ESRD Network # 12 Patient Newsletter

Providing kidney patients and their families information on diet, health, and kidney disease.

Volume 1. Fall 2001 Issue 3.

Nephron News & You

Looking at Adequacy

Many recent research studies show that dialysis patients may not get enough dialysis. This article will give you information on adequacy and what you can do to make sure you get enough dialysis.

What is Adequacy??

The important thing to remember is that this minimum amount of dialysis replaces only 10-15% of filtering done by healthy kidneys!

When kidneys function normally, they filter blood non-stop. When a person suffers from kidney failure, dialysis removes the toxins and fluids that build up in a person's blood stream. "ADEQUACY" is the minimum amount of toxins removed during a treatment.

For decades, studies have been conducted on adequacy.
The findings all state that when people did not
receive enough dialysis, they could get sick and die.

Many factors affect your adequacy such as type of access for dialysis, number of uses on your dialyzer, flow rates of blood and dialysate, number of daily exchanges, and others.

Calculating Adequacy

Adequacy is a math formula for deciding how much of the toxins was removed by the dialysis treatment. You take the amount of toxins in your blood at the start of the dialysis treatment and compare it to the amount at the end. The actual formula is below:

$$\frac{\text{PreBUN} - \text{PostBUN}}{\text{PreBun}} \times 100 = \text{URR \%}$$

PreBUN – blood drawn at the beginning of your treatment.
PostBUN – blood drawn at the end of your treatment.

Dialysis Adequacy Word Jumble

Name_____ Facility Number_____

DIERAYZL

33 2

RUEQETFN RASLAM

7 15

NITOX MRVOAEL

23 22 5 26

WOLF TASRE

1 20 18 25

EURA TEGNONIR

6 32 17

HTO PISCED MUR

16 13 28 8 30 21

QODI LIGDENSEIU

29 14 27 3

XEHESNGAC

10

LIATUSF

9 24 11 19

PAHYP HIYSOLDA

12 31 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 ?

Hemodialysis Adequacy

Research shows that patients feel better and live longer when they receive enough dialysis. "Enough" dialysis is a URR greater than or equal to 65%. What exactly does this URR thing mean anyway?

Your blood is drawn at the beginning of a treatment at least once a month. One of the tubes drawn for your monthly labs is for a pre-treatment urea count (evaluation). This tube of blood work is referred to as your PreBUN. BUN stands for Blood Urea Nitrogen level. Urea nitrogen is a breakdown product of protein metabolism. At the end of that same treatment, another tube of blood is drawn; this is called your PostBUN.

URR stands for Urea Reduction Ratio. This is a test that tells your doctor and dialysis staff how well your current prescription is doing to reduce the amount of toxins and wastes in your blood. When your kidneys fail to work properly, this waste product – urea – builds up in your bloodstream. If the urea remains high in your blood, it can cause feelings of nausea, vomiting, light-headedness, low red blood cell count, weight loss, poor appetite, itching, night cramps, and some difficulty sleeping. Some of these symptoms may be related to your lab values as well as your urea reduction ratio. Check with your dialysis staff and dietician about your lab values.

Did You Know?

The best access for hemodialysis is a graft or fistula. The blood flow going to your dialysis machine is almost twice as fast as with using a catheter. What this means to you is you receive the benefit of almost an extra treatment because of more blood is cleaned due to a higher blood flow rate! (See Mr. X's story)

Examining Mr. X

Let us look at a case study of Mr. X over a year's period of time. Mr. X has a catheter in his chest. This is his dialysis access. He currently is refusing to have surgery to place a fistula or graft. We will compare Mr. X to Mr. A. Mr. A has a fistula that was placed 6 months ago and functions well.

We will assume both men weigh the same, gain the same amount of fluid, run the same amount of time on dialysis and use the same type of dialyzer. (We do this to show the only difference in their treatment is the flow of blood from their access.)

Treatment Information	Mr. X	Mr. A	Difference between patients
Minutes on Treatment	240	240	SAME
Blood Flow Rate ml/min	350	500	150 ML/MINUTE
Total Volume Processed per Treatment (in Liters)	84	120	36
Total Volume Processed per Week (in Liters)	252	360	108
Total Volume Processed per Month (in Liters)	1,008	1,440	432
Total Volume Processed per Year (in Liters)	13,104	18,720	5616

What this means is for every treatment Mr. X received, it was only equal to 70% of the treatment Mr. A received. This also means that although Mr. X ran the same amount of time as Mr. A, the difference in blood flow rates alone gives the result that Mr. A is gaining basically 1/3 more treatments a year compared to Mr. X!

How is Network 12 Involved?

Network # 12 is currently performing a study on dialysis adequacy. Our goal is to improve the number of patients that get enough dialysis – a URR greater than 65 %. Network # 12 is working with the dialysis units to improve all patients' adequacy. Network # 12 asks for information from each clinic. We then look at each patient's flowsheet the day the test was drawn. The flowsheet is compared to the orders from your doctor. This information, along with other resource information is given to the clinics. Goals to improve adequacy are then provided to the clinics to assist them in improving adequacy in their clinic. The project is set to end Spring/Summer of 2002.

Did you know that…

☹ ***getting off dialysis even 7 minutes early…***
☹ ***a blood flow less than your doctor ordered…***
☹ ***frequent machine alarms…***
☹ ***using a reused dialyzer with a low fill volume…***
☹ ***a dialysate flow less than your doctor ordered…***
☹ ***a poorly functioning access…***
… will all decrease your URR's!

Network 12's Project & You!

Medicare wants patients and staff to be aware of the need for enough dialysis. The project will also give information on what can happen if patients do not receive enough dialysis. Network # 12 and the dialysis units are working together to improve the amount of dialysis delivered.

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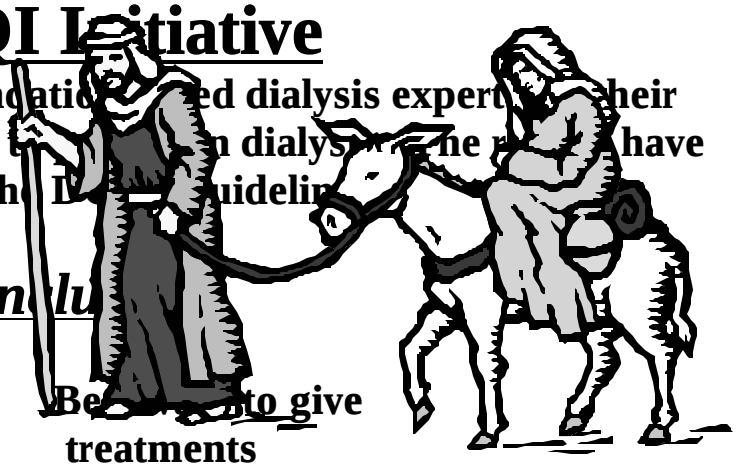
The DOQI Initiative

Recently, the National Kidney Foundation assembled dialysis experts to share their opinions on how to give the best care to patients on dialysis. The results have become known as the DOQI guidelines.



Areas included:

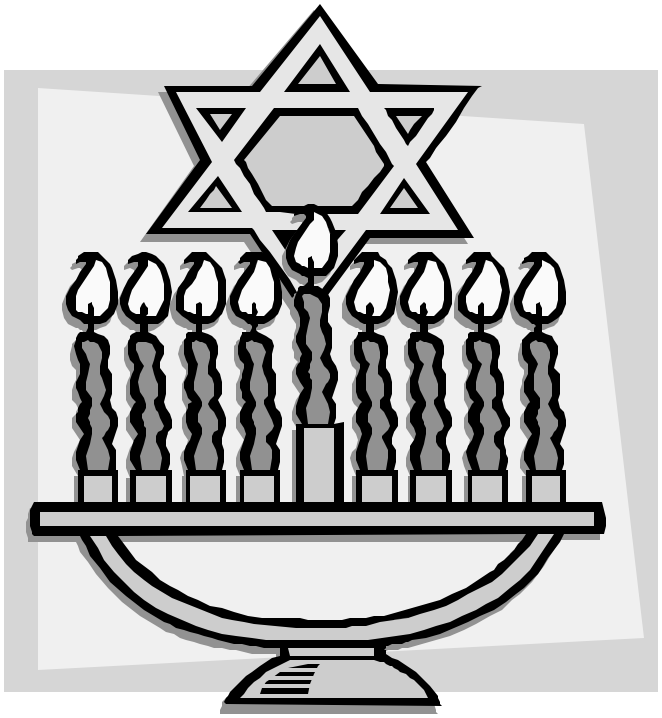
Adequacy of dialysis to give treatments

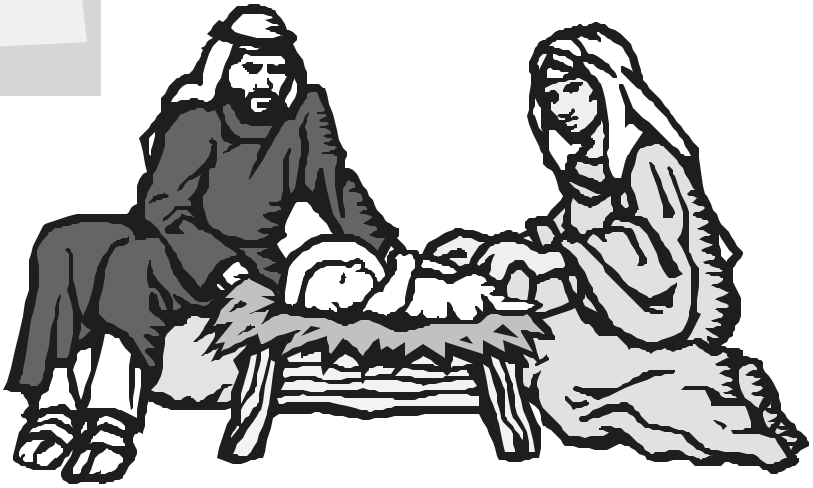
Treatment of anemia

Best types of dialysis accesses

Encouraging use of fistulas

Information on water used in hemodialysis



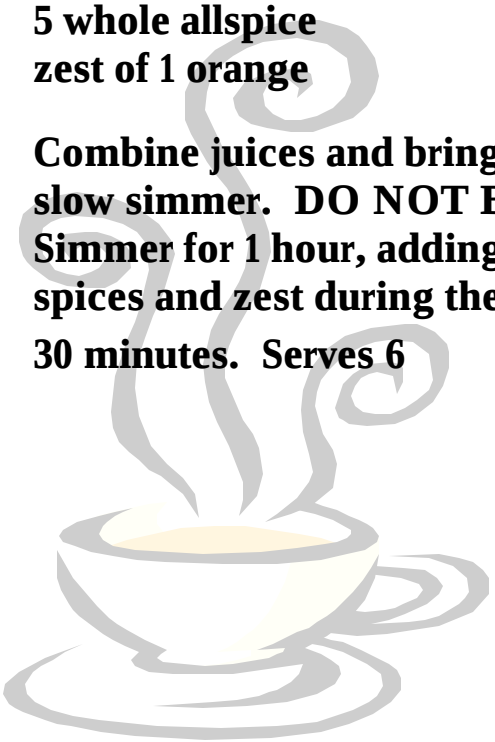


Warming up Autumn Nights

Cozy Cranberry Comfort

48 oz Cranberry Juice
1 large can apple juice frozen concentrate
5 cinnamon sticks
5 whole allspice
zest of 1 orange

Combine juices and bring to a slow simmer. DO NOT BOIL. Simmer for 1 hour, adding the spices and zest during the last 30 minutes. Serves 6



Hot Spiced Rum

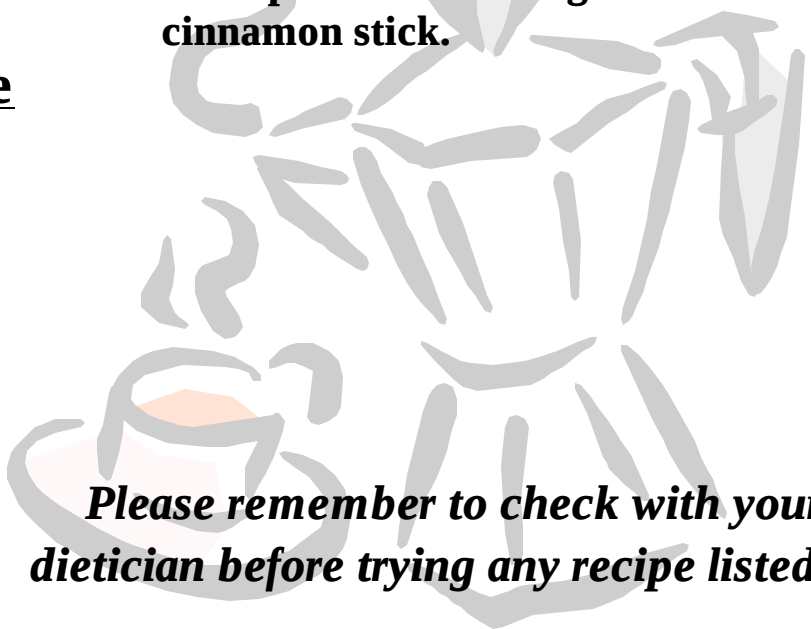
48 ounces apple cider
1 teaspoon rum flavoring
6 cinnamon sticks
3 Tablespoons butter

Bring cider to a slow simmer, add rum just before serving. Pour into 6 mugs, top each mug with ½ tablespoon butter and garnish with a cinnamon stick.

Warm White Chocolate

1 teaspoon vanilla powder
1 teaspoon dried orange zest
½ cup white chocolate chips
3 cups milk

Combine all in saucepan and warm gently so as not to scald milk. Serves 2



Please remember to check with your dietician before trying any recipe listed.

With winter just around the corner and apples in peak season, it's nice to have a few good comfort recipes on hand. This recipe is extracted from "Living Well on Dialysis" Cookbook. As always, please check with your Dietician prior to using any recipe given, as your dietary guidelines may be different.

Apple Cake With Warm Honey Sauce

Serves 9

Directions:

Preheat oven to 350°F. Pour 1/3 cup lemon juice over apples to coat. Set aside. Cream margarine and sugar. Add honey and beat well. Add egg and mix. Sift flour, baking powder, baking soda and nutmeg together and add to margarine mixture. Stir in apples. Pour into a greased 9-inch square baking pan. Bake for 55 to 60 minutes. For sauce, mix cornstarch, honey and water together in a small saucepan. Add lemon peel. Cook over moderate heat for about 5 minutes or until thick, stirring occasionally. Remove from heat and stir in 3 tablespoons lemon juice, margarine and nutmeg.

3-inch Square of Cake With 2 1/2 Tablespoons Sauce Per Serving

Renal and Renal Diabetic Exchanges:

2 Starch, 1 Fat,
1 Low Potassium Fruit,
1 High Calorie

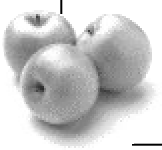
Analysis:

Calories - 335
Carbohydrates - 66
Protein - 4
Fat - 6
Sodium - 172
Potassium - 111
Phosphorus - 93

Cake

Ingredients:

1/3 cup lemon juice
3 cups diced peeled apples
3 tablespoons margarine
1/2 cup sugar
1/2 cup honey
1 egg
2 cups flour
1 teaspoon baking powder
1/2 teaspoon baking soda
1/4 teaspoon nutmeg



Sauce

1/2 cup honey
1/3 cup water
1 tablespoon grated lemon peel
3 tablespoons lemon juice
1 tablespoon margarine
Dash nutmeg
2 1/2 teaspoons cornstarch

Peritoneal Dialysis Adequacy

Let's look at peritoneal dialysis adequacy. The idea about adequacy is the same. PD patients have Kt/V goals similar to a URR. The results depend on what type of PD they are on. Adequacy is checked at least every 4 months. Kt/V is a way of checking adequacy. The current Kt/V goals are listed below:

- **CAPD at least 2.0**
- **CCPD at least 2.1**
- **NIPD at least 2.2**

Your doctor looks at the number of exchanges, dwell times and lab values to make sure you get enough dialysis.

Your doctor may change your exchanges and dwell times based on your lab values.
Doing all exchanges or leaving the fluid in for the specified amount of time is the biggest hurdle in achieving adequate peritoneal dialysis.

What You Can Do To Improve Your Adequacy

According to the latest DOQI Guidelines

Hemodialysis

1. **A good dialysis access is key, a blood flow rate of 350 ml/min or higher is recommended.**
2. **If your adequacy results are low, ask if they can be repeated your next treatment.**
3. **Check your dialyzer to verify the fill volume. (The lower the fill volume, the lower your adequacy will be. This pertains to patients that reuse kidneys.)**
4. **The bigger the person, more time is usually needed on dialysis. (Check with your unit about using 2 dialyzers for each treatment.)**
5. **Poor needle placement can decrease your adequacy. (Request to learn to stick your access yourself.)**
6. **Use different areas of your graft or fistula to extend its life.**
7. **Check your blood and dialysate flow rates each treatment.**
8. **Check with the doctor to see if there is a larger clearance dialyzer.**
9. **Ask for more time on dialysis.**

When most patients begin hemodialysis, part of their kidneys still work. They are able remove toxins and make urine. This can decrease over time, until some patients no longer make urine. When this happens, your doctor can increase your time on dialysis, change dialyzers, or increase blood or dialysate flows.

Happy New Year

What You Can Do To Improve Your Adequacy

According to the latest DOQI Guidelines

Peritoneal Dialysis

1. **Perform all exchanges ordered by your doctor.**
2. **When exchanging your peritoneal fluid, follow the directions of the dialysis staff. (Preventing an infection will preserve the life of the surface that allows you to dialyze. Infections can cause scarring and decrease the filtering ability.)**
3. **Remember, as the amount of urine you make decreases, your doctor may increase the fill volume, number of exchanges, or add an exchange to make sure you are getting enough dialysis.**

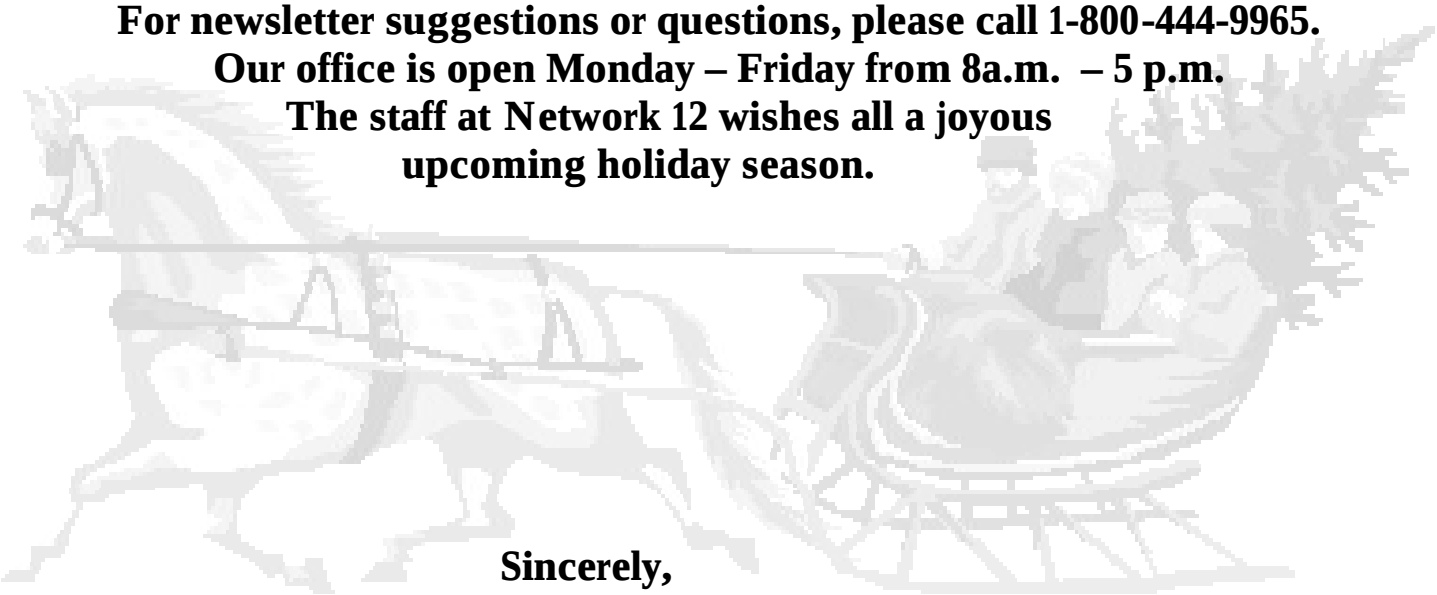
Not following the orders of your doctor reduces your adequacy, and can lead to more hospitalizations.

The last several issues of Nephon News & You have contained a real life story of a patient whose kidney failure started at age 8. Unfortunately, I have not been able to reach Nick since he graduated from college and traveled to Europe. I apologize and will again try to reach him in the near future.

Nephron News is a patient centered newsletter distributed by Network 12 in accordance with the Centers for Medicare & Medicaid Services contract. Network 12 proudly serves the renal community in Iowa, Nebraska, Missouri, and Kansas.

The staff at Network 12 wish to offer our condolences to all patients and caregivers touched by the recent tragedy of the World Trade Centers and the Pentagon. We also recognize our veteran patients and family members.

For newsletter suggestions or questions, please call 1-800-444-9965.
Our office is open Monday – Friday from 8a.m. – 5 p.m.
The staff at Network 12 wishes all a joyous upcoming holiday season.



Sincerely,
Lisa, Sarah, Cathy, Kim, Jeff, Rose, Yolanda, Marilyn, & Glenda

Patient Resource Center

Vocational Rehabilitation Offices

Iowa
www.dvrs.state.ia.us/printer_vr_m&d.html

Nebraska
www.vocrehab.state.ne.us/VR/offices.htm

Kansas
www.srskansas.org/localofficedir.htm

Missouri
www.vr.dese.state.mo.us/vr/co/VRWebsite.nsf/web/VROffices?opendocument

Resources from Network 12

Upon request, Network 12 is available to provide technical assistance and a variety of patient educational materials.

Internet Resources

www.ikidney.com
www.niddk.nih.gov/health/kidney/pubs/kidney-failure/eat-right/eat-right.htm
www.renaladvances.com/index.jsp
http://brumley.com/renal/boards.html
http://nephron.com

Local/National Kidney Foundations

National Kidney Foundation
www.kidney.org
National Kidney Foundation – Iowa Chapter
www.kidneyia.org
(319) 369-4474, (800) 369-3619
National Kidney Foundation – Nebraska Chapter
www.kidneyne.org/teamnebraska
(402) 572-3180, (800) 642-1255
National Kidney Foundation – Kansas & Western Missouri
www.kidneyksmo.org
(913) 262-1551, (800) 444-8113
National Kidney Foundation of Eastern Missouri & Metro-East
www.nkfstl.com
(314) 961-2828, (800) 489-9585