

GUIDE TO LEARNING IN GYNECOLOGIC ONCOLOGY



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Revised 4/2018

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I. INTRODUCTION

The *Guide to Learning in Gynecologic Oncology (GO)* has been developed by The American Board of Obstetrics and Gynecology, Inc. (ABOG) to assist both the fellow in training and the Program Director. The basic educational needs that lead to appropriate achievement are presented; however, this description should not be misinterpreted as outlining the ideal or setting limits on learning or achievement.

This *Guide* is comprised of educational objectives and serves as:

1. The curriculum for an adequate fellowship training program, and
2. A study guide for the fellow during their fellowship and when sitting for the ABOG Subspecialty Certification Examinations. This *Guide* is the content list for the examinations given by the Divisions of the American Board of Obstetrics and Gynecology, Inc.

The Division regards the fellow as a graduate student with the implied responsibility for self-study and independent inquiry. The Program Director is responsible for providing adequate clinical experience, technical instruction, learning resources, study guidance, and periodic direct personal evaluation. The Program Director should review with the fellow an outline of study at least on an annual basis.

II. DEFINITION OF A GYNECOLOGIC ONCOLOGIST

A Gynecologic Oncologist is a subspecialist in Obstetrics and Gynecology who is expected to have advanced knowledge of the comprehensive management of patients with gynecologic malignancies. This includes familiarity with those diagnostic and therapeutic procedures necessary for the total care of a woman at risk for or diagnosed with gynecologic cancer or precursors, and complications resulting therefrom. This individual should be able to function effectively in the arena of basic, translational and clinical research in gynecologic oncology.

III. OBJECTIVES

This *Guide* has two objectives. First, the terminal objectives describe what the fellow should know and be able to perform by the end of the fellowship. These objectives principally refer to problem-solving skills needed to make a diagnosis and implement management programs. Second, the enabling objectives describe the skills the fellow must acquire in order to accomplish the terminal objectives.

IV. GENERAL CONSIDERATIONS

The practice of Obstetrics and Gynecology and GO requires a commitment to professionalism as well as personal growth. In addition to practicing technical skills, physicians should cultivate the ability to expand and apply those skills. Knowledge of ethical principles, communication skills, and the ability to acquire and continually update information are important components of professional development. The Accreditation Council on Graduate Medical Education (ACGME) identified six core competencies that should be incorporated into GO subspecialty fellowship programs (see full definitions at www.acgme.org). The fellow should demonstrate competence at the level of a new GO practitioner in the following:

1. *Patient Care*: Be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
2. *Medical Knowledge*: Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences as well as the application of this knowledge to patient care.
3. *Practice-based Learning and Improvement*: Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient

care based on constant self-evaluation and life-long learning. Fellows are expected to develop skills and habits to be able to:

- Identify strengths, deficiencies, and limits in one's knowledge and expertise
 - Set learning and improvement goals
 - Identify and perform appropriate learning activities
 - Systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement
 - Incorporate formative evaluation feedback into daily practice
 - Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
 - Use information technology to optimize learning
 - Participate in the education of patients, families, students, residents, fellows, and other health professionals
4. *Interpersonal and Communication Skills*: Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Fellows are expected to:
- Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
 - Communicate effectively with physicians, other health professionals, and health related agencies
 - Work effectively as a member or leader of a health care team or other professional group
 - Act in a consultative role to other physicians and health professionals
 - Maintain comprehensive, timely, and legible medical records, if applicable
5. *Professionalism*: Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Fellows are expected to demonstrate:
- Compassion, integrity, and respect for others
 - Responsiveness to patient needs that supersedes self-interest
 - Respect for patient privacy and autonomy
 - Accountability to patients, society, and the profession
 - Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
6. *Systems-based Practice*: Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Fellows are expected to:
- Work effectively in various health care delivery settings and systems relevant to their clinical specialty
 - Coordinate patient care within the health care system relevant to their clinical subspecialty
 - Incorporate considerations of cost awareness and risk benefit analysis in patient and/or population-based care as appropriate
 - Advocate for quality patient care and optimal patient care systems
 - Work in interprofessional teams to enhance patient safety and improve patient care quality
 - Participate in identifying system errors and implementing potential systems solutions

V. DIAGNOSTIC TECHNIQUES AND STAGING

A. TERMINAL OBJECTIVES:

The fellow should acquire sufficient knowledge of diagnostic techniques, methods, and standards to diagnose and stage gynecologic malignancies. The fellow should employ and understand patient assessment tools to evaluate the well-being of women with gynecologic malignancies.

B. ENABLING OBJECTIVES:

1. The fellow should develop proficiency with the following three types of histories and perform the corresponding examinations:
 - a. A comprehensive medical history and a general physical examination
 - b. A focused gynecologic history and a gynecologic examination
 - c. An oncology history and an examination directed toward the evaluation of gynecologic malignancies
2. The fellow should become skilled at selecting the appropriate diagnostic techniques to accomplish the following functions:
 - a. Establish the diagnosis
 - b. Evaluate the extent of disease
 - c. Evaluate coexisting conditions
3. The fellow should be able to stage gynecologic malignancies according to currently accepted guidelines:
 - a. Select and apply appropriate methods to evaluate for local, regional, and distant tumor spread
 - b. Interpret the results of diagnostic tests in order to assign tumor stage according to current FIGO standards
4. The fellow should be familiar with the assessment and performance of the following components of a cancer:
 - a. Visual diagnostic techniques with an understanding of indications and limitations of:
 - 1) Visual inspection of the cervix, vagina, and vulva
 - 2) Colposcopy of vulva, vagina, and cervix
 - 3) Methods of staining with acetic acid and Lugol's solution
 - 4) Hysteroscopy
 - 5) Cystoscopy
 - 6) Anoscopy
 - 7) Proctosigmoidoscopy
 - 8) Upper endoscopy and colonoscopy
 - b. Tissue sampling, including an understanding of indications, advantages, and limitations of:
 - 1) Open biopsy:
 - a) Random and directed cervical biopsies, endocervical curettage, cone biopsy, and LEEP
 - b) Biopsy of the vulva and vagina
 - c) Endometrial biopsy and dilation and curettage
 - d) Sentinel node biopsy
 - e) Biopsy of the inguinal, pelvic, paraaortic, and supraclavicular nodes
 - f) Biopsy of metastatic sites, such as lung, liver, and bone
 - g) Staging biopsies
 - 2) Percutaneous biopsy:
 - a) Fine-needle aspiration (cytology) or core needle biopsies (tissue) of pelvic, abdominal, or cutaneous lesions
 - b) Fine-needle aspiration or needle biopsy of lung, liver, and breast

lesions

- c) CT and ultrasound-guided biopsies of deep lesions
- c. Diagnostic imaging, including the indications, limitations, and principles of interpretations for:
 - 1) Plain films
 - 2) Contrast studies (upper and lower GI studies and intravenous pyelography)
 - 3) Computerized tomography
 - 4) Magnetic resonance imaging
 - 5) Ultrasonography and Doppler flow studies
 - 6) Angiography
 - 7) Positron emission tomography
 - 8) Radioisotope scanning
- d. Laboratory analyses of blood and body fluids, including an understanding of the indications and limitations of the tests, interpretation of normal and abnormal values, and integration of the following test results into the management of patients with gynecologic cancers:
 - 1) Hematologic
 - 2) Urinary
 - 3) Hepatic
 - 4) Coagulation system
 - 5) Electrolytes and blood gases
 - 6) Tumor markers
 - 7) Molecular and genetic studies
 - 8) Hormone receptors
 - 9) Frozen section pathology
 - 10) Routine pathology (H&E)
 - 11) Special stains used in analyzing pathology specimens
- e. Cardiopulmonary evaluation, including an understanding of the indications and limitations of the following system examinations. Integration of the information into diagnostic and therapeutic decision-making, including an understanding of:
 - 1) Pulmonary function testing and pulmonary therapy devices
 - 2) Bedside cardiac evaluation
 - 3) Evaluation of critical care parameters, such as, but not limited to, electrocardiogram, central venous pressure, pulmonary wedge pressure, mean arterial pressure, cardiac output, and systemic vascular resistance
 - 4) Arterial blood gases
 - 5) Electrocardiogram results of cardiac stress test
- f. Nutritional assessment and therapy, including an understanding of:
 - 1) Tests used to assess nutritional status
 - 2) Indications, benefits, techniques, and complications of nutritional support, including:
 - a) Total parenteral nutrition
 - b) Enteral nutrition, including early enteral feeding for postop patients
- g. Assessment of mental health and psychological state, including:
 - 1) Screening for depression and anxiety
 - 2) Assessment for chemical dependency
 - 3) Adequacy of pain control
 - 4) Assessment of patient competency to make decisions
- h. Assessment of oncologic emergencies
 - 1) Superior vena cava syndrome
 - 2) Cord compression

VI. PATHOLOGY

A. TERMINAL OBJECTIVES:

The fellow should be able to identify, on the basis of gross visual and microscopic evaluation,

lesions that are premalignant or malignant and distinguish them from benign disorders. The fellow should understand the genesis of malignant tumors and the biologic behavior of premalignant and malignant tumors as well as be able to recognize important characteristics and prognostic features of such lesions. The fellow should understand the principles of basic laboratory techniques such as frozen section histochemical staining and immunohistochemical staining.

B. ENABLING OBJECTIVES:

1. VULVA

The fellow should be able to:

- a. Identify correctly by gross and/or microscopic evaluation:
 - 1) Benign conditions:
 - a) Hypertrophic and atrophic lesions
 - b) Condyloma acuminatum
 - 2) Vulvar Intraepithelial Neoplasia (VIN)
 - 3) Squamous cell carcinoma
 - 4) Adenocarcinoma
 - 5) Extramammary Paget's disease
 - 6) Malignant melanoma
 - 7) Sarcoma
 - 8) Bartholin gland carcinomas
 - 9) Rare tumors (e.g., basal cell, Merkel cell, neuroendocrine tumors, etc.)
- b. Understand the relationship between viral infections, epithelial growth, and neoplasia.
- c. Compare and contrast *in situ* and invasive squamous cell carcinoma.
- d. Describe natural history and pathophysiology of vulvar neoplasms.
- e. Know the relationship of vulvar carcinoma to other primary genital carcinomas.
- f. Discuss treatment of each of these diseases with appropriate references to the literature.

2. VAGINA

The fellow should be able to:

- a. Identify by gross and/or microscopic evaluation:
 - 1) Benign conditions
 - 2) Endometriosis
 - 3) Adenosis
 - 4) Condyloma acuminatum
 - 5) Vaginal Intraepithelial Neoplasia (VAIN)
 - 6) Squamous cell carcinoma
 - 7) Adenocarcinoma
 - 8) Malignant melanoma
 - 9) Sarcoma botryoides and metastatic lesions (i.e., gestational trophoblastic disease)
 - 10) Other rare tumors (e.g., endodermal sinus tumors, sarcomas, etc.)
 - 11) Metastatic lesions
- b. Discuss possible consequences (and relative occurrence) of administration of hormones (e.g., DES) during pregnancy on a female infant.
- c. Describe natural history and pathophysiology of vaginal carcinoma.
- d. Discuss treatment of each of these diseases with appropriate literature reference.

3. CERVIX

The fellow should be able to:

- a. Identify correctly cytological preparations (benign versus malignant):
 - 1) Normal epithelium
 - 2) ASCUS, LSIL, and HSIL
 - 3) Squamous cell carcinoma
 - 4) AGC and AIS

- 5) Adenocarcinoma
 - 6) Viral changes (HSV and HPV)
 - b. Understand terminology and therapeutic implications of the Bethesda System.
 - c. Identify correctly by microscopic evaluation:
 - 1) Squamous metaplasia
 - 2) Microglandular hyperplasia
 - 3) Koilocytosis
 - 4) Cervical intraepithelial neoplasia (CIN)
 - 5) Superficially invasive squamous cell carcinoma
 - 6) Squamous cell carcinoma
 - 7) AIS
 - 8) Adenocarcinoma
 - 9) Rare tumors (e.g., adenoid cystic tumors, lymphomas, neuroendocrine tumors, etc.)
 - 10) Metastatic lesions
 - d. Describe natural history and pathophysiology of cervical neoplasia.
 - e. Differentiate between gland involvement by CIN III and stromal invasion.
 - f. Describe various definitions of microinvasive carcinoma.
 - g. Describe and correlate colposcopic patterns, cytologic findings, and histologic characteristics in CIN and carcinoma as well as the lack of correlation.
 - h. Describe methods by which adenocarcinoma of the endometrium may be distinguished from adenocarcinoma of the cervix.
 - i. Describe and discuss implications of lymphovascular invasion with cervical cancer.
 - j. Understand natural history and pathophysiology of cervical carcinoma.
 - k. Understand the influence of pregnancy on the management and outcome of both CIN/AIS and invasive cervical cancer.
 - l. Understand the association of cervical neoplasia related to the human immunodeficiency virus (HIV).
 - m. Discuss treatment of each of these diseases with appropriate literature reference.
4. ENDOMETRIUM

The fellow should be able to:

- a. Identify histologic preparations of:
 - 1) Benign non-hyperplastic endometrium
 - a) Proliferative
 - b) Secretory
 - c) Hormonally suppressed endometrium
 - d) Endometrium of pregnancy
 - e) Arias-Stella pattern
 - f) Adenomyosis
 - g) Proliferative with breakdown
 - 2) Hyperplastic endometrium:
 - a) Simple hyperplasia
 - b) Complex hyperplasia
 - c) Simple and complex hyperplasia with atypia
 - 3) Carcinoma:
 - a) Adenocarcinoma
 - b) Adenocarcinoma with squamous differentiation
 - c) Serous carcinoma
 - d) Squamous carcinoma
 - e) Mucinous carcinoma
 - f) Clear cell carcinoma
 - 4) Stromal lesions:
 - a) Stromal nodule
 - b) Endometrial stromal sarcomas
 - c) Undifferentiated stromal sarcoma
 - 5) Carcinosarcomas (malignant mixed Müllerian tumors):

- a) Homologous elements
- b) Heterologous elements
- 6) Leiomyosarcoma
- 7) Metastatic carcinoma
- b. Identify classic cytologic examples of:
 - 1) Benign endometrial cells
 - 2) Adenocarcinoma
- c. Discuss natural history and pathophysiology of complex atypical hyperplasia.
- d. Understand natural history and pathophysiology of:
 - 1) Endometrial adenocarcinoma
 - 2) Endometrial stromal sarcoma
 - 3) Leiomyosarcoma
 - 4) Carcinosarcomas (malignant mixed Müllerian tumors)
- e. Discuss criteria for differentiating leiomyoma and leiomyosarcoma and for grading leiomyosarcomas.
- f. Differentiate between adenomyosis and invasive carcinoma in the presence of endometrial carcinoma.
- g. Understand pros and cons of hormone replacement therapy for endometrial carcinoma survivors.
- h. Discuss treatment of each of these diseases with appropriate literature reference.

5. FALLOPIAN TUBE

The fellow should be able to:

- a. Identify by gross and/or microscopic evaluation:
 - 1) Benign lesions:
 - a) Marked chronic salpingitis
 - b) Salpingitis isthmica nodosa
 - c) Endometriosis
 - 2) Pseudo-decidual reaction
 - 3) Pregnancy-related lesions:
 - a) Ectopic pregnancy
 - b) Placental site
 - 4) Serous tubular intraepithelial carcinoma (STIC)
 - 5) Adenocarcinoma and carcinosarcoma
 - 6) Metastatic carcinoma
- b. Distinguish between primary and secondary tubal tumors.
- c. Discuss treatment of each of these diseases with appropriate literature reference.

6. OVARY

The fellow should be able to:

- a. Identify by gross and/or microscopic evaluation:
 - 1) Epithelial tumors and differences between benign, low malignant potential, and malignant lesions
 - 2) Sex cord stromal tumors
 - 3) Germ cell tumors
 - 4) Rare tumors (neuroendocrine small cell carcinomas, fibromas, etc.)
 - 5) Metastatic carcinoma
- b. Describe natural history and pathophysiology of ovarian neoplasms.
- c. Describe features that distinguish primary from metastatic tumors of the ovary.
- d. Understand indications for cystectomy, unilateral oophorectomy, and fertility preservation in women with early stage ovarian malignancies.
- e. Describe controversies and difficulties managing various ovarian neoplasms in a pregnant woman.
- f. Discuss treatment of each of these diseases with appropriate literature reference.

7. TROPHOBLAST

The fellow should be able to:

- a. Identify gross and/or microscopic evaluation:
 - 1) Normal early pregnancy
 - 2) Complete and partial hydatidiform mole
 - 3) Invasive mole
 - 4) Placental site tumor
 - 5) Choriocarcinoma
- b. Describe natural history and biologic behavior of various gestational trophoblastic diseases.
- c. Discuss treatment of each of these diseases with appropriate literature reference.

8. LYMPH NODES

The fellow should be able to:

- a. Identify microscopically:
 - 1) Macrometastatic and micrometastatic carcinoma
 - 2) Isolated tumor cells and occult metastasis detected by IHC staining
 - 3) Benign epithelial inclusions
- b. Recognize malignant epithelial cells in lymph-node aspirations.

VII. PHYSIOLOGY AND PATHOPHYSIOLOGY

A. TERMINAL OBJECTIVE:

The fellow should have sufficient knowledge of physiology and pathophysiology to manage women with gynecologic malignancies.

B. ENABLING OBJECTIVES:

1. FLUID AND ELECTROLYTE MANAGEMENT

The fellow should be knowledgeable in:

- a. Fluid compartments and the toxicities associated with changes in:
 - 1) Total body water secondary to permeability alterations
 - 2) Normal exchanges of fluid and electrolytes, including:
 - a) Water balance
 - b) Electrolyte balance
- b. Fluid and electrolyte abnormalities, including:
 - 1) Volume deficits and excesses
 - 2) Imbalances of sodium concentration
 - 3) Imbalances of potassium concentration
 - 4) Respiratory and metabolic acidosis and alkalosis
 - 5) Metabolism of calcium, phosphorus, magnesium, and trace elements

2. NUTRITION

The fellow should be knowledgeable in:

- a. Normal adult daily requirements for water, electrolytes, calories, protein, carbohydrates, fat, and essential vitamins
- b. How to calculate the proper amounts of water, electrolytes, calories, proteins, fats, essential vitamins, and minerals that are to be added to each bag of total parenteral nutrition
- c. Indications for the administration of total parenteral nutrition (TPN) and enteral feeding

3. BLOOD AND BLOOD COMPONENTS

The fellow should be knowledgeable in:

- a. Blood product replacement, including:
 - 1) Composition, indications, risks, and advantages of:
 - a) Packed red cells
 - b) Platelets
 - c) Pooled and fresh frozen plasma

- d) Albumin
- e) Concentrated leukocytes
- f) Cryoprecipitate
- g) Factor 7
- h) Clotting agents
- 2) Risks of blood product replacement due to infectious etiologies, including the risk of acquiring human immunodeficiency virus (HIV), hepatitis, and other diseases
- 3) How to recognize and manage the various types of transfusion reactions
- b. Coagulation, including an understanding of:
 - 1) Normal hemostasis
 - 2) Abnormal clotting states
 - 3) Etiology, diagnosis, and treatment of congenital and acquired bleeding disorders
 - 4) Management of coagulation disorders in the perioperative period

4. VENTILATION: PULMONARY PHYSIOLOGY IN NORMAL AND DISEASE

The fellow should be able to:

- a. Understand normal physiology, pulmonary function devices and pulmonary function tests (*Also see section V. "Diagnostic Techniques and Staging"*).
- b. Diagnose and treat:
 - 1) Pneumonia
 - 2) Acute and chronic obstructive and/or restrictive lung disease
- c. Diagnose and treat ventilatory failure due to acute or chronic pulmonary disease in operative or non-operative patients, including:
 - 1) Adult respiratory distress syndrome
 - 2) Transfusion related acute lung injury (TRALI)
 - 3) Pleural effusions
- d. Understand the physiology of the various types of mechanical ventilators, including the use of:
 - 1) PEEP (Positive end-expiratory pressure)
 - 2) CPAP (continuous positive airway pressure)
 - 3) Pressure and volume ventilation methods such as SIMV, pressure support, and assist control ventilation

5. SHOCK: ETIOLOGY, CLINICAL MANIFESTATIONS, AND TREATMENT OF INADEQUATE ORGAN PERFUSION

The fellow should be able to describe:

- a. Normal cardiac status (*Also see sections V. "Diagnostic Techniques and Staging" and XIII "Pharmacology"*)
- b. Etiology, diagnosis, and treatment of physiologic alterations in major organs induced by:
 - 1) Hypovolemic shock
 - 2) Cardiogenic shock
 - 3) Septic shock

6. RENAL FUNCTION AND RENAL FAILURE

The fellow should be able to describe:

- a. Normal renal function, including:
 - 1) Control mechanisms
 - 2) Evaluation of renal function (*Also see section V. "Diagnostic Techniques and Staging"*)
- b. Abnormal renal function, including the clinical features, diagnosis, and principles of management of:
 - 1) Infectious diseases
 - 2) Obstructive lesions
 - 3) Inadequate perfusion
 - 4) Chemotherapy toxicity

- 5) Antibiotic toxicity
- 6) Surgical complications affecting the urinary tract
- c. Bladder changes associated with:
 - 1) Chemotherapy
 - 2) Radiation therapy
 - 3) Tumor formation
 - 4) Surgery

7. DIGESTIVE TRACT

The fellow should be able to understand and describe:

- a. Normal gastrointestinal physiology
- b. Changes in physiology induced by:
 - 1) Irradiation
 - 2) Chemotherapy
 - 3) Tumor
 - 4) Extensive resection
- c. Diagnosis and management of complications due to:
 - 1) Intestinal obstruction
 - 2) Blind loop syndrome
 - 3) Short bowel syndrome
 - 4) Fistula formation
- d. Diagnosis of liver derangements due to:
 - 1) Extrahepatic and intrahepatic tumors
 - 2) Infectious agents
 - 3) Cirrhosis
 - 4) Hepatocellular toxicity

8. CARDIOVASCULAR SYSTEM

The fellow should be able to understand and describe:

- a. Pathogenesis of thromboembolic disease and be familiar with preventative and therapeutic measures
- b. Signs, systems, diagnosis, and treatment of pulmonary embolus, including but not limited to:
 - 1) Ventilation perfusion scans
 - 2) Spiral CT scan of the chest
 - 3) Pulmonary angiograms
 - 4) Anticoagulation therapy, including heparin, low molecular weight heparin, and oral anticoagulants
 - 5) Vena cava filter and obstruction techniques
 - 6) Thrombolytic and thrombectomy therapy
- c. Signs, systems, diagnosis, and treatment of myocardial infarction and cardiac failure
- d. Cardiac toxicities of:
 - 1) Chemotherapy
 - 2) Radiotherapy

9. NEUROLOGY AND PSYCHIATRY

The fellow should be able to understand and describe:

- a. Central nervous system disorders related to cancer and the treatment of cancer associated with:
 - 1) Organic brain syndrome
 - 2) Brain and leptomeningeal metastases
 - 3) Posterior reversible encephalopathy syndrome (PRES)
 - 4) Spinal cord and nerve root compression caused by progression of cancer
 - 5) Brain and spinal cord injuries related to irradiation and/or chemotherapy
- b. Peripheral nervous system disorders and/or complications related to:
 - 1) Surgery
 - 2) Chemotherapy

- 3) Radiation
- 4) Progression of cancer

VIII. CARCINOGENESIS, INVASION, AND METASTASIS

A. TERMINAL OBJECTIVE:

The fellow should understand the current theories of carcinogenesis, including the effects of environment, family history, and viral factors.

B. ENABLING OBJECTIVES:

The fellow should understand and be able to describe:

1. Relationship of the following factors to carcinogenesis:
 - a. Hormones, including the effect of:
 - 1) Antenatal estrogens on vaginal and cervical malignancies
 - 2) Exogenous estrogen administration
 - 3) Tamoxifen therapy
 - b. Radiation, including:
 - 1) Increased risk of sarcomas and other malignancies in previously radiated tissues
 - 2) Risks of diagnostic radiation procedures
 - c. Chemotherapeutic agents, including:
 - 1) Risk of myeloproliferative disorders, including leukemia after exposure to alkylating agents and other chemotherapies
 - 2) Risks to the fetus of maternal chemotherapy
 - d. Viruses, including:
 - 1) HPV
 - 2) Herpes
 - 3) Other viruses
 - e. Environmental contaminants, such as the relationship of talc and asbestos to ovarian and other malignancies and smoking to lower genital tract cancer
 - f. Genetic mutations (e.g., BRCA1/2, mismatch repair genes, etc.) and their relationship to various cancers
2. Biologic properties of cancer cells, including:
 - a. Tumor initiation
 - b. Uncontrolled proliferation with loss of capacity for apoptosis
 - c. Angiogenesis
 - d. Invasion of local tissues, lymphatics, and blood vessels
 - e. Metastasis to distant sites
3. Cellular/molecular processes involved with carcinogenesis:
 - a. Cell cycle (G1, S, G2, M, G0)
 - b. Oncogenes
 - c. Tumor suppressor genes
 - d. Clonal evolution/cancer stem cells
 - e. Epigenetics
 - f. Tumor microenvironment

IX. GENETICS

A. TERMINAL OBJECTIVES:

The fellow should demonstrate an understanding of genetic alterations and be familiar with the influence of genetics on the clinical practice of gynecologic oncology.

B. ENABLING OBJECTIVES:

The fellow should understand and be able to describe:

1. Genetic alterations and their relationship to cancer:
 - a. Chromosomal abnormalities
 - b. Types and impact of mutations
 - c. Somatic versus germline mutations
 - d. Clonality
 - e. Ploidy
 - f. Polymorphism
2. Oncogenes and tumor suppressor genes:
 - a. Mechanisms of action of oncogenes, such as:
 - 1) Transduction
 - 2) Point mutation
 - 3) Insertion mutation
 - 4) Deletion mutation
 - 5) Duplications
 - 6) Inversions
 - 7) Expansion or contractions of unstable repeats
 - 8) Amplification
 - 9) Translocation
 - 10) Epigenetic processes
 - b. Tumor suppressor genes, such as:
 - 1) Retinoblastoma gene
 - 2) p53 gene
 - 3) PTEN
 - 4) BRCA1/2
 - 5) WT1
3. Cardinal principles of cancer genetics with respect to:
 - a. Age
 - b. Bilaterality
 - c. Multiple primary cancers
 - d. Multiple generations
 - e. Ethnic background
4. Cancer family syndromes, including:
 - a. Site-specific ovarian cancers
 - b. Breast/ovarian family syndromes
 - c. Lynch syndromes/HNPCC
 - d. Cowden syndrome
 - e. Li-Fraumeni
5. Indications for genetic counseling and options for genetic testing:
 - a. Advantages to testing
 - b. Disadvantages to testing
6. Management of the patient at increased genetic risk for cancer:
 - a. Screening
 - b. Prevention including medical and surgical options
7. Principles of synthetic lethality
8. DNA damage repair processes, such as:
 - a. Homologous recombination
 - b. Mismatch repair
9. Other genetic processes:
 - a. Apoptosis
 - b. Telomerase

X. STATISTICS AND EXPERIMENTAL DESIGN

A. TERMINAL OBJECTIVE:

The fellow should demonstrate sufficient knowledge of epidemiology and statistical methods to design and interpret research.

B. ENABLING OBJECTIVES:

The fellow should be able to:

1. Describe and interpret principles of epidemiology with regard to:
 - a. Descriptive epidemiology, including:
 - 1) Disease incidence/prevalence
 - 2) Adjustment of disease rates
 - b. Causality of disease, including:
 - 1) Criteria for judging causality
 - 2) Quantitative assessment (e.g., relative risk, odds ratio)
 - c. Disease or risk factor screening, including:
 - 1) Criteria for establishing a screening program
 - 2) Quantitative assessments (e.g., sensitivity/specificity, receiver-operator characteristics curve, positive/negative predictive value)
2. Understand study design with regard to:
 - a. Experimental:
 - 1) Randomized clinical trials
 - 2) Difference between phase I, II, or III trials
 - 3) Design of superiority, non-inferiority, and equivalence trials
 - b. Observational (e.g., prospective cohort, retrospective cohort, case-control, etc.)
 - c. Appropriate conduct, including:
 - 1) Calculation of power
 - 2) Case selection
 - 3) Control selection
 - 4) Eligibility criteria
 - 5) Randomization methodologies
 - 6) Human subject rights
 - 7) Avoidance of bias (e.g., blinding, placebo)
 - 8) Avoidance of confounding variables
 - 9) Role of data safety-monitoring board
 - 10) Pros/cons in selecting primary and secondary endpoints (e.g., response, progression-free survival, overall survival, etc.)
 - 11) Role of IRB
3. Explain:
 - a. Descriptive statistics, including:
 - 1) Probability
 - 2) Binomial distribution
 - 3) Normal populations
 - 4) Statistical assumptions
 - 5) Standard distribution, standard error, and variance
 - b. Hypothesis testing:
 - 1) Confidence intervals
 - 2) Parametric testing, such as:
 - a) Two-sample tests (e.g., z, t test)
 - b) Multiple-sample tests (e.g., analysis of variance)
 - c) Differences in proportions (e.g., chi square)
 - c. Multivariate techniques (e.g., multiple regression and logistic regression)
 - d. Survival analysis:
 - 1) Kaplan-Meier survival curves
 - 2) Log-rank hazard test
 - 3) Cox proportional hazard

- e. Power and sample size
 - f. Confidence intervals
 - g. Alpha and beta errors (Types 1 and 2)
 - h. Sensitivity and specificity
 - i. Positive and negative predictive value
4. Know when to seek statistical consultation for research planning.

XI. TUMOR IMMUNOLOGY

A. TERMINAL OBJECTIVE:

The fellow should know the essential components of the immune system.

B. ENABLING OBJECTIVES:

The fellow must be able to define and describe:

1. Components of the immune system:
 - a. Organs
 - b. Cells:
 - 1) B cells
 - 2) T cells (e.g., helper, cytotoxic, regulatory, etc.)
 - 3) NK cells
 - 4) Dendritic cells
 - 5) Phagocytes
 - c. Antibodies
 - d. Cytokines
2. Immune response to cancer and correlation with outcome
3. Cancer antigens (e.g., tumor specific antigens, oncofetal antigens, etc.)
4. Active and passive immunity
5. Activation of antibody response
6. Activation of cellular immune response
7. Cancer risk in patients with immune suppression
8. Principles of immunotherapy:
 - a. Preventive and therapeutic cancer vaccines
 - b. Antibody based immunotherapy
 - c. Cytokine based immunotherapy
 - d. Unique side effects associated with biologic response modifiers

XII. CHEMOTHERAPY AND MOLECULAR TARGETED THERAPY FOR GYNECOLOGIC CANCERS

A. TERMINAL OBJECTIVES:

The fellow should understand the pharmacology of major drugs used in human cancer therapy and be able to prescribe them in a rational manner.

B. ENABLING OBJECTIVES:

The fellow should be able to understand and describe:

1. Tumor biology, including:
 - a. Kinetics of cancer cell growth, the cell cycle, and growth fraction
 - b. General principles of action:
 - 1) Log cell-kill principle
 - 2) Cycle specificity
 - 3) Phase specificity
 - 4) Dose intensity and dose density

5) Resistance mechanisms

2. Various classes of chemotherapeutic agents:
 - a. Alkylating agents
 - b. Antimetabolites
 - c. Anti-tumor antibiotics
 - d. Topoisomerase inhibitors
 - e. Mitotic inhibitors
 - f. Natural products, including plant alkaloids and enzymes
 - g. Hormones
3. Mechanisms of action of specific agents:
 - a. Specific mode of action
 - b. Relationship of action to cell cycle
4. Pharmacology of specific agents:
 - a. Routes of administration and absorption (e.g., oral, intravenous, intraperitoneal, intramuscular, intrathecal, etc.)
 - b. Distribution
 - c. Biotransformation
 - d. Excretion
 - e. Interactions with other drugs
 - f. Interaction with radiotherapy and hyperthermia
 - g. Mechanisms of drug resistance and approaches to reducing resistance to anticancer drugs
5. Combination chemotherapy, including:
 - a. Principles, advantages, and disadvantages of combination chemotherapy
 - b. Drug combinations in current use for gynecologic malignancies
 - c. Pharmacology of single agents and the principles for the design of combination chemotherapeutic regimens
 - d. Principles of specialized therapies, such as dose-dense and intraperitoneal chemotherapy
6. Molecular targeted therapies, including:
 - a. Various classes
 - b. Mechanisms of action
 - c. Use either alone or in combination with other therapies
 - d. Unique side effects and management of such
7. General guidelines for clinical evaluation, including:
 - a. Criteria for complete response, partial response, progressive disease, and relapse
 - b. Concept of phase I, II, and III drug trials
 - c. Current evidence for favorable adjunctive use of chemotherapy with surgery and/or radiation therapy
 - d. Rationale for dose schedule (timing), cycle length, dose intensity, duration, and metronomic dosing
8. Toxicity/complications, including:
 - a. General effects on rapidly proliferating epithelium, such as bone marrow, GI tract, and hair follicles
 - b. Specific major toxic effects of individual and combinations of drugs
 - c. Management of toxicity using:
 - 1) Supportive methods (i.e., nutritional, antiemetic drugs, hematinic drugs, and prophylactic antibiotics)
 - 2) Specific methods (i.e., blood component therapy, specific antagonists, and growth factors)
 - d. Management of extravasation
9. Treatment by organ site, including histology and stage, utilizing agents of established value within standard guidelines

10. Role of growth factors and cytokines in the prevention of chemotherapy toxicity and in the treatment of malignancies

XIII. PHARMACOLOGY

A. TERMINAL OBJECTIVES:

The fellow should know the:

1. Pharmacologic characteristics of the commonly used agents, including:
 - a. Distribution
 - b. Metabolism
 - c. Excretion
 - d. Pharmacokinetics
 - e. Pharmacodynamics
2. Adverse effects of the pharmacologic agents prescribed
3. Potential for drug interactions when using combinations of pharmacologic agents

B. ENABLING OBJECTIVES:

The fellow should understand and be able to describe:

1. PHARMACOKINETICS
 - a. Drug clearance and AUC
 - b. Volume of distribution
 - c. Intraperitoneal drugs
2. PHARMACODYNAMICS
 - a. Biomarkers as a measure of drug effect
 - b. Dose intensity/dose density
3. BASIC PRINCIPLES OF CANCER PHARMACOLOGY
 - a. Tumor biology:
 - 1) Tumor growth
 - 2) Cell cycle kinetics
 - 3) Cell cycle specificity
 - b. Pharmacologic principles of chemotherapy:
 - 1) Absorption
 - 2) Distribution and transport
 - 3) Biotransformation
 - 4) Drug excretion
 - 5) Drug interaction
 - c. Drug resistance
 - d. Toxicity and supportive care
 - e. Management of toxicity:
 - 1) Bone marrow
 - 2) Gastrointestinal
 - 3) Alopecia
 - 4) Skin
 - 5) Neurotoxicity
 - 6) Genitourinary
 - 7) Hypersensitivity
 - 8) Unique side effects associated with molecular targeted therapies
 - f. Clinical trials (*Also see section X. "Statistics and Experimental Design"*)
4. BIOLOGIC OR TARGETED CANCER TREATMENT

- a. Signal transduction
 - b. Regulators of apoptosis
 - c. Regulators of protein traffic
 - d. Novel cytotoxic and biologic agents
5. HORMONES AND CANCER
- a. Hormone receptor pathways and mechanism
 - b. Hormones and prevention
 - c. Hormones and treatment
6. NUTRITION
- a. Use and pharmacology of total parenteral nutrition, including:
 - 1) Indications
 - 2) Administration (central vs. peripheral)
 - 3) Composition of solutions to be used (dextrose and amino acids)
 - 4) Electrolytes, vitamins, and minerals
 - 5) Use of fat emulsions
 - 6) Complications of TPN associated with:
 - a) Renal dysfunction
 - b) Hepatic dysfunction
 - c) Complications of venous access sites
 - b. Use of gastrointestinal alimentation, including:
 - 1) Indications
 - 2) Routes of administration
 - 3) Composition of preparations available
 - 4) Complications
7. HEMATOPOIETIC AGENTS
- a. Use, effects, and side effects of the following agents:
 - 1) Agents that accelerate erythropoiesis, i.e. erythropoietin
 - 2) Agents that accelerate myeloid recovery, i.e., filgrastim, pegfilgrastim
8. ANTI-INFECTIVE AGENTS
- a. Understanding of antibacterial, antiviral, and antifungal therapeutic agents:
 - 1) Principles of prophylactic anti-infective therapy
 - 2) Mechanism of action and spectrum of activity of the major anti-infectives
 - 3) Major toxicities of these agents
 - 4) How to select the appropriate therapeutic agents or combinations of agents, including indications, route of administration, and duration of therapy
 - 5) Use of topical anti-infectives in wounds
9. ANALGESICS
- a. Management of acute pain: Tumor related and postoperative
 - b. Management of chronic pain (WHO guidelines)
 - c. Choice of drugs:
 - 1) Nonsteroidal anti-inflammatory agents
 - 2) Opiate agonists
 - d. Use of adjuvants in pain control
 - e. Routes of administration and administration techniques (e.g., oral, topical patches, IM, IV, continuous infusion, patient-controlled analgesia, ambulatory pump administration, etc.)
 - f. Conversion of pain medication from IV to oral/dermal route of administration
 - g. Identification and management of overdoses:
 - 1) Use of naloxone
 - 2) Use of flumazenil
 - h. Implications of hepatic impairment, renal impairment, or GI compromise on the choice of analgesic agent

10. ANESTHETIC AGENTS

- a. Inhalant agents, including metabolism, effects of renal and hepatic impairments, toxicities, and cardiovascular effects of:
 - 1) IV agents, including metabolism, effects of renal and hepatic impairments, toxicities, and cardiovascular effects
 - 2) Support of the patient in the postoperative (post-anesthesia) period
 - 3) Agents used for regional, topical, and local analgesia as well as the toxicities, metabolism, effects of renal and hepatic impairment, hypersensitivities, and cardiovascular and neurologic effects

11. ANTICOAGULANTS

- a. Mechanism of action of the various anticoagulants, including:
 - 1) Heparin
 - 2) Low molecular weight heparin
 - 3) Warfarin and other oral anticoagulant therapies
- b. Indications for and use of the anticoagulants, including general dosing parameters:
 - 1) For treatment of coagulopathies (DVT, PE)
 - 2) For prophylaxis
- c. Management of complications of anticoagulant therapy

12. CARDIOVASCULAR DRUGS

- a. Cardiotonic drugs in the management of cardiac decompensation
- b. Antiarrhythmic agents for control of treatment-related arrhythmias
- c. Diuretics for management of cardiac decompensation for fluid mobilization and for hypertension
- d. Vasoactive drugs in the management of septic shock and for hypertension
- e. Calcium channel blocking agents and renin-angiotensin-aldosterone system inhibitors use in cardiovascular disorder
- f. Use of the antilipemic agents

13. MISCELLANEOUS

- a. Antidepressants:
 - 1) Indications for use in the oncology population
 - 2) Choice of agents, dose, and course of therapy
 - 3) Use in control of painful neuralgias
- b. Anticonvulsants:
 - 1) Indications for use in oncology population
 - 2) Choice of agents and therapeutic monitoring
 - 3) Use as an adjuvant in neuropathic pain (gabapentin)
- c. Insulin and oral hypoglycemic:
 - 1) Types of insulin and indications for their use:
 - a) IV vs. SQ vs. intranasal use
 - b) Short-acting or long-acting insulins
 - c) Prandial dosing or basal insulins
 - 2) Use of insulin infusion in the ICU
 - 3) Oral hypoglycemics:
 - a) Choice of agents and combinations
 - b) Goals of therapy
- d. Antiemetics:
 - 1) Choice of agents and indications
 - 2) Route of administration, duration of action, and duration of treatment:
 - a) Prophylaxis of chemotherapy-induced nausea/vomiting
 - b) Treatment of chemotherapy-induced nausea/vomiting
 - c) Treatment of disease related nausea/vomiting
- e. Steroids:
 - 1) For treatment of hypersensitivity reactions

- 2) For prophylaxis of hypersensitivity reactions
- 3) For antiemetic use
- f. Agents for osteoporosis:
 - 1) Prevention: Calcium and vitamin D
 - 2) Treatment: Bone resorption inhibitors:
 - a) Choice of agents
 - b) Indications for therapy in the gynecologic population
- g. Drugs that modify gastrointestinal function:
 - 1) Choice and use of antidiarrheal agents
 - 2) Choice of agents and indications for use of cathartics and laxatives
 - 3) Choice of agents, dosing, and interactions of antacids

XIV. RADIATION THERAPY

A. TERMINAL OBJECTIVES:

The fellow should be familiar with the principles and practices of radiation therapy. This knowledge should be of sufficient depth so that active participation in decision making with the radiation oncologist in treatment planning can be undertaken (both brachytherapy and external beam therapy). The fellow should be able to diagnose and manage radiation-induced complications.

B. ENABLING OBJECTIVES:

The fellow should be able to discuss and apply the following aspects of radiation therapy:

1. BASIC PARAMETERS OF RADIOTHERAPY

- a. Interaction of photon radiation and matter (e.g., Compton effect, pair production, photoelectric effect, etc.)
- b. Principles of general tissue radio sensitivity/radio-resistance and organ specific normal tissue dose tolerances
- c. Physical principles that underlie therapeutic application of radiation, including:
 - a) Time-dose-fractionation relationships
 - b) Volume-dose relationships
 - c) Inverse square law
 - d) Properties of specific radiation from different sources, such as electrons, neutrons, and protons
- d. External beam therapy principles and equipment
- e. Brachytherapy principles and equipment, including the use of:
 - 1) Intracavitary applications
 - 2) Interstitial applications
 - 3) Intraperitoneal sources
 - 4) Low dose rate (LDR) vs. high dose rate (HDR) techniques and their radiobiological differences.
 - 5) Radioisotopes-half lives of commonly used isotopes, radiation type emitted energies as well as their specific uses.
- f. Radiation treatment planning concepts, including:
 - 1) Simulation
 - 2) Basic dosimetry considerations
 - 3) Computer based treatment planning
 - 4) Image fusion of data from CT, MRI, and PET
 - 5) Definition of tumor and normal tissue volumes and three-dimensional imaging, including delineation of gross target volume (GTV), clinical target volume (CTV), and planning target volume (PTV)
 - 6) Three-dimensional dose distribution, including conformal 3-D radiotherapy and intensity modulated radiation therapy (IMRT)
 - 7) Integration and impact of concurrent chemotherapy with radiotherapy
 - 8) Integration of external beam radiation and brachytherapy

- 9) Dose volume histograms of tumor and normal tissues and how these are evaluated

2. RADIOBIOLOGY

- a. The mechanisms of radiation damage, both direct and indirect.
- b. Cell survival curves and the concept of sub-lethal injury.
- c. Relative biologic effectiveness (RBE) and linear energy transfer (LET) of different types of radiation.
- d. Modification of cellular radiosensitivity produced by:
 - 1) Molecular oxygen (oxygen enhancement ratio)
 - 2) Alterations in cell cycle phase
 - 3) Radiation sensitizers
 - 4) Treatment time, fractionation
- e. Recovery and repair of tissue following radiation:
 - 1) Protection from radiation effect
 - 2) Relative radiosensitivity among different organ systems (normal tissue tolerance)

3. RADIATION MEASUREMENT AND DOSIMETRY

- a. Source to skin distance (SSD)
- b. Source axis distance (SAD)
- c. Backscatter, absorption, and attenuation
- d. Isodose curves calculated for:
 - 1) Teletherapy equipment (orthovoltage and high energy)
 - 2) Intracavitary applicators
- e. Interstitial applicators
- f. Central axis depth dose curve
- g. Significance of penumbra
- h. Beam modifiers-cerrobend blocking, multileaf collimator wedges
- i. Points "A", "B", and milligram hours in brachytherapy dosimetry

4. COMPLICATIONS (ACUTE AND DELAYED)

- a. GI tract
- b. GU tract
- c. Sexual function
- d. Skin
- e. Bone
- f. Bone marrow
- g. Kidneys
- h. Liver
- i. Central nervous system
- j. Radiation necrosis
- k. Radiation carcinogenesis
- l. Impact of organ functional subunits or partial organ tolerances

5. ORGAN SPECIFIC RADIATION TREATMENT

- a. Educate patients about the effectiveness, risks, and typical treatment course for radiation therapy corresponding to malignancies involving each of the following disease sites:
 - 1) Endometrium
 - 2) Cervix
 - 3) Vulva, including groins
 - 4) Vagina
 - 5) Ovary

XV. SURGICAL PROCEDURES

A. TERMINAL OBJECTIVES:

The fellow should have sufficient training and experience so that a variety of therapeutic and diagnostic procedures may be independently and competently performed by the completion of the fellowship. The fellow should thoroughly understand the role of clinical and surgical staging of all of the gynecologic disease sites.

B. ENABLING OBJECTIVES:

The fellow should know:

1. SURGICAL ANATOMY

- a. Blood supply and collateral circulation of all organs in the abdomen, pelvis, groin, and breast
- b. Lymphatics of all organs in the abdomen, pelvis, groin, and breast and the left supraclavicular area
- c. Avascular spaces in the pelvis
- d. Neuroanatomy of the pelvis

2. PREOPERATIVE PREPARATION

- a. Role of pre-operative medical clearance and optimization:
 - 1) Pulmonary, including role of pulmonary function testing
 - 2) Cardiac, including role of beta-blockers
 - 3) Metabolic
- b. Position of ostomy sites
- c. How to inform and counsel the patient and family properly and discuss treatment alternatives
- d. DVT prophylaxis, including perioperative management of the anticoagulated patient

3. PRIMARY SURGICAL THERAPY

- a. Hysterectomies:
 - 1) Simple:
 - a) Vaginal
 - b) Abdominal (laparotomy)
 - c) Minimally invasive approach:
 - i. Laparoscopic
 - ii. Robotic
 - 2) Modified radical or radical:
 - a) Abdominal (laparotomy)
 - b) Minimally invasive approach:
 - i. Laparoscopic
 - ii. Robotic
- b. Salpingo-oophorectomies
- c. Radical cytoreductive procedures
- d. Lymphadenectomies of:
 - 1) Inguinal
 - 2) Femoral
 - 3) Pelvic
 - 4) Para-aortic areas
- e. Vaginectomies:
 - 1) Simple
 - 2) Radical
- f. Vulvectomies:
 - 1) Skinning
 - 2) Simple
 - 3) Partial
 - 4) Radical
- g. Pelvic exenterations:
 - 1) Anterior

- 2) Posterior
 - 3) Total
 - h. Omentectomies
 - i. Insertions of intracavity radiation application
 - j. Laser ablation
 - k. MIS surgical approaches for the above where applicable
4. GASTROINTESTINAL AND UPPER ABDOMINAL
- a. Placements of feeding jejunostomy/gastrostomy
 - b. Resections and re-anastomoses of small bowel
 - c. Bypass procedures of small bowel
 - d. Mucous fistula formations of small bowel
 - e. Ileostomies
 - f. Repair of fistulas
 - g. Resection and reanastomoses of large bowel, including low anterior resection and reanastomosis
 - h. Bypass procedures of large bowel
 - i. Mucous fistula formations of large bowel
 - j. Colostomies
 - k. Splenectomies
 - l. Liver biopsies
 - m. Diaphragmatic resection
5. URINARY TRACT
- a. Bladder, including:
 - 1) Partial cystectomies
 - 2) Total cystectomies
 - 3) Repairs of vesicovaginal fistulas with:
 - a) Primary closures
 - b) Secondary closures using interposition of autologous tissue(s), such as omentum and bulbocavernosus muscle
 - 4) Cystotomies
 - b. Ureter, including:
 - 1) Ureteroneocystostomies with and without:
 - a) Bladder flaps
 - b) Psoas fixations
 - 2) End-to-end ureteral re-anastomoses
 - 3) Transuretero-ureterostomies
 - 4) Small-bowel interpositions
 - 5) Cutaneous ureterostomies
 - 6) Repairs of intraoperative injuries to the ureters
 - c. Conduits developed:
 - 1) From ileum
 - 2) From colon
 - a) Continent
 - b) Non-continent
6. INCISION AND DRAINAGE OF ABDOMINAL OR PERINEAL ABSCESSSES
7. RECONSTRUCTION
- a. Develop a neovagina from:
 - 1) Split thickness skin grafts
 - 2) Pedicle grafts
 - 3) Myocutaneous grafts
 - b. Develop a new pelvic floor from:
 - 1) Omental pedicle grafts
 - 2) Transposition of myocutaneous grafts
8. EVALUATION PROCEDURES

- a. Cystoscopies
- b. Laparoscopies
- c. Colposcopies and LEEP excisions
- d. Sigmoidoscopies
- e. Breast mass:
 - 1) Fine-needle aspirations
 - 2) Needle biopsies

9. MANAGEMENT OF ALL INTRA-OPERATIVE COMPLICATIONS

- a. Including but not limited to:
 - 1) Acute intraoperative bleeding:
 - a) Coagulopathies
 - 2) Injuries to bladder, ureters, vessels, nerves, and bowel

10. MANAGEMENT OF POST-OPERATIVE COMPLICATIONS:

- a. Fever:
 - 1) All pulmonary complications
 - 2) Wound infections
 - 3) GU infection
 - 4) Colitis
 - 5) Sepsis and septic shock
 - 6) Intra-abdominal abscess
- b. Bleeding, Including:
 - 1) Coagulopathy
- c. Thromboembolic disease:
 - 1) DVT
 - 2) PE
 - 3) Septic pelvic thrombophlebitis
- d. GU and GI fistulas
- e. Organ dysfunction:
 - 1) Pulmonary:
 - a) Respiratory distress
 - b) COPD
 - c) ARDS/TRALI
 - 2) Cardiac:
 - a) Arrhythmia
 - b) CHF
 - c) MI
 - d) Hypertensive crisis
 - 3) Renal:
 - a) Mechanical
 - b) Functional
 - 4) GI:
 - a) Ileus
 - b) Obstruction
 - c) Diarrhea and short bowel syndrome
 - d) Hepatic failure
- f. Metabolic abnormalities
- g. Wound complications:
 - 1) Infection
 - 2) Dehiscence
 - 3) Evisceration
 - 4) Hernias:
 - a) Ventral
 - b) Stomal
- h. Mental status changes
- i. Pain management

XVI. OTHER TOPICS

A. TERMINAL OBJECTIVE:

The fellow should have knowledge and skill in areas relating to the care of gynecologic oncology patients.

B. ENABLING OBJECTIVES:

The fellow should be able to:

1. Place/perform the following procedures:
 - a. Temporary or permanent central venous access lines
 - b. Intraperitoneal ports
 - c. Paracentesis
2. Address medical legal/quality assurance issues, including:
 - a. Informed consent
 - b. Issues associated with clinical trials enrollment
 - c. Quality assurance programs
 - d. Institutional review board approval processes
3. Understand and practice the highest quality medical ethics, including:
 - a. Appropriate professional conduct concerning the rights and duties of the physician, patients, and fellow practitioners
 - b. How to address the patients' family and their needs as they relate to the patients' care
 - c. Advanced Directives
4. Understand/perform palliative care (at home and in the hospital), including:
 - a. Medical options
 - b. Surgical options
 - c. Use of radiation therapy
 - d. Pain management
 - e. Hospice care
 - f. Counseling of the patient and their family regarding death and dying
 - g. Quality of life issues

XVII. THESIS REQUIREMENTS

A thesis is required by the Division of Gynecologic Oncology. For a list of requirements, refer to the *Bulletin for Subspecialty Certification* on the ABOG website.