Partner A - Bo Sananixai

Using your textbooks and lecture PowerPoint, complete the following tables.

Topic:	Pathophysiology	Manifestations (Including lab findings)	Nursing interventions	Patient Education
Chronic Kidney Disease (CKD) ATI, p.381 / B&S, p.1569	- Caused by prolonged acute inflammation that is not organ specific and thus has subtle systemic manifestations 5 stages of CKD: - Stage 1: Minimal kidney damage when GFR w/in expected reference range, >90 mL/min - Stage 2: Mild kidney damage w/ mildly decreased GFR, 60–89 mL/min - Stage 3: Moderate kidney damage w/ moderate decrease in GFR, 30-59 mL/min	- Nausea, fatigue, lethargy, involuntary movement of legs, depression, intractable hiccups - Slurred speech, seizures, coma - HTN, HF, peaked T-wave - SOB, tachypnea, Kussmaul respirations, crackles, pleural friction rub, frothy pink sputum - Anemia, ecchymoses, petechiae, melena - Decreased skin turgor, yellow cast to skin, pruritus, uremic frost	- Report & monitor irregular findings r/t urinary elimination patterns, VS, weight (1 kg (2.2 lb) increase = 1L fluid retained - Assess & monitor vascular access or peritoneal dialysis insertion site - Obtain a detailed med and herb hX to determine pt.'s risk for continued kidney injury - Control protein intake based on the pt.'s injury stage of CKD and type of dialysis prescribed - Restrict dietary sodium, potassium,	- Ed. pt. to monitor daily intake of carbs, proteins, sodium, & potassium according to DOC's orders - Ed. pt. to monitor fluid intake according to fluid restriction prescribed by DOC - Ed. pt. to avoid antacids containing magnesium - Encourage pt. to take rest periods from activity - Ed. pt. who is receiving hemodialysis or peritoneal dialysis on an outpatient basis

	- Stage 4: Severe kidney damage w/ severe decrease in GFR, 15-29 mL/min - Stage 5: Kidney failure and end-stage kidney disease w/ little or no glomerular filtration, <15 mL/min	- Fluid volume overload - Urinalysis: Hematuria, proteinuria, & low specific gravity - Serum creatinine: Gradual increase over months to years for CKD exceeding 4 mg/dL. Can increase to 15 to 30 mg/dL. - BUN: Gradual increase w/ elevated serum creatinine over months to years for CKD. Can increase 10 to 20 x's the creatinine finding. - Serum electrolytes: Decreased sodium and calcium; increased potassium, phosphorus, and magnesium. - CBC: Decreased Hgb and Hct from anemia 2ndary to the loss of EPO in CKD.	phosphorus, and magnesium - Provide a diet that is high in carbs and moderate in fat - Restrict intake of fluids based on urine output -Monitor weight gain trends - Prepare pt. for hemodialysis, peritoneal dialysis, & hemofiltration if indicated. - Admin meds as prescribed	- Ed. pt. on how to measure BP and weight at home - Encourage pt. to ask questions and discuss fears - Encourage pt. to diet, exercise, and take meds as prescribed - Advise pt. to notify the DOC if skin breakdown is observed

Partner A - Bo Sananixai				
Topic:	**Indications**	**Nursing Interventions (pre)**	**Nursing Interventions (post)**	**Patient Education**
Kidney biopsy ATI, p. 364 / B&S, p.1565 ---------- Removes a sample of tissue from renal cortex by excision or needle aspiration for cytological (histological) examination to help diagnose and evaluate the extent of kidney disease.	- Unexplained AKI - Persistent proteinuria or hematuria - Transplant rejection - Glomerulopathies	- Review coagulation studies - NPO for 4-6 hr - Comfort and prepare pt. & fam. for surgery	- Monitor VS following sedation for first 24 hr to detect s/s of bleeding or infection - Assess for other s/s of internal bleeding: pallor, dizziness, & flank pain - Assess dressings & urinary output (hematuria) - Review Hgb & Hct values - Admin PRN pain meds	- Ed. Pt. that complications include: hemorrhage, infection, cloudy, foul-smelling urine, urgency, urine positive for leukocyte esterase and nitrates, sediment, and RBCs

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Topic:	Indications	Contraindications	Manifestations of rejection
Kidney transplant ATI, pp. 373-376 / B&S, p. 1607 ------- Involves transplanting a kidney from a living or deceased donor to a recipient who no longer has renal function. Transplantation from well-matched living donors who are related to the pt. is slightly more successful than from cadaver donors.	- For patients who are in the end-stage of kidney disease d/t the kidneys no longer functioning.	- Recent malignancy - Active or chronic infection - Severe irreversible extrarenal disease (e.g., inoperable cardiac disease, chronic lung disease, severe peripheral vascular disease) - Class II obesity (BMI greater than 35 kg/m2) - Current substance abuse - Inability to give informed consent - History of nonadherence to treatment regimens	- Hyperacute: Occurs w/in 48 hr after surgery. S/S: Fever, HTN, pain at the transplant site - Acute: Occurs 1 wk – 2 yrs after surgery. S/S: Oliguria, anuria, low-grade fever, HTN, tenderness over the transplanted kidney, lethargy, azotemia (high levels of nitrogen), and fluid retention - Chronic: Occurs gradually over months to years. S/S: Gradual return of azotemia, fluid retention, electrolyte imbalance, & fatigue.

Partner B - Bailey Roth

Using your textbooks and lecture PowerPoint, complete the following tables.

Topic:	Pathophysiology	Manifestations (Including lab findings)	Nursing interventions	Patient Education
Acute Kidney Injury (AKI) Brunner & Suddarth's pages 1576- 1579	Acute Kidney Injury is the rapid loss of renal function due to damage to the kidneys. The following conditions reduce blood flow to the kidneys and impair kidney function: 1) hypovolemia 2) hypotension 3) reduced cardiac output and heart failure 4) obstruction of the kidney or lower urinary tract 5) bilateral obstruction of the renal arteries or veins	Four phases: 1) initiate period begins with the initial insult and ends when oliguria develops 2) Oliguria is accompanied by an increase in the serum concentrations of substances going through the kidney such as urea, creatinine, uric acid, organic acids, potassium and magnesium. the minimum amount of urine needed to rid the body of normal metabolic waste products is 400 ml in 24 hours,	● monitoring fluid and electrolyte balances for abnormalities ● reducing patients' metabolic rate to reduce exertion. fever and infection both increase metabolic rate, so keeping the patient afebrile and free of infection. ● promoting pulmonary function ● providing adequate skin care. Those with AKI are susceptible to dry skin or the breakdown of skin.	Your kidneys will most likely return to normal within days or weeks. make sure to follow medication regimen as stated by the primary care physician. if symptoms get worse contact PCP.

		as uremic symptoms first appear, life threatening conditions occur as hyperkalemia 3) diuresis is marked by gradual increase in urine output, which signals the glomerular filtration has started to recover. labs start to stabilize and eventually decrease. 4) recovery is when everything has stabilized and gone back to normal.		

Partner B - Bailey Roth

Topic:	Types	Uses	How does the system work	Patient Education
Dialysis (Include hemodialysis and peritoneal dialysis) Brunner & Suddarth pages 1589 - 1600	Hemodialysis CRRT Peritoneal dialysis	Hemodialysis: used for patients who are acutely ill and only require a short-term dialysis for days or weeks until the kidney is able to function again. CRRT: indicated for patients with acute or chronic renal disease who are too unstable for traditional hemodialysis. PD: Treatment of kidney disease for patients who are unable or unwilling to go with hemodialysis as their treatment.	H: diffusion, osmosis and ultrafiltration are the principles on which hemodialysis are built on. Toxins and the waste in blood are removed by diffusion, this means they are removed from an area of higher concentration to an area of lower concentration. excess fluid is removed by osmosis. CRRT: this does not require dialysis machines all of the time so it is easy to access and to initiate with the patient. A hemofilter is also used in all types. PD: Goal is to remove toxic substances and metabolic wastes and to reestablish normal fluid and electrolyte balances. Those who	H: most patients do this outpatient. This requires a patient who is highly motivated and is going to adhere to treatment at home. They must be trained to prepare, operate and dissemble the dialysis machine and to maintain sterility. Teach the patient that they need to weigh themselves each day at the same time. CRRT: the patient would need to be hospitalized for this and unable to go home until finished.

			are at risk for a higher depletion of electrolytes and fluids with hemodialysis are at a lower risk with peritoneal dialysis.	PD: They need to be weighed each day at the same time. They will need to stay in the hospital for PD. Know that leakage of dialysate through catheter can occur, bleeding can occur and peritonitis (inflammation of peritoneum) can occur. There are three types of PD to choose from: acute intermittent, continuous cyclic and ambulatory.

Partner B - Bailey Roth				
Topic:	**Pathophysiology**	**Manifestations (Including lab findings)**	**Nursing interventions**	**Patient Education**
End stage renal disease (ESRD) Brunner & Suddarth's pages 1581-1589	As renal function declines the end products of proteins accumulate in the blood. these are typically excreted in the urine. Uremia develops and adversely affects every system in the body. the more buildup of protein the worse the symptoms are.	Restless leg syndrome and burning feet are the early stages of ESRD. GFR decreases and creatinine clearance decreases, whereas creatinine and BUN levels increase. Neuro: behavior changes, burning soles of feet, restless legs, seizures, come Integumentary: coarse, thinning hair, dry skin, ecchymosis, pruritus, purpura, thin brittle nails cardio: hyperkalemia, hyperlipidemia, hypertension, pericardial effusion, friction rub, pericarditis, periorbital edema pulmonary: crackles, depressed cough reflex, kussmaul, tachypnea, uremia pneumonitis	Provide comfort for the patient and keep the skin dry, this keeps from developing pressure ulcers. assess vitals, I&o and daily weights. administering medications on time. provide oral care. help with incorporating changes to one's lifestyle and diet.	Educate the patient on ways to stay comfortable. They are able to get dialysis to help with the fluid overload. educate patients on trying to maintain an active lifestyle such as going for walks and eating an appropriate diet.

		GI: ammonia odor to breath, metallic taste, hiccups, mouth ulcerations, constipation or diarrhea hematologic: anemia, thrombocytopenia reproductive: amenorrhea, decreased libido, infertility, testicular atrophy Musculoskeletal: bone fractures, bone pain, foot drop, loss of strength, muscle cramps		