Diabetes and Chronic Kidney Disease: Population Health Strategies to Improve Quality of Care and Reduce Cardiovascular Risk

June 6, 2024
Important Reminders

• The webinar will last approximately 60 minutes
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• This session will be recorded.
• The recording and electronic copy will be available in approximately one week.
• You will receive an email very soon after this session/webinar asking for your evaluation of this training session. Your feedback is greatly appreciated.
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At any time during the webinar, you can ask questions. Please use the chat feature to send your questions to the panelists. At the end of the webinar, we will answer all questions.

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There will be a few poll questions that the presenter will ask you to answer. At the designated time, you will can answer the poll using the Chat Box and respond to the entire audience. The presenter will read the responses after the poll is closed.
There will be a few poll questions that the presenter will ask you to answer. At the designated time, you will see Poll Box pop-up and you can respond the questions. The presenter will read the responses after the poll is closed.
Panelists
National Kidney Foundation

Katelyn Laue
Senior Director, Program Development

Keyerra Charles
Senior Director, Health Equity

Amanda Crowley-Rios
Senior Director, Programs

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Managing CKD Population Health in the Safety Net Health Setting:

Opportunities to Improve Quality of Care and Reduce Cardiovascular Risk

June 6, 2024
Learning Objectives

• Describe the risk factors and cardiovascular impacts of CKD.
• Analyze the population health and health equity impacts of undiagnosed CKD in people with diabetes and the overall farmworker population.
• Articulate quality improvement strategies to improve health outcomes and reduce costs of care.
Poll- Getting to Know the Audience

- What is your role in the care team?
  - Physician
  - Advanced Practitioner (NP/PA)
  - Nurse
  - Dietitian
  - Social Worker
  - Community Health Worker/Care Manager
  - Medical Assistant/LPN
  - Other

- Which migrant stream region do you practice in? (Please share your state in the chat)
  - Eastern
  - Midwest
  - Western
Overview of CKD, Complications and Health Equity
Chronic Kidney Disease

- Affects 15% of adult population
  - 37 million Americans
- Represents 15% of Medicare population but represents 25% of the spend
- 90% remain undetected including almost 40% of people in ESRD
- 80% of undiagnosed patients already have diagnostic information in their medical record

**CKD Prevalence, Diagnosis, & CVD Risk**

- **Prevalence**
- **CKD Diagnosis**
- **Age-Standardized Rates of CVD Events**

Increased utilization
Increased hospitalization
Increased mortality

### Chronic Kidney Disease

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- 37 million Americans
- Represents 15% of Medicare population but represents 25% of the spend
- 90% remain undetected including almost 40% of people in ESRD
- 80% of undiagnosed patients already have diagnostic information in their medical record


CKD Risk Factors

- Diabetes
- High Blood Pressure
- Cardiovascular Disease
- Age > 60 Years
- Obesity
- Family History of CKD
- Personal History of AKI

“Cardiovascular-kidney-metabolic health reflects the interplay among metabolic risk factors, chronic kidney disease, and the cardiovascular system and has profound impacts on morbidity and mortality.”
**Longstanding Health Disparities Exist in Kidney Disease**

<table>
<thead>
<tr>
<th>Communities of color less likely to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Be tested for CKD</td>
</tr>
<tr>
<td>- Receive timely referral to nephrology</td>
</tr>
<tr>
<td>- Utilize home dialysis</td>
</tr>
<tr>
<td>- Employ peritoneal dialysis</td>
</tr>
<tr>
<td>- Receive a fistula</td>
</tr>
<tr>
<td>- Be identified as a candidate for transplant</td>
</tr>
<tr>
<td>- Be referred for transplant evaluation</td>
</tr>
<tr>
<td>- Be placed on the waiting list</td>
</tr>
<tr>
<td>- Secure a living donor</td>
</tr>
<tr>
<td>- Receive a kidney transplant</td>
</tr>
</tbody>
</table>

**Black Americans make up 13% of the US population but represent 33% of end-stage kidney disease population.**

- Black Americans are 3.8 times more likely to develop ESKD,
- Native Americans are 2.3 times more likely to develop ESKD,
- Hispanic Americans are 2 times more likely to develop ESKD,
- Asian Americans are 1.4 times more likely to develop ESKD (compared to White Americans)

**Rural communities:**
- More likely to be uninsured
- Have less access to primary care for diagnosing
- Have less access to kidney specialist to manage care
- Rural dialysis facilities were less likely to offer home dialysis as an option
- Rural patients were more often on home dialysis, but only because they traveled to urban dialysis centers for care
- Have higher risk for mortality while being on dialysis
Interrelationship Between Socioeconomics and CKD

Residential segregation

- Poor educational systems, overcrowding, poor housing, increased environmental toxin & infectious disease exposures, chronic inflammation

Discrimination

- Depression, chronic stress (neuro-hormonal activation, oxidative stress), maladaptive health behaviors: alcohol/substance abuse, smoking, inactivity, overeating

Uninsured/Underinsured

- Limited health care access & utilization
- Reduced CKD & CKD risk factor prevention & treatment

Cumulative biopsychosocial vulnerabilities & resistances

- Low birth weight, Obesity, Diabetes, Hypertension, Cardiovascular disease, Endothelial Dysfunction

Low birth weight, Obesity, Diabetes, Hypertension, Cardiovascular disease, Endothelial Dysfunction

CKD & CKD Progression

ESRD/Premature Mortality

ESRD: End-Stage Renal Disease

Burden of Chronic Disease among Farmworker Population

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of Agricultural Worker Patient with Diagnosis, 2021 (n = 1,015,162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight/obesity</td>
<td>259,083</td>
</tr>
<tr>
<td>Hypertension</td>
<td>115,908</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>91,124</td>
</tr>
<tr>
<td>Anxiety disorders, including post-traumatic stress disorder (PTSD)</td>
<td>51,087</td>
</tr>
<tr>
<td>Other mental disorders, excluding drug or alcohol dependence</td>
<td>36,788</td>
</tr>
<tr>
<td>Depression &amp; other mood disorders</td>
<td>36,317</td>
</tr>
<tr>
<td>Asthma</td>
<td>25,665</td>
</tr>
<tr>
<td>Lack of expected normal physiological development (such as delayed</td>
<td>23,474</td>
</tr>
<tr>
<td>milestone, failure to gain weight, failure to thrive), nutritional</td>
<td></td>
</tr>
<tr>
<td>deficiencies in children only. This does not include sexual or mental</td>
<td></td>
</tr>
<tr>
<td>development.</td>
<td></td>
</tr>
<tr>
<td>Contact dermatitis and other eczema</td>
<td>14,587</td>
</tr>
</tbody>
</table>

https://www.ncfh.org/naws-fact-sheet.html

Non traditional Risk Factors for Kidney Disease

Best Practices for Identifying and Managing CKD
Poll- How would you rate your capacity or readiness to manage CKD in your population?

1. Not at all ready
2. Slightly Ready
3. Somewhat Ready
4. Ready
5. Extremely ready/Already managing

Poll- What are the barriers to managing CKD in your clinic/system?

1. Knowledge or medications, lifestyle, and other therapies to manage CKD in primary care
2. Capacity or time
3. Competing priorities/level of urgency
4. Patient level social or cultural barriers
5. Unsure how to talk to patients about it/ Lack of access to patient resources or education material
6. Cost of treatments
7. Other (describe in chat)
Two guideline-recommended tests to diagnose and risk stratify CKD:

- Serum creatinine with eGFR
- Urine albumin-creatinine ratio

Classification of CKD Based on GFR and Albuminuria Categories: “Heat Map”

<table>
<thead>
<tr>
<th>GFR categories (mL/min/1.73 m²)</th>
<th>Description and range</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Normal or high</td>
<td>≥90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>Mildly decreased</td>
<td>60-89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3a</td>
<td>Mildly to moderately decreased</td>
<td>45-59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3b</td>
<td>Moderately to severely decreased</td>
<td>30-44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G4</td>
<td>Severely decreased</td>
<td>15-29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G5</td>
<td>Kidney failure</td>
<td>&lt;15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Albuminuria categories</th>
<th>Description and range</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Normal to mildly increased</td>
<td>&lt;30 mg/g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>Moderately increased</td>
<td>30-299 mg/g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>Severely increased</td>
<td>≥300 mg/g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Green: low risk (if no other markers of kidney disease, no CKD); Yellow: moderately increased risk; Orange: high risk; Red, very high risk. KDIGO 2012
80.3% of at-risk patients did not receive guideline concordant assessment (eGFR + uACR)

28,295,982 at-risk patients (16.2% diabetes/63.8% hypertension/20.1% diabetes and hypertension)


2018 Data

No data available

<table>
<thead>
<tr>
<th>Diabetes &amp; Hypertension</th>
<th>41.4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>10.5%</td>
</tr>
</tbody>
</table>
So how’s CKD care in America?

<table>
<thead>
<tr>
<th>2006-2008</th>
<th>2012-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP checked?</td>
<td>BP checked?</td>
</tr>
<tr>
<td>89%</td>
<td>93%</td>
</tr>
<tr>
<td>P=0.025</td>
<td>P=0.072</td>
</tr>
<tr>
<td>BP &gt; 130/80?</td>
<td>BP &gt; 130/80?</td>
</tr>
<tr>
<td>46%</td>
<td>48%</td>
</tr>
<tr>
<td>p=0.50</td>
<td>p=0.92</td>
</tr>
<tr>
<td>A1c &gt; 7%</td>
<td>A1c &gt; 7%</td>
</tr>
<tr>
<td>N/A</td>
<td>40%</td>
</tr>
<tr>
<td>ACEi or ARB</td>
<td>ACEi or ARB</td>
</tr>
<tr>
<td>45%</td>
<td>36%</td>
</tr>
<tr>
<td>Statin in Age &gt; 50</td>
<td>Statin in Age &gt; 50</td>
</tr>
<tr>
<td>29%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Conclusions: Patients with diagnosed CKD had a high prevalence of uncontrolled hypertension and diabetes. ACE and ARB use decreased and statin use was low and did not improve over time.

Evaluating Risk of CKD Progression

Concept Flow Map

Diabetes
Hypertension
Cardiovascular disease

Determine individual or population-level risk

CKD screening

eGFR uACR

CKD diagnosis confirmed

Risk stratification for staging and prognosis

Treatment

Individual patient re-screening

No CKD diagnosis

Blood Pressure control
Kidney and cardioprotective medications
ACEi or ARB
SGLT-2 inhibitors
Non-steroidal MRA

Glycemic control
Manage CKD complications
Vaccinations
Medication management by GFR
Reduce cardiovascular risk
Interdisciplinary care

Patient, Caregiver, Interdisciplinary Care Team

Interventions for Slowing CKD Progression and Reducing CV Risk

New therapies have been demonstrated to reduce CKD progression and associated CVD risk by as much as 30%

- **nsMRA**: non-steroidal mineralocorticoid receptor antagonist
- **GLP-1 RA**: glucagon-like peptide 1 receptor agonist
- **ACEI/ARB**: angiotensin converting enzyme inhibitor/angiotensin receptor blocker
- **SGLT-2i**: sodium-glucose cotransporter-2 inhibitor
- **NSAID**: nonsteroidal anti-inflammatory drug

- **Some patients with CKD**
- **Many patients with CKD**
- **Most patients with CKD**
- **All patients with CKD**

*Current product labeling requires concurrent T2DM diagnosis

ACEI/ARB Considerations

First-line therapy to **slow CKD progression, lower BP (if needed), and decrease CV risk**

- Indicated in the presence of **hypertension** or **albuminuria** (uACR > 300 OR uACR >30 + DM)
- Recommendation includes **Black patients**
- Evidence **does not support** giving ACEI/ARB preventatively in DM without HTN or albuminuria (i.e. “kidney protection”)
- Lower starting dose in advanced kidney disease or if patient without hypertension
- Titrated to highest tolerated/approved dose
- **Continue until dialysis (if tolerated)**

Clinical Pearls

- **Avoid the combination** of ACEI and ARB
- History of angioedema with ACEI?
  - Consider an ARB - cross-reactivity is low < 10%; discuss risks & benefits with patient

Patient/Laboratory Monitoring

- SCr will go up – this does not necessarily mean worsening kidney function (<30% is reasonable/expected)
- Potassium will also likely go up - monitor for hyperkalemia

ACEI: angiotensin converting enzyme inhibitor; ARB: angiotensin receptor blockers; BP: blood pressure; CV: cardiovascular; DM: diabetes; HTN: hypertension; SCr: serum creatinine; uACR: urine albumin-creatinine ratio

Population Health for CKD and Diabetes: Lessons from the Indian Health Service

“The 54% reduction in incidence occurred in this population during a 20-year period despite per capita health expenditures equaling only ~40% of that spent in the US civilian population. Although one might expect such a dramatic decrease in disease in this high-risk disadvantaged population to be associated with novel and costly new therapies, the medical interventions implemented by the IHS were routine: glucose control, blood pressure control, and use of renin-angiotensin-aldosterone system (RAAS) antagonists in appropriate patients. However a systematic population-based approach was instituted to implement this evidence-based care.”

Measures for CKD Care included in IHS Diabetes Care & Outcomes Audit Intervention

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve average Hemoglobin A1C among people with DM</td>
<td>10%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Continue blood pressure control among people with DM and CKD</td>
<td>133/76 mmHg</td>
<td>133/76 mmHg</td>
</tr>
<tr>
<td>Increase Urine Albumin-Creatinine Ratio Testing for early detection</td>
<td>50%</td>
<td>62%</td>
</tr>
<tr>
<td>Increase use of Ace Inhibitors (ACE) and Angiotensin Receptor Blockers (ARB)</td>
<td>42%</td>
<td>73%</td>
</tr>
</tbody>
</table>

Intensive focus on mitigating health-related social needs and lifestyle impacts included in this intervention

NKF Strategies, Tools, & Resources
CKD Change Package

Learning Collaborative

CKD Data Strategy
Online Tools

- eGFR Calculator
- CKD Care Algorithm
- Heat Map Teaching Card
- KDOQI Guidelines
Community Health Worker Education

Tools and training to educate CHW’s in the awareness and prevention of CKD among those they serve

- 8 modules covering:
  - Kidney Disease and Risk Factors
  - Living with Kidney disease: Social Determinants of Health
  - CKD and Notes on Nutrition
  - Kidney Failure Treatment and Care
  - CHW Unite to improve CKD care

- Self paced learning
- Created for CHW, Health Navigators, Care Coordinators
Educational Resources for Patients/Community Members

Available in English and Spanish

**NKF Kidney Risk Quiz:**
- Brief (5-8 question) quiz to identify individuals at highest risk for CKD.
- Kidney Risk Campaign toolkit available for spreading increased awareness of kidney health
Flyers:
- Summarizes densely packed educational information found in various web pages, brochures and other NKF deliverables.
- Translated in various languages
Patient Solutions
for Health Professionals

As you support those living with kidney disease, remember that NKF offers a suite of patient education and peer support programs in English and Spanish.

Explore the programs to see what is available to supplement the clinical care your practice or organization already provides.

kidney.org/professionals/patient-solutions-health-professionals
The National Kidney Foundation provides education, resources, recipes, and more to help you better understand your kidney health and how to live well with kidney disease.

We Are Here To HELP

**Kidney Learning Center**
Access self-paced, interactive education on kidney transplant and living donation, at no cost! NKF’s Kidney Learning Center has answers for you.

**Healthy Recipes**
Find a recipe that’s right for you. Search by diet needs like low sugar or nut free, etc., and meal type like breakfast, snacks, side dishes, and more!

**Peer Support**
NKF PEERS is a peer mentoring program, where kidney patients are connected via phone with trained mentors who have been there themselves.

Have questions about kidney disease? We can help!

1-855-NKF-CARES
(855.653.2273)
Hablamos Español
A range of educational topics are delivered by patients and living donors in video format:

- Kidney Disease Education: CKD Basics
- Treatment Options
- First Steps to Transplant
- Finding a Living Donor
- Becoming a Living Donor
- After Transplant

Free Kidney Health Education

In English and Spanish!

Learningcenter.kidney.org
Aprender.kidney.org
Poll- What resources are you most interested in?

- Clinician Education/training
- Quality improvement tools to improve CKD testing/management
- CHW training
- Patient education materials
- Local programs
- Other (please describe or write in chat)
Thank You!

For more information:

Katelyn.Engel@kidney.org
Amanda.Crowley@kidney.org
Keyerra.charles@kidney.org
Jil.dubbs@kidney.org
Questions/Discussion
Learning Session Evaluation

Survey link: https://www.surveymonkey.com/r/88FQ9JZ
NCFH Commemorative Artwork

www.ncfh.org/store/c3/Commemorative_Artwork.html

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Helpline for Farmworkers and their families

• Connects Farmworkers to healthcare and social services

• Assists with limited financial resources for health services

Una Voz Para La Salud
Call for Health

1 (800) 377-9968
1 (737) 414-5121 WhatsApp

http://www.ncfh.org/callforhealth.html
The **Farmworker Health Network** works cooperatively with HRSA to provide training and technical assistance to over **a thousand Community & Migrant Health Centers** throughout the U.S.
Farmworker Health Network

- Farmworker Justice  http://www.farmworkerjustice.org
- Health Outreach Partners  http://www.outreach-partners.org
- MHP Salud  http://www.mhpsalud.org
- Migrant Clinicians Network  http://www.migrantclinician.org
- National Association of Community Health Center  http://www.nachc.com

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