

Co-Management of Chronic Kidney Disease: Removing Barriers, Reducing Inequities, and Improving Outcomes

Slides



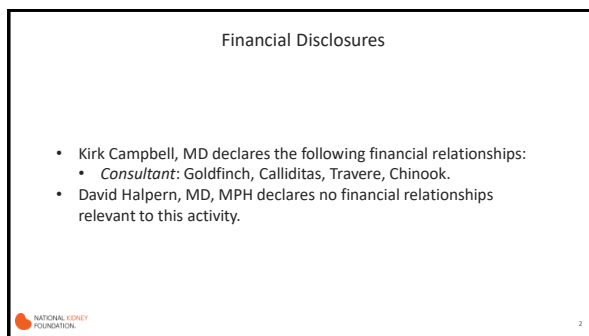
Co-management of Chronic Kidney Disease (CKD): Removing Barriers, Reducing Inequities, and Improving Outcomes

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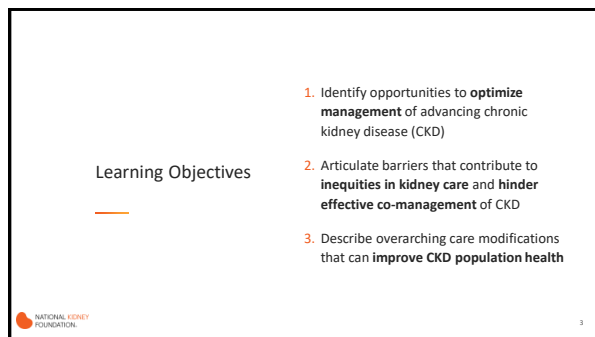


Financial Disclosures

- Kirk Campbell, MD declares the following financial relationships:
 - *Consultant:* Goldfinch, Calliditas, Travers, Chinook.
- David Halpern, MD, MPH declares no financial relationships relevant to this activity.

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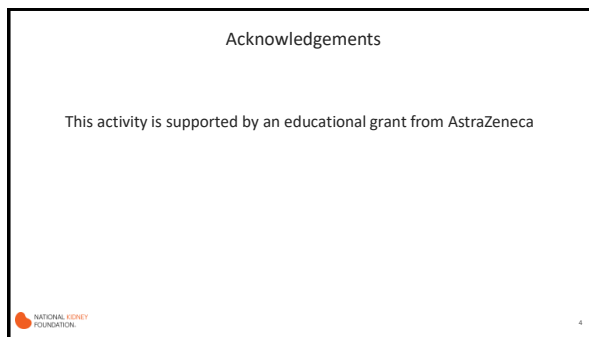


Learning Objectives

1. Identify opportunities to **optimize management** of advancing chronic kidney disease (CKD)
2. Articulate barriers that contribute to **inequities in kidney care** and **hinder effective co-management** of CKD
3. Describe overarching care modifications that can **improve CKD population health**

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Acknowledgements

This activity is supported by an educational grant from AstraZeneca

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A

Recognition of CKD Risk Factors

Diabetes

High Blood Pressure

Cardiovascular Disease

Age > 60 Years

Social Determinants of Health

Obesity

Family History of CKD

Personal History of AKI

Smoking & Tobacco Use

US Centers for Disease Control and Prevention. CKD Risk Factors and Prevention.
<https://www.cdc.gov/kidneydisease/citations/resources/resource-reports/ckd-risk-prevention.html>

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A

CGA Staging for CKD:
Cause, GFR category, Albuminuria category

CKD is defined as abnormalities of kidney structure or function for > 3 months such as eGFR < 60 OR uACR ≥ 30 (or other marker of kidney damage)

CAUSE

- Diabetes
- Hypertension
- Polycystic kidney disease
- Glomerulonephritis
- Other (e.g., SLE, HIV, CHF)
- Unknown

GFR Category
eGFR (mL/min/1.73m²)

- G1*: ≥ 90 + kidney damage
- G2*: 60-89 + kidney damage
- G3a: 45-59
- G3b: 30-44
- G4: 15-29
- G5: < 15 or on dialysis

Albuminuria Category
uACR (mg/g)

- A1: <30
- A2: 30-299
- A3: ≥300

Inter JA, et al. Am J Kidney Dis. 2014;63(5):713-725.
KDIGO. Kidney Int Suppl. 2012;3:1-150.

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A

CKD Risk Stratification and Guidance on Referral & Assessment Frequency

Colors: risk of CKD progression & CKD complications (see legend below figure)

Numbers: guide to the recommended frequency of screening or monitoring (number of times per year)

These are general parameters only, based on expert opinion, and underlying comorbid conditions and disease state must be taken into account, as well as the likelihood of impacting a change in management for any individual patient.

GFR category (mL/min/1.73 m ²)	CKD is classified based on: Cause (C) + GFR (G) + Albuminuria (A)	Albuminuria categories Description and range		
		A1	A2	A3
G1	Normal or high	Normal to mildly increased ≤30 mg/g ≤3 mg/mmol	Moderately increased 30-299 mg/g 3-29 mg/mmol	Severely increased ≥300 mg/g ≥30 mg/mmol
G2	Mildly decreased	Normal	Treat	Treat and refer
G3a	Mildly to moderately decreased	Treat	Treat	Treat and refer
G3b	Moderately to severely decreased	Treat	Treat and refer	Treat and refer
G4	Severely decreased	Treat and refer	Treat and refer	Treat and refer
G5	Kidney failure	Treat and refer	Treat and refer	Treat and refer

Low risk (if no other markers of kidney disease, no CKD)

Moderately increased risk

High risk

Very high risk

de Zeeuw D, et al. Kidney Int. 2022;202(2):574-589.

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B E

Recommended Blood Pressure & Diabetes Targets

Condition	KDIGO/KDOQI (Patient-level)	NCQA/HEDIS (Population-level)
Blood pressure	Without diabetes: <ul style="list-style-type: none">SBP < 120 (when tolerated) using standardized office BP measurement With diabetes: <ul style="list-style-type: none">SBP < 130 using standardized office BP measurement <div>Individualized A1C goal ranging from <6.5% to <8% depending on:<ul style="list-style-type: none">Severity of CKDPresence of macrovascular complicationsComorbiditiesLife expectancyHypoglycemia awarenessResources for hypoglycemia managementPropensity of treatment to cause hypoglycemia</div>	<div>Age 18-85:<ul style="list-style-type: none">SBP < 140DBP < 90</div> <div>Age 18-75:<ul style="list-style-type: none">A1C < 8%</div>

Draves PE, et al. Am J Kidney Dis. 2022;79(3):311-327.
National Committee for Quality Assurance. Controlling High Blood Pressure (CBP). <https://www.ncqa.org/health/measures/controlling-high-blood-pressure/>
de Zeeuw D, et al. Kidney Int. 2022;202(2):574-589.
National Committee for Quality Assurance. Comprehensive Diabetes Care (CDC). <https://www.ncqa.org/health/measures/comprehensive-diabetes-care/>

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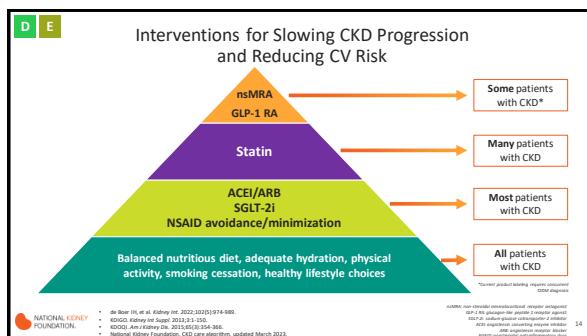
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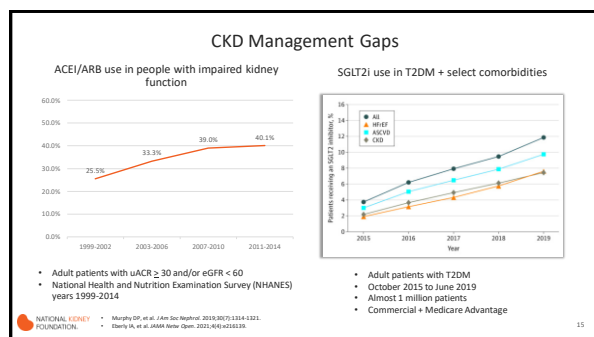
Complication	Approaches
Anemia	<ul style="list-style-type: none"> CKD3a+: evaluate if Hgb < 13 g/dL (men) or < 12 g/dL (women) Treat iron deficiency first Refer to nephrology if Hgb < 10 g/dL to consider ESA if favorable risk/benefit (Target 9-11.5)
CKD-MBD	<ul style="list-style-type: none"> CKD 3a+: evaluate calcium, phosphate, 25-OH vit D, and IPTH Supplement vitamin D deficiency Refer to nephrology if hyperphosphatemia or significant IPTH elevation
Metabolic Acidosis	<ul style="list-style-type: none"> Bicarbonate goal 22-26 mEq/L Promote base-producing diet Consider sodium bicarbonate supplementation if < 22 mEq/L
Hyperkalemia	<ul style="list-style-type: none"> Concurrent conditions (e.g., CVD, diabetes) increase risk Monitor, reduce, or manage ongoing contributors to high potassium (diet, medications)
Infection	<ul style="list-style-type: none"> Ensure immunization records are up to date Vaccination for influenza (all CKD), pneumococcus (CKD 4+), full COVID-19 series
Depression	<ul style="list-style-type: none"> Regular assessment for impairment of functioning and well-being
Miscellaneous	<ul style="list-style-type: none"> Vein preservation (CKD3b+: consider avoid PICC lines when possible, especially for CKD 4+)

NATIONAL KIDNEY FOUNDATION • Vaswani J, et al. Am J Med. 2018;131(2):153-162.
• National Kidney Foundation. CKD care algorithm, updated March 2023.

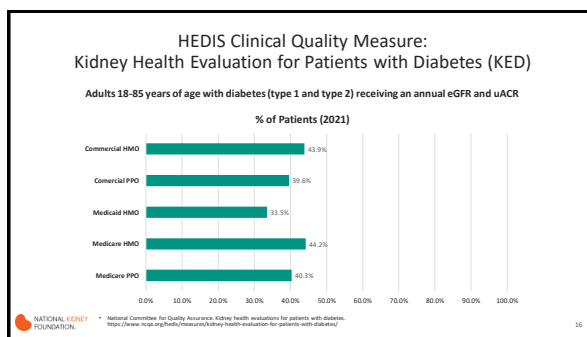
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Discussion Themes:
CKD Detection and Treatment

Clinician underappreciation for utility of uACR	Patients' limited knowledge & awareness of CKD	Patients receiving mixed messages/advice from their different providers
Clinician discomfort with letting eGFR go down a bit if it can help long-term (e.g., ACE/ARB, SGLT2)	Clinician unawareness of tools, calculators, alerts available to them in electronic medical record	Limited time during an appointment
Patients have conflicting priorities that compete with their health	Anticipatory guidance in documentation to help cut therapeutic inertia (e.g., therapeutic goals, next steps)	Understanding laboratory accuracy (e.g., common explanations for anomalies in results)

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Polling Question #1

Which statement describes a correct approach to applying population health principles to managing CKD?

- Treat individual patients to the HEDIS-recommended blood pressure target
- Use patients' eGFR values as the sole factor for stratifying their overall health risk
- Ensure all patients with CKD in your practice are on an SGLT-2 inhibitor
- Leverage existing data within the electronic medical record to identify gaps

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Health Inequity in CKD Care:
A Principal Barrier



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Inequities = Impact

The effect of historical and persistent inequities is reflected in the marked social gradient in the incidence of chronic diseases, such as CKD, CKD risk factors (e.g., hypertension, diabetes, obesity, cardiovascular disease), and CKD outcomes.

NATIONAL KIDNEY FOUNDATION • Harris KC, et al. Clin J Am Soc Nephrol. 2023;13(10):809-811.

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Health Equity

Health equity is the state in which **everyone** has a **fair and just opportunity** to attain their **highest level of health**.

Achieving health equity requires ongoing societal efforts to:

- Address historical and contemporary injustices
- Overcome economic, social, and other obstacles to health and health care
- Eliminate preventable health disparities

• U.S. Centers for Disease Control and Prevention. What is health equity? <https://www.cdc.gov/healthequity/index.html>
 • Robert Wood Johnson Foundation. Visualizing health equity: one size does not fit all infographic. <https://www.rwjf.org/en/imgs/our-research/infographics/visualizing-health-equity.html>

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Social Determinants of Health (SDOH)

• U.S. Department of Health and Human Services. Social determinants of health. <https://health.gov/healthypeople/2020/social-determinants-health>
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ESKD incidence is similar across Social Deprivation Index (SDI) scores within each race, but not across races

Figure 14.9 Adjusted Incident ESKD rate by race/ethnicity and Social Deprivation Index, 2020
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Social Deprivation Index (SDI) is a composite measure of area-level deprivation based on:

- % living in poverty (<100% FPL),
- % with less than 12 years of education,
- % single-parent households,
- % living in rented housing units,
- % living in the overcrowded housing units,
- % of households without a car, and
- % non-employed adults 16-64 years of age

A higher number is associated with higher levels of social disadvantage

• Robert Graham Center. Social deprivation index (SDI). <https://www.grahamcenter.org/maps-data/health/social-deprivation-index.html>
 • United States Renal Data System. Racial and ethnic disparities. <https://www.USRDS.org/docs/default-source/2022/supplements-covid-19-disparities/24-racial-and-ethnic-disparities>

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eGFR Equations Without a Race Variable

Do the current eGFR equations disadvantage the black patients?
 Eneanya ND, Yang W, Reese PP. Reconsidering the Consequences of Using Race to Estimate Kidney Function. JAMA. 2021; November 2; July 9, 2019.
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Recommendations of NKF/ASN Task Force on Reassessing the Inclusion of Race in Diagnosis Kidney Disease

Immediate implementation of the CKD-EPI creatinine equation refit without the race variable

National efforts to facilitate increased, routine, and timely use of Cystatin C, especially to confirm eGFR in clinical-decision making

Encourage & fund research on:

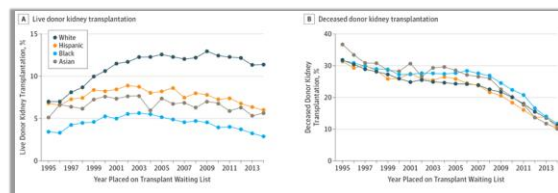
- GFR estimation with new endogenous filtration markers, and
- Interventions to eliminate racial and ethnic disparities

NATIONAL KIDNEY FOUNDATION • Delgado C, et al. Am J Kidney Dis. 2022;79(2):268-285.

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Live vs. deceased donor kidney transplantation among US adults on the kidney transplantation waiting list

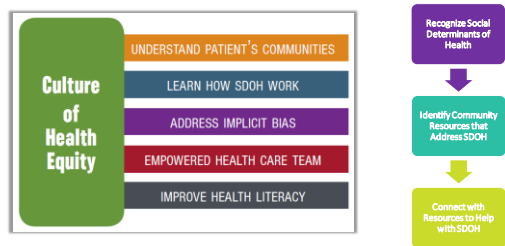


NATIONAL KIDNEY FOUNDATION • Furnell TS, et al. JAMA. 2018;319(1):49-61.

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Addressing Health Disparities

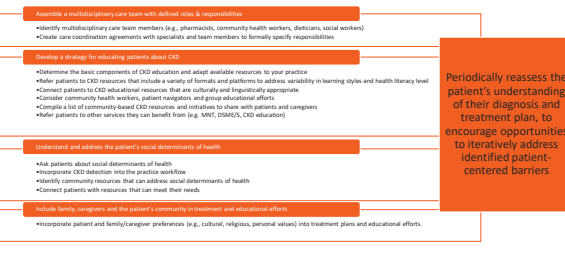


NATIONAL KIDNEY FOUNDATION • American Academy of Family Physicians. Addressing social determinants of health in primary care. https://www.aafp.org/familyphysician/patient_care/primary_care/primary_care-based-approach.pdf

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Centering Care on the Patient



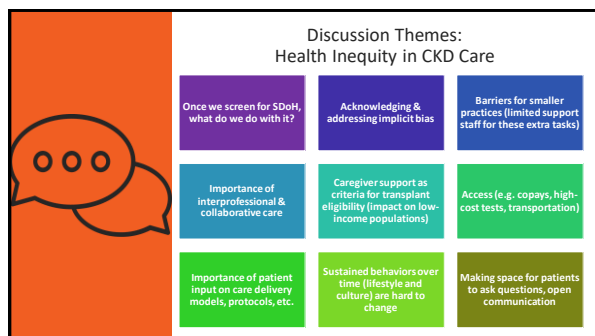
NATIONAL KIDNEY FOUNDATION • Centers for Medicare & Medicaid Services. CKD Disparities: educational guide for primary care. <https://www.cms.gov/medicare/medicare-claims-manual/duration/chronic-kidney-disease-disparities-educational-guide-primary-care.pdf>

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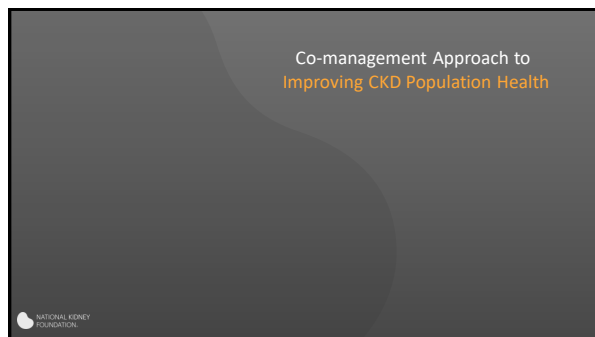
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Polling Question #2

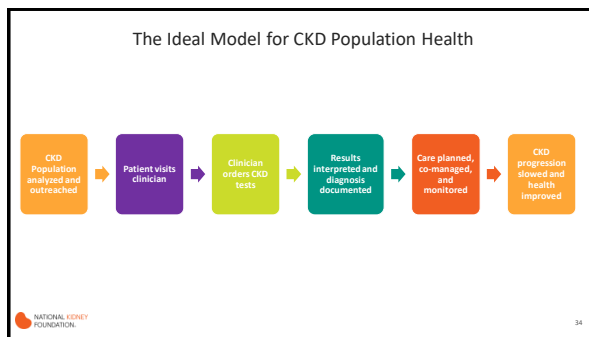
Which statement correctly describes a potential downstream effect of using race as a factor when calculating the eGFR for a patient who identifies as Black?

- A. A higher dose of medication than recommended
- B. Earlier diagnosis of chronic kidney disease
- C. Earlier initiation of hemodialysis
- D. Increased likelihood of having a CKD diagnosis

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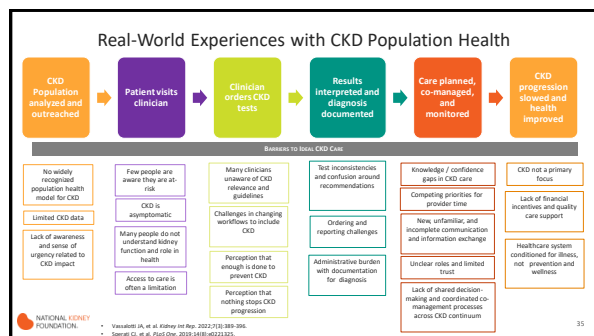
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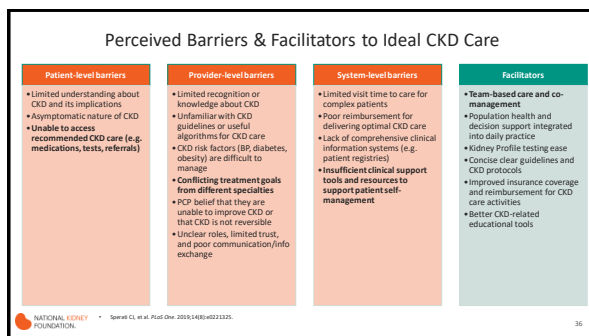
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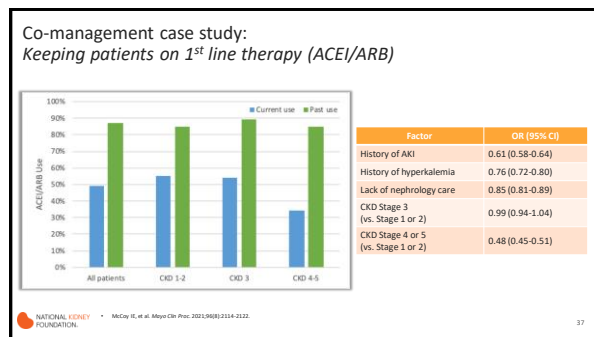
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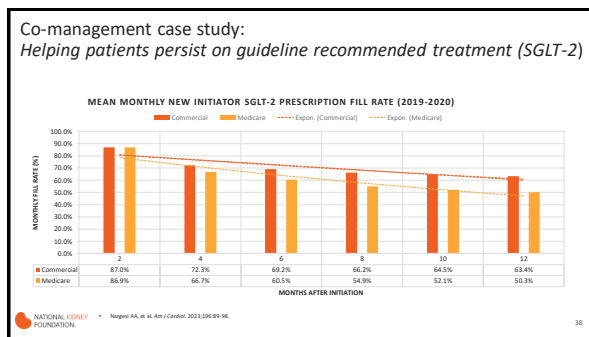
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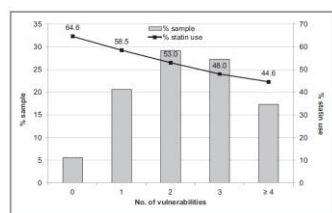


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Co-management case study: Improving statin adherence, especially in patients at highest CV risk



• Reasons for Geographic And Racial Differences in Stroke (REGARDS) Study

• Bars represent % of study sample with each cumulative number of vulnerabilities
• Line represents % of study sample taking statins in each category

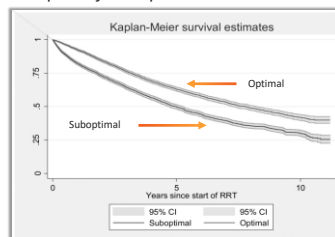
• "Vulnerabilities" included:

1. Age >65
2. Female sex
3. Black race
4. Area-level of poverty >= 10%
5. No health insurance

NATIONAL KIDNEY FOUNDATION • Schroll F, et al. J Am Heart Assoc. 2017;6(5):e015415.

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Co-management case study: The impact of an "optimal start" to RRT



Definition of "optimal start" for this study:

- Definitive access to dialysis
- Planned dialysis start
- Minimum 6-month follow-up by a nephrologist
- First dialysis method coinciding with the one registered at 90 days

NATIONAL KIDNEY FOUNDATION • Mathew AC, et al. PLoS One. 2019;14(7):e0219037.

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Co-management case study: The impact of an "optimal start" to RRT

TABLE 2. Unadjusted Utilization in the Year Before Starting Renal Replacement Therapy for Propensity Score-Matched Cohorts

	Optimal Start (n = 1624)	Nonoptimal Start (n = 1624)	P
Inpatient stays	1.3	1.6	<.001
Total inpatient days	6.0	12.6	<.001
ED visits	2.2	2.2	.59
Outpatient office visits			
Primary care	4.3	4.1	.16
Specialty care*	9.8	7.4	<.001
Nephrology	5.4	3.1	<.001
Vascular surgery	2.1	0.8	<.001

ED indicates emergency department.
*Does not include nephrology or vascular surgery.

*"Optimal Start" defined as: adult ESKD patients during the measurement period who experienced a planned start of RRT by 1) receiving a preemptive kidney transplant, 2) by initiating home dialysis, or 3) by initiating outpatient in-center hemodialysis via arteriovenous fistula or arteriovenous graft.

NATIONAL KIDNEY FOUNDATION • Crooks FW, et al. Am J Med Sci. 2018;345(3):400-411.

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TABLE 3. Healthcare Utilization in the Year After Starting Renal Replacement Therapy

	Optimal Start	Nonoptimal Start	Rate Ratio (95% CI)	P
Inpatient stays	1.5	2.7	0.54 (0.50-0.59)	<.001
Total inpatient days	9.4	27.5	0.45 (0.38-0.53)	<.001
ED visits	2.4	3.5	0.68 (0.63-0.74)	<.001
Outpatient office visits				
Primary care	4.0	4.4	0.88 (0.79-0.97)	.02
Specialty care*	12.5	18.0	0.62 (0.53-0.74)	<.001
Nephrology	5.1	4.7	0.98 (0.74-1.29)	.91
Vascular surgery	1.3	2.6	0.31 (0.20-0.54)	<.001

ED indicates emergency department.

*Adjusted for utilization in the year before renal replacement therapy initiation, preexisting stroke, regions and education.

*Does not include nephrology or vascular surgery.


Discussion Themes: CKD Co-Management

Ensure accurate coding for CKD diagnosis (often missing from patient record)	Relationship building and communication [among providers] are essential (yet can be difficult)	Strategies to increase capacity and care quality — leveraging interprofessional care
Difficult to find out who to contact at dialysis center (and how to contact them)	Clearly delineating roles & responsibilities among practices	Long waitlists, full panels, and practice closures are having a serious impact on patient care
Specialist making recommendations vs. following through on actions & follow-up?	Troubleshooting referral process — is it working and is the request clear?	Leveraging technology and documentation

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Polling Question #3

Which statement correctly describes a potential systems-level barrier to delivering ideal CKD care?

- A. Asymptomatic nature of CKD
- B. Perception that CKD progression cannot be stopped
- C. Insufficient resources to support patient self-management
- D. Limited interventions available for slowing CKD progression

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Additional Resources

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Commonly Identified Barriers to Optimal CKD Care

Time	• Practices are busy and coordinating care for patients with CKD takes extra time
EHR challenges	• Ineffective connectivity between EHRs (especially nephrology and PCP) • Data mining can take time and be costly
Support from leadership and payers	• With more time utilized, providers should be better compensated by payers when managing patients with CKD • Need for resources and support from leadership/administration
Coordination across disciplines	• Setting expectations for collaboration, communication, and approach to care for co-management of patients with CKD
Patient barriers	• Lack of CKD education resources and patient fears of treatments and/or dialysis
Resources	• Educational resources for CKD can be limited • There are usually more resources available for diabetes or hypertension than CKD (especially at earlier stages)
Staying up to date	• N.kid has changed with CKD treatments recently and it can be hard to keep up

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Potential Solutions for Working Through Commonly Identified Barriers


- **Coordinate care** through care management teams, regular huddles, and pre-visit planning
- **Assemble care management teams** including nurse care managers, social workers, pharmacists, mental health providers, and others as appropriate
- **Create best-practice alerts (BPAs)** in your electronic health record system and/or extract data to help identify gaps in care, abnormal lab tests, and high-risk groups
- **Leverage pay-for-performance** and similar value-based contracts with payors
- **Utilize NKF patient education resources** (e.g. AtoZ library <https://www.kidney.org/atoz>)
- **Use alternative care delivery methods** including telehealth, home health assessments by home care nurses, remote patient monitoring, and home visits
- **Ensure proper coding** to accurately capture the extra work you are already doing (especially capturing HCC diagnoses)
- **Leverage newer reimbursement opportunities** for "extra" activities you provide such as transitional care management (TCM) and chronic care management (CCM) coding

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Collaborative Care Agreements



Soft contract between primary care and nephrology teams with each team's responsibilities clearly delineated:

- Example responsibilities of primary care team**
 - Provide pertinent clinical information to inform the consultation prior to the scheduled visit
 - Initiate a phone call if the condition is emergent
 - Provide timely referrals with adequate number of visits to treat the condition
- Example responsibilities of nephrology team**
 - Timely communication of consultation (7 days routine & 48 hours emergent) – fax if no electronic information sharing
 - No consultation to other specialist initiated without primary care input
- How to convey a unified message to the patient?**

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Example CKD Collaborative Care Agreement

Collaborative Care Management

Mutual Agreement

- Define responsibilities between PCP, specialist and patient
- Clarify who is responsible for specific elements of care (drug therapy, referral, management, diagnostic testing, care teams, patient calls, patient education, monitoring, follow-up)
- Maintain competency and skills within scope of work and standard of care
- Give and accept respectful feedback when expectations, guidelines or standard of care are not met
- Agree on type of specialty care that best fits the patient's needs

Expectations

Primary Care	Specialty Care
<ul style="list-style-type: none"> Follows the principles of the Patient-Centered Medical Home or Medical Home Index Manages the medical problem to the extent of the PCP's scope of practice, abilities, and skills Follows standard practice guidelines or performs therapeutic trial of therapy prior to referral, when appropriate, following evidence-based guidelines Reviews and acts on care plan developed by specialist Resumes care of patient when patient returns from specialist care Explains and clarifies results of consultation, as needed, with the patient. Makes agreement with patient on long-term treatment plan and follow-up 	<ul style="list-style-type: none"> Reviews information sent by PCP Addresses referring provider and patient concerns Confers with PCP or establishes other protocol before orders additional services outside practice guidelines. Obtains proper prior authorization Confers with PCP before refers to secondary/tertiary specialists for problems with the PCP scope of care and uses a preferred list to refer when problems are outside PCP scope of care. Obtains proper prior authorization when needed. Sends timely reports to PCP to include a care plan, follow-up and results of diagnostic studies or therapeutic interventions. Notifies the PCP office or designated personnel of major interventions, emergency care, or hospitalizations. Prescribes pharmaceutical therapy in line with insurance formulary with preference to generics when available and if appropriate to patient needs Provides useful and necessary education, guidelines, and protocols to PCPs as needed

Additional agreements/etcs:

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CKD Population Health Co-Management Considerations

- Data Strategy to Identify CKD Risk Population
- Outreach for CKD Testing and Management
- Intake and Maintenance of Pertinent Patient Info (Demographics, test results, medication list, diet, functional status, social factors, engagement)
- Screen for CKD with Kidney Profile
- Diagnose CKD with Specificity
- Facilitate Shared Decision-Making and Self-Management
- Prevent CKD Progression & Reduce CV Risk (patient-specific situations may warrant different goals/treatment decision)
 - SBP/DBP
 - A1C/HbA1c
 - ACE/ARB, SGLT-2i, Statins, mMMA
 - Acute/chronic NSAIDs/Nephrotoxins
 - Smoking Cessation
 - Vaccinations
- Address Complications (e.g., anemia, CKD-MBD)
 - Treat Anemia (e.g., kidney, CBC, iron, MBL, Erythropoietin)
- Optimize Treatment
 - Treatment Modality Options Education (Palliative Care, Transplant, Peritoneal Dialysis, Home Hemodialysis, In-center Hemodialysis)
 - Safe Renal Diet and Potassium
 - Dietitian Referral and other Interprofessional Care Team member involvement, as appropriate
 - Nephrology Referral

Example scenarios when nephrology referral should be considered:

- eGFR <30 and/or eGFR decrease >30% in 4 months without explanation (emergent failure)
- Persistent proteinuria despite ACE i use
- Hypertension
- Resistant hypertension
- Anemia requiring erythropoietin stimulating agents
- Elevated phosphate and/or parathyroid hormone
- Unclear etiology CKD

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Kidney Failure Risk Calculator

About this calculator

- Developed in patients with CKD stages G3-G5 in Canada
- Validated in more than 700,000 individuals spanning 30+ countries worldwide.

The four and eight variable equations help predict the 2-year and 5-year probability of kidney failure for a potential patient with CKD Stage 3 to 5.

Determining the probability of kidney failure may be useful for patient and provider communication, triage and management of nephrology referrals, and timing of dialysis access placement and living related kidney transplant.

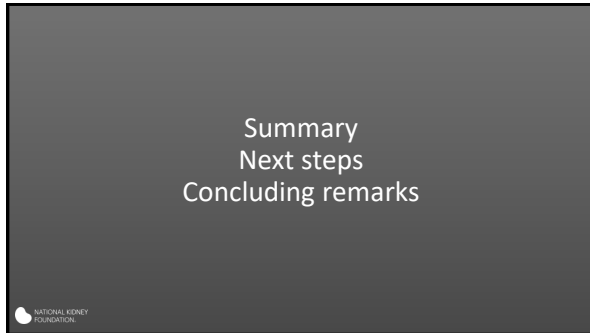
<https://kidneyfailurerisk.com/>

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