Patient Examination
History and Physical Examination 101

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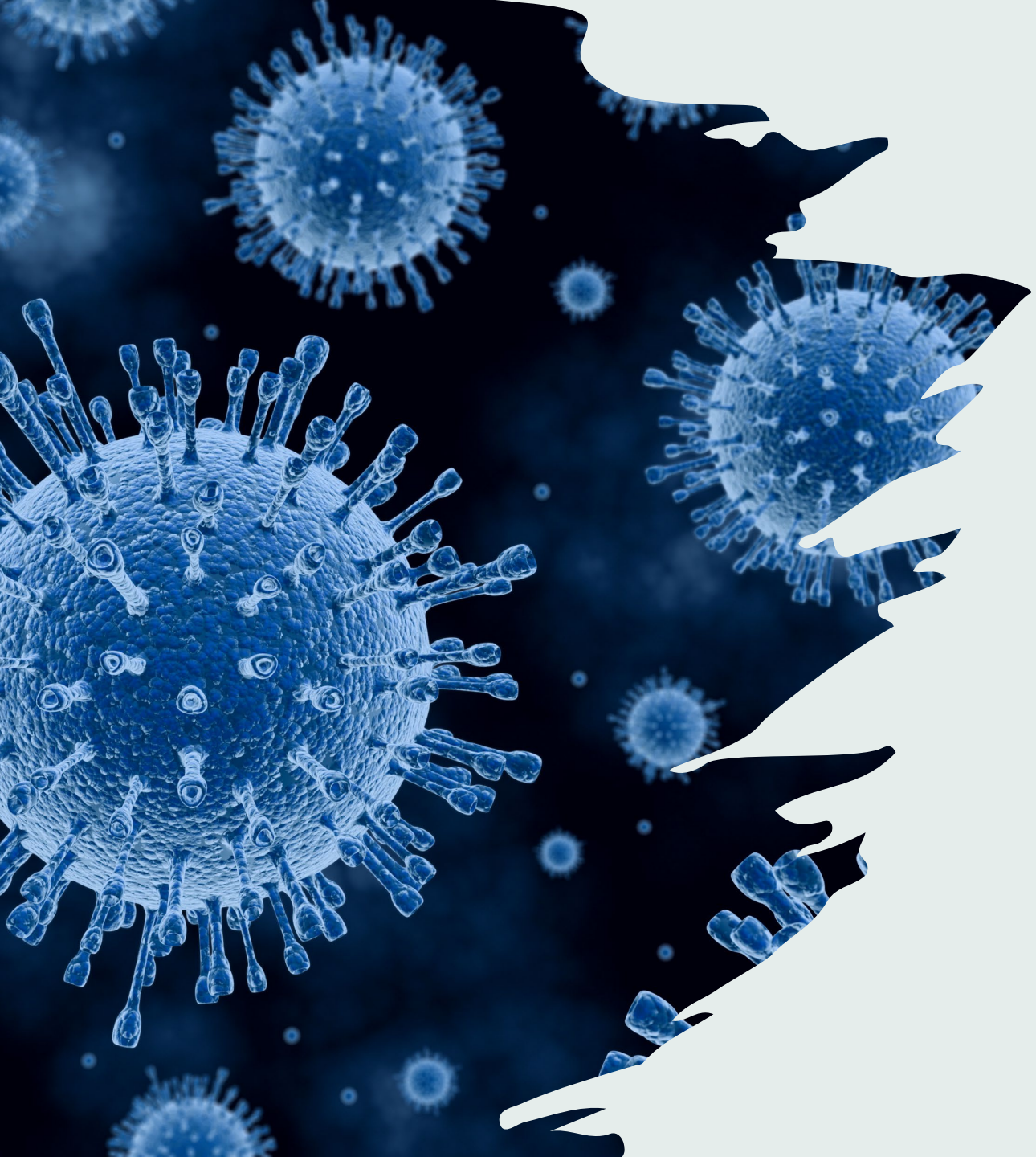
Objectives

Describe the components of a basic history and physical in the management and care for patients with cancer

Review common tools available to assist providers in the diagnosis, management and monitoring of patients with cancer



Cancer - Facts

Not just one disease

- Rather a collection of diseases

Occurs anywhere in the body

A disease of the genes

- Genes control the way our cells work
- Alterations or malfunctions interrupt the normal cell cycle
  - Growing and dividing when they should not
  - Disruption of cellular process prevents apoptosis
    - Thus, CANCER

Management

- Multidisciplinary Team
  - Providers
    - Hematologist/Oncologist
    - Advance providers
    - Surgeons
    - Radiation Oncologist
    - Radiologist
    - Pathologist
    - Pharmacist
    - Tumor boards
    - Nurses (variety of roles)
    - Social workers
    - Etc…

- Patients
  - Shock/disbelief
  - Understanding
  - Acceptance

Here we go!

- How do you prepare?
- How do you equip yourself?
- How do you encourage?
- This is a fight for life…

Preparation

- Prepare for the visit:
  - Review the chart
    - Type of cancer
    - Treatment
    - Review labs
    - Diagnostic testing
    - Look at the last note…

Components of Basic History and Physical

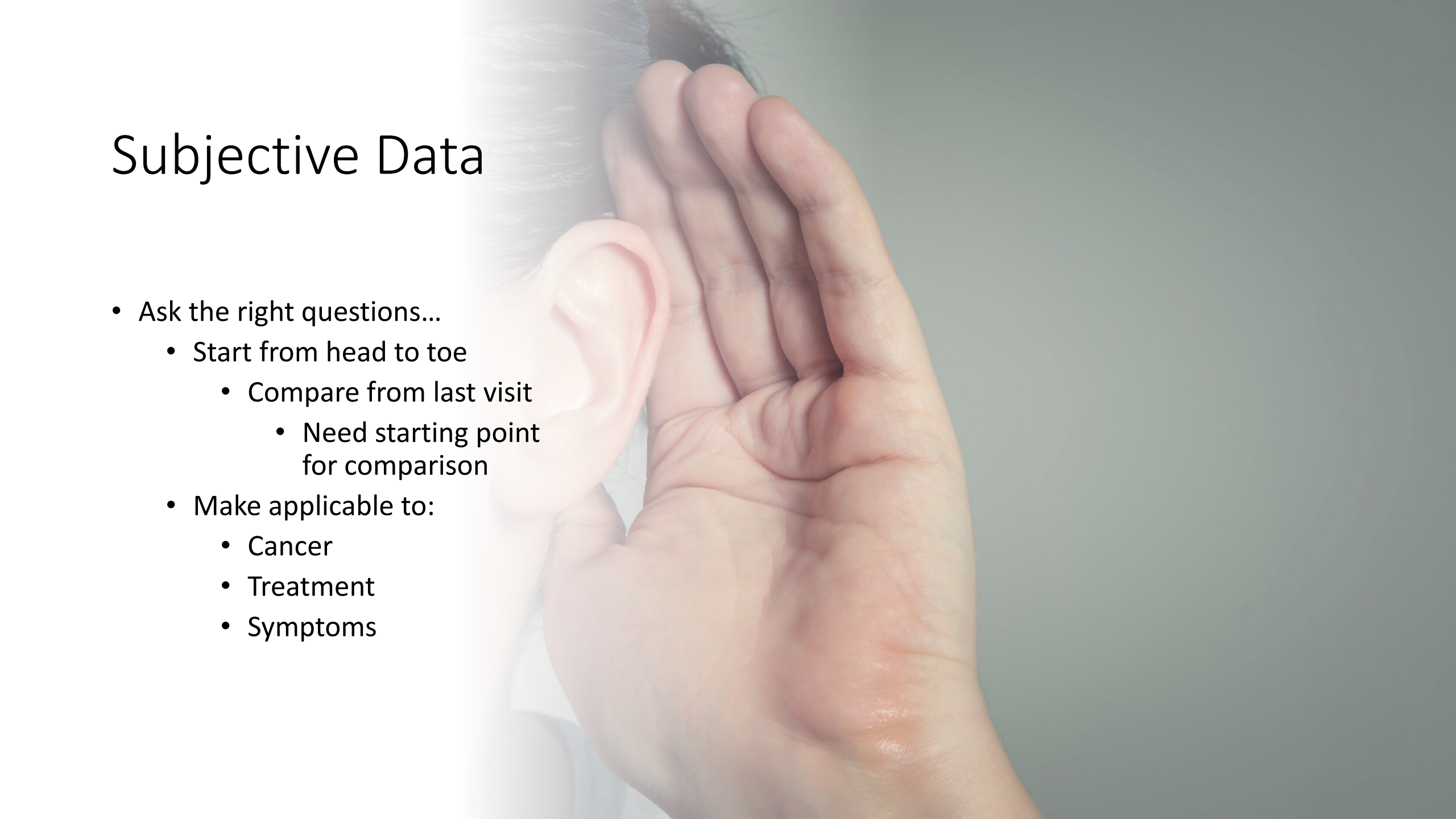
- Create an atmosphere of comfort
- Discuss subjective data
- Review medications
- Physical assessment
- Formulate a plan of care

Atmosphere of Comfort

- During the visit:
  - Introductions
    - Patient comfort level
      - Smile
      - Shake hands or fist bumps
      - Be confident
  - Acknowledge everyone in the room
    - This is important for patient comfort and future visits
    - Document – everything
  - Look at the patient
    - Give them your full attention
    - If not, explain why?

Subjective Data

- Ask the right questions…
  - Start from head to toe
    - Compare from last visit
      - Need starting point for comparison
  - Make applicable to:
    - Cancer
    - Treatment
    - Symptoms



Subjective Data

- Head to toe
  - Chills, fevers, appetite, weight loss, fatigue
  - Eyes, nose, mouth sores, or problems swallowing
  - Dyspnea (exertional or all the time), cough, secretions, sleeping up in a chair or on pillows
  - Abnormal or rapid heart beats, heart pain, swelling
  - Nausea, vomiting, diarrhea, constipation, heartburn, gas, bloating, distention – What is the normal bowel pattern?
  - Urinary frequency, urgency, flow, nightly, color, burning or painful
  - Numbing, tingling, fingers, toes, or dizziness
  - Weakness (if yes – where is it), abnormal gait, assistive devices

Medications

Review medications

Current medications

Include over the counter (OTC)

Could any recent changes account for symptoms

Physical Examination

- What do you see?
  - Eyes – Pupils, EOMI, sclera
  - Nose – drainage, sores, bleeding, perforations
  - Look at the chest, **listen** to lung sounds anterior and posteriorly
  - Heart tones **listen**, are they regular – slow – fast check all valves, murmurs, gallops, or rubs, is there a change from last visit
  - Abdomen (normal, hyper or hypo bowel sounds), soft, tender, painful (where), palpate liver
  - Motor – Ambulation (exam table or in a wheelchair). Does the patient need assistance.

Plan of Care

- Know the plan?
  - Surgery
  - Treatment – therapy
  - Radiation
  - Manage side effects

Plan of Care

- It all comes down to the cancer…
  - Type (4 main types)
    - Carcinomas
    - Sarcomas
    - Leukemias
    - Lymphomas
  - Guidelines
    - National Cancer Center Network (NCCN)
    - https://www.nccn.org/
    - American Society of Clinical Oncology (ASCO)
    - https://www.cancer.net/cancer-types
    - American Cancer Society (ACS)
    - https://www.cancer.org/cancer.html

Plan of care

- Common Cancer Treatments
  - Surgery
  - Chemotherapy
  - Radiation therapy
  - Hyperthermia therapy
  - Photodynamic therapy
  - Hormone therapy
  - Immunotherapy
  - Stem cell transplant

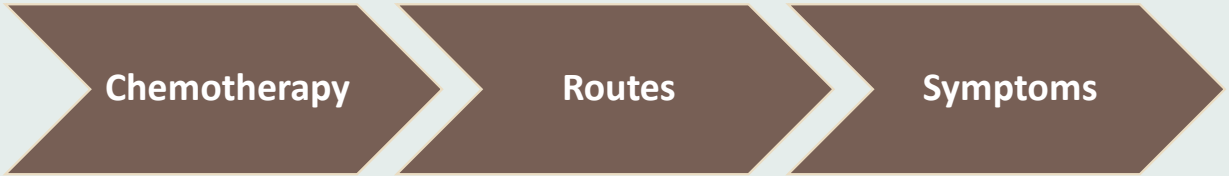
  - Treatments are determined by cancer type

Cancer Treatment

- Surgery
  - What kind?
    - Resect
    - Debulk
    - Palliative
    - Reconstruction
    - Prevention

- Considerations
  - Location and type of cancer
  - Type of surgery
  - General health
  - Treatment prior to surgery
    - Neo-adjuvant chemo or radiation
  - Medications
    - Anti-VEGF inhibitors
    - Anticoagulants

Cancer Treatment



- Works by stopping or slowing growth

- Oral
- IV
- Injection
- Intrathecal
- Intraperitoneal (IP)
- Intra-arterial (IA)
- Topical

- Depend on drug

Cancer Treatment

- Targeted therapy
  - Targets proteins
  - Monoclonal antibodies
    - Help the immune system stop cancer
    - Stops signals that help form blood vessels
    - Deliver cell-killing substances to cancer cells
    - Cause cancer death
    - Starve cancer of hormones to grow
  - Side effects
    - Resistant
    - Diarrhea, liver, hypertension, mouth sores, nail changes, rashes, loss of pigmentation

Side effects

- Resistant
  - Target changes itself
  - Target cannot interact

Most common:

- Fatigue
- Hypertension
- Diarrhea and liver problems
- Mouth sores
- Nail changes
- Rashes or dry skin
- Loss of pigmentation (hair color)

Cancer Treatment

- Radiation Therapy
  - External beam radiation
    - Aims radiation at the cancer
    - Local treatment for specific parts of the body
  - Internal radiation therapy
    - Interstitial brachytherapy
      - Seeds
      - Ribbons
      - Capsules
    - Radioactive isotopes
      - Iodine-131

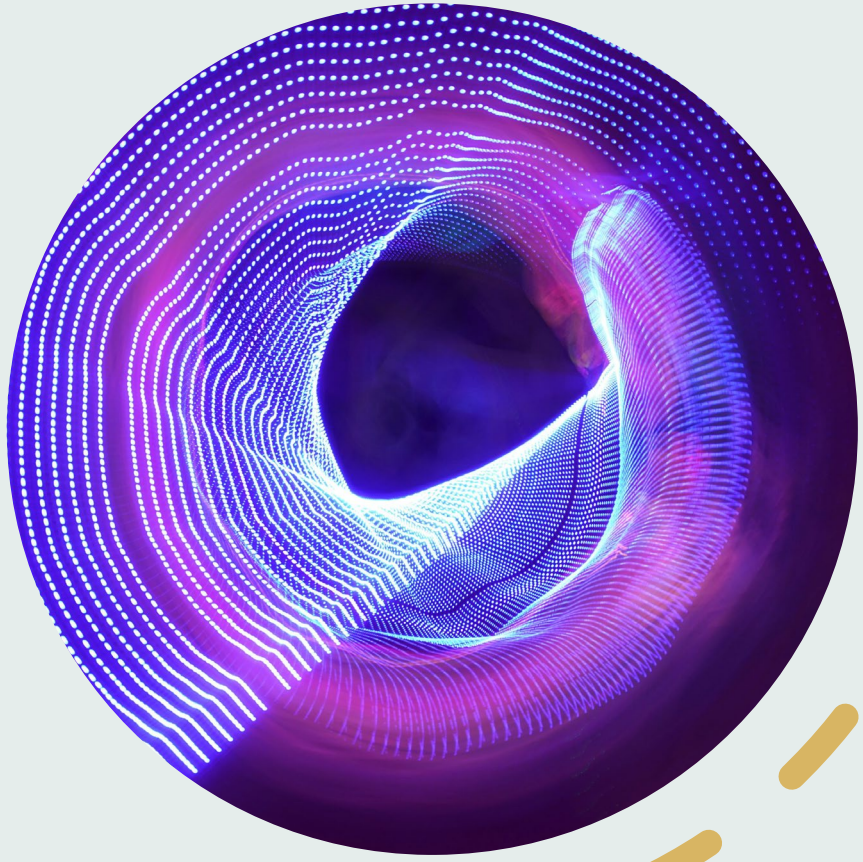
- Side Effects
  - Depends on location
    - Head and neck
    - Chest
    - Stomach and abdomen
    - Pelvis
  - Common
    - Dry mouth, difficulty swallowing nausea, hair loss, lymphedema, tooth decay, shortness of breath, loss of appetite, loose stool or diarrhea, incontinence, sexual dysfunction, fertility dysfunction

Cancer Treatment

- Hyperthermia
  - Tissues are heated to kill cancer cells
  - Techniques
    - Probes from microwaves
    - Radiofrequency
    - Lasers
    - Ultrasound
    - Hyperthermic intraperitoneal chemotherapy
      - Heated chemotherapy

Cancer Treatment

- Photodynamic
  - Using light to activate mediations or sensitizing agents to kill cancer



Cancer Treatment

- Hormone Therapy
  - Used to treat cancer, stop or slow growth

- Side effects
  - Hot flashes
  - Decrease libido
  - Weakened bones
  - Diarrhea
  - Nausea
  - Enlarged breast
  - Fatigue
  - Mood changes
  - Changes in menses (women)
  - Vaginal dryness (women)

Cancer Treatment

- Immunotherapy
  - Designed to help the immune system fight cancer
    - Checkpoint inhibitors – block immune checkpoints
    - T-cell transfer – boost T-cells to fight cancer
    - Modulators – enhance immune response
    - Monoclonal antibodies – specific targets on cancer cells
    - Vaccines – boost immune response
  - Side Effects (most commons)
  - Pain
  - Swelling
  - Soreness
  - Redness
  - Itchiness
  - Rash
- Side Effects Continued…
  - Flu-like symptoms
    - Fever
    - Chills
    - Weakness
    - Dizziness
    - Nausea or vomiting
    - Muscle or joint aches
    - Fatigue
    - Headaches
    - Trouble breathing
    - High/low blood pressure
    - Sinus congestion
    - Diarrhea

Cancer Treatment

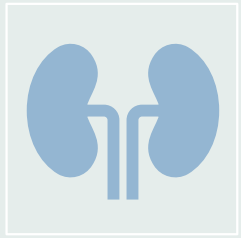
Stem Cell Transplant

Leukemia

Lymphoma

Neuroblastoma

Multiple myeloma



Side effects

Bleeding

Infection

(Allogenic transplant) graft-versus-host disease

Affects individuals differently depending on:

Type

Treatment

Type of cancer and advancement

Health prior to transplant

When Cancer Spreads

- How?
  - Local invasion
    - Invades nearby
  - Intravasation
    - Walls of nearby lymph or blood vessels
  - Circulation
    - Lymphatic system and blood stream
  - Arrest and extravasation
    - Stop in capillaries in distant locations and migrate
  - Proliferation
    - Multiply to form micrometastases
  - Angiogenesis
    - Micrometastases form new blood supply

Where Does Cancer Spread?

- Bladder
  - Bone, liver, lung
- Breast
  - Bone, brain, liver lung
- Colorectal, Stomach, Pancreas
  - Liver, lung, peritoneum
- Kidney
  - Adrenal gland, bone, brain, liver, lung
- Lung
  - Adrenal gland, bone, brain, liver, lung and other lung
- Melanoma
  - Bone, brain, liver, lung, skin/muscle
- Ovary
  - Liver, lung, peritoneum
- Prostate
  - Adrenal gland, bone, liver, lung
- Thyroid
  - Bone, liver, lung
- Uterus
  - Bone, liver, lung, peritoneum, vagina

Symptoms of Cancer Metastasis

- Brain
  - Headaches
  - Seizures
  - Vertigo
- Respiratory
  - Cough
  - Hemoptysis
  - Dyspnea
- Lymph nodes
  - Lymphadenopathy
- Liver
  - Hepatomegaly
  - Jaundice
- Skeletal
  - Pain
  - Fractures
  - Spinal cord compression

Findings Requiring Immediate Intervention

- Dehydration
- Failure to thrive
- Superior Vena Cava Syndrome
- Jaundice, abdominal pain, nausea & vomiting
- Bleeding

- What will you see?
- What should you think about?

Case Study

- 64y male
- Pancreas cancer, Stage I resectable
- PMHx: heart disease, HTN, diabetes, GERD, depression
- SMHx: CABGx4, gastric bypass, Left ACL repair
- Social: Former smoker, occasional ETOH, Active

- Adjuvant therapy
  - Gemcitabine/capecitabine
    - Cycle 3, Day 15
      - Gemcitabine D1, 8 and 15
      - Capecitabine day 1-21 – 28 days
- Role play…

What do we know?

- Gemcitabine
- https://medlineplus.gov/druginfo/meds/a696019.html#special-dietary

- Capecitabine
- https://medlineplus.gov/druginfo/meds/a699003.html

Important???

What did the patient say:

- Review of systems

What did you see?

- Physical assessment

What should we do?

- Plan

Review of Systems

- What did the patient say that may clue you that is a potential problem?
  - “I was feeling alright after my last treatment but all the sudden I noticed I was having a problems breathing sometimes”
  - I have this swollen area on my arm and my “PCP” gave me an antibiotic for an infection and it is not getting better”
  - “Now it is hard to walk to the bathroom without having to stop and catch my breath”
  - “Now my other arm appears to be swollen and getting an infection, why am I getting these infections?”
  - The swelling in my legs is worse

Important???

What did the patient say:

- Review of systems

What did you see?

- Physical assessment

What should we do?

- Plan

Physical Assessment

- VS: T 38.1 (100.4), HR103, RR 22, B/P 100/55, O2 sat: 89%
- PERRLA, MMM with mouth sores, EOMI, NCAT, Pale
- Diminished breath sounds, labored breathing, difficulty completing sentences, murmur, with regular pulses, pulses equal
- Abd soft, NTND, no hepatosplenomegaly, + BSx4
- No CVA tenderness
- MOE but weak, came into room in wheelchair
- 2+ edema pedal extremities
- RUA with erythema and induration
- LLA with erythema and induration

Important???

What did the patient say:

- Review of systems

What did you see?

- Physical assessment

What should we do?

- Plan

Plan

- What do you think is going on?
  - Pulmonary embolism
  - Metastasis to lung
  - Heart failure
  - Pneumonia
    - All could be…
- What are we going to do?
  - Pulmonary embolism
    - Treat

- ECG
- Labs
- Doppler US r/o DVT
- CT pulmonary angiography
- Chest X-ray


BE THE CHANGE
you want to see
IN THE WORLD.
Mahatma Gandhi – Civil Rights Activist

Questions?

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Gemcitabine and capecitabine (GemCap) for advanced pancreatobiliary cancer[1,2]

Cycle length: 21 days.

Drug	Dose and route	Administration	Given on days
Gemcitabine*	1000 mg/m^2 IV	Dilute in 250 mL normal saline (concentration no greater than 40 mg/mL) and administer over 30 minutes.	Days 1 and 8
Capecitabine¶	650 mg/m^2 per dose by mouth	Twice daily (total dose 1300 mg/m^2 per day). Swallow whole with water within 30 minutes after a meal, with each dose as close to 12 hours apart as possible. Do not cut or crush tablets.◊	Days 1 through 14

Pretreatment considerations:

Emesis risk	▪ LOW. ▪ Refer to UpToDate topics on prevention of chemotherapy-induced nausea and vomiting in adults.
Infection prophylaxis	▪ Primary prophylaxis with G-CSF is not indicated (incidence of neutropenic fever = 2%) for this regimen.[2] ▪ Refer to UpToDate topics on prophylaxis of infection during chemotherapy-induced neutropenia in high-risk adults.
Dose adjustment for baseline liver or renal dysfunction	▪ A lower starting dose of gemcitabine may be needed for patients with liver impairment.[3] A lower starting dose of capecitabine may be needed for patients with moderate renal impairment.[4] ▪ Refer to UpToDate topics on chemotherapy hepatotoxicity and dose modification in patients with liver disease, conventional cytotoxic agents; chemotherapy hepatotoxicity and dose modification in patients with liver disease, molecularly targeted agents; and chemotherapy nephrotoxicity and dose modification in patients with renal insufficiency, conventional cytotoxic agents.

Monitoring parameters:

- CBC with differential and platelet count weekly during treatment.
- Assess basic metabolic panel (including serum creatinine) and liver function tests every three weeks prior to each new cycle and otherwise as indicated during treatment.
- Monitor for diarrhea and palmar-plantar erythrodysesthesias during treatment.
- More frequent anticoagulant response (INR or prothrombin time) monitoring is necessary for patients receiving concomitant capecitabine and oral coumarin-derivative anticoagulant therapy.
- Cardiotoxicity observed with capecitabine includes myocardial infarction/ischemia, angina, dysrhythmias, cardiac arrest, cardiac failure, sudden death, electrocardiographic changes, and cardiomyopathy. These adverse reactions may be more common in patients with a prior history of coronary artery disease.
- Refer to UpToDate topics on cardiotoxicity of nonanthracycline cancer chemotherapy agents.

Suggested dose modifications for toxicity:

Myelotoxicity	▪ This regimen should not be initiated unless neutrophils are ≥1500/microL and platelets are ≥100,000/microL.[1,2] Reduce the day 8 gemcitabine dose by 25% for an absolute neutrophil count of 500 to 1000/microL or a platelet count of 50,000 to 100,000/microL.[2] Decrease gemcitabine by 25% for subsequent cycles for febrile neutropenia, grade 4 hematologic toxicity lasting for more than seven days, or bleeding-associated thrombocytopenia.[2]
Nonhematologic toxicity (including hepatotoxicity)	▪ In the initial protocol, capecitabine was interrupted for ≥grade 2 nonhematologic toxicity (except alopecia) that was likely related to capecitabine until it decreased to ≤grade 1.[2] Decrease subsequent capecitabine dose by 25% for ≥grade 3 nonhematologic toxicity or recurrent grade 2 toxicity (except alopecia). ▪ The United States Prescribing Information also contains recommendations for capecitabine dose reduction based upon toxicity[4]. • Grade 2: For the first, second, and third occurrence, hold capecitabine. After resolution to grade 1 or less, resume treatment (first occurrence, no dosage adjustment; second occurrence, 75% of the starting dose; third occurrence, 50% of the starting dose). For the fourth occurrence of a grade 2 toxicity, discontinue capecitabine therapy. • Grade 3: For the first and second occurrence, hold capecitabine therapy. After resolution to grade 1 or less, resume treatment at a reduced dose (first occurrence, 75% of the starting dose; second occurrence, 50% of the starting dose). For the third occurrence of a grade 3 toxicity, discontinue capecitabine therapy. • Grade 4: Discontinue capecitabine therapy. Alternatively, hold capecitabine therapy, and begin next treatment at 50% of the starting dose when toxicity resolves to grade 1 or less; discontinue treatment for first recurrence of grade 4 toxicity. • Patients with grade 3 or 4 hyperbilirubinemia may resume capecitabine once toxicity has reduced to grade ≤2, but at a reduced dose.[4] ▪ **NOTE:** Severe diarrhea, mucositis, and myelosuppression after capecitabine should prompt evaluation for dihydropyrimidine dehydrogenase deficiency. ▪ Refer to UpToDate topics on enterotoxicity of chemotherapeutic agents. ▪ Hold gemcitabine for ≥grade 3 nonhematologic toxicity that is likely related to gemcitabine until it decreases to ≤grade 1.[2] Restart gemcitabine with a 50% dose reduction.[3] Gemcitabine is commonly associated with a transient rise in serum transaminases, but these are seldom of clinical significance. There is insufficient information from clinical studies to allow clear dose recommendations in these patients. Refer to UpToDate topics on chemotherapy hepatotoxicity and dose modification in patients with liver disease, conventional cytotoxic agents.
Pulmonary toxicity	▪ A variety of manifestations of pulmonary toxicity have been reported in patients treated with gemcitabine. Discontinue gemcitabine immediately and permanently. ▪ Refer to UpToDate topics on pulmonary toxicity associated with antineoplastic therapy, cytotoxic agents.
Thrombotic microangiopathy	▪ Thrombotic microangiopathy (TMA, also sometimes called thrombotic thrombocytopenic purpura [TTP] or hemolytic uremic syndrome [HUS]) has been associated with gemcitabine, in individuals who have received a large or small cumulative dose.[3] Consider the possibility of TMA if the patient develops Coombs-negative hemolysis, thrombocytopenia, renal failure, and/or neurologic findings. Management consists of drug discontinuation and supportive care, without plasma exchange, as long as there is high confidence in a drug-induced etiology rather than TTP. ▪ Refer to UpToDate topics on drug-induced thrombotic microangiopathy.

Omitted capecitabine doses for toxicity are not replaced or restored. Resume treatment with the planned next cycle.

If there is a change in body weight of at least 10%, doses should be recalculated.

This table is provided as an example of how to administer this regimen; there may be other acceptable methods. This regimen must be administered by a clinician trained in the use of chemotherapy, who should use independent medical judgment in the context of individual circumstances to make adjustments, as necessary.

IV: intravenous; G-CSF: granulocyte colony stimulating factor; CBC: complete blood count; INR: international normalized ratio; ULN: upper limit of normal.

* Diluent solutions should not be modified without consulting a detailed reference due to potential incompatibility(ies).

¶ No capecitabine dose has been shown to be safe in patients with complete dihydropyrimidine dehydrogenase (DPD) deficiency, and data are insufficient to recommend a dose in patients with partial DPD activity.

◊ Extemporaneous compounding of liquid dosage forms has been recommended, but IV therapies may be more appropriate for patients with significant swallowing difficulty.

References:

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2. Knox JJ, et al. J Clin Oncol 2005; 23:2332.
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