Saint Louis University Hospital
Cytopathology Rotation

Faculty & Course Director:

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Rotation Periods: 1 (one) calendar month; total of 3 (three) calendar months over course of training

GENERAL ORGANIZATION
The primary objective of the Cytopathology rotation is to produce competent practicing pathologists with a sound knowledge base in cytology by providing educational experiences. The Saint Louis University Hospital Section of Cytopathology fulfills this objective by providing cytologic case materials for study in an environment conducive to participatory learning and independent inquiry.

Emphasis is placed on the study and appreciation of cytopathological processes using lectures, teaching and microscopic sessions, audiovisual aids, Kodachrome and reference laboratories, cytologic journals, cytologic-histologic correlations, teleconferences, and exposure/participation in multiple continuing education exercises. An extensive file of abnormal and neoplastic slides is maintained.

ROTATION OBJECTIVES:

- The trainee should be able to view any Gyn Pap test and properly classify by The Bethesda System 2001 utilizing both conventional smear and liquid-based preparations. When given a 10 slide quiz, 90% of the slides should be able to be properly classified. (Competencies addressed: PC, MK, PBLI, IPCS, SBP)-see below at the end of this section for abbreviations.
- Able to list the common pathologic etiologies as well as identify them as they apply to gynecological samples. (PC, MK)
- Able to suggest a variety of methods for confirmation of HPV (human papilloma virus) and other infective agents utilizing histochemical, immunochemical and molecular diagnostic techniques in a cost-effective manner for both gynecological and non-gynecological samples. (PC, MK, PBLI, IPCS, P, SBP)
- Able to recite the criteria for unsatisfactory Pap tests and the quality indicators for the Bethesda 2001 terminology. (PC, MK, PBLI)
- Able to explain proper performance of a Pap test for a clinician utilizing both conventional smear and liquid-based collection methods. ( PC, MK, PBLI, IPCS, P)
- Able to detail potential slide labeling discrepancies and list differences between conventional smear and ThinPrep® Pap test preparations. (PC, MK, PBLI, SBP)
- Able to give causes for common slide artifacts (i.e.: cornflakes, finger cells, etc.) for both conventional smears and liquid-based systems. (PC, MK, PBLI, SBP)
- Able to give reasonable suggestions for clinical follow-up based upon Pap test diagnoses. (PC, MK, PBLI, IPCS, P, SBP)
- The trainee should be able to view any body site cytology and properly classify as negative, inflammatory, atypical/suspicious, neoplastic, or malignant for both aspiration and exfoliative specimens. (When given a slide quiz, 90% of the slides should be able to be properly classified.) (PC, MK, PBLI, IPCS, SBP)
- Able to list the common inflammatory etiologies as well as identify them in reference to body site of the nongynecological sampling. (PC, MK, PBLI)
- Able to recite the criteria for limited and unsatisfactory smears dependent on body site and be able to communicate them in a concise manner. (PC, MK, PBLI, IPCS, P, SBP)
- Able to explain proper performance of FNA for a clinician. (PC, MK, PBLI, IPCS, P)
- Able to recite potential FNA procedural complications to a patient. (PC, MK, IPCS, P)
- Will have performed a minimum of 25 diagnostic FNAs on patients, during cumulative 3 month rotation experience. (PC, PBLI)
- Able to properly triage an FNA specimen based upon a "provisional diagnosis". (PC, MK, PBLI, SBP)
- Able to explain and demonstrate proper triage of specimens for ancillary testing based upon rapid interpretation of cytological specimens (especially image-guided FNAs but not limited to) and final preparations. (PC, MK, PBLI, IPCS, P, SBP)
- Able to give reasonable suggestions for clinical follow-up based upon FNA or other nongynecological cytology result. (PC, MK, PBLI, IPCS, SBP)
- Able to list and explain choices for continuous quality assurance monitors for both gynecologic and nongynecologic cytology specimens. (PC, MK, PBLI, IPCS, P, SBP)
- Able to list the components of the FNA procedure and interpretations that are professionally billable by the pathologist. (IPCS, P, SBP)
- Able to identify a contaminant and know how to confirm it and deal with the problem for quality assurance and diagnostic purposes. (PC, MK, PBLI, IPCS, P)
- Able to identify and demonstrate steps in managing potential complications of FNA such as pneumothorax, arterial bleed, fainting, and needle-stick injury. (PC, MK, PBLI, IPCS, P)
- Able to prioritize work, dealing with urgent cases first. (PC, PBLI, IPCS, P, SBP)
- Able to explain the importance of routinely checking all prior and subsequent histology on cytology cases for quality assurance. (PC, MK, PBLI, IPCS, P, SBP)

Abbreviations for six general competencies:
- **PC** = Patient care
- **MK** = Medical knowledge
- **PBLI** = Practice-based learning and improvement
- **IPCS** = Interpersonal and communication skills
- **P** = Professionalism
- **SBP** = Systems-based practice

See appendix 1 for other general competency objectives.
SPECIFIC OUTCOMES BASED REQUIREMENTS

1. Patient Care:
   - Residents gather essential and accurate clinical information about the patients on whom they receive cytology specimens and fine needle aspirations. This will include review of chart, previous pathologic and cytologic specimens, radiologic reports and films. It also includes discussion with attending physician, clinician performing the procedure and medical or surgical housestaff.
   - Residents make informed decisions regarding diagnostic work up including: selection of specimen (smears) for special stains, immunostains, flow cytometry, and cell block (histology) material.
   - These decisions are based on the patient's clinical history, differential diagnosis established by the attending physician and the radiologist, knowledge derived from books, relevant and recent journals, internet-based searches and consultation with attending pathologists.
   - Residents demonstrate competence in the performance of procedures considered essential for cytology and fine needle aspiration practices. These include:
     i. preparation of smears and fluid based specimens
     ii. familiarity with Pap and Diff Quick stains
     iii. preparation of material for flow cytometry and cell block processing
     iv. performance of superficial fine needle aspirations
   - Residents work with health care providers, including those from other disciplines (surgery, medicine, radiology and ob-gyn) to provide patient-focused care. This may take the form of:
     i. generation of accurate and clinically useful cytology reports
     ii. report of rapid diagnosis in cases of fine needle aspirations
     iii. communications to all physicians involved in the patient's care
     iv. presentation of findings in different institutional conferences

2. Medical Knowledge:
   - Residents demonstrate an investigatory and analytical thinking approach to clinical situations, including:
     i. Development of reasonable and complete differential diagnosis for cytology and fine needle aspiration cases based on available clinical information, microscopic features and current published information.
     ii. As part of their work up of the cases they suggest appropriate additional testing (special stains, immunostains, flow cytometry), if applicable.
     iii. Formulation of the above differential diagnosis in the final cytology report in a comprehensive, and coherent fashion.
     iv. Organize and deliver an oral presentation on an agreed upon topic in cytology.
   - Residents know and apply the basic and clinically supportive sciences which are appropriate to the specialty of cytology, including:
     i. Demonstration of knowledge of epidemiology of various infectious and neoplastic diseases during discussion of cytology and fine needle aspiration cases, and use of such knowledge to formulate cytologic diagnoses.
     ii. Demonstration of familiarity with the clinical and radiologic manifestations of various
diseases during work up of cytology and fine needle aspiration cases, and use of such knowledge to formulate cytologic diagnoses.

iii. Demonstration of familiarity with basic histochemical and immunologic stains as well as principles of flow cytometry and electron microscopy.

3. Practice-Based Learning and Improvement:
- Residents show the ability to analyze practice experience and perform practice-based improvement activities using a systematic methodology, including:
  i. Active participation in ongoing cyto-histologic correlation for active cytology cases and those with surgical pathology following, including review of cytology reports and slides; evaluating reports for diagnostic and typographical errors, assessing the slide quality of slides and observation of various trends with regard to Quality Improvement monitors.
  ii. Actively participate in Quality Assurance reviews, learning how to identify and report on a variety of QA monitors in cytology (5 year look back for Paps, ASCUS/SIL ratios, cyto-histopathologic correlation and in house and extradepartmental consultations).
- Residents are able to duplicate practice experience and develop diagnostic skills and communication skills with attending pathologist, cytotechnologists and clinicians, including:
  i. Review of interesting cytology cases, some with tissue correlation, in an ongoing fashion, with further review with pathologist and cytotechnologists
  ii. Signing out with pathologists on a daily basis.
  iii. Screening of new cases with subsequent review.
  iv. Participation in fine needle aspirations performed in the clinical and other departments where FNA assistance is provided.
- Residents are able to apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness, including:
  i. Active participation in timely journal article discussion with critical discussion of study designs and statistical methods of presented articles.
- Residents demonstrate competency in the use of information technology to manage information, access on-line medical information, and support their own education, including:
  i. Accessing of patient clinical history and previous pathology information via the hospital's Laboratory Information System (LIS).
  ii. Performance of Medicine computer searches
  iii. Maintaining of their own case volume statistics for cytology and fine needle aspirations.
  iv. Accessing web-sites pertaining to specific cytologic diagnoses (grading systems for tumors, etc).
- Residents actively participate in the teaching of medical students and other health care professionals interacting with the cytology section, including:
  i. Teaching them during formal rotation through the section
  ii. Delivering formal lectures, when required
  iii. Participating in interdepartmental meetings (presentation in interdisciplinary conferences and different tumor boards)
4. Interpersonal and Communication Skills:
- Residents demonstrate effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning and writing skills. This includes:
  i. Following instructions from attending pathologists during the performance or assistance of fine needle aspirations and during sign out of cases.
  ii. Demonstrating interest in cytology material case during sign out, by asking relevant questions and responding appropriately to questions from attending pathologists.
  iii. Obtaining relevant clinical information from and providing preliminary diagnostic information to clinicians via telephone or in the other departments during the performance or assistance of fine needle aspirations.
  iv. Effectively prepare and deliver cytology case presentations to various intra and extradepartmental audiences.
  v. During senior years of residence training, serve as an effective teacher for the junior pathology housestaff during their cytology rotations.
  vi. Demonstrating effective oral and written communication skills in the presentation and/or publication of cytology material.
- Residents should work effectively with others as members or leaders of a health care team or other professional group, including:
  i. Preparation and presentation of cytology material to interdisciplinary conferences and different tumor boards.
  ii. Participation with other members of the Department of Pathology and Laboratory Medicine and other departments on various hospital committees.
  iii. Participation in all Cytology Section meetings, interacting with Technical Supervisor, Cytotechnologists and Technicians.
  iv. Participation in departmental safety inspections, coordinated with Section Director, Technical Specialist and safety officer.

5. Professionalism:
- Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to a varied patient population.
  i. Showing respect, compassion, and integrity to patients undergoing fine needle aspirations.
  ii. Showing responsiveness and accountability to the needs of patients, their families and the clinicians that supersedes self interest, including a professional attitude while performing or assisting fine needle aspirations, respecting patient confidentiality at all moments and rendering a timely report and discussion with the clinician.
  iii. Demonstrating a commitment to excellence and ongoing professional development, such as completing directed and independent reading from cytology textbooks and journals, undertaking literature searches on various cytopathology topics, attending in-house pathology lectures and conferences.
  iv. Demonstrating a commitment to ethical principles pertaining to confidentiality of patient information acquired during the performance or assistance to fine needle aspirations.
  v. Demonstrating commitment to ethical principles pertaining to business practices,
including helping to ensure accurate billing for all technical and professional procedures incurred during the performance or assistance to fine needle aspirations.

6. Systems-Based Practice:
- Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. This includes:
  i. Understanding how their handling of cytology and fine needle aspiration material affects other health care professionals, the health care organization and the larger society, including making accurate diagnoses with efficient use of routine and special stains and other testing, achieving rapid turn around time for cytology reports, timely communication of results to clinicians to expedite implementation of adequate therapy or discharge from hospital, and establishing accurate diagnoses of epidemiologically important infectious diseases.
  ii. Understanding the clinical value and social impact of new cytologic techniques (i.e. fluid-based specimens and new automated screening techniques) and the importance of applying them toward delivery of better patient care.
  iii. Knowing the difference between various medical practice and health care delivery systems (fee for service, discounted fee for service, capitated systems, etc.) and how they affect the practice of cytology.
  iv. Demonstrating knowledge of methods for controlling health care costs and allocation of resources, including understanding the hospital capital budget process as it pertains to the laboratory.
  v. Practicing cost-effective health care and resource allocation that does not compromise the quality of care, including judicious, cost-conscious ordering of cytology special stains and ancillary lab tests during the performance of fine needle aspirations.

Note: There is overlap and duplication in the expectations detailed in the Rotation Goals and Specific Outcome Based Requirements.

TEXT REFERENCES:

DeMay. The Art and Science of Cytopathology
Bibbo. Comprehensive Cytopathology, 2nd edition

OUTCOMES ASSESSMENT
Trainee evaluations will cover all six competencies utilizing both objective and subjective methods. This will involve a wide variety of evaluations methods. A copy of the cytopathology evaluation form is attached as appendix 2.

Subjective Evaluations:
The cytopathology resident evaluation form will be competed at the end of each trainee time-period by the director with input from cytology staff and clinicians (360 degree evaluation), simulation of FNA procedures and oral testing.

Objective Evaluations:
A 10 glass slide examination of gynecologic slides utilizing the Bethesda Classification System (2001) will be given at the end of the rotation. 90% of the slides should be able to be properly classified for passing. If less than 90% is obtained, the test is repeated at the second and third months.

A 10 glass slide examination of non-gynecologic and FNA slides will be given at the end of the rotation. 90% of the slides should be able to be properly classified for passing. If less than 90% is obtained, the test is repeated at the second and third months.

A written examination including short answer and multiple choice will be given at the end of the rotation. This will include questions that cover all the six general competencies. 90% of the questions should be able to be properly answered for passing. If less than 90% is obtained, the test is repeated at the second and third months.

Each examination will be appropriate to the level of training and experience. The results will be recorded on the rotational evaluation form.

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Cytopathology Objectives