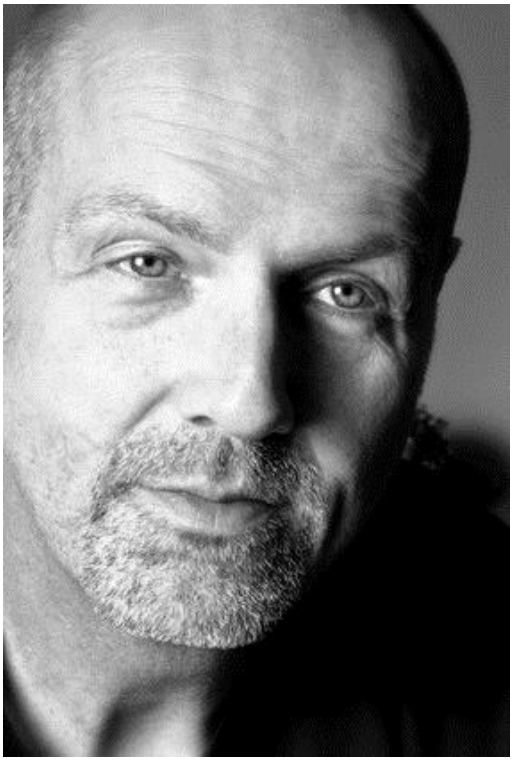
Cirrhosis



John Richards, 45 years old

Primary Concept
Nutrition
Interrelated Concepts (In order of emphasis)
1. Fluid and Electrolyte Balance 2. Perfusion 3. Cognition 4. Addiction 5. Clinical Judgment 6. Patient Education 7. Communication 8. Collaboration

UNFOLDING Reasoning Case Study: STUDENT

Cirrhosis

History of Present Problem:

John Richards is a 45-year-old male who presents to the emergency department (ED) with abdominal pain and worsening nausea and vomiting the past three days that have not resolved. He is feeling more fatigued and has had a poor appetite the past month. He denies any ETOH (alcohol) intake the past week, but admits to episodic binge drinking on most weekends. John weighs 150 pounds (68.2 kg) and is 6'0" (BMI 17.6). You are the nurse responsible for his care.

Personal/Social History:

John is single, has never married, and lives alone in his own apartment. He has struggled with heroin use/abuse in the past, but has not used in the past two years. John is currently unemployed and has no health insurance. He was diagnosed with hepatitis C ten years ago but has had minimal follow-up medical care since.

What data from the histories are RELEVANT and have clinical significance to the nurse?

RELEVANT Data from Present Problem:	**Clinical Significance:**
Abdominal Pain Nausea and Vomiting Faitgue Binge drinking BMI of 17.6	Abdominal pain, nausea and vomiting, and fatigue are symptoms of cirrhosis. Binge drinking can cause cirrhosis.
RELEVANT Data from Social History:	**Clinical Significance:**
Lives alone Diagnosis of Hepatitis C Unemployed	Hepatitis C is a risk factor for cirrhosis. Living alone means the client may have no support system. Unemployment could lead to impaired mental health, causing impaired coping mechanisms (binge drinking).

What is the RELATIONSHIP of your patient's past medical history (PMH) and current meds?
(Which medication treats which condition? Draw lines to connect.)

PMH:	**Home Meds:**	**Pharm. Classification:**	**Expected Outcome:**
*Hepatitis C–past history of IV drug abuse *ETOH abuse x 25 years	Ibuprofen 600 mg PO prn for headache	NSAID	Decreased pain. This drug can further liver destruction.

One disease process often influences the development of other illnesses. Based on your knowledge of pathophysiology, (if applicable), which disease likely developed FIRST that created a "domino effect" in his/her life?

- Circle the PMH problem that likely started **FIRST.**
- Underline the PMH problem(s) **FOLLOWED** as domino(s).

Patient Care Begins:

Current VS:	**P-Q-R-S-T Pain Assessment (5th VS):**	
T: 100.5 F/38.1 C (oral)	**P**rovoking/Palliative:	Nothing/nothing
P: 110 (regular)	**Q**uality:	Ache
R: 20	**R**egion/Radiation:	RUQ/epigastric
BP: 128/88	**S**everity:	6/10
O2 sat: 95% RA	**T**iming:	Continuous

Orthostatic BP's:

Position:	HR:	BP:
Lying	110	128/88
Standing	132	124/80

What VS data are RELEVANT and must be recognized as clinically significant by the nurse?

RELEVANT VS Data:	Rationale:
Temperature Increased HR Pain	Increased HR can be caused by impaired cardiac function, dehydration, or the body's response to pain. RUQ pain is caused by liver cirrhosis as the liver is located in the RUQA.

Current Assessment:	
GENERAL APPEARANCE:	Appears uncomfortable, body tense, occasional facial grimacing
RESP:	Breath sounds clear with equal aeration bilaterally, non-labored respiratory effort
CARDIAC:	Pink, warm & dry,1+ pitting edema lower extremities, heart sounds regular–S1S2, pulses strong, equal with palpation at radial/pedal/post-tibial landmarks
NEURO:	Alert & oriented to person, place, time, and situation (x4)
GI:	Abdomen distended, large–rounded–firm to touch, bowel sounds audible per auscultation in all 4 quadrants
GU:	Voiding without difficulty, urine clear/light orange, loss of pubic hair
SKIN:	Skin integrity intact, color normal for patient, sclera of eyes light yellow in color, lips and oral mucosa tacky dry, softball-sized ecchymosis on abdomen

What assessment data are RELEVANT and must be recognized as clinically significant by the nurse?

RELEVANT Assessment Data:	Rationale:
Uncomforable Abdominal distention. Urine color Color of sclera Lips and mucosa dry Ecchymosis on abdomen	Abdominal distention shows ascites which is caused by impaired liver function. Orange urine color shows dehydration and/or bilirubin present in the urine. Jaundice in the scleras show elevated bilirubin levels. Dry mucosa and lips show dehydration. Ecchymosis of the abdomen is a sign of low platelet counts and decreased clotting.

Lab Results:

Complete Blood Count (CBC:)	Current:	High/Low/WNL?	Previous:
WBC (4.5–11.0 mm 3)	12.8	High	9.5
Hgb (12–16 g/dL)	10.2	Low	11.2
Platelets (150-450 x10^3/µl)	98	Low	122
Neutrophil % (42–72)	88	High	75
Band forms (3–5%)	3	WNL	0

What lab results are RELEVANT and must be recognized as clinically significant by the nurse?

RELEVANT Lab(s):	**Clinical Significance:**	**TREND: Improve/Worsening/Stable:**
WBC Hgb Platelets Neutrophils	Increased WBC and Neutrophils shows the client may have an infection. Low Hgb is an indicator for blood loss. Low platelet is an indicator for poor clotting and liver dysfunction.	These labs are worsening.

Basic Metabolic Panel (BMP:)	**Current:**	**High/Low/WNL?**	**Previous:**
Sodium (135–145 mEq/L)	135	Low	138
Potassium (3.5–5.0 mEq/L)	3.5	Low	3.8
Glucose (70–110 mg/dL)	78	WNL	88
BUN (7–25 mg/dl)	38	High	25
Creatinine (0.6–1.2 mg/dL)	1.5	High	1.1

What lab results are RELEVANT and must be recognized as clinically significant by the nurse?

RELEVANT Lab(s):	**Clinical Significance:**	**TREND: Improve/Worsening/Stable:**
Sodium Potassium BUN Creatinine	Low sodium and potassium shows an electrolyte imbalance.	These labs are worsening.

Coags:	**Current:**	**High/Low/WNL?**	**Previous:**
PT/INR (0.9–1.1 nmol/L)	1.5	High	1.2

RELEVANT Lab(s):	**Clinical Significance:**	**TREND: Improve/Worsening/Stable:**
PT/INR: 1.5	A high PT/INR can show a risk of bleeding.	*UP…worsening*

Liver Function Test (LFT:)	**Current:**	**High/Low/WNL?**	**Previous:**
Albumin (3.5–5.5 g/dL)	2.5	Low	2.9
Total Bilirubin (0.1–1.0 mg/dL)	4.2	High	2.2
Alkaline Phosphatase male: 38–126 U/l female: 70–230 U/l	285	High	155
ALT (8–20 U/L)	128	High	65
AST (8–20 U/L)	124	High	85
Misc. Labs:			
Ammonia (11–35 mcg/dL)	35	High	28

What lab results are RELEVANT and must be recognized as clinically significant by the nurse?

RELEVANT Lab(s):	**Clinical Significance:**	**TREND: Improve/Worsening/Stable:**
Albumin Bilirubin Alkaline Phosphate ALT AST Ammonia	High albumin shows decreased liver function. High Alk. Phos. shows decreased kidney function. ALT and AST shows liver damage and decreased function. High ammonia caused by livers inability to convert ammonia to urea.	These labs are worsening.

Lab Planning: Creating a Plan of Care with a PRIORITY Lab:

Lab:	Normal Value:	Why Relevant?	Nursing Assessments/Interventions Required:
ALT **Value:** **128**	**Critical Value:**	ALT shows how well the liver is functioning.	Monitor liver lab values. Provide client with a low protein diet.

Clinical Reasoning Begins…

1. ***What is the primary problem that your patient is most likely presenting with?***

   The client's primary problem is cirrhosis.

2. ***What is the underlying cause/pathophysiology of this primary problem?***

   The client's cirrhosis may be caused by alvohol abuse, hepatitis C, or use of NSAID's. Cirrhosis is caused by scar tissue replacing the normal tissue found in the liver, causing the [illegible] blood pressure to rise and decrease the function of the liver.

Collaborative Care: Medical Management

Care Provider Orders:	Rationale:	Expected Outcome:
Establish peripheral IV NS 0.9% bolus of 1000 mL Ondansetron 4 mg IV every 4 hours PRN Orthostatic BP	Normal saline will replace any fluid imbalance present in the client's body. Ondansetron is a medication given for nausea. This can decrease the feeling of nausea. Orthostatic blood pressure can be caused by dehydration.	Client's orthostatic hypotension should resolve when given the saline bolus as this will raise fluid volume and raise the blood pressure. Nausea and vomiting should be decreased from the client receiving Ondansetron.

PRIORITY Setting: Which Orders Do You Implement First and Why?

(Remember your ABCs!)

Care Provider Orders:	Order of Priority:	Rationale:
1. Establish peripheral IV 2. NS 0.9% bolus of 1000 mL 3. Ondansetron 4 mg IV every 4 hours PRN nausea 4. Orthostatic BP	Perform baseline assessment. Establish IV. Provide ondansetron. Provide normal saline. Orthostatic BP. Assess outcomes.	Assessing the client first allows the nurse to see their baseline function in their current state. An IV must be established before any medications can be given via IV. Assessing after medications have been provided allows the nurse to track the client's reaction to the interventions.

Medication Dosage Calculation:

Medication/Dose:	Mechanism of Action:	Volume/time frame to Safely Administer:	Nursing Assessment/Considerations:
Ondansetron 4 mg IV 4mg/2 mL vial	Blocks serotonin receptors in the brain and vagal nerve which can reduce nausea.	**IV Push:** **Volume every 15 sec?**	Electrolyte imbalances should be fixed before providing ondansetron due to QT interval prolongations. Monitor client closely for serotonin syndrome.

Collaborative Care: Nursing

3. What nursing priority (ies) will guide your plan of care? *(if more than one, list in order of PRIORITY)*

Ensuring that the client is well hydrated, receiving the proper medications, and managing the signs and symptoms.

4. What interventions will you initiate based on this priority?

Nursing Interventions:	Rationale:	Expected Outcome:
Assessments IV Managing signs and symptoms Medcation administration	Assessments allow the nurse to see the clients improvement or decline. IV allows access for medications and saline. Managing the signs and symptoms makes the client more comfortable. Medications can treat the client's condition as well as symptoms.	These interventions should improve the client's outcome.

5. What body system(s) will you most thoroughly assess based on the primary/priority concern?

Circulatory, integumentary, and gastrointestinal/abdominal

6. What is the worst possible/most likely complication to anticipate?

The worst possible outcome for this client is hepatic encephalopathy.

7. What nursing assessments will identify this complication EARLY if it develops?

Neuro and skin assessments, as well as vital signs and lab values.

8. What nursing interventions will you initiate if this complication develops?

Decreasing ammonia levels through lactulose and fluid replacement.

9. What psychosocial needs will this patient and/or family likely have that will need to be addressed?

Managment of binge drinking, coping mechanisms, and support.

10. How can the nurse address these psychosocial needs?

Referring to a social worker and case management for support groups.

Evaluation: Six Months Later…

John continues to drink ETOH on a daily basis and has not followed through with his discharge plan when he was discharged from the hospital six months ago. John is now homeless and lives in a shelter. He was brought into the ED by emergency medical services (EMS) because he was found wandering aimlessly in the neighborhood and was completely disoriented.

The primary care provider in the ED orders the following labs: CBC, BMP, LFT, and INR.

Current VS:	**Current PQRST:**	
T: 99.5 F/37.5 C (oral)	**P**rovoking/Palliative:	DENIES
P: 118 (reg)	**Q**uality:	
R: 22 (reg)	**R**egion/Radiation:	
BP: 88/50	**S**everity:	
O2 sat: 94% room air	**T**iming:	

Current Assessment:	
GENERAL APPEARANCE:	Disheveled, clothing dirty, has strong body odor, appears unkempt, does not smell of ETOH
RESP:	Breath sounds clear with equal aeration bilaterally, non-labored respiratory effort
CARDIAC:	Jaundiced, warm & dry, no edema, heart sounds regular with no abnormal beats, pulses strong, equal with palpation at radial/pedal/post-tibial landmarks
NEURO:	Confused and disoriented to person, place, time, and situation (x4)
GI:	Abdomen protuberant–distended, bowel sounds audible per auscultation in all 4 quadrants
GU:	Voiding without difficulty, urine clear/orange
SKIN:	Skin integrity intact, skin is yellow/jaundiced in color with yellow sclera

1. What clinical data is RELEVANT that must be recognized as clinically significant?

RELEVANT VS Data:	**Rationale:**
Temp 99.5 F HR 119 BP 88/50 O2 94% on RA	Temperature can show infection. Elevated heart rate may show signs of withdrawal. Hypotension can be a sign of organ failure. Low oxygen shows poor perfusion.
RELEVANT Assessment Data:	**Rationale:**
Jaundice Distended abdomen Confusion	Jaundice shows liver failure. Increased ammonia levels can cause confusion. Distended abdomen is caused by increased portal hypertension which leads to ascites as well as decreased albumin.

Compare & Contrast: Last Nursing Assessment 6 Months Ago:

Emphasize that the nurse should look back at previous admissions, especially admission H&P, consultation H&P, discharge summary, and labs/diagnostics as time allows. Discharge summary may be most important if time is of the essence. An essential component of clinical reasoning is TRENDING clinical data. This TREND can be established from most recent documentation in the medical record that could be hours, days or even months ago. This data is still relevant and needed to establish this trend!

	Last Nursing Assessment 6 Months Ago:
GENERAL APPEARANCE:	Appears uncomfortable, restless
RESP:	Breath sounds clear with equal aeration bilaterally, non-labored respiratory effort
CARDIAC:	Pink, warm & dry, no edema, heart sounds regular–S1S2, pulses strong, equal with palpation at radial/pedal/post-tibial landmarks
NEURO:	Alert & oriented to person, place, time, and situation (x4)
GI:	Abdomen large–rounded–firm to touch, bowel sounds audible per auscultation in all 4 quadrants
GU:	Voiding without difficulty, urine clear/light orange
SKIN:	Skin integrity intact, color normal for patient, sclera of eyes light yellow in color, lips and oral mucosa tacky dry

2. Compare the current nursing assessment with his last assessment above. What has changed most dramatically from his last assessment six months ago that is clinically significant?

Abdomen is more distended than before.
Jaundice has appeared.
Mental status has decreased.

3. Has his status improved or not as expected to this point?

This client's status has worsened since his last admission.

Lab Results:

Complete Blood Count (CBC:)	Current:	High/Low/WNL?	Previous:
WBC (4.5–11.0 mm 3)	6.9	WNL	12.8
Hgb (12–16 g/dL)	8.9	Low	10.2
Platelets (150-450 x10^3/µl)	47	Low	98
Neutrophil % (42–72)	68	WNL	88
Band forms (3–5%)	3	WNL	3

What lab results are RELEVANT that must be recognized as clinically significant to the nurse?

RELEVANT Lab(s):	Clinical Significance:	TREND: Improve/Worsening/Stable:
Hgb Platelets	Low hgb can show decreased liver function. Decreased platelets shows decreased liver function and increased risk of bleeding.	

Basic Metabolic Panel (BMP:)	Current:	High/Low/WNL?	Previous:
Sodium (135–145 mEq/L)	127	Low	135
Potassium (3.5–5.0 mEq/L)	2.8	Low	3.5
Glucose (70–110 mg/dL)	74	WNL	78
BUN (7–25 mg/dl)	55	High	38
Creatinine (0.6–1.2 mg/dL)	1.8	High	1.5

RELEVANT Lab(s):	Clinical Significance:	TREND: Improve/Worsening/Stable:
Sodium Potassium BUN Creatinine	Dilution problem Excess potassium loss due to high ammonia levels	These labs are worsening.

Coags:	Current:	High/Low/WNL?	Previous:
PT/INR (0.9–1.1 nmol/L)	2.6	High	1.5

RELEVANT Lab(s):	Clinical Significance:	TREND: Improve/Worsening/Stable:
PT/INR	A higher INR shows an increased risk of bleeding.	This lab is worsening.

Liver Function Test (LFT:)	Current:	High/Low/WNL?	Previous:
Albumin (3.5–5.5 g/dL)	2.2	Low	2.5
Total Bilirubin (0.1–1.0 mg/dL)	7.2	High	4.2
Alkaline Phosphatase male: 38–126 U/l female: 70–230 U/l	140	High	285
ALT (8–20 U/L)	59	High	128
AST (8–20 U/L)	62	High	124
Misc. Labs:			
Ammonia (11–35 mcg/dL)	78	High	30

RELEVANT Lab(s):	Clinical Significance:	TREND: Improve/Worsening/Stable:
Albumin Bilirubin Alkaline Phosphate ALT AST Ammonia	The client's liver enzymes are improving which shows decreased liver damage. The client's portal hypertension is causing the the albumin and bilirubin to worsen.	ALT,AST,ALP- Improving Albumin, bilirubin, ammonia- worsening.

Lab Planning: Creating a Plan of Care with a PRIORITY Lab:

Lab:	Normal Value:	Why Relevant?	Nursing Assessments/Interventions Required:
Ammonia **Value:** **78**	**Critical Value:**	High ammonia values show signs of encephalopathy and liver disease.	Assess for neuro complications. Provide client with lactulose to decrease ammonia levels. Assess for other signs and symptoms.

Medical Management: Rationale for Treatment & Expected Outcomes

Care Provider Orders:	Rationale:	Expected Outcome:
Lactulose 200 g/300 mL rectal x1 NOW Banana bag (thiamine 100 mg-folic acid 1 mg-multivitamin 10 mL) in 1000 mL of 0.9% NS over 2 hours Potassium Chloride 10 mEq IVPB (x4) each dose over 1 hour. Recheck potassium per hospital protocol Transfer to ICU	Lactulose can convert the ammonia to urea. A banana bag provides vitamins that the client does not have. Transferring to ICU provides the client better, more curated care that is made for unstable clients.	Ammonia blood levels should decrease from the lactulose and the banana bag will provide sufficient vitamins.

4. Does your nursing priority or plan of care need to be modified in any way after this evaluation and assessment of all clinical data including labs?

Yes, his condition requires more intense care than before.

5. Based on your current evaluation, and assessment of all clinical data, what are your nursing priorities and plan of care?

This client needs to receive the proper electrolytes and lactulose to lower his ammonia levels. The client also needs to be placed on a heart monitor due to his low sodium and

John is going to be admitted to ICU. Effective and concise handoffs are essential to excellent care and if not done well can adversely impact the care of this patient. You have done an excellent job to this point, now finish strong and give the following SBAR report to the nurse who will be caring for this patient:

Situation:

Name/age: John Richards- 45 year old male.

BRIEF summary of primary problem: Liver cirrhosis with hepatic encephalopathy.

Day of admission/post-op #: Admission- Today

Background:

Primary problem/diagnosis: Hepatic encephalopathy due to advanced liver cirrhosis.

RELEVANT past medical history: This client has hepatitis C, alcohol abuse history, and liver cirrhosis.

RELEVANT background data: Poor PO intake, continues to binge drink on the weekends.

Assessment:

Current vital signs:
Temp- 99.5
HR- 118
RR- 22
BP- 88/50
O2- 94%

RELEVANT body system nursing assessment data:
Respiratory, GI, Circulatory, Integumentary, Neuro.

RELEVANT lab values:
Labs: Hgb- 8.6
Platelets- 47
Ammonia- 87
Bilirubin- 7.2
Liver Enzymes
Sodium
Potassium

TREND of any abnormal clinical data (stable-increasing/decreasing):

How have you advanced the plan of care?

Patient response: Decreased mental status as well as lab values.

INTERPRETATION of current clinical status (stable/unstable/worsening): Response: Impoved
Currently stable.

Recommendation:

Suggestions to advance plan of care: Continuous monitoring, nutrition replacement, continue lactulose, continue oxygen supplementation.

Education Priorities/Discharge Planning

1. What will be the most important discharge/education priorities you will reinforce with their medical condition to prevent future readmission with the same problem?

Ensuring the client is following up with appointments and decrease alcohol use. Finding this client somewhere to live that can provide him with structure and purpose will improve his mentality.

Caring and the "Art" of Nursing

1. What is the patient likely experiencing/feeling right now in this situation?

This client is probably experiencing hopelessness, isolation, anxiety, and depression.

2. What can you do to engage yourself with this patient's experience, and show that he matters to you as a person?

Nurses have the most face time with clients. Because this client has no family or support, the nurse can be this support system for him. Speaking to the client as a friend and caring for the client can show the client that you have his best interest in mind.

Use Reflection to THINK Like a Nurse

Reflection-IN-action (Tanner, 2006) is the nurse's ability to accurately interpret the patient's response to an intervention in the moment as the events are unfolding to make a correct clinical judgment.

1. ***What did I learn from this scenario?***

In this scenario, I learned important points about cirrhosis and diseases that can accompany cirrhosis. I also learned that follow up appointments and support can impact the client's outcomes immensely.

2. ***How can I use what has been learned from this scenario to improve patient care in the future?***

i have learned that as a nurse, I should pay attention to whether a client has a support system, family, or a place to live. As a nurse, it is my job to provide the client with the resources they need once they are discharged.