Altered Fluid and Electrolyte Balance

Nursing Care: Altered Fluid Balance

Prepare: Nursing Care of Altered Fluid Balance

A client with heart failure is admitted due to shortness of breath in the emergency room. Upon assessment, the nurse found the following:

Assessment	Findings
Neurological	Lethargic and confused
Respiratory	Shortness of breath, RR=32 breaths/minute, 88% oxygen saturation in room air, lungs clear upper lobes, crackles in the bottom lobes.
Cardiac	HR=115 beats/minute, BP=160/80 mm Hg
GI	Bowel movement x 1 yesterday
Urinary	Urine output=10 ml/hr

Based on the data above, what are the appropriate nursing diagnoses for this client? Select all that apply.

- Ineffective coping
- Ineffective breathing pattern
- Powerlessness
- Decreased cardiac output
- Fluid volume excess

Medication Effects on Fluid Volume

What medication will help to excrete the excess fluid volume in the body?

- Tamsulosin
- Metoprolol
- Verapamil
- Furosemide

Diagnostic Testing and Fluid Imbalances

Which diagnostic tests will help to identify any altered fluid balance in the body? Select all that apply.

- Comprehensive Metabolic Panel
- Complete Blood Count
- Sputum Culture and Sensitivity
- Urine and serum osmolality
- Blood Culture and Sensitivity

Self-Check: Diagnostic Testing of Fluid Balance

What diagnostic tests will help to determine if the client's fluid imbalance is worsening or improving? Select all tha apply.

- Complete blood count (CBC)
- Urine culture and sensitivity
- Echocardiogram
- Fasting blood glucose test
- Comprehensive metabolic panel (CMP)
- Chest X-ray

Self-Check: Fluid Balance and Assessment

The client with fluid volume deficit has been receiving 0.9% sodium chloride intravenous (IV) infusion at 50 ml/hr f the past 4 hours. Which assessment finding indicates that the client is developing fluid volume overload?

- Blood pressure of 100/50 mm Hg

Poor skin turgor upon assessment

Self-Check: Nursing Diagnosis and Fluid Balance

A client is admitted to the emergency room with shortness of breath. Assessment findings include:

History	• Past Medical History: Heart Failure, COPD, ex-smoker (15 pack years) • Past Surgical History: Coronary artery bypass graft x 4 (2015)
Medications	Prescribed Medications: • furosemide 20 mg PO daily • lisinopril 25 mg PO daily • atorvastatin 25 mg PO daily HS • albuterol INH PRN q4 hours as needed for SOB • aspirin 80 mg PO daily • Famotidine 20 mg PO daily Over the Counter Medications: • vitamin C 1000 mg PO daily
Vital Signs	• 115 beats per minute, 150/70 mm Hg (left arm) • 32 breaths per minute, 85% oxygen saturation in room air • 99.5 degrees Fahrenheit (oral temperature)

Based on the case scenario above, what is your priority nursing diagnosis?

Powerlessness
Fluid volume deficit
Knowledge deficit
Fluid volume excess

Self-Check: Priorities – Fluid Balance Excess

In which order should the nurse complete these actions after admitting a client experiencing shortness of breath?

1. Introduce yourself to the client and identify the client using two identifiers.
2. Elevate the head of the bed and administer oxygen 2 LPM via nasal cannula.
3. Check creatinine level and blood pressure.
4. Check the medication using the 10 rights of medication administration and administer Furosemide 40 mg IVP for on dose.
5. Monitor the urine output and blood pressure.

Self-Check: Risk for Injury – Fluid Balance

Lets take a look back to our client admitted to the emergency room due to shortness of breath. In the findings belo identify and click on the data that can contribute to a nursing diagnosis "Risk for Injury".

History	• Past Medical History: Heart Failure , COPD , ex-smoker (15 pack years) • Past Surgical History: Coronary artery bypass graft x 4 (2015)
Medications	Prescribed Medications: • furosemide 20 mg PO daily • lisinopril 25 mg PO daily • atorvastatin 25 mg PO daily HS • albuterol INH PRN q4 hours as needed for SOB • aspirin 80 mg PO daily • famotidine 20 mg PO daily Over the Counter Medications: • vitamin C 1000 mg PO daily
Vital Signs	• 115 beats per minute, 150/70 mm Hg (left arm) • 32 breaths per minute, 85% oxygen saturation in room air • 99.5 degrees Fahrenheit (oral temperature)

Reflect: Nursing Care of Altered Fluid Balance

Fluid Balance Outcomes

A client with heart failure is admitted due to shortness of breath in the emergency room and has a fluid build-up in the bilateral lower lungs. Furosemide 80mg IV was administered and oxygen therapy was started. The nurse shoul notify the healthcare provider for which assessment finding?

Abnormal x-ray
Potassium level 2.8 meq/L
Decreased shortness of breath
Oxygen saturation of 92%

Fluid Balance Evaluation

The client received furosemide 20 mg IVP for one dose to help with fluid volume overload. What are the appropriat nursing interventions when administering this medication? Select all that apply.

Check hemoglobin for anemia
Check potassium for hypokalemia
Check blood pressure for hypertension
Monitor urine output
Monitor for hypotension

Fluid Balance and Head Injury

The nurse anticipates administering which intravenous fluids (IV) to a client with traumatic head injury? Select all that apply.

0.45% NaCl IV fluid
D5W IV fluid
0.225% NaCl IV fluid
Lactated Ringers IV fluid
0.9% NaCl IV fluid

Fluid Balance and Disease Management

The nurse identifies that clients with which clinical conditions require hypotonic IV fluids? Select all that apply.

- Heart failure
- Syndrome of inappropriate anti-diuretic hormone secretion
- Diabetes insipidus
- Diabetic ketoacidosis
- Pleural effusion

Labs and Fluid Balance

Which assessment findings indicate a client is experiencing altered fluid balance? Select all that apply.

- Serum osmolality 285 mOsm/kg
- Sodium level 140 meq/L
- Calcium 9 mg/dl
- Hematocrit 20%
- Urine osmolality (random) 2000 mOsm/kg

Gastrointestinal Bleeding and Fluid Balance

The nurse anticipates which assessment findings for a client with fluid volume deficit related to lower gastrointestinal bleeding? Select all that apply.

- Serum osmolality 290 mOsm/kg
- Urine specific gravity 1.010
- Hematocrit 25%
- Serum sodium 150 meq/L
- Hemoglobin 7.5 g/dL

Fluid Balance and Electrolytes

Which nursing interventions are appropriate for a client who has dilutional hyponatremia secondary to heart failur Select all that apply.

- Give diuretics as ordered
- Slowly transfer from bed to chair
- Suggest fluid restriction
- Hold blood pressure medications
- Consider seizure precautions

Medications and Fluid Balance

A client with peritonitis is taking multiple medications. The client has a history of COPD, heart failure and hypertension. The nurse anticipates the client may have altered fluid balance due to which medications prescribed for these conditions? Select all that apply.

- albuterol
- lactulose
- bumetanide
- lisinopril
- digoxin

Fluid Volume Deficit

Prepare: Nursing Care - Fluid Volume Deficit

Diagnostic Tests - Fluid Volume Deficit

The client is transferred from assisted living facility to emergency department due to dehydration secondary to malnutrition. Based on the history of present illness, the client has not been eating for the past 4 days and had be refusing any oral fluids.

Assessment	Findings
Past medical history	COPD (20 pack years), coronary artery disease, depression
Past surgical history	Coronary artery bypass graft (2010), Colostomy (2015)
Medications	atorvastatin 10 mg PO HS daily lisinopril 25 mg PO BID aspirin 81 mg PO daily famotidine 10 mg PO daily rivaroxaban 30 mg PO daily albuterol INH PRN for shortness of breath methylprednisolone 4 mg IVP daily sertraline 25 mg PO daily
History of present illness	He had not been eating for the past 4 days. He verbalized that he had no appetite to eat nor drink. Based on the report, he lost 5 pounds over the past few days and due to this drastic change, the client presented with an altered level of consciousness.

The client is currently receiving 0.9% NaCl IV infusion at 50 ml/hour. Six hours ago the client was started on total parenteral nutrition (TPN) at 50 mL/hr. Which current assessment finding should be reported to the healthcare provider?

BUN 15 mg/dL
Creatinine 0.8 mg/dL
BNP 900 pg/ml
Albumin 2.4 g/dL

Fluid Volume Deficit and Central Venous Access Device

The client is transferred from assisted living facility to emergency department due to dehydration secondary to malnutrition. Based on the history of present illness, the client has not been eating for the past 4 days and had be refusing any oral fluids.

Assessment	Findings
Past medical history	COPD (20 pack years), coronary artery disease, depression
Past surgical history	Coronary artery bypass graft (2010), Colostomy (2015)
Medications	atorvastatin 10 mg PO HS daily lisinopril 25 mg PO BID aspirin 81 mg PO daily famotidine 10 mg PO daily rivaroxaban 30 mg PO daily albuterol INH PRN for shortness of breath methylprednisolone 4 mg IVP daily sertraline 25 mg PO daily
History of present illness	He had not been eating for the past 4 days. He verbalized that he had no appetite to eat nor drink. Based on the report, he lost 5 pounds over the past few days and due to this drastic change, the client presented with an altered level of consciousness.

The client is currently receiving 0.9% NaCl IV infusion at 50 ml/hour via a newly inserted peripherally inserted cent catheter (PICC) line in the right cephalic vein. The vital signs are HR=115, RR=24, BP=150/76,Temp=99 degrees Fahrenheit and oxygen saturation 90%. What should the nurse do first?

Monitor level of consciousness.
Measure the cardiac output.
Increase the infusion rate of the IV fluid.
Check the PICC line.

Assessment: Fluid Volume Deficit

The client is transferred from assisted living facility to emergency department due to dehydration secondary to malnutrition. Based on the history of present illness, the client has not been eating for the past 4 days and had be refusing any oral fluids.

The client is currently receiving 0.9% NaCl and TPN IV through a PICC line. Which assessment findings place the client at high risk for fluid volume deficit? Select all that apply.

Assessment	Findings
Admission Diagnosis	Dehydration and Malnutrition
Past medical history	COPD (20 pack years), Coronary artery disease , depression
Past surgical history	Coronary artery bypass graft (2010), colostomy (2015)
Medications	• atorvastatin 10 mg PO HS daily • lisinopril 25 mg PO BID • aspirin 81 mg PO daily • famotidine 10 mg PO daily • rivaroxaban 30 mg PO daily • albuterol INH PRN for shortness of breath • methylprednisolone 4 mg IVP daily • sertraline 25 mg PO daily
History of present illness	He had not been eating for the past 4 days and has been refusing oral fluids . He verbalized that he had no appetite to eat nor drink . Based on the report, he lost 5 pounds over the past few days and due to this drastic change, the client presented with an altered level of consciousness . He recently started taking an antidepressant prior to his appetite loss.

Self-Check: Nursing Care - Fluid Volume Deficit

A client is admitted in the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days. Upon assessment, the client is pale, lips are dry, and he is confused. In addition, the client has a past medical history of diabetes mellitus type II and had escherichia coli infection in his urine last week.

The vital signs are temperature 97 degrees Fahrenheit, RR 24 breaths/minute, HR 105 beats per minute, BP 90/50 m Hg and 88% oxygen saturation in room air. Based on the assessment data, what are the appropriate nursing interventions? Select all that apply.

Start oxygen therapy as needed.
Collect stool for occult blood test.
Check hemoglobin and hematocrit

Administer 3% NaCl IV infusion.
Administer 0.9% NaCl IV infusion.
Monitor level of consciousness.
Monitor vital signs.

Self-Check: Assessment - Fluid Volume Deficit

A client is admitted in the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days. Which assessment findings would support th the client is experiencing fluid volume deficit? Select all that apply.

90% oxygen saturation
Lethargic
Hemoglobin 12 g/dL
RR 24 breaths/minute
150/70 mm Hg

Self-Check: Laboratory Values

Assessment - Fluid Volume Deficit

A client is admitted in the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days. Upon assessment, the client seems pale, lips are dry and confused. Select the client's laboratory results below that need immediate intervention.

CBC	Results
WBC	6,000/mm3
Hemoglobin	7.5 g/dL
Hematocrit	21%
Platelet	150,000/mm3

BMP	Results
Sodium	150 meq/L
Potassium	3 meq/L
Chloride	110 meq/L
Calcium	9 mg/dL
BUN	40 mg/dL
Creatinine	2 mg/dL

Self-Check: Interprofessional Care Management - Fluid Volume Deficit

A client is admitted to the emergency department due to episodes of defecating stools with some streaks of blood The client's wife verbalized that this has been happening for the past 3 days. Upon assessment, the client seems pale, lips are dry, and the client is confused.

CBC	Results
WBC	6,000/mm3
Hemoglobin	7.5 g/dL
Hematocrit	21%
Platelet	150,000/mm3

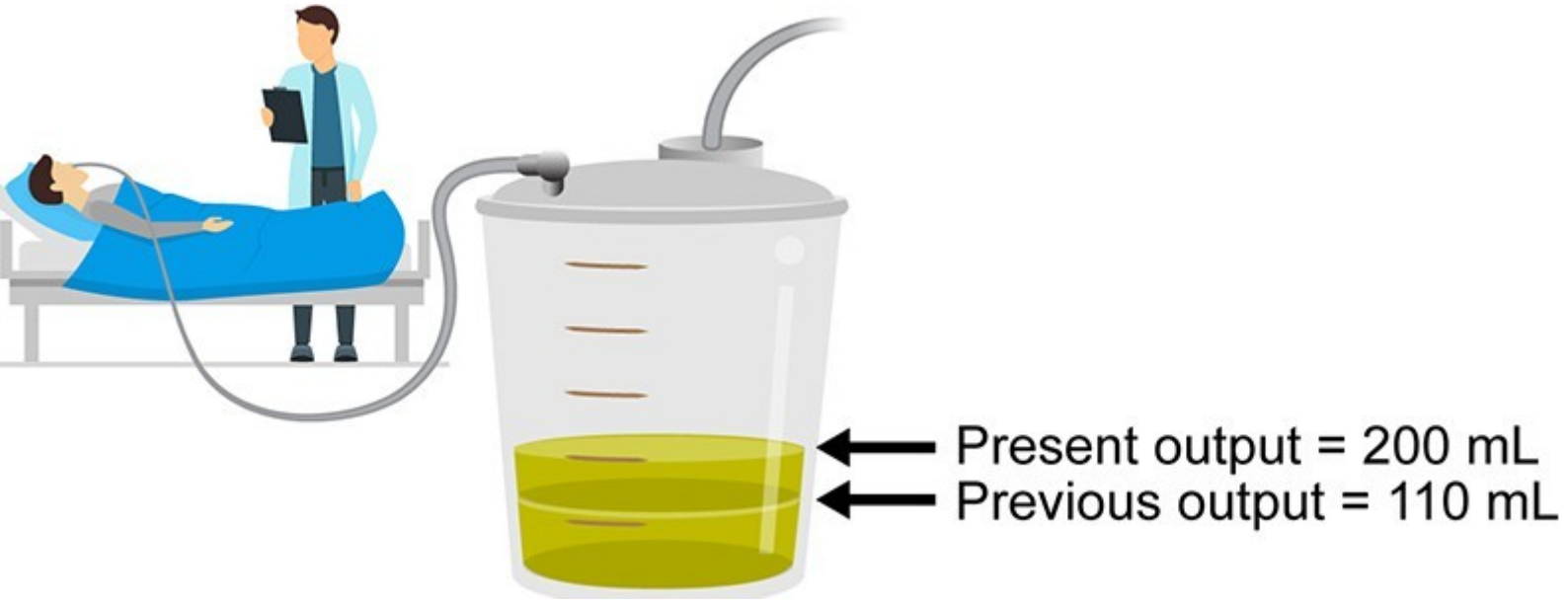
BMP	Results
Sodium	150 meq/L
Potassium	3 meq/L
Chloride	110 meq/L
Calcium	9 mg/dL
BUN	40 mg/dL
Creatinine	2 mg/dL

Based on the laboratory results above, what are the appropriate nursing interventions? Select all that apply.

Monitor level of consciousness.
Administer sevelamer HCl orally (PO).
Administer 1 unit of packed red blood cells (PRBCs) as ordered.
Recommend temporary dialysis.
Administer 0.9% NaCl with 20 meq of KCl intravenous (IV) infusion.

Self-Check: Interprofessional Care Management - Gastrointestinal System

The client who has been admitted due to episodes of defecating stools with some streaks of blood suddenly starte vomiting. The ER nurse inserted the nasogastric tube for decompression and documented an output of 110 ml. Based on your assessment, the output now is at 200 ml.



You will document 90 ml on your shift. (Enter only the whole number)

Reflect: Nursing Care - Fluid Volume Deficit

Interprofessional Care Management – Gastrointestinal System

The client is transferred from an assisted living facility to the emergency department due to dehydration secondar to malnutrition. Based on the history of present illness, the client has not been eating for the past 4 days and had been refusing any oral fluids. Total parenteral nutrition (TPN) is administered and has been infusing for the past 24 hours. Current blood results show:

CBC	Results
WBC	6,000/mm3
Hemoglobin	9 g/dL
Hematocrit	45%
Platelet	150,000/mm3

BMP	Results
Sodium	132 meq/L
Potassium	5.8 meq/L
Chloride	90 meq/L
Calcium	12 mg/dL
BUN	35 mg/dL
Creatinine	2 mg/dL
Glucose	90 mg/dL

What should the nurse do first?

Assess the client and call the healthcare provider.
Call the nursing unit leader.
Stop the TPN infusion.
Start giving oral fluids.

Interprofessional Care Management – Hematology System

A client is admitted to the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days. Upon assessment, the client seems pale, lips are dry and confused. The vital signs are T 97°F (36.1°C), RR 24 breaths/minute, HR 105 beats/minute, BP 90/50 mm Hg and 88% oxygen saturation on room air. Based on the assessment data, which action should the nurse take next?

Start oxygen therapy as needed.
Check the arterial blood gas.
Administer 0.9% NaCl intravenous (IV) infusion.
Check hemoglobin and hematocrit levels.

Interprofessional Care Management – Safety

A client is admitted to the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days with watery stools in between. Upon assessment, the client seems pale, lips are dry and confused. The vital signs are temp 97 degrees Fahrenheit, RR breaths/ minute, HR 105 beats per minute, BP 90/50 mm Hg and 92% oxygen saturation on a 2 LPM nasal cannula. Based on the assessment data, what should the nurse do?

Administer Propofol IV infusion at 50 mcg/kg/minute.
Measure intake and output and daily weight.
Apply four-point restraint to ensure safety.
Administer 3% NaCl IV fluid for continuous infusion.

Assessment - Fluid Volume Deficit

A client is admitted to the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days.

Upon assessment, the client is pale , lips are dry and he is confused . The vital signs are temp 95.5 degrees Fahrenheit , RR 24 breaths/ minute , HR 105 beats per minu BP 90/50 mm Hg and 88% oxygen saturation in room air .

Based on the data, the priority nursing diagnosis is "fluid volume deficit related to episodes of defecating stools with some streaks of blood for the past 3 days." Select the assessment data above which data supports this.

Assessment – Neurological System

The client has been receiving 0.45% NaCl IV infusion at 50 ml/hr. What assessment finding is the priority?

double vision
BP 130/70 mm Hg

Oxygen saturation of 95%

Drowsy and lethargic

Prioritization and Delegation - Fluid Volume Deficit

The registered nurse is delegating client assignments to unlicensed assistive personnel. Which client's care can safely be delegated to the unlicensed assistive personnel (UAP)?

A client who is taking Furosemide 20 mg PO daily with potassium of 2.5 meq/L
A client who vomited with blood multiple times with a Hemoglobin of 7 g/dL
A client who had episodes of diarrhea with sodium of 137 meq/L
A client who is intubated with a pH 7.1 and PaCO2 70

Assessment - Fluid Volume Deficit

Which clinical conditions can cause fluid volume deficit? Select all that apply.

Hemorrhage
Use of enema
Syndrome of inappropriate antidiuretic hormone (SIADH)
Diabetes insipidus (DI)
Diabetic ketoacidosis (DKA)
Hyperaldosteronism
nasogastric tube (NGT) for decompression

Interprofessional Care Management – Fluid Volume Deficit

A client is admitted in the emergency department due to episodes of defecating stools with some streaks of blood The wife verbalized that this has been happening for the past 3 days. Upon assessment, the client seems pale, lips are dry and confused. The client's laboratory results are:

CBC	Results
WBC	6,000/mm3
Hemoglobin	7.5 g/dL
Hematocrit	21%
Platelet	150,000/mm3

Based on the client's laboratory values, the healthcare provider ordered blood transfusion. Prior to administering blood to the client, what should the nurse do first? (Select all that apply.)

Stay with client for 15 minutes.
Insert a peripheral IV (18 gauge).
Check the vital signs.
Check for consent (blood transfusion).
Draw blood for type and crossmatch.

Fluid Volume Excess

Prepare: Nursing Care of Fluid Volume Excess

Diagnostic Tests: Fluid Volume Excess

The client is transferred from assisted living facility to emergency department due to shortness of breath seconda to exacerbation of heart failure. Based on the history of present illness, the client had episodes of respiratory distress for the past 2 days.

Assessment	Findings
Past medical history	COPD (20 pack years), Coronary artery disease(1999), Heart Failure (2017)
Past surgical history	Stent x3 in 2005 (RCA, LAD, Left Circumflex),Coronary artery bypass graft (2010)
Medications	atorvastatin 10 mg PO HS daily lisinopril 25 mg PO BID aspirin 81 mg PO daily famotidine 10 mg PO daily rivaroxaban 30 mg PO daily albuterol INH PRN for shortness of breath methylprednisolone 4 mg IVP daily
History of present illness	She had episodes of respiratory distress for the past 2 days. She reported that she gained 5- 7 pounds a week before the episodes of shortness of breath occurred.

The client is currently received furosemide 40 mg IVP for one dose and oxygen therapy to help with her respirator distress. What assessment finding needs immediate attention?

Creatinine 4 mg/dL
Sodium 130 meq/L
Albumin 4 g/dL
BNP 900 pg/ml

Urine Osmolality and Specific Gravity

The client is transferred from assisted living facility to emergency department due to shortness of breath seconda to exacerbation of heart failure. Based on the history of present illness, the client had episodes of respiratory distress for the past 2 days.

Upon admission of the client, urine sample was collected for urinalysis and random urine osmolality and urine specific gravity. The urine that was collected was 15 ml. This was the client's output for the past 6 hours.

Since the client has fluid volume overload related to the exacerbation of heart failure, what is the assessment findi that best supports a high urine osmolality and high urine specific gravity?

Urine osmolality 1000 mOsm/kg and Urine specific gravity 1.010
Urine osmolality 900 mOsm/kg and Urine specific gravity 1.020 U
rine osmolality 1800 mOsm/kg and Urine specific gravity 1.050
Urine osmolality 1200 mOsm/kg and Urine specific gravity 1.030

Fluid Volume Excess Predispositions

Review the following data and select the assessment data that predisposes the client to develop fluid volume exce secondary to heart and respiratory failure.