

Urinary Incontinence – First Line Evaluation and Management

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Disclosure

Consultant: GSK; Intuitive Surgical

Educational Honoraria: Axonics

Research Grant: NIH (National Institutes of Health)

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Urinary Incontinence

Learning Objectives

- Identify the prevalence of urinary incontinence in women
- Define the types of urinary incontinence that commonly affect women
- Describe the conservative and procedural based management options for urinary incontinence



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Evaluation of Urinary Incontinence

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Case 1

74-year-old Vaginally Multiparous

Frequent, strong urges – cannot hold back urine

Leaks on way to toilet and washing dishes

Sometimes leaks with laughing

Wakes up 2-3 X per night to void



Case 2

35-year-old Delivered 2 Children Vaginally

Increased leakage since last delivery

Leaks with jogging and golfing

No nocturia



Burden of Incontinence

Prevalence as high
as 55% of women

Negative impact
on HRQOL

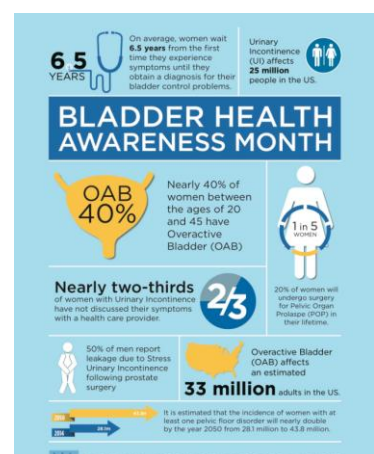
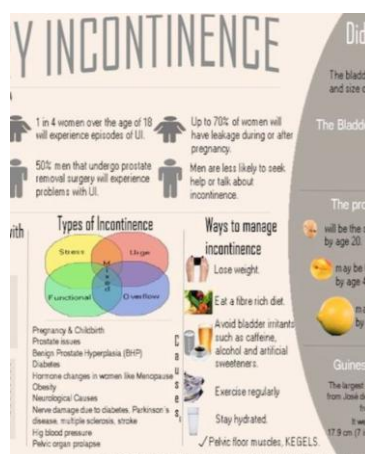
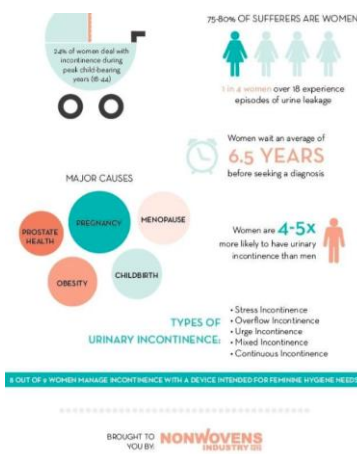
- Contributes to depression, falls, nursing home admission

Cost of UI in US
\$32 billion

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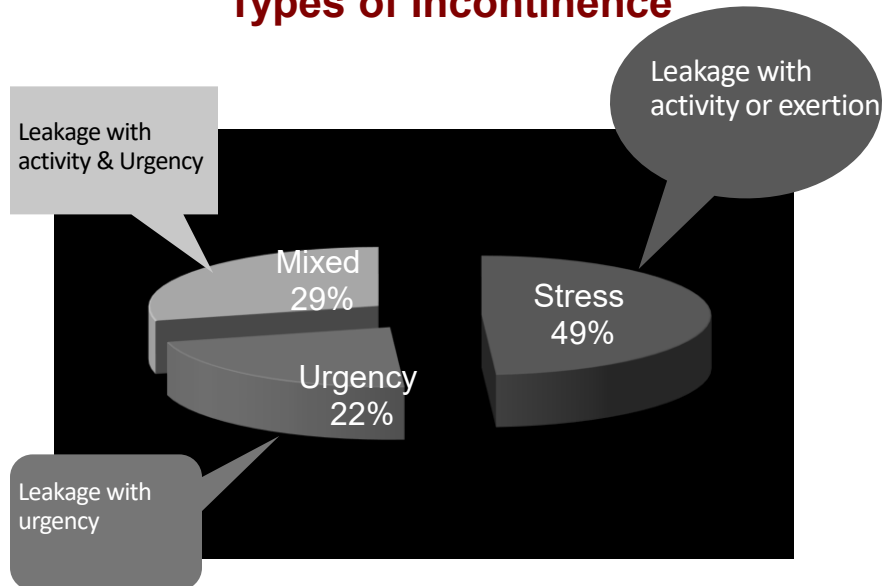
Burden of Incontinence



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Types of Incontinence



History

- Inciting events (activity, running water, key in lock)
- Frequency
- Urgency
- Nocturnal symptoms
- Timing
 - UI usually gradual
 - Recent surgery

- **BOTHER**



UI Evaluation

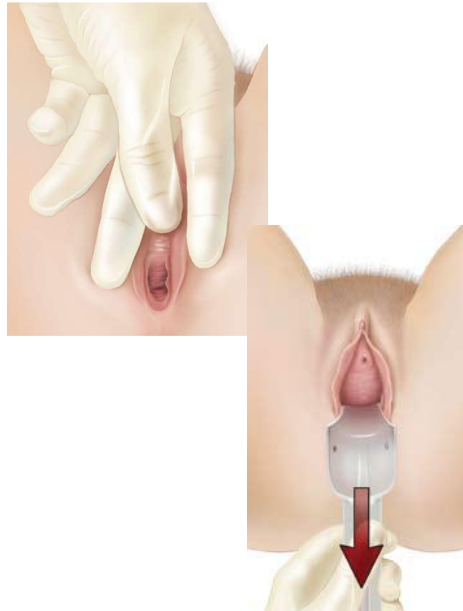
✓ Post void residual

Urine analysis & culture

Neurourologic exam

- Bulbocavernosus reflex

Cough stress test



Bladder Diary

This diary will help you and your health care team figure out the causes of your bladder control trouble. The "sample" line shows you how to use the diary.

Your name: _____

Date: _____

Time	Drinks		Trips to the Bathroom		Accidental Leaks		Did you feel a strong urge to go?		What were you doing at the time? <i>Sneezing, exercising, having sex, lifting, etc.</i>
	What kind?	How much?	How many times? (circle one)	How much? (circle one)	How much? (circle one)	How much? (circle one)	Circle one	Circle one	
Sample	Coffee	2 cups	✓	sm med lg	sm med lg	sm med lg	Yes No	Yes No	Running
6-7 a.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
7-8 a.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
8-9 a.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
9-10 a.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
10-11 a.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
11-12 noon				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
12-1 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
1-2 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
2-3 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
3-4 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
4-5 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	
5-6 p.m.				○ ○ ○	○ ○ ○	○ ○ ○	Yes No	Yes No	

Times of voids

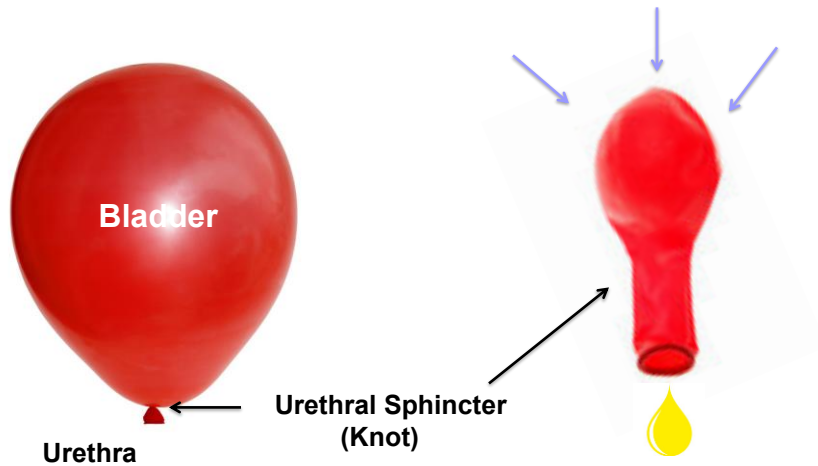
Voided volumes,

Incontinence episodes

- Activity during leakage

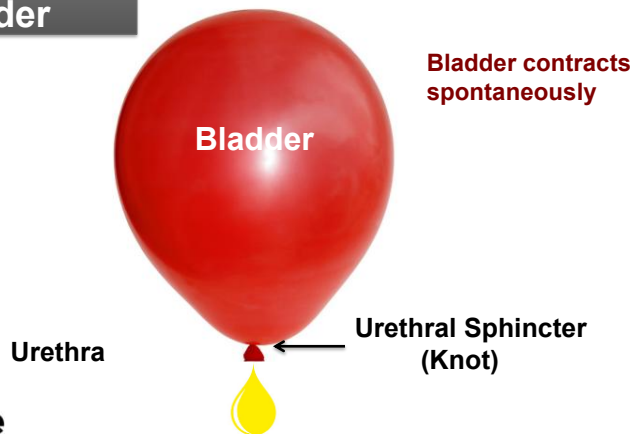
Fluid intake

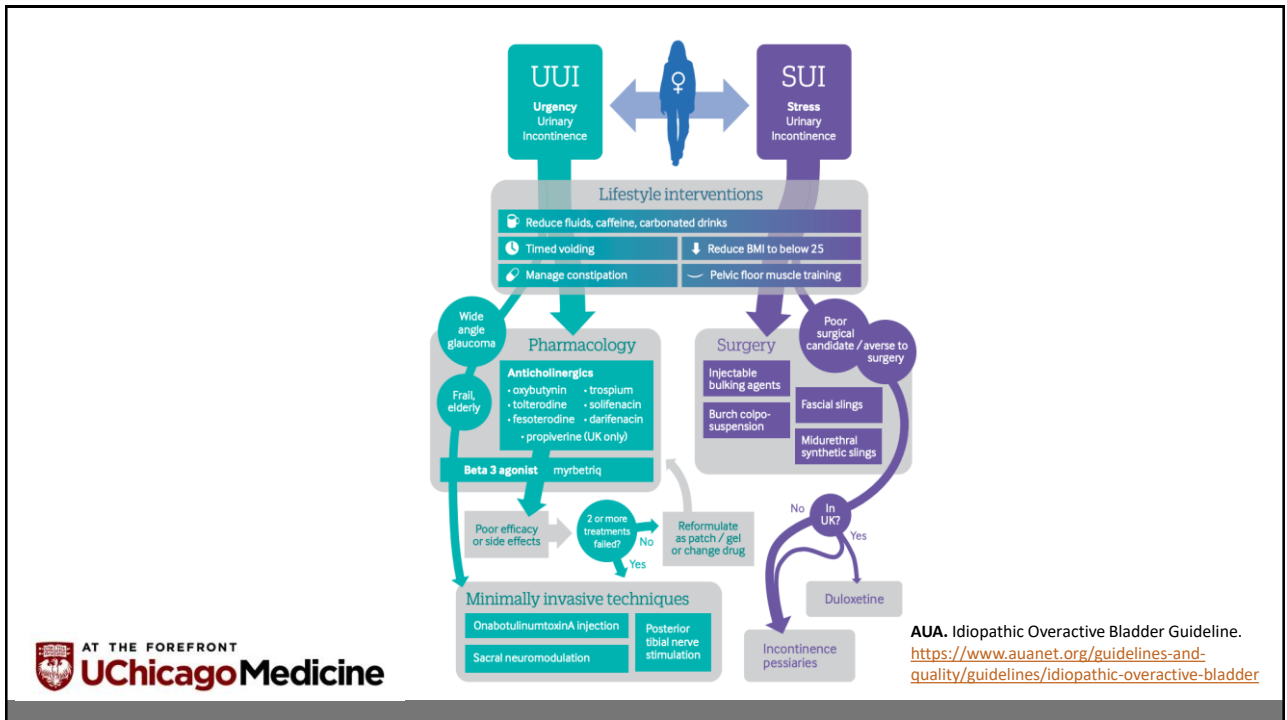
Stress Urinary Incontinence




Urgency Urinary Incontinence

**Overactive
Bladder**





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Management of UUI/OAB

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Back to Case 1

74-year-old Vaginally Multiparous

Frequent, strong urges – cannot hold back urine

Leaks on way to toilet and washing dishes

Sometimes leaks with laughing

Wakes up 2-3 X per night to void



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Bladder Diary

24 Hours

Time	Intake	Leak	Activity	Urge	Void
12:00a m		Yes	Sleeping	Yes	100ml
3:00am		Yes	Sleeping	Yes	150ml
6:00am		Yes	Sleeping	Yes	200ml
8:00am		Yes	Waking up	Yes	180ml
8:30am	8oz coffee		Breakfast		
10:00a m	4oz water	Yes	Exercisin g	No	200ml
12:00p m		Yes	Shopping	Yes	85ml
1:45pm					100ml
3:00pm		Yes	Driving	Yes	



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Urgency Urinary Incontinence

Overactive
Bladder

“Gotta Go,
Gotta Go”



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OAB/UUI Diagnosis

Bare minimum...

- History and Physical
- UA

Might be nice....

- Urine culture
- Post void residual

Typically, unnecessary...

- Urodynamics
- Cystoscopy
- Cytology

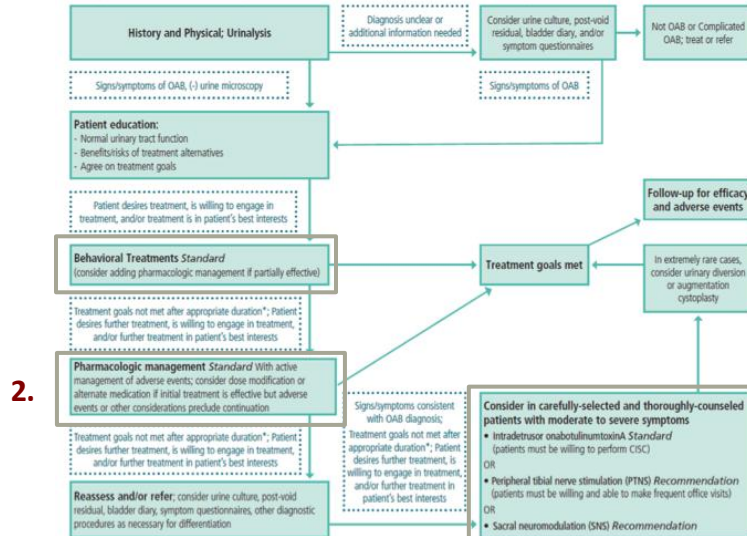


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OAB Algorithm- AUA

Diagnosis & Treatment Algorithm: AUA/SUFU Guideline on Non-Neurogenic Overactive Bladder in Adults



Tier 1 Treatment Options

Behavioral modification

Weight loss

Vaginal estrogen (menopausal women)

Timed voiding/bladder retraining

Pelvic floor physical therapy

- Biofeedback
- Electrical Stimulation

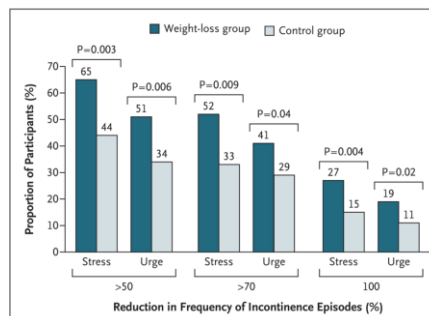
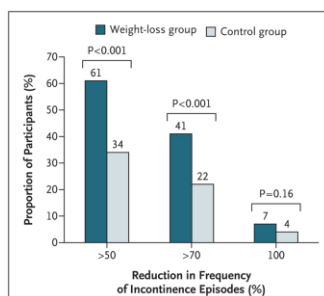
Distraction Strategies

1. Stopping what they are doing and staying in place or sitting
2. Taking a deep breath and performing quick flicks of the pelvic floor muscles
3. Distracting their mind (eg, count to 100 by 7s, make a grocery list, sing a song in their head); should be practiced and perfected so that it can be used as needed.

Weight Loss

Weight Loss to Treat Urinary Incontinence in Overweight and Obese Women

Leslee L. Subak, M.D., Rena Wing, Ph.D., Delia Smith West, Ph.D., Frank Franklin, M.D., Ph.D., Eric Vittinghoff, Ph.D., Jennifer M. Creasman, M.S.P.H., Holly E. Richter, Ph.D., M.D., Deborah Myers, M.D., Kathryn L. Burgio, Ph.D., Amy A. Gorin, Ph.D., Judith Macer, B.Sc., John W. Kusek, Ph.D., et al., for the PRIDE Investigators*



Vaginal Estrogen

Vaginal estrogen use in postmenopausal women with pelvic floor disorders: systematic review and practice guidelines

David D. Rahn • Renée M. Ward • Tatiana V. Sanses • Cassandra Carberry • Mamta M. Mamik •
Kate V. Meriwether • Cedric K. Olivera • Husam Abed • Ethan M. Balk • Miles Murphy •
for the Society of Gynecologic Surgeons Systematic Review Group

Vaginal Estrogen for Genitourinary Syndrome of Menopause

A Systematic Review

David D. Rahn, MD, Cassandra Carberry, MD, Tatiana V. Sanses, MD, Mamta M. Mamik, MD, MS, Renée M. Ward, MD, Kate V. Meriwether, MD, Cedric K. Olivera, MD, MS, Husam Abed, MD, Ethan M. Balk, MD, MPH, and Miles Murphy, MD, for the Society of Gynecologic Surgeons Systematic Review Group



Reduction in urinary urgency/frequency, UUI and SUI



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Tier 2 Treatment Options

Medications

- Bladder relaxants
- Side effects
 - Dry mouth, constipation, confusion
- EFFECTIVE, but many patients do not refill prescriptions



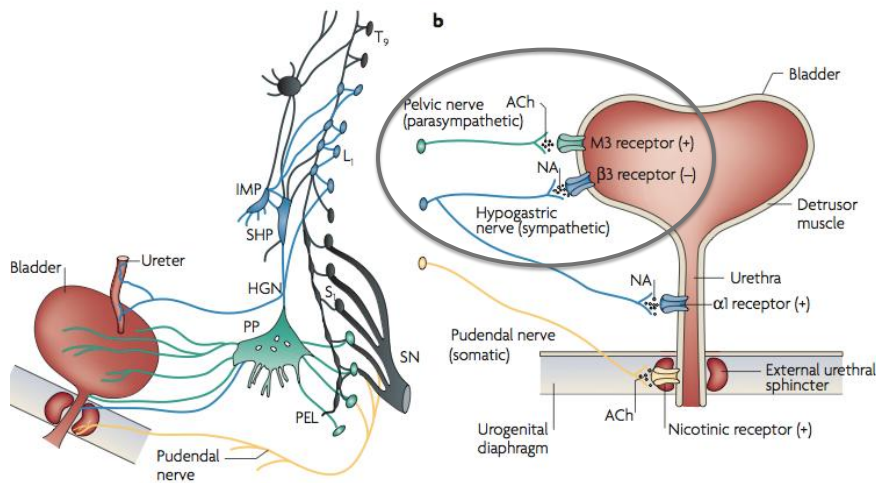
Anticholinergics

B-3 agonists

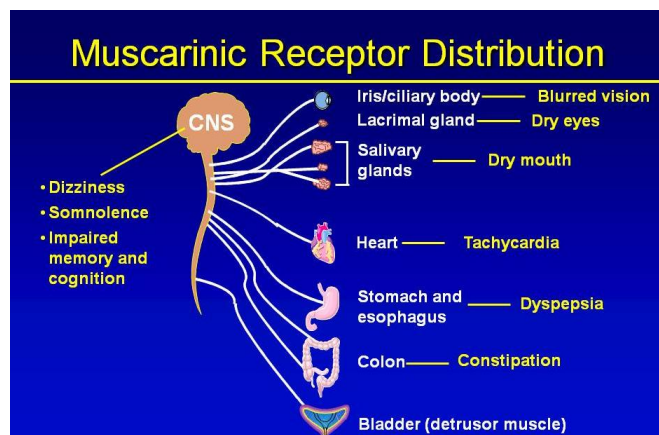


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Lower Urinary Tract Physiology



Antimuscarinic Effects



Anticholinergics

Tolterodine
Oxybutynin
Tropium*
Solifenacin
Darifenacin
Fesoterodine

There's really no
difference!!!!



Anticholinergics and Cognitive Decline

AUGS Consensus Statement

Association of Anticholinergic Medication Use and Cognition in
Women With Overactive Bladder

B-3 Adrenergic Agonists

Mirabegron

- SE: nasopharyngitis, HTN, headache
- not to be used in uncontrolled hypertensives (small increase in BP)
 - Need to re-check BP 2-4 wks after initiation
- moderate CYP2D6 inhibitor (can increase metoprolol)
- Typically requires prior authorization, failure of AC



Tier 3 Treatment Options

Onabotulinum toxin

Neuromodulation

- Posterior tibial nerve stimulation
- Sacral neuromodulation (InterStim)

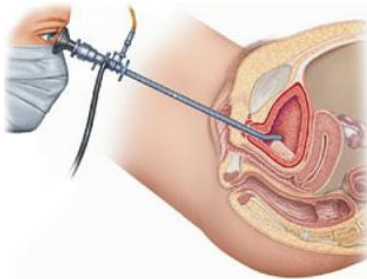


Botox

Overactive bladder

Office procedure

- Women with incontinence not responsive to other treatment

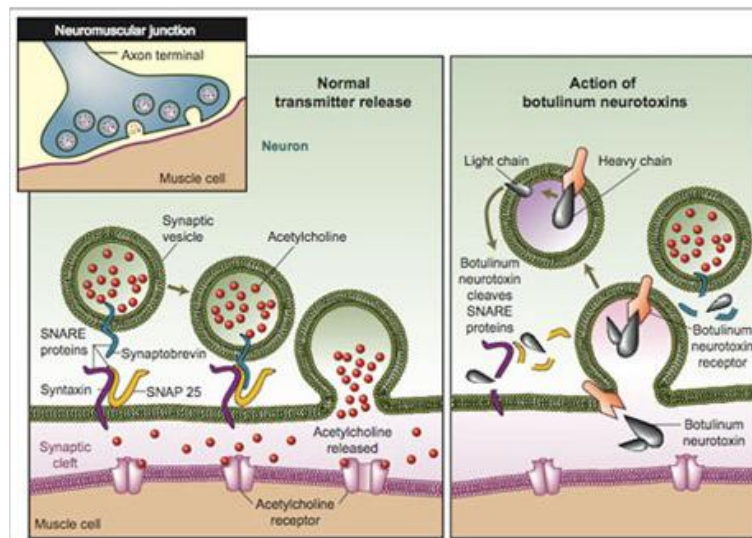


Not just for wrinkles!

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Botox



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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Anticholinergic Therapy vs. OnabotulinumtoxinA for Urgency Urinary Incontinence

Randomized Trial

- Bladder Botox vs Bladder Medications

First line treatment

- ½ of participants never tried another therapy

Botox vs Medications

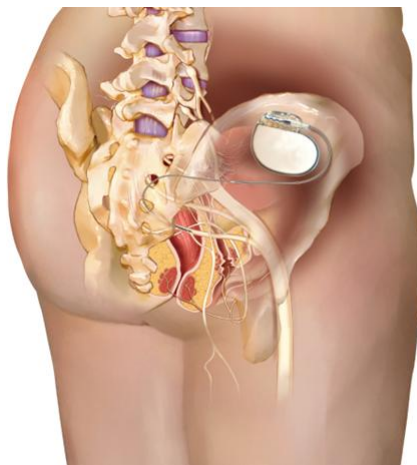
- 27% vs 13% completely dry at 6 months

Lasts up to 6-9 months



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Sacral Neuromodulation



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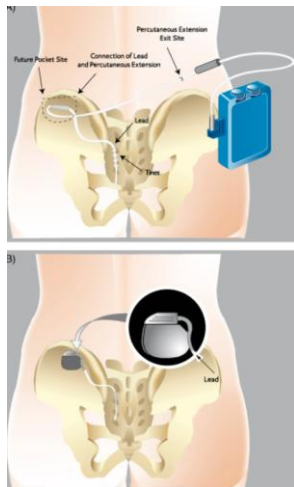
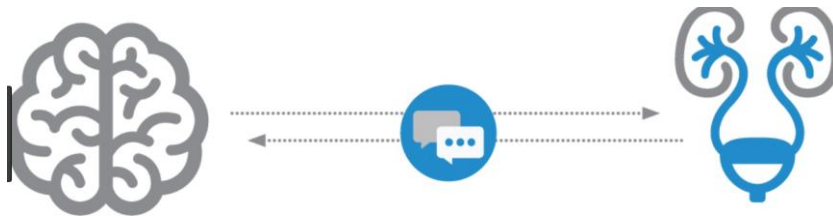
Bladder pacemaker

“Resets” nerves to the bladder so it does not contract inappropriately

Thin wire placed in office near tailbone

Tested for 3-4 days

If greater than 50% improvement- permanent pacemaker placed in butt cheek



Indications:

Urgency Urinary Incontinence
Urgency Frequency
Urinary Retention
Fecal Incontinence

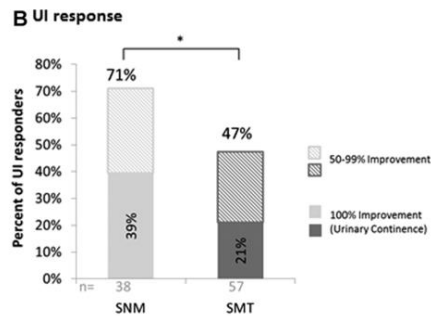


Results of a Prospective, Randomized, Multicenter Study Evaluating Sacral Neuromodulation With InterStim Therapy Compared to Standard Medical Therapy at 6-Months in Subjects With Mild Symptoms of Overactive Bladder

Neurourology and Urodynamics 34:224–230 (2015)

Randomized trial assessing 6 month success

- SNM vs SMT (anticholinergics)

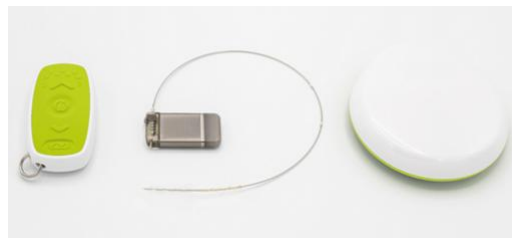


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Axonics 2019

Rechargeable, smaller battery with 15-20 year battery life
MRI compatible



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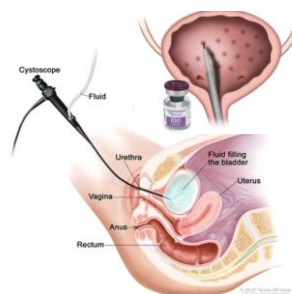
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Urinary Incontinence

JAMA | Original Investigation

OnabotulinumtoxinA vs Sacral Neuromodulation on Refractory Urgency Urinary Incontinence in Women A Randomized Clinical Trial

Cindy L. Amundsen, MD; Holly E. Richter, PhD, MD; Shawn A. Menefee, MD; Yuko M. Komesu, MD; Lily A. Arya, MD, MS; W. Thomas Gregory, MD; Deborah L. Myers, MD; Halina M. Zyczynski, MD; Sandip Vasavada, MD; Tracy L. Nolen, DrPH; Dennis Wallace, PhD; Susan F. Meikle, MD, MSPH; for the Pelvic Floor Disorders Network



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OnabotulinumtoxinA vs Sacral Neuromodulation on Refractory Urgency Urinary Incontinence in Women A Randomized Clinical Trial

Cindy L. Amundsen, MD; Holly E. Richter, PhD, MD; Shawn A. Menefee, MD; Yuko M. Komesu, MD; Lily A. Arya, MD, MS; W. Thomas Gregory, MD; Deborah L. Myers, MD; Halina M. Zyczynski, MD; Sandip Vasavada, MD; Tracy L. Nolen, DrPH; Dennis Wallace, PhD; Susan F. Meikle, MD, MSPH; for the Pelvic Floor Disorders Network

Table 2. Efficacy and Quality of Life Outcomes of Intention-to-Treat Population at 6 Months

Outcomes	OnabotulinumtoxinA (n = 190)	Sacral Neuromodulation (n = 174)	Treatment Group Difference (95% CI)	P Value
Change in mean daily urgency urinary incontinence episodes, adjusted mean (95% CI) ^a	-3.89 (-4.26 to -3.52)	-3.25 (-3.64 to -2.87)	0.63 (0.13 to 1.14)	.01
Resolution of Urinary Incontinence, No./Total (%) ^b				
≥4 mo of diaries completed				
Complete resolution	35/178 (20)	6/166 (4)	-16 (-26 to -5)	<.001
≥75% reduction	81/178 (46)	43/166 (26)	-20 (-30 to -9)	<.001
≥50% reduction	109/178 (61)	84/166 (51)	-11 (-21 to 0)	.06
All 6 mo of diaries completed ^b				
Complete resolution	26/127 (20)	2/99 (2)	-18 (-31 to -5)	<.001
≥75% reduction	63/127 (50)	27/99 (27)	-22 (-35 to -9)	.004
≥50% reduction	85/127 (67)	51/99 (52)	-15 (-28 to -2)	.05

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Evaluation of Stress Incontinence

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Back to Case 2

35-year-old Delivered 2 Children Vaginally

Increased leakage since last delivery

Leaks with jogging and golfing

No nocturia



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Bladder Diary

24 Hours

Time	Intake	Leak	Urge	Activity	Void
7:00am				Waking up	500ml
7:30am	20oz coke			Breakfast	
8:30am	8oz water	Yes	No	Running	
10:00am					350ml
12:00pm	120z coke			Lunch	
3:00pm					300ml
6:00pm		Yes	No	Park	
7:00pm	8oz water			Dinner	
10:00pm					300ml
7:00am				Waking up	500ml



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Diagnosis of SUI

Bare minimum...

- History and physical (+ transurethral loss of urine)
- UA
- PVR

Things that might be necessary in complicated cases

- Urodynamics



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Lifestyle/Risk Factor Modification

Weight loss
Vaginal estrogen
Behavioral modification

Treatment Options for SUI

Non-surgical

- PFPT
- Pessary



Procedural/ surgical

- Urethral bulking agents
- Sling
- Burch





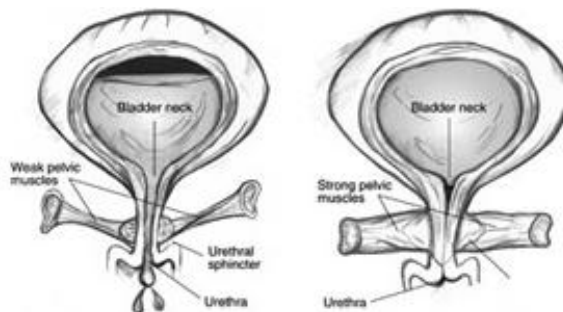
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Conservative Management of SUI

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Pelvic Floor Exercises

Aimed at rehabilitating pelvic floor musculature
Requires adequate examination of pelvic floor
+/- Biofeedback or electrical stimulation



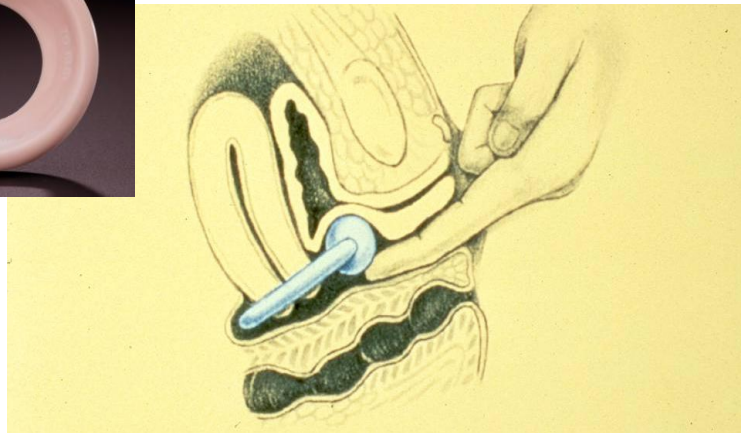
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Incontinence Pessary



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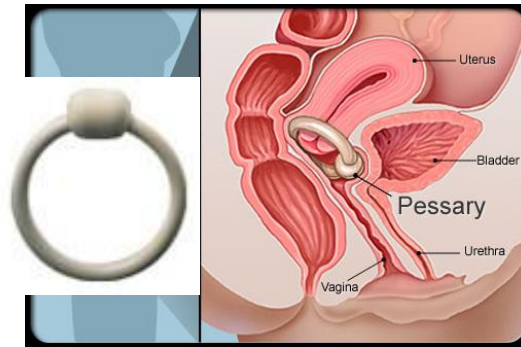
How Should I Follow a Patient with a Pessary?



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ATLAS

- Pessary
- Pelvic Floor Muscle Training (Kegels)
- Combination



RCT comparing conservative treatments for Stress Incontinence

ATLAS

1-year Satisfaction Rates

Physical therapy – 54%
Pessary – 50%
Combined – 54%

- SIGNIFICANTLY improved women's quality of life and bother from urinary incontinence
- BOTH effective NON-SURGICAL TREATMENTS for certain types of incontinence





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Procedural Options for SUI

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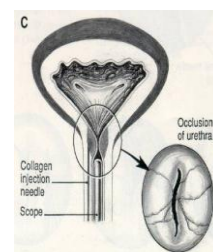
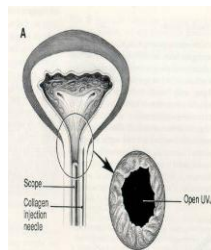
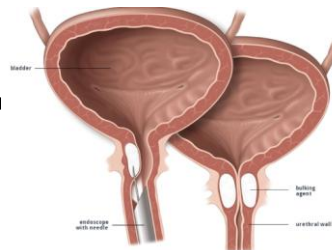
Urethral Bulking Agents

Poor cure rates – low as 13'

Repeat dosing

“Touch up” after sling?

Elderly?



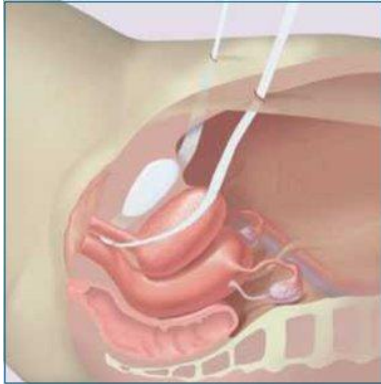
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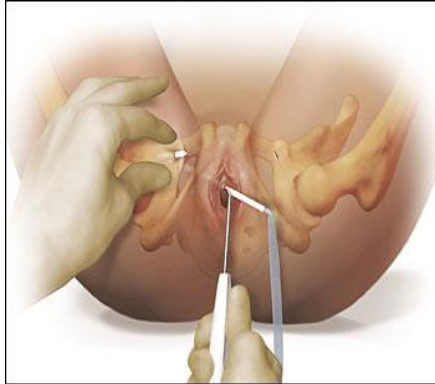
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Minimally Invasive Midurethral Slings

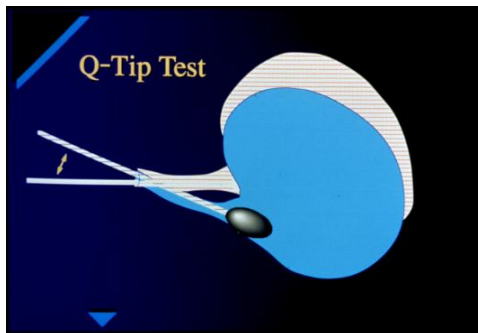
Retropubic



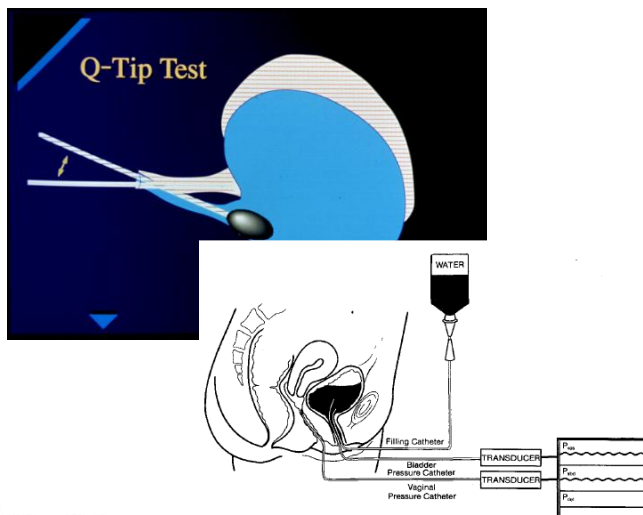
Transobturator



Preoperative Evaluation: Uncomplicated SUI



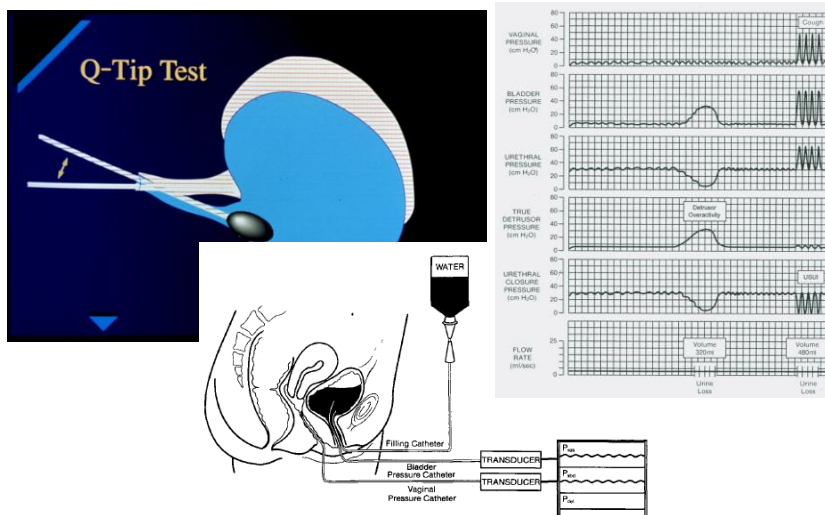
Preoperative Evaluation: Uncomplicated SUI



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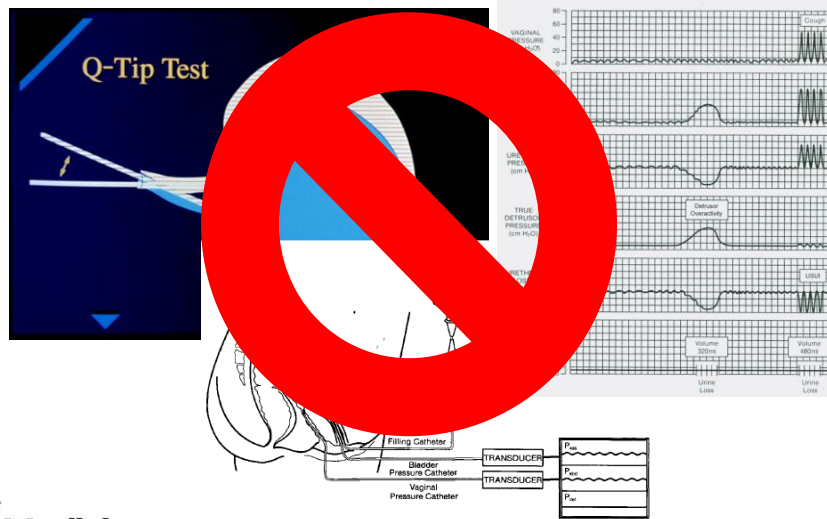
Preoperative Evaluation: Uncomplicated SUI



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Preoperative Evaluation: Uncomplicated SUI

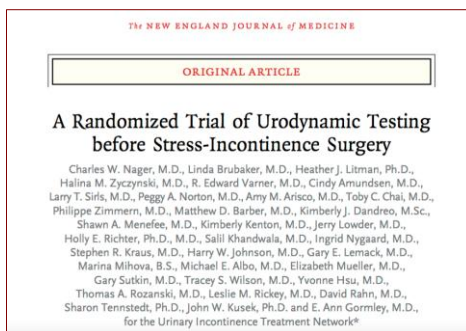


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Urodynamic Testing: The VALUE Trial

Evidence-based Practice



The Value of Urodynamic Evaluation (VALUE)

Multi-centered RCT of 630 women with uncomplicated SUI

- Office evaluation (OE)
- Office evaluation + Urodynamics

Non-inferiority trial

Primary outcome: treatment success at 12 months

- Patient-reported improvement

Results:

- OE: 77.2 % success
- OE + Urodynamics: 76.9% success

OE is NOT INFERIOR to OE + Urodynamics

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Preoperative Evaluation: Uncomplicated SUI



- History & Physical Exam
- Urinalysis
- Demonstration of stress incontinence
- Assessment of urethral mobility
- Post-void residual volume



ACOG Committee Opinion Number 603, June, 2014

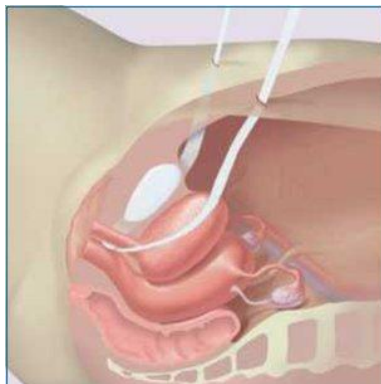


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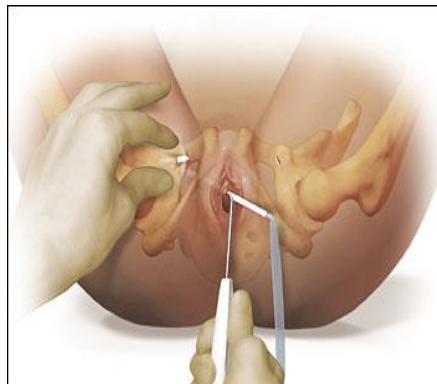
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Evidence-based Practice: Midurethral Slings for SUI

Retropubic



Transobturator



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The Midurethral Sling: Evidence-based Practice

TOMUS Trial

- Multi-centered RCT of retropubic and transobturator synthetic midurethral slings
- Equivalence trial
 - 597 women randomized
- At 1 year: EQUIVALENT
- Satisfaction
 - 93% (retropubic) vs 92% (transobturator)
- At 5 years:
- Satisfaction HIGH but declining – 85%



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Physical Therapy vs Sling

RCT 460 Women with Stress Incontinence

49% in PT crossed over to MUS

11% in MUS crossed over to PT

Subjective Improvement (IIT)

- 91% MUS
- 64% PT

Women who crossed over to MUS similar outcomes to those who had MUS

- both superior to PT

Initial MUS as compared to PT

- Higher rates of subjective improvement
- Higher rates subjective and objective cure



2013



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FDA on Mesh Use in Urogynecology

Evidence-based Practice

2008: Public Health Notification (PHN)

- There are serious complications associated with the use of surgical mesh to treat pelvic organ prolapse and stress urinary incontinence
- These complications are **rare**

2011: Regarding the use of transvaginally placed mesh for the treatment of pelvic organ prolapse (POP):

- (1) Serious adverse events are NOT rare, contrary to what was stated in the 2008 PHN
- (2) Transvaginally placed mesh in POP repair does NOT conclusively improve clinical outcomes over traditional non-mesh repair



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Midurethral Sling: Gold Standard for the Treatment of SUI



Position Statement on Mesh Midurethral Slings for Stress Urinary Incontinence

The polypropylene mesh midurethral sling is the recognized worldwide standard of care for the surgical treatment of stress urinary incontinence. The procedure is safe, effective, and has improved the quality of life for millions of women.



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Summary

Urinary incontinence is extremely prevalent

There are effective conservative and procedural options for women with UI

Treatment can be initiated following basic evaluation

