Diabetes and Hypertension Project ECHO* Clinic

*ECHO: Extension of Community Healthcare Outcomes

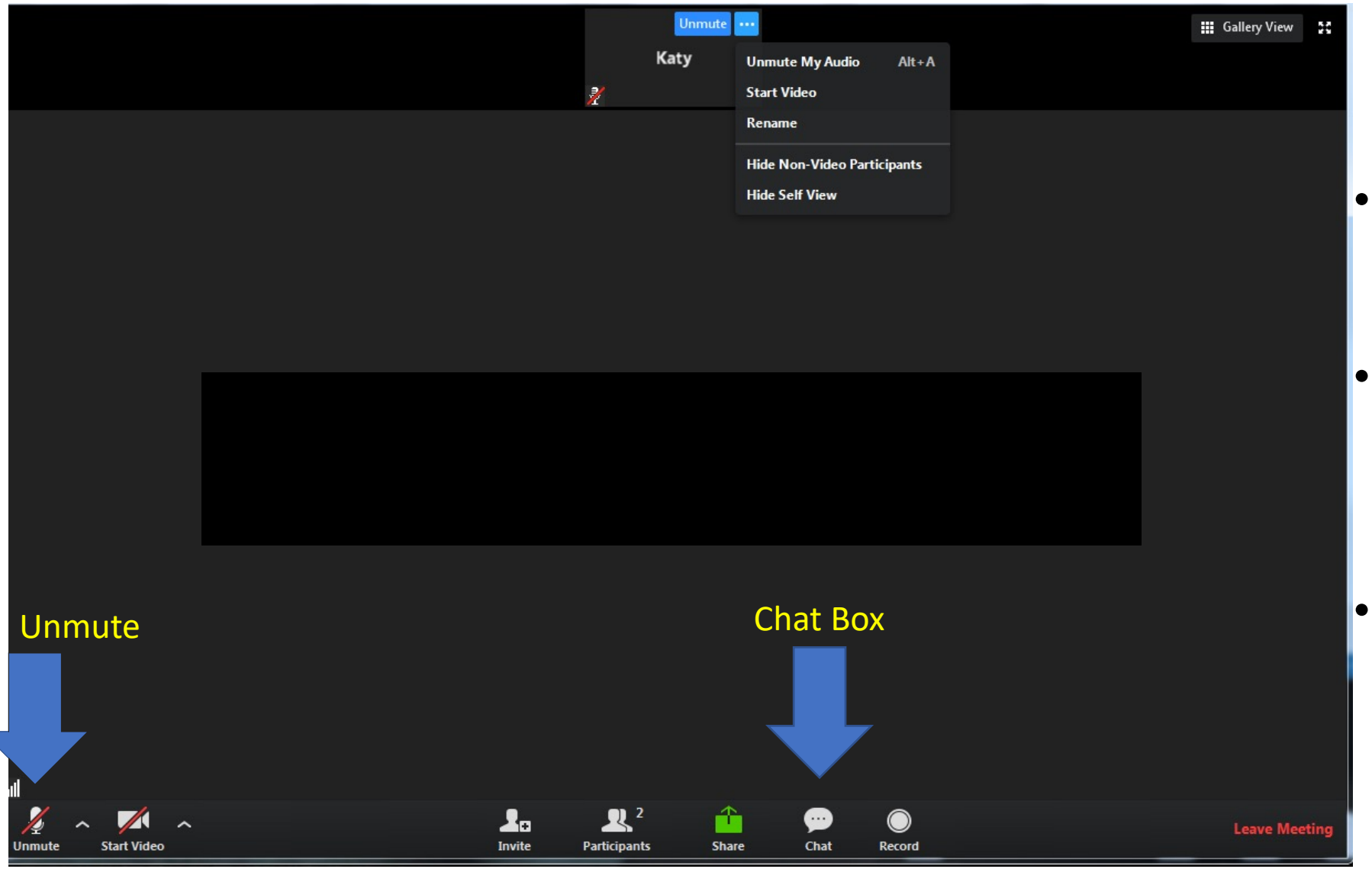
Aug. 26, 2021

Before we begin:

- Rename your Zoom screen with your name and organization
- Claim CE: text 19177-18817 to 804-625-4041
  - Go to **vcuhealth.org/echodmhtn** for instructions on creating your account

The Diabetes and Hypertension ECHO is made possible by funding through CDC Cooperative Agreement NU58DP006620-InnoVAte.

Zoom Reminders



- You are all on mute. Please unmute to talk.
- If joining by telephone audio only, press *6 to mute and unmute.
- Use the chat function to speak with our team or ask questions.

Helpful Reminders

- Please feel free to eat your lunch or step away briefly if needed
- We are recording and can share sessions upon request
  - Each session's slides are available on www.vcuhealth.org/echodmhtn
- Please **do not share any protected health information** in your discussion or the chat box
- Project ECHO operates on the "All Teach, All Learn" model
  - Feel free to ask questions in the chat or unmute to ask questions at designated times
  - We're all here to learn from each other and value each person's input and expertise!

VCU Health Diabetes & Hypertension ECHO Clinics

VCU Hub Team	
Principal Investigator	Dave Dixon, PharmD
Administrative Medical Director ECHO Hub	Vimal Mishra, MD, MMCi
Clinical Experts	Niraj Kothari, MD Trang Le, MD
Project Coordinator/IT Support	Madeleine Wagner

- **NEW: *1-hour*** ECHO clinics on 2nd and 4th Thursdays
- Every ECHO clinic includes a didactic presentation followed by case discussions
- Website: www.vcuhealth.org/echodmhtn
  - Directions for claiming CE can be found here
  - You have up to six days after our session to claim CE by texting **19177-18817** to **804-625-4041**

Disclosures

Trang Le, M.D., has no financial conflicts of interest to disclose.

Niraj Kothari, M.D., has no financial conflicts of interest to disclose.

There is no commercial or in-kind support for this activity.

Learning Objectives

- Apply current best practices for comprehensive diabetes and hypertension care to patient case scenarios.
- Recognize best practices for implementing team-based diabetes and hypertension care.
- Demonstrate awareness of opportunities to improve care provided to patients with diabetes and hypertension.

SGLT2 inhibition for CKD

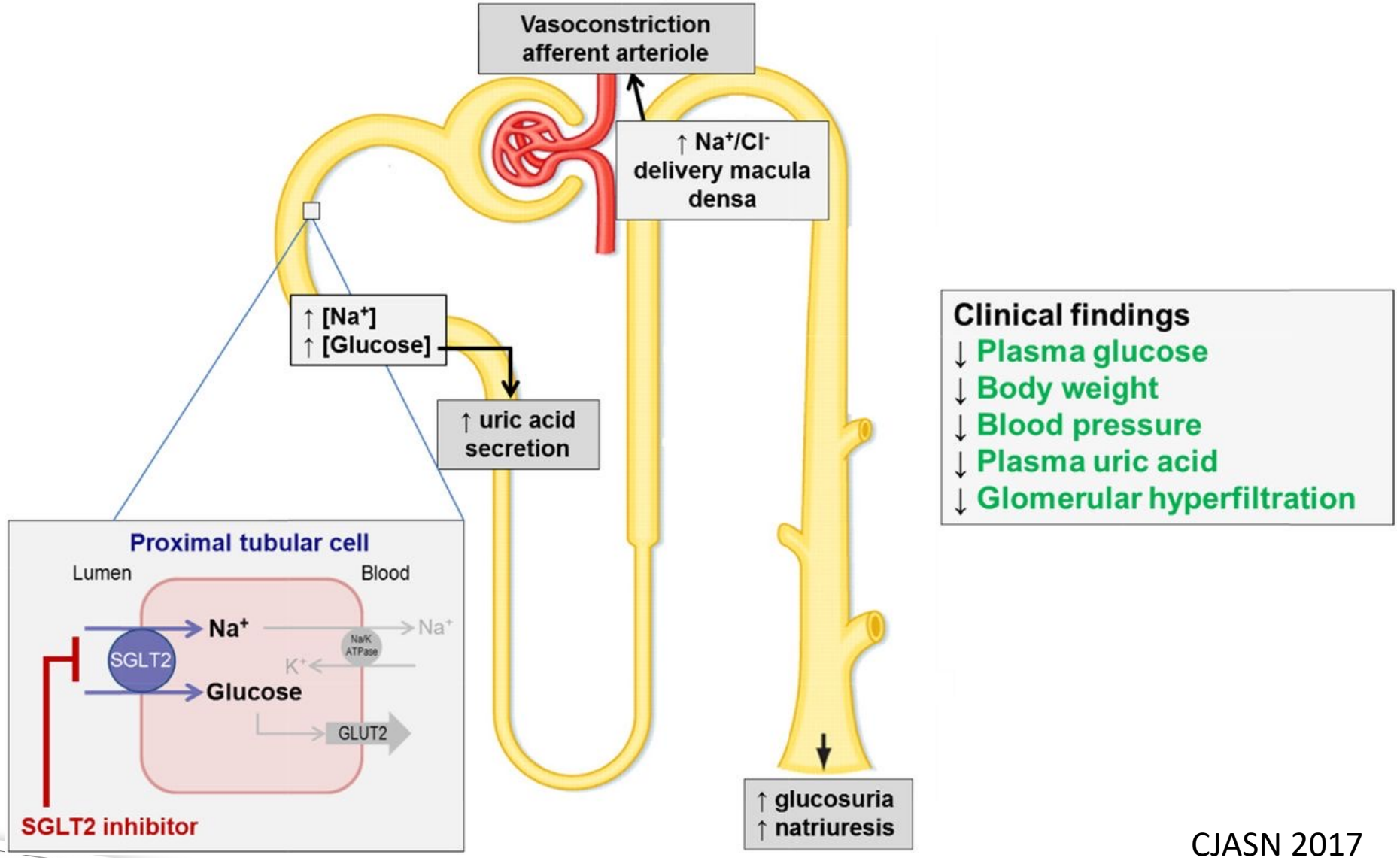
Learning Objectives

- Review mechanism of SGLT2 inhibitors
- Identify patients who may benefit from SGLT2 inhibition
- Understand monitoring of patients on SGLT2 inhibition

What are SGLT2 inhibitors?

- “Flozins”
  - Canagliflozin – approved 2013
  - Dapagliflozin – approved 2014
    - Approved for CKD 4/2021
  - Empagliflozin – approved 2014
  - Ertugliflozin – approved 2019

SGLT2 inhibition

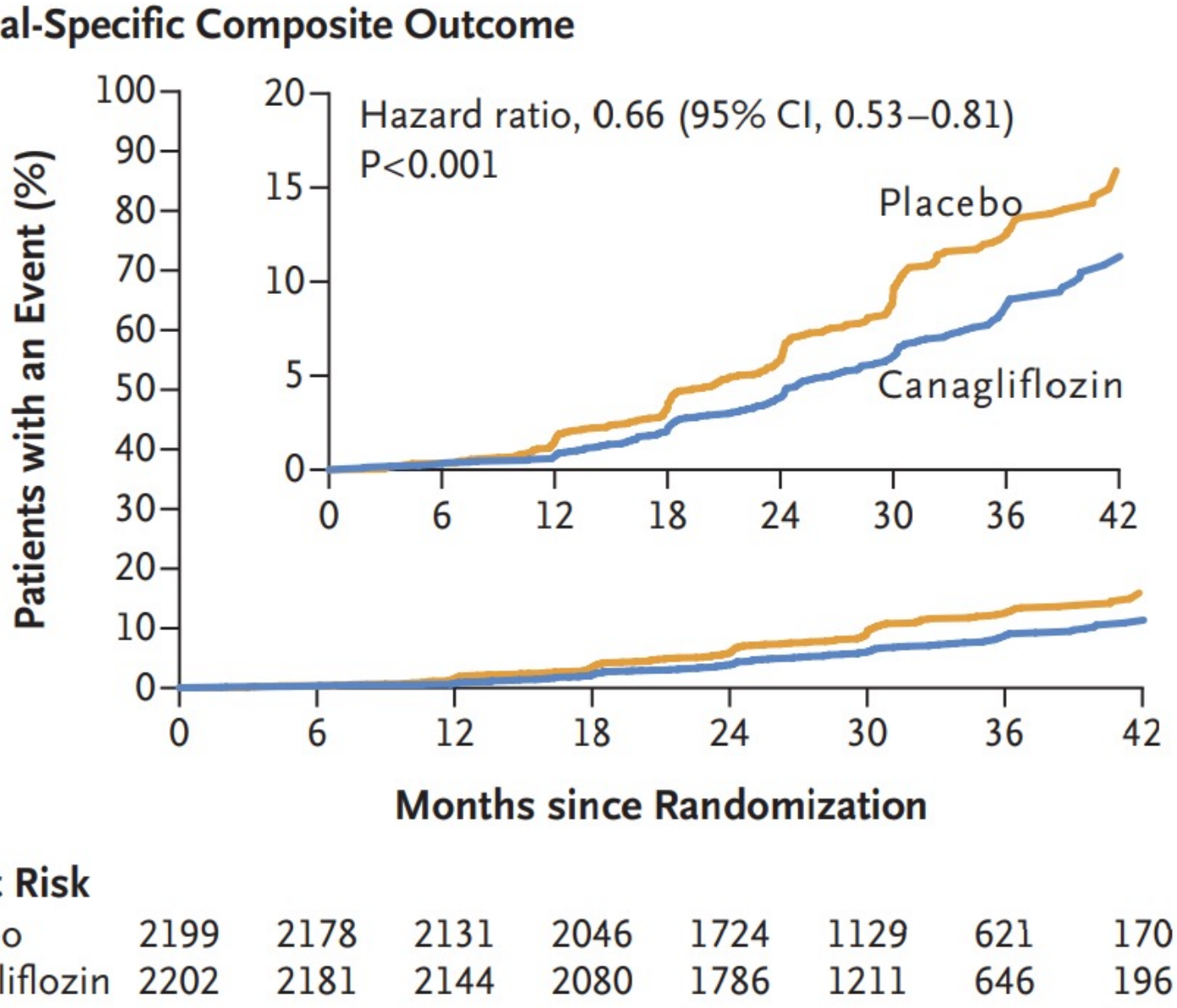


CJASN 2017

CREDENCE

- Compared canagliflozin to placebo
- 4400 patients ≥ 30yo with type 2 diabetes, eGFR 30-89mL/min/1.73m^2, and albuminuria 300-5000mg/g
- Excluded DM1, suspected non-DM kidney disease, dialysis, kidney transplant patients
- Median followup 2.6 years
- Primary composite outcome: ESKD, doubling of serum Cr, renal mortality, CV mortality

CREDENCE

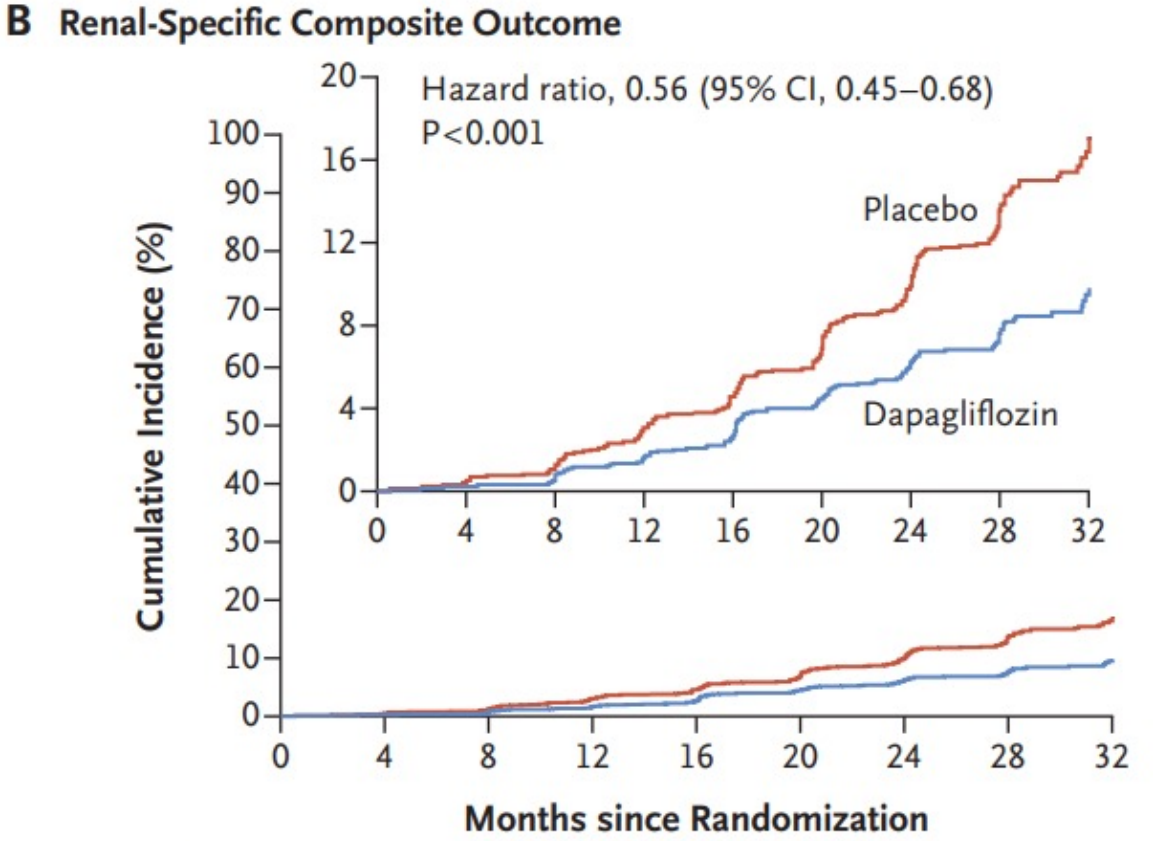


NEJM 2019

DAPA-CKD

- Compared dapagliflozin to placebo
- 4304 patients 18yo or older, with or without type 2 diabetes (approx. 2/3 of patients diabetic), with eGFR 25-75mL/min/1.73m2, albuminuria 200-5000mg/g, on maximal ACEi/ARB
- Excluded DM1, organ transplant, PCKD, LN, ANCA, immunotherapy for kidney disease within preceding 6 months, NYHA class IV, recent ACS/stroke/TIA/PCI/CABG/valvular repair, life expectancy < 2 years, active malignancy, liver impairment
- Median followup 2.4 years
- Primary composite outcome: eGFR decline of at least 50%, ESKD, death from renal or CV causes

DAPA-CKD

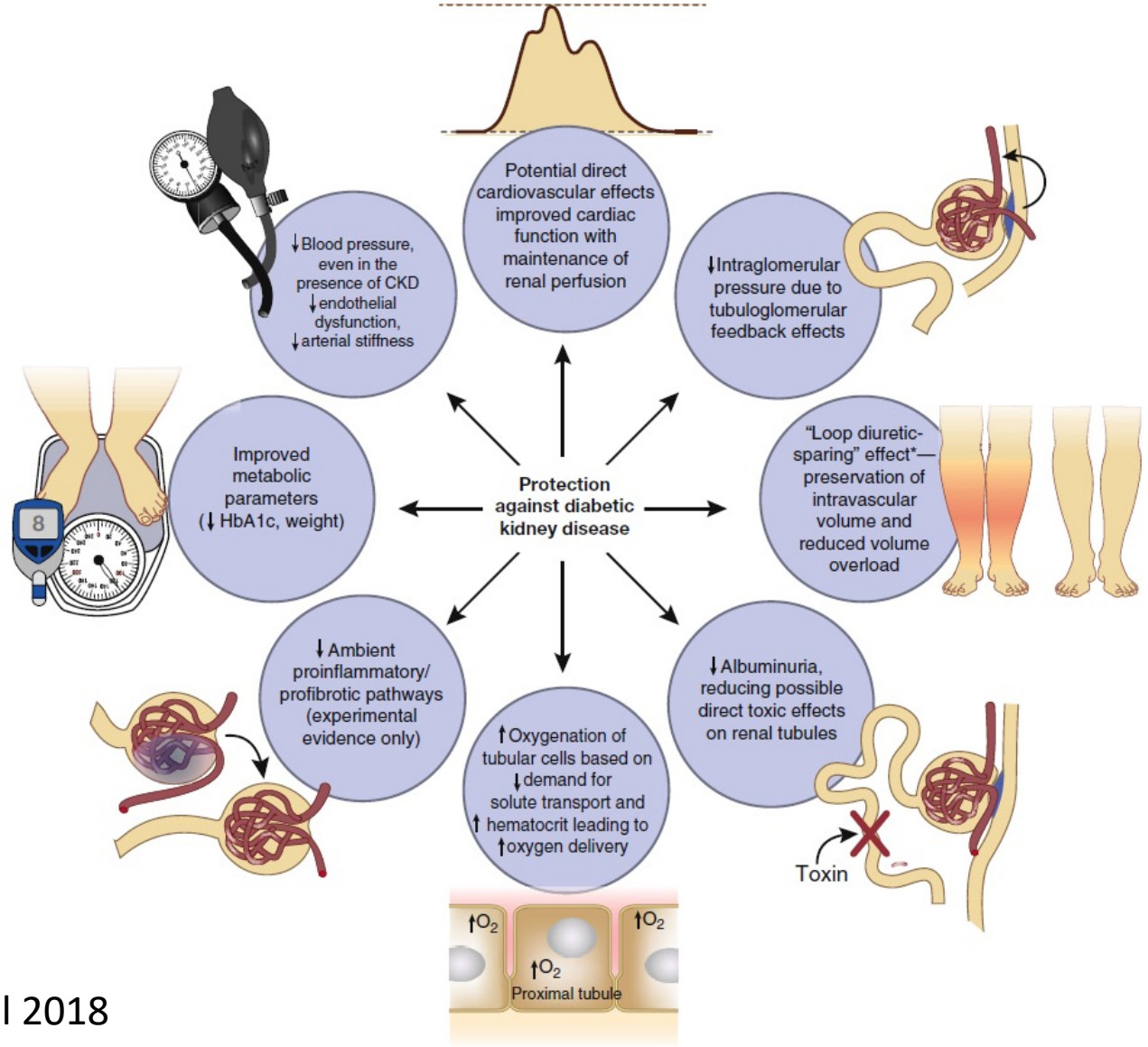


Type 2 diabetes				
Yes	152/1455	229/1451		0.64 (0.52–0.79)
No	45/697	83/701		0.50 (0.35–0.72)

Kidney disease and HTN

- HTN is very common, present in ~85% of CKD patients
  - Worsens as GFR falls
  - Sodium retention (even in nonedematous patients)
  - Increased RAAS activity

How do SGLT2 inhibitors protect the kidney?



Kidney International 2018

Who may benefit from SGLT2 inhibition?

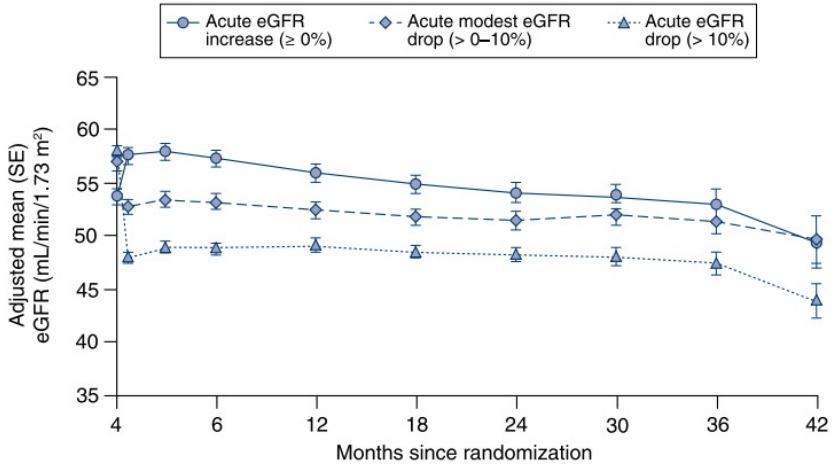
- Type 2 diabetics with albuminuric (>300mg/g) CKD (stages 2-3)
- Non diabetic CKD patients with albuminuria
- Note lower glycemic benefit in patients with more severe CKD
- Hold/do not start for eGFR < 30mL/min/1.73m^2

Other considerations

- Adverse effects
  - May increase risk of amputations
  - Increased risk of UTIs and genital infections (usually candidiasis but may also include Fournier's gangrene)
  - DKA
  - Fracture risk may be increased
  - Worsened renal function
  - Do not appear to cause hyperkalemia
- Interactions
  - Can cause volume loss—caution with NSAIDs, RAASi, diuretics
- Cost: mostly $300-500/month (goodrx.com)

eGFR drop with SGLT2 inhibition

- CREDENCE data demonstrated 45% of patients in canagliflozin group experienced eGFR drop ≥ 10% vs. 21% in the placebo group (OR 3.0)
  - Similar eGFR trajectories regardless of eGFR dip



- 0.5% of patients treated with canagliflozin experienced eGFR drop > 30%
  - Should hold medication until eGFR recovers

CJASN 2021

Summary

- SGLT2 inhibitors are potentially highly beneficial for patients with albuminuric CKD, with or without DM2 (if no DM2, use dapagliflozin)
- Consider for patients with eGFR > 30mL/min/1.73m^2
- Avoid in patients with high amputation risk, frequent genitourinary infections, elevated fracture risk, or history of DKA
- Monitor renal function in patients at risk for hypovolemia or hypoTN
- Hold if eGFR falls by 30% or if below < 30mL/min/1.73m^2

Questions?

Case Study #1: Peace Johnson, MD

- **Demographic info:** 78 yo old Caucasian man, poor health literacy, depends on wife to help with medications
- **Past medical history:**
  - chf, htn, CAD, CVA
  - Labs: K 3.8, cr 2.5 (egfr 27), ma/cr 2727, upcr 3.2
  - Meds: ISMN, Hydral, coreg, aldactone, losartan, amlodipine
- **What interventions have you tried up to this point?**
  - medication titrations
  - home health monitoring system
- **What is your main concern or challenge?**
  - poor health literacy
  - concern that wife is overwhelmed with medication management
  - controlling blood pressure

Any clarifying questions?

Any proposed solutions?

Case Study #2

- 66yo male, history of CKD G3a-A3, HTN, HIV, DM2. No known history of diabetic retinopathy. Presumed diabetic nephropathy.
- 1/2021: Cr 1.9 (eGFR 42mL/min/1.73m^2), Na/K normal. Albuminuria ~200mg/g, A1c 9.0%
- Meds: chlorthalidone 25mg, Prezcobix/Juluca, dulaglutide 1.5mg weekly, ferrous sulfate 325mg, gabapentin 800mg TID, lantus 64 units daily, MVI, pravastatin 20mg, sertraline 100mg
- BP 134/87 in clinic; normal CV exam, feels well, in good spirits, concerned about his diabetes and kidney function
- What can we do for this patient?

Case Study #2

- Follow up visit 5/2021: Cr up to 2.26 (eGFR 34mL/min/1.73m^2). Pt appears euvolemic, feels great
- Do we continue dapagliflozin?
- Follow up 6/2021: Cr up to 2.44 (eGFR 31mL/min/1.73m^2)—elected to hold chlorthalidone
- Subsequently admitted to VCU with osteomyelitis, dapagliflozin held during admission due to AKI (may have also been due to volume depletion) but chlorthalidone was continued—Cr 2.68 -> 2.0, dapagliflozin restarted on discharge, continued on augmentin at discharge as well.
- After discharge on both chlorthalidone and dapagliflozin, Cr has trended up slightly as of early 7/2021 (eGFR ~34mL/min/1.73m^2)
- Follow up 8/2021: Cr 2.62 (eGFR 28mL/min/1.73m^2) despite holding dapagliflozin (though pt is unsure if he has really held this, thinks he hasn't taken it for 8 days). BP 107/69
- Now what?

Case Studies

- Anyone can submit cases: www.vcuhealth.org/echodmhtn
- Receive feedback from participants and content experts
- Earn **$150** for submitting and presenting

Provide Feedback

www.vcuhealth.org/echodmhtn

- Feedback
  - Overall feedback related to session content and flow?
  - Ideas for guest speakers?

Access Your Evaluation

vcuhealth.org/services/telehealth/for-providers/education/diabetes-and-hypertension-project-echo

For Providers

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  - Virginia Opioid Addiction ECHO
  - Virginia Sickle Cell Disease ECHO

Diabetes and Hypertension Project ECHO

Welcome to the Diabetes and Hypertension Extension for Community Health Outcomes or ECHO, a virtual network of multidisciplinary diabetes and hypertension experts. An ECHO model connects professionals with each other in real-time collaborative virtual sessions on Zoom. Participants present de-identified cases to one another, share resources, connect to each other, and grow in their expertise. This ECHO will address practice level issues and solutions related to managing complex patients with difficult to control diabetes and hypertension. Register now for an ECHO Session!

Network, Participate and Present

- Engage in a collaborative community with your peers.
- Listen, learn and discuss informational and case presentations in real-time.
- Take the opportunity to submit your de-identified case study for feedback from a team of specialists for diabetes and hypertension.
- Provide valuable feedback.
- Claim CE credit by texting in attendance.

Benefits

VCU Diabetes & Hypertension Project ECHO Clinics

2nd and 4th Thursdays — ***NEW: 12 p.m. to 1 p.m.***

Mark Your Calendars — Upcoming Sessions

Sept. 9: SGLT2i/GLP1-RA for Cardiovascular Protection

Sept. 23: Diabetic Neuropathy

Please register at www.vcuhealth.org/echodmhtn

Thank you for coming!

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