WEBINAR PART 3

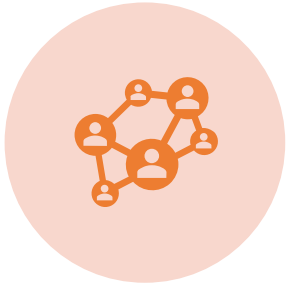
APRIL 29, 2020

BEFORE WE BEGIN...

All participants will be muted throughout the duration of the presentation to ensure the best audio quality

During the presentation, if you should encounter any audio issues, please refresh your browser and check your computer's audio settings

Please submit your questions anytime during the webinar by clicking on the 'chat' box and typing your questions



We are recording today's webinar and we'll share a link with you in our follow-up. That way, you can listen to it again and even share with colleagues who may be interested

PERFORMING URODYNAMICS

PRESENTED BY:

KIMBERLY GALES, CUT, CST

CAROLINE SMITH, RT (R) ARRT

MEET OUR PRESENTERS

Kimberly Gales, CUT, CST,
Clinical Educator, Team Lead

- Been with LABORIE for 15 years
- Provides customers with training on their Urodynamics software and hardware
- Presents our Practical One Day Educational Courses and assists in the creation of new educational materials
- Certified by: the Certification Board for Urologic Nurses and Associates (CBUNA); certification by the Virginia Department of Health Professionals as a Surgical Technologist, and she is a current member of the Society of Urologic Nurses and Associates (SUNA)
- Served in the United States Navy for over 6 years during which she performed Urodynamics procedures.

Caroline Smith, RT (R) ARRT,
Clinical Educator

- Been with LABORIE for 8 years
- Resides in Colorado with her husband of 29 years and her 2 beagles
- Certified Radiologic Technologist for over 20 years and has her Associates in Science
- Experience in Pediatrics, Orthopaedics and Urology

LEARNING OBJECTIVES

- Standard Urodynamic testing definitions
- Setting up your equipment/supplies needed
- Running the UDS software

MULTI-CHANNEL URODYNAMICS CONSISTS OF…

Uroflowmetry (Uroflow): The measurement of the rate of urine flow over time

Cystometrogram (CMG)/ Cystometry: Evaluates the bladder's function during filling

Pressure flow (P/F): Uroflow/CMG in same voiding event; shows direct relationship between bladder muscle strength and resulting flow

Urethral Pressure Profile (UPP): To evaluate urethral length and competence; measures continence zone

Electromyography (EMG): Is the recording of electrical potentials generated by the depolarization of muscle fibers; it assesses pelvic muscle activity

TURNING THE EQUIPMENT ON

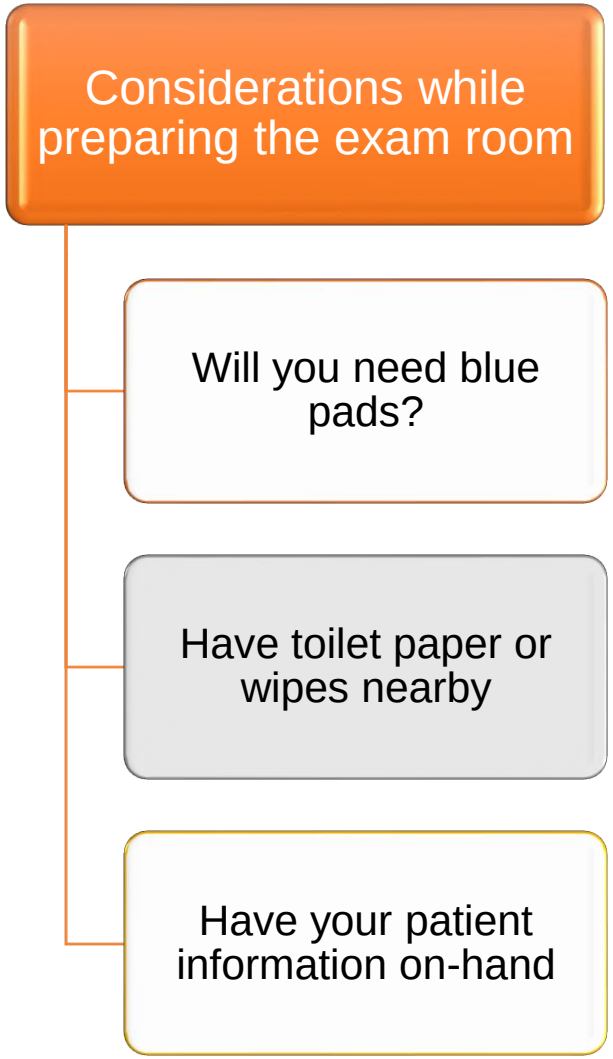
Turn on urodynamic unit by supplying power

ie. plug power cord into outlet

Turn on computer (tower, laptop, tablet)

If applicable, turn on monitor and printer

GATHER SUPPLIES



SUPPLIES: USING T-DOC CATHETERS

- 1 bladder catheter
- 1 abdominal catheter
- 1 pump tubing
- 1 package EMG patches
- 1 IV bag saline or sterile water
- 1 beaker
- Tape, gloves, straight (drainage) catheter and catheterization supplies

SETTING-UP THE UROFLOW

- Place beaker on Uroflow transducer
- Beaker must be flat
- Ensure nothing comes in contact with the beaker

SETTING-UP THE PUMP

Insert pump tubing spike into IV bag of saline or sterile water

- Open roller clamp to allow fluid to run through tubing until all air is expelled, then clamp the tubing closed.

Hinge pump head into fully open position

Place compressible portion of pump tubing across pump rollers

Close pump head

Open the roller clamp on the tubing

NOTE: position tubing so fluid will run from blunt portion of arrow (bag) to pointed end of arrow (patient); arrow is located on various points of pump depending on model.

SETTING-UP THE EMG

If using pre-wired patches, insert wires into head stage now, or insert after being placed onto the patient

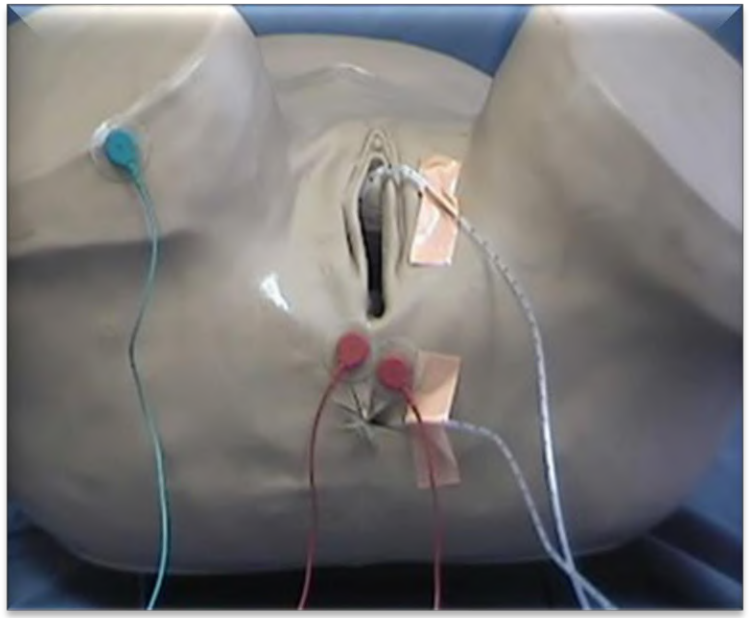
If using reusable wires, snap patch onto lead wire

Ensure the lead wires are securely connected to the head stage

EMG PATCH PLACEMENT

The two active leads should be placed perianal, at 11 and 1 o’clock positions

The ground patch should be placed on a bony prominence; **non-muscle bearing area (recommend knee or pelvic brim)**



SETTING-UP T-DOC CATHETERS

- Have the transducer cables in a convenient location
- Confirm transducer is in the open position
- Have the catheter packaging slightly open for ease of access

CATHETER PLACEMENT GUIDELINES

Using Air-Charged catheters:

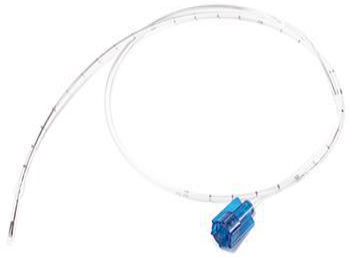
Bladder insertion

Female: approximately 12 cm

Male: approximately 20-25 cm

Abdominal insertion

- Female & Male: approximately 15 cm

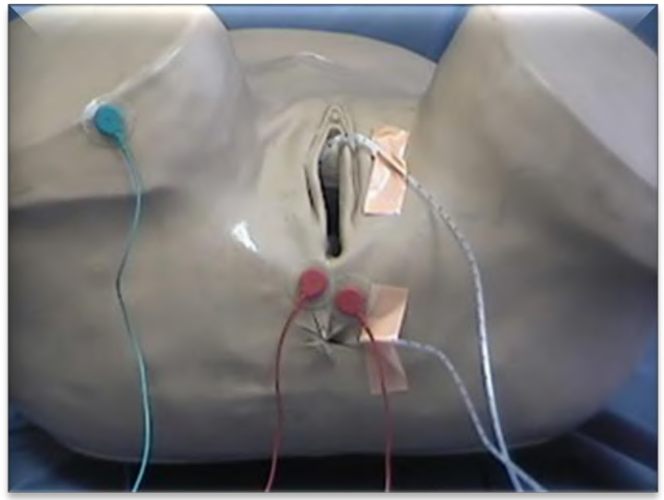


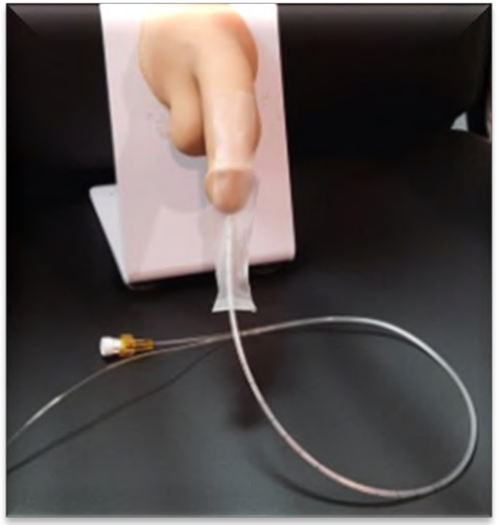
If inserting vaginally, place the catheter as far as culdesac – be sure the catheter does not curl back toward you

Note: these measurements are guidelines only – catheters should be placed well within the body without over-insertion

PLACE AND SECURE THE CATHETERS

- Remove straight catheter
- Place bladder catheter
- Place abdominal catheter
- Place EMG patches
- *Tape all catheters as close as possible to where they leave the body*



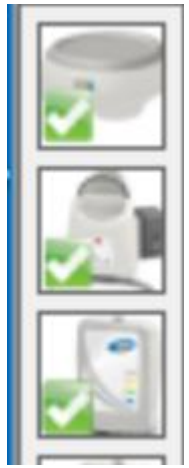


PREPARING THE SOFTWARE

Double click the icon representing your urodynamic software program:

CONFIRM CONNECTION STATUS

Green check marks appear next to the icon for each device in use

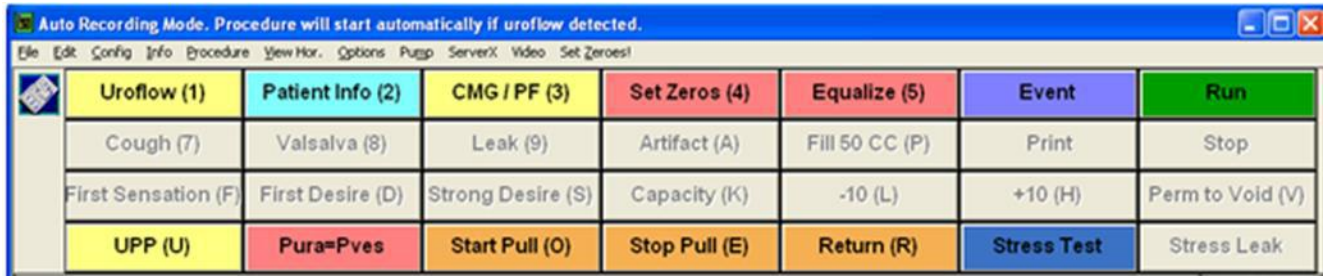


Blue two-way arrows display

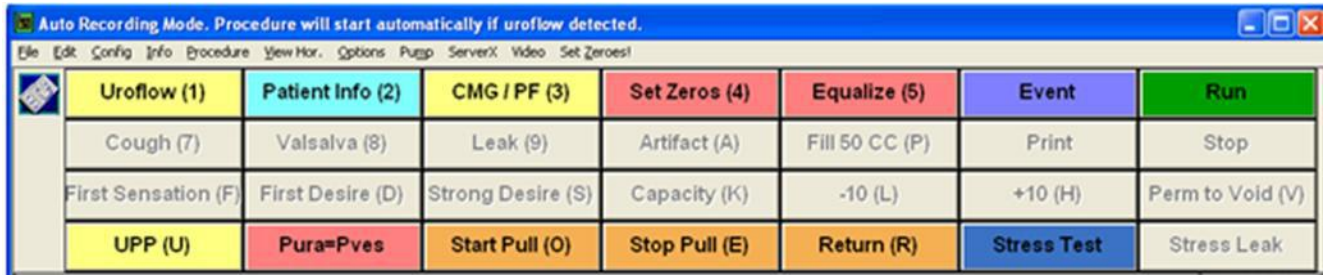
Some software may display a red circle in the left corner; this disappears when full connection is made

PREPARE THE SOFTWARE

1. Always select a test first



2. Select patient information second



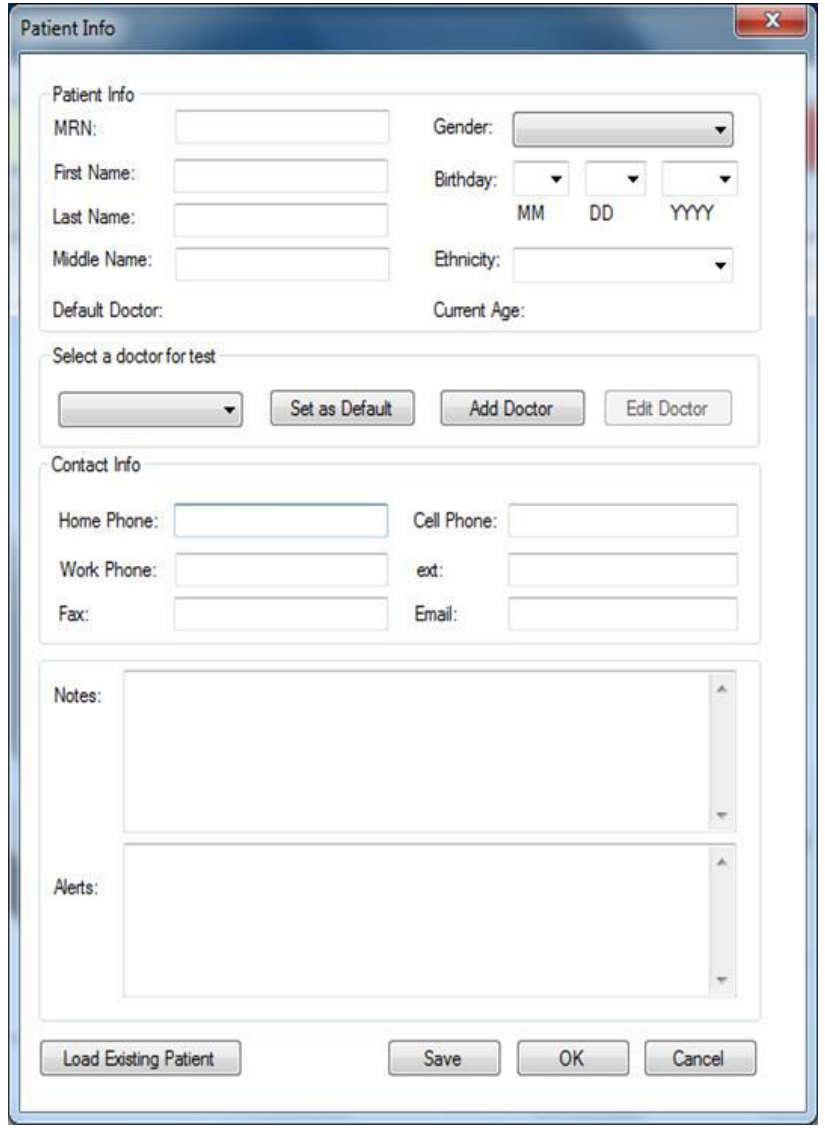
ENTER PATIENT INFORMATION

The MRN must be filled in, using only letters or numbers (no special characters)

Middle name is optional

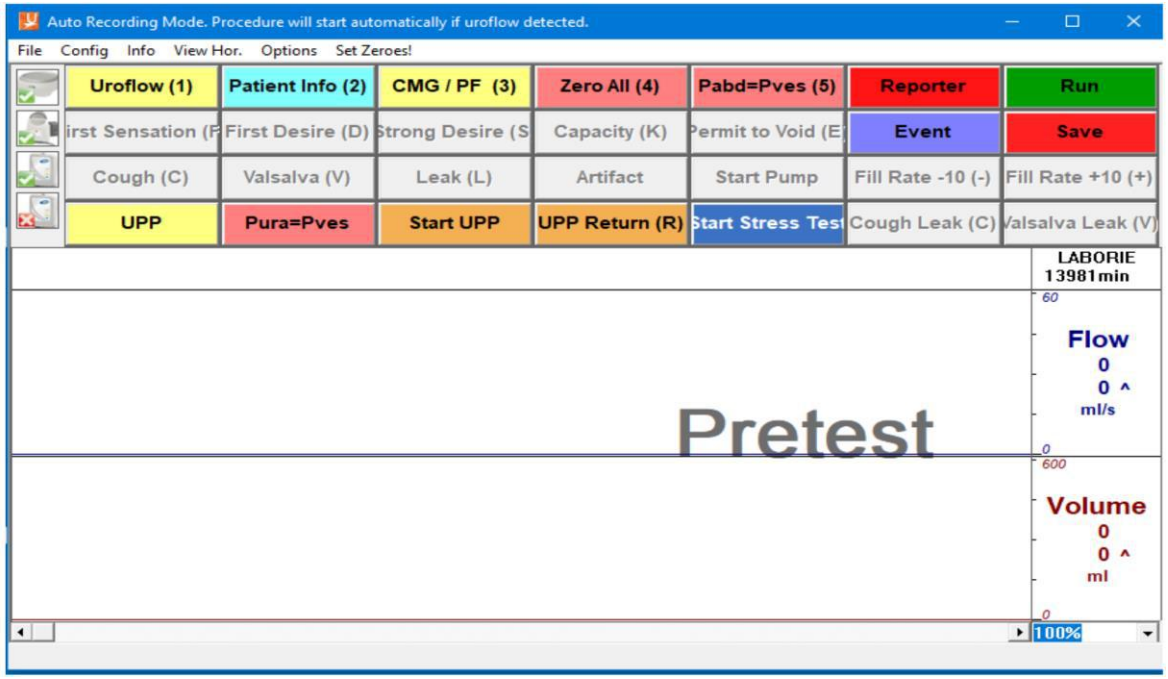
When using the tab key to navigate between fields, take note, when you get to the date, the tab will take you to year, *then* month and day

The information below the doctor's name is not mandatory and does not print on the report



UROFLOW - AUTOMATIC

- Channels are automatically set to zero
- Confirm that ‘Auto Record Mode’ is displayed in top blue bar on left



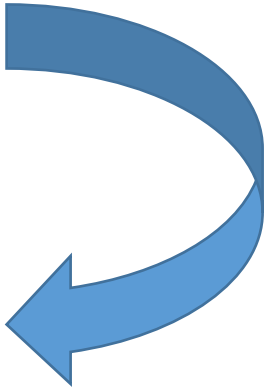
CMG

- Select ‘test’ button
  - CMG/PF
  - CMG/PF/UPP
  - Micturition

- There is no need to re-enter patient information, it remains intact

ZEROING AIR-CHARGED CATHETERS

Open



Charge

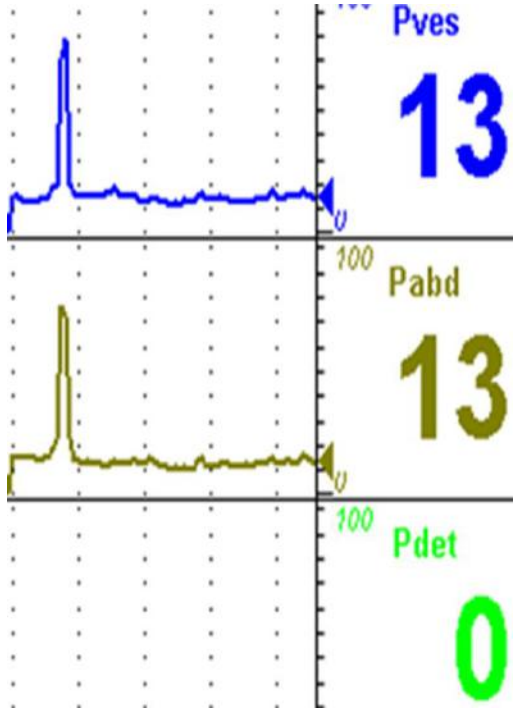
ARE THE PRESSURES REASONABLE?

After the test is completed, it is too late to find out the data is meaningless

Pdet should be “at or near zero”

- If Pdet is more than 10 (negative or positive):
  - An error in Pves or Pabd is likely
  - Hitting ‘Zero’ button does not fix it (in fact, it will make the rest of the test suspect)
  - Hitting ‘Equalize’ button just masks the problem

Find the error and correct it first!



ICS GUIDELINES FOR EXPECTED NORMAL PRESSURES

Bladder/ abdominal resting pressures*:

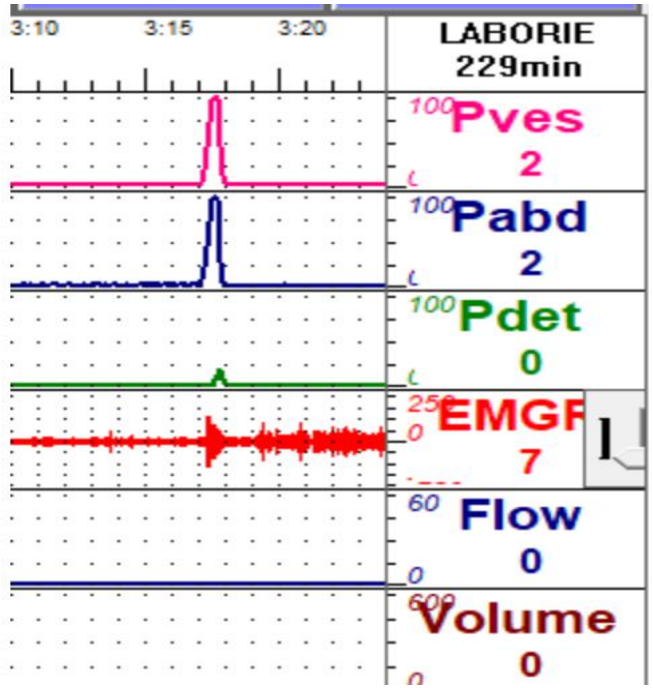
- Supine = 5-20 cm H2O
- Sitting = 15-40 cm H2O
- Standing = 30-50 cm H2O

When the patient coughs, both Pves and Pabd should “spike” in the very same way

- *You may note some slight deflection on Pdet – this is not a problem.*

EMG activity should also “spike” during a cough

- *Note: EMG is generally higher when the patient’s legs are flexed or in stirrups. It is best, if possible, to have the patient’s legs in sitting position with feet supported (not dangling).*



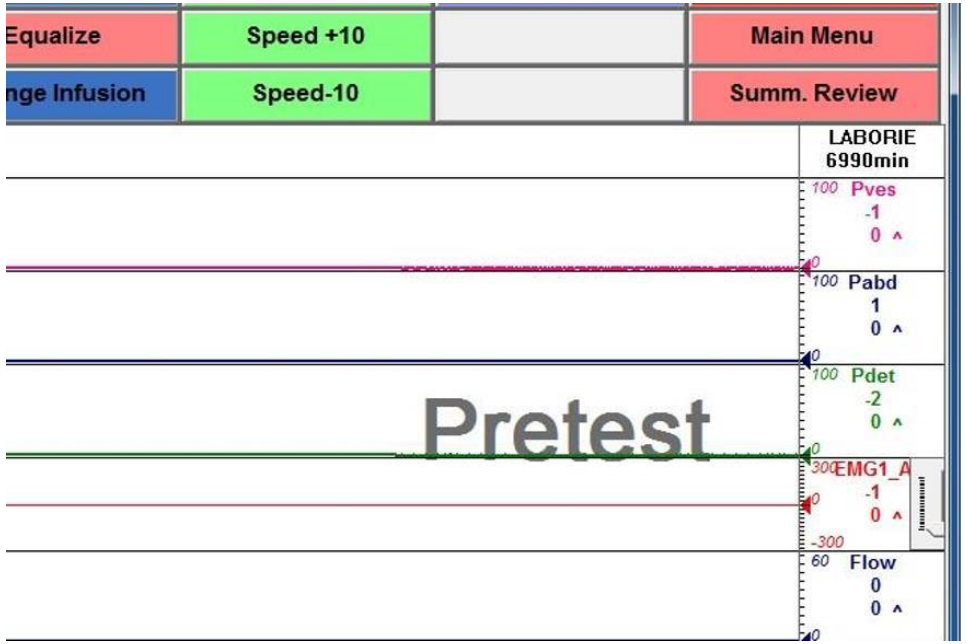
* Schafer et al - Good Urodynamic Practices: Uroflowmetry, Filling Cystometry, and P/F Studies - Neurourol Urodyn 2002

PRE-TEST MODE

When you see the graph scrolling with the words “Pre-Test” displayed, you may: assess all of your pressures, make adjustments, check cough responses, etc. but nothing is actually being RECORDED

This allows you some time to get everything just right before beginning the actual recorded test

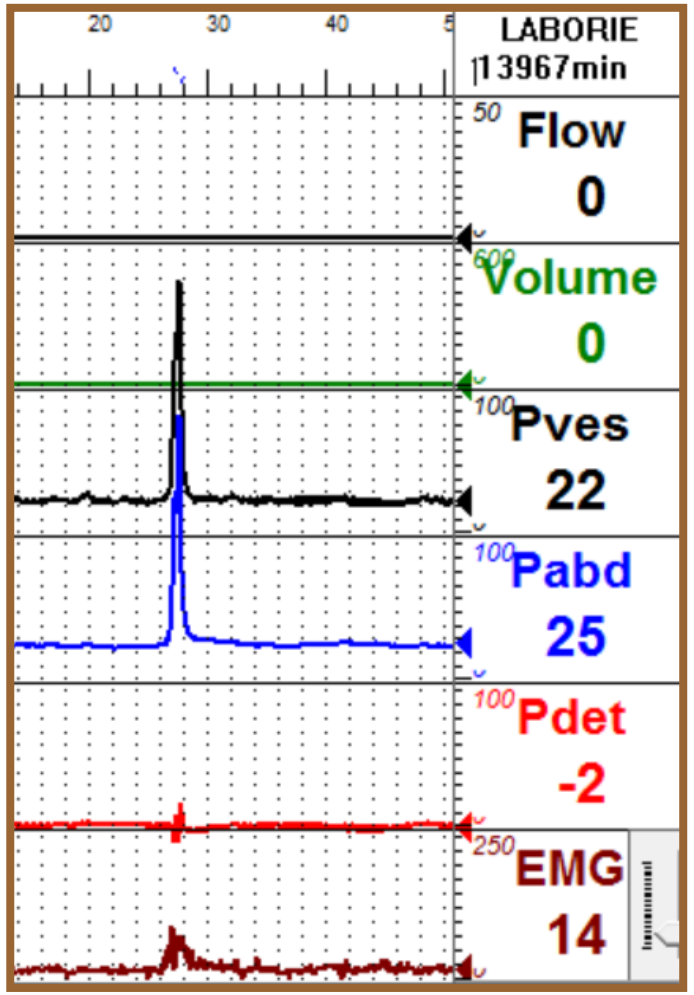
The graph recording begins when you press “RUN”



BEGIN CMG

Test cough

- Start your study by clicking ‘Run’
- Ask patient to cough
- Observe for twin image in Pves and Pabd without corresponding spike in Pdet
- Observe for abdominal activity in infant or patient unable to cough voluntarily
- Quality standard: must observe on every study



Rosier et al - ICS Good Urodynamic Practice and Terms 2016: Urodynamics, uroflowmetry, and pressure-flow study - Neurourol Urodyn 2016

REMIND YOUR PATIENT TO REPORT THEIR SENSATIONS & MARK THESE ON THE GRAPH

Could = First Sensation

When you are first aware of bladder filling

Example:

"Before you get in the car for a long trip, you empty your bladder – but otherwise you wouldn't have needed to void"

WOULD = First Desire

When you would void at the next convenient moment – but you can still postpone it

Example:

"While on that car trip, now you would start wondering how far is it to the next rest stop"

SHOULD = Strong Desire

The Persistent Desire to Urinate

Example:

"You feel the need to hurry to the very next exit to urinate"

MUST = Capacity

You can no longer delay voiding

Example:

"You would stop at the side of the road and run to hide behind bushes to empty your bladder"

LEAK POINT PRESSURE TESTING

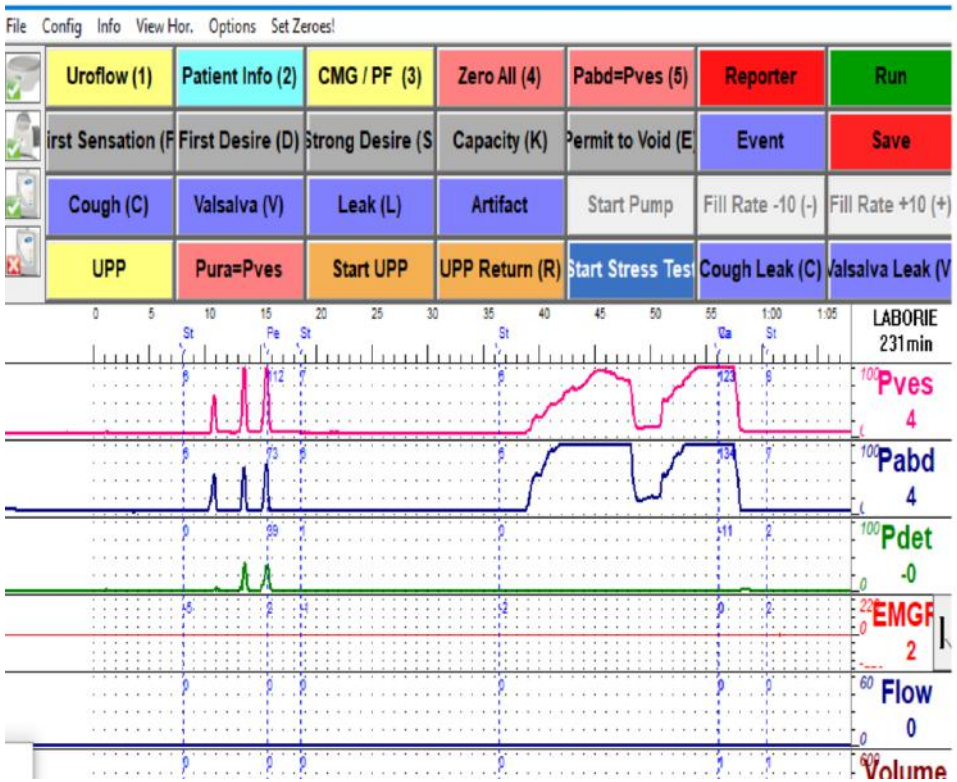
To document stress urinary incontinence:

Perform provocative maneuvers to produce a leak – cough, valsalva (straining), etc. with a moderately full bladder (150-200 ml is common)

- Coughs are so strong and rapid that while they are likely to cause the incontinence, it is difficult to mark precisely
- Valsalva/straining is more controlled, you can pinpoint pressures more accurately

LEAK POINT PRESSURE (LPP) TESTS WITH CALCULATED VALUES

NOTE: Place patient in a position so you can see the meatus (urinary opening) easily.



Rosier et al - ICS Good Urodynamic Practice and Terms 2016: Urodynamics, uroflowmetry, and pressure-flow study - Neurourol Urodyn 2016

RESUME THE TEST

After the stress maneuvers, resume filling the bladder

If you were not able to reproduce incontinence in a patient who complains of Stress Incontinence at home, repeat LPP at regular intervals (every 100ml-150ml) as the bladder fills

BEGINNING THE VOID PHASE

When the patient reports reaching their bladder capacity, click ‘Capacity’

Stop the pump

Prepare for voiding test…ask the patient to cough and confirm all pressures are still transmitting well to the graph

VOIDING - THE PRESSURE/FLOW TEST

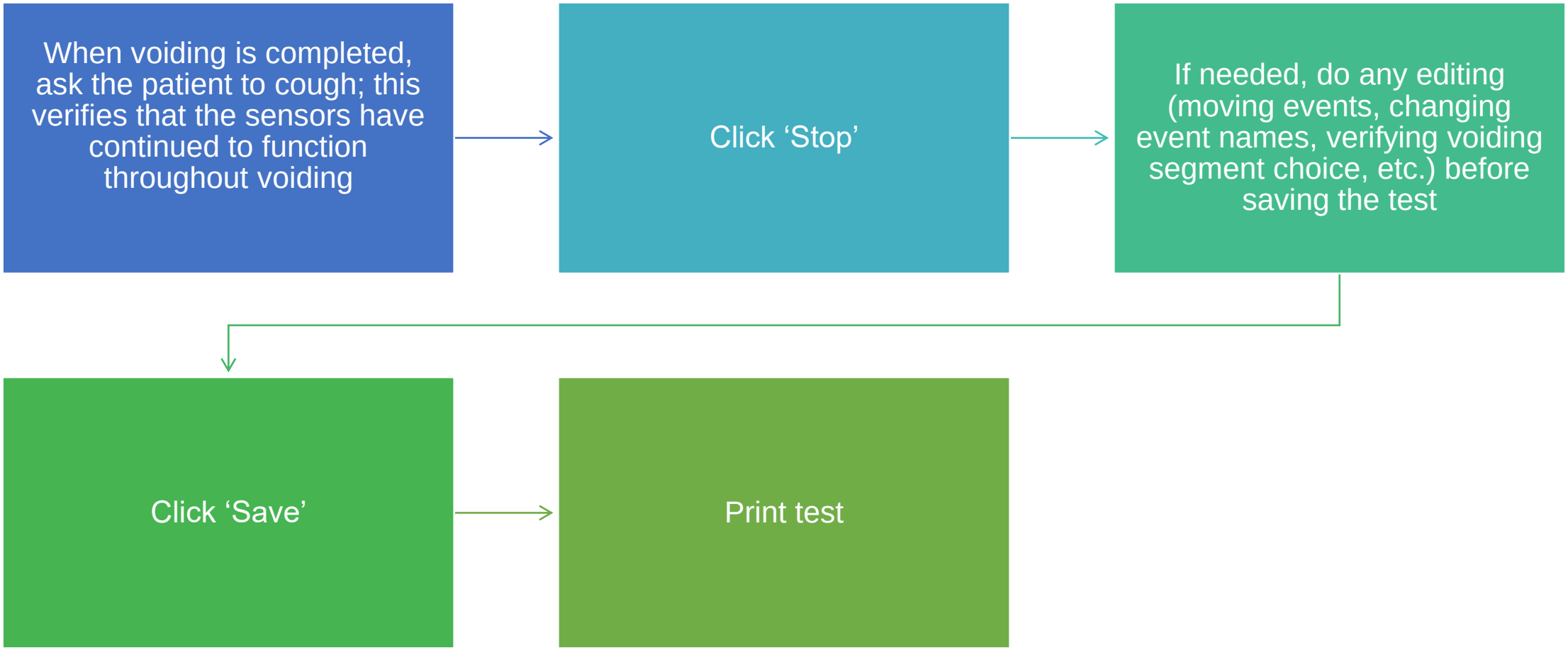
Continuing on the same screen:

- Instruct the patient to empty their bladder
- Provide as much privacy as possible

At the moment you instruct the patient to void, click ‘Permit Void’

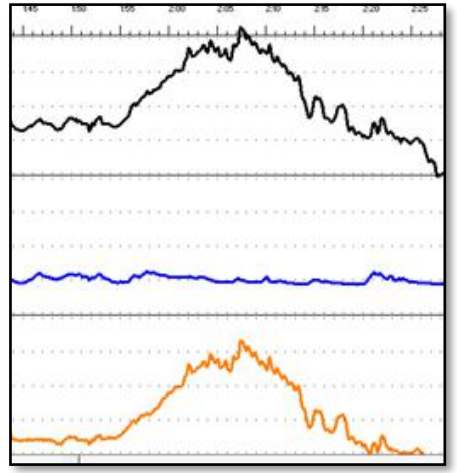
**When voiding begins, you will note all channels on the Pressure/Flow testing screen are recording data comparing the pressure within the bladder and body to the resulting flow pattern*

COMPLETING THE TEST



UPP

Urethral pressure profiles are used to determine the pressure throughout the length of the urethra. Having greater pressure within the urethra than the pressure within the bladder is a mechanism to maintain continence.



Urethral pressure profiles (UPP) must be performed with a moderate amount of fluid in the bladder (50-200 ml), and with the patient in an upright position. Performing a UPP on an empty bladder is not recommended (intravesical fluid needed to provoke closure of sphincter).

→ These are commonly repeated 2-3 times

→ Each clinic decides where this fits into the sequence of the urodynamic procedure

VERIFY SENSOR POSITION

Perform test cough before pulling catheter for UPP

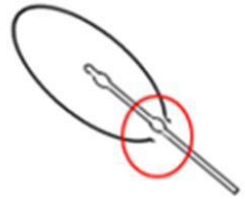
Manually withdraw the catheter until you see a rise in pressure on Pura channel

Re-insert the catheter just slightly until Pura value again matches the Pves value

Thus Pclo = zero

This places the Pura sensor very near the bladder neck so that it is ready to record pressure changes throughout the length of the urethra

Sensor too far from bladder neck



Better position

PLACE THE CATHETER INTO THE GUIDE OF THE PULLER ARM

Have the tip of the puller arm very close to the meatus and at an angle that naturally continues in the direction of the urethra

OR

If you are performing a manual pull, hold the catheter in a position that continues in the angle of the urethra

MANUAL UPP WITHDRAWAL, WITH NO PULLER BUTTONS AVAILABLE

Press ‘F6’ key on the top row of the keyboard

Begin withdrawing the catheter as slowly and steadily as possible

- It may help to rest your arm on a steady surface

The Pura and Pclo pressures will begin to rise; Pves should remain stable

When Pclo returns to zero, stop pulling and press ‘F6’ key again

PRINT REPORT

Click ‘Reporter’

Confirm saving the file

You may add history, impressions, diagnosis and other data on this report before printing

Urodynamics values will already be included

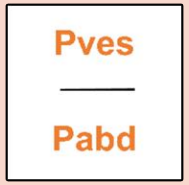
There are multiple styles of reports to choose from

END OF PATIENT VISIT

- Discuss good bladder health habits
- Discuss resuming medications, if appropriate
- Encourage fluids for a few hours
- Explain signs & symptoms of urinary tract infection
- Follow-up appointment

REMEMBER

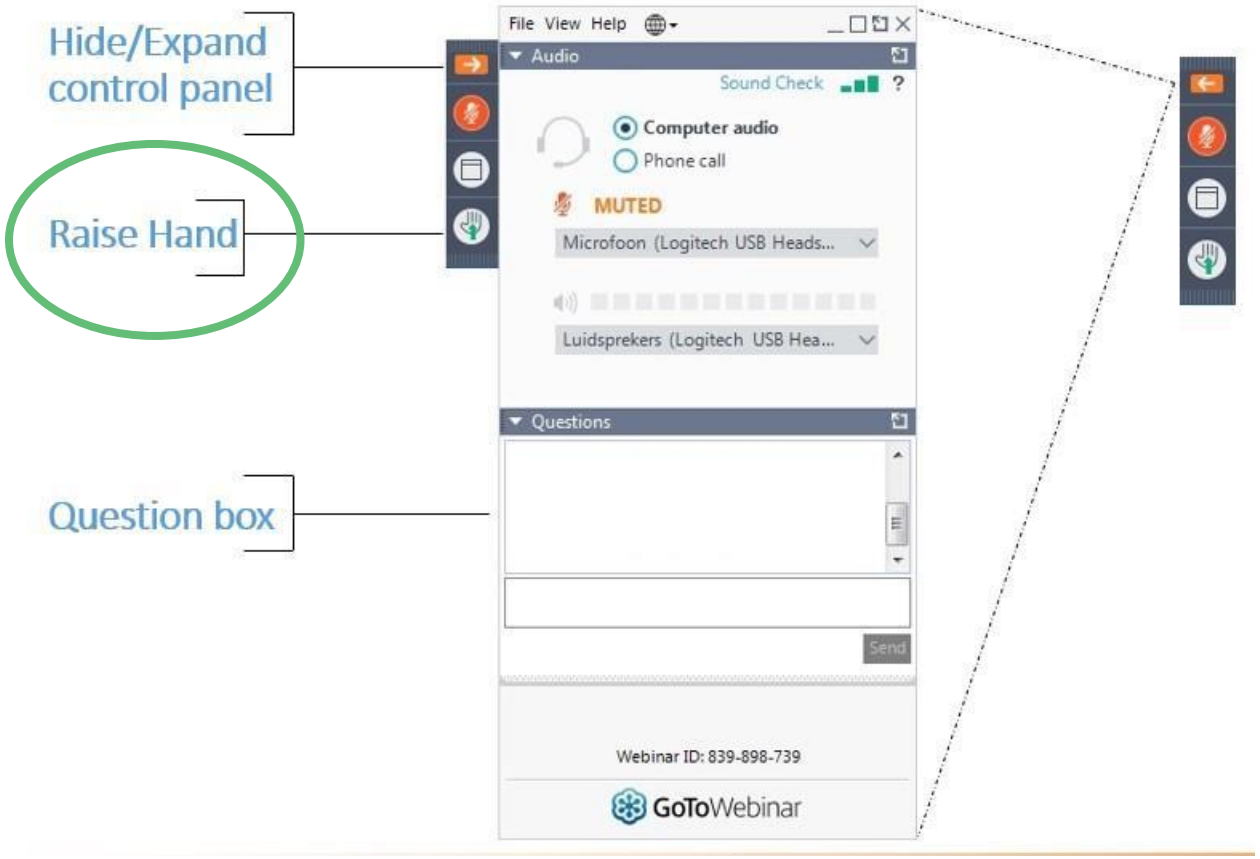
Being able to recognize artifacts and troubleshoot quickly will help obtain the best results



When in doubt, have the patient cough

THANK YOU FOR JOINING

Q&A PERIOD – PLEASE RAISE YOUR HAND



THANK YOU FOR JOINING US!

IF YOU HAVE ANY QUESTIONS, PLEASE EMAIL

ClinicalConsultants@laborie.com