

How to Use *In Control*

Each issue of *In Control* offers background, tips, and patient education material on one issue that is important to living well with kidney disease. The 2-in-1 format of *In Control* is designed to make it easy to find the information and share it with your patients.

For you, there are 4 pages of professional content (pages S1, S2, S7, and S8), along with practical tips for putting key concepts into practice.

For your patients, there are 4 pages (S3–S6) of easy-to-read information. There's also a quiz patients can use to test their knowledge.

We encourage you to make copies of *In Control*. Use it to supplement your own education materials, and call us at (800) 468-7777 if you want to reprint an article. Help your patients get “in control” of their kidney disease.

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Linking CKD and Heart Disease

Many people with chronic kidney disease (CKD) would be surprised to learn that the biggest health risk they face is *heart* disease. But, it's true. In fact, CKD patients are more likely to die of heart disease than to progress to kidney failure.¹

A person with kidney failure is 15 times more likely to die of heart disease than someone without kidney failure,¹ and heart disease is the most common cause of death for people with kidney failure—whether they are on dialysis or have had a transplant.²

Risk Factors

Much of the problem comes from the fact that people with kidney disease often have many risk factors for heart disease as well. According to epidemiologist Josef Coresh, MD of Johns Hopkins University, most CKD patients have a combination of “traditional” and “kidney-specific” risk factors.

Traditional Risk Factors

Some risk factors have been linked with a higher risk of heart disease in the general population. These “traditional” risk factors include:

- Smoking
- High blood pressure
- Obesity
- High cholesterol
- Poorly controlled diabetes
- Older age
- Physical inactivity
- Male gender

- African-American ethnicity
- Previous heart attack

Because diabetes and hypertension are the most common causes of kidney failure in the U.S., it follows that these risk factors are present in many people with CKD. Other traditional risk factors are common among kidney patients as well.

Kidney-specific Risk Factors

Additional heart disease risk factors are the direct result of kidney disease itself and/or dialysis treatments. The link between these risks and heart disease is less well understood, but is very real. “Kidney-specific” risk factors include:

- Anemia
- Inflammation
- Reduced glomerular filtration rate
- Urine protein including albumin
- Abnormal calcium and phosphorus metabolism
- Fluid overload

By definition, people with CKD have many of these problems and often have a history of previous heart attack or stroke. In fact, there is such a strong link between CKD and the risk of heart disease that in 2003 the American Heart Association recommended that patients with CKD be considered members of the ‘highest risk group’ for cardiovascular disease events.³ *In other words, kidney disease itself is a risk factor for heart disease.*

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Project Helps Patients Reduce Heart Disease Risks

A team of Fresenius social workers, led by Lynne LeSage, MSW, MHP, and Mary Beth Callahan, ACSW/LCSW, used a problem-solving intervention designed by Stephanie Johnstone, LCSW to help dialysis patients identify potential problems relating to high blood pressure, help them develop solutions, and reduce their risk factors for cardiovascular disease. Joan Beder, DSW, was the primary investigator for this research project. Here's what they did.

Study Design

Johnstone and her team put together an educational plan with 3 goals, to help patients:

1. Learn about modifiable cardiac risk factors
2. Assess how their behavior affects risk factors
3. Make lifestyle changes

A total of 362 patients from 20 clinics in Dallas and San Diego were enrolled in the study. Eleven clinics and 191 patients received the intervention; 9 clinics and 171 patients comprised a control group that received usual care.

The group planned to meet their goals using a 3-step education intervention process:

Step 1. A 45–60 minute training session (one-on-one or in small groups) was held with patients and family members, if available, and the social worker. During the meeting, the social worker showed a brief educational video, then reviewed key points using a flip chart and handouts. Patients were encouraged to think about a personal wellness plan and learn about the 9 health behaviors to reduce blood pressure, and therefore cardiac risk:

1. Limiting salt
2. Limiting fluids

3. Exercising
4. Taking medications correctly
5. Getting all dialysis treatments
6. Not shortening treatments
7. Managing stress
8. Managing depression
9. Seeking social support

Step 2. Social work follow-up. Each patient had a brief individual meeting with the social worker, and was asked to recall the 9 health behaviors.

Step 3. Patient self-reports. Patients were asked to complete a series of 4 self-reports about physical activity and medication adherence during the 4 months of the study.

Results

The social work team measured results at several levels. First, they assessed the study patients' recall of the 9 messages from the study training session. Even with just 1 presentation, about 2/3 of the patients recalled salt, fluids, exercise, and medications messages (62%–71%); nearly half recalled missing and/or shortening treatment messages (43% and 48%, respectively). Recall was lowest for the 3 messages concerning stress, depression, and support (12%–27%).

Second, they measured self-reported exercise, medication adherence, and missed and shortened treatments.

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New NKF-K/DOQI™ Clinical Practice Guidelines

In April 2005, the National Kidney Foundation (NKF)-Kidney Disease Outcomes Quality Initiative (K/DOQI) will release new Clinical Practice Guidelines for the management of cardiovascular disease in dialysis patients. The new guidelines will give specific recommendations about how to manage and treat cardiovascular disease in this high-risk population.

“We need to recognize that people with ESRD are at high risk for cardiovascular disease,” said Adeera Levin, MD, Chair of the K/DOQI Board of Directors, “and that it is desirable to be aggressive in managing their heart disease.”

The guidelines will be published as a special supplement in the *American Journal of Kidney Diseases*. For more information, visit the K/DOQI website at www.kdoqi.org.

Q & A:

Ask the Experts

An interview with Joseph Eustace, MB, MRCPI, MHS
 Assistant Professor, Departments of Medicine & Epidemiology, Medical Director
 Bond St. Dialysis Unit, Johns Hopkins University Hospital, Baltimore, MD

In addition to his faculty roles, Dr. Eustace is Medical Director of the Johns Hopkins dialysis clinic, supervising the care of 97 hemodialysis patients and 37 peritoneal dialysis patients. He has published numerous articles about kidney disease and the care of people on dialysis.

Q: What is the best way to assess a CKD patient's risk of cardiovascular disease?

A: We know that the incidence of cardiac events is very high in people with CKD, so we already know that risk factors are present in all CKD patients. Therefore, screening is not needed just to determine if these patients are at risk: they *are* at risk. All CKD patients should be treated as though they are at high risk for heart and vascular disease.

An individual assessment of specific risk factors should be part of every CKD patient's medical history, and form the basis for his or her treatment plan. Formal screening tests—including stress testing and angiography—are best used to evaluate patients who exhibit symptoms or have other findings that suggest a more advanced disease process.

Q. How can dialysis patients reduce their risk of heart disease?

A: By making the lifestyle changes that will affect their modifiable risk factors. This is, of course, easy to say, but not so easy for patients to do.

Yet, more than anything else, it is these lifestyle changes that will help reduce their risk of heart disease. For dialysis patients, this means:

- Stop smoking
- Control fluid volume (limit intake, cut back on salt, lengthen dialysis time)
- Watch serum calcium and phosphorus (take binders, follow diet)
- Exercise

Patients who closely follow all the diet, fluid, and exercise recommendations are likely to do much better than those who don't. Unfortunately, most dialysis clinics do not have the staff or resources needed to work closely with every patient in all of these areas.

There is a big opportunity here for the dialysis support team to play a critical role in improving patient health—by encouraging every patient to follow a heart-healthy lifestyle.

Q. Should more dialysis patients be getting treatment with cholesterol-lowering medications?

A: Some research studies have shown that dialysis patients, as a

group, are not getting optimal treatment for elevated cholesterol. In particular, cholesterol-lowering drugs, especially statins, have been underutilized.

The reason may be, in part, because the cholesterol-lowering influences of inflammation and malnutrition in dialysis patients can confuse the interpretation of cholesterol lab results. In fact, some studies have reported an inverse relationship between cholesterol level and CVD mortality in dialysis patients.

However, in a study we did at Johns Hopkins, we were able to show that dialysis patients who had high cholesterol were at higher risk for cardiovascular death. And, those who had lower cholesterol due to inflammation and/or malnutrition did not have a better risk profile for cardiovascular disease.

We have concluded, therefore, that it makes sense to treat elevated cholesterol in dialysis patients with statin therapy. The fact that statins have the additional benefit of reducing systemic inflammation adds further reason to treat dialysis patients. 🌐

(continued from page S1)

Linking CKD and Heart Disease

Reducing Cardiac Risks


The combination of heart disease risk factors and CKD can complicate clinical decisions about how to reduce those risks. “Some of the associations between risk factors and heart disease can be distorted,” noted Coresh. “For example, in a dialysis patient, a reduction in total cholesterol may indicate better control of dietary fats—but it could also be a sign of developing malnutrition.” According to Coresh, interpreting blood pressure readings may also be less straightforward. “A decrease in blood pressure could be the result of either better control—or a weakening (failing) heart,” he pointed out.

Despite difficulties interpreting markers, Coresh (and others) believe it makes sense to treat people with CKD aggressively to reduce their risk of heart disease. “The evidence of the benefits of risk reduction in the general population is so strong,” noted Coresh, “we should start with the attitude that the benefits for CKD patients will be similar, and proceed accordingly while we await clinical trials specific for dialysis populations.”

Undertreatment

Unfortunately, people with CKD are often less likely to get effective treatment to reduce their risk of heart disease.

Several studies have documented a “disturbing underutilization of preventive treatments”³ in patients with CKD. Some researchers believe that a lack of treatment may contribute to dialysis patients’ higher risk of death after a heart attack.

In light of these findings, it is important for both patients and their care providers to be aware that heart disease is the major cause of death for CKD patients and to take preventive action. (See *Ask the Expert*, pg. S7, for more about clinical treatment of heart disease.) 

References

1. NKF-K/DOQI. Clinical practice guidelines for chronic kidney disease: Evaluation, classification, and stratification. *Am J Kidney Dis.* 2002; 39(Suppl 1):S204-5
2. U.S. Renal Data System, 2004 Annual Data Report: Atlas of End-Stage Renal Disease in the U.S. NIH, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD
3. Coresh J, Astor B, Sarnak MJ. Evidence for increased cardiovascular disease risk in patients with chronic kidney disease. *Curr Opin Nephrol Hypertens.* 2004; 13(1):73-81

Quiz Answers

1. True
2. True
3. True
4. False. Being *male* is a risk factor for heart disease.
5. False. The diet should be *low* in saturated fats.


Project Helps Patients Reduce Heart Disease Risks

(continued from page S2)

The intervention group had significant improvement over controls in exercise and medication adherence; there were no differences between groups related to missing or shortening treatments.

Finally, the team assessed participants’ blood pressure. The results were gratifying. Over time, the intervention group showed a definite trend toward lower blood pressure, and a greater decrease than the control group: “The rate of decrease in blood pressure for the intervention and control groups after 1 month was 83% and 22%, respectively.”

Hopeful Results

These results offer hope that patients *can* change health behaviors that affect their risk of heart disease. Well-designed, well-timed interventions by trained health care professionals can help them succeed! 

This study was funded by the NKF, Council of Nephrology Social Workers. A full report was published in the Journal of Nephrology Social Work, Vol. 22, May 2003.

Do you have a CQI program with outcomes to share with us? If so, e-mail: duan@meiresearch.org and tell us about it for an upcoming feature!

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Heart Health and Kidney Disease

Limited fluid, a low sodium diet, blood pressure pills—are all a part of kidney disease treatment, but also a big part of keeping your heart healthy. Why? The 2 go hand-in-hand: having kidney problems puts your heart at risk. But if you know what to do, you can lower that risk.

Blood Pressure

Healthy kidneys help control your blood pressure by balancing the fluids in your body and making hormones that control your blood pressure. So when the kidneys fail, your blood pressure is affected.

Keeping your blood pressure in the healthy range is an important part of staying heart healthy with kidney disease. A target range of 120/75 or lower is recommended for people with kidney disease. More than half of people with kidney disease, and 9 out of 10 people with kidney failure, have high blood pressure.

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Why is high blood pressure so dangerous? Having high blood pressure puts you at a greater risk for:

- Heart failure
- Stroke
- Heart attack
- Blindness
- Kidney failure (if you're not on dialysis)

Left ventricular hypertrophy (LVH), a common type of heart failure, is the leading cause of death for people on dialysis. LVH is worsened by having anemia—a shortage of oxygen-carrying red blood cells. In LVH, the heart muscle grows too big, trying to get more oxygen through your body.

Risk Factors

Having kidney disease is *itself* a risk factor for heart disease, and there are some other factors you cannot control—older age, being a male, and/or being African-American. But there are some things you *can* control:

- Lowering your cholesterol by eating a diet low in saturated fats, which are solid at room temperature
- Getting regular exercise
- Losing weight
- Reducing salt in your diet

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Self Control Leads to a Healthy Life on Dialysis

Ten years ago, Jerry was a typical American man. Married with three children, he worked full-time as a truck driver, was overweight, smoked, and rarely exercised. Today, 100-pounds lighter, 68-year-old Jerry has retired, stopped smoking, and exercises several times a week—when he is not on in-center hemodialysis. Kidney failure, heart disease, and diabetes inspired Jerry to make life changes that help him stay as healthy and active as he can.

Health Issues Lead to Exercise

In 1995, during a work physical, 300-plus pound Jerry was diagnosed with type 2 diabetes. He began taking an oral drug to treat the diabetes, but had no other health concerns. He recalls, “My blood pressure was about 140 over 90 or so, but I didn’t take any drugs for that.” In 1999, Jerry had a stroke. During angioplasty and stent placement surgery, shards of cholesterol broke away and traveled to his feet and kidneys. “My kidneys were destroyed and I lost a toe,” relates Jerry, “I started in-center hemodialysis and have been on it ever since.”



Jerry then had a minor heart attack, and a major one several months later. After the second heart attack he got serious about losing weight and began cardiac rehabilitation on Tuesdays and Thursdays—his dialysis “off” days. “I went down to 265 pounds or so, and then had an abdominal aneurysm which *really* dropped my weight,” explains Jerry. Insurance paid for the rehab at first, but soon stopped. Jerry’s wife of 49 years, Janet, knew he needed to keep going. “Cardiac rehab is very important for Jerry—he wouldn’t be here without it!” she stresses. “We pay for it ourselves even though we are on a limited income.”

The second heart attack was also a warning call for Jerry to stop smoking. “I smoked 2–3 packs a day for nearly 50 years,” says Jerry. “I had tried to stop smoking several times, but always cheated. After the second heart attack, I stopped cold turkey.”

Making Heart-healthy Choices

Besides exercise, Jerry’s health problems required changes to his eating habits. “The biggest problem for me was that I eat

very well and Janet is a super cook,” admits Jerry. “It was hardest to give up things we really liked, such as cheese and milk.” Janet has decided to support her husband by adopting the same meal plan.

Low-fat meats and lots of vegetables are the staple of Jerry


and Janet’s diet these days. “We eat fat-trimmed meat or a chicken breast every day, as well as lots of salads, vegetables, and low-potassium fruit,” says Janet. “We start every day by sharing a small grapefruit—it’s controversial, but our pharmacist and doctor said it was okay as long as Jerry took his pills later in the day. It really helps with the craving for orange juice!” Janet and Jerry also stay away from dairy substitutes like non-dairy creamers, due to their high fat content. “Sometimes I will use low-fat cheese or skim milk in cooking, but rarely,” shares Janet. “If I *need* to use a fat in cooking, I use only canola margarine or oil.”

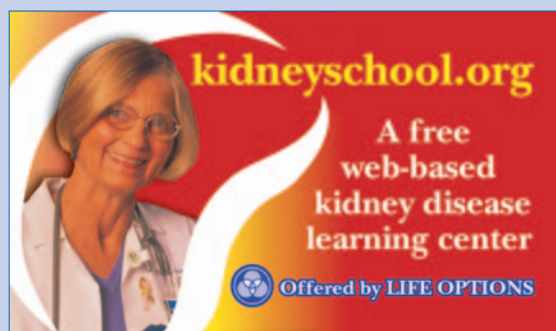
Having a daily fluid limit of 1 liter is a challenge for Jerry, but he knows why it’s so vital. “When I first started dialysis, they would take off 5 kilos of fluid, but now I’m down to 3-4 kilos,” he says. “If I have too much fluid I can tell because my hands swell up right away—twice I was rushed to the hospital with fluid in my lungs.” Now, when Jerry craves fluids, he sucks ice cubes, chews ice, and sometimes has a piece of hard candy. “I do rarely cheat and Janet gets mad at me,” confesses Jerry, “but I know if she wasn’t here, I wouldn’t be here either.”

Feeling Great and Staying Active

These days, there is a big change in how Jerry feels compared to when he first started dialysis. “I feel comfortable and fit after exercising, and my blood pressure

is steady. After dialysis, my blood pressure is much lower than it was,” says Jerry. “I no longer come home from dialysis and lie down for the night.” Exercise and paying attention to diet and fluids have also had a real impact on Jerry’s lab values, including his cholesterol, and blood sugar. In fact, his blood sugar has “corrected itself” to the point that Jerry is now off of his diabetes drugs.

Jerry and Janet continue to garden, walk a lot on the weekends, and visit with their children and grandchildren. “When I started dialysis, I had to grit my teeth and say ‘it’s not going to get any better than this, it doesn’t hurt, and it takes just 15 hours a week,’” recalls Jerry. “Now, 5 years later, I don’t feel I’m missing a lot: I eat good food and I enjoy exercise. You have to stay positive!” 



For More Information...

For more information about heart health and kidney disease, visit: Kidney School Module 13: *Heart Health, Blood Pressure and Fluids* at www.kidneyschool.org.

Kidney Disease and Heart Health *(continued from page S3)*

- Quitting smoking
- Limiting alcohol consumption
- Taking blood pressure medicine as prescribed
- Reducing stress
- Controlling diabetes by testing blood sugar as recommended, taking your medicine, and following your meal plan
- Staying within fluid limits
- Controlling anemia

The Challenge

Kidney disease brings with it many risks and challenges—including heart problems. But you *can* do something about it! With determination and lifestyle changes, you can go on to live well with kidney disease and a healthy heart. 🍌

For More Information...

If you'd like to learn more about keeping your heart healthy, check the following resources:

- Kidney School Module 13: *Heart Health, Blood Pressure, and Fluids*, available at www.kidneyschool.org.
- *High Blood Pressure and Your Kidneys; High Blood Pressure: A Look at the Causes; High Blood Pressure: How Is It Treated?; High Blood Pressure: The Role of the Family; and Living with High Blood Pressure: An Introduction*, available from the National Kidney Foundation website at www.kidney.org/general/atoz/.
- *High Blood Pressure and Kidney Disease* (fact sheet), available from the National Kidney and Urologic Diseases Information Clearinghouse website at www.niddk.nih.gov.
- *High Blood Pressure and Its Effect on the Kidneys*, available from the American Kidney Fund by calling (800) 638-8299.

You can also go to the following websites:

- American Heart Association at www.americanheart.org
- Heart Failure Society of America at www.abouthf.org
- National Heart, Lung, and Blood Institute at www.nhlbi.nih.gov/

Heart Health Quiz

Now that you've read about kidney disease and heart health, let's see how much you've learned! See if you can answer the questions below (the answers are on page S8).

1. Having kidney problems puts the heart at risk and affects blood pressure. True False
2. The target blood pressure range for people with kidney disease is 120/75 or lower. True False
3. LVH is the leading cause of death for people on dialysis. True False
4. Being female is one of the risk factors for heart disease. True False
5. Eating a diet high in saturated fats will help to lower your cholesterol and lower your risk of heart disease. True False

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