC Review  
Phase II

Quality control data are reviewed and assessed at least monthly by the laboratory director or designee.

NOTE: The review of quality control data must be recorded and include follow-up for outliers, trends, or omissions.

The QC data for tests performed less frequently than once per month should be reviewed when the tests are performed.

Evidence of Compliance:
✓ Records of QC review with recorded follow-up for outliers, trends or omissions
SPECIMEN ANALYSIS

Inspector Instructions:

- Sampling of specimen analysis policies and procedures

ANP.23027  Area of Analysis  Phase II

A qualified pathologist selects or confirms the appropriate areas for analysis.

ANP.23028  Analysis Guidelines  Phase II

There are written guidelines for identification of appropriate areas and cells for analysis.

NOTE: Evaluation of heterogeneous cell populations requires use of specific guidelines and procedures, particularly if there is background or nonspecific staining, or if there is cell debris, endogenous pigment, and/or artifacts of aging, sectioning or preparation.

DNA ANALYSIS

Inspector Instructions:

- Sampling of DNA analysis policies and procedures
- Sampling of QC records
- How does your laboratory ensure detection of DNA aneuploidy

ANP.23031  Histogram Acceptability Criteria  Phase II

There are written criteria for acceptability of histograms for interpretation.

NOTE: The histogram should represent a statistically relevant and representative sample of cells. The characteristic contour of a cell cycle should be evident. There should be a sufficient number of stem-line events to permit accurate S-phase determination and a limit on background debris.

ANP.23033  G0/G1 Peak  Phase II

Appropriate internal or external control cells of known DNA content are evaluated with each specimen or batch of specimens to establish an acceptable coefficient of variation for the G0/G1 peak.
Evidence of Compliance:
✓ Written procedure defining controls used for DNA analysis AND
✓ Records of QC results

REFERENCES

ANP.23034 Aneuploid Cell Population ID Phase II
Criteria are established for identification of an aneuploid cell population in the test specimen.

NOTE: Detection of DNA aneuploidy depends largely on the ability of the test system to resolve one or more peaks in the histogram that are separate from the non-neoplastic cells that are present. Resolution of separate peaks is dependent upon the coefficient of variation (CV) of the analysis, which is in turn highly dependent upon the tissue type, the manner in which the specimen is prepared and the relative frequency of non-neoplastic cells. Periodic evaluation of the CVs for control cells is necessary to ensure adequate resolution of the test system.

In paraffin-embedded tissue, the position of the diploid peak is variable, depending on the processing techniques. In the event that only one G0/G1 peak is found, it is assumed to be diploid unless morphologic assessment indicates otherwise. In the event of more than one peak, if the relative DNA content cannot be determined to be DNA hypodiploid or DNA hyperdiploid, the paraffin section must be re-processed, accompanied by the processing of multiple blocks each containing variable proportions of normal and neoplastic tissue from the same patient, as defined morphologically by the pathologist.

REFERENCES
2) Coon JS, Landay AL, Weinstein RS. Advances In Flow Cytometry For Diagnostic Pathology. Lab New Invest. 1987;57:453-479

REPORTS

Inspector Instructions:

● Sampling of patient reports for completeness

ANP.23036 Final Report Interpretation Phase II
The final report includes an interpretation by the responsible pathologist.

NOTE: Interpretation requires correlation with the light microscopic features such as routine histology, immunohistochemistry, cytologic material, cytogenetic and molecular studies, and/or clinical information.

ANP.23037 Final Report Elements Phase II
The final report includes the criteria for positive and negative results including reference intervals.

NOTE: Reference intervals may be determined by the laboratory’s validation of the test system, or through evaluation of manufacturer’s or other published information.
REFERENCES


ANP.23038 Final Report Elements Phase II

The final report includes the specimen source, name of the vendor and imaging system used, the antibody clone or probe, and the detection method, as well as any limitations of the test result, if applicable.

NOTE: For DNA staining, the CV (coefficient of variation) should be included in the patient report.

PERSONNEL

Inspector Instructions:

- Records of personnel education and experience

**REVISED** 08/21/2017

ANP.23041 Testing Personnel Qualifications Phase II

Personnel who are responsible for evaluating the imaging system data are qualified as high-complexity testing personnel.

NOTE: Refer to the Laboratory General Checklist for high complexity testing personnel (GEN.54750) and general supervisor (GEN.53600) qualifications. Additional information for assessing personnel qualifications is available at the following link: CAP Personnel Requirements by Testing Complexity.

Evidence of Compliance:

✓ Records of qualifications including diploma, transcript(s), primary source verification report, equivalency evaluation, or current license (if required) AND
✓ Work history in related field

REFERENCES


INSTRUMENTS AND EQUIPMENT

The checklist requirements in this section should be used in conjunction with the requirements in the All Common Checklist relating to instruments and equipment.
Inspector Instructions:

- Sampling of pipette/dilutor checks
- Sampling of tissue processor procedures and records
- Sampling of paraffin bath and dispenser records
- Sampling of microtome records
- Sampling of cryostat decontamination records
- Records of Ex Vivo Microscopy system validation
- Sampling of Ex Vivo Microscopy equipment function checks

- Instruments/equipment (clean and well-maintained)

- How does your laboratory prevent cross-contamination of paraffin sections in the flotation bath?

- If problems are identified during the review of instruments and equipment, or when asking questions, further evaluate the laboratory's responses, corrective actions and resolutions
- Select a representative assay and follow the entire process from specimen receipt to final result reporting

ANP.23085 Pipette Accuracy - Non Class A Phase II

Pipettes that are used for quantitative dispensing of material are checked for accuracy and reproducibility at defined intervals (at least annually), and results recorded.

NOTE: Pipette checks must be performed following manufacturer’s instructions, at minimum, and as defined in laboratory procedure. Such checks are most simply done gravimetrically. This consists of transferring a number of measured samples of water from the pipette to a balance. Each weight is recorded, the weights are converted to volumes, and then arithmetic means (for accuracy), and SD/CV (for imprecision) are calculated. Alternative approaches include spectrophotometry or (less frequently) the use of radioactive isotopes, and commercial kits are available from a number of vendors. Computer software is useful where there are many pipettes, and provides convenient records. This checklist requirement does not apply to Class A volumetric pipettes that meet the American Society for Testing and Materials calibration (accuracy) specifications.

REFERENCES

5) Johnson B. Calibration to dye for: Arkel’s new pipette calibration system. Scientist. 1999;13(12):14
ANP.23100  Tissue Processor Solutions  Phase I

Tissue processor solutions are changed at intervals appropriate for the workload.

Evidence of Compliance:
✓ Written policy defining frequency for changing tissue processor solutions based on workload
AND
✓ Records of solution changes at defined frequency

REFERENCES
1) Baunoch DA, et al. Troubleshooting problems in processing, staining. Advance/Lab. 1999(Oct);8(10):59-64

ANP.23120  Tissue Processing Programs  Phase II

Tissue processing programs are validated.

NOTE: To validate new processing programs, laboratories should run tissue samples of the same size, thickness and fixation in duplicate. Reagents on the processor(s) should be comparable, e.g. all fresh reagents. Process, embed, cut, and stain slides at the same time and evaluate the quality of the blocks, e.g. firmness, ease of cutting. The slides should be evaluated by the pathologist without knowledge of which processing program was used and graded on quality of section and staining. The new processing program must be of adequate quality before being put into use.

This method may also be used to verify a routine processing program before putting a new processor into clinical service.

For tissue programs in place prior to July 31, 2012, ongoing records of acceptable tissue processing may be used to demonstrate compliance with this requirement.

Evidence of Compliance:
✓ Written procedure for validation of new tissue processing programs AND
✓ Validation records of processing program changes

ANP.23130  Tissue Processing Programs  Phase I

Specific tissue processing programs are available for different types and sizes of specimens.

NOTE: To achieve acceptable results for diagnostic purposes, processing programs may be needed for different sizes and types of specimens. Biopsy specimens may be processed on a shorter schedule than larger specimens; large, dense or fatty specimens and brain specimens will not process adequately on a shorter schedule. A variety of processing programs should be used to achieve good processing results.

Evidence of Compliance:
✓ Written procedure defining processing programs for various types and sizes of specimen tissues

**REVISED** 08/17/2016

ANP.23350  Paraffin and Flotation Baths  Phase II

Paraffin and flotation baths are clean and well-maintained, and there is a procedure for preventing cross-contamination of glass slides from floaters (fragments of prior paraffin tissue sections) in the flotation bath.

NOTE 1: Of particular importance are periodic water changes or blotting of the water surface so that sections from one patient block are not inadvertently carried over to another case (so-called “floaters” or “extraneous tissue”).
NOTE 2:
1. Instruments must be clean and well-maintained (e.g. tissue processors, embedding centers, dispensers and flotation baths)
2. The temperature of the dispenser must be correct for the type of paraffin used.

REFERENCES

ANP.23400 Microtome Maintenance Phase I

Microtomes and microtome knives are clean and well-maintained.

NOTES:
1. Microtomes must be clean, properly lubricated, and without excessive play in the advance mechanism
2. Knives must be sharp and free of nicks

ANP.23410 Cryostat Decontamination Phase II

There is a written procedure for the decontamination of the cryostat at defined intervals, and under defined circumstances, and decontamination records are evident.

NOTE: The cryostat must be defrosted and decontaminated by wiping all exposed surfaces with tuberculocidal disinfectant. The cryostat should be at room temperature during decontamination unless otherwise specified by the manufacturer. This should be done at an interval appropriate for the institution; this must be weekly for instruments used daily. Trimmings and sections of tissue that accumulate inside the cryostat must be removed during decontamination. Although not a requirement, cut-resistant gloves should be worn when changing knife blades.

REFERENCES

**NEW** 08/17/2016
ANP.23420 ISH Slide Processing System Temperature Checks Phase II

Individual slide slots (or a representative sample thereof) of in situ hybridization (ISH) temperature controlled slide processing systems are checked for temperature accuracy before being placed in service and at least annually thereafter.

Evidence of Compliance:
✓ Written procedure for verification of temperature accuracy AND
✓ Records of equipment verification

EX VIVO MICROSCOPY

Ex Vivo Microscopy (EVM) refers exclusively to the use of imaging systems such as confocal microscopy, optical coherence tomography, multiphoton microscopy, optical spectroscopy/spectroscopic imaging and similar imaging technologies for evaluation of specimens that have been removed from the patient. The In Vivo Microscopy section of this checklist should be used for in vivo applications of these systems.

**NEW** 08/17/2016
ANP.23560 EVM - System Validation Phase I
The laboratory performs validation studies before the Ex Vivo Microscopy (EVM) technology is used for the intended purpose(s).

NOTE: The specific components of the validation study are left to the discretion of the laboratory. However, studies should be performed using an adequate number of cases, data should be evaluated, and a summary statement provided prior to implementation. Records of how discordant data or unacceptable variations from the expected were resolved are required.

As general guiding principles, the validation process should:
- Closely emulate the real-world environment and involve tissue types and clinical settings relevant to the intended use(s)
- Be carried out by or under the supervision of a pathologist adequately trained to use the EVM system
- Encompass the entire EVM system, with reevaluation if a significant change is made to a previously validated system.

Evidence of Compliance:
✓ Records of completed validation study with supporting validation data, review and approval

**NEW** 08/17/2016
ANP.23570 EVM - Function Checks

Regular function checks are performed and records maintained on the Ex Vivo Microscopy (EVM) system/instrument.

NOTE: Function checks include confirmation that an instrument or item of equipment operates according to manufacturer's specifications before routine use, at prescribed intervals, or after minor adjustment. Depending on the type of system, function checks may include calibration.

Evidence of Compliance:
✓ Written procedure for function checks and calibration, as required

**NEW** 08/17/2016
ANP.23580 EVM - Method Performance Specifications Availability

The current Ex Vivo Microscopy (EVM) methods and all significant changes to analytical methodology, including performance specifications and supporting validation data, are maintained by the laboratory.

NOTE: Records should include, but are not limited to, components of EVM equipment, software systems, and image viewing systems.

Evidence of Compliance:
✓ Records of changes to analytical methodology

REFERENCES
Slides and paraffin blocks are properly stored in an organized manner (i.e. accessible for retrieval, and properly identified).

NOTE: Slides and blocks should be stored in a manner to prevent contamination from blood or other fluids or tissues. The storage area for blocks should be cool to prevent blocks from melting together.

HISTOLOGY LABORATORY SAFETY

NOTE TO THE INSPECTOR: The inspector should review relevant requirements from the Safety section of the Laboratory General checklist, to assure that the histology laboratory is in compliance.

The following requirements pertain specifically to the histology laboratory.

Inspector Instructions:

- Sampling of histology safety policies and procedures
- Sampling of microwave reproducibility and ventilation checks
- How does your laboratory ensure the safe handling of suspected CJD tissues?

ANP.24050 Automated Tissue Processor

Each open (i.e., generative of flammable vapors into the ambient workspace) automated tissue processor is operated at least five feet from the storage of combustible materials and from the paraffin dispenser.

NOTE: Tissue processors that operate as a closed system confine ignitable vapor hazards within the processor and thus do not pose a hazard requiring five feet (1.52 m) of separation.

Each open (i.e., generative of flammable vapors into the ambient workspace) automated tissue processor must be located at least five feet from the storage of combustible materials unless separated by one-hour fire-resistant construction. Flammable and combustible liquids must not be positioned near sources of heat or ignition. At least five feet must separate each open system tissue processor from the paraffin dispenser.

ANP.24100 Microtome Knife Storage

Microtome knives are stored in original containers or by some other means to avoid personnel injury or equipment damage.

**REVISED** 08/17/2016

ANP.24200 Biohazard Waste Disposal

Infectious tissues and other potentially contaminated materials are disposed of with minimum danger to professional, technical, and custodial personnel, and to recipients.
NOTE: Waste disposal must be in accord with all regulations.
Specimens returned to patients (e.g. prostheses, gallstones) must be disinfected before release. Specimens released to manufacturers (e.g. pacemaker or prosthesis) must be disinfected or be handled in a manner to prevent exposure.

**Evidence of Compliance:**
✓ Written procedure for waste disposal in accordance with local regulations

**REFERENCES**

**ANP.24300 Creutzfeldt-Jakob Disease (CJD) Special Handling**

**Phase II**

There are written procedures for the special handling of tissues in the histology laboratory from cases in which Creutzfeldt-Jakob disease is suspected.

**NOTE:** In addition to specimen handling, the procedures should include the process for appropriate intralaboratory communication.

Neuropathology tissues from suspected cases of Creutzfeldt-Jakob disease should be treated with formic acid. Paraffin blocks and slides prepared from formic-acid-treated tissue may be handled routinely.

If tissue has not been treated with formic acid, it must be hand-processed and treated as containing potentially transmissible prions. Double gloves must be worn at all times when handling such tissue. All solutions, including water washes, must be collected and treated with equal volumes of fresh undiluted household bleach for 60 minutes before disposal. Disposables, glassware, tools, etc. must be handled according to the procedures employed in the autopsy room described elsewhere in this checklist. All scraps of paraffin and unused sections should be collected on a disposable sheet. The microtome may be wiped with bleach or NaOH solution. No special precautions are needed in handling intact glass slides once they have been coverslipped. Broken slides should be decontaminated and discarded. Paraffin blocks should be stored in a bag or box and labeled as infectious. Alternatively, the laboratory may reseal the cut surface of the blocks with paraffin. Additional information may be found in the Autopsy section of this checklist.

**REFERENCES**

**ANP.27150 Glass Slide/Block Disposal**

**Phase I**

There are written procedures for safe disposal of used glass slides and paraffin blocks.

**NOTE:** The laboratory must follow CAP retention requirements for slides and blocks (refer to checklist requirement in the “Surgical Pathology Reports” section of this checklist).

**REFERENCES**
2) Title 45, CFR; parts 160, 162, And 164, Health Insurance Reform: Security Standards; Final Rule, Federal Register, Published Feb. 20, 2003. *Health Insurance Reform*
ANP.27170  Microwave Usage  Phase I

**Microwave devices are used in accordance with manufacturer's instructions.**

*NOTE:* Microwave devices should be used in accordance with manufacturer's instructions, unless CAP requirements are more stringent.

**Evidence of Compliance:**
✓ Written procedure for microwave usage

ANP.28290  Microwave Monitoring  Phase I

**Microwave devices are at least annually monitored for reproducibility.**

*NOTE:* “Reproducibility” is defined as consistency in diagnostic quality obtained from microwave equipment and procedures. For some devices, reproducibility may be evaluated by monitoring the temperatures of identical samples after microwave processing. For those microwave devices (particularly those incorporated into histology processing equipment) that use temperature-independent methods to evaluate reproducibility, the laboratory should have a written procedure for monitoring reproducibility that follows instrument manufacturer's instructions. Information on such procedures is given in the reference to this checklist requirement (see below).

The microwave device should be tested for radiation leakage if there is visible damage to the device.

**Evidence of Compliance:**
✓ Written procedure for monitoring the diagnostic quality of specimens processed using microwaves

ANP.28860  Microwave Container Venting  Phase I

**All containers used in microwave devices are vented.**

*NOTE:* Venting of containers is necessary so that processing occurs at atmospheric pressure, to prevent explosion. For procedures using pressure above that of the atmosphere, specialized containers must be used, with strict adherence to manufacturer's instructions.

**Evidence of Compliance:**
✓ Written procedure for the use of appropriately vented containers

ANP.29430  Microwave Venting  Phase I

**Microwave devices are properly vented.**

*NOTE:* This checklist item does not apply to microwave devices that are designed by the manufacturer to operate without venting.

Microwave devices should be placed in an appropriate ventilation hood to contain airborne chemical contaminants and potentially infectious agents. Before operation of the microwave device, flammable and corrosive reagents should be removed from the hood, to prevent fire or chemical damage to the electronic components of the device. Microwave devices used outside a fume hood should have an integral fume extractor certified by the manufacturer for use in a clinical laboratory.

The effectiveness of ventilation should be monitored at least annually.

This checklist requirement does not apply if only non-hazardous reagents (and non-infectious specimens) are used in the device (e.g. water, certain biological stains, paraffin sections). The laboratory should consult the safety data sheets (formerly MSDS) received with reagents and stains to assist in determining proper handling requirements and safe use.
Evidence of Compliance:
✓ Records of annual evaluation of ventilation effectiveness

CIRCULATING TUMOR CELL ANALYSIS (CTC)

This section applies to laboratories using a test system to prepare, analyze, and quantify circulating tumor cells in whole blood, including immunomagnetic separation and labeling using antibodies and fluorescent stain.

VALIDATION AND CALIBRATION

Inspector Instructions:

- Sampling of validation and calibration policies and procedures
- Sampling of validation/calibration records

- Sampling of calibration materials (labeling)
- Sampling of calibration slides (labeling)

- What is your course of action if calibration is unacceptable?

ANP.29500 Calibration  Phase II

An appropriate verification/calibration system is used as appropriate to check performance prior to testing.

NOTE: An appropriate process is used to check the optical and mechanical performance of the system. This may be accomplished using the manufacturer’s provided material. Manufacturer’s instructions must be followed regarding when and how often the verification/calibration is performed.

REFERENCES

ANP.29510 Recalibration  Phase II

The test system is recalibrated when calibration verification fails to meet the established criteria provided by the manufacturer.

Evidence of Compliance:
✓ Written policy defining criteria for recalibration AND
✓ Records of recalibration, if calibration or calibration verification has failed

REFERENCES
QUALITY CONTROL

Controls are samples that act as surrogates for patient/client specimens. They are periodically processed like a patient/client sample to monitor the ongoing performance of the analytic process.

Inspector Instructions:

- Sampling of QC policies and procedures
- Sampling of QC records

- How do you determine when QC is unacceptable and corrective action is needed?

- Select several occurrences in which QC is out of range and follow documentation to determine if the steps taken follow the laboratory procedure for corrective action

ANP.29520 Daily QC

Control materials at more than one level are run each day of patient testing.

Evidence of Compliance:
- Written policy defining QC requirements AND
- Records of QC results

REFERENCES

ANP.29530 QC Handling

Control specimens are tested in the same manner and by the same personnel as patient/client samples.

NOTE: QC specimens must be analyzed by personnel who routinely perform patient/client testing; this does not imply that each operator must perform QC daily, as long as each instrument and/or test system has QC performed at required frequencies, and all analysts participate in QC on a regular basis. To the extent possible, all steps of the testing process must be controlled, recognizing that pre-analytic and post-analytic variables may differ from those encountered with patient/clients.

REFERENCES
The results of controls are reviewed for acceptability before reporting results.

**NOTE:** Control results must be reviewed before reporting patient/client results. It is implicit in quality control that patient/client test results will not be reported when controls do not yield acceptable results.

**Evidence of Compliance:**
- ✓ Written policy stating that controls are reviewed and acceptable prior to reporting patient results AND
- ✓ Records of corrective action taken when QC results are not acceptable

**REFERENCES**

ANP.29550 Monthly QC Review Phase II

**Quality control data are reviewed and assessed at least monthly by the laboratory director or designee.**

**NOTE:** The review of quality control data must be documented and include follow-up for outliers, trends, or omissions that were not previously addressed.

*The QC data for tests performed less frequently than once per month should be reviewed when the tests are performed.*

**Evidence of Compliance:**
- ✓ Records of QC review with evidence of follow-up for outliers, trends, or omissions

**SPECIMEN ANALYSIS**

**Inspector Instructions:**
- Sampling of specimen analysis policies and procedures

ANP.29570 Carryover Detection Phase II

**There is a procedure for detection and evaluation of potential carryover.**

**NOTE:** The procedure must address criteria for the evaluation of potential carryover from a preceding elevated (high concentration) sample to the following sample in each analytical batch analysis and appropriate actions (e.g. wash cycle) to be taken.

**Evidence of Compliance:**
- ✓ Records of reassessment of samples with potential carryover

**REFERENCES**

ANP.29580 Analysis Guidelines Phase II

**There are written guidelines for differentiating circulating tumor cells from other nucleated circulating cells, such as leukocytes, as well as other cellular debris.**
NOTE: Evaluation of circulating tumor cells requires the use of specific guidelines and procedures to distinguish circulating tumor cells from white blood cells and other artifacts.

REPORTS

Inspector Instructions:

- Sampling of patient reports for completeness

ANP.29590 Report Review Phase II

All reports are reviewed and signed by the pathologist.

NOTE: The inspector must review a sampling of reports issued since the previous on-site inspection, representing at least the most common types of specimens seen in the laboratory. When diagnostic reports are generated by computer or telecommunications equipment, the actual signature or initials of the pathologist may not appear on the report. It is nevertheless essential that the laboratory have a procedure that ensures and provides a record that the responsible pathologist has reviewed and approved the completed report before its release. In the occasional situation when the diagnosing pathologist is not available for timely review and approval of the completed report, the laboratory may have a policy and procedure for review and approval of that report by another pathologist. In that circumstance, the names and responsibilities of both the pathologist who made the diagnosis and the pathologist who performs final verification must appear on the report.

ANP.29600 Final Report Elements Phase II

The final report includes the criteria for favorable and unfavorable results.

NOTE: The range determining favorable and unfavorable results may be determined by the laboratory’s validation of the test system, or through evaluation of manufacturer’s or other published information.

REFERENCES


ANP.29610 Final Report Elements Phase II

The final report includes the specimen source, name of the vendor and analyzer used, as well as any limitations of the test result, if applicable.

PERSONNEL

Inspector Instructions:

- Records of personnel education and experience
ANP.29620  Morphologic Observation Assessment  Phase II

The laboratory at least annually assesses morphologic observations among non-pathologist personnel performing CTC analysis, to ensure consistency.

NOTE: Suggested methods to accomplish this include:

1. Circulation of images with specific qualitative abnormalities for the different cell populations evaluated
2. Use of digital images

Evidence of Compliance:
✓ Written procedure defining the method and criteria used for evaluation of consistency AND
✓ Employee records documenting morphologic assessment

**REVISED** 08/21/2017

ANP.29630  Testing Personnel Qualifications  Phase II

Personnel who operate the analyzer are qualified as high-complexity testing personnel.

NOTE: Refer to the Laboratory General Checklist for high complexity testing personnel (GEN.54750) and general supervisor (GEN.53600) qualifications. Additional information for assessing personnel qualifications is available at the following link: CAP Personnel Requirements by Testing Complexity.

Evidence of Compliance:
✓ Records of qualifications including diploma, transcript(s), primary source verification report, equivalency evaluation, or current license (if required)
✓ Work history in related field

REFERENCES

FLOW CYTOMETRY DATA INTERPRETATION

This section applies to laboratories that perform the interpretation component of flow cytometry data where the flow cytometry technical component is performed at another laboratory (different CAP or CLIA number).

Inspector Instructions:

- Sampling of flow cytometry immunophenotyping interpretation policies and procedures
- Sampling of peer education records
- Sampling of patient reports and histograms (to include abnormal cell immunophenotypes, interpretive comments, disclaimer when Class I ASRs are used, etc.)
- Record retention policy (gated dot plots/histograms)

- How does your laboratory ensure that the testing is sufficiently comprehensive to facilitate accurate diagnosis, with appropriate gating and retention of records?
- How does your laboratory distinguish neoplastic from non-neoplastic cells?
**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

**ANP.29650** Peer Education Program  
Phase II  

For laboratories that perform only interpretations of flow immunophenotyping data, the laboratory participates in a peer education program in interpretive flow cytometry.

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

**ANP.29670** Record Retention  
Phase II  

Gated dot plots and histograms are retained for at least 10 years. List mode files that include analysis and gates are acceptable.

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

**ANP.29690** Appropriate Antibodies  
Phase II  

The panel of antibodies used is sufficiently comprehensive to address the clinical problem under consideration.

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

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**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

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NOTE: This checklist item applies to laboratories that do not perform staining and acquisition of flow cytometry data, but which receive list mode files and/or representative dot plots from an outside laboratory for interpretation.

Programs dealing with analysis of flow data from hematolymphoid neoplasias and related benign conditions provide valuable educational opportunities for peer-performance comparisons. While not completely emulating the clinical setting involved in flow immunophenotyping, the peer data developed by these programs can provide a useful benchmark against which laboratory performance can be evaluated.

**Evidence of Compliance:**
- Records of enrollment/participation in an educational peer-comparison program for interpretive flow cytometry OR records for participation in a laboratory-developed program circulating cases with other laboratories or within the laboratory's own practice with records of peer review

**References**

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

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**References**

**NEW** 08/21/2017  
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**NEW** 08/21/2017  

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**NEW** 08/21/2017  
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**References**

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

**ANP.29670** Record Retention  
Phase II  

Gated dot plots and histograms are retained for at least 10 years. List mode files that include analysis and gates are acceptable.

NOTE: The intent of this checklist requirement is retention of gated dot plots and histograms of hematolymphoid neoplasias, CD34 stem cell records, PNH, and congenital immunodeficiency evaluations for 10 years. Paper copies of gated dot plots and histograms are not required if the information is available electronically (e.g., .pdf, .tiff, .jpeg files).

If the laboratory responsible for the interpretation component does not retain the data locally, it must ensure that the data is being retained for the full retention period, such as with an agreement with the laboratory performing the flow cytometry technical component.

Evidence of Compliance:
- Written record retention policy AND
- Data files with gated dot plots and histograms OR
- Written agreement with laboratory performing technical component for data storage

**NEW** 08/21/2017  
**NEW** 08/21/2017  
**NEW** 08/21/2017  

**ANP.29690** Appropriate Antibodies  
Phase II  

The panel of antibodies used is sufficiently comprehensive to address the clinical problem under consideration.

NOTE: Knowledge of the clinical situation and/or the morphologic appearance of the abnormal cells may help to guide antibody selection. Because antibodies vary in their degree of lineage specificity, and because many leukemias lack one or more antigens expected to be present on normal cells of a particular lineage, it is recommended that a certain degree of redundancy be built into a panel used for leukemia phenotyping.

Laboratories interpreting immunophenotyping data from an outside facility (i.e. technical flow laboratory) must ensure that antibody panels used for interpretation are appropriate. There
must be a process by which individuals interpreting the results can provide feedback on the appropriateness of the antibody panels used. Records of such feedback and corrective action taken when problems are identified may be incorporated into the laboratory’s quality management program.

**Evidence of Compliance:**

✓ Written procedure to select appropriate antibodies, where applicable AND
✓ Gated data plots, histograms, and patient reports

**REFERENCES**


**NEW** 08/21/2017

**ANP.29710 Gating Procedure**

**Phase II**

The laboratory interpreting flow cytometry immunophenotyping data ensures that appropriate gating techniques are used.

**NOTE:** There must be a process by which individuals interpreting the results can provide feedback on the appropriateness of the gating techniques used. Records of such feedback and corrective action taken when problems are identified may be incorporated into the laboratory’s quality management program.

**NEW** 08/21/2017

**ANP.29730 Final Report**

**Phase II**

The final report includes information about the immunophenotype of the abnormal cells, if identified, and comments necessary to facilitate the interpretation.

**NOTE:** Clinical information and available pathologic material should be reviewed to select appropriate antibodies. In cases of suspected hematolymphoid neoplasia direct morphologic correlation of all applicable sample types should be performed when possible and clinically appropriate. In cases involving leukemia and lymphoma phenotyping, correlation should be made between the immunologic and pathologic results. The flow histograms, rather than just the percentage of positive cells, should be reviewed by the interpreting pathologist in difficult cases. The peak channel and shapes of the curves may be helpful in identifying clonal populations.

**REFERENCES**


AUTOPSY PATHOLOGY

QUALITY MANAGEMENT

The purpose of this section is to determine if there is an active program of surveillance of the quality of autopsy diagnostic reports and utilization of the information obtained to enhance the quality of patient care.

Inspector Instructions:

- Sampling of the following records: intra- and extra-departmental consultations, autopsy teaching activities

- How does your laboratory communicate important autopsy findings that were undetected clinically?
- How does your laboratory incorporate autopsy findings into the institution's QM plan?

- Select a representative case and follow the entire process from receipt to final reporting

ANP.30100 Postmortem Clinicopathological Correlations Phase II

The findings of the postmortem examination are used for correlative clinicopathological teaching purposes that are designed to enhance the quality of patient care.

NOTE: The autopsy has an important role in medical education and quality improvement. The value of the final autopsy report is enhanced when the findings are used for teaching that emphasizes clinicopathological correlations. This teaching activity should be recorded and may take any of several forms, including a correlative note in the autopsy report, interdepartmental note or summary, or a clinical teaching conference.

Autopsy findings that were clinically unapparent but important should be specifically recorded in the report. Inter-departmental communication of such findings may, in addition, also be accomplished via presentation at an inter-departmental conference.

Evidence of Compliance:

✓ Representative report containing clinical pathological correlation OR
✓ Evidence of presentation at interdepartmental conference

REFERENCES

1) McPhee SJ. Maximizing the benefits of autopsy for clinicians and families. What needs to be done. Arch Pathol Lab Med. 1996;120:743-748

2) Feinstein AR. Epidemiologic and clinical challenges in reviving the necropsy. Arch Pathol Lab Med. 1996;120:749-752


Anatomic Pathology Checklist

ANP.30150 Autopsy QM

The findings from autopsies are incorporated into the institutional quality management program.

NOTE: Some examples of this could include: 1) reporting newly diagnosed infectious diseases to the hospital infection prevention committee, 2) presentation and/or review by institutional quality assurance committees, 3) reporting issues related to quality of care to risk management or sentinel event review committees.

REFERENCES

2) O’Leary DS. Relating autopsy requirements to the contemporary accreditation process. Arch Pathol Lab Med. 1996;120:763-766

**NEW** 08/21/2017

ANP.30160 Significant/Unexpected Findings

There is a written policy regarding the communication and recording of significant and unexpected autopsy findings.

NOTE: Certain autopsy findings may be considered significant and unexpected. Such findings may include, but are not limited to the following: reportable infectious diseases, heritable genetic abnormalities, procedural complications, and unexpected fatal malignancy. There should be a reasonable effort to ensure that such diagnoses are communicated to the appropriate health care provider. There must be records of the date of communication of these diagnoses.

Records of communication of these diagnoses may be included in the pathology report, or in other laboratory records.

Evidence of Compliance:

✓ Records of communications of significant/unexpected findings, including the date communicated

AUTOPSY CONSENT PROCEDURES

Inspector Instructions:

- Sampling of autopsy consent policies and procedures
How does your laboratory identify cases that are subject to medical examiner and/or coroner jurisdiction?

ANP.31070 Autopsy Consent

**Phase II**

**There is a written procedure for obtaining autopsy consent, including who may give consent.**

**Evidence of Compliance:**
- ✓ Written procedure for obtaining autopsy consent

**REFERENCES**

ANP.31100 Medical Examiner Jurisdiction

**Phase II**

**There are guidelines covering possible medical examiner or coroner jurisdiction over hospital deaths to assess the appropriateness of performing a hospital autopsy.**

**NOTE:** To assess the appropriateness of performing a hospital autopsy, the department must be familiar with applicable statutes and/or regulations that identify hospital deaths subject to medical examiner or coroner jurisdiction. The department should maintain a copy of applicable statute(s) and/or regulation(s) that identify those deaths that are in the jurisdiction of the medical examiner and/or coroner.

**Evidence of Compliance:**
- ✓ Written policy defining jurisdiction of medical examiner or coroner

**REFERENCES**

AUTOPSY ROOM

**Inspector Instructions:**
- Sampling of temperature checks/logs
- Sampling of scale/balance calibration records
- Autopsy room (clean, sufficient lighting and space)
- Photographic facilities
ANP.32200 Adequate Space and Lighting

There is sufficient space and the autopsy room is clean and well-maintained, with adequate lighting.

**NOTE:** The space should be sufficient for the workload requirements of the service. The autopsy room should be dedicated to the performance of autopsies. Other functions (e.g. storage teaching, tissue procurement) should not interfere with the safe performance of the autopsy and the cleaning of the facility.

REFERENCES

ANP.32400 Adequate Storage

Provisions are available for satisfactory storage of bodies (refrigeration or embalming).

**NOTE:** For refrigeration, the temperature should be in the range of 34-40º F (1.1-4.4º C).

**Evidence of Compliance:**
✓ Records of temperature checks

REFERENCES

ANP.32450 Scale/Balance

A scale and/or balance are provided for reliable weighing of organs.

**NOTE:** If infants or fetuses are autopsied at the institution, accuracy of balances to 1.0 gm for infants and 0.1 gm for fetuses must be verified by periodic calibration.

**Evidence of Compliance:**
✓ Record of scale calibration checks and scale in use is appropriate for the types of cases performed

REFERENCES

ANP.32500 Temperature and Ventilation

Ambient temperature and ventilation control are adequate.

**NOTE:** Airborne infectious agent control requires appropriate ventilation.

REFERENCES
Photographic equipment is available, convenient, and functional.

REFERENCES

AUTOPSY PERFORMANCE AND DOCUMENTATION

Inspector Instructions:

READ
• Sampling of records of case review/pre-autopsy discussion
• Sampling of final autopsy reports for completeness
• Record retention policy

OBSERVE
• Autopsy records (organized, readily available)

ASK
• How does your laboratory ensure prompt retrieval of cases according to diagnosis?

DISCOVER
• If problems are identified during the review of autopsy records, or when asking questions, further evaluate the laboratory’s responses, corrective actions and resolutions

ANP.33000 Clinical Record Review

Available clinical records are reviewed and/or clinical information discussed with the attending physician or clinical housestaff/fellows before conducting the autopsy.

REFERENCES

**REVISED** 08/21/2017

ANP.33025 Patient Identity Confirmation

The identity of deceased patients is confirmed, using two identifiers, prior to beginning the autopsy.

Evidence of Compliance:
✓ Written procedure for verifying patient identity during preparation for the autopsy
**Anatomic Pathology Checklist**

**Autopsy Performance**

All autopsies are performed or supervised by a pathologist who is board certified in anatomic pathology, or possesses qualifications equivalent to those required for certification in anatomic pathology.

**NOTE:** "Supervised by a pathologist" means that if the pathologist is not directly performing the autopsy he/she must be available to directly observe the entire autopsy or parts of the autopsy as needed.

**REFERENCES**
1) Cibull ML. Q&A. Northfield, IL: College of American Pathologists CAP Today. 1997;11(7):112

**Preliminary Reports**

A written preliminary report of the gross pathologic diagnoses is submitted to the attending physician and the institutional record in 90% of the cases within a reasonable time.

**NOTE:** For preliminary reports based on gross examination only, two working days is the recommended TAT. For cases with complicated dissections or rush histology, up to 4 working days is recommended. For some cases such as single organ only examination or slide consults, a Provisional Report may not be appropriate or required.

**Evidence of Compliance:**
✓ Review of TAT

**REFERENCES**

**Final Report TAT**

The final autopsy report is produced within 60 working days in 90% of the cases.

**NOTE:** The 90% threshold is used in recognition of the fact that occasional unusual cases may require more than 60 days for completion, particularly when external consultation is required. If cases exceed 60 days, the reason for the delay should be recorded and records of ongoing review of this information by the director of the service maintained.

**Evidence of Compliance:**
✓ Review of turnaround time data for the final autopsy report

**REFERENCES**
**ANP.33200** Gross and Microscopic Descriptions **Phase II**

Gross descriptions are clear and pertinent findings are adequately described. If microscopy is performed, microscopic descriptions are included in the report and a key of block and/or slide designations is included to identify the source of specific microscopic sections.

NOTE: The nature of the final autopsy report is fundamentally different from surgical pathology reports and documentation of microscopic examination is an integral and essential part. The microscopic descriptions need not be lengthy or detailed, but must be included if sections for microscopy were taken and reviewed. At a minimum, the slide/block key must include information on laterality and on specific lesions sampled. Annotated drawings and photographs are valuable tools for recording the autopsy findings, but are not adequate replacements for a text description.

REFERENCES

**ANP.33350** Final Report Content **Phase II**

The final autopsy report contains sufficient information in an appropriate format so that a physician may ascertain the patient's major disease processes and probable cause of death.

Evidence of Compliance:
✓ Review of representative autopsy report(s)

REFERENCES

**ANP.33400** Autopsy Records **Phase I**

Autopsy records are organized and readily available for review and are entered into a database to allow for retrieval of cases by diagnosis.

NOTE: At the facility's discretion, the database may be a card file, log book, or an electronic record, depending on the size of the database.

REFERENCES

**REVISED** 08/21/2017

**ANP.33500** Record Retention **Phase II**

Autopsy pathology records and materials are retained for an appropriate period.

NOTE 1: There must be a written policy for protecting and preserving the integrity and retrieval of autopsy service materials and records. The retention period shall be sufficient for use of the materials in the institution's quality improvement activities (e.g. morbidity and mortality
conferences). Policies for retention of records and materials must comply with federal, state, and local laws and regulations, and with the retention periods listed below, whichever is most stringent.

### Non-Forensic Autopsies

<table>
<thead>
<tr>
<th>Type of Record/Material</th>
<th>Retention Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession log records</td>
<td>2 years</td>
</tr>
<tr>
<td>Wet tissue (stock bottle)</td>
<td>3 months after final report</td>
</tr>
<tr>
<td>Paraffin blocks</td>
<td>10 years</td>
</tr>
<tr>
<td>Glass slides</td>
<td>10 years</td>
</tr>
<tr>
<td>Autopsy reports</td>
<td>10 years</td>
</tr>
</tbody>
</table>

### Forensic Autopsies

<table>
<thead>
<tr>
<th>Type of Record/Material</th>
<th>Retention Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body transfer and disposition records</td>
<td>Indefinitely</td>
</tr>
<tr>
<td>Wet tissue (stock bottle)</td>
<td>1 year</td>
</tr>
<tr>
<td>Paraffin blocks</td>
<td>10 years</td>
</tr>
<tr>
<td>Glass slides</td>
<td>50 years or 30 years if a DNA sample is available</td>
</tr>
<tr>
<td>Autopsy reports</td>
<td>Indefinitely</td>
</tr>
<tr>
<td>Gross photographs/images</td>
<td>Indefinitely</td>
</tr>
<tr>
<td>Body fluids and tissues for toxicology</td>
<td>1 year</td>
</tr>
<tr>
<td>Sample suitable for DNA analysis</td>
<td>Indefinitely</td>
</tr>
</tbody>
</table>

Note 2: For autopsy paraffin blocks, the CAP recommends extending the required retention period to indefinitely or for at least a generation (approximately 20 years); however, it is not a requirement of accreditation. These blocks represent the last opportunity for tissue-based biomarker, genetic, and other testing in the interest of family members and public health. Strategies, such as retaining even a select number of blocks from each case permanently or partnering with a regional biorepository for permanent storage may be considered.

Note 3: Paraffin blocks used for patient diagnostic purposes must be kept for at least 10 years. Such blocks may be released for research purposes if all of the following criteria are met:

1. For a laboratory subject to U.S. law, formal written authorization is obtained in accordance with the requirements of HIPAA if identifiable patient information is released unless, in accordance with 45CFR164.512(i), the laboratory obtains from the researcher a representation that use of the blocks protects the health information of decedents.
2. The laboratory retains sufficient blocks to support the diagnosis for the full 10-year period.
3. Provision is made for retrieval by the laboratory of any blocks or material that remain after use in research, if the blocks or material are needed for diagnostic, legal, or other legitimate purposes.
4. In the event of limited material (e.g., only one diagnostic block), tissue microarray (TMA) cores or portions of the block may be released for research or clinical trials, as long as the original lab retains control or access to the diagnostic material if clinically needed.
5. The laboratory meets other relevant requirements including but not limited to the requirements of the institution, the directives of any applicable institutional review board (IRB) or similar entity; and state and local laws and regulations.

Note 4: The wet tissue (stock bottle) refers to small portions of organs that are saved in a small container. There is no CAP requirement or recommendation for retention of whole or large portions of organs.
Evidence of Compliance:
✓ Written record retention policy

REFERENCES

AUTOPSY SAFETY

NOTE TO THE INSPECTOR: This section applies to the on-site autopsy laboratory. The inspector should review relevant requirements from the safety section of the Laboratory General checklist, to assure that the autopsy laboratory is in compliance.

The following requirements pertain specifically to the autopsy laboratory.

Inspector Instructions:

- Sampling of autopsy safety policies and procedures

- Posting of autopsy safety policies

- How does your laboratory ensure inactivation of hepatitis B virus when disinfecting tables, reusable instruments and aprons?

ANP.33650 Autopsy Facilities

Appropriate facilities, equipment and instruments are available to meet safety policies and procedures.

NOTE: Containers must be available for contaminated waste and hazardous chemicals and policies must be in place for their disposal. Equipment and apparel must be available to provide protection to eyes, hands, and skin surfaces from direct and aerosolized exposures during autopsy performance. Procedures must be in place for the disposition or cleaning of these items for re-use upon completion of the autopsy.

REFERENCES
7) http://www.cdc.gov/h1n1flu/tissuesubmission.htm
ANP.34000  Safety  Phase II

There is appropriate signage at entries to the autopsy laboratory warning of the potential presence of hazardous chemicals and biologic materials, and the need for universal precautions. Policies and procedures for contaminated cases/specimens, hazardous chemicals, etc. are written and posted in the autopsy suite.

NOTE: It is important that persons entering the autopsy laboratory be aware of potential hazards and take appropriate protective measures. Postings may include information such as details of personal protective equipment and emergency contact information.

REFERENCES

ANP.34050  Decontamination  Phase II

The safety policies and procedures provide instructions for daily cleaning, cleaning after an autopsy, proper handling of highly infectious cases, and disposal of tissues.

NOTE: Tables and reusable instruments and aprons must be adequately disinfected after use. Either autoclaving or chemical disinfection of instruments is acceptable, but the method chosen must be adequate to inactivate the hepatitis B virus.

REFERENCES

ANP.34150  Creutzfeldt-Jakob Disease (CJD) Special Handling  Phase II

There are written procedures for the special handling of cases in which Creutzfeldt-Jakob disease is suspected.

NOTE: In addition to practicing universal precautions during the autopsy, procedures must be written for the special precautions to be taken for autopsies on patients in whom the diagnosis of Creutzfeldt-Jakob disease is suspected. Pathologists should consider taking these special precautions as well in cases of (a) rapidly progressive dementia, (b) dementia with seizures, especially myoclonic seizures, and (c) dementia associated with cerebellar or lower motor neuron signs. The recommended method for handling these brains to reduce infectivity is immersion of tissue blocks in 95% formic acid. Aerosol formation must be avoided during removal of the brain.

If there is any suspicion of Creutzfeldt-Jakob disease, the autopsy should be limited to the brain, and the tissue treated as outlined below. There should be very few exceptions to this rule.

Autopsy brain tissues should be handled as follows:

The intact brain is fixed in formalin for 1-2 weeks before cutting. Tissue blocks (representative regions of neocortex, basal ganglia, and cerebellum) are taken, agitated in at least 50-100 mL of 95-100% formic acid for one hour, and then returned to formalin for two days before embedding. Alternatively, one may take the necessary diagnostic sections from the fresh brain, fix them in formalin for 2-7 days, treat with formic acid for one hour, fix again in formalin for two days, and then embed in paraffin. This method significantly reduces infectivity.

At the conclusion of the autopsy, the area of incision and other contaminated skin surfaces are washed with freshly opened undiluted commercial household bleach (sodium hypochlorite). As
sodium hypochlorite deteriorates after several months, a newly opened container should be used for each autopsy. After 10 minutes, the skin may be washed with water. All gowns, gloves, plastic sheets, and other disposable supplies are placed in a red or orange biohazard bag and incinerated. Alternatively, they may be autoclaved (132°C steam) and discarded. Hard surfaces are decontaminated with freshly opened undiluted bleach or NaOH. 1N NaOH is adequate unless there will be dilution by surface liquid, in which case 2N NaOH should be used. Bleach and NaOH are equally effective, but NaOH is preferred for steel instruments and surfaces because it is less corrosive than bleach. The disinfectant should remain in contact with the surface for at least 15 and preferably 60 minutes. Autopsy instruments should have any visible blood removed, then decontaminated with undiluted bleach or 1-2N NaOH as above. Alternatively, they may be autoclaved for one hour at 132°C and 20 psi (140 kPa).

For information on handling slides and blocks, refer to the checklist requirement in the Histology Laboratory Safety section of this checklist.

Evidence of Compliance:
✓ Written procedures for handling CJD cases

REFERENCES
2) Greenblatt, M. Q&A. In: CAP Today. 1993(March);7(3):6970. Northfield, IL: College of American Pathologists

**NEW** 08/21/2017
ANP.34160 Safe Handling of Bariatric Patients

There are written procedures for the special handling of autopsies on bariatric patients where the patient size could represent an occupational hazard to autopsy staff.

NOTE: Individual institutions may set their own specific weight or BMI limits for application of the occupational health policy. Institutions may also choose whether to use special equipment for such patients and what type(s) of equipment to use.

Evidence of Compliance:
✓ Written policy for handling of bariatric patients

ELECTRON MICROSCOPY

If the electron microscopy service is a separate and distinct laboratory in the Anatomic Pathology section, the inspector may find it more convenient to use an additional copy of the Anatomic Pathology Checklist for the inspection, answering all applicable requirements.

Inspector Instructions:

● Sampling of EM policies and procedures
Select a representative EM sample and follow the entire process from specimen receipt to final result reporting.

**QUALITY CONTROL**

**ELECTRON MICROSCOPY SAMPLE PREPARATION**

**Inspector Instructions:**

- Sampling of blocks (adequately identified)
- Sampling of slides and electron micrographs (quality, adequately identified)

**Analyze**

- How does your laboratory ensure specimen identity throughout testing?
- How does your laboratory ensure appropriate tissue areas are selected for EM examination?

**ANP.52100**  
**Tissue Section Review**  
Phase II  
Sections of embedded tissue (face sections) are reviewed by the pathologist to ensure that appropriate areas are selected for electron microscopic examination.

**ANP.52150**  
**Tissue Section Review**  
Phase I  
Where appropriate, one micron sections (prepared after trimming or ultra thin sectioning) are also reviewed by the pathologist to ensure that appropriate areas have been selected.

*NOTE: An example might be a mesenchymal neoplasm where confusion between tumor cells and admixed stromal elements could occur.*

**ANP.52300**  
**Slide/Electron Micrograph Quality**  
Phase II  
Examine several slides and electron photomicrographs. They are of sufficient quality for proper interpretation of ultrastructural changes.
INSTRUMENTS AND EQUIPMENT

Inspector Instructions:

- Sampling of EM maintenance and repair records
- Sampling of EM calibration records
- Sampling of ultramicrotomes (condition)
- Instrument/equipment records (promptly retrievable)

ANP.53000 Adequate Ultramicrotome

Ultramicrotomes are adequate and in good repair.

ANP.53100 EM Maintenance

The electron microscope is under a regular, documented maintenance and repair system.

ANP.53150 Magnification Calibration

The magnification is calibrated after major maintenance, as appropriate.

Evidence of Compliance:
✓ Written procedure for calibration of magnification AND
✓ Records of calibration

REPORTS

Inspector Instructions:

- Sampling of EM reports (signed, appropriate correlations)

ANP.54000 Report Format

The report format provides for correlation with routine light microscope and other (e.g. immunohistochemical and immunofluorescent) studies.

ANP.54050 Report Signature

All reports are signed by the pathologist.
NOTE: Where diagnostic reports are generated by computer or telecommunications equipment, the actual signature or initials of the pathologist may not appear. It is nevertheless essential that the laboratory have a procedure that ensures and provides a record that the responsible pathologist has reviewed and approved the completed report before its release.

**RECORDS, FILES AND PHOTOGRAPHS**

**Inspector Instructions:**

- Specimen retention policies and procedures
- Tissue storage (readily retrievable)

**REVISED** 08/17/2016
ANP.55100 Record Retention

**Phase II**

Electron microscopy records and materials are retained for an appropriate period of time.

NOTE: Policies for retention of records and materials must comply with federal, state, and local laws and regulations, and with the retention periods listed below, whichever is most stringent.

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<td>2 weeks after the final report</td>
</tr>
<tr>
<td>Resin blocks</td>
<td>10 years</td>
</tr>
<tr>
<td>Pictures and reports</td>
<td>10 years</td>
</tr>
</tbody>
</table>

Evidence of Compliance:
✓ Written specimen retention policy

**LABORATORY SAFETY**

NOTE TO THE INSPECTOR: The inspector should review relevant requirements from the Safety section of the Laboratory General checklist, to assure that the electron microscopy laboratory is in compliance.

The following requirements pertain specifically to the electron microscopy laboratory.
Inspector Instructions:

- Sampling of EM safety policies and procedures
- Sampling of radiation leakage check records

ANP.57000 EM Safety

Safety policies and procedures are established for electron microscopy sample preparations and instrument operation.

ANP.57070 Hazardous Chemicals

Procedures are adequate for the safe handling and disposal of osmium tetroxide, epoxy resins, and other hazardous chemicals.

**NOTE:** Osmium tetroxide is volatile and toxic. Exposure to its vapor can lead to blindness and serious respiratory complications. There must be a clearly stated and posted procedure addressing accidental spillage. Material for dealing with such a spill should be readily available, e.g. corn oil and an absorbent such as saw dust. For US laboratories, disposal of osmium tetroxide must be according to OSHA regulations for toxic compounds. Epoxy resins are highly allergenic, and direct contact should be avoided. The laboratory must have documentation that personnel have been trained in the handling of these materials.

**REFERENCES**


ANP.57100 X-Ray Leakage

The electron microscope is checked for x-ray leakage at the time of installation and after major repair.

**NOTE:** Periodic monitoring is also required for devices operating at 70,000 volts or above. Records of radiation leakage checks must be maintained.

**IN VIVO MICROSCOPY (IVM)**

This section applies to In Vivo Microscopy (IVM) technologies for clinical practice, in which a physician views digitized or analog video or still image(s) or other data, and renders an interpretation that is included in a formal diagnostic report or in the patient record.

This checklist section applies to the application of IVM technologies for:

- Intra-procedural guidance of biopsy or tissue excision
- Surgical (intraoperative) guidance
- Primary evaluation and/or diagnosis
- Screening
- Intra- or extra-institutional consultation
• Post-procedural evaluation and/or diagnosis

Examples of IVM technologies include:

• Confocal microscopy
• Optical coherence tomography (OCT)
• Multiphoton microscopy
• Optical spectroscopy and spectroscopic imaging

This checklist section is NOT applicable to:

• Informal reviews without formal reporting
• Educational or research-only use of these systems

The providers of IVM services (acquisition and interpretation of IVM datasets) may be located entirely within a clinical department, the pathology department (laboratory), or may represent collaboration between a clinical department and the laboratory. The responsibility for checklist requirements rests with the IVM service. The IVM service must ensure that records to demonstrate compliance are available for review by the CAP inspection team, whether the records are located within a clinical department, the laboratory, or both.

DEFINITION OF TERMS

In vivo microscopy (IVM) dataset — Digitized or analog video or still images or other data (e.g. spectroscopic data) generated by an IVM system that is utilized to render a diagnostic interpretation or to guide procedures.

Confocal microscopy — A non-invasive, high-resolution optical imaging technique that excludes out-of-focus light, enabling 'optical sectioning' and tomographic imaging of specimens that are thicker than the focal plane. Confocal microscopy can be performed directly on tissue or through an endoscope (confocal laser endomicroscopy or CLE). The latter may be either endoscopy-based (eCLE device built into the endoscope) or probe-based (pCLE device in a probe with fiber-optic cable for image transmission that can be inserted into the accessory port of a standard endoscope). Injection or topical application of a contrast is usually required.

Optical coherence tomography (OCT) — A non-invasive, high-resolution optical imaging technique that provides real-time 2-D and 3-D images of tissue architecture in vivo by mapping reflectivity of light waves focused onto the tissue. Variants of OCT technology include: Optical Frequency Domain Imaging (OFDI) and Full Field OCT (ff-OCT). Contrast agents are usually not required.

Multiphoton microscopy — A high-resolution fluorescence imaging technique that provides 2-D and 3-D tomographic images based on non-linear optical effects. It is also known as 2-photon, 3-photon, or nonlinear microscopy. Contrast agents are usually not required.

Optical spectroscopy — An optical technique that assesses the way in which the spectrum of light is changed by interaction with tissue. Examples include diffuse reflectance spectroscopy, fluorescence spectroscopy, and Raman spectroscopy. Measurements made with any of these techniques can be translated into false color spectroscopic images (optical spectroscopic imaging). Contrast agents are usually not required.

Additional information on IVM may be obtained using the CAP Pathology Resource Guide: In Vivo Microscopy.

Inspector Instructions:

- IVM policies and procedures
- Sampling of reports generated from reviews of datasets obtained by IVM
- Sampling of records for personnel training
- Sampling of records of rejected IVM datasets and notification of clinical personnel
- Sampling of records documenting verbal reports
- Completed validation study(ies) with review and approval
- Quality management plan including IVM

- Review summary statements and supporting validation data to confirm that studies were performed using an adequate number of cases, data was evaluated, and summary statement was approved prior to implementation. If the data showed discordances or unacceptable variations, investigate how they were resolved.

QUALITY MANAGEMENT AND VALIDATION

ANP.57150  IVM Quality Management Program  Phase I

IVM services are included in the laboratory's or institution's quality management plan.

NOTE: The specific components of the quality management plan are left to the discretion of the IVM service. Examples include monitoring the quality of clinical information provided to ensure it is adequate for the intended use of the system, and monitoring disparities between initial IVM dataset interpretation and final pathology diagnosis.

Evidence of Compliance:
✓ Written quality management plan including IVM

ANP.57200  IVM Appropriate Use  Phase I

There are written policies to ensure that the system(s) used for IVM are appropriate for the intended clinical use.

NOTE: There should be a policy statement in the procedure manual that identifies appropriate use cases.

ANP.57250  IVM System Validation  Phase I

The IVM service performs validation studies before the technology is used for the intended diagnostic purpose(s).

NOTE: The specific components of the validation study are left to the discretion of the IVM service. However, studies should be performed using an adequate number of cases, data should be evaluated, and a summary statement provided prior to implementation. Records of how discordant data or unacceptable variations from the expected were resolved are required.

As general guiding principles, the validation process should:
- Closely emulate the real-world clinical environment and involve tissue types and clinical settings relevant to the intended use(s)
- Be carried out by or under the supervision of a physician(s) adequately trained to use the IVM system
• **Encompass the entire IVM system, with reevaluation if a significant change is made to a previously validated system.**

**Evidence of Compliance:**
✓ Records of completed validation study with supporting validation data, review and approval

**ANP.57300 IVM User Training**

**Phase I**

There are training records for all users of the IVM system.

**NOTE:** Users of the IVM system include individuals responsible for IVM dataset interpretation. Training may be a coordinated process between a clinical department and the laboratory, depending on the individual needs of the organization. Training records may be part of the credentialing process at a hospital or other health care facility or may be part of the pathology department's records. Because the field is rapidly evolving, consideration should be given to continuous learning opportunities.

**Evidence of Compliance:**
✓ Records for training of personnel on the use of the IVM system for diagnostic purposes

**ANP.57350 IVM System Function Checks**

**Phase II**

Regular function checks are performed and records maintained on the IVM system/instrument by the IVM service.

**NOTE:** Function checks include confirmation that an instrument or item of equipment operates according to manufacturer's specifications before routine use, at prescribed intervals, or after minor adjustment. Depending on the type of system, function checks may include calibration.

**Evidence of Compliance:**
✓ Written procedure for function checks and calibration, as required

**ANP.57400 Method Performance Specifications Availability**

**Phase II**

The current IVM methods and all significant changes to analytical methodology, including performance specifications and supporting validation data, are maintained by the IVM service.

**NOTE:** Records should include, but are not limited to, components of IVM equipment, software systems, image viewing systems, and digital image analysis systems. The IVM service must also provide data on clinical performance claims to clients upon request, if clinical performance claims are made. The IVM service may at its option require clients to agree to treat such data as confidential and not to share such data with any other party except as required by law.

**Evidence of Compliance:**
✓ Records of changes to analytical methodology

**REFERENCES**


**IVM ANALYSIS**

**ANP.57450 Clinical Information Access**

**Phase I**

The individual reviewing cases has access to pertinent clinical information at the time of IVM dataset review.
NOTE: In addition to the usual demographic and clinical information, the individual reviewing cases should have access to information on any special patient preparation and the type of imaging or contrast agent used, if any.

ANP.57500  IVM Confidentiality and Security  Phase II
There are written procedures to ensure that sites engaging in IVM provide reasonable confidentiality and security.

NOTE: Procedures might include message security, system and user authentication, activity logs, encryption, and access restrictions.

For laboratories subject to US regulations, the procedures must be in conformance with HIPAA requirements.

ANP.57550  IVM Dataset Identification  Phase II
There is a written procedure to ensure correct patient and IVM dataset identification.

NOTE: There are multiple ways to accomplish positive patient identification, including verbal communications, images of identifiers, etc.

ANP.57600  IVM Dataset Acceptability Criteria  Phase II
There are written criteria for acceptability of IVM datasets for the intended clinical application.

NOTE: IVM datasets must be of adequate quality for the intended clinical application. This requirement does not imply that all "unsuitable" datasets are discarded or not interpreted. However, there must be a mechanism to notify clinical personnel responsible for patient care when dataset quality is unacceptable for interpretation or if sub-optimal dataset quality impacts the quality of interpretation, with records of notification maintained.

IVM REPORTS

ANP.57650  IVM Report Review  Phase II
IVM reports are reviewed and signed by the physician who interprets the IVM datasets.

NOTE: The inspector must review a sampling of reports issued since the previous on-site inspection, representing at least the most common types of IVM datasets interpreted in the IVM service. When diagnostic reports are generated by computer or telecommunications equipment, the actual signature or initials of the physician may not appear on the report. It is nevertheless essential that the IVM service have a procedure that ensures and records that the responsible physician has reviewed and approved the completed report before its release. In the occasional situation when the diagnosing physician is not available for timely review and approval of the completed report, there may be a procedure for review and approval of that report by another physician. In that circumstance, the names and responsibilities of both the physician who made the diagnosis and the physician who performed final verification must appear on the report.

Evidence of Compliance:
✓ Signed IVM reports

ANP.57700  IVM Final Report Elements  Phase II
The final report includes the dataset source, the imaging technology, as well as any limitations of the result, if applicable.

**NOTE:** In addition to the requirements above, the IVM system used and name of the vendor may be included in the report to provide users of the report with access to more information about the IVM system. For locally developed IVM systems, this may be in the form of a link to more information about the system on the internet. If a scoring system is used in interpretation, it should be referenced in the report.

The format of the final report is up to the medical director. The IVM report may be part of an encompassing surgical pathology report or stand on its own. Because the discipline is so visually-based, consideration should be given to including IVM images in the final report that reflect the final interpretation or pertinent findings.

**Evidence of Compliance:**
✓ IVM reports containing appropriate report elements

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**ANP.57750 IVM Verbal Reports**

If verbal reports are given, the physician speaks directly with medical/surgical personnel performing the IVM procedure and maintains a record of the verbal report.

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**ANP.57800 IVM Verbal Report Patient ID**

The patient’s identification is checked and confirmed before delivery of a verbal report.

**Evidence of Compliance:**
✓ Written procedure for verbal reporting of IVM dataset interpretation results

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**ANP.57850 IVM Dataset Retention**

There is a written policy for retention of IVM datasets used for interpretation or diagnosis.

**NOTE:** IVM datasets must be retained for 10 years (data must be retrievable for this period). IVM datasets are stored as digital files. Storage of the entire original data is not required. Stored data should include, at a minimum, the data (original data or derived data) used for interpretation or diagnosis.