

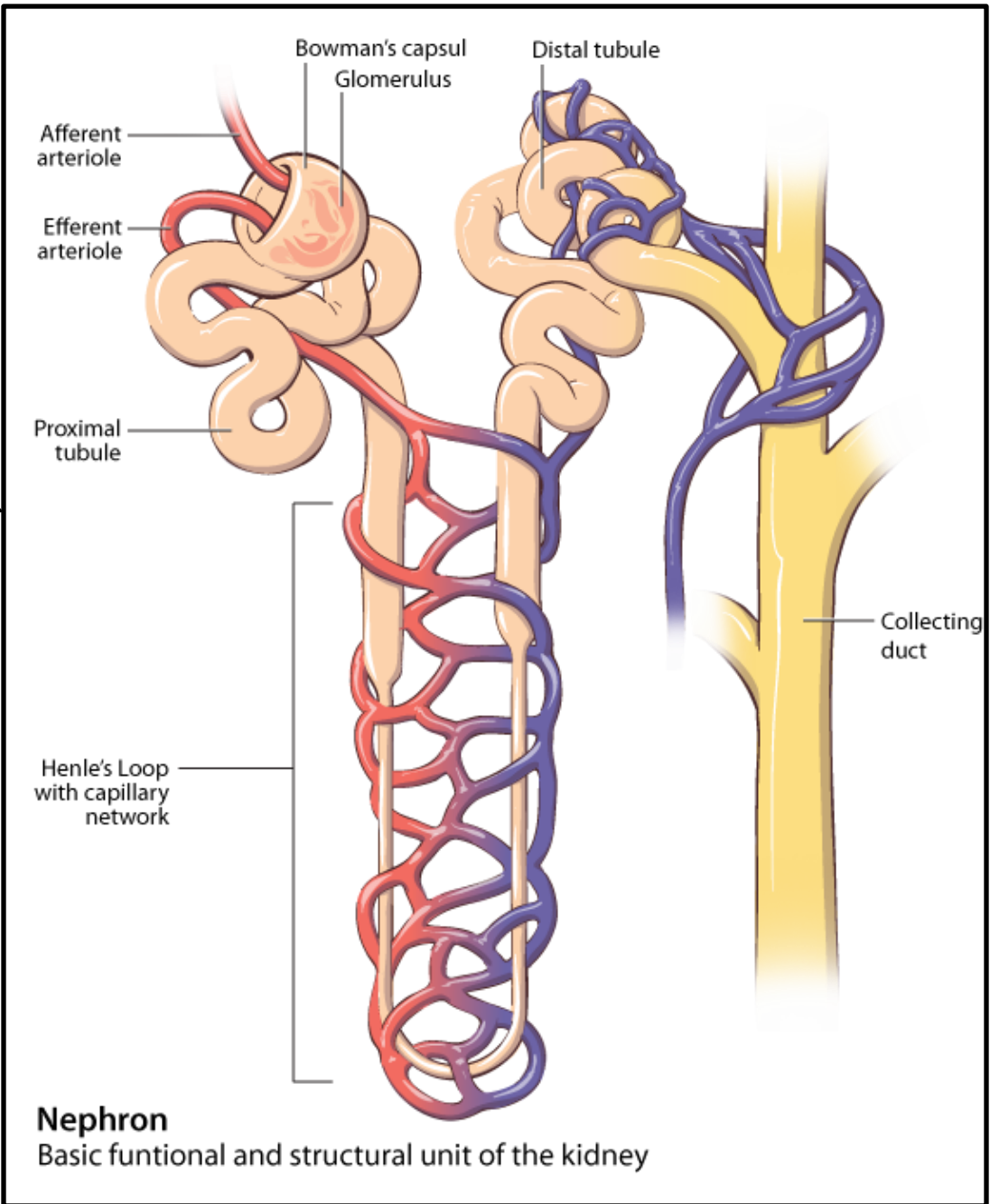
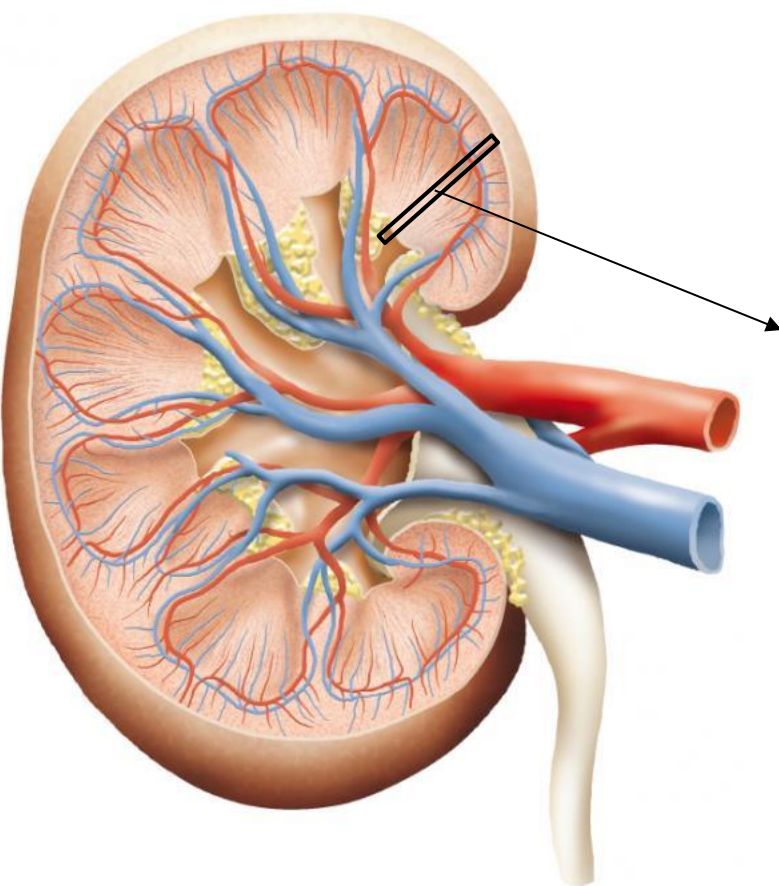
# Causes, consequences and treatment of kidney disease

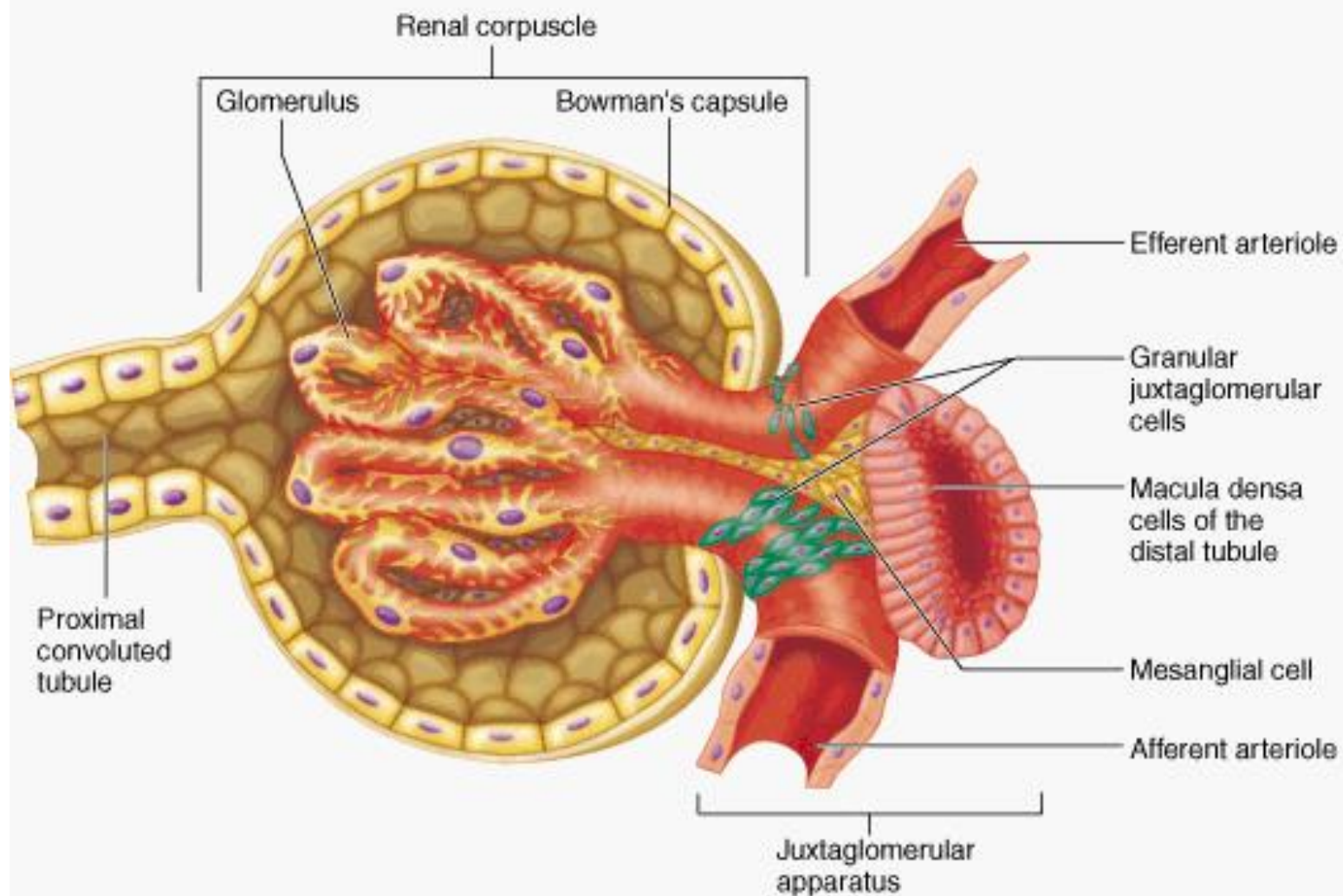
Bryan Conway

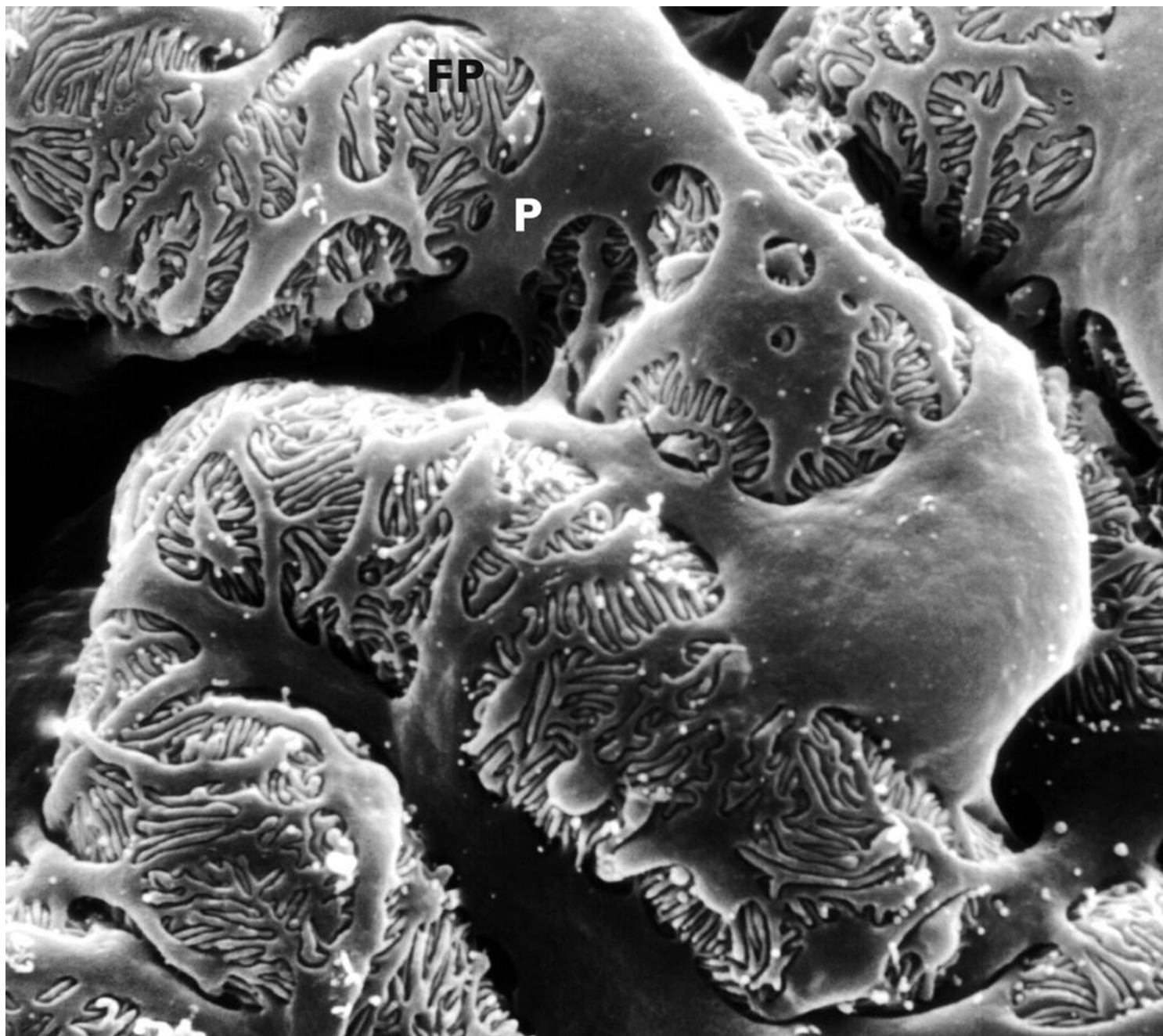
Senior Lecturer, Honorary Consultant Nephrologist  
University of Edinburgh/Royal Infirmary

# What do the kidneys do?

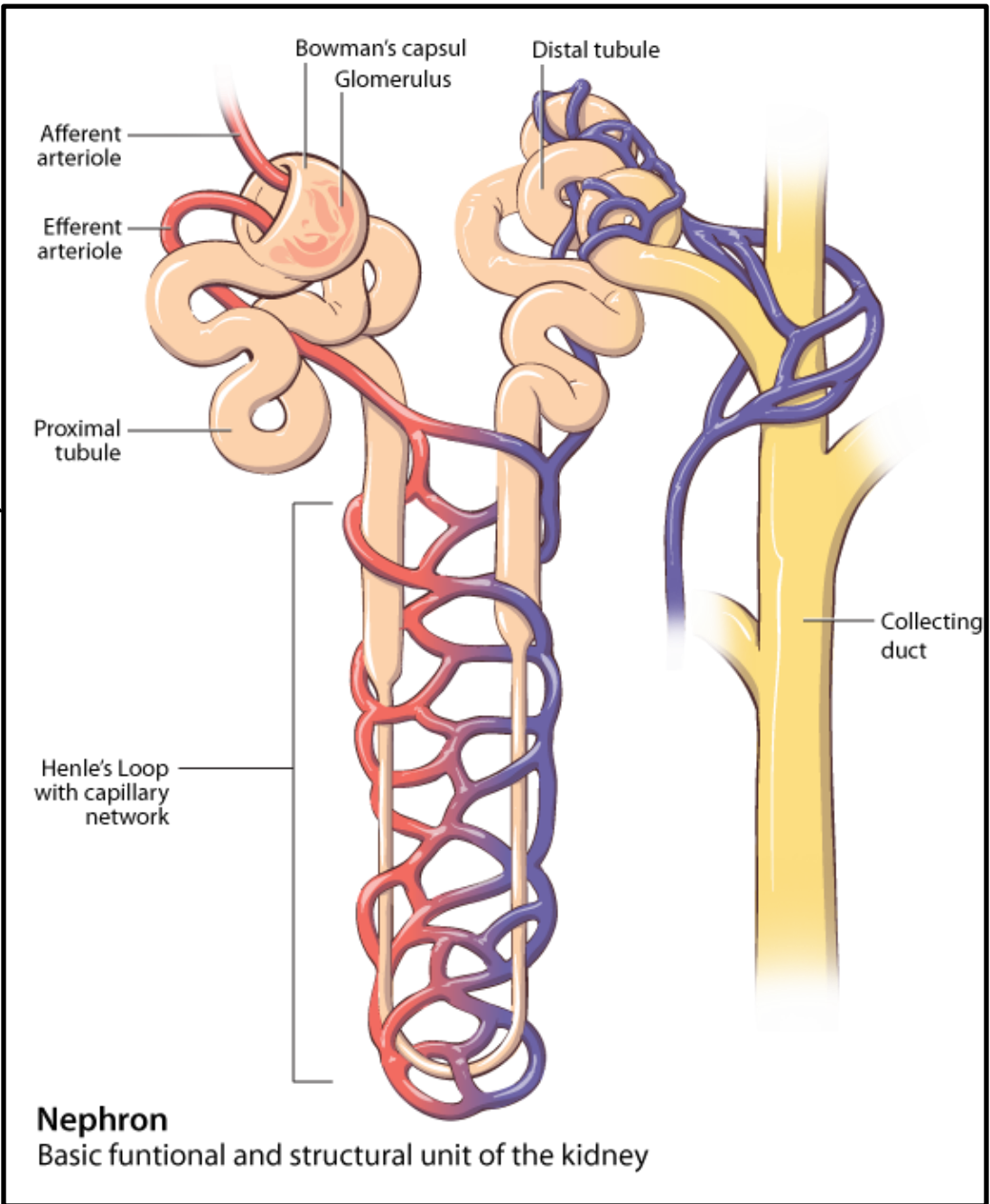
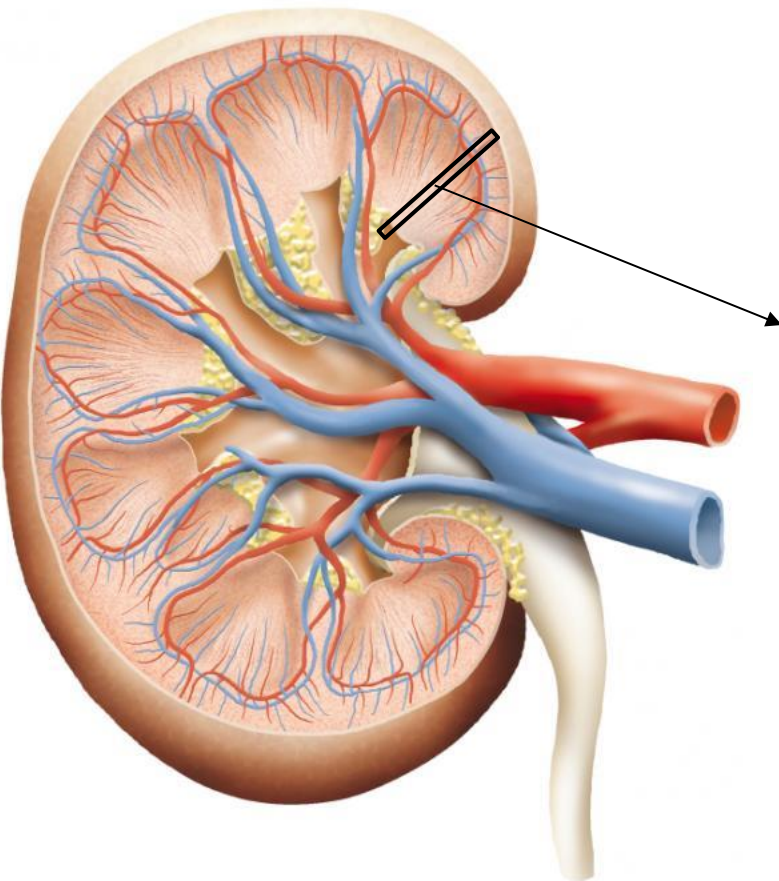
1. Filter waste
2. Regulate electrolyte and water balance
3. Control blood pressure
4. Produce hormones







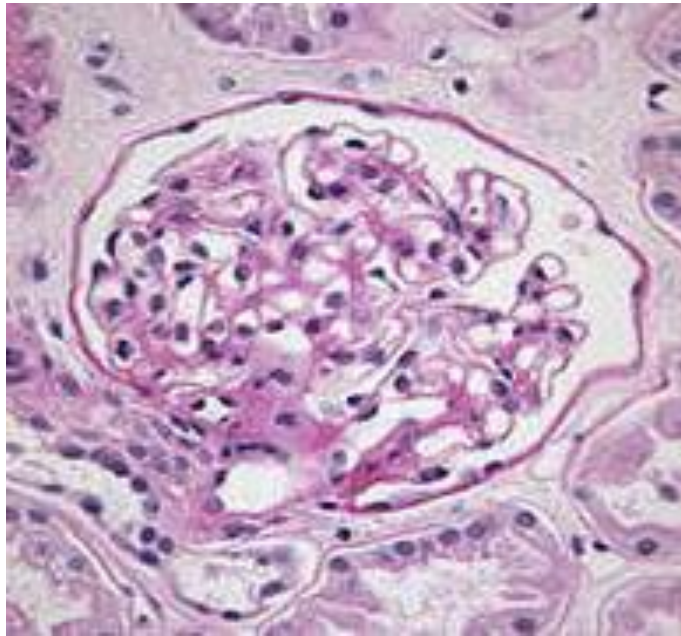




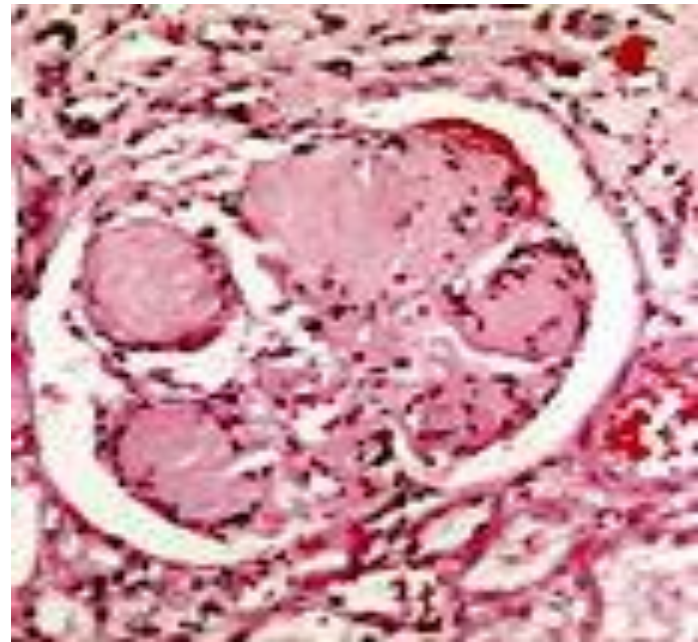
# What happens when the kidneys fails?

1. Build up of waste
2. Build up of electrolytes and fluid
3. Hypertension
4. Hormonal deficiency

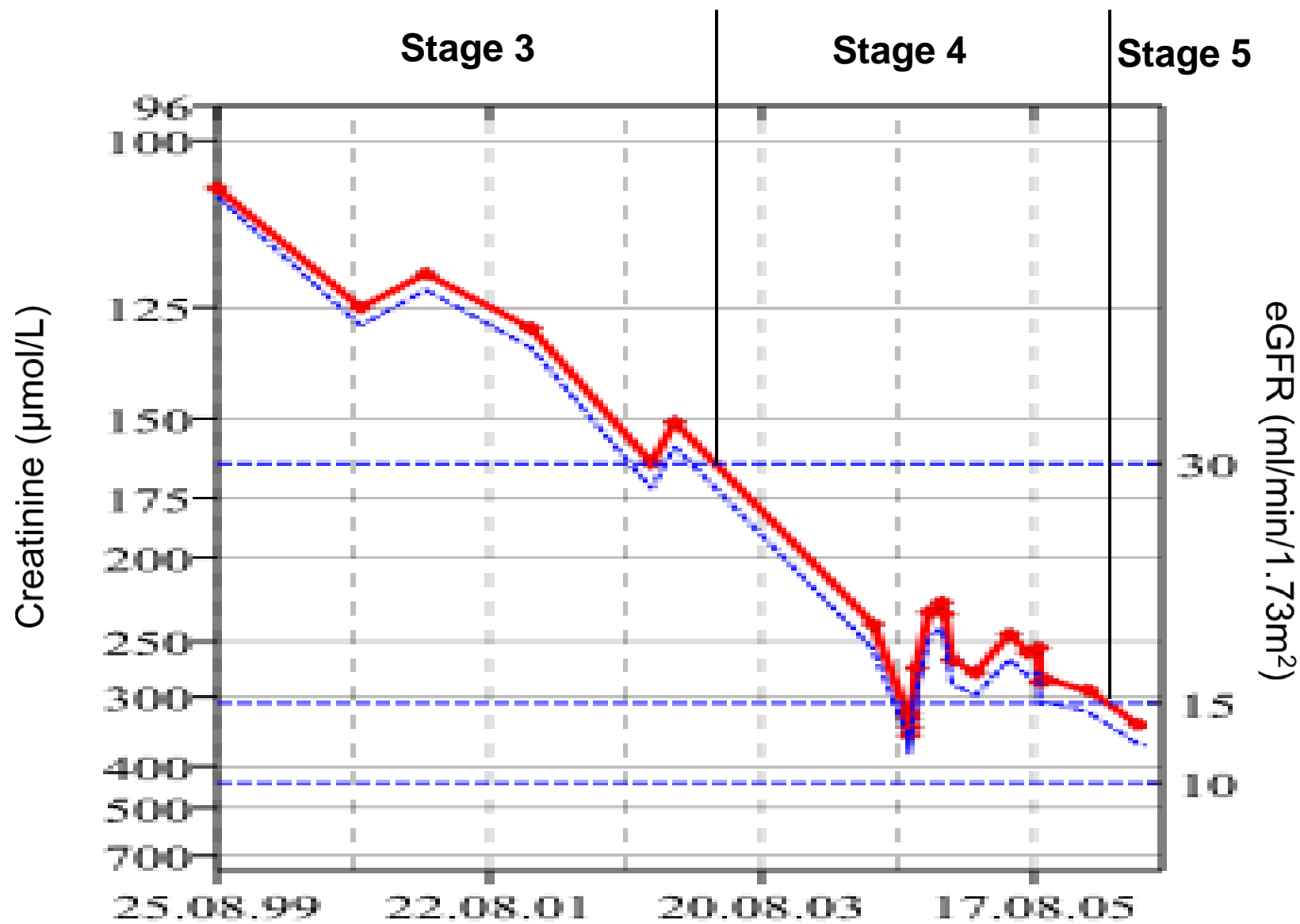
Normal glomerulus



Diabetic glomerulus

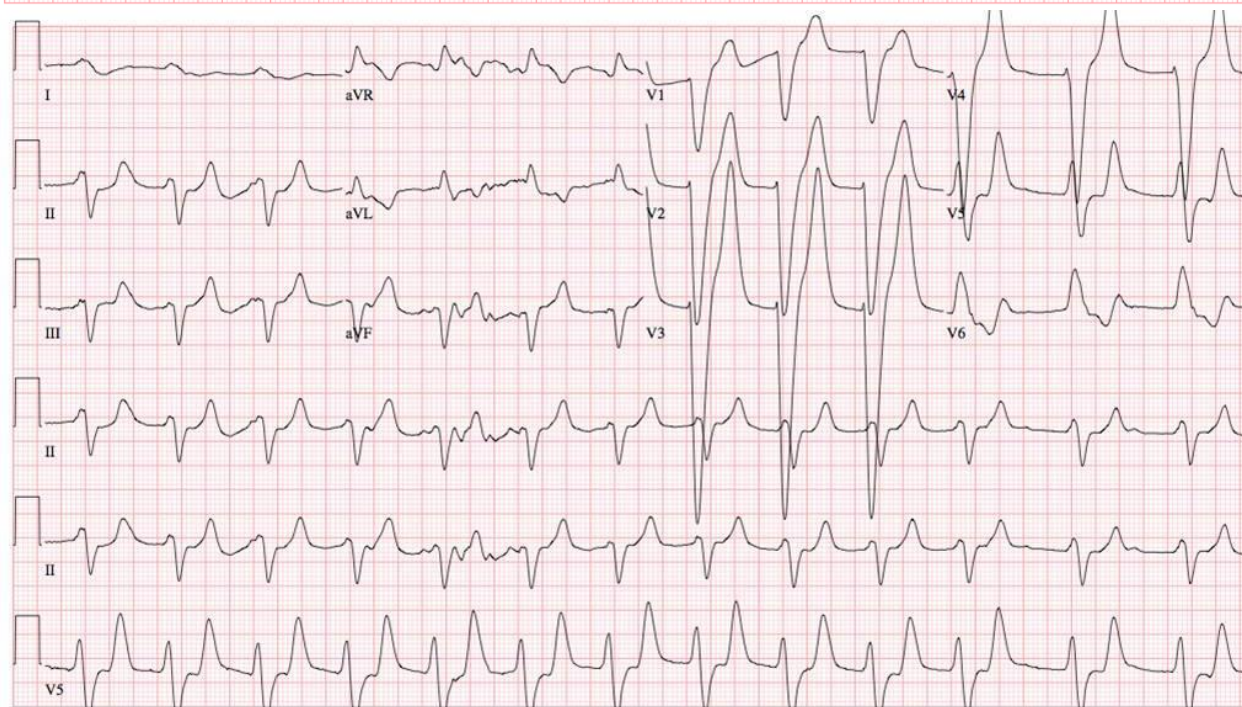
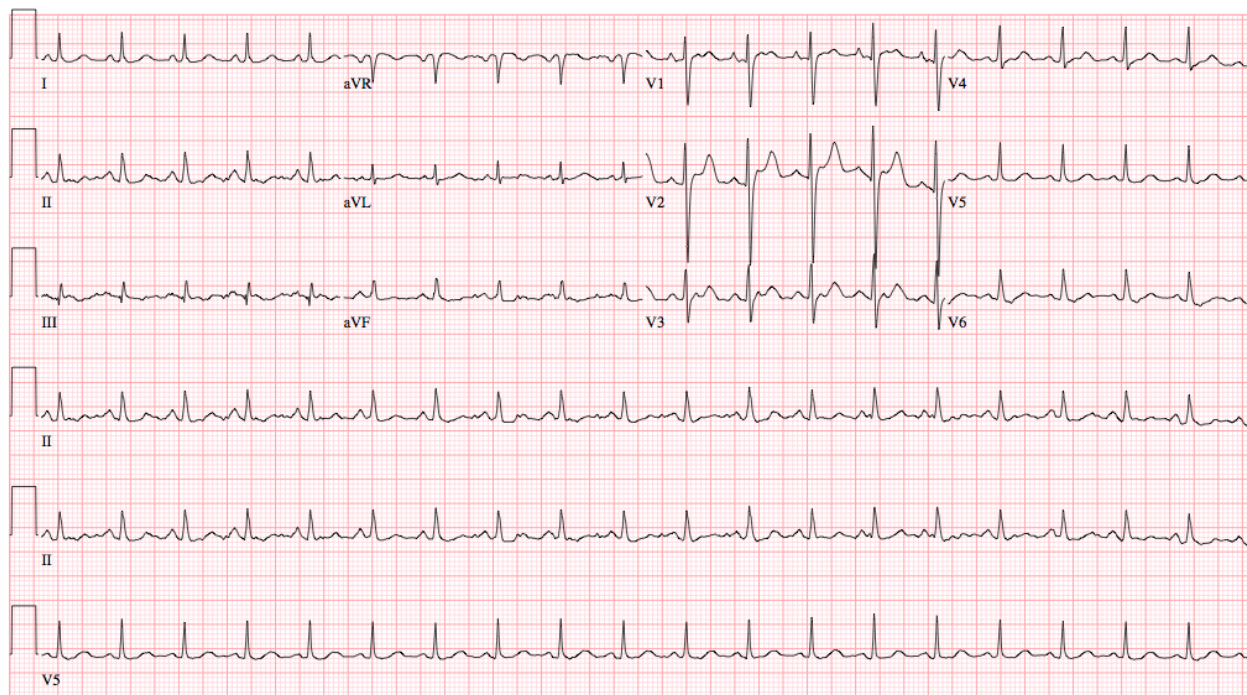






# What happens when the kidneys fails?

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# What happens when the kidney fails?

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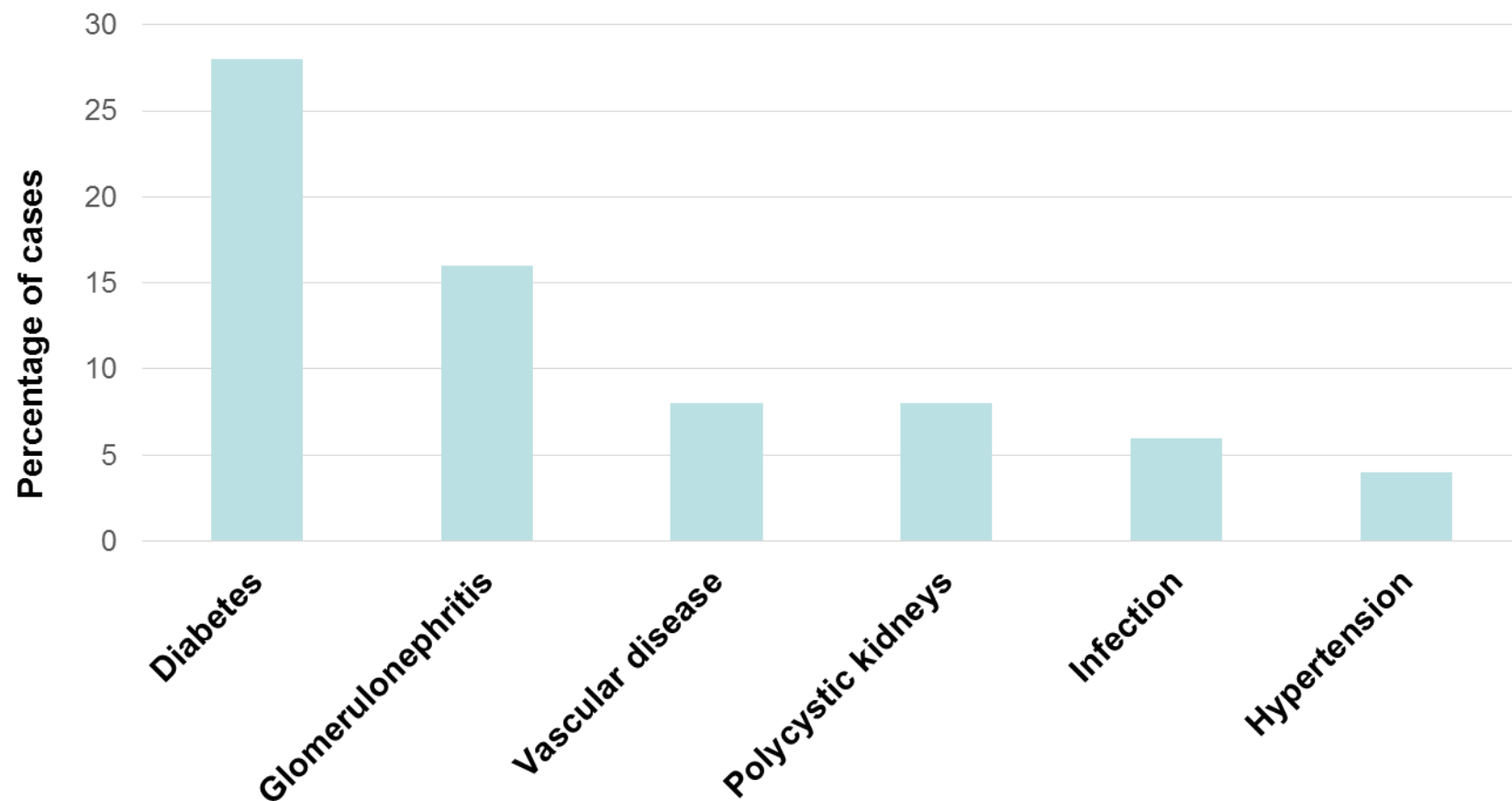


EPO

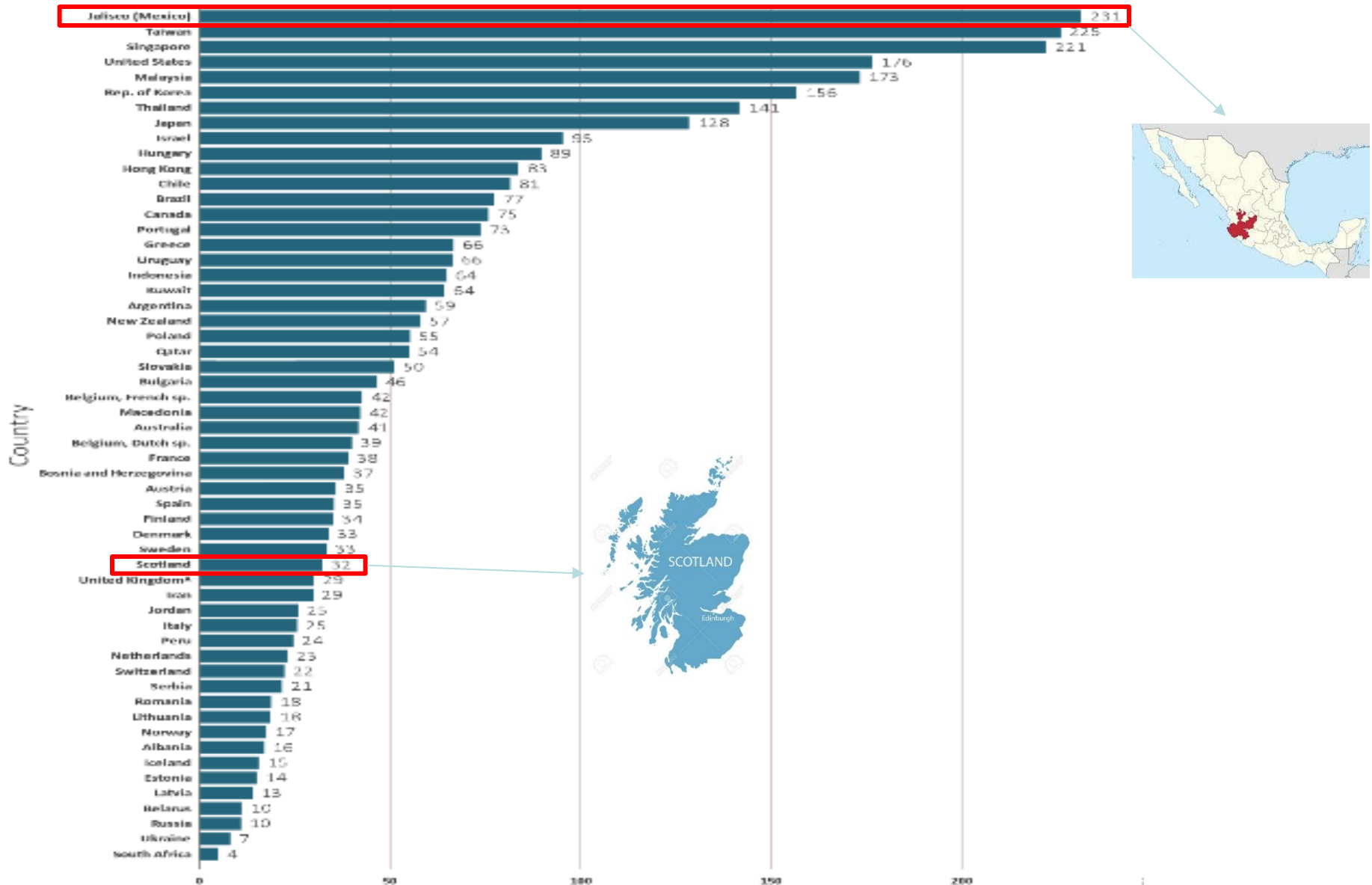


What causes kidney failure?

# Causes of end-stage kidney disease in Scotland 2012-2016



# Worldwide incidence of end-stage kidney disease due to diabetes (per million population/yr)



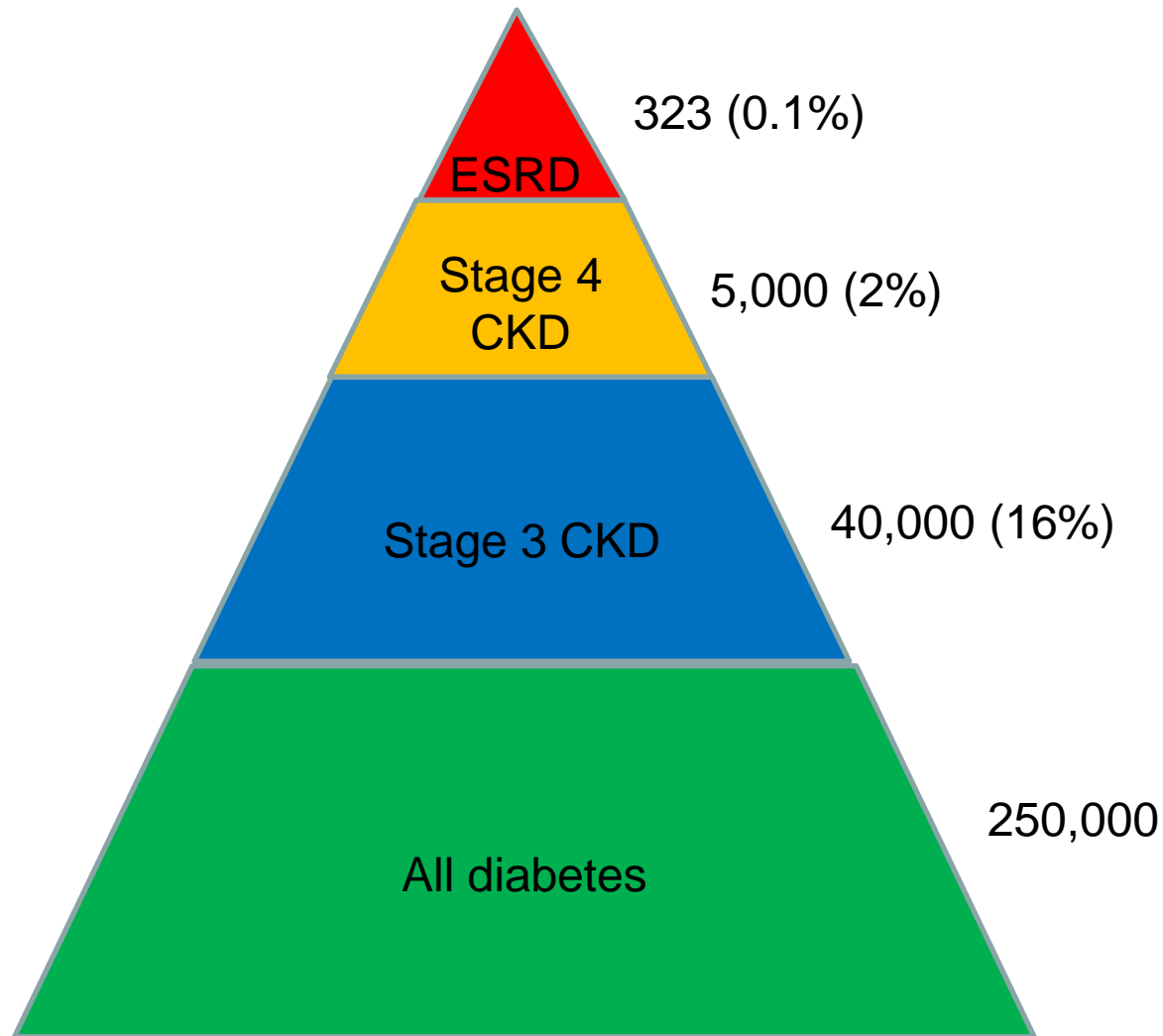
Source: US Renal Data System

End stage diabetic nephropathy: tip of the iceberg

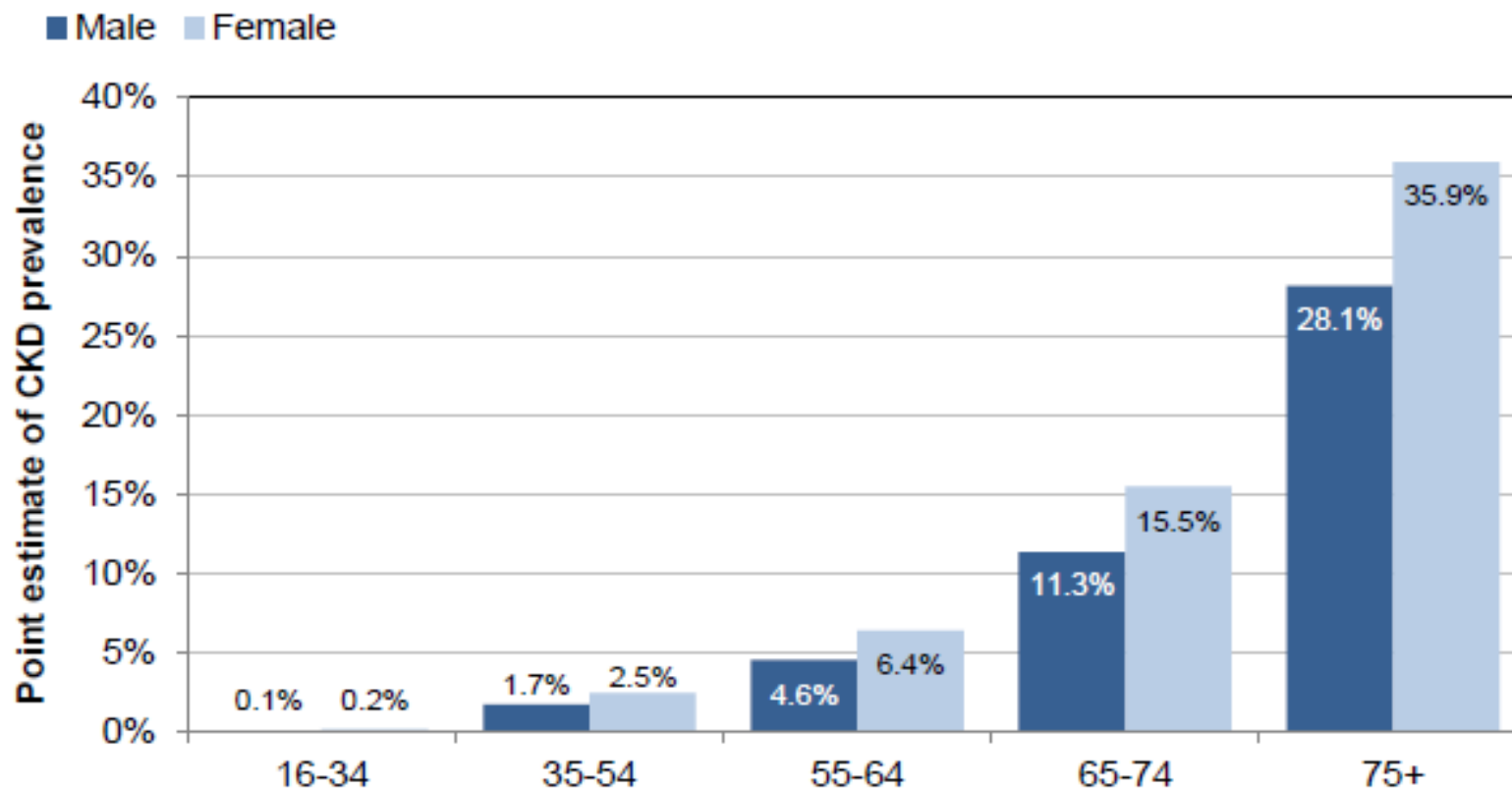




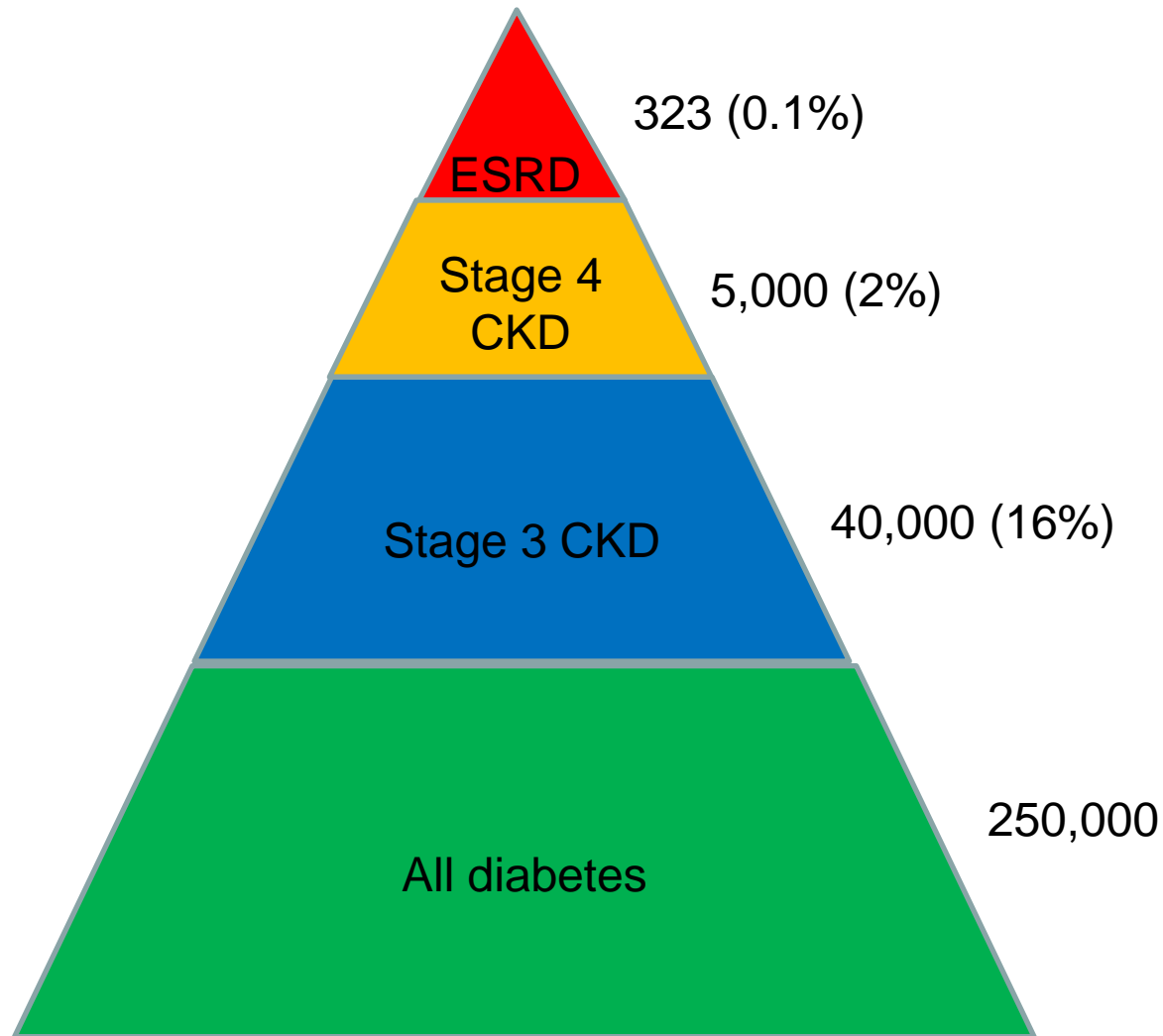
# End-stage kidney disease is the 'tip of the iceberg'



## Prevalence of Chronic Kidney Disease (CKD) stage 3-5 in UK

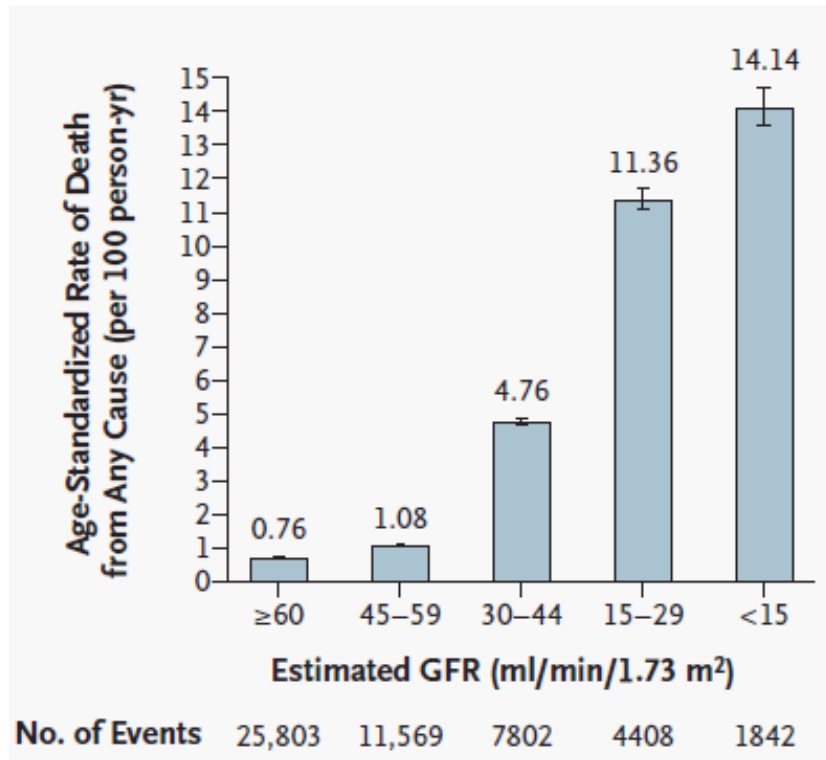


# End-stage kidney disease is the 'tip of the iceberg'

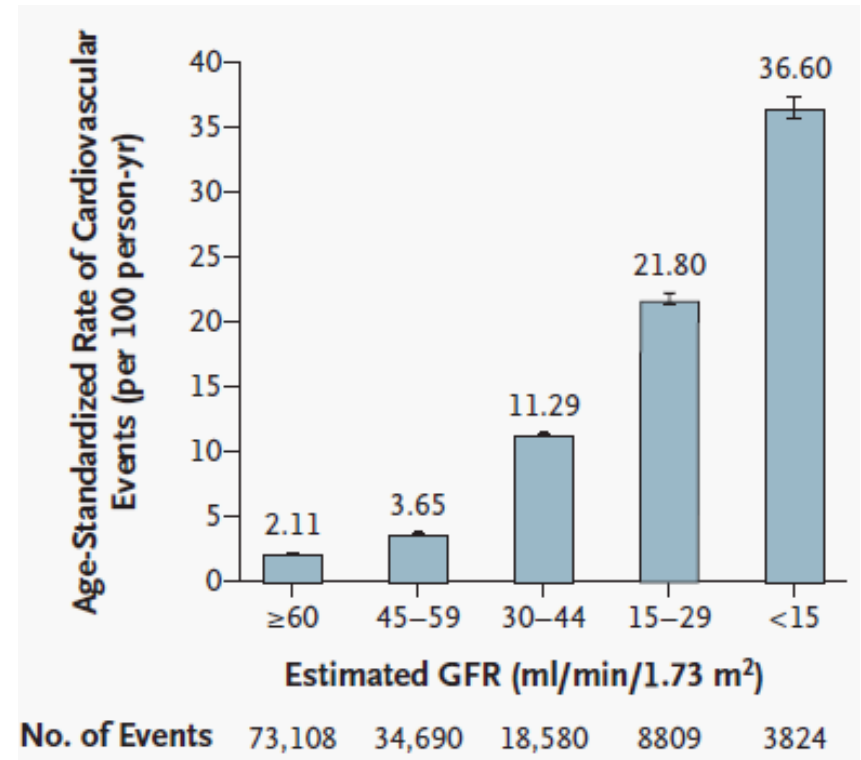


# Age-standardised death rates according to renal function

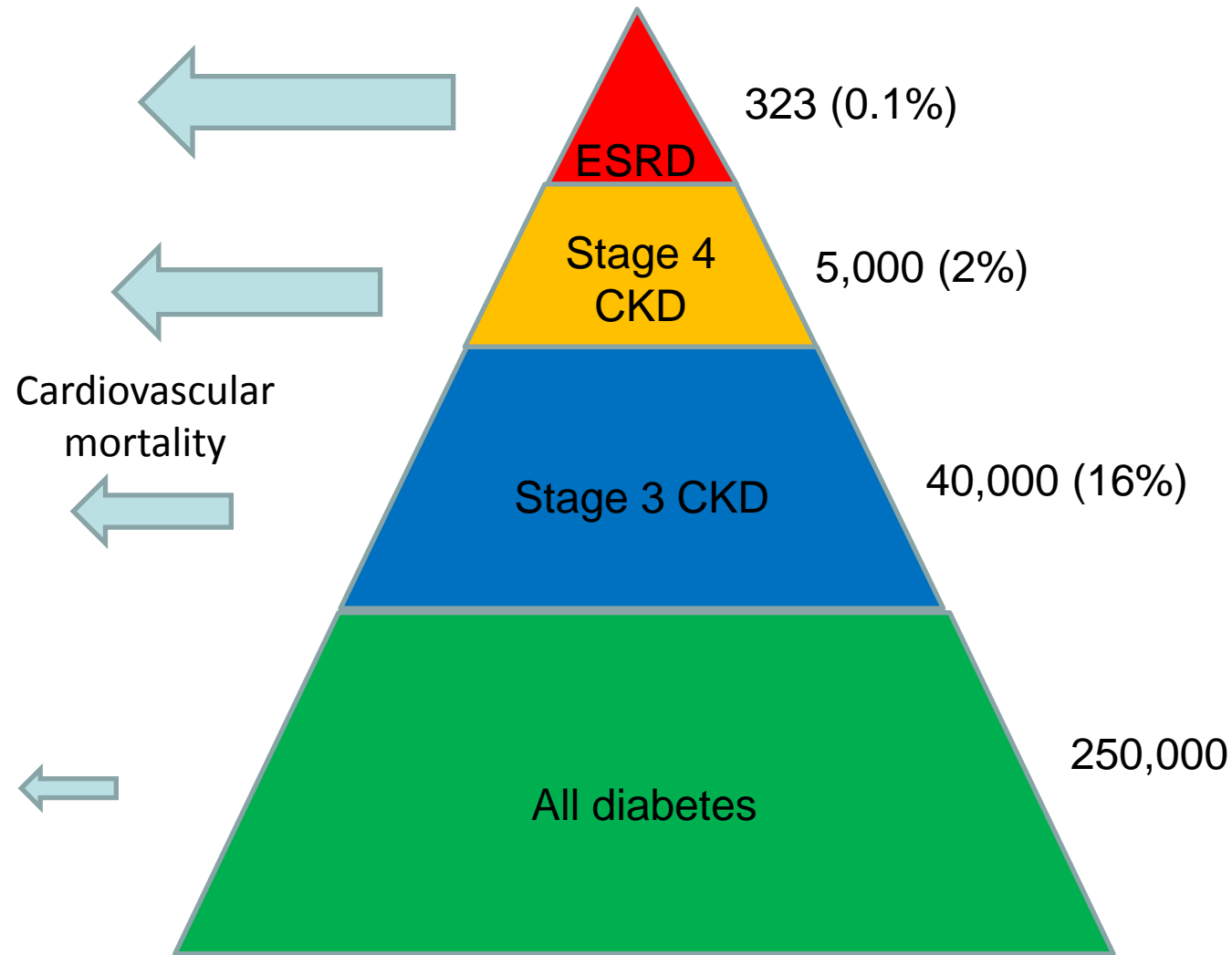
## All cause



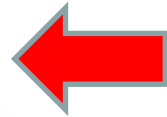
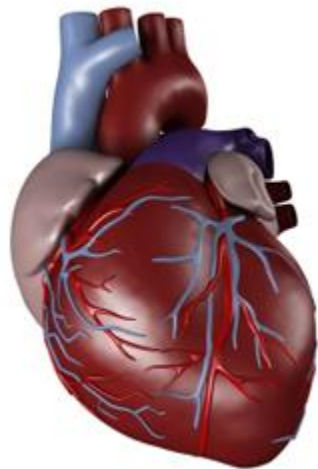
## Cardiovascular



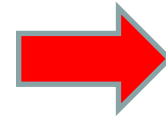
# End-stage kidney disease is the 'tip of the iceberg'

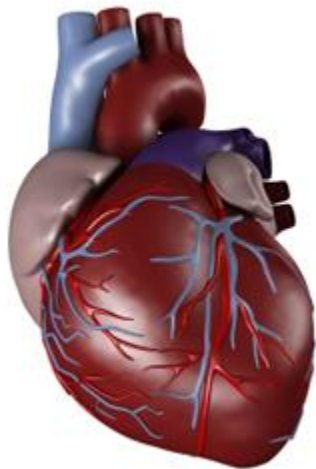




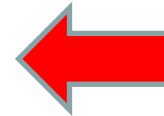
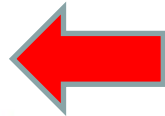


Diabetes  
Hypertension  
Hyperlipidaemia  
Smoking  
Genetic factors  
Age

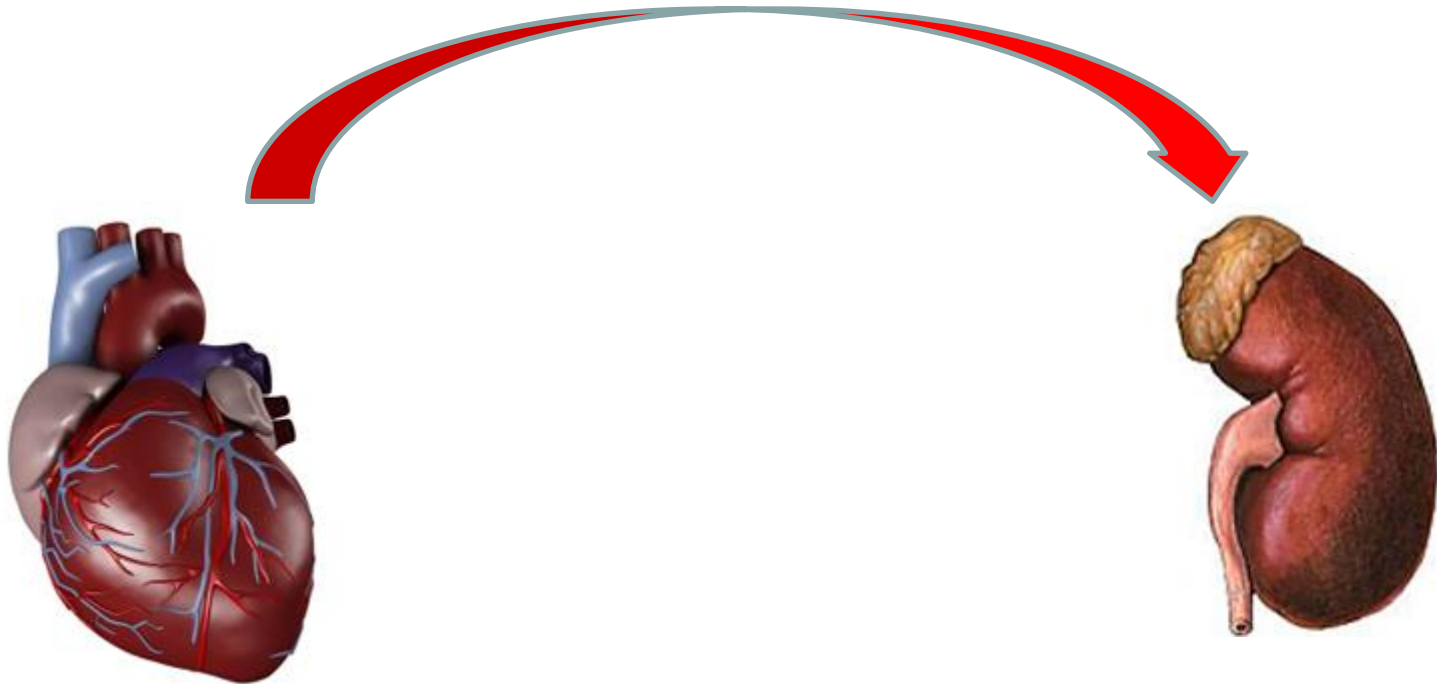




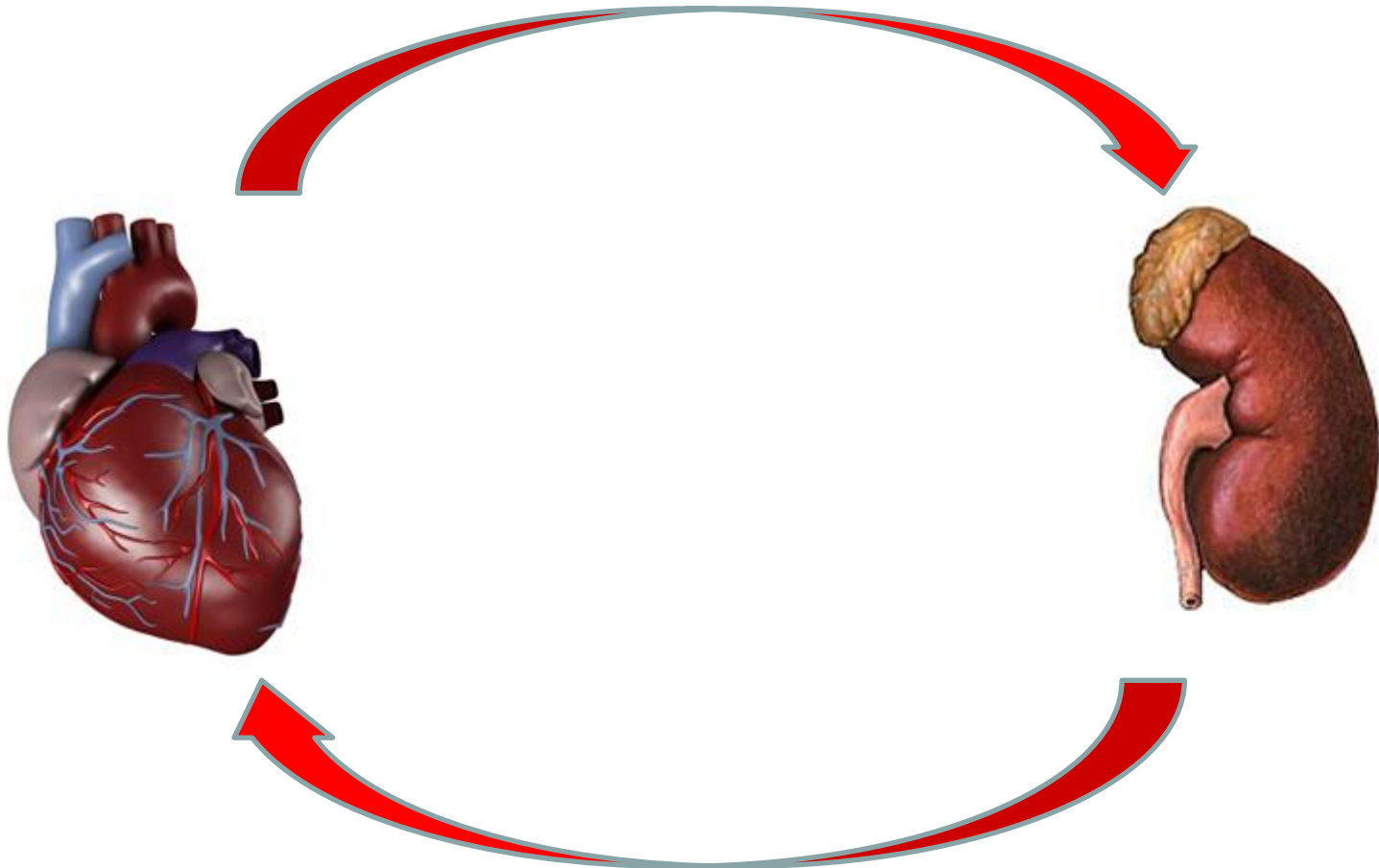
Diabetes  
Hypertension  
Hyperlipidaemia



Poor blood supply



Poor blood supply



Fluid overload  
Anaemia  
Calcium/phosphate deposition

# Management

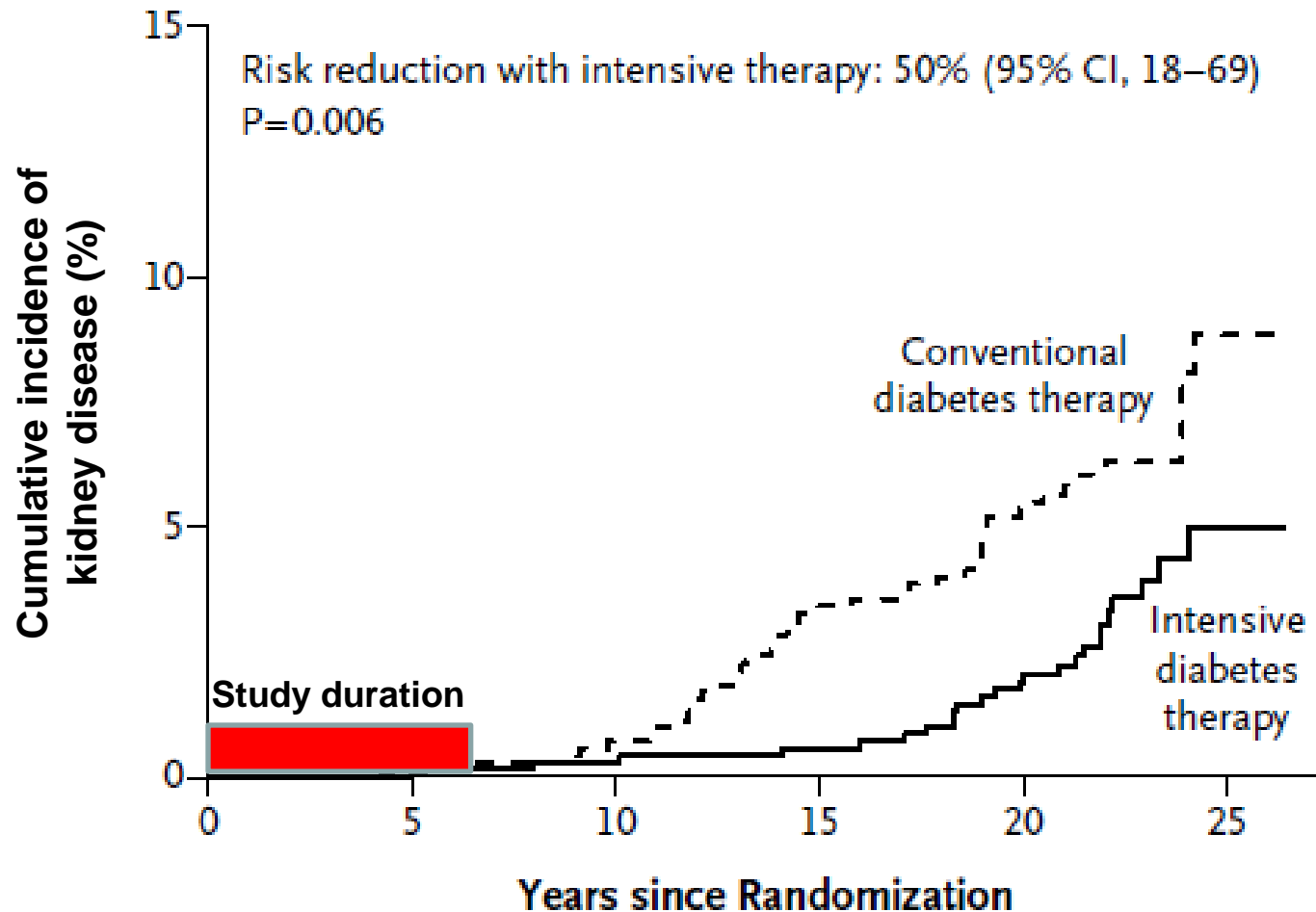




# Management

- Weight loss, exercise, stop smoking
- Tight blood glucose control

# Tight glucose control prevents chronic kidney disease



# Management

- Weight loss, exercise, stop smoking
- Tight glycaemic control
- Tight blood pressure control

# Hypertension and the kidney – a vicious circle!



# Management

- Weight loss, exercise, stop smoking
- Tight blood glucose control
- Tight blood pressure control
- Reduce cardiovascular risk