  - middle age women questionnaire

  - young women questionnaire about 30% LUTS

  - young healthy students urodynamics

  - young healthy women urodynamics

additional resource
  - older women with LUTS urodynamic study

**Toilet Behavior**
Lit review sites nurses (Palmer 2017)
  - have more OAB, OAB affects work productivity and QOL and costs money
  - have high levels of premature voiding, delayed voiding, straining to void.

Table 1 Sjogren 2017 and Table 3 Palmer used the same tool but reported data differently.
80% of women empty their bladder before leaving home often or always

Hold my urine till I get home
  - Sjogren 2017 = 11.6% always, 23.8% often
  - Palmer 2017 = 5.88% to 11.76%

Delay voiding as long as possible / wait too long till strong urge or leak at work
  - Sjogren 2017 = 14.4% always, 1.2% often
  - Palmer 2017 = 15.97% of pts with urgency, 3.92% without (sig)

Strain to empty bladder completely
  - Sjogren 2017 = 8.7% always, 5.8% often
  - Palmer 2017 = 12.61% of pts with urgency, 7.84% without (not sig)
"JIC" - just in case
- Palmer 2017 = 10%
- Sjogren 2017 = 14% often, 5.2% always
- Honjo 2010 = varies between 10% and 30% by age (older less often as they feel urge more)

Palmer 2017
Waiting too long to urinate at work = associated with urinary urgency (multivariable regression)
Wearing panty liners = associated with urinary urgency

Discussion questions
- What instructions do you give women for toilet behavior? What habits are OK? or need to be avoided?
- Why do we want women to avoid these behaviors?
- What alternatives are OK?

Toilet positions
88.9% prefer a non-sitting posture in public toilets, most preferred hover over crouch and most (39.5%) adopted the behavior in junior high (Yang 2010)

Toilet positions and terminology
- Sitting upright on standard toilet
- Leaning forward with forearms resting on thighs, feet on the ground Yang figure 2 A and Rane figure 1 A
- Near squat leaning forward with forearms resting on thighs and feet up on a stool (like squatty potty) Rane figure 1 B
- Semi squatting or hovering with buttock positioned above but not on the toilet and both knees bent and feet on the floor Yang figure 2 B
- Full squat with feet on platform around toilet Rane figure 1 C
- Crouching or perching with both feet on the toilet rim in a full squat Yang figure 2 C
- Full squatting over hole in the ground

Compare upright to leaning forward
Leaning forward had significant
- higher peak flow
- higher average flow
- lower PVR
- = better emptying (Rane 2014)

Rane paper referenced two other studies showing the same result
Compare leaning forward to near squat (squatty potty like position)

Near squat had significant
- higher peak flow
- higher average flow = better emptying (Rane 2014)
- trend to higher PVR with semi squat (Rane 2014)

A letter to the editor about Rane 2014 suggests leaning forward and near squatting relax the "forward pubococcygeus vector" which allows opening of the urethra.

EMG studies in children show leg and PFM relaxation are most ideal with legs supported (ie on the stool) and leaning forward (Yang 2010)

Full squat - on platform around toilet (may not compare to crouching or perching on toilet or squatting on floor)
43.2% could not squat - get's harder with age (Rane 2014)

Full squat on platform resulted in
- increased passive IAP (Rane 2014)
- increased levator hiatus dimensions (Rane 2014)
- slightly better PVR compared to near squat (Rane 2014)
- significant quicker time to max flow compared to near squat (Rane 2014)

Crouching / perching on toilet
- 4.2% "at least sometimes" (Sjogren 2017)
- Fluctuating pattern in 60% who crouch (Yang 2010)
- Not able to relax due to precarious position

Semi squat / Hovering
- 25% while away from home (Palmer 2017)
- 24.4% "at least sometimes" (Sjogren 2017)
- Significant delay in time to void (Yang 2010)
- Fluctuating uroflow curve in 42.2% of patients (Yang 2010)
- No significant difference in PVR leaning forward, to hovering, to crouching in young, healthy women - large standard deviation in PVR suggests some women have higher PVR - suggest larger studies (Yang 2010)
- No association between hovering and urgency or any other LUTS (Palmer 2017, Sjogren 2017)
- 21% decrease ave flow rate and 149% increase PVR in "crouching / hovering" in pts attending a GYN clinic (Moore 1991)

Discussion questions
- What toilet positions do you suggest? What habits are OK? or need to be avoided?
- Why do we want women to void in certain positions?
- What alternatives are OK?