

Item S1. Example of a quarterly report provided to a health care team.

Dear provider:

The provider component of the Kidney Awareness Registry and Education (KARE) study aims to enhance the delivery of CKD care through a CKD registry.

Enclosed you will find data pertinent to your patients with CKD as well as those of your colleagues. Data include general demographic characteristics of your panel and information pertinent to patients with CKD. Based on current evidence, we are tracking the following important metrics, for which we will continue to provide quarterly feedback:

- % patients with blood pressure control < 140/90 mmHg for all individuals with CKD, regardless of DM status based on the JNC-8 guidelines.
- % of patients with albuminuria checked in the past year
- % of patients with albuminuria < 300mg/g in the past year; our goal is to minimize albuminuria, but please note that there is no standard
- % of patients who are on an ACEi/ARB

While we will not be providing feedback for other interventions thought to improve CKD care, the following may also be important for patients with decreased kidney function or albuminuria:

- Use of ASA 81mg daily
- Use of a statin medication
- Tobacco cessation

*** We encourage you and your health care team members to reach out to patients who may be out of range for any of the metrics.

Thank you again for your collaboration and please let us know if you have any questions/comments.

KARE team

Kidney A.

Education

Frequently Asked Questions about Kidney Disease Management

1. What blood pressure should I target?

Since the JNC8 guidelines were published earlier this year, blood pressure targets have become more confusing and now include age considerations. However, among patients with CKD, defined by an eGFR < 60 ml/min/1.73m² or microalbuminuria > 30mg/g, target BP is < 140/90 mmHg, regardless of age.

2. What is the first-line therapy for hypertension among patients with CKD?

First line therapy for patients with CKD is an ACEi or ARB. Because hyperkalemia is a frequent side effect of ACEi/ARBs, please remember to check labs 10-14 days after starting or increasing the dose of these medicines. To avoid potential hyperkalemia, consider starting with a combination fixed pill of ACEi/ARB + diuretic.

3. My patient is not on an ACEi/ARB but is followed by nephrology. What should I do?

Nephrologists are not perfect and may have overlooked this important entity! There may also be a good reason for a patient not to be on an ACEi/ARB (e.g., bilateral renal artery stenosis, allergy, hyperkalemia or AKI from this medication when challenged previously). We recommend sending the nephrologist a quick email inquiring whether he/she has concerns about starting an ACEi/ARB. You could say something like:

"Dear _____: I recently noticed that our mutual patient, _____, MRN _____, is not receiving RAAS blockade. Do you have concerns about starting this patient on low dose ACEi? Thanks for your thoughts."

4. How much of a serum creatinine "bump" should I tolerate when starting/increase the ACEi/ARB?

While the answer to this question needs to be tailored to each patient, in general, a 20-30% rise in serum creatinine when starting/increasing the dose of an ACEi is tolerated.

5. My patient is already on an ACEi/diuretic combination therapy and albuminuria still is > 300mg/g. What should I do next?

Consider changing to the higher fixed dose of this medication. If that is insufficient to minimize albuminuria, the following other options are possible:

- If BP is at goal, consider separating the ACEi and the diuretic and increase the ACEi in a stepwise fashion
- If BP remains elevated, we recommend adding another anti-hypertensive agent. The albuminuria will likely improve once the BP is better controlled.

6. Should I be prescribing ACEi/ARB combination therapy?

Bottom line: No.

Dual RAAS blockade is discouraged among patients with diabetes and those at high risk for CV disease, based on the ONTARGET and the NEPHRON-D studies. We would defer to the nephrology consultant in each individual case.

8. My patient has become hyperkalemic on an ACEi or ARB. What should I do?

Bottom line: use a diuretic unless contraindicated.

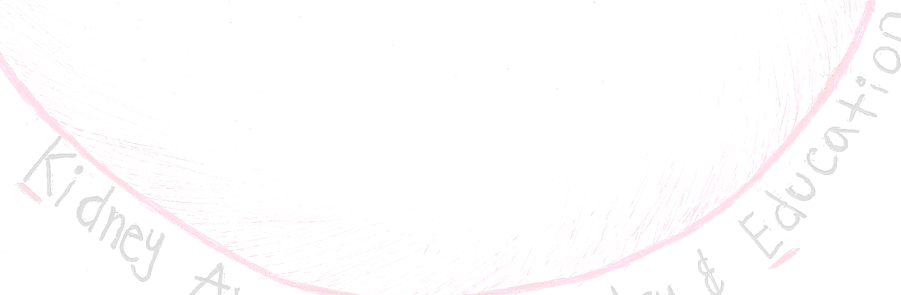
ACEi/ARB are first line agents for BP control among patients with diabetes. Diuretics are the second line agents, even if someone doesn't appear to have peripheral edema. By definition, all patients with CKD are sodium-avid and would probably benefit from a diuretic. Further, the diuretic will help with kaliuresis, thus allowing the patient to continue taking the ACEi or ARB.

9. My patient is on an ACEi or ARB and albuminuria still is > 300mg/g. What should I do next?

Bottom line: maximize the medication dose and control BP.

Often times, maximal ACEi or ARB dose to minimize proteinuria is higher than the maximal dose for BP effect. In these circumstances, consider maximizing the ACEi or ARB for proteinuria minimization (while being mindful not to cause orthostasis). The next step to reduce proteinuria is BP control. We recommend diuretics as a second agent of choice.

Please don't hesitate to reach out to the KARE team with any questions or concerns.
Thanks for your time and support!



CKD Registry and Usual Care Registry Comparison

Clinic A	CKD Registry				Usual Care Registry			
	03/15		06/15		03/15		06/15	
	N	%	N	%	N	%	N	%
CKD feedback: BP control, albuminuria, ACEi/ARB use								
Total patients with CKD (age 18-75)	99	100%	71	100%	105	100%	114	100%
Last blood pressure < 140/90	63	63.6%	39	54.9%	60	57.1%	64	56.1%
Albuminuria documented in the past 1 year	76	76.8%	47	66.2%	61	58.1%	47	41.2%
Albuminuria < 300 µg/mg in the past 1 year	56	73.7%	34	72.3%	42	68.9%	32	68.1%
ACEi/ARB	75	75.8%	54	76.1%	67	63.8%	67	58.8%

CKD Registry: PCP Comparison

Provider	PCP 1		PCP 2		PCP 3		PCP 4	
	06/15		06/15		06/15		06/15	
	N	%	N	%	N	%	N	%
CKD feedback: BP control, albuminuria, ACEi/ARB use								
Total patients with CKD (age 18-75)	11	100%	34	100%	13	100%	13	100%
Last blood pressure < 140/90	6	54.5%	20	58.8%	4	30.8%	9	69.2%
Albuminuria documented in the past 1 year	6	54.5%	24	70.6%	9	69.2%	8	61.5%
Albuminuria < 300 µg/mg in the past 1 year	5	83.3%	18	75%	3	33.3%	8	100%
ACEi/ARB	9	81.8%	27	79.4%	11	84.6%	7	53.8%

CKD Registry: Individual PCP Comparison Over Time

Provider	PCP 1		PCP 1	
Date	03/15		06/15	
	N	%	N	%
CKD feedback: BP control, albuminuria, ACEi/ARB use				
Total patients with CKD (age 18-75)	36	100%	11	100%
Last blood pressure < 140/90	24	66.7%	6	54.5%
Albuminuria documented in the past 1 year	29	80.6%	6	54.5%
Albuminuria < 300 µg/mg in the past 1 year	23	79.3%	5	83.3%
ACEi/ARB	26	72.2%	9	81.8%

PCP 1: Patients with CKD whose BP > 140/90 mmHg

Med Rec #	Name	DOB	Age	Gender	Race	BP (Last Value)	BP (Last Date)	BP (2nd Last Value)	BP (2nd Last Date)	eGFR (Last Value)	eGFR (Last Date)	Albumin/Creatinine (Last Value)	Albumin/Creatinine (Last Date)	ACE Inhibitor, Unspecified (Last Value)	ACE Inhibitor, Unspecified (Last Date)	ARB, Unspecified (Last Value)	ARB, Unspecified (Last Date)
00000001	DOE, JANE	3/6/1965	59 Yrs	M	BLACK OR AFRICAN AMERICAN	202/68	4/7/2015	182/82	12/5/2014	45	5/21/2015	645.7	7/12/2013	Prescribed	3/19/2015		
00000002	SMITH, JOHN	5/11/1954	58 Yrs	F	NATIVE HAWAIIAN/PACIFIC ISLANDER	132/97	6/30/2015	126/88	3/3/2015	52	1/16/2015	190.6	6/30/2014			Prescribed	4/2/2015

*Simulated Data presented

