COMMON UROLOGY ISSUES ENCOUNTERED BY THE INTERNAL MEDICINE PHYSICIAN

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TULSA, OK

UROLOGIC SPECIALISTS

No Disclosures

OBJECTIVES FOR TODAY'S TALK

- Enhance understanding and management of urological disorders commonly seen by the internal medicine physician:
  - Diagnosis and treatment of hematuria
  - Workup and treatment of symptomatic BPH
  - Strategies for recurrent UTI in the female patient
  - Current recommendations on prostate cancer screening

HEMATURIA

MICROSCOPIC HEMATURIA

- Complete physical examination
- Urine dip is only a screening test.
- If symptomatic consider:
  - UTI, Obstructive renal stone, Trauma, Etc.
- If benign consider:
  - Menstruation, Vigorous Exercise, Recent Instrumentation, etc.

MICROSCOPIC HEMATURIA

- Requires urine microscopy to make definitive diagnosis.
- ≥3 RBCs/HPF diagnostic for microscopic hematuria.
- Does not require second positive test if benign causes have been ruled out. (menstruation, vigorous exercise, UTI, etc.)
- If benign cause suspected repeat testing maybe warranted.

- Check eGFR, Cr, BUN
  - Intrinsic renal disease is a common cause of hematuria
  - Presence of dysmorphic RBCs, acellular casts, decreased eGFR, and proteinuria warrant prompt nephrology evaluation.
- Urological evaluation needed on ALL patients with hematuria even those with renal disease.

WORKUP FOR MICROHEMATURIA

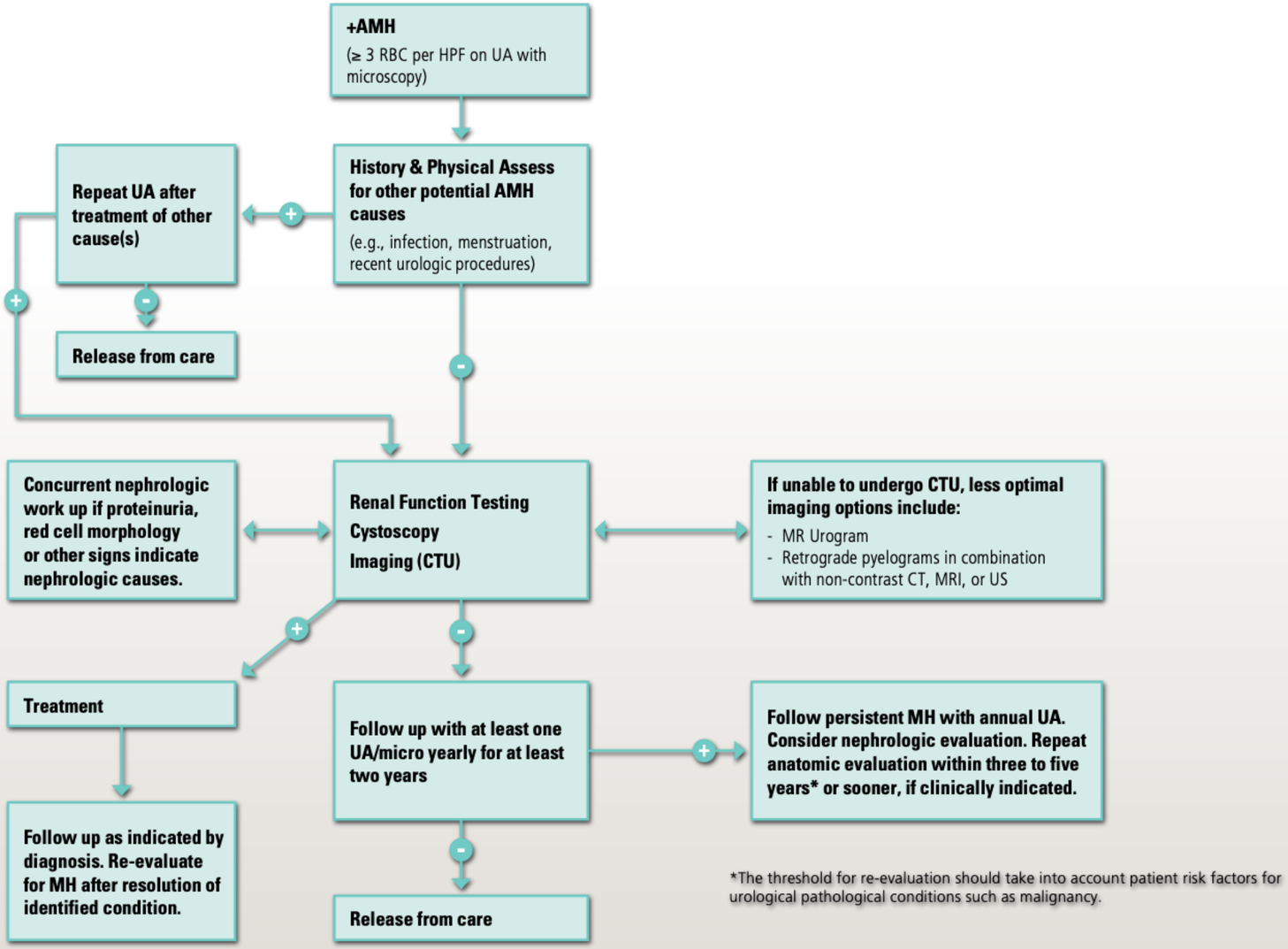
- Patients on anticoagulation still require thorough work up for hematuria.
- Patients >35 years of age will need complete urological workup
  - Upper tract imaging (CT urography preferred but MRI and US can be utilized if CT contraindicated)
  - Cystoscopy +/- retrograde pyelography
  - +/- Cytology

WORKUP FOR MICROHEMATURIA

- If initial workup is negative, will need yearly urinalysis.
  - If two consecutive negative UA, no further workup needed.
  - If persistent hematuria, will need repeat workup in 1-5 years.

Adapted from AUA guidelines for Diagnosis, Evaluation and Follow-up of Asymptomatic Microhematuria (AMH) in Adults

Diagnosis, Evaluation and Follow-up of AMH



*The threshold for re-evaluation should take into account patient risk factors for urological pathological conditions such as malignancy.

GROSS HEMATURIA

- All patients with gross hematuria require a urological workup unless they have a good cause with resolution of gross and microhematuria
- Upper tract imaging, cystoscopy, cytology and renal function testing usually indicated.

MANAGEMENT OF SYMPTOMATIC BPH

SYMPTOMATIC BPH

- Usually occurs in men >45 years old
- Age, obesity, and sedentary lifestyle contribute
- Association with erectile dysfunction.
- Important to rule out other causes especially if there is a history of other GU disorders (stricture, OAB, neurological disorders)
- Patients with non-bothersome LUTS do not require treatment

LOWER URINARY TRACT SYMPTOMS (LUTS)

- Frequency
- Urgency
- Weak stream
- Hesitancy
- Nocturia
- Dribbling
- Intermittent stream
- Incomplete emptying

ETIOLOGY OF BPH WITH LUTS

- 1) static - obstruction of bladder outlet due to enlargement of prostatic tissue and compression of prostatic urethra
- 2) dynamic - increased smooth muscle tone in prostatic urethra causing worsening obstruction
- 3) OAB - overactive bladder related to detrusor muscle hypertrophy due to chronic bladder outlet obstruction
- *Most often a progressive disease

WORKUP OF BPH WITH LUTS

- Thorough physical examination including digital rectal exam.
- AUA Symptom Score and QoL survey can be helpful
- Urinalysis
- Considerations if clinical concern (should not be included in routine workup):
  - PSA
  - BMP
  - Renal and/or transrectal ultrasound

WORKUP OF BPH WITH LUTS

- AUA symptom score (AUA-SS)
  - Mild, moderate, severe categories
  - Focus especially on moderate to severe disease (>7) especially in men >70 years of age
    - Much higher risk of acute urinary retention
    - Significant decrease in quality of life (QoL)

American Urological Association BPH Symptom Score Index Questionnaire

Having to urinate more frequently, as well as more urgently, can definitely interrupt the flow of your day. You should know that frequent urination is often a symptom of benign prostatic hyperplasia (BPH), a noncancerous enlargement of the prostate gland. BPH is a common condition among men over the age of 50. Waking up several times a night to urinate and having a weaker, slower, or delayed urine stream are other common symptoms.

_____

Patient Name **Date**

Circle the number that best applies to you.

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

Add the score for each number above, and write the total in the space to the right **TOTAL_____**

SYMPTOM SCORE: **1-7 = MILD** **8-19 = MODERATE** **20-35 = SEVERE**

0=Delighted 1=Pleased 2=Mostly Satisfied 3=Mixed 4=Mostly Not Satisfied 5=Unhappy

8. Quality of life How would you feel if you had to live with your urinary condition the way it is now, no better, no worse, for the rest of your life?	0	1	2	3	4	5

TREATMENT OPTIONS WHEN NOCTURIA IS PRIMARY COMPLAINT

- If nocturia >2 times nightly may consider polyuria
  - Voiding log including volumes beneficial
  - Minimize fluids prior to bed
  - Desmopression a consideration
    - Risk of hyponatremia requires lab screening
  - May still benefit from typical BPH therapies esp if polyuria is absent

TREATMENT OPTIONS FOR OTHER LUTS

- Diet and lifestyle changes
  - Weight loss
  - Exercise
  - Avoidance of bladder irritants (caffeine, ETOH, spicy, salty, etc)
- Bladder training
  - Timed and double voiding techniques
  - Pelvic floor exercises and physical therapy

BPH TREATMENT OPTIONS

- Medical therapy
  - Alpha blockers (relaxes smooth muscle)
    - Doxazosin, Terazosin
      - Effective
      - Cheap
      - Rapid onset
      - Less selective for prostate and requires dose escalation and BP checks
      - Retrograde ejaculation an issue for sexually active men

MEDICAL THERAPY

- Alpha blockers
  - Tamsulosin, Silodosin, Alfuzosin
    - More selective for prostate/less BP effect
    - Newer meds more expensive
    - Rapid onset
    - Floppy iris syndrome (important for cataract surgery)
    - Retrograde ejaculation an issue for sexually active men

MEDICAL THERAPY

- 5 alpha reductase inhibitors (5-ARIs)
  - Finasteride, Dutasteride
    - Physically shrinks the prostate
    - Slow onset of action (takes over 6 months)
    - Few side effects (ED, decreased libido, can regrow hair)
    - May be more effective used in combination with alpha blocker
    - May help with hematuria related to BPH
    - Decreases PSA by ~50%. Some physicians avoid in patients with prostate cancer (can possibly increase grade)

MEDICAL THERAPY

- Patients with OAB symptoms related to BPH may benefit from OAB meds (Myrbetriq, Toviaz, Vesicare, Ditropan, Etc.)
  - Commonly used in combination with alpha blocker or 5-ARI
- If optimal conservative and medical therapy has failed, surgical interventions should be considered.

SURGICAL INTERVENTIONS

- Minimally invasive
  - Older techniques
    - Microwave, TUNA (low efficacy, rarely used)
  - Newer techniques
    - iTind™, Urolift™, Rezum™
    - Improved efficacy and long term durability
    - Risk much lower
    - Small to medium glands respond better

SURGICAL THERAPY

- Traditional surgical therapy
  - TURP (transurethral resection of the prostate)
  - HoLEP (holmium laser enucleation of the prostate)
  - Aquablation
  - Robotic Subcapsular prostatectomy

SYMPTOMATIC BPH TREATMENTS

- Do not hesitate to refer to urology
- Many patients see improved benefit from surgical therapy and often stop taking BPH meds
- Typically some of our happiest patients

PSA TESTING

PROSTATE CANCER STATISTICS

- 2nd leading cause of cancer in men (skin)
- 1:9 men will develop in their lifetime
- 175K diagnosed each year in the US
- 90% diagnosed are organ confined
- 31K die yearly from prostate cancer (>60K in 1993)
- 2nd leading cause of cancer death in men (lung)
- 1:44 men will die from prostate cancer

PROSTATE CANCER SCREENING

- Prostate Specific Antigen discovered in the semen in 1966 (PAP- prostate acid phosphatase previous screening test)
  - Used by law enforcement for sex crimes
- PSA discovered in the serum in 1979
- Reliable correlation between increased levels and prostate cancer discovered in 1987
- Screening test approved by the FDA in 1993.

PROSTATE CANCER SCREENING

- General Age Adjusted PSA threshold (AUA)
  - Age 40-49 — 2.5
  - Age 50-59 — 3.5
  - Age 60-69 — 4.5
  - Age 70+ — 6.5

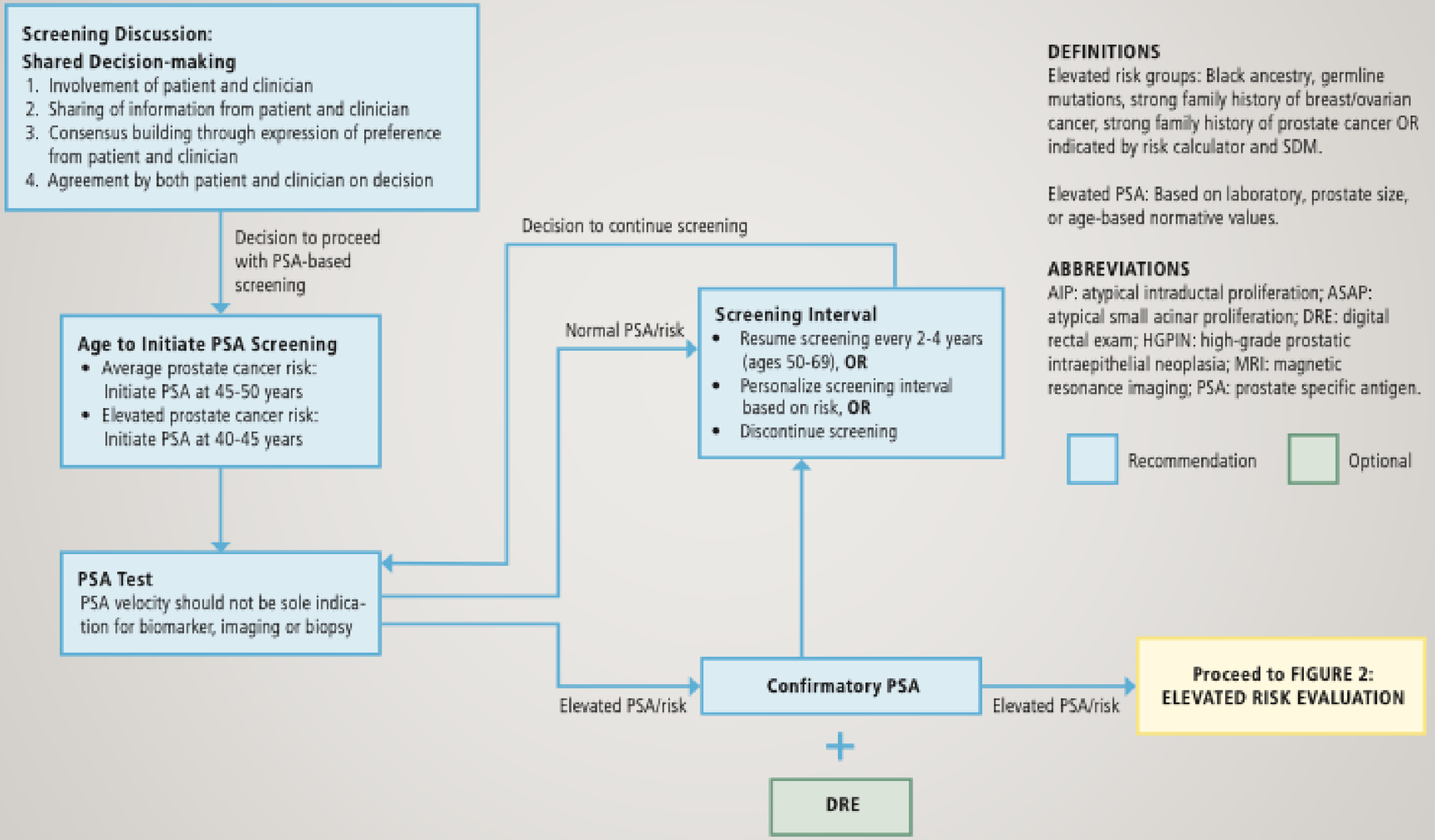
PROSTATE CANCER SCREENING

- To Screen or Not to Screen…

AUA/SUO

Early Detection of Prostate Cancer Algorithm

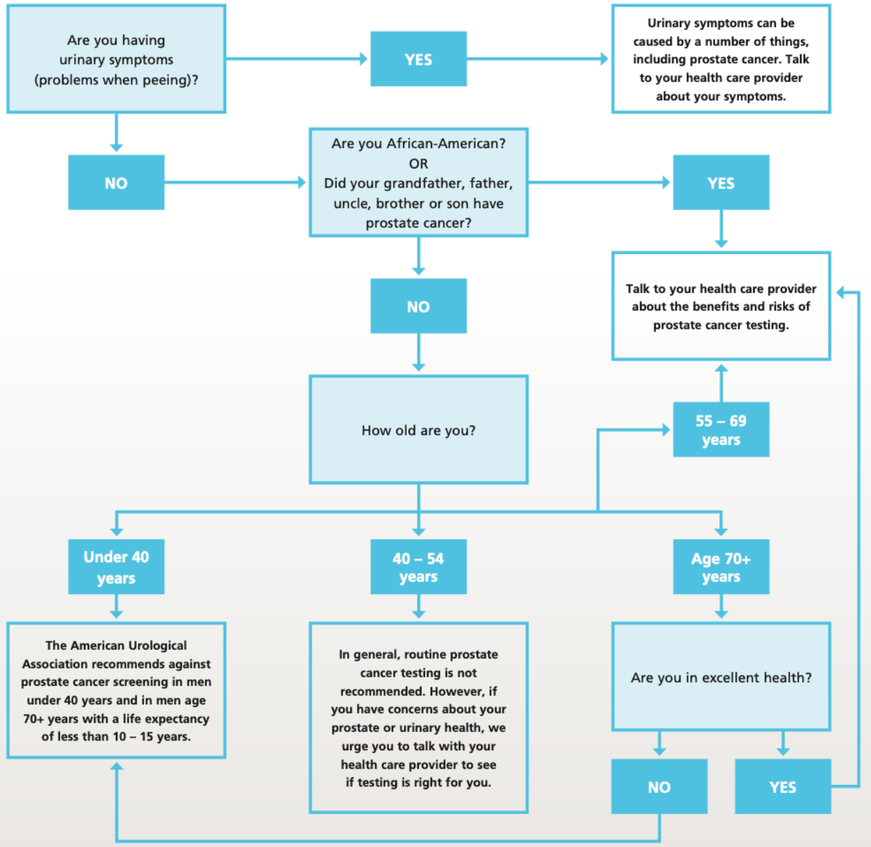
FIGURE 1: INITIAL SCREENING FOR PROSTATE CANCER



TAKE HOME FROM A BIASED UROLOGIST

- We will start seeing an increase in metastatic prostate cancer with decreased screening.
- Advance/Metastatic prostate cancer has high morbidity including side effects from treatment (spine mets, androgen deprivation)
- PSA screening and biopsy are low risk procedures
  - Shared decision making is important.
  - New prostate MRI and biopsy techniques improving diagnosis
- My opinion is that overtreatment is the big issue!
  - Statistically urologists should be doing more active surveillance than treatment
  - Find a urologist that you trust!

Should You Be Screened for Prostate Cancer?



WHO IS AT RISK OF DEVELOPING PROSTATE CANCER?

Prostate cancer is the second most common cancer in men, and the second leading cause of cancer death in men. One in nine men will be diagnosed in his lifetime. African-American men and men with a family history of prostate cancer have a higher chance of getting the disease.

Prostate cancer is different from many cancers because it often grows very slowly and may not cause problems. In 2018, only about 29,400 American men will die from prostate cancer, compared to nearly 165,000 men diagnosed with the disease. Many men with prostate cancer will never know they have it unless they get tested.

SHOULD I GET SCREENED FOR PROSTATE CANCER?

THERE ARE POSSIBLE BENEFITS TO HAVING A PSA TEST.

- A normal PSA test may put your mind at ease.
- A PSA test may find prostate cancer early before it has spread.
- Early treatment of prostate cancer may help some men to avoid problems from cancer.
- Early treatment of prostate cancer may help some men live longer.

THERE ARE POSSIBLE RISKS OF HAVING A PSA TEST.

- A normal PSA test may miss some prostate cancers (a "false negative").
- Sometimes the test results suggest something is wrong when it isn't (a "false positive"). This can cause unneeded worry and stress.
- A "false positive" PSA test may lead to an unneeded prostate biopsy (tissue sample).
- A high PSA test may find a prostate cancer that is slow-growing and never would have caused you problems.
- Treatment of prostate cancer may cause you harm. Problems with getting erections, leaking urine or bowel function can occur.
- According to the American Urological Association, in asymptomatic men, the greatest benefit of routine screening can be found in men ages 55 to 69 years. Men younger than 55 or older than 69 who are worried about their personal risk factors should talk with their health care provider to determine whether prostate cancer screening is appropriate.

American Urological Association
Urology Care FOUNDATION™
The Foundation of the American Urological Association

ABOUT PROSTATE CANCER TESTING

To diagnose prostate cancer, health care providers use a blood test to measure your levels of prostate-specific antigen (PSA). A prostate biopsy (tissue sample) is the only way to know for sure if you have prostate cancer. Your health care provider may recommend a biopsy if you have a high PSA level.

It is important to know that the PSA test is also used to test for other conditions. If you are having urinary symptoms (problems when peeing) your health care provider may perform a PSA test to evaluate your prostate health. Remember, urinary symptoms can be caused by a number of things, not just prostate cancer.

WHO IS AT HIGH RISK FOR PROSTATE CANCER?

If you are African-American, or if you have a first-degree relative (father, brother, or son) who has been diagnosed with prostate cancer, you have a higher risk of developing the disease; especially if the disease occurred at an early age (younger than age 55) or in multiple generations of your family. You should talk with your health care provider about the benefits and risks of prostate cancer testing.

This information is brought to you by the American Urological Association and the Urology Care Foundation. For more information, please visit:

www.AUAnet.org/PCaToolkit

SHOULD YOU BE SCREENED FOR PROSTATE CANCER?

American Urological Association

Urology Care FOUNDATION™
The Official Foundation of the American Urological Association

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WHAT MEN SHOULD KNOW ABOUT PROSTATE CANCER

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Download more materials by visiting www.AUAnet.org/PCaToolkit

Free brochure from www.auanet.org

RECURRENT UTI

EVALUATION

- Complete history and physical
- Pelvic examination
- Must have positive urine cultures with previous symptomatic episodes
- If contaminated specimen, repeat culture with strong consideration for specimen collection via straight catheter
- Obtain UA with culture prior to initiating any treatment
- PCR tests can be helpful

Traditional Culture Report

Total Colony Count:
10,000 - 25,000 CFU/mL

Organism 1: ESCHERICHIA COLI
Organism Comments: SIND+, BH, FLF, ORG=EC/GNS 77
Organism Colony Count: 10,000 - 25,000 CFU/mL

Sensitivity	Organism 1
Ampicillin	4 S
Nitrofurantoin	<=16 S
Sulfa / Trimeth	<=20 S
Amikacin	<=2 S
Amoxacillin / Clavulinic A	<=2 S
Ceftriaxone	<=1 S
Ciprofloxacin	<=0.25 S
Gentamicin	<=1 S
Imipenem	<=0.25 S
Cefepime	<=1 S
Levofloxacin	<=0.12 S
Cefoxitin	<=4 S
Cefazolin	<=4 S
Ertapenem	<=0.5 S

Patient Example - Patient first had traditional culture. Only microbe to grow was E-Coli.

Culture missed the top 2 dominant pathogens.

Patient was treated with Cipro based on Culture and did not respond.

Patient was treated with Clinda based on DNA and responded.

MicroGen DX NGS Lab Report

All pertinent patient info will appear in header

Comprehensive Identification (Next-Gen Sequencing Results)

MicroGen DX Laboratories' comprehensive testing (patent pending) is a relative quantitative universal test for bacteria/fungi. DNA sequencing methods are used to identify the microorganisms' genetic signatures and the estimated percentage of organisms present in the specimen. Virtually all bacteria/fungi are screened for and the most predominant populations are reported.

Rapid (PCR Results)	Amount per g
Bacterial Load (Medium)	10^3
Escherichia coli	Low
Enterococcus faecalis	Not Detected
Klebsiella pneumoniae	Not Detected
Proteus mirabilis	Not Detected
Escherichia coli	Not Detected
Streptococcus agalactiae	Not Detected
Candida albicans	Not Detected
Pseudomonas aeruginosa	Not Detected
Staphylococcus aureus	Not Detected
Resistance Genes Detected	
None	
Resistance Genes Not Detected	
Vancomycin	
Methicillin	
Beta-lactam	
Carbapenem	
Macrolide	
Aminoglycoside	
Tetracycline	

We search for all resistance genes.

Comprehensive Identification (Next-Gen Sequencing Results)	
Detected Bacteria:	
Leptotrichia amnionii	48%
Atopobium vaginae	25%
Lactobacillus iners	14%
Escherichia coli	4%
Selenomonas flueggei	2%
NO FUNGAL SPECIES DETECTED	

E-Coli was only 4% of the microbes in the sample.

Antimicrobial Recommendation Sheet Accompanies Lab Report

EVALUATION

- Avoid routine urine testing (only check urine if patient is symptomatic)
  - Exception is pregnant women
- Asymptomatic bactiuria
  - Many people are colonized but not infected (chronic retention, catheterization, post menopause, etc)
  - Do not treat unless symptoms are present (exception is pregnant women)

EVALUATION

- If concerned about complicating factors consider
  - Upper Tract Imaging
    - Renal US
    - CT Abd/Pelvis
  - Cystoscopy
  - Urodynamics

UTI PREVENTION TECHNIQUES

- Tried and true
  - Increased fluids (especial water)
  - Proper hygiene (correct wiping, showers not baths, etc)
  - Timed and double voiding techniques
  - Keeping bowels regular

UTI PREVENTION

- PAC therapy likely very beneficial and safe
  - GemmaMDTM

UTI PREVENTION

- Vaginal estrogen cream
  - Premarin™, Estrace™, compounded
  - Consensus statement from ACOG confirms safety

ACOG CONSENSUS STATEMENT

Summary of Consensus Recommendations

Nonhormonal Approaches

- Nonhormonal methods should be considered first-line treatment for urogenital symptoms in individuals with a history of estrogen-dependent breast cancer.
- Gynecologists should be familiar with different nonhormonal treatment options because trials of multiple options may be needed to find effective treatment for any individual patient.
- Nonhormonal treatments that have been reported to be effective in treating vulvovaginal symptoms include silicone-, polycarbophil-, and water-based lubricants; hyaluronic acid; polyacrylic acid; and vitamin E and D vaginal suppositories. There are insufficient data to indicate that one approach is superior to others.

Hormonal Approaches: Vaginal Estrogen

- If nonhormonal treatments have failed to adequately address symptoms, after discussion of risks and benefits, low-dose vaginal estrogen may be used in individuals with a history of breast cancer, including those taking tamoxifen. For individuals taking aromatase inhibitors (AIs), low-dose vaginal estrogen can be used after shared decision making between the patient, gynecologist, and oncologist.

Dehydroepiandrosterone and Testosterone

- If vaginal estrogen is not an option, vaginal dehydroepiandrosterone (DHEA) or testosterone may help with dyspareunia and improve vaginal tissue health.

Ospemifene/Selective Estrogen Receptor Modulators

- Ospemifene, an orally administered selective estrogen receptor modulator (SERM), has been found to improve symptoms in a general population of menopausal individuals and may be considered as an option for individuals with a history of estrogen-dependent breast cancer. Although there is no indication that ospemifene is associated with increased risk of recurrence, long-term safety data are limited.

UTI PREVENTION

- Many OTC medication options.
  - D-Mannose™
  - Pro-biotics (avoid in elderly)
  - AZO
  - Cystex
  - Cranberry
  - Vit C

EPISODIC TREATMENT OPTIONS

- Firstline antibiotic therapy
  - TMP-SMX
  - Macrobid
  - Fosfomycin
- Short duration treatment preferred (<7 days)

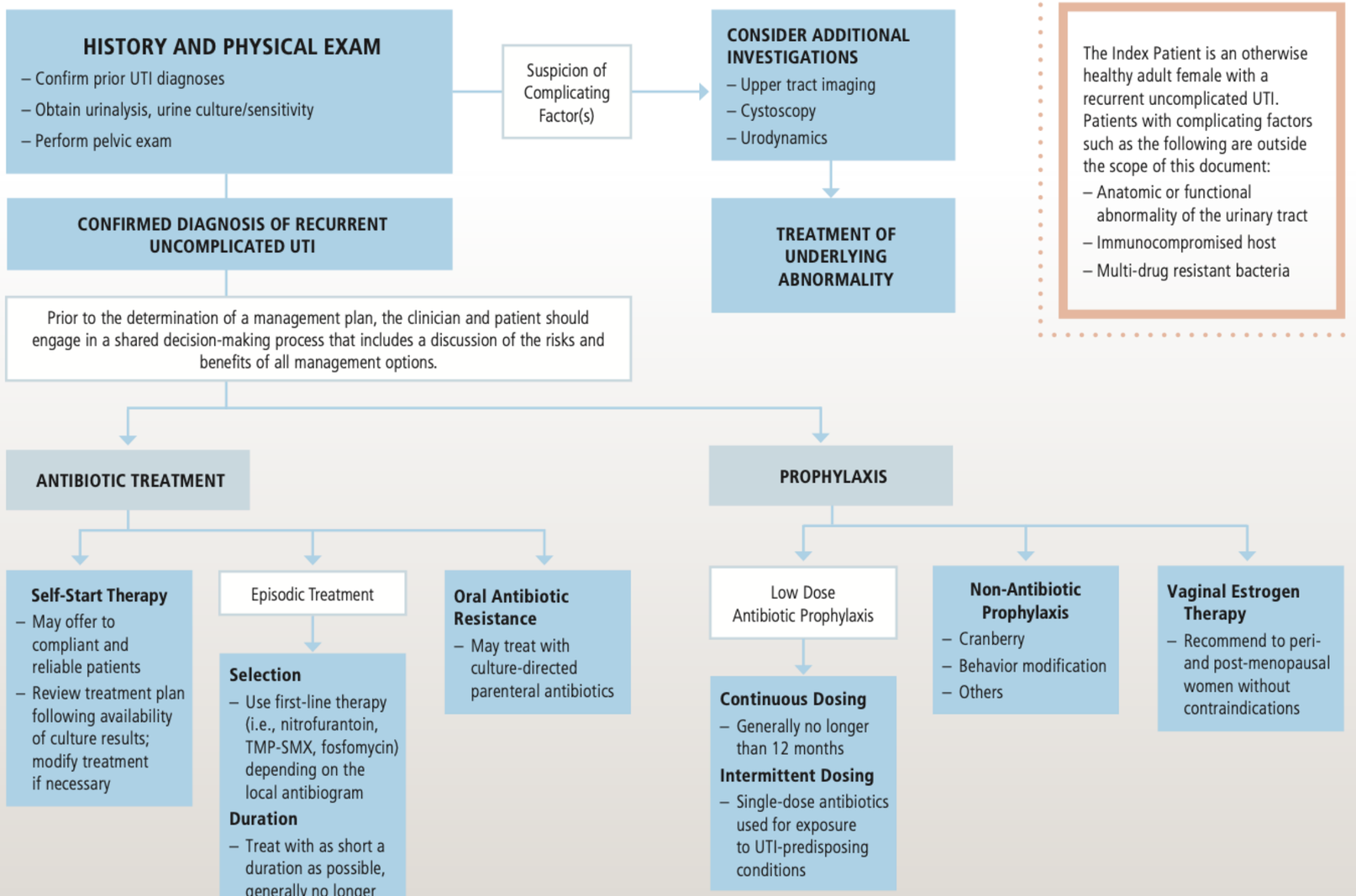
EPISODIC TREATMENT OPTIONS

- Directed antibiotic therapy maybe needed for resistant bacteria
  - 7 days duration
- Resistant bacteria common
  - >30% fluoroquinolone resistance (check local antibiogram)
  - Resistance to any/all oral meds becoming more common
  - May need parenteral antibiotics via infusion center, PICC line, etc.

ANTIBIOTIC PROPHYLAXIS MAY BE NEEDED

- 3 to 6 month duration to start
  - Usually no longer than 12 months continuous duration.
- Antibiotics commonly used for prophylaxis.
  - Nitrofurantoin 50mg daily (rare risk pulmonary fibrosis, avoid in elderly).
  - Keflex 250mg daily.
- Last resort. Resistance is a concern.

Recurrent Uncomplicted Urinary Tract Infections in Women: AUA/CUA/SUFU Diagnosis & Treatment Algorithm



QUESTIONS?

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