Historically, a number of terms such as prostatism, symptomatic benign prostatic hyperplasia (BPH), and clinical BPH have been used to describe symptoms related to micturition in older men. Nowadays, the traditional belief that urinary symptoms in elderly men were always assumed to be directly or indirectly related to prostate has been challenged. The term lower urinary tract symptoms (LUTS) has been adopted and several consensus and guidelines committees have attempted to define the appropriate terminology for categorizing the pathophysiological conditions underlying male LUTS.

LUTS (as defined by the International Continence Society) are the subjective indicator of a disease or change in condition as perceived by the patient, caregiver or partner and may lead him/her to seek help from health care professionals. LUTS can be classified as storage, voiding, and post micturition symptoms.

- **Bladder storage (irritative) symptoms** are experienced during the storage phase of the bladder and include: increased daytime frequency, nocturia, urgency, and urinary incontinence.
• **Voiding (obstructive) urinary symptoms** are experienced during the voiding phase and include: slow urinary stream, splitting or spraying of the urinary stream, intermittent urinary stream, hesitancy, straining to void, and terminal dribbling.

• **Post micturition symptoms** include feeling of incomplete emptying and postmicturition dribbling.

LUTS cannot be used to make a definitive diagnosis.

• **Benign prostatic hyperplasia (BPH)** represents a histologic diagnosis that refers to the proliferation of smooth muscle and epithelial cells within the prostatic transition zone. Therefore, BPH is a term used (and reserved for) the typical histological pattern which defines the disease.

• **Benign prostatic enlargement (BPE)** is defined as prostatic enlargement due to histologic benign prostatic hyperplasia. The term “prostatic enlargement” should be used in the absence of prostatic histology.

• **Bladder outlet obstruction (BOO)** is the generic term for obstruction during voiding and is characterized by increased detrusor pressure and reduced urine flow rate. Therefore, the term BOO requires urodynamic confirmation.

• **Benign prostatic obstruction (BPO)** is a form of bladder outlet obstruction (needs urodynamic evaluation) and may be diagnosed when the cause of outlet obstruction is known to be benign prostatic enlargement, due to histologic benign prostatic hyperplasia.

It should be underlined that the use of incorrect and inconsistent terminology may lead to confusion among clinicians and patients and mismanagement of the conditions that underlie male LUTS.

### 1.1 Epidemiology

Despite the high impact of BPH on public health, a standard and globally accepted epidemiological definition of BPH remains controversial, making the study of epidemiology and natural history of the disease difficult. Prevalence and incidence rates must be viewed in the context of the definition criteria chosen by the different authors.

• Prevalence has been calculated on the basis of histological criteria (autopsy prevalence) or clinical criteria (clinical prevalence). The age-specific autopsy prevalence has been shown to be relatively consistent around the world, regardless of ethnicity. A histological
prevalence of 10% at the age of 30, 20% at the age of 40, 50%–60% at the age of 60, and 80%–90% at the age of 70 and 80 was reported. However, many men with histological BPH will never seek for help, nor do they need any treatment for it. The condition becomes a clinical entity when it is associated with LUTS. Most of the clinic-based studies on BPH epidemiology have been conducted in cohorts of symptomatic men presenting to urologists or primary care physicians. These studies may be biased due to recruitment criteria.

In addition, the historical epidemiological studies lack of a uniform definition of clinical BPH, quantitative instruments for assessing LUTS severity, a noninvasive, and accurate method for measuring prostate volume and bladder outlet obstruction make the interpretation of the data more difficult.

Another limitation was the lack of consensus regarding prostate size or obstructed bladder. Later on, the development of instruments measuring the severity of LUTS, prostate volume, and urodynamic parameters, provided the opportunity to define prevalence rates in the general male community accurately.

Thus, many investigators designed cross sectional studies to determine the prevalence of clinical BPH. Patients were diagnosed as having clinical BPH if the IPSS score was ≥ 8, peak flow rate was <15 mL/sec, and prostate volume 20 cm³. This definition of clinical BPH shows the prevalence of the disease to be consistently age-related.

In the Olmstead County survey one of the largest and longest running longitudinal study showed that moderate-to-severe symptoms can occur among 13% of men aged 40–49 years and among 28% of those older than 70 years.

1.2 Progression

BPH progression is a dynamic process that includes deterioration of LUTS and health related quality of life, increased prostatic size, acute urinary retention (AUR), and BPH-related surgery. Renal insufficiency and recurrent urinary tract infections as additional measures of BPH progression have also been considered. However, these outcomes are rarely observed.

Data from longitudinal population-based studies best analyze the natural history of diseases because of limited selection criteria and the data from placebo arms of controlled studies. However, the bias from the strict inclusion criteria provides strong evidence that BPH is a progressive disease.
In the Olmsted County Study, an average increase in the IPSS of 0.18 points/year, a decrease in peak flow rate of 2% /year and a median prostate growth of 1.9% /year was observed in a randomly selected cohort of 2,115 men aged 40–79 years followed for 12 years.

In the placebo arm of the Medical Therapy of Prostatic Symptoms (MTOPS) study the rate of overall clinical progression was 17.4% over the 4-year duration of the study. About 78% of progression events were referred as deterioration in symptoms.

### 1.3 Coherences

The relationship between LUTS, BPH, BPE, BOO and BPO is complex and not fully understood. Because the prevalence of histological BPH and LUTS is age-related, it was often assumed that they were causally related, but recent evidence indicate that male LUTS may result from a complex interplay of pathophysiological influences, including prostatic pathology and bladder dysfunction. However, BPH is the primary cause of LUTS in older men.

BPE occurs in some but not all men with BPH and LUTS, and some men with enlarged prostates may not have any symptoms at all. Of men with BPE, some but again not all develop BOO which is characterized by increased detrusor pressure and reduced urine flow rate.

BOO due to BPE have both static (increased tissue mass) and dynamic (increased smooth muscle tone) components in the prostate. BPE can also lead to overactivity of the detrusor muscle.

Physicians should use the term LUTS to describe symptoms and use the terms BPH, BPE, and BOO once diagnosis is confirmed by appropriate diagnostic procedures, e.g. “LUTS due to BPH, or BPE or BOOs”.

### References


