# PEDIATRIC PATHOLOGY FELLOWSHIP SIX COMPETENCIES

## AUTOPSY

### 1. PATIENT CARE: PROCEDURAL

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SPECIFIC ACTIVITIES</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical competence in pediatric and perinatal autopsies, including specialized techniques used in this age group.</td>
<td>Autopsy external examination, evisceration, organ block dissection, tissue selection for ancillary studies, tissue selection for paraffin blocks, specialty techniques listed in Autopsy Study List, use of dissecting microscope, photography on camera stand and with dissecting microscope.</td>
<td>Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations. Evaluations by other trainees, included in quarterly evaluations.</td>
</tr>
</tbody>
</table>

### 2. MEDICAL KNOWLEDGE

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SPECIFIC ACTIVITIES</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand conditions and diseases commonly presenting in pediatric and perinatal autopsy pathology. 2. Know key diagnostic techniques used in surgical pathology, including special stains and ancillary tests. 3. Know key procedures used by clinicians.</td>
<td>Review recommended textbooks, pertinent literature, gross photographs, heart teaching specimens. Become familiar with common cardiac and other specialty surgical procedures. (see Autopsy Learning Guide)</td>
<td>Perinatal autopsy written test, given at the beginning of the year and repeated periodically until 100% correct. Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations.</td>
</tr>
</tbody>
</table>

### 3. PRACTICE –BASED LEARNING AND IMPROVEMENT

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SPECIFIC ACTIVITIES</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learn to identify personal knowledge gaps and to improve medical judgment. 2. Use information technology systems to research patient information and the medical literature.</td>
<td>1. Compare pre- and post-signout interpretations and diagnoses. 2. Conduct literature searches for case diagnosis and discussion, review with faculty and other trainees.</td>
<td>Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations. Evaluations by other trainees, included in quarterly evaluations.</td>
</tr>
</tbody>
</table>

### 4. INTERPERSONAL AND COMMUNICATION SKILLS

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>SPECIFIC ACTIVITIES</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prepare concise, accurate, and complete autopsy reports. 2. Give clear and accurate case presentations. 3. Provide effective teaching for other trainees on the autopsy service.</td>
<td>1. Submit signout-ready reports to faculty. 2. Present cases at pathology and clinical conferences. 3. Progress to supervising residents as a junior attending.</td>
<td>Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations. Evaluations by other trainees and by conference attendees, included in quarterly evaluations.</td>
</tr>
</tbody>
</table>

**Note:** The faculty member on autopsy is the fellow’s immediate supervisor during that week.
<table>
<thead>
<tr>
<th>5. PROFESSIONALISM</th>
<th></th>
<th>6. SYSTEMS-BASED PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVES</strong></td>
<td><strong>SPECIFIC ACTIVITIES</strong></td>
<td><strong>ASSESSMENT</strong></td>
</tr>
<tr>
<td>1. Complete reports in a timely manner. 2. Attend required conferences and present cases when indicated. 3. Fulfill obligations of resident supervision. 4. Conduct an autopsy with respect for the patient and family, and maintain a respectful, collegial demeanor with colleagues and clinicians when discussing cases.</td>
<td>See conference list for required conferences; attend other conferences when own cases are discussed.</td>
<td>Documentation of conference attendance and presentations. Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations. Evaluations by other trainees and by conference attendees, included in quarterly evaluations.</td>
</tr>
<tr>
<td><strong>SPECIFIC ACTIVITIES</strong></td>
<td></td>
<td><strong>ASSESSMENT</strong></td>
</tr>
<tr>
<td>1. Effectively manage pre-autopsy administrative requirements. 2. Learn the role of autopsy pathology in interdisciplinary quality assurance and patient care.</td>
<td>Before the autopsy, oversee the presence of a correct permit, notification of medical examiner and clinician, verification of patient identification and autopsy limitations, obtaining of consultation, and any other necessities. See conference list for required conferences; attend other conferences when own cases are discussed.</td>
<td>Documentation of conference attendance and presentations. Weekly evaluations by the faculty member on service, with rapid feedback to the fellow; summary incorporated into quarterly evaluations. Evaluations by other trainees and by conference attendees, included in quarterly evaluations.</td>
</tr>
</tbody>
</table>
RECOMMENDED LEARNING SOURCES

Potter’s Pathology of the Fetus, Infant, and Child (second edition; Gilbert-Barness, editor)
Stocker and Dehner’s Pediatric Pathology (third edition; Stocker, Dehner, Husain, editors)
Perinatal Pathology, MPP 15 (second edition, Wigglesworth)
Smith’s Recognizable Patterns of Human Malformation (Jones)
Smith’s Recognizable Patterns of Human Deformation (Graham)
Moss and Adams’ Heart Disease in Infants, Children, and Adolescents (Allen et al, editors)

CHART REVIEW

Pediatric disease scenarios requiring excellent clinical histories for accurate clinicopathologic correlation:
  - stillbirth
  - early neonatal death
  - neonatal intensive care
  - congenital heart disease with or without surgery
  - prolonged pediatric intensive care
  - various complex medical conditions such as
    - transplantation (heart, other organs, bone marrow)
    - ECMO
    - genetic or metabolic disease
    - esoteric infections

TECHNIQUES

Pediatric and perinatal autopsy techniques differ from standard adult autopsy techniques, particularly in the perinatal autopsy, and dissection of fetal congenital heart disease requires a meticulous dissection technique often utilizing the dissecting microscope.

Specialized pediatric autopsy techniques:
  - opening the heart following blood flow
  - determining patency of extrahepatic bile duct
  - removal of the urogenital tract in bladder outlet obstruction
  - sampling of bones for skeletal dysplasia
  - preparation and evaluation of the heart with congenital heart disease

Perinatal autopsy techniques:
  - evaluation of external dysmorphology
  - standard external measurements
  - assessment of maceration
  - preservation of umbilical vessels
  - identification of great vessels in situ
  - identification of esophageal atresia
  - identifying anomalous pulmonary venous return in situ
  - fetal autopsy: removal of organ block, removal of fetal brain and spinal cord, examination of the placenta

Collection of tissues for ancillary studies:
  - cytogenetics, FISH, fibroblast culture
  - cultures and PCR for infectious diseases
  - tissues for metabolic and genetic studies
  - muscle and nerve biopsy

RECOGNIZING PATHOLOGY

These items are among those commonly seen at autopsy and/or likely to be represented on subspecialty examination.

Perinatal autopsy:
  - assessment of gestational age by developmental criteria (external, organ, skeletal)
estimation of intrauterine retention time in macerated stillbirths
features of intrauterine asphyxia
features of intrauterine stress
features and types of intrauterine growth restriction
features of intrauterine infections (ascending and hematogenous)
differential diagnosis and evaluation of hydrops fetalis
bronchopulmonary dysplasia and chronic lung disease
evaluation of pulmonary hypoplasia
EXIT procedure

Genetics and anomalies:
common trisomies (21, 18, 13), Turner syndrome
oligohydramnios (phenotype and causes, e.g., renal cystic dysplasia, bladder outlet obstruction)
skeletal dysplasias (recognition and workup)
amnionic band syndrome
heterotaxy syndromes
ciliopathies (basic concepts)
concepts of dysmorphology (malformation, deformation, disruption, dysplasia, syndrome, association, sequence)

Congenital heart disease:
normal anatomy
tetralogy of Fallot
hypoplastic left heart
atrioventricular canal defect
Ebstein anomaly
transposition of great vessels
anomalous pulmonary venous return
common surgical procedures

Neuropathology:
normal development
intraventricular hemorrhage
periventricular leukomalacia
pontosubicular necrosis
holoprosencephaly
aqueductal stenosis
vein of Galen malformation

Infectious disease:
recognition of typical features at prosection and slide review
diagnostic techniques: immunohistochemistry, in situ, PCR
organisms: cytomegalovirus, herpes simplex, Ebstein-Barr virus, respiratory viruses, mycobacteria, fungus, bacteria