

# Chronic Kidney Disease & Inhaler demonstration

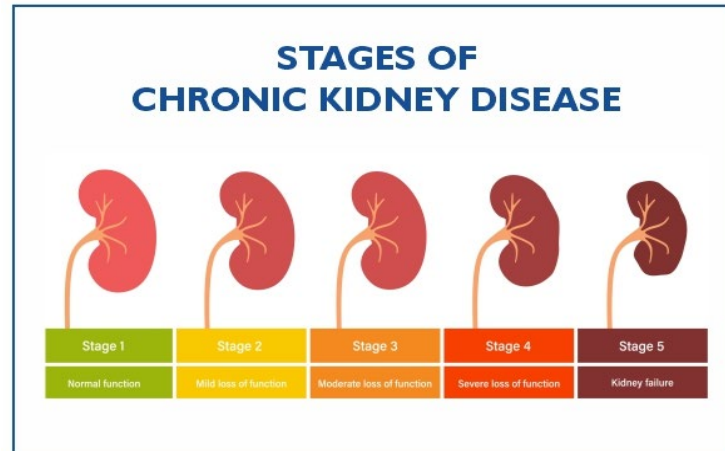
Rachel Petricca, PharmD

# What is Chronic kidney disease (CKD)?

Chronic kidney disease is defined as **the presence of kidney damage** (urinary albumin excretion of  $\geq 30$  mg/day, or pathologic abnormalities)

and/or

**decreased kidney function** (defined as estimated glomerular filtration rate [eGFR]  $< 60$  mL/min/1.73 m<sup>2</sup>) for three or more months, irrespective of the cause.

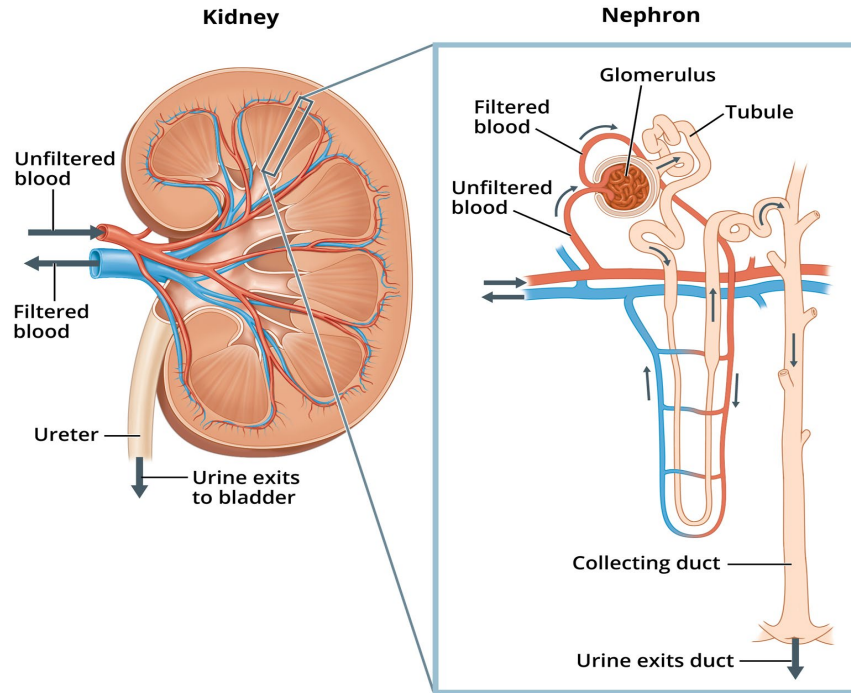


**Prognosis of CKD by GFR  
and Albuminuria Categories**

				Albuminuria categories		
				Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30-299 mg/g 3-29 mg/mmol	≥300 mg/g ≥30 mg/mmol
GFR categories (ml/min/1.73 m <sup>2</sup> ) Description and range	<b>G1</b>	Normal or high	≥90			
	<b>G2</b>	Mildly decreased	60-90			
	<b>G3a</b>	Mildly to moderately decreased	45-59			
	<b>G3b</b>	Moderately to severely decreased	30-44			
	<b>G4</b>	Severely decreased	15-29			
	<b>G5</b>	Kidney failure	<15			
<p>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</p>						

# Most common causes of CKD:

- Diabetes
- Hypertension



**Treatment of the underlying cause of CKD may halt or reduce the rate of its progression.**

# Medications that slow the progression of CKD

## ACE inhibitors and ARBS

- ACE Inhibitors examples: Lisinopril, ramipril, benazepril. ARB examples: Losartan, candesartan, valsartan
- Lowers the effects of angiotensin-2 (vasoconstrictor). As a result, it keeps blood vessels relaxed and lowers the pressure in your kidneys

## SGLT-2 inhibitors

- Farxiga and Jardiance
- Originally, these meds were developed for diabetes. Later clinical trial data showed significant improvement in kidney health in people with CKD. This benefit was even higher in people who also had albuminuria.

# Medications that slow the progression of CKD

## Aldosterone Receptor Antagonist

- Kerendia (finerenone)
- FDA approved in 2021 to reduce risk of serious kidney and heart complications in adults with CKD associated with type 2 diabetes
- Now offering a patient assistance program and savings card

# Metered dose inhaler (MDI) demonstration with and without spacer

[https://www.youtube.com/watch?v=Lx\\_e5nXfi5w](https://www.youtube.com/watch?v=Lx_e5nXfi5w)

<https://www.youtube.com/watch?v=BbONuRXJdr0>

MDI inhalers are an aerosol device that uses a propellant to deliver the medication into the lungs.

# Flovent HFA and Flovent Diskus discontinued

Options include:

- switching generic fluticasone HFA or fluticasone diskus if covered by insurance
- or choosing a different medication option that is on the insurance formulary





# Dry powder inhaler (DPI) demonstration

<https://www.youtube.com/watch?v=Uz069SXWKzE>

DPI's are breath-actuated devices that delivers the drug in the form of particles in a capsule or blister that is punctured before use.

