

# Membranoproliferative glomerulonephritis (MPGN) (Overview)

This infoKID topic is for parents and carers about children's kidney conditions.

This leaflet has the overview only.

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Membranoproliferative glomerulonephritis (MPGN) causes inflammation (swelling) in the kidneys. Children with MPGN have blood and protein in their urine, and may have swelling in their body, especially around their face and legs. MPGN may lead to other complications, including high blood pressure (**hypertension**).

Some children need to stay in hospital and/or take medicines. All children are carefully monitored by a team of healthcare professionals, and will need to go back to the hospital clinic for follow-up appointments.

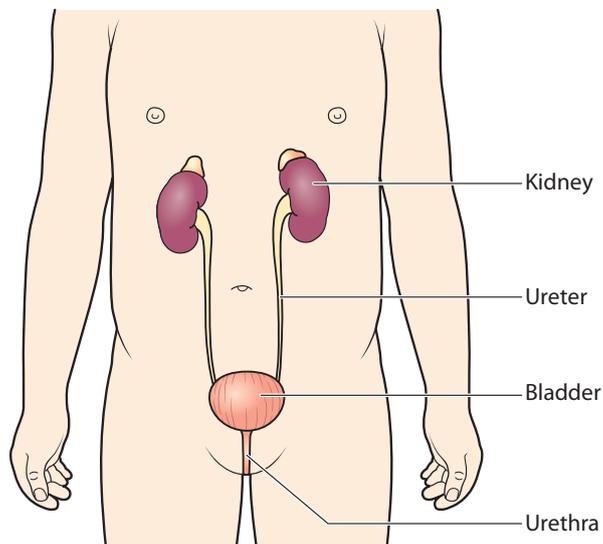


## About the urinary system

The **urinary system** gets rid of things that the body no longer needs, so that we can grow and stay healthy.

- The **kidneys** are bean-shaped organs. They filter blood to remove extra water and waste in urine (wee). Most of us have two kidneys. They are at the back on either side of our spine (backbone), near the bottom edge of our ribs.
- The two **ureters** are long tubes that carry urine from the kidneys to the bladder.
- The **bladder** is a bag that stores urine until we are ready to urinate (have a wee). It sits low down in the tummy area.
- The **urethra** is a tube that carries urine from the bladder to the outside of the body.

» [More about the urinary system and kidneys](#)



## About MPGN

### About glomerulonephritis

**Membranoproliferative glomerulonephritis (MPGN)** is a type of **glomerulonephritis**, a group of conditions that affect the kidneys. Inside the kidneys, there are many tiny filters called glomeruli. They help to remove extra water, salt and waste, which are passed out of the body as urine. They also make sure the body keeps what it needs, such as blood cells, protein and other important chemicals.

In glomerulonephritis, the glomeruli become inflamed (swollen) or damaged. This causes both blood and protein to leak into the urine.

### About MPGN

In MPGN, a protein called complement is deposited, or put, on the glomeruli. MPGN is also called mesangiocapillary glomerulonephritis (MCGN). We will refer to the condition as MPGN throughout this topic.

# Symptoms and complications

## Symptoms and signs

Some children with MPGN do not have any symptoms and signs, especially in the early stages of the disease. Common symptoms and signs include:

- blood in the urine (**haematuria**) – you cannot always see the blood, but if there is a lot, the urine may be coloured red or dark brown (like a cola drink)
- protein in the urine (**proteinuria**) – you cannot usually see the protein, but sometimes it can make the urine look frothy. It can be found on a simple urine test
- urinating less often or smaller amounts
- swelling or puffiness in different parts of the body, especially around the eyes, legs and feet – this is called **oedema**
- rarely, swelling in the abdomen (tummy), or breathlessness.

## Complications

Some children have **complications** – health problems that happen because of the condition – including those below.

- MPGN may lead to blood pressure that is too high (**hypertension**).
- Occasionally, the condition gets worse quickly and the kidneys work less well than normal – this is called **rapidly progressive glomerulonephritis (RPGN)**.
- RPGN is one cause of **acute kidney injury (AKI)** – when the kidneys quickly stop working as well as they should, over a short time.

## Causes

MPGN can happen in people of all ages, though it is more common in people under 30, especially children. It often starts in older children or teenagers.

MPGN can sometimes happen after an infection. It is usually caused by problems with the immune system, which normally protects the body against disease and infection.

## Types of MPGN

There are three types of MPGN – type 1, type 2 (which is also called dense deposit disease, or DDD) and type 3. These different types are identified by looking at the pattern of complement in the glomeruli, and where it is in the walls of the blood vessels that make up the glomeruli.

# Tests and diagnosis

## Diagnosing glomerulonephritis

Your child's doctor can diagnose (identify) glomerulonephritis by doing some tests. If your child has certain symptoms or signs, such as red or brown urine, your doctor may arrange a urine test. Your doctor will speak with you and your child about the symptoms and do a physical examination. Your child may also need other tests, such as blood tests and an ultrasound scan.

## Diagnosing MPGN

Your doctor can diagnose MPGN with a kidney biopsy, and may recommend this test. A tiny piece of one kidney is removed from the body with a needle, and examined under microscopes. Special medicines are used so your child does not feel any pain or can sleep through the procedure.

# Treatment

## Where will my child be treated?

Your child will probably be admitted to hospital for a few days or longer, to be carefully monitored by a team of healthcare professionals. This is usually in a **paediatric renal unit**, a special unit for children with kidney problems, which may be in a different hospital to your own. Your child will be looked after by a **paediatric nephrologist**, a doctor who treats children with kidney problems.

## About treatment

The healthcare team will check how your child's kidneys are working, test how much he or she is weeing, and measure his or her blood pressure. They will support you and your family throughout the treatment. Your child can go home when the doctor thinks that his or her health is stable. Your child will need to go back to the hospital clinic for treatment or follow-up.

Some children need to take medicines for a few weeks or longer. These include **steroids**, which slow down the immune system to stop it harming their kidneys, and other medicines to help treat swelling in their body or control blood pressure.

If another health condition is causing MPGN, this may need special treatment too.

## What happens if my child does not get better?

If your child's kidneys stop working properly, he or she may need special treatment. This may include dialysis, which uses special machines to do the job of healthy kidneys.

→ It is important that your child follows any treatment plan outlined by your doctor.

## About the future

### Follow up

MPGN is a **chronic** condition, which means that it does not go away quickly, and may last for years. All children with MPGN need follow-up appointments at the hospital or clinic, to check for any health problems.

### Long-term effects

Your doctor will speak with you and your child about any long-term effects that MPGN has on your child. Children with type 2 MPGN (dense deposit disease) are more likely to have more serious problems than children with type 1 or type 3 MPGN.

Some children with MPGN may progress to later stages of **chronic kidney disease (CKD)** – the kidneys stop working as well as they should. Some children with CKD may progress to final stages of CKD (**kidney failure**). These children may need specialist treatment, including dialysis and/or a kidney transplant.

If your child has progressed to later stages of CKD, you will learn more over time about what to expect and how to help manage the condition.

» **More about MPGN on [www.infoKID.org.uk](http://www.infoKID.org.uk)**

## Your notes and contact information

[www.infoKID.org.uk](http://www.infoKID.org.uk)



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For details on any sources of information used in this topic, please contact us through our website [www.infoKID.org.uk](http://www.infoKID.org.uk).

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