Disasters and Dialysis

Northwest Renal Network

and

Northwest Dialysis Emergency Preparedness Coalition

Serving: Alaska ✦ Idaho ✦ Montana ✦
Oregon ✦ Washington
Dialysis Facts

More than 386,000 people are currently diagnosed with end stage renal disease and require dialysis or transplant to sustain their lives.

Dialysis treatments are 3 times per week.

Each treatment lasts 3-4 hours
What is Dialysis?

A medical treatment that cleans wastes from the blood artificially when the kidneys are unable.

There are two kinds
Complications of no Dialysis

High Potassium levels

The kidney can no longer filter out higher levels of Potassium which can interfere with the electrical conduction of the heart.
Excess Fluid- can cause pulmonary edema and death.
Pericarditis -

Inflammation of the sac around the heart. As a result of being under-dialyzed.
Dialysis Facilities

Dialysis facilities are very dependent on electricity and water for their operations. They cannot operate without the required utilities.
The nurses and technicians that perform the dialysis treatment have had specialized training. They are licensed and/or certified.
The Patient’s Connection to the Dialysis Unit

Patients receive life-sustaining treatment

There are approx. 15 hrs/week spent at the unit
Patients have a close connection to the staff and other patients.

Feel that the unit is a home away from home.
**Hemodialysis**: The use of a machine to clean wastes from the blood, using an artificial filter.
How?

- Large bore needles are placed in a special access in the patient’s arm.

- Blood is pumped out of their body, cleaned and pumped back in.
Peritoneal Dialysis:

Cleaning the blood by using the lining of the abdominal cavity as a filter
How?

Through a catheter placed in the abdomen, fluid is introduced. The fluid draws waste and excess fluid from the tiny blood vessels. Then the fluid is emptied. This gets repeated.

That is called an exchange.
Both of these types of dialysis can and are done in private homes everyday.

The issues for home treatment are:

- Training
- Support
- Supplies
Dialysis unit emergency plans must indicate:

- **Who** - is responsible for what duties
- **Where** - evacuation routes and meeting places
- **When** - Order of emergency procedures
- **How** - Proper emergency disconnection and other procedures
The Nurse Manager (RN)

The first point of contact, followed by the charge nurse on duty.
Fact-

Most patients often do not have their own transportation + rely heavily on city/county transportation.
Fact -

Multiple types of disasters can easily impact the routine of the dialysis patient.
What Quantities are Needed?

Electricity-

Electricity is the primary source of power for dialysis clinics for:
running water treatment equipment,
dialysis machines,
computers, etc.
How much electricity are we talking about?

- An average family pays approx. $1-200.00/month for their service.

- A dialysis clinic serving 50 patients pays approx. * $7-1800.00/month

*This is a discounted rate.*
**What Quantity?**

**Water**

For each gallon of water that is purified, typically ½ to 1 gallon goes down the drain.

Example: If a clinic has 50 patients, with treatments 3 times per week-

- **13,000 gal.** of water/wk on the high end
- **9,750 gal.** on the low end.
**Requirements for Dialysis Treatments**

**Space** to do the treatment

**Electrical Power** to run the equipment

- If electricity is not available, one machine would require a **1.65KW** size generator

- An average facility has **16-20** machines + a water treatment system which will require at least a **50KW** generator
Requirements for Dialysis Treatments cont.

Dialysis machines - There are a wide variety of makes and models

Potable water for use in the treatment
   Each treatment requires a minimum of ~100 gallons of treated, pressurized water
Typical water treatment equipment in a facility includes:

Carbon filtration + either reverse osmosis or deionization
Requirements for Dialysis Treatments (cont.)

**Supplies**
Dialyzers, blood lines, saline, medications, etc.

**Personnel**
Qualified to perform dialysis
Requirements for Dialysis Treatments (cont.)

A **doctor’s prescription** for dialysis + medical records to support the treatment

**A hospital** or other similarly equipped system + means to transport if complications occur while providing dialysis
Findings: from 164 of 167

Backup generators

Only 37% of responding facilities reported backup generators on-site.

An additional 9% of facilities had a transfer switch installed.
Findings (cont.)

Dialysis supplies on site

Only 83% of facilities reported the number of days of on-hand supplies they stored on site.

- 22% reported 1-2 weeks of supplies
- 48% reported 2-3 weeks of supplies
Findings (cont.)

Backup water supply

Only 16% of facilities reported having access to a backup water supply and the proper plumbing hook-up to accept water.
Findings (cont.)

Emergency supplies

On average only 41% keep emergency food, water, blankets and medication supplies
Findings (cont)

Alternate communication system

28% have an alternate communication system if phones are out

30% have cell phones as backup
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Recommendations

All facilities should have:

Generators -

Or at minimum a transfer switch in all new construction
Recommendations

Dialysis supplies -

Minimum 14 day supply is recommended
Recommendations (cont.)

Emergency Food + Water -

Enough for all patients+ staff
for 3 shifts x 3 days
Recommendations

Communications -

Alternatives to cell phones - i.e. Pay phones, out of state cell, satellite, or ham radios
Recommendations

Emergency drills that actively include patients, not just staff.

Currently at most facilities they talk through the situation.
Currently, patients are taught-

Clamp and Cut- procedure to quickly get taken off the dialysis machine. (leaves about 1 cup of blood behind)

Designated meeting place

Duck and cover head with blanket (for earthquake)
Relationships in the Community

The local emergency managers are essential to our efforts!

Questions to consider:

Are you aware of the special requirements of daily care?
Questions

Does your jurisdiction include dialysis and kidney transplant patients as part of the vulnerable pop.?
Questions

Do you know how many ESRD patients and providers are in your jurisdiction?
Through December 31, 2010, there were 11,326 dialysis patients in the five state Network 16.
Resources

Northwest Renal Network
www.nwrenalnetwork.org

Kidney Community Emergency Response (KCER) www.kcercoalition.com
www.nwrenalnetwork.org

• Website section specifically for Emergency Preparedness covers information for

• Patients
• Dialysis Facilities
• Emerg. Managers
Maps available for all 5 states
Blow-ups of Portland and Seattle
To check the open/closed status of any dialysis unit in the USA following a large disaster, go to:

www.dialysisunits.com

Look up may be done by city, State, facility name, or zip code.
Simple Changes to Consider

Encourage early evacuation of individuals with kidney failure if they are on dialysis

With appropriate family members (where possible)
Since services are needed on a frequent basis, the individual should be:

- Triaged
- Provided with urgent care
- Evacuated to a location where services can be provided repeatedly in a safe environment. The location may be a great distance away.
Issues in Disasters

- Many dialysis facilities may be inoperable
- Patients can be scattered in the evacuation
- Utilities and supplies can be scarce
- Local communications can be disrupted
Simple Changes (cont)

Add questions to the shelter admission forms asking:

🔍 Do you require dialysis?

🔍 Have you had an organ transplant?
Dialysis is a Necessity - Not an option

This is a basic life support that becomes more vital to a dialysis patient than anything else during an emergency.

Patients will become critically ill and perish without treatment.
Patient concerns if treatment interrupted by a disaster:

- Heightened sense of fear and confusion
- May be physically weak, dizzy, disoriented
- May have just begun treatment at time of disaster and be anxious about next treatment.
Make shelter personnel aware that dialysis patients have some **very strict** dietary restrictions:

- Low sodium
- Low potassium
- Low protein
- Reduced Fluids
The Emergency Diet

Patients are given and taught about the emergency diet.

The diet reduces the components that would cause problems.

There is a version of the diet for diabetic and non-diabetic patients.
What Shelters Need to Understand

Shelters do not need to provide dialysis treatments

Dialysis patients need a clean space to use for treatments

Dialysis facilities need a supply of clean potable water
Questions?
Please feel free to contact:

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