

## Original Article

# The rising worldwide impact of benign prostatic hyperplasia

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## Objectives

To describe the trend in the impact of lower urinary tract symptoms attributed to benign prostatic hyperplasia (LUTS/BPH) on a global scale using the Global Burden of Disease (GBD) database.

## Materials and Methods

Using the GBD database, worldwide data aggregated from registries and health systems from 1990 to 2017 were filtered for LUTS/BPH diagnoses. Calculation of years lived with disability (YLD) were compared with other urological diseases. YLD were calculated by a standardized method using assigned disability weights. The GBD-defined sociodemographic index (SDI) was used to assess impact of LUTS/BPH by global SDI quintile.

## Results

Global Burden of Disease data over the 1990–2017 study period were summarized and global numbers and trends noted with other urological diseases for comparison. A total of 2 427 334 YLD were attributed to BPH in 2017 alone, almost three times more than those attributed to the next highest urological disease, prostate cancer (843 227 YLD). When stratified by SDI quintile, a much lower impact of BPH was found in the bottom three quintiles, despite this subset representing 66.9% of the 2017 world population.

## Conclusions

Lower urinary tract symptoms attributed to benign prostatic hyperplasia exert a rapidly rising human burden far exceeding other urological diseases. As the population ages and men in a lower SDI enjoy increased life expectancy and decreased competing mortalities, a continually accelerating wave of LUTS/BPH can be forecast. These epidemiological trends have serious implications for the future allocation of resources and the global urological workforce.

## Keywords

benign prostatic hyperplasia, lower urinary tract symptoms, global health, prostate, quality of life, #UroBPH

## Introduction

Benign prostatic hyperplasia is the most common aetiological factor for LUTS in men [1]. The prevalence of histological BPH at autopsy increases substantially with age, reaching 90% in men aged 81–90 years [2]. Likewise, the prevalence of LUTS ranges from 44% in men aged 40–59 years, increasing to 70% in men aged >80 years [3,4]. LUTS have been shown to cause significant debility and have greater impacts on anxiety and depression than similar chronic illnesses such as diabetes, gout and hypertension [5–7]. Using Medicare 5% sample data, Feinsten and Matlaga [8] found that 28% of

Medicare beneficiaries aged >65 years have a diagnosis of BPH. Treatment of LUTS/BPH is similarly expanding in the USA. In a 5-year follow-up of a longitudinal cohort of men found to have incidental LUTS, 57.1% filled a LUTS/BPH-related prescription [9]. Fee-for-service costs of BPH/LUTS for the USA in 2013 are estimated at US\$785 m (\$285–301/patient/year), excluding medication costs [8].

Lower urinary tract symptoms attributed to benign prostatic hyperplasia have been primarily studied in high-income and high-longevity areas, mainly North America, Europe and 'first-world' Australasia. In the past, global health funding and