

# *Connection Between Kidney Disease and Heart Disease*

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VP, Inova Health System

Board Member, American Kidney Fund

# Thanks to our speaker!

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## Dr. Matthew Poffenroth

- Chief Medical Officer for the Signature Partners Network at Inova Health System
- Experienced primary care physician
- One of his primary goals has been to help patients prevent and manage the common chronic diseases that can lead to kidney failure (diabetes, hypertension and cardiovascular disease)

# Agenda

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- Incidence of kidney disease
- Common risk factors for kidney disease and heart disease
- How kidney disease leads to heart disease, and vice versa
- Prevention and management of kidney disease and heart disease

# Chronic Kidney Disease (CKD) as a Public Health Issue

- 26 million American affected
- Prevalence is 11-13% of adult population in the US
- 28% of Medicare budget in 2013, up from 6.9% in 1993
- \$42 billion in 2013
- Increases risk for all-cause mortality, cardiovascular mortality, kidney failure (ESRD), and other adverse outcomes
- 6-fold increase in mortality rate with diabetes+ CKD
- Disproportionately affects African Americans and Hispanics

ESRD, end stage renal disease

# Chronic Kidney Disease (CKD) Risk Factors

## Changeable

- Diabetes
- Hypertension
- History of acute kidney injury
- Frequent NSAID use (pain relief drugs, like aspirin or Aleve)
- Smoking

## Not changeable

- Family history of kidney disease, diabetes, or hypertension
- Age 60 or older (GFR declines normally with age)
- Race/U.S. ethnic minority status

# Cardiovascular Disease (CVD) Risk Factors

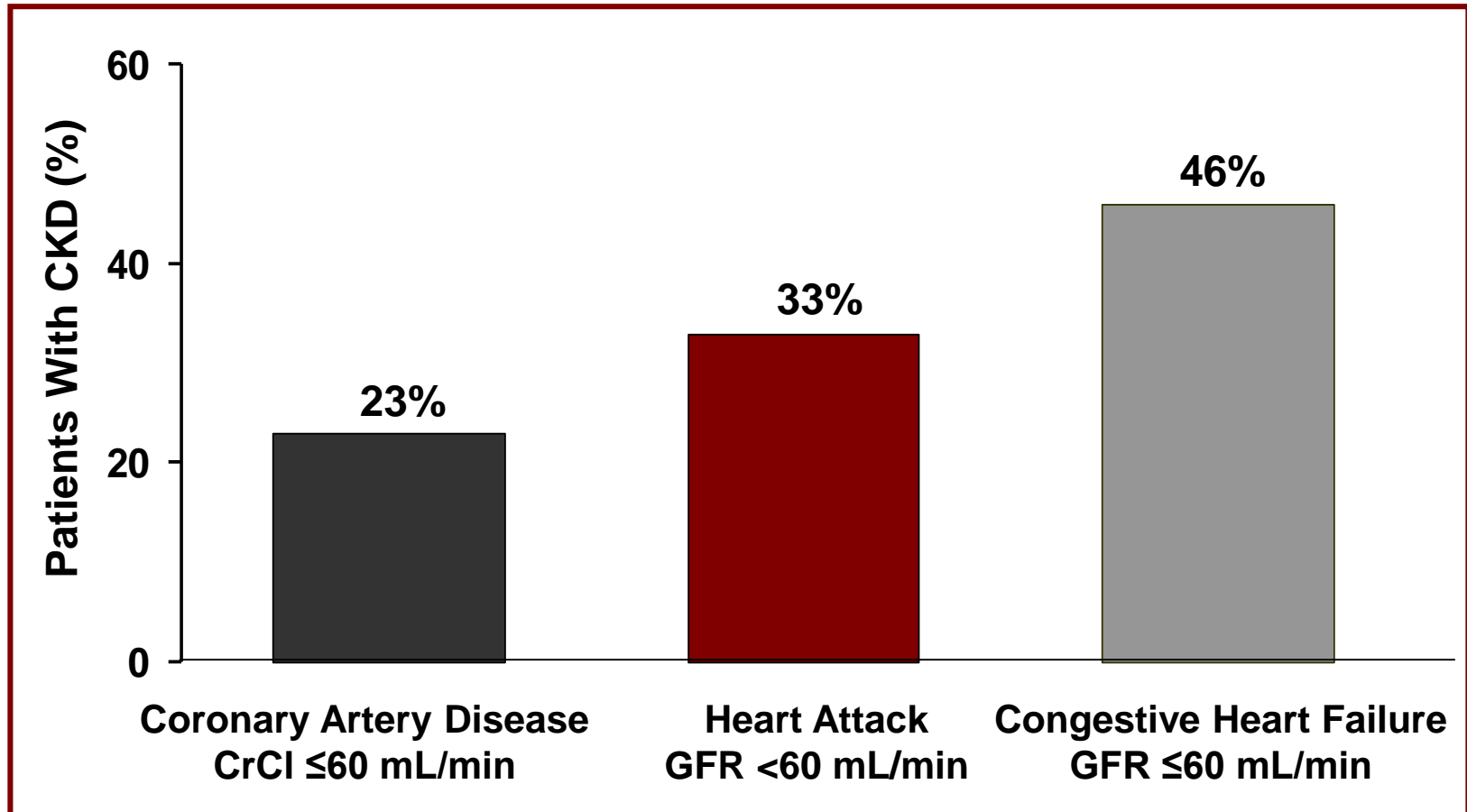
## Changeable

- Diabetes
- Hypertension
- Smoking
- Elevated cholesterol
- Obesity
- **CKD**

## Not changeable

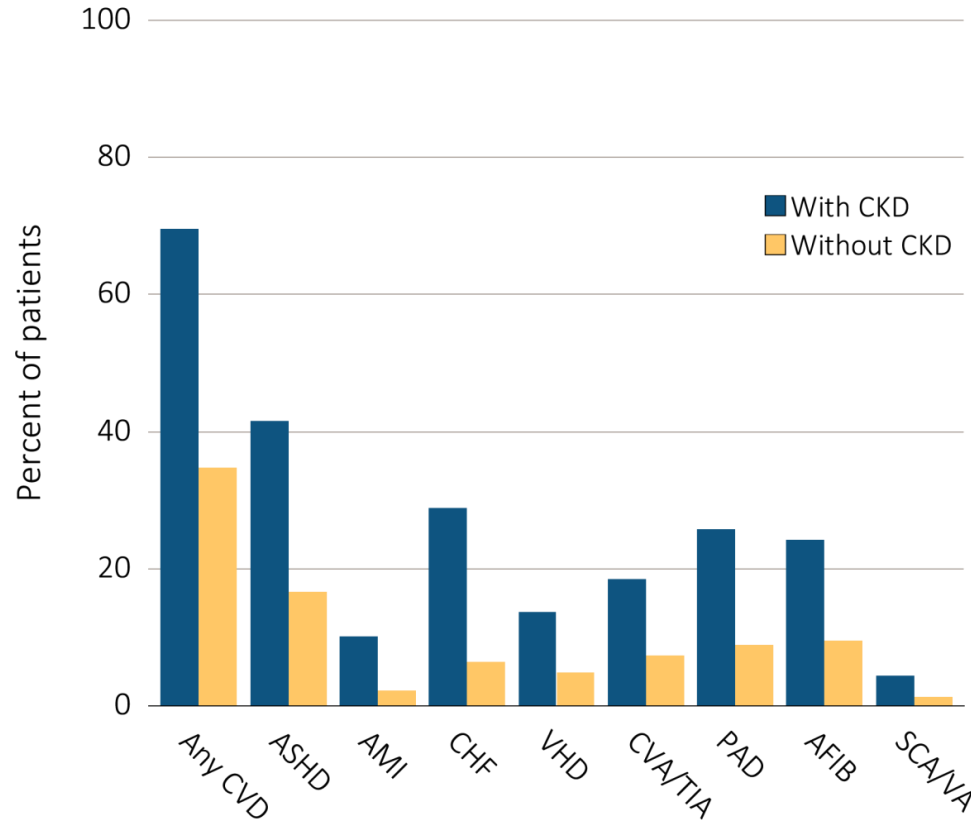
- Family history of heart disease
- Age
- Gender (male>female)
- **CKD**

# CKD Prevalence in CVD



**\*\*Many patients with heart disease also have CKD**

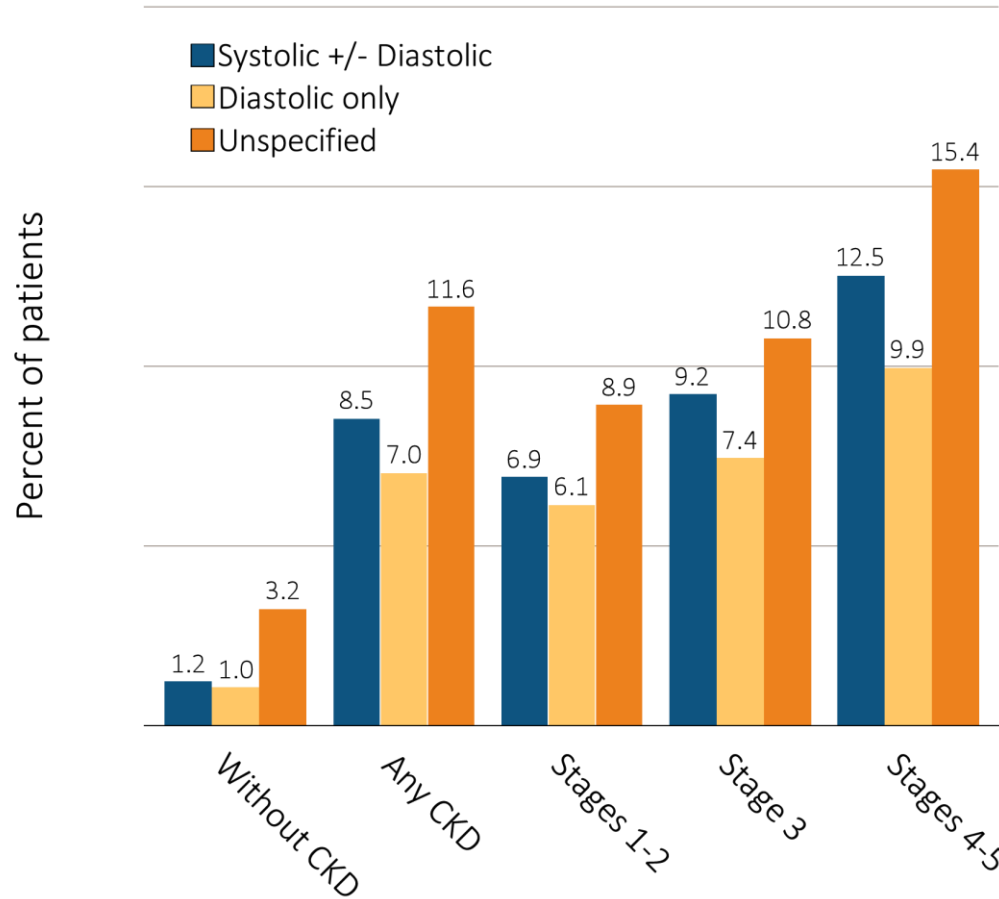
# CVD in patients with or without CKD, 2013



**And many patients with CKD also have heart disease**

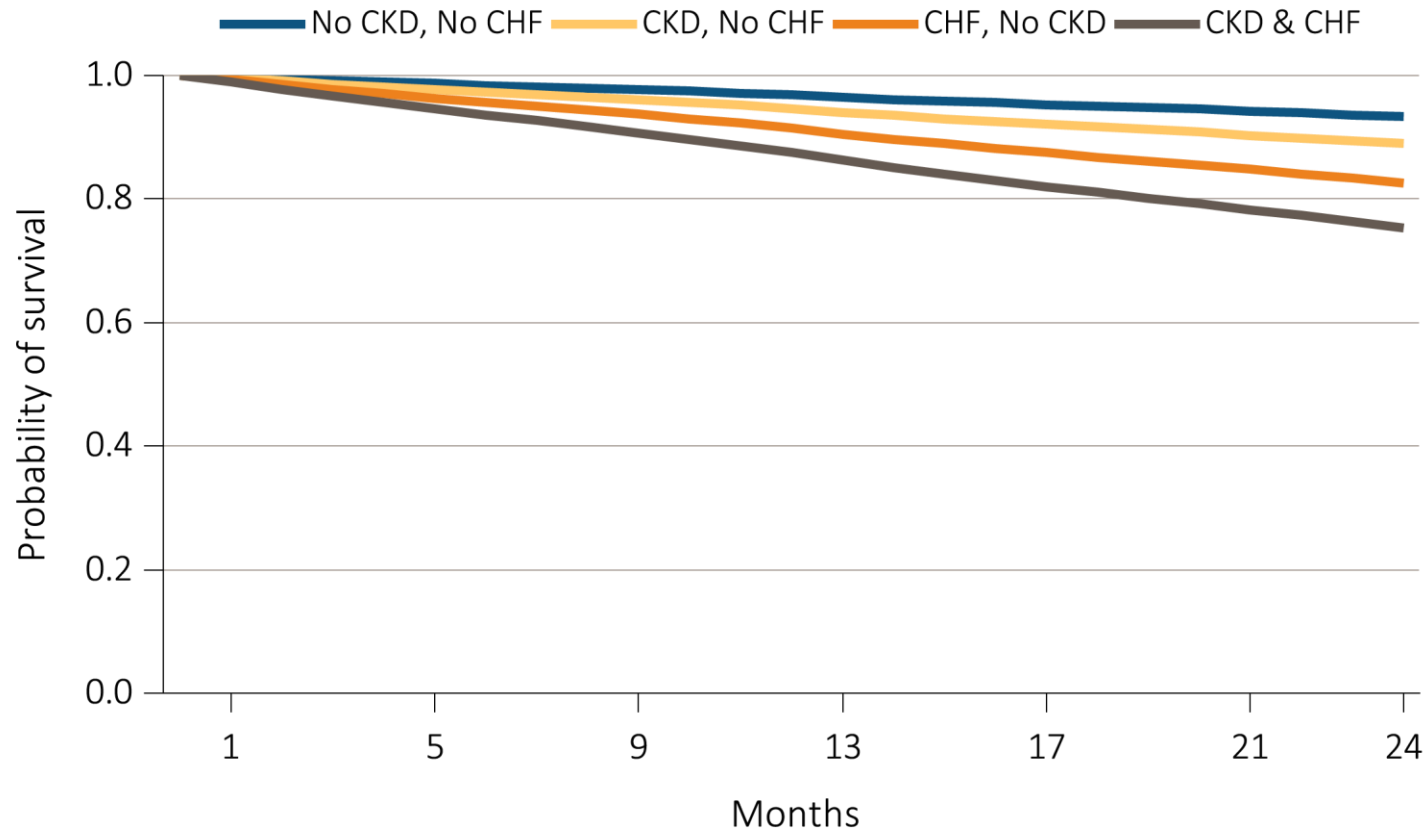


## Heart failure in patients with or without CKD, 2013



**As CKD gets worse, your risk of developing heart failure increases**

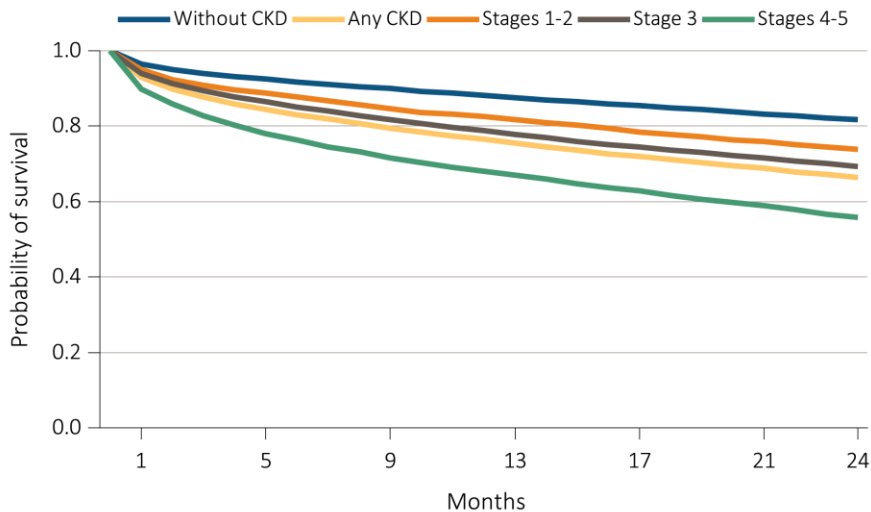
## Adjusted survival of patients by CKD and CHF status, 2012-2013



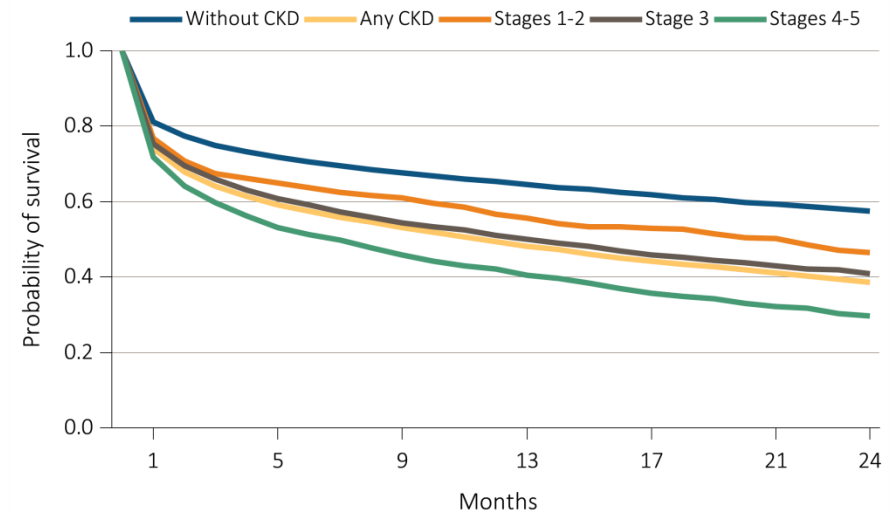
**Patients with CKD and congestive heart failure (CHF) die sooner**

# Survival of patients with a cardiovascular diagnosis or procedure, by CKD status, 2011-2013

ASHD



AMI



**For patients with both CKD and heart disease, as the kidney disease gets worse, you die sooner**

# How Does CKD Lead to Congestive Heart Failure (CHF)?

- High blood pressure and fluid overload strains the heart (leads to heart failure)
- Endothelial dysfunction (blood vessel cells)
- Inflammation
- Dyslipidemia (bad cholesterol elevated)
- Elevated phosphate levels
- Low vitamin D levels

# Preventing CKD and CVD

*“An Ounce of Prevention is Worth a Pound of Cure”*

- Diet and exercise to maintain a healthy weight
- Smoking cessation
- Control diabetes
- Control blood pressure
- Control cholesterol
- Avoid excess over the counter pain medications (ibuprofen, Motrin, Aleve, etc.)
- Consider Vitamin D supplement
- **Regular check up with your Primary Care Physician**

# American Heart Association Recommendations for Diet and Exercise

## **For Overall Cardiovascular Health:**

At least **30 minutes of moderate-intensity** aerobic activity at least **5 days per week for a total of 150**

**OR**

At least **25 minutes of vigorous** aerobic activity at least **3 days per week for a total of 75 minutes**; or a combination of moderate- and vigorous-intensity aerobic activity

**AND**

**Moderate- to high-intensity muscle-strengthening activity** at least **2 days per week** for additional health benefits.

## **For Lowering Blood Pressure and Cholesterol:**

An average **40 minutes of moderate- to vigorous-intensity** aerobic activity **3 or 4 times per week**

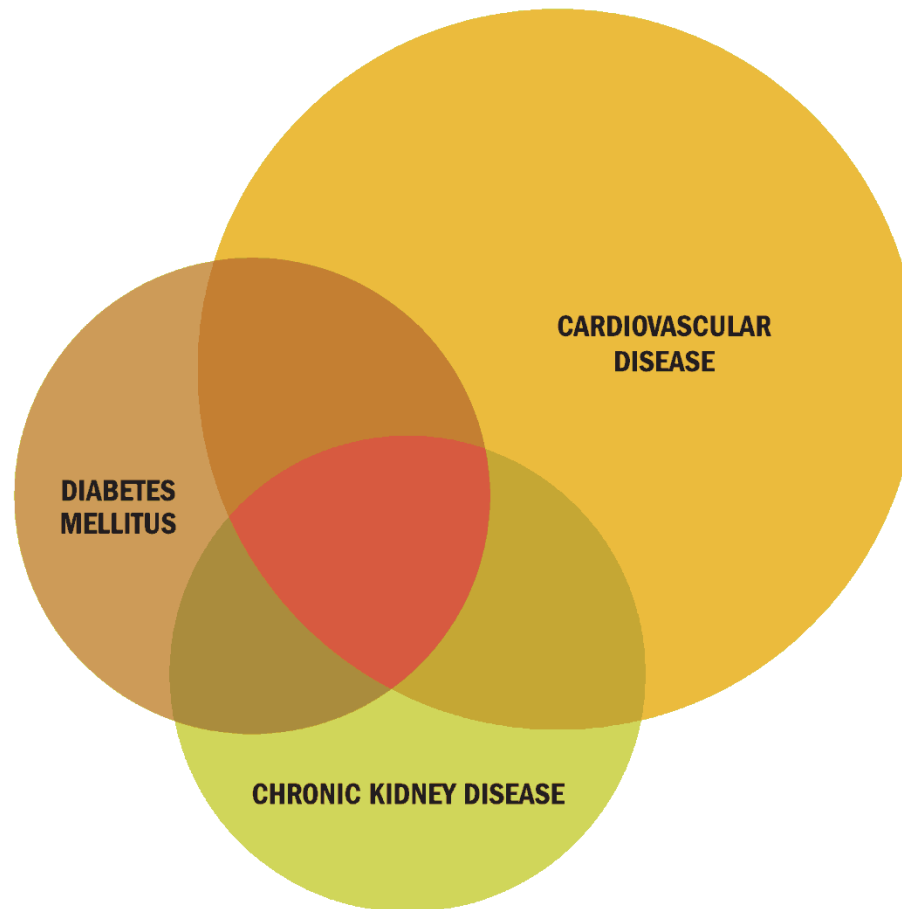
# Diabetes Control

*29 million people with diabetes and 89 million people with pre-diabetes in the US (2012)*

- Diet and exercise to maintain healthy weight
- Medications if necessary to control blood sugars
- Medications to control cholesterol
- Target HbA1c < 7.0%

**Regular visits with your doctor**

# CKD-CVD-Diabetes Link: CKD is a Disease Multiplier





# Hypertension (High Blood Pressure) Control

*78 million people with hypertension (1 in 3 adults) in the US (2013)*

- Diet and exercise to maintain healthy weight
- Limit sodium in diet
- Smoking cessation
- Medications if necessary
  - Adults age <60: <140/90
  - Adults > 60 yrs: <150/90
  - All ages, diabetes and/or CKD: <140/90

**Regular visits with your doctor**

# Cholesterol Control and CKD

Indications for medications (“Statins”)

- Adults > 50 years & CKD (any stage)
- Adults 18 – 49, any stage CKD, AND
  - Known coronary artery disease (CAD)
  - Diabetes
  - Prior stroke
  - Estimated 10 year incidence of heart attack >10%
- Adults with CKD on Dialysis – No Rx

# Complications of CKD can Affect Heart Disease

- **Anemia** (low blood counts) can trigger chest pain (angina) and even heart attacks in patients with heart disease
- **High blood pressure** causes a strain on the heart and can lead to congestive heart failure
- **High calcium** and **phosphorus** levels can lead to hardening of the arteries

# Key Take Away Messages

- CKD, CVD, diabetes and hypertension are all very common and related
- Lifestyle (diet, exercise, tobacco abuse) is the biggest risk factor, and the main treatment
- Prevention is key
- Regular visits with your primary care physician is important to screen for and manage these diseases

**Thank You!**

**Questions?**

# Join us for next month's webinar!

*A patient's perspective: Be your own advocate*

**Tuesday, March 28**  
**1-2 p.m. (ET)**

**Join us to learn about:**

- The meaning of being your own advocate in the healthcare setting
- Specific ways you can advocate for yourself as a dialysis/transplant patient



**Eric Dolby, Sr.**

- Patient advocate
- AKF 2012 Hero of Hope award recipient

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