

# CHRONIC KIDNEY DISEASE AND TYPE 2 DIABETES: Strategies to Improve Patient Outcomes

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## Introduction

Approximately 25% of patients with diabetes have chronic kidney disease. The prevalence is estimated to increase to 54% due to the rising number of cases of diabetes and the high prevalence of obesity. Data confirm the awareness of chronic kidney disease (CKD) in type 2 diabetes (T2D) remains low among clinicians, especially in primary care because patients are typically asymptomatic. According to the Institute of Medicine, today's clinicians are more challenged than ever before to remain current with relevant and timely clinical information. This gap in knowledge contributes to variation in care and less than optimal outcomes. This activity addressed the assessment, diagnosis, risk stratification, and management of CKD in T2D providing NPs with the tools they need to improve their patient outcomes.

## Methods

### Project Outcomes Measurement

- Outcomes questions were developed based on the learning objectives, with linkage to the needs assessment and content.
- Learners answered demographic, pre/post and evaluation questions online
- A paired analysis of pre/post results was conducted. These data were filtered to include only learners who self-reported seeing patients with T2D each month (Module 1 n=966, Module 2 n=844)
- Tests used to identify statistically significant differences pre to post:
  - McNemar test for each of 5 Module 1 and 6 Module 2 multiple-choice knowledge/case questions
  - Wilcoxon test for % correct knowledge/case questions, and for the confidence rating scale questions

**Format one:** Two one-hour modules were recorded and hosted on the AANP CE Center and made available on-demand for 12 months.

**Format two:** A print-based monograph was developed using the slides and the transcript from the recorded modules.

**Initiative Title:** CHRONIC KIDNEY DISEASE AND TYPE 2 DIABETES: Strategies to Improve Patient Outcomes

- Module 1 (M1):** Overview and Diagnosis/Screening for CKD in Type 2 Diabetes
- Module 2 (M2):** Management of Diabetic Kidney Disease



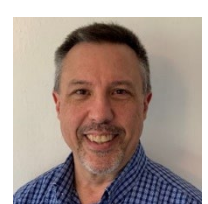
**2 Podcasts:** NP Pulse: *The Voice of the Nurse Practitioner®* "Management of Diabetic Kidney Disease" and "CKD and T2DM"

### Learning Objectives:

- Identify the indicators that must be present to establish a diagnosis of Chronic Kidney Disease (CKD) in patients with T2D
- Summarize key management strategies from current guidelines.
- Apply core measures used in the management of patients with T2D and CKD.
- Identify appropriate glucose-lowering agents for patients presenting with various stages of CKD.

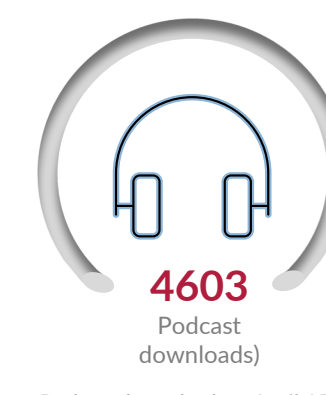
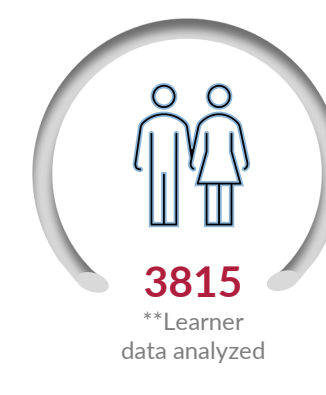
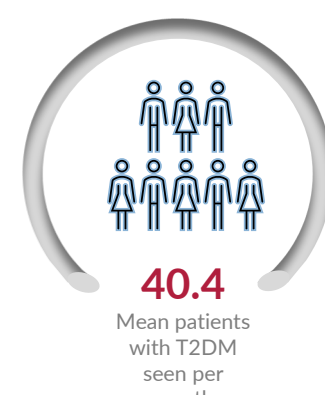
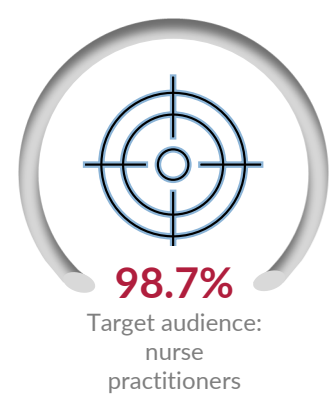


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## Learner Demographics

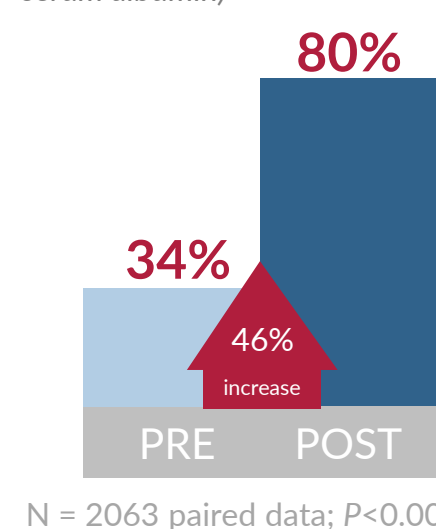


\*\*Learners who self-reported seeing patients with type 2 diabetes each month

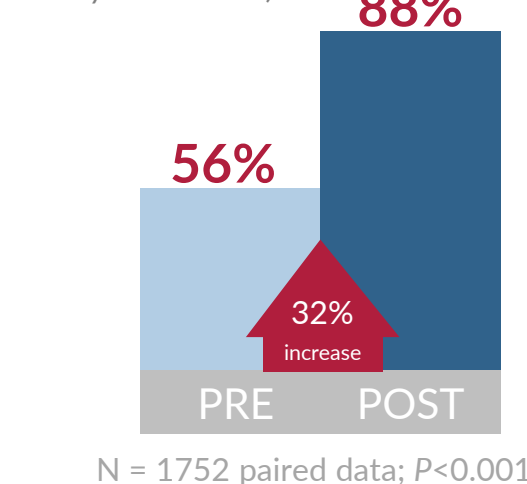
Podcast launched on April 27, 2021. As of June 3, 2022, there were 6,698 downloads and ranked #1 out of 58 episodes.

## Change in Knowledge/Competence/Practice Change

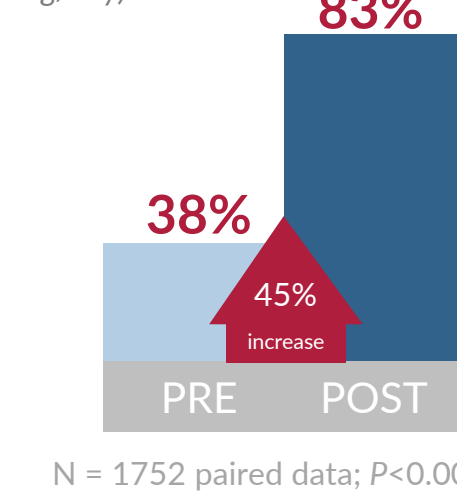
Which one of the following would cause you to consider something other than diabetic kidney disease? (Answer: Patient with proteinuria and normal serum albumin)



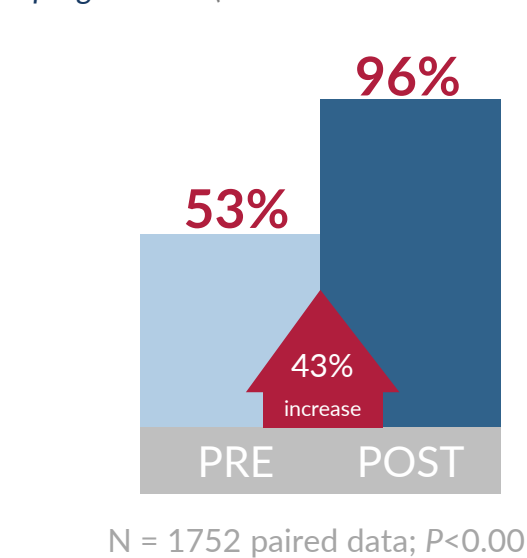
For patients treated with metformin for more than 4 years who have an eGFR of 30-44 mL/min/1.73 m2, what monitoring is recommended? (Answer: Annual testing of vitamin B12 levels; testing of kidney function every 3-6 months)



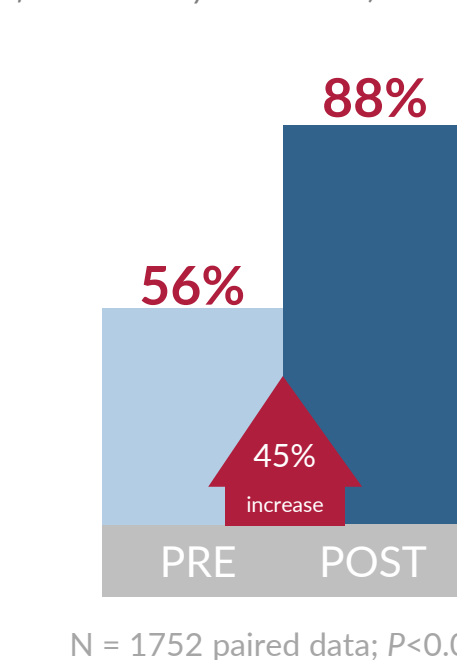
Patient case: T2DM with stage 3B CKD. eGFR of 38 mL/min/1.73 m2 and UACR of 239 mg/g. Takes metformin 2000 mg/day. ACE inhibitor, diuretic, an SGLT2 inhibitor, and GLP-1 RA. What adjustment would you make to her metformin based on her kidney function? (Answer: Decrease metformin dose to 1000 mg/day)



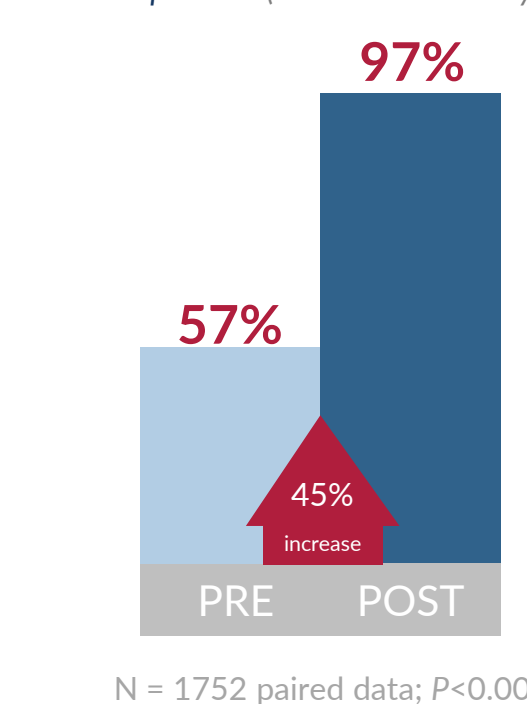
Patient Case: Stage 3A CKD, T2DM, taking metformin 2,000 mg/day. Which of the following interventions to improve the patient's diabetes control would be most appropriate for decreasing his risk for CKD progression? (Answer: Initiate an SGLT2 inhibitor)



For patients treated with metformin for more than 4 years who have an eGFR of 30-44 mL/min/1.73 m2, what monitoring is recommended? (Answer: Annual testing of vitamin B12 levels; testing of kidney function every 3-6 months)



A patient with T2D and CKD is being prescribed an SGLT2 inhibitor for the first time. Which of the adverse events related to SGLT2 inhibition should you discuss with the patient? (Answer: Genital mycotic infections)



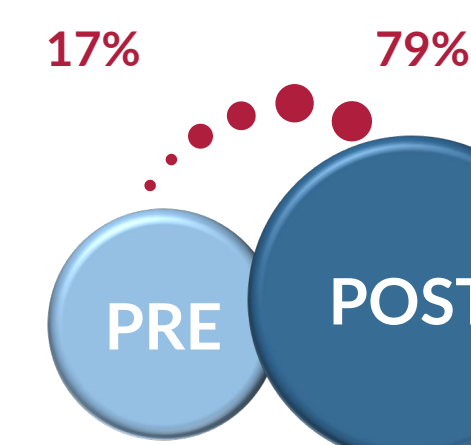
This activity is supported by an independent educational grant from Boehringer Ingelheim Pharmaceuticals, Inc. and Eli Lilly and Company

## Change in Confidence

Learners were asked to rate their level of confidence in their ability to do the following tasks.

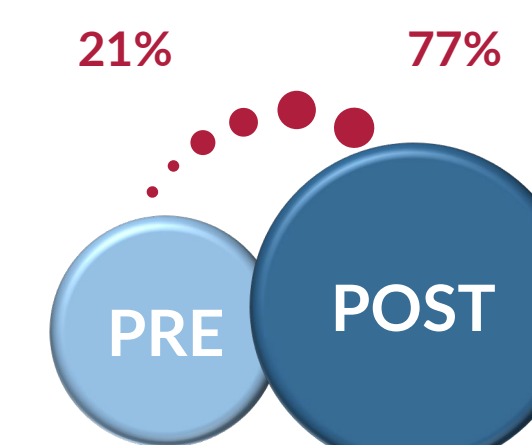
Results represent ratings of "Very" or "Extremely" confident from pre-to-post

Ability to identify an indicator that must be present to establish a diagnosis of CKD in patients with T2D.



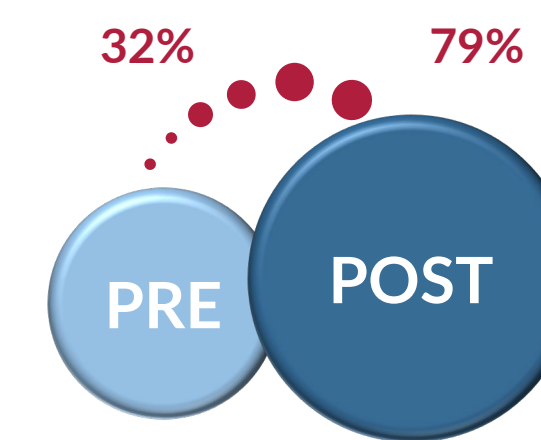
Statistically significant 41% increase in mean confidence rating from pre to post, P<0.001, ES=1.35 (large), n=2063, paired data

Adjusting the dose of metformin based on the patient's kidney function lab results.



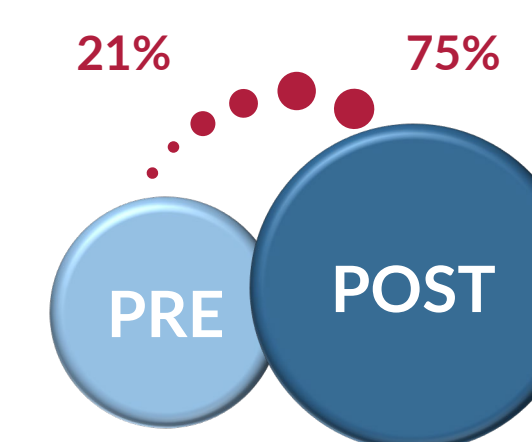
Statistically significant 37% increase in mean confidence rating from pre to post, P<0.001, ES=1.14 (large), n=1752, paired data

To safely prescribe an ACEI or ARB in patients with CKD.



Statistically significant 28% increase in mean confidence rating from pre to post, P<0.001, ES=1.02 (large), n=1752, paired data

Identify appropriate glucose-lowering agents for patients presenting with various stages of CKD.



Statistically significant 36% increase in mean confidence rating from pre to post, P<0.001, ES=1.20 (large), n=1752, paired data

### Planned practice change and key takeaways:

- Trying to get patient blood sugar under control more quickly to delay or prevent kidney disease progression and other microvascular complications.
- Screening/lab testing (61 mentions)
- Earlier detection of diabetic kidney disease
- Benefits of and increased use of SGLT2i
- Treat early, monitor early
- Better understanding of kidney function tests and how they should be managed

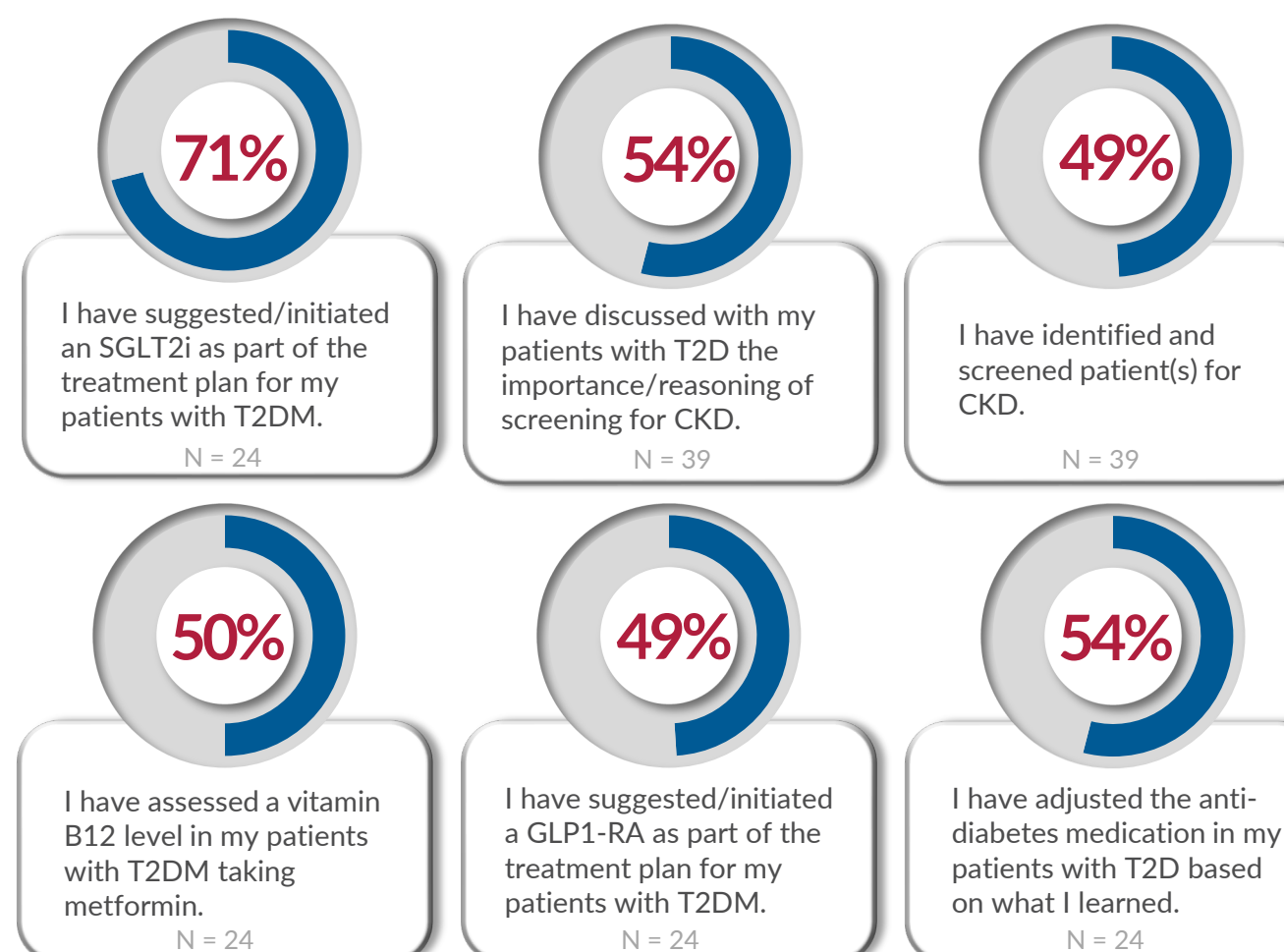
### Learner suggested topics for future education:

- Future suggestions on how certain changes can stabilize the worsening of renal failure
- More information guiding the management of newly diagnosed diabetic treatment
- Updates on diabetic medications
- More diabetic education and management
- More information on diabetes and kidney disease

## 60-day Follow-Up Survey

Learners were asked to identify how often they did the following over the past 60 days.

Results represent ratings of "More often."



Survey sent to all learners at 60 days post-activity completion.  
M1: 50 respondents, of whom 39 see patients with T2D  
M2: 31 respondents, of whom 24 see patients with T2D

Learners rated their change in confidence in their ability to do the following over the past 60:

Results represent a rating of "Increased" or "Increased significantly."

