Kidney Disease and Hypertension in People With HIV



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Financial Relationships With Ineligible Companies (Formerly Described as Commercial Interests by the ACCME) Within the Last 2 Years

Dr Wyatt reported serving as consultant to Novo Nordisk.
(Updated October 18, 2026)

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Learning Objectives

After attending this presentation, learners will be able to:

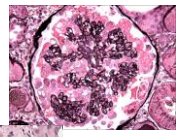
- Order and interpret screening tests for chronic kidney disease
- Identify people with HIV who may benefit from nephrology care
- Integrate the 2025 American Heart Association/American College of Cardiology hypertension guidelines into HIV care

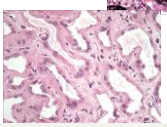
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Classic HIV-related Kidney Diseases

- HIV-associated nephropathy
- Immune complex kidney disease
- Antiretroviral nephrotoxicity
  - Older protease inhibitors
  - Tenofovir





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Chronic Kidney Disease in People with HIV

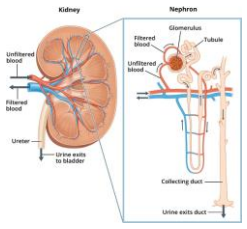
- Prevalence varies across populations & studies
  - Higher than general population estimates in most cases
- Linked to HIV-related & traditional risk factors
- Strong association with cardiovascular risk

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Kidney Disease Screening & Monitoring

- Blood
  - Creatinine
  - Cystatin C
- Urine
  - Urinalysis
  - Urine protein: creatinine
  - Urine albumin: creatinine



National Kidney Foundation

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Creatinine & Cystatin C testing

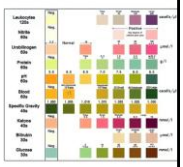
- Creatinine
  - Product of muscle metabolism→ impacted by muscle mass, diet, creatine
  - Also cleared by tubular secretion→ impacted by INSTI, cobicistat, +/- r
- Cystatin C
  - Product of nucleated cells→ impacted by inflammation/ cytopenias
- **e**GFR equations
  - Most labs report CKD-EPI 2021 (age, sex, creatinine)
  - Original Cystatin C eGFR did not include a race variable (CKD-EPI 2012)

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Urinalysis Testing

- Protein=albumin
  - Confirm with urine albumin: creatinine
  - May miss tubular proteins or paraproteins
- Blood & leukocytes
  - Confirm by microscopy
- Glucose
  - "Euglycemic glycosuria" suggests tubular injury (eg TDF)



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Urine albumin: creatinine ratio

- Assumes steady state excretion of ~ 1g creatinine/24 hours to estimate 24-hour albumin excretion
  - Only the ratio is interpretable
  - Not accurate in acute kidney injury
- Same assumptions apply to urine protein: creatinine
- Both are semi-quantitative

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Nephrology Referral?

- HIVMA/IDSA CKD guidelines & KDIGO meeting report (2014 & 2018) are outdated
  - Changes in HIV care
  - New therapies to delay CKD progression
  - Broader recognition of cardio-kidney-metabolic syndrome

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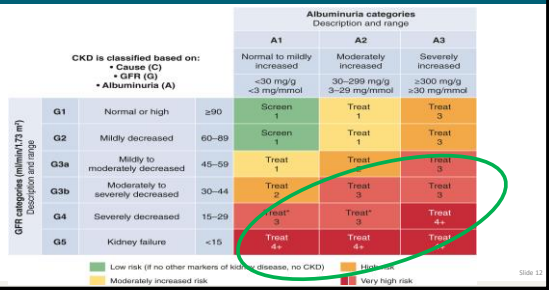
Indications for Nephrology Referral

- Unclear diagnosis
  - Albuminuria in the absence of traditional risk factors
  - Heavy albuminuria and/ or hematuria
- Moderate-high risk of progression to kidney failure

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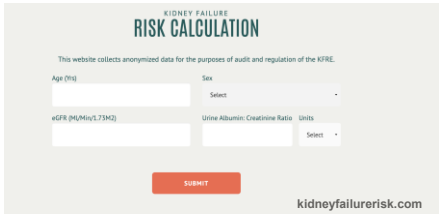
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KDIGO Heat Map



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Estimating the Risk of CKD Progression



*Predictive equations for people with HIV may also be useful

Tangri *et al. JAMA* 2011 & 2016
*Scherzer *et al. AIDS* 2014
*Mocroft *et al. PLoS Med* 2015

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What Happens in Nephrology?

- Additional diagnostic testing
  - Especially if a diagnosis may change management
- Optimized kidney protective therapy
  - RASi, SGLT2i, finerenone, GLP1-RA
- Nephrology care increases planned dialysis start, home dialysis, & pre-emptive kidney transplant

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What Happens in Nephrology?

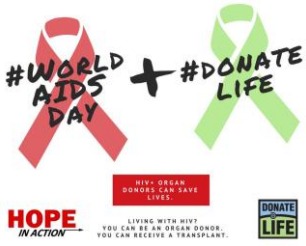
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Kidney Transplant in People with HIV

PEOPLE LIVING WITH HIV CANNOT RECEIVE ORGAN TRANSPLANTS.



Durand *et al. NEJM* 2024
Muller *et al. NEJM* 2015
Muller *et al. NEJM* 2010

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Kidney Protective Medications

	Consider in CKD with:	Major Risks*	DDI	$
RASi (ACEi or ARB)	Hypertension or UACR > 30 mg/g	Hyperkalemia		$
SGLT2i (empagliflozin or dapagliflozin)	Type 2 Diabetes or UACR > 200 mg/g or eGFR 20-45	Yeast infections Volume depletion DKA (no Type 1)		$ (dapagliflozin)
nsMRA (finerenone)	Diabetes with UACR > 30 mg/g despite RASi +/- SGLT2i	Hyperkalemia Volume depletion	AVOID with ritonavir cobicistat	$$$
GLP1RA (semaglutide or tirzepatide)	Diabetes or Obesity	GI Volume depletion		$$$

*AKI is a risk with all of these medications. Recommend 'sick day rules'

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Mineralocorticoid Receptor Antagonists

	Blood pressure	Kidney outcomes	Tolerability*	DDI (Cyp3A4)	Cost/ access
Spironolactone	✓✓✓	?	*		✓
Eplerenone	✓✓	?	✓	XX	
Finerenone	✓	✓	✓	XX	$$$
Aldosterone synthase inhibitors	✓✓✓	?	✓		$$$

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Hypertension in HIV Primary Care

- Estimated prevalence varies across populations & studies
- Strong link to CKD, cardiovascular disease, stroke risk
- Management also varies across practices
  - HIV vs primary care providers
- Polypharmacy & unique drug-drug interactions in HIV
  - Calcium channel blockers, beta-blockers, eplerenone

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2025 Joint Guidelines

Overarching goal < 130/80 mmHg*



AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults. *Hypertension* 2025

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Accurate Measurement of Blood Pressure



Office Blood Pressure Measurement

1. The patient should avoid caffeine, exercise, and smoking for at least 30 minutes before measurement. Ensure the patient has emptied their bladder.
2. Use a blood pressure device that has been validated for accuracy (validatebp.org).
3. Use the correct cuff size on a bare arm.
4. The patient's arm should be supported at heart level.
5. Have the patient relax, sitting in a chair (feet on floor, legs uncrossed, and back supported) for more than 5 minutes of rest.
6. Neither the patient nor the clinician should talk during the rest period or during the measurement. The patient should not be using their phone.
7. Blood pressure measurement should be taken in a temperature-controlled room.
8. Take 2 or more blood pressure measurements at least 1 minute apart. Average the readings, and provide the patient their blood pressure readings both verbally and in writing.

Hypertension 2025

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2025 Joint Guidelines: Behavioral Modification

- Behavioral modification for all
  - Reduced dietary sodium
  - Physical activity & weight loss
  - Reduced alcohol use

Hypertension 2025

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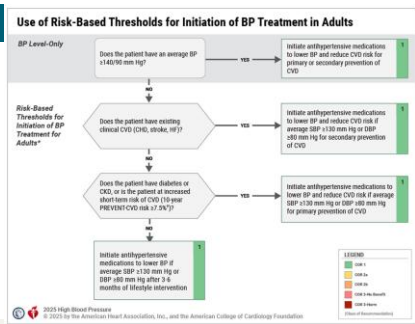
2025 Joint Guidelines: When to Start Medication

- Medications <u>now</u> for Stage 2 (≥140/90) or high risk
  - Cardiovascular disease, stroke (secondary prevention)
  - Diabetes, CKD, increased ASCVD risk (primary prevention)
    - Risk scores (PREVENT > Pooled Cohort Equation) may underestimate risk in people with HIV

Hypertension 2025

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2025 Joint Guidelines: What to Start

- Firstline antihypertensives:
  - RAS inhibitor (ACEi or ARB)
  - Thiazide diuretic
  - Dihydropyridine calcium channel blocker*

*Potential DDI with EFV, PIs (reduce starting dose, monitor BP)

Hypertension 2025

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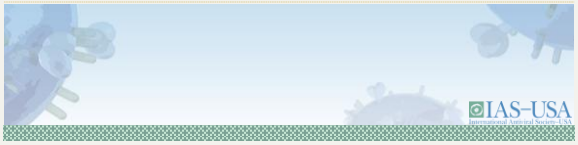
If you only remember a few things…

- Screening for hypertension & CKD can be implemented in routine HIV care
  - Accurate blood pressure measurement, eGFR, UACR
- Timely nephrology referral improves outcomes
- Goal blood pressure < 130/80 mmHg

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Q and A Session



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