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Optimizing BPH management

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- What is BPH?
- Pathophysiology of BPH
- Considerations of BPH patient's treatment
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- What is the urologist's preferences?
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- Optimizing BPH management!!!

What is BPH?

“..Understanding prostate pathology requires an understanding of the development and homeostasis of the gland..”

Prenatal Development of Prostate

Sex accessory tissue

- * wolffian duct origin

 - seminal vesicle, epididymis, vas deferens, ampula, ejaculatory duct

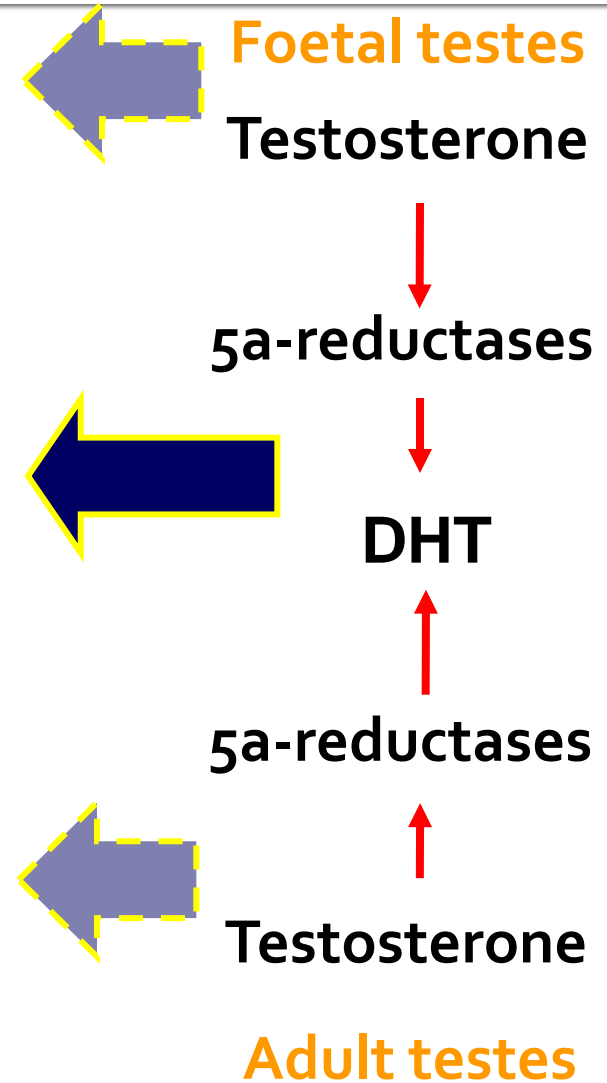
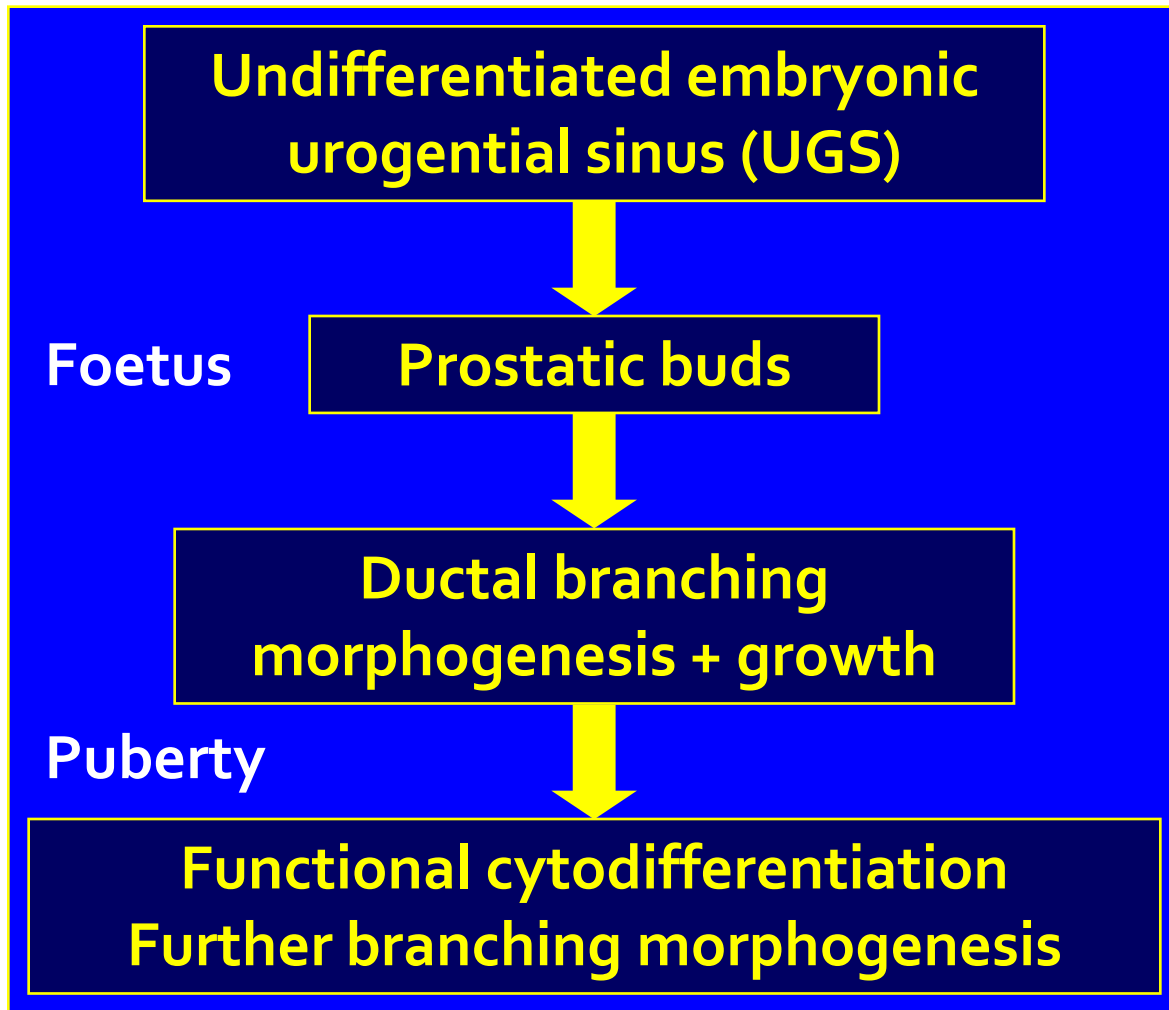
 - stimulated by fetal testosterone, not DHT

- * urogenital sinus origin

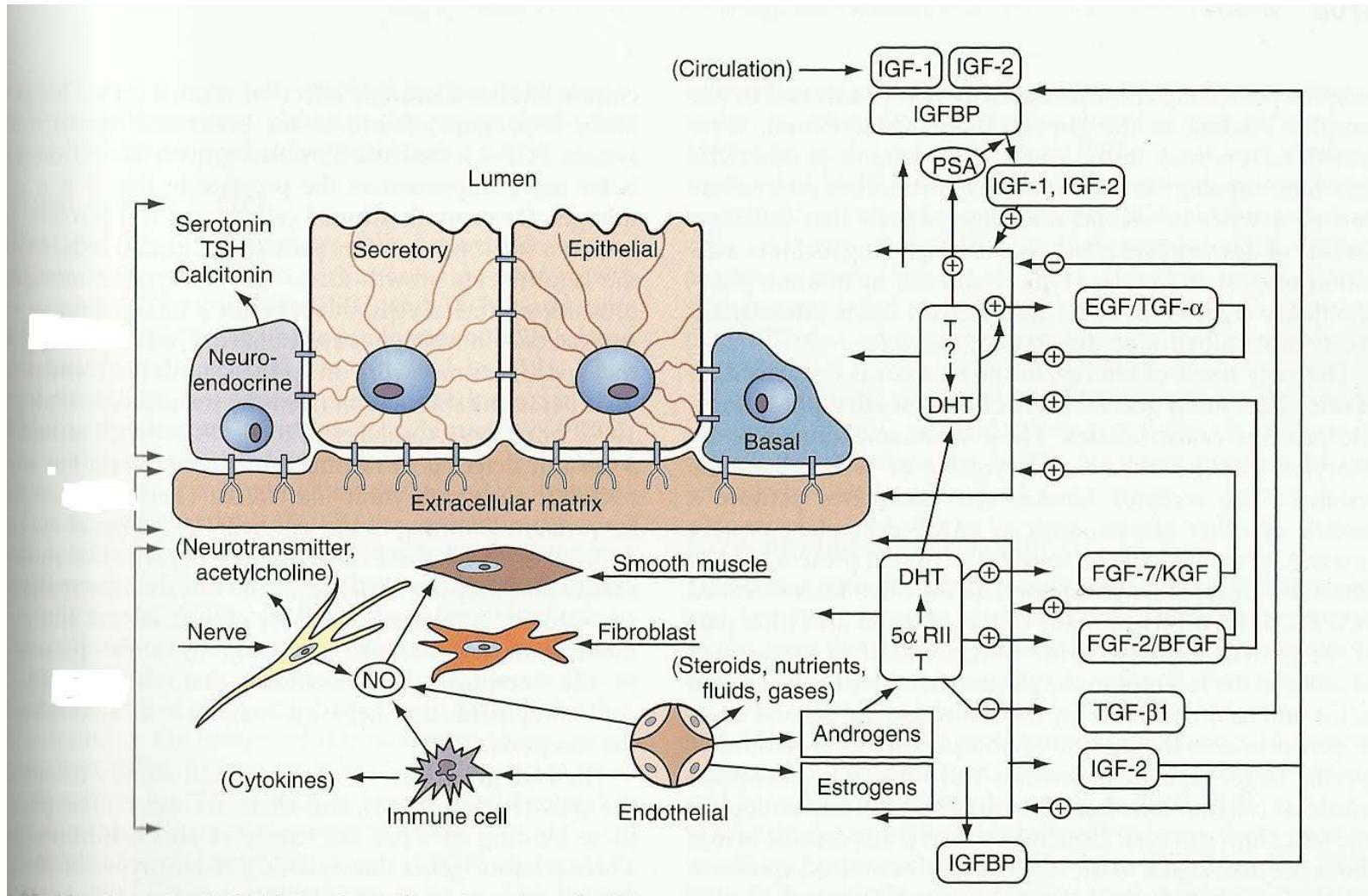
 - prostate gland, bulbourethral gland

 - stimulated by DHT, not testosterone

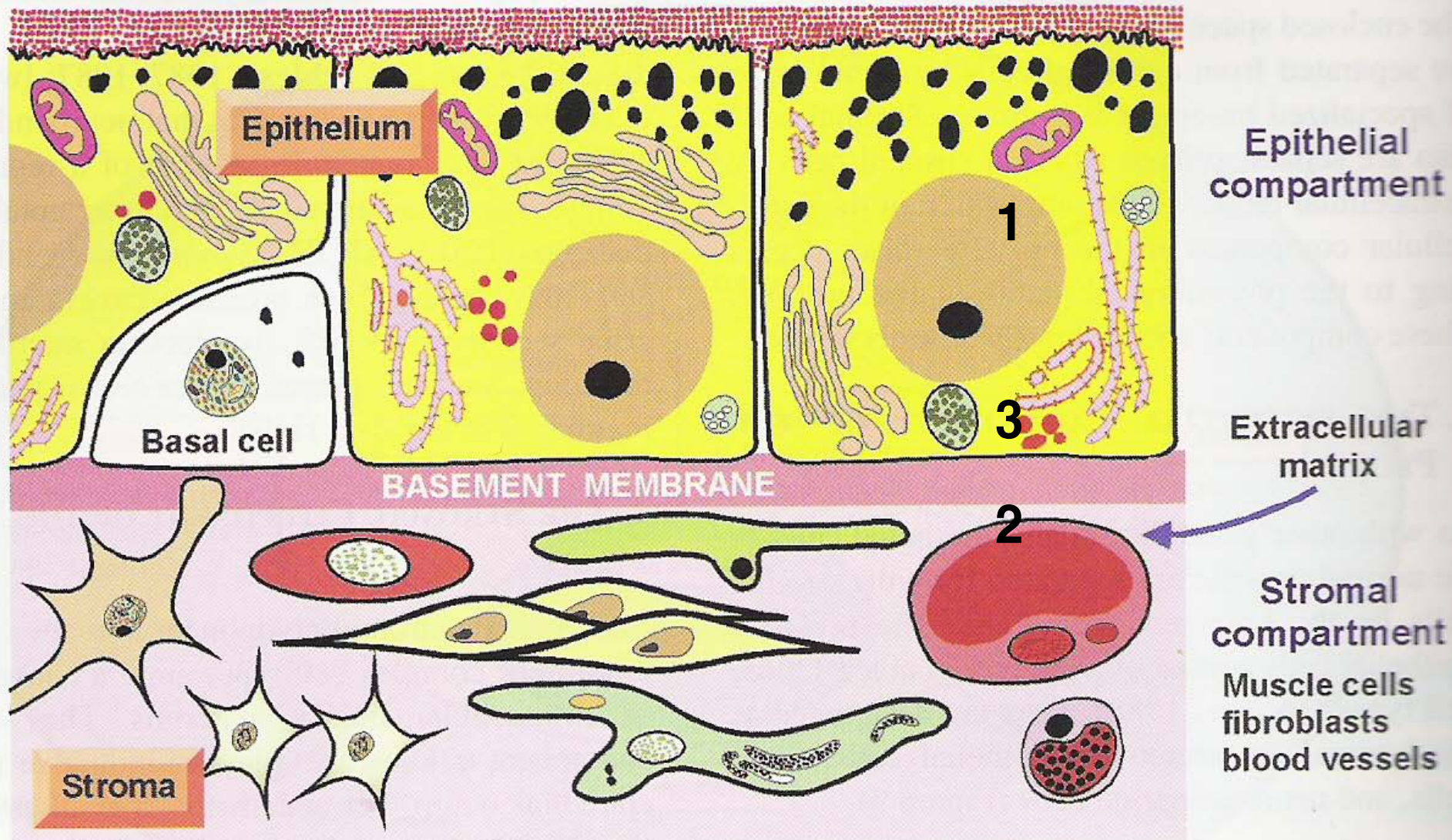
Importance of androgens in prostate development



Growth regulation of prostate



Anatomy of Prostate



Cellular anatomy of prostate

1. Epithelial compartment :

luminal cell, basal cell, N-E cell

- luminal cell : PSA, PAP secretion
- basal cell : precursor of luminal cell
- N-E cell : regular prostate growth & exocrine secretory activity

Cellular anatomy of prostate

2. Stromal component :
fibroblast, smooth m. cell

: induction role in epithelial outgrowth & overall prostate growth

→ prostate growth is mainly mediated through growth factors

Cellular anatomy of prostate

3. Extracellular matrix :

- 1) maintenance of epithelial integrity
- 2) reservoir for growth factor

→ significant role in controlling prostate growth

- Androgen : to facilitate the release of the trapped growth factor

What is BPH?

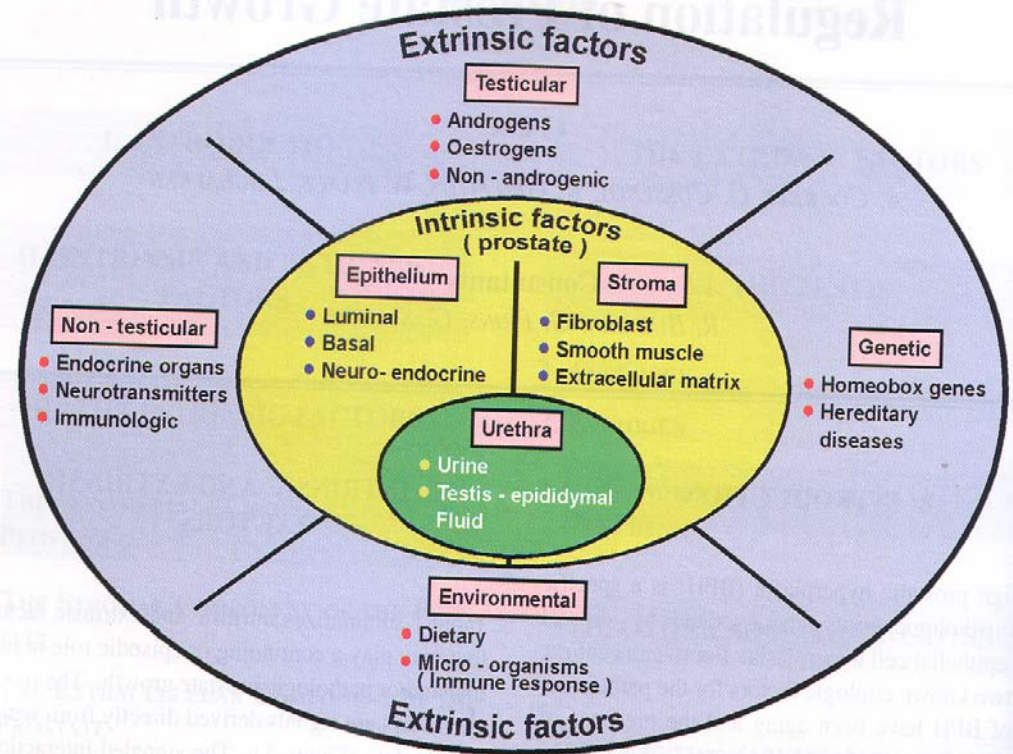
BPH is hyperplasia of both epithelial and stromal cells

Old concepts of BPH

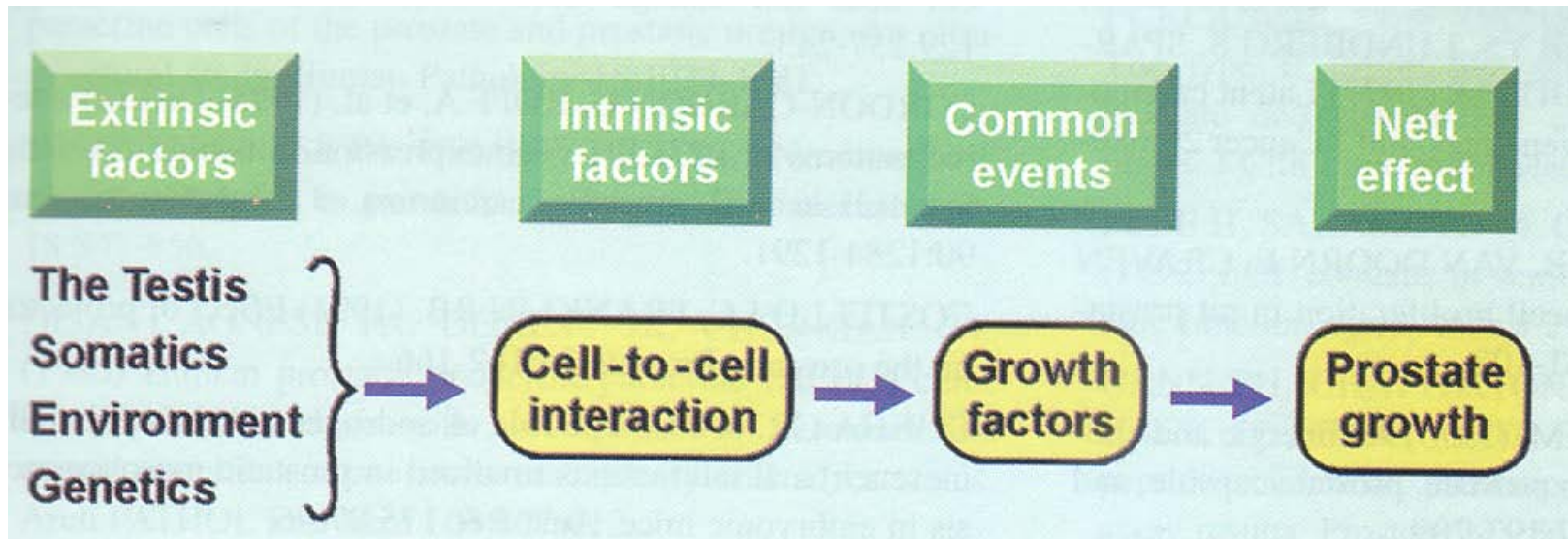
- Aging
- Presence of functioning testis

New Concepts of BPH

Imbalance of prostate growth by intrinsic & extrinsic factors

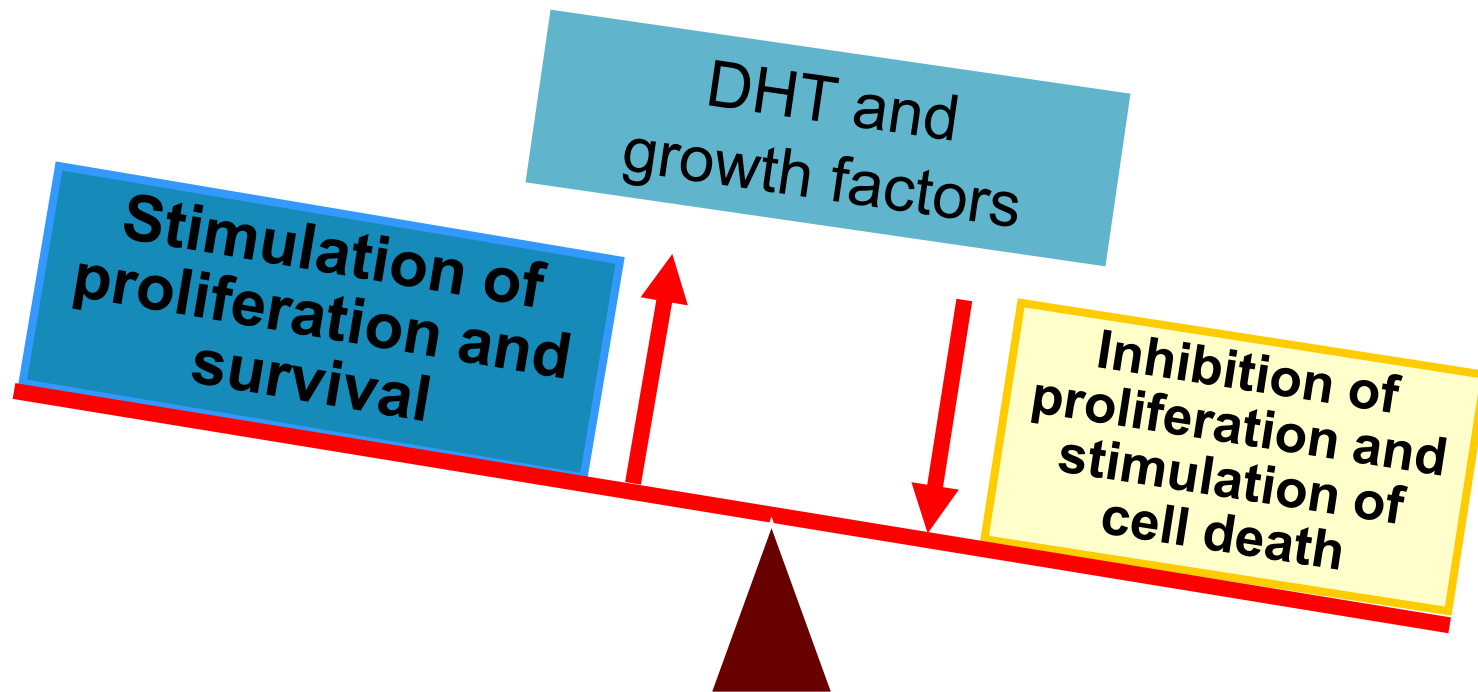


Regulation of prostate growth



All effects of extrinsic factors are mediated through the intrinsic factors to regulate prostate growth

BPH – imbalance of proliferative and apoptotic signals



Pathophysiology of BPH

**Pathophysiology of BPH
is complex!!!**

Pathophysiology of BPH

Presence of Prostatic capsule
: play an important role in the development of LUTS

Caine and Schuger 1987

Importance of Prostatic Smooth Muscle
: significant volume of the gland
active and passive forces in prostatic tissue play a major role in P-P of BPH

Shapiro et al 1992

Pathophysiology of BPH

Prostatic hyperplasia increases urethral resistance,
resulting in compensatory changes in bladder
function

Obstruction induced changes in bladder function,
compounded by age related changes in both
bladder and nervous system function →
urinary frequency, urgency, and nocturia

Pathophysiology of BPH

Bladder's response to obstruction

- **Detrusor instability (decreased compliance) ;
frequency, urgency**
- **Decreased detrusor contractility ;
weak stream, hesitancy, intermittency, increased
residual urine**

Anderson 2003

Pathophysiology of BPH

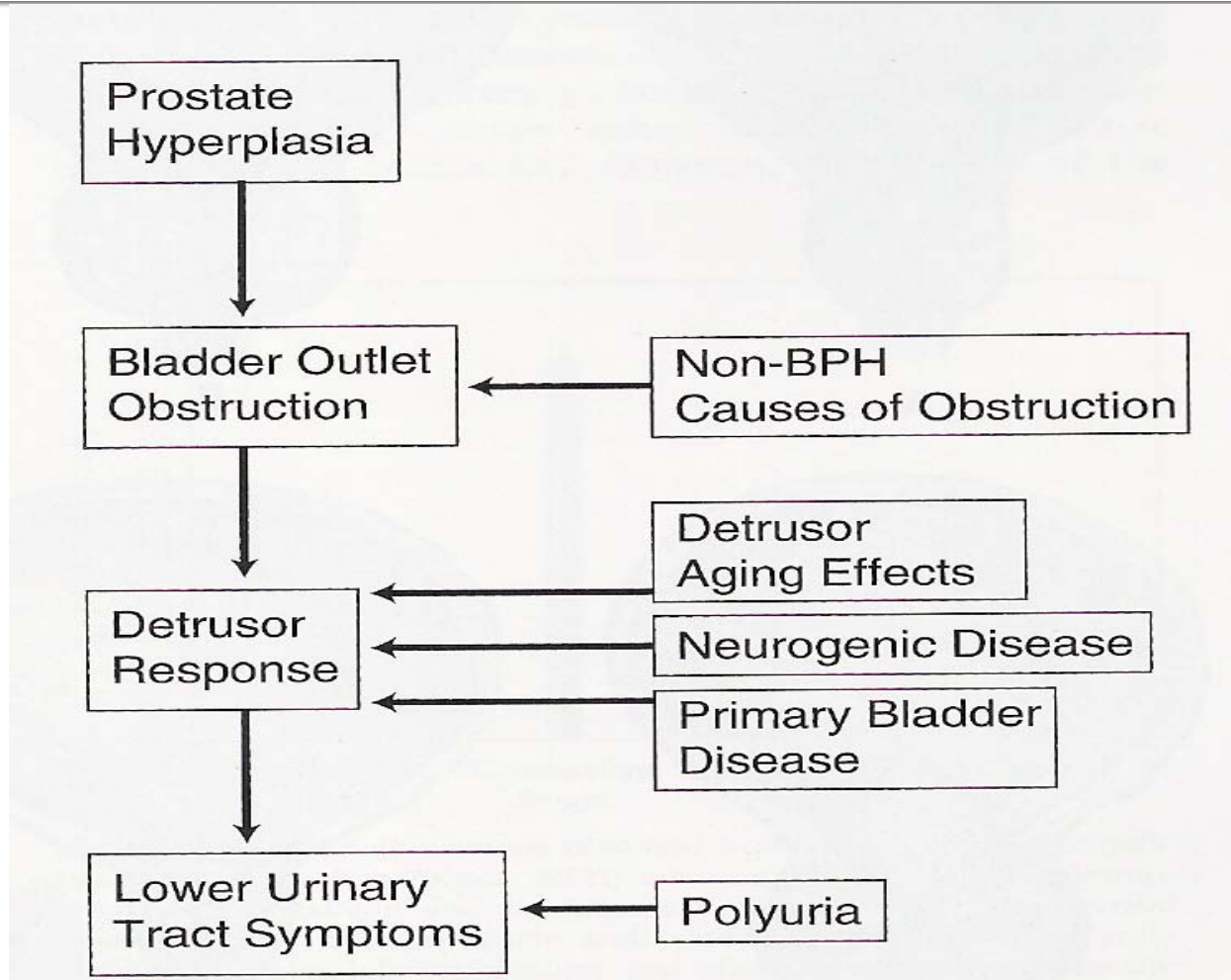
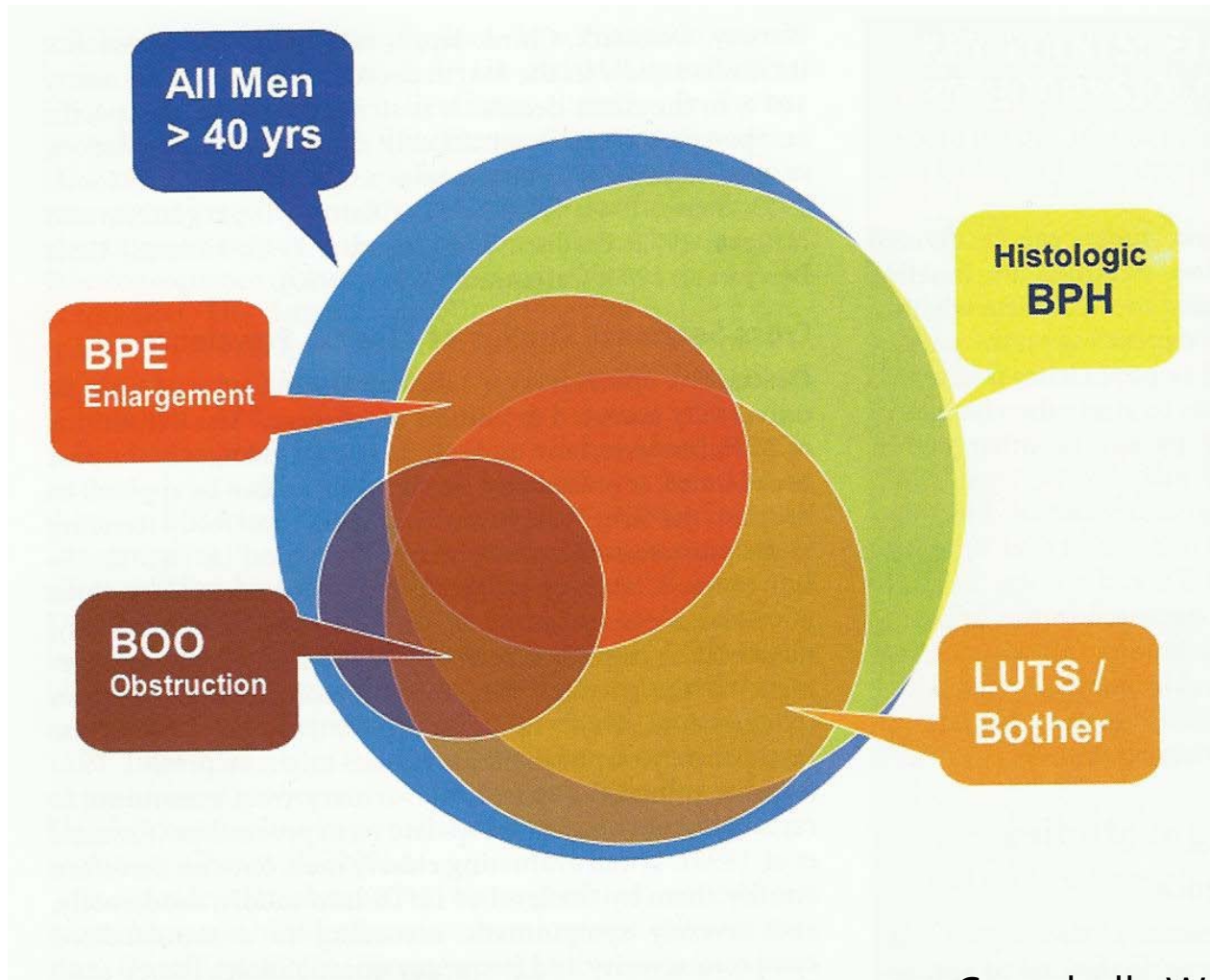


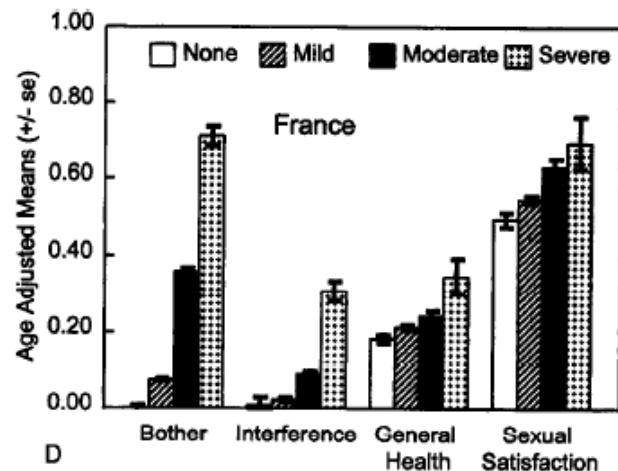
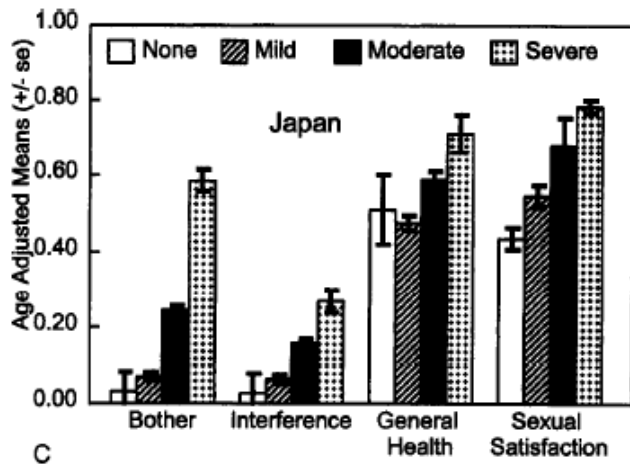
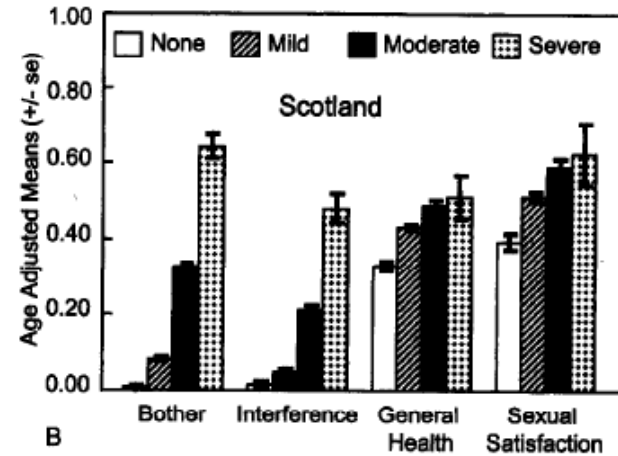
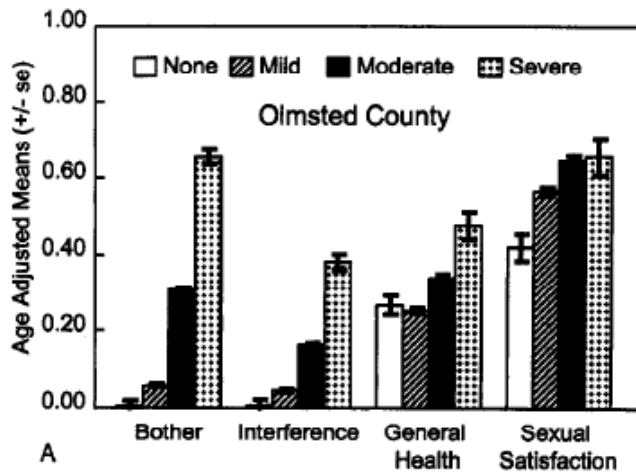
Diagram of BPH, BOO, BPE & LUTS



Considerations of BPH patient's treatment

- Symptom severity and frequency
- Bother, interference and QoL
- Prostate size & PSA
- Measurement of obstruction
- Socioeconomic factors
- Sexual activity
- Alcohol and smoking
- Diet, obesity & BMI
- Medications

Correlations between parameters



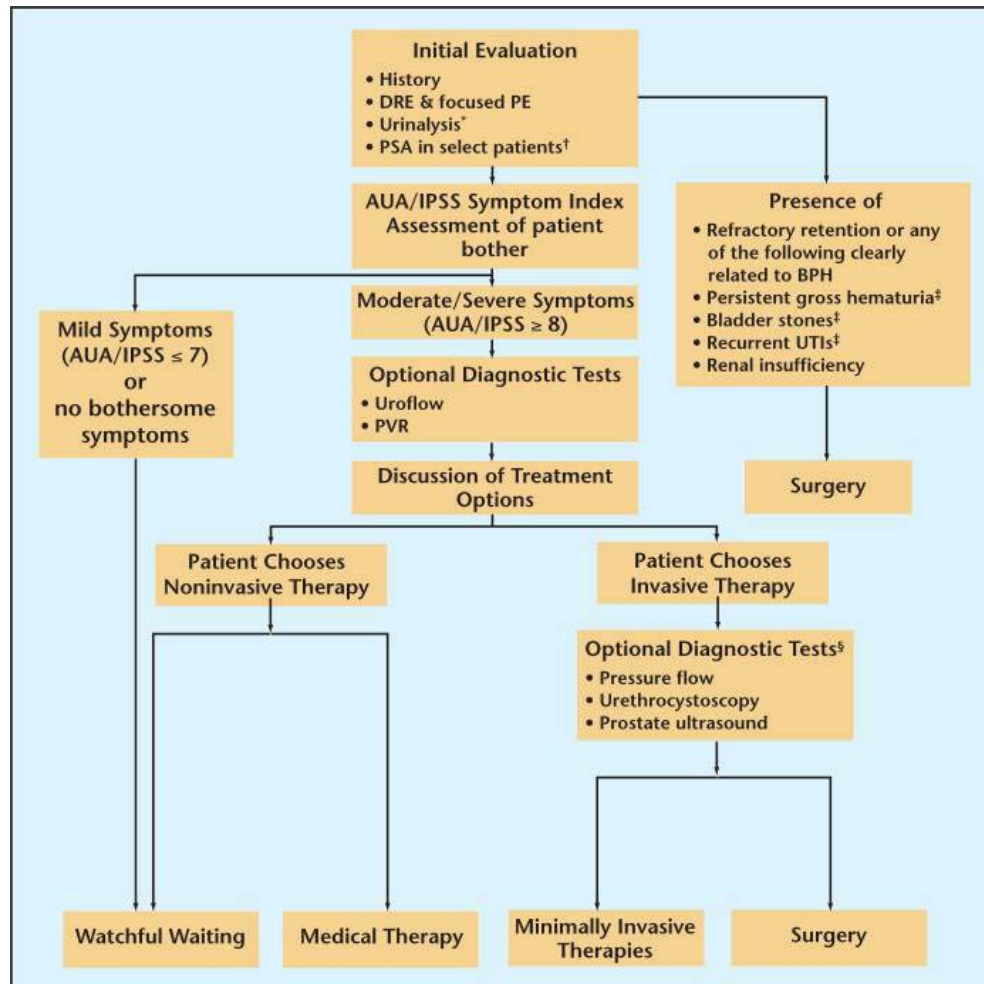
Options of BPH managements

- Watchful waiting
- Medical therapy
 - α-blockers – same effect of all kinds of drug
 - androgen suppression-size reduction and cancer prevention
 - combination therapy-for large prostate
 - phytotherapy-no level 1 evidence
- MIS and TURP-consider bladder function!!
- Open prostatectomy

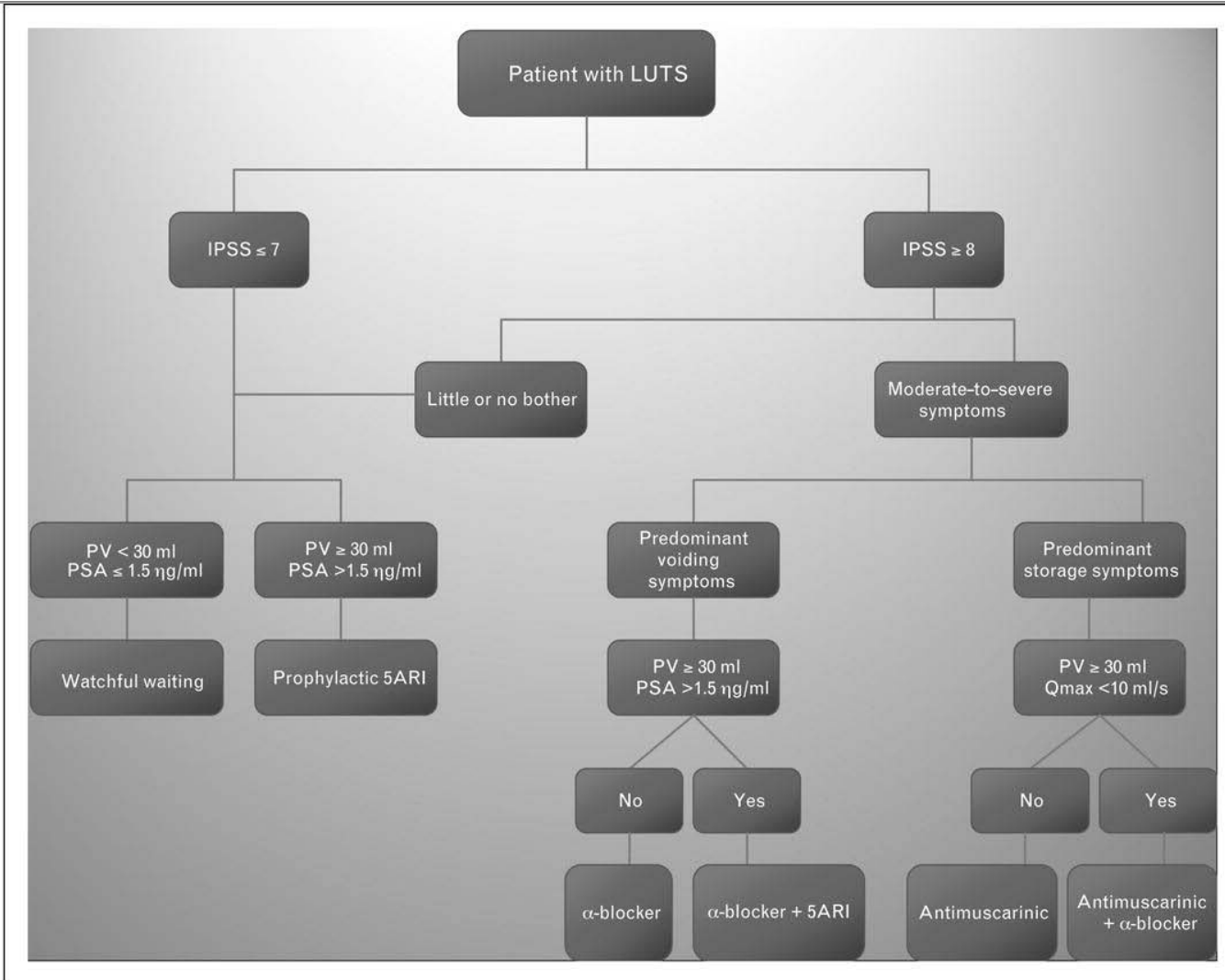
What is urologist's preference?

Guideline

AUA guideline 2004



An algorithm for medical management in male LUTS



Djavan, Bob et al. Current Opinion in Urology 2011

LUTS, lower urinary tract symptoms; PV, prostate volume; Qmax, peak urinary flow rate. Adapted with permission from [34].

AUA guideline 2010

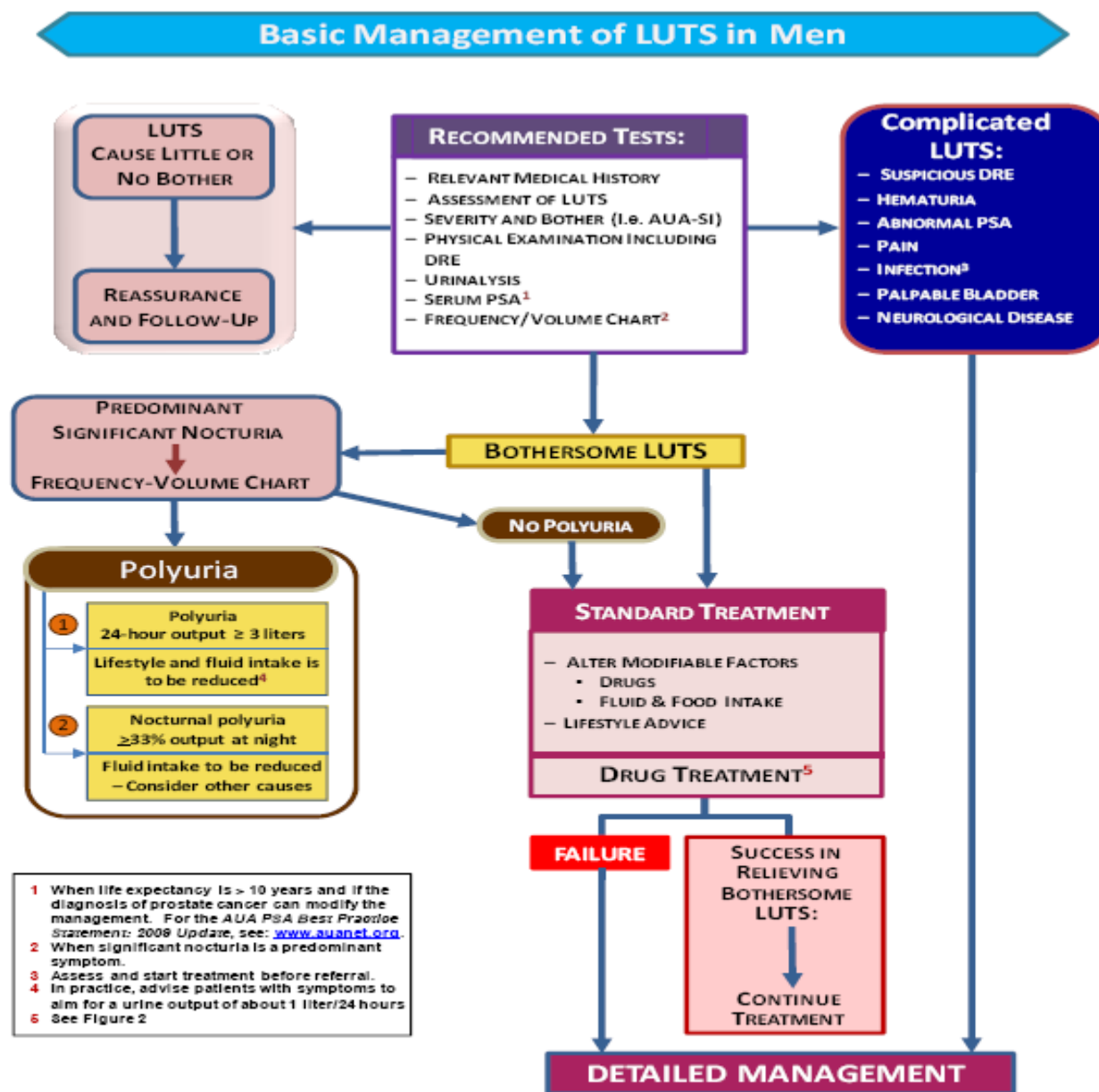


Figure 1.1. Basic management of lower urinary tract symptoms (LUTS) in men (adapted with permission from Abrams 2009). AUA-SI, American Urological Association Symptom Index; DRE, digital rectal exam; PSA, prostate-specific antigen.

AUA guideline 2010

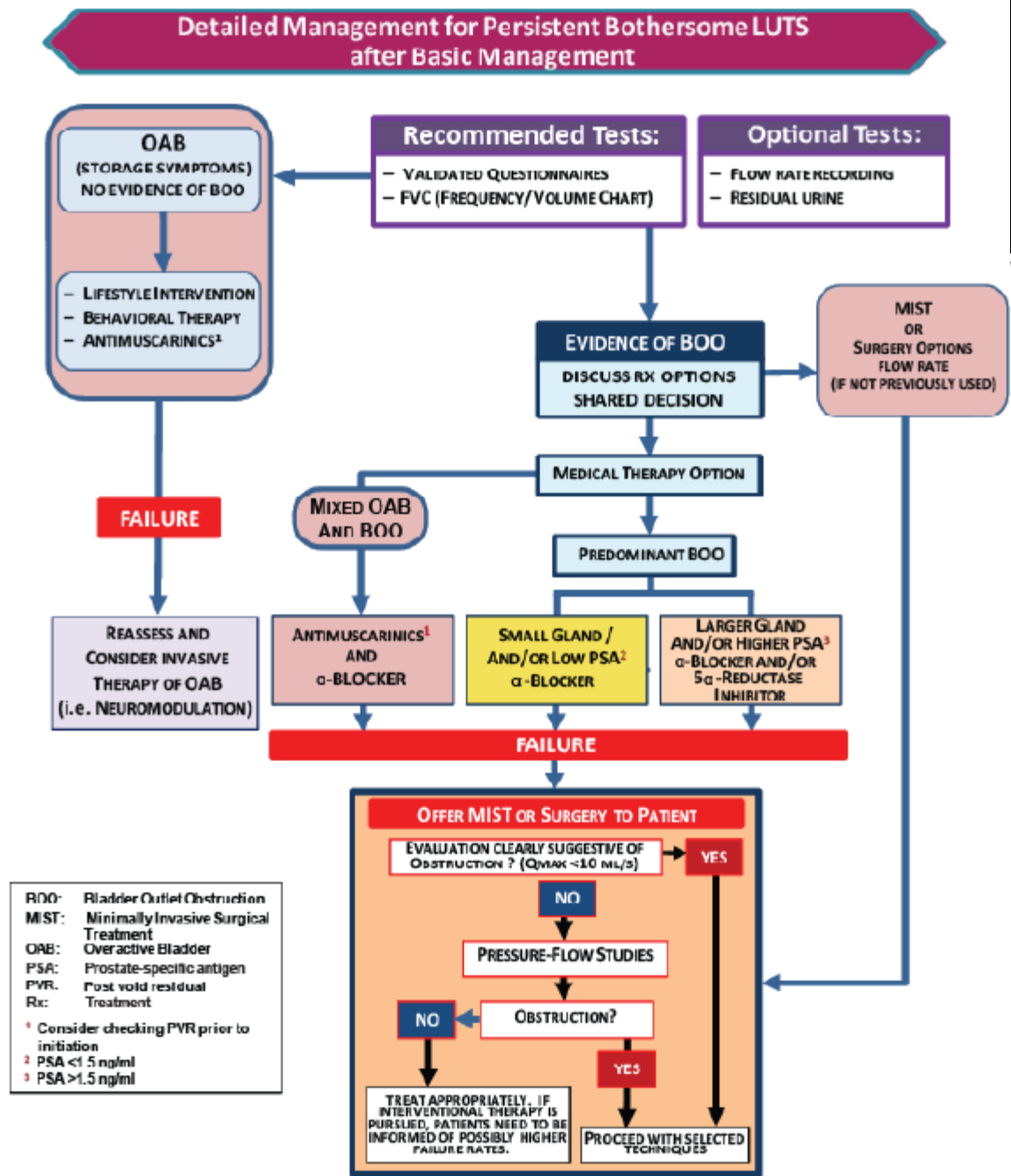


Figure 1.2. Detailed management of persistent, bothersome lower urinary tract symptoms (LUTS) after basic management (adapted with permission from Abrams 2009).

What is patient's preference?

Not guideline but Quality of life

Considerations of BPH patient's treatment & solutions

- Symptom severity and frequency
- Bother, interference and QoL
- Prostate size
- Measurement of obstruction
- Socioeconomic factors
- Sexual activity
- Alcohol and smoking
- Diet, obesity and BMI
- Medications
- Epidemiology
- Natural history of BPH
- Understanding cause of BPH
- Prevention of BPH
- Development of new drug
- New surgical technique

Optimizing BPH management

Consider patient itself-individualized treatment

Knowledge of basic science and practice to get it !!

Thank you for your attention