COMMENTARY

Evidence-based guidelines for the management of lower urinary tract symptoms related to uncomplicated benign prostatic hyperplasia in Italy: updated summary

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ABSTRACT

Background and scope: Despite the high prevalence and huge socio-economic impact of benign prostatic hyperplasia (BPH) in Italy, no national guidelines have been produced so far. This is a summary of the first Italian guidelines on the diagnosis and treatment of lower urinary tract symptoms (LUTS) related to uncomplicated BPH, prepared by a multidisciplinary panel under the auspices of the Italian Association of Urologists and introduced in Italy in 2003. An update compiled by the authors is also included.

Methods: Relevant papers published from 1998 to 2003 (updated to 2006) were identified through a structured literature review and the quality of evidence presented therein was graded according to the Centre for the Evaluation of Effectiveness in Health Administration (CeVEAS) system. Recommendations were based on evidence from the literature, but also on feedback from practitioners and specialists.

Main findings/recommendations: Given the prevalence of BPH, all men aged ≥ 50 years of age should be asked about LUTS and informed about disease characteristics and therapeutic options, while sexual function should always be assessed in patients with severe and long-standing LUTS.
Initial assessment should include medical history (including drug and co-morbid history), digital rectal examination, urinalysis, International Prostate Symptom Score-Quality of Life (IPSS-QoL) and a voiding diary, while prostate-specific antigen (PSA) and measurement of prostate volume by suprapubic ultrasonography are indicated in fully informed patients with a life expectancy of ≥ 10 years in whom BPH progression could influence treatment choices. QoL considerations should dictate whether to start active treatment. When QoL is not affected by LUTS, watchful waiting is indicated if symptoms are mild, acceptable if they are moderate. When QoL is affected, medical therapy with α-blockers or 5α-reductase inhibitors (the latter indicated in patients with increased prostate volume) is appropriate. Combined therapy with α-blockers + 5α-reductase inhibitors should only be considered in patients at high risk for progression (prostate volume > 40 mL or PSA > 4 ng/mL), since the incremental cost of combination therapy vs. monotherapy with α-blockers or finasteride is prohibitive. Selection of the type of surgery should be based on the surgeon’s experience, the presence of co-morbid conditions and the size of the prostate. Open prostatectomy and transurethral resection of the prostate (TURP) are recommended in patients with acute or chronic retention of urine, and acceptable in obstructed patients with moderate/severe symptoms and worsened QoL. Transurethral incision of the prostate (TUIP) is acceptable when prostate volume is ≤ 30 mL. Holmium laser enucleation of the prostate (HoLEP) may be proposed to motivated patients where expert surgeons are available. Transurethral microwave thermotherapy (TUMT) or transurethral needle ablation (TUNA) may be proposed to motivated patients who prefer to avoid surgery and/or do not respond to medical treatment. The possible effects of medical or surgical treatments on sexual function should always be discussed.

Conclusions: These guidelines are intended to provide a framework for health professionals involved in BPH management in order to facilitate decision-making in all areas and at all levels of healthcare.

Introduction

Despite the prevalence of benign prostatic hyperplasia (BPH) and its impact on patients’ quality of life (QoL) and health resources, no guidelines for the management of BPH in Italy have yet been issued. Rather than adapting some of the existing guidelines to the Italian context, we developed new ones because we felt that a re-appraisal of all the available evidence was needed. We attempted to redress some of the shortcomings of previous guidelines, such as discrepancies in recommendations, questionable methodological quality, relatively scant attention given to some important issues (namely, effects of BPH treatments on sexual function, disease progression and prevention, and QoL), while at the same time taking into account new data from pivotal studies.

This is an updated summary of the full version of the Italian guidelines on the diagnosis and treatment of BPH. Only key studies are referenced herein, the full list being available in the original document1.

Prevalence and socio-economic impact

Worldwide prevalence of moderate-to-severe lower urinary tract symptoms (LUTS) suggestive of BPH (LUTS/BPH): We calculated a weighted mean of 37% (data from 17 cross-sectional studies conducted in 1994–2003 and screening a total of 64 989 men with a median age of 65 years).

Socio-economic impact in Italy: There were 8 173 432 consultations for prostate disorders in 2003. The workload for BPH was second only to hypertension and nearly doubled from 1990 (3 550 000) to 2003 (8 000 000). The National Health System (NHS) expenditure for BPH drugs was €327.8 million in 2003; 14 854 patients were hospitalised in 2001. The socio-economic impact of BPH is expected to rise sharply with the ageing of the population.

Scope and characteristics of the guidelines

Developers: Members of the Italian Association of Urologists (AURO.it; www.auro.it), the Italian Association of Family Physicians (AIMEF, www.aimef.org) and the Centre for the Evaluation of Effectiveness in Health Administration (CeVEAS; www.ceveas.it), individual geriatricians, radiologists and healthcare administrators (see Acknowledgement section).

Intended users: All physicians involved in the management of BPH, healthcare administrators and all professionals and policy-makers involved in continuing medical education and quality improvement in healthcare.

Target population: Men with LUTS ascribable to uncomplicated BPH (LUTS/BPH).

Aims: (i) To provide recommendations to assist clinicians and patients in the decision-making process regarding diagnosis and treatment of LUTS/BPH; (ii) to provide a framework for the development of programmes for continuous quality improvement in healthcare.
Definitions and terminology: BPH is the most common cause of prostatic enlargement and LUTS that interfere with the QoL of affected men. In the guidelines the term LUTS/BPH refers to all conditions characterised by the presence of LUTS suggestive of BPH. The committee recommends the use of the terminology of the International Continence Society for patients with LUTS/BPH.

Methodology

These guidelines were developed in accordance with the indications of the Italian Health Service National Programme for Guidelines (www.pnlg.it/doc/pnlgx_eng), the Centre for Reviews and Dissemination of the University of York (www.york.ac.uk/inst/crd/crdreview) and the Conference on Guideline Standardization.

The panel first approved a protocol review in which the scope of the guidelines was defined, as were the review questions, facets (populations, interventions, outcomes, acceptable study designs), and key words to be used when searching. A structured literature review was then conducted using MEDLINE, which included papers published from June 1998 through to September 2003, with the addition of some previously published ‘milestone papers’ and of four studies which had not been published in full at the time of drafting but whose raw data were available to the panel, having been provided directly by the investigators or the sponsors (Medical Therapy of Prostatic Symptoms [MTOPS], Multinational Survey of the Aging Male [MSAM-7], Prostate Destination Study [PRODEST] and a study of holmium laser enucleation of the prostate). Articles published before 1998 that were considered to be milestone papers were also included. The Cochrane Reviews were searched for the main topics. A total of 6440 references were identified, 1598 retrieved and 27 selected for analysis. Health economics papers were searched separately using MEDLINE (1966–2003) as well as EMBASE (1989–2003) DARE, NHS EED and HTA. Of these, 522 were identified, 104 retrieved and 27 selected for analysis. Health economic studies were considered of low methodological quality and/or presented results that were poorly compatible with the Italian healthcare context. It was concluded that there was not enough evidence to support any particular type of intervention based on health economics considerations.

The searching and selection criteria were documented and retained. The grading of the quality of evidence presented in the studies was made using the CeVEAS grading system (www.ceveas.it) (Box 1). This grading system is not rigidly focused on the link between quality of evidence and strength of recommendations, but allows for a more flexible approach taking into account other considerations when recommending interventions (i.e. acceptability, costs, feasibility). Each panellist performed a quality assessment of the review studies considering internal and external validity as well as potential bias, and filled in an extraction form for each study (with different forms for each review question to be answered). In doubtful cases, the methodologists’ assistance was sought. The data from studies of similar quality were then synthesised in outcome tables using descriptive, non-quantitative methods. After the initial draft, a survey of current clinical practice in BPH management was made by sending a questionnaire to potential users of the guidelines, consisting of all the practising health professionals. The panel concluded that there was not enough evidence to support any particular type of intervention based on health economics considerations. Planned time of update: 2010.

Box 1. CeVEAS grading system used to classify scientific evidence and strength of recommendations

<table>
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<th>Evidence levels</th>
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<tr>
<td>I. Evidence obtained from more than one randomised, controlled clinical trial and/or systematic reviews of randomised trials</td>
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<tr>
<td>II. Evidence obtained from only one well-designed, randomised, clinical trial</td>
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<tr>
<td>III. Evidence obtained from non-randomised, cohort studies with a control group (either concurrent or historical), or their meta-analysis</td>
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<tr>
<td>IV. Evidence obtained from retrospective studies, such as case control studies, or their meta-analysis</td>
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<tr>
<td>V. Evidence obtained from case series without a control group</td>
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<tr>
<td>VI. Evidence based on the opinion of authoritative experts or committees of experts as indicated in guidelines or consensus conferences, or based on the opinions of members of the working group developing the guidelines</td>
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<th>Strength of the recommendations</th>
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<tr>
<td>A. Strong recommendation in favour of the performance of a particular procedure or diagnostic test. It indicates a recommendation supported by good quality scientific evidence, although not necessarily of type I or II</td>
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<td>B. It is doubtful that the particular procedure or intervention should always be recommended, but it is believed that it should always be carefully taken into consideration</td>
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<tr>
<td>C. It is uncertain whether the procedure or intervention should or should not be recommended</td>
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<tr>
<td>D. The procedure or the intervention is not recommended</td>
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<td>E. Warning against using the procedure or intervention</td>
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urologists and a random sample of other health professionals representative of the clinical context in which LUTS/BPH is managed in Italy. In total, 517 replied (201 urologists, 210 GPs, 23 medical directors, 51 geriatricians and 32 radiologists). The discrepancies between current practice and scientific evidence were discussed at a Consensus Conference attended by 99 delegates and a new draft was prepared based on consensus vote. After peer review by six experts, the final version was drafted.

Dissemination: These guidelines were posted online, published in print and distributed (as a full version and a pocket version containing only statements and recommendations) by the Association of Italian Urologists. It has recently been included in the NHS National Programme for Guidelines, which will also publish and distribute copies of a short version.

An algorithm summarising the recommended procedures is shown in Figure 1. The Roman numbers and the letters accompanying statements in text and recommendations in boxes, respectively, refer to the CeVEAS grading system. All recommendations are intended for the average patient with uncomplicated LUTS/BPH unless stated otherwise.

Update: An update to 30 July 2006 (as distinct from the scheduled 2010 update), performed with the same criteria used for the original literature review, is included in this report and presented in a distinguishing font at the end of each section, preceded by a square symbol. This update was prepared by the authors only, without any input from the other members of the panel or the reviewers. Overall, 934 references were identified from MedLine, 493 retrieved and 198 included in the analysis. Pharmacoeconomic papers were included in the general search.

BPH symptoms: perception, progression and sexual co-morbidity

LUTS are present in 40% of men aged ≥ 50 years (Level of evidence III, IV). On average, less than 50% of symptomatic men consult a physician (III, IV). How frequently symptoms are reported depends on age, severity of symptoms (mainly voiding), bother, information and socio-economic and cultural level. The main reasons for failure to consult a physician are the perception that symptoms are ‘normal’ in old age (70%), scepticism on the efficacy of medical therapy (50%) and fear of surgery (25%). A relationship has been demonstrated between LUTS and QoL (III, IV), QoL impairment being higher in the geographical areas where symptoms are more prevalent and in older men (≥ 70 years).

BPH may progress beyond the natural ageing process (I)9. Its progression is manifested by worsening of symptoms, reduction of maximum urinary flow (Qmax), acute urinary retention (AUR) and need for surgery4,9. As prostate volume and serum prostate-specific antigen (PSA) levels are closely correlated, PSA can be used to predict prostate growth4,8,9. PSA and prostate volume are independent risk factors for progression on multivariate analysis (I)11. Age, symptoms’ severity, post-void residual urine (PVR) and Qmax are other risk factors for progression (III).

Both LUTS/BPH and sexual dysfunction worsen with age, but most men remain sexually active beyond the age of 70 years, sexuality being an important component of QoL5,12. Several international, community based or clinical investigations have documented a significant direct relationship between LUTS and erectile dysfunction (ED), ejaculatory dysfunction (EjD), libido and sexual satisfaction (III)4,5,12,13. The association between sexual dysfunction and severity of LUTS appears to be independent of, and stronger than, the association with age, co-morbidities and cigarette smoking (III)8.

Recent epidemiological studies have found an association between LUTS and hypertension or the metabolic syndrome, suggesting that metabolic alterations may play a role in the aetiology of LUTS4–6,10. In particular, a positive association was found between LUTS and a history of diabetes (odds ratio [OR] 1.67) or hypertension (OR 1.76), and men classified as having 3 or more components of the metabolic syndrome had increased odds of LUTS (III)4. From the findings of long term cohort studies, the annual increases in PSA levels and prostate volume are better predictors of BPH clinical progression than absolute baseline values (III)17. Data from the placebo arm of the MTOPS trial confirm the role of PSA and prostate volume as predictors of BPH progression (with thresholds of 1.6 ng/dL and 31 mL, respectively) but also highlight the importance of Qmax, PVR and age in this respect (thresholds of 10.6 mL/s, 39 mL and 62 years) (III)18.

A strong, age-independent association between LUTS and sexual dysfunction was confirmed by several community-based studies or analyses of the placebo arms of randomised controlled trials (III)19–21.

Diagnosis (Box 2)

Medical history: Taking a medical history is important because other diseases, urological or non-urological, that cause abnormal urine production and/or urinary frequency (i.e. detrusor dysfunction, diabetes mellitus, neurological disorders) (III), or the use of drugs (III), fluids (VI) or foods (III) that induce LUTS may present with clinical symptoms similar to BPH12–24. Patients
Figure 1. Diagnostic/therapeutic algorithm for patients with LUTS ascribable to BPH. SoR A: strong recommendation in favour of the performance of a certain procedure or diagnostic test; SoR B: it is doubtful that the procedure or intervention should always be recommended, but it is believed that the intervention should always be taken carefully into consideration; US = ultrasonography; P/F = pressure-flow; TRUS = transrectal ultrasonography; *Patients with a life expectancy of at least 10 years and in whom progression could change management; †Patients with mainly storage symptoms; ‡Quality of Life assessed with I-PSS QoL questionnaire or by interviewing the patient; §Volume > 40 mL and/or PSA > 4 ng/mL; ††Patients with concomitant neurological disease and/or suspected upper urinary tract obstruction; ‡‡Patients with suspected detrusor hypocontractility; †††Patients with a history of haematuria or vesical carcinoma and risk factors for urethral disorders; ¥Patients who prefer to avoid surgery, who do not respond and/or do not tolerate medical therapy and/or have major coagulation disorders and/or have a high surgical risk.
with severe or long standing LUTS should be evaluated for sexual disorders.

- In a recent cohort study, prostate cancer/surgery, back surgery, bladder surgery and neurological disorders were the most frequent potential secondary causes of LUTS other than BPH, and their prevalence increased with age (III)25. Another study confirms the significant association between the amount of fluids taken before sleep and nocturia ($r = 3.093$, $p = 0.035$), highlighting the importance of assessing this aspect when taking the history (III)26.

**IPSS-QoL:** Validated symptom scores are used to provide a standardised subjective assessment of LUTS and to document their changes with time, progression, response to treatment and impact on QoL. The self-administered International Prostate Symptoms Score-QoL (IPSS-QoL) is internationally validated (III), and there is a harmonised (though not validated) Italian version, the use of which is recommended (VI)27.

**Physical and digital rectal examination (DRE):** A DRE is essential in the differential diagnosis between BPH and cancer or inflammatory diseases (III)28. It is the most immediate procedure to assess prostate volume, albeit with a certain degree of approximation (IV)29.

- Recent population-based studies support previous observations that DRE is useful in identifying large prostates but its accuracy in estimating prostate volume is limited (III)30,31.

**Urinalysis:** A complete urinalysis may uncover the presence of diseases that may be co-morbid with, or the cause of, LUTS (III)32.

**Serum creatinine:** The prevalence of renal insufficiency is low in patients with LUTS/BPH (< 1–1.8%) and its causes are usually independent of BPH (II)33. Serum creatinine should only be measured when the findings from history, physical examination and urinalysis suggest potential involvement of the upper urinary tract.

- Data from a random subsample of the Olmsted County study support a correlation between chronic kidney disease and some aspects of LUTS/BPH (i.e. diminished $Q_{max}$ and IPSS>7; (III)34. On the contrary, no association between chronic kidney disease and mean IPSS or the degree of LUTS severity was found in another community-based study that included a cross-sectional investigation of a larger sample of men and a 5-year longitudinal follow-up (III)35. From these conflicting results, no clear evidence emerges in support of an association between LUTS/BPH and chronic kidney disease.

**PSA:** PSA is useful in the differential diagnosis with prostate cancer, is correlated with prostate volume and is a predictor of BPH progression (III)31. However, no clear algorithms are available with regard to the use of PSA values to predict progression, as all available data derive from retrospective calculations, with cut-off values that differ among studies. PSA should not be measured in patients whose life expectancy is < 10 years and should only be tested after fully explaining the implications and potential untoward consequences. PSA and prostate volume are the best predictors of AUR and need for BPH-related surgery, with threshold levels of 1.4 ng/mL and 30–40 mL, respectively (III)36.

- The strong correlation between PSA and prostate volume has been confirmed by several recent studies (III), but the nomograms that have been proposed to overcome the need for DRE or ultrasonography, based on the use of PSA for estimation of prostate volumes, need to be validated in independent studies (III)37.

**PVR:** A PVR ≥ 1/3 of the total bladder capacity is usually considered abnormal (VI). An abnormal PVR may indicate bladder dysfunction, predict a less favourable response to treatment, herald disease progression and predict failure of watchful therapy33,34. A worsening PVR is not a specific indicator of any of the conditions responsible for lower urinary tract dysfunction (i.e. increased prostate volume, detrusor underactivity). Suprapubic ultrasonography is the most appropriate non-invasive method to evaluate PVR (VI), and should be performed at least twice, avoiding bladder overdistension (III).

- PVR was found to be overall a poor predictor of the need for invasive therapy in BPH patients initially treated with α-blockers or watchful waiting. However, large PVR values (≥ 300 mL) were associated with a 2-fold increase in the 5-year cumulative risk of invasive therapy compared with smaller values37.

**Prostate volume:** Prostate volume is one of the most accurate predictors of BPH progression and can be measured by DRE, suprapubic or transrectal ultrasonography (TRUS)1. DRE underestimates the true size of the prostate, especially with gland volumes > 30 mL, and is less accurate and more operator dependent than TRUS (III)38. The correlation between true prostate volume and the volume estimated by either suprapubic ultrasonography or TRUS is similar when vesical filling is < 400 mL (III)39 and, therefore, the latter technique, which is less invasive, less costly and easily repeatable, is the method of choice. In obese patients, however, suprapubic ultrasonography may be inaccurate (VI).

- In a recent study suprapubic ultrasonography resulted in being as accurate as TRUS in estimating prostate volume, and there were no significant differences between suprapubic readings obtained with different devices and different operators (III)39.
Ultrasonography: TRUS is the most accurate technique for assessment of the gland’s morphology and structure (III), and it should be used when a detailed knowledge and adequate measurements of the central and transition zones are needed, such as when planning a minimally invasive therapy, or when suprapubic measurements are unreliable (i.e. obese patients, scarred pelvis)⁴⁰.

Renal ultrasonography has a high accuracy in detecting hydronephrosis – rare in uncomplicated BPH (III)⁴¹. The prevalence of hydronephrosis and urolithiasis increases in patients with urinary retention, and renal ultrasonography may have a role in these patients (III).

Contrast enhanced imaging studies: Intravenous urography is not necessary in uncomplicated LUTS/BPH (VI)⁴².

Voiding diary: The voiding diary is a simple, inexpensive, non-invasive and easily repeatable investigation which is particularly useful in the assessment of overactive bladder syndrome and in the differential diagnosis of frequency versus polyuria (III)⁴³. The most complete form of voiding diary is the bladder diary, which documents times of micturition, voided volumes and daily fluid intake, as well as other information. Data from the voiding diary are strongly correlated to both cystometric urodynamic measurements and symptom scores, especially with regard to frequency and nocturia⁴⁴. Recordings should be done for 3–7 days per week⁴⁵. Such diaries should be completed, possibly weekly, by all patients with conditions that may involve an altered production of urine.

Uroflowmetry: Uroflowmetry is often used in the initial assessment of patients with voiding disorders. Its sensitivity and specificity for bladder outlet obstruction depend on the chosen cut-off values of maximum flow rate (Qₘₐₓ) (III)⁴⁶–⁴⁸. In the commonly used classification by Schafer et al. (Qₘₐₓ < 10 mL/s = obstructed; > 15 mL/s = unobstructed; 10–15 mL/s = equivocal obstruction) the specificity of a Qₘₐₓ value < 10 mL/s is 70%, with 47% sensitivity⁴⁹. Qₘₐₓ values are best evaluated by nomograms, such as the Liverpool one (III). Repeated testing increases by about 30% the probability of detecting an obstruction (III). Furthermore, it is important to ask the patient whether his performance is representative of the performance at home and to correct possible straining artifacts by visual inspection of the trace. Home based recordings provide more accurate results than office based systems, although the necessary equipment is not easily available⁴⁶. If patients are affected by diseases that may interfere with the voiding process, more advanced urodynamic investigations are needed.

Pressure-flow studies: Pressure-flow studies provide information on the detrusor component of voiding and contribute towards aetiological classification of bladder outlet obstruction, but are a semi-objective investigation, which may be invalidated by artifacts (III). They should be used as an adjunctive test for difficult cases, when detrusor underactivity is suspected and when BPH-related surgery is contemplated, although there is still controversy regarding the cases in which pressure-flow studies are indicated⁵⁰. In patients with co-morbidities, such as neurological diseases or diabetes mellitus, pressure-flow studies performed before BPH-related surgery are useful for prognostic purposes.

- Numerous attempts have been made to identify non-invasive methods (including ultrasound-derived measures of bladder wall thickness and non-invasive urodynamics) to replace pressure-flow studies for diagnosing bladder outlet obstruction⁵¹,⁵², but, at present, these remain the best method for diagnosing bladder outlet obstruction.

Endoscopy: Urethrocytoscopy is suggested in patients with urethral strictures or vesical tumours, which are observed more frequently if there is a history of haematuria, transurethral resection of vesical tumours or risk factors for urethral diseases (III)⁵³.

Treatment

Watchful waiting (Box 3)

Only 10% of patients with mild symptoms managed by watchful waiting will require another treatment after 1 year (I)⁵⁴,⁵⁵. Although unable to improve PVR or Qₘₐₓ, watchful waiting is associated with an improvement of IPSS scores after 1 year of follow-up (II)⁵⁴,⁵⁶. The interval between follow-up visits should not exceed 1 year (VI). The decision to escalate treatment depends mostly on worsening of QoL and should be shared with the patient.

- The results of a longitudinal study confirm that watchful waiting is an appropriate management option in patients with mild symptoms, associated with a low risk for clinical progression even after 4 years of follow-up (III)⁵⁷. However, during this observation period one-third of the patients had clinical progression and 4.9% and 0.6%, respectively, experienced AUR and BPH-related surgery.

Medical therapy (Box 3)

α₁-blockers

Clinical efficacy: Alfuzosin, doxazosin, tamsulosin and terazosin have been shown to induce a significant improvement of symptom scores (on average, 4–6 points on the AUA Symptom Index vs. baseline, and
Men aged ≥ 50 years should be asked about the presence of LUTS and informed about their meaning and the therapeutic options available (A).

Initial assessment should always include medical history, DRE, complete urinalysis (A) and IPSS-QoL (B).

All aspects of sexual function should be assessed in patients with severe and/or long standing LUTS (A).

Serum creatinine should be measured only in patients with suspected involvement of the upper urinary tract (A).

PSA is indicated in the initial assessment of fully informed patients with a life expectancy ≥ 10 years in whom BPH progression could influence the choice of treatment (A).

Prostate volume should be measured by transrectal ultrasonography in patients with a life expectancy of ≥ 10 years in whom BPH progression could influence the choice of treatment (B), and before any BPH-related therapy (A).

In patients with a life expectancy of ≥ 10 years in whom BPH progression could influence the management, it may be appropriate to take age, symptom severity, PVR and Qmax into consideration (C).

PVR is useful in the initial evaluation (B).

Avoiding diary (preferably in the form of a bladder diary) should be completed by patients in whom storage symptoms predominate (B).

Uroflowmetry is useful in the initial assessment (B) and should also be performed before BPH-related surgery (A).

Pressure-flow studies are not indicated in routine assessment (D) and should be limited to patients with concomitant neurological diseases and/or with a suspected upper-flow obstruction (A). They may be useful in patients in whom detrusor underactivity is suspected (B).

Renal ultrasonography is not indicated in routine assessment (D), unless involvement of the upper urinary tract is suspected or in the case of arterial hypertension of unknown aetiology (A).

Transrectal ultrasonography is not indicated in routine assessment (D), but it could be useful before some of the minimally invasive therapies or when suprapubic measurements are unreliable, provided that prostate cancer is not suspected (B).

Urography is not indicated in routine assessment (E).

Urethrocystoscopy is not indicated in routine assessment (D) and should be confined to patients with a history of haematuria or vesical cancer, or risk factors for urethral diseases (B).

**Box 2. Diagnosis**

- In patients with symptoms that do not have an impact on QoL, watchful waiting is the management of choice when LUTS are mild (A) and a therapeutic option when LUTS are moderate (B).
- Alfuzosin, doxazosin, tamsulosin and terazosin are appropriate treatments for patients with a worsening of QoL (A).
- Finasteride and dutasteride are appropriate treatments in patients with a worsening of QoL and a documented increase in prostate volume (A), or in patients without a worsening of QoL but with enlarged prostate glands and at risk for AUR (B).
- Combined therapy with α1-blockers + 5α-reductase inhibitors is a therapeutic option to be considered in patients at high risk for progression (prostate volume > 40 mL or PSA > 4 ng/mL) (B).
- It is doubtful whether phytotherapeutics or mepratricin are appropriate drugs (C).
- It is recommended that antiandrogens and LH-RH analogues should not be used because of their adverse event profile relative to other treatments (E).
- The possible adverse events of medical therapies on sexual function should be discussed with young and/or motivated patients (B).

**Box 3. Watchful waiting and medical therapy**

2 vs. placebo), which seems to remain constant with time and is generally perceived as moderate by the patients (II)4,33,58,59. QoL scores are significantly increased (approximately doubled) by α1-blockers compared with placebo (I)4,33,58,59. α1-blockers also produce a modest increase in Qmax (2–3 mL/s), which is maintained over time (I)33. Although sexual adverse events have been reported, α1-blockers appear to exert significant beneficial effects on global sexual function (I)60.

**Adverse events:** Orthostatic hypotension, dizziness, headache, asthenia, nasal congestion and EjD are the main adverse events associated with α1-blockers, with individual differences in tolerability profiles59,61. Tamsulosin and sustained release alfuzosin appear to be better tolerated than terazosin and doxazosin (I).33 In particular, tamsulosin is less likely to cause symptomatic orthostatic hypotension than terazosin or doxazosin33,59. α1-blockers do not seem to cause alterations in libido or ED, whereas abnormalities in ejaculatory function have been reported4,62–64. Studies show a significant, dose dependent incidence of ejaculation disorders (4.5–11%) during treatment with tamsulosin, while terazosin, doxazosin and alfuzosin are less likely to cause ejaculation disorders (I)65,66. The clinical impact of ejaculation disorders, however, remains to be determined, lacking adequate validated subjective instruments for assessment.

In recently published studies, extended-release alfuzosin 10mg induced significant improvements versus placebo in IPSS (-1.2 points), Qmax (+0.7 mL/s) and QoL (-0.4), that were maintained over the 2-year treatment period (II)67. Recent data also confirm that α1-blockers can significantly reduce, by nearly 30%, the risk of BPH symptom deterioration, but not the risk of AUR or BPH-related surgery (I)67. The incidence of orthostatic hypertension (symptomatic or asymptomatic) with once-daily extended-release alfuzosin 10mg or tamsulosin was not significantly higher than that recorded with placebo (II)68.
Overall, the incidence of sexual adverse events:

Adverse events:

Dutasteride was shown to improve symptoms (0.6–2 points vs. placebo), of bother and of Q_{max} (0.2–1.8 mL/s), which were greater in the patients with larger prostate volumes and higher PSA levels (>41 mL and >1.4 ng/mL, respectively) (I). Importantly, finasteride treatment did not mask detection of prostate cancer through interpretation of PSA levels, provided that levels were doubled.

Dutasteride was shown to improve symptoms (by 2 points), Q_{max} (0.6–2.2 mL/s) and BPH Impact Index compared with placebo, and to reduce prostate volume by 25% on average. Two years of treatment with dutasteride reduced the relative risk for AUR and BPH-related surgery by 57 and 48%, respectively.

Adverse events: 5α-reductase inhibitors are associated with alterations in libido, ED and reduced ejaculation volume which, however, do not appear to be clinically significant in the long term (I). After 1 year of finasteride treatment, the only sexual adverse event that was significantly more frequent in finasteride compared with placebo recipients was reduced ejaculation volume (I). Compared with placebo, dutasteride is associated with a slightly elevated incidence of ED, decreased libido, ejaculation disorders and gynaecomastia, with no significant differences between dutasteride and placebo after 6 months of treatment, except for gynaecomastia, which appears to maintain a significant incidence at 2 years (1.3% vs. 0.3–0.5% in placebo recipients).

New information on long term treatment (i.e. 2 years) with dutasteride is available from pooled data of three phase III placebo-controlled trials. Dutasteride reduced prostate volume by 26% (compared with a 1.4% increase in placebo recipients), improved IPSS/AUA-SI score (~2 points vs. placebo), Q_{max} (+1.6 mL/s) and reduced the relative risk of AUR by 57% and of BPH-related surgery by 48% (II). It was also demonstrated that during dutasteride as well as finasteride treatment, doubling the PSA value maintains the sensitivity and specificity of PSA for cancer detection (II). A study reported a reduction in vascular endothelial growth factor expression and microvessel density in the prostate tissue after a 2-week treatment with finasteride (II). These effects might explain the hypothesis of a reduction in intra-operative bleeding after a short treatment with finasteride prior to prostatectomy.

**Combination therapies**

Clinical efficacy: The only combination therapies that have been adequately investigated are the 5α-reductase inhibitors and α₁-blockers (I). Short term studies (<1 year) failed to show substantial benefits of combination therapies compared with monotherapies. In the long term MTOPS study, combination therapy with doxazosin + finasteride was more effective in preventing BPH progression than either therapy given alone, with 8.4 patients needing to be treated to avoid one event of overall clinical progression, compared with 13.7 and 15 patients in the doxazosin and finasteride monotherapy groups, respectively. In men with PSA >4 ng/mL and prostate volumes >40 mL these figures decreased to 4.7 and 4.9 patients, respectively, with combination therapy (II). The relative risk of surgery (criteria not well defined) was reduced by 64 and 67%, respectively, in the finasteride and combination therapy groups, with 29 and 26 patients needing to be treated to avoid one such event, and these figures decreased to 23 and 16, respectively, when patients with prostate volumes >40 mL or PSA >ng/mL were analysed (II). The clinical impact of this combination therapy on QoL, however, has not been established (VI). We conducted a cost effectiveness analysis of combination therapy versus finasteride and doxazosin alone using the outcome parameters of the MTOPS trial, and calculating only direct costs of therapy from the perspective of the NHS. Using finasteride + doxazosin for 4.5 years, the incremental cost for one progression event avoided was €29,671 versus doxazosin and €45,350 versus finasteride (Tables 1 and 2). This cost appears to be well above international standards of acceptability ($US30,000 per life-year saved). The routine use of combination therapy is not an acceptable option for the NHS, and this therapy should only be offered to patients at high risk for progression.

Adverse events: Overall, the incidence of sexual adverse events appears to be higher in the finasteride groups than in placebo or α₁-blocker recipients. In the MTOPS, the incidence of ED, decreased libido and ejaculation disorders after 4 years of follow-up...
was similar in the doxazosin and placebo groups (ED 3.6% and 3.3%, respectively; decreased libido 1.6% and 1.4%; ejaculation disorders 1.1% and 0.8%), but significantly increased in the finasteride monotherapy and combination treatment groups (ED 4.5% and 5.1%, decreased libido 2.4% and 2.5%, ejaculation disorders 1.8% and 3%). Only ejaculation disorders did occur more frequently in the combination treatment arm than in the finasteride monotherapy arm. Other frequently reported adverse events include dizziness (placebo 2.3%, doxazosin 4.4%, finasteride 2.3% and combination therapy 5.3%), hypotension (2.3%, 4%, 2.6% and 4.3%, respectively) and asthenia (2.1%, 4.1%, 1.6% and 4.2%).

A subgroup analysis of the MTOPS database examining the relationship between the effects of combination therapy on BPH progression and baseline prostate volume found that the statistically significant benefit of combination therapy versus monotherapies was evident not only in patients with enlarged glands (> 40 mL) but also in those with moderate-size prostates (from 25 to > 40 mL). However, closer inspection of the data presented reveals that clinical progression rates were low in the latter group, suggesting that, in such patients, the statistical advantage is unlikely to translate into a relevant clinical benefit.

Table 1. Cost (in Euros, €) of drugs and surgical treatment in patients treated with doxazosin, finasteride, combination therapy (doxazosin + finasteride) or placebo for 4 years. (Outcome data from MTOPS*)

<table>
<thead>
<tr>
<th></th>
<th>Placebo (n = 737)</th>
<th>Doxazosin (n = 756)</th>
<th>Finasteride (n = 768)</th>
<th>Combination therapy (n = 786)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of primary outcome events</td>
<td>122</td>
<td>73</td>
<td>78</td>
<td>42</td>
</tr>
<tr>
<td>Number of primary outcome events/patient</td>
<td>0.166</td>
<td>0.097</td>
<td>0.102</td>
<td>0.053</td>
</tr>
<tr>
<td>Total cost of drugs</td>
<td>–</td>
<td>1079 568</td>
<td>1536 000</td>
<td>2694 408</td>
</tr>
<tr>
<td>Total cost of surgical interventions</td>
<td>85 581</td>
<td>60 138</td>
<td>32 382</td>
<td>27 756</td>
</tr>
<tr>
<td>Total cost/patient</td>
<td>116</td>
<td>1508</td>
<td>2042</td>
<td>3463</td>
</tr>
</tbody>
</table>

Primary outcome = increase of ≥ 4 points in AUA Symptom Score from baseline, acute urinary retention, renal insufficiency, recurrent urinary tract infection or urinary incontinence

*Medical Therapy of Prostatic Symptoms Study

Table 2. Incremental cost/patient (in Euros, €) of 4 years of combination treatment with doxazosin + finasteride versus doxazosin or finasteride alone. (Outcome data from MTOPS*)

<table>
<thead>
<tr>
<th></th>
<th>Combination therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Versus finasteride</td>
</tr>
<tr>
<td>Incremental cost/patient</td>
<td>1421</td>
</tr>
<tr>
<td>Drugs and surgery</td>
<td>1428</td>
</tr>
<tr>
<td>Drugs</td>
<td>0.048</td>
</tr>
<tr>
<td>Cost of primary outcome event avoided per patient</td>
<td>29 529</td>
</tr>
<tr>
<td>Drugs and surgery</td>
<td>29 671</td>
</tr>
<tr>
<td>Drugs</td>
<td></td>
</tr>
</tbody>
</table>

Primary outcome = increase of ≥ 4 points in AUA Symptom Score from baseline, acute urinary retention, renal insufficiency, recurrent urinary tract infection or urinary incontinence

*Medical Therapy of Prostatic Symptoms Study

Phytotherapeutics and other treatments

Phytotherapeutics have not been investigated adequately. Meta-analyses of studies of *Serenoa repens* and *Pygeum africanum* show a moderate efficacy in improvement of symptoms and urinary flow. More recent studies of *Serenoa repens*, however, have failed to show a significant efficacy of this compound versus placebo or tamsulosin. There is just one study of mepartacin suggesting some efficacy on symptoms, flow parameters and QoL. No evidence has been produced about the efficacy of LH-RH analogues or antiandrogens, while their adverse event profile should not be disregarded.

A number of recent investigations support the efficacy of *Serenoa repens* derivatives, most notably a double-blind, tamsulosin-controlled study in a subset of patients with severe BPH, and a meta-analysis that included all clinical trials of *Serenoa repens*, irrespective of their methodological quality. However, a recent randomised, double-blind study conducted according to much more stringent criteria than all previous investigations showed no improvement whatsoever in symptoms or objective measures versus placebo after 1 year of treatment with a formulation of *Serenoa repens* 160 mg/day.
Surgery (Box 4)

Open prostatectomy, transurethral resection of the prostate (TURP), transurethral incision of the prostate (TUIP), transurethral electrovaporisation of the prostate (TVAP), laser therapies (holmium laser enucleation of the prostate [HoLEP], visual laser ablation of the prostate [VLAP] and contact laser ablation of the prostate [CLAP]): Open prostatectomy and TURP achieve significant subjective and objective improvements in BPH symptoms, with an acceptable risk of complications in the short and long term (I).

Open prostatectomy reduces symptom scores in 87% of patients, increases mean urinary flow rate by 20.4 mL/s, reduces PVR by 92–121 mL and improves QoL significantly. The complications are: haemorrhage (12.4–13%), urinary incontinence (0.1–10%), urethral strictures (2%) and bladder neck sclerosis (2.5%) (I)100,101.

Collective data show that TURP reduces symptom scores in 71% of patients, increases mean urinary flow rate by 9.7 mL/s, reduces PVR by 60% and improves QoL by 34–62% (I)102,103. Strong correlations were found between QoL improvement and presence of bladder over-activity or severity of symptoms before surgery. Complications of TURP are: haemorrhage (2.5–7.2%), transurethral resection (TUR) syndrome (3.4–4.7%), urinary incontinence (0.7–1.4%), urethral strictures (3.8%) and bladder neck sclerosis (4%) (I)101.

Antibacterial and antithrombotic prophylaxis is recommended before surgery, to reduce the risk of intra-operative and post-operative septic complications and to avoid hypercoagulability induced by pelvic surgery. Intra-operative mortality during TURP is < 0.25%, while the mortality rate within 30 days of open prostatectomy is 0.62%. Long term mortality rates, when adjusted by the presence of co-morbidities, are not significantly different between interventions (IV)104,105. Over an 8-year period, the re-intervention rate is 12–15.5% after TURP and 3.1–4.5% after open prostatectomy.

TUIP was found to produce a subjective improvement similar to that obtained with TURP in patients with prostate volumes ≤ 30 mL (I)107. Fewer complications and reduced surgery and recovery times have been reported with TUIP compared with TURP, although re-intervention rates appear to be slightly higher with TUIP (9.3 vs. 5.3%) (I)107.

The choice of the type of surgery should be based on the operator’s experience, the size of the prostate and the presence of co-morbid conditions. Since there is no compelling evidence favouring one particular technique based on prostate volume, it is recommended that endoscopic interventions should be preferred to open prostatectomy in patients with prostate volumes < 40–50 mL. Likewise, no conclusive data emerge on the appropriate length of follow-up and, therefore, a minimum follow-up of 3–6 months is recommended.

TUVP is associated with short term results comparable to TURP in terms of symptomatic improvement, urinary flow rate and QoL parameters, but with higher rates of storage LUTS, urinary retention and incontinence (III)108,109.

HoLEP has been shown to achieve results comparable to TURP and open prostatectomy (III)107, but these data need confirmation because of the short duration of the studies and the high percentage of patients who were lost at follow-up (VI). Furthermore, this technique is difficult to learn.

VLAP and CLAP were found to induce subjective and objective improvements comparable to TURP (III), with a significantly lower incidence of blood loss and retrograde ejaculation (22%) (III). However, catheterisation time appears to be longer (up to 120 days) and the incidence of postoperative storage LUTS higher (80%) (III). Re-treatment rates (up to 44% at 5 years) also seem to be significantly higher after laser therapy than after TURP (V)110,111.

Vapour (or bipolar) resection of the prostate (TUVRP) has emerged in the last few years as an alternative to conventional loop TURP. Although there are now several randomised controlled trials of TUVRP versus TURP, it is difficult to compare the results of different studies because of the many types of devices used. Furthermore, most
studies involve small numbers of patients and the follow-up is insufficient to show the long-term results. Compared with TURP, TUVAP appears to offer advantages in terms of reduced periprocedural blood loss and shorter catheterisation and hospital stay, with similar efficacy parameters (III)\(^1\)\(^\text{-}^\text{13}\). However, a study reports a higher incidence of irritative symptoms in the early postprocedural period and higher rates of recatheterisation and urethral strictures\(^1\)\(^\text{-}^\text{15}\). During the bipolar technique, unlike TURP, a saline irrigant is used, but no advantages in terms of reduced rates of TUR syndrome have been reported so far.

Long term results with TUVAP have been reported in two studies and suggest a durable subjective and objective improvement with this technique, similar to that obtained with TURP (III)\(^1\)\(^\text{-}^\text{16}\). However, these results are inconclusive because of the limited number of patients available for follow-up at 5–7 years after surgery.

New data from randomised controlled trials confirm that HoLEP has an efficacy profile comparable to TURP, with similar improvements versus baseline in IPSS/AUA scores (by 76–92%), QoL (70–83%) and urodynamic parameters (2–4-fold increases in Q\(_{\text{max}}\), and similar 1-year complication rates such as urethral strictures (1.7–3.8%) or stress incontinence (1.1–2%) (III)\(^\text{-}^\text{17}\). In the peri-operative period HoLEP offers advantages in terms of shorter catheterisation time and hospital stay, but it seems to be associated with a higher rate of transient dysuria and stress incontinence (probably due to disorganisation). In patients with larger prostates (>100 mL), HoLEP compared favourably with open prostatectomy in terms of catheterisation time, hospital stay and blood transfusions (III)\(^\text{18}\).

**Surgery and sexual function**

BPH-related surgery is rarely associated with ED, which, on the contrary, is more often improved than impaired after surgery and appears to be better preserved by TURP than watchful waiting (III)\(^\text{120\text{-}123}\). The most common sexual adverse event associated with prostatic surgery is retrograde ejaculation, reported less frequently after TUIP than open prostatectomy or TURP (4–39% vs. 65–100% and 70–86% of patients, respectively) (III)\(^\text{24}\). However, sexual function scores do not seem to be affected by surgery\(^\text{19}\).

**Minimally invasive therapies (Box 5)**

Interventional therapies that do not require general or locoregional anaesthesia, or a hospital stay of >1 day, are considered minimally invasive therapies.

**Minimally invasive laser therapies**

Interstitial laser coagulation (ILC) was found to significantly improve symptom scores and urodynamic parameters, although the urodynamic improvement appears to be inferior to that obtained with TURP (III)\(^\text{111\text{-}115}\). Urinary retention and storage LUTS are frequent after surgery (5–15%), and retreatment rates up to 20% were reported at 2 years (III)\(^\text{125}\).

- Interstitial laser coagulation may be proposed to motivated patients who wish to undergo alternative treatments (C).
- TUMT may be proposed to patients with total prostate volumes >30 mL who prefer to avoid surgery and do not respond to, or tolerate, medical treatment (B).
- TUNA may be proposed to patients who prefer to avoid surgery and do not respond to, or tolerate, medical treatment (B).
- Prostatic stents may be proposed only to patients with a high surgical risk who have an indwelling catheter or severe symptomatic obstruction (C).
- HIFU is not recommended (D).

**Box 5. Minimally invasive therapies**

- Photoselective vapourisation of the prostate (PVP) with high-power potassium titanyl-phosphate (KTP) laser was investigated in open, non-comparative studies, which document improvements in IPSS (by approximately 80%), QoL (by 74–87%) and Q\(_{\text{max}}\) (by 190–230%) at 1 year (V).
- Retrograde ejaculation was reported by 52% of patients, and postoperative complications included mild dysuria (9–11%), haematuria (9–11%), urgency (13%) and urinary retention (5%)\(^\text{126\text{-}128}\).
- Since no comparative studies versus TURP are available, this treatment should still be considered an investigational technique.

**Transurethral microwave thermotherapy (TUMT)**

Only high-energy TUMT devices were considered. TUMT appears to be more effective than sham treatment or therapy with \(\alpha\)-blockers, but less effective than TURP, in improving symptom scores and QoL (III)\(^\text{129\text{-}131}\). TUMT improves urodynamic parameters to a lesser extent than TURP, and is associated with higher re-intervention rates (III)\(^\text{29}\).

- Reported complications of TUMT are: need for catheterisation in the postoperative period (18–23%), storage symptoms (92–100%), urethral and bladder neck strictures (sporadic cases)\(^\text{129}\).
- TUMT is not devoid of risks for ED and EjD (<3 and 22–28%, respectively) (III)\(^\text{32}\).
- Based on the reports of serious complications, such as rectal fistulae, TUMT should be performed only in patients with a prostate volume >30 mL.

**Transurethral needle ablation (TUNA)**

Short term subjective results with TUNA are comparable to TURP, but 1 year after treatment 78% of TUNA-treated versus 91% of TURP-treated patients were found to have a ≥50% improvement in AUA Symptom Index scores (III). TUNA is also inferior to
TURP, in the long term, with regard to improvement of urodynamic parameters (III)\textsuperscript{135}. Gross haematuria is the most frequently reported complication (30–80%), while less common are urinary infections (7%), urethral strictures (1%) and ED (< 2%) (III)\textsuperscript{136,137}. There are reports of retrograde ejaculation after TUNA, even though the incidence of this condition has not been established\textsuperscript{122,135,137}. Re-intervention rates after TUNA are higher (20% at 2 years) than after TURP (V)\textsuperscript{135,137}.

- In a long term randomised controlled trial, TURP showed significantly greater effects than TUNA, at 4 years, in improvement of IPSS scores (68% vs. 45%) and $Q_{\text{max}}$ (115% vs. 33%). Also, TUNA had no effects on PVR (III)\textsuperscript{135}. TUNA-treated patients experienced significantly fewer adverse events (i.e. retrograde ejaculation, ED and urinary incontinence), but re-operation rates for this technique were higher (14%) than TURP (III)\textsuperscript{135}.

Other treatments

Other minimally invasive therapies have been generally investigated inadequately.

Prostatic stents are associated with an improvement of subjective (60–90%) and objective (55%) parameters, and 95% of the patients with an indwelling vesical catheter return to spontaneous voiding after stenting (V). However, nearly 10% of the stents become displaced and a removal rate of 23% has been described within 7 years of placement (V)\textsuperscript{135}. Other reported complications include haematuria, stricture formation, worsening of LUTS, acute retention and recurrent urinary tract infections.

Failure rates after transrectal high intensity focused ultrasound (HIFU) are unacceptably high: (i) urinary flow improves by only 12%; (ii) 80% of patients remain obstructed despite treatment; (iii) 44% of HIFU-treated patients will undergo TURP within 4 years (V)\textsuperscript{140}.

Data on water induced thermotherapy (WIT) are too limited to draw clinical conclusions and intraprostatic alcohol injection is still an investigational method.

- In a trial evaluating the efficacy and tolerability of the hourglass-shaped nitinol prostatic stent, the device was effective in relieving the obstruction and improving symptoms, but the effects were maintained for only 1–2 months and the removal rate at 2 years was 78% (IV)\textsuperscript{141}.

Implementation

Current management of LUTS/BPH in Italy is often discordant with best evidence principles and the adoption of improved protocols will require changes. Implementation is a collective effort. Here we can only offer cues as to the most likely barriers to acceptance of these guidelines: the clinical behaviours that most need changing and some key factors that need particular attention when devising educational programmes. Among attitudinal and organisational barriers, the following appear to be particularly relevant to the Italian context: (i) marked differences in practice environments and medical thinking; (ii) lack of any previous officially-endorsed guidelines on the subject; (iii) general lack of incentives or support for applying good practice principles. It is noteworthy that these guidelines should be proposed at a time when a greater involvement of the primary care sector is advocated in the management of LUTS. This introduces new barriers, such as an attitude of excessive caution in diagnostic routines from GPs, encouraged by their being mostly solo-practitioners. Furthermore, recommended protocols call for a multidisciplinary approach to patients’ care, which does not necessarily reflect existing patterns of collaboration among health operators, and there could be resistance to changing the established inter-professional links.

The survey conducted among potential users (urologists, GPs, radiologists, geriatricians and administrators) during the preparation of these guidelines, together with data from a prospective study on LUTS diagnosis by Italian GPs, will be of help to anybody involved in the implementation process as for each professional category the most common inadequate clinical behaviours are highlighted\textsuperscript{1,6}. Examples of such behaviours include overuse of ultrasonography (all categories), overuse of biochemical tests and urine culture (mainly GPs) and resistance to perform a DRE (GPs). Interventions aimed at encouraging implementation should be carried out locally and should involve multiple levels of the healthcare sector. Preliminary experience suggests that small-group local meetings between GPs and urologists, in which best evidence practice is presented and discussed, may prove successful in promoting at least some changes in clinical conduct. A similar setting, with the participation of local administrators and all the clinicians involved in BPH management in each local health unit, may be used as the key intervention to facilitate adoption of these guidelines.

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References


68. Nording J. Efficacy and safety of two doses (10 and 15 mg) of alfuzosin or tamsulosin (0.4 mg) once daily for treating symptomatic benign prostatic hyperplasia. Br J Urol Int 2005;95:1066-71


83. Slawin KM, Kattan MW, Roehrborn CG, Wilson T. Development of nomogram to predict acute urinary retention or surgical intervention, with or without dutasteride therapy, in men with benign prostatic hyperplasia. Urology 2006;67:84-8

84. Andriole GL, Marberger M, Roehrborn CG. Clinical usefulness of serum prostate specific antigen for the detection of prostate cancer is preserved in men receiving the dual 5α-reductase inhibitor dutasteride. J Urol 2006;175:1657-62


120. Leliefeld HHH, Stovesen BO, McDonald J. Sexual function before and after various treatments for symptomatic benign prostatic hyperplasia. Br J Urol Int 2002;89:208-13


