Assess for the presence of risk factors, both major and minor or contributing:
Risk factors dependent on cancer type can include any of the following based on evidence:
- Growing older
- Tobacco
- Sunlight
- Ionizing radiation
- Certain chemicals and other substances
- Some viruses and bacteria
- Certain hormones
- Family history of cancer
- Alcohol
- Poor diet, lack of physical activity, or being overweight

Source: http://www.cancer.gov/cancertopics/wyntk/overview/page4

Are Risk Factors Present?

NO

YES

Cancer screening /secondary prevention protocol if indicated

NO

YES

Monitor for presence of signs/ symptoms:
- A thickening or lump in the breast or any other part of the body
- A new mole or a change in an existing mole
- A sore that does not heal
- Hoarseness or a cough that does not go away
- Changes in bowel or bladder habits
- Discomfort after eating
- A hard time swallowing
- Weight gain or loss with no known reason
- Unusual bleeding or discharge
- Feeling weak or very tired

Are positive findings present?

NO

YES

Follow collaborative plan of care complications of cancer

Initiate client education for Health Seeking Behaviors to identify:
- Teach about cancer prevention:
  - Diet, fitness, sun safety and tobacco avoidance
- Review cancer screening protocols according to age, gender and risk factors
  - Breast & testicular
  - Cervical and uterine
  - Prostate
  - Colon and rectal
- Review cancer warning signs

Initiate the plan of care for a Risk for Ineffective Therapeutic Regimen management:
- Teach client about disease process, its course and progression according to cancer type.
- Explain complications of metastasis and cancer specific complications and s/s to report
- Discuss lifestyle modifications:
  - Prevention of infection, bleeding
  - Energy conservation strategies
  - Management of nausea and vomiting, nutrition
  - Pain management
  - Sleep disturbance
  - Caregiver role strain
  - Mucositis, neuropathy
- Explain diagnostic testing for malignancy and sites of metastasis
- Review cancer management strategies; chemotherapy, surgical resection, radiation therapy, targeted therapy, biologic therapy and stem cell transplantation
- Discuss supportive therapies, colony stimulating factors
- Review periodic follow-up
ASSESS s/s of PC: Metastasis
- Assess organ systems that are sites of mets for cancer type for evidence of dysfunction
  - (ie; Lung, liver, bone, brain)

Identify High risk populations
- Review sites of metastasis according to cancer type

MONITOR for s/s PC: Metastasis
- Perform diagnostic testing; X-ray, CT/MRI, bone marrow biopsy, PET scans etc. to isolate metastatic cancer according to primary cancer type.
- Mon labs that reflect organ dysfunction is site of metastasis; ie. liver function tests, CBC

DO
- Provide primary cancer treatment according to stage
- Administer chemotherapy as prescribed to control micrometastasis

CALL
- Monitor results of disease progression and response to therapy
  - If complications of metastasis are noted; pain, loss of function and organ dysfunction provide supportive care and call MD

Outcomes/Benchmarks:
- Clinical exam without evidence of dysfunction in body systems involved in mets according to primary cancer type (ie Lung, liver, brain)
- Diagnostic testing negative for metastasis

Initiate collaborative plan of care: PC: Metastasis

Initiate plan of care to reduce ineffective therapeutic regimen:
- Explain metastasis to the client and its risk
- Instruct client in procedure and diagnostics used to identify metastasis
- Discuss how therapy according to stage of cancer controls metastasis
- Teach s/s of metastasis to report to MD
- Reinforce periodic evaluation and follow-up.

Initiate collaborative plan of care: PC: Metastasis

PC: Metastasis

Susan McCabe revised 10/1/08
PC: Anemia

Is the client experiencing:
Fatigue, DOE, Headache, tachycardia, dizziness and lightheadedness especially with postural changes

YES

NO

Follow plan of care for PC: anemia

Implement plan of care for decreased tissue perfusion:
- Initiate energy conservation strategies;
- Encourage delegation of chores;
- Space activities with periods of rest;
- Work during periods of high energy;
- Delegate childcare when possible;
- Use convenience foods or easy to prepare;
- Sit down when performing ADLs;
- Encourage adequate nutrition, vitamins and minerals.

Outcomes/Benchmarks:
- Hemoglobin > 8-10, HR > 60, SBP > 100
- No dyspnea on exertion, reduced fatigue, able to participate in ADL's

PC: Anemia

ASSESS s/s of PC: Anemia
Fatigue, DOE, Headache, tachycardia, dizziness and lightheadedness especially with postural changes

Identify High risk populations
Myelosuppressive therapy, bone metastasis

MONITOR for s/s PC: Anemia
- Monitor for tachycardia, hypotension and tachypnea especially when exerted;
- Perform orthostatic VS and monitor for postural changes;
- Monitor CBC, and evaluate for declining RBC, Hg and Hct;
- Monitor serum iron level;
- Monitor results from bone marrow biopsy indicating decreased production of RBCs.

DO
- Ensure adequate iron intake;
- Administer prescribed colony stimulating agent to increase RBC count and monitor effectiveness;
  - Note: some cancer clients who received epoetin alfa died sooner or experienced tumor growth, recurrence of cancer, or cancer metastasis sooner than nonrecipients.
- Monitor for cancer recurrence & metastasis if epoetin alfa therapy is in use;
- Monitor for DVT, HTN, seizures of epoetin is in use.

CALL
- Monitor for complication of refractory anemia and complications of colony stimulating factor therapy;
  - If present, withhold therapy, initiate supportive care and call MD.

Susan McCabe revised 10/1/08
PC: Thrombocytopenia

Outcomes/Benchmarks:
Platelets >100, HR> 60, SBP> 100
No evidence of frank or internal bleeding

Is the client experiencing:
Decreased platelet count, occult or frank bleeding, excessive bruising or systemic s/s of hemorrhage

Follow plan of care for PC: thrombocytopenia

Implement plan of care for bleeding precautions:
Initiate bleeding precautions;
- Don't drink alcohol
- Avoid OTC aspirin and NSAIDS
- Use an extra soft toothbrush and don't floss if your gums bleed.
- Blow your nose gently using a soft tissue.
- Shave with an electric razor.
- Avoid contact sports and other activities that might cause injury.
- Avoid excessive instrumentation and venipuncture

ASSESS s/s of PC: thrombocytopenia
- Unexpected bruising
- Bleeding from the nose or gums
- Heavier than usual menstrual periods
- Black or bloody bowel movements or reddish or pinkish urine hematemeses, headaches, Dizziness, Increased weakness

Identify High risk populations
Myelosuppressive therapy, bone metastasis

MONITOR for s/s PC: thrombocytopenia
Monitor for tachycardia, hypotension and tachypnea especially when exerted.
Perform orthostatic VS and monitor for postural changes to identify hemorrhage
Monitor CBC, and evaluate for declining RBC, Hg and Hct and platelet count
Monitor D Dimer and bleeding times
Monitor results from bone marrow biopsy indicating decreased production of platelets

PC: thrombocytopenia

DO
- Initiate bleeding precautions
- Administer prescribed biological response modifier such as Neumega to increase platelet count if thrombocytopenia is present and monitor effectiveness
- Monitor for s/e of therapy; chest pain, dysrhythmia, fainting, muscle/bone pain, nervousness or difficulty sleeping, mouth sores, eye pain, vision changes, bruising or bleeding following injection. If present call MD
- Transfuse platelets for severe thrombocytopenia and monitor effectiveness

CALL
Monitor for complication of refractory thrombocytopenia and hemorrhage
If present initiate shock management and call ready response team and MD

Susan McCabe revised 10/1/08
PC: Neutropenia/Opportunistic infection

OUTCOMES/BENCHMARKS:
Absence of opportunistic infections and disease
WBC: 4,000 - 11,000 per mm3 of blood.
ANC: > 1800

Is the client experiencing:
- S/s of systemic infection: change in mental status, increased or decreased fever
- S/s of local disease: skin, brain, lungs, GI, GU
- S/s of malignancy

YES

Follow plan of care for PC: neutropenia/opportunistic infection

NO

Implement plan of care for neutropenic precautions:
Teach client s/s of infection to report:
- oral temperature above 100.5o degrees, chills or sweats
- cough, excess mucus, shortness of breath or painful breathing
- soreness or swelling in your mouth, ulcers or white patches in your mouth, or a change in the color of your gums
- pain or burning with urination or an odor to your urine
- change in the odor, character or frequency of your stool, especially diarrhea
- redness, pain or swelling of any area of your skin
- redness, pain, swelling or drainage from any tube you may have (e.g., Hickman catheter, feeding tube, urinary catheter)
- pus or drainage from any open cut or sore
- an overall feeling of being sick, even if you don't have a temperature or any other sign of an infection

Encourage personal hygiene
Avoid people who are ill
Receive killed virus vaccines when indicated
Avoid activities that could result in injury
Eliminate uncooked foods that contain germs
Avoid enemas/suppositories and rectal temps
Avoid fresh flowers and soil
Take colony stimulating factors as prescribed
Avoid travel to regions where transmissible disease is endemic
Use sunscreen
## Potential Complication: Neutropenia/Opportunistic infection (OI)

<table>
<thead>
<tr>
<th>ASSESS s/s of the acute complication</th>
<th>Monitor for presence of the disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>s/s of systemic disease</strong></td>
<td>Monitor for declining absolute neutrophil count;</td>
</tr>
<tr>
<td>change in mental status, fever, increased HR, RR, hypotension</td>
<td>• ANC of 1000-1800: <strong>Mild</strong> neutropenia</td>
</tr>
<tr>
<td>weight loss night sweats</td>
<td>• ANC of 500-1000: <strong>moderate</strong> neutropenia</td>
</tr>
<tr>
<td><strong>Infectious Disease specific s/s:</strong></td>
<td>• ANC of less than 500: <strong>Severe</strong> neutropenia</td>
</tr>
<tr>
<td>nuchall rigidity, seizures, HA, visual changes, confusion and dementia, painful mouth lesions and dysphagia, dyspnea and cough, watery diarrhea, jaundice and abdominal pain, painful urination, cloudy urine output, rash, skin lesions</td>
<td>Monitor for temperature changes, tachycardia, tachypnea, hypotension</td>
</tr>
<tr>
<td><strong>Malignancy</strong></td>
<td>Monitor results of septic work-up</td>
</tr>
<tr>
<td>Skin lesions, neurological deficit</td>
<td>Blood cultures, electrolytes, CBC, shift to the left</td>
</tr>
<tr>
<td><strong>Assess for contributing factors:</strong></td>
<td>ABGs for pulse oximetry&lt;90%</td>
</tr>
<tr>
<td>Bone marrow failure</td>
<td><strong>Monitor disease specific testing:</strong></td>
</tr>
<tr>
<td>Chemotherapy adverse effects</td>
<td>PCR testing for pathogens; TB, CMV</td>
</tr>
<tr>
<td>Radiation therapy adverse effects</td>
<td>Culture reports for sputum, urine, CSF, wounds, stool for O&amp;P, C/S, Gram stain, &amp; C Diff</td>
</tr>
<tr>
<td></td>
<td>Hepatitis profile</td>
</tr>
<tr>
<td></td>
<td>CT/MRI to rule out malignancy</td>
</tr>
<tr>
<td></td>
<td>Biopsies of potential malignant tissue</td>
</tr>
<tr>
<td></td>
<td><strong>Monitor for contributing factors</strong></td>
</tr>
<tr>
<td></td>
<td>Bone marrow failure, chemotherapy</td>
</tr>
<tr>
<td></td>
<td><strong>Additional assessment includes monitoring from presence of complications</strong></td>
</tr>
<tr>
<td></td>
<td>Monitor for s/s of sepsis and septic shock</td>
</tr>
</tbody>
</table>

### CALL
- call MD if client becomes hemodynamically unstable, unresponsive to antimicrobial therapy
- provide supportive care; ABC/s and shock management and call MD

### DO
**Perform nursing actions that manage opportunistic disorders**
- Initiate infection based transmission precautions when required
- Administer agents to manage infecting organism and monitor effectiveness
  - Viral Infections
  - Parasitic Infections
  - Fungal Infections
  - Mycobacterial Infections
  - Bacterial Infections
- Provide care for clients experiencing sepsis/malignancy;
  - hydration, nutrition, hyperthermia management, energy conservation strategies
- Withhold chemotherapy/radiation for low ANC.
- Administer colony stimulating factors such as neuropigen and monitor effectiveness
- Monitor for failure to respond to therapy, s/s of sepsis

### CALL
- call MD if client becomes hemodynamically unstable, unresponsive to antimicrobial therapy
- provide supportive care; ABC/s and shock management and call MD

Susan McCabe revised 10/1/08
### ASSESS s/s of PC: DVT
- Unilateral Edema,
- Leg pain (Pain with dorsiflexion of the foot (Homans sign))
- Warmth or erythema of skin over the area of thrombosis.

Identify High risk populations
See PC:DVT/PE collaborative plan

### MONITOR for s/s PC: DVT
- Monitor CBC, D-Dimer assay and PT/PTT/INR
- Monitor results of Duplex ultrasound

All patients must be ruled out for PC:DVT/PE

### PC: DVT

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the client experiencing:</td>
<td></td>
</tr>
<tr>
<td>- Unilateral Edema,</td>
<td></td>
</tr>
<tr>
<td>- Leg pain (Pain with dorsiflexion of the foot (Homans sign))</td>
<td></td>
</tr>
<tr>
<td>- Warmth or erythema of skin over the area of thrombosis.</td>
<td></td>
</tr>
</tbody>
</table>

Follow plan of care for PC: DVT

Implement plan of care for ineffective peripheral tissue perfusion:
- Use pneumatic stockings according to agency protocol
- If not in use; encourage foot pump exercise & ambulation
- Reduce likelihood for prolonged abnormal flexion of the knee
- Teach client not to cross legs and to change position frequently.
- Encourage hydration
- Teach use of DVT prophylaxis and s/s to report

### DO
- If superficial:
  - Encourage ambulation
  - Administer NSAIDS for pain as prescribed
  - Apply compression stockings as prescribed
  - Administer Low Molecular weight heparin as prescribed and monitor effect
  - Initiate bleeding precautions when in use
  - Topical treatment and surgical intervention may be considered

### CALL
- Monitor for complication of DVT/PE  
  (sudden onset chest pain, dyspnea, hemoptysis)
- If client becomes unstable; initiate shock management;
  - airway, oxygen, non invasive hemodynamic monitoring (BP, HR, RR and cardiac monitoring and call ready response team and MD)

Outcomes/Benchmarks:
No unilateral edema, no calf pain, or skin temperature changes to extremity

Susan McCabe revised 10/1/08
**PC: Protein calorie malnutrition**

**Outcomes/Benchmarks:**
- Tolerating diet, Weight within ideal range for gender age and height
- No weight loss, Serum albumin > 3.5

**Is the client experiencing:**
- Anorexia, nausea, weight loss, vomiting, diarrhea, associated with cancer therapy such as surgery, chemotherapy and radiation; depression and hypermetabolic state such as sepsis

**Implement plan of care for imbalanced nutrition:**
- Encourage eating foods that are high in energy, protein, and micronutrients to help maintain nutritional status.
- Offer Liquid supplements to improve total energy intake and body function and may work well when eating solids is difficult.
- Instruct client to eat frequently and include high-energy and high-protein snacks.
- Offer plastic utensils if foods taste metallic.
- Perform oral hygiene at least 4 times per day.
- Eat bland, soft, easy-to-digest foods rather than heavy meals if nausea is present.

**Follow plan of care for PC: protein calorie malnutrition**

<table>
<thead>
<tr>
<th><strong>ASSESS s/s of PC: protein calorie malnutrition</strong></th>
<th><strong>MONITOR for s/s PC: protein calorie malnutrition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia, nausea, weight loss, vomiting, diarrhea</td>
<td>Monitor results of calorie count</td>
</tr>
<tr>
<td>Inadequate PO intake</td>
<td>Monitor for declining total proteins and serum albumin</td>
</tr>
<tr>
<td><strong>Identify High risk populations</strong></td>
<td>Monitor for weight loss of more than 10% of usual weight.</td>
</tr>
<tr>
<td>cancer therapy such as surgery, chemotherapy and</td>
<td>Inability to eat for &gt; 5 days</td>
</tr>
<tr>
<td>radiation</td>
<td></td>
</tr>
<tr>
<td>depression</td>
<td></td>
</tr>
<tr>
<td>hypermetabolic state such as sepsis</td>
<td></td>
</tr>
<tr>
<td>Dysphagia, GI dysfunction, Oral lesions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DO</strong></th>
<th><strong>CALL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain dietary consult. If dysphagia is present or surgery precludes PO intake, administer nutrition by enteral route. If enteral route is non-functional, administer nutrition by parenteral route. Provide frequent small meals adapted to clients preferences that are high in protein/carbohydrate/nutrients. Administer antiemetics prophylactically or if nausea is present. Administer antidiarrheals as prescribed and monitor effectiveness. Encourage adequate hydration to replace losses. Administer megace to improve appetite if prescribed.</td>
<td>Monitor for worsening weight loss, refractory nausea, vomiting and diarrhea, declining serum albumin and total proteins. Provide supportive care and call MD.</td>
</tr>
</tbody>
</table>
**PC: Pathological Fracture**

**Outcomes/Benchmarks:**
No complaints of musculoskeletal pain, full ROM, no deformity

***Is the client experiencing:***
Bone pain, loss of function associated with an insult that would not normally result in fracture
Asymmetry, and point tenderness

**Follow plan of care for PC: Pathological fractures**

**Implement plan of care for falls precautions and protection from harm:**
Explain to client the mechanism of pathological fracture and strategies to prevent;
Discuss diagnostic workup to detect risk for pathologic fracture
Review Lifestyle modifications
Use of assistive device, protective gear, injury avoidance
Medication therapy; Bisphosphonates
Encourage adequate hydration to eliminate calcium
Teach client s/s of fracture to report

### PC: Pathological fractures

**ASSESS s/s of PC: Pathological fractures**
- Bone pain, loss of function associated with an insult, asymmetry, and point tenderness especially to Spine, Pelvis, Ribs, Proximal limb girdles

**Identify High risk populations**
- Bone metastasis

**MONITOR for s/s PC: Pathological fractures**
- Monitor reports from X-rays, CT scan and MRI that diagnose fractures
- Monitor serum calcium levels for hypercalcemia
- Monitor for elevations of Serum alkaline phosphatase Which indicates bone destruction
- Perform workup depending on therapy; surgical stabilization, Bisphosphonates
- Monitor results of bone biopsy if performed
- Monitor VS for complications of fracture

**DO**
- Manage acute injury
- Protect site of injury, immobilize & ice, elevation and compression if indicated and call MD
- Administer pain medication as prescribed
- Provide assistive devices if indicated
- Perform frequent neurovascular exam
- Encourage adequate hydration if hypercalcemia is present
- Administer Bisphosphonates as prescribed
- Employ safety measures and falls precautions to prevent harm

**CALL**
- Monitor for complications of fracture; neurovascular compromise, compartment syndrome, Fat emboli syndrome, hemodynamic instability
  Initiate airway, oxygen, non invasive hemodynamic monitoring (BP, HR, RR and cardiac monitoring and call ready response team and MD)
Acute/Chronic Pain

Outcomes/Benchmarks:
Reports comfort at negotiated goal
Absence of agitation and restlessness if nonverbal

Is the client experiencing:
Pain Acute vs. chronic secondary to primary or metastatic cancer by direct verbalization or use of a FLACC scale in the nonverbal client

Implement plan of care for acute pain:
Establish goal for pain management and palliation of distressing cancer symptoms
Discuss pharmacologic and non pharmacologic techniques
  Clients frequently use fentanyl patches for basal pain therapy and require boluses of pain management according to the step approach to pain management
  End of life care utilizes buccal roxanol therapy
  Clients may undergo surgical procedure for palliation therapy; implanted pumps, removal of compressing tumors, diversionary procedures
Provide diversional activity, non pharmacologic alternatives when indicated
Based on client’s status, initiate hospice referral when end of life care is necessitated

Is the client experiencing
Pain refractory to nonpharmacologic and prescribed pharmacologic therapy?

Yes

Call Pain management team/hospice for consultation according to agency policy

NO