Training in Oncology Pathology

Ritu Nayar, MD
Professor and Vice Chair of Pathology
Northwestern University, Feinberg School of Medicine
Chicago, IL
email: r-nayar@northwestern.edu

Disclosure

- Nothing to disclose

Work Force Summit 2013

- College of American Pathologists (CAP) organized in December 2013
- Co-sponsored by the American Board of Pathology (ABP), American Society of Clinical Pathologists (ASCP), Association of Pathology Chairs (APC) and United States and Canadian Society of Pathology (USCAP)
- All of the subspecialty societies in pathology also sent representatives

Work Force Summit 2013

- Several statements were issued as a result regarding the needs of the pathology community to provide education and training to meet the future of pathology
  - WHAT
    - Molecular diagnostics and population medicine
    - Laboratory management and quality improvement practices
  - HOW/WHEN
    - how much education is required and what can be “removed” to accommodate “new” knowledge and practice change
- Action Items
  - Resources for training in genomics/ informatics
  - Survey developed/deployed for graduates regarding the “match of training and practice” in all areas

Pathology Residency Training

- Training in Anatomic and Clinical Pathology (AP/CP)
  - 4 years
  - Includes oncologic pathology
    - surgical pathology, hematopathology, cytopathology and autopsy pathology
- Anatomic Pathology (AP) or Clinical Pathology (CP) only
  - 3 years for either AP or CP

Competencies and Milestones Residency/Fellowship Training

6 ACGME Competencies

- Patient Care
- Medical Knowledge
- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-Based Practice

- Semiannual Milestone Reporting

Current Residency Training in Oncologic Pathology

- Utilization of standardized synoptic reports for all cancer resections
  - Based on the AJCC staging parameters
  - Standardized format/templates utilized nationwide (and internationally)
- Minimally invasive cytologic sampling for advanced disease diagnosis/prognosis and therapeutic decision making
- Hematologic malignancies
- Screening for cancer (Pap test, hemocult for colon cancer)
- KEY: correlation with ancillary studies- next generation sequencing (NGS), immunohistochemistry (IHC), In situ hybridization (FISH), flow cytometry, cytogenetics

Tumor Staging Reporting on Surgically Resected Tumors

AJCC Cancer Staging

- American Joint Commission on Cancer
- Staging Manual, now in its 8th Edition
  - Experts in all organ systems contribute
- Creation of synoptic reports in concert with the College of American Pathologists
- Tumor Registry Data collection by organ system
  - Site, laterality (if applicable), procedure, histologic type, histologic grade, margins (if applicable) TNM stage (**T** – tumor **N**– lymph node and **M** – metastasis) common to most synoptic reports

CANCER PROTOCOL TEMPLATES

In accordance with the American Joint Committee on Cancer (AJCC), the CAP recommends that hospitals and groups start using the CAP Cancer Protocols containing tumor staging from the 8th edition of the *AJCC Cancer Staging Manual* on January 1, 2018.

CAP Cancer Protocol Templates provide guidelines for collecting the essential data elements for complete reporting of malignant tumors and optimal patient care.

The Cancer Biomarker Reporting Templates are intended to provide reporting guidance for commonly ordered biomarkers and are not currently required for accreditation purposes.

- Read the cancer protocol **FREQUENTLY ASKED QUESTIONS**.
- Download the **DEFINITION OF SYNOPTIC REPORTING WITH EXAMPLES**.
- Visit the **CANCER PROTOCOL RESOURCES** webpage to read about current issues with units of measurements.
- Integrate the Cancer Protocol & Biomarker Templates into your LIS workflow. Learn about our **eCC** (electronic Cancer Checklists) and **eFRM** (electronic Forms and Reporting Module)
- Download a compressed file containing of all **CURRENT CAP CANCER PROTOCOLS**.
- The January 2018 release contains 28 revised protocols, two revised biomarker templates, and one new biomarker template. The majority of the revisions are minor, such as formatting or corrections and clarifications to the explanatory notes, and did not change the formal release date of the documents. The most significant changes were to the Breast Invasive and DCIS protocols, the Bone Marrow protocol and the Breast Biomarker Reporting template. The CAP now offers a new optional biomarker template for DNA Mismatch Repair. Download the **SUMMARY OF REVISIONS** including modification information.
- Download the **SUMMARY OF REQUIRED ELEMENTS**.
- View the new **PROTOCOL COVERPAGE FORMAT** designed to provide improved usage requirements.
- Provide your feedback about the CAP cancer protocols to **CPROTOC@CAP.ORG.**

Current and previous cancer protocols and cancer biomarker reporting templates can be downloaded using the links in

Revised Cancer Protocols and Electronic Cancer Checklists now available

The revised protocols now incorporate changes to tumor stage classification from the AJCC 8th edition Cancer Staging Manual and updated WHO classifications.

READ MORE »

Carcinoma of the Colon or Rectum

Specimen: Terminal ileum, cecum, appendix, ascending colon
Procedure: Right hemicolectomy
Tumor site: Cecum Tumor size: 8.5 x 4.9 x 3.6 cm
Macroscopic tumor perforation: Not identified
Histologic type: Adenocarcinoma
Histologic grade: High grade (poorly differentiated)
Microscopic tumor extension: Tumor penetrates to the surface of the visceral peritoneum (serosa)
Margins:
- Mesenteric: Involved by invasive carcinoma
- Proximal: Uninvolved by invasive carcinoma
- Distal: Uninvolved by invasive carcinoma

Treatment effect: No prior treatment
Lymph-vascular invasion: Present
Perineural invasion: Not identified
Tumor deposits (discontinuous extramural extension): Present
- Specify number of tumor deposits identified: 3

Pathologic staging (pTNM):
- Primary Tumor (pT): pT4a
- **Regional Lymph Nodes (pN): pN1b**
- **Number lymph nodes examined: 25**
- **Number lymph nodes involved: 3**

Distant metastases (pM): pMn/a

Synoptic Reporting and AJCC Staging

Colon, right hemicolectomy:

Invasive adenocarcinoma, 3.4 x 3.0 cm involving muscularis propria

All margins negative

No lymphatic invasion

No metastatic tumor identified

NOT ACCEPTABLE AS SYNOPTIC STYLE REPORTING: NOT ALL ELEMENTS ARE PRESENT AND DIAGNOSTIC PARAMETER PAIR IS ABSENT

Cytologic Examination for Advanced Disease and Cancer Screening

- Fine Needle Aspiration Biopsy (FNA)
  - Adequacy for image guided biopsies
  - Performance of FNA for palpable masses
- Body cavity fluids (CSF, pleural, peritoneal, pericardial) brushings and washings

- Cancer Prevention
  - Pap test/ HPV testing for cervical cancer

Current Residency/Fellowship Training in Oncologic Pathology

- Utilization of templates and standardized reporting in both academic centers and private practices

- Reporting utilizes many different laboratory information systems, but all interface with EMR (such as EPIC) to allow for transmission of the information from institution to institution quickly and easily

Graduated Responsibility

- Residents are expected to progress through training to be able to provide competent and independent practice upon completion of training
  - Review of slides, drafting reports and diagnoses – simulated sign out of cases
    - Applies to both anatomic and clinical pathology cases
  - Performance of FNA or bone marrow aspiration biopsies
- Entrustable Professional Activities proposal for Pathologists (Academic Pathology, 2017)

Communication of Results

- Written/Verbal
- Preliminary/Final
- Unexpected findings and reporting
  - Documentation (date and time and to whom)
- Communication Skills are CRITICAL to successful patient management
- Amended Reports vs Addendum
- Education for residents and fellows in this area through simulations (if necessary) and in daily practice (with feedback)

  - *Huang EC et al, Critical Diagnoses in Surgical Pathology: A Retrospective single-institution study to monitor guidelines for communication of urgent results, Am J Surg Pathol 2009 July; 33(7):1098-102.*

Home
About ADASP
Meetings
Membership
News
Job Opening: Gastrointestinal Pathologist Position
2017 Awards
2016 Awards
Job Opening: Director Of Anatomic Pathology
Job Opening: Board Certified Cytopathologist
Job Opening: Cytopathologist or Gynecologic Pathologist
Job Opening: Head & Neck Pathology Fellowship, University of Buffalo, Erie Co. Med. Ctr.

Leading Pathology Organizations Provide Recommendations for Systematic and Timely Secondary Reviews of Surgical Pathology Cases, Leading to More Accurate Diagnoses and Improved Patient Care

Northfield, IL—The College of American Pathologists (CAP) and the Association of Directors of Anatomic and Surgical Pathology (ADASP) announced the joint release of a new evidence-based guideline to provide recommendations for secondary and timely reviews of surgical pathology and cytology cases to improve patient care. The guideline, "**INTERPRETIVE DIAGNOSTIC ERROR REDUCTION IN SURGICAL PATHOLOGY AND CYTOLOGY**," has been posted as an Early Online Release publication on the *Archives of Pathology & Laboratory Medicine* website.

"Unlike other phases of the test cycle, the analytic phase of surgical pathology and cytology involves the inherent judgment of the pathologist at the time of slide interpretation," said Raouf Nakhleh, MD, FCAP, guideline co-chair representing the CAP and surgical pathologist at the Mayo Clinic in Jacksonville, Florida. "To assist anatomic pathologists, we developed five high-level recommendations and expert consensus statements to formalize a process for the review of surgical pathology and cytology cases, which pathologists can implement as added quality measures into their institutions quality assurance programs."

The key points of the guideline include:

- The analytical phase of surgical pathology and cytology involves inherent judgment of the pathologist at the time of slide interpretation.
- The analytic process (interpretive diagnoses) checks are less formally defined than in the pre- and post-analytical phases, but may include a second review of case material, in addition to ancillary studies and clinical correlation.
- Consistent adoption of secondary and timely case reviews will help detect and prevent diagnostic interpretive errors, leading to more accurate diagnoses and improved patient care.

Volume 140, Issue 1 (January 2016)

< Previous Next >

Current Issue
Available Issues
Early Online Release

◂ Previous Article Volume 140, Issue 1 (January 2016) Next Article ▸

Add to Favorites Share Article Export Citations Track Citations (RSS | Email) Permissions

Full-text PDF Supplemental Material

Article Citation:
Raouf E. Nakhleh, Vania Nosé, Carol Colasacco, Lisa A. Fatheree, Tamera J. Lillemoe, Douglas C. McCrory, Frederick A. Meier, Christopher N. Otis, Scott R. Owens, Stephen S. Raab, Roderick R. Turner, Christina B. Ventura, and Andrew A. Renshaw (*2016*) Interpretive Diagnostic Error Reduction in Surgical Pathology and Cytology: Guideline From the College of American Pathologists Pathology and Laboratory Quality Center and the Association of Directors of Anatomic and Surgical Pathology. Archives of Pathology & Laboratory Medicine: January 2016, Vol. 140, No. 1, pp. 29-40.

https://doi.org/10.5858/arpa.2014-0511-SA

SPECIAL ARTICLES

Interpretive Diagnostic Error Reduction in Surgical Pathology and Cytology: Guideline From the College of American Pathologists Pathology and Laboratory Quality Center and the Association of Directors of Anatomic and Surgical Pathology

Raouf E. Nakhleh, MD; Vania Nosé, MD, PhD; Carol Colasacco, MLIS, SCT(ASCP); Lisa A. Fatheree, SCT(ASCP); Tamera J. Lillemoe, MD; Douglas C. McCrory, MD, MHS; Frederick A. Meier, MD; Christopher N. Otis, MD; Scott R. Owens, MD; Stephen S. Raab, MD; Roderick R. Turner, MD; Christina B. Ventura, MT(ASCP); Andrew A. Renshaw, MD
From the Department of Laboratory Medicine and Pathology, Mayo Clinic, Jacksonville, Florida (Dr Nakhleh); the Department of Pathology, Massachusetts General Hospital, Boston (Dr Nosé); Governance (Ms Colasacco) and the Pathology and Laboratory Quality Center (Mss Fatheree and Ventura), College of American Pathologists, Northfield, Illinois; Hospital Pathology Associates, Abbott Northwestern Hospital, Minneapolis, Minnesota (Dr Lillemoe); the Department of Medicine, Duke University, Durham, North Carolina (Dr McCrory); the Department of Pathology and Laboratory Medicine, Henry Ford Health System, Detroit, Michigan (Dr Meier); the Department of Pathology, Baystate Medical Center, Springfield, Massachusetts (Dr Otis); the Department of Pathology, University of Michigan Medical School, Ann Arbor (Dr Owens); the Department of Pathology, Memorial University of Newfoundland/Eastern Health Authority, St John's, Newfoundland, Canada (Dr Raab); the Department of Pathology, St John's Health Center, Santa Monica, California (Dr Turner); and the Department of Pathology, Homestead Hospital, Homestead, Florida (Dr Renshaw). Dr Meier is currently with the Department of Pathology, Massachusetts General Hospital, Boston.

Quality Management Example for Pathology

- Root Cause Analysis
  - Residents and fellows in pathology should have the opportunity to be involved in the analysis of an “error” which may begin with the submission of a specimen
  - Many steps along the way to examine to determine where an error occurred and education of staff and physicians to prevent recurrence of a particular error is extremely important

Internal and External Expert Consultation

- Tools are currently available in pathology for “real time” consultation including whole slide imaging (WSI) and telepathology

- Training residents and fellows depends heavily on interpersonal and communication skills for reporting results of intraoperative consultations (both verbal and written) and the ability to be clear and concise

Integrated Pathology Informatics Enables High-Quality Personalized and Precision Medicine

Digital Pathology and Beyond

Zoya Volynskaya, PhD; Hung Chow, BSc, MLT; Andrew Evans, MD, PhD; Alan Wolff, MLT; Cecilia Lagmay-Traya; Sylvia L. Asa, MD, PhD

• ***Context.***—**The critical role of pathology in diagnosis, prognosis, and prediction demands high-quality subspecialty diagnostics that integrates information from multiple laboratories.**

Objective.—**To identify key requirements and to establish a systematic approach to providing high-quality pathology in a health care system that is responsible for services across a large geographic area.**

Design.—**This report focuses on the development of a multisite pathology informatics platform to support high-quality surgical pathology and hematopathology using a sophisticated laboratory information system and whole slide imaging for histology and immunohistochemistry, integrated with ancillary tools, including electron microscopy, flow cytometry, cytogenetics, and molecular diagnostics.**

Results.—**These tools enable patients in numerous geographic locations access to a model of subspecialty pathology that allows reporting of every specimen by the right pathologist at the right time. The use of whole slide imaging for multidisciplinary case conferences enables better communication among members of patient care teams. The system encourages data collection using a discrete data synoptic reporting module, has implemented documentation of quality assurance activities, and allows workload measurement, providing examples of additional benefits that can be gained by this electronic approach to pathology.**

Conclusion.—**This approach builds the foundation for accurate big data collection and high-quality personalized and precision medicine.**

(*Arch Pathol Lab Med.* doi: 10.5858/arpa.2017-0139-OA)

The scope of modern pathology encompasses many classical disciplines and technologies, including clinical biochemistry, laboratory hematology, medical microbiology, anatomic pathology, and laboratory molecular genetics.[1] Progress in all of these areas has resulted in structural variability of pathology departments throughout the world. The resulting complexities of reporting responsibilities and financial drivers have confounded a world where electronic data are a major driver.

The importance of pathology as the basis of diagnostic medicine has been recognized for more than a century and who recognized that, "As is our pathology, so is our practice; what the pathologist thinks today, the physician does tomorrow."[2] However, for many reasons, pathology has had challenges in maintaining its profile and recruiting sufficient interest to support the number of pathologists required to adequately serve the need in many countries.[3–7] The challenge facing underserviced areas with shortages of expertise has served as a driver of innovation to provide high-quality diagnostics in a fiscally responsible fashion.

The 21st century has seen the implementation of transformative technologies that have impacted laboratory

Consultation

- Continuum between academic practice and community practice for assistance with cancer diagnosis beyond “real time”
- Referral patterns and development of consultation networks for subspecialty support

Multidisciplinary Tumor Conference

- Interdisciplinary team approaches to cancer diagnosis and treatment are part of the program requirements for pathology training program accreditation
- Tumor Board presentations take many formats, but most institutions including radiology and pathology results in discussion of patient treatment planning
- Residents and fellows are expected to perform this function so that they are competent when graduated
- Tumor synoptic reports and presentation of pathology findings (whether review of slides or of reports) included in discussion for patient treatment decision making

Diagnostic Accuracy in Cancer Care

- Institutional/hospital requirements for secondary review when a new diagnosis of cancer is to be rendered or second opiion on outside pathology
- Quality Management/Quality Improvement
  - Monthly conferences and review of cancer cases for completeness, accuracy (including typographical errors)
  - Residents/fellows to do review with faculty and present results
  - Can include review of actual glass slides for telepathology, frozen section or cytologic diagnosis

Diagnostic Accuracy in Cancer Care

- Pathologists serve on hospital committees (including cancer committee)
- Tumor Registry utilization of pathology reports
- All can be done in community practice as well as academic practice

Summary

- Training in Oncologic Pathology
  - Reporting standards-complete and accurate,
  - Communication (verbal/written) clear, timely, concise
  - Participation in multidisciplinary conferences is critical to good patient care
  - Integration of ancillary studies and companion diagnostics is crucial in the era of personalized medicine
  - Quality management activities to reduce error
- Currently aims to prepare trainees similarly for community and academic pathology practice
  - Should this be the future state?