

Managing Lower Urinary Tract Symptoms in the Community

March 7, 2020

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Presenters



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Learning Objectives

By the end of this presentation the learner should be able to:

- Distinguish the different types of lower urinary tract symptoms (LUTS)
- Describe the epidemiology of LUTS
- Apply a stepwise approach to assessment and intervention for LUTS.
- Explain the implementation of non-pharmacologic interventions for a community dwelling older adult.
- Justify the role of pharmacologic interventions for LUTS.

Presenter Disclosure

- Presenter's Name: Cheryl Sadowski

I have the following relationships with these commercial interests:

- Advisory Board/Speakers Bureau – N/A
- Funding (Grants/Honoraria) : Funding of \$109,000 from Pfizer Canada for the study: Initiating study in spring 2020: A Quality Improvement Project to Address Lower Urinary Tract Symptoms by Pharmacists in the Community
- Research/Clinical Trials: Initiating study in spring 2020: A Quality Improvement Project to Address Lower Urinary Tract Symptoms by Pharmacists in the Community
- Speaker/Consulting Fees: N/A
- Other:
 - Past Employee of: The Upjohn Company of Canada, and Ortho McNeil Inc.
 - Investments: Investments in sponsor organization or entity with product in program – N/A
 - Patent in product – N/A

- Speaking Fees for current program:

X I have received a speaker's fee from *the Alberta Pharmacists' Association* for this learning activity.

Presenter Disclosure

- Presenter's Name: Kathleen F. Hunter

I have the following relationships with these commercial interests:

- Advisory Board/Speakers Bureau – N/A
- Funding (Grants/Honoraria) :
 - Co-investigator: *A Quality Improvement Project to Address Lower Urinary Tract Symptoms by Pharmacists in the Community* Nominated PI C. Sadowski. PfizerCanada \$109,000 Awarded 2019
 - Co-Principal Investigator. *A randomised cross over trial of briefs with tapes versus pull ups for the containment of urinary incontinence in community dwelling older people living with mild to moderate dementia.*(Comparison of Urinary incontinence Products in Dementia CUPID) Nominated PI: A. Wagg. Co-PI: K. Hunter. Essity \$286,000. Awarded for Dec 1, 2019 for 2 years.
 - Co-Investigator. *A trial of effectiveness of a smart sensor for continence care: The ARCTICC study.* Nominated PI: A. Wagg. Project funded by SCA Hygiene Products. Grant: \$221,416.00. Awarded August 2015 for 18 months – extended due to delay in obtaining Health Canada approvals to March 1 2020. Clinical Trials.gov identifier: NCT02511314
- Research/Clinical Trials: As above
- Speaker/Consulting Fees: N/A
- Other:
 - Investments: Investments in sponsor organization or entity with product in program – N/A
 - Patent in product – N/A

- Speaking Fees for current program:

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Commercial Support Disclosure

This program has received no financial or in-kind support from any commercial or other organization

Burden, Impact, and Complications of LUTS

- Stigma and embarrassment
- Financial burden (products, laundry)
- Social isolation and depression
- Physical inactivity
- Complications e.g. skin problems, UTI from overlooked retention, falls

LUTS

Storage Symptoms

- Urgency
- Incontinence
- Frequency
- Nocturia

Voiding Symptoms

- Slow Stream
- Splitting/spraying
- Intermittent stream
- Hesitancy
- Straining
- Terminal Dribble

Abrams, P. et al. 2002. The standardisation of terminology of lower urinary tract function. *Neurourology and Urodynamics*, 21, 167-178.

LUTS

Post micturition symptoms

- Feeling of incomplete emptying
- Post micturition dribble

Other

- Leakage with intercourse
- Symptoms associated with POP
- Genital/LUT pain

Symptom Syndromes of LUTD

Overactive bladder syndrome

- Urgency, with or without urge incontinence, usually with frequency and nocturia

LUTS suggestive of bladder outlet obstruction

- Voiding symptoms in men in absence of infection or other causes of outlet obstruction

The symptom of incontinence

Types of incontinence

- Stress UI
- Urgency UI
- Mixed UI
- Overflow UI (new term: UI associated with chronic retention)
- Functional UI

Other urine loss symptoms

- Enuresis
- Nocturnal enuresis

Question

- How common do you think LUTS are?

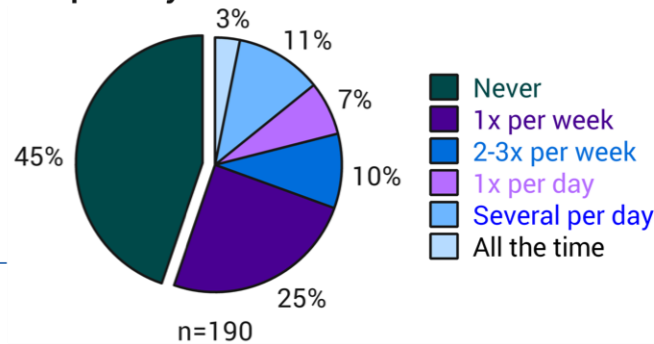
Alberta pharmacies

Characteristic	Patients (n=190)
Mean age, <i>years (SD)</i>	75.1 (9.2)
Sex distribution, <i>females (%)</i>	116 (62%)

Alberta Pharmacies

Figure 2A. Self-reported rate and inconvenience of LUTS in older adults over the past 4 weeks.

Frequency of LUTS in the Past 4 Weeks



Inconvenience of LUTS

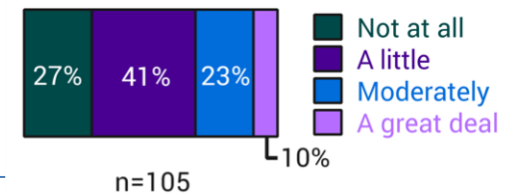
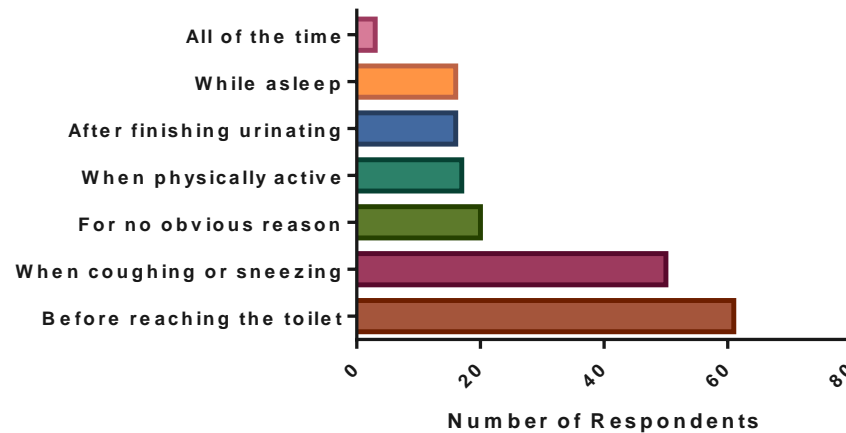


Figure 2B. Self-reported characterization of when LUTS occurs in older adults over the past 4 weeks.

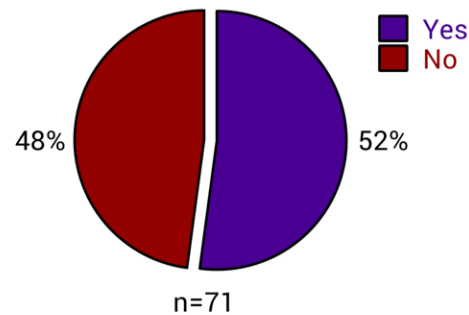
Circumstances of LUTS



Alberta Pharmacies

Figure 3A. Frequency of healthcare consultations regarding prior falls and the professions involved.

Consultations Regarding Falls



Professions Involved

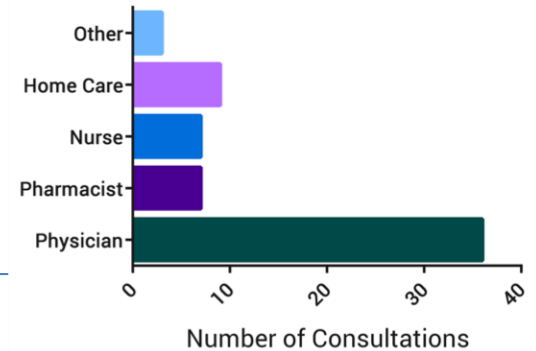
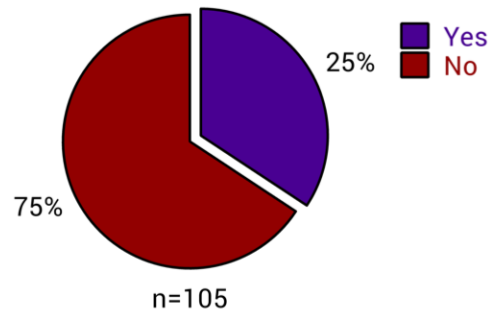
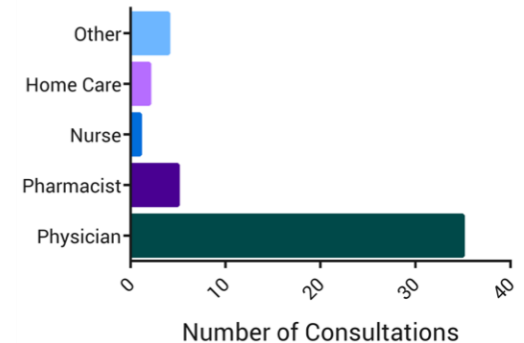


Figure 3B. Frequency of healthcare consultations regarding LUTS and the professions involved.

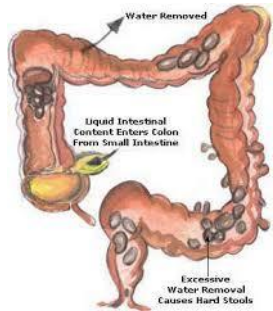
Consultations Regarding LUTS



Professions Involved



Risk Factors for LUTS



1. Physical status

- Age, sex, obesity, physical activity

2. Genetic

- Family history

3. Neuropsychiatric

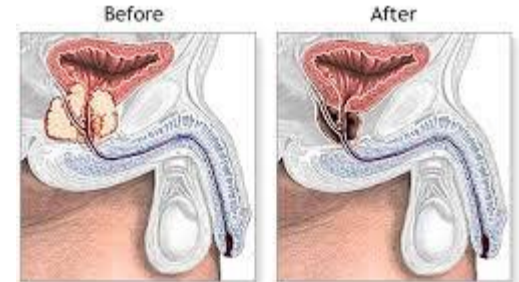
- MS, dementia, depression, stroke, neuropathy

4. Trauma

- Childbirth, radiation, prostatectomy

5. Associated causalities

- IBD, menopause, constipation



Risk Factors for Incontinence

- D delirium, dementia
- I infection
- P pharmaceuticals
- P psychological/psychiatric
- E excessive urine output/endocrine
- R restricted mobility
- S stool impaction, stroke, spinal cord injury

ASSESSMENT

Comprehensive team based assessment of LUTS

- History
 - PMHx, PSHx, obstetrical Hx (women)
 - Medications
- Bladder history
 - e.g. voiding/ storage symptoms, onset, amount of urine lost, bowel fx, fluid intake pattern, feeling of incomplete emptying or perineal pressure
- 3 day bladder diary
- Examination
 - PVR and/or urodynamics if indicated
 - Labwork (e.g. rule out diabetes, U/A and/or UCx)
 - Physical assessment by trained HCP (vaginal exam/pelvic floor assessment female, DRE female/male, neurologic, MSK)
 - Functional screening (e.g. mobility, cognition)

Guidelines

PRACTICE GUIDELINES ■ PEER-REVIEWED

- There are over 22 guidelines published
- Many provide similar direction
- Gabriel et al., CPJ October 2015 – synthesis of LUTS guidelines for pharmacists

A pharmacist's guide to care of adult patients presenting with lower urinary tract symptoms

Geraldine G. Gabriel, BSc, MSc; Ross T. Tsuyuki, BSc(Pharm), PharmD, MSc, FCSHP, FACC; Adrian Wagg, MB, BS, FRCP, FRCP(E), FHEA (MD); Kathleen Hunter, PhD, RN, NP, GNC(C), NCA; Cara Tannenbaum, MDCM, MSc, FRCP(C); Cheryl A. Sadowski, BSc(Pharm), PharmD, FCSHP

Introduction

Lower urinary tract symptoms (LUTS) are associated with a broad range of conditions that are a result of dysfunction in either urine storage or voiding.¹ Voiding dysfunction involves symptoms resulting from the bladder outlet or urethral pathology and this includes symptoms related to the prostate. Storage dysfunction involves urinary incontinence and is categorized into 3 conditions: stress urinary incontinence, urgency and mixed urinary incontinence. Overactive bladder is also a type of storage dysfunction and is characterized as a sense of urgency that may or may not be associated with urgency incontinence.^{1,2}

physical and mental well-being.^{7,8} A recent trial found that older women who were actively approached by their physician to receive incontinence treatment had improved symptoms and fewer incontinence episodes compared with women who were treated only when they sought physician care on their own.⁹ Because pharmacists are generally believed to be the most accessible and among the most trusted health care professionals¹⁰ and pharmacies are a major source of continence products, community-based pharmacists have the greatest opportunity to identify patients with LUTS and initiate appropriate interventions.

Female patient or caregiver approaches pharmacist with:

- Complaints relating to LUTS
- Questions about containment products

Pharmacist initiates contact with patient by:

- Conducting patient care plan or medication review
- Conducting and/or participating in a women's health day

Determine patient's chief complaint and general history (medication, allergy, medical conditions, medication history [particularly those that could exacerbate LUTS] and social history).
Then advise patient to complete bladder diary (see Section II step #1)

Further assessment via DIPPERS, completed bladder diary and patient's electronic health record (see Section II steps #2 and 3)

LUTS related to other cause:

- Potentially reversible causes (treat cause/condition found according to respective guidelines or refer if necessary)
- Voiding dysfunction
- Nocturia

LUTS related to incontinence

Request to perform 3IQ (see Section II step #4)

REFER (see footnote)

IMPLEMENT A TRIAL OF CONSERVATIVE MANAGEMENT (see Section III)

Urgency UI or OAB

Bladder training

Consider supervised PFMT or referral for specialist pelvic floor physical therapy if failed bladder training

Initiate drug treatment ± non-drug treatments, if fail non-drug treatment

Anti-muscarinics

Consider mirabegron

Drug treatment failed:
Refer for other therapies

Mixed UI

Supervised PFMT

Consider referral for specialist pelvic floor physical therapy

Initiate drug treatment or refer for invasive treatments based on predominant symptom, i.e., urgency or stress UI if failed PFMT and/or bladder training

Bladder training

Stress UI

Supervised PFMT

Consider vaginal pessaries

Consider referral for specialist pelvic floor physical therapy

If failed PFMT:
-Refer for other diagnostic tests and surgical options.
-Consider OAB drug treatment for mixed UI with predominant stress incontinence before surgery.

Suggest long-term use of containment products for refractory LUTS

Refer to other primary care provider for additional work-up and prescriptions. Pharmacist may consider prescribing if patient assessment is available and pharmacist has prescribing authorization.

Male patient or caregiver approaches pharmacist with:

- complaints relating to LUTS
- questions about containment products

Pharmacist initiates contact with patient by:

- conducting patient care plan or medication review
- conducting and/or participating in a men's health day

Determine patient's chief complaint and general history (medication, allergy, medical conditions, medication history particularly those that could exacerbate LUTS), and social history). Then advise patient to complete bladder diary. (see section II step #1)

Further assessment via DIPPERS, completed bladder diary, and patient's electronic health record (see section II steps #2 and 3)

LUTS related to other cause:

- potentially reversible causes (treat cause/condition found according to respective guidelines or refer if necessary)
- Nocturia

LUTS related to voiding or storage dysfunction

Storage dysfunction

Request to perform 3IQ (see section II step #4)

IMPLEMENT A TRIAL OF CONSERVATIVE MANAGEMENT (see section III)

REFER (see footnote)

Voiding dysfunction

Request to perform I-PSS (see section II step #4)

Urgency UI or OAB

Mixed UI

Stress UI

LUTS is not bothersome (IPSS=0 and QOL=0-2)

Mild (IPSS= 1-7) to moderate (IPSS= 8-19) bothersome LUTS.

Severe (IPSS: 20-35) bothersome LUTS

Bladder training

Supervised PFMT

Bladder training

Supervised PFMT (only in stress UI and prostatectomy). Otherwise refer to specialist

Conservative treatment with no pharmacist follow-up

Lifestyle or treatment and follow-up

Consider supervised PFMT or referral for specialist pelvic floor physical therapy if failed bladder training

Consider referral for specialist pelvic floor physical therapy

If failed PFMT: Refer

For bothersome LUTS if conservative treatment failed or is not indicated and BPH has not yet been diagnosed, refer for further assessment and initiation of drug treatment:

Moderate to severe bothersome LUTS

PSA > 1.4 ng/ml or prostate > 30g and moderate to severe bothersome LUTS.

PSA > 1.4 ng/ml or prostate > 30g, LUTS, and a high progression risk

Alpha-blocker (consider tadalafil as an adjunct)

5-alpha reductase inhibitor

Drug treatment failed: refer to specialist

If conservative treatment failed or is not indicated and OAB has not yet been diagnosed, refer for further assessment and initiation of drug treatment:

Initiate drug treatment ± non-drug treatments, if fail non-drug treatment

If both OAB and BPO, treat BPO LUTS first

Anti-muscarinics

Consider mirabegron

Drug treatment failed: Refer to specialist for other therapies

Initiate drug treatment or refer for invasive treatments based on predominant symptom i.e. urgency or stress UI if failed PFMT and/or bladder training

Refer to other primary care provider for additional work-up and prescriptions. Pharmacist may consider prescribing if patient assessment is available and pharmacist has prescribing authorization.

Suggest long term use of containment products for refractory LUTS

Abbreviations: UI= Urinary incontinence, PFMT= pelvic floor muscle training, LUTS= lower urinary tract symptoms, BPO= Benign prostrate obstruction, I-PSS=International Prostate Symptoms Score, DIPPERS: D= dementia/delirium, I= infection, P= psych, P= pharmacologic, E= endocrine, R=restricted mobility, S= stool impaction & social. REFER= Refer immediately if: fever, stress UI (except with prostatectomy), urinary retention, suspicious DRE, renal impairment suspected to be a result of the LUT, elevated PSA, pelvic organ prolapse, recurrent UTI, potential fistula, blood in urine, pain especially in pelvis, potential obstruction or mass, fecal incontinence, and neurologic related incontinence, pelvic surgery or radiation, impaired mental or psychological status, endocrine disorder, restricted mobility, palpable bladder. Legend: Red boxes are referral or stop points. Green boxes are start points.

Case Finding

- How do you know?
- How do you start the conversation?

Case Finding

- Screening questions
 - “How often do you leak urine?”
 - “Do you use pads or protective garments?”
- Variety of questionnaires available

Question

- How many times did you urinate yesterday?
 - Is this normal?

Bladder Diary (“Uro-Log”)

Complete one form for each day for four days before your appointment with a healthcare provider. In order to keep the most accurate diary possible, you'll want to keep it with you at all times and write down the events as they happen. Take the completed forms with you to your appointment.

Your Name: _____
 Date: _____

Time 	Fluids 		Foods 		Did you urinate?		ACCIDENTS			
	What kind?	How much?	What kind?	How much?	How many times?	How much? (sm, med, lg)	Leakage How much? (sm, med, lg)	Did you feel an urge to urinate?		What were you doing at the time? Sneezing, exercising, etc.
Sample	<i>Coffee</i>	<i>1 cup</i>	<i>Toast</i>	<i>1 slice</i>	✓✓	<i>med</i>	<i>sm</i>	Yes	<input checked="" type="radio"/> No	<i>Running</i>
6-7 a.m.								Yes	No	
7-8 a.m.								Yes	No	
8-9 a.m.								Yes	No	
9-10 a.m.								Yes	No	
10-11 a.m.								Yes	No	
11-12 noon								Yes	No	
12-1 p.m.								Yes	No	
1-2 p.m.								Yes	No	
2-3 p.m.								Yes	No	
3-4 p.m.								Yes	No	
4-5 p.m.								Yes	No	
5-6 p.m.								Yes	No	
6-7 p.m.								Yes	No	
7-8 p.m.								Yes	No	
8-9 p.m.								Yes	No	

Provided by the National Association For Continence; (800)BLADDER; www.nafc.org

MANAGEMENT

Goals of Therapy

- Curing or diminishing symptoms
- Preventing complications
- Improving quality of life
- Decreasing costs
- Avoiding treatment side effects

- Focused on bothersomeness of symptoms

Types of Intervention

1. Education
2. Healthy bladder habits and lifestyle
3. Behavioural
4. Mechanical
5. Pharmacologic
6. Surgical

Healthy bladder habits

- Lifestyle – weight management
- Fluids – what is a normal fluid intake
- Discussion re: caffeine (evidence, practicalities)
- Avoid constipation

Behavioural

- Toileting strategies (scheduled, prompted voiding)
- Pelvic floor muscle exercise and training
- Bladder training and urgency suppression

Monitoring

- Improvement in symptoms
- Number of episodes, micturitions daily
- Volume/episode
- Number of absorbable products needed
- Flow parameters

LUTS - Monitoring

Efficacy:

- Improvement in symptoms (e.g. nocturia, dysuria, hesitancy, urgency)
- # of episodes of incontinence or severity of LUTS/day
- # of micturitions/day
- Volume of urine/micturition
- # of absorbable briefs/pads needed
- Urinary flow parameters

Validated questionnaires

- e.g. ICIQ-UI questionnaire
- International Prostate Symptom Score (IPSS)

Timelines

- Usually monthly
- Check for medications that have early response

CASE STUDY 1 (OAB)

Case Study 1

- A 78 year old woman comes in to the pharmacy and is looking at absorbent products. She comes to you with questions.
- How would you approach assessment?

Case Study 1

- Upon further review
- She had an incontinence episode about 3 years ago, and this has been increasing in frequency with at least 1 episode/day of UI in the past few months, with difficulty reaching the toilet in time. She has been rushing, and then lost a large amount of urine.

Case Study 1

- What other questions do you have for her?
- What other information do you need to gather?

Case Study 1

- Medications
 - Metformin 500 mg BID
 - ASA-EC 81 mg daily
 - HCTZ 25 mg daily
 - Amlodipine 5 mg daily
 - MVI for seniors daily
- Medical Hx:
 - Diabetes x 2y
 - TIA
 - Hypertension
 - G4P4

Case Study 1

Lifestyle habits:

- 2 cups coffee in the morning
- 1-2 cups tea afternoon/evening
- ½ glass water with meals
- Social alcohol intake at special events
- Non-smoker

Social Hx:

- Lives in bungalow with husband
- Retired administrative assistant
- Worked most of her adult life as a homemaker
- Previously involved in curling club and walking club but has minimized this activity due to incontinence
- Volunteers by driving friends and peers at church to appointments and outings, but this has been reduced due to concerns about UI

Family Hx:

- Father – stroke
- Mother – Alzheimer disease

Case Study 1

- Patients B-SAQ = 10

BLADDER CONTROL SELF-ASSESSMENT QUESTIONNAIRE

ARE YOU: MALE FEMALE

Please put the **NUMBER** that applies to you in the boxes shown by the arrows based on the following:

NOT AT ALL = 0 A LITTLE = 1 MODERATELY = 2 A GREAT DEAL = 3

SYMPTOMS		BOTHER
<input type="checkbox"/> ←	Is it difficult to hold urine when you get the urge to go?	How much does it bother you? → <input type="checkbox"/>
+		+
<input type="checkbox"/> ←	Do you have a problem with going to the toilet too often during the day?	How much does it bother you? → <input type="checkbox"/>
+		+
<input type="checkbox"/> ←	Do you have to wake from sleep at night to pass urine?	How much does it bother you? → <input type="checkbox"/>
+		+
<input type="checkbox"/> ←	Do you leak urine?	How much does it bother you? → <input type="checkbox"/>
+		+
=		=
<input type="text"/>	NOW ADD THE TWO COLUMNS DOWNWARDS AND PUT THE SCORES IN THESE BOXES	<input type="text"/>
My symptom score		My 'bother' score

SYMPTOM SCORE	THIS SYMPTOM SCORE MEANS:	THIS 'BOTHER' SCORE MEANS:	'BOTHER' SCORE
0	You are fortunate and don't have a urinary problem	You aren't bothered by a urinary problem	0
1-3	Your symptoms are mild	You are bothered slightly by your symptoms	1-3
4-6	You have moderate symptoms	You are moderately bothered by your symptoms	4-6
7-9	You have significant symptoms	Your symptoms are of significant bother for you	7-9
10-12	You have very significant problems	Your symptoms are a major problem for you	10-12

If your symptom score (above) is 4 or over you should seek help.

If your bother score (above) is 1 or over you may benefit by seeking help

IMPORTANT – if you have blood in your urine, have difficulty passing urine, or pain on passing urine, you **MUST** talk to your doctor about it.

LIFESTYLE INTERVENTIONS

OAB/urgency - lifestyle

- Scheduled toileting
- Suppression, PFMT
- Retraining
- Weight management

TOILETING STRATEGIES

Toileting strategies

- Bladder training
- Timed voiding
- Habit training
- Prompted voiding

Scheduled Toileting

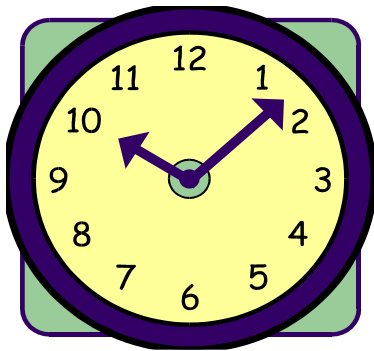
- Fixed toileting schedule every 2-3 hrs (waking hours)
- Aimed at assisting the incontinent person to stay drier
- Especially helpful for those with cognitive or physical functional loss.



Prompted Voiding

- Person is asked if he/she needs to void on a schedule and assisted to toilet only if it is requested.
- Aim: to reduce incontinent episodes.
- Cognitively intact or mild impairment
- Not for those with severe cognitive impairment (may not recognize the need to void).

Bladder Retraining



- Patient taught to respond to the clock not the urge to void
 - must learn to ride out the detrusor contractions
 - time between voids gradually ↑
- Aimed at restoring a normal pattern of voiding by ↓ the frequency of voiding in those with urgency
- Need to be cognitively intact

Urgency suppression

- A practical use of the pelvic floor muscle contraction
 - part of bladder retraining but can be used as a separate technique
 - Feedback loop?
 - stop, contract pelvic floor, proceed to toilet

Toileting strategies

- Any type of scheduled toileting intervention
- Prevention - women and men – no trials in healthy midlife/older persons
- Treatment
 - Bladder training – has been used for DO, SUI, MUI, UUI, OAB
 - 3 Cochrane reviews
 - Trials in women (most outpt), small sample sizes
 - Some evidence of effectiveness UUI, SUI, MUI
 - Frail older adults – prompted voiding – short term for daytime UI if caregivers able to follow protocol

ICI 2013 Recommendations

- BT is an appropriate first line conservative therapy for UI in women (Grade of Recommendation A)
- Time voiding at 2 hour intervals may be beneficial for women with mild UI with infrequent voiding patterns (Grade of recommendation C)

Being practical...

- BT is intense, may not be a practical strategy in primary care (consider referral to continence service)

Fluids

What is the appropriate amount of fluid to take in daily?

Fluids

Dietitians of Canada website says...

- 3 L (12 cups) for men 19 years old and over each day
- 2.2 L (9 cups) for women 19 years old and over each day

BUT.....this varies with age, sex, activity and weather

Myth

- 2 L (8 cups) of *water* a day
 - Intake includes fluids from food sources - all fluids count

Fluids

Can reducing fluid prevent or improve UI? Does poor fluid intake make incontinence worse?



Fluids

Research scant and inconclusive

- N= 110 women with SI or DO, crossover trial - ↓ fluid intake improved UI but ↑ constipation (Swithinbank, et al, 2005)
- N= 32 women > 50 y with UI, RCT – women who ↑ fluids reported fewer UI episodes (Dowd et al 1996)
- N= 24 m/f with OAB, crossover trial - ↓ daily fluid intake by 25% improved daytime frequency, urgency and nocturia but not UI (Hashim & Abrams (2008))

Dehydration has been suggested as a cause of worsening UI

- concentrated urine thought to irritate the bladder /predispose to UTI– no evidence

Fluids

Being practical...

- *Aim* for six to eight 250 ml (8-ounce) glasses of fluid a day
 - < 1 liter per day can lead to dehydration, > 3 liters per day is excessive
- Spread out fluid intake, small sips
 - dry mouth – sugar free gum
- Consume most fluids during the day with minimal fluids after 1800h if > 2 nocturia episodes/night

ICI 2016 recommendation

- Minor decrease of fluid intake (by 25%) may be recommended provided baseline consumption is not less than 30 ml/Kg a day (Grade of Recommendation: B)

Pharmacologic Intervention

- Grade A, International Consultation on Incontinence
- Anticholinergics
 - Oxybutynin
 - Tolterodine
 - Trospium
 - Darifenacin
 - Solifenacin
 - Fesoterodine

Anticholinergics - Selectivity

- Oxybutynin – muscarinic non-selective
- Tolterodine - M3>M2
- Fesoterodine – metabolites as per tolterodine
- Trospium - M3>M2
- Darifenacin - M3
- Solifenacin - M3 >M2, M1

Anticholinergics - Dosing

- Oxybutynin
 - BID - QID
 - XL or gel Daily
 - Patch twice weekly
- Tolterodine
 - BID
 - LA – daily
- Trospium
 - BID – daily
- Darifenacin
 - daily
- Solifenacin
 - daily
- Fesoterodine
 - ER daily

Anticholinergics - Elimination

- Oxybutynin – 3A4, renal
- Tolterodine – 2D6 , renal
- Trospium – Renal, Hepatic
- Darifenacin – 2D6, renal
- Solifenacin – 3A4, renal
- Fesoterodine – 2D6, 3A4, renal

Anticholinergics - Interactions

- P450 – 2D6, 3A4
- Anticholinergics
 - E.g. antihistamines, TCA
- Cholinergics
 - E.g. cholinesterase inhibitors for dementia

OAB Treatment - Anticholinergic

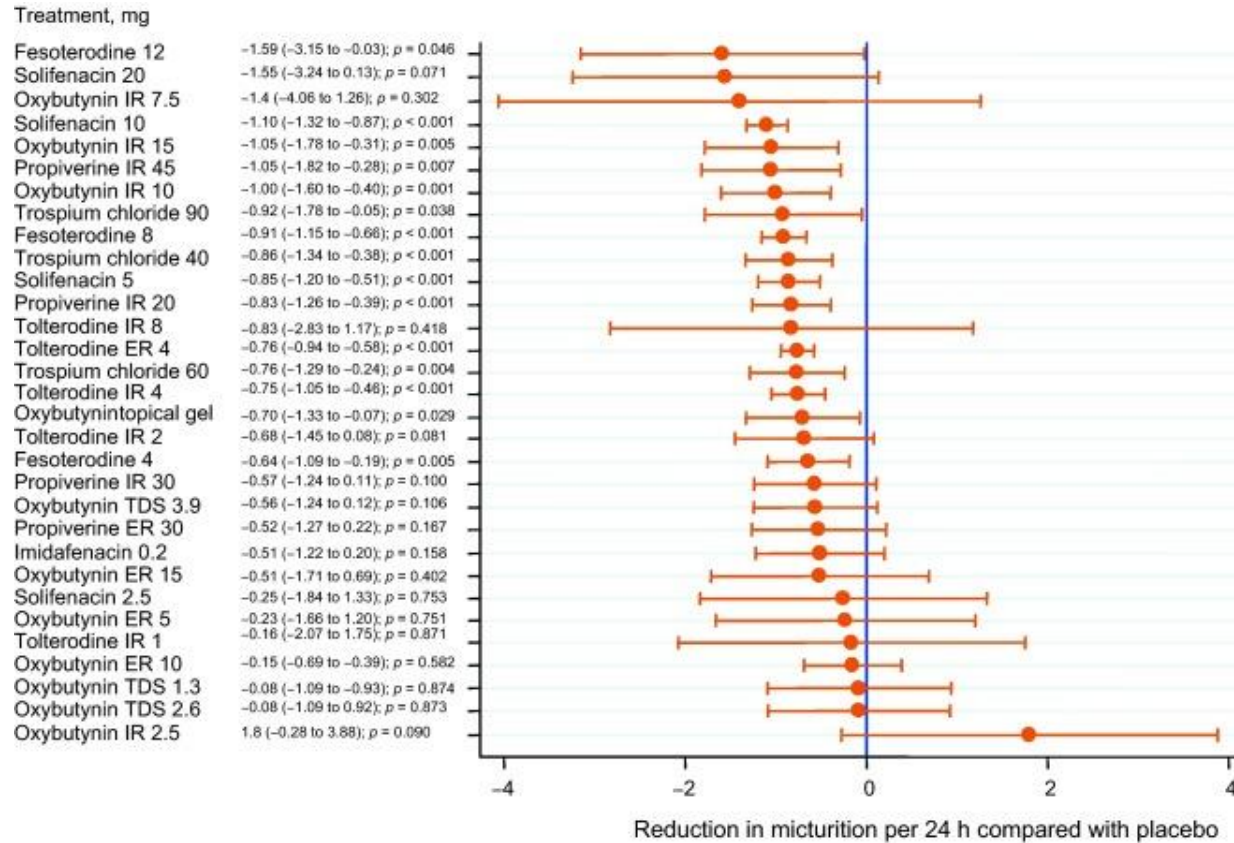
Comparative Effectiveness

Drug	Decrease in Daily UII Episodes		Decrease in Daily Voids	
	Estimate	95% CI	Estimate	95% CI
Single drug estimates				
Placebo	1.06	0.70 to 1.42	1.20	0.72–1.67
Oxybutynin immediate release	1.61	0.80 to 2.42	2.40	1.46–3.33
Oxybutynin extended release	0.53	–0.34 to 1.41	1.72	0.68–2.75
Tolterodine immediate release	1.59	1.12 to 2.06	1.99	1.29–2.68
Tolterodine extended release	1.67	1.27 to 2.08	2.14	1.63–2.64
Fesoterodine	1.93	1.48 to 2.38	1.58	0.86–2.30
Darifenacin	1.65	0.60 to 2.70	2.18	0.31–4.05
Solifenacin	1.47	0.93 to 2.02	2.14	1.41–2.88
Trospium extended release	2.46	1.80 to 3.12	2.45	1.39–3.51
Combined comparison of extended vs immediate-release formulations				
Placebo	1.06	0.70 to 1.42	1.20	0.72–1.67
Extended release	1.73	1.37 to 2.09	2.06	1.66–2.46
Immediate release	1.58	1.08 to 2.09	2.17	1.60–2.75

UII, urge urinary incontinence; CI, confidence interval.

OBSTETRICS & GYNECOLOGY

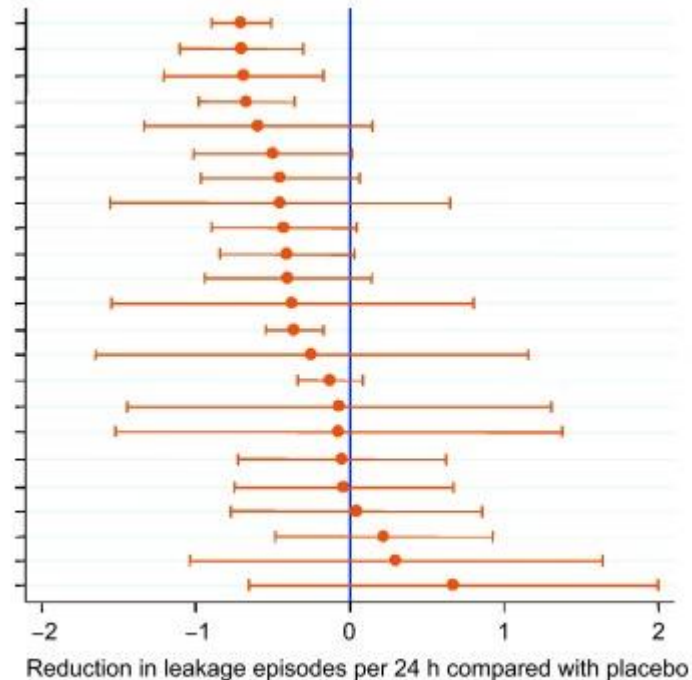
OAB Treatment - Anticholinergic



OAB Treatment - Anticholinergic

Treatment, mg

Solifenacin 10	-0.70 (-0.90 to -0.51); $p < 0.001$
Oxybutynin ER 10	-0.70 (-1.10 to -0.30); $p = 0.001$
Propiverine ER 30	-0.69 (-1.20 to -0.17); $p = 0.009$
Solifenacin 5	-0.67 (-0.98 to -0.36); $p < 0.001$
Propiverine IR 45	-0.59 (-1.34 to 0.15); $p = 0.116$
Oxybutynin IR 15	-0.50 (-1.01 to 0.02); $p = 0.059$
Oxybutynin TDS 3.9	-0.45 (-0.97 to 0.06); $p = 0.084$
Solifenacin 2.5	-0.45 (-1.56 to 0.65); $p = 0.422$
Propiverine IR 30	-0.43 (-0.90 to 0.04); $p = 0.075$
Propiverine IR 20	-0.41 (-0.84 to 0.03); $p = 0.069$
Tropium chloride 40	-0.40 (-0.94 to 0.14); $p = 0.147$
Solifenacin 20	-0.37 (-1.55 to 0.80); $p = 0.535$
Tolterodine ER 4	-0.36 (-0.55 to -0.17); $p < 0.001$
Tolterodine IR 8	-0.25 (-1.65 to 1.15); $p = 0.730$
Tolterodine IR 4	-0.13 (-0.34 to 0.08); $p = 0.238$
Oxybutynin ER 15	-0.07 (-1.44 to 1.31); $p = 0.923$
Oxybutynin ER 30	-0.07 (-1.52 to 1.38); $p = 0.923$
Tolterodine IR 2	-0.05 (-0.72 to 0.63); $p = 0.886$
Oxybutynin TDS 1.3	-0.04 (-0.75 to 0.67); $p = 0.917$
Oxybutynin IR 20	0.04 (-0.77 to 0.86); $p = 0.918$
Oxybutynin TDS 2.6	0.22 (-0.49 to 0.92); $p = 0.542$
Tolterodine IR 1	0.30 (-1.04 to 1.64); $p = 0.661$
Oxybutynin IR 10	0.67 (-0.65 to 2.00); $p = 0.320$



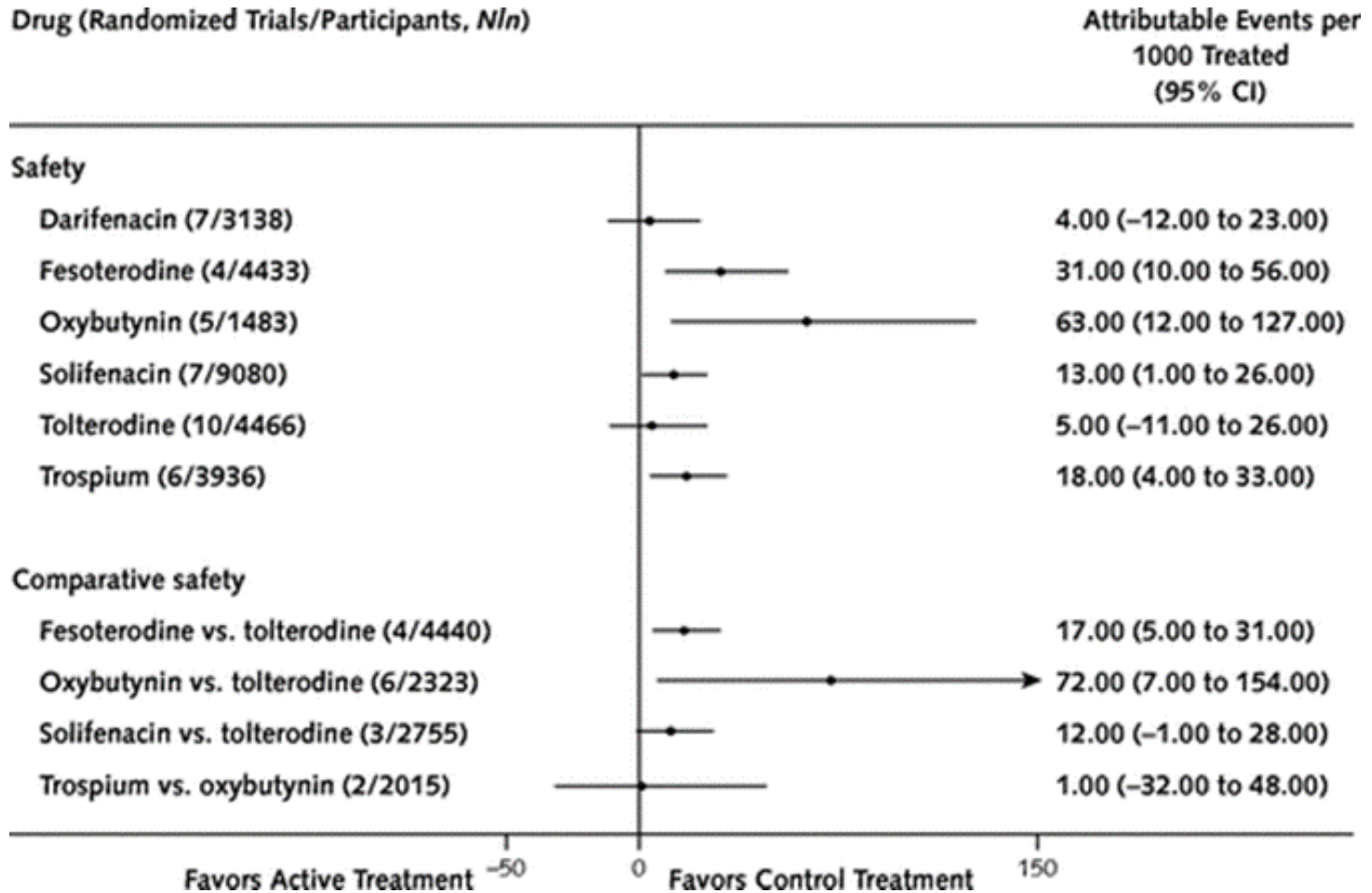
● Mean. — 95% confidence interval.

Anticholinergics

- Reduction in events per day on treatment
 - ↓urgency incontinence 1.73 (CI₉₅ 1.37-2.09)
 - 2.79 (CI₉₅ 0.70– 4.88) at baseline
 - ↓voids by 2.06 per day (CI₉₅ 1.66–2.46)
 - 11.28 (CI₉₅ 7.77–14.80) at baseline
- Placebo
 - ↓urgency incontinence episodes 1.06 (CI₉₅ 0.7–1.42)
 - ↓voids 1.2 (CI₉₅ 0.72– 1.67) per day

OAB Treatment - Anticholinergic

Treatment Discontinuation due to Adverse Effects



OAB Treatment - Anticholinergic

Event	RR	CI
All events	1.26	1.12 – 1.43
Dizziness	1.43	0.83 – 2.46
Headache	1.62	0.95 – 2.79
Dry mouth	3.94	2.82 – 5.50
Dyspepsia	2.01	0.82 – 4.90
Constipation	2.39	1.76 – 3.23
Urinary retention	3.60	1.67 – 7.76
UTI	1.17	0.81 – 1.71

OAB Treatment - Anticholinergic

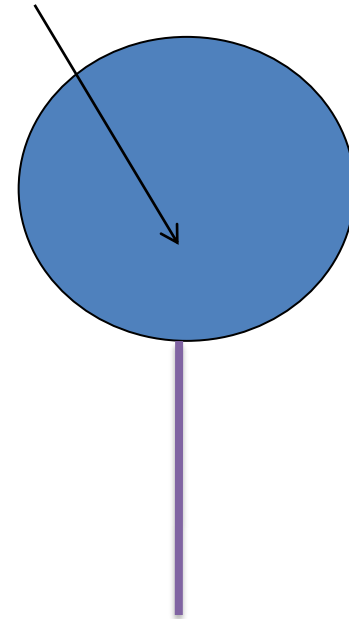
- Additional safety concerns
 - Cognitive impairment
 - Individuals with dementia excluded from clinical trials
 - Evidence of cognitive impairment with long-term anticholinergic burden

OAB Treatment - Anticholinergic

- The bottom line:
 - Anticholinergics are generally better than placebo
 - They reduce the number of micturitions and leakage (incontinence) episodes, but usually do not 'cure' the incontinence
 - Side effects can be serious, but discontinuations are often due to the 'nuisance' side effect of xerostomia

Beta-3 Adrenergic Agonist

Beta-3 receptors



- Mirabegron
 - Relaxes bladder smooth muscle
 - Dosed daily

	Change in incontinence/24h	Change in micturitions	Change in urgency (grade 3-4)
Mirabegron 50mg	-1.5	-1.8	-1.9
Mirabegron Baseline	(2.7)	(11.7)	(5.8)
Placebo	-1.1	-1.2	-1.3
Placebo Baseline	(2.7)	(11.6)	(5.6)

OAB Treatment - Mirabegron

- Safety – clinical trials

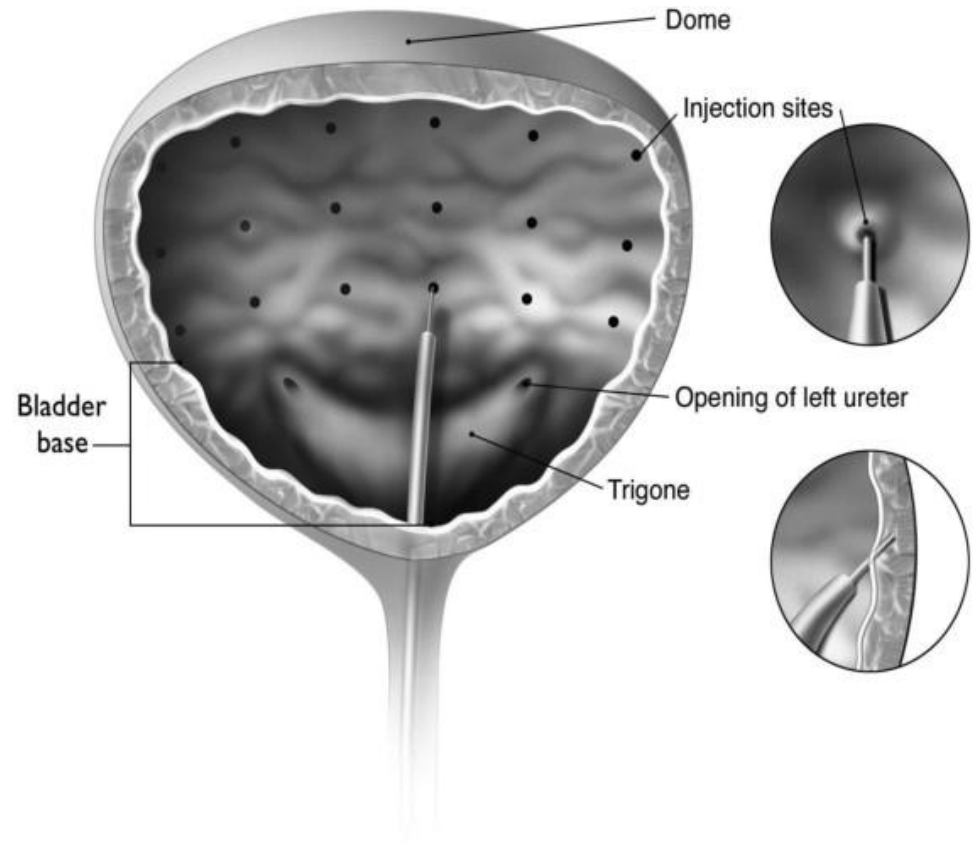
Treatment	Mirabegron	Placebo	Tolterodine
Any AE	18.6%	16.8%	26.5%
Hypertension	4.7%	4.6%	6.1%
Headache	2.0%	1.3%	2.2%
Dry Mouth	0.9%	1.6%	9.5%
Constipation	0.8%	1.2%	1.4%

- Safety – product monograph

- AE: nausea, headache, diarrhea, constipation, dizziness
- CV safety: tachycardia, increased BP, prolonged QTc

OAB - Alternatives

- Tricyclic antidepressants
- Dicyclomine
- Flavoxate
- Botulinum toxin



CASE STUDY 2 (STRESS)

Case Study 2

- A 35 year old woman comes to the pharmacy to ask you about the “OTC pessary” that she would like to use when going to the gym.

Case Study 2

- How would you start the conversation?
- What information would you like to gather?

Case Study 2

Medications

Sertraline 100 mg QHS
Zopiclone 7.5 mg QHS
Omega-3 supplement BID
Senna 8.6 mg QHS PRN (about 4/week)

Medical Hx:

Depression
G2P2
Obesity (BMI 45)
Constipation

Lifestyle habits:

2-3 diet cola/day
Drinks water with meals, wine with dinner a few nights/week
Currently smokes ½ ppd but is trying to quit, but concerned about weight gain
Working with a dietitian for weight loss

Social Hx:

Works as a schoolteacher fulltime

Caffeine

Caffeine thought to contribute to UI via diuretic action and irritant effect

- Pharmacology - methylxanthine, a stimulant with a weak diuretic effect
 - Contribution to LUTS not clear
- Moderate intake: 3 or less cups of caffeinated coffee, tea or soda per day. (MacDiarmid & Rosenberg, 2005)

Caffeine

Does reducing caffeine
improve lower urinary
tract symptoms?



Caffeine

Research to support caffeine reduction to improve LUTS, including UI, is limited.

- N= 110 women with SI or DO, crossover trial – no improvement of LUTS with caffeine reduction (Swithinbank, et al, 2005)
- N= 95 adults UI clinic, RCT - Bladder training +/- caffeine ↓ 100mg/day – decreased urgency, UI (only urgency statistically significant (Bryant et al 2002)

Caffeine

Being practical....

- Limit caffeine to about 400 mg per day
 - 750 mL (3 cups) of black coffee or 1 L (4 cups) of black tea per day (Dietitians of Canada)
 - ICI 2016 recommends caffeine reduction as 250mg daily (2 cups) is associated with UI in men and women
 - Try reducing to see if it affects LUTS – reduce slowly
 - Herbal or decaf coffees as alternatives

Other Types of Fluids

- *Artificial sweeteners*
 - aspartame and other artificial sweeteners induce detrusor contraction in rats (Elliott et al 2011)
 - No replication/trials in humans
- *Acidic fruit juices*
 - Thought to be irritating
 - Townsend et al (2011) – data from two cohorts from Nurses Health Study
 - No relation between acidic fruits and risk of development or progression of UI
- *Alcohol*
 - thought to act as a diuretic and bladder irritant
 - may affect ability to respond to an urge to void in a timely manner
 - Risk factor? – studies inconsistent

Constipation



How does
constipation
cause or worsen
UI?

Constipation

- Theory: Fecal load pressure on bladder neck, pressure on the bladder stimulates uncontrolled contraction of the detrusor.
- N= 1154 women >60y – those with UI more likely to report constipation (Diokno et al,1990)
- Straining at stool associated with UI in women (Spence-Jones et al, 1994, Alling Møller, 2000)
 - Association between straining and pudendal nerve function or pelvic floor tone?
- Evidence on the effect of regulating bowel function on UI absent - no RCTs

Constipation



Being practical....

- Increase dietary fibre
 - Insoluble fibre (skins of fruits and vegs, bran) helpful for bowel regularity
 - Need adequate fluids
 - Soluble fibre (oats, barley, pectin, guar gum and psyllium) improves stool consistency (firmer)
 - Other benefits may be lower cholesterol, blood glucose control
- Aim for total dietary fibre of 21-38 gm

<http://www.dietitians.ca/Nutrition-Resources-A-Z/Factsheets/Fibre/Food-Sources-of-Fibre.aspx>

Diet – other factors

Epidemiological data

- Maserejian et al (2010) BACH (Boston Area Community Health) study
 - Greater total energy intake associate with LUTS
 - High dose Vit C and calcium associate with UI
- Dallosso et al (2003, 2004) Leicstershire MRC incontinence study
 - SUI ↑ in women with high fat diets, carbonated drinks, Vit B12 and zinc, ↓ in those that are more vegetables, bread, chicken.
 - ↓ risk of OAB onset in those with ↑Vit D, protein, K+

RCT

- Effect of soy rich diet on urogenital changes and UI N= 36 women(Manonai et al, 2006) No effect

ICI 2016 recommendation

- Minor decrease of fluid intake by 25% may be recommended provided baseline consumption is not less than one litre a day (Grade of Recommendation B).
- A reduction in caffeine intake is recommended for those with incontinence symptoms (Grade of Recommendation B).

Weight loss

- Does weight loss improve urinary incontinence?



Weight loss

Most studies in women

- Cohort, bariatric surgery
 - N=80 (Shimonov et al 2015) women who underwent bariatric surgery
 - Preop 29(37.7%) had UI (17 SUI), significant improvement in UI and other Sx postop
 - 15 had complete resolution post op
- Both women (Phelan et al 2012) and men (Breyer et al 2014) with diabetes had decreases in incontinence episodes with weight loss

Weight loss

- RCTs
 - N= 48 (Subak et al 2005) overweight/obese women with UI
 - liquid diet group lost more wt, 60% reduction in UI episodes
 - N=338 (Subak et al 2007,2009) overweight women with UI
 - wt loss intervention grp lost mean 8% of body wt, 41% of these had 70% ↓ in weekly UI episodes
 - N= 1957 (Brown et al 2006) overweight diabetic women
 - Intervention grp (intensive lifestyle diet, exercise, education) less likely to have UI than those assigned to placebo or metformin
 - N= 1910 (Breyer et al 2013 abstract) overweight/obese men with DM2
 - 11.3% lifestyle intervention vs 9.7% of control had UI
 - Intervention lost more weight and had 38% decreased odds of reporting UI at 1 year, less new onset UI

And what about exercise?

- **Prospective cohort**
 - Low activity predicted UI onset, moderate lowered risk in middle age and older women - Nurses' Health Study (Danforth et al 2007, Townsend et al 2008).
 - Low physical activity linked to OAB onset UK postal questionnaire n-3411 (McGrother, 2012)
- **Strenuous exercise**
 - SUI common in exercising young women (Bø et al 1989) and elite women athletes (Bø et al, 2001, Caylet et al 2006)
 - Prolapse surgery/UI more likely in NA's (Jorgensen et al.1994)
- **SR - In women, evidence that exercise other than PFME is still not strong** (Bø et al 2013)
- **SR - Men with prostate ca, supervised general exercise + PFME likely helpful** (Baumann et al 2012)

ICI 2016 recommendation

- Weight loss as a non surgical intervention should be recommended to obese and overweight women (Grade of Recommendation A)
- Weight loss through lifestyle changes should be recommended to obese and overweight men with UI, particularly those with type 2 diabetes.(Grade of Recommendation: B)

ICI 2016 summary

- Epidemiological evidence is building for an association between moderate physical activity and a reduction in urinary incontinence. There is a need for randomized controlled trials to confirm causality.

ICI 2016 summary

- Strenuous exercise may unmask the symptom of SUI during provocation. There is currently no evidence that strenuous exercise causes the condition of UI. There are scant uncontrolled data that suggests that women engaged in occupations with heavy lifting may be predisposed to genital prolapse and/or UI.

Smoking

- Studies inconsistent for the association of smoking with UI and the effect of nicotine on the bladder
- No RCTs of whether smoking cessation prevents or improves UI
- ICI 2016 Smoking abstinence should be recommended for women and men with UI. (Grade of Recommendation: C)
- Being practical....
 - If you have stress UI, and cough frequently, you may have more UI episodes. Smoking cessation may be beneficial

PELVIC FLOOR MUSCLE EXERCISES

Prevention In Women

In women (non pregnant, post natal, or childbearing), do pelvic floor muscle exercises prevent UI?

Prevention In Women

- No trials in non-childbearing women

Being practical...

Although there are no trials, continued ongoing practice of PFME has no negative effects and may have some positive effects that have not yet been demonstrated.

Treatment in Women

For non-childbearing women: Are PFME effective for UI? Is one treatment regime better than another?

Treatment in Women

- 25 RCTs included in ICI 2013, much heterogeneity in sample characteristics, PFMT treatment regime and comparison
 - Most favoured PFMT
 - Unable to recommend one regime over another
- PFMT at least 8 contractions 3x day for at least 3 months duration (NICE Guideline 2006/13)

ICI 2016 recommendation

- Supervised PFMT should be offered as a first line conservative therapy for women of all ages (Grade of Recommendation A)
- There is preliminary evidence that PFMT may help prevent UI in older women. (Grade of Recommendation:C).

ICI 2016 recommendation

- Clinicians should provide the most intensive HP led PFMT programme possible within service constraints because HP taught and supervised programmes are better than self-directed programmes, and more HP contact is better than less (Grade of recommendation A)
- There is no clear benefit of adding clinic (Grade of recommendation A) or home based BF (Grade of recommendation B) to a PFMT programme.

PFME for POP

- Prevention – no current evidence on role of PFMT in prevention of POP
- Treatment
 - 6 trials of PFMT, results favored intervention
 - Hagen et al (2014) RCT – symptom improvement

ICI 2016 RECOMMENDATION

- ◉ Evidence that PFMT is effective in reducing pelvic floor symptoms in women with prolapse (Grade of Recommendation A)
- ◉ No evidence that PFMT is effective in reducing the severity of prolapse based on POP-Q stage (Grade of Recommendation B)

Prevention/Treatment in Men

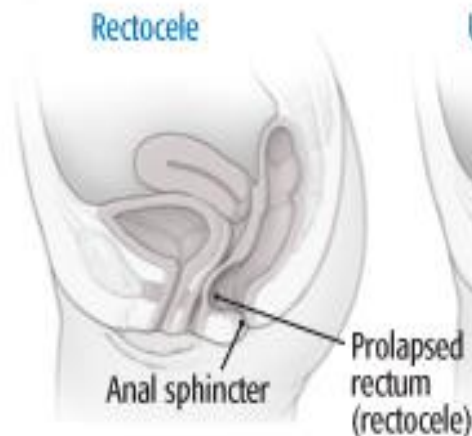
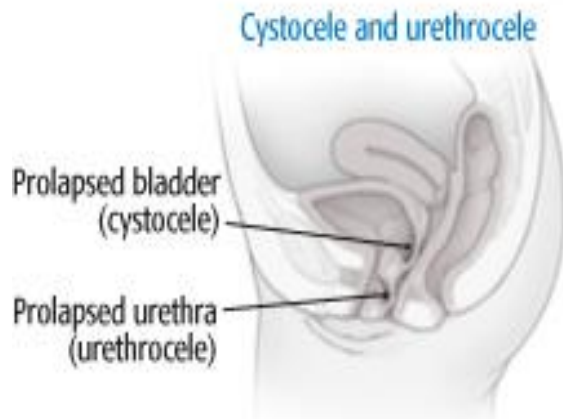
- Most research on PFMT in men with post-prostatectomy UI (radical prostatectomy)
 - Cochrane and ICI evaluations – inconclusive
- Other men/LUTS – Post micturition dribble
 - Two small trials of PFMT and or urethral milking
 - Both equally effective techniques

ICI 2016 Recommendation

- Men can be offered instruction to do a strong PFM contraction immediately after voiding, or urethral massage, to empty the urethra, to improve symptoms of post micturition dribble (Grade of recommendation C)

PESSARIES

Pelvic organ prolapse (POP)





Pessaries



- Conservative Rx of SUI in women but few studies, no RCTs
- Pessaries – two trials, mainly observational data (prospective, retrospective)
- Need to be fitted - urogynecologist or specialized continence nurse – although a “non fitted” pessary and disposable “bladder support” for SUI are on the market



Temporary bladder supports



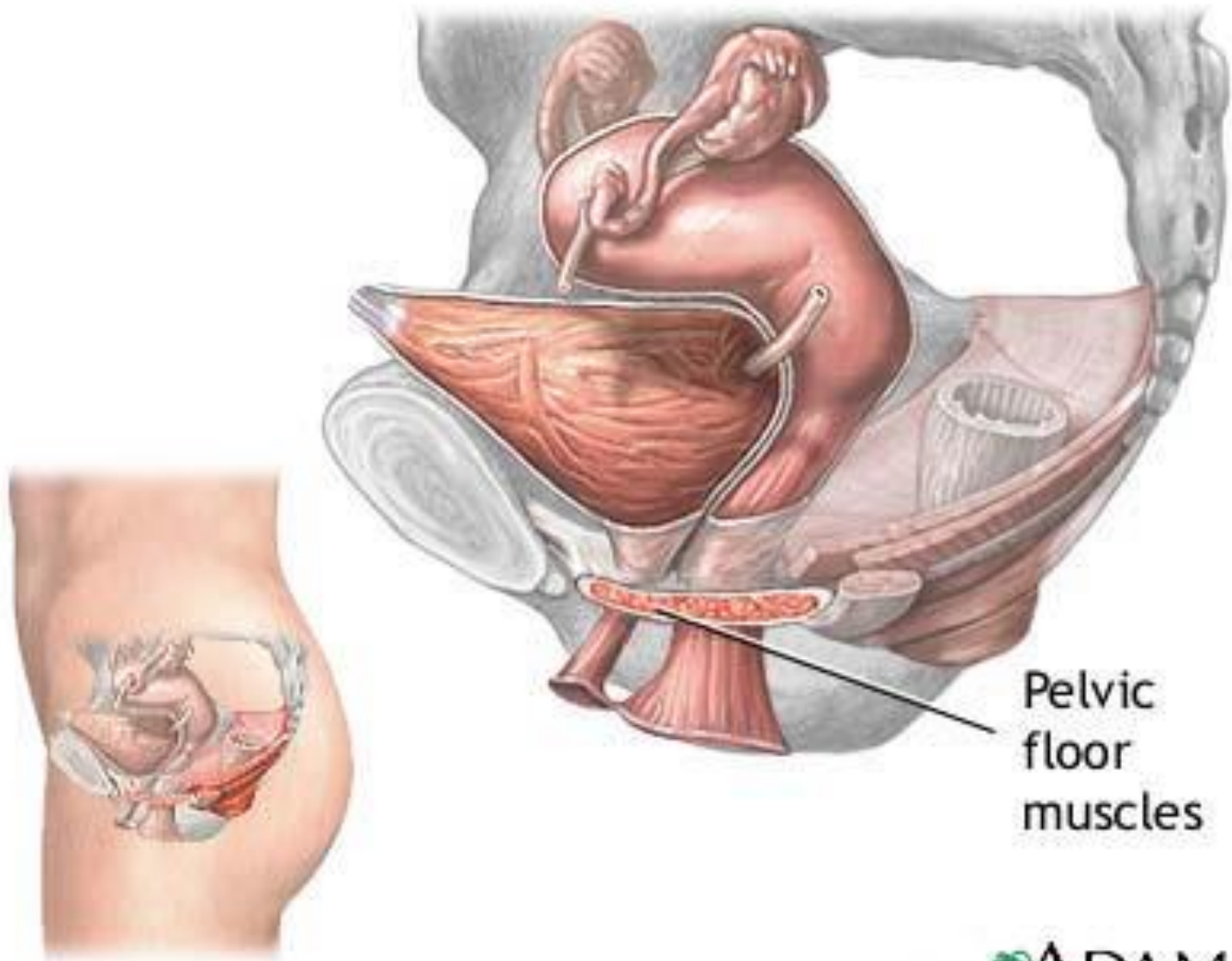
https://www.poise.com/en-ca/products/impressa/introduction?gclid=eaiaiqobchmi5pymo5lz3gixictbh2edq7feaayaiaaegjyspd_bwe

ICI 2016 Recommendations

- In a choice between Gellhorn pessary and a ring with support, either may improve prolapse symptoms and reduce their impact (Grade of recommendation B)



Stress Urinary Incontinence – Pharmacologic treatment



Pelvic
floor
muscles

 ADAM.

Stress LUTS - Alpha-Agonists

- Evidence
 - “There was weak evidence to suggest that use of an adrenergic agonist was better than placebo treatment.”
 - Alhasso et al, Cochrane 2005
 - No evidence these medications are superior to PFMT
 - Shamliyan et al, Annals Intern Med 2008
- Preferred alpha-agonist:
 - Pseudoephedrine 15-30 mg tid
- Case reports of use, not preferred:
 - Norepinephrine
 - Midodrine
- Constricts bladder neck, sphincters
- Side Effects:
 - Increased BP, anxiety, insomnia, cardiac arrhythmias



Stress LUTS - Hormone Therapy

- Rationale:
 - Minimize atrophy
 - Sensitize alpha receptors
- Evidence is inconsistent
- Landmark trials (WHI, HERS) showed a consistently higher risk of self-reported incident urinary incontinence at all time points in women who took combined E+P orally vs placebo.
 - WHI trial at 1 y combined E+P, RR for urinary incontinence = 1.39 [95% CI, 1.27 - 1.52]
 - WHI at 3 y RR = 1.81 [95% CI, 1.16 - 2.84]
 - HER trial E+P x 4,2y OR = 1.6 [95% CI, 1.-to 1.9])
 - (USPSTF, JAMA 2017)
 - Topical therapy improved
 - “Topical oestrogen administration is effective for the treatment of vaginal atrophy and seems to decrease complaints of OAB and UI. The potential for local oestrogens in the prevention as well as treatment of pelvic organ prolapse needs further research. “
 - (Weber MA, et al, Plos One 2015)
 - In some cases topical estrogen is used prior to pessary placement
- Testosterone therapy in men is avoided

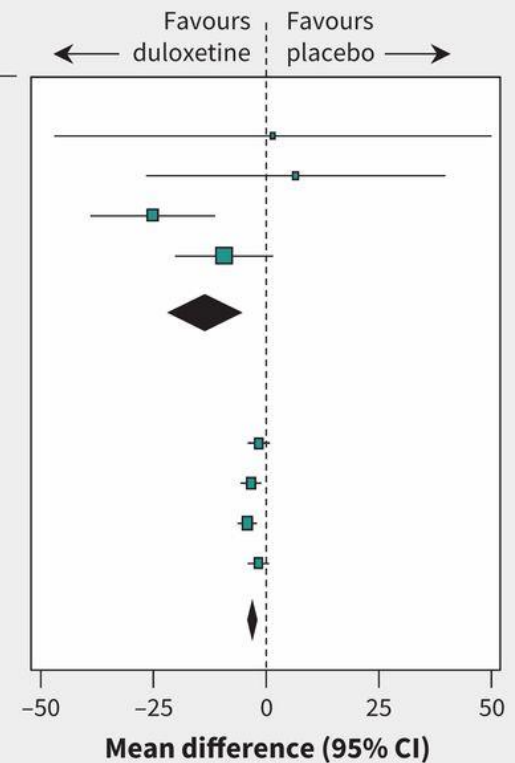
Stress LUTS - Duloxetine

- Labeled for treatment of depression, neuropathy
- Mechanism: selective 5-HT and NE reuptake inhibitor
- Increases sphincter contractility
- Doses studied: 80 mg qd or 40 mg bid
- Availability: 30 mg, 60 mg

Stress LUTS - Duloxetine

Benefits of duloxetine (80-mg dose), in terms of change in weekly incontinence episodes.

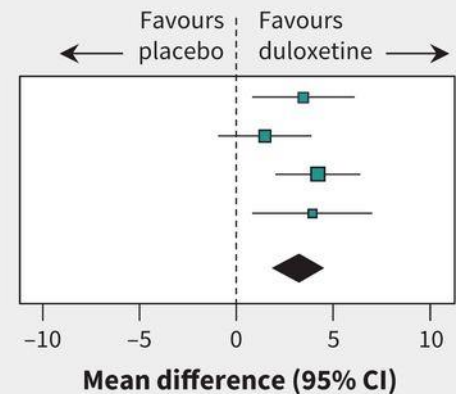
Study	Duloxetine		Placebo		Mean difference (95% CI)
	Mean \pm SD	<i>n</i>	Mean \pm SD	<i>n</i>	
% change from baseline					
SAAW	-15.57 \pm 248.34	119	-17.05 \pm 107.18	128	1.48 (-46.85 to 49.81)
SBAT	-4.88 \pm 228.43	212	-11.45 \pm 95.25	242	6.57 (-26.44 to 39.58)
SBAV	-34.31 \pm 78.28	286	-9.17 \pm 93.34	322	-25.14 (-38.79 to -11.49)
SBAX	-41.27 \pm 53.11	200	-31.94 \pm 59.53	229	-9.33 (-19.99 to 1.33)
Subtotal		817		921	-13.56 (-21.59 to -5.53)
Heterogeneity: $I^2 = 42\%$					
Numeric change from baseline					
SAAW	-4.12 \pm 10.36	119	-2.48 \pm 7.61	128	-1.64 (-3.92 to 0.64)
SBAT	-7.02 \pm 12.39	212	-3.68 \pm 10.16	242	-3.34 (-5.44 to -1.24)
SBAV	-8.4 \pm 11.39	286	-4.22 \pm 13.03	322	-4.18 (-6.12 to -2.24)
SBAX	-8.49 \pm 12.45	200	-6.79 \pm 10.71	229	-1.70 (-3.91 to 0.51)
Subtotal		817		921	-2.85 (-3.91 to -1.78)
Heterogeneity: $I^2 = 27\%$					



Stress LUTS - Duloxetine

Benefits of duloxetine (80-mg dose), in terms of the Incontinence Quality of Life total score.

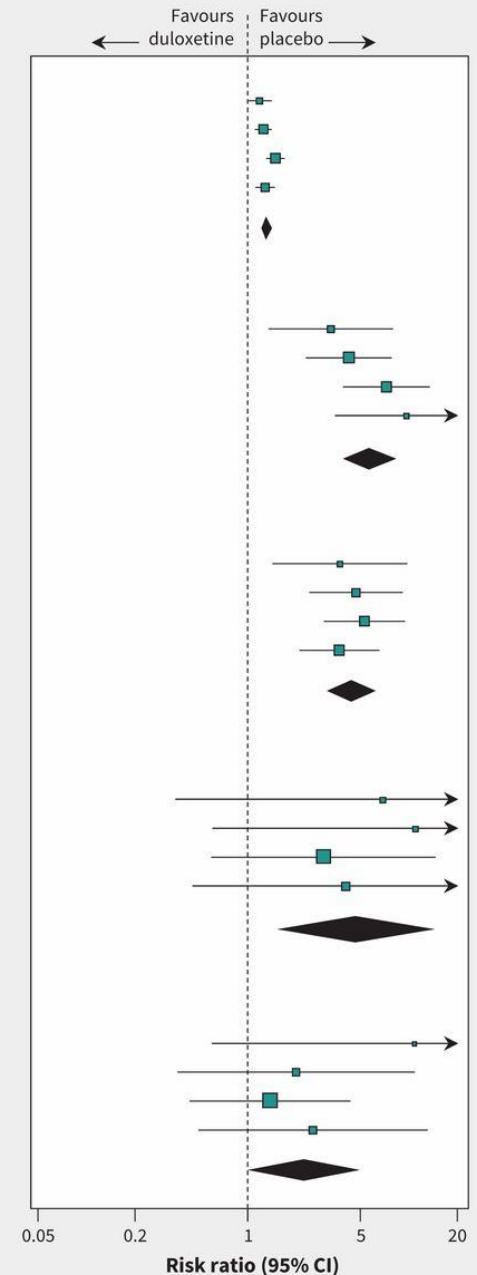
Study	Duloxetine		Placebo		Mean difference (95% CI)
	Mean ± SD	<i>n</i>	Mean ± SD	<i>n</i>	
SAAW	9.3 ± 11.48	130	5.84 ± 9.99	132	3.46 (0.85 to 6.07)
SBAT	5.54 ± 13.97	240	4.07 ± 12.5	245	1.47 (-0.89 to 3.83)
SBAV	11.01 ± 14.79	333	6.8 ± 13.38	332	4.21 (2.07 to 6.35)
SBAX	10.34 ± 15.99	220	6.42 ± 17.03	229	3.92 (0.87 to 6.97)
Subtotal (95% CI)		923		938	3.24 (2.00 to 4.48)
Heterogeneity: $I^2 = 5\%$					



Stress LUTS - Duloxetine

Primary
AE: nausea

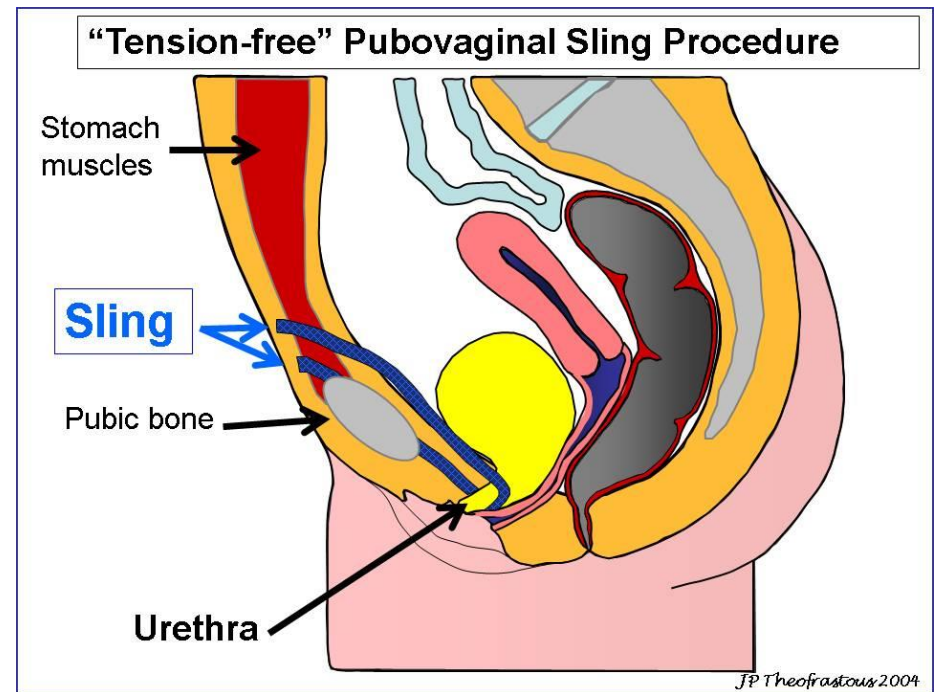
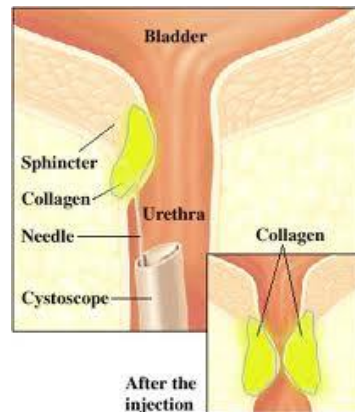
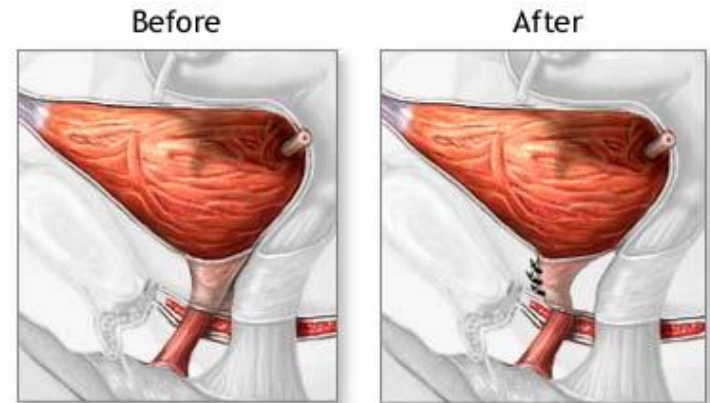
Study	Events, n/N		Risk ratio (95% CI)
	Duloxetine	Placebo	
At least 1 treatment emergent adverse event			
SAAW	101/140	84/138	1.19 (1.00 to 1.40)
SBAT	198/247	158/247	1.25 (1.12 to 1.40)
SBAV	255/344	169/339	1.49 (1.31 to 1.68)
SBAX	173/227	137/231	1.29 (1.13 to 1.46)
Subtotal	727/958	548/955	1.32 (1.24 to 1.41)
Heterogeneity: $I^2 = 51\%$			
Discontinuing because of adverse events			
SAAW	20/140	6/138	3.29 (1.36 to 7.93)
SBAT	51/247	12/247	4.25 (2.32 to 7.77)
SBAV	81/344	11/339	7.26 (3.94 to 13.38)
SBAX	38/227	4/231	9.67 (3.51 to 26.65)
Subtotal	190/958	33/955	5.73 (4.00 to 8.20)
Heterogeneity: $I^2 = 26\%$			
At least 1 core or potential activation event			
SAAW	19/140	5/138	3.75 (1.44 to 9.75)
SBAT	47/247	10/247	4.70 (2.43 to 9.09)
SBAV	70/344	13/339	5.31 (2.99 to 9.41)
SBAX	51/227	14/231	3.71 (2.11 to 6.50)
Subtotal	187/958	42/955	4.45 (3.22 to 6.14)
Heterogeneity: $I^2 = 0\%$			
At least 1 event of emotional disturbance			
SAAW	3/140	0/138	6.90 (0.36 to 132.36)
SBAT	5/247	0/247	11.00 (0.61 to 197.87)
SBAV	6/344	2/339	2.96 (0.60 to 14.54)
SBAX	4/227	1/231	4.07 (0.46 to 36.14)
Subtotal	18/958	3/955	4.73 (1.62 to 13.85)
Heterogeneity: $I^2 = 0\%$			
At least 1 core or potential psychotic event			
SAAW	5/140	0/138	10.84 (0.61 to 194.26)
SBAT	4/247	2/247	2.00 (0.37 to 10.82)
SBAV	7/344	5/339	1.38 (0.44 to 4.30)
SBAX	5/227	2/231	2.54 (0.50 to 12.98)
Subtotal	21/958	9/955	2.25 (1.06 to 4.81)
Heterogeneity: $I^2 = 0\%$			



Additional Options

- Surgical
 - Bladder suspension

- Bulking agents
 - Autologous fat
 - Silicone



CASE STUDY 3 (OVERFLOW)

Case Study 3

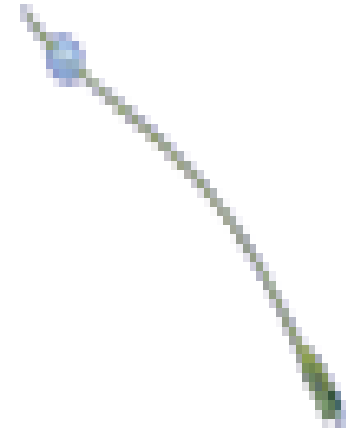
- A 70 year old man is at your pharmacy to order some catheters. He was seen by the nurse at the PCN and is currently waiting for assessment by a urologist for a possible TURP.
- The patient is concerned that he has been having some dribbling and has had difficulty urinating for over a year. He has had a couple of UTI's in the past year. He tells that he has BPH.

Case Study 3

- What additional information do you require?
- How will you conduct this review with the patient?

Case Study 3

- Medical Hx
 - BPH
 - GERD
 - OA
- Medications
 - Acetaminophen 1300 mg TID
 - Pantoprazole 40 mg daily
 - Tamsulosin 0.4 mg daily
- Social Hx
 - Lives with his wife
 - Works part time overseeing his car dealership business which he is handing over to his son

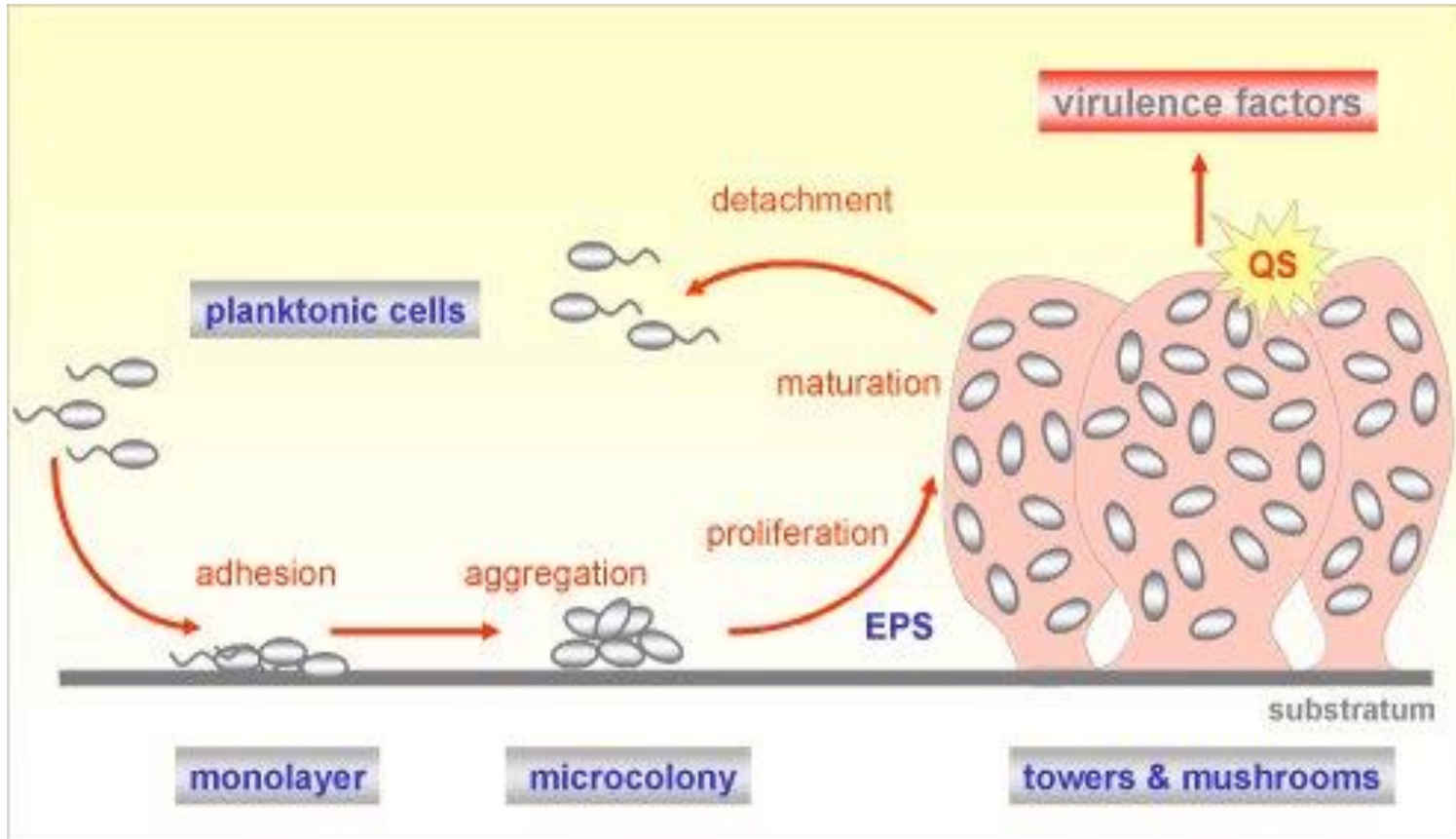


CATHETERS

Catheters

- Intermittent vs indwelling – CAUTI is a major concern
- CAUTI is associated with biofilm development , encrustation
 - Intermittent 1st choice
 - Antibiotic stewardship
- Other complications of chronic catheterization:
 - Stricture
 - False passages
 - Urethral erosion
 - Bladder cancer

Biofilm Formation



Biofilms grow anywhere.....



Biofilm in a water pipe

<http://www.aqualyseusa.com/images/legionella.jpg>



www.microbiological-garden.net

Biofilm on the surface of a quiet water body

Dental plaque is a biofilm



http://www.biofilmsonline.com/biofilmsonline/images/primer_teeth.jpg

Slimy polysaccharide matrix (aka biofilm) on rocks



http://www.nps.gov/archive/sitk/Natural%20Resources/Stream%20Ecology/Energy/river_rocks.jpg

Indications for insertion of an indwelling urinary catheter

Length of Catheterization	Indications
Short term catheter (< 14 days)	<ul style="list-style-type: none">• Select surgical procedures/postoperative care (e.g urological surgery, prolonged surgery)• Accurate monitoring of urine output (critically ill patients)• Prolonged immobilization (e.g. trauma cases)• Relief of acute urinary retention or bladder outlet obstruction• Instillation of medications into the bladder• End of life care <i>if</i> required
Long term catheter (> 14 days)	<ul style="list-style-type: none">• Bladder outlet obstruction waiting for surgery or for those not suited to surgical intervention.• Chronic retention related to neurological disease where intermittent catheterization is not feasible• Presence of sacral or perineal skin breakdown or pressure ulcers in incontinent patients• Intractable urinary incontinence where alternative approaches have not been successful.

ICI 2016 Recommendations

- Clean intermittent catheterisation (CIC) is the treatment of choice for those with ongoing bladder emptying problems and residual urine >100 ml who are able to manage the technique (Grade of Recommendation A)
- An external lubricant or lubricant coated catheter is recommended to minimise urethral trauma (Grade of Recommendation C)

ICI 2016 Recommendations

- Indwelling catheters should only be used after alternative management strategies have been considered and rejected as unsatisfactory (Grade of Recommendation A)
- Duration of catheterisation should be minimal (Grade of Recommendation A)
- A closed drainage system should be maintained (Grade of Recommendation A)
- Asymptomatic bacteriuria should NOT be treated with antibiotics (Grade of Recommendation B)

CONTAINMENT PRODUCTS AND ASSISTIVE DEVICES

Containment products and assistive devices

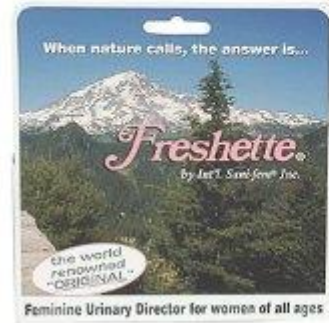
- Female and male urinals
- Commodes and bedpans
- Pads
- Mechanical devices (urethral inserts, penile clamps)

- ICS continence product advisor website

<http://www.continenceproductadvisor.org/>

Urinals and Commodes

- Male/female



Urethral inserts/ penile clamps



Absorbent products



ICI 2016 Recommendations – absorbant products

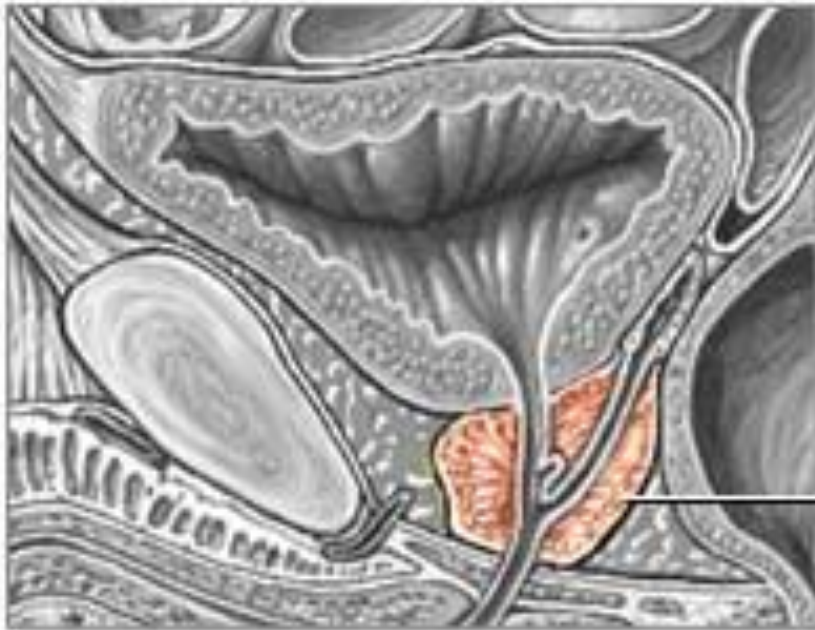
- Individuality: No one product works best for all testers: needs and priorities vary. Accordingly, users are advised to try a variety of products when possible (Grade of Recommendation B).
- Brand differences: Individual product brands within a design group often exhibit a wide range of performance and acceptability for individuals, and it cannot therefore be assumed that pads of different brands but broadly similar design will be equally acceptable or effective (Grade of Recommendation B).
- Combinations of designs: Absorbent products vary greatly in price and performance and suitability for individual needs. Users may therefore find combinations of designs preferable and cost-effective. (Grade of Recommendation B).

Nocturia

- Differences between nocturia, nocturnal polyuria and nocturnal enuresis
- More than 2 nocturia episodes nightly is the point of bothersomeness
- Conservative management
- Pharmacologic
 - Diuretics – low dose furosemide late afternoon
 - Desmopressin

BPH Treatment

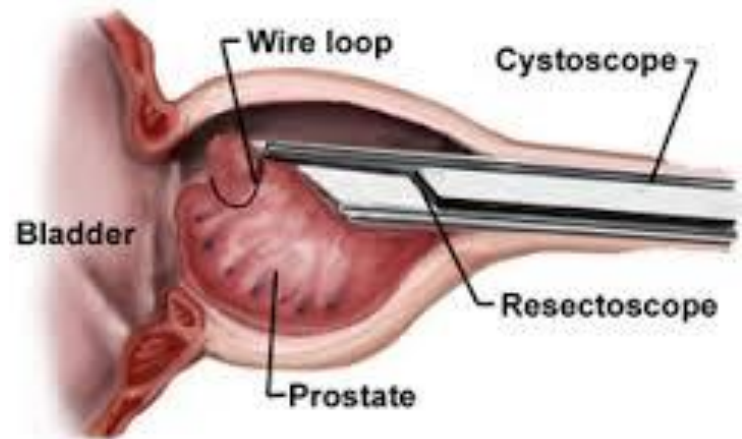
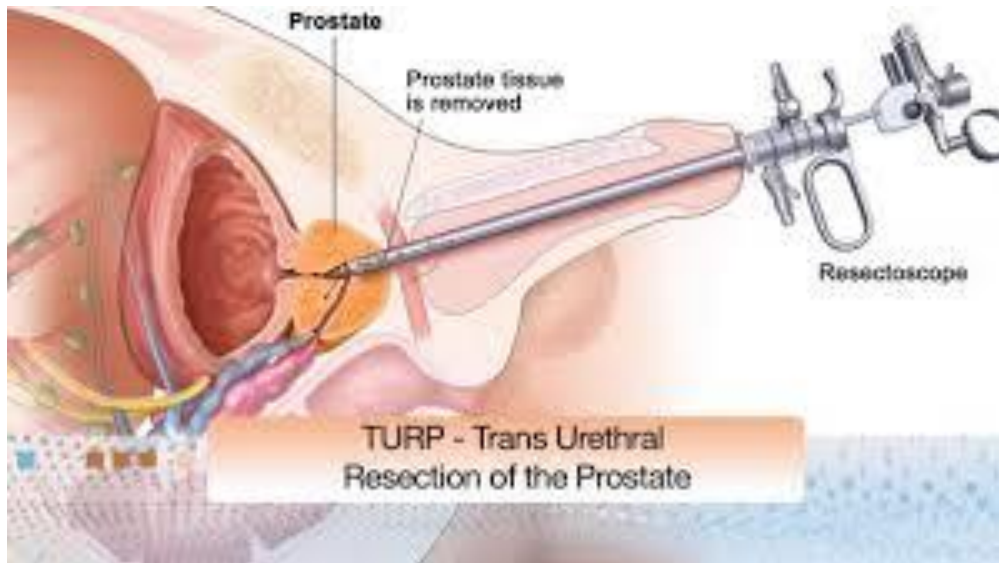
- “Are your symptoms bad enough that it would justify taking a medication each day or having a surgical procedure?”
- Surgery
- Catheterization
- Pharmacotherapy



Normal prostate



Benign prostatic hypertrophy (BPH)



BPH – Approach to Treatment

- Decisions based on IPSS (AUA)

INTERNATIONAL PROSTATE SYMPTOM SCORE SHEET

Dr Name: Address:

Patient Name: Address:

Date:

Age Group: 40-49 50-59
60-69 70+

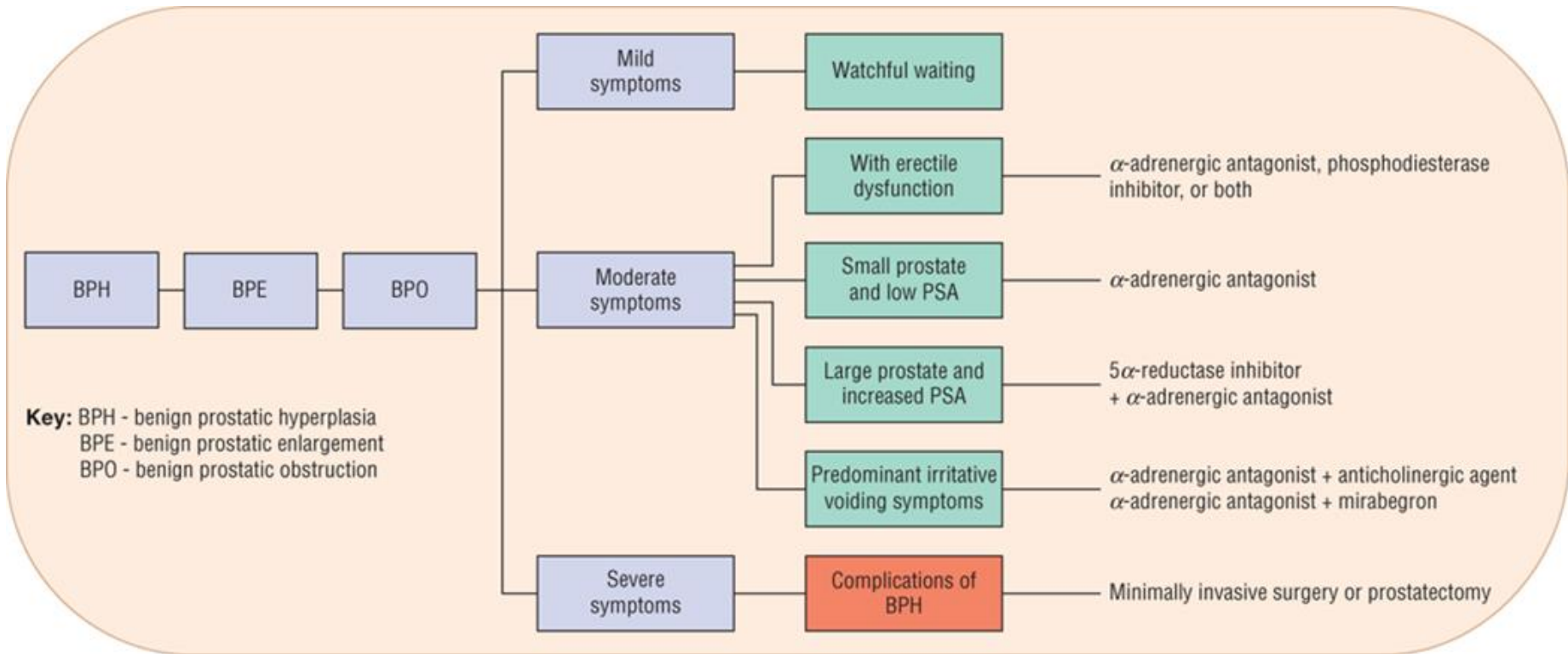
	Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	Your score
1. INCOMPLETE EMPTYING Over the past month, how often have you had a sensation of not emptying your bladder completely after you finished urinating?	0	1	2	3	4	5	
2. FREQUENCY 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	
3. INTERMITTENCY Over the past month, how often have you found you stopped and started several times when you urinated?	0	1	2	3	4	5	
4. URGENCY Over the past month, how often have you found it difficult to postpone urination?	0	1	2	3	4	5	
5. WEAK STREAM Over the past month, how often have you had a weak urinary stream?	0	1	2	3	4	5	
6. STRAINING Over the past month, how often have you had to push or strain to begin urination?	0	1	2	3	4	5	
7. NOCTURIA Over the past month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	None 0	1 time 1	2 times 2	3 times 3	4 times 4	5 or more times 5	

Which of the above do you regard as most troublesome (1-7) _____

TOTAL PROSTATE SYMPTOM SCORE _____

	Delighted	Pleased	Mostly satisfied	Mixed - satisfied and dissatisfied	Mostly dissatisfied	Unhappy	Terrible
QUALITY OF LIFE DUE TO URINARY SYMPTOMS If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that? (tick one).	0	1	2	3	4	5	6

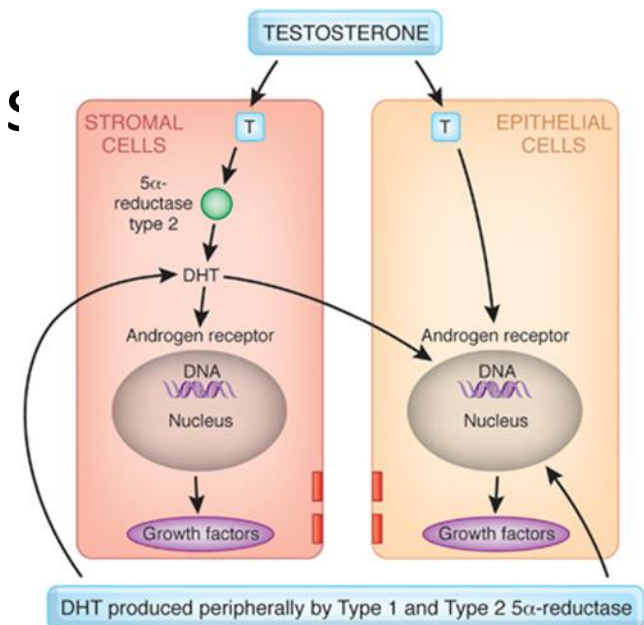
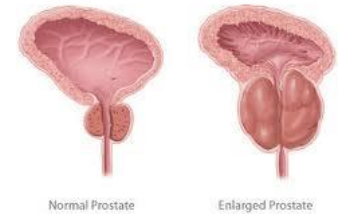
BPH Approach to Treatment



Source: J.T. DiPiro, R.L. Talbert, G.C. Yee, G.R. Matzke, B.G. Wells, L.M. Posey: Pharmacotherapy: A Pathophysiologic Approach, 10th Edition, www.accesspharmacy.com
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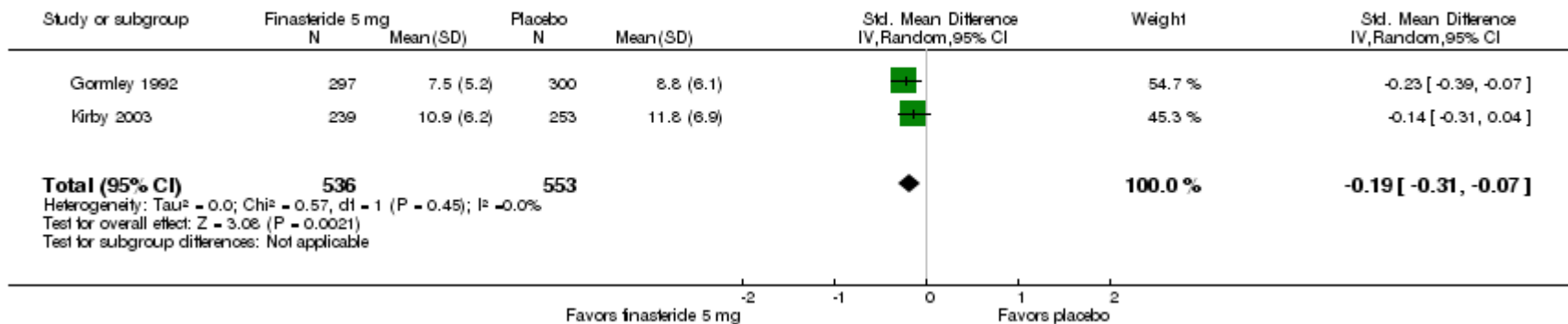
BPH – 5-Alpha Reductase Inhibitors

- Finasteride, Dutasteride
- Mechanism: Prevent formation of DHT
- Efficacy: Larger prostates
- Time to benefit: 3-6 months
- Dose:
 - finasteride 5 mg qd
 - dutasteride 0.5 mg qd



BPH – 5-Alpha Reductase Inhibitors

Review: Finasteride for benign prostatic hyperplasia
 Comparison: 1 Finasteride vs placebo
 Outcome: 1 Total symptom score (points) at endpoint (1/1 ≤ 1 yr)

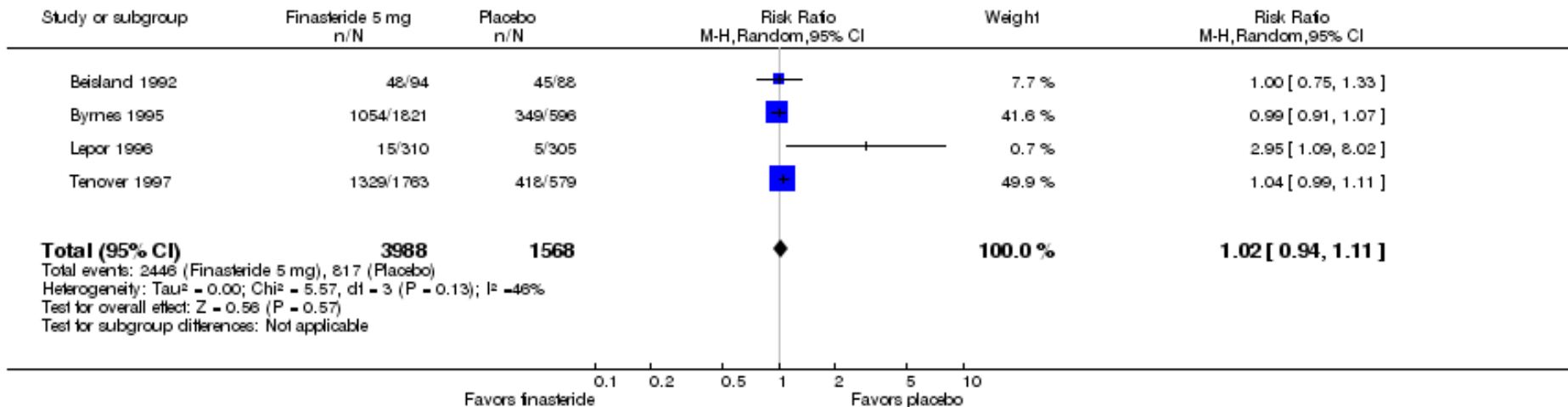


- Finasteride vs Dutasteride
 - Dutasteride found to work faster
 - 3 vs 6 months
 - Dutasteride found to reduce size of prostate more than finasteride
 - 20% vs 27%

Fenter 2008, Ravish 2007, Tacklind (Cochrane) 2007

BPH – 5-Alpha Reductase Inhibitors

Review: Finasteride for benign prostatic hyperplasia
 Comparison: 1 Finasteride vs placebo
 Outcome: 6 Any adverse event (1/u ≤ 1 yr)

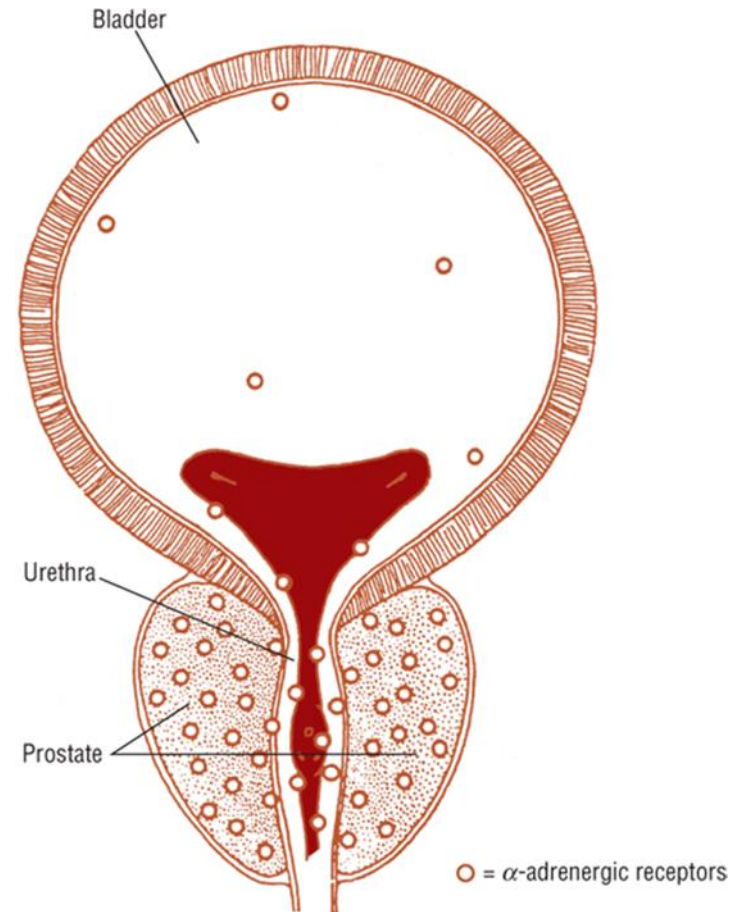


BPH – 5-Alpha Reductase Inhibitors

- Contra-indications: hypersensitivity
- Side effects:
 - impotence (3.7%)
 - decreased libido (3.3%)
 - decreased volume of ejaculate (2.8%)
 - infertility
- Warnings: breast cancer, suicide risk
- Interactions: None known

BPH – Alpha Antagonists

- Doxazosin
- Terazosin
- Tamsulosin
- Alfuzosin
- Silodosin



Source: J.T. DiPiro, R.L. Talbert, G.C. Yee, G.R. Matzke, B.G. Wells, L.M. Posey: Pharmacotherapy: A Pathophysiologic Approach, 10th Edition, www.accesspharmacy.com
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BPH – Alpha Antagonists

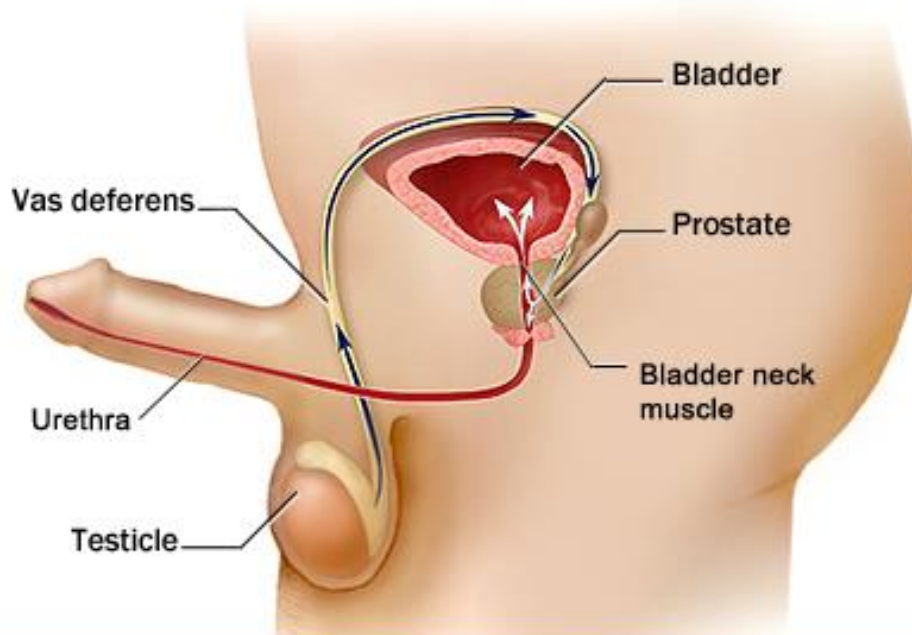
- Mechanism:
 - Alpha-1 receptors on prostate, relaxation of muscle
- Efficacy:
 - Within 1 week will improve symptoms
- Dosing:
 - Once daily
 - AM versus HS – monitor for nocturia

BPH – Alpha Antagonists

- >15 studies to date
- Studies range from 4-52 weeks
- No differences found between antagonists
- Results:
 - Flow rates improved 22%
 - AUA symptom score improved 38%

BPH - Alpha-antagonists

- Adverse events
 - Traditional (non-selective) ↑ dizziness (up to 80%)
 - Selective ↑ abnormal ejaculation
 - Floppy iris (NB if cataract surgery)



BPH

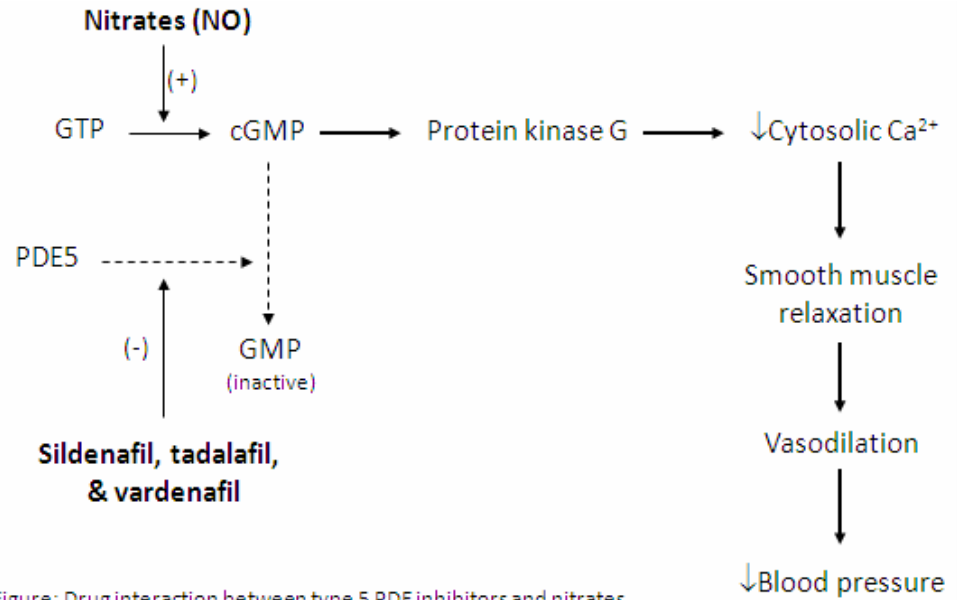


Figure: Drug interaction between type 5 PDE inhibitors and nitrates. Copyright. Pharmacology Weekly, Inc.

Tadalafil

- Relaxes smooth muscle of prostate, bladder
- Dosed: 5 mg daily
- Contraindications: CV disease
- PK: CYP 3A4; T1/2 = 17.5h
- SE: Headache, dyspepsia
 - severe/high risk: NAION, priapism
- Intx:
 - Nitrates, alpha-blockers, antihypertensive agents

BPH – Natural Health Products

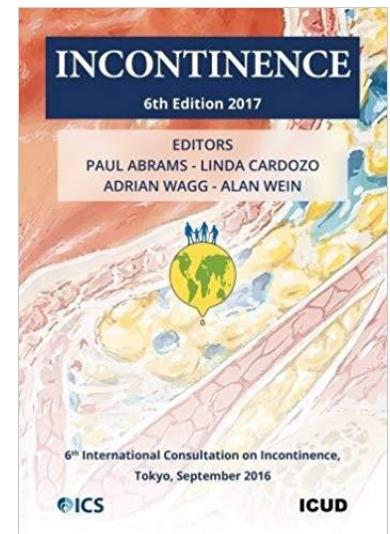
- Saw Palmetto
- Mechanism: not well elucidated
 - 5-alpha reductase inhibition
 - Decreased secretion of DHT
 - Triggers prostatic cell apoptosis
 - Anti-inflammatory effects
- Efficacy: possibly within 4-12 weeks
- Dose: 160 mg po bid
- Contraindications: hypersensitivity
- Interactions: None known

Resources

The presentation is guided by:

P.H. Abrams, L. Cardoza, Wagg, A. & Wein, A. (2016) *6th International Consultation on Urinary Incontinence* (6th Ed.).

- Dumoulin, C. et al Adult Conservative Management
- Wagg, A. et al Incontinence in the Frail Elderly
- Cottendon, A. et al Management Using Continence Products



Resources

- **Sources/Guidelines (selected)**

- Abrams P, Cardoza L, Wagg A, Wein A (2016) *6th International Consultation on Urinary Incontinence* (6th Ed.) ICUD/ICS.
- Abrams P, Andersson KE, Birder L, Brubaker L, Cardozo L, Chapple C, et al. Fourth International Consultation on Incontinence Recommendations of the International Scientific Committee: Evaluation and treatment of urinary incontinence, pelvic organ prolapse, and fecal incontinence. *Neurourol Urodyn* 2010;29(1):213-240. Book update 5th edition - <http://www.icud.info/incontinence.html>
- Bettez M, Tu le M, Carlson K, Corcos J, Gajewski J, Jolivet M, et al. 2012 update: guidelines for adult urinary incontinence collaborative consensus document for the Canadian urological association. *Can Urol Assoc J* 2012 Oct;6(5):354-363.
- Gabriel GG, Tsuyuki RT, Wagg A, Hunter K, Tannenbaum C, Sadowski CA. A pharmacist's guide for care of adult patients presenting with lower urinary tract symptoms (LUTS). *Canadian Pharmacists Journal* 2015;148(5):249-256.
- McVary KT, Roehrborn CG, Avins AL, Barry MJ, Bruskewitz RC, Donnell RF, et al. Update on AUA guideline on the management of benign prostatic hyperplasia. *J Urol* 2011 May;185(5):1793-1803.
- Oelke M, Bachmann A, Descazeaud A, Emberton M, Gravas S, Michel MC, et al. EAU guidelines on the treatment and follow-up of non-neurogenic male lower urinary tract symptoms including benign prostatic obstruction. *Eur Urol* 2013 Jul;64(1):118-140.
- NICE. Urinary incontinence in women. Update November 2015. <https://www.nice.org.uk/Guidance/CG171>

Online

- The Canadian Continence Foundation: www.continence-fdn.ca
- Canadian Urological Association: <https://www.cua.org/en>
- International Continence Society: <http://www.ics.org/>