

# **Kidney Disease Screening and Awareness Program (KDSAP):**

*A Model for Potentially Increasing the Nephrology Workforce*

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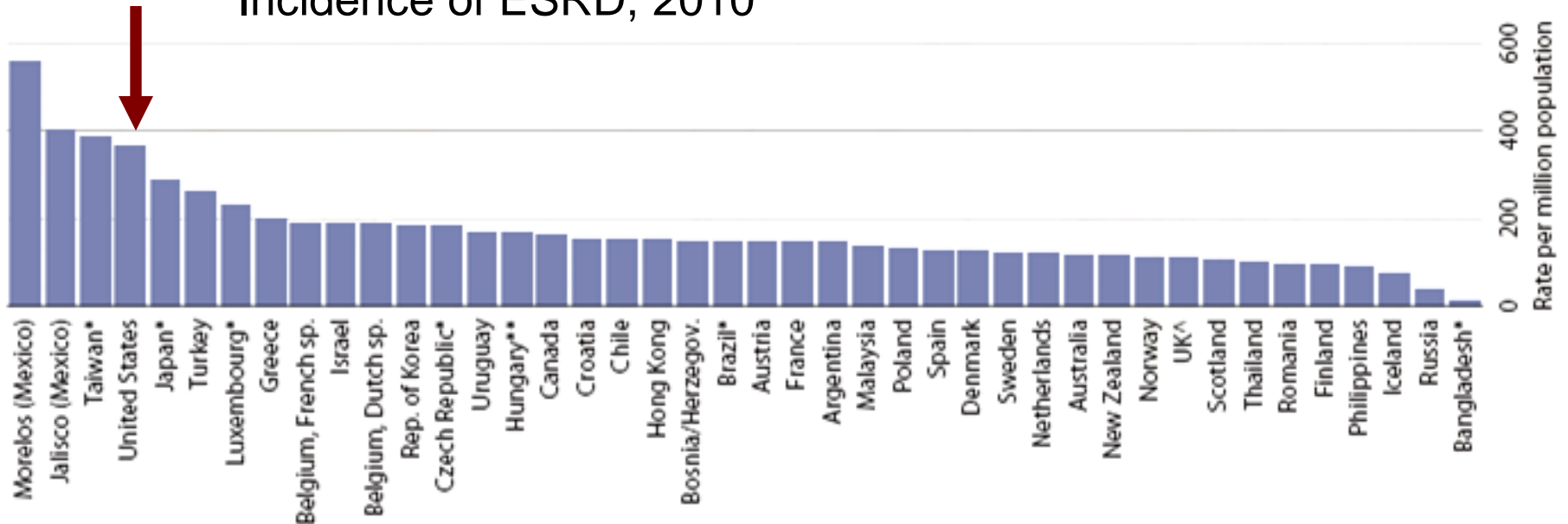
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# Chronic kidney disease (CKD): a public health problem in the United States

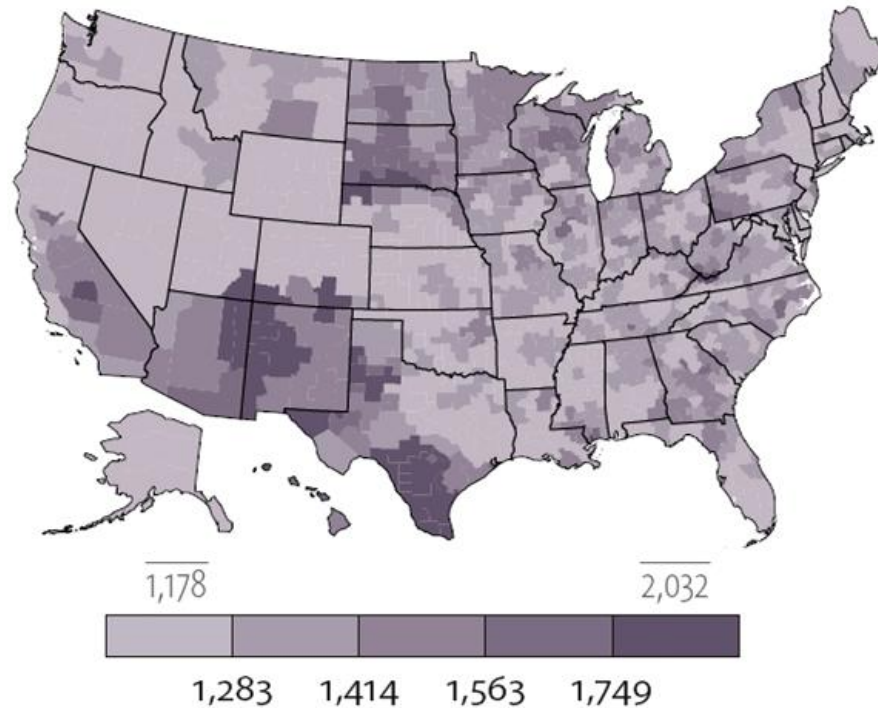
- **17.2%** of U.S. adults have CKD
- In 2004, ~500,000 Americans suffered from CKD stage 5, a number projected to reach 1.8 million by 2020

Incidence of ESRD, 2010



# Prevalence of CKD has increased throughout most of the U.S.

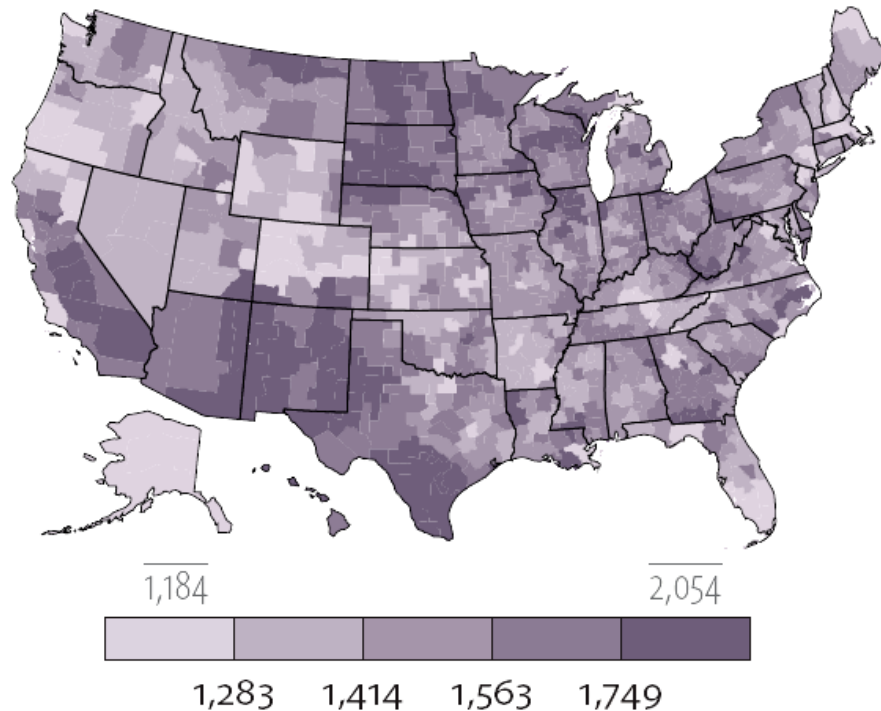
1998



Geographic variations in adjusted prevalence rates of ESRD (per million population), by HSA

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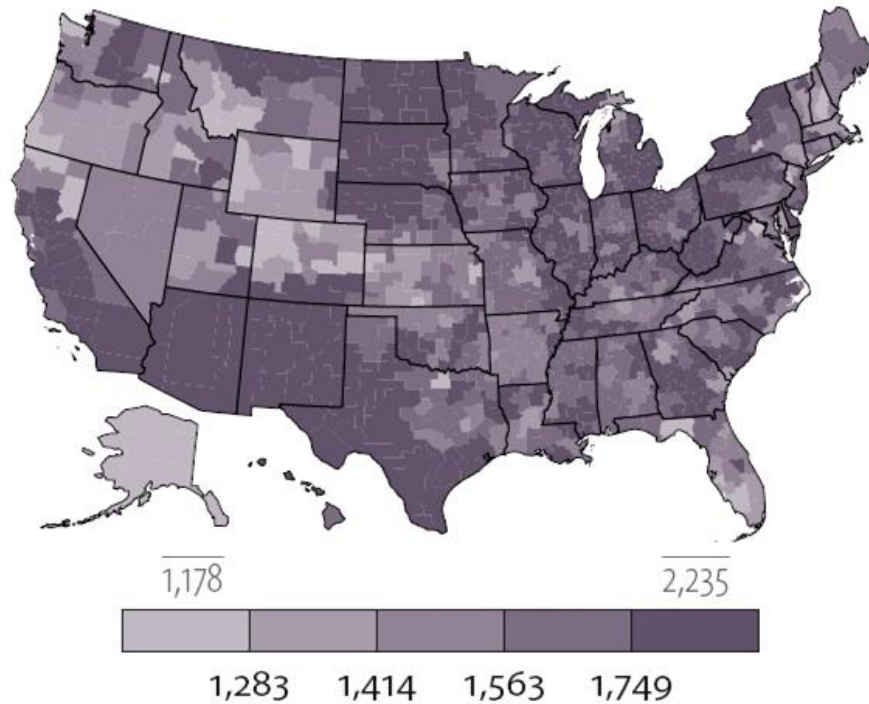
2003



Geographic variations in adjusted prevalence rates of ESRD (per million population), by HSA

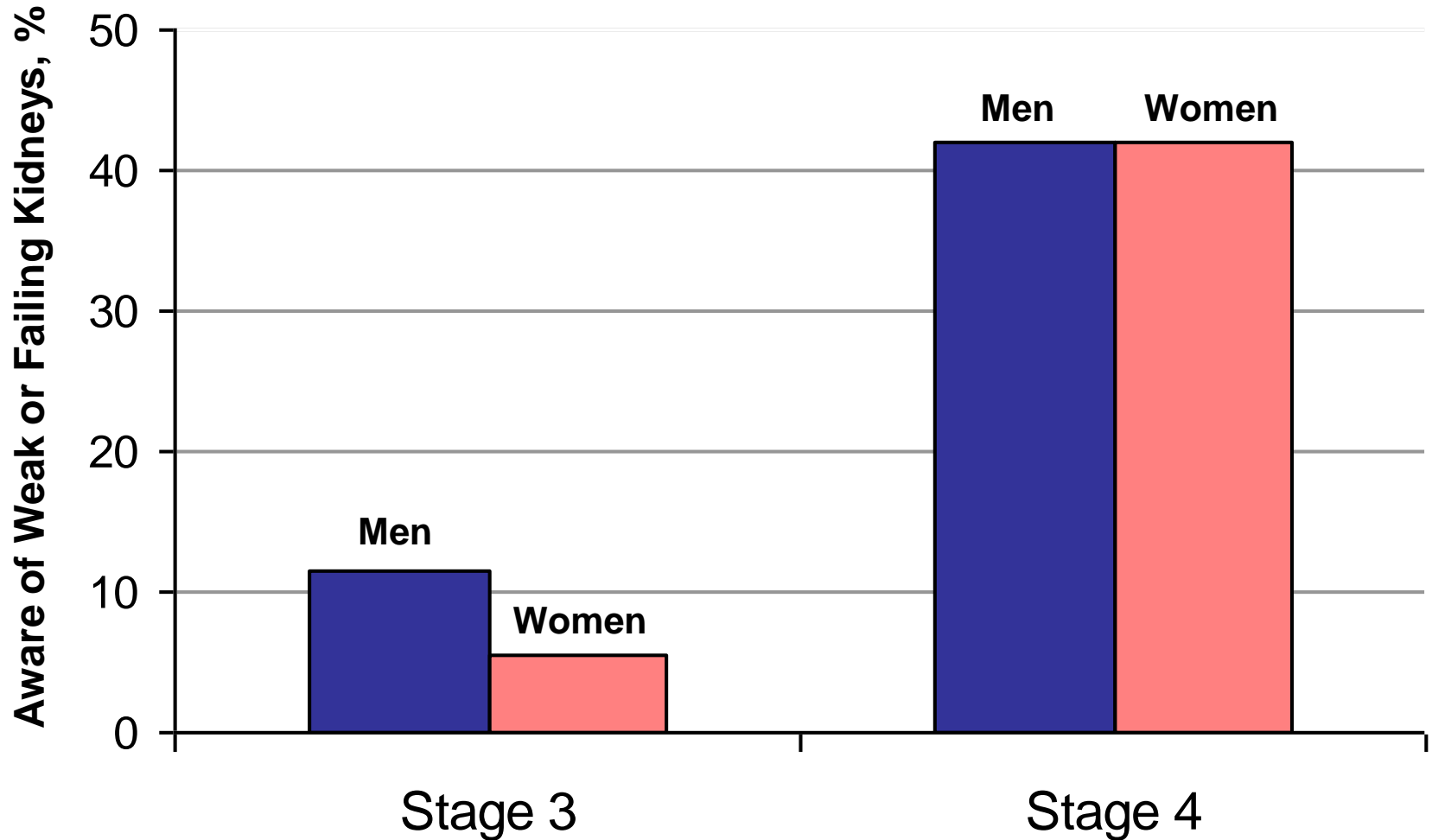
# Prevalence of CKD has increased throughout most of the U.S.

2008



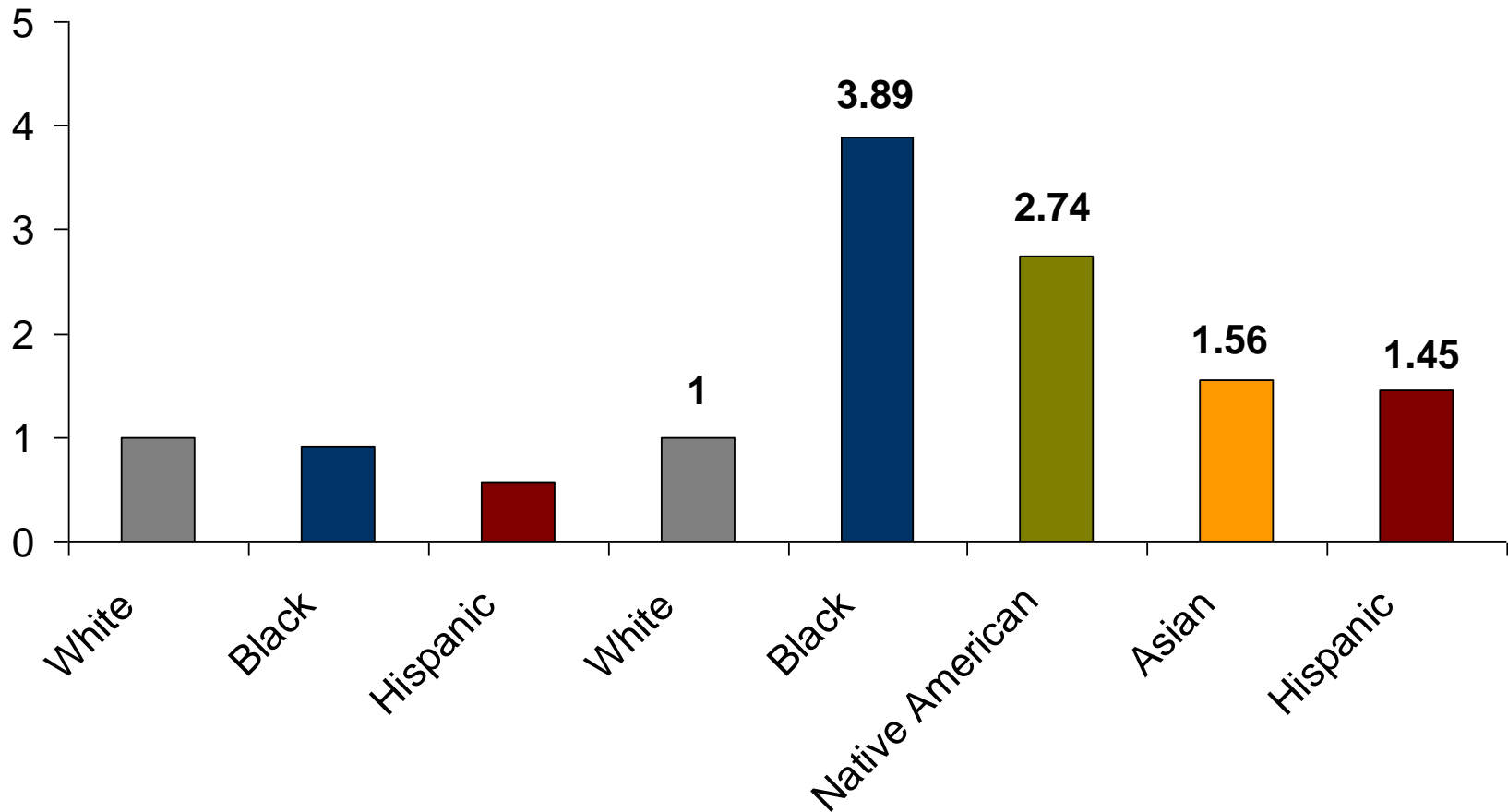
Geographic variations in adjusted prevalence rates of ESRD (per million population), by HSA

# Low patient awareness of CKD



# Minorities suffer from a higher prevalence of ESRD

Relative prevalence of ESRD



# Shortage of nephrologists to care for CKD patients

- 19.6 million patients with CKD stages 3, 4, and 5
- 5,500 full-time equivalent nephrologists
- Each nephrologist is required to care for ~3,450 CKD patients
- REF 12



**KDSAP as a model  
to address the problem of CKD and the  
nephrology workforce shortage**

# What is the Kidney Disease Screening and Awareness Program (KDSAP)?

- Student-run organization at Harvard College, founded in 2007 in collaboration with Brigham and Women's Hospital nephrologists

## **KDSAP Key Objectives**

### **Community Outreach**

Health Screenings

Health Education

### **Student Development**

Leadership in Community Service

Mentorship and Career Exposure

# KDSAP Partnerships

## **Brigham and Women's Hospital Asian Renal Clinic**

Nephrologists supervise and staff the physician consultation station.

## **National Kidney Foundation: Kidney Early Evaluation Program**

Provides medical equipment and trained staff at screenings

**KDSAP**

## **Boston-area High Schools**

(Brookline, North Quincy high schools)

## **Harvard Medical School APAMSA (Asian Pacific American Medical School Association)**

# Free Community Health Screenings



**1: Registration**



**2: Questionnaire**



**3: Health Education**



**5: Blood Pressure**



**4: BMI + Waist Circ.**



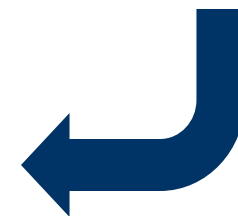
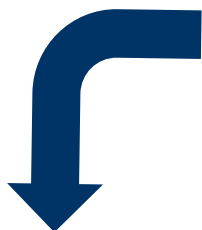
**6: Urinalysis**



**7: Blood Glucose**



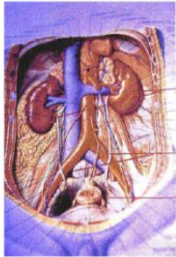
**8: Physician Consult**



# Health Education

## Sample powerpoint presentation slides

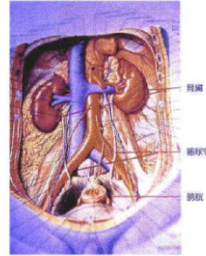
### Functions of the kidney



- Filter body waste
- Secrete water
- Maintain balance of electrolytes, salts and acids
- Produce hormones that control blood pressure, red blood cell production, Vitamin D, and Calcium balance

English

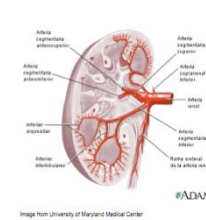
### 腎臟的功能



- 過濾體內廢物
- 把多餘的水份排出
- 保持電解質、鹽份及酸鹼平衡
- 製造荷爾蒙 (腎素調節血壓、製造紅血球生成素、活性維生素D、調節鈣與磷代謝)

Chinese

### Las Funciones del Riñón



- Filtrar el desecho de cuerpo
- Secretar la agua
- Mantener el equilibrio de los electrolitos, las sales y los ácidos
- Producir hormonas que controlan tensión, la producción de glóbulo rojo, la Vitamina D, y el equilibrio de Calcio

Spanish

## Educational brochure

#### WHERE ARE MY KIDNEYS?

Your kidneys are found near your back, below the ribcage.

Kidney  
Ureter  
Bladder

#### WHAT IS KIDNEY DISEASE?

There are two types of kidney disease:

- 1. Acute Kidney Disease:** your kidneys stop working over days or weeks. Problems with kidney blood supply, activity, or urine flow can cause this. If diagnosed and treated in time, you can recover completely.
- 2. Chronic Kidney Disease (CKD):** the gradual, irreversible damage to the kidneys over several months or years. Initial symptoms do not appear until its later stages, making CKD a silent killer.

#### WHAT ARE THE SYMPTOMS OF CKD?

There are **often no symptoms** until permanent damage has happened to your kidneys.

When symptoms do occur, they include:

- o Fatigue and weakness
- o Swelling of the legs
- o Itching
- o Headaches
- o Nausea and vomiting
- o Frequent urination
- o Painful or difficult urination
- o Bloody urine
- o Chest pains
- o Decreased sexual interest
- o Bone pain and fractures

#### WHAT DO MY KIDNEYS DO?

- Make urine to remove excess water, wastes, and toxins from your blood.
- Maintain your body's balance of salts and acids.
- If kidney function fails, your body is damaged by the toxic waste that aggregates in your blood.
- Produce hormones that control blood pressure, red blood cell numbers, and vitamin D and calcium levels.

#### WHAT CAUSES CKD?

- **Diabetes:** prevents glucose breakdown, damaging the kidneys. The kidneys may stop working well 15-20 years after onset of diabetes.
- **High blood pressure:** damages kidney blood vessels, preventing waste removal.
- **Kidney Infection**
- **Genetics:** having family members with diabetes, hypertension, kidney disease, like polycystic kidney disease
- **Inflammation** due to problems with immune system
- **Obstructions preventing proper urine flow:** kidney stones, enlarged prostate, abnormal urological system
- **Medications:** Motrin, Ibuprofen, Advil, certain herbs, contrast injections

#### HOW IS CKD DIAGNOSED?

There are two types of lab tests:

- **Blood test:** These measure blood creatinine and urea, waste products from the breakdown of muscle and protein. High levels of these substances can be found in serious kidney disease.
- **Urine test:** Looks for blood or protein in urine, which only appear with kidney disease.

#### HOW DO I PREVENT CKD?

- 1. Seeing your doctor on a regular basis is crucial to preventing CKD. Your doctor can help you to:**
  - Control high blood pressure and diabetes
  - Avoid medicines that hurt your kidneys  
Pain killers, like Motrin, Ibuprofen, and Advil, and some herbal medicines can damage the kidneys.
  - Avoid too much protein and sodium in your diet  
People who consume too much protein are more likely to develop kidney disease. Too much salt can also damage your kidneys.
- 2. Drink enough fluid:** 2 liters/day
- 3. Exercise often:** 5 times a week, 30-60 minutes
- 4. Eat healthy:** Avoid food that is high in fats, salts, and sugar

Talking to your doctor about all of these issues can help you to avoid chronic kidney disease.

#### COMMUNITY KIDNEY DISEASE DETECTION

What you should know about

## Chronic Kidney Disease

Important facts and how to protect yourself

Brought to you by

### COMMUNITY KIDNEY DISEASE DETECTION

Sponsored by  
Asian Renal Clinic, Brigham and Women's Hospital, SESC Global Foundation, and Genzyme Corporation Educational Grant

#### CHRONIC KIDNEY DISEASE AT A GLANCE

About 67,000 people die each year due to renal failure, the 9<sup>th</sup> leading cause of death in America.

About 1 in 6 individuals have kidney disease, and over 400,000 patients are on dialysis or have received kidney transplants.

Kidney disease is more common in Asian-Americans, African-Americans, and Hispanics.

CKD can be a silent disease; you may not know you have it until irreversible damage has occurred.

# **Community Outreach Results**

- Since 2007, KDSAP has screened and educated over 3000 community members about kidney disease in 13 different communities across Massachusetts**

# **Student Development: Leadership in Community Service**

- Serving as a board member**
- Serving as a health screening manager, volunteer coordinator, or station leader**
- Giving health education talks to community groups**

# **Student Development: Mentorship and Career Exposure:**

**“Meet the Professor” speaker series  
“Meet the Patient” speaker series**

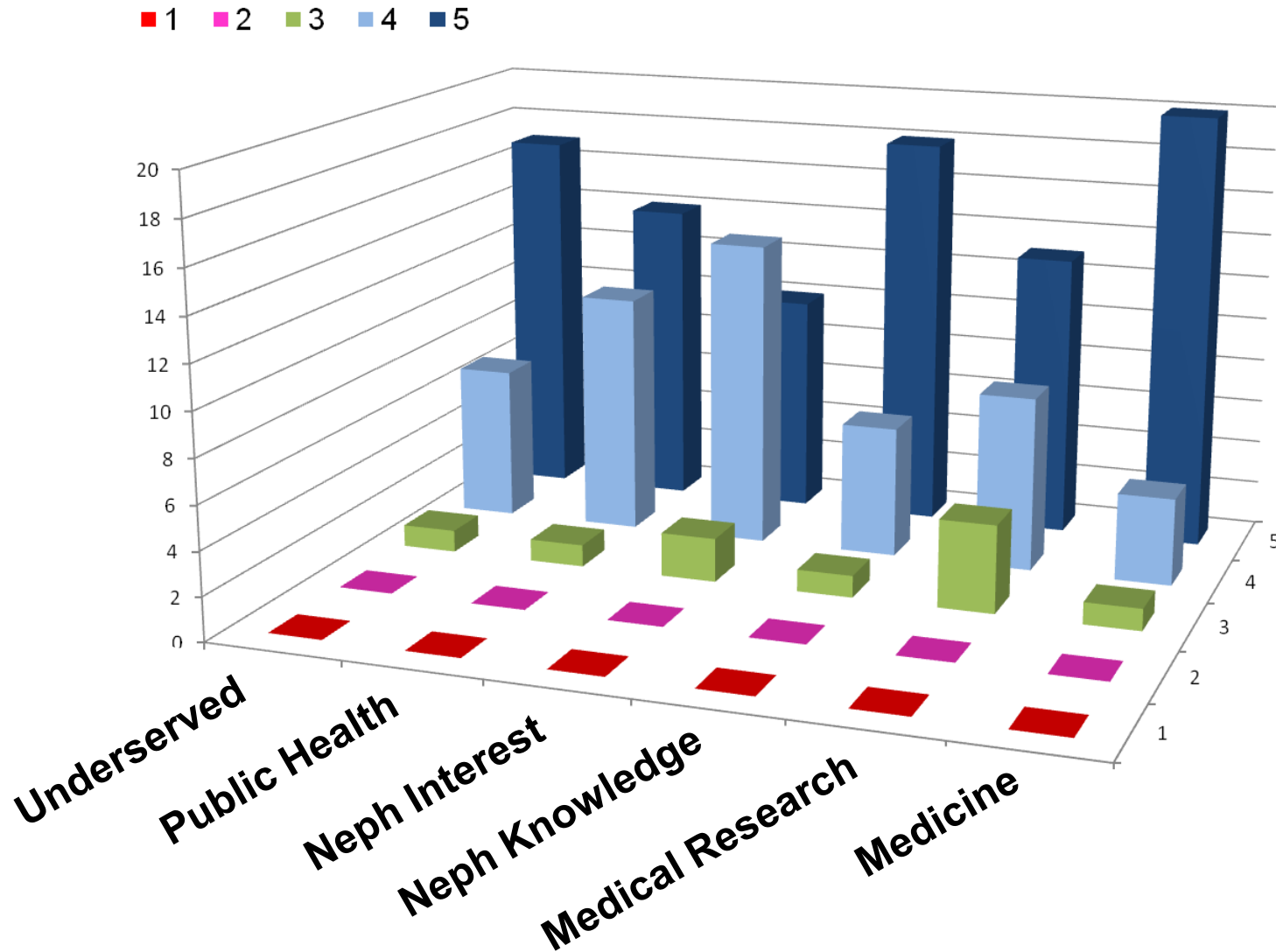
**Blood Pressure Training Workshops  
University Precaution and Professionalism**

**Clinical Shadowing**

**Hierarchical Mentoring**



# KDSAP has a positive influence on students' interests in various aspects of medicine



# Summary

- CKD is a major public health problem with low patient awareness and racial disparities.
- Nephrology faces a workforce shortage to care for patients with CKD.
- KDSAP raises awareness of CKD and identifies at-risk individuals through its community outreach activities.
- KDSAP has a strongly positive influence on student interest in nephrology, medicine, and the underserved.

# Conclusion

- KDSAP addresses the problem of CKD in the community and gives students a positive impression of nephrology.
- KDSAP can serve as a model for potentially increasing the nephrology workforce.

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