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How to Approach the Evaluation and Treatment of Urinary Incontinence

62ND ANNUAL NMAFP FAMILY MEDICINE SEMINAR
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Objectives

Discuss the prevalence and impact of urinary incontinence in the female population

Identify common causes of urinary incontinence and discuss the pathophysiology of continence in women

Discuss the basic evaluation and work-up for urinary incontinence

Understand initial management of urinary incontinence



Background

Urinary incontinence affects ~1 in 5 (20%) non-pregnant women

The prevalence of urinary incontinence increases with age

- Particularly after menopause
- 10 - 25% premenopausal women
- 30 - 42% postmenopausal women



Urinary Incontinence among the Elderly

Home-Bound Elderly:

- Approximately 53%

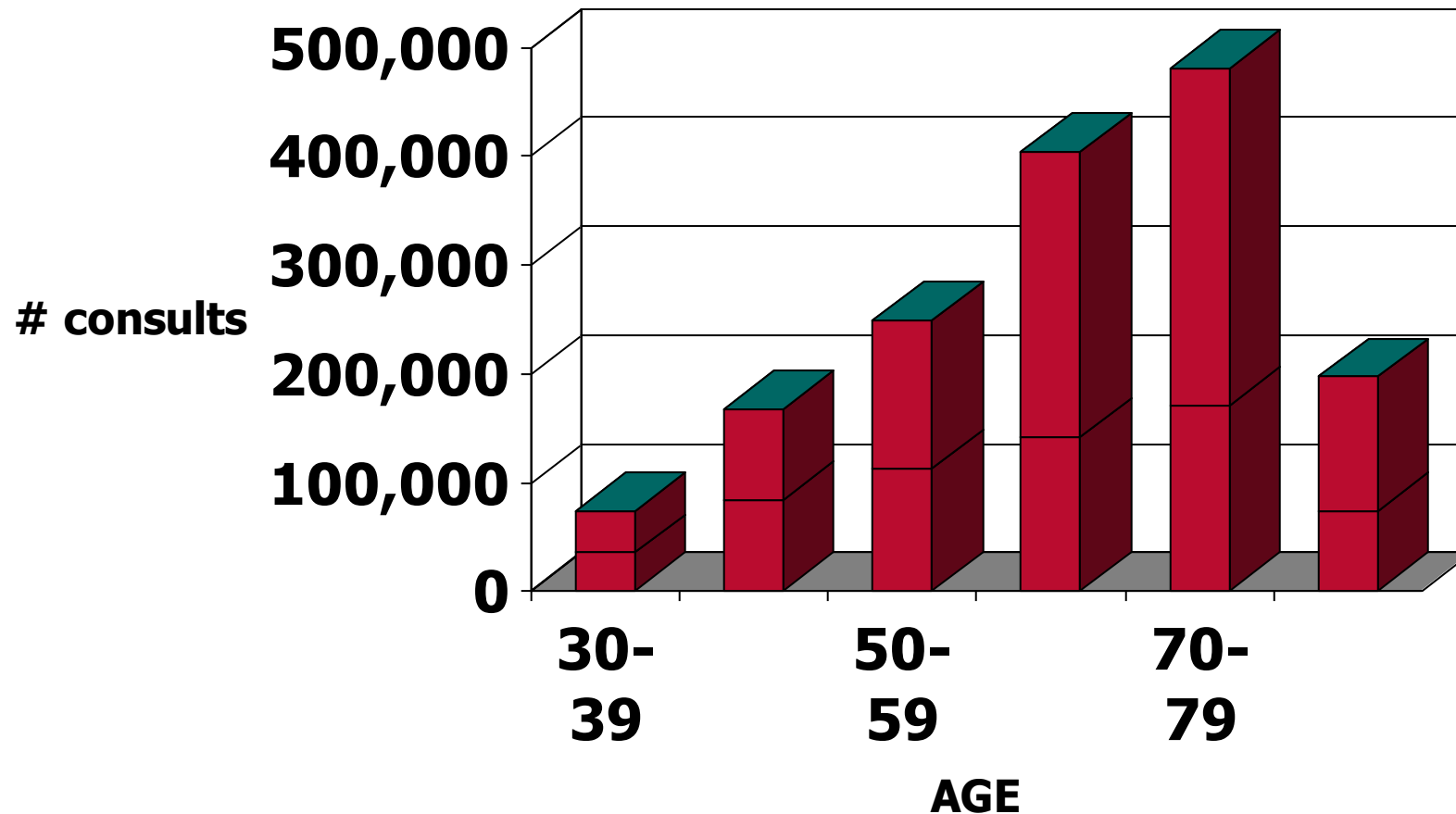
Among Nursing Home Residents:

- 40-70%

Hospitalized Elderly:

- 11% w/ persistent UI on admission
- 23% w/ persistent UI on discharge

Projected Demands for Consults for Pelvic Floor Disorders 2000 vs 2030



8

D

INCONTINENCE

SANITARY

HYGIENE

Impact

UI has a major impact on quality of life, resulting in lifestyle restrictions

- Physical
- Psychological
- Social well-being

Effects of UI range from slightly bothersome to debilitating

Economic impact in 2014 was estimated to be ~\$20 billion

Bladder Functions

Storage

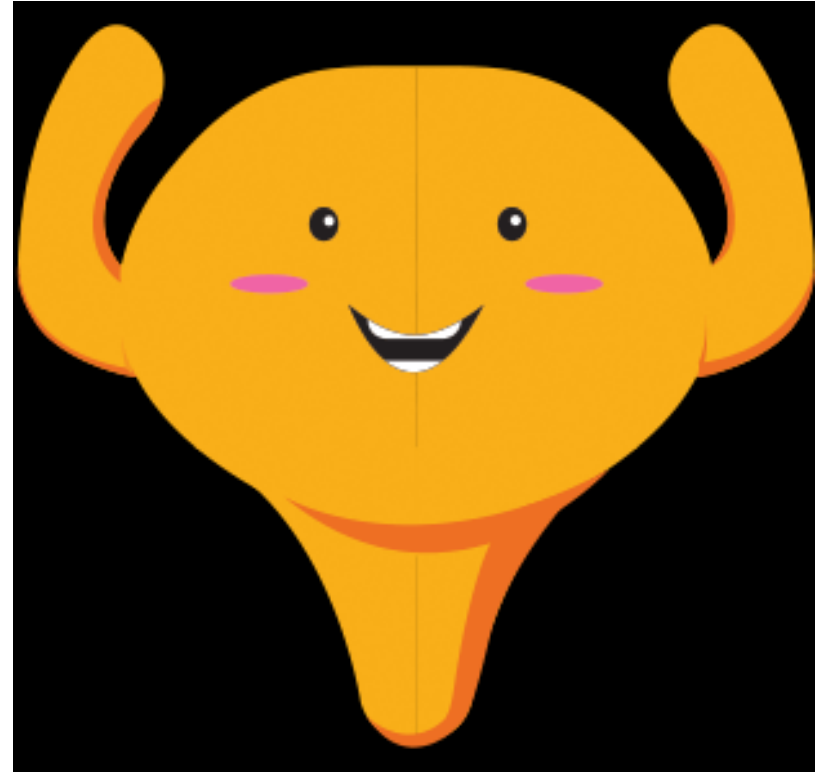
Evacuation



Bladder Storage

Storage of urine

- Low pressure system
- Urethral resistance



Bladder Emptying

Voluntary micturition reflex

Relaxation

- Pelvic floor
- Urethra

Coordinated detrusor contraction



Urinary Continence

Normal storage

- Urethral pressure > bladder pressure (internal/external urethral sphincter)

Normal evacuation

- Detrusor contraction with urethral and pelvic floor relaxation
- Intact neurologic system

Storage Malfunction

Failure of low compliance

Increased sensation

Decreased sensation

Failure of sphincter mechanism

Emptying Malfunction

Impaired pelvic floor relaxation

Impaired urethral relaxation

Impaired detrusor contraction

What is urinary incontinence?

International Continence Society Definition of Urinary Incontinence

- Involuntary urine loss that is severe enough to constitute a social or hygiene problem and that is objectively demonstrable



UI

Variety of causes

Most common are:

- 1) Stress urinary incontinence
- 2) Urgency urinary incontinence
- 3) Mixed urinary incontinence

Types of UI

Urgency urinary incontinence

- Leakage of urine with a sudden, compelling urge to void that is difficult to defer



Types of UI

Stress urinary incontinence

- Leakage of urine with laughing, coughing, sneezing, jumping, or any activity that increases intraabdominal pressure



Mixed UI

- A combination of stress and urgency urinary incontinence



Overactive Bladder

Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection or other obvious pathology

> 8 voids in 24 hours

Nocturia >1



Etiology of OAB

Obstruction

Interference with Integration of Neural Stimuli

- Detrusor hyperreflexia
- Neurologic disorder

Neurotransmitter or pacemaker cell abnormality

Generalized smooth muscle disorder

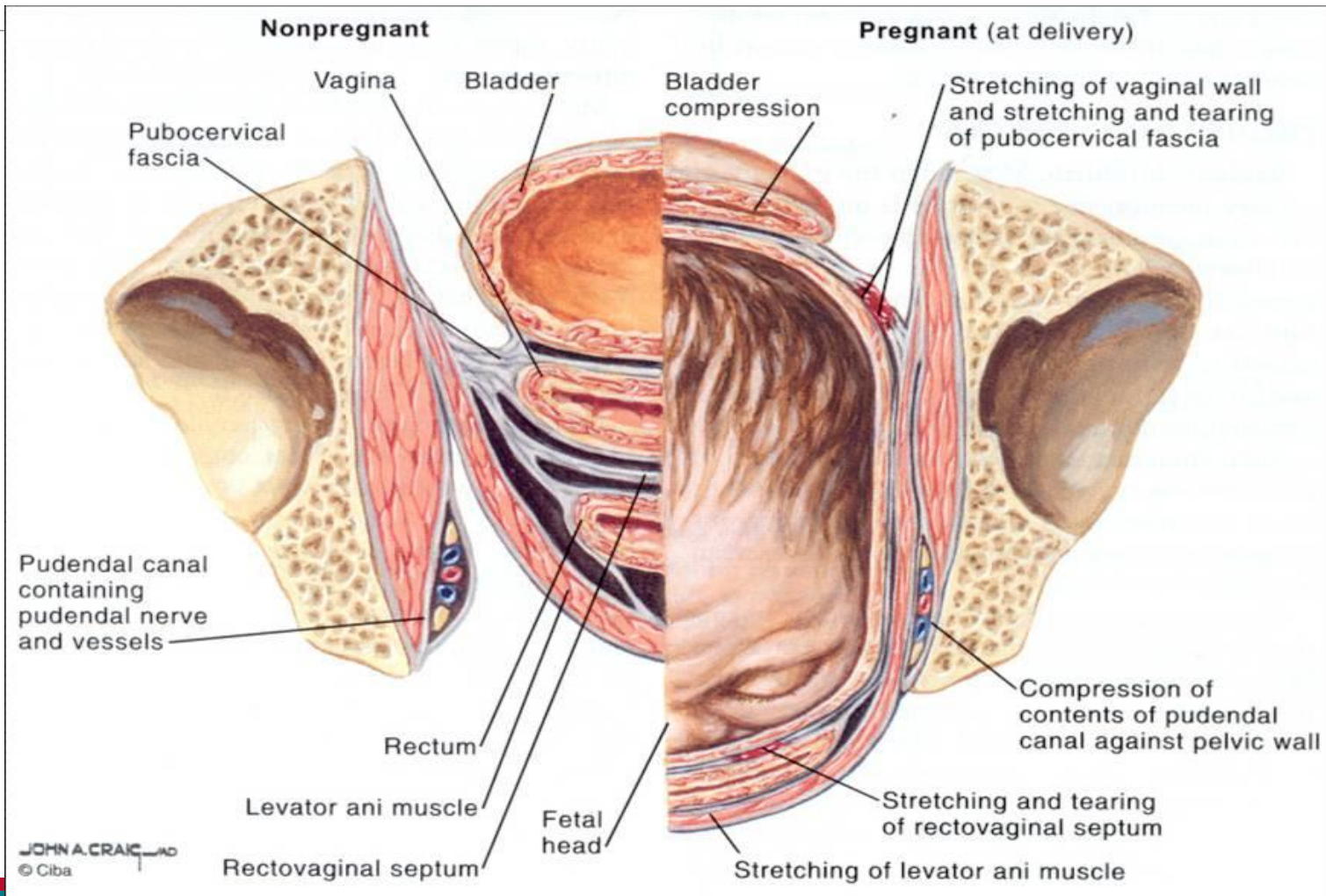
Idiopathic

Etiology of SUI

Anatomic distortion

- childbirth





Etiology of SUI

Anatomic distortion

- childbirth, collagen disease, obesity, chronic cough

Neurological damage

Iatrogenic

Idiopathic

Comparison OAB and SUI

	OAB	SUI
Symptoms	• Frequency (8) • Nocturia • Loss on way to bathroom • Loss of large amounts of urine	• Loss with laugh, cough and sneeze • Loss of small amounts of urine
Physical Exam	• Varies	• Varies
Treatments	• Behavioral • Physical therapy • Pharmaceutical • Surgical	• Behavioral • Physical therapy • Pessary • Surgical

The Good News

Studies indicate treatment is effective for most patients with urinary incontinence

Approximately 80% of patients with incontinence can be helped



So what to do?

- Ask
- History and Physical Exam
 - Medications!!
- Pelvic Exam
- UA
- Post void residual

Work up – Uncomplicated Patients

- Less is probably OK
- May initiate treatment without extensive workup
- Screen for common causes

History

- Characterize leakage:
 - Stress
 - OAB
 - Mixed
- Ask about other pelvic floor disorders
- Prior treatments
- Is it bothersome?

Be sure to ask about...

Fecal incontinence

- Prevalence high among women with UI
- Treatment successful with fiber and pelvic floor exercises

Pelvic organ prolapse

- Prevalence high among women with UI
- Treatment successful with pessary and surgery

Initial Workup

Urine Dip may be enough of a workup to initiate treatment

- Retention is rare
- Obstruction is rare
- If dip is positive, treat even if not 10^5 CFU

Initial treatments are low risk

- Pelvic floor exercises
- Behavioral therapy
- Anti-cholinergics(for Overactive Bladder)

Treatment

- Treat Reversible Causative Conditions
- Behavioral Modification
- Medications
- Physical therapy
- Devices
- Surgery



Reverse Reversible Causes

- UTI
- Atrophic urethritis/vaginitis
- Pregnancy
- Stool Impaction
- Medications
- Caffeine
- Excess fluid intake

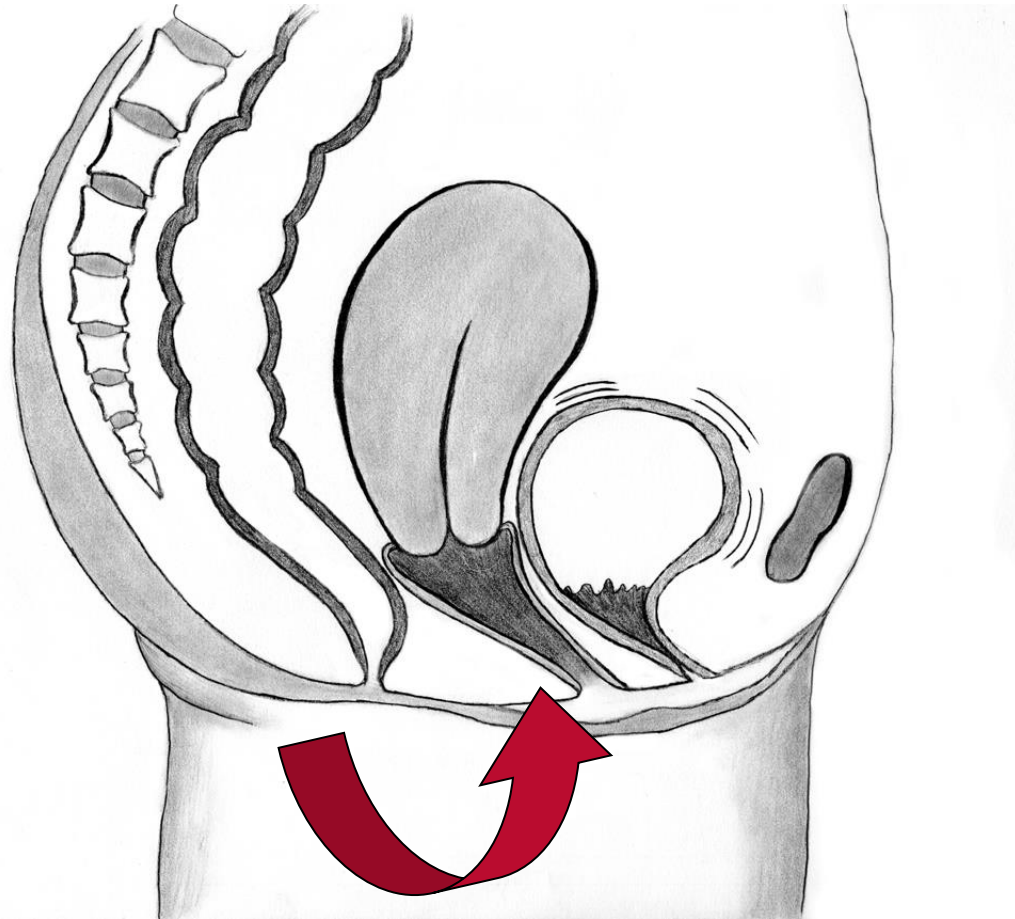


Pelvic Floor Exercises

Reflex arc

- Suppresses urge
- Increases urethral pressure
- Works for both stress and OAB

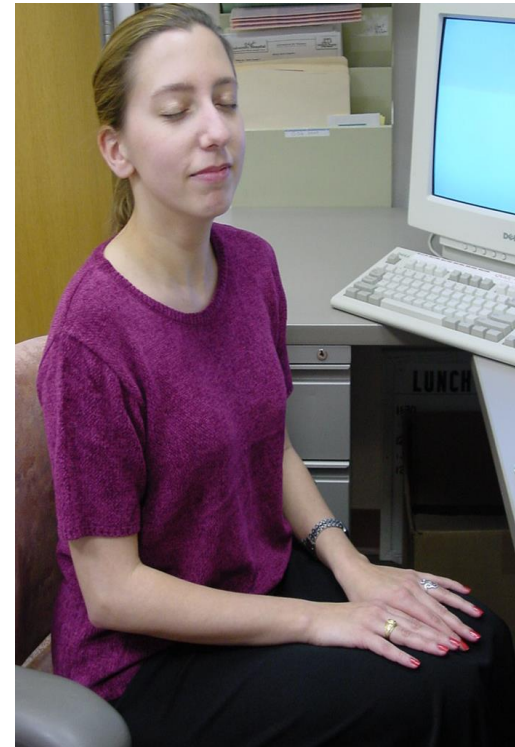
Improvements with 30-40 per day



Pelvic Floor Exercises

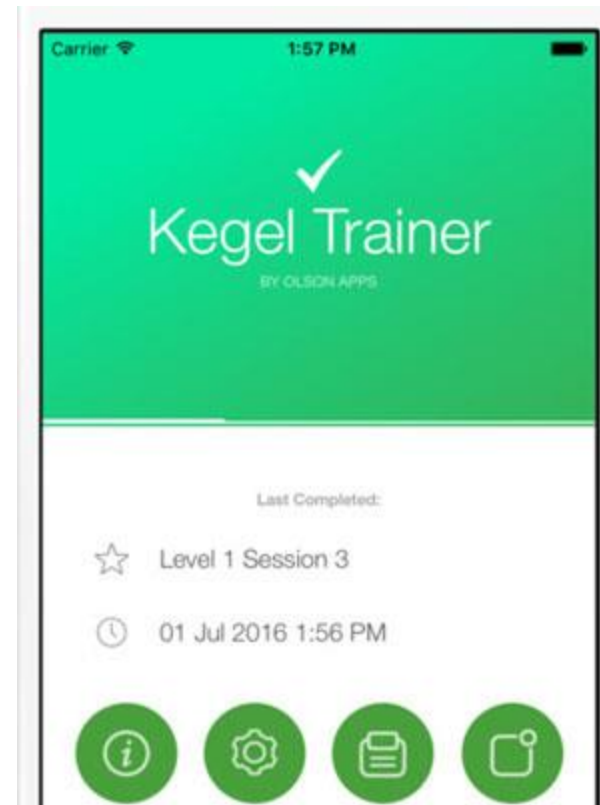
Verbal instruction

- Weighted cones
- EMG, Biofeedback
- Apps



There's an app for that

- At least 120 apps related to pelvic floor exercises
 - 32 functional unique apps
 - 15 paid and 17 free
 - Highest rated free app
 - Kegel Trainer
 - Highest rated paid app
 - Kegel Trainer Pro



Estrogens for UI

- Systemic estrogen replacement (6 RCTs)
 - Increased risk of UI
 - RR 1.32, 95% CI 1.17 to 1.48
- Topical estrogen replacement
 - Improved incontinence
 - RR 0.74, 95% CI 0.64-0.86
 - Less frequency and urgency
 - No serious adverse events



Cody JD. Cochrane Database 2012.

Rahn DD. SGS SRG 2015

IMPORTANT



- WHI Study:
 - Postmenopausal women using vaginal estrogen
 - **SAME** risk of invasive breast cancer, stroke, blood clots, endometrial cancer and colorectal cancer as women who don't use vaginal estrogen

Behavioral & Physiotherapeutic Methods

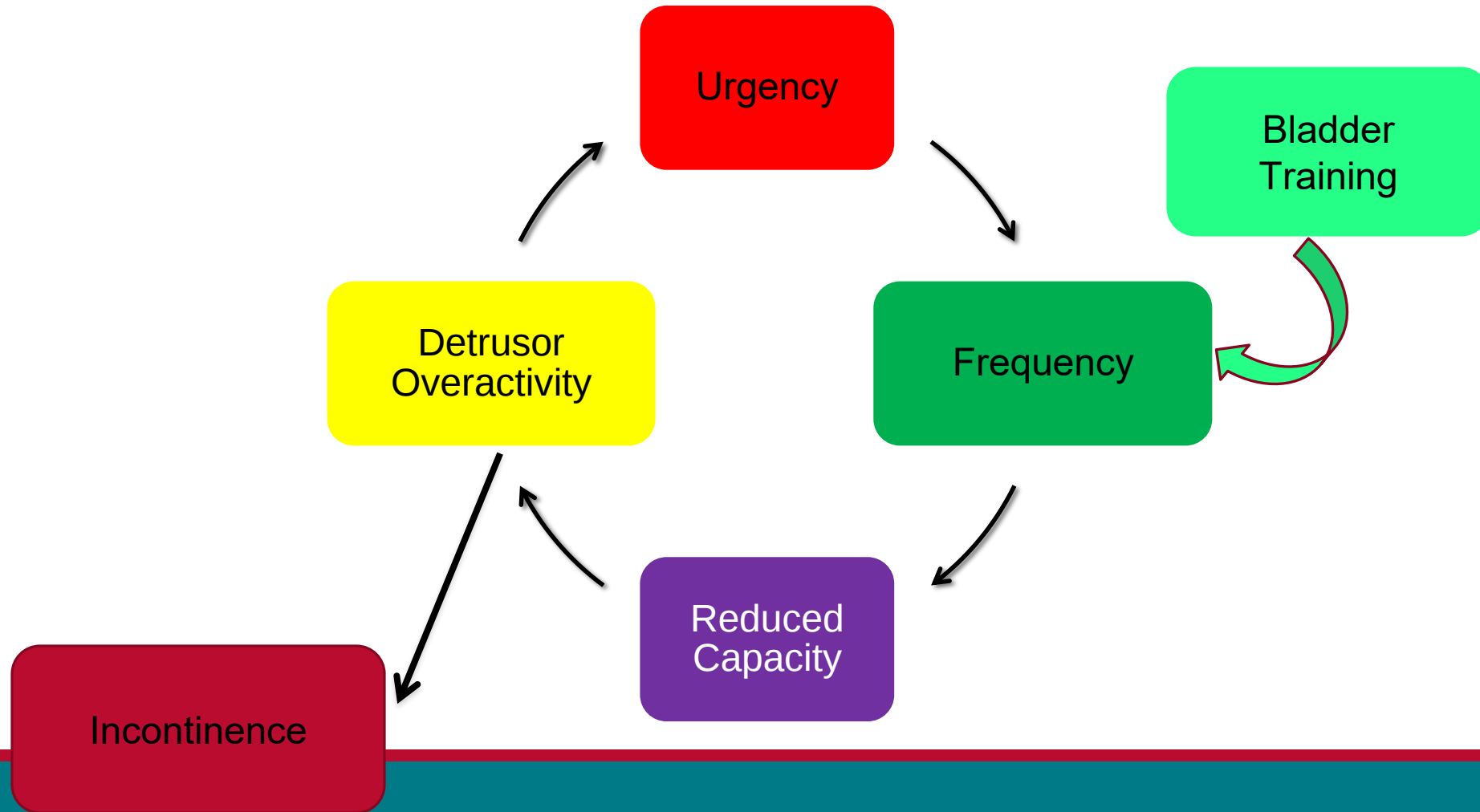
- Bladder drills
 - Give patient achievable target time between voids
 - After one goal is met, time is increased
 - Requires motivation!
- RCT 123 women ≥ 55 years of age reduced incontinence episodes 57% and quantity of fluid loss by 54%

Fantl et al. JAMA 1991;265:609–613

- 73% women clinically cured

Colombo et al. Int Urogynecol J 1995;6:63–7

Bladder Drills - Hypothesis



oral Mod



Voiding Diary

Normal intake

- 1,500 to 2,000 cc/daily

Patients write down intake and urine output over 72 hour period

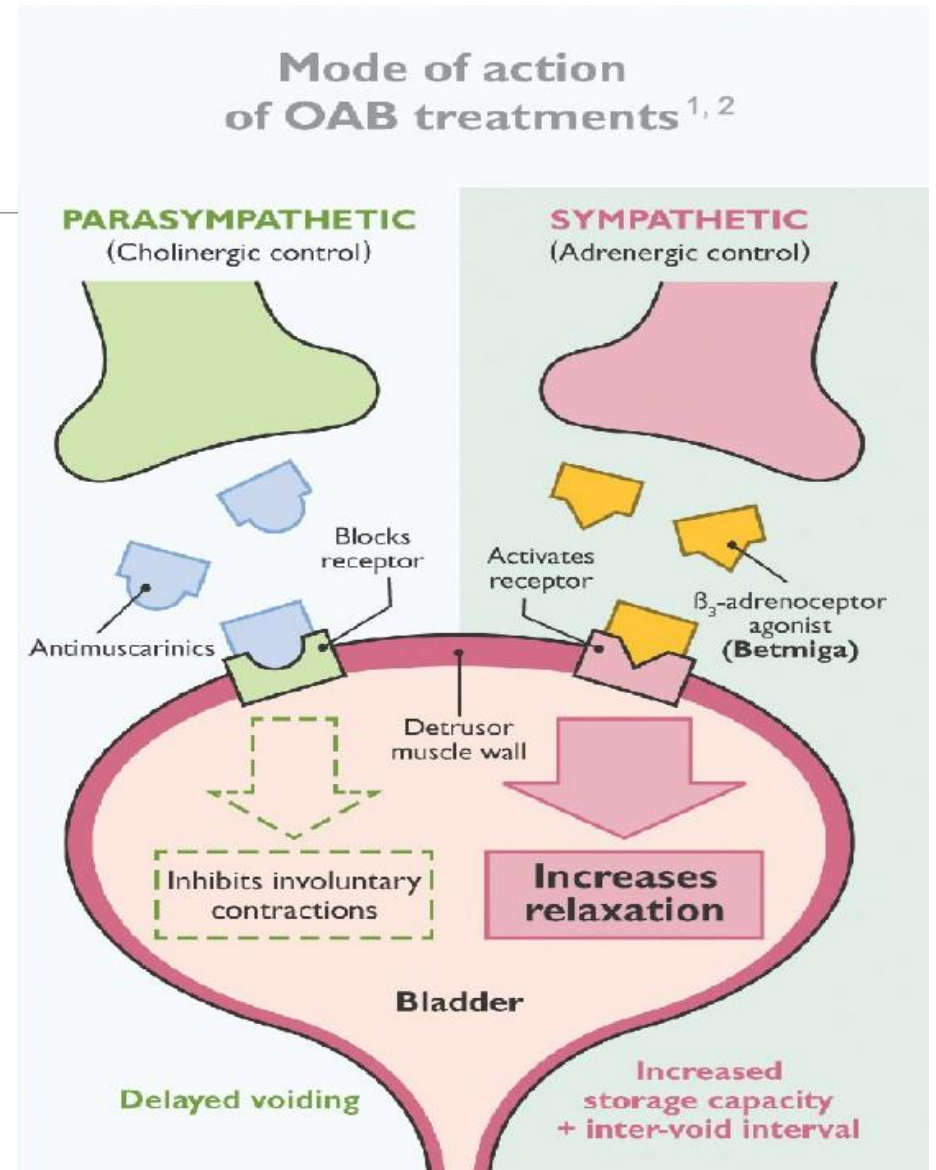
- Amount of intake
- Type of intake
- Leakage events

Indicate when episodes of incontinence occur

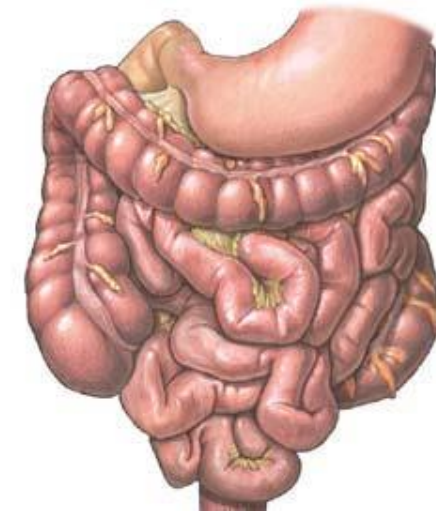
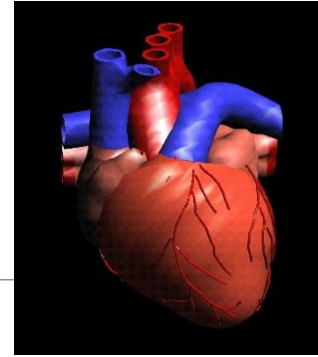
May lead to simple interventions for treatment

Pharmacotherapy

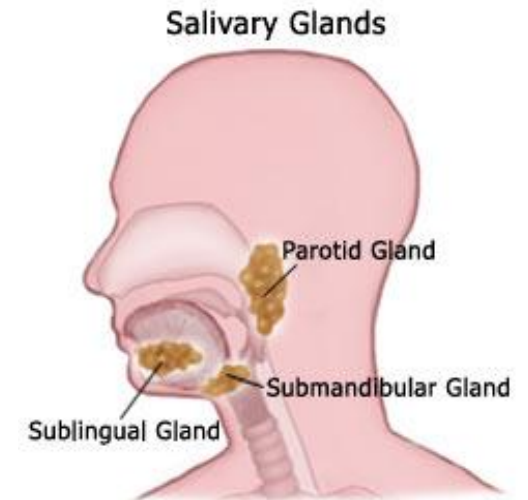
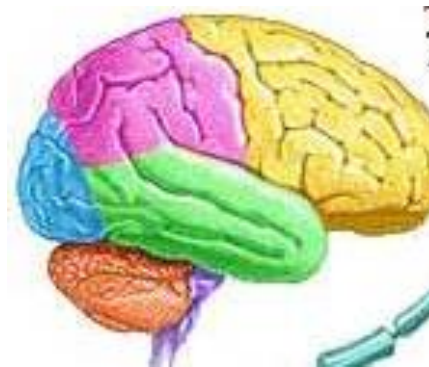
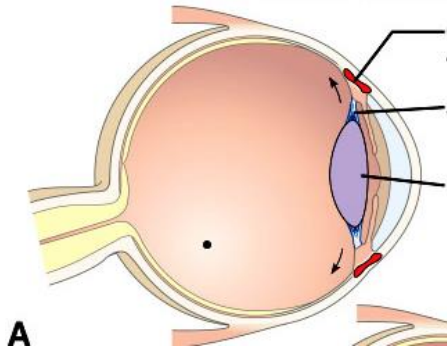
- Antimuscarinic medications block parasympathetic muscarinic receptors and act on bladder M2 and M3 receptors to inhibit involuntary detrusor contractions.



Side effects



- Contraction of smooth muscle in bladder, GI tract, saliva production, iris sphincter function involve M_3 receptors



Contraindications

- Untreated Narrow Angle Glaucoma
- Urinary Retention
- Severe hepatic impairment
- Gastric Retention (eg. Pyloric stenosis)
- May need to adjust dosing for severe renal or moderate hepatic impairment (most involve hepatic metabolism)

Anticholinergics

Summary of Results

	Decrease in Incontinent Episodes/ Day 95% CI	Decrease in Voids/ Day 95% CI
Placebo	1.08 (0.86 - 1.30)	1.48 (1.19 - 1.71)
Extended-Release	1.78 (1.61 - 1.94)	2.24 (2.03 - 2.46)
Immediate-Release	1.46 (1.28 - 1.64)	2.17(1.81 - 2.54)

Hartman. AHRQ publication No 09-E017. 2009

OAB Medication Summary

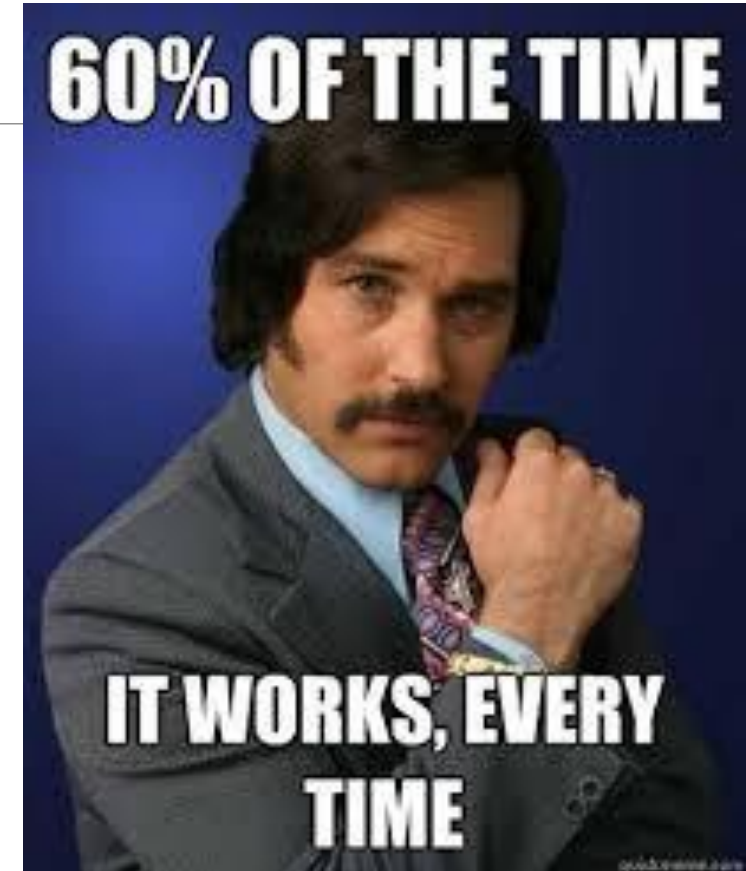
- Extended Release better
- Modest reductions that improve QOL when compared to placebo
- No one formulation better than another
 - Oxybutynin, tolterodine, fesoterodine, Darifenacin, solifenacin, trospium
 - Not included in review
 - Oxytrol patch (over the counter), Mirabegron (B3 adrenoceptor)

Hartman. AHRQ publication No 09-E017. 2009

B3 adrenergic agonist

Mirabegron

- Selective agonist for beta 3 receptors
- Systematic review and meta-analysis
 - Mirabegron versus placebo greater reduction in:
 - Mean number of incontinence episodes
 - Mean number of voids
 - Mean number of urgency episodes per 24 hours
- Precautions
 - Uncontrolled HTN





on Anti-cholinergics

Case Control Study BMJ 2018

- Clinical Practice Research Datalink
 - Patients with and without diagnosis of dementia
 - Exposed: daily defined doses of anticholinergic drugs
- Risk of dementia increased with greater exposure for antidepressant, **urological**, and anti-parkinson drugs
- Robust association between some classes of anticholinergic drugs and future dementia incidence



What about the more
complicated patient?

Who to Refer?

- Failed trial of conservative therapy
- Severe Prolapse
- Emptying problems
- Desire or need for surgery



What Therapies Do We Offer?

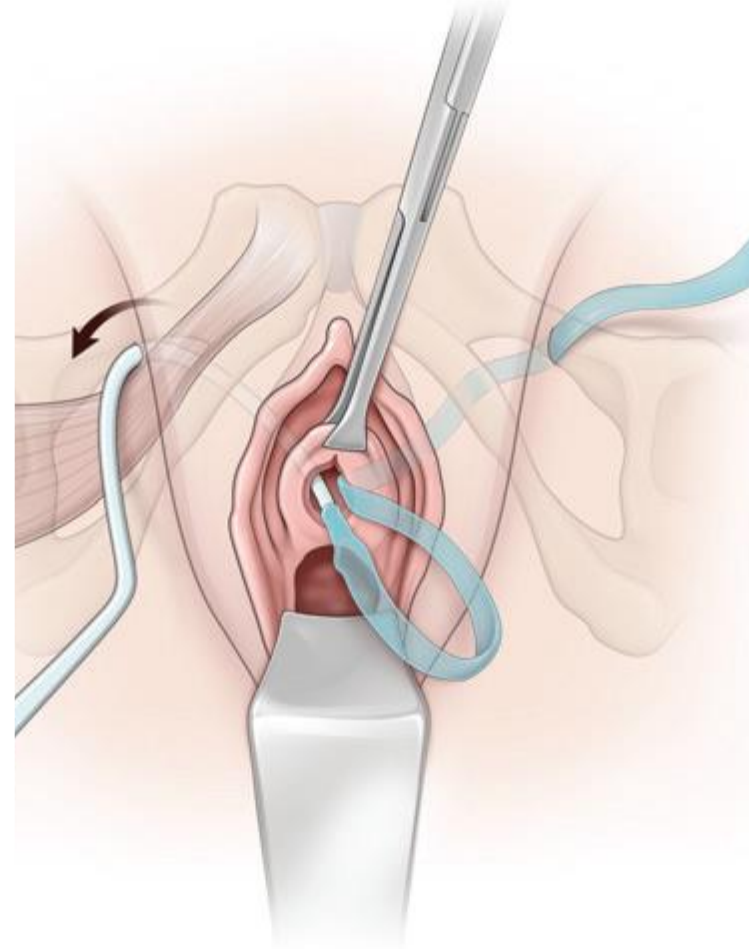
- Pessaries for both UI and prolapse
- Supervised physiotherapy



For Stress and Mixed Incontinence

Mid-urethral slings

- Outpatient surgery
- High success rates

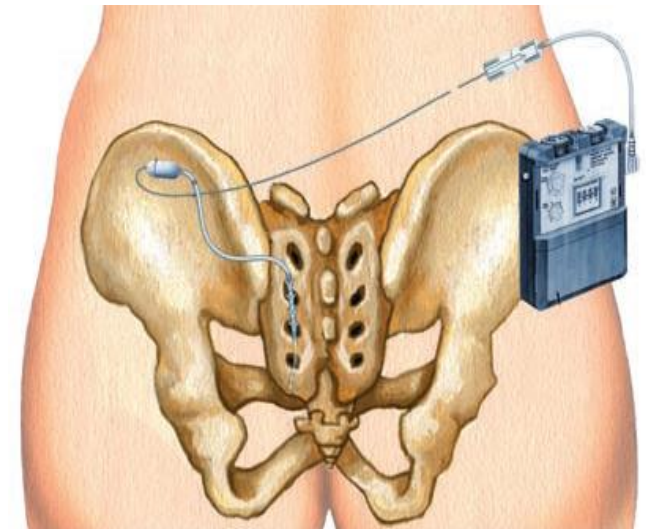
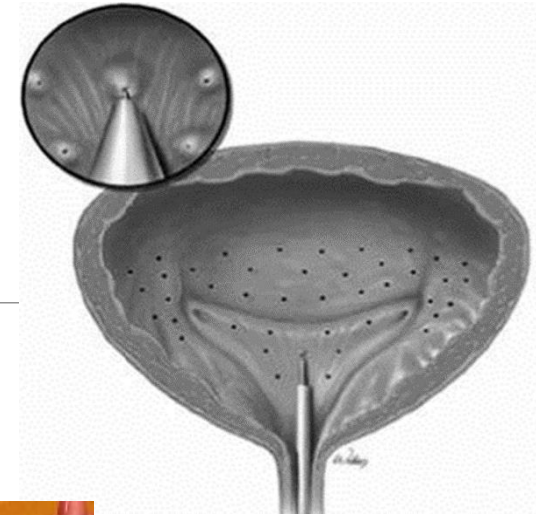


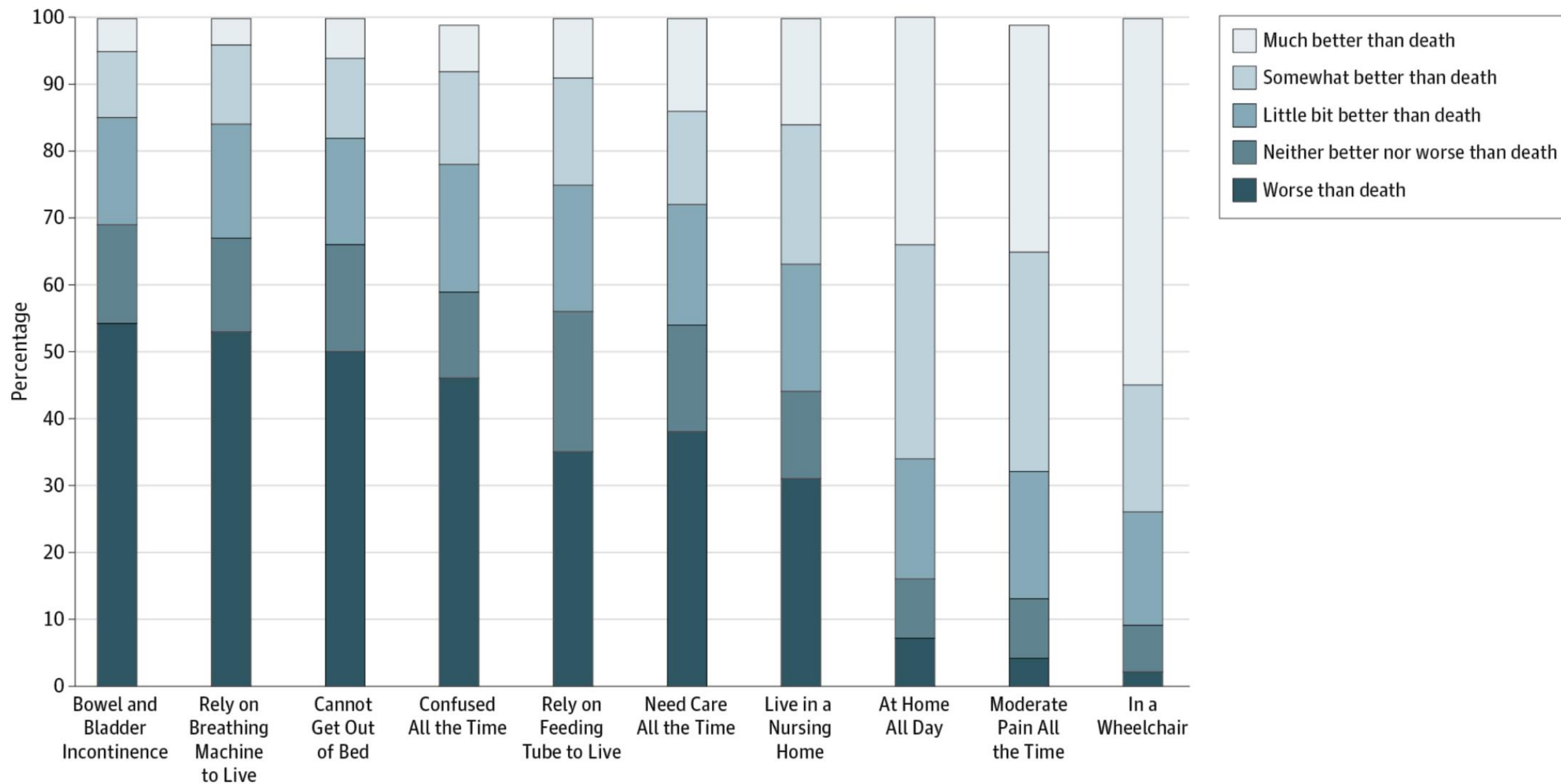
For Refractory OAB

Botulinum Toxin bladder injections

Neuromodulation

- Posterior tibial nerve stimulation
- Central neuromodulation





Dignity

“Dignity is as essential to human life as water, food, and oxygen....The loss of it can carry off a man as surely as thirst, hunger, exposure, and asphyxiation, and with greater cruelty.”

- Unbroken by Laura Hillenbrand

Conclusions

UI is common

Many treatments are non-invasive and effective

New therapies exist for women who are harder to treat

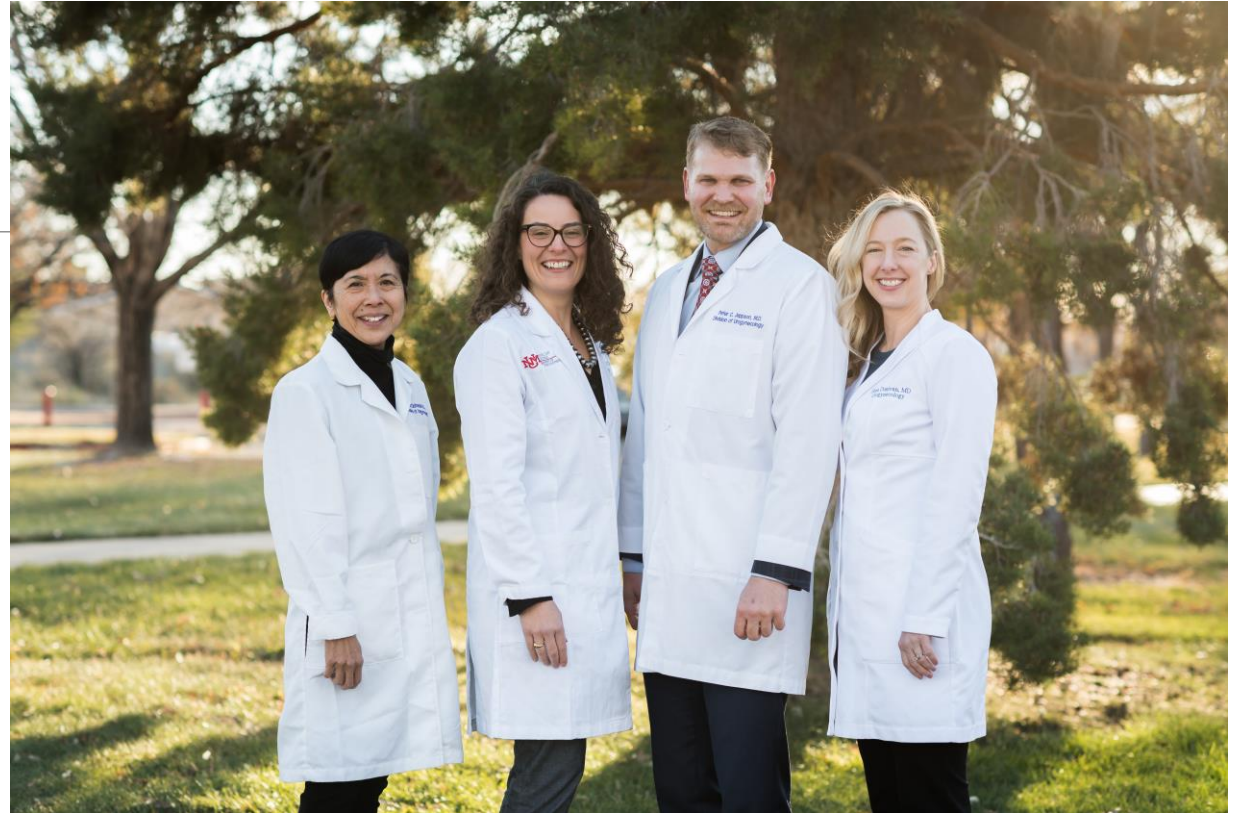
For many it is not just a QOL issue

Questions?

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Evidence – Non surgical treatment

Recent Update of 2012 Systematic Review

Pharmacologic

- Mostly address bladder and urethral sphincter function

Non-pharmacologic

- Mostly aim to strengthen the pelvic floor and change behaviors that influence bladder function

Outcomes for SUI

First and second line

- Behavioral therapy (with or without hormones) was **MORE** effective than alpha agonists or hormones in achieving cure or improvement
- Alpha-agonists were **MORE** effective than hormones for improvement

Third line

- Intravesical pressure release and neuromodulation were **MORE** effective than hormone therapy or no treatment
- Periurethral bulking was **LESS** effective with higher adverse events

Outcomes for UUI

First or second-line treatments

- Behavioral therapy was **MORE** effective than anticholinergics for cure or improvement

Third-line treatments

- Neuromodulation and Botox were **MORE** effective than no treatment
- Botox may be **MORE** effective than neuromodulation for achieving cure