GUIDE TO LEARNING

IN FEMALE PELVIC MEDICINE
AND RECONSTRUCTIVE SURGERY

2003

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and Reconstructive Surgery,

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I. Anatomy

Terminal Objectives:

The Fellow must have knowledge of the surgical anatomy of the pelvic floor including genital, urinary, colo-rectal-anal, skeletal, and myofascial elements and understand the pathologic variance from the normal state.

Enabling Objectives:

A. The Fellow must have knowledge of anatomy and surgical implications of:
   1. vascular and neurologic supply to all organs and structures of the female pelvis.
   2. pelvic and retroperitoneal contents and spaces.
   3. bony pelvis structures.
   4. fascia and ligaments.
   5. muscles of the abdominal wall and pelvis.
   6. functional anatomy of the continence mechanisms of the urethra and anus.

II. Physiology and Pelvic Floor Including Normal Lower Urinary Tract, Colo-Rectal-Anal and Vaginal Function

Terminal Objectives:

The Fellow should be able to discuss the factors that influence normal and abnormal lower urinary tract, colo-rectal-anal and vaginal function.

Enabling Objectives:

The Fellow must know the following factors which influence pelvic floor physiology and normal lower urinary tract, colo-rectal-anal, and vaginal function and be able to describe:

A. the physiology of micturition and storage, which includes the
   1. neurologic influences that control the
      a. central nervous system pathways and centers that modulate lower urinary tract function.
      b. influence of sympathetic and parasympathetic neural activity on urinary tract structure and function.
c. role of adrenergic, cholinergic, and the putative role of non-adrenergic, non-cholinergic neurotransmitters on lower urinary tract function.
d. visceral and somatic efferent and afferent neural pathways of the lower urinary tract.

2. anatomical factors which affect
   a. continence and micturition.
   b. the normal urethral sphincter mechanism at rest and with physical stress.

3. pharmacologic and endocrine factors which affect urinary function, including the specific action(s) of
   a. pharmacological agents.
   b. estrogen and progesterone and the mechanisms by which these are mediated.

B. the physiology of colo-rectal-anal function which includes:
   1. neural influences associated with:
      a. the central, spinal and supraspinal somatic and autonomic motor and sensory neural networks which direct and control colo-rectal-anal function.
      b. the effects of loss of neural activities on colo-rectal-anal function.
   2. anatomical factors which govern
      a. anatomic relationships with colo-rectal-anal function.
      b. the effects of anatomic alterations on colo-rectal-anal function.
   3. pharmacological factors and the influence of pharmacologic and dietary agents on colo-rectal-anal function.
   4. extrinsic pathologic factors and their influence on colo-rectal-anal function in various age groups.

C. vaginal function which includes:
   1. physiologic functions that govern
      a. normal function of the vagina in women of reproductive and postmenopausal years.
      b. the effects of estrogen and progesterone on vaginal function.
   2. anatomical factors that affect function of the vagina in women in reproductive and postmenopausal years.
   3. sexual function and the
      a. normal physiologic response to sexual stimulation in women in the reproductive and postmenopausal years.
      b. influence of sex hormones on sexual function in reproductive and postmenopausal years.
      c. effects of pharmacologic agents on vaginal function.
III. Pathophysiology of Urinary and Anal Incontinence and Pelvic Organ Prolapse

Terminal Objectives:

The fellow must be able to:

A. take a comprehensive medical history in addition to a specific urologic and urogynecologic history that establishes the clinical type and severity of the UI.

B. perform a complete physical examination in addition to a directed urogynecologic examination that will be correlated with the results of objective testing to formulate a treatment plan.

C. select the diagnostic techniques needed to:
   1. establish the diagnosis of the condition and the physiologic subtypes causing the UI using standard diagnostic criteria and definitions established by the International Continence Society (ICS).
   2. establish the severity of the UI.
   3. identify conditions that cause similar symptoms, but require different treatments (e.g., detrusor instability and detrusor hyperactivity with impaired contractility; urethral mobility and intrinsic urethral deficiency).
   4. evaluate the co-existing environmental factors or diseases which may have an important bearing on the selection or response to treatment.

Urinary Incontinence (UI)

Enabling Objectives:

The fellow must be able to:

A. obtain a specific history and must be able to:
   1. understand and correctly use standard terminology related to the signs and symptoms of UI and lower urinary tract dysfunction as currently defined by the ICS.
   2. evaluate the severity and extent of disability caused by the symptoms. This includes familiarity with the use of standard prospective diaries, pad tests, and condition-specific quality of life surveys and scales.
   3. evaluate past medical, obstetrical and surgical histories as they relate to current symptoms.
4. evaluate current medications, including over the counter drugs and their possible effects on symptoms.
5. evaluate the status of other organ systems, including the nervous system, and their possible effects on lower urinary tract dysfunction.
6. understand the possible psychosocial and psychosexual relationships to lower urinary tract dysfunction including the use of established psychosexual questionnaires.
7. elicit a complete list of all prior therapies (including self-administered management techniques) and the response to each.

B. perform a directed physical examination. Specifically, the fellow must be able to perform and correctly interpret:
   1. a directed neurologic examination including assessment of voluntary muscle control, pelvic floor reflexes and sensory function.
   2. a thorough pelvic examination including an evaluation of the bladder base and urethral support at rest and with physical stress, and perform an evaluation of the anatomic support and hormonal status of the vaginal walls.
   3. specific tests used to evaluate urethrovesical junction mobility.
   4. specific tests used to evaluate pelvic muscle and anal sphincter tone and voluntary control.
   5. tests which demonstrate the signs of stress incontinence.

C. perform the diagnostic techniques listed in Table I. Also, for each of the diagnostic techniques listed in Table I, the fellow must know the:
   1. accepted standard terminology, normal values, and reliability of the test.
   2. variations in the instruments and techniques for performing the test.
   3. requisite technical specification of the equipment or systems necessary to measure pertinent variables or visualize pertinent structures.
   4. indications for, limitations of, and cost-effectiveness of the test.
   5. difference between static and dynamic use of the test, including the value of performing the study in different positions.
   6. significant controversies regarding the interpretation or usefulness of the test.
   7. results which mandate further testing.
TABLE I. Diagnostic Tests for Urinary Incontinence and Lower Urinary Tract Dysfunction

A. Simple single channel office cystometry  
B. Multi-channel electronic cystometry  
C. Urethral pressure profilometry  
D. Leak point pressures  
E. Uroflowmetry (simple, instrumented pressure flow studies)  
F. Urethral and anal sphincter electromyography  
G. Neurophysiologic studies (e.g., evoked potentials, terminal motor latency, fiber density, wave form analysis)  
H. Endoscopy (cystoscopy, urethroscopy)  
I. Imaging studies (e.g., fluoroscopy, ultrasound, MRI)  
J. Pelvic muscle testing  
K. Bladder cytology, cytometry, and polymerase chain reaction techniques  
L. Urinary microscopy and culture  
M. Laboratory blood work

Fecal Incontinence (FI)

Terminal Objectives:

The fellow must be able to:

A. take a history that will establish the clinical types and severity of the FI.  
B. perform a directed physical examination that will be correlated with the results of objective testing to formulate a treatment plan.  
C. select the diagnostic techniques needed to:  
   1. establish the cause of the FI.  
   2. evaluate co-existing factors or diseases which may have an important bearing on selection and response to treatment.

Enabling Objectives:

The fellow must be able to:

A. obtain a specific history and must be able to:
1. understand the associative or alternative presenting complaints of patients with fecal incontinence including diarrhea, rectal urgency or defecatory problems, and the association of FI and urinary incontinence.

2. elicit a history that differentiates the involuntary passage of flatus, unformed stool and formed stool, the leaking of relatively small amounts of non-fecal liquid material staining underclothes, and bothersome frequent or urgent defecation not associated with actual soiling.

3. establish the severity and duration of the fecal incontinence and the factors which contribute or precipitate it. This must include an assessment of the degree to which the patient has restricted or otherwise altered her normal activity because of FI.

4. evaluate past medical, obstetrical and surgical histories as they relate to the current symptoms

5. evaluate current medications including over the counter drugs and their possible effect on ano-rectal function.

6. evaluate the status of other organ systems including neurologic, lower urinary tract and pelvic support, and their possible effects of the colorectal system.

7. understand the possible psychosocial and psychosexual effects of defecatory dysfunction

8. elicit a complete list of all prior therapies (including self-administered management techniques) and the response to each.

B. perform a directed physical examination and be able to:

1. perform and correctly interpret a directed neurologic examination including assessment of voluntary muscle control, pelvic floor reflexes, and perineal and ano-rectal sensory function.

2. inspect the lower vagina, perineal body, and external anal sphincter to detect abnormalities including fistula, fissures, scarring, attenuation and/or descent of the perineum, rectal prolapse, hemorrhoids and discrete sphincter defects. Because there are often multiple defects, the importance of a complete and systemic examination must be understood.

3. perform and correctly interpret the anatomic and neurologic findings of vaginal and rectal examinations under different conditions in order to detect signs associated with defecatory dysfunction.

C. perform diagnostic techniques listed in Table II; and for each of the diagnostic techniques or tests listed in Table II, the fellow must know the:
1. accepted standard terminology, normal values and reliability of the test.
2. variations in instruments and techniques for performing the test.
3. requisite technical specifications of equipment or systems necessary to measure pertinent variables or visualize pertinent structures.
4. indications for, limitations of and cost-effectiveness of the test.
5. difference between static and dynamic use of the test, including the value of performing the study in different positions.
6. significant controversies regarding the interpretation or usefulness of the test.
7. results which mandate further testing.

**TABLE II. Diagnostic Tests for Fecal Incontinence**

A. Endoscopy including anoscopy, proctoscopy, and colonoscopy
B. Anal manometry
C. Anal vector manometry
D. Anorectal sensory assessment
E. Measurement of rectal compliance
F. Defacography or evacuation proctography
G. Neurophysiologic studies (e.g., electromyography, motor unit potential analysis, terminal motor latencies, cauda equina stimulation, single fiber EMG)
H. Anal endosonography
I. Other imaging techniques including dynamic fluoroscopy, anal sphincter MRI, fistulography, and traditional bowel imaging studies

**Pelvic Organ Prolapse and Pelvic Floor Dysfunction**

**Terminal Objective:**

The fellow must be able to:

A. take a specific history that will establish symptoms attributable to the prolapse or pelvic floor dysfunction.
B. perform a directed physical examination that will identify and accurately describe all anatomic defects, describe the prolapse quantitatively, and stage the prolapse according to the Pelvic Organ Prolapse Quantification (POP-Q) system or to another established grading system.
C. select the diagnostic techniques needed to:
   1. identify the organs and defects involved in the prolapse.
   2. evaluate co-existing factors or diseases which may have an important bearing on selection of and response to treatment.

Enabling Objectives:

A. The fellow must be able to:
   1. establish the existence, frequency, duration, and severity of functional symptoms which may be attributable to pelvic organ prolapse and pelvic floor dysfunction related to the lower urinary tract, the bowel, sexual activity, and other local symptoms. The fellow should be aware of the lack of established cause and effect relationships between prolapse and various symptoms as well as the frequent disparity between anatomic findings and clinical symptoms.
   2. characterize lower urinary tract symptoms. Reference has already been made to currently approved ICS terminology related to lower urinary tract function. In addition, fellows should be able to assess important prolapse-related symptoms not included in the current standards (e.g., the need to reduce manually the prolapse or assume an unusual position to initiate or complete micturition, feelings of incomplete emptying, weak or prolonged urinary stream).
   3. characterize bowel symptoms. Fecal incontinence has already been discussed in detail. Fellows should be able to assess other bowel symptoms that may be attributable to prolapse or pelvic floor dysfunction (e.g., difficulty with defecation, discomfort with defecation, digital manipulation of the vagina or perineum to complete defecation, or a feeling of incomplete evacuation).
   4. characterize sexual function symptoms. Fellows should understand the difficulty of distinguishing between the ability to have vaginal intercourse and satisfactory sexual function. This history should include an assessment of the degree of sexual activity, reasons for diminished activity, satisfaction with sexual activity, and changes in activity.
   5. characterize pelvic symptoms possibly resulting from pelvic organ prolapse and pelvic floor dysfunction. Fellows should recognize the current lack of knowledge regarding the precise nature of symptoms that may be caused by the presence of a protrusion or bulge.
6. elicit a complete list of all prior therapies (including self-administered management techniques) and the response to each.

B. perform a directed physical examination and be able to:
   1. perform and correctly interpret a directed neurologic examination including an assessment of voluntary muscle control, pelvic floor reflexes, and sensory function.
   2. perform a site-specific examination and construct a precise quantitative description of the individual patient’s pelvic support and anatomy according to the Pelvic Organ Prolapse Quantification (POP-Q) system or other standardized systems.
   3. understand the many variables of the conditions of the examination that may affect the severity of the observed prolapse and alter the measurements.
   4. assign an appropriate stage or grade to the prolapse based upon the site-specific examination.
   5. perform ancillary procedures that may further characterize an individual patient’s pelvic organ prolapse (e.g., urethral axial mobility measurements, measurements of perineal descent, techniques for differentiating central versus anterior paravaginal defects, techniques for differentiating types of enteroceles).

C. perform diagnostic techniques, and for each of the diagnostic techniques or tests listed in Table III, the fellow must know the:
   1. accepted standard terminology, normal values and reliability of the test.
   2. variations in instruments and techniques for performing the test.
   3. requisite technical specifications of equipment or systems necessary to measure pertinent variables or visualize pertinent structures.
   4. indications for, limitations of and cost-effectiveness of the test.
   5. difference between static and dynamic use of the test, including the value of performing the study in different positions.
   6. significant controversies regarding the interpretation or usefulness of the test.
   7. results which mandate further testing.
TABLE III. Diagnostic Tests for Pelvic Organ Prolapse

A. Photography
B. Endoscopy including cystourethroscopy, anoscopy and proctography
C. Imaging studies including ultrasonography, contract radiography, computed tomography, MRI
D. Pelvic floor manometry
E. Electromyography and neurophysiologic testing
F. Urodynamic studies with and without the prolapse reduced

IV. Treatment of Urinary Incontinence (excluding fistula and diverticulum)

Surgical Treatment

Terminal Objectives:

By the completion of the fellowship, the fellow must have sufficient training and experience that a variety of therapeutic continence surgical procedures may be independently and competently performed for appropriate indications.

Enabling Objectives:

The fellow must know and understand the indications for:

A. each of the procedures listed in Table IV and be able to:
   1. list the indications, contraindications, and cost.
   2. describe the techniques.
   3. cite published immediate and long-term success rates as a primary procedure and as a secondary procedure.
   4. cite published immediate and long-term success rates for procedures for genuine stress incontinence associated with hypermobility, intrinsic urethral sphincteric deficiency, and a combination of these.
   5. describe possible intraoperative complications, their detection, techniques for prevention, and their management.
   6. describe possible long-term complications and their management.
TABLE IV. Continence Procedures for Genuine Stress Incontinence

A. Periurethral bulk injections (e.g., polytef, collagen, fat)
B. Vaginal urethropexy (e.g., bladder neck plication, vaginal paravaginal defect repair)
C. Retropubic urethropexy (e.g., Marshall-Marchetti-Krantz, Burch, and paravaginal defect repair)
D. Long needle procedures (e.g., Pereyra, Raz, Stamey, Gittes, Muzsnai)
E. Sling procedures (e.g., fascia lata, rectus fascia, heterologous materials, vaginal wall)

B. each of the surgical procedures listed in Table V and be able to:
   1. list the indications, contraindications and cost.
   2. describe the techniques.
   3. cite published immediate and long-term success rates.
   4. describe possible intraoperative complications.
   5. describe possible long-term complications and their management.
   6. evaluate critically the quality of the studies which have established success and complication rates.

7. discuss the quality of the studies which have established success and complication rates.
8. evaluate and manage acute and chronic post-operative urinary retention or voiding dysfunction.
TABLE V. Surgical Procedures Used to Restore Urinary Continence

A. Continence procedures for overflow incontinence due to anatomic obstruction following continence surgery
   1. Cutting of one or more suspending sutures (early)
   2. Retropubic urethrolysis with or without repeat bladder neck suspension (late)
   3. Revision, removal, or release of a suburethral sling

B. Other surgical procedures for treating urinary incontinence
   1. Placement of an artificial urinary sphincter for GSI due to intrinsic urethral sphincteric deficiency
   2. Continent vesicotomy or supravesical diversion for overflow incontinence due to bladder neck or urethral obstruction
   3. Augmentation cystoplasty, supravesical diversion, sacral nerve stimulator implantation, and bladder denervation for intractable detrusor instability and decreased bladder compliance
   4. Urethral closure and suprapubic cystotomy for urinary incontinence due to advanced multiple sclerosis

Pharmacological Treatment

Terminal Objectives:

By the completion of the fellowship, the fellow must have sufficient training and experience that a variety of therapeutic pharmacologic agents can be safely and appropriately prescribed to treat urinary incontinence.

Enabling Objectives:

A. For each of the classes of drugs listed in Table VI, the fellow should know the following and be able to:
   1. list indications and contraindications.
   2. describe the safe and effective ranges of dosing.
   3. cite published rates of effectiveness.
   4. describe possible side effects and their prevalence.
   5. list rates of long-term continuation and compliance.
   6. evaluate critically the quality of the studies which have established success and complication rates.
   7. list costs of these drug treatment regimens.
TABLE VI. Drugs Used to Treat Urinary Incontinence

A. Drugs for unstable bladder and urge incontinence (Detrusor instability ± urethral instability)
   1. detrusor relaxants (anticholinergic agents, spasmolytic agents, calcium channel blockers, prostaglandin inhibitors)
   2. urethral pressure stabilizers (a-adrenergic agonists and antagonists)
   3. agents with combined detrusor/urethral effects
   4. estrogen

B. Drugs for stress urinary incontinence
   1. urethral smooth muscle stimulators (a-adrenergic agonists and β-adrenergic antagonists)
   2. estrogen

C. Drugs to improve emptying and to treat overflow incontinence
   1. detrusor stimulators (cholinergic agents, prostaglandins)
   2. urethral smooth muscle and bladder outlet relaxants (a-adrenergic antagonists)
   3. Urethral skeletal muscle relaxants (polysynaptic inhibitors)

D. Pharmacologic manipulations as part of functional treatment (see FUNCTIONAL TREATMENT)

Behavioral Treatment

Terminal Objectives:

By the completion of the fellowship, the fellow must have sufficient training and experience that a variety of behavioral therapeutic techniques can be used appropriately to treat urinary incontinence.

Enabling Objectives:

A. For each of the interventions listed in Table VII, the fellow should know the following and be able to:
   1. list indications and contraindications.
   2. cite published rates of effectiveness.
   3. describe possible side effects and their prevalence.
   4. list rates of long-term continuation and compliance.
   5. evaluate critically the quality of the studies which have established success and complication rates.
   6. list costs of these treatment regimens.
<table>
<thead>
<tr>
<th>TABLE VII. Behavioral Treatment Methods Used to Manage Urinary Incontinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Scheduled voiding regimens (e.g., bladder training, habit training, timed voiding, prompted voiding)</td>
</tr>
<tr>
<td>B. Bladder training with biofeedback (e.g., vesical pressure display)</td>
</tr>
<tr>
<td>C. Pelvic muscle exercises</td>
</tr>
<tr>
<td>D. Pelvic muscle training with biofeedback (e.g., palpation, vaginal pressure display, EMG, vaginal cones)</td>
</tr>
<tr>
<td>E. Electrical stimulation</td>
</tr>
<tr>
<td>F. Treatment of dysfunctional voiding and overflow with biofeedback (e.g., external sphincter EMG display)</td>
</tr>
</tbody>
</table>

**Functional Treatment**

**Terminal Objectives:**

By the completion of the fellowship, the fellow should have sufficient training and experience that he or she can evaluate and manipulate factors not directly related to lower urinary tract function or treat or manage urinary incontinence in appropriately selected patients.

**Enabling Objectives:**

The fellow must be able to cite the potential:

A. factors, not directly related to lower urinary tract function or to a deterioration in a previously well-compensated dysfunctional state, that may result in urinary incontinence. Examples of such factors include:
   1. patient related factors such as general debilitation or lack of mobility that result in more time to reach the toilet, limitations in dexterity that result in more time to release clothing, significant voluntary increases in fluid intake, cigarette smoking, or fecal impaction.
   2. environmental factors such as a lack of familiarity with facilities, a lack of facilities, or limitations in accessibility of facilities due to a change in living arrangements.
   3. concurrent disease factors such as dementia, hyperglycemia, hypercalcemia, infection, age-related nocturnal diuresis,
hormonal deprivation, progressive obstructive pulmonary disease, bronchitis and arthritis.

4. medications such as sedatives, hypnotics, loop diuretics, a-adrenergic agonists/antagonists, antidepressants, calcium channel blockers, other autonomic agents).

B. role and risks of each of the following functional interventions in the management of urinary incontinence and be able to:

1. manage fluid techniques, including evening restrictions.
2. change pharmacologic agents or timing of their use (e.g., timing diuretic use to avoid diuresis at inconvenient times, changing antihypertensive regimens to avoid a-adrenergic blockade).
3. avoid nocturnal diuresis (e.g., daytime rest periods in the reclining position, use of desmopressin).
4. optimize control of allergies, bronchitis, and chronic cough, including the use of nicotine substitutes and the institution of a smoking cessation program.
5. modify the environment to allow easier access to toilet facilities (e.g., use of a bedside commode).
6. optimize bowel function and to minimize constipation, straining, or fecal impaction.
7. modify clothing to compensate for decreased dexterity (e.g., Velcro closures instead of buttons).
8. consider therapeutic opportunities that multiple lower urinary tract abnormalities may create (e.g., symptomatic DHIC and asymptomatic GSI coexist in a sedentary elderly patient who is unable to master intermittent self-catheterization and suppress detrusor activity with anticholinergic and teach her to take advantage of her stress incompetent urethra by voiding with Valsalva strain or Credé).
9. use intermittent self-catheterization.
10. use absorbent products.
11. use pessaries or tampons.
12. identify hazards and limitations of chronic indwelling catheters.

V. Treatment of Fecal Incontinence

Terminal Objectives:

By the completion of the fellowship, the fellow will have sufficient training and experience with a variety of medical and surgical treatments for fecal incontinence to provide and/or supervise the interventions listed below under appropriate circumstances:
Enabling Objectives:

The fellow must know:

A. the following for each of the surgical procedures listed in Table VIII and be able to:
   1. list indications and complications.
   2. describe the technique.
   3. cite published immediate and long-term success rates as a primary or secondary procedure.
   4. describe possible intraoperative complications, prevention, detection and management.
   5. discuss possible long-term complications and their management.
   6. evaluate critically the quality of the studies which have established success and complication rates.
   7. perform these procedures.

<table>
<thead>
<tr>
<th>TABLE VIII. Surgical Techniques Used to Correct Anal Incontinence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Sphincteroplasty</td>
</tr>
<tr>
<td>B. Colostomy</td>
</tr>
<tr>
<td>C. Bowel resection</td>
</tr>
<tr>
<td>D. Muscle transposition</td>
</tr>
<tr>
<td>E. Retrorectal repair</td>
</tr>
<tr>
<td>F. Dynamic (stimulated) muscle transposition</td>
</tr>
</tbody>
</table>

B. the appropriate use of the following non-operative procedures and be able to provide:
   1. behavioral interventions including
      a. dietary change.
      b. perineal exercises.
      c. biofeedback training.
      d. electrical stimulation.
      e. cleansing enemas.
   2. pharmacologic interventions.

C. when and how to use combined therapies such as muscle transposition and electrical stimulation techniques
VI. Pelvic Floor Dysfunction and Prolapse - Non-surgical and Surgical Management

Terminal Objective:

The fellow will be able to treat pelvic floor dysfunction and genital prolapse.

Enabling Objectives:

The fellow must:

A. know the following about the operative procedures listed in Table IX and be able to:
   1. recognize the importance of examination under anesthesia prior to the start of a procedure.
   2. perform the surgical techniques listed in Table IX.
   3. describe possible intraoperative complications, their prevention and management.
   4. cite published, immediate, and long-term success rates as a primary or secondary procedure.
   5. recognize postoperative complications and their management.
   6. discuss possible long-term complications and their management.
   7. evaluate critically the quality of studies that establish success of procedure.

<table>
<thead>
<tr>
<th>TABLE IX.</th>
<th>Procedures Used to Treat Complex Pelvic Floor Dysfunction and Genital Prolapse</th>
</tr>
</thead>
</table>
| A. Abdominal | 1. closure or repair of enterocele  
               2. transabdominal sacrocolpopexy  
               3. paravaginal repair |
| B. Vaginal | 1. transvaginal hysterectomy with or without colporrhaphy  
              2. anterior and posterior colporrhaphy and perineorrhaphy  
              3. paravaginal repair  
              4. Manchester operation  
              5. enterocele repair  
              6. vaginal vault suspension  
              7. colpocleisis  
              8. retro-rectal levator plasty and post anal repair |
B. be able to describe non-surgical management of prolapse and be able to provide:
   1. pharmacologic methods including hormone replacement, both systemic and local.
   2. pelvic floor rehabilitation (pelvic muscle exercises, galvanic stimulation, physiotherapy).
   3. appropriate fitting of pessaries.

VII. Vesicovaginal, Urethrovaginal Fistula and Diverticulum of the Urethra

Terminal Objectives:

The fellow must be able to diagnose and treat vesicovaginal, urethrovaginal fistula and diverticulum of the urethra.

Enabling Objectives:

The fellow must know the:

A. etiologies of vesicovaginal and urethrovaginal fistula and diverticulum of the urethra due to the following etiologies:
   1. obstetrics
   2. operative injury
   3. malignancy
   4. radiation
   5. trauma
   6. miscellaneous

B. appropriate investigative techniques necessary to make the diagnosis and be able to elicit an adequate history, perform a physical examination and be able to perform contrast urethrography and cystoscopy and to interpret intravenous pyelography and other imaging studies (such as the ultrasonography and MRI) used to detect and ultimately to correct these fistulas.

C. appropriate medical and surgical procedures necessary to correct these problems and understand when to:
   1. use a large urethral catheter.
   2. carry out the operative management, including the placement of ureteral catheters. The fellow should also know the most appropriate time, surgical approach and technique for repair.
   3. provide postoperative management dealing with the proper catheter draining for repair of diverticula and fistula.
4. use antibiotics.
5. alter physical activity of the patient.

VIII. Rectovaginal Fistula

Terminal Objectives:

The fellow must be able to diagnose and treat a rectovaginal fistula.

Enabling Objectives:

The fellow must be able to:

A. take a comprehensive history and be able to perform a physical examination of the pelvis.
B. describe the etiology of rectovaginal fistula formation due to the following etiologies:
   1. congenital
   2. obstetric
   3. trauma
   4. radiation
   5. inflammatory bowel disease
   6. primary, recurrent or metastatic neoplastic disease
   7. miscellaneous
C. select the appropriate diagnostic studies necessary to establish the diagnosis.
D. perform the precise operative repair which will vary with location, size, number and etiology of the rectovaginal fistula.
E. provide appropriate postoperative care and management of complications.

IX. Intraoperative Injury - Prevention and Immediate Management

Terminal Objectives:

The fellow must be aware of the potential for intraoperative injuries to the pelvic viscera and know the appropriate preoperative and postoperative means to prevent and/or correct these injuries.
Enabling Objectives:

The fellow must be able to:

A. take a careful history, perform an accurate physical examination knowing the natural history of the conditions that lead to potential intraoperative complications.
B. properly assess the use of preoperative cystoscopy, proctosigmoidoscopy, and imaging procedures to aid in accuracy of diagnosis.
C. properly use intraoperative measures to prevent and to recognize injury of pelvic structure, e.g., ureteral stent, cystoscopy, dye studies.
D. repair and/or resect an injured portion of the gastro-intestinal, genito-urinary, and vascular system within the pelvis.

X. Congenital Anomalies of the Female Genital Tract

Terminal Objectives:

The fellow must be able to diagnose and should be able to treat congenital anomalies of the female genital tract.

Enabling Objectives:

The fellow must be able to:

A. describe the normal and abnormal embryonic and genetic development affecting the internal and external structures of the female genital tract; i.e., imperforate hymen, transverse vaginal septum, vaginal agenesis, mullerian and gonadal anomalies.
B. obtain a careful history and perform an accurate physical examination.
C. understand the indications, limitations, and interpretations of special investigations including:
   1. hormonal evaluations.
   2. karyotyping studies.
   3. imaging studies.
   4. endoscopic studies.
D. perform the medical and surgical techniques to best manage congenital anomalies, including imperforate hymen, vaginal agenesis, transverse vaginal septum, mullerian and gonadal anomalies.
XI. Irritative Conditions of the Genitourinary Tract

Urinary Tract Infections

Terminal Objectives:

The fellow must be able to diagnose and treat acute, chronic and recurrent urinary tract infections in both pregnant and non-pregnant women.

Enabling Objectives:

The fellow must:

A. understand and be able to define the following definitions:
   1. asymptomatic bacteriuria
   2. acute bacterial cystitis
   3. acute bacterial urethritis
   4. pyelonephritis
   5. reinfection
   6. persistent infection
   7. relapse of infection

B. be able to describe the role of each of the following pathophysiologic factors in the prevention or the development of urinary tract infections:
   1. normal genitourinary tract flora including differences between the flora of reproductive age and postmenopausal women
   2. the source and composition of urinary tract pathogens leading to acute cystitis and/or acute pyelonephritis
   3. predisposing risk factors for the development of urinary tract infections
   4. host defense mechanisms which serve to prevent urinary tract infections
   5. bacterial properties which determine bacterial virulence and the type of infections
   6. the differences between uncomplicated and complicated urinary tract infections
   7. the effect of pregnancy on the natural history of urinary tract infections
   8. the role of coitus and/or contraceptive method on the development of urinary tract infections

C. understand and be able to discuss:
1. the differential diagnosis of acute dysuria, urgency and frequency symptoms. The fellow should be able to differentiate dysuria due to external vulvar irritation from dysuria due to acute urinary tract infections.

2. the different methods for collecting a urine specimen, the accuracy of these methods and the potential errors in collection or processing of specimens.

3. the techniques and accuracy of dipstick screening for pyuria, hematuria and/or bacteriuria.

4. the techniques, interpretation and accuracy of microscopic urinalysis for pyuria, hematuria and/or bacteriuria.

5. quantitative urine cultures and the
   a. source of the specimen and the techniques of processing it.
   b. interpretation of colony counts; i.e., the significance of $10^6$ cfu versus $10^2$ cfu per mL in symptomatic women.

6. the role of other cultures for genitourinary tract organisms such as chlamydia, mycoplasma and ureaplasma in the evaluation of dysuria, urgency and frequency syndromes.

7. the appropriate indications for invasive testing of the urinary tract using
   a. cystourethroscopy.
   b. intravenous pyelography.
   c. retrograde studies.
   d. localization studies.

D. know the rationale for the choice of the appropriate treatment of urinary tract infections. This should include the indications, contraindications, appropriate pharmacologic agents, therapeutic dosages and common side effects for the following therapeutic regimens:

1. single-dose therapy.
2. short-term therapy (3 days) in uncomplicated urinary tract infections.
3. traditional 7-10 day therapy.
4. low-dose prophylactic therapy (postcoital versus nightly prophylaxis).
5. full-dose prolonged suppressive therapy.
6. non-antimicrobial agents such as urinary acidifiers and analgesics.
7. patient self-monitoring and initiation of antibiotic therapy.

E. be able to manage asymptomatic bacteriuria in the elderly. The fellow should be able to describe the diagnosis, limited indications for
treatment and the choice of the appropriate antibiotics for elderly women with asymptomatic bacteriuria.

F. be able to manage catheter-associated urinary tract infections. The fellow should:
   1. be able to describe techniques for the care of indwelling catheters that may postpone the development of an acute infection.
   2. be able to outline the advantages and disadvantages of an indwelling catheter versus clean intermittent self-catheterization in the management of urinary retention.
   3. know the limited indications for antimicrobial therapy in women with indwelling catheters and/or who perform clean intermittent self-catheterization.

G. be able to treat urinary tract infections in pregnancy. The fellow must be able to discuss the differences in the evaluation and management of pregnant and non-pregnant women with urinary tract infections, specifically addressing the:
   1. diagnosis of asymptomatic bacteriuria and
      a. the effects of asymptomatic bacteriuria on perinatal morbidity and mortality.
      b. the role of routine screening urine cultures in pregnancy.
      c. the indications and pharmacologic agents used for treating asymptomatic bacteriuria in pregnancy.
   2. appropriate pharmacologic agents and duration of therapy for treating pregnant women with urinary tract infections.
   3. indications and appropriate medications for prophylactic versus suppressive antimicrobial therapy in pregnancy.
   4. treatment of acute pyelonephritis in pregnancy and the possible fetal and maternal risks of this disease.
   5. indications for invasive testing in the pregnant woman with recurrent urinary tract infections.

**Sensory Disorders of the Bladder and Urethra**

**Terminal Objectives:**

The fellow should be able to differentiate sensory disorders of the bladder and urethra from infectious processes in the urinary tract, diagnose and treat these sensory disorders and understand the diagnosis and management of nonurologic irritative conditions of the pelvis.
Interstitial Cystitis

Enabling Objectives:

The fellow must be:

A. able to discuss the proposed theories and the quality of the scientific data regarding the pathophysiology of interstitial cystitis including, but not limited to:
   1. autoimmune or allergic disorders.
   2. defects in the protective glycosaminoglycan layer of the bladder epithelium.
   3. reflex sympathetic dystrophy of the bladder.
   4. the role of dietary factors on the development or exacerbation of interstitial cystitis.

B. able to diagnose interstitial cystitis and be able to:
   1. explain the limitations of the diagnostic criteria for interstitial cystitis.
   2. describe the clinical presentation of interstitial cystitis, including the definitions of urgency, frequency and nocturia as currently outlined by the International Continence Society.
   3. describe the steps for excluding other irritative conditions of the bladder, urethra and pelvis.
   4. cite the NIH criteria for the diagnosis of interstitial cystitis.
   5. interpret the urinary diary of a woman with interstitial cystitis.
   6. perform cystourethroscopy and bladder biopsy under anesthesia.
   7. interpret correctly the cystoscopic findings and pathologic changes of early and “classic” interstitial cystitis.
   8. list the indications for and be able to perform and correctly interpret urodynamic tracings in women with interstitial cystitis.

C. aware of the limitations of the literature which address the different treatment modalities for interstitial cystitis.

D. able to describe the indications, techniques, limitations and side effects for:
   1. hydrodistention of the bladder under anesthesia.
   2. bladder instillation.
   3. systemic therapy including
      a. immunosuppressive agents, such as corticosteroids or azothiaprine.
      b. antihistamines.
      c. anti-inflammatory agents.
      d. sodium pentosanpolysulfate.
4. comprehensive pain management.
5. endoscopic surgical procedures. The fellow also should be aware of the indications and techniques for performing
   a. transurethral resection and fulguration.
6. open surgical procedures. The fellow should be aware of the indications and techniques for performing
   a. denervation procedures, such as presacral neurotomy or cystolysis.
   b. bladder augmentation procedures.
   c. urinary diversions.

Urethral Syndrome

Enabling Objectives:

The fellow must be able to:

A. cite the currently accepted definition of urethral syndrome.
B. discuss the proposed theories regarding the pathophysiology of urethral syndrome including, but not limited to:
   1. infections with fastidious organisms.
   2. inflammation leading to obstruction of the periurethral glands and chemical urethritis.
   3. allergic or hypersensitivity response to contact irritants.
   4. levator myo-fascial syndrome.
   5. urethral instability.
   6. urethral stenosis.
   7. hypoestrogenic urethritis.
   8. psychogenic etiology.
C. describe the diagnostic approach to urethral syndrome, including characteristic subjective symptoms.
D. interpret the urinary diary of a woman with urethral syndrome.
E. describe the role of urine, urethral and cervical cultures, including cultures for chlamydia, mycoplasma and ureaplasma.
F. perform cystourethroscopy and correctly interpret the findings in women with urethral syndrome.
G. list the indications for and be able to perform and correctly interpret urethrocystometry and uroflowmetry in women with urethral syndrome.
H. describe the differential diagnosis of urgency and frequency symptoms.
I. describe the limitations of the literature which address the therapeutic modalities for urethral syndrome.

J. discuss the indications, techniques, response rates and side effects of
   1. urethral dilation and massage.
   2. continuous long-term antimicrobial therapy.
   3. estrogen replacement in postmenopausal women.
   4. pharmacologic therapy with alpha-adrenergic agonists, antagonists and/or skeletal muscle relaxants.
   5. biofeedback.
   6. electrical stimulation.
   7. chronic pain management.
   8. urethrolysis.

**Sensory Urgency and Frequency Syndrome**

**Enabling Objectives:**

The fellow must be able to:

A. cite the current International Continence Society definition of sensory urgency and understand the lack of standardized cystometric parameters required to define normal and/or hypersensitive detrusor function.

B. describe the proposed theories for the etiology of this condition, including, but not limited to:
   1. psychogenic causes such as stress or anxiety reactions.
   2. sub-threshold uninhibited detrusor contractions.
   3. early form of interstitial cystitis.

C. describe the indications, characteristic findings and limitations of the following methods that may be used to diagnose sensory urgency and frequency syndrome:
   1. clinical symptoms
   2. urinary diary
   3. postvoid residual measurement
   4. urine, urethral and cervical cultures
   5. cystometry
   6. cystourethroscopy
   7. urethral electric conductance
D. cite the indications, techniques, response rates and side effects of
   1. bladder retraining.
   2. biofeedback.
   3. pharmacologic agents including
      a. anticholinergics.
      b. spasmolytics.
      c. sedatives.
      d. antidepressants.

Non-urologic Irritative Conditions of the Pelvis

Enabling Objectives:

The fellow must be able to:

A. cite the non-urologic causes of urgency, frequency and pain syndromes
   and be able to:
   1. diagnose and manage acute and recurrent vulvovaginitis due to
      a. infections.
      b. allergic and/or hypersensitivity reactions.
      c. vulvar manifestations of systemic dermatologic conditions.
   2. describe the differential diagnosis and management of vulvodynia
      due to
      a. dermatoses.
      b. papillomatosis.
      c. vestibulitis.
      d. candida and/or cyclic vulvitis.
      e. essential vulvodynia.
   3. describe the etiology, diagnosis and treatment of irritable bowel
      syndrome.

XII. Neurogenic Bladder

Terminal Objectives:

The fellow should understand the pathophysiology of neurogenic conditions
which affect the urinary tract and the fellow must know the appropriate
diagnostic steps to define the condition(s) and will be able to use that
information to assess risk and to plan and implement therapy.
Enabling Objectives:

The fellow must be able to:

A. take a history that defines the neurogenic condition as to type, extent and gross motor and sensory deficits;
B. perform an accurate physical examination, including a neurologic examination, which includes an assessment of perineal sensation, levator muscle function and anal sphincter function;
C. use the appropriate studies and diagnostic steps to define bladder storage and voiding function and assess the risk of lower urinary tract dysfunction to renal and ureteral integrity. This includes the assessment of bladder compliance, the determination of voiding efficiency and radiographic and ultrasonographic assessment, and perfusion testing of the ureter.
D. describe the risks incurred by persons with neurogenic conditions affecting lower urinary tract function including:
   1. sepsis,
   2. stone formation,
   3. ureteral dysfunction or failure,
   4. renal insufficiency,
   5. incontinence,
   6. skin breakdown,
   7. sexual dysfunction,
   8. urethral dysfunction,
   9. urethral erosion,
   10. osteomyelitis,
   11. dystrophic calcification
E. understand the pathophysiology of the conditions listed in D1-11, above.
F. formulate a management plan which protects the upper urinary tract from neurogenic bladder dysfunction, including
   1. implementation of intermittent catheritization,
   2. drug therapy of detrusor hyperreflexia and abnormal compliance,
   3. procedures to enlarge the bladder such as:
      a. auto-augmentation, and
      b. augmentation cystoplasty.
   4. construction of a continent neo urethra:
   5. closure of a non-functional urethra by transsection, and
   6. closure or a sling-type procedure.
G. understand the pathophysiology and management of autonomic diserphexia.
H. recognize lower urinary symptoms and dysfunction related to multiple sclerosis, including:
  1. simple motor urge incontinence,
  2. chronic urinary retention,
  3. detrusor sphincter dyssynergia.

XIII. Statistics

Terminal Objectives:

The fellow must have sufficient familiarity with statistical methods to permit critical analysis of the current literature and experimental design.

Enabling Objectives:

The fellow should be able to:

A. design an appropriate study to analyze differences and results produced by two therapeutic regimens. Thus, the fellow should be able to
   1. define the problem.
   2. set up the hypothesis (null hypothesis).
   3. define the operational terms (criteria).
   4. determine the sample size with appropriate statistical analysis.
   5. know the limitations of the study.
   6. draw inferences appropriately.
   7. arrive at valid conclusions based on the study.
   8. identify sampling bias.
C. relate types of distribution to appropriate methods of analysis; understand the difference between prevalence and incidence; understand the definition and meaning of false positive, false negative, positive predictive value, sensitivity, and specificity.
D. describe the appropriateness of sample size to method of statistical analysis; understand definition and interpretation of mean, mode, normal distribution, and standard deviation. In addition, be able to define and interpret the meaning of Type I error (alpha error) and Type II error (beta error).
E. use appropriate statistical methods to determine if differences between study populations are significant.
F. understand the differences between parametric and non-parametric analytical techniques and apply them appropriately.
G. distinguish between cure rate and corrected rate.
H. describe the life table method of recording results and discuss limitations.
I. define and describe the use of
   1. Chi-square.
   2. t-test.
   3. correlational analysis.
   4. analysis of variance.
   5. regression analysis (simple and multiple).
   6. odds ratio.
J. describe the meaning and use of the term “significant”.
K. describe the meaning and use of the term “confidence interval”.
L. interpret reported research findings and discuss potential limitations.

XIV. Research and Thesis

Terminal Objectives:

The fellow should be able to participate fully in the theoretical and technical aspects of clinical and/or basic science research projects.

Enabling Objectives:

The fellow should be able to write a thesis which is a scholarly publication and be able to defend the:
A. hypothesis and describe what
   1. the study objectives were.
   2. population was studied.
   3. population the investigators intended to apply their findings.
B. design of the investigation and explain if:
   1. the study was an experiment case control study, randomized clinical trial planned observation, or a retrospective analysis of records.
   2. there were possible sources of sample selection bias.
   3. there was a comparable control group.
   4. the statistical (study) power was adequate.
C. observations including whether
   1. there were clear definitions of the terms used; i.e., diagnostic
criteria, inclusion criteria, measurements made and outcome
variables.
   2. the observations were reliable and reproducible.
   3. the sensitivity, specificity, and predictive values of the methods
   were accurately applied if required.

D. presentation of findings, including whether
   1. the findings were presented clearly, objectively and in sufficient
detail.
   2. the findings were internally consistent; i.e., the numbers added up
   properly and the different tables could be reconciled, etc.

E. analysis of results, including whether
   1. the data were worthy of statistical analysis. If so, were the methods
   of analysis appropriate to the source and nature of the data?
   2. the analyses were correctly performed and interpreted.
   3. there were sufficient analyses to determine whether “significant”
differences might, in fact, be due to a lack of comparability of the
   groups; i.e., age, sex, clinical characteristics, or another relevant
   variable.
   4. the design of the study was appropriate for solving the stated
   problem.
   5. proper statistical techniques were used.
   6. there was mention of the type of test used or the significance level.
   7. there was use of measured sensitivity without specificity.

F. conclusions or summary, including whether the conclusions were
   1. justified by the findings.
   2. relevant to the hypothesis.

G. redesign of the study and if the study could be improved. The fellow
   should be able to suggest a revised experimental design that would
   provide reliable and valid information relevant to the question under
   study.

H. breadth and depth of subject matter; e.g., the fellow should be
   knowledgeable about the reference or cited material.

Each program should develop a thesis committee for the fellow to review
these items. The thesis or published report should be forwarded to The
American Board of Obstetrics and Gynecology as part of the evaluation of
the fellowship training program.