Diet Counseling for People with Diabetes and Kidney Disease

Tuesday, May 20, 2014
1-2 PM ET (12-1 PM CT)

Sponsored by the National Diabetes Education Program and the Diabetes Care and Education Practice Group of the Academy of Nutrition and Dietetics

NDEP / DCE Partnership

Ann Constance, MA, RD, CDE
NDEP Liaison for DCE

Partnership Activities:

- Organizing joint webinars
- DCE co-brands and promotes NDEP publications
- DCE featured in NDEP's December 2013 Partner Spotlight

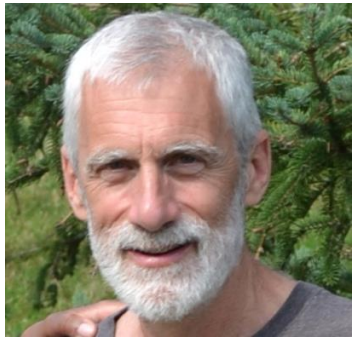
Diabetes Care and Education
a dietetic practice group of the
Academy of Nutrition and Dietetics

Webinar Logistics

- All lines are muted
- Two ways to ask questions during Q&A period:
  1. Type your question into the question section and we will read your question aloud.
  2. Click the “raise hand” icon and we will call your name and unmute your line allowing you to ask your question.

Presenter

Andrew S. Narva, MD
Director
National Kidney Disease Education Program
National Institutes of Health



Diet Counseling for People with Diabetes and Kidney Disease

Diabetes Care and Education Practice Group
Academy of Nutrition and Dietetics

Andrew S Narva, MD
National Kidney Disease Education Program

U.S. Department of Health and Human Services
National Institute of Health

NIDDK | NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES

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Objectives

- Burden of kidney disease due to DM (DKD) in US
- Laboratory tests for identifying and monitoring DKD and assessing risk for progression
- Interventions to slow progression of DKD
- NKDEP tools for dietitians

CKD is reduced kidney function and/or kidney damage

- Chronic Kidney Disease
  - Kidney function
    - Glomerular filtration rate (GFR) < 60 mL/min/1.73 m^2 for ≥ 3 months with or without kidney damage

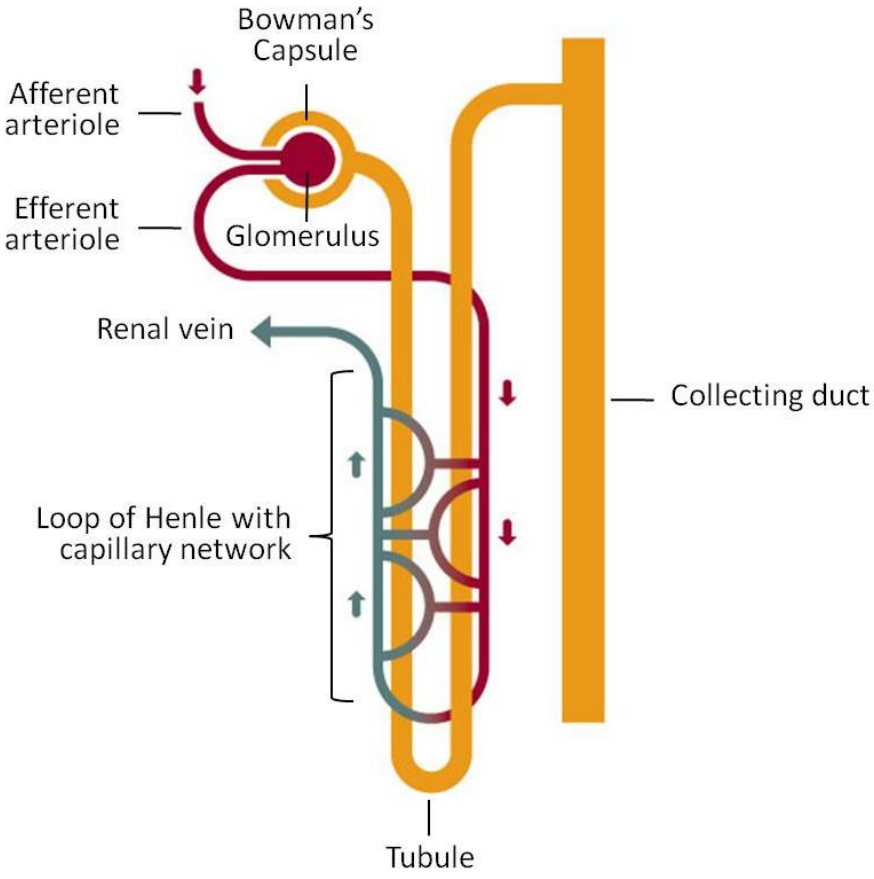
AND/OR

  - Kidney damage
    - ≥ 3 months, with or without decreased GFR, manifested by either
      - Pathological abnormalities
      - Markers of kidney damage, i.e., proteinuria (albuminuria)
        - » Urine albumin-to-creatinine ratio (UACR) > 30 mg/g

NKDEP National Kidney Disease Education Program

Reference: National Kidney Foundation. K/DOQI Clinical Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification and Stratification. American Journal of Kidney Diseases. 2002; 39: (Suppl 1) S18.

CKD usually means fewer functioning nephrons



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Each kidney has about 1 million nephrons; slow loss may not be noticeable

- We have a large physiologic reserve.
- Slow, progressive loss of functioning nephrons may not be noticeable.
- The person with CKD may not feel different until more than three quarters of kidney function is lost.

"Normal" serum creatinine may not be normal

- Serum creatinine levels reflect muscle mass, age, gender, race
- A typical "normal" reference range of 0.6–1.2 mg/dL listed on many lab reports does not account for muscle mass, age, gender, and race.
- A 28-year-old African American man with serum creatinine of 1.2 has an *eGFR > 60*.
- A 78-year-old white woman with serum creatinine of 1.2 has an *eGFR of 43.*

Use an estimating equation for eGFR

- The Modification of Diet in Renal Disease (MDRD) study equation is widely used for estimating GFR.
- The variables are serum creatinine, age, race, and gender.
- The estimate is normalized to body surface area.

$$\text{eGFR (mL/min/1.73 m}^2) = 175 \times (S_{cr})^{-1.154} \times (\text{Age})^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African American})$$

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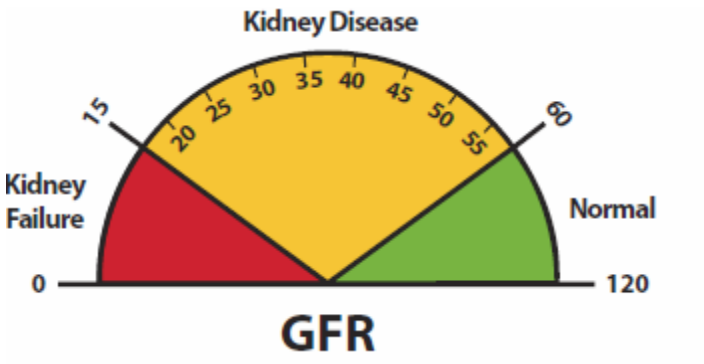
Reference:
Stevens et al. *J Am Soc Nephrol* 2007; 18:2749-2757; Poggio et al. *Am J Kid Dis* 2005; 46:242-252; Verhave et al. *Am J Kid Dis* 2005; 46:233-241

What is the glomerular filtration rate (GFR)?

- GFR is equal to the sum of the filtration rates in all of the *functioning* nephrons.
- GFR is not routinely measured in clinical settings.
- Estimation of the GFR (eGFR) gives a rough measure of the number of functioning nephrons.
- **eGFR <u>estimates</u> the measured GFR**
- eGFR is **not** the measured GFR.

How to explain eGFR results to patients

- Normal: $\geq$ 60 mL/min/1.73 m^2
- Kidney disease: 15–59 mL/min/1.73 m^2
- Kidney failure: < 15 mL/min/m^2



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Urine albumin is a marker for kidney damage

- Urine albumin measures albumin in the urine.
- An abnormal urine albumin level is often the earliest marker for kidney disease complicating diabetes
- Urine albumin is a marker for cardiovascular disease and is a hypothesized marker of generalized endothelial dysfunction.

Urine albumin results are used for screening, diagnosing, and treating CKD

- Standard of diabetes care (annual screen)
- Diagnosis
  - Forty percent of people are identified with CKD on the basis of urine albumin alone.
- Prognosis
  - Important prognostic marker, especially in diabetes mellitus (DM)
  - Used to monitor and guide therapy
- Tool for patient education and self-management (such as A1C or eGFR)

Use urine albumin-to-creatinine ratio (UACR) for urine albumin assessment

- UACR uses a spot urine sample.
- In adults, ratio of urine albumin to creatinine correlates closely to total albumin excretion.
- Ratio is between two measured substances (not dipstick).

Urine albumin (mg/dL) = UACR (mg/g) ≅ Albumin excretion in mg/da
Urine creatinine (g/dL)

- UACR of 30 mg/g is generally the most widely used cutoff for "normal."

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Reference: http://nkdep.nih.gov/resources/uacr_gfr_quickreference.htm

UACR quantifies all levels of urine albumin

- UACR is a continuous variable.
- The term albuminuria describes all levels of urine albumin.
- The term microalbuminuria describes abnormal urine albumin levels *not* detected by dipstick test.
  - 30 mg/g – 300 mg/g
- The term macroalbuminuria describes urine albumin > 300 mg/g.

Explaining urine albumin

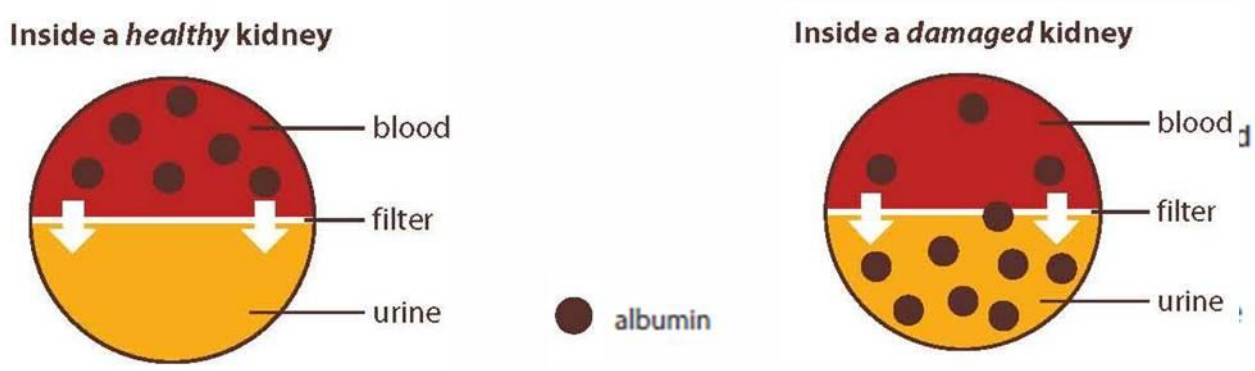
Your urine albumin result on _____ was _____.
Date

☐ A urine albumin result *below 30* is normal.

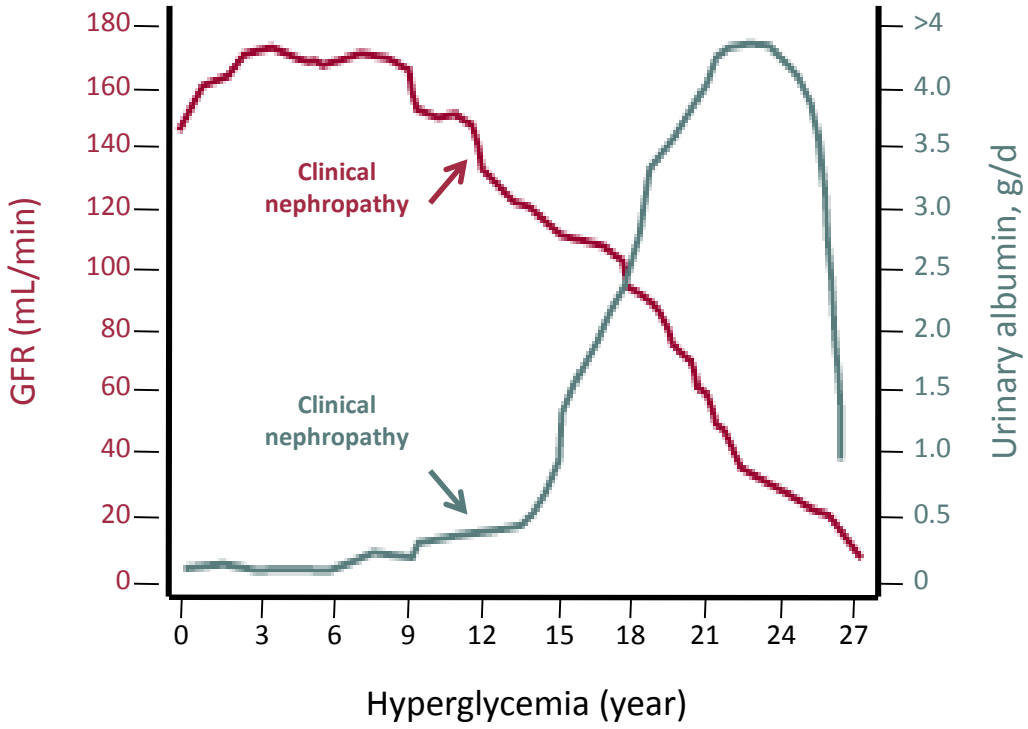
☐ A urine albumin result *above 30* may mean kidney disease.

What is urine albumin?

Albumin is a protein found in the blood. A healthy kidney does not let albumin pass into the urine. A damaged kidney lets some albumin pass into the urine. The less albumin in your urine, the better.



Natural history of diabetic nephropathy: hyperglycemia causes hyperfiltration, may be followed by albuminuria



Reference: Adapted from Friedman, 1999

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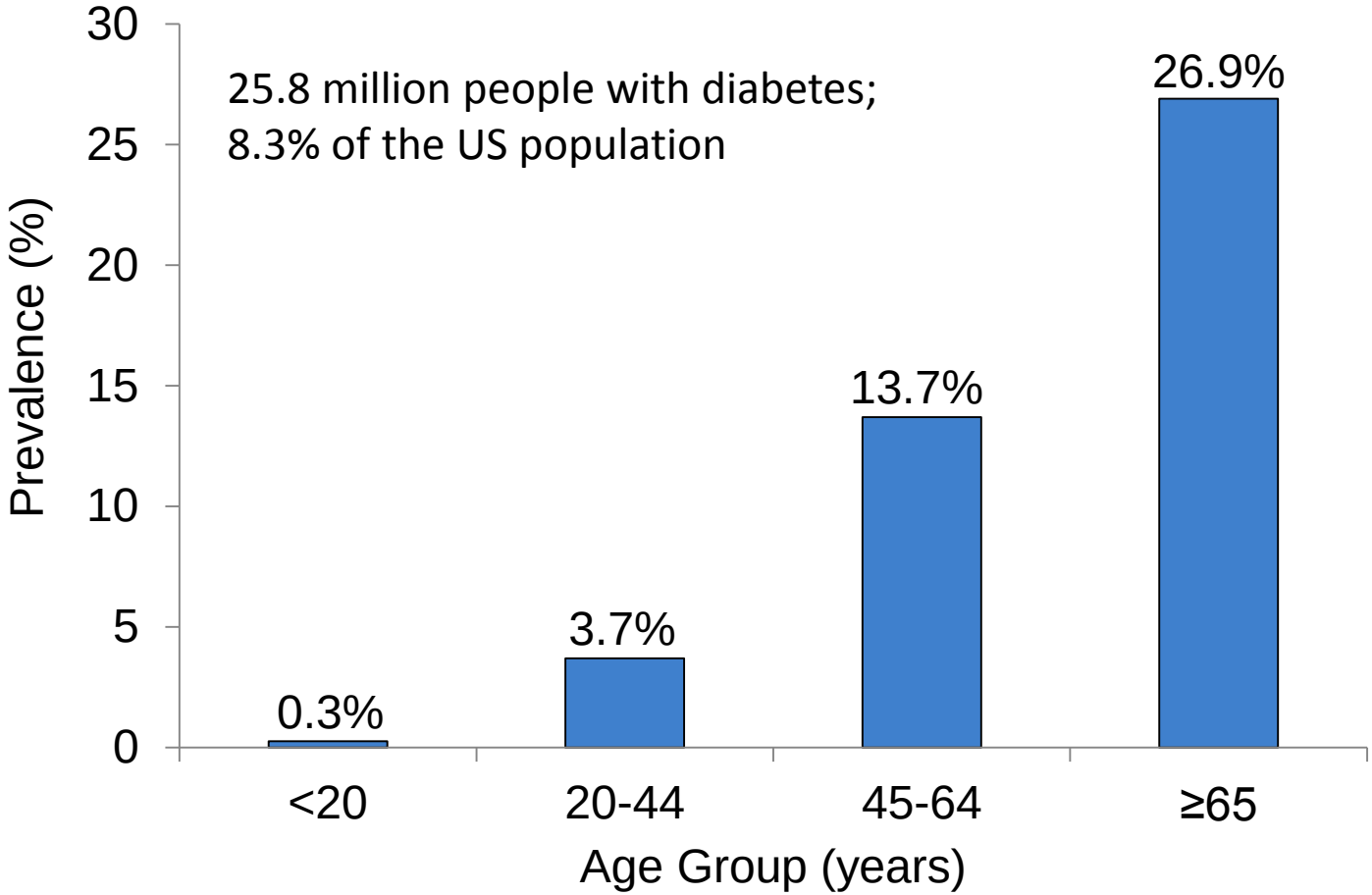
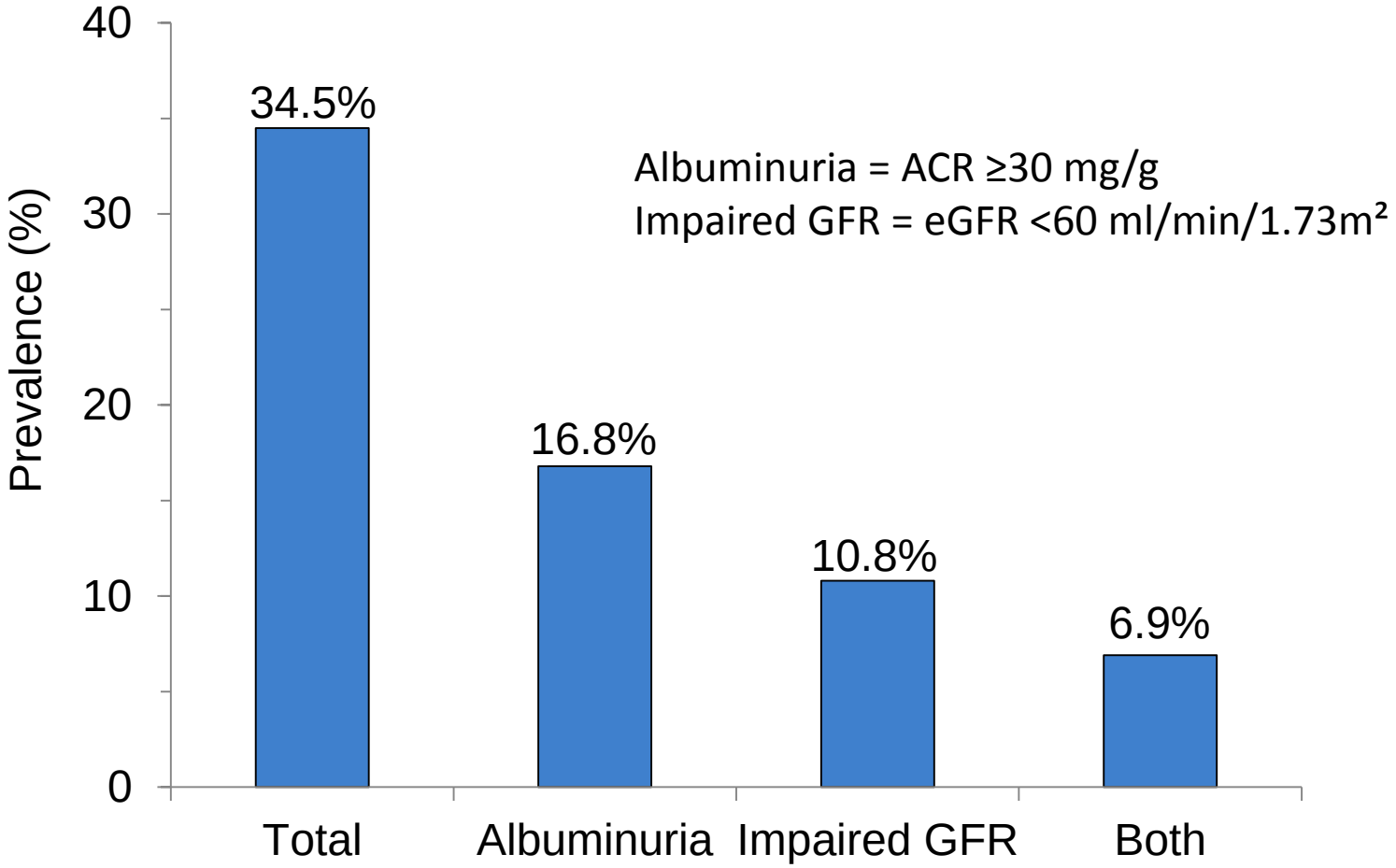
Prevalence of Diabetes; United States, 2005-2008



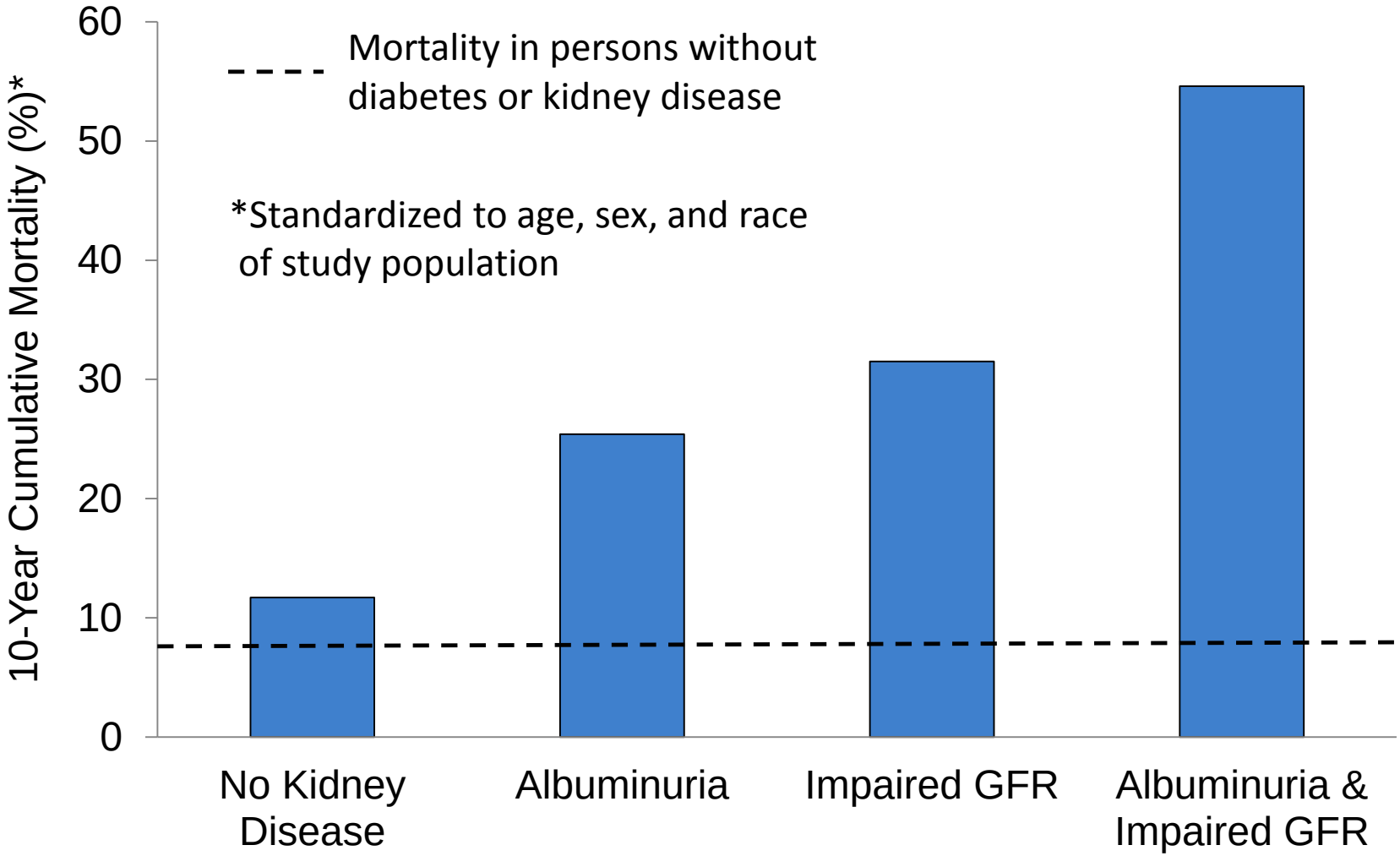
2005-2008 National Health and Nutrition Examination Survey
2011 National Diabetes Fact Sheet

Prevalence of Diabetic Kidney Disease (DKD) Among Adults with Diabetes; United States, 2005-2008



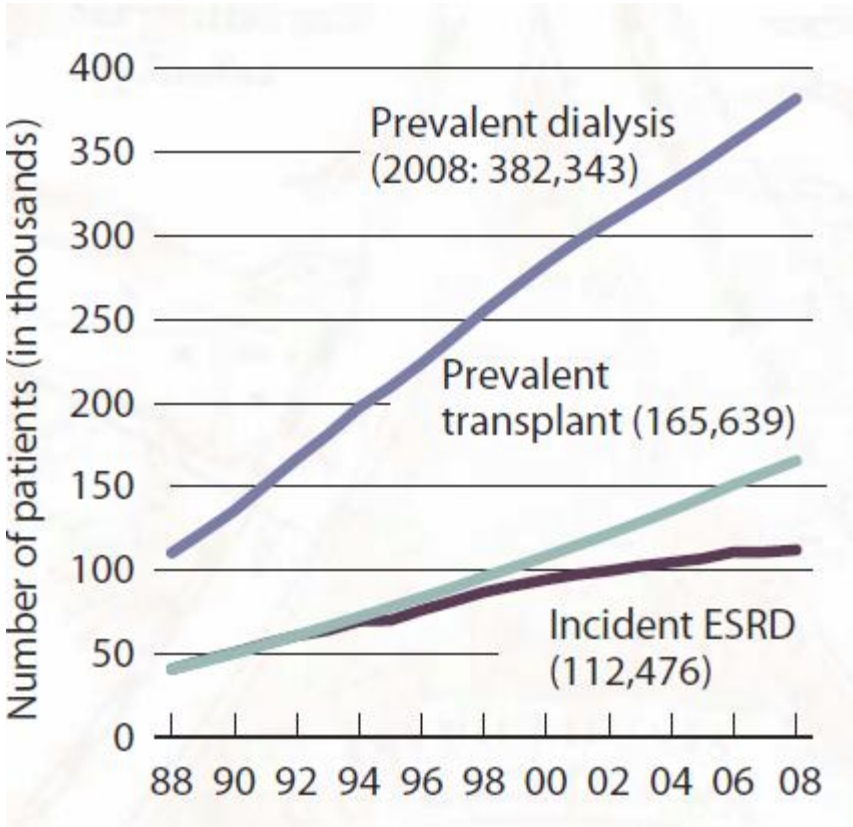
JAMA 305:2532-2539, 2011

10-Year Mortality in Type 2 Diabetes in the United States



J Am Soc Nephrol 24:302-308, 2013

ESRD Patient Counts, by Modality 2008



- Prevalent dialysis population
  - Increased 3.6% in 2008
  - Up 34.7% since 2000
- Transplant population
  - Increased 4.4% in 2008
- Incident population
  - Increased 1.4% in 2008

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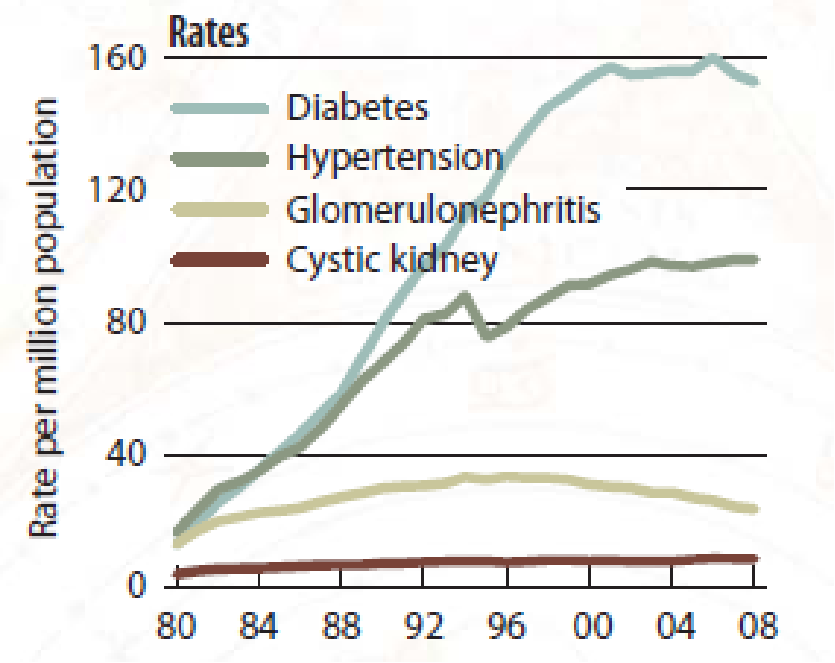
Reference: U.S. Renal Data System, USRDS 2010 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2010.

Diabetes is the leading cause of ESRD, followed by hypertension



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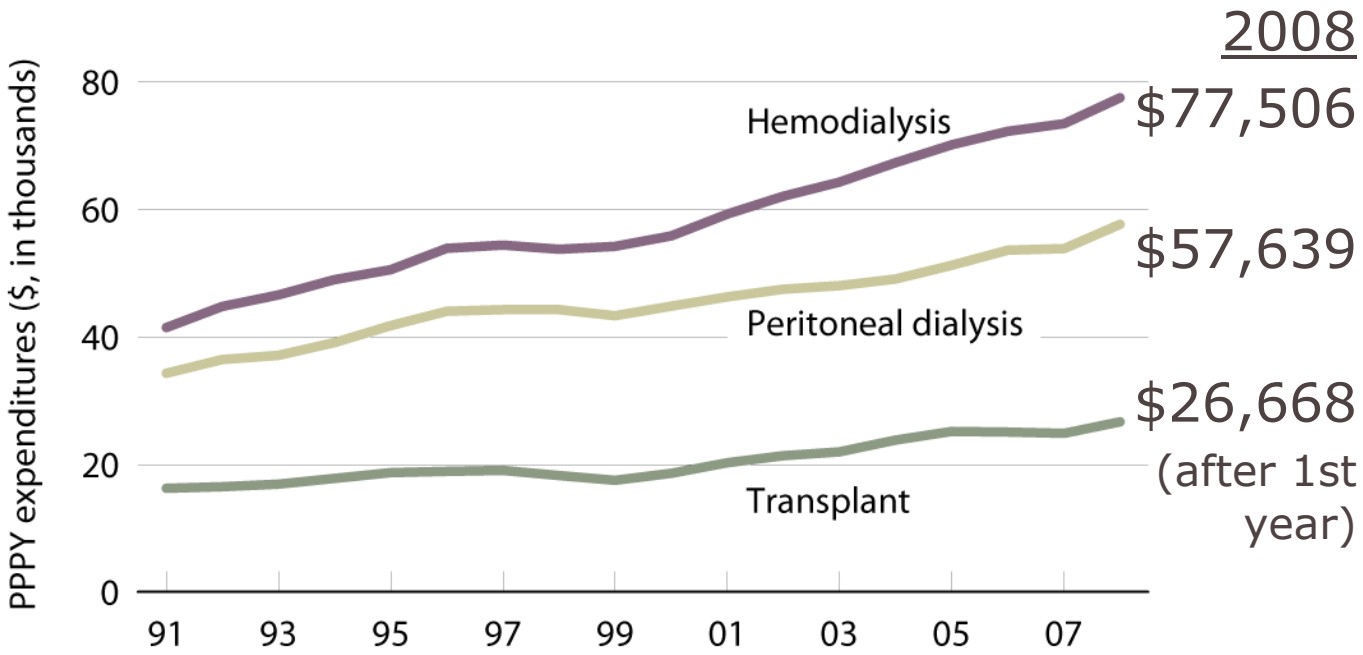
Reference: USRDS Annual Data Report (NIDDK, 2010)

Delaying the need for Renal Replacement Therapy (RRT) may be cost-effective.

Total Medicare ESRD expenditures, per person per year (PPPY)



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Reference: USRDS *Annual Data Report* (NIDDK, 2009)

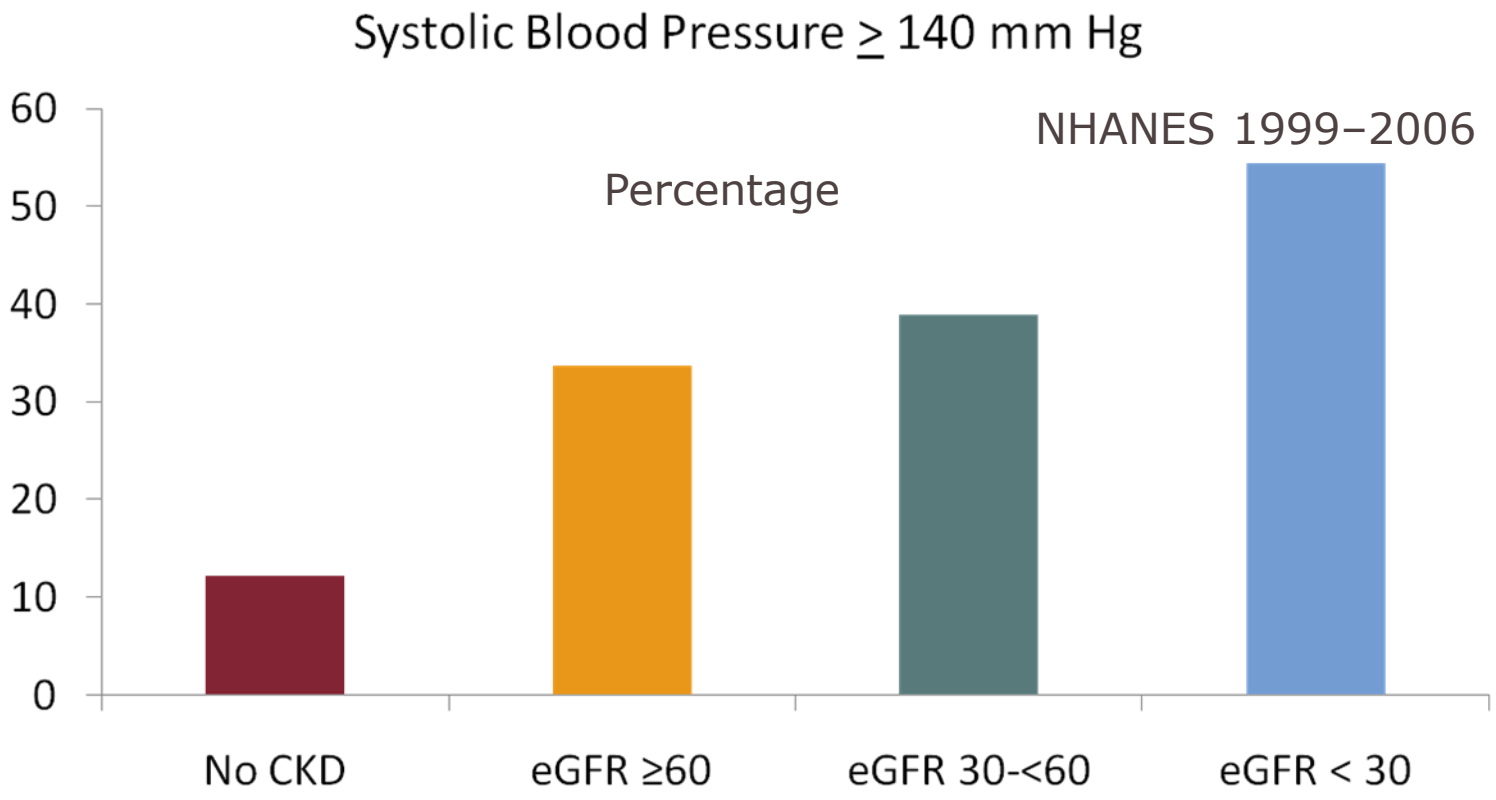
Key Issues in Managing DKD

- Ensure the diagnosis is correct
- Monitor progression
- Implement appropriate therapy to slow progression
- Screen for CKD complications
- Educate the patient about CKD
- Prepare appropriately for kidney failure

Therapy to Slow Progression

- Hypertension
- Diabetes
- Urine Albumin
- CVD Risk Factors

Blood pressure is poorly controlled in people with CKD



Reference: Adapted from USRDS 2009 *Annual Data Report*

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Individualized blood pressure goals in CKD

- Target of < 140/90 mmHg endorsed by JNC 8.
- Uncontrolled hypertension (systolic blood pressure ≥ 160) is a major challenge.
- Issue of BP goal with elevated albuminuria unresolved.

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Reference: Chobanian et al., 2003; Jafar et al., 2003

ACEi and ARBs are renoprotective

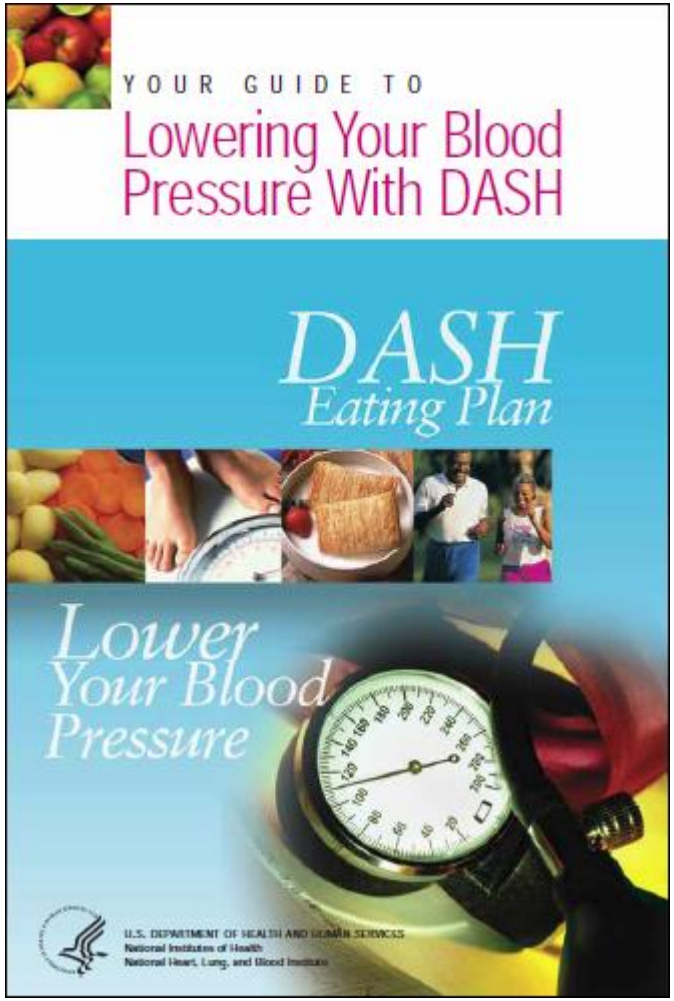
- Effects are beyond blood pressure control.
- Reduce protein in the urine.
- Sometimes these medications are prescribed to lower urine albumin levels in normotensive people.
- Small increase in creatinine may reflect efficacy

Reference: Chobanian et al., 2003; Strippoli et al., 2010; Kunz et al., 2008

Potassium restriction is not indicated in the absence of hyperkalemia

- Specific level of eGFR does not determine need for dietary potassium restriction.
- Restriction is to help achieve and maintain a safe serum potassium level ($\leq$ 5 mEq/L).
- The level of potassium restriction should be individualized.

The DASH diet lowers blood pressure in the general population



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Reference: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf

The DASH diet may help prevent CKD, but it is not generally used with CKD

- DASH and DASH-Sodium patterns lower blood pressure.
- The lowest sodium level is the most effective, even with the usual (control) diet.
- The DASH pattern *may* be too high in protein, potassium, and phosphorus for CKD.

Hyperglycemia is associated with hyperfiltration

- Hyperfiltration
  - The initial response to hyperglycemia is an increase in GFR, followed by slow decline.
- Hypertrophy of glomerulus and tubule
  - Nephrons may be damaged or destroyed.
- Diabetic kidney disease generally, but not always, associated with progressive albuminuria.
  - Monitor eGFR and UACR.

Reference: Molitch et al., 2010; Retnakaran et al., 2006

Treating Hyperglycemia in Patients with Chronic Kidney Disease

- Hyperglycemia harms kidneys.
- Intensive glycemic control increases the risk of severe hypoglycemia.
- Evidence that intensive glycemic control reduces the kidney complications of diabetes is based almost exclusively on prevention of micro- and macroalbuminuria.
- The benefits of intensive glycemic control must be balanced against the potential harm of this intervention.
- Hypoglycemia may be a sign that kidney disease has progressed

Good glycemic control early may reduce CKD later

- There is evidence that control of newly diagnosed diabetes may help prevent CKD.
  - Type 1 diabetes (DM 1)
    - Diabetes Control and Complications Trial (DCCT)
  - Type 2 diabetes (DM 2)
    - United Kingdom Prospective Diabetes Study (UKPDS)

A1C goal is individualized in CKD

- Goal for the general population
  - A1C < 7%
- Less stringent goal may be appropriate for:
  - Frequent severe hypoglycemia
  - Limited life expectancy
  - Advanced microvascular (CKD) or macrovascular complications

Reference: Diabetes Care, (suppl 1) 2011

Spontaneous improvement and/or increased frequency of hypoglycemia may indicate CKD is progressing.

High protein diets are not recommended for DKD

- Dietary protein may increase GFR and renal blood flow rates. Animal protein may have greater effect than plant protein.
- Dietary protein is a source of nitrogen, phosphorus, potassium, and metabolic acids that need to be filtered and excreted by the kidneys.
- Animal protein intake may be a risk factor for increased urine albumin excretion in hypertension *and* diabetes.

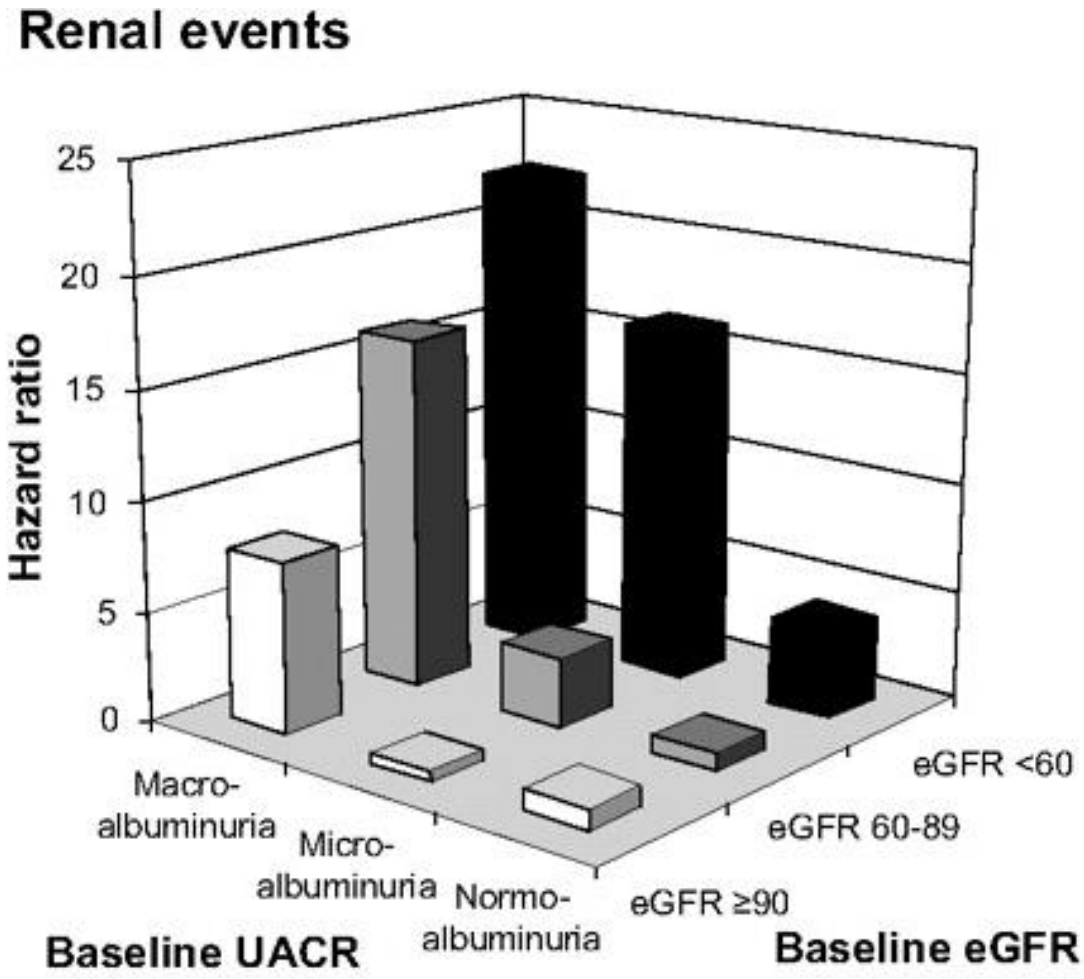
Reference: Friedman, 2004; Bernstein et al., 2007, Wrone et al., 2003

Level of protein for DM and CKD may mean avoiding excessive intake

- RDA = 0.8 g protein/kg body weight (wt)
- American Diabetes Association (2008) recommendations:
  - Normal kidney function: 15–20% protein calories (usual)
  - Early CKD: "reduction" to 0.8–1.0 g/kg body wt
  - Advanced CKD: 0.8 g/kg body wt
- American Dietetic Association Evidence Library for Chronic Kidney Disease (accessed 2/4/2011)
  - 0.8–0.9 g/kg body wt
  - Protein-restriction may improve urine albumin (albuminuria)

Reference: Diabetes Care, 2008

Effect of DKD on the Risk of Renal Events in ADVANCE

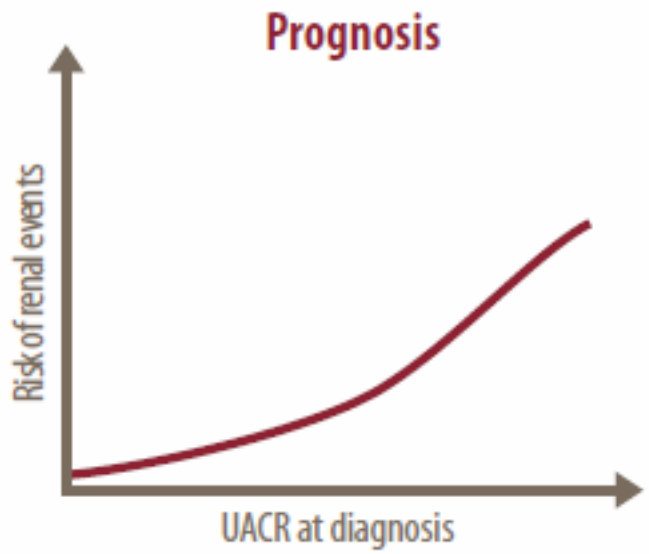


HR = 22.2 (95% CI 7.6-64.7)

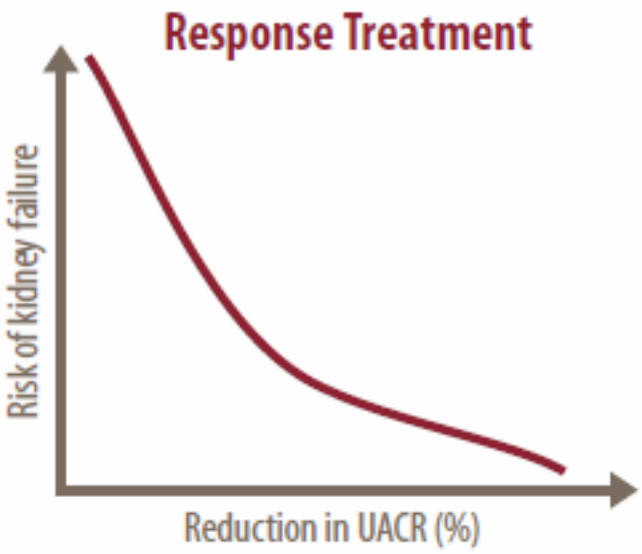
J Am Soc Nephrol 20:1813-1821, 2009

Elevated UACR is associated with risk of renal events; lowering UACR may lower risk of progression

Chronic Renal Insufficiency Cohort Study



RENAAL



Renal events = loss of half of eGFR, dialysis, or death

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Reference: NIH, February 2010; De Zeeuw et al., 2004

Interventions for reducing urine albumin

- Control blood pressure
- Reduce sodium intake
- Achieve good control of diabetes early; may help prevent albuminuria
- Reduce weight (if obese)
- Reduce protein intake, if excessive
- Achieve tobacco cessation

Intentional weight loss is associated with decreased proteinuria

- Literature review showed weight loss was associated with decreased proteinuria.
  - Dietary restrictions
  - Exercise
  - Anti-obesity medications
  - Bariatric surgery
- No data to evaluate effect on CKD progression.

Reference: Afshinnia et al., 2010

Reducing sodium intake may reduce urine albumin levels

- Higher sodium intake is associated with increased urine albumin excretion.
- In a 2006 literature review, increasing salt consumption was associated with worsening urine albumin.

Reference: Verhave et al., 2004; Jones-Jones-Burton et al., 2006

CVD is the leading cause of morbidity and mortality in people with CKD.

CARDIOVASCULAR DISEASE

CKD complications are nontraditional risk factors for CVD

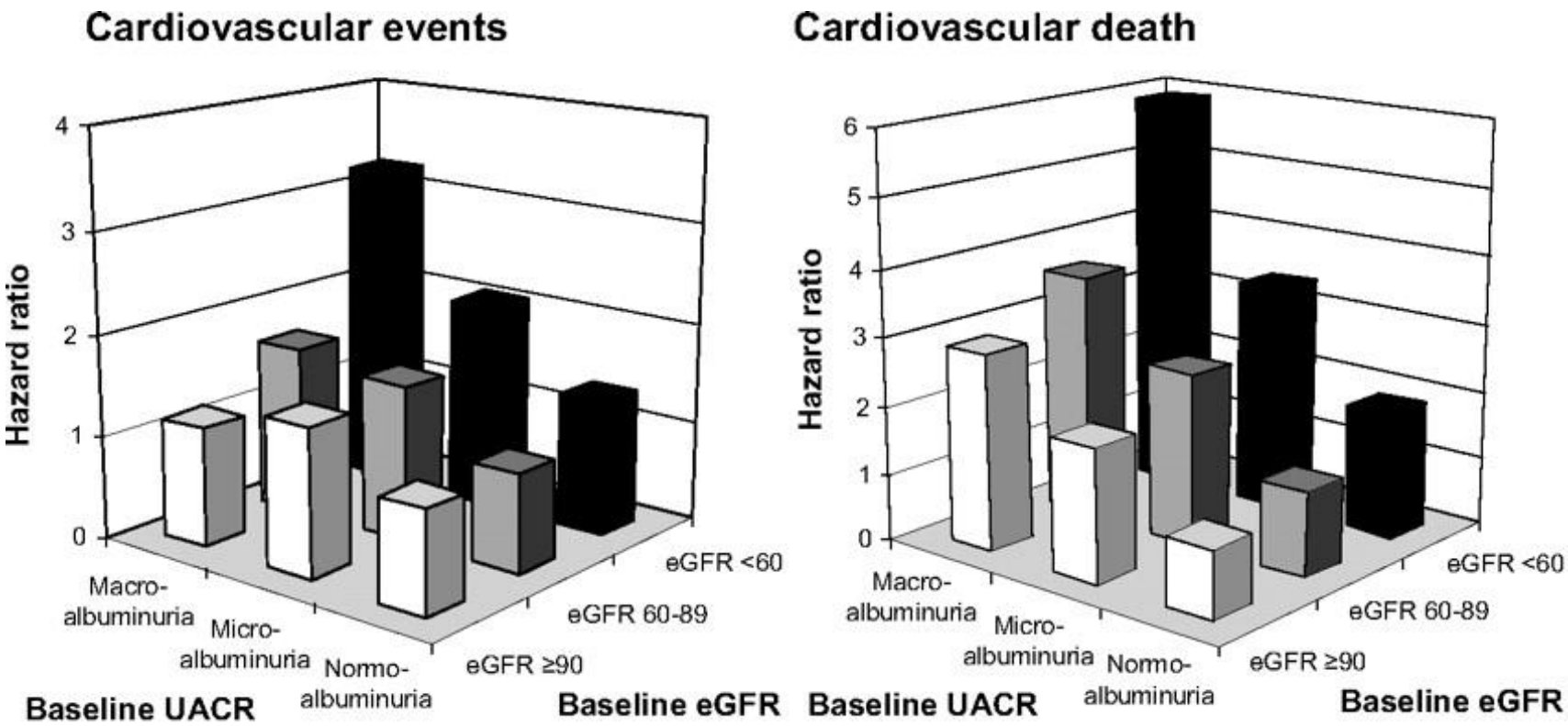
Traditional risk factors

- Hypertension
- Diabetes
- Dyslipidemia
- Smoking
- Age
- Inflammation

Nontraditional risk factors

- Albuminuria
- Anemia
- Abnormal metabolism of calcium and phosphorus

Effect of DKD on the Risk of Cardiovascular Disease in ADVANCE

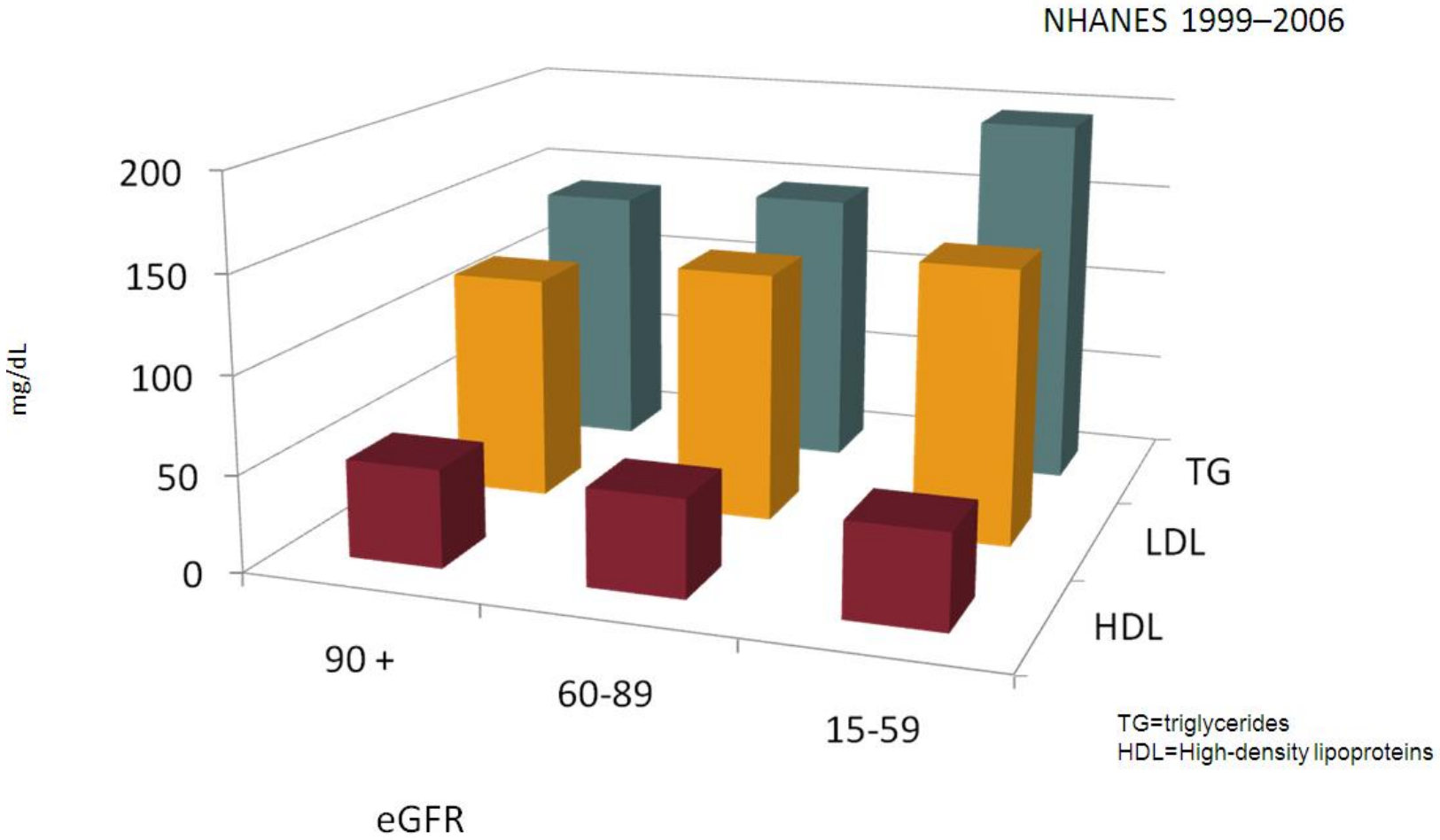


HR = 3.2 (95% CI 2.2-4.7)

HR = 5.9 (95% CI 3.5-10.2)

J Am Soc Nephrol 20:1813-1821, 2009

Lipid abnormalities may increase as eGFR declines



Reference: Adapted from Astor et al., 2008

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Statins are used in patients with CKD

- Statins reduce hepatic cholesterol synthesis.
- Statins significantly reduce all-cause and CVD mortality in persons with CKD.
- Their use does not appear to slow CKD progression but may reduce proteinuria.
- Muscle toxicity or elevated liver function tests may be seen with statin use.

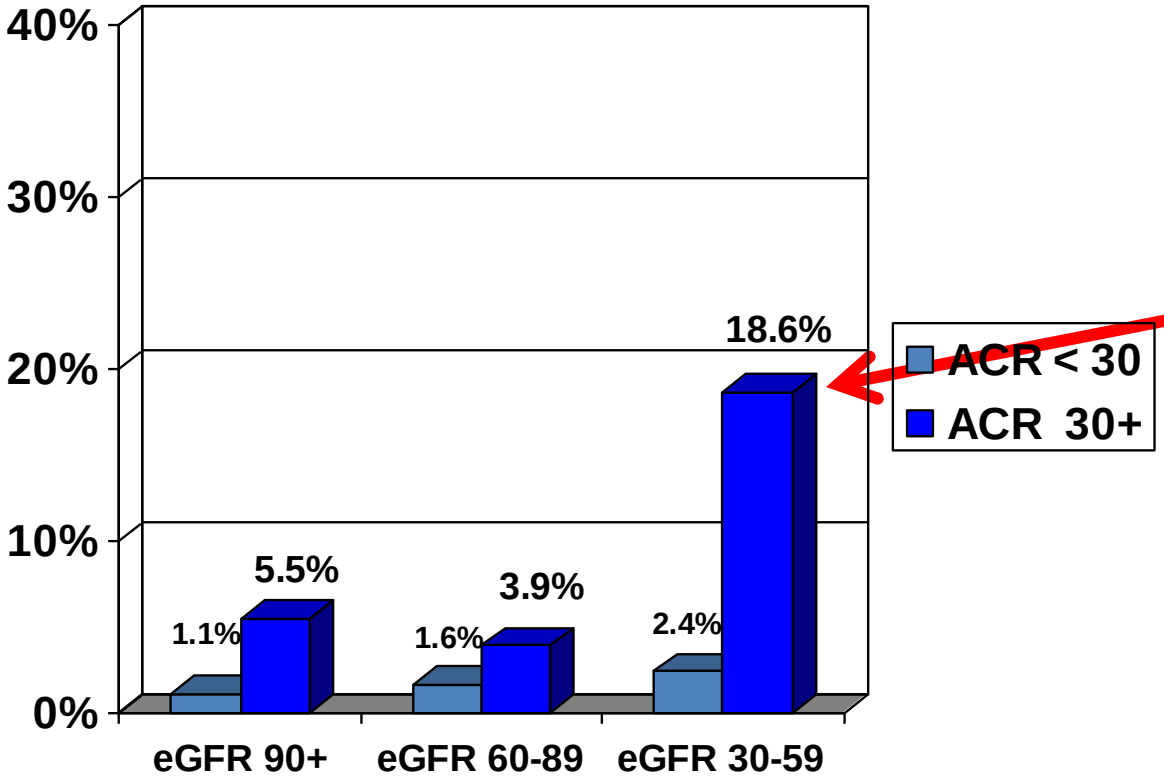
Reference: Navaneethan et al., 2009

Challenges to Improving CKD Care

- CKD remains under diagnosed
- Implementation of recommended care is poor
- Many clinicians feel inadequately educated
  - Uncertain about how to interpret diagnostic tests
  - Unclear about clinical recommendations
  - Low confidence in their ability to successfully manage CKD
  - Indications for, and process of, referral poorly defined

Patient Awareness of CKD is Low General U.S. Population

"Have you ever been told by a doctor or other health care professional that you had weak or failing kidneys?"



NHANES 1999-2000: 4101 participants

< 20% of patients with moderate to severe CKD said yes

Most had seen a physician within the past year

Adapted from: Coresh, et al. JASN 2005

Awareness & Knowledge about CKD in Patients Seen by Nephrologists

Low Self-Rating Perceived Knowledge N=676	
No Knowledge of Hemodialysis / Peritoneal Dialysis	43% / 57%
Little or No Knowledge Re: Diagnosis	35%

Finkelstein, et al. Kidney International, 2008

Limited Awareness & Objective Knowledge N=401	
Unaware of CKD diagnosis	31%
Do not understand CKD implications, e.g. heart disease	34%
Do not understand kidney functions, e.g. urine production	34%
Do not understand terminology, GFR	32%

Wright, et al. AJKD 2011

Healthy People 2020: CKD objectives

Increase proportion of persons with CKD	Baseline	Target
CKD 2: who know they have impaired renal function	7.3%	11.3%
CKD 4.1: who receive recommended medical evaluation with serum creatinine, lipids, and microalbuminuria	25.8%	28.4%
CKD 4.2: with type 1 or type 2 diabetes and CKD who receive recommended medical evaluation with serum creatinine, microalbuminuria, HbA1c, lipids, and eye exams	23.1%	25.4%
Reduce proportion of persons with CKD		
CKD6.1: who have elevated blood pressure	74.1%	66.67%
CKD 6.2: who have elevated lipid levels	29.6%	26.6%

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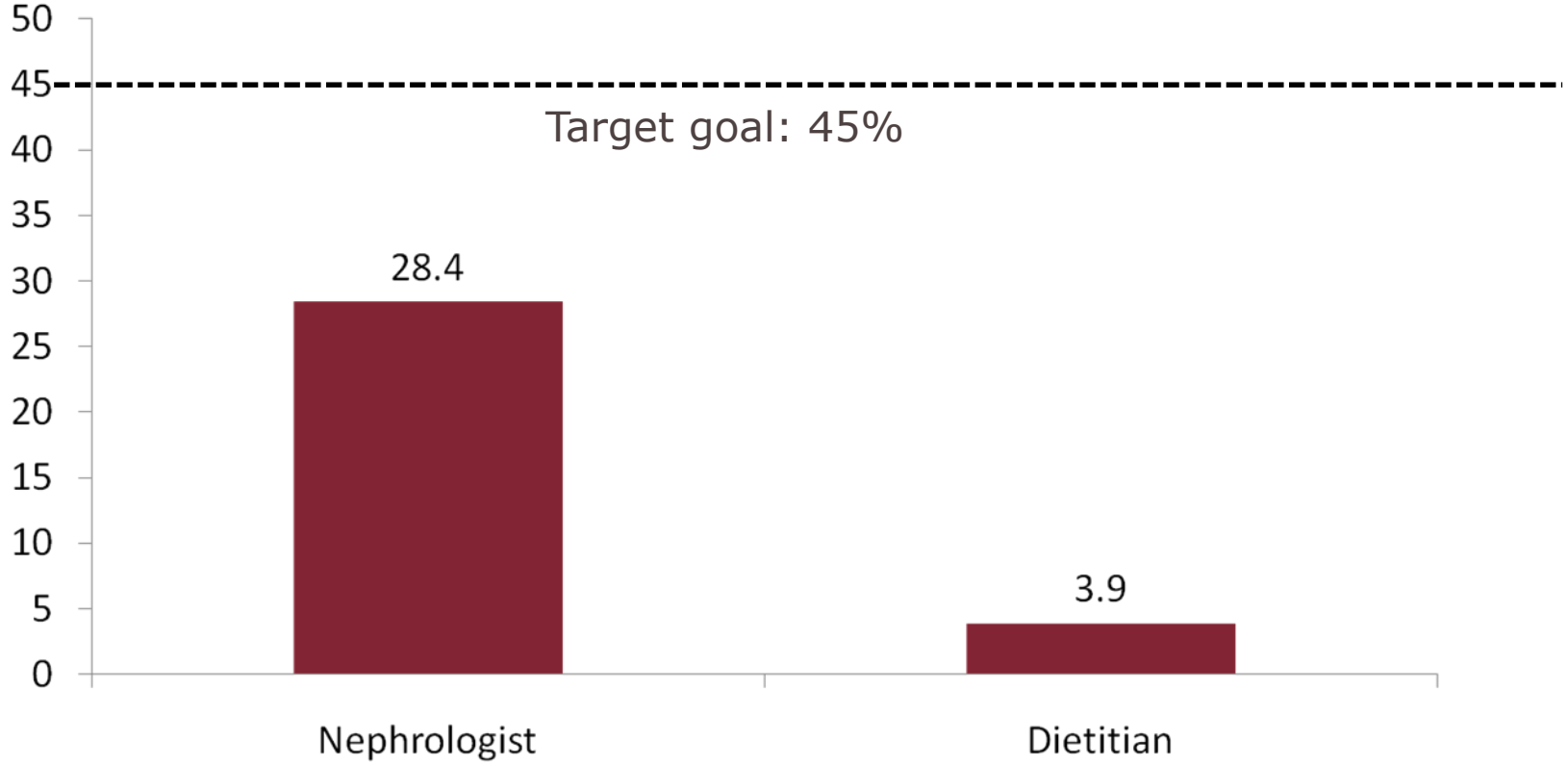
Healthy People 2010: Increase the proportion of treated chronic kidney failure patients who have received counseling on nutrition, treatment choices, and cardiovascular care 12 months before the start of renal replacement therapy.

Pre-ESRD counseling and care for greater than 12 months (2008)



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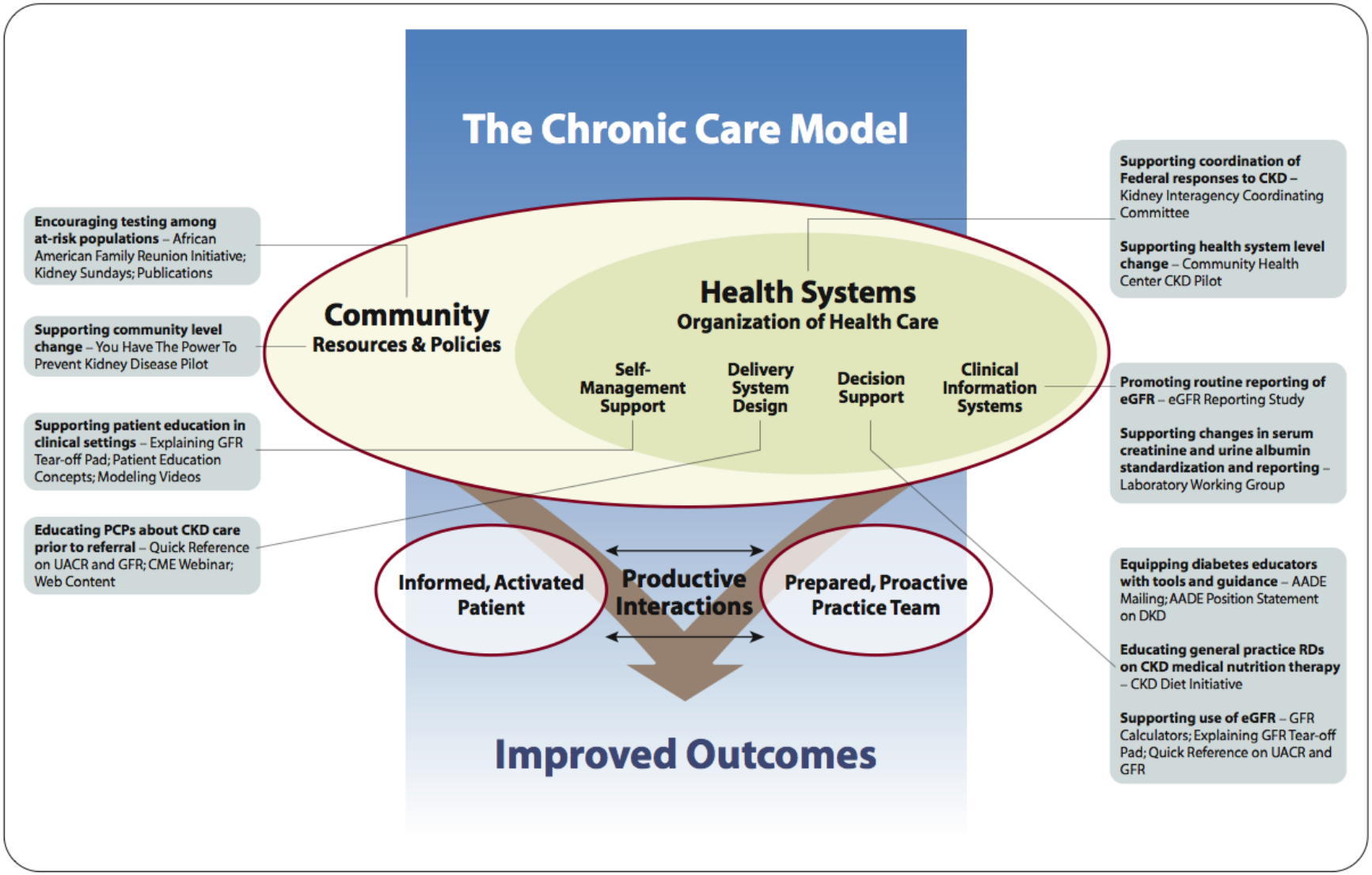
Reference: USRDS Annual Data Report (NIDDK, 2010)

What Can Primary Care Providers Do?
Delay the need for renal replacement therapy

- Recognize and test at-risk patients: monitor eGFR and UACR
- Screen for anemia (Hgb), malnutrition (albumin), metabolic bone disease (Ca, Phos., PTH)
- Treat cardiovascular risk, especially with smokers and hypercholesterolemia
- **Refer to dietitian for nutritional guidance**
- Educate patients about CKD and treatment

NKDEP and the Care Model

Where NKDEP Activities Fit In



CKD Diet Counseling (Medical Nutrition Therapy) Referral Form

NAME | DATE OF BIRTH | MEDICAL RECORD # (If applicable)

REASON FOR REFERRAL

Medical nutrition therapy for chronic kidney disease. Specific concerns or questions:

CKD DIAGNOSTIC CODE 585.___

BLOOD PRESSURE | WEIGHT | HEIGHT

RECENT WEIGHT CHANGE? ☐ YES ☐ NO

FOR DIABETICS YEAR OF DIAGNOSIS | A1C | MONTH/YEAR

LABORATORY ASSESSMENT (MOST RECENT VALUES)

PROTEINURIA ☐ NOT PRESENT ☐ IF PRESENT, SINCE MONTH/YEAR

UACR (URINE ALBUMIN-TO-CREATININE RATIO) MONTH/YEAR

eGFR (ESTIMATED GLOMERULAR FILTRATION RATE) MONTH/YEAR

K | HCO3 | BUN | Ca | Phos | Hgb

LDL | HDL | TG | iPTH | Vit D | Alb

CURRENT MEDICATIONS (or attach list)

KNOWLEDGE

DOES THE PATIENT KNOW HE/SHE HAS KIDNEY DISEASE?	☐ YES	☐ NO	☐ DON'T KNOW
DOES THE PATIENT KNOW THE SEVERITY?	☐ YES	☐ NO	☐ DON'T KNOW
IS THE PATIENT AWARE THAT HE/SHE MAY NEED DIALYSIS?	☐ YES	☐ NO	☐ DON'T KNOW
PREVIOUS DIET COUNSELING FOR CKD?	☐ YES	☐ NO	☐ DON'T KNOW

ADDITIONAL INFORMATION

REFERRED BY _____

SIGNATURE _____ DATE _____

PHONE _____ EMAIL _____

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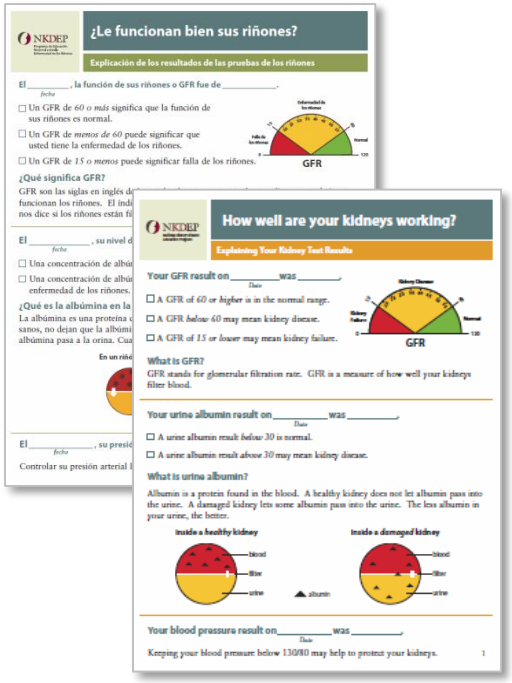
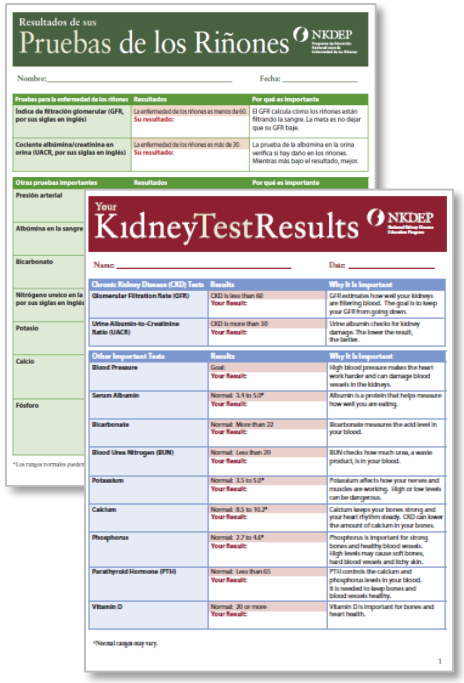
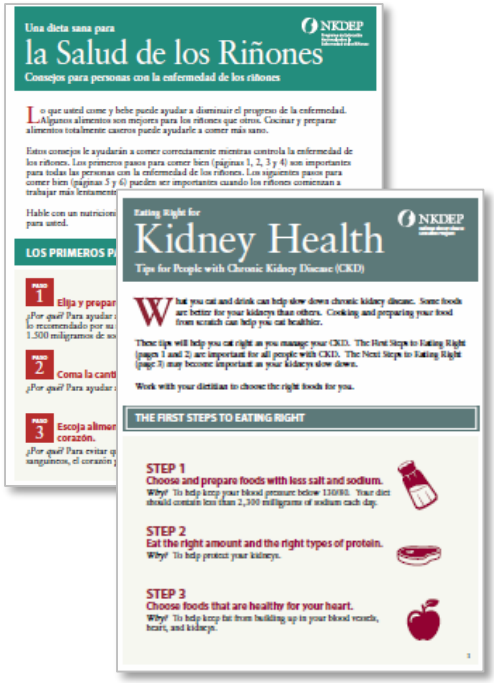
NKDEP CKD Diet initiative

- General Practice Dietitians
  - *Assessment, Management and Treatment Guide for CKD*
  - Patient factsheets
  - Five training modules
    - Certificate Training Program
- Dietetic Educators (academic and internships)
  - Focus group with educators
    - Not comfortable with CKD and little clinical experience
    - Slide deck and case studies







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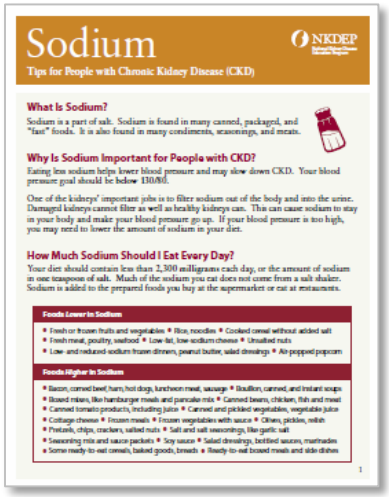

Sodium

Tips for People with Chronic Kidney Disease (CKD)

NKDEP

What Is Sodium?

Sodium is a part of salt. Sodium is found in many canned, packaged, and "fast" foods. It is also found in many condiments, seasonings, and meats.

Why Is Sodium Important for People with CKD?

Eating less sodium helps lower blood pressure and may slow down CKD. Your blood pressure goal should be below 130/80.

One of the kidneys' important jobs is to filter sodium out of the body and into the urine. Damaged kidneys cannot filter as well as healthy kidneys can. This can cause sodium to stay in your body and make your blood pressure go up. If your blood pressure is too high, you may need to lower the amount of sodium in your diet.

How Much Sodium Should I Eat Every Day?

Your diet should contain less than 2,300 milligrams each day, or the amount of sodium in one teaspoon of salt. Much of the sodium you eat does not come from a salt shaker. Sodium is added to the prepared foods you buy at the supermarket or eat at restaurants.

Foods Lower in Sodium

- Fresh or frozen fruits and vegetables
- Rice, noodles
- Cooked cereal without added salt
- Fresh meat, poultry, seafood
- Low-fat, low-sodium cheese
- Unsalted nuts
- Low- and reduced-sodium frozen dinners, peanut butter, salad dressings
- Air-popped popcorn

Foods Higher in Sodium

- Bacon, corned beef, ham, hot dogs, luncheon meat, sausage
- Bouillon, canned, and instant soups
- Boxed mixes, like hamburger meals and pancake mix
- Canned beans, chicken, fish and meat
- Canned tomato products, including juice
- Canned and pickled vegetables, vegetable juice
- Cottage cheese
- Frozen meals
- Frozen vegetables with sauce
- Olives, pickles, relish
- Pretzels, chips, crackers, salted nuts
- Salt and salt seasonings, like garlic salt
- Seasoning mix and sauce packets
- Soy sauce
- Salad dressings, bottled sauces, marinades
- Some ready-to-eat cereals, baked goods, breads
- Ready-to-eat boxed meals and side dishes

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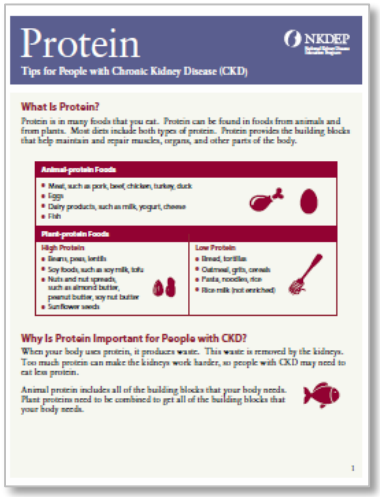

Protein

Tips for People with Chronic Kidney Disease (CKD)

NKDEP

What Is Protein?

Protein is in many foods that you eat. Protein can be found in foods from animals and from plants. Most diets include both types of protein. Protein provides the building blocks that help maintain and repair muscles, organs, and other parts of the body.

Animal-protein Foods

- Meat, such as pork, beef, chicken, turkey, duck
- Eggs
- Dairy products, such as milk, yogurt, cheese
- Fish

Plant-protein Foods

High Protein	Low Protein
▪ Beans, peas, lentils ▪ Soy foods, such as soy milk, tofu ▪ Nuts and nut spreads, such as almond butter, peanut butter, soy nut butter ▪ Sunflower seeds	▪ Bread, tortillas ▪ Oatmeal, grits, cereals ▪ Pasta, noodles, rice ▪ Rice milk (not enriched)

Why Is Protein Important for People with CKD?

When your body uses protein, it produces waste. This waste is removed by the kidneys. Too much protein can make the kidneys work harder, so people with CKD may need to eat less protein.

Animal protein includes all of the building blocks that your body needs. Plant proteins need to be combined to get all of the building blocks that your body needs.

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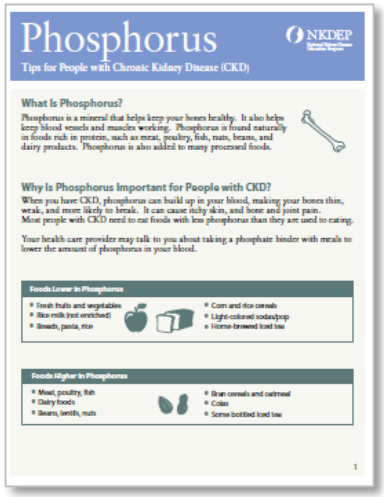

Phosphorus

Tips for People with Chronic Kidney Disease (CKD)

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What Is Phosphorus?

Phosphorus is a mineral that helps keep your bones healthy. It also helps keep blood vessels and muscles working. Phosphorus is found naturally in foods rich in protein, such as meat, poultry, fish, nuts, beans, and dairy products. Phosphorus is also added to many processed foods.

Why Is Phosphorus Important for People with CKD?

When you have CKD, phosphorus can build up in your blood, making your bones thin, weak, and more likely to break. It can cause itchy skin, and bone and joint pain. Most people with CKD need to eat foods with less phosphorus than they are used to eating.

Your health care provider may talk to you about taking a phosphate binder with meals to lower the amount of phosphorus in your blood.

Foods Lower in Phosphorus

- Fresh fruits and vegetables
- Rice milk (not enriched)
- Breads, pasta, rice
- Corn and rice cereals
- Light-colored soda/pop
- Home-brewed iced tea

Foods Higher in Phosphorus

- Meat, poultry, fish
- Dairy foods
- Beans, lentils, nuts
- Bran cereals and oatmeal
- Colas
- Some bottled iced tea

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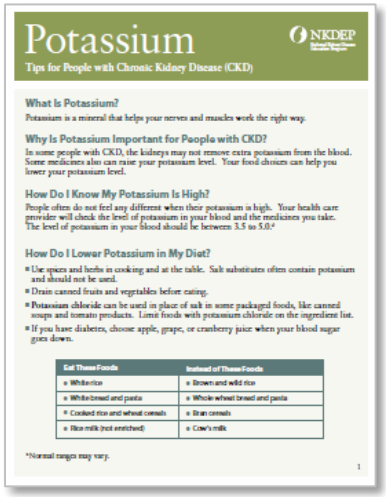

Potassium

Tips for People with Chronic Kidney Disease (CKD)

NKDEP

What Is Potassium?

Potassium is a mineral that helps your nerves and muscles work the right way.

Why Is Potassium Important for People with CKD?

In some people with CKD, the kidneys may not remove extra potassium from the blood. Some medicines also can raise your potassium level. Your food choices can help you lower your potassium level.

How Do I Know My Potassium Is High?

People often do not feel any different when their potassium is high. Your health care provider will check the level of potassium in your blood and the medicines you take. The level of potassium in your blood should be between 3.5 to 5.0.*

How Do I Lower Potassium in My Diet?

- Use spices and herbs in cooking and at the table. Salt substitutes often contain potassium and should not be used.
- Drain canned fruits and vegetables before eating.
- Potassium chloride can be used in place of salt in some packaged foods, like canned soups and tomato products. Limit foods with potassium chloride on the ingredient list.
- If you have diabetes, choose apple, grape, or cranberry juice when your blood sugar goes down.

Eat These Foods	Instead of These Foods
▪ White rice	▪ Brown and wild rice
▪ White bread and pasta	▪ Whole wheat bread and pasta
▪ Cooked rice and wheat cereals	▪ Bran cereals
▪ Rice milk (not enriched)	▪ Cow's milk

*Normal ranges may vary.

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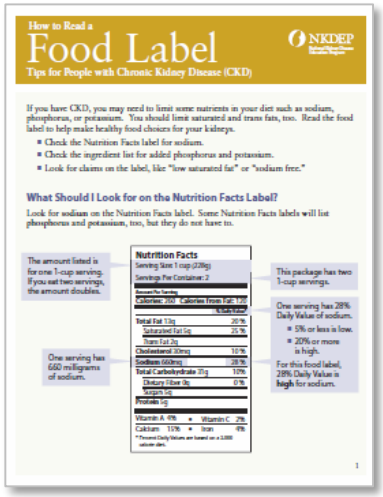

How to Read a

Food Label

Tips for People with Chronic Kidney Disease (CKD)

NKDEP

If you have CKD, you may need to limit some nutrients in your diet such as sodium, phosphorus, or potassium. You should limit saturated and trans fats, too. Read the food label to help make healthy food choices for your kidneys.

- Check the Nutrition Facts label for sodium.
- Check the ingredient list for added phosphorus and potassium.
- Look for claims on the label, like "low saturated fat" or "sodium free."

What Should I Look for on the Nutrition Facts Label?

Look for sodium on the Nutrition Facts label. Some Nutrition Facts labels will list phosphorus and potassium, too, but they do not have to.

The amount listed is for one 1-cup serving. If you eat two servings, the amount doubles.

Nutrition Facts

Serving Size 1 cup (228g)

Servings Per Container: 2

Amount Per Serving

Calories: 250 Calories from Fat: 120

	% Daily Value*
Total Fat 13g	20 %
Saturated Fat 5g	25 %
Trans Fat 2g	
Cholesterol 30mg	10 %
Sodium 660mg	28 %
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0 %
Sugars 5g	
Protein 5g	

Vitamin A 4% • Vitamin C 2%

Calcium 15% • Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet.

This package has two 1-cup servings.

One serving has 28% Daily Value of sodium.

- 5% or less is low.
- 20% or more is high.

For this food label, 28% Daily Value is **high** for sodium.

One serving has 660 milligrams of sodium.

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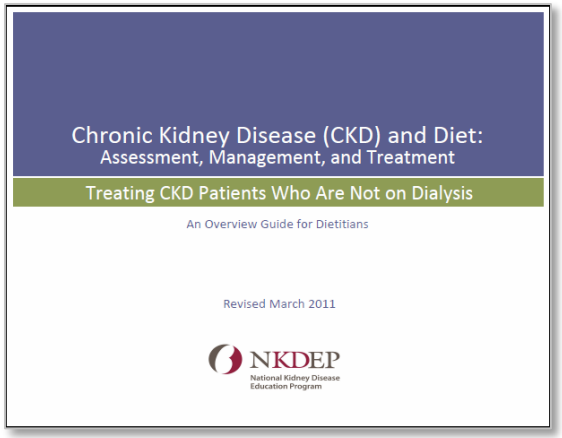

Chronic Kidney Disease (CKD) and Diet:
Assessment, Management, and Treatment

Treating CKD Patients Who Are Not on Dialysis

An Overview Guide for Dietitians

Revised March 2011

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National Kidney Disease Education Program

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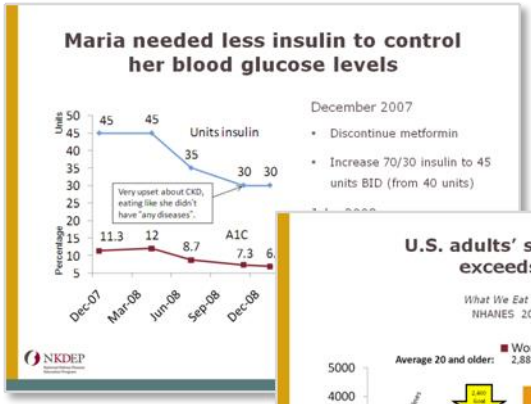
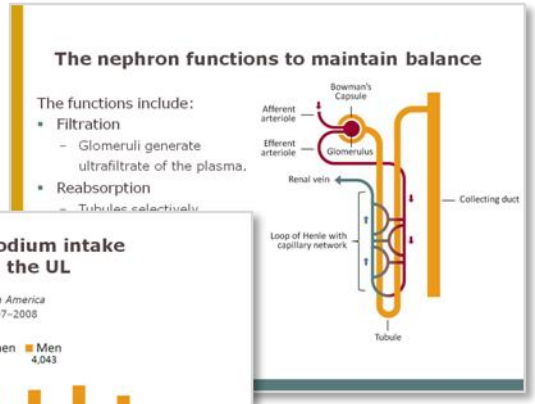
National Kidney Disease Education Program

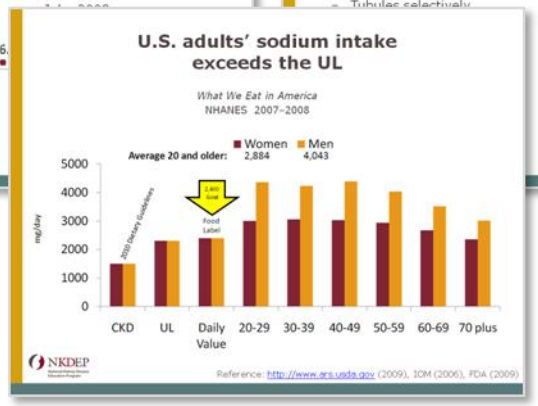
Reference: http://nkdep.nih.gov/resources.shtml

The dietetic educator materials suite

- *Chronic Kidney Disease 101: Nutrition Intervention*
  - Overview of kidney function and kidney disease
  - Diet information and medical nutrition therapy
- Outpatient case studies







Harriet Nells Case Study Answer Key: Hypertension and CKD

Objectives

1. Student will be able to identify chronic kidney disease (CKD) using the estimated glomerular filtration rate (eGFR) and urine albumin-to-creatinine ratio (UACR).
2. Student will associate improved blood pressure control with reduced risk for of CKD progression.
3. Student will be able to identify the recommended sodium intake for CKD.

Background

Mrs. Nells is a 58-year-old African American with pre-diabetes, hypertension, and CKD. Her mother is deceased (hypertension and diabetes); father has hypertension. Her doctor told her to stop eating salty foods and she is trying to use less salt.

She is worried about diabetes and wants to lose weight.

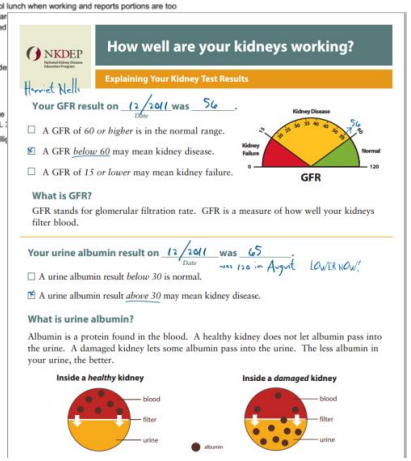
She teaches 5th grade and usually eats school lunch when working and reports portions are too small. She has no time for exercise as she car
Her husband prepares supper and makes fried
at the most.

No alcohol. No tobacco.

Physical exam: obese with some lower leg ede
deficiencies.

MNT Referral Data

Labs: A1c 5.9, UACR 65 (was 120), creatinine
9.0, Phos 4.3, Hgb 13.8, LDL 131, HDL
Medications: baby aspirin, simvastatin 20 milli
daily, lisinopril 20 mg daily



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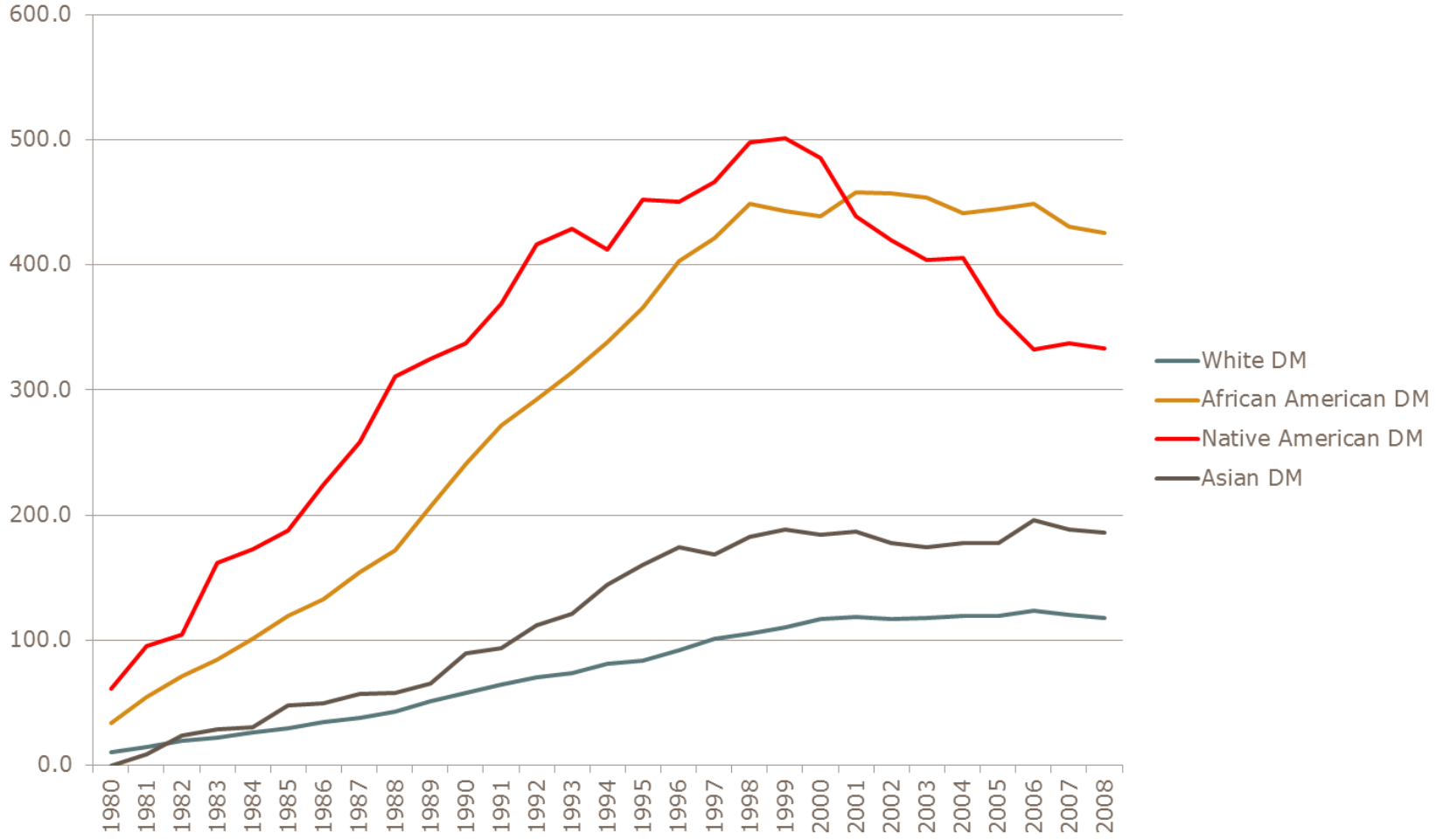
Educating the educators

- Academy of Nutrition and Dietetics' Nutrition and Dietetics Educators and Preceptors Practice Group
  - Original five training modules—self study
  - Overview presentation and others?
    - How to implement the NKDEP materials in the classroom and with interns
  - Cases will be presented in a simulated E.H.R.

Incident Rates of ESRD due to Diabetes 1980-2008

per million population, by age, gender, race, & ethnicity



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Lessons Learned

- CKD is part of primary care
- Changing patterns of care requires changing "the system" (CCM)
- Improvement in care results from changes implemented by physicians and non-physician health professionals
- Implemented through diabetes care delivery system; not specialty clinic based
- Surveillance and prevention are part of multisystem chronic disease control
- Emphasis on ensuring that patient received care from competent and interested individual, not referral

Questions & Comments

andrew.narva@nih.gov

http://nkdep.nih.gov/

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National Kidney Disease
Education Program

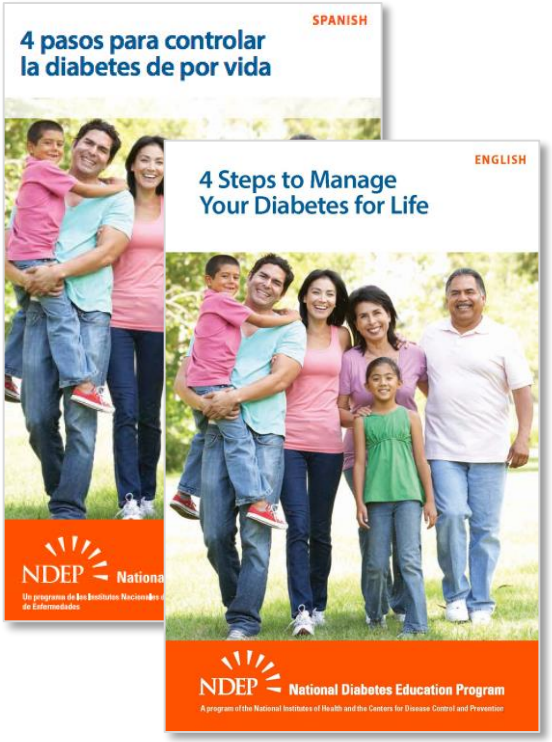
Additional Patient Education Resources

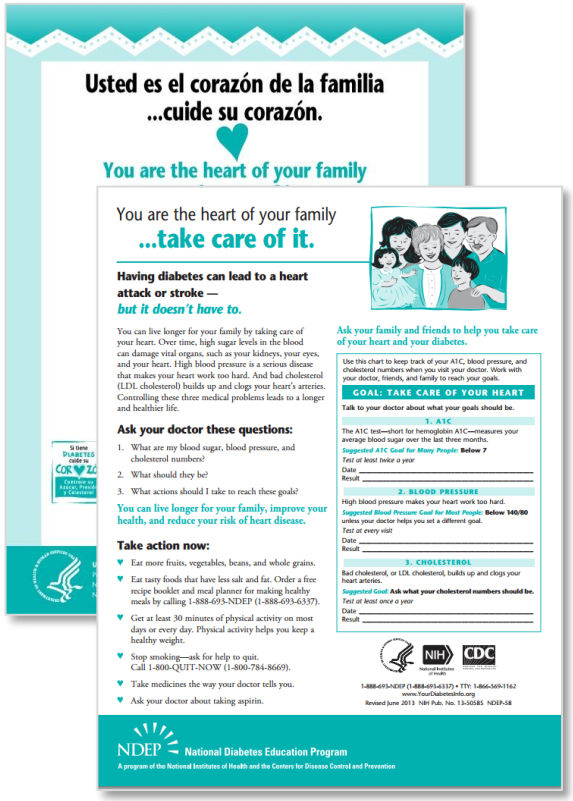
Joanne Gallivan, MS, RD

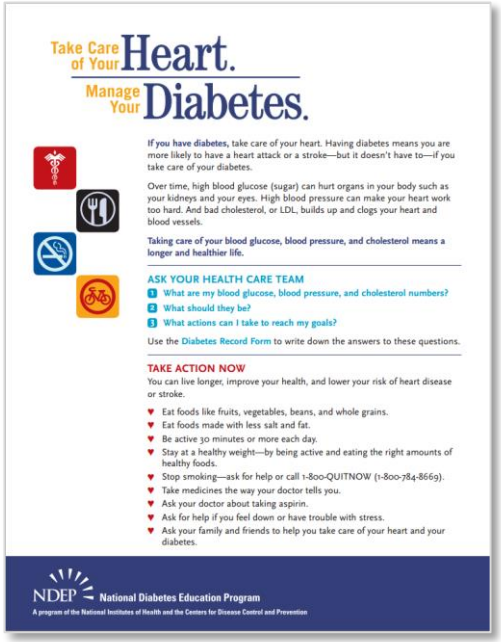
Director, National Diabetes Education Program
National Institute of Diabetes and Digestive and Kidney Diseases

National Institutes of Health

NDEP Diabetes Management Resources







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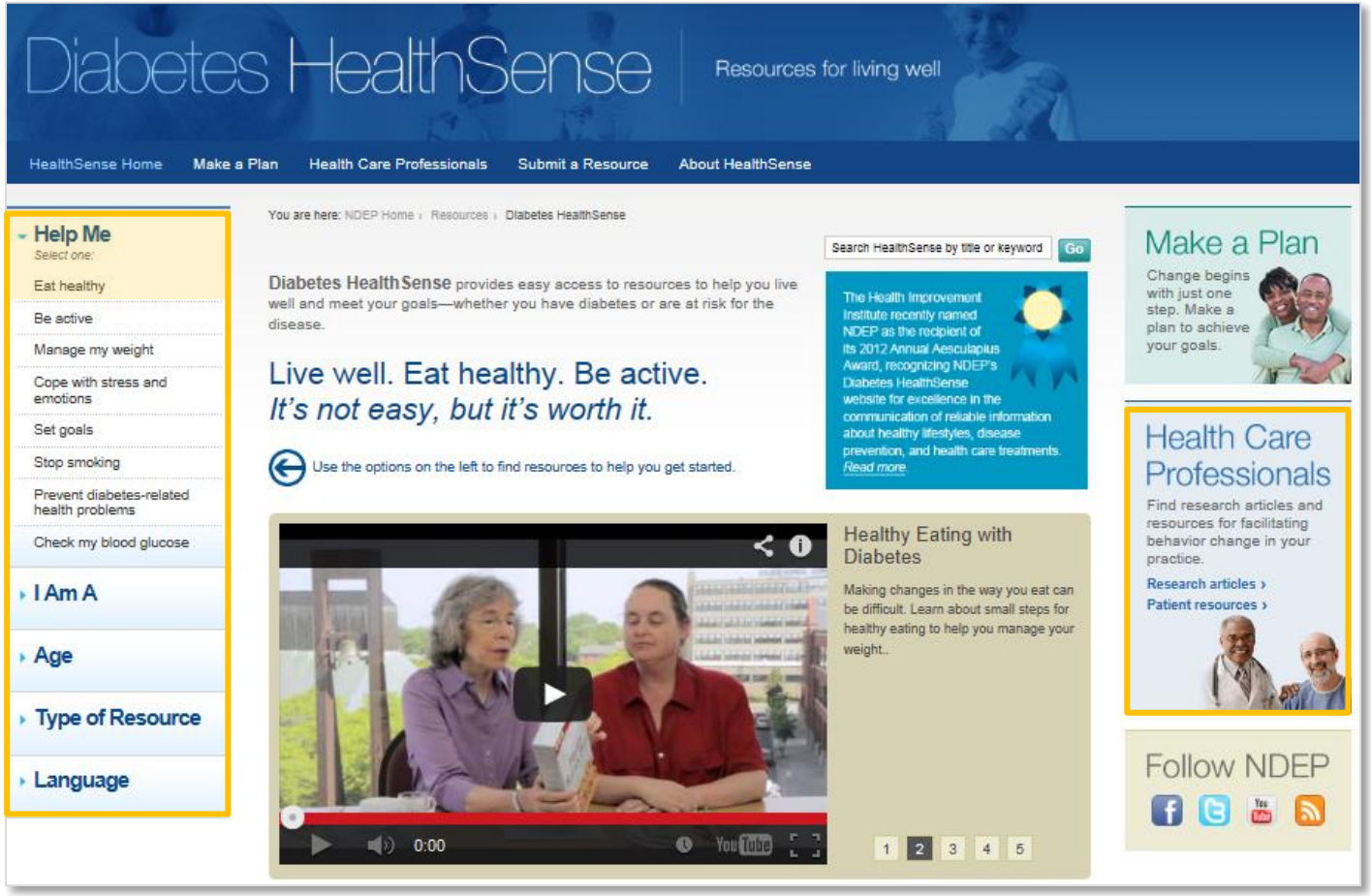
NDEP Diabetes Health Sense



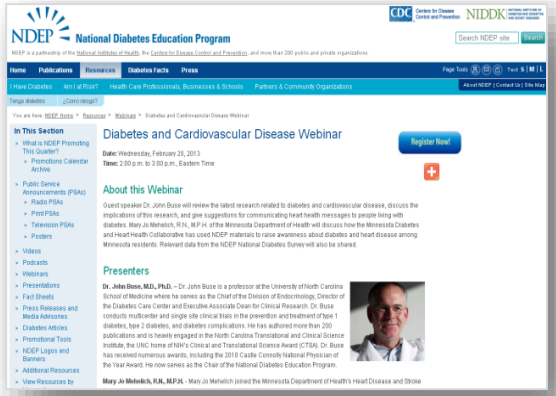
www.YourDiabetesInfo.org/HealthSense

CPEU Certificate

- Everyone who is registered on the DCE website will receive an email within the next 24 hours that contains a link to the CPE certificate
- If you are an RD, please use this link to obtain and print your CPE certificate
- If you do not receive the email please contact DCE at dcewebinars@gmail.com

NDEP Certificate of Completion and Evaluation

- Certificate of Completion
  - ndep@hagersharp.com
- Webinar Evaluation
- Webinar Recording will be posted on the **NDEP Webinars** page
  - ndep.nih.gov/resources/webinars
  - All participants will be notified when recording and slides are available



Questions and Answers

Thank you!

National Diabetes Education Program

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