

# ESRD NETWORK 13

Serving Arkansas, Louisiana & Oklahoma Renal Communities



## DISASTER READINESS PLANNING RESOURCE: 2011

**INTRODUCTION:** All ESRD facilities are required to develop policies and procedures for emergency / disaster readiness. To meet the unique needs of ESRD patients and providers and to minimize the effects of an emergency, one must plan ahead to be ready **BEFORE** an emergency strikes.

This resource material is to assist ESRD facilities in the development and improvement of their facility-specific emergency readiness plan and was developed after reviewing materials from other Networks, KCER, CMS, NKF, FEMA, and the American Red Cross. As you know, the Federal regulations, as well as the Interpretive Guidelines are utilized by State Survey Agencies in their certification activities. The following guidelines refer to the regulations and should be considered minimum standards. Federal guidelines emphasize that policies must be **written** that drills be conducted (**at least annually**), and that **staff and patients be trained** in emergency procedures. For a complete document, please visit the Centers for Medicare & Medicaid Services (CMS) at [http://www.cms.gov/CFCsAndCoPs/13\\_ESRD.asp](http://www.cms.gov/CFCsAndCoPs/13_ESRD.asp). Emergency and disaster related Conditions for Coverage are outlined in the paragraphs § 494.60 Condition: Physical Environment.

### § 494.60 Condition: Physical Environment

**V Tag #408: Standard: Emergency Preparedness.** The dialysis facility must implement processes and procedures to manage medical and nonmedical emergencies that are likely to threaten the health or safety of the patients, the staff, or the public. These emergencies include, but are not limited to, fire, equipment or power failures, care-related emergencies, water supply interruption, and natural disasters likely to occur in the facility's geographic area.

**V Tag #409:** (1) *Emergency preparedness of staff.* The dialysis facility must provide appropriate training and orientation in emergency preparedness to the staff. Staff training must be provided and evaluated at least annually and include the following:

- (i) Ensuring that staff can demonstrate a knowledge of emergency procedures, including informing patients of—
  - (A) What to do;
  - (B) Where to go, including instructions for occasions when the geographic area of the dialysis facility must be evacuated;
  - (C) Whom to contact if an emergency occurs while the patient is not in the dialysis facility. This contact information must include an alternate emergency phone number for the facility for instances when the dialysis facility is unable to receive phone calls due to an emergency situation (unless the facility has the ability to forward calls to a working phone number under such emergency conditions); and
  - (D) How to disconnect themselves from the dialysis machine if an emergency occurs.

- V Tag #410:** (ii) Ensuring that, at a minimum, patient care staff maintain current CPR certification; and
- V Tag #411:** (iii) Ensuring that nursing staff are properly trained in the use of emergency equipment and emergency drugs.
- V Tag #412:** (2) *Emergency preparedness patient training.* The facility must provide appropriate orientation and training to patients, including the areas specified in paragraph (d)(1)(i) of this section.
- V Tag #413:** (3) *Emergency equipment.* Emergency equipment, including, but not limited to, oxygen, airways, suction, defibrillator or automated external defibrillator, artificial resuscitator, and emergency drugs, must be on the premises at all times and immediately available.
- V Tag #414:** (4) *Emergency plans.* The facility must –  
(i) Have a plan to obtain emergency medical system assistance when needed;
- V Tag #415:** (ii) Evaluate at least annually the effectiveness of emergency and disaster plans and update them as necessary; and
- V Tag #416:** (iii) Contact its local disaster management agency at least annually to ensure that such agency is aware of dialysis facility needs in the event of an emergency.

For information on the Life Safety Codes, please refer to the ESRD Conditions for Coverage previously referenced above.

### **VULNERABILITY (RISK) ANALYSIS**

All dialysis and transplant facilities are vulnerable to any number of natural or manmade hazards. Reviewing the following analysis will enhance your ability to predict emergencies / disasters, which may be faced in the future.

An analysis of your facility's vulnerability to particular hazards provides the basis for the development and maintenance of a practical, workable emergency operations plan or checklist and appropriate standard operating procedures. In analyzing and assessing the vulnerability of your dialysis and/or transplant facility, consider your unique environmental, indigenous, and economic factors as the basis for:

- ***Estimating the likelihood of damage, either by 'DIRECT' effects or by 'INDIRECT' effects resulting from a facility(s) damaged elsewhere.***
- ***Making plans for protective measures within individual facilities to minimize the impact on daily operations and structural damage.***

Each facility must recognize their vulnerability to particular hazards. For example, if your facility is located near an industrial plant, the facility may be vulnerable to the effects of explosions or chemical leaks. Facilities located near rivers or creeks are at risk for flooding or potential water contamination. All facilities are possible targets of violence, sabotage or bomb threats. It is important to realize that just because your facility is not considered 'at risk' during a disaster or emergency, your proximity to high-risk operations/services can affect your operation. It is important to remember that you could be asked to assist with disaster-affected dialysis facilities needing to transfer patients to you.

The following hazards are emergencies to be considered in your planning efforts...

### **Manmade Hazards**

Bomb threat  
Hazardous spills (chemical)  
Utility Failures (electric, water)  
Equipment failure  
Explosion  
Gas Leak  
Sabotage / Violence / Nuclear events

### **Natural Hazards**

Hurricane  
Earthquake  
Fire  
Flooding  
Tornado  
Severe storms  
Snow, Ice, Extreme Cold

## **FACILITY EMERGENCY READINESS**

Preparing and practicing for emergency situations will lead to efficient unit responses during an actual emergency. Consider the following when developing, reviewing, and/or revising your plan.

- Seek and communicate with all local emergency resources as a means of networking (emergency management agencies, police / fire officials, American Red Cross, etc.).
- Establish and maintain a mutual aid & affiliation agreement with another dialysis facility (local and distant) to provide emergency services when your facility is unable to operate. Agreements should include shared staffing arrangements, shared equipment & supplies, medical records arrangements.
- Maintain current and alternate phone listings for all staff members. *(Remember to prepare a contingency plan for use when telephone service has been disrupted.)*
- Maintain current contact information list for all emergency contacts and supply vendors.
- Develop and maintain communications protocol [Public service announcements (PSA's), TV, radio, ham radio, etc.]. Consider using social media (as directed and/or allowed within your corporate policies/procedures).
- Maintain an emergency supply box.
- Provide protection of patient records (i.e., maintain offsite documentation and/or back-up flash drives, CD's, etc. in a fireproof box which contains patient dialysis prescriptions, hepatitis status, drug & dialyzer allergies. **UPDATE THIS INFORMATION ROUTINELY!**)
- Keep enough paper forms on hand to utilize for documentation if computer services are disrupted.
- Provide education on emergency preparedness to all patients and/or significant others and document all patient education, reviews, and/or drills accordingly.
- Develop, maintain, and review facility checklist for emergency preparedness procedures.
- Maintain current patient (in-center, home-/self-care) telephone number list.
- Consider having a Disaster Coordinator. *(Could be a role for a community volunteer?)*
- Keep a weather radio and/or battery powered TV available for local emergency announcements and/or directions.
- Monitor communication sources during weather watches. Timing may be critical in sheltering-in-place or evacuating as needed.
- Perform patient-specific disaster preparedness needs assessments as the individualized plan of care is developed and implemented. It is critical to **KNOW WHICH PATIENTS NEED MAJOR ASSISTANCE** before any disaster events occur.
- If evacuations are included in your disaster planning, it is just as important to develop your 'returning home' section as your evacuation section.

The following is a list of suggested emergency supplies for your facility. Adjust the quantities based on your facility size and don't forget pediatric supplies as applicable. Also, keep in mind extra supplies may be needed if called upon to provide back-up dialysis services or direct first aid. Keep supplies in an accessible area and make area known to all staff.

#### **SUGGESTED EMERGENCY SUPPLY LIST:**

- Portable radio with battery power back-up
- Protective wear: gloves, eye wear, masks, mouthpieces for CPR
- Airway(s), tongue blades, S-tube
- Two (2) 1000 cc bags 0.9% Normal Saline, Two IV administration sets
- Four (4) fistula needles, tourniquet(s)
- Flashlights & spare batteries
- Portable BP cuff/sphygmomanometer, stethoscope
- Oxygen tank with mask/cannula
- First aid supplies: scissors, tape, gauze, band aids, arm board(s), alcohol wipes
- Two tube-occluding forceps / clamps
- Peritoneal Dialysis (PD) supplies, if applicable, should include outlet port clamps, transfer sets, beta clamps, minicaps, variety of PD solutions, and connection systems.

#### **EMERGENCY PREPAREDNESS PATIENT TRAINING**

- ALL patients should be instructed in emergency procedures for both 'in' and 'out' of the dialysis and/or transplant facility.
- Encourage patients to keep ID cards and emergency medical records in safe, easily accessible location.
- ALL patient education (emergency readiness) should be documented within individualized plans of care (POC).

#### **ALL PATIENTS SHOULD BE ABLE TO VERBALIZE HOW TO...**

- Communicate with their provider or back-up
- Function if dialysis is not possible (i.e., diet/fluid restrictions, medications, etc.)
- Disinfect water (dependent upon region, issue)
- Implement their individualized disaster readiness plan

#### **HOME HEMODIALYSIS PATIENTS SHOULD...**

- Receive disaster preparedness training as part of their initial self/home-care orientation and training, as well as reminders as needed.
- Review their specific disaster plans with providers during their routine clinic visits, especially during severe weather seasons (i.e., tornado, hurricane, winter, etc.)
- Keep a list of dialysis units with contact information in the area, both at home and at work or school.
- Try to keep a two-week stock of dialysis supplies at all times. Teach patients to check expiration dates and replace as needed.
- Learn to take themselves off the machine in an emergency (e.g., power/water disruptions).
- Routinely discuss alternate arrangements and back-up communications plan
- Register with their local disaster emergency preparedness folks, as well as the power and water companies.
- Keep knowledgeable about requirements of generators as applicable (fuel, spacing, carbon monoxide monitor, etc.)
- Know generator safety if applicable (e.g., signs and symptoms of carbon monoxide exposure).

- Know your expectations and directions for potential infection control issues during a disaster event.
- Disaster training should incorporate what policies and procedures are necessary prior to returning to their home setting following a disaster event.

### **PERITONEAL DIALYSIS PATIENTS SHOULD...**

- Receive disaster preparedness training as part of their initial self/home-care orientation and training, as well as reminders as needed.
- Review their specific disaster plans with providers during their routine clinic visits, especially during severe weather seasons (i.e., tornado, hurricane, winter, etc.)
- Keep their list of PD contacts both at home and at work or school.
- Keep a list of dialysis units in the area, both at home and at work or school.
- Keep a stock of PD supplies, (recommendations vary from 10 days to two weeks). Teach patients to check expiration dates and replace when needed.
- Keep battery charged, if an ultraviolet device is used.
- Talk with PD nurse or nephrologist about what to do about peritonitis (i.e., antibiotics) if conditions occurs during disaster.
- Know what system to use when power supply is interrupted (i.e., Ultra-Bag system) unless generator is available.
- Decide where to keep extra PD supplies (i.e., home, work, school, or all).
- Register with their local disaster emergency preparedness folks, as well as the power and water companies.
- Disaster training should incorporate what policies and procedures are necessary prior to returning to their home setting following a disaster event.
- Keep knowledgeable about requirements of generators as applicable (fuel, spacing, carbon monoxide monitor, etc.).
- Know generator safety if applicable (e.g., signs and symptoms of carbon monoxide exposure).
- **OPTIONS for Warming Bags during interruptions in Power Supply:**
  - *Body heat = "Think Togetherness"*
  - *Heater in car = Dashboard*
  - *Direct sunlight*
  - *Floor furnace (Place bag on cookie sheet before placing on top of floor furnace)*
  - *Gas oven (Place bag on a cookie sheet wrapped in a towel and slide the pan onto the oven rack. Make sure the pilot light is turned on in the oven.)*
  - *Fireplace (Place bag on hearth area and rotate as needed)*
  - *Keep a clean ice chest available to store several warm bags. The chest will keep them warm for several hours during a power outage.*

### **SPECIAL HEMODIALYSIS PATIENT VASCULAR ACCESS CONSIDERATIONS...**

- Implanted vascular access (e.g., Life-Sites, HERO™ grafts) – Ascertain that any applicable patients have copies of cannulation procedures/techniques, as well as supplies to last for at least two weeks in the event of evacuation. In the event of evacuation(s), early transient placement is suggested for these patients to ensure staff capabilities at the receiving dialysis facility.
- Buttonhole Technique - **MAKE** copies of applicable buttonhole cannulation techniques and/or procedures, as well as any special instructions for vascular access cannulation to accompany patient records in the event of evacuation. Be sure patient is educated about the buttonhole technique and can discuss patient-specific requirements with transient dialysis unit. Share any of your buttonhole technique training materials with your local acute dialysis units. It will make life easier if they know the technique before 'disaster' strikes.

## **STAFF EMERGENCY READINESS:** Suggestions for your staff education program:

- Staff members should be **REQUIRED** to make personal / family emergency plans and maintain adequate emergency supplies in their homes. Your ability to provide dialysis and/or transplant services is based the availability of your management and staff.  
**NO STAFF = NO SERVICES!**
- Have a unit-specific emergency plan, including all roles and responsibilities for all staff members.
- Perform routine and unannounced fire and evacuation drills. Document all drills and the management reviews of drills. Debrief after drills to see what works and what doesn't. Invite local emergency preparedness resources to review your drills. They are a wonderful resource and it helps with your networking.
- Policies and Procedures: Power Failure, Water Outage, and Emergency Termination of Dialysis Services
- Preparation of emergency / evacuation supplies
- Training: First aid / CPR / Defibrillator

Suggested responsibility assignments during an emergency situation are provided here. Everyone should review and know their responsibilities during emergency drills. Utilize practices and/or drills to estimate 'what' amount of time would be required to evacuate your facility when/if the need arises.

### ADMINISTRATION / CLERICAL:

- ✓ *Activates your facility disaster plan (e.g., orders emergency termination of dialysis services, evacuation, etc.).*
- ✓ *Calls local emergency numbers for assistance.*
- ✓ *Retrieves rosters of patients and staff.*
- ✓ *Retrieves patient records and/or back-up system (i.e., CD, DVD, hard drive, etc.).*
- ✓ *Reminds everyone of designated meeting place for evacuation and conducts roll call of patients and staff immediately outside of building.*
- ✓ *Perform or delegate status checks on incenter, as well as home/self-care patients when situation affects the delivery of dialysis.*

### NURSING:

- ✓ *Assists with assessments and evacuation of patients (to include determination of which patients need assistance in emergency termination of dialysis services and subsequent assistance in evacuation (e.g., wheelchair, walker, etc.).*
- ✓ *Retrieve patient records and emergency supply box.*
- ✓ *Collect blankets and sheets while leaving building and distribute to patients and/or injured persons. Once outside assist patients and/or injured persons as needed (i.e., administer first aid, assessments of status, accesses, etc.).*
- ✓ *Assist and/or Perform onsite or offsite triage to determine if dialysis is a critical need during times when dialysis provision is compromised.*

### TECHNICIANS:

- ✓ *Assists with transfer of patients from dialysis chairs to wheelchairs or from chairs onto sheets on the floor.*
- ✓ *Transfers patients from building via wheelchairs, sheets. Assists with walkers as needed.*
- ✓ *Retrieves extra supplies as directed or needed.*

## DIETITIANS:

- ✓ *Ensures that patients and families are knowledgeable of their dietary / fluid restrictions before crisis situations, especially if dialysis services are not be available or reachable for routine treatments.*
- ✓ *Create and distribute individualized dietary / fluid fact sheets for easy reference and reinforcement.*
- ✓ *Educates patients and families about general PSA's which "direct folks to drink lots of water" vs. patient-specific directions of fluid management.*

## SOCIAL WORKERS:

Assisting as necessary during an immediate evacuation situation, however the Social Worker has some very "concrete" tasks during emergencies and/or disasters. Prior to and dependent upon the magnitude of disaster, tasks should include 1) *reviewing patients need for shelter and/or transportation and 2) keeping updated information on the same.*

Patient Needs Assessment: Prior to any weather-related season, consideration should be given to performing a patient needs assessment. The Network has a sample, which was generated to assist hurricane-prone areas. However, the sample could be modified to address any weather-related situations.

Shelter and Transportation: In the event that a weather emergency such as a snowstorm, ice storm, or flood is forecast, the social worker should review with each patient/family contingency plans for evacuation from home, if necessary. This includes knowing where the patient will be staying (friend, relative, or a shelter). Obtaining phone numbers is necessary in order to contact the patient regarding any change in treatment (time, location, etc.).

Planning for alternative transportation is an absolute necessity. "Normal" transportation will most likely be disrupted by the disaster itself. Discussions should take place between the social worker and patient/family about emergency transportation options. Your facility may want to generate and distribute a "tip sheet" for each patient, which lists emergency phone numbers, community resources, etc.

In the event that the social worker has responsibilities for more than one dialysis unit, contingency plans should be included in policies/procedures to address need for assisting social worker as necessary.

- Explore possible resources for emergency sheltering which could include friends, relatives, American Red Cross shelters (check with local chapter), motels/hotels, churches, schools, and vacancies at local apartments/condos. ***Think closest to dialysis unit, especially if patients have lengthy commutes for routine dialysis treatments.***
- Possible resources for emergency transportation include public transportation (i.e., bus/taxi); Area Agency on Aging, and church-affiliated groups.
- Check with the Network for assistance with urgent transportation issues to receive critically-needed dialysis (e.g., patient has not dialyzed in 3-5 days due to transportation). The Network is your liaison to the state emergency management personnel who can then facilitate transportation in critical situations.

Along with these concrete tasks of assisting with shelter and transportation, the social worker has an important role to alleviate the stress inherent in the situation. Change in routine causes stress for patients and staff alike. Change in routine caused by an emergency can cause immobilization. The social worker, as a mental health provider, can assist in helping patients, families, and staff members effectively cope with the additional stress of the disaster.

## **PATIENTS:**

- ✓ *Perform "take-off" if directed by dialysis staff.*
- ✓ *Move to designated area as directed.*
- ✓ *Stay in contact as directed by dialysis staff.*
- ✓ *Implement their individualized / family disaster plan as determined.*
- ✓ *Keep ID card / placard and emergency medical records in safe, easily accessible location.*

## **WATER AND POWER ISSUES**

Maintenance of Water Supply: A well informed staff and a close relationship with both a reputable water treatment vendor and your local water authority are crucial to ensure a continuous water supply in the event of an emergency. Your local water authority must be made aware that you provide a life-sustaining therapy (DIALYSIS). It is important that your location and particular needs such as quality and quantity are known. This is particularly important for freestanding facilities as your needs may not be as clearly recognizable as with hospital based facilities.

Common causes for water supply failures are contaminated source of water supply, frozen pipes, broken water mains, and fires. Reduced water pressure from broken water mains or fires requires the use of a booster pump. Booster pumps can be rented or purchased from your water treatment vendor. Total absence or intermittent reduction of supply water requires bulk potable water from water supply vendor to be processed through existing water treatment systems. Bulk purified water from a treatment vendor can be utilized to directly feed the service loop to individual dialysis stations.

It is highly recommended that portable activated carbon and DI exchange tanks followed by appropriate monitoring and 0.2 micron (or better) filters be used. Stainless steel or food grade plastic tanks should be used for the sole purpose of transporting or storing potable water is required. Bulk water, whether potable or purified, must be pressurized to obtain the minimal pressure requirements of the reverse osmosis apparatus or dialysis machines. The use of DI tanks is highly recommended when using transported water due to the high waste levels (up to 50%) when using water softeners and reverse osmosis. Remember an assessment is in order if you work in an area of frequently below freezing temperatures as to outside storage of water.

**NOTE:** These recommendations will work with all dialysis water systems - direct feed and recirculating. Facilities, which utilize recirculating systems with storage tanks, activated carbon, DI, and submicron filtration as final treatment, are easier and less costly to adapt for this purpose. This system also serves as an alternative treatment in the event of a reverse osmosis or other water treatment component failure.

Use care in your choice of a vendor to assure quality water and to minimize interruption of dialysis therapy to patients. Once alternate sources for your emergency needs are identified, coordinate meetings to plan design modifications (if needed) to permit efficient implementation of emergency plans.

**WATER USED FOR DIALYSIS MUST ALWAYS BE TESTED TO ENSURE  
THE REQUIRED AAMI QUALITY STANDARDS ARE BEING MET**

Maintenance of Electric Supply: Just as maintaining water supply is crucial to the provision of uninterrupted dialysis therapy, being prepared for power interruption is also vital. Again, like water, some thought should be given to how you will handle a loss of electricity and the extent of your back-up plan. Plans can range from having battery-powered lighting for evacuation of the building to installation of a permanent generator which will handle power for the whole facility. Generators may be a consideration for your facility if power interruptions occur frequently.

Emergency Generators: Consideration should be given to expense, space and ongoing maintenance, but under emergency situations, they might make it possible to provide dialysis services. As you perform your vulnerability (risk) assessment, consider potential of owning vs. renting a generator. Things to consider:

- ✓ *Determine what services can or should be provided. Remember air conditioning and/or heating might be just as important as dialysis machines.*
- ✓ *Determine how much power is needed, as well as size of generator for provision of services;*
- ✓ *Know where to obtain or rent generators and related equipment; and then*
- ✓ *Develop a Generator Plan, inclusive of addressing fuel and security needs.*

**NOTE:** *Your state's emergency operations centers do deploy generators to provide power to critical facilities like shelters, water treatment plants and hospitals in communities impacted by disasters / emergency situations. These generators are usually industrial-size generators and not intended for residential use. These generators can be pre-positioned for events that are predicted (i.e., hurricanes, winter weather storms). Please do not depend on these generators for your dialysis facility and/or home-/self-care dialysis patients. Home-/self-care dialysis patients should be instructed on how-to-handle power issues and not depend on receiving generator(s) from the state or FEMA.*

## **GENERATOR ISSUES:**

### **How to Calculate Critical Electrical Loads:**

1. Use the following formula to express the number of kilowatts needed:

$$[\text{Amps} \times \text{Volts} = \text{Watts} \dots \text{Watts} / 1000 = \text{Kilowatts}]$$

2. Number of machines X (Kilowatts per machine) = Minimum Electrical Load

EXAMPLE: Fresenius 2008E draws 15 amps maximum and runs on 110 volts [15 amps X 110 volts = 1650 watts...1650 watts divided by 1000 = 1.65 kilowatts per machine]

**What is Carbon Monoxide?** Carbon monoxide is an odorless, colorless and tasteless gas that can make you sick or, under some circumstances, cause death. Carbon monoxide is created when fuel does not burn completely. Sources may include improperly venting fuel-burning appliances (e.g., generators). Carbon monoxide poisoning is sometimes mistaken for another illness. Symptoms include headache, dizziness, ringing in the ears, fatigue, increased perspiration, nausea, weakness and vomiting. Suspicion of carbon monoxide poisoning must lead to leaving the area immediately and calling 911 from another location. **Prevent Carbon Monoxide Issues** with proper ventilation and use of a UL-approved carbon monoxide detector with an audible alarm.

**Generator Assistance:** The following should be checked in accordance with manufacturer's guidance...

- OIL: Pressure, Temperature, Level
- WATER / COOLANT: Temperature, Levels
- Fuel level
- Fuel / Water Separator
- Amperage / Amps / Current
- Percent Load (KW)
- Voltage
- Frequency
- Battery Charge
- Engine Hours
- Services: Oil change every 250 hours of use; Change filters (air, fuel) every 500 hours of use
- Monitor for problems such as engine surging; engine hunting; and exhaust smoke, especially if color is other than clear, light grey or light black.