Review **Basic Safety and Infection Control, National Patient Safety Goals, and Pain Management.**

Review important aspects of **assessment** in the hemodialysis setting, including:
- Absence of bruit indication of thrombosis of AV fistula
- Conductivity alarm, pump continues to operate
- Determine direction of blood flow before cannulating loop access: Stop blood flow by pressing a finger on the anastomosis and seeing a flash on the arterial needle.
- High venous pressure reading, assess the venous access site
- Symptoms of increased serum calcium: anorexia, weakness; patient who takes paracalcitrol (Zemplar®)
- Symptoms of air in line: coughing, labored breathing, air in dialyzer
- Symptoms of dehydration: post-dialysis weight=EDW, hoarse voice, hypotension, ears popping, cramps in legs
- Symptoms of infection at catheter site, tenderness, swelling, discharge

Review action, preparation, monitoring, and precautions related to **medications** commonly used in dialysis, such as
- Diphenhydramine (Benadryl®), calculate number of capsules to equal ordered dose
- Epoietin alfa (Epogen®), calculate mL dose from order in units
- Epoietin alfa (Epogen®), high H/H: hold today’s dose and check Hct at next blood draw
- Heparin: used to prevent thrombus formation and clotting in extracorporeal circuit; calculate mL dose from order in units
- Insulin sliding scale
- IV drops per minute calculation
- Ondansetron (Zofran®), treating nausea and vomiting during dialysis
- Paracalcitrol (Zemplar®), symptoms of hypercalcemia

Review important **actions** in the dialysis setting, including
- Angle of insertion for cannulating AV fistula, 20 – 35 degrees
- Cannulation, apply tourniquet tightly enough to engorge the vessel
- 15-gauge needle, 350 mL/min = recommended gauge and flow for hemodialysis via mature AV fistula
- Minimize recirculation by placing needles 1.5 – 2 inches apart
- Use of normal saline as initial approach to manage muscle cramps during dialysis
• Treat hypotension during dialysis with bolus of normal saline and reducing or turning off ultrafiltration
• Point the arterial needle in either direction and the venous needle in the direction of venous return
• Difficulty cannulating, seek assistance from more experienced staff member
• If chlorine/chloramine found in testing, report to person responsible for water treatment system
• Symptoms of dehydration (ears popping, leg cramps, decreased BP after treatment), anticipate adjusting estimated dry weight
• Symptoms of infection at catheter site, report and expect: culture discharge and draw blood for culture
• Foam in venous blood line and patient coughing with labored breathing, clamp venous line and stop pump
• Adjust ultrafiltration to minimize hypotensive symptoms during dialysis

Review principles and practices related to safety and infection prevention, including

• Patient identifiers
• Use of handwashing rather than sanitizer when patient has C. diff
• Technician and patient wear mask during dressing change at venous catheter site
• Place cap on, or syringe, in the catheter lumen

Review principles and practices of communication with patients and family, including

• Patient satisfaction, importance of communication
• Avoid getting exit site wet
• Reason for rotating sites, to prolong usefulness of the site
• Feel for a thrill at the access and call unit if none is felt
• Potassium content high in bananas and spinach
• First dialysis – recognize and report symptoms of adverse reactions
• Never use arm with access for taking blood pressure
• Avoid eating immediately before or during dialysis to recue likelihood of muscle cramps and hypotension

Review troubleshooting practices, including

• High venous pressure alarm = venous chamber is clotted
• High transmembrane pressure during dialysis = clotted dialyzer
• Low transmembrane pressure at start of dialysis = transducer flooded with saline during priming
• High arterial pressure = kinking of blood line between patient and monitoring site
• Slow blood pump to correct high negative arterial pressure
• Blood leak detector alarm = rupture of dialyzer membrane
• Dropping conductivity, check bicarbonate and acid bath levels

Review dialysis standards, including
• Adequacy of hemodialysis = spKt/V greater than 1.4 (both KDOQI and Fresenius)
• Standard for microbial content of water = 200 CFU/mL
• Recommended dialysate pH = 6.8 – 7.6