

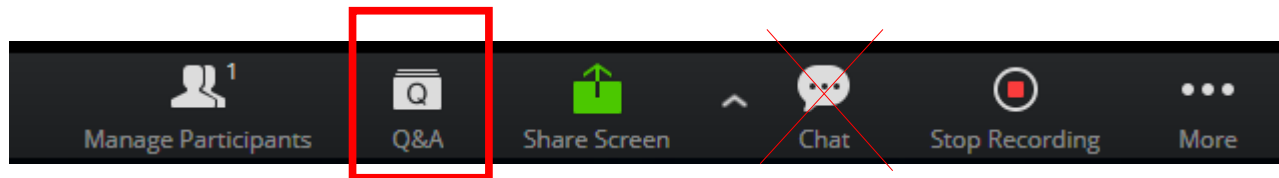
# Nephrotic Syndrome Post-Kidney Transplantation

Samira S Farouk, MD, MS, FASN

# Technical Overview

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- Please stay on '**mute**' throughout the duration of the webinar.
- The chat box has been disabled.
- If you have questions for the speaker or for the AKF team:
  - please type it into the **Q&A box** in your control panel.
  - we will answer questions out loud during the Q&A portion of the presentation.



# Thanks to our speaker!

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## **Samira S Farouk, MD, MS, FASN**

- Transplant nephrologist
- Assistant Professor of Medicine & Medical Education at Icahn School of Medicine at Mount Sinai (ISMMS)
- Associate Program Director of the Nephrology Fellowship, and Social Media Director of the Division of Nephrology at ISMMS

# Objectives

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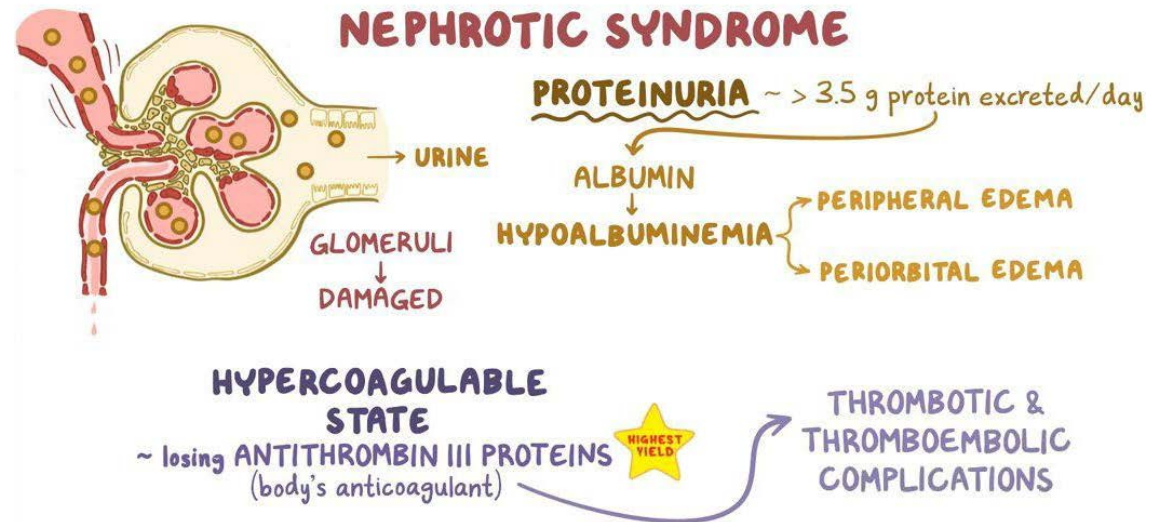
- Nephrotic syndrome causes and symptoms
- The risk of nephrotic syndrome post-transplant
- The importance of follow-up visits after transplant

# What is nephrotic syndrome?

Nephrotic syndrome is **not** a disease.

It is a **group of symptoms** that show your kidneys are damaged:

- Too much protein in your urine
- Not enough protein in your blood
- Too much fat or cholesterol in your blood
- Swelling



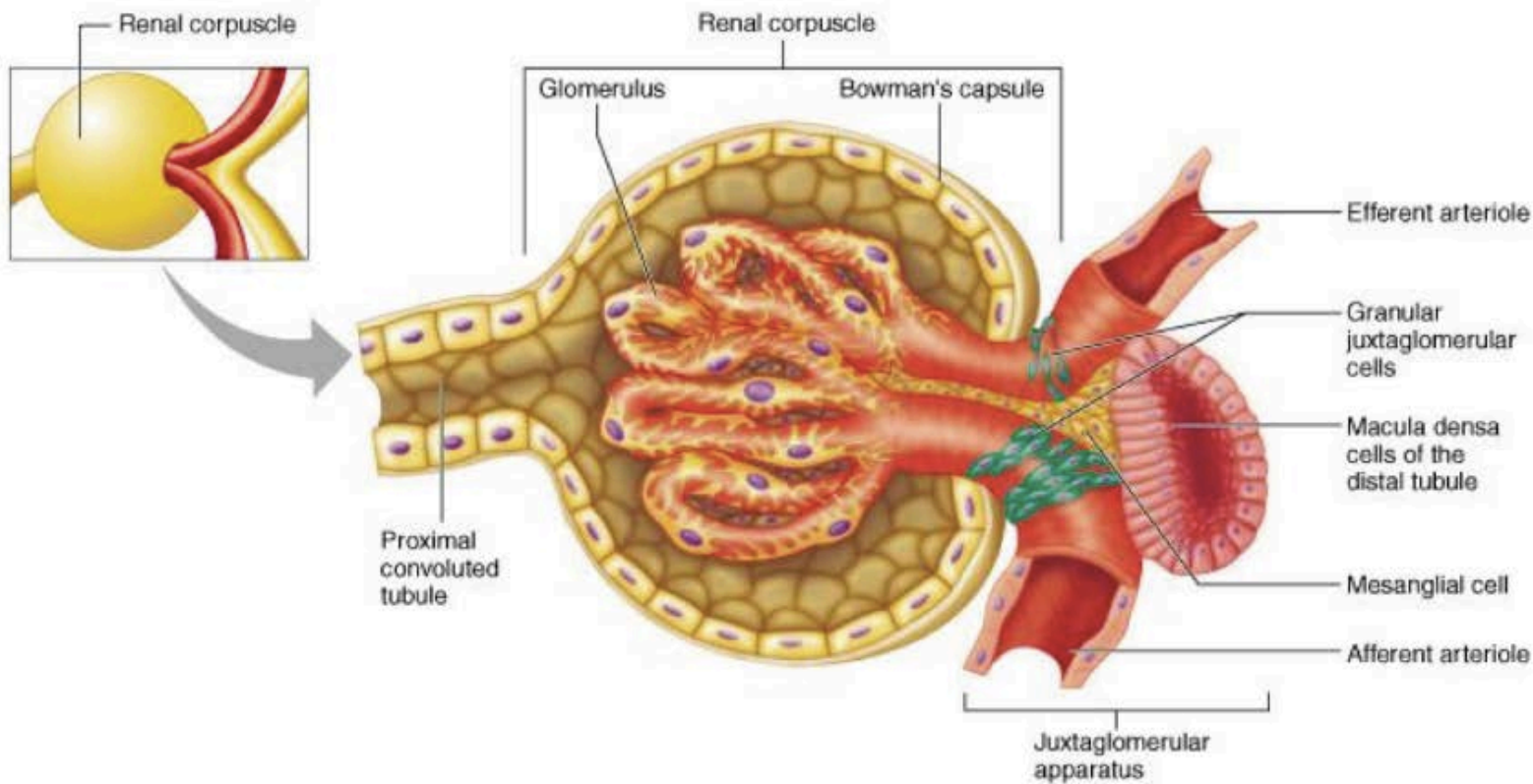


**Sorry I keep  
spilling all of this  
protein. I hope that  
doesn't cause any  
other problems.**



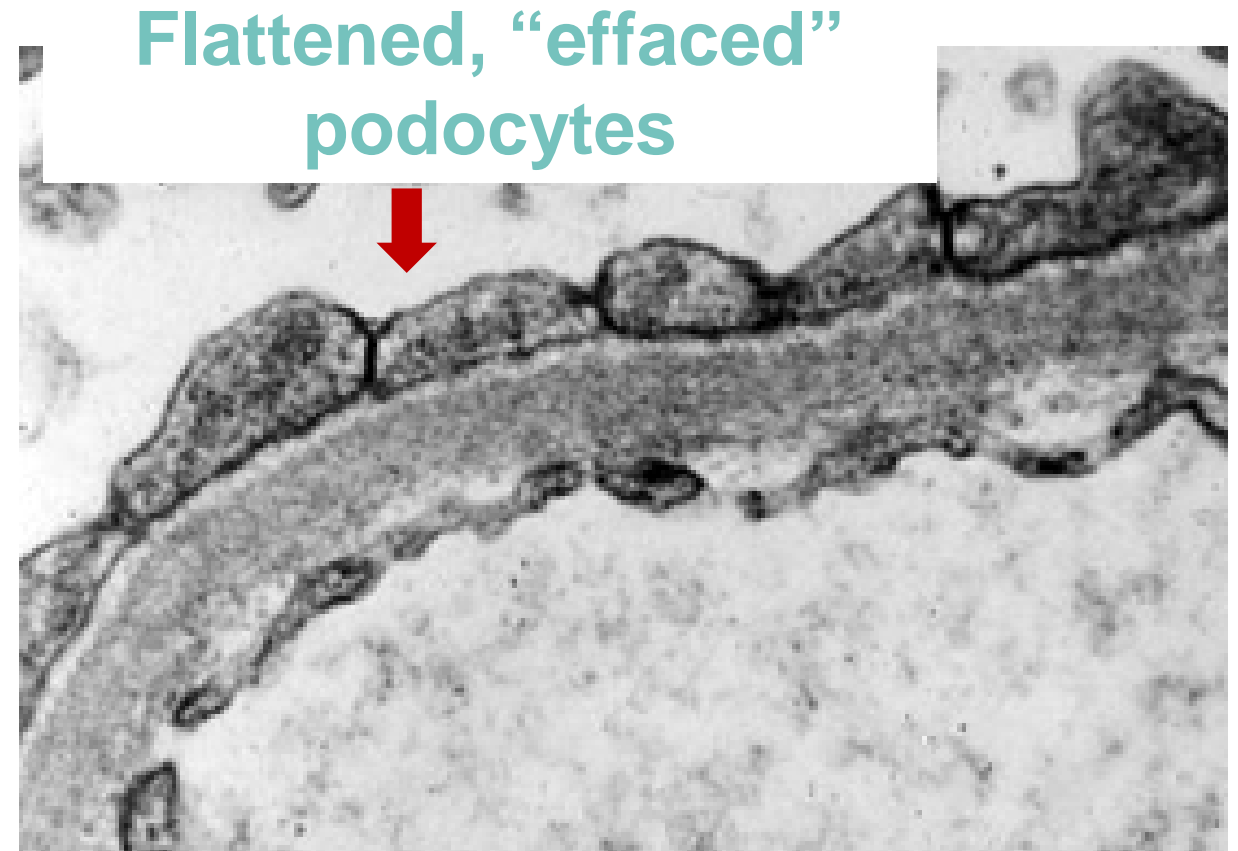
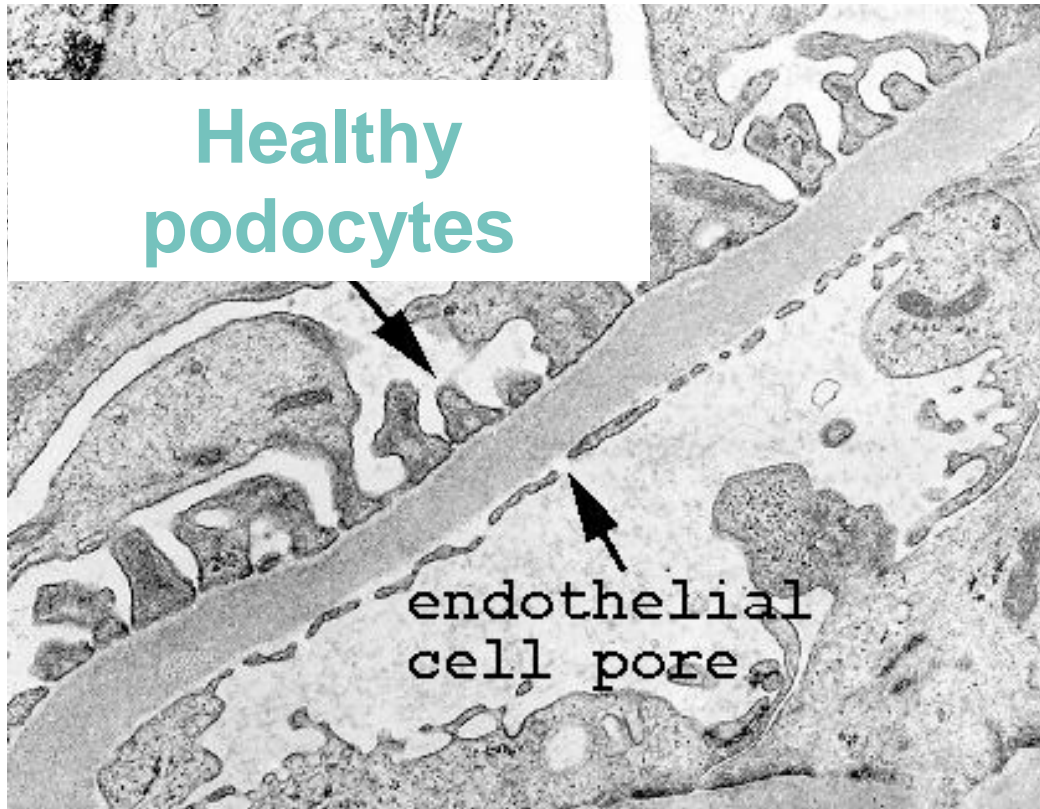
**Proteinuria → Nephrotic Syndrome**

**The kidney has about 1 million glomeruli.  
The glomerulus is like a coffee filter (coffee grounds = protein).**





**Podocytes are an important part of the filter that are damaged in patients with nephrotic syndrome.**



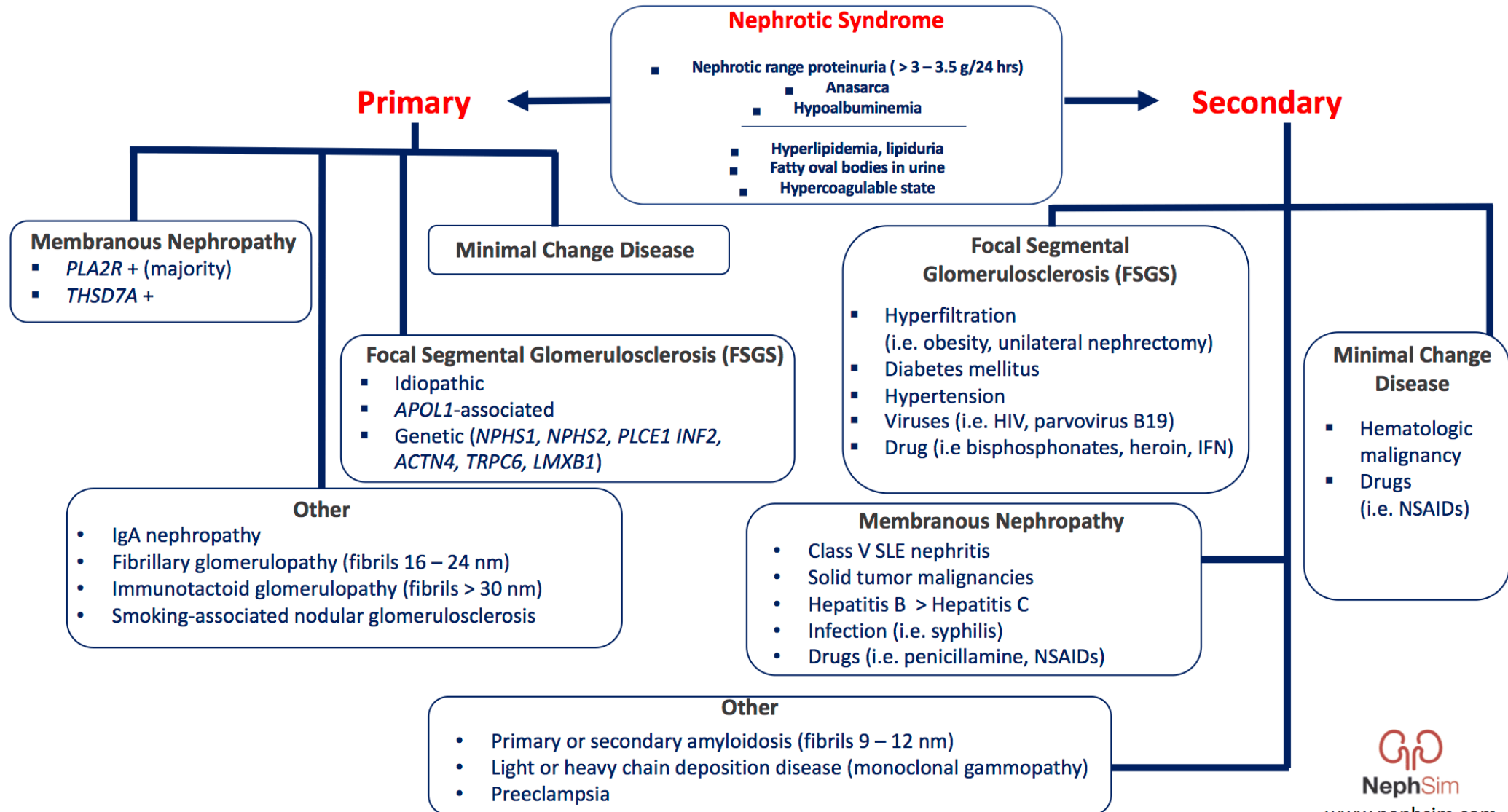


# What causes nephrotic syndrome?

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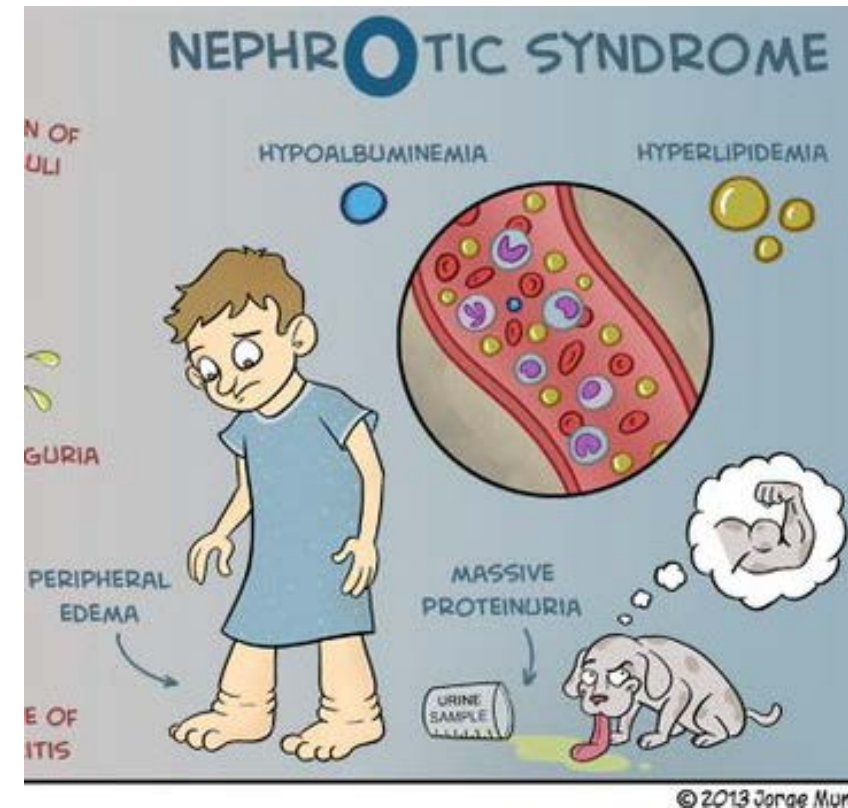
- **Primary causes** affect only the kidneys.
  - Focal segmental glomerulosclerosis (FSGS)
  - Minimal change disease
- **Secondary causes** are diseases that affect other parts of the body, including the kidneys.
  - Diabetes
  - Lupus
  - HIV

# Nephrotic syndrome indicates glomerular injury.



# What are the signs of nephrotic syndrome?

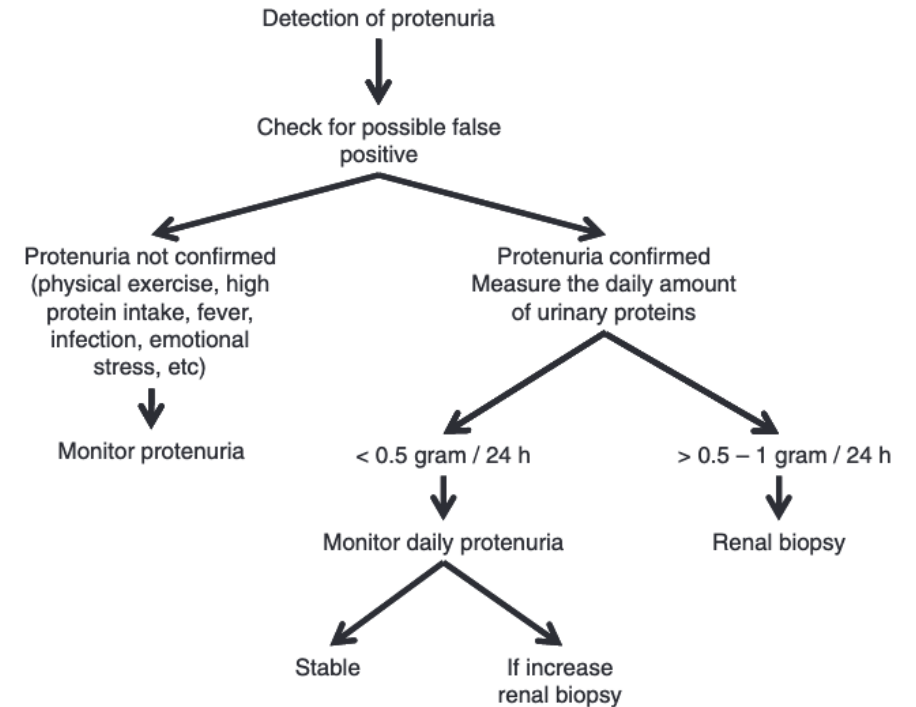
- Swelling in your legs, feet, ankles, and sometimes face and hands
- Weight gain
- Feeling very tired
- Foamy or bubbly urine
- Not feeling hungry



**The best way to know if you have nephrotic syndrome is to visit your doctor for routine blood and urine tests.**

# How do doctors test for nephrotic syndrome?

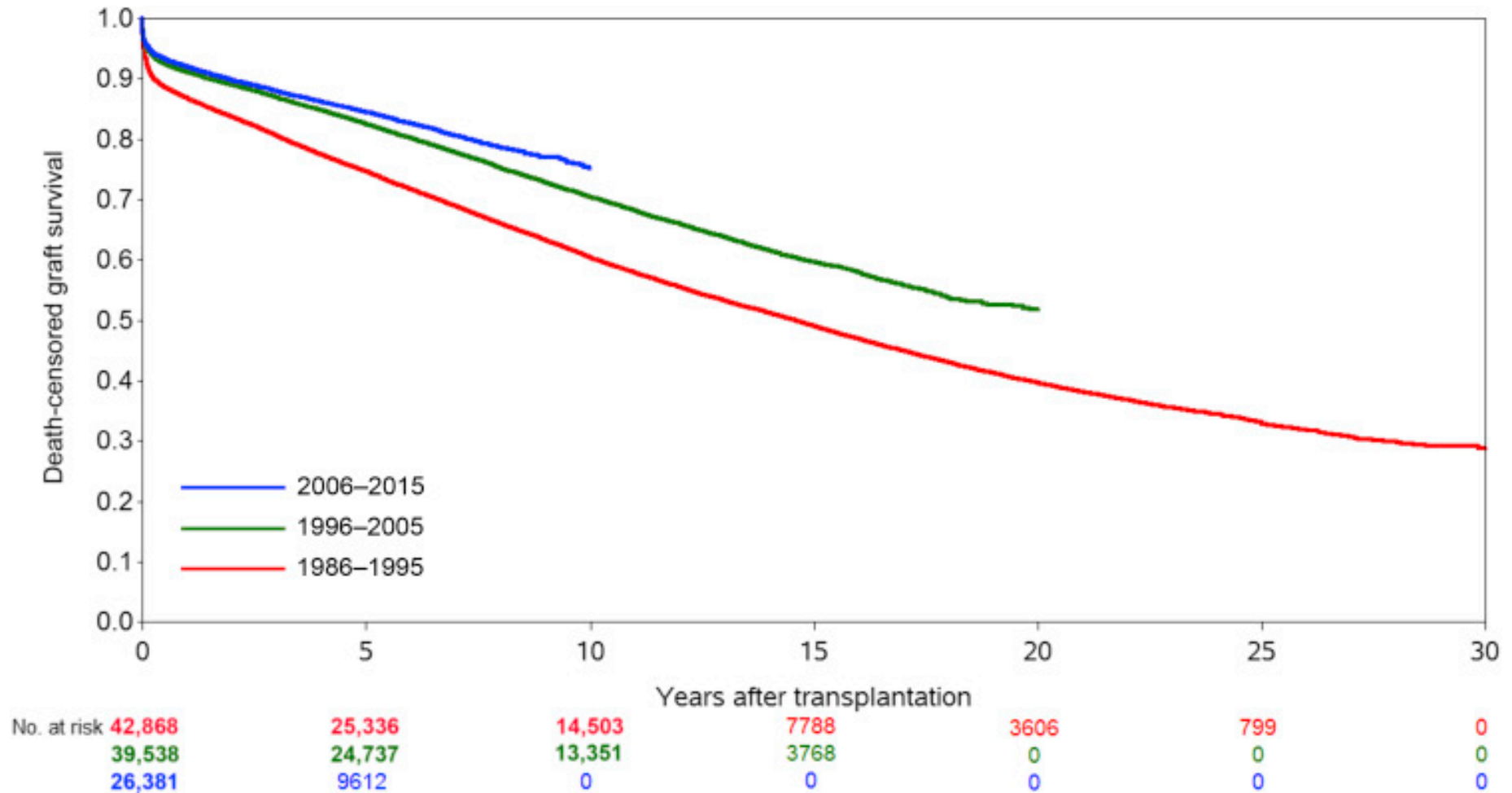
- **Urine tests** –results show if there is protein in your urine. If so, you may have nephrotic syndrome.
- **Blood tests** –results show if kidneys are filtering waste properly. If so, it may be a sign of nephrotic syndrome.
- **Kidney biopsy** – results show signs of damage and disease



**Figure 1** A diagnostic approach to posttransplant proteinuria.

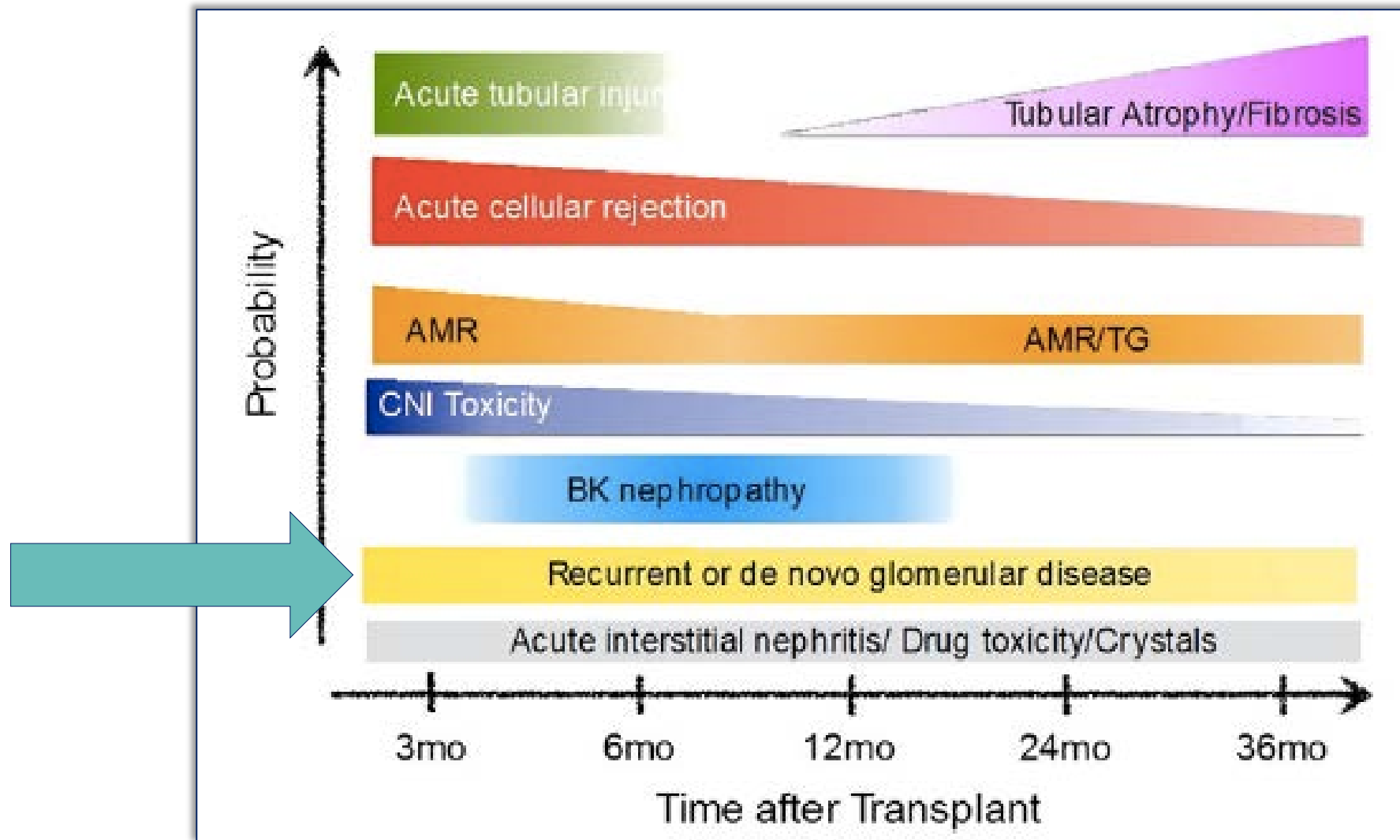
# Nephrotic syndrome & transplant

# Kidney transplants fail over time.





# Why do kidney transplants fail?



# Who is at risk for nephrotic syndrome post-transplant?

Patients who:

- Have nephrotic syndrome prior to kidney transplant due to a kidney disease such as FSGS
- Have a disease that affects the kidneys such as lupus or diabetes
- Take certain medicines like nonsteroidal anti-inflammatory drugs (NSAIDs) or antibiotics
- Have an infection such as HIV, hepatitis B and C, or malaria

# What is FSGS?

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- Focal segmental glomerulosclerosis (FSGS)
- Scarring the kidneys' filters, which makes it hard for kidneys to filter out waste and can lead to kidney failure.
- A primary cause of nephrotic syndrome
- Requires kidney biopsy for diagnosis

# Recurrence of Focal Segmental Glomerulosclerosis after Kidney Transplantation in Adults



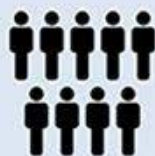
Post-Transplant  
Glomerular Disease  
Project (TANGO)



Observational  
Multicenter  
International



2005 to 2015



Kidney transplant  
recipients  
 $n = 11,742$

## Risk Factors for recurrence



Old age

Hazard Ratio

**1.37**

per decade  
(1.09-1.56)



White race

**2.14**

(1.08-4.22)



BMI

**0.89**

per Kg/m<sup>2</sup>  
(0.83-0.95)



Native kidney  
nephrectomy

**2.76**

(1.16-6.57)

## Recurrence of FSGS



**32%**  
( $n = 57$ )

Recurrent FSGS



**39%**  
(22 of 57)

Graft loss  
Median IQR: 5 years

## Response to treatment of recurrent FSGS



**81%**  
( $n = 61$ )

Plasmapheresis ±  
Rituximab were the  
most frequent  
treatments

**21%**  
( $n = 13$ )

Complete  
Remission

**36%**  
( $n = 22$ )

Partial  
Remission

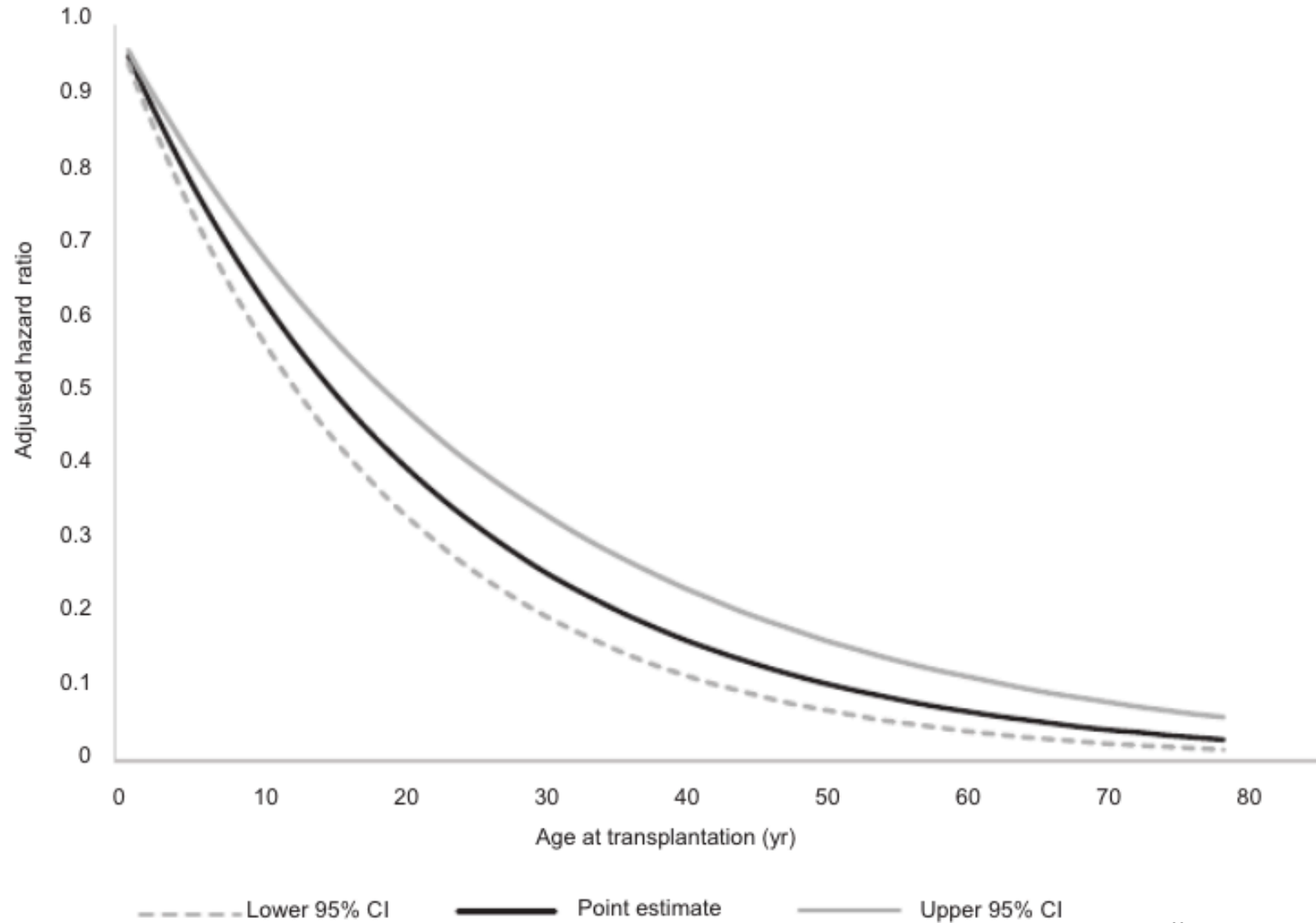
**43%**  
( $n = 26$ )

No  
Response

**Conclusions:** Idiopathic FSGS recurs post-transplant in one-third of cases, increases by five-fold the risk of graft loss. Response to treatment significantly improves outcomes but is achieved in only half of the cases.

Audrey Uffing, Maria José Pérez-Sáez, Marilda Mazzali, et al. **Recurrence of Focal Segmental Glomerulosclerosis after Kidney Transplantation in Adults.** CJASN doi: 10.2215/CJN.08970719. Visual Abstract by Edgar Lerma, MD, FACP, FASN

# Risk of recurrence decreases with age



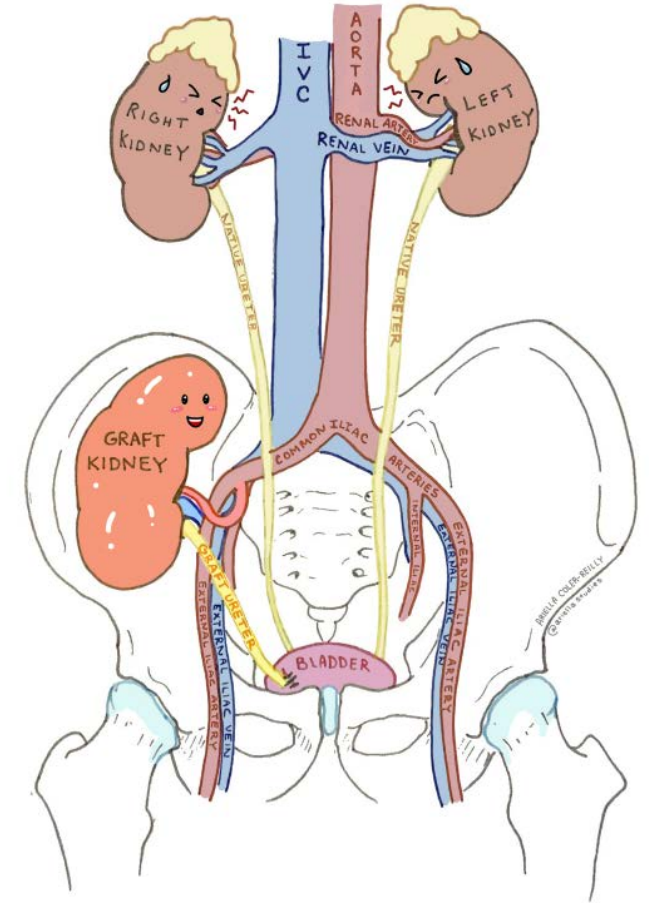
# Why is it important to treat nephrotic syndrome?

- Nephrotic syndrome can lead to other problems such as:
  - Blood clots
  - Infections
  - Heart attack or a stroke
  - Anemia
  - Heart disease
  - High blood pressure
  - Fluid buildup
  - Acute kidney injury
  - End-stage renal disease (ESRD) or kidney failure
  - **Causing your new kidney transplant to fail**



# Protect your transplant!

- If you had nephrotic syndrome before your transplant, you may be at risk to develop it again after transplant.
- Continue regular follow up with your kidney transplant team.
- Get blood and urine tests to look for early signs of kidney injury and nephrotic syndrome.



# How can I treat nephrotic syndrome?

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- Take certain medicines to treat the symptoms and keep the damage to your kidneys from getting worse
  - Blood pressure and cholesterol control medicine can help prevent heart attack or stroke.
  - Medicine to help your body get rid of extra water can help control your blood pressure and can reduce swelling.
- Changing how you eat may also help you manage your symptoms. A dietitian may recommend you change the amount of protein, salt, and fat that you eat.

# Key Takeaways

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- Nephrotic syndrome is caused by primary or secondary diseases that harm the filters in your kidneys.
- Nephrotic syndrome can happen even after a transplant and harm your new kidney.
- Close follow up with your transplant nephrology team is necessary to look for early signs of kidney injury and nephrotic syndrome.

# Live Q&A

## Submit your questions now!

**Is nephrotic syndrome preventable?**

**What is the difference between nephrotic syndrome and nephritic syndrome?**



**Are there any new treatments in the works or clinical trials for nephrotic syndrome?**

**What are the differences between childhood nephrotic syndrome and adulthood nephrotic syndrome?**

# Live Q&A

## Submit your questions now!

# Join us for our next webinar!



**Christian W. Mende, MD, FACP,  
FACN, FASN, FASH, FAHA**

## Know Your Kidneys: How You Can Prevent Diabetic Kidney Disease

Wednesday, November 4, 2020 from 1:00 – 2:00 p.m. EST

### Join our speaker to hear more about:

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- How you can prevent diabetic kidney disease
- Treatment options for diabetic kidney disease

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