

## Pyelonephritis Assessment

Pyelonephritis is inflammation in an area of the kidney called the renal parenchyma. This condition is caused by a bacterial infection that begins in the lower urinary tract and travels upward and into the kidney(s). Patients with vesicoureteral reflux, urinary obstruction, or patients who are pregnant are at an increased risk of developing pyelonephritis. Presenting symptoms include: fatigue, fever, chills, flank pain, nausea, vomiting, dysuria, and possible hematuria.



PLAY PICMONIC

### Cause/Mechanism

#### Ascending Urethral Bacteria

##### [Up-arrow U-wreath Bacteria-guy](#)

Pyelonephritis develops when bacteria in the urethra travels upward and into the kidney(s). Although bacteria such as E. coli, Proteus, Klebsiella, and Enterobacter are usually responsible for the infection, fungi, protozoa and viruses may also precipitate pyelonephritis. Patients with vesicoureteral reflux or urinary obstruction are at an increased risk. Changes in urinary physiology related to pregnancy make pregnant women especially susceptible during the second trimester and more than half the cases develop in the right kidney.

### Assessment

#### Dysuria

##### [Urine-in-flames](#)

Symptoms such as painful urination, increased urinary frequency, and urgency occur in response to the lower urinary tract infection. In cases of severe infection, hematuria may occur.

#### Fever

##### [Fever-beaver](#)

Fever, a sign of infection, is present in patients with pyelonephritis. Patients may also report a sudden onset of chills.

#### Fatigue

##### [Sleepy-guy](#)

Level of fatigue can vary depending on the extent of the infection. Some patients may complain of mild fatigue, while others may report moderate exhaustion and malaise.

#### Flank Pain

##### [Flank Pain-bolt](#)

Pain in the patient's side and back is a clinical manifestation characteristic of pyelonephritis. Pain in these areas is referred from the affected kidney.

## **Costovertebral Tenderness**

### **Castro-vertebrae and Tenderizer**

The costovertebral angle is an acute angle on either side of the back created by the twelfth rib and the vertebral column. In patients with pyelonephritis, this area will be tender on the affected side, due to its proximity to the kidney.

## **Nausea and Vomiting**

### **Vomit**

Patients who present pyelonephritis-associated nausea and vomiting may be admitted to the hospital for treatment of dehydration. These symptoms may be caused by the intense pain associated with this condition.