



Day 1

1210 Admitting Notes (Health Care Provider)

Chief Complaint: Polyuria, polydipsia, and weight loss

HPI: Steve Chambers is a 29-year-old Caucasian male who was evaluated at his primary HCP office today and is being directly admitted to the medical unit. Mr. Chambers is being admitted for a 5-day history of nausea and vomiting. He also reports a 2-week history of polyuria, polydipsia, and a 10-lb weight loss.
HCP: Dr. Dan Arnold

Other Concerns: None

- Med surg:
- **Medical:** None
 - **Surgical:** None
 - **Hospitalizations:** None

Medications: None

Allergies: No known

- FH:
- **Grandparents:** Unknown health issues on the maternal side. Paternal side with health issues related to hypertension, hyperlipidemia, and a possible thyroid condition
 - **Mother:** No health issues
 - **Father:** History of arthritis
 - **Siblings:** One younger sister, no health issues
- SH:
- **Employment:** Full-time in sales, states that he travels frequently for work
 - **Marital status:** Single, lives alone. States he has friends and family for support
 - **Alcohol:** Nothing on record
 - **Tobacco:** Nothing on record
 - **Substance:** Nothing on record
 - **Diet:** Nothing on record
 - **Exercise:** Nothing on record

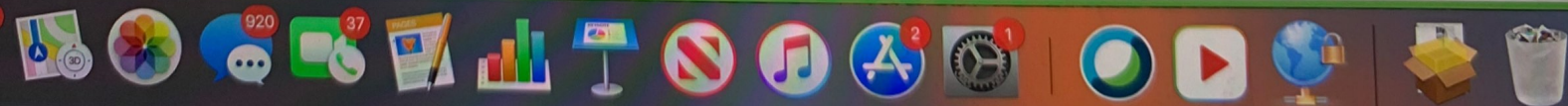
- Preventive Health:
- **Immunizations:** Nothing on record
 - **Cancer screening:** Denies screening or evaluation

Review of Systems

- Constitutional:
- Reports recent weight loss, increased appetite, and thirst over several weeks
 - Denies fever, chills, night sweats

Skin: Denies abrasions, lesions, rashes, open skin areas

- HEENT:
- **Head:** Denies headaches
 - **Eyes:** Denies changes in hearing



- **Diet:** Nothing on record
- **Exercise:** Nothing on record
- Preventive Health: • **Immunizations:** Nothing on record
- **Cancer screening:** Denies screening or evaluation

Review of Systems

- Constitutional: • Reports recent weight loss, increased appetite, and thirst over several weeks
- Denies fever, chills, night sweats
- Skin: Denies abrasions, lesions, rashes, open skin areas
- HEENT: • **Head:** Denies headaches
- **Ears:** Denies changes in hearing
- **Eyes:** Denies changes in vision
- **Nose:** Denies nasal congestion, nosebleeds
- **Throat:** Denies sore throat
- Cardiovascular: Denies chest pain, palpitations, lower leg edema, syncope
- Respiratory: Denies cough, sputum production, wheezing, smoke exposure, dyspnea
- Breast: Deferred
- Gastrointestinal: • Reports of abdominal pain, nausea, and vomiting for the last three days
- Denies anorexia and constipation
- Genitourinary: • Reports urinary frequency
- Denies dysuria, hematuria, incontinence
- Musculoskeletal: Denies arthralgias, myalgias, joint stiffness, back pain, neck pain
- Neurological: Denies paresthesias, headaches, dizziness, lightheadedness, changes in memory, seizures, tremors, falls, changes in coordination
- Psychological: • Reports eating concerns with increased appetite
- Denies changes in concentration, anxiety, panic, depression, irritability, insomnia, suicidal ideations, violence/abuse history

Physical Assessment

- Constitutional: Steve Chambers is a 29-year-old male patient. He is alert, oriented, and cooperative. His appearance, speech, and behaviors are appropriate. He describes his general health as declining over the last few weeks and not feeling like his usual self.

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Physical Assessment

Constitutional: Steve Chambers is a 29-year-old male patient. He is alert, oriented, and cooperative. His appearance, speech, and behaviors are appropriate. He describes his general health as declining over the last few weeks and not feeling like his usual self.

- Skin:**
- Clean, dry, and intact
 - No rashes, wounds, prominent lesions

- HEENT:**
- **Head:** No visible or palpable masses, depressions, scarring
 - **Eyes:** PERRLA, conjunctivae pink; sclerae white
 - **Ears:** External auditory canals clear, hearing intact
 - **Nose:** No external lesions, mucosa non-inflamed
 - **Mouth:** Mucosa and gingivae pink, no masses, lesions

- Cardiovascular:**
- Regular rate and rhythm, no murmurs, gallops, rubs
 - Capillary refill less than 3 seconds
 - Pulses equal in all extremities
 - No edema

- Respiratory:**
- Increased respiratory effort with deep inspiration
 - Tachypnea with a rate of 30 breaths a minute
 - Lungs clear in all fields, chest expansion symmetric

Breast: Deferred

- Gastrointestinal:**
- Hyperactive bowel sounds in all quadrants
 - Soft, non-tender, no organomegaly
 - No visible lesions or scars

Genitourinary: Deferred

- Musculoskeletal:**
- Full range of motion to all extremities
 - Muscle strength 5/5 bilaterally

- Neurological:**
- A/O x 4 with thought process intact
 - Speech, motor function, and sensation are intact
 - Cranial nerves II-XII intact

Assessment/Plan

1. New onset DKA

- Direct admit to medical unit for IV insulin therapy and serum glucose monitoring. Target goal for serum glucose: 120-150 mg/dL



2300			
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Normal saline infusion 250 mL/hour IV Continuous until capillary blood glucose is 250 mg/dL or less	Time	Day 1	Day 2	Day 3
	1240	A		

Scheduled

none

PRN

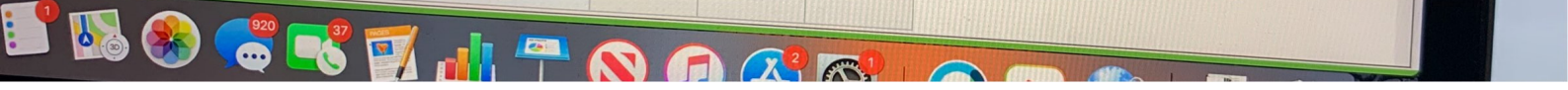
Acetaminophen 650 mg PO q6 hours PRN for mild pain (1-4/10)	Time	Day 1	Day 2
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Fentanyl 50 mcg IV q2 hours PRN for moderate to severe pain (5-10/10)	Time	Day 1	Day 2
	1230	A	

Ondansetron 4 mg IV q6 hours PRN for nausea and/or vomiting	Time	Day 1	Day 2
	1230	A	

Dextrose oral liquid 15 grams PO PRN for symptoms of hypoglycemia blood glucose 50-69 mg/dL and patient able to eat/drink (See protocol)	Time	Day 1	Day 2
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Case Summary

Long-acting	Lantus Levemir	0.8-4 hrs	minimal peak	up to 24 hrs
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Insulin Use:

- **Rapid-acting:** Taken immediately before a meal to cover the calculated carbohydrates of the meal and reduce any pre-meal elevation in blood glucose levels
- **Short-acting:** Given 30 minutes before a meal to cover the calculated carbohydrates of the meal and reduce any pre-meal elevation in blood glucose levels
- **Intermediate-acting:** Used to provide a baseline of coverage but must be taken twice daily because of insufficient half-life
- **Long-acting:** Is used to provide a smooth baseline of insulin from a single dose and then usually meals are covered using rapid-acting insulins
- **Adverse effects:** Hypoglycemia, lipodystrophy, hypokalemia, allergic reactions, headache, weight gain, and edema
- **Nursing considerations:** Management of Type 1 diabetes mellitus with insulin infusion IV, use only regular insulin (R)

Acetaminophen (Tylenol)

- **Classification:** Non-opioid analgesic/antipyretic
- **Use:** Mild to moderate pain, fever
- **Mechanism of action:** Inhibits the synthesis of prostaglandins that may serve as mediators of pain and fever, primarily in the CNS
- **Route of Administration:** Oral and rectal
- **Metabolism/Excretion:** Metabolized by the liver and excreted by the kidney
- **Dosage range:** Adults 500 mg to 4 g per 24 hours
- **Time to Peak:** PO: onset less than 1 hour, peak 1-3 hours, duration 3-8 hours (depends on dose)
- **Half-life:** 2-4 hour
- **Adverse effects:** Anemia (long-term use); liver failure with alcohol and with overdosage and kidney failure; dyspnea (prolonged high doses)
- **Contraindications:** Hypersensitivity to acetaminophen or phenacetin
- **Nursing considerations:** Take crushed or whole with a full glass of water, can give with food or milk to decrease GI upset. Signs

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Case Summary

Ondansetron (Zofran)

- **Classification:** Serotonin receptor antagonist
- **Use:** Antiemetic agent, post-operative nausea and vomiting
- **Mechanism of action:** 5-HT₃ receptor antagonist. Blocks the serotonin 5- hydroxytryptamine, type 3 receptors at the peripheral vagal nerve terminals in the intestines, blocking the signal transmission to the central nervous system and antagonizing the effects of serotonin
- **Route of administration:** Oral administration, injectable administration (IV and IM)
- **Metabolism/Excretion:** Metabolized in the liver, eliminated in the urine
- **Dosage range:** 8 mg PO, 4 mg IM or IV as a single dose
- **Time to Peak:** 10 minutes for IV, 1.3 hours for oral administration
- **Half-life:** 5.7 hours
- **Side/Adverse effects:** Bradycardia, bronchospasm, seizures, hepatic failure, torsades de pointes, ventricular tachycardia, atrial fibrillation, AV block, angioedema, cardiac arrest, Steven-Johnsons syndrome, anaphylactoid reactions, laryngeal edema, toxic epidermal necrolysis, laryngospasm, respiratory arrest, visual impairment, serotonin syndrome
- **Contraindications:** Alcoholism, breastfeeding, bradycardia/cardiac arrhythmias, cardiac disease, heart failure, hepatic disease, diabetes mellitus, females, heart failure, hypertension, hypocalcemia, hypokalemia, hypomagnesemia, long QT syndrome, malnutrition, myocardial infarction, QT prolongation, thyroid disease
- **Nursing considerations:** Monitor ECG, liver function tests, and serum electrolytes. All oral doses may be administered without regard to meals

Glucagon (GlucaGen)

- **Classification:** Recombinant glucagon, hormone
- **Use:** Increases blood glucose and relaxes the GI tract. Used in the emergency treatment of severe hypoglycemia in diabetes mellitus or as a diagnostic aid in the endoscopic or radiologic examination of the GI tract. Also used as a cardiac stimulant in beta-blocker overdose
- **Mechanism of action:** Glucagon is a hormone synthesized by the alpha-2 cells of the pancreatic islets of Langerhans and acts to increase blood glucose. Hepatic stores of glucose are necessary for glucagon to increase blood glucose. Extrahepatic effects of

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Case Summary

Dextrose (dextrose 5%, dextrose 50%, dextrose oral liquid)

- **Classification:** Glucose/dextrose is a monosaccharide or simple sugar carbohydrate
- **Use:** Raise blood glucose in hypoglycemia (diabetes mellitus patients). Use for supplying carbohydrate and fluid replacement in total parenteral nutrition (TPN). Used for hyperkalemia, and oral glucose tolerance test
- **Mechanism of action:** Dextrose undergoes oxidation to carbon dioxide and water, and provides fluid and calories. Glucose works quickly by raising blood glucose concentrations and alleviates symptoms of hypoglycemia
- **Route of administration:** Orally and intravenously
- **Metabolism/Excretion:** Liver
- **Dosage range:** 15-20 grams of glucose PO, if after 15 minutes the blood glucose is still below 70 mg/dL, ingest another 15-20 grams of glucose. IV dose: 20 to 50 mL of a dextrose 50% injection solution
- **Time to Peak:** 15 minutes
- **Half-life:** 40 minutes (PO)
- **Side/Adverse effects:** Anaphylaxis, confusion, dehydration, glycosuria, hyperglycemia, hypokalemia, hypophosphatemia, pruritus, rash, and urticaria
- **Contraindications:** Breastfeeding, corn hypersensitivity, dehydration, electrolyte imbalance, heart failure, intracranial bleeding, intramuscular administration, pulmonary edema, renal impairment, subcutaneous administration, uremia, and pregnancy
- **Nursing considerations:** Do not administer oral glucose products to anyone who is unconscious or unable to swallow. Monitor parameters: blood glucose, serum creatinine, BUN, electrolytes, and serum osmolality

Fentanyl (Sublimaze)

- **Classification:** Phenylpiperidine synthetic opiate agonist
- **Use:** Used with general, regional and spinal anesthesia. Used for moderate or severe pain, chronic, and breakthrough pain
- **Mechanism of action:** Agonist at opiate receptors, analgesia is mediated through changes in the perception of pain at the spinal cord and higher levels in CNS. This produces analgesia
- **Route of administration:** Intravenous, intramuscular, transmucosal, oral, sublingual, and Duragesic
- **Metabolism/Excretion:** Metabolized in the liver and intestinal mucosa, excreted in the urine and feces
- **Dosage range:** 50 to 100 mcg
- **Time to peak:** Sublingual: 0.5 to 1 hour time to peak after sublingual tablet administration. Transmucosal: 20 to 25 minutes time

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- **Route of administration:** Intravenous, intramuscular, transmucosal, oral, sublingual, and Duragesic
- **Metabolism/Excretion:** Metabolized in the liver and intestinal mucosa, excreted in the urine and feces
- **Dosage range:** 50 to 100 mcg
- **Time to peak:** Sublingual, 0.5 to 1 hour time to peak after sublingual tablet administration. Transmucosal, 20 to 25 minutes time to peak after transmucosal administration. The intravenous route, peak analgesia occurs within minutes and lasts for 30 to 60 minutes after a single dose. The intramuscular route, the onset of analgesia is within 7 to 8 minutes and lasts for 1 to 2 hours. The transdermal route, the onset of analgesia is 12 to 24 hours after the initial application, peak concentrations remain constant for 20 to 72 hours
- **Side/Adverse effects:** Hearing loss, ocular hemorrhage, oliguria, seizures, hematemesis, GI obstruction, GI bleeding, cardiac arrest, bradycardia
- **Contraindications:** Dental work, headache, migraine, opioid-naive patients, constipation, diarrhea, GI disease, GI obstruction, ileus, inflammatory bowel disease, ulcerative colitis, alcoholism, depression, substance abuse, asthma, COPD, coadministration with other CNS depressants, cor pulmonale, hypoxemia, obesity, pulmonary disease, respiratory depression, respiratory insufficiency, scoliosis, sleep apnea, status asthmaticus, bladder obstruction, hepatic disease, oliguria, prostatic hypertrophy, renal disease, renal failure, renal impairment, urethral stricture, urinary retention, brain tumor, CNS depression, head trauma, increased intracranial pressure, seizure disorder, seizures, angina, bradycardia, cardiac arrhythmias, cardiac disease, heart failure, hypotension, orthostatic hypotension, shock, labor, pregnancy, and breastfeeding.
- **Nursing considerations:** Give slowly intravenously over 1 to 2 minutes, given 30 to 60 minutes before surgery. May cause spasm of the sphincter of Oddi, should be used with caution in patients with biliary tract disease, pancreatitis, or biliary tract surgery. The abrupt discontinuation of prolonged fentanyl therapy can result in withdrawal symptoms. Patients should be warned about the possibility of sedation and to use caution when driving or operating machinery.

0.9% Sodium chloride (Normal saline)

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Case Summary

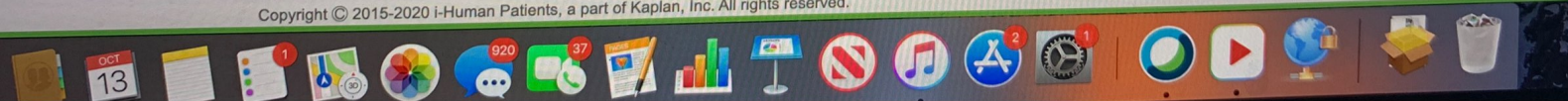
0.9% Sodium chloride (Normal saline)

- **Classification:** Source of water and electrolytes
- **Use:** Solution for fluid and electrolyte replacement for intravenous administration. Also used as a vehicle for the administration of parenteral drugs. Used for extracellular fluid replacement in the management of metabolic alkalosis in the presence of fluid loss, and for restoring or maintaining the concentration of sodium and chloride electrolytes
- **Mechanism of action:** Sodium is the main cation of extracellular fluid, while chloride is the main anion. Both ions are needed for cellular function and homeostasis. Sodium functions as the main osmotic determinant in extracellular fluid regulation and tissue hydration. Sodium also regulates the membrane potential of cells and the active transport of molecules across cell membranes. Chloride is also responsible for maintaining fluid balance, and it is also important in the maintenance of acid-base balance. Low lab chloride levels can cause an increase in bicarbonate, which produces alkalosis. Sodium and water balance are directly related to its concentration. High sodium concentration in the blood and an increase in plasma osmolality stimulates mechanisms that increase the water content of the body, such as increased thirst and increased antidiuretic hormone secretion, which will lead to renal conservation of water
- **Route of administration:** Intravenous infusion
- **Metabolism/Excretion:** Excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function
- **Dosage range:** Dose is dependent upon the age, weight and clinical condition of the patient as well as lab results
- **Time to peak:** Unknown, dependent on the patient status
- **Side/Adverse effects:** Reactions may occur because the solution or the technique of administration may cause infection at the site of injection. Other adverse effects include; venous thrombosis or phlebitis extending from the site of injection, extravasation, and, hypervolemia. Excessive administration of sodium chloride can cause hyponatremia which may result in dehydration of internal organs, hypokalemia, and acidosis
- **Contraindications:** Caution should be exercised in patients with hypertension, heart failure, cerebral edema, renal disease, pulmonary issues, peripheral edema, pre-eclampsia, liver cirrhosis, conditions associated with sodium retention, geriatric patients, and infants
- **Nursing considerations:** Elderly patients are more likely to have decreased renal function, care should be taken in administration dose selection, and it may be useful to monitor renal function and lung sounds during and after fluid infusion. In patients with congestive heart failure, severe renal insufficiency, and in clinical issues in which sodium retention and edema exist.

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Expert's Feedback

Nursing Assessment Note

General: Steve Chambers was directly admitted for a 3-day history of nausea and vomiting. He also reports a 2-week history of polyuria and polydipsia and a 10-lb weight loss. The HCP diagnosed a new onset of DKA and Type 1 diabetes mellitus. Insulin infusion protocol has been started and capillary blood glucose checks are hourly with titration of the insulin infusion. His blood glucose is decreasing and the last reading was 378. Close monitoring of his potassium serum levels is needed and he is due for another lab draw in the next hour.

Verified:

- Allergies: No known
- Full code

Vitals:

- **Blood pressure:** 108/68
- **Pulse:** 116
- **Respirations:** 28, Kussmaul breathing
- **Oxygenation:** 99% on room air
- **Temperature:** 98.2°F
- **Pain:** 2/10 (abdomen, see MAR)

Skin: Clean, dry, and intact. Poor skin turgor present with tenting



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Expert's Feedback

HEENT:

- **Head:** No visible or palpable masses, depressions, or scaring
- **Eyes:** PERRL
- **Ears:** External auditory canals clear, hearing intact
- **Nose:** No external lesions, mucosa non-inflamed
- **Mouth:** Mucous membranes and tongue are dry, fruity odor on breath

Neck: Midline, supple

Cardiovascular: Regular rate and rhythm, no murmurs, gallops, or rubs. Capillary refill less than 3 seconds. Pulses equal in all extremities. No edema noted

Respiratory: Tachypnea with a rate of 28, Kussmaul breathing present with rapid, deep breathing. Lungs clear in all fields, chest expansion symmetric

Gastrointestinal: Soft, non-tender. Hyperactive bowel sounds in all quadrants. Nausea resolving with medication (see MAR)

Genitourinary: Deferred

Musculoskeletal: Full range of motion to all extremities

Neurological: Alert and oriented x 4. Speech, motor function, and sensation are intact. Cranial nerves II-XII intact. No gait abnormalities. Thought process intact

