ELIM OUTREACH TRAINING CENTER

1820 Ridge Rd. Suite 300-301
Homewood, Illinois 60430
P: 708-922-9547 F: 708-922-9568
E-mail: elim1820@comcast.net
Website: elimotc.com

DIALYSIS TECHNICIAN PROGRAM

ELIM OUTREACH TRAINING CENTER, INC. DOES NOT DISCRIMINATE ON THE BASIS OF RACE, COLOR, RELIGION, NATIONAL ORGIN, AGE, GENDER, DISABILITY, ANCESTRY, MATIRAL STATUS, POLITICAL ASSOCIATION, CURRENT PHYSICAL CONDITION, MILITARY STATUS, IN DIDACTIC PROGRAMS AND ACTIVITIES THAT IT OPERATES.

ELIM Outreach Training Center is not accredited by an accrediting body recognized by the U.S. Department of Education.

ELIM Outreach Training Center is approved to operate bt the Private Business and Vocational Schools Division of the Illinois Board of Higher Education.

Revised 7/2015

DIALYSIS TECHNICIAN ADMISSION REQUIREMENTS

1. **High School diploma or GED**
2. **Able to lift 20lbs or more**
3. **Reading and math levels not less than 9th grade**
4. **Fine motor coordination (good manual dexterity and hand/eye coordination)**
5. **Must communicate effectively, both verbally and nonverbally**
6. **Must be able to display flexibility, accept and integrate constructive criticism in the classroom and clinical setting**
7. **Able to stand for long periods of time**

Dialysis Technician must complete:

1. **60 clock hours**
2. **Successfully complete the course with an 80% average**
3. **100% laboratory and clinical participation**

DIALYSIS TECHNICIAN
SYLLABUS

Course Description:

Dialysis Technicians set up and operate hemodialysis machines to provide dialysis treatment for patients with kidney failure. Some of the daily tasks technicians performed are removing waste, salt, and extra fluid from patient's blood, while keeping a safe level of chemicals within the body. They also take vital signs and monitor the patient throughout the treatment time. Dialysis Technicians help patients feel comfortable during the procedure also, they keep the machine in good working condition.

The duration of the Dialysis Technician Program is 11 weeks (60 clock hours).

Class Structure: Lectures, Demonstrations and Simulated Laboratories

---

Course Objectives:

Upon completion of this course, the graduates will be able to:

1. **Explain various hemodialysis team members and their functions**
2. **Recognized and correctly use related terms, mark, abbreviations and symbols related to dialysis**
3. **Examine, define and employ medical terminology related to dialysis**
4. **Understand basic chemistry of body fluids and electrolytes related to dialysis**
5. **Explain the normal functions of the kidney and the disease process that may cause renal failure**
6. **Understand the major signs and symptoms of end-stage renal disease**
7. **Interpret laboratory data for dialysis patients**
8. **Explain the dialysis machine systems and identify equipment parts**
9. **Explain the different types of vascular access to the circulation system**
10. **State the overview of peritoneal dialysis and renal transplantation**
11. **Explain the importance of infection control related to dialysis**

DIALYSIS TECHNICIAN
TUITION

Course Description:

Dialysis Technicians set up and operate hemodialysis and peritoneal machines to provide dialysis treatment for patients with kidney failure. Some of the daily duties of a Dialysis Technician include: monitoring patients vital signs during treatment, the removing of waste, salt and extra fluids from the patient's blood while keeping safe levels of chemicals in the blood. Assist the Dialysis nurse with other treatment as prescribe by the physician. Also, at the end of treatment the technician will break down and clean the machine.

COST:			
Tuition/Registration		$825.00	
Book(s)		$125.00	
Fee		$100.00	
Total:			**$1050.00**
***Other: (Items needed)**		**127.00**	
1.	Uniform	$25.00	
2.	Shoes	$25.00	
3.	Stethoscope	$17.00	
4.	CPR	$60.00	
5	National Exam	*see statement below.	
Total Cost			**$1177.00**

Under the law you have the right, among others, to pay the full amount due and to obtain under certain conditions a partial refund of financial charges if applicable. (ELIM does not charge finance charges. A late fee of 10% will be added to all late payments)

Method of Payment: Money Orders, or Cashier's Check. **SORRY WE DO NOT ACCEPT CASH OR PERSONAL CHECKS.**

Please see your contract regarding registration fee and amount due on the first day of class (book(s) will be issued with first payment

* The Bonet exam for Dialysis Technician is initiated after the student has worked in the field for 6-18 months. Therefore, the school will not include the test cost of $225.00 for the exam. Once hired, most Dialysis center will reimburse the employee for the cost of the exam.

*Supplies may be purchased from ELIM or you may purchase uniforms and other supplies at: Wal-Mart, Work N Gear, and Life Uniform. Please consult the yellow book for a location near you.

COURSE MATERIAL……..TEXTBOOKS

Main Textbook:

Review of Hemodialysis or Nurse and Dialysis Personnel 7th Edition
By: Judith Z. Kallenbac
C.F. Gutch
Martha H. Stoner
Anna L. Corea
Copyright © 2005, 199 Elseiver, Inc

This book provides the student with a realistic approach to giving care to the patient with End Stage Renal Disease.

Reference Book:

Medical Terminology for Dummies
By Beverly Henderson and Jennifer Dorsey
Copyright© 2009

This book introduces medical terminology fundamentals thus helping the student to master definitions communication and the application of terms across all medical fields.

Webster's New World Medical Dictionary, 3rd Edition
By: William C. Shiel, Jr., MD, FACR
Melissa Courad Stoppier, MD
Copyright© 2008

DIALYSIS TECHNICIAN
COURSE OUTLINE

UNIT 1

The Hemodialysis Team

A. Structure of the Dialysis Facility
B. Role of the dialysis team
C. Ethics, Rights, and Responsibility

Unit Objectives:
____At the end of this unit the student will be able to:

1. **State policies and procedures that will guide staff members in the clinical practice and patient care**
2. **List the role and functions of each member of the dialysis team**
3. **Explain several rights and responsibilities of the patients and personnel**

UNIT 2

Basic chemistry of Body Fluids and Electrolytes

A. Metric system
B. Chemistry
C. Body Water

Unit Objectives:
____At the end of this unit the student will be able to:

1. **Understand how the metric system is used in chemical and physical measurements**
2. **State the basic elements of chemistry as it relates to dialysis**
3. **Explain the importance of water within the body**

UNIT 3

Renal Physiology and the Pathology of Renal Failure

A. Renal Physiology
B. Renal Failure

Unit Objectives:
_____At the end of this unit the student will be able to:

A. Know the normal functions of the kidneys
B. Explain the cause of renal failure

UNIT 4

Clinical Manifestations of End-Stage Renal Disease (ESRD)

A. Cardiovascular System
B. Integumentary System
C. Immune System
D. Gastrointestinal System
E. Hematological System
F. Musculoskeletal System
G. Neurological System
H. Respiratory System
I. Reproductive system
J. Metabolic Disturbances

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **List several abnormal changes seen in each body system**

UNIT 5

Laboratory Data: analysis and Interpretation

A. Important Laboratory Data for Dialysis Patients
B. Blood Urea Nitrogen

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Identify important laboratory tests used to monitor dialysis patients**
2. **Define Urea and list signs and symptoms**

UNIT 6

Principles of Hemodialysis

A. Historical Background
B. Solute Transfer
C. Transport

Unit Objectives:
_____ At the end of this unit the student will be able to:

1. **Name several pioneers and their contributions to dialysis**
2. **Define Hemodialysis**
3. **Define Transport**

UNIT 7

Dialyzers, Dialystate, and Delivery Systems

- **A. Parallel Plate Dialyzers**
- **B. Hollow-Fiber Dialyzers**
- **C. Membranes for Hemodialysis**
- **D. Membrane Biocompatibility**
- **E. Dialyzer Reuse**
- **F. Delivery System**
- **G. Additional Equipment and Function**
- **H. High-Efficiency and High -Flux Dialysis**

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Know the difference between dialyzer and dialystate**
2. **State the characteristics of plate dialyzers**
3. **List several advantages and disadvantages of hollow-fiber dialyzers**
4. **List the two basic types of membranes for hemodialysis**
5. **State how an inflammatory response may trigger a membrane biocompatibility**
6. **List several advantages and disadvantages for dialyzer reuse**
7. **State the functions of the delivery systems**
8. **List several complementary functions essential to the hemodialysis procedure**
9. **State the equipment requirements and system requirements for high-flux dialysis**

8. **List several complementary functions essential to the hemodialysis procedure**
9. **State the equipment requirements and system requirements for high-flux dialysis**

UNIT 8

Water Treatment

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **List several impurities found in tap water**
2. **List 4 inorganic chemicals that may be present in tap water**
3. **State several methods used to treat water in Hemodialysis**
4. **Define RO**
5. **State several advantages and disadvantaged of the RO systems**
6. **State the different tests used to maintain the water treatment systems**

UNIT 9

Dialyzer Preparation and Reprocessing

A. Dialyzer Preparation
B. Dialyzer Reprocessing

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Tell how to prepare the dialyzer for patient use**
2. **List the basic steps for reprocessing**

UNIT 10

Access to the Bloodstream

A. Historical Background
B. Internal Accesses
C. Arteriovenous Fistula
D. Single-Needle Technique

Unit Objectives:
_____ At the end of this unit the student will be able to:

1. **Give details on major historical developments that led to the development of dialysis accesses**
2. **Describe an internal access**
3. **Describe an Arteriovenous fistula**
4. **State the reason for the single-needle technique**
   - **Types of needles used**
   - **Positioning of the needle**
   - **Anesthetic used before needle placement**
5. **List temporary vascular access and tell which veins are used**

UNIT 11

Patient and Machine Monitoring and Assessment

A. General Assessment
B. First Hemodialysis Assessment
C. Predialysis Assessment
D. Intradialytic Assessment and Monitoring
E. Postdialytic therapy Assessment
G. Monthly Assessments

Unit Objectives:
_____ At the end of this unit the student will be able to:

1. **State what is patient monitoring**
2. **List the different types of hemodialysis assessment**
3. **State the importance of the first hemodialysis assessment**
4. **Define Predialysis assessment**
5. **Describe intradialytic monitoring**
6. **Define Postdialytic assessment**
7. **State the purpose of monthly assessments for ESRD patients**

UNIT 12

Anticoagulation and Heparin Administration

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define anticoagulation**
2. **Know the nature of heparin**
3. **List drugs that interact with heparin**
4. **Describe regional heparinization .**

UNIT 13

Medication Problems and Dialysis

- **A. Medication Consideration**
- **B. Antihypertensive**
- **C. Different types of antihypertensive medications**
- **D. Cation exchange**
- **E. Intradialytic Parenteral Nutrition**
- **F. Levocarnitine**
- **G. Phosphate Binders**
- **H. Vitamins and Vitamin Analogs**

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **List several drugs that interfere with laboratory tests**
2. **Define hypertension**
3. **List several antihypertensive drugs and their side effects**
4. **State the importance of Cation exchange**
5. **Define intradialytic Parenterals nutrition.**
6. **Describe the role of Levocarnitine**
7. **State the importance of phosphate binders**
8. **List several vitamins and vitamin analogs and their functions**

UNIT 14

Nutrition Management

Unit Objective:
_____At the end of this unit the student will be able to:

1. **State why the correct diet is important for people with renal disease**

UNIT 15

Acute Renal failure and Dialysis

- **A. Procedures**
- **B. Hemofiltration**
- **C. Hemoperfusion**
- **D. Dialysis in Relation to Transplant**
- **E. Dialysis Patients with Transplant Rejection**

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **List different types of acute renal failure and their treatments**
2. **State several complications that can occur with acute renal failure**
3. **Tell what isolated ultrafiltration means**
4. **Define hemofiltration and complications that may occur**
5. **Describe hemoperfusion and the adverse effects of hemoperfusion**
6. **Define post-transplant kidney dysfunction**
7. **List several special problems in the dialysis of post-transplant patients**

UNIT 16

Transplantation

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **State the advantages and disadvantages of renal transplant**
2. **List several contraindications to transplantation**
3. **Define tissue typing**
4. **Define cross matching**
5. **Describe several electrolyte abnormalities after transplantations**

UNIT 17

Peritoneal Dialysis and Home Dialysis Therapies

A. **Home Dialysis therapy: Peritoneal**
B. **Home dialysis Therapy: Hemodialysis**

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define peritoneal dialysis and state how it works**
2. **Name at least 3 peritoneal dialysis solutions**
3. **Describe how exit site care is performed**
4. **List several complications of peritoneal dialysis**
5. **State how patients are selected for home peritoneal dialysis**

UNIT 18

Diabetes and Hemodialysis

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define diabetes mellitus**
2. **State the two types of diabetes**
3. **Describe the treatments for diabetes**
4. **Name the different medications use to treat diabetes**
5. **Differentiate between hyperglycemia and hypoglycemia**

UNIT 19

Infection Control

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define standard precautions**
2. **Define OSHA**
3. **State the importance of hand washing**
4. **Define PPE**
5. **Describe the Needle stick Safety and Prevention Act**
6. **List the two most significant blood-borne pathogens**
7. **Describe hepatitis A, B, and C**
8. **State how hepatitis A, B, and C are transmitted**
9. **Define HIV and tell how it is transmitted**
10. **Define Tuberculosis (TB) and tell how it is transmitted**
11. **Give CDC recommendations for TB screening**
12. **List several drug-resistant organisms and tell how they are transmitted**
13. **State the procedures for sterilizing and disinfecting a dialysis unit**

UNIT 20

Psychosocial Aspects of Dialysis Therapy

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **State several psychosocial consequences of long-term dialysis**
2. **List several coping mechanisms of patients on maintenance dialysis**
3. **Define professional boundaries**
4. **Define HIPAA**

UNIT 21

Pediatric Hemodialysis

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Describe the causes of acute renal failure in children**
2. **List several caused of CKD in children**
3. **List the vascular access considerations in pediatrics**
4. **State how pain is managed in children**
5. **Describe high blood pressure in children**

UNIT 22

End-Stage Renal Disease (ESRD) in the Elderly

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define trial dialysis**
2. **List several advantages and disadvantages for elderly patients in being on peritoneal dialysis**
3. **List several advantages and disadvantages of Hemodialysis in treating elderly ESRD patients**

UNIT 23

The Management of Quality in Dialysis Care.

Unit Objectives:
_____At the end of this unit the student will be able to:

1. **Define CQI**
2. **Describe the origin of CQI**
3. **List several CQI concepts and terms**
4. **Describe PDCA Cycle**

DIALYSIS TECHNICIAN
UNIT HOURS BREAKDOWN

UNIT	TOPIC	HOURS
1	THE HEMODIALYSIS TEAM	3
2	BASIC CHEMISTRY OF BODY FLUIDS AND ELECTROLYTES	3
3	RENAL PHYSIOLOGY AND THE PATHOLOGY OF RENAL FAILURE	4
4.	CLINICAL MANIFESTATION OF END STAGE RENAL DISEASE	4
5.	LABORATORY DATA	2
6.	PRINCIPLES OF HEMODIALYSIS	3
7.	DIALYZER, DIALYSTATE, AND DELIVERY SYSTEM	3
8.	WATER TREATMENT	2
9.	DIALYSER PREPARATION AND REPROCESSING	2
10.	ACCESS TO THE BLOODSTREAM	2
11.	PATIENT AND MACHINE MONITORING AND ASSESSMENT	3
12.	ANTICOAGULATION AND HEPARIN ADMINISTRATION	2
13.	MEDICATION PROBLEMS AND DIALYSIS	3
14	NUTRITION MANAGEMENT	2
15.	ACUTE RENAL FAILURE AND DIALYSIS	3
16.	TRANSPLANTATION	2
17.	PERITONEAL DIALYSIS AND HOME DIALYSIS THERAPIES	2
18.	DIABETES AND HEMODIALYSIS	3
19.	INFECTION CONTROL	3
20.	PSYCHOSOCIAL ASPECTS OF DIALYSIS THERAPY	2
21.	PEDIATRIC HEMODIALYSIS	2
22.	END-STAGE RENAL DISEASE (ESRD) IN THE ELDERLY	3
23	MANAGEMENT OF QUALITY IN DIALYSIS CARE.	2
Total		60

DIALYSIS TECHNICIAN
CLASS SCHEDULE

Week	Date	Lesson	Text Assignment	Class Assignment
1		Orientation Policies/ Procedure		½ day Book (s) Handout
2		Lecture	Chapters 1,2,3 Video	
3		Exam Lecture	Chapters 1,2,3 Chapters 4,5,6, Video	
4		Exam Lecture	Chapters 4,5,6 Chapters 7,8, HIPAA	Payments must be current to take the midterm Exam.
5		Midterm Exam	Chapters 1-8	.Introduction to the Laboratory
6		Lecture	Chapter 9,10,11 SAFETY	Lab (T/P/R/Blood Pressure)
7		Exam Lecture	Chapters 9,10,11 Chapters 12,13,14	Lab
9		Exam Lecture	Chapters 15,16,17 Chapters 18,19,20	Lab Final Exam Review Handout
10		Exam Lecture	Chapters 18,19,20 Chapters 21-25	Lab.
11		Final Exam	LAB Teachers evaluation Exit Interview	Each student will perform 1 cannulation, set up and break down the machine. Students will arrive to class according to last name; once the lab exam is done the student may leave.
12		Final Exam	THEORY ALL CHAPTERS 1-25	After Final exam students may leave. Instructor turn in all paperwork.

CLASS CALENDAR IS SUBJECT TO CHANGE WITHOUT NOTICE.

ALL PAYMENTS MUST BE CURRENT TO PARTICIPATE IN THE MIDTERM, FINAL EXAM AND SIMULATED LABS. If you default on your payments, (missing 1 payment) you can be dismissed from the program. Please see Ms. Taylor or Mrs. Triplett ASAP if you are having financial problems. Students must pass all exams with an 80% or better. If you score less than the required 80% please see your instructor as soon as possible. Students must be in uniform at all times and display their name badges at all times.
VIDEOS ARE PART OF LAB DAYS.
*Only one excuse absent will be allowed per course. Please see your student handbook/catalog for detailed information.