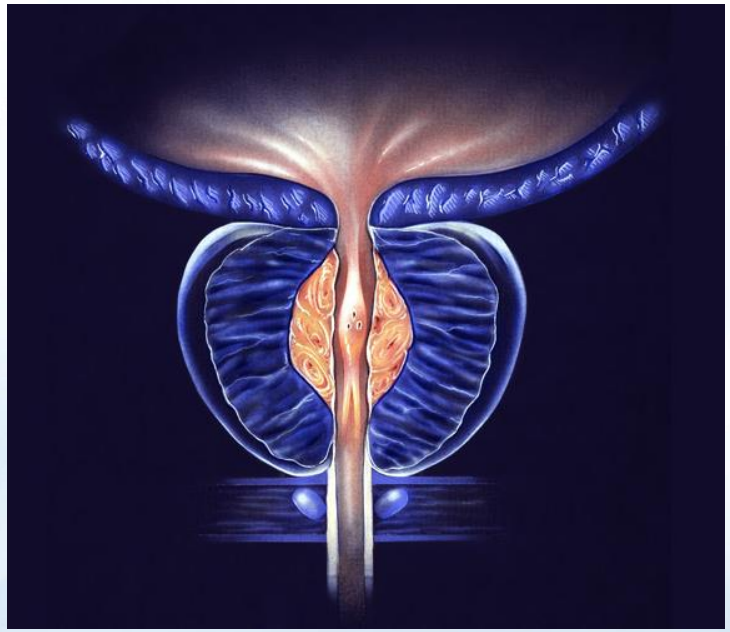
Hot Topics in Medicine: BPH Updates Medical, Surgical and Minimally Invasive Options



Credit: Judith Glick - stock.adobe.com

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Disclosures: Seth Bechis

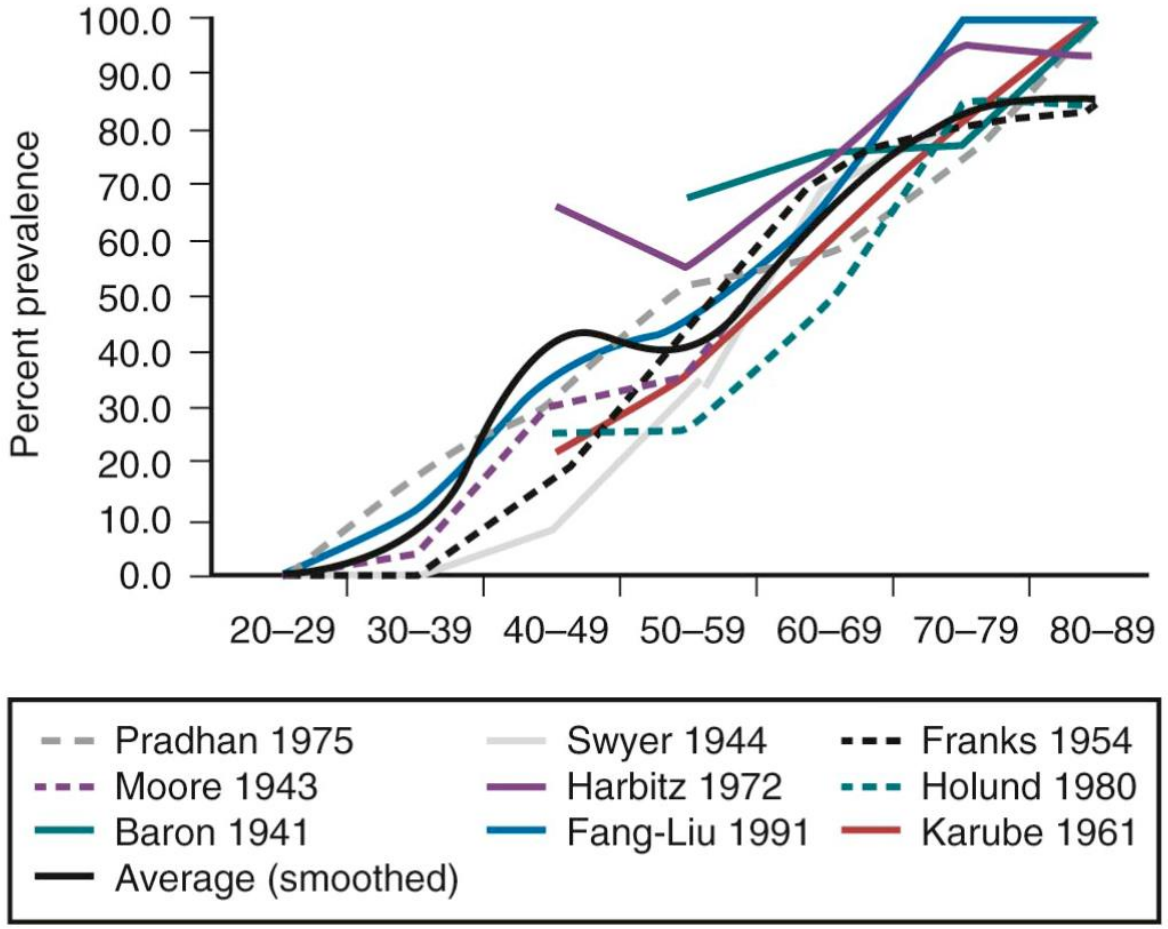
- Consultant
  - Boston Scientific
  - Dornier
  - Ambu Medical
  - Calyxo
  - BD
- Speaker
  - Karl Storz Endoscopy

- Acknowledgments: Marcelino Rivera, Naeem Bhojani, Bilal Chughtai

Goals of this Talk

- Optimize how to evaluate the patient with BPH
- Understand medical treatment options
- Highlight differences between BPH procedures
  - Minimally Invasive Surgical Therapies (MISTs)
  - Understand when each procedure might be useful
- Recognize when to involve the Urologist

Epidemiology: BPH prevalence increases with age



Age-stratified autopsy prevalence of histologic BPH

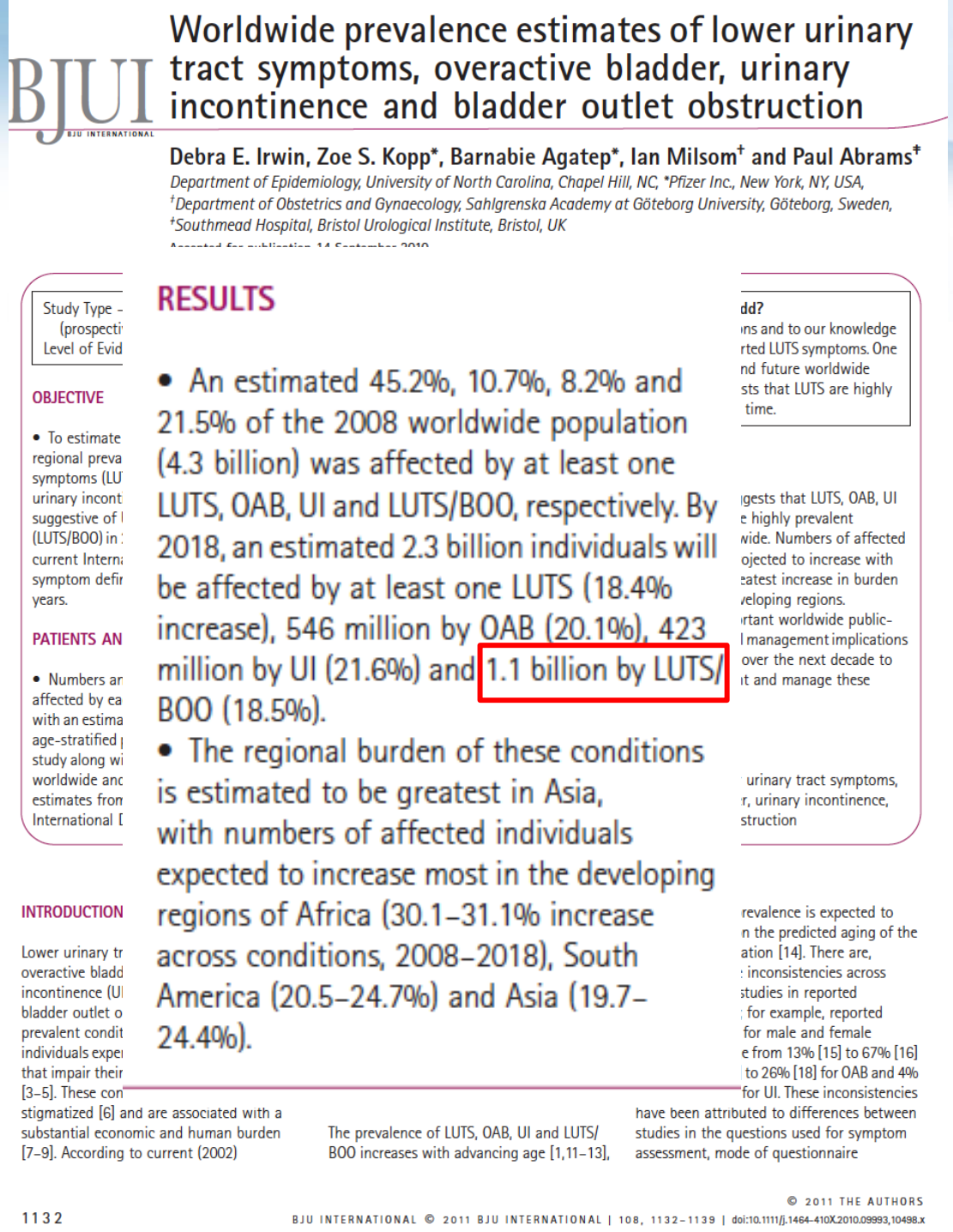
Age 60-69: 70%

Age >80: 80%

Risk factors:

- Family Hx
- Diabetes
- Obesity
- ↓ physical activity

Berry SJ, Coffey DS, Walsh PC, et al. J Urol 1984;132:474-9.



BJUI
BJU INTERNATIONAL

Worldwide prevalence estimates of lower urinary tract symptoms, overactive bladder, urinary incontinence and bladder outlet obstruction

Debra E. Irwin, Zoe S. Kopp*, Barnabie Agatep*, Ian Milsom† and Paul Abrams‡

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Accepted for publication 14 September 2010

Study Type –
(prospecti
Level of Evid

OBJECTIVE

• To estimate
regional preva
symptoms (LU
urinary incont
suggestive of
(LUTS/BOO) in
current Interna
symptom defir
years.

PATIENTS AN

• Numbers ar
affected by ea
with an estima
age-stratified
study along wi
worldwide anc
estimates from
International [

dd?
ns and to our knowledge
rted LUTS symptoms. One
nd future worldwide
sts that LUTS are highly
time.

gests that LUTS, OAB, UI
e highly prevalent
wide. Numbers of affected
ojected to increase with
eatest increase in burden
veloping regions.
rtant worldwide public-
l management implications
over the next decade to
t and manage these

urinary tract symptoms,
r, urinary incontinence,
struction

RESULTS

- An estimated 45.2%, 10.7%, 8.2% and 21.5% of the 2008 worldwide population (4.3 billion) was affected by at least one LUTS, OAB, UI and LUTS/BOO, respectively. By 2018, an estimated 2.3 billion individuals will be affected by at least one LUTS (18.4% increase), 546 million by OAB (20.1%), 423 million by UI (21.6%) and 1.1 billion by LUTS/BOO (18.5%).
- The regional burden of these conditions is estimated to be greatest in Asia, with numbers of affected individuals expected to increase most in the developing regions of Africa (30.1–31.1% increase across conditions, 2008–2018), South America (20.5–24.7%) and Asia (19.7–24.4%).

INTRODUCTION

Lower urinary tr
overactive bladd
incontinence (UI
bladder outlet o
prevalent condit
individuals expe
that impair their
[3–5]. These con
stigmatized [6] and are associated with a substantial economic and human burden [7–9]. According to current (2002)

The prevalence of LUTS, OAB, UI and LUTS/BOO increases with advancing age [1,11–13],

revalence is expected to
n the predicted aging of the
ation [14]. There are,
inconsistencies across
studies in reported
for example, reported
for male and female
e from 13% [15] to 67% [16]
to 26% [18] for OAB and 4%
for UI. These inconsistencies have been attributed to differences between studies in the questions used for symptom assessment, mode of questionnaire

BJU INTERNATIONAL © 2011 BJU INTERNATIONAL | 108, 1132–1139 | doi:10.1111/j.1464-410X.2010.09993.10498.x

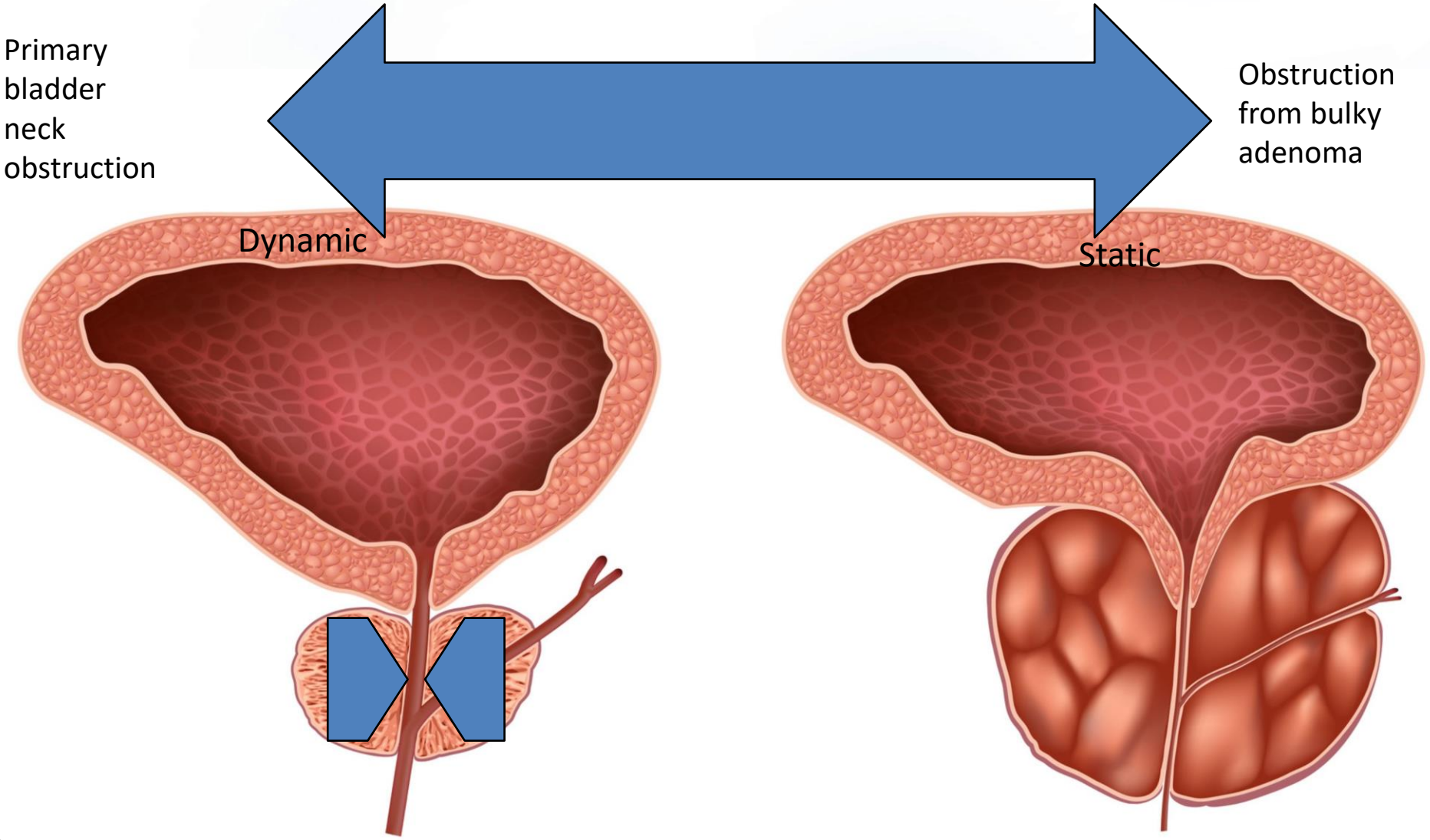
COSTS in U.S. per year:

Rx for BPH-related LUTS: $194 million

Incremental annual burden of a BPH dx: $1500

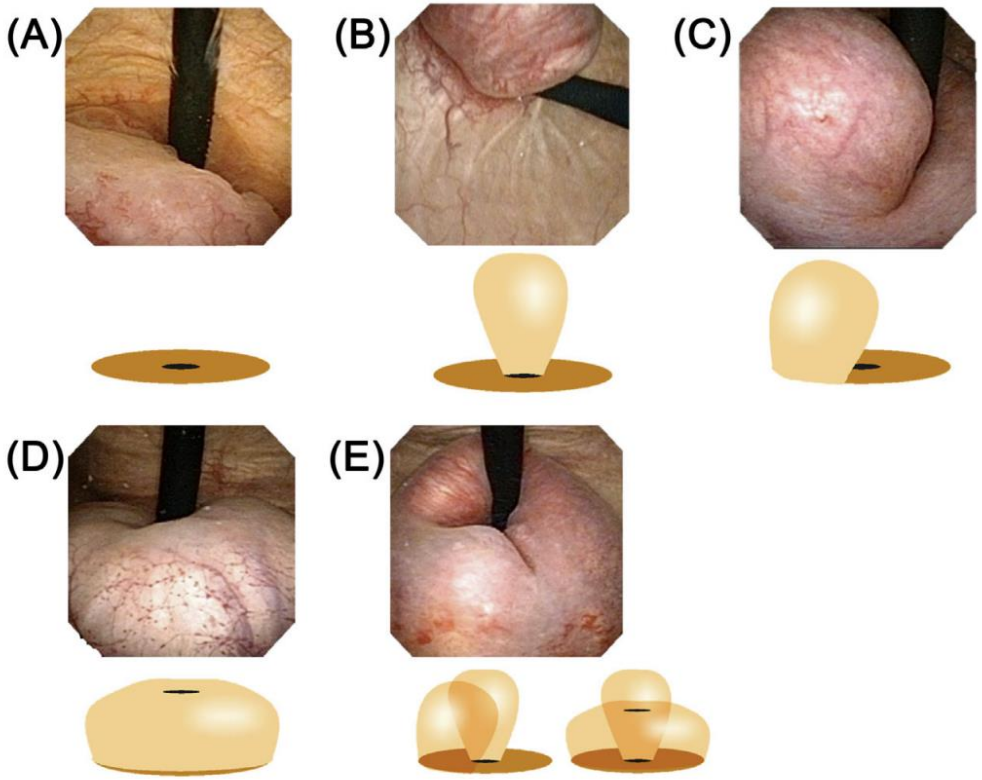
Overall: $4 billion

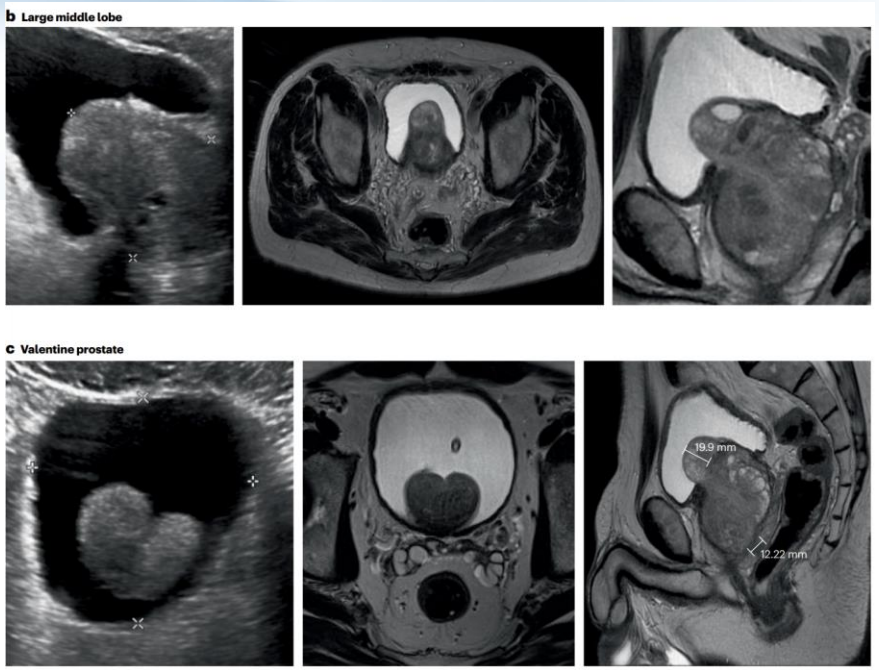
Each Prostate is Unique: Spectrum of Outlet Disease



Median Lobe Variants Cause Obstruction

Intravesical Prostatic Protrusion





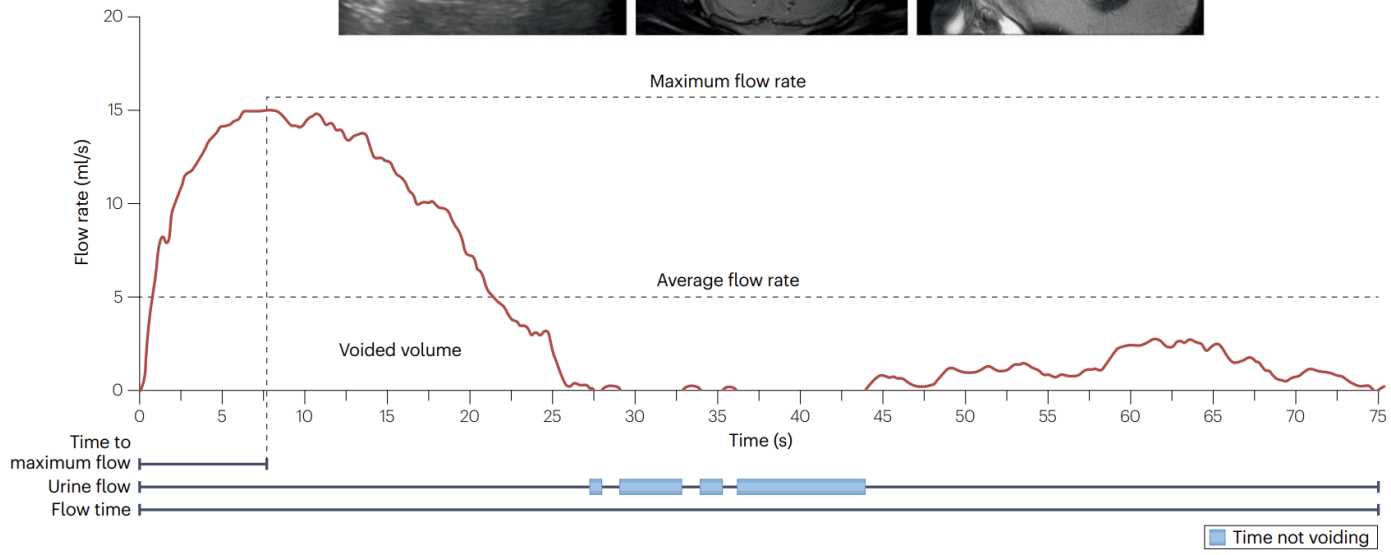


Fig. 2 | Classic uroflowmetry pattern in a patient with middle lobe enlargement. Misleading initial reasonable flow with prolonged terminal dribbling (voided 306 ml, maximum flow rate 15 ml/s, post-void residual 230 ml).

Gharbieh, S., et al. *Nat Rev Uro* **20,** 11 (2023)
Topazio, L., et al. *BMC Urology* **18**, 6 (2018)
Hirayama, K.M., et al. *Urology* **86**, 565-569 (2015)
Ito, K. *Neurourology and Urodynamics* **37,** 2160-2166 (2018)

Two Categories of LUTS

1 ABILITY TO HOLD URINE

Urgency: the need to urinate immediately or urgently

Frequency: the need to urinate more often than normal

Nocturia: the need to urinate frequently while sleeping

Incontinence: complete loss of the ability to hold urine

2 EMPTYING THE BLADDER

Straining: the need to push to start or complete urinating

Dysuria: pain or stinging while urinating

Hesitancy: difficulty starting to urinate

Weak Stream: gentle instead of a strong stream of urine

Intermittency: a urine stream that starts and stops

Retention: complete loss of the ability to empty the bladder

AUA Guidelines Basic Management of LUTS

Initial Evaluation

1. In the initial evaluation of patients presenting with bothersome LUTS possibly attributed to BPH, clinicians should obtain a medical history, conduct a physical examination, utilize the International Prostate Symptom Score (IPSS), and perform a urinalysis. (Clinical Principle)
2. Patients should be counselled on options for intervention, which can include behavioral/lifestyle modifications, medical therapy and/or referral for discussion of procedural options. (Expert Opinion)

Sandhu JS, et al. AUA Guideline amendment 2023. *J Urol*. **211**, 2024

Subjective Scoring (IPSS)

AUA Symptom Score:

- 0-7 mildly symptomatic
- 8-19 moderately symptomatic
- 20-35 severely symptomatic

AUA symptom score expected improvement

- Placebo (1-2)
- Alpha-Blocker (1-5)
- Combination therapy (2-9)
- PDE-5 inhibitor (1-5)

International Prostate Symptom Score (IPSS)

Name: Date:

	Not at all	Less than 1 time in 5	Less than half the	About half the time	More than half the	Almost always	Your score
Incomplete emptying Over the past month, how often have you had a sensation of not emptying your bladder completely after you finish urinating?	0	1	2	3	4	5	
Frequency Over the past month, how often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5	
Intermittency Over the past month, how often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
Urgency Over the last month, how difficult have you found it to postpone urination?	0	1	2	3	4	5	
Weak stream Over the past month, how often have you had a weak urinary stream?	0	1	2	3	4	5	
Straining Over the past month, how often have you had to push or strain to begin urination?	0	1	2	3	4	5	

	None	1 time	2 times	3 times	4 times	5 times or more	Your score
Nocturia Over the past month, many times did you most typically get up to urinate from the time you went to bed until the time you got up in the morning?	0	1	2	3	4	5	

Total IPSS score	

Quality of life due to urinary symptoms	Delighted	Pleased	Mostly satisfied	Mixed – about equally satisfied and dissatisfied	Mostly dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition the way it is now, how would you feel about that?	0	1	2	3	4	5	6

Total score: 0-7 Mildly symptomatic; 8-19 moderately symptomatic; 20-35 severely symptomatic

alth

AUA Guidelines Basic Management of LUTS

Follow-up Evaluation

1. Patients should be evaluated by their providers 4-12 weeks after initiating treatment (provided adverse events do not require earlier consultation) to assess response to therapy. Revaluation should include the IPSS. Further evaluation may include a post-void residual (PVR) and uroflowmetry. (Clinical Principle)
2. Patients with bothersome LUTS/BPH who elect initial medical management and do not have symptom improvement and/or experience intolerable side effects should undergo further evaluation and consideration of change in medical management or surgical intervention. (Expert Opinion)

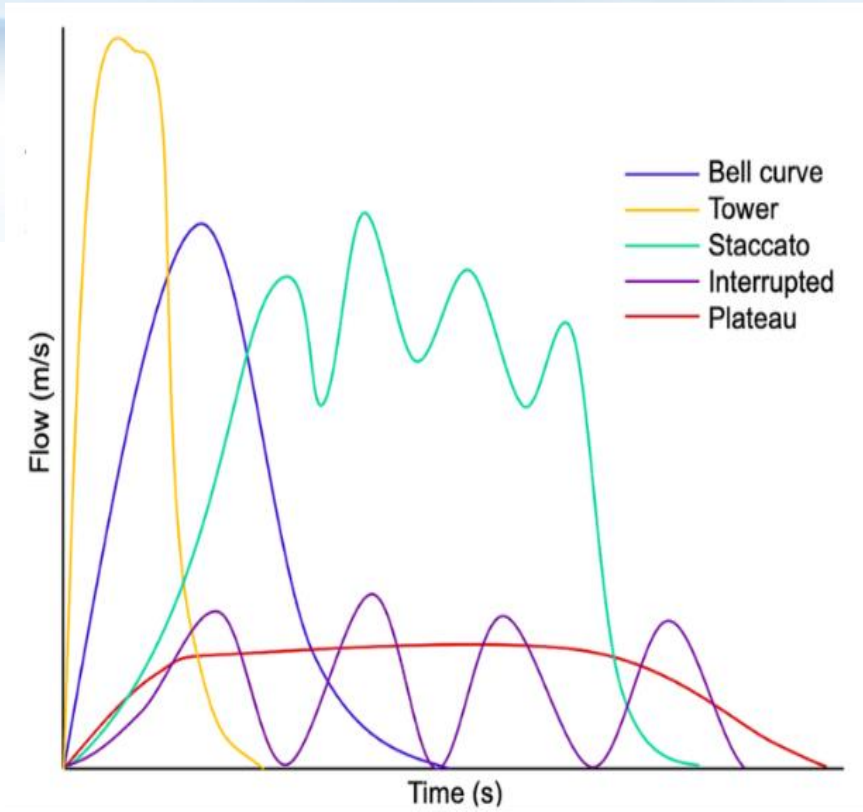
Sandhu JS, et al. AUA Guideline amendment 2023. *J Urol*. **211**, 2024

Objective Scoring

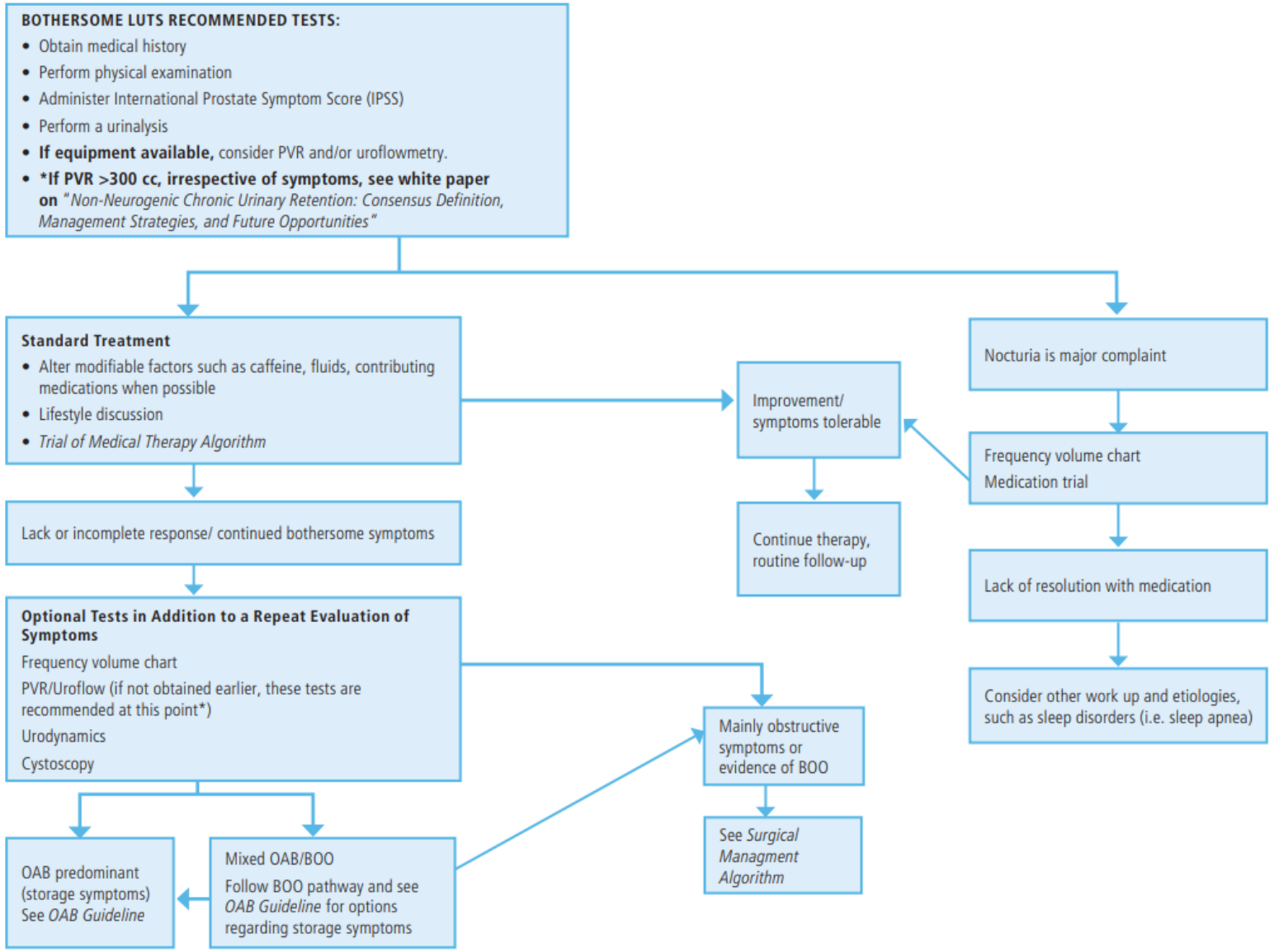
- Includes **flow rate (Qmax)** and **post-void residual (PVR)**

- **Cystoscopy:** not routinely recommended in patients with initial presentation consistent with BOO
  - Offers a visual inspection of the urethra, prostate, & bladder when considering treatments where success may depend on anatomic configuration

- **Urodynamics: optional prior to intervention**
  - Can be useful to quantify the degree of bladder outlet obstruction (BOO) and/or detrusor under- or overactivity in the context of mixed lower urinary tract symptoms.

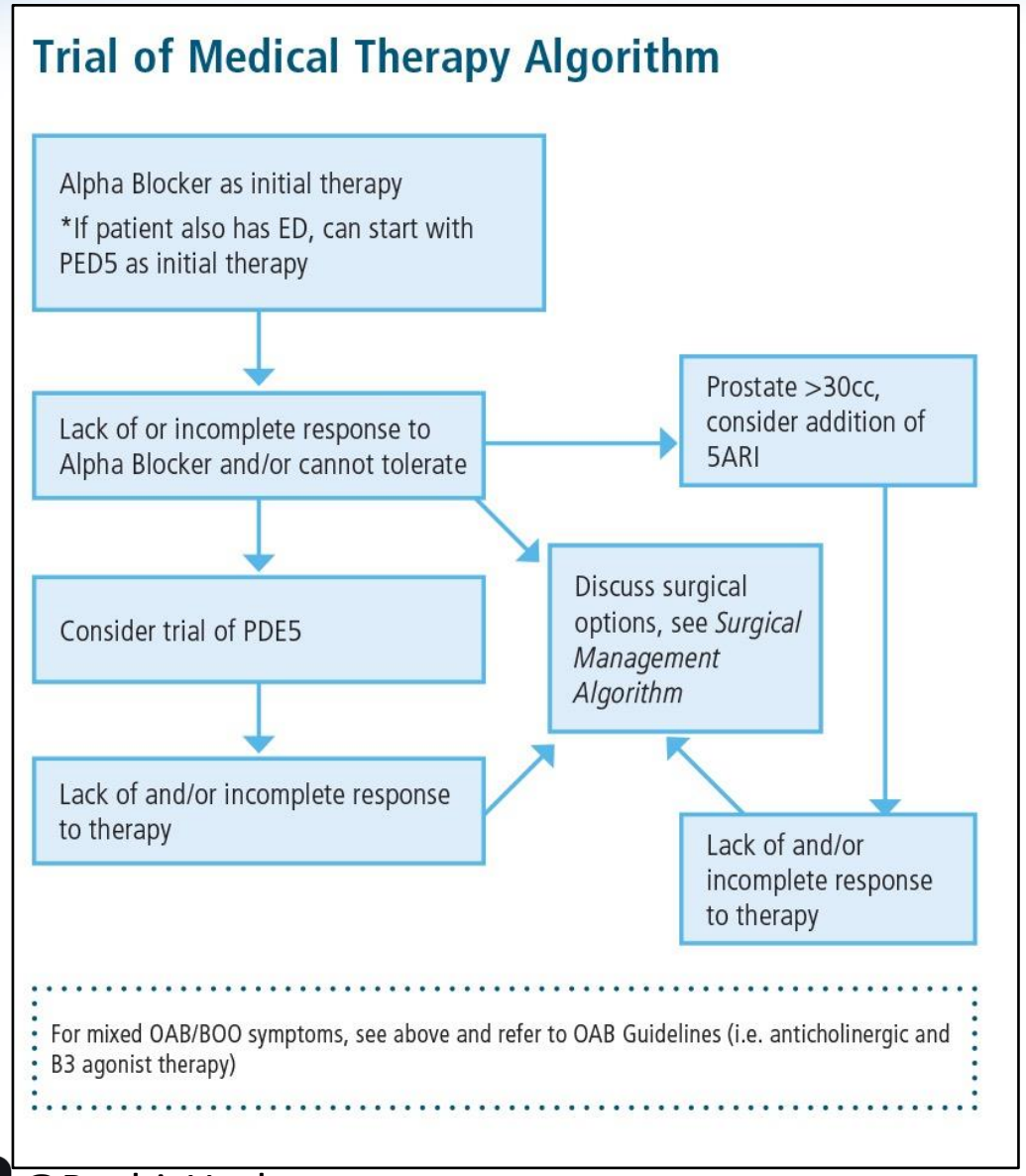


AUA Guidelines Basic Management of LUTS



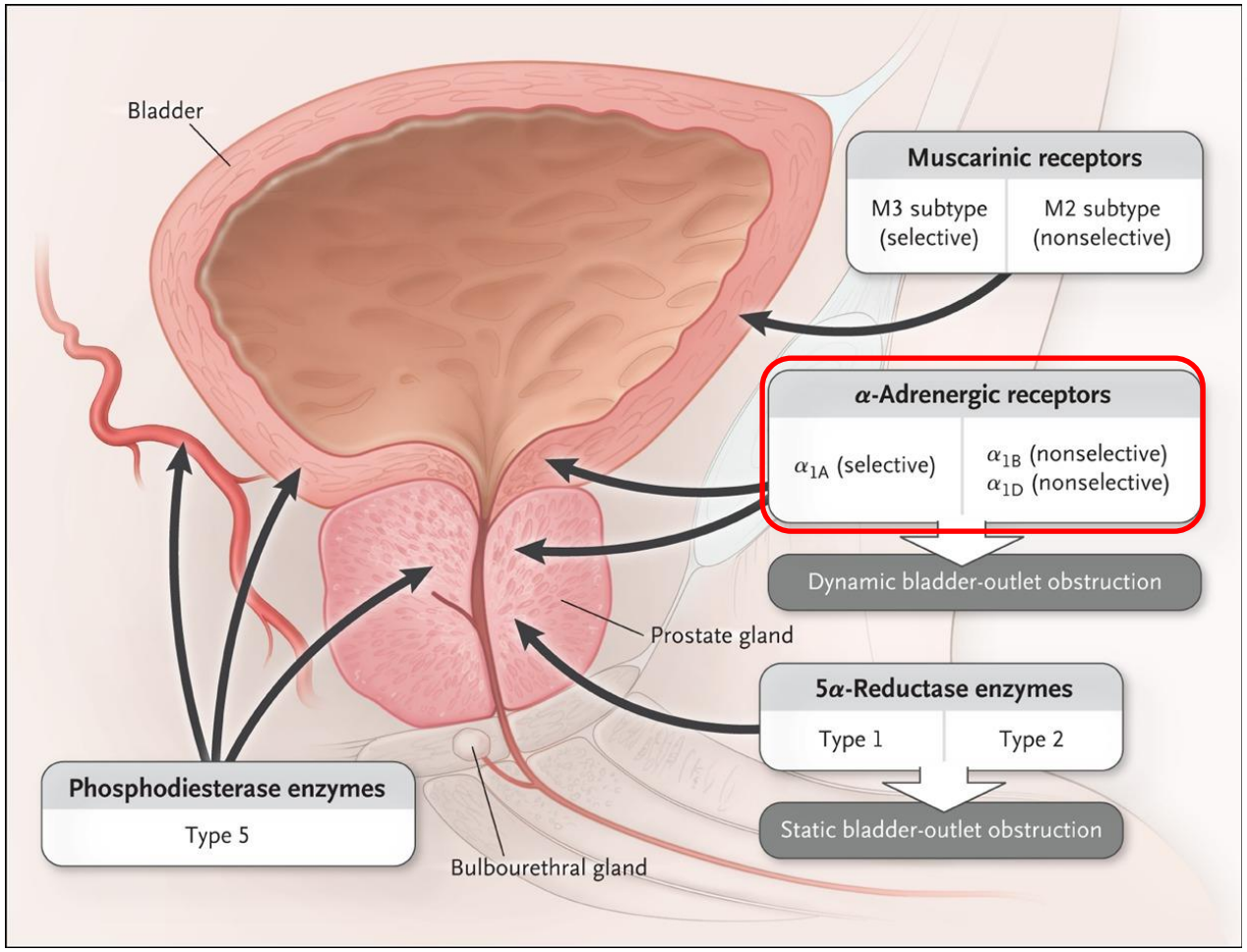
MEDICAL MANAGEMENT

Medical Management



- After behavioral and dietary interventions
- Consider comorbidities and side effects of therapy
- Dizziness, headache, asthenia, postural hypotension, rhinitis, sexual dysfunction, retrograde ejaculation , floppy iris syndrome, nasal congestion

Medical Management: alpha blockers

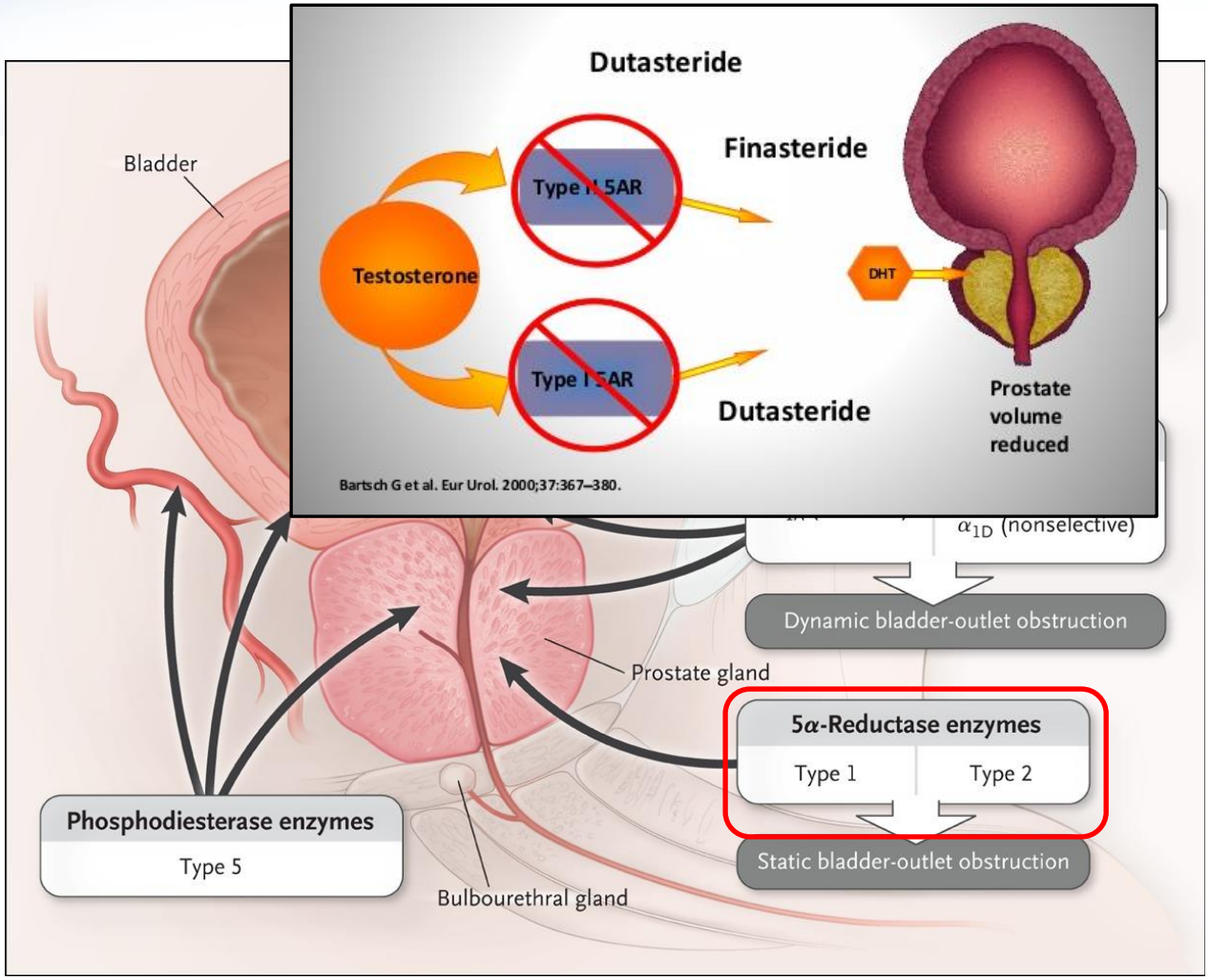


N Engl J Med 2012; 367:248-257

α1-adrenoceptor blockers		
Non-Selective		
Doxazosin	1-8mg	α1a-, α1b-, and α1d
Terazosin	1-20mg	α1a-, α1b-, and α1d
Alfuzosin	10mg	α1a-, α1b-, and α1d
Selective		
Tamsulosin	0.4-0.8mg	α1a > α1b
Silodosin	4-8mg	α1a >> α1b

- Orthostatic hypotension (nonselective)
- Retrograde/Anejaculation (selective)
- Floppy Iris Syndrome
- Nasal congestion

Medical Management: 5-alpha reductase inhibitors

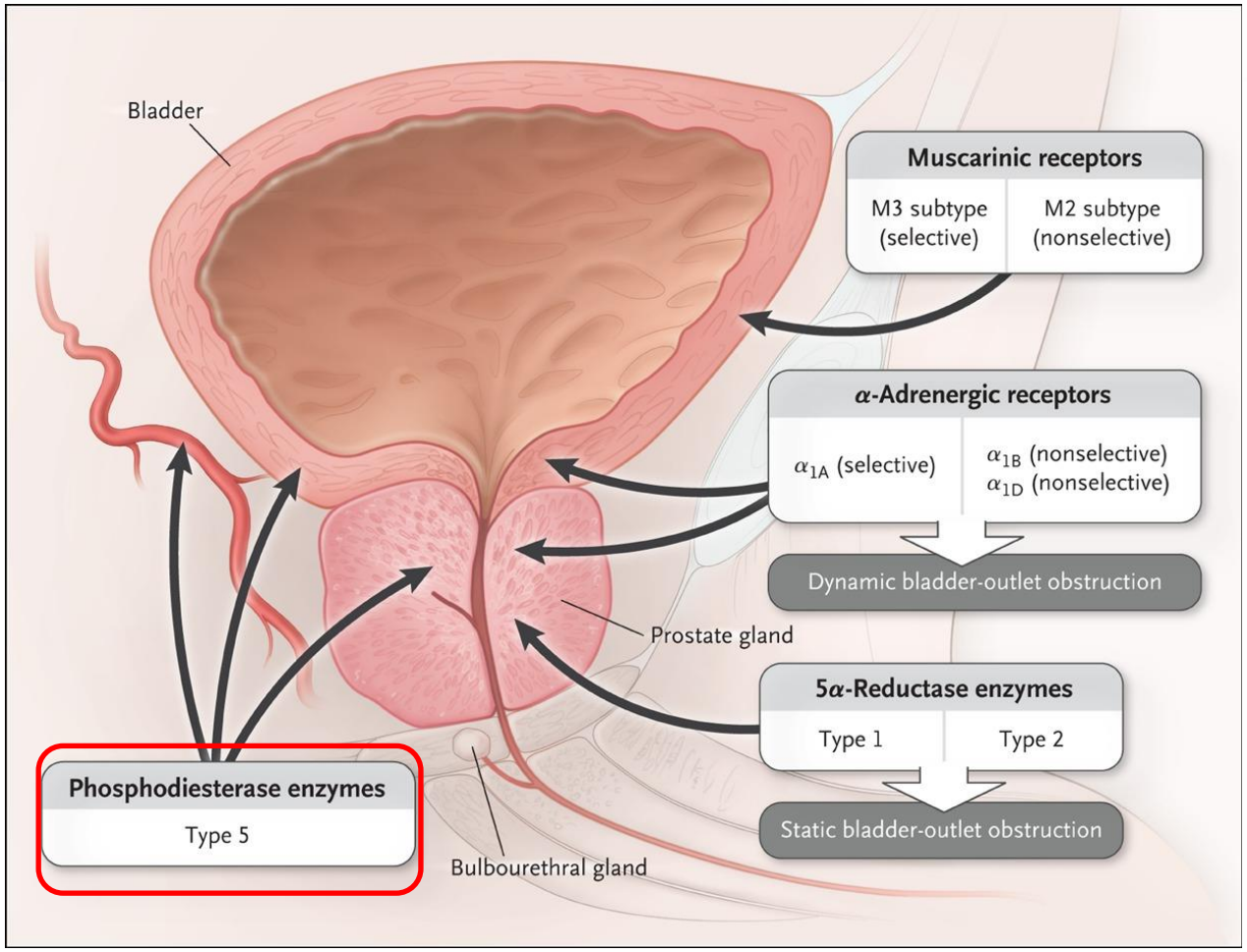


N Engl J Med 2012; 367:248-257

Drug Name	Mechanism	Dose	Adverse effects
Finasteride	Inhibits type II isozyme	5mg qd	decreased libido, impotence, decreased ejaculate, ejaculation disorder, breast enlargement, breast tenderness, and rash
Dutasteride	Inhibits type I and type II isozyme	0.5mg qd	impotence, decreased libido, gynecomastia, and ejaculation disorder

- 57-79% ↓risk urinary retention
- 48-69% ↓risk need for surgery
- Prostate volume: 15-32% decrease
  - Effect maximal at 6 months
- Useful for prostate volume >40cc
- ED (8%), ↓libido (6%), gynecomastia (0.5%)

Medical Management: PDE-5 inhibitors

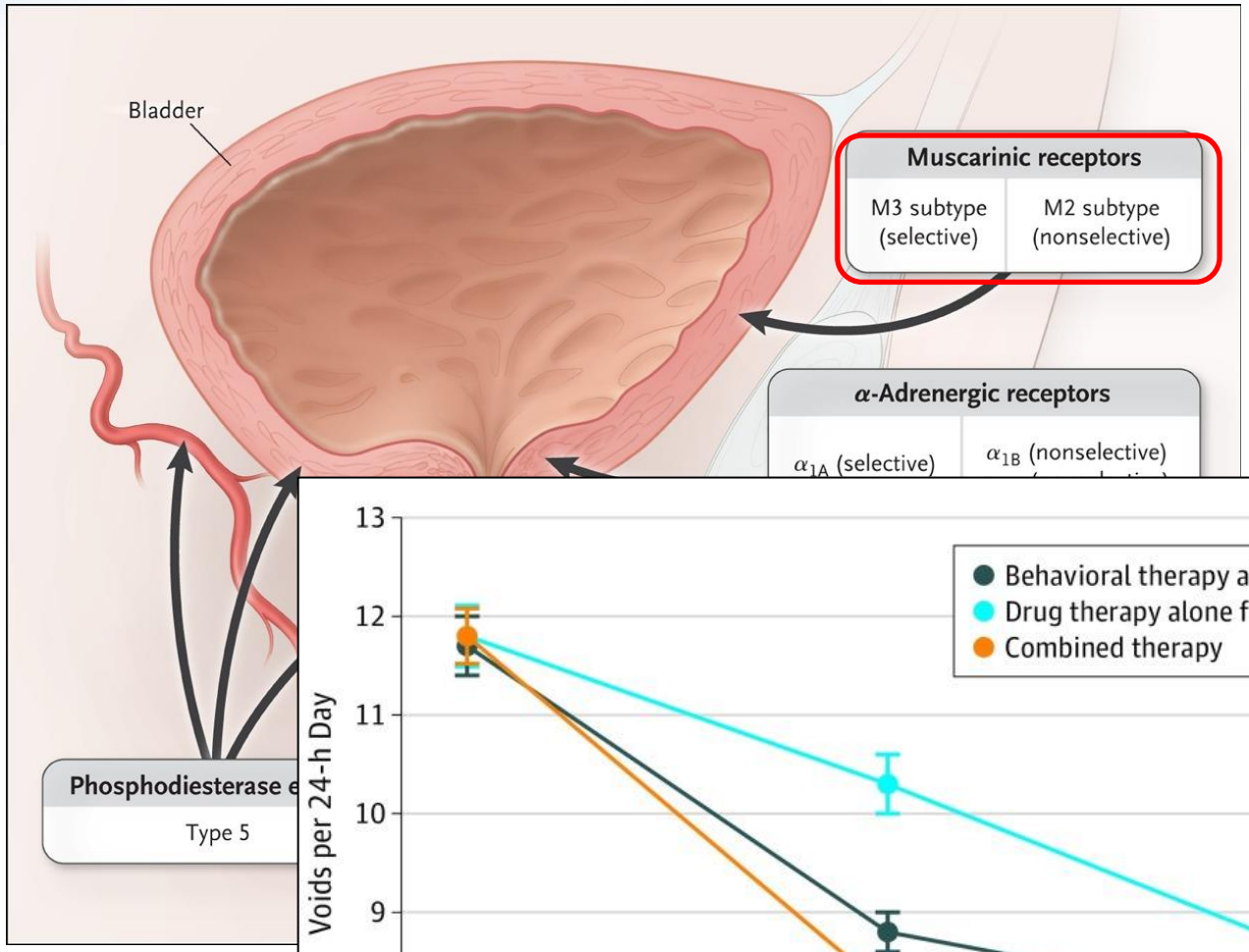


N Engl J Med 2012; 367:248-257

- Significant improvements in I-PSS and QoL
- No major changes in PVR or Qmax
- 50% response at 1 week, 70% at 4 weeks
- Headache (10-20%), back pain (3%), dyspepsia (4-10%)

- All agents lead to improvements in LUTS
- Greater satisfaction compared to alpha blockers

Medical Management: OAB and BPH



- OAB is secondary due to BPH
  - often with median lobes
- Treatment of the BPH will improve OAB in up to 70% of men
- Behavioral therapy
- Combination of alpha blocker and anticholinergic / beta3 agonist
  - reduce AUA-SS 6-8.5

Side effects: Dry mouth (20-40%), Constipation (10-20%), Retention (1-6%)

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JAMA Intern Med. 2020 Mar; 180(3): 411–419

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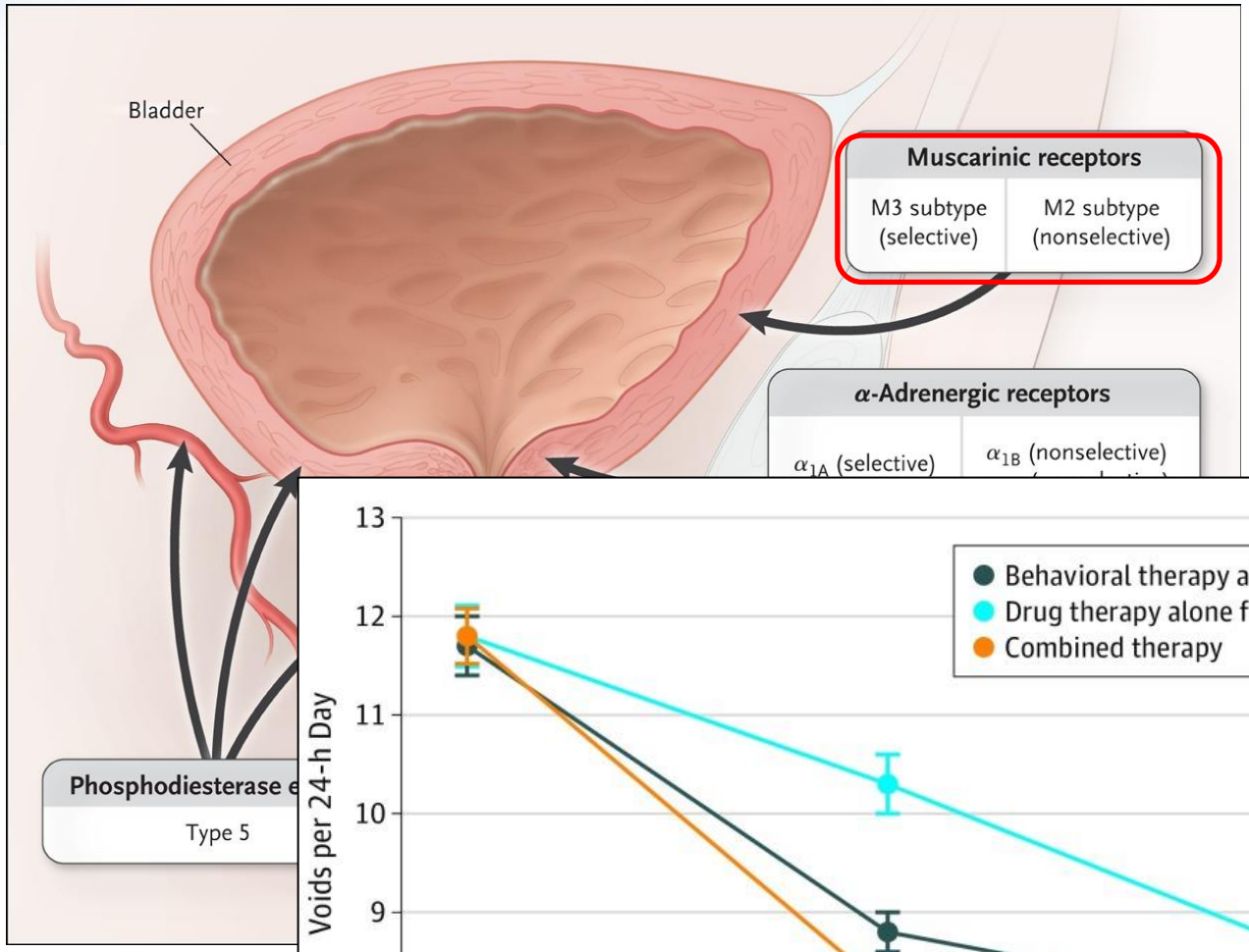
Medical Management: OAB and BPH



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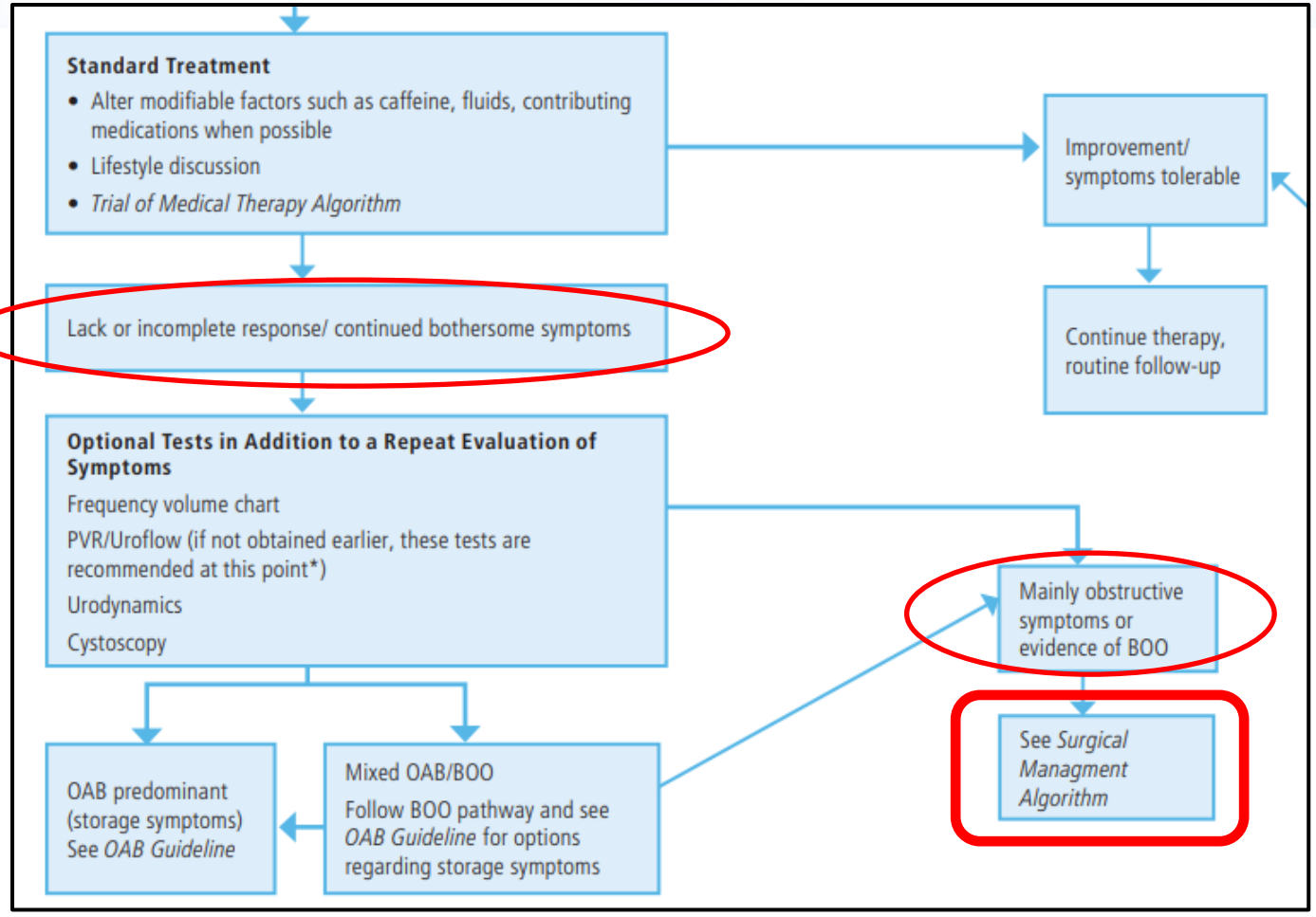
Medications are not without long term risk

- Alpha blockers: cardiac failure, cognitive (dementia)
- 5ARIs: psychological depression, suicidality
- Sexual dysfunction
- Poor patient compliance
- **One size does not fit all: need personalized approach**

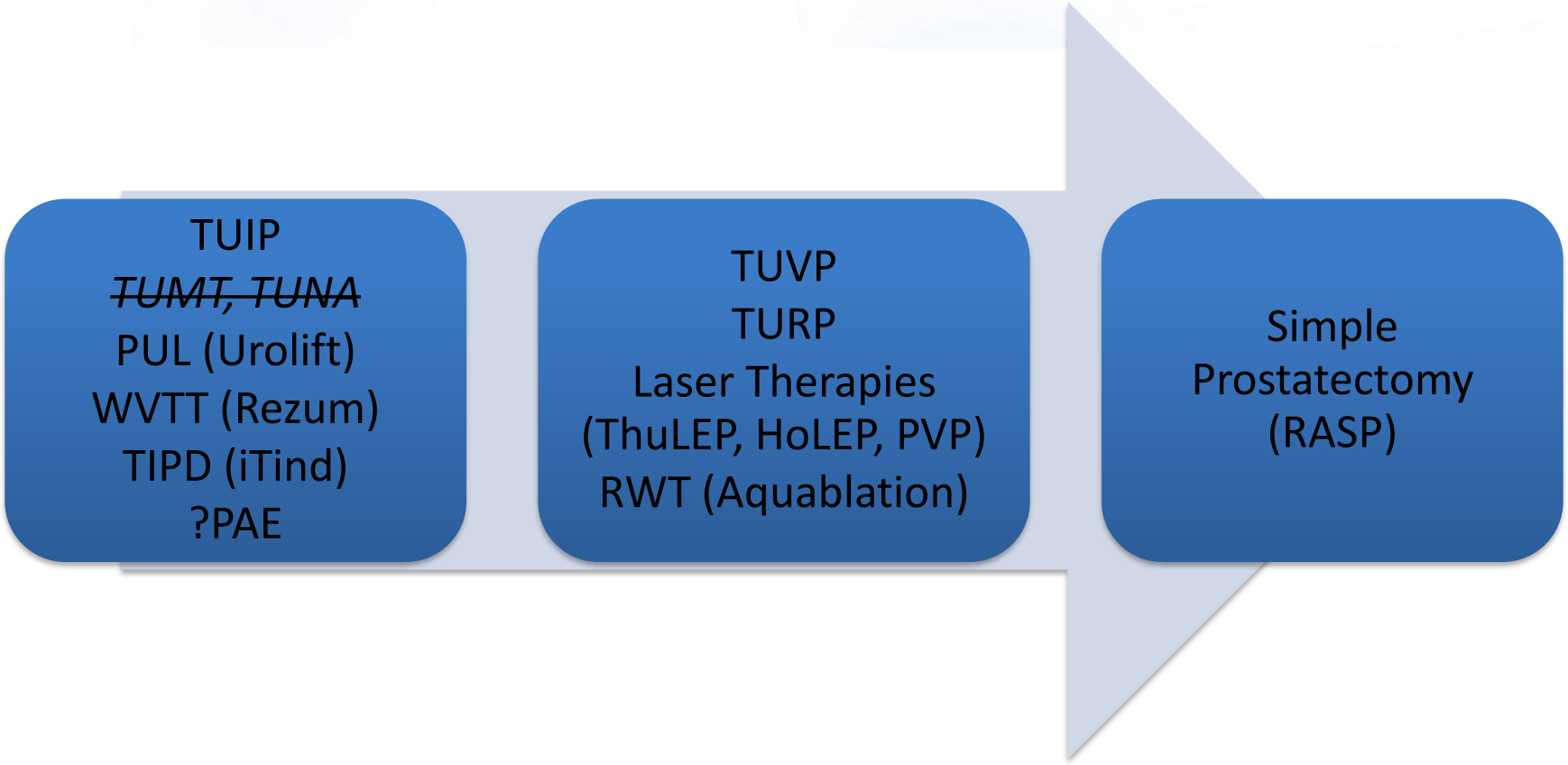
SURGICAL MANAGEMENT

When to refer to a Urologist for BPH surgery



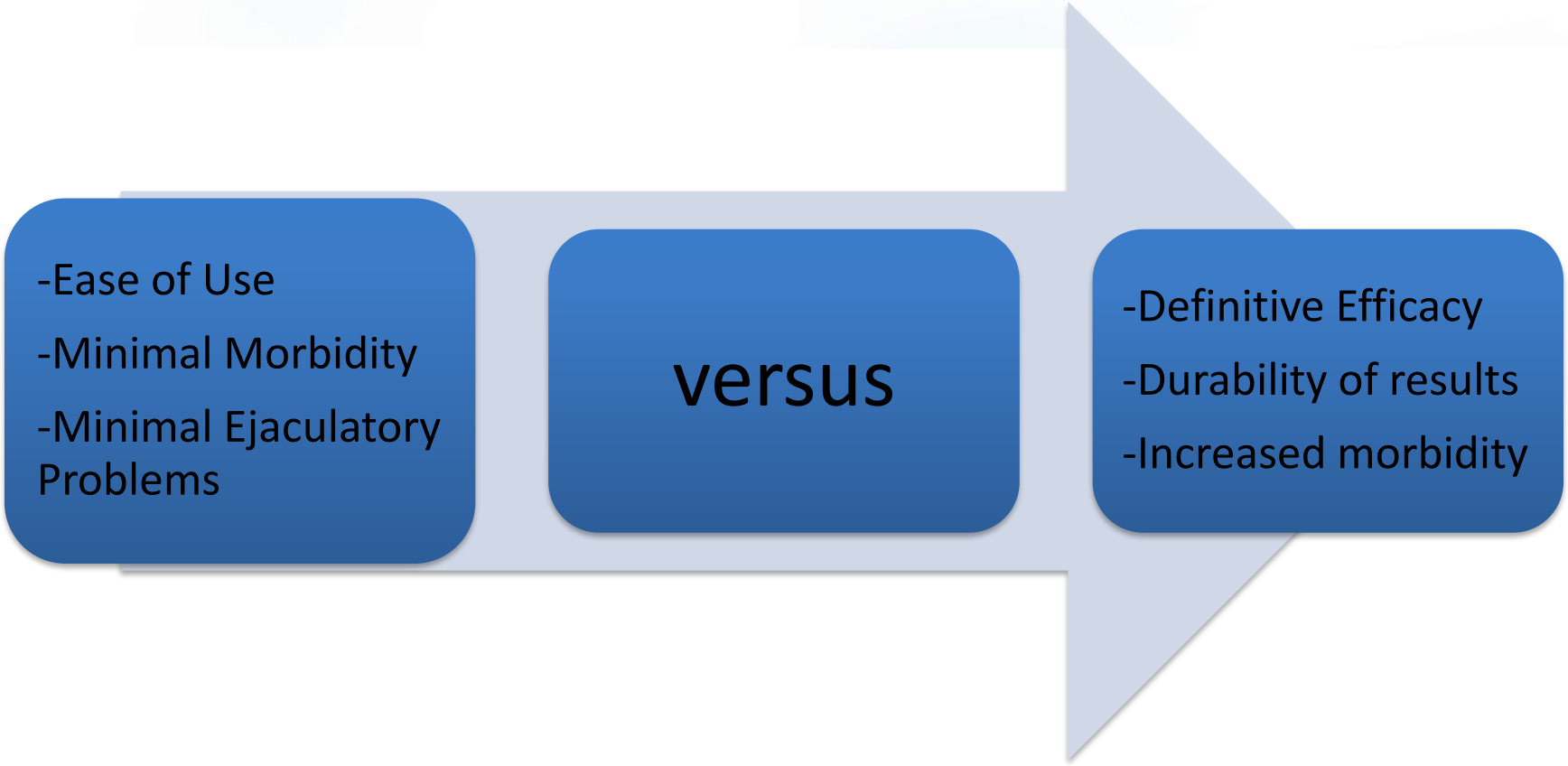
- Failure/intolerance of medical therapy
- Recurrent UTIs
- Refractory urinary retention
- Refractory gross hematuria
- Recurrent bladder stones
- Renal insufficiency due to outlet obstruction

BPH: MIST and Surgical Therapies



Invasiveness

BPH: MIST and Surgical Therapies

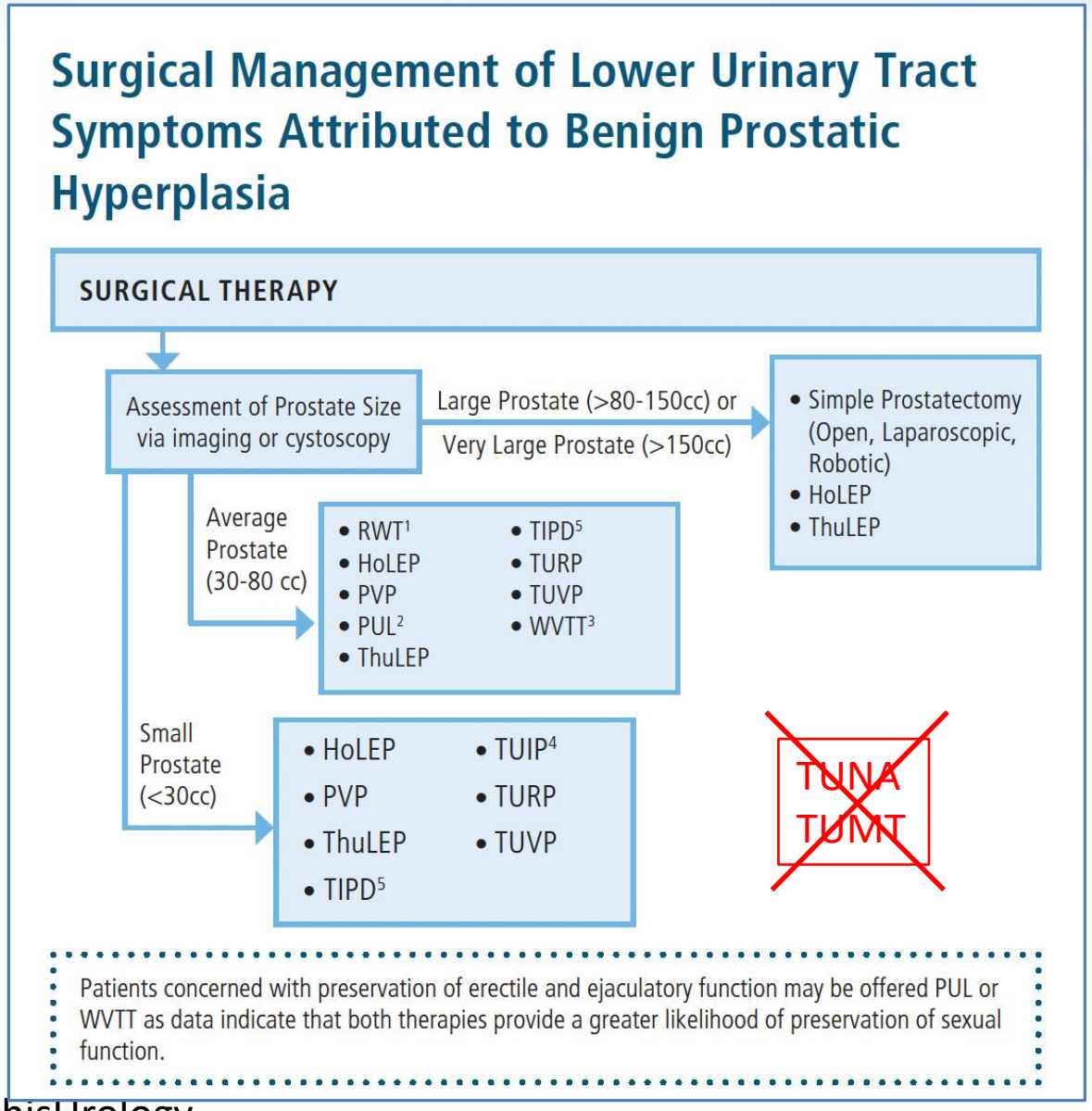


Invasiveness

What is the patient most bothered by? What are their goals for treatment?

- Storage vs. Voiding Symptoms
  - May need medication for persistent urgency
- Patient preferences
  - No catheter
  - Preserve ejaculatory function
  - Fast return to normal activity
  - Avoid postop symptoms
  - Low retreatment rate
- Patient and anatomic factors
  - Comorbidities, bleeding risk, poor anesthesia candidate
  - Prostate size, shape (ie, median lobe)

AUA Guideline on Surgical Management of BPH 2023



RWT: Aquablation *PUL: Urolift*
WVTT: Rezum *TIPD: iTind*

MEDICALLY COMPLICATED PATIENTS

In patients who are at higher risk of bleeding, such as those on anticoagulation drugs, therapies with a lower need for blood transfusion, such as HoLEP, PVP, and ThuLEP, should be considered. For additional information on the use of anticoagulation and antiplatelet therapy in surgical patients, refer to the ICUD/AUA review on Anticoagulation and Antiplatelet Therapy in Urologic Practice.

Based on the evidence reports of the current guidelines, the following criteria are recommended when utilizing these approaches:

[1] RWT: prostate volume 30-80cc.

[2] PUL: absence of obstructing midline prostate tissue and prostate volume 30-80cc.

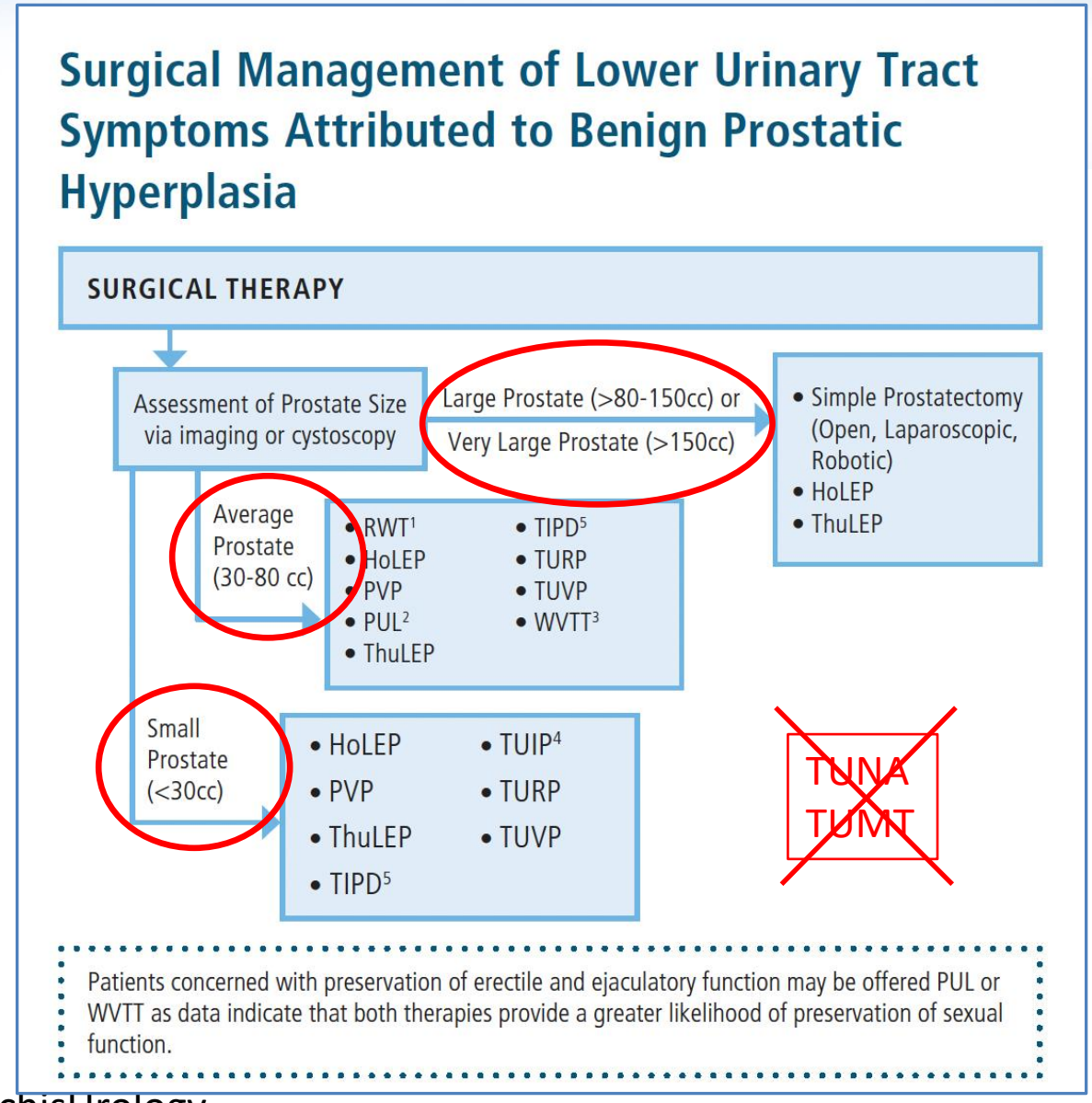
[3] WVTT: prostate volume 30-80cc.

[4] TUIP: prostate volume ≤30cc.

[5] TIPD: prostate volume 25-75cc and absence of obstructive middle lobe

Sandhu JS, Bixler BR, Dahm P, et al. J Urol 2023

AUA Guideline on Surgical Management of BPH 2023



Considerations:

Size

Median lobe

Ejaculation Preferences

RWT: Aquablation *PUL: Urolift*

WVTT: Rezum *TIPD: iTind*

MEDICALLY COMPLICATED PATIENTS

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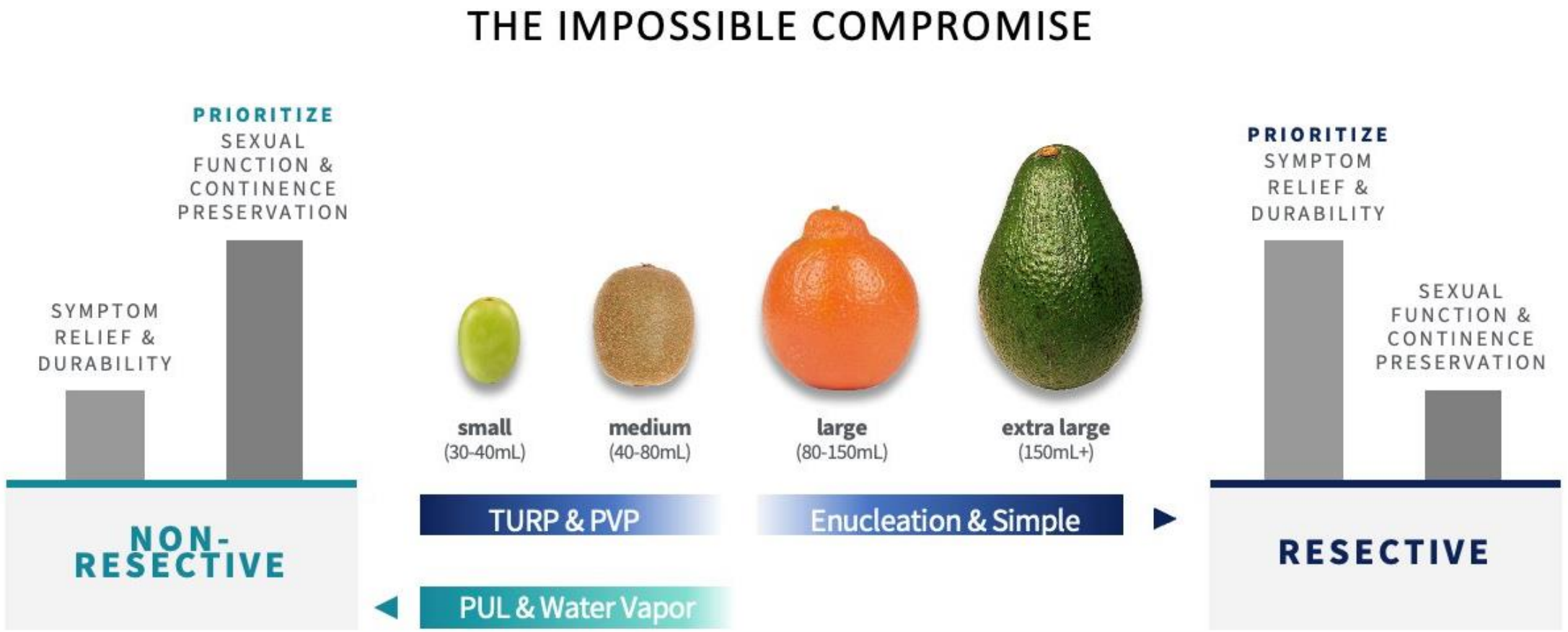
Sandhu JS, Bixler BR, Dahm P, et al. J Urol 2023

Most Procedures Require A Prioritization of Desired Outcomes



MIST THERAPY
MINIMALLY INVASIVE SURGICAL THERAPY

*Prostatic Urethral Lift (Urolift)

- Permanent implants retract lateral lobes
- Rapid relief, minimal catheter need, preserve ejaculatory and erectile function

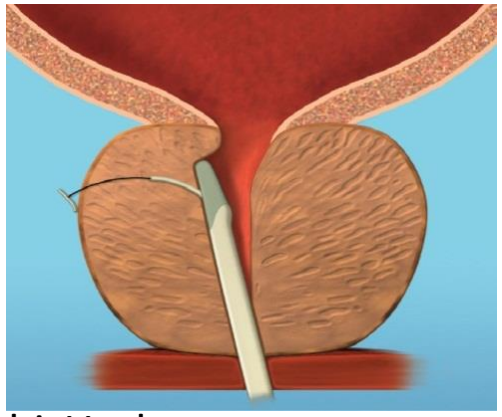
PROSTATIC URETHRAL LIFT (PUL)

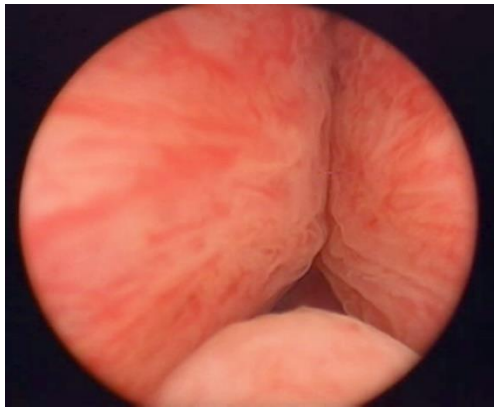
GUIDELINE STATEMENT 34

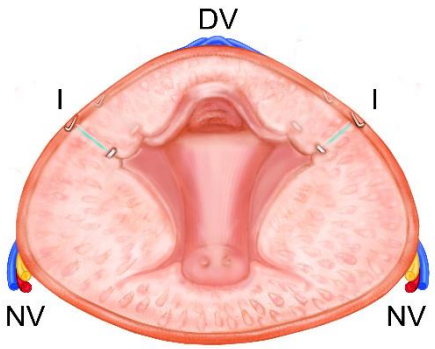
PUL should be considered as a treatment option for patients with LUTS/BPH provided prostate volume 30-80g and verified absence of an obstructive middle lobe. (*Moderate Recommendation; Evidence Level: Grade C*)

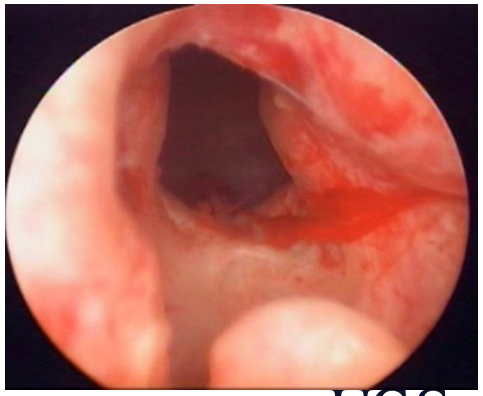
GUIDELINE STATEMENT 35

PUL may be offered as a treatment option to eligible patients who desire preservation of erectile and ejaculatory function. (*Conditional Recommendation; Evidence Level: Grade C*)









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McVary KT et al. J Sex Med 2013

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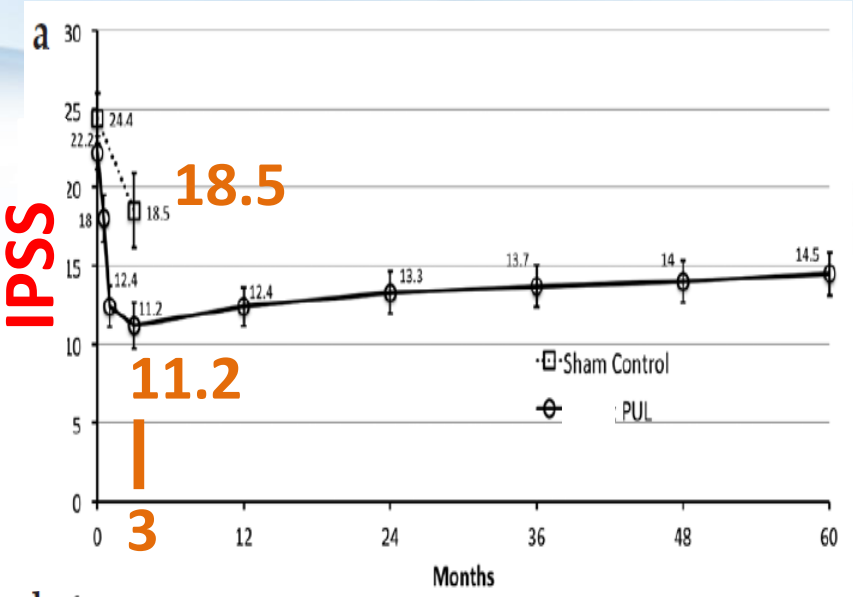
PUL: L.I.F.T. Study

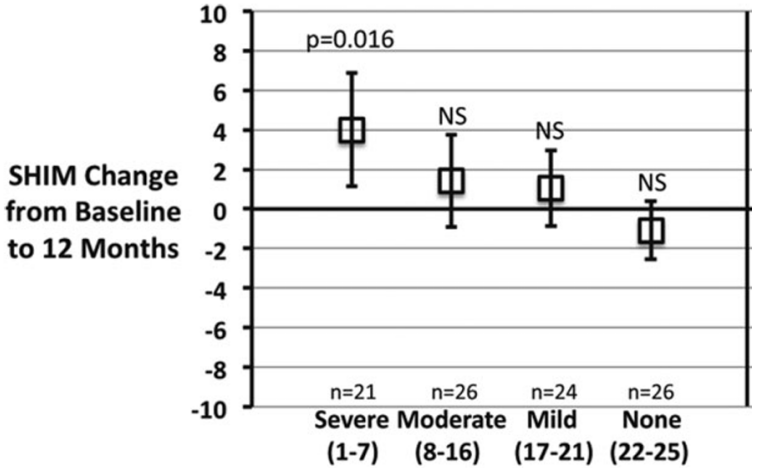
- 206 patients, 30-80g prostate, average 4.9 implants
- RCT (144 Urolift vs 66 SHAM)

  Excluded median lobe
- 32% failed void trial→catheter for avg 0.9 days
- Return to normal activity by 8.6 +-7.5 days
- 1 month: IPSS 22.3→12.3 (88% better than sham)



No new onset sustained sexual dysfunction (EjD or ED)

MSHQ-EjD bother and function stable up to 5 yrs



Koehrboom et al. L.I.F.T. Study. Can J Urol 2017.

McVary KT et al. J Sex Med 2014

PUL

Mild-mod adverse effects usually resolve within 2-3 weeks

No new onset sustained sexual dysfunction (EjD or ED)

5 yrs: 13.6% surgical retreatment, 10.7% use of BPH meds

May reduce quality of prostate MRIs for elevated PSA workup*

TABLE 1. **Adverse events over 5 year course of study**

Time period [months]	0-3	4-12
Total available subjects	140	139
Total subject-months (SM)	413.6	1210.3
Related adverse events [total events]	162	15
Related adverse events [subjects]	100	12
% SM with adverse event per total SM:		
Abdominal pain	0.3%	
Bladder spasm	0.3%	0.09%
Chills (rigors)		
Diarrhea	0.2%	
Dizziness	0.2%	
Fever (pyrexia)	0.06%	
Vomiting	0.02%	
Hypotension	0.04%	
Orchitis/epididymo-orchitis	0.3%	
Painful erection	0.2%	
Urinary retention	0.4%	
Urethral stenosis (stricture)	< 0.01%	< 0.01%
Prostatitis	0.4%	< 0.01%
Urinary tract infection	0.1%	0.03%
Pelvic pain	6%	1%
Hematuria	4%	0.2%
Dysuria	9%	1%
Urinary urge incontinence	3%	3%
Other	4%	3%

Prostate Cancer and Prostatic Diseases (2019) 22:411–419
https://doi.org/10.1038/s41391-018-0118-x

ARTICLE

Clinical Research

Prostatic Urethral Lift (PUL) for obstructive median lobes: 12 month results of the MedLift Study

Daniel Rukstalis[1] · Douglas Grier[2] · Sean P. Stroup[3] · Ronald Tutrone[4] · Euclid deSouza[5] · Sheldon Freedman[6] · Richard David[7] · Jed Kamientsky[8] · Gregg Eure[9]

Observational cohort study (45 pts)
Improved Qmax, IPSS, EjD function
Not in AUA Guidelines

Roehrborn C et al. L.I.F.T. Study. Can J Urol 2017. Rukstalis D et al. Pros Cancer and Pros Dis 2019. *Benidir T et al. JU Insight. J Urol 2023.

*Water Vapor Thermal Therapy (Rezum)

- Convective water therapy→ablates prostate contained within the capsule

WATER VAPOR THERMAL THERAPY (WVTT)

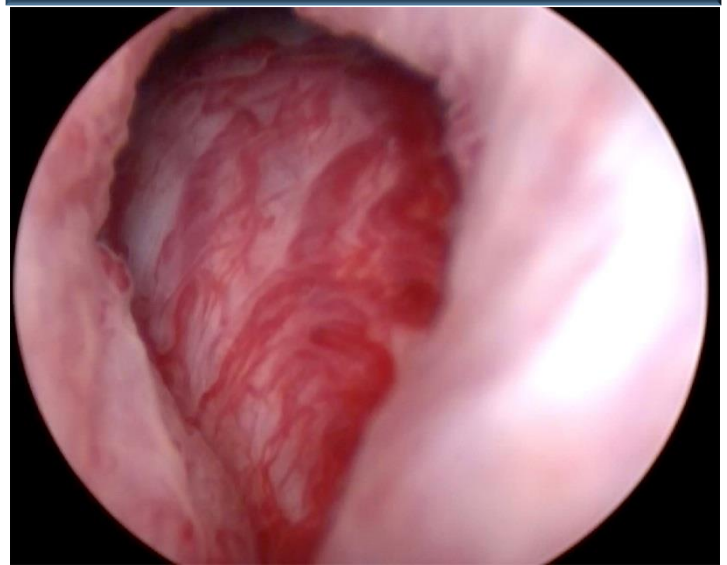
GUIDELINE STATEMENT 36

WVTT should be considered as a treatment option for patients with LUTS/BPH provided prostate volume 30-80g. (*Moderate Recommendation; Evidence Level: Grade C*)

GUIDELINE STATEMENT 37

WVTT may be offered as a treatment option to eligible patients who desire preservation of erectile and ejaculatory function. (*Conditional Recommendation; Evidence Level: Grade C*)

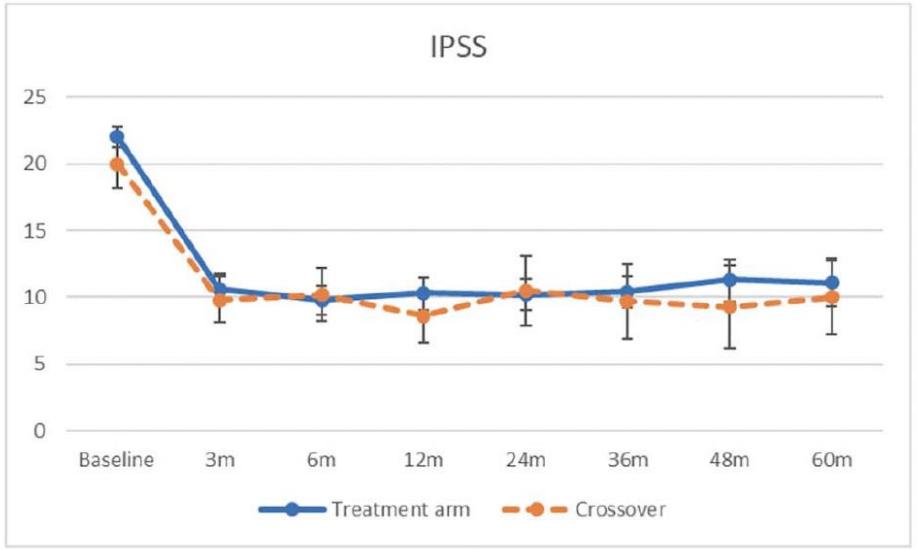
Pre-Treatment



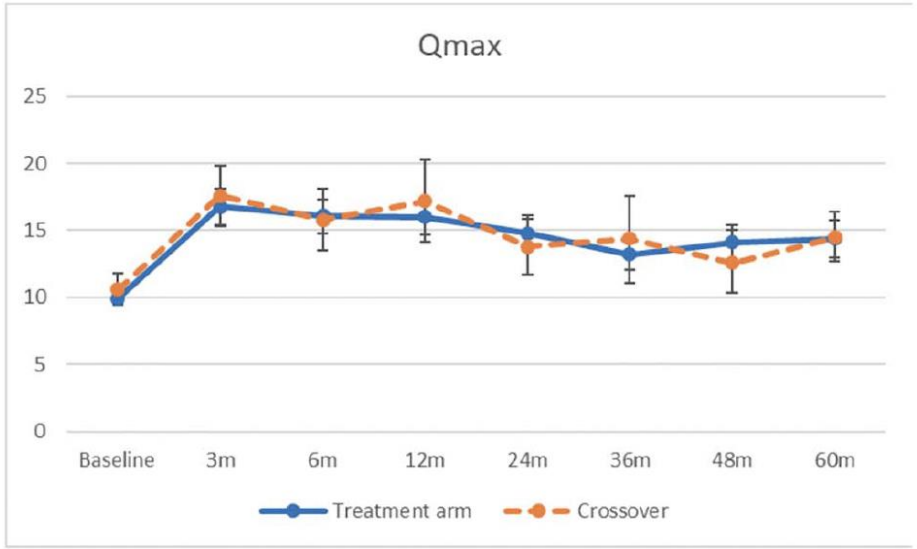
6-Month

WVTT: Rezum Study

- 197 patients, 30-80g prostate size, 4.5 median injections
  - 31% had median lobe (additional 1.6 treatments)
- RCT (135 Rezum vs 61 SHAM)
- 90.4% required catheter for mean 3.4 days
- Return to normal activity by median 4 days
- Improvement as early as 2 weeks, maximum at 3-6 months



(A) IPSS



(C) Qmax

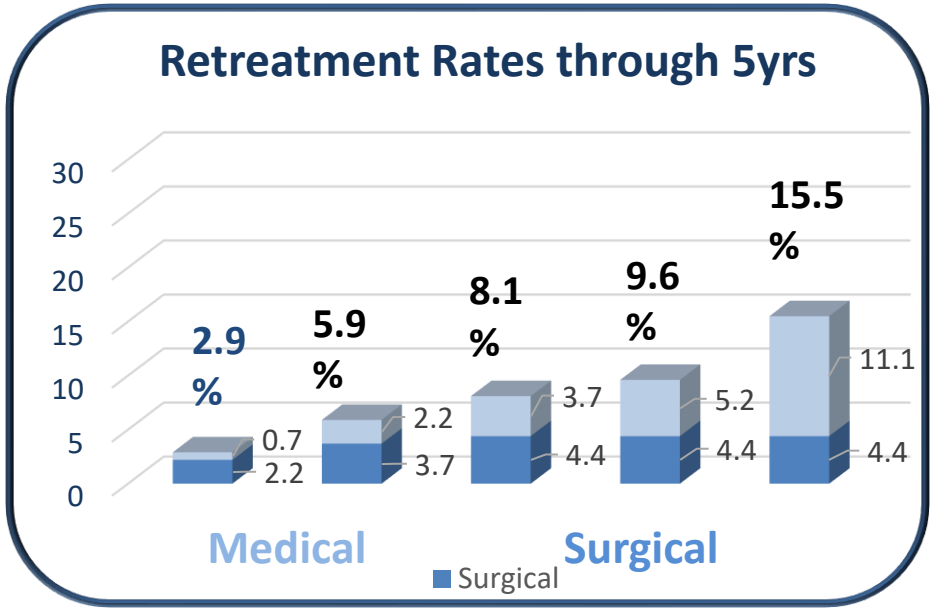
Table 4. *Changes in outcomes in thermal treatment group from baseline through 12 months*

	2 Wks	1 Mo	3 Mos	6 Mos	12 Mos
I-PSS:					
No. (paired values)	130	132	134	129	120
Mean ± SD baseline	21.9 ± 4.8	21.8 ± 4.7	22.0 ± 4.8	22.0 ± 4.8	21.8 ± 4.8
Mean ± SD followup	18.6 ± 7.1	14.5 ± 7.2	10.6 ± 6.4	9.8 ± 6.2	10.2 ± 6.6
Change ± SD	−3.2 ± 7.8	−7.4 ± 8.1	−11.3 ± 7.6	−12.2 ± 7.6	−11.7 ± 7.2
% Change (95% CI)	−12 (−18, −5)	−31 (−37, −25)	−50 (−55, −44)	−54 (−59, −49)	−53 (−58, −47
p Value	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
Qmax:					
No. (paired values)		133	133	125	117
Mean ± SD baseline		9.9 ± 2.3	9.9 ± 2.3	9.9 ± 2.2	9.8 ± 2.2
Mean ± SD followup		13.1 ± 5.5	16.1 ± 7.3	15.4 ± 6.5	14.9 ± 6.8
Change ± SD		3.2 ± 5.2	6.2 ± 7.1	5.5 ± 6.3	5.1 ± 6.3
% Change (95% CI)		36 (26, 46)	67 (53, 80)	61 (48, 73)	54 (42, 66)
p Value		<0.0001	<0.0001	<0.0001	<0.0001

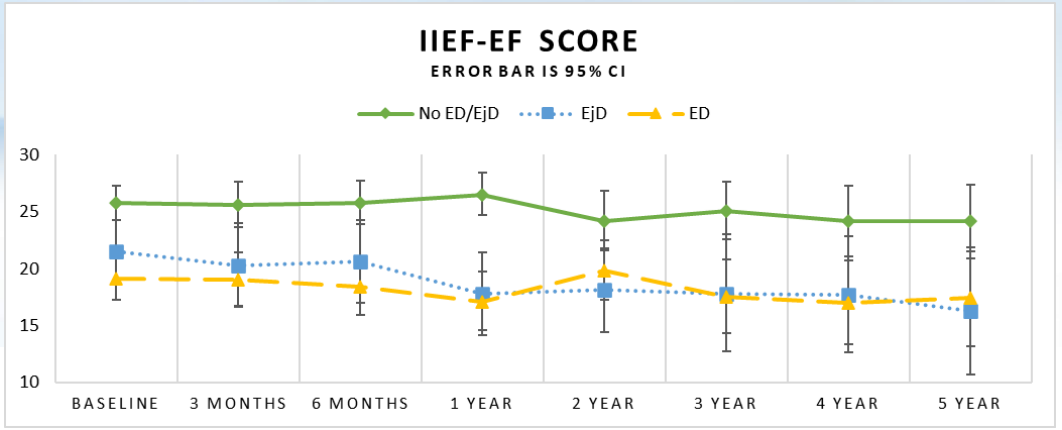
McVary KT, Roehrborn CG et al. J Urol 2016; J Urol 2017; J Urol 2020; J Urol 2021

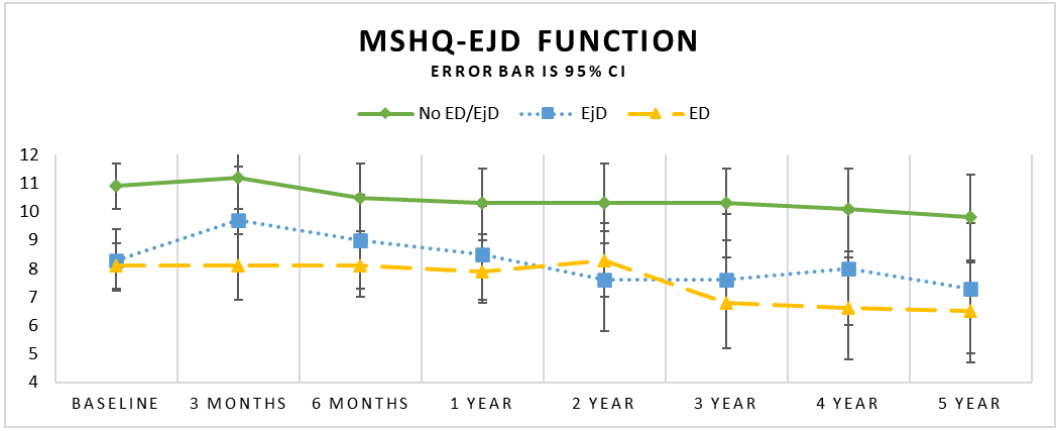
WVTT: Rezum Study

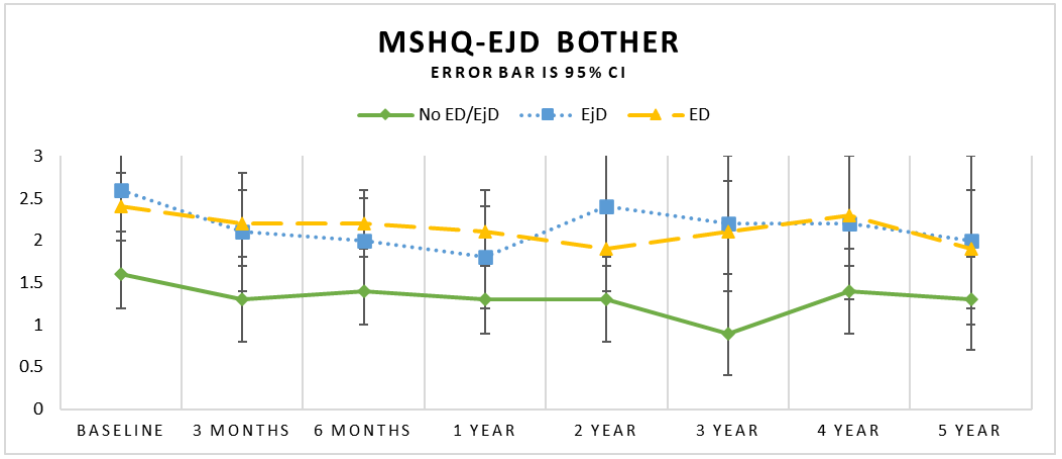
- Dysuria (17%), hematuria (12%), hematospermia (7%), urgency (6%), retention (4%), decreased Ej volume (3%), anejaculation (3%) resolve within 3 weeks
- After 3 months: Dysuria (0.7%), decreased Ej vol (1.5%)
- No impact on erectile or ejaculatory function



5 yrs:
4.4% surgical retreatment
11.1% BPH meds







McVary KT, Roehrborn CG et al. Sex Medicine 2021.

@BechisUrology

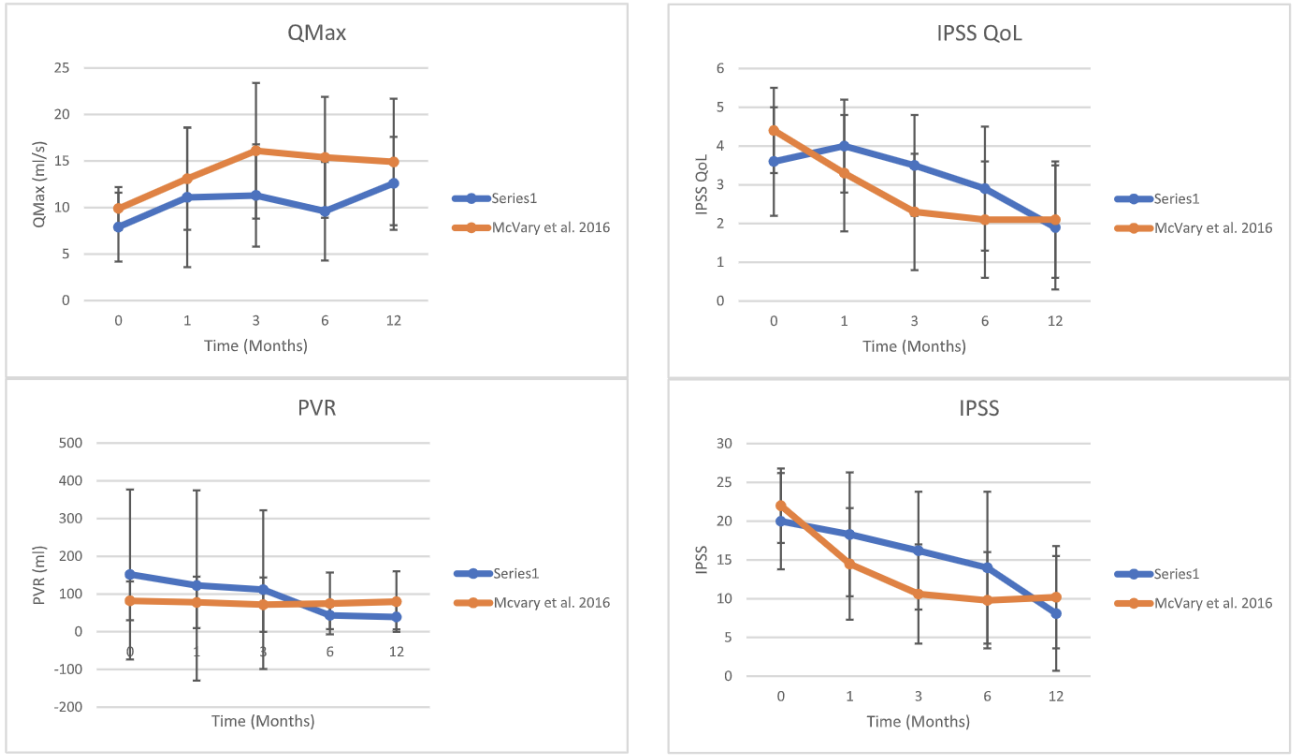
Prostatic Diseases and Male Voiding Dysfunction

Pilot Study of "Less is More" Rezum for Treatment of BPH

Oluwatobi Aladesuru, Koby Amankwah, Dean Elterman, Kevin C. Zorn, Naeem Bhojani, Alexis Te, and Bilal Chughtai

UROLOGY 165: 256–260, 2022.

- 1 treatment per lobe is comparable to standard therapy
- May take longer to achieve maximum results, but less irritation along the way
- 12.5% vs 43.4% AEs



Prostatic Diseases and Male Voiding Dysfunction

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UROLOGY 165: 256–260, 2022.

- 1 treatment per lobe is comparable to standard therapy
- May take longer to achieve maximum results, but less irritation along the way
- 12.5% vs 43.4% AEs

Feasibility assessment of catheter-free water vapor thermal therapy for treatment of benign prostatic hyperplasia

Vi Nguyen [1], Joshua Winograd [2], Alia J Codelia-Anjum [2], Kevin C Zorn [3], Dean Elterman [4], Naeem Bhojani [3], Seth K Bechis [5], Bilal Chughtai [6]

- Catheter-free WVTT is feasible in well selected patients and enhances both voiding and symptom scores

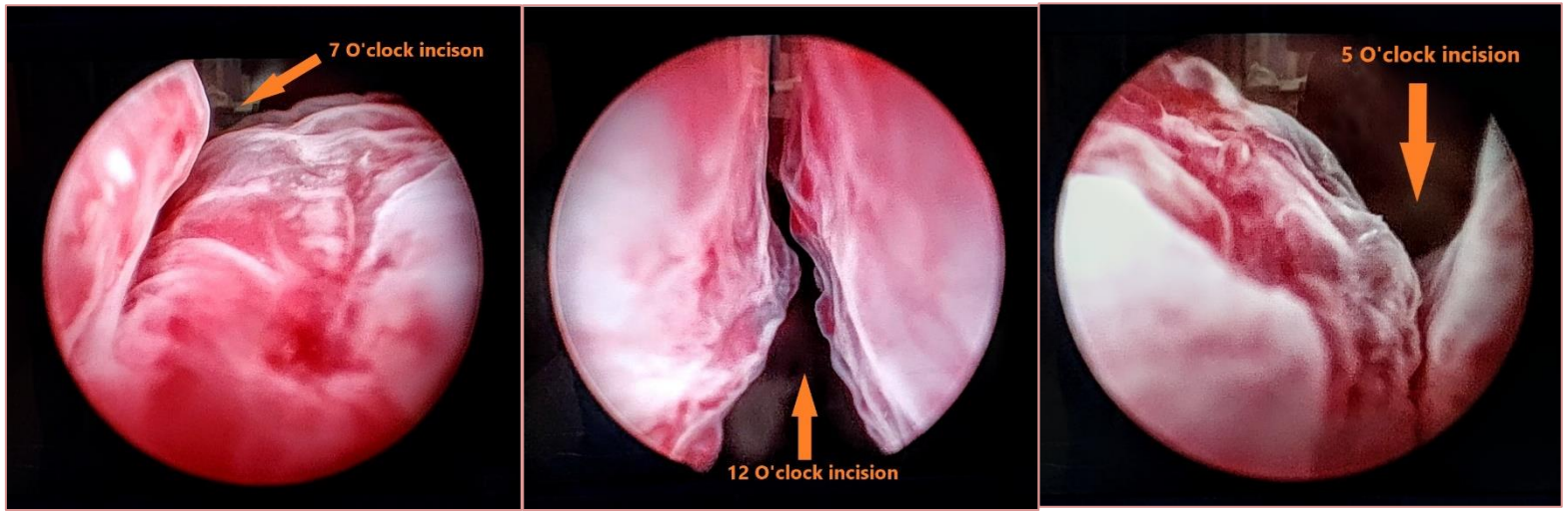
Nguyen V et al. *W Jour Urol.* **42**, 1 (2024).

*Temporarily Implanted Prostatic Devices (iTind)

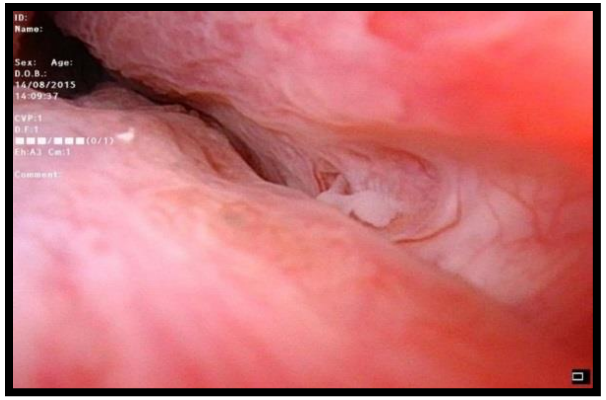
- Deep, bloodless incisions created through ischemic pressure and subsequent necrosis→permanently remodel the prostatic urethra and bladder neck

> TEMPORARY IMPLANTED PROSTATIC DEVICES (TIPD)
>
> GUIDELINE STATEMENT 41
>
> **TIPD may be offered as a treatment option for patients with LUTS/BPH provided prostate volume is between 25 and 75g and lack of obstructive median lobe. (*Expert Opinion*)**

Ischemic incisions immediately after device removal (5-7 days)



12 months after removal



TIPD: iTind

- 185 patients, 25-75g prostate size
- RCT (118 iTIND vs 57 SHAM)

  Excluded median lobe, PVR>250, Qmax>12, IPSS<10
- 78.6% vs 60% IPSS improvement @3 mos (21.6→12.7)
- Qmax improved @12 mos (8.4→11.9 ml/s)
- No change in IIEF or SHIM @12 mos
- Sustained at 4 years

No sexual or ejaculatory dysfunction, regardless of age, prostate size, or baseline ED status

Prostatic Diseases and Male Voiding Dysfunction

The iTind Temporarily Implanted Nitinol Device for the Treatment of Lower Urinary Tract Symptoms Secondary to Benign Prostatic Hyperplasia: A Multicenter, Randomized, Controlled Trial

Bilal Chughtai*, Dean Elterman*, Neal Shore, Marc Gittleman, Jay Motola, Sheldon Pike, Craig Hermann, William Terrens, Alfred Kohan, Ricardo R. Gonzalez, Aaron Katz, Jeffery Schiff, Evan Goldfischer, Ivan Grunberger, Le Mai Tu, Mark N. Alshak, and Jed Kaminetzky

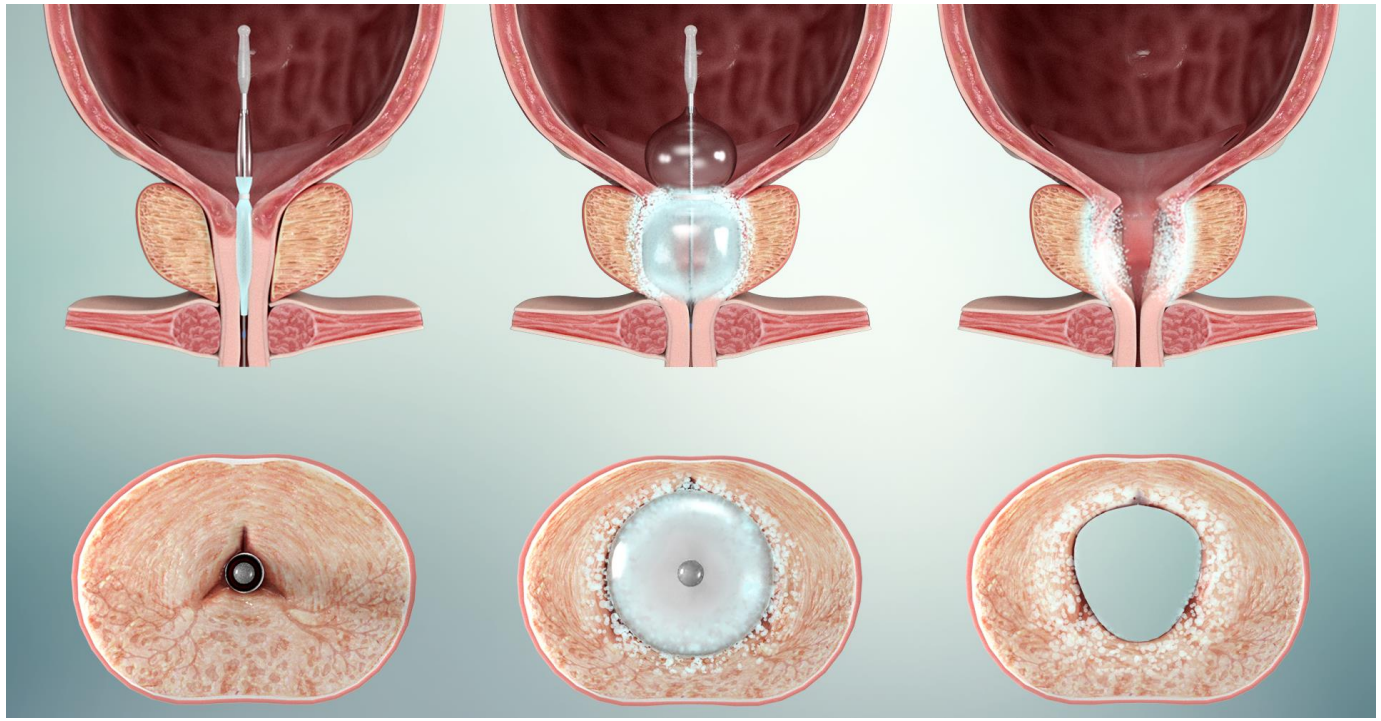
Table 3. Overview of adjudicated adverse events

	iTind Group 0-30 days			Sham Group 0-30 days			iTind Group 1-3 months			iTind Group 3-12 months		
	Events (n)	Subjects (n)	Subjects (%)	Events (n)	Subjects (n)	Subjects (%)	Events (n)	Subjects (n)	Subjects (%)	Events (n)	Subjects (n)	Subjects (%)
Serious AEs	16	10	7.8	2	2	3.5						
Related serious	5	3	2.3									
All AEs	109	45	38.1	19	10	17.5						
Related AEs	81	39	33.1	4	4	7	2	2	1.6	1	1	0.8
Dysuria		27	22.9		5	8.8						
Hematuria		16	13.6									
Micturition urgency		6	5.1		1	1.8						
Pollakiuria		8	6.8		1	1.8						
Urinary retention		7	5.9				1	1	0.8			
Urinary tract infection		2	1.7				1	1	0.8		1	0.8
Sepsis		1	0.8									
Pain		1	0.8									

Amparore D et al. Minerva Urology and Nephrology 2023 *Chughtai B et al. Urology 2021.* *Chughtai B et al. J Urol 2021.*

*Optilume System

- Optilume BPH is a minimally invasive surgical therapy that **combines mechanical dilation with concurrent localized delivery of paclitaxel** for treating BPH-induced lower urinary tract symptoms. ***NOT YET IN AUA GUIDELINES***



Optilur
invasiv
combi
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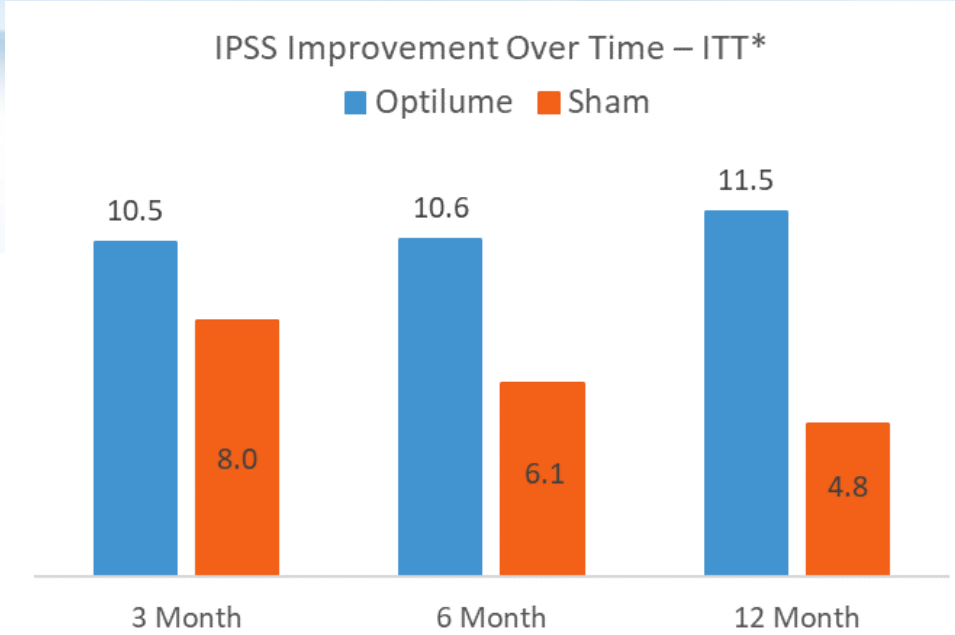
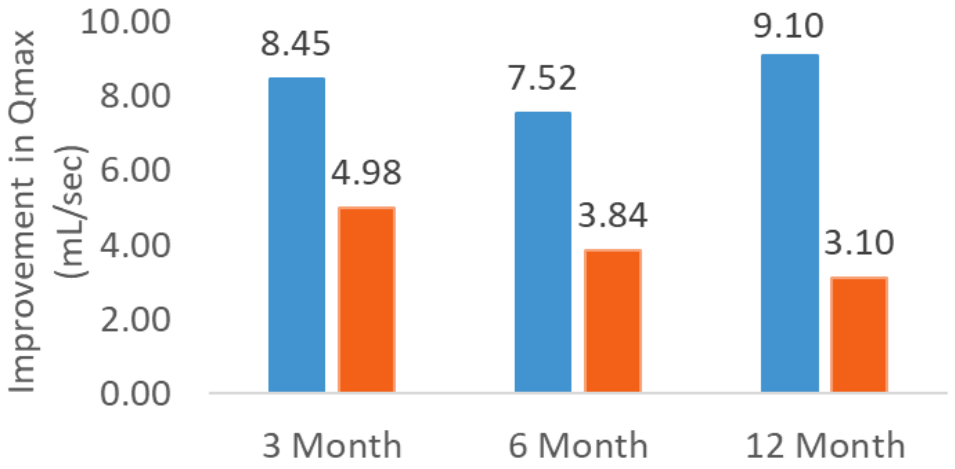
sympt

Optilume

- PINNACLE TRIAL:
- Significant immediate increase in Qmax observed immediately post treatment and sustained through 4 year follow-up.
- PVR improvement after treatment with the Optilume BPH device has been maintained through 4 years

No sexual or ejaculatory dysfunction, regardless of age, prostate size, or baseline ED status





Amparore D et al. Minerva Urology and Nephrology 2023 *Chughtai B et al. Urology 2021.* *Chughtai B et al. J Urol 2021.*

TRADITIONAL SURGICAL THERAPY

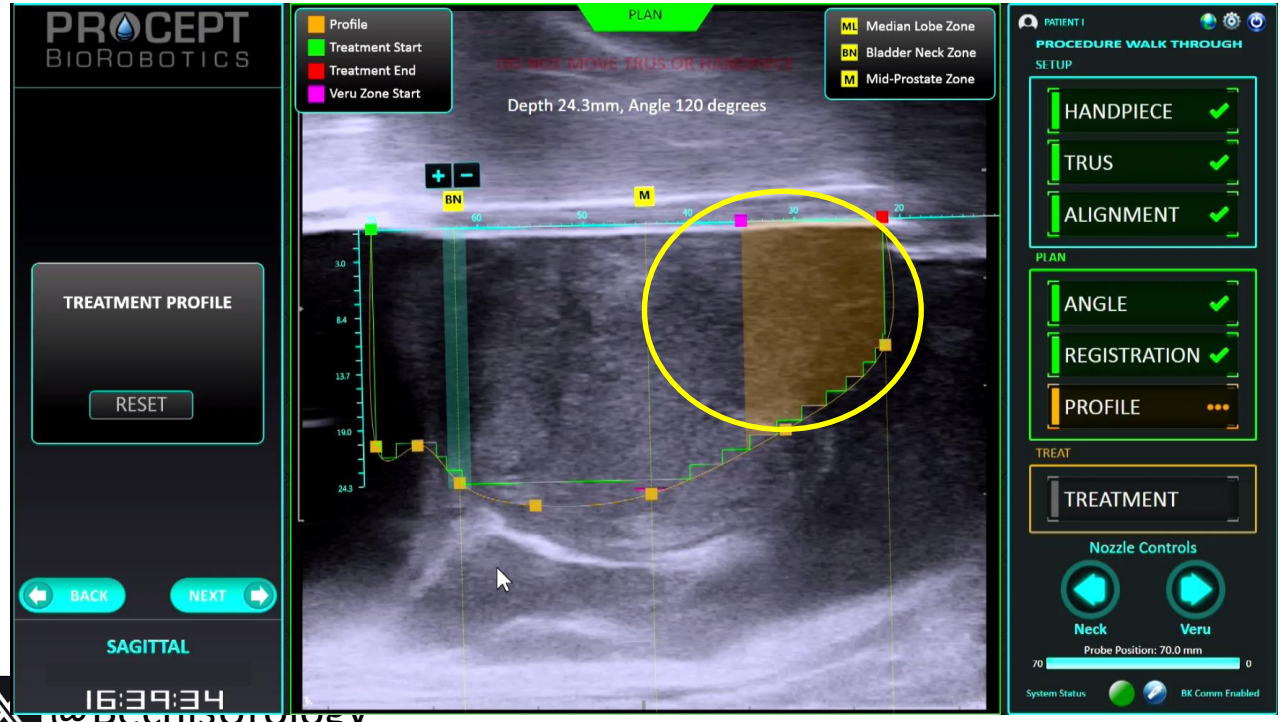
*Robotic Waterjet Treatment (Aquablation)

- Ultrasound guided water jet resects tissue, then TURP for hemostasis

ROBOTIC WATERJET TREATMENT (RWT)

GUIDELINE STATEMENT 39

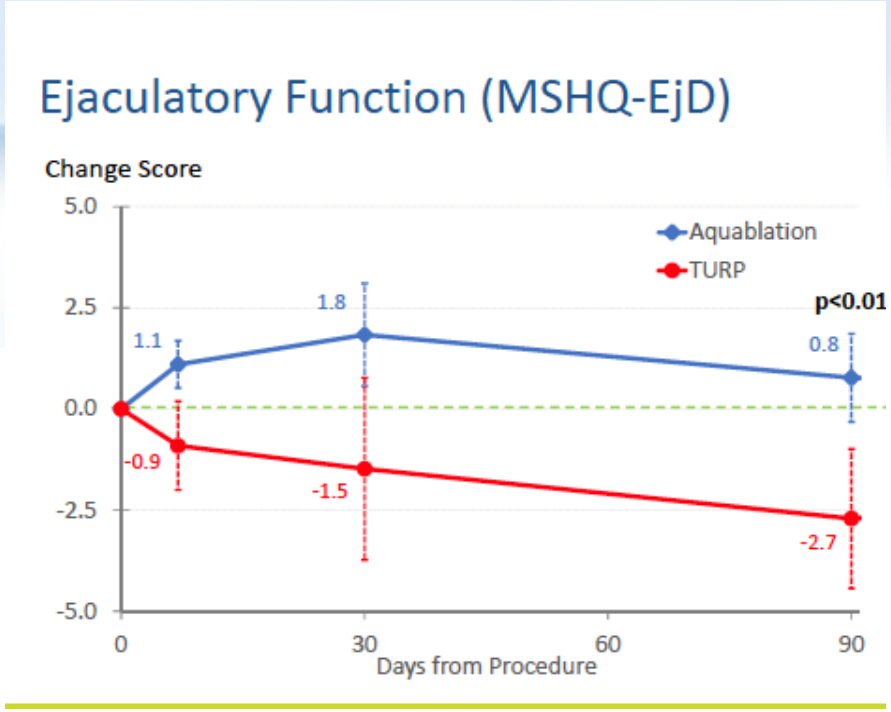
Robotic waterjet treatment (RWT) may be offered as a treatment option to patients with LUTS/BPH provided prostate volume 30-80g. (*Conditional Recommendation; Evidence Level: Grade C*)

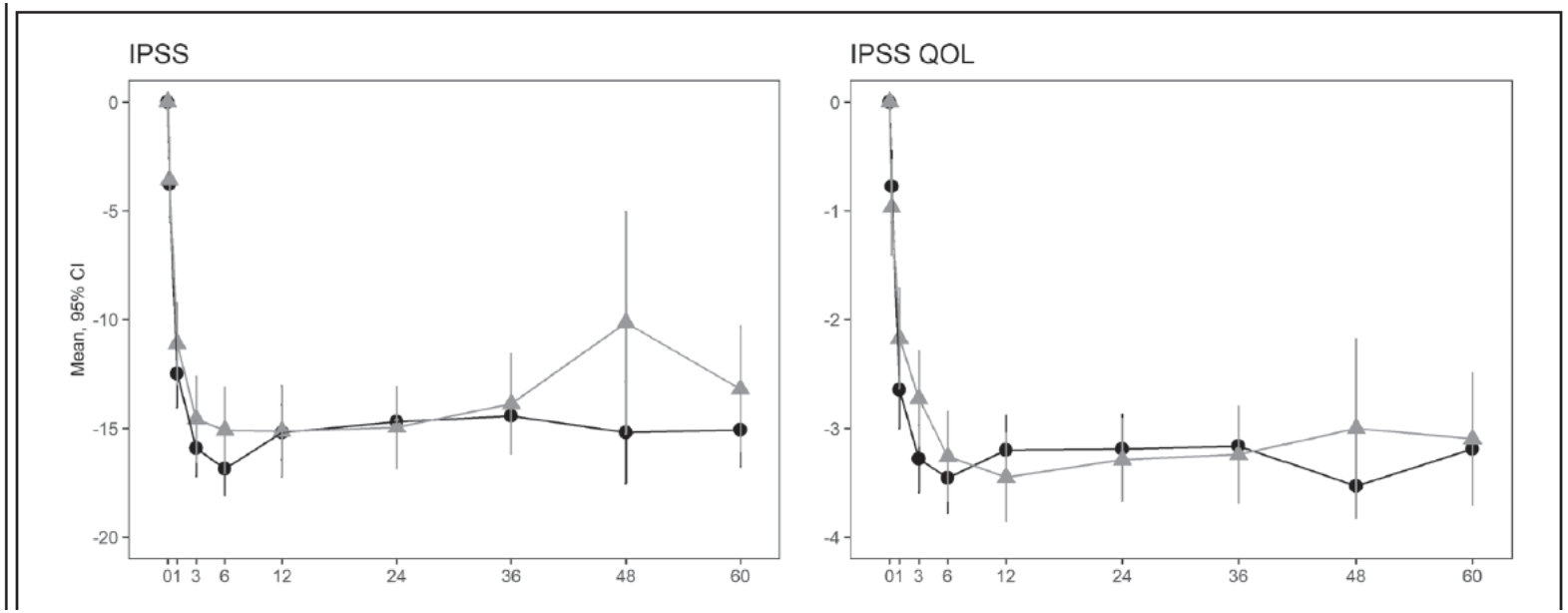


UC San Diego Health

RWT: Water Study

- 181 patients, 30-80g prostate size
  - 50% had median lobe
- RCT (116 Aquablation vs 65 TURP)
- 10% vs 36% anejaculation @3yrs
- 6% retreatment @5 yrs (12% TURP)

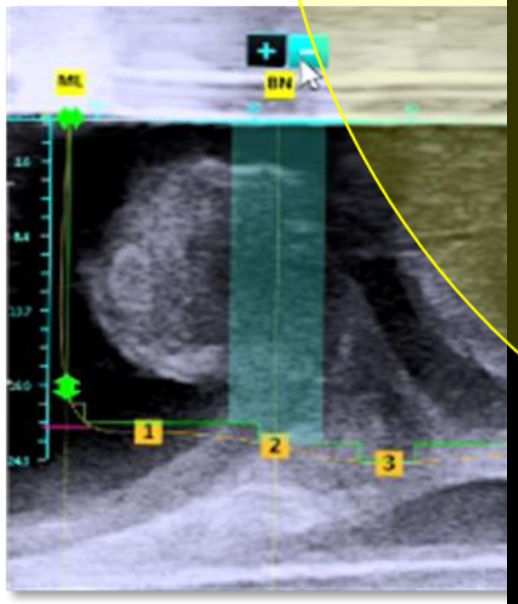


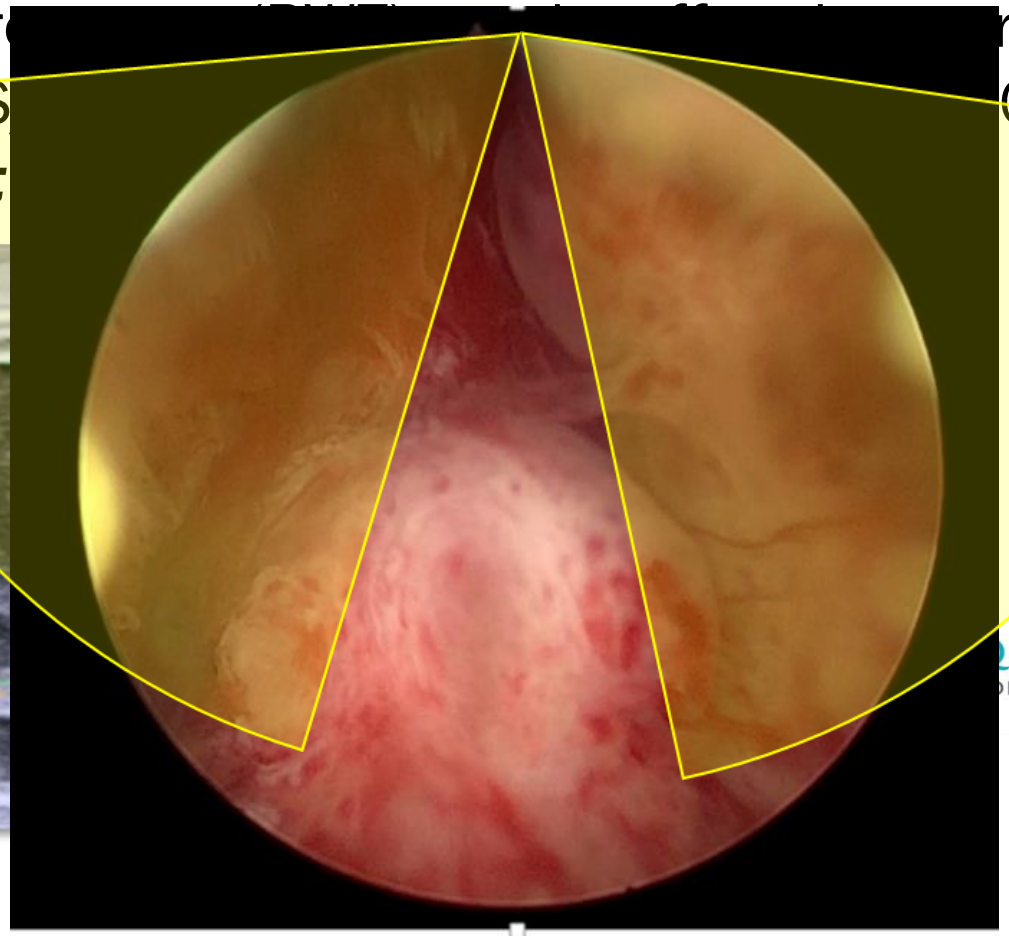


Gilling PJ, Roehrborn CG et al. Canadian J Urol 2022; Gilling PJ, Roehrborn CG et al. J Urol 2018

WATER JET ABLATION OF PROSTATE (AQUABLATION)

Robotic waterjet tr[illegible]reatment option to patients with LUTS[illegible]0g. (*Conditional Recommendation;*





Northwell Health Physician Partners®

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AQUABLATION

30 – 80 mL
51% obstructive median lobe

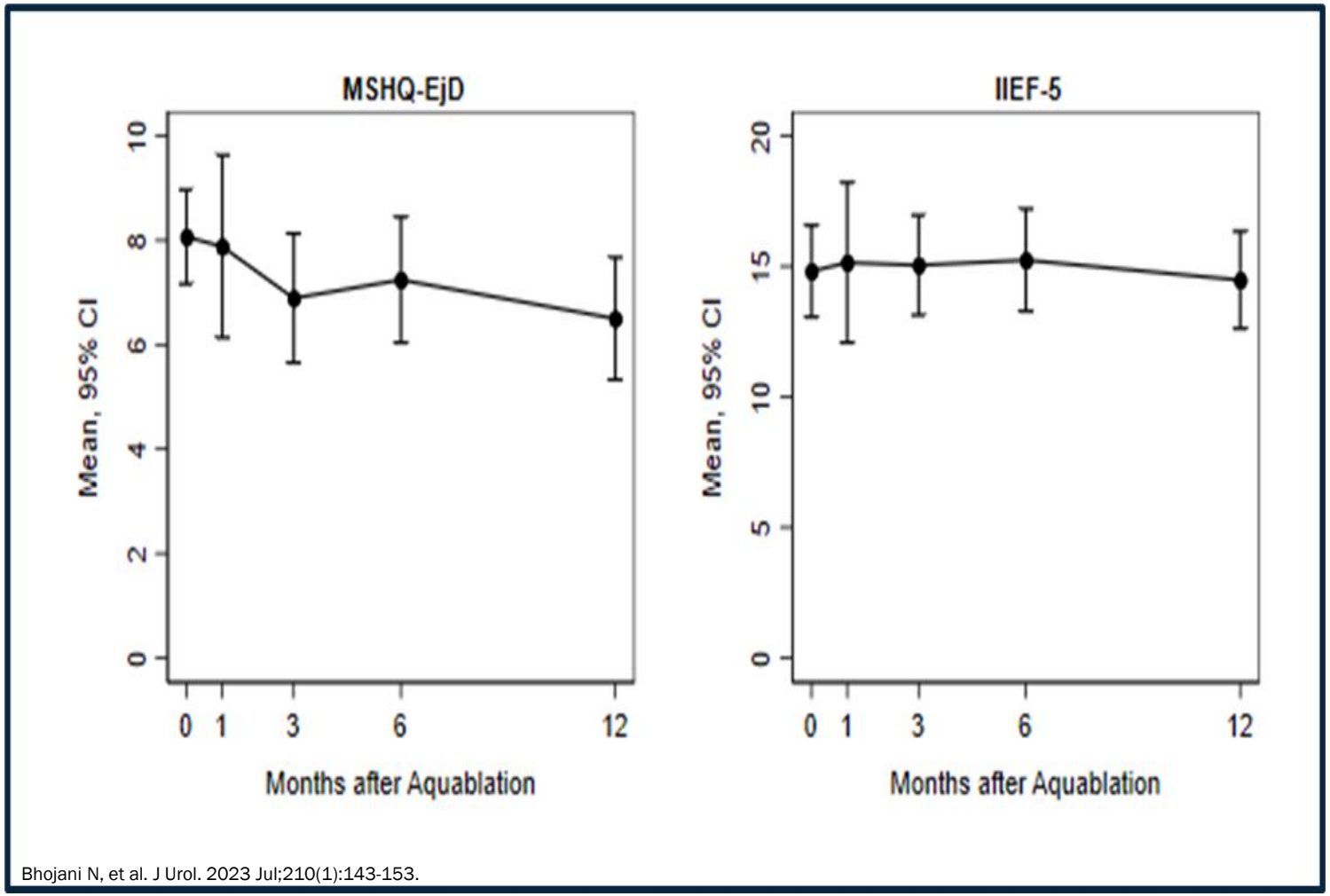
17 Sites

4 Countries

			TURP
DURABILITY at 5 years	Surgical & Medical Retreatment	6%	12%
EFFICACY improvement over baseline at 5 years	Symptom Improvement (IPSS)	69% Δ15.1 pts	61% Δ13.2 pts
	Quality of Life Improvement (IPSS QoL)	67% Δ 3.2 pts	65% Δ 3.2 pts
	Peak Urinary Flow Rate Improvement (Qmax)	125% Δ 8.7 mL/sec	89% Δ6.3 mL/sec
SAFETY procedure related	Ejaculatory Dysfunction	7%	25%
	Erectile Dysfunction	0%	0%
	Incontinence	0%	0%

Gilling PJ et al. Can J Urol. 2022 Feb;29(1):10960-10968.

WATER II TRIAL (80-150 CC PROSTATES)



Bhojani N, et al. J Urol. 2023 Jul;210(1):143-153.

Northwell Health Physician Partners®

Plainview Hospital Northwell Health®

AQUABLATION META-ANALYSIS

IPSS IMPROVEMENT	16 points
URINARY PEAK FLOW RATE	20.5 mL/sec
QUALITY OF LIFE IMPROVEMENT	3.3 points
POST VOID RESIDUAL IMPROVEMENT	62 mL
EJACULATORY DYSFUNCTION	10.8%
ERECTILE DYSFUNCTION	0%
INCONTINENCE	0.5%

- 4 clinical studies with 425 patients
- Prostate volumes 20 – 150cc
- 1 year follow–up
- Greatest risk of anejaculation with >5mm cut depth below veru

Elterman D, et al. BMJ Surg Interv Health Technol. 2021 Jun 23;3(1):e000090.

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Plainview Hospital Northwell Health®

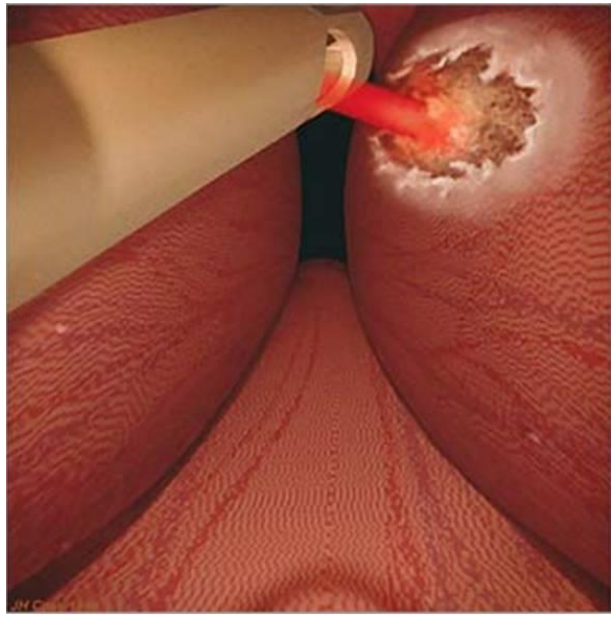
*Photoselective Vaporization of the Prostate

- 532nm greenlight laser
- Tissue ablation/vaporization with a thin layer of underlying coagulation

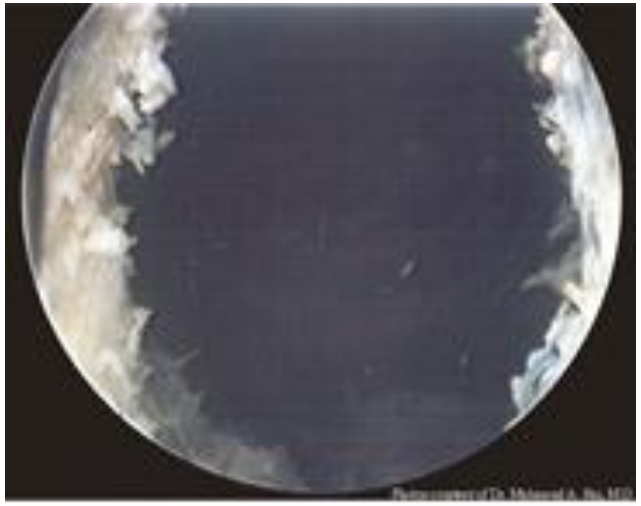
PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE (PVP)

GUIDELINE STATEMENT 33

PVP should be offered as an option using 120W or 180W platforms for the treatment of LUTS/BPH. (*Moderate Recommendation; Evidence Level: Grade B*)



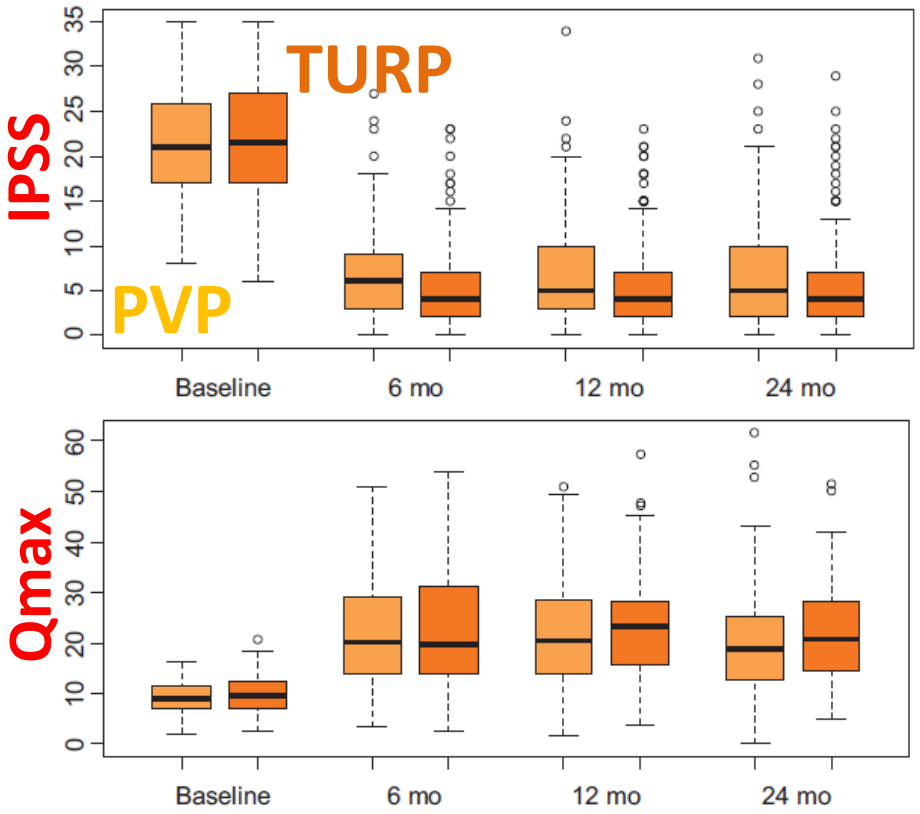
Pre-PVP Procedure



Immediate Post PVP

PVP: At least as good as TURP

- GOLIATH: PVP is noninferior to TURP at 2 yrs
  - 269 patients, 46g avg prostate size



World Journal of Urology (2021) 39:4389–4395
https://doi.org/10.1007/s00345-021-03688-4

ORIGINAL ARTICLE

Check for updates

Global Greenlight Group: largest international Greenlight experience for benign prostatic hyperplasia to assess efficacy and safety

Kyle W. Law[1] · Côme Tholomier[2] · David-Dan Nguyen[1] · Iman Sadri[1] · Félix Couture[3] · Ahmed S. Zakaria[4] · David Bouhadana[1] · Franck Bruyère[5] · Hannes Cash[6,7,8] · Maximilian Reimann[6] · Luca Cindolo[9] · Giovanni Ferrari[9] · Carlos Vasquez-Lastra[10] · Tiago J. Borelli-Bovo[11] · Edgardo F. Becher[12] · Vincent Misrai[13] · Dean Elterman[14] · Naeem Bhojani[4] · Kevin C. Zorn[4]

- 2011-2019, 3,627 patients
- Mean 64g, IPSS 22
- 60 months follow up
- 2.8% LUTS @6mos
- 0.7% Incontinence @6mos
- 1.5% Retreatment @5yrs

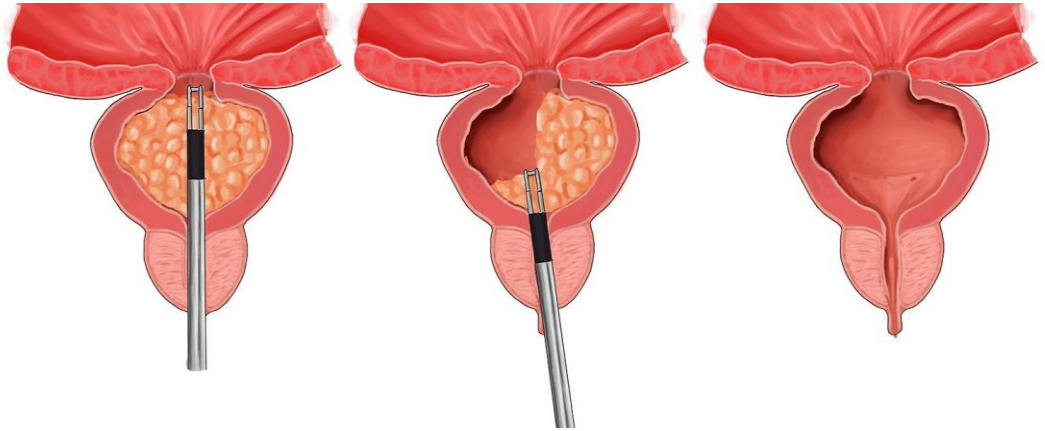
- **10-15% retreatment at 10 yrs**

Complication	Clavien–Dindo grade	Number of patients (%)
Perioperative		
Prostatic capsule perforation	IIIa	21 (1.4%)
Conversion to TURP	IIIa	47 (2.8%)
Early postoperative (< 30 days)		
30-day readmission	–	192 (13.3%)
# On anti-coagulants	–	58 (30%)
Fever	I	62 (4.0%)
UTI	I	118 (5.3%)
LUTS*	I	500 (22.6%)
OAB	I	6 (1.1%)
Incontinence	I	232 (10.5%)
Retention	I	164 (7.4%)
Hematuria	I	219 (9.9%)
Paraphimosis	I	1 (0.2%)
Hematuria	II	32 (4.3%)
Osteitis pubis	II	1 (0.2%)
Urosepsis	II	8 (0.5%)
Stenosis (urethra, meatus, bladder neck)	IIIb	1 (0.1%)
Arrhythmia	IVa	6 (0.4%)
Major cardiac event**	IVb	12 (0.8%)
Respiratory distress (desaturation)	IVb	3 (0.2%)
Death	V	4 (0.3%)
Long term at 5-year follow-up		
Bladder neck contracture	IIIb	11 (1.93%)
Urethral stricture	IIIb	5 (0.89%)
BPH recurrence requiring medical reintervention	II	19 (3.34%)
BPH recurrence requiring surgical reintervention	IIIb	10 (1.5%)

Bachmann A et al. GOLIATH Study. Eur Urol 2014. Law KW, Zorn KC et al. World J Urol 2021.

*Transurethral Resection of the Prostate (TURP)

- Monopolar or bipolar approach
- **Risks:**
  - bleeding, ED (5%)
  - retrograde ejaculation (48%),
  - incontinence (10%)
- **Retreatment Rate:** 15% at 10 years



*Holmium Laser Enucleation of the Prostate (HoLEP)

- The only size independent procedure for BPH
- Consider for patients at increased risk of bleeding

LASER ENUCLEATION

GUIDELINE STATEMENT 38

Holmium laser enucleation of the prostate (HoLEP) or thulium laser enucleation of the prostate (ThuLEP) should be considered as an option, depending on the clinician's expertise with these techniques, as prostate size-independent options for the treatment of LUTS/BPH. (*Moderate Recommendation; Evidence Level: Grade B*)

The HoLEP surgery "hollowing out" process

Developed by: Northwestern Memorial Hospital Department of Urology ©June 2022 Northwestern Memorial HealthCare 900427 (6/22) Holmium Laser Enucleation of the Prostate Surgery

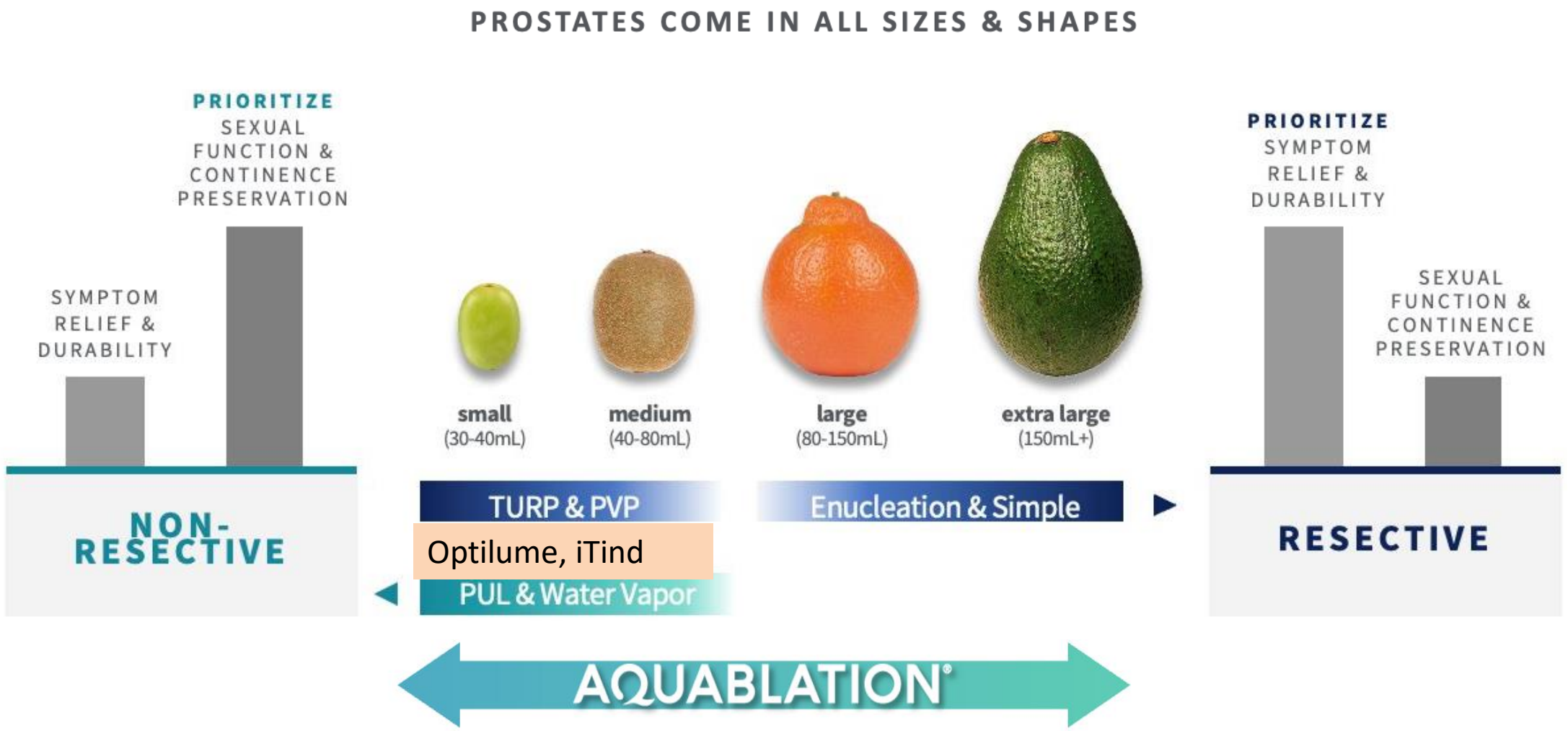
HoLEP

- Pros:
  - Lowest reoperation rate 1.4% (0-4% @7 years) [1][2]
  - No effect on erectile function at 3 yrs [3]
- Downsides:
  - Retrograde ejaculation (92.5% of patients) [4]
  - Transient urinary leakage (15% at 1 month, 3% > 6 months) [5]
  - Learning curve – need 50 cases [6]

1. Elkoushy MA et al J Endourol. 2015
2. Gilling PJ et al. European Urol 2008
3. Klett DE et al. Urology 2014
4. Gild P et al. Andrology 2020
5. Hout M et al. World Journal of Urology 2022
6. Shah HN et al. J Urology 2007

To Summarize…

Summary of Procedures



To Summarize…

My Practice: How I Counsel Patients

- Review the data together: bladder health, prostate size, etc.
  - Review cystoscopy
  - Uroflow
- Shared decision making – manage patient expectations
  - "I want you to have the best result and recovery possible so let's make sure you understand your choices and what will happen."
- Anticipate recovery pathways and postop hurdles
  - Postop LUTS, catheter, etc.

Thank you!

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