



Certified Peritoneal Dialysis Nurse Detail of Examination Content

DOMAIN I: Nursing Process (60%)

Collect, document and analyze patient information before, during, and after dialysis in order to maintain and/or improve the quality of patient care through continuous evaluation and ongoing revision of interventions.

A. Interviewing Techniques

B. Physical Assessment

1. Normal and abnormal patient signs and symptoms

C. Nursing Assessment

1. Patient, family, and significant others' knowledge, skills, and self-care abilities
2. Gross and fine motor coordination
3. Hand strength
4. Vision

D. Human Anatomy and Physiology

1. Anatomy and physiology of the kidney and urinary system
2. Anatomy and physiology of the peritoneum
3. Fluid balance
4. Acid base balance
5. Electrolyte balance
6. Erythropoiesis

E. Pathophysiology of the Kidney and Urinary System

F. Etiologies of End Stage Renal Disease

G. Laboratory Testing

1. Patient preparation
2. Nursing responsibilities
3. Interpretation of results

H. Diagnostic Testing

1. Patient preparation
2. Nursing responsibilities
3. Interpretation of results

I. Pharmacology

1. General
2. Alterations in drug excretion and metabolism in end stage renal disease
3. Drugs used frequently in ESRD patients
4. Alterations in drug metabolism and excretion in peritoneal dialysis
5. Kinetics of intraperitoneally administered medications
6. Antibiotics used in peritonitis
7. Methods of administration

J. Medical and Surgical Asepsis

**K. Clinical Manifestations of End Stage Renal Disease****L. Dietary Prescriptions for End Stage Renal Disease Patients**

1. Predialysis
2. Peritoneal dialysis
3. Hemodialysis
4. Transplantation

M. General Principles of Dialysis

1. Osmosis
2. Diffusion
3. Ultrafiltration
4. Blood flow
5. Membrane area
6. Dialysis solution

N. Kinetics of Peritoneal Dialysis

1. Dialysate to plasma equilibration
2. Ultrafiltration patterns
3. Absorption of calcium, dextrose
4. Obligatory losses of protein, water soluble vitamins, hormones
5. Factors that influence ultrafiltration
6. Factors that influence solute transport
7. Drug transport
8. Kt/V measurement

O. Peritoneal Membrane Characteristics

1. Measurement of peritoneal membrane characteristics (PET)

P. Types of Peritoneal Dialysis

1. CAPD
2. CCPD
3. IPD or NPD

Q. Peritoneal Dialysis Systems

1. (i.e., Cyclers; CAPD systems – bag-spike, bag-spike with assist device; disconnect systems; sterile connections device)

R. Dialysis Solutions

1. Composition
2. Dextrose concentrations
3. Volumes
4. Containers

S. Access

1. Types
 - a. acute
 - b. chronic
2. Preoperative nursing management
3. Insertion techniques
4. Postoperative management

T. Peritoneal Dialysis Prescription

1. Type of dialysis (i.e., IPD, CAPD, CCPD)
2. Frequency of dialysis
3. Exchange volume



4. Number exchanges
5. Type(s) solution
6. System of equipment to be used
7. Time (total exchange, fill time, dwell time, drain time, etc.)
8. Additives

U. Acute Peritoneal Dialysis (hospitalized, ill patients)

1. Indications
2. Predialysis patient assessment and education
3. Initiating and terminating dialysis
4. Monitoring
5. Patient education, psychosocial support during treatment

V. Procedures

1. Chronic automated dialysis (IPD, CCPD)
 - a. predialysis patient assessment
 - b. machine set up
 - c. initiation of dialysis
 - d. technical problem solving, troubleshooting
 - e. diagnosis and management of patient problems/complications
 - f. discontinuing dialysis
 - g. post dialysis assessment
 - h. documentation
2. Chronic manual dialysis (CAPD)
 - a. procedure for initiation of dialysis
 - b. exchange procedure
 - c. daily patient assessment, documentation
 - d. diagnosis and management of patient problems/complications
 - e. technical problems
 - f. procedure to discontinue or interrupt dialysis
3. Other procedures
 - a. warming dialysis solutions
 - b. adding medications for IP administration
 - c. catheter fluoroscopy
 - d. CT scan for diagnosis of internal leaks
 - e. splicing damaged catheter
 - f. changing catheter adapter
 - g. transfer set change

W. Complications

1. Infectious: Etiology, signs and symptoms, diagnostic evaluation, nursing, medical and surgical intervention, sequelae of:
 - a. peritonitis
 - b. exit site infection
 - c. subcutaneous tunnel infection
 - d. intraperitoneal abscess
 - e. systemic infection (septicemia)
 - f. recurrent infections
2. Noninfectious: Etiology, signs and symptoms, diagnostic evaluation, nursing, medical and surgical intervention, sequelae of:



- g. catheter related problems
 - i. malfunction (i.e., malposition, obstruction, air lock, other)
 - ii. pain
 - iii. cuff erosion
 - iv. cuff extrusion
 - v. damage to catheter
- h. surgical complications
 - i. bladder perforation
 - ii. bowel perforation
 - iii. incisional pain
 - iv. external leak
 - v. subcutaneous leak
 - vi. hemorrhage
 - vii. ileus
- i. complications resulting from increased intraabdominal pressure
 - i. hernia
 - ii. hemorrhage
 - iii. dialysate leaks
- j. problems related to peritoneal dialysis (inherent and due to less than optimal management)
- k. pain
 - i. abdominal pain
 - a) low pH
 - b) solution infusion
 - c) empty abdomen
 - ii. low back pain
 - iii. shoulder pain
- l. pneumoperitoneum
- m. fibrin production
- n. blood in dialysate
- o. pleural leak
- p. changes in pulmonary function
- q. changes in cardiovascular function
- r. inherent glucose load
- s. changes in glucose metabolism
- t. fluid overload
- u. hyperkalemia
- v. hypokalemia
- w. hypernatremia
- x. hyponatremia
- y. hyperphosphatemia
- z. hypertension
- aa. hypotension
- bb. hyperglycemia
- cc. protein losses
- dd. other losses
- ee. peritoneal eosinophilia
- ff. significant changes in membrane permeability

X. Contraindications to Peritoneal Dialysis



1. Hypercatabolism
2. Pleural-peritoneal communication
3. Inadequate membrane permeability
4. Relative contraindications

Y. Outpatient Nursing Management of the Chronic Peritoneal Dialysis Patient

1. Ongoing assessment, nursing diagnosis and intervention
2. Anemia
 - a. etiology
 - b. management
 - c. erythropoietin
 - d. administration
3. Diabetes mellitus
 - a. pathophysiology
 - b. glucose control
 - c. insulin pharmacokinetics
 - d. blood glucose monitoring
 - e. urine testing
 - f. systemic complications
 - g. intraperitoneal and subcutaneous insulin administration
4. Gerontology
 - a. physiologic changes associated with aging
 - b. interventions to facilitate vision
 - c. interventions to facilitate hearing

Z. Other Treatment Modalities

1. Principles of transplantation
 - a. candidate selection criteria
 - b. pre-transplant evaluation
 - c. surgical procedure
 - d. immunosuppressive therapy
 - e. complications
 - f. success/failure rates
2. Principles of hemodialysis
 - a. indications
 - b. access
 - c. components of the extracorporeal system
 - d. solute and fluid removal
 - e. treatment parameters
 - f. complications

DOMAIN II: Administration (10%)

A. Management

Establish and implement policies/procedures/standards relating to personnel management of patient care staff in order to deliver

1. Patient needs and staffing patterns
2. Staff abilities and limitations
3. Standards of dialysis care
4. Unit policies and procedures relating to personnel management
5. Medical-ethical issues involved with patient care

**B. Staff Training and Development**

Orient and instruct staff to unit policies and dialysis procedures to maintain the standards of performance by providing

C. Environmental Control

Maintain a safe environment for patients and staff to prevent injury and the spread of disease.

1. Biological agents
 - a. potential hazards
 - b. effects of biological agents
 - c. routes of transmission
2. Infection control
 - a. CDC recommendations
 - b. OSHA Standards
3. Hazards Prevention and Control
 - a. i.e., fire, bomb threats, power failures, etc.
 - b. EPA requirements

D. Equipment and Supplies

Develop and implement policies and procedures for evaluation, use and maintenance of equipment and supplies in order to deliver safe, effective, and economical care.

1. status of dialysis technology
2. Critical elements for evaluation of dialysis equipment and supplies

E. Budgeting/Financial Planning

Determine short and long term operational and financial goals and strategies in order to achieve efficient management of the peritoneal dialysis program.

1. Budget/financial/operational planning
2. Reimbursement structure
3. Regulations/options
4. Institution's financial strategies and billing system

F. Quality Assurance

Establish and implement a quality assurance program that ensures compliance with established standards in order to provide optimal patient care.

1. Continuous quality improvement

DOMAIN III: Education (20%)

Instruction and guidance for the patient and/or family and significant others in peritoneal dialysis theory and procedures based on the principles of adult learning, to achieve optimal health status.

A. Principles of Learning

1. Learning styles
2. Teaching methods
3. Learning domains
 - a. i.e., cognitive, psychomotor, affective

B. Activities and Teaching

1. Comparison to nursing process
2. Assessment/diagnosis phase
 - a. assessment of learning needs



- b. assessment of readiness and ability to learn
- 3. Planning phase
 - a. teaching activities
 - b. purpose
 - c. developing the teaching plan
 - i. behavioral objectives
 - ii. content and outline
 - iii. learning activities
 - iv. alternative teaching strategies
 - v. evaluation
- 4. Implementation phase
- 5. Evaluation phase

DOMAIN IV: Professional Development (10%)

A. Information Sharing

Share information with colleagues to stimulate professional growth by participating in and/or organizing formal inservice programs, disseminating professional literature and attending professional meetings.

- 1. Professional literature
- 2. Professional organizations

B. Research

Participate in and/or conduct research designed to analyze and validate current practice and procedures and generate new knowledge. Communicate the information obtained to clarify, revise, and strengthen nursing practice.

- 1. Scientific method and its application
- 2. Research design and implementation

C. Ethics

Adhere to the professional code of ethics (e.g., patient confidentiality, patient's rights, informed consent, allocation of resources) and intervene, if necessary, when violations of practice standards, institutional policies, codes of ethics, or legal standards have been identified in order to protect the peritoneal dialysis patient and the public.

- 1. Nursing Code of Ethics
- 2. State Nurse Practice Act
- 3. Patient's Bill of Rights
- 4. Nursing Practice Standards
- 5. Patient Care Standards
- 6. Legislative process
 - a. legal standards
 - b. legal ramifications