

Human Immunodeficiency Virus

UNFOLDING Reasoning



Michelle Johnson, 36-years old

Primary Concept		
Immunity		
Interrelated Concepts (In order of emphasis)		
<ul style="list-style-type: none"> • Gas Exchange • Infection • Stress • Coping • Clinical Judgment • Patient Education • Communication • Collaboration 		
NCLEX Client Need Categories	Percentage of Items from Each Category/Subcategory	Covered in Case Study
Safe and Effective Care Environment		
• Management of Care	17-23%	✓
• Safety and Infection Control	9-15%	✓
Health Promotion and Maintenance	6-12%	✓
Psychosocial Integrity	6-12%	✓
Physiological Integrity		

• Basic Care and Comfort	6-12%	✓
• Pharmacological and Parenteral Therapies	12-18%	✓
• Reduction of Risk Potential	9-15%	✓
• Physiological Adaptation	11-17%	✓

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UNFOLDING Clinical Reasoning Case Study:

History of Present Problem:

Michelle Johnson is a 36-year-old African American female with no prior medical history who presents to the emergency department complaining of extreme fatigue for the past several months and experiencing occasional night sweats. During the past week, she has developed a sore throat, dry, nonproductive cough, fever at night with increasing shortness of breath. Michelle embarrassingly admits that she has had a vaginal yeast infection that she has tried to treat with over the counter medications with no success. Michelle states to the triage nurse, “I came in today because I am worried something is wrong with me, I hope it’s nothing serious!”

Personal/Social History:

Michelle has been divorced for five years and has two daughters (ages 14 and 16) who works full time as a legal secretary. She has recently been working longer hours, skipping meals, and stressed over the possibility of not being able to provide for her two daughters. She has been involved in only one relationship since her divorce. She is engaged to Ken, who has hemophilia and plan to get married next year.

What data from the histories are RELEVANT and must be interpreted as clinically significant by the nurse?

RELEVANT Data from Present Problem:	Clinical Significance:
Extreme fatigue for several months Night sweats Sore throat, dry, nonproductive cough, shortness of breath Fever Vaginal yeast infection	Respiratory manifestations in HIV include shortness of breath, dyspnea, cough, chest pain, and fever. Patients in stage 3 or AIDS are severely immune depressed and can develop opportunistic infections. In women with early-stage HIV infection, Candida vulvovaginitis usually presents the same as in women without HIV infection. (Hinkle et al., 2023)
RELEVANT Data from Social History:	Clinical Significance:
Working long hours, skipping meals Ken has hemophilia	This may be due to having an infection and having a loss of appetite

Patient Care Begins:

Current VS:	P-Q-R-S-T Pain Assessment:	
T: 99.6 F/37.6 C (oral)	Provoking/Palliative:	Denies

P: 108 (regular)	Quality:	
R: 24 (regular)	Region/Radiation:	
BP: 110/75	Severity:	
O2 sat: 91% RA	Timing:	

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

RELEVANT VS Data:	Clinical Significance:
Pulse is high Respirations is high O2 sat is low	The patient seems to be in a respiratory distress because of her tachycardia, tachypnea, and her low O2 saturation

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Current Assessment:	
GENERAL APPEARANCE:	Average built female with a worried expression on her face. Appears pale and tired. Calm, body relaxed, no grimacing, appears to be resting comfortably
ORAL & NECK:	Oral mucous moist and intact. Cervical lymph nodes enlarged bilaterally
RESP:	Slight SOB with exertion and crackles heard bilaterally in lower lobes posteriorly
CARDIAC:	Tachycardia, pink, warm & dry, no edema, heart sounds regular with no abnormal beats, pulses strong, equal to palpation at radial/pedal/post-tibial landmarks, brisk cap refill
NEURO:	Alert & oriented to person, place, time, and situation (x4)
GI:	Abdomen flat, soft/nontender, bowel sounds audible per auscultation in all four quadrants
GU:	Voiding without difficulty, urine clear/yellow
SKIN:	Skin integrity intact, skin turgor elastic, no tenting present

What assessment data is RELEVANT and must be interpreted as clinically significant by the nurse?

RELEVANT Assessment Data:	Clinical Significance:

General: pale and tired Oral and neck: enlarged lymph nodes Resp: SOB, crackles Cardiac: tachycardia	As mentioned before, respiratory symptoms such as SOB is a manifestation of HIV. Crackles can indicate water in the lungs.
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Cardiac Telemetry Strip:

Interpretation:
Sinus tachycardia
Clinical Significance:
Respiratory distress

The care provider orders the following based on the clinical data that the nurse has collected:

Collaborative Care: Medical Management

Care Provider Orders:	Rationale:
Complete blood count (CBC) Basic metabolic panel (BMP) Rapid HIV Chest x-ray	The CBC will check to see if the patient has an infection because of the white blood count within the CBC The BMP will check her electrolytes Rapid HIV is going to be taken to look for the live HIV virus Chest x-ray because the patient is exhibiting crackles and shortness of breath

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Radiology Reports: Chest x-ray

What diagnostic results are RELEVANT and must be interpreted as clinically significant by the nurse?

RELEVANT Results:	Clinical Significance:
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Diffuse ground-glass opacity present bilaterally	Gray areas indicate increased density, meaning that something is partially filling the air spaces inside the lungs, in this case the crackles indicate fluid. This could also be a sign of pneumonia.
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Lab Results:

Complete Blood Count (CBC:)	Current:	High/Low/WNL?	Most Recent:
WBC (4.5–11.0 mm ³)	3.0	Low	8.5
Neutrophil % (42–72)	88	High	70
Lymphocyte % (2-10)	6	WNL	4
Hgb (12–16 g/dL)	9.8	Low	10.5
Platelets (150-450 x10 ³ /μl)	208	WNL	225

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 Neutrophil count Hgb	Both labs can be an indication that an infection is going on. The high neutrophil count is because of the bacterial infection that she might be having A low hemoglobin can indicate the patient has low iron or anemia	Worsening

Basic Metabolic Panel (BMP:)	Current:	High/Low/WNL?	Most Recent:
Sodium (135–145 mEq/L)	148	High	142
Potassium (3.5–5.0 mEq/L)	3.5	WNL	3.8
Glucose (70–110 mg/dL)	90	WNL	101
Creatinine (0.6–1.2 mg/dL)	0.8	WNL	0.9

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	The increased sodium could be caused by her night sweats and dehydration	Worsening

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Misc. Labs:	Current:	High/Low/WNL?
CD 4 count (>500 cells)	189	Low
HIV RNA level, (40-75 copies/mL)	60,000	High

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

RELEVANT Lab(s):	Clinical Significance:
CD 4 count HIV RNA level	A low immune score can indicate that the patient is immunocompromised which may indicate HIV or AIDs A high HIV level indicates that the HIV virus is present in her body

Clinical Reasoning Begins...

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

The patient is immunocompromised which can be an indication of early onset HIV or AIDs and also has pneumonia which is caused by her compromised immune system.

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

HIV is in the subfamily of lentiviruses and is a retrovirus because it carries its genetic material in the form of ribonucleic acid (RNA) rather than deoxyribonucleic acid (DNA). HIV consists of a viral core, containing viral RNA, which is surrounded by an envelope consisting of protruding glycoproteins. HIV-1 mutates quickly, at a relatively constant rate, with about 1% of the virus's genetic material changing annually. HIV-1 exhibits substantial genetic diversity, and several different genotypes of HIV-1 exist throughout the world. There is a major group (group M), which consists of subtypes A through L, and a more diverse collection of outliers, which has been referred to as groups N and O. Subtype B HIV-1 viruses predominate in the Western world; this genetic variation is one of the major reasons why effective vaccine development has been such a challenge (Hinkle et al., 2023).

Collaborative Care: Medical Management

Care Provider Orders:	Rationale:	Expected Outcome:
Establish peripheral IV 0.9% Normal Saline at 100 mL/hour trimethoprim/sulfamethoxazole (Bactrim) 1 gram IVPB every 8 hours Fluconazole 200 mg PO BID Prednisone 40 mg PO daily Titrate oxygen to keep O ₂ sat >92% Truvada (tenofovir and emtricitabine) 1 tablet PO daily Reyataz (atazanavir) 300 mg PO daily Norvir (ritonavir) 100 mg PO daily Admit to med/surg unit with telemetry monitoring	<ol style="list-style-type: none"> 1. Establishing IV for easy access for fluids and meds 2. Normal saline for hydration 3. The Bactrim will be used for any type of infection that may be going on in the patient's body 4. Fluconazole treats fungal infections 5. Prednisone may be able to help with her respiratory status 6. The patient's current oxygen saturation is at 91% room air 7. Also known as "PrEP" pre-exposure prophylaxis to reduce the risk of a HIV infection/treat the infection 8. Treatment for HIV/AIDs, used in combination with other drugs 9. Same as above 10. Patient is tachycardic 	<ol style="list-style-type: none"> 1. Stabilizing vitals and labs 2. Improvement of hydration status 3. The WBC may become stable 4. Treatment of the yeast infection 5. Increase her respiratory stability 6. Stabilize oxygen levels and keep it above 92% 7. Prolonging life and slow the disease process if the patient is diagnosed with HIV 8. Same as above 9. Same as above 10. Ensure the patient does not go into respiratory distress

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3. What additional treatment should you anticipate for Ms. Johnson by her HIV test results and CD4 results?

Education on what the HIV virus means and how to prevent it from spreading. The CD4 results also need to be educated on how it's going to continue to get low and how to look out for infections.

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

Care Provider Orders:	Order of Priority:	Rationale:
<ul style="list-style-type: none"> • Establish peripheral IV • 0.9% Normal Saline at 100 mL/hour 	<ol style="list-style-type: none"> 1. Titrate oxygen to keep O₂ sat > 92% 2. Establish peripheral 	<ol style="list-style-type: none"> 1. Due to the ABC framework, increasing the patient's oxygen is a priority 2. Establishing a peripheral IV allows easy access

<ul style="list-style-type: none"> • trimethoprim/sulfamethoxazole (Bactrim) 1 gram IVPB every 8 hours • Fluconazole 200 mg PO BID • Prednisone 40 mg PO daily • Titrate oxygen to keep O2 sat >92% 	<p>IV</p> <ol style="list-style-type: none"> 3. Normal saline 4. Bactrim 5. Prednisone 6. Fluconazole 	<p>to administer fluids and medications if needed</p> <ol style="list-style-type: none"> 3. Normal saline will keep the patient hydrated 4. This medication is for the possible HIV diagnosis the patient has 5. Prednisone is administered in combination with Bactrim 6. This is a treatment for the yeast infection which isn't at the top of the priority list, this is a secondary diagnosis
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Collaborative Care: Nursing

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

The patient's respiratory status and the HIV infection and the treatment that comes with it.

5. *What interventions will you initiate based on this priority?*

Nursing Interventions:	Rationale:	Expected Outcome:
<ol style="list-style-type: none"> 1. Assess and report signs and symptoms of altered respiratory status (pulse ox, respiratory assessment) 2. Monitor for infection 3. Maintain fluid intake of at least 3L / day unless contraindicated <p>(Hinkle et al., 2023)</p>	<ol style="list-style-type: none"> 1. Indicates abnormal respiratory function 2. Allows for early detection of an infection 3. Prevents hypovolemia <p>(Hinkle et al., 2023)</p>	<ol style="list-style-type: none"> 1. Maintain normal airway clearance 2. Identifies reportable signs and symptoms of infection 3. Maintains hydration

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

The respiratory system and the immune system will be assessed thoroughly based on the HIV diagnosis

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

An impaired respiratory status, recurring infections, and dehydration because of the diarrhea associated with HIV, sepsis

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

Respiratory assessments, intake and output, lab tests

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

Contact the provider immediately if you suspect sepsis, labs should be ordered for sepsis like a blood culture

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Education Priorities/Discharge Planning

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

Education priorities include how HIV can spread and prevention. Prevention of HIV infection is achieved through: (a) behavioral interventions have been effective in reducing the risk of acquiring or transmitting HIV by ensuring that people have the information, motivation, and skills necessary to reduce their risk; (b) HIV testing, because most people change behaviors to protect their partners if they know they are infected with HIV; and (c) linkage to treatment and care, which enables individuals with HIV to live longer, healthier lives and reduce their risk of transmitting HIV (Hinkle et al., 2023).

2. Michelle Johnson asks why she has to take so many medications and is it alright if she misses any doses? How would you respond?

HIV medications are normally prescribed with other combination medications and that is why there are multiple medications that need to be taken. Achieving viral suppression requires the use of combination ART regimens that generally include three active drugs from two or more drug classes. Missing a dose isn't recommended, if you do miss a dose, make sure that you take it as soon as possible.

3. Michelle Johnson asks, "Should I tell Ken about my positive HIV result?"

Yes, it is important to tell your sexual partners that you are diagnosed with HIV to prevent the spread of the virus. HIV is contagious and can be spread through sexual intercourse and bodily fluids.

4. How can the nurse assess the effectiveness of patient and family teaching and discharge instructions?

Teaching back method or just asking questions about certain parts of the education

Caring and the “Art” of Nursing

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

The patient may lose their sexual partner, housing, and their job because of disclosure. For these reasons and others, patients who test positive may need ongoing counseling as well as referrals for social, financial, medical, and psychological support services.

2. How can the nurse address these psychosocial needs?

Supportive counseling and education regarding the diagnosis. Same as above pertaining to referrals and support services.

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

The patient’s psychological response to a positive test result may include feelings of panic, depression, and hopelessness. The social and interpersonal consequences of a positive test result can be devastating.

4. What can you do to engage yourself with this patient’s experience, and show that she matters to you as a person?

Use therapeutic communication and support the patient. Listen closely and attentively and make sure to use active listening skills.

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 intervention at the moment as the events are unfolding to make a correct clinical judgment.

1. What did I learn from this scenario?

This scenario taught me that signs and symptoms aren’t necessarily obvious to the HIV diagnosis unless you test for it. HIV in the first stage is most likely to be symptomatic and patients can have HIV and never know and potentially spread the virus because it is still contagious despite it being asymptomatic.

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

Ensure that all questions for your assessment are being asked such as their sexual partners and if they are currently sexually active. If they are experiencing symptoms such as the patient in the scenario, ensure that the patient is tested for HIV/AIDs.

