Principles of Hemodialysis

Hemodialysis is a life-saving therapy. It must be done safely, accurately, and with the adjustment of treatment parameters to treat the specific needs of each patient. The nephrology nurse must understand the basic principles that make dialysis work to provide safe and effective treatment for the patient. The principles of dialysis are universal and do not change from one manufacturer to another or from one company's policies to another. Techniques may vary depending on equipment and practice patterns, but the principles remain the same. A comprehensive understanding and application of those principles are essential to provide safe, effective, quality care.

Goal

Upon completion of this module, the nephrology nurse in the acute care setting will be able to:

- Discuss and describe the principles of hemodialysis.
- Describe dialysate preparation.
- Demonstrate machine setup using counter current flow.

_____ has met the skills and requirements of this module.

Date: _____ Preceptor: _____

Additional Readings

King, B. (2008). Principles of hemodialysis. In C. Counts (Ed.), *Core curriculum for nephrology nursing* (5th ed., pp 662-674). Pitman, NJ: American Nephrology Nurses' Association.

Latham, C.F. (2006). Hemodialysis technology. In A. Molzahn (Ed.), *Contemporary nephrology nursing: Principles and practice* (2nd ed., pp 531-551). Pitman, NJ: American Nephrology Nurses' Association.

Principles of Hemodialysis Skills Checklist

The orientee is able to:

Orient Level	Self-Assessment	Topic	Date Introduced/ Reinforced	Date Met	Method	Preceptor Initials
		Discuss and describe the basic principles of hemodialysis				
		Diffusion of solute across a semi-permeable membrane				
		Ultrafiltration:				
		Osmotic pressure				
		Hydraulic pressure				
		Negative pressure				
		Solute drag/convection				
		Osmosis of water across a semi-permeable membrane				
		Describe dialysate preparation				
		Acid and base concentrates				
		Water system connection				
		Proportioning systems				
		Blended/tempered water				
		Backflow prevention				
		Describe dialysate composition and its role				
		Effect on electrolytes				
		Counter-current flow				
		Fluid removal				
		Demonstrate machine setup using above principles				

Principles of Hemodialysis Skills Checklist *(continued)*

Key for Orientation Level
N = Novice
AB = Advanced Beginner
C = Competent
P = Proficient
E = Expert

Key for Self-Assessment
0 = Have not performed and/or unfamiliar with item
1 = Performed less than 5 times or have some knowledge and need additional instruction
2 = Performed more than 5 times and/or have sufficient knowledge and feel confident to perform independently

Key for Method
CR = Chart Review
Ex = Written Exam
O = Observation
S = Simulation
V = Verbalization
RD = Return Demonstration

Note: This checklist may be adapted and reproduced for the sole purpose of internal use within the purchaser's facility.