An endometrial adenocarcinoma invading the uterine muscle
Objectives By the end of the presentation, participants will be able to:

- Describe the care of patients with gynecologic malignancies e.g. ovarian, cervical and endometrial

- Review the following aspects of gynecologic malignancies:
  - Etiology and Pathophysiology
  - Presenting Signs and Symptoms / Diagnostic Work-up
  - Classification and Staging / Prognostic Factors
  - Usual Therapy / Side Effect Management
  - Nursing Considerations / Patient Resources
  - Survivorship / Surveillance Issues
Leading New Cancer Cases and Deaths – 2014 Estimates

**Estimated New Cases**

**Male**
- Prostate: 233,000 (27%)
- Lung & bronchus: 116,000 (14%)
- Colon & rectum: 71,830 (8%)
- Urinary bladder: 56,390 (7%)
- Melanoma of the skin: 43,890 (5%)
- Kidney & renal pelvis: 39,140 (5%)
- Non-Hodgkin lymphoma: 38,270 (4%)
- Oral cavity & pharynx: 30,220 (4%)
- Leukemia: 30,100 (4%)
- Liver & intrahepatic bile duct: 24,600 (3%)
- All sites: 855,220 (100%)

**Female**
- Breast: 232,670 (29%)
- Lung & bronchus: 108,210 (13%)
- Colon & rectum: 65,000 (8%)
- Uterine corpus: 52,630 (6%)
- Thyroid: 47,790 (6%)
- Non-Hodgkin lymphoma: 32,530 (4%)
- Melanoma of the skin: 32,210 (4%)
- Kidney & renal pelvis: 24,780 (3%)
- Pancreas: 22,890 (3%)
- Leukemia: 22,280 (3%)
- All sites: 810,320 (100%)

**Estimated Deaths**

**Male**
- Lung & bronchus: 86,930 (28%)
- Prostate: 29,480 (10%)
- Colon & rectum: 26,270 (8%)
- Pancreas: 20,170 (7%)
- Liver & intrahepatic bile duct: 15,870 (5%)
- Non-Hodgkin lymphoma: 10,470 (3%)
- Kidney & renal pelvis: 8,900 (3%)
- All sites: 310,010 (100%)

**Female**
- Lung & bronchus: 72,330 (26%)
- Breast: 40,000 (15%)
- Colon & rectum: 24,040 (9%)
- Pancreas: 19,420 (7%)
- Ovary: 14,270 (5%)
- Leukemia: 10,050 (4%)
- Uterine corpus: 8,590 (3%)
- Non-Hodgkin lymphoma: 8,520 (3%)
- Liver & intrahepatic bile duct: 7,130 (3%)
- Brain & other nervous system: 6,230 (2%)
- All sites: 275,710 (100%)

*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder.*

©2014, American Cancer Society, Inc., Surveillance Research
The Lifetime Probability of Developing Cancer for Women, 2005-2007*

<table>
<thead>
<tr>
<th>Site</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sites†</td>
<td>1 in 3</td>
</tr>
<tr>
<td>Breast</td>
<td>1 in 8</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>1 in 16</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>1 in 20</td>
</tr>
<tr>
<td>Uterine corpus</td>
<td>1 in 39</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>1 in 52</td>
</tr>
<tr>
<td>Urinary bladder‡</td>
<td>1 in 87</td>
</tr>
<tr>
<td>Melanoma§</td>
<td>1 in 55</td>
</tr>
<tr>
<td>Ovary</td>
<td>1 in 72</td>
</tr>
<tr>
<td>Pancreas</td>
<td>1 in 71</td>
</tr>
<tr>
<td>Uterine cervix</td>
<td>1 in 147</td>
</tr>
</tbody>
</table>

* For those free of cancer at beginning of age interval.
† All Sites exclude basal and squamous cell skin cancers and in situ cancers except urinary bladder.
‡ Includes invasive and in situ cancer cases
§ Statistic for white women.
### Trends in Five-year Relative Survival (%)*, 1975-2006

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All sites</td>
<td>50</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>Breast (female)</td>
<td>75</td>
<td>79</td>
<td>90</td>
</tr>
<tr>
<td>Colon</td>
<td>52</td>
<td>59</td>
<td>66</td>
</tr>
<tr>
<td>Leukemia</td>
<td>36</td>
<td>42</td>
<td>55</td>
</tr>
<tr>
<td>Lung and bronchus</td>
<td>13</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Melanoma</td>
<td>83</td>
<td>87</td>
<td>93</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>48</td>
<td>53</td>
<td>69</td>
</tr>
<tr>
<td>Ovary</td>
<td>37</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Pancreas</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Prostate</td>
<td>69</td>
<td>76</td>
<td>100</td>
</tr>
<tr>
<td>Rectum</td>
<td>49</td>
<td>57</td>
<td>69</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>74</td>
<td>78</td>
<td>81</td>
</tr>
</tbody>
</table>

*5-year relative survival rates based on follow up of patients through 2007.
Ovarian Cancer Statistics

- Leading cause of death from gynecological cancer
  Is the 5\textsuperscript{th} most common cause of cancer mortality

- Median age of diagnosis is 63
  Incidence increases with age up to 80 years then declines.
  Incidence rates are slightly decreased over last 30 years.

- 70\% present with advanced disease (Stage 3 / 4); 5 year survival 20 – 30\%.
  For early stage, 5 year survival 70 – 90\%.

- If patient is optimally de-bulked and receives standard treatment, the median survival is 4 years.
  Have only been incremental improvements in survival.
Ovarian Cancer Case Study

Part I - Ovarian Cancer A Survivor Speaks - YouTube.url
Let’s Get Our Anatomic Bearings In The Pelvis

Normal Anatomy Surgical View

Ovaries are WHITE
Ovarian cancer originates within the tissues of the ovary and is classified according to the type of abnormal cells present:

1) Epithelial
2) Germ cell (ovum)
3) Sex-cord stromal
   (Sertoli-Leydig cell)
4) Granulosa
5) Carcinosarcoma
   (Malignant Mixed Mullerian)

Epithelial carcinoma makes up 80 – 90% of all new cases of ovarian cancer diagnosed each year (Chan, Bast, Shih, Sokol et al., 2009).
Etiology & Pathophysiology Ovarian Cancer

Hypotheses regarding pathogenesis are:

1) Incessant ovulation: repeated trauma & repair to epithelium

2) High estrogen concentration: epithelial proliferation (possible malignant transformation)

3) Exemplified genes with biological functions promoting ovarian cancer development & potential clinical significance include:
   - **Nuclear proteins** (e.g. Notch3, HBXAP [Rsf-1], NAC1 and NFκB)
   - **Cytoplasmic proteins** (e.g. fatty acid synthase, apolipoprotein E)
   - **Cell surface / secretory proteins** (e.g. mucin-4, mesothelin, claudin, HLA-G, kallikrein and folate receptor and osteopontin).
   - **Tumor Supressor / EGFR**: p53, AKT2, cyclin E, ERB2 (Her2) & CA125

Ovarian Cancer Risk Factors

**Genetic (10-15%)**
- BRCA1, BRCA2 Mutations
- Lynch Syndrome
- Germline mutations in the DICER1 gene

**Other**
- * Obesity
- * Talc (pre-1973 asbestos mix)
- * Hormone Replacement Therapy
- * Use of fertility drugs
- * Increasing age (90% > 45 years)

**Increased Risk**
- **Family History** ovarian, breast or colon cancer
- Nulliparity
- > 35 years 1st pregnancy
- Early Menstrual / late menopause

**Decreased Risk**
- * Oral contraceptive use
- * Pregnancy / lactation
- * Tubal ligation / Hysterectomy
- * Prophylactic oophorectomy
What to Do for Women at risk for Ovarian Cancer? Screening, Early Detection, Treatment

Prophylactic Treatment:
- Prophylactic bilateral salpingo-oopherectomy
- Hysterectomy (leave stump of fallopian tube)
- Persistent risk for peritoneal serous carcinoma
- Consider oral contraceptives

Screening of High Risk: Pelvic exams, serial CA-125, trans-vaginal pelvic ultrasonography (TVUS)

Screening of Average Risk: 1) CA-125 and/or TVUS
2) TVUS + symptom report

Bimanual pelvic exam detects advanced disease
Presenting Signs / Symptoms Ovarian Cancer

2007 Consensus Statement Ovarian cancer associated symptoms

- Includes: bloating, pelvic or abdominal pain, difficulty eating or feeling full quickly, & urinary symptoms (urgency or frequency).

- Women with persistent symptoms should contact MD for F/U.

Women with ovarian cancer are more likely to report one or more of these six symptoms, twelve time or more per month.

- Other s/sx: fatigue, indigestion, back pain, pain with intercourse, constipation, menstrual irregularity (Equal rate in those w/o CA)

- Women with symptoms likely to have ovarian cancer? 1% (1 out 100 evaluated for symptoms; up to 1.6 % of women evaluated)

Ovarian Cancer Research News: Ovarian Cancer Screening Method Fails to Reduce Death from Disease

• News from National Cancer Institute sponsored Prostate, Lung, Colorectal & Ovarian (PLCO) Cancer Screening Trial show screening for ovarian cancer with transvaginal ultrasound & CA-125 blood tests do NOT result in fewer deaths from disease compared to usual care. False-positive screens result in unnecessary surgery, complications.

• PLCO trial is a randomized controlled trial of adults 55 to 74 years of age. 78,216 women enrolled & assigned to either annual screening with TVUS, CA-125 tests or to usual care (bimanual exam /palpation)

• The results were presented at 2011 ASCO meeting & appeared online 6-8-11, in JAMA.
Presenting Signs and Symptoms of Ovarian Cancer...not so silent?

Table 3. Symptoms Prior to Diagnosis

<table>
<thead>
<tr>
<th>Symptom</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced symptoms</td>
<td>1,178</td>
<td>87</td>
</tr>
<tr>
<td>Bloating</td>
<td>924</td>
<td>67</td>
</tr>
<tr>
<td>Fatigue</td>
<td>622</td>
<td>45</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>579</td>
<td>42</td>
</tr>
<tr>
<td>Other(^a)</td>
<td>400</td>
<td>29</td>
</tr>
<tr>
<td>Urinary frequency</td>
<td>394</td>
<td>29</td>
</tr>
<tr>
<td>Constipation</td>
<td>325</td>
<td>24</td>
</tr>
<tr>
<td>Back pain</td>
<td>282</td>
<td>20</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td>278</td>
<td>20</td>
</tr>
<tr>
<td>Vaginal bleeding</td>
<td>175</td>
<td>13</td>
</tr>
<tr>
<td>Did not experience symptoms</td>
<td>170</td>
<td>13</td>
</tr>
</tbody>
</table>

\(^a\) Most common “other” symptoms were bowel changes or diarrhea, pelvic pain, severe indigestion, excessive gas, and painful intercourse.

Ovarian Cancer Symptoms & Frequency of Presentation (Goff, Mandel, et. al, 2000, 2004, 2007)

- Seminal work from the University of Washington, Virginia Mason, and Fred Hutchinson researchers

- **In 2000, 1500 women surveyed** (ovarian CA newsletter subscribers). 70% Stage III-IV disease. Asked prior to getting diagnosis, how many had symptoms? 95%.

- Abdominal (77%), GI (70%), pain (58%), constitutional (50%); urine urgency /frequency (34%) & pelvic (26%)

- **Time to diagnosis:** < 3 mo., 55%; > 6 mo. 26%; > 1 yr 11%

- Why? No pelvic exam 1st visit; multitude symptoms; diagnosed not having problem; depression, stress, IBS; no US, CT, CA-125 @ 1st visit.
Ovarian Cancer Symptoms & Frequency of Presentation (Goff, Mandel, et. al, 2000, 2004, 2007)

• In 2004, 1709 women took 20-item survey during primary clinic visit; compared to 128 women pre-op with mass; rated severity (1-5 scale) & # episodes/mo. Back pain, fatigue, indigestion, urinary s/sx reports 1) 95% clinic women min. 1 symptom; median is 4. Recurring median 2. 2) Benign mass – median reported 4; for recurring symptoms median 2. 3) Malignancy – median reported 8; for recurring symptoms, median 4.

• In 2007–work to develop ovarian CA symptom index to detect early.
Diagnostic Workup of Ovarian Cancer

• Staging: Comprehensive laparoscopy, clinical findings, & tumor histology. To stage / treat ovarian cancer, see: International Federation Gynecology & Obstetrics (FIGO); American Joint Committee Cancer; National Comprehensive Cancer Network.

• Diagnosis is made via physical exam, radiologic tests & serum CA-125 antigen, membrane-bound glycoprotein recognized by MoAb (OC-125). Serum CA-125 increases in presence of ovarian cancer cell lines i.e. serous papillary adenocarcinoma in ascites.

• CA-125 levels are elevated in more than 80%–85% of women with advanced epithelial ovarian cancer but is only elevated 50% Stage I ovarian patients. May be high in benign states, e.g. peritonitis, endometriosis, ovarian cyst, pelvic inflammatory dx.
Diagnostic Workup of Ovarian Cancer

• When suspect ovarian cancer, a pelvic exam, trans-vaginal pelvic ultrasound, & CT scan of the chest, abdomen, & pelvis used to assess whether disease has spread outside pelvic area. Also MRI used.

• Transvaginal Ultrasound is more sensitive than CT; can pick up complex cysts with both solid and cystic components

• CA-125 > 65 U/ml post-menopausal women, consult gynecologic MD

• Abdominal washings obtained from paracentesis may suggest the diagnosis; an ovarian biopsy obtained by lapararotomy is required to confirm diagnosis & r/o abdominal metastases (Bhoola, 2006).

• OVA1 test separates low-risk women (unlikely true malignancy) and high-risk women (more likely to have a malignant tumor). OVA1 implication? Have a gynecologic oncologist in high-risk women do surgery for optimal de-bulking & improved survival.
Diagnostic Workup of Ovarian Cancer

Exploratory Laparotomy:

• Histologic confirmation / Staging
• Tumor de-bulking (goal is 1 cm or less residual to increase OS)
• Vertical incision
• Total Abdominal Hysterectomy / Bilateral Salpingo-oopherectomy
• Omentectomy / Examination of all peritoneal surfaces
• Lymph node biopsy

• CRITICAL for a Gynecologic Oncologist to do clinical staging; improves survival rate and other patient outcomes, as well as ensuring women receive standard therapy.

• More aggressive surgical techniques & optimal de-bulking more than double survival rate, e.g. 5.9 years if treated by gynecologic oncologist vs. 2.5 years survival if treated by other surgeon.
### Classification & Staging of Ovarian Cancer

#### Table 1. Ovarian Cancer Staging and Treatment

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CHARACTERISTICS</th>
<th>TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Limited to the ovaries</td>
<td>Surgical excision, total abdominal hysterectomy and bilateral salpingo-oophorectomy, and three to six cycles of systemic chemotherapy</td>
</tr>
<tr>
<td>II</td>
<td>Growth involving one or both ovaries with pelvis extension</td>
<td>Cytoreduction of the tumor, total abdominal hysterectomy and bilateral salpingo-oophorectomy, lymph node dissection, aspiration of ascites or peritoneal lavage, removal of involved omentum, and adjuvant chemotherapy of six to eight cycles of taxane and platinum-based chemotherapy</td>
</tr>
<tr>
<td>III</td>
<td>Tumor involving one or both ovaries with peritoneal implants outside the pelvis or positive retroperitoneal or inguinal nodes</td>
<td>Same as stage II</td>
</tr>
<tr>
<td>IV</td>
<td>Growth involving one or both ovaries with distant metastasis, typically to the liver, lungs, and pleura</td>
<td>Same as stage II</td>
</tr>
</tbody>
</table>

*Note. Based on information from Edge et al., 2010; International Federation of Gynecology and Obstetrics, 2006; National Comprehensive Cancer Network, 2011.*

Chemotherapy for Ovarian Cancer

• Adjuvant for Stage I – Observe or Taxane / Carboplatin 3-6 cycles (depends on grade)

• Stages II, III and IV
  - Taxane (paclitaxel, docetaxel) / Carboplatin™
  - Intraperitoneal Chemo (Stage II & optimally de-bulked Stage III)
  - Bevacizumab (Avastin™). May lengthen time to progression

• Neoadjuvant for Stage III / IV who aren’t surgical candidates

• Those receiving chemotherapy should be followed up with:
  - Pelvic exam q 2-3 cycles
  - Interim CBC with plts as indicated
  - Chemistry profiles if indicated
  - Radiographic imaging if indicated
  - CA-125 before each chemo cycle
Chemotherapy Drugs Used in Ovarian Cancer

Adriamycin PFS™ (Doxorubicin hydrochloride)
Adriamycin RDF™ (Doxorubicin hydrochloride)
Paraplatin™ (Carboplatin)
Cytoxan™ (Cyclophosphamide)
Doxil™ (Doxorubicin hydrochloride liposome)
Gemzar™ (Gemacitabine hydrochloride)
Hycamtn™ (Topotecan hydrochloride)
Platinol™ (Cisplatin)
Taxol™ (Paclitaxel)

Drug Combinations Used in Ovarian Cancer

Bleomycin, Etoposide, Platinum (BEP)
Gemcitabine-Cisplatin
Ovarian Cancer Research News: Early Chemotherapy to Prevent Ovarian Cancer Recurrence Fails to Increase Survival

• A large study found women in remission for ovarian cancer who started chemotherapy to prevent a recurrence based on blood levels of the protein CA-125 did NOT live longer than women who started chemotherapy only AFTER symptoms of the disease arose.

• Findings will influence clinical practice; clinicians to re-think how to monitor for recurrence & initiate more treatment / salvage regimens.

• In international, multicenter randomized clinical trial of > 500 women, survival identical between women whose treatment for recurrence was initiated based on CA-125 levels & those treated at the onset of symptoms. CA-125 can be an early indicator recurrence.

• Trial findings were presented at the 2009 American Society of Clinical Oncology (ASCO) Annual Meeting. The results were subsequently published October 2, 2010, in *Lancet*.
What’s New in Ovarian Cancer Treatment?  
(ASCO, 2013) A. du Bois, MD, Essen, Germany

• Pazopanib (Votrient™) improves progression free survival (PFS) in advanced ovarian cancer

• According to new data, pazopanib given after successful surgery & chemotherapy extended PFS by an average of 5.6 months (compared to placebos). Adverse events: HTN, headache, nausea, diarrhea, fatigue & neutropenia.

• Median time to progression in pazopanib group was 17.9 months compared with 12.3 months in placebo group.

• High recurrence rate; extended period cancer recurrence and delays need for further chemo

• Already approved for renal cancer & soft tissue sarcoma; awaiting FDA indication for ovarian.
Chemotherapy in Ovarian Cancer

• New chemotherapy drugs & drug combo being tested. Trabectedin (Yondelis™) & belotecan (Camtobell™) hopeful

• When drugs cisplatin & carboplatin stop working, cancer called “platinum resistant”. Goal: sensitize to drugs again.

• Although carboplatin is preferred over cisplatin to treat ovarian cancer, if drug is to be given IP, use cisplatin. New study to see if carboplatin can be given IP as well as cisplatin.

• New approach: Give IP chemo during surgery using heated drugs. Heated intra-peritoneal chemotherapy (HIPEC) is effective & toxic. HIPEC must be studied head-to-head with standard IP chemo to see if actually works better. Toxicities: bowel ileus, poor wound healing, peritonitis, bleeds, & severe myelosuppression.
Targeted Therapy in Ovarian Cancer

• Targeted therapy attacks cancer cell genetic programming that distinguishes them from normal, healthy cells. Bevacizumab (Avastin™) is best studied in ovarian cancer.

• Poly(ADP-ribose) polymerases (PARPs) are enzymes recently shown to be key regulators of cell survival & cell death. PARP-I inhibitors fight cancers of BRCA1 & BRCA2 mutations (10-15%).

• In one study, PARP inhibitor Olaparib was also able to shrink tumors in ovarian cancer patients without BRCA mutations. PARP inhibitors clinical trials in progress to see who may benefit.
Immunotherapy in Ovarian Cancer

- Tumor vaccines program immune system recognize cancer cells.

- Monoclonal antibodies (MoABs) to specifically recognize & attack ovarian cancer cells being developed. They can be designed to home in on certain sites on the cancer cell.

- Farletuzumab is a MoAB directed against a protein on surface of ovarian cancer cells. Shows promise to treat ovarian cancer.

- A MoAB now studied in ovarian cancer is catumaxomab (Removab™). Binds to protein in some cancer cells & some immune system cells. Give in abdominal cavity to treat ascites.
Rationale for IP Chemotherapy Ovarian Cancer

2006 GOG trial: Stage III Ovarian, prev. untreated, residual mass <1.0 cm

• Day 1: Paclitaxel 135 mg/m\textsuperscript{2} IV over 24 hrs
• Day 2: Cisplatin 75 mg/m\textsuperscript{2} IV
• Every 3 weeks for six cycles

OR

• Day 1: Paclitaxel 135 mg/m\textsuperscript{2} IV over 24 hrs
• Day 2: Cisplatin 100 mg/m\textsuperscript{2} intraperitoneal
• Day 8: Paclitaxel 60 mg/m\textsuperscript{2} intraperitoneal

Give IP chemo as quickly as possible in 2L warm NS; rotate positions
Every 3 weeks for six cycles

Results: Improved OSS (15 mo.); increased side effects; decrease QOL

RN Consideration: Intraperitoneal Chemotherapy

Type and location
- Vascular or intraperitoneal
- Implanted by rib or over abdominal muscle; teach patient to “tense” muscle at time of access

Risk of Dislodgement
- Limit activity S/P access
- Access IP port when ready to treat

Port access
- Similar to vascular port access
- Non-coring needle, 19 ga., 1-1.5 in.

IP fluids / Rotation
- Warm to body temperature
- Side to side; Trendelberg

Ensuring placement
- Ability to flush
- Aspirate ascitic fluid (not blood)

Flushing
- ? Heparin to prevent fibrin form; not in blood vessel
- 20 ml NS flush, then 10 ml NS with 100 units hep/ml
Resources for Intraperitoneal (IP) Chemotherapy

Gynecologic Oncology Group (GOG)  [www.gog.org]
- Has sample procedure for IP chemo administration

Clinical Journal of Oncology Nursing  [www.ons.org]


• Society of Gynecologic Nurse Oncologists  [www.sgno.org]


Side Effect Management Ovarian Cancer

Side effects / toxicities depend on treatment and agent used

1) **IV Chemotherapy**: Myelosuppression, hypersensitivity, peripheral neuropathy, N/V, ototoxicity, alopecia, mucositis, high LFT, BUN, Cr

2) **IP Chemotherapy**: Dyspnea, shortness of breath, N/V, abdominal distension, bladder pressure, pain, electrolyte imbalance
   * Absorb 1 liter per 24 hours
   * Wear comfortable clothing / expandable waistline
   * Sit upright / walk
   * Continue anti-emetics / may require IVF hydration at home
   * S/SX to report: Fever, abdominal pain, N/V/D, port site infections

3) **Monoclonal antibodies**: Hypersensitivity, infusion reaction, fatigue

4) **Surgery**: Bowel ileus, peritonitis, infection, hemorrhage, fistulas
Table 2. Postoperative Complications Reported Within One Month

<table>
<thead>
<tr>
<th>COMPLICATION</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound infection, fever, and sepsis</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>Ileus, nausea, and vomiting</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Other drug allergies and reactions</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Pain</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>Fluid imbalance</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Bleeding</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Respiratory and cardiac</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Thrombus</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

N = 39

Note. Each participant could report more than one type of complication.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Signs and Symptoms</th>
<th>Treatment and Management</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>• Expected, unwanted effect of all surgical procedures as reported by the patient</td>
<td>• Opioids are the gold standard.</td>
<td>• Assess location, frequency, quality, quantity, aggravating factors, alleviating factors, and type of pain at least every four hours.</td>
</tr>
<tr>
<td></td>
<td>• Begins at top intensity and diminishes</td>
<td>• After surgery: IV delivery of medication is preferred (patient-controlled analgesia) because of quick onset of action.</td>
<td></td>
</tr>
<tr>
<td>Postoperative ileus</td>
<td>• Cramping abdominal pain or discomfort</td>
<td>• Use epidural anesthesia.</td>
<td>• Carefully monitor for signs and symptoms related to ileus such as cramping, nausea, vomiting, and lack of stool or flatus.</td>
</tr>
<tr>
<td></td>
<td>• Nausea and vomiting</td>
<td>• Use agents such as meptalin to block opioid effects in periphery.</td>
<td>• Use epidural anesthesia when possible.</td>
</tr>
<tr>
<td></td>
<td>• Bowel distension</td>
<td>• Do not use prokinetic agents.</td>
<td>• Avoid fluid excess.</td>
</tr>
<tr>
<td></td>
<td>• Decreased bowel sounds</td>
<td></td>
<td>• Initiate early postoperative feeding.</td>
</tr>
<tr>
<td></td>
<td>• Delayed passage of flatus or stool</td>
<td></td>
<td>• Early postoperative ambulation.</td>
</tr>
<tr>
<td>Pulmonary compromise</td>
<td>• Tachypnea</td>
<td>• Treat symptoms as needed to stabilize the patient.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shallow breathing and atelectasis</td>
<td></td>
<td>• Use incentive spirometer 10 times per hour after surgery.</td>
</tr>
<tr>
<td></td>
<td>• Increased temperature is an insensitive marker for atelectasis</td>
<td></td>
<td>• Coughing or deep breathing for 15 minutes every two hours after surgery (must be vigorous)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Continuous positive airway pressure at 7.5 cm water pressure for 15 minutes every two hours after surgery</td>
</tr>
<tr>
<td>Thrombus (deep vein thrombosis or</td>
<td>• Deep vein thrombosis: erythema, swelling, warmth, palpable cord, discoloration,</td>
<td>• Anticoagulation with unfractionated or low-molecular weight heparin with a bridge to oral warfarin</td>
<td>• Prophylaxis with unfractionated or low-molecular weight heparin beginning before procedure and lasting at least 7–10 days afterward</td>
</tr>
<tr>
<td>pulmonary embolism)</td>
<td>prominence of superficial veins of affected extremity; may be asymptomatic</td>
<td></td>
<td>• May combine anticoagulation with mechanical prophylaxis (compression stockings or foot pump)</td>
</tr>
<tr>
<td></td>
<td>• Pulmonary embolism: sudden onset of dyspnea, tachycardia, tachyypnea, and hypoxia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. Based on information from Amar, 1997; Dellinger et al., 2004; De Sutter et al., 2006; Fearon et al., 2005; Gan et al., 2003; Ginsberg, 2008; Johnson & Monkhouse, 2009; Kakkar, 2009; Karimi & Cohan, 2010; Kehlet, 2008; Mangram et al., 1999; Maron & Fry, 2008; Portenoy & Lesage, 1999; Rosenquist & Rosenberg, 2003; Rosevear et al., 2006; Stock et al., 1985; Tapson, 2008; Walsh & Walsh, 2005; Weigelt, 2007.*
Side Effect Management Ovarian Cancer

Provide supportive management & patient / family education regarding advanced & metastatic disease complications such as:

- **Ascites** – May need paracentesis / drainage catheter
- **Intestinal obstruction** – Surgery for SBO; NG for decompression
- **Malnutrition** – Consult dietician; calorie count; PEG or J-tube for enteral feeding; PICC for parenteral feeding. Serum albumin labs
- **Lymphedema / impaired mobility / loss of function** – consult rehabilitation for PT, OT, lymphedema management
- **Pleural effusion / dyspnea** – Thoracentesis, pleurodesis, chest tube, chest drainage catheter, oxygen support
- **End of life** e.g. pain, distress, DNR status – Palliative care services
- **Sexual dysfunction** – BETTER model approach, endocrine, Look Good / Feel Better, I CAN Cope, Positive Image programs
<table>
<thead>
<tr>
<th>DISCHARGE INSTRUCTIONS</th>
<th>REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at the incision and apply dressing with the nurse before discharge.</td>
<td>Prevention of infection</td>
</tr>
<tr>
<td>Ask questions before discharge.</td>
<td>The patient and family need to feel comfortable with information given to them before discharge.</td>
</tr>
<tr>
<td>Some drainage and blood is normal; call the doctor if bleeding, discharge, pain, redness, warmth, or pus increases.</td>
<td>Monitor for bleeding and infection.</td>
</tr>
<tr>
<td>Continue coughing and deep-breathing exercises at home as discussed with your doctor and nurse.</td>
<td>Coughing and deep breathing help prevent pulmonary complications.</td>
</tr>
<tr>
<td>Call the doctor or nurse if you experience pain, swelling, redness, or warmth in one leg only or shortness of breath.</td>
<td>The patient may have a blood clot.</td>
</tr>
<tr>
<td>Drink plenty of water and increase fiber intake when taking pain medication.</td>
<td>Prevention of opioid-related constipation; prevention or early resolution of postoperative ileus</td>
</tr>
<tr>
<td>Take all pain medications as discussed with your doctor and nurses; you will not get addicted to pain medication.</td>
<td>Pain medication will help the patient feel better and regain function faster. Take medication on schedule.</td>
</tr>
<tr>
<td>Call your doctor if your pain is not relieved with prescribed medication.</td>
<td>The patient may need a different medication or further assessment.</td>
</tr>
<tr>
<td>Do not drink alcohol while taking medication.</td>
<td>Alcohol may decrease breathing and cause death.</td>
</tr>
<tr>
<td>Discuss ambulation recommendation with your doctor and nurses prior to discharge.</td>
<td>Walking and moving promote healing and prevent other complications.</td>
</tr>
<tr>
<td>Eat small meals and increase carbonated fluids if nauseated.</td>
<td>May help to settle the stomach and decrease gas if the patient experiences nausea or vomiting.</td>
</tr>
<tr>
<td>Feel comfortable calling your doctor or nurse with any questions.</td>
<td>The patient and family members need to feel comfortable with care at home.</td>
</tr>
</tbody>
</table>
Nursing Considerations of Sexual Health Needs in Gynecologic Malignancies

• Sexual dysfunction is the most common long-term consequence of cancer treatment; affects 50% of breast & ovarian cancer survivors; yet topic is often overlooked by health care providers.

• WHO defines sexual health as state of physical, emotional, mental & social well-being RT sexuality, not absence disease / dysfunction.

• 85% of women with cervical cancer + radiation lost interest in sex; 55% report dyspareunia; 45% had difficult in completing sexual intercourse & in attaining orgasm; 30% reported dissatisfaction.

• Most common issues S/P treatment for gynecological cancer? Loss of desire & pain with sexual activity (Booth & Bruera, 2002).
Nursing Considerations of Sexual Health Needs in Gynecologic Malignancies

- Gynecologic surgeries causing dyspareunia: vulvectomy, pelvic exenteration, hysterectomy, & cervical cancer.

- Pelvic irradiation for cervical, endometrial, vulvar & vaginal cancer cause anatomical changes, e.g. vaginal narrowing / shortening.

- Pelvic irradiation, bilateral oophorectomy, & some chemo causes premature ovarian failure. Result? vaginal dryness & dyspareunia.

- Body image changes prevalent & distressing, e.g. vaginal discharge, fistula, ostomy, ostomy appliance / odor, loss of hair, vaginal changes

- Suggest dilators, water-soluble lubricants (Astroglide™), different positions / techniques (ACS book), more foreplay, sensate focus techniques. Try referring to endocrine, psychology, CSW, & chaplain.
Nursing Considerations of Sexual Health Needs in Gynecologic Malignancies

Qualitative Study (Ekwall, 2003) found 3 needs of women with cancer:
1) Getting optimal care, e.g. rapid cure, competent staff
2) Good communication, e.g. available, coordinated care
3) Self-image and sexuality

• Cancer of the female genitalia affects women in a unique way. The uterus, vaginal & ovaries associated with femininity, motherhood, sexuality & self-image. Use “PLISSIT” or “BETTER” to assess concerns

**PLISSIT**
- P = Permission
- LI = Limited Information given
- SS = Specific Suggestions
- IT = Intensive Therapy

**BETTER**
- B = Bring up topic
- E = Explain QOL concern (also sexual)
- T = Tell resources
- T = Timing may vary; ask anytime
- E = Educate side effect
- R = Record assessment / intervention
National Comprehensive Cancer Network
Ovarian CA Surveillance & Follow-up Guidelines

Visits every 2-4 months for 2 years, then 3-6 months for 3 years, then annually after 5 years.

CA-125 or other tumor markers every visit if initially elevated.

CBC and chemistry profile as indicated

Physical exam including pelvic exam

Chest / abdominal / pelvic CT or PET as clinically indicated.

Chest X-ray as indicated. Consider family history evaluation.

Rising CA-125 with no previous chemotherapy? Work up, then treat as primary with chemotherapy.
Survivorship / Surveillance Issues for Ovarian CA (Ferrell, 2005; Oskay 2009)

- Ferrell et al. (2005) state women with ovarian CA see significant levels psychological distress: fear of future diagnostic tests & uncertainty were 2 of many issues interfering with QOL.

- Oskay et al. (2009) studied 699 women in gynecologic oncology practices in Germany & Australia who routinely draw serum CA-125 levels during follow-up. 59% women stated most important aspect of F/U is getting & knowing CA-125. Knowing your result creates higher anxiety levels compared to gyn exam or Pap test.

- Despite evidence CA-125 monitoring does not improve overall survival, participants believed objective of CA-125 monitoring & F/U care is early relapse detection & increased overall survival.
Ovarian Cancer Awareness

Know The Symptoms
Ovarian cancer has symptoms, even in its earliest stages. Knowing these symptoms could lead to lifesaving early detection:

- Bloating or increased abdomen size
- Pelvic or abdominal pain
- Feeling full quickly or unable to eat normally
- Urinary symptoms (urgency or frequency)

Other symptoms commonly reported by women with ovarian cancer:

- Bowel changes including constipation, diarrhea
- Persistent indigestion, gas, nausea
- Abnormal vaginal bleeding, pain with intercourse
- Persistent lack of energy, shortness of breath

Be Informed
These symptoms could be normal for you. However, it is important to listen to your body and see your healthcare professional if your symptoms:

- Are new or unusual for you.
- Are persistent and becoming more severe.
- Occur almost daily for more than 1-2 weeks.
- Or, if you are experiencing multiple symptoms.

Tests May Include
- Vaginal/rectal pelvic exam
- Transvaginal ultrasound
- CA 125 blood test
- CT scan or MRI

A Pap test is NOT a test for ovarian cancer
(A Pap test is a test for cervical cancer)

Ovarian Cancer Risk Factors

- Increasing age: Nearly 90% of women diagnosed are 45 years of age or over.
- A personal history of ovarian, breast or colon cancer.
- A family history of ovarian, breast or colon cancer (on father’s or mother’s side of family).
- Never been pregnant or given birth.
- A long menstrual history (first period before age 12 and/or menopause after age 50).
- Having a BRCA 1 or BRCA 2 gene mutation.

Reducing Your Risk

- Using oral contraceptives (birth control pills)
- Pregnancy and breast feeding
- Oophorectomy (removal of the ovaries)
- Hysterectomy (removal of the uterus)
- Tubal ligation (fallopian tubes tied)

Be informed, trust yourself, be as persistent as your symptoms!

- Don’t ignore symptoms.
- A vaginal/rectal pelvic exam should be part of your annual GYN exam.

If ovarian cancer is suspected, consult a gynecologic oncologist (a doctor who specializes in women’s cancers). To find one in your area call 1-800-444-4441.

(Sources: National Cancer Institute, American Cancer Society, Ovarian Cancer National Alliance)

Ovarian and Breast Cancer Alliance
4616 25th Ave. NE, PMB 512, Seattle, WA 98105 | 206-417-0823
Email: OvarianAndBreastCancerAllianceWA@comcast.net

The Ovarian and Breast Cancer Alliance is a 501(c)(3) nonprofit organization
Partner Member: Ovarian Cancer National Alliance

The Ovarian and Breast Cancer Alliance does not provide medical advice. The information provided is not intended to replace the services of a medical professional.
Patient Resources for Ovarian Cancer

- National Ovarian Cancer Coalition [www.ovarian.org](http://www.ovarian.org)
- Gilda’s Club [www.gildasclubseattle.org](http://www.gildasclubseattle.org)
- American Cancer Society (ACS) [www.acs.org](http://www.acs.org)
- National Coalition for Cancer Survivorship (NCCS) [www.canceradvocacy.org](http://www.canceradvocacy.org)
- National Comprehensive CA Network (NCCN) [www.nccn.org](http://www.nccn.org)
- Ovarian and Breast Cancer Alliance  Phone: (206) 417-0823. Email: OvarianAndBreastCancerAllianceWA@comcast.net
- National Cancer Institute (NCI) [www.cancer.gov](http://www.cancer.gov)
- Coalition of Cancer Cooperative Groups [http://www.cancertrialshelp.org](http://www.cancertrialshelp.org)
- CancerNet [http://www.cancer.net/patient/Cancer+Types/Ovarian+Cancer](http://www.cancer.net/patient/Cancer+Types/Ovarian+Cancer)
- Coalition of Cancer Cooperative Groups [http://www.cancertrialshelp.org](http://www.cancertrialshelp.org)
Ovarian Cancer References


Ovarian Cancer References


Gynecologic Cancer Sexual Health References


Cervical Cancer Statistics

- Cervical cancer is preventable. However 2nd most common gynecologic cancer worldwide & the 3rd most common gynecologic cancer in U.S. women, according to American College of Obstetricians & Gynecologists (ACOG, 2003).


- Incidence & mortality rates of cervical cancer are higher among women omit regular cervical cancer screening (ACS; Centers Disease Control & Prevention, 2005).
Etiology & Pathophysiology Cervical Cancer

• Cervical cancer risk closely linked to infection with certain types human papillomavirus (HPV) & to sexual practices (ACS, 2013).

• Research shows knowledge of risk factors for cervical cancer is low in women (Centers for Disease Control & Prevention, 2009; Lee, Fogg, & Menon, 2008; Pearlman et al., 1999; Steven, 2004).

• Primary prevention strategies exist for cervical cancer. Decline incidence & mortality from 1950s due to the widespread use of Pap test (ACS, 2011; Lawson et al., 2000). Pap is most successful screening test to detect cervical cancer (Markowitz et al., 2007).

• 70% cervical cancer preventable via HPV vaccine (Saraiya, 2007).
Etiology & Pathophysiology Cervical Cancer

Anatomy of the Cervix
1. Lower portion of uterus (contiguous with upper portion vagina)
2. Composed of exocervix and endocervix
3. Surrounded by paracervical tissues rich in lymph nodes

Changes associated with cancer of the cervix
1. Cellular changes are on a continuum from pre-malignant changes, e.g. mild, moderate to severe cervical intraepithelial neoplasia (CIN) to carcinoma in situ (CIS) to invasive disease.
2. Most arise in transformation zone at squamocolumnar junction.
   a. Exophytic, fungating or cauliflower lesion outward from cervix.
   b. Excavating/ulcerative necrotic lesion replace cervix / upper vagina
   c. Endophytic lesions extend within cervical canal
3. Squamous carcinoma most common (90%); adenocarcinoma in young women -poorer prognosis; endocervical more aggressive
Human Papillomavirus (HPV) & Pathogenesis of Cervical Cancer

• Genital HPV sexually transmitted; most critical risk factor

• Are greater than 70 types (strains) of HPV
  - HPV 16, 18, 45 & 56 associated with 80% of invasive cervical neoplasms

• HPV DNA is found in > 90% pre-invasive & invasive lesions
  HPV transcriptional activity identified in cervical neoplasia

• HPV oncogenes mediate malignant transformation in mice
Natural History of Cervical Carcinogenesis

Persistence (> 1-2 yrs)

Infection | Progression | Invasion
-----------|-------------|----------
Normal ← HPV- → Pre-cancer → Cancer
Cervix → Infected ←
Clearance Cervix Regression

CIN: Cervical intraepithelial neoplasia – precancerous. Graded I, II, & III. 40% CIN II regress after 2 yr (less with HPV16); 22% CIN II progress to CIS.

Cervical Cancer: Histology & Pre-invasive Changes

Histology
- 80 – 90% squamous cell
- 10 – 20% adenocarcinoma

Pre-invasive or pre-malignant changes
- No invasion of cervical stroma
- Squamous intraepithelial lesion (SIL)
  - Low grade (LSIL)  - High grade (HSIL)
- Glandular tissue
  - Adenocarcinoma in situ (AIS)
## Risk factors for Cervical Cancer

<table>
<thead>
<tr>
<th>Increased Risk</th>
<th>Decreased Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Human Papilloma Virus (HPV) infection</td>
<td>* Lifetime celibate</td>
</tr>
<tr>
<td>• Lack of regular Pap tests</td>
<td>* Lifetime monogamous</td>
</tr>
<tr>
<td>• Immunocompromised / HIV infection</td>
<td>* Male circumcision</td>
</tr>
<tr>
<td>• In-utero diethylstibestrol</td>
<td></td>
</tr>
<tr>
<td>• Smoking (carcinogens concentrate cervical mucous)</td>
<td></td>
</tr>
<tr>
<td>• Multiparous</td>
<td></td>
</tr>
<tr>
<td>• Many sex partners / Birth control pills use</td>
<td></td>
</tr>
<tr>
<td>• Male partner with high-risk sexual behavior</td>
<td></td>
</tr>
</tbody>
</table>
Screening Guidelines for Early Detection of Cervical Cancer (ACS, 2013)

• All women should begin cervical cancer screening at age 21. Women 21 to 29 need a Pap test every 3 years. HPV test not used to screen in this group (may be F/U for abnormal Pap).

• Beginning at age 30, preferred way to screen is with a Pap test combined with an HPV test every 5 yrs to continue until age 65.

• Women 30 to 65 may get tested q 3 years with just Pap test.

• If high risk from cervical cancer RT suppressed immune system e.g. HIV infection, organ transplant, or long term steroid use) or DES exposure in utero may need to be screened more often & need to follow their health team’s recommendations.
Screening Guidelines for Early Detection of Cervical Cancer (ACS, 2013)

• Women > 65 years who’ve had regular screening in previous 10 years should stop cervical cancer screening as long as haven’t had any serious pre-cancers (CIN2 or CIN3) in the last 20 years.

• Women with a history of CIN2 or CIN3 should continue to have tests for at least 20 years S/P the abnormality was found.

• Women who have had a total hysterectomy should stop screening (such as Pap tests & HPV tests), unless hysterectomy was done as a treatment for cervical pre-cancer (or cancer).

• Women who have had a hysterectomy without removal of the cervix (called a supra-cervical hysterectomy) should continue cervical cancer screening according to the guidelines above.
Screening Guidelines for Early Detection of Cervical Cancer (ACS, 2013)

- Women vaccinated against HPV still should follow guidelines.

- Some incorrectly believe can stop cervical cancer screening once stop having children. Need to follow ACS guidelines.

- Although annual (every year) screening should not be done, women who have abnormal screening results may need to have a follow-up Pap test done in 6 months or a year.

- The ACS guidelines for early detection of cervical cancer do not apply to women who have been diagnosed with cervical cancer. These women should have follow-up testing as recommended by their healthcare team.
Human Papillomavirus (HPV) Vaccine

2 Vaccines: Cervarix & Gardasil
- Cervarix (bivalent) – HPV 16 & 18. For girls / women 10-25 yrs
  Indication is for prophylaxis of cervical cancer.
- Gardasil (quadrivalent) – HPV 6, 11, 16 & 18

CDC Advisory Committee on Immunization Practices (ACIP)
- 9 – 10 years: Per MD
- 11-12 years: Recommend immunization
- 13-26 years: If not previously vaccinated
- 9 yrs to 26 yrs (male & female).
- Recommended as prophylaxis for cervical CA, genital warts, malignancies of vagina & vulva.

- Can receive if patient previously had a abnormal Pap, the HPV test is positive, and/or history of genital warts. Rationale? Patient may not have been exposed to all 4 types
- Immunity is believed to last 5 to 9.5 years
Presenting Sign / Symptom Cervical Cancer

Early signs / symptoms:
• Most asymptomatic until disease is advanced
• May have a thin, watery discharge
• Painless, intermittent, post-coital / intramenstrual vaginal bleed
• Increase in menstrual length / flow

Late signs / symptoms:
• Pelvic pain / referred pain to flank or leg; lower extremity edema
• Urinary symptoms: dysuria, urine retention/frequency/ blood
• Bowel symptoms may include: rectal bleeding, constipation, or bowel obstruction

Labs: elevated BUN and/or Cr, decreased Hgb /Hct, increased WBC
Diagnostic Workup for Cervical Cancer

- Colposcopy (cervix exam under magnification S/P apply of acetic acid) to evaluate cervix after abnormal Pap.
- HPV DNA testing for high-risk HPV types if Pap abnormal
- Cervical biopsy if colposcopy shows abnormal cells
- Endocervical curettage is done when can’t see upper limits cervix abnormalities or canal transformation zone not seen
- Cone biopsy or loop electrosurgical excision procedure (LEEP) obtains larger tissue wedge & to r/o invasive cancer
Clinical Staging / Grading for Cervical Cancer

Evaluation of extent of disease (requires anesthesia):
1) Cystoscopy, intravenous pyelogram, sigmoidoscopy, proctoscopy, or barium enema to R/O disease extension to bladder, rectum
2) Abdominal pelvic CT, US, MRI, PET: see extent local lesion, LN metastasis
3) Chest X-ray to R/O lung metastasis

Bethesda System Categories:
1) Negative for intraepithelial lesion or malignancy
2) Epithelial cell abnormalities, e.g. atypical squamous, squamous intraepithelial lesions, squamous cell carcinoma, or atypical glandular cells
3) Other malignant neoplasms (melanoma, sarcoma, lymphoma)

Cervical intraepithelial neoplasia (CIN) determined by biopsy:
1) CIN 1 (mild dysplasia)  2) CIN 2 (moderate dysplasia)
3) CIN 3 (severe dysplasia & CIS)  4) Squamous cell cervical CA
<table>
<thead>
<tr>
<th>Description</th>
<th>CIN Grading</th>
<th>Bethesda System (1)</th>
<th>Class (outdated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Normal</td>
<td>Normal</td>
<td>Class I</td>
</tr>
<tr>
<td>Atypia Reactive or Neoplastic</td>
<td>Atypia</td>
<td>ASCUS (2)</td>
<td>Class II</td>
</tr>
<tr>
<td>HPV</td>
<td>HPV</td>
<td>Low-Grade SIL (3)</td>
<td>Class II</td>
</tr>
<tr>
<td>Atypia with HPV</td>
<td>Atypia, &quot;condylomatous atypia&quot; and &quot;koilocytic atypia&quot;</td>
<td>Low-Grade SIL</td>
<td>Class II</td>
</tr>
<tr>
<td>Mild Dysplasia</td>
<td>CIN I</td>
<td>Low-Grade SIL</td>
<td>Class III</td>
</tr>
<tr>
<td>Moderate Dysplasia</td>
<td>CIN II</td>
<td>High-Grade SIL</td>
<td>Class III</td>
</tr>
<tr>
<td>Severe Dysplasia</td>
<td>CIN III</td>
<td>High-Grade SIL</td>
<td>Class III</td>
</tr>
<tr>
<td>Carcinoma in-situ</td>
<td>CIS</td>
<td>High-Grade SIL</td>
<td>Class IV</td>
</tr>
<tr>
<td>Invasive Cancer</td>
<td>Invasive Cancer</td>
<td>Invasive Cancer</td>
<td>Class V</td>
</tr>
</tbody>
</table>
FIGO Staging Cervical Cancer

Stage I
Stage I is carcinoma strictly confined to the cervix; extension to the uterine corpus should be disregarded. The diagnosis of both Stages IA1 and IA2 should be based on microscopic examination of removed tissue, preferably a cone, which must include the entire lesion.

Stage IA: Invasive cancer identified only microscopically. Invasion is limited to measured stromal invasion with a maximum depth of 5 mm and no wider than 7 mm.

Stage IA1: Measured invasion of the stroma no greater than 3 mm in depth and no wider than 7 mm diameter.

Stage IA2: Measured invasion of stroma greater than 3 mm but no greater than 5 mm in depth and no wider than 7 mm in diameter.

Stage IB: Clinical lesions confined to the cervix or preclinical lesions greater than Stage IA. All gross lesions even with superficial invasion are Stage IB cancers.

Stage IB1: Clinical lesions no greater than 4 cm in size.

Stage IB2: Clinical lesions greater than 4 cm in size.

Stage II
Stage II is carcinoma that extends beyond the cervix, but does not extend into the pelvic wall. The carcinoma involves the vagina, but not as far as the lower third.

Stage II A: No obvious parametrial involvement. Involvement of up to the upper two-thirds of the vagina.

Stage II B: Obvious parametrial involvement, but not into the pelvic sidewall.

Stage III
Stage III is carcinoma that has extended into the pelvic sidewall. On rectal examination, there is no cancer-free space between the tumour and the pelvic sidewall. The tumour involves the lower third of the vagina. All cases with hydrenephrosis or a non-functioning kidney are Stage III cancers.

Stage IV
Stage IV is carcinoma that has extended beyond the true pelvis or has clinically involved the mucosa of the bladder and/or rectum.

Stage IVA: Spread of the tumour into adjacent pelvic organs.

Stage IVB: Spread to distant organs.
Treatment of Pre-Malignant Cervical Lesions

• **Diagnosis**
  - Pap smear, colposcopy, biopsy

• **Treatment of Squamous intraepithelial lesion (SIL)**
  - Loop Electrosurgical Excision Procedure (LEEP)
  - Laser therapy / Cautery
  - Cryotherapy
  - Conization: removes cone shape tissue under anesthesia.
    May cause infertility, cervical incompetence / stenosis
  - Hysterectomy: for HSIL if completed child-bearing

• **Follow-up:** Every 3 month X 1 yr, then every 6 months
Usual Therapy for Cervical Cancer

Invasive disease: Surgery and/or radiation

- Depends on age, KPS, tumor volume & desire to keep ovaries

Surgery:

- Radical trachelectomy (cervical amputation) to keep fertility;
- Radical hysterectomy & pelvic lymphadenectomy, para-aortic LND
- Bilateral salpingo-oophorectomy in post-menopausal women or those > 40 yrs who don’t want children

Radiation:

- Combine external XRT & either high-dose conventional (inpt. basis) brachytherapy implant OR high-dose brachytherapy implants (outpt.)
- Radiosensitize with cisplatin (40 mg/m2) weekly during XRT
- Advance / early disease (+ LN, + margin) radiation, chemo, & surgery
Usual Therapy: Recurrent Cervical Cancer

Central recurrence only: anterior, posterior, or total pelvic exenteration.

- Triad of unilateral leg edema, sciatic pain, and ureteral obstruction indicates recurrent / unresectable disease
- Extensive pre-op work-up is done to r/o extrapelvic disease
- Initial pelvic sidewall biopsies / lymph node evaluation / frozen sections to r/o metastatic disease (intraoperatively)
- Total pelvic exenteration: take all pelvic viscera; colostomy; ileostomy

Unresectable or disseminated disease: chemotherapy (palliative only).

- Agents used include: Cisplatin, paclitaxel, fluorouracil, methotrexate, ifosfamide, cyclophosphamide, gemcitabine, topotecan, vinorelbine.
- Poor response rates seen with chemotherapy
Total Pelvic Exenteration

Figure 1: The empty pelvis as seen after the urinary bladder, uterus with the parametrium, paracolpos, upper 1/2 vagina & adnexa; and the rectum are removed. The pubic bone anteriorly, the levator ani inferiorly and the iliac vessels and the pelvic wall laterally show that a good loco-regional clearance has been achieved.

Figure at right: Anterior Pelvic Exenteration
Prognostic factors for Cervical Cancer

• No overall change in survival rate has occurred for patients with invasive cervical cancer, although mortality rate has decreased because of decreased incidence.

• Prognosis is related to stage of disease.

• 35% of women have recurrent disease within 3 years of initial therapy

• Cause of death associated most often with uremia, infection or hemorrhage
What’s New in Cervical Research

- **(Cervical) Combination Therapy:** 5 NCI-sponsored clinical trials showed patients with advanced cervical cancer treated with CDDP-based combination chemotherapy together with radiation survive significantly longer than those receiving radiation therapy alone. Risk of death decreased by 30-50% with concurrent chemo / rad.

- **GOG 20 Trial** - 452 patients with pre-treated, metastatic, recurrent or persistent cervical cancer (2009-2012).

- Women with metastatic or recurrent cervical cancer had significantly prolonged survival when bevacizumab was added to topotecan / CDDP chemotherapy in a Phase III trial.

- Median OSS 17 months for women receiving the combination, compared to 13.3 months for women receiving chemo alone.

- Adverse events: bleeding, GI fistula, & venous thromboembolism (ASCO, 2013, Z. Chustecka, Chicago, IL)
Side Effect Management Cervical Cancer

Surgery Treatment

• Radical hysterectomy
  - Uterus, upper 1/3rd of vagina, uterosacral & uterovesical ligaments, parametria, pelvic node lymphadenectomy

Complications

• Ureteral fistulas / Bladder dysfunction
• Pulmonary embolus
• Pelvic infection / Hemorrhage
• Bowel obstruction / Rectovaginal fistula
Side Effect Management: Cervical Cancer

Radiation Therapy

- Complication rates
  - Stage I and IIA 3-5%
  - Stage IIB and III 10-15%

Complications include:

- Vaginal stenosis
- Sigmoid perforation or stricture
- Rectal ulcer
- Pelvic hemorrhage / abscess
  - Fistula formation
  - Uterine perforation
  - Intestinal obstruction
  - Cystitis / ureteral stricture

Sexual dysfunction: Vaginal epithelium thinning, atrophy, stenosis, dryness. Instruct on vaginal dilators, water lubricants, foreplay
Nursing Considerations for Cervical Cancer

Surgery (Post-Op)
- Inability to void, urine retention, suprapubic catheter, constipation, vaginal shortening, manage urine / stool diversion with pelvic exenteration (if intended to cure); robotic surgery
- Bowel pattern changes, e.g. constipation, obstruction, fistulas
- Bladder pattern changes, e.g. recurrent UTIs, fistula formation

Radiation Therapy
- Bladder pattern changes: retention, cystitis, vesicovaginal fistulas
- Bowel changes: diarrhea, SBO, rectal ulcers, rectovaginal fistula
- Evaluate changes in vaginal tissues, e.g. atrophy, stenosis, dryness
- Assess fatigue, suggest strategies to manage, e.g. exercise, set priorities, ensure Hgb/ Hct adequate, and make a “bucket list”
Nursing Considerations for Cervical Cancer

Chemotherapy (Platinum-based)

- Monitor & treat: Myelosuppression, infection, bleeding, HSR, peripheral neuropathy, ototoxicity, delayed N/V, Mg wasting, electrolyte replacement, renal / liver dysfunction

Recurrence disease

- Assess for history of vaginal bleeding
- Evaluate lower extremities edema
- Evaluate occurrence new pain, especially in hips / low back
- Assess for changes in appetite with weight loss
Survivorship / Surveillance Issues for Cervical Cancer

- Regular Pap tests & effective early stage treatment are responsible for a remarkable improvement in U.S. cervical cancer survival rates.

- Treatment at earliest stages of cervical cancer improves the 5 year survival rate by 92%, while overall 5 year survival rate is 72%.

- In developing countries, cervical cancer survival rates are exactly opposite. **World-wide estimates 473,000 new cases detected yearly & 253,500 deaths reported. 80% in developing countries.**

- In U.S., cervical cancer is 8th most deadly cancer, but worldwide it is 5th. In parts of Latin America & Caribbean, more women die from cervical cancer than from childbirth.
NCCN Surveillance Recommendations

• Interval H & P
• Cervical / vaginal cytology every 3 – 6 months for 2 years, then every 6-12 months for 3-5 years, then annually
• Chest x-ray annually for 5 years
• CBC, BUN, CR every 6 months (optional)
• PET-CT scan as clinically indicated
• Recommend use vaginal dilator after radiation therapy
• Patient education regarding symptoms

• If find persistent / recurrent disease, need more imaging, possible surgical exploration, then follow treatment algorithms for relapse (chemotherapy, radiation therapy, hormone therapy)
Patient Resources for Cervical Cancer

- Association of Reproductive Health Professionals [www.arhp.org](http://www.arhp.org)
- Oncolink [www.oncolink.org](http://www.oncolink.org)
- Coalition of Cancer Cooperative Groups [http://www.cancertrialshelp.org](http://www.cancertrialshelp.org)
- National Coalition for Cancer Survivorship (NCCS) [www.canceradvocacy.org](http://www.canceradvocacy.org)
- National Comprehensive Cancer Network (NCCN) [www.nccn.org](http://www.nccn.org)
- National Cancer Institute (NCI) [www.cancer.gov](http://www.cancer.gov)
Cervical Cancer References

Cervical Cancer References


Endometrioid adenocarcinoma, typically occurs within few decades of menopause. Linked with obesity, excess estrogen exposure; frequently develops with endometrial hyperplasia; vaginal bleeding is most common presentation.

Endometrial cancer is 3rd most common cause of gynecologic cancer death (behind ovarian & cervical). Treat with a TAH-BSO.

Endometrial cancer sometimes referred to as uterine cancer. But different cancers may develop not only from endometrium itself but also from other uterine tissues, e.g. cervical cancer, sarcoma of myometrium, and trophoblastic disease.
Endometrial Cancer Case Study

Uterine Cancer Patient Shares Experience - YouTube.url
Anatomy of the endometrium
• Composes inner layer of 3 layers of uterus (other layers are myometrium and parietal peritoneum).
• Has a highly vascular mucous membrane lining
• Primary functions of the endometrium: to provide vascular & nutrient supply for developing fetus
• Respond to changes estrogen / progesterone levels
• Most endometrial cancers are adenocarcinomas; they originate from a single layer of epithelial cells that line the endometrium to form glands.

Changes associated with cancer of the endometrium
• Abnormal production & metabolism of endogenous estrogen
• Atypical hyperplasia may progress to invasive cancer.
Subtypes of Endometrial Carcinomas:

1) *Endometrioid* (common). Cancer cell growth pattern resembles normal endometrium (e.g. low-grade). May present as high grade.

2) *Papillary serous* carcinoma (more aggressive)

3) *Clear cell* endometrial carcinomas (also more aggressive)

Two Pathogenetic Groups for Endometrial:

- **Type I**: These occur most commonly in pre-and-perimenopausal women, often with a h/o of unopposed estrogen exposure and/or endometrial hyperplasia. Often minimally invasive into underlying uterine wall, *low-grade endometrioid type, with good prognosis*.

- **Type II**: Occur older, post-menopausal women, > African-Americans, not associated increased estrogen exposure, have poorer prognosis.

  1) High-grade *endometrioid cancer*

  2) Papillary serous carcinoma

  3) Clear cell carcinoma.
Risk Factors for Type I Endometrial Cancer

- Obesity
- High levels of estrogen long-term and/or inadequate progesterone
- Nulliparity / Infertility
- Early menarche / late menopause
- Endometrial polyps or other benign uterine growths of the uterine lining
- High intake of animal fat
- Pelvic radiation therapy
- Family history: Colon/Endometrial CA

Additional Factors:

- * Age > 50
- * Endometrial hyperplasia
- * Polycystic ovary
- * Anovulatory cycles
- * Little exercise
- * Tamoxifen
- * Heavy daily alcohol
- * Breast / Ovarian cancer
- * HTN / Type 2 Diabetes
Presenting Signs and Symptoms of Endometrial Cancer

Bleeding:
- Vaginal bleeding and/or spotting in post-menopausal women.
- Abnormal uterine bleeding or abnormal menstrual periods.
- Bleeding between normal periods in premenopausal women.
- Women > 40: extremely long, heavy, or frequent bleeding episodes.
- Anemia from chronic blood loss; may occur if woman ignores symptoms of prolonged / frequent abnormal menstrual bleeding.

Other:
- Lower abdominal pain or pelvic cramping.
- Thin white or clear vaginal discharge in postmenopausal women.
- Pelvic exam often normal in early stage endometrial cancer. Changes in size, shape, or uterine consistency or regional structures seen in advanced disease.
Diagnostic Workup for Endometrial Cancer

Clinical evaluation

- Routine screening of asymptomatic women is not indicated, since the disease is highly curable in its early stages.
- Pap smear may be either normal or show abnormal cellular changes. Pap smear screens cervical, not endometrial, cancer.
- Office endometrial biopsy traditional diagnostic method. Endometrial & endocervical tissue sampled (10% false negative rate).
- If endometrial biopsy does not yield sufficient diagnostic material, fractional dilation & curettage necessary to diagnose.
- Persistent symptoms should be worked up with endocervical curettage, hysteroscopy, TVUS, and CA-125.
Diagnostic Workup for Endometrial Cancer

- Hysteroscopy allows direct visualization of uterine cavity and can be used to detect the presence of lesions or tumors. MD may get cell sample with minimal damage to endometrial lining.

- Endometrial biopsy or aspiration may assist the diagnosis.

- Transvaginal ultrasound to evaluate endometrial thickness in bleeding postmenopausal women used to r/o endometrial CA

- Research shows p53 antibody identify high-risk endometrial CA (70% sensitivity, 64% specificity and 95% positive predictive value)
Diagnostic Workup for Endometrial Cancer

- Newly-diagnosed endometrial cancer patients don’t routinely have imaging studies, e.g. CT scan, to evaluate extent of disease (low yield)

- Pre-op evaluation: Complete medical H & P, pelvic & rectal exam, stool guaiac, chest X-ray, CBC, chemistry panel, LFT

- Colonoscopy recommended if stool is guaiac + or woman has + symptoms. Common etiologies in endometrial, colon

- CA-125 is sometimes drawn to predict advanced stage disease. D & C, Pipelle biopsy curettage 65-70% positive predictive value.

- Most critical: hysteroscopy (90-95% positive predictive value)
Updated 2010 FIGO Classification and Staging of Endometrial Carcinoma

- **Stage IA**  Tumor confined to the uterus, no or < ½ myometrial invasion
- **Stage IB**  Tumor confined to the uterus, > ½ myometrial invasion
- **Stage II**  Cervical stromal invasion, but not beyond uterus
- **Stage IIIA**  Tumor invades serosa or adnexa
- **Stage IIIB**  Vaginal and/or parametrial involvement
- **Stage IIIC1**  Pelvic lymph node involvement
- **Stage IIIC2**  Para-aortic lymph node involvement, with or without pelvic lymph node involvement
- **Stage IVA**  Tumor invasion bladder and/or bowel mucosa
- **Stage IVB**  Distant metastases including abdominal metastases and/or inguinal lymph nodes
Usual Therapy for Endometrial Cancer

**Surgery** is primary treatment if patient is surgical candidate
- Surgical staging includes maximal debulking & TAH-BSO, pelvic and para-aortic lymph node dissection

**Radiation therapy**
- Adjuvant treatment based on grade and risk factors
  - Risk factors: > 60 yrs, + LN, tumor size, lower uterine involvement, myometrial invasion
- Radiation is option if unable to undergo surgery.
  - Vaginal brachytherapy
  - Pelvic radiation

**Chemotherapy**
- For Stage III (outside uterus) & Stage IV
Endometrial Cancer: Recurrence/Metastatic Disease

Radiation Therapy
- Intra-operative, brachytherapy, external beam (see prior treatment)

Surgery
- Pelvic exenteration (See cervical cancer notes for nursing care)

Hormonal Therapy
- Tumors with positive estrogen & progesterone receptors
- Progestational agents
  - Megestrol, medroxyprogesterone acetate
  - Tamoxifen (increase progesterone receptor expression)
  - Aromatase inhibitors

Chemotherapy
- Platinum, Paclitaxel, Doxorubicin
Prognostic factors for Endometrial Cancer

• While endometrial cancers are 40% more common in Caucasian women, an African American woman who is diagnosed with uterine cancer is twice as likely to die, related to higher frequency of aggressive subtypes and possible delay in diagnosis.

• 5 yr survival rates for endometrial cancer S/P appropriate treatment:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Survival Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-A</td>
<td>90%</td>
</tr>
<tr>
<td>I-B</td>
<td>88%</td>
</tr>
<tr>
<td>I-C</td>
<td>75%</td>
</tr>
<tr>
<td>II</td>
<td>69%</td>
</tr>
<tr>
<td>III-A</td>
<td>58%</td>
</tr>
<tr>
<td>III-B</td>
<td>50%</td>
</tr>
<tr>
<td>III-C</td>
<td>47%</td>
</tr>
<tr>
<td>IV-A</td>
<td>17%</td>
</tr>
<tr>
<td>IV-B</td>
<td>15%</td>
</tr>
</tbody>
</table>
Side Effect Management for Endometrial Cancer

**Hormonal Therapy**, e.g. Megace, medroxyprogesterone acetate
- Fluid retention, weight gain, dyspnea & thromboembolic events

**Chemotherapy**, e.g. Cisplatin, Carboplatin, Adriamycin, Epirubin, Taxol
- Grade 3 / 4 myelosuppression & GI toxicity (N/V/D)
- Peripheral neuropathy, CHF, alopecia, HSR reaction

**Surgical Issues / Complications**
- Inability to void, urine retention, suprapubic catheter, constipation, vaginal shortening, urinary/stool diversion mgt. (pelvic exenteration)
- Bowel pattern changes, e.g. constipation, obstruction, fistulas
- Bladder pattern changes, e.g. recurrent UTIs, fistula formation
Survivorship / Surveillance Issues for Endometrial Cancer

• **Risk of recurrence**: Greatest within 1st 3 years (68-100%)
  - Local: Vaginal vault, pelvis (40%)
  - Distant: Upper abdomen, lung (60%).

• **Follow-up**
  - Physical exam every 3-6 months for 2 yrs, then 6 mo or annually
  - Vaginal cytology
  - CXR
  - CA-125 (controversial)
  - 70% of recurrences are associated with symptoms

• **RN Education to include signs / symptoms of recurrence**:
  - Vaginal bleeding
  - Decreased appetite
  - Weight loss
  - Pain (pelvis, hip, back)
  - Cough / SOB
  - Edema found in abdomen, LEs
Endometrial Cancer References


Patient Resources for Endometrial Cancer

- Association of Reproductive Health Professionals [www.arhp.org](http://www.arhp.org)
- Oncolink [www.oncolink.org](http://www.oncolink.org)
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- National Coalition for Cancer Survivorship (NCCS) [www.canceradvocacy.org](http://www.canceradvocacy.org)
- National Comprehensive Cancer Network (NCCN) [www.nccn.org](http://www.nccn.org)
- National Cancer Institute (NCI) [www.cancer.gov](http://www.cancer.gov)
“Clinical Pearls” for Gynecologic Malignancies

- HPV vaccination is critical for prophylaxis for cervical cancer and to prevent genital condylomata (genital warts).
- Cervical cancer screening with Pap is key, leading to cure with early detection. Nurses need to familiar with ACS screening guidelines.
- Persistent lower GI & pelvic symptoms: send women to MD to r/o ovarian or colon cancer. BRCA 1, BRCA 2 mutations seen in ovarian.
- Unexplained bleeding in post-menopausal women should always be worked up to rule out endometrial cancer.
- Quality of life is impacted in physical, spiritual, psychological & social domains by a gynecologic cancer diagnosis. Management of treatment side effects (surgery, chemotherapy, biotherapy, targeted therapy, radiation therapy & hormone treatment modalities).
- RNs to address client sexual health needs posed by gynecologic CA.