



ANORECTAL MANOMETRY (ARM) DIAGNOSTIC PROCEDURE

Quick Reference Guide

(Adult Guidelines using the Standard mcompass® Catheter)

Login

Turn on Tablet. Swipe up. Enter Password.
Double-click the mcompass program icon
Tap “Diagnostic Anorectal Manometry” button
Select User. Initial user is “Admin”



Open keyboard – tap keyboard icon on lower far right corner of screen
Enter case-sensitive password. **Initial password is Medspira123**

Note: The keyboard will hide automatically and you may need to click the icon in the lower right corner to pull it up again.

Enter Patient Data

Note: Steps 1 –19 may be performed before the patient is brought into the room for the test.

- Enter patient data completely
- Tap Next



The screenshot shows the 'Patient Data' entry screen in the mcompass application. The screen has a green header with a pencil icon and the text 'Patient Data'. Below the header is a list of navigation buttons: Patient Data (selected), Set Up, Resting, Squeeze, Sensation, Expel Empty, Expel Full, Exhale, and Review. The main area contains a form with the following fields: Date (11/29/2023 6:49), Patient ID* (ID123456), Patient First Name (Jon), Patient Middle Initial (J), Patient Last Name (Doe), Gender (M selected, F unselected), DOB/Age (01/01/1970), Indication (Chronic Constipation), Physician (Dr. B), Referring Physician (Dr. B), and Test Operator (Nurse). A 'NEXT' button with a blue arrow icon is at the bottom right. A 'log out' button with a red X icon is at the bottom left. A note at the top right of the form area says: '1) Verify date, then enter patient data and information, 2) Click "NEXT" to proceed to Set Up.' A small asterisk note at the bottom of the form says '* = Required field'.

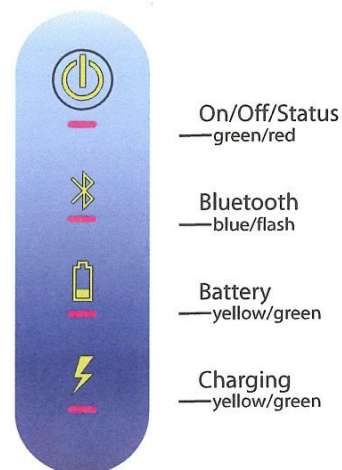
Only Patient ID is required to proceed.

Note: Complete all desired fields before tapping Next, as you cannot go back and add/change information once test has been completed.

Once indications, doctor’s names, and referring physicians are entered, drop-down lists will be populated for ease of use.

Set Up – Bluetooth Connection

1. Make sure the Fob is charged and the charging plug is disconnected from the power source
2. Turn on the Fob by pressing “On/Off” button and wait until “On” light appears on Fob. All LEDs will be on for about 2 seconds.
3. You can proceed when you see steady green lights for On/Off and Battery, and one flashing blue light for Bluetooth.
4. Tap the “Connect Bluetooth” button on the screen
5. Wait for the flashing blue LED on the Fob to turn steady blue. This means you are connected to the Tablet.



6. Make sure the lever is in Position 1 “OPEN”



7. Tap Next on the screen




Note: If the Fob fails to connect through Bluetooth to Tablet, follow Tablet instructions.

The FOB should have 2 green lights and a blinking blue light in the middle, once the blue light becomes steady the Fob is connected via Bluetooth properly. If the Fob fails to connect through Bluetooth to the Tablet, follow the instructions outlined in our document labeled: *Troubleshooting Issues with the FOB:*

<https://medspira.com/support/anorectal-manometry-support/>

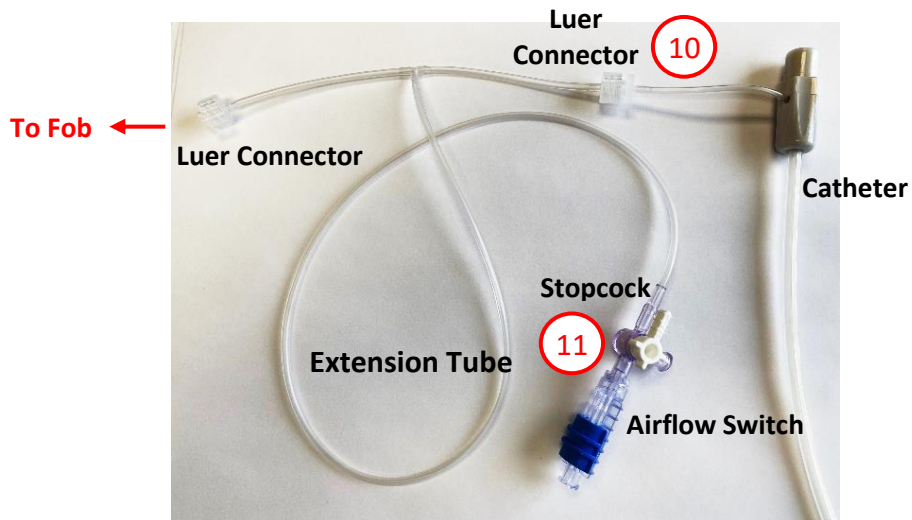
Set Up – Catheter Connection to Fob

NOTE: These must be performed in this order to obtain proper pressure readings.

8. Tap “FOB Connected” to confirm FOB connection 
9. Connect catheter to the FOB by plugging in with arrows aligned
Line up the black triangle from the catheter to the blue triangle on the Fob and push it ALL the way in so that the arrow does not show.

NOTE: It does not snap or twist in place to connect or disconnect.

10. Connect the Extension Tube
 - One short end male luer connects to female luer on catheter
 - The other short end male luer connects to female luer on Fob

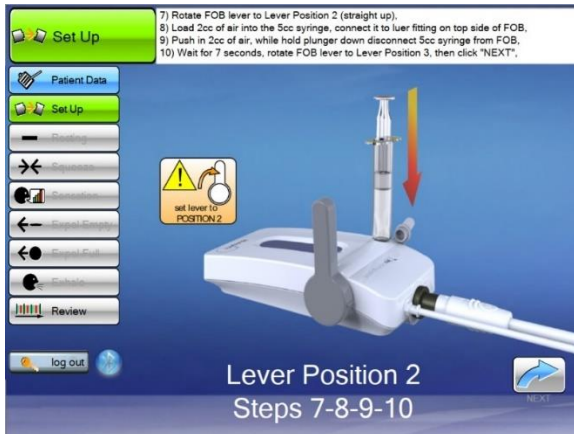
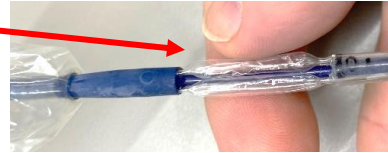


11. Connect Airflow Switch to 3-way Stopcock, and Connect large syringe to the Airflow Switch



Set Up – Priming the Fob

12. Move the lever on the FOB to Position 2 “PRIME” position (Straight up and down)
13. Load the 5cc syringe with **2cc** of air
14. Connect the 5cc syringe loaded with **2cc** of air to luer fitting on top of the FOB
15. Push in **2cc** of air with syringe
 - ** Check that the 4 anal balloons filled with air.
16. While holding thumb on syringe plunger, remove the 5cc syringe from the FOB



After placing air into the sphincter balloons, remove the syringe and let air naturally bleed out of the balloons to normalize to the pressure in the room (**count to seven before moving the lever to position 3**).

17. After the syringe is removed, move lever on the FOB to position 3 “OPERATE” and click “NEXT”
Moving the lever to position 3 closes the airlock to the sphincter balloons
18. Replace protective cap for the 5cc syringe to prevent contamination
19. Tap “PRIMED” on screen



Note: You may check the rectal balloon by filling it with 30cc to see that it fills and remains filled. Deflate the balloon before starting.

Everything up to this point (Set up Steps 1-19) may be done prior to seeing the patient so when they arrive, you are prepared to begin the procedure.

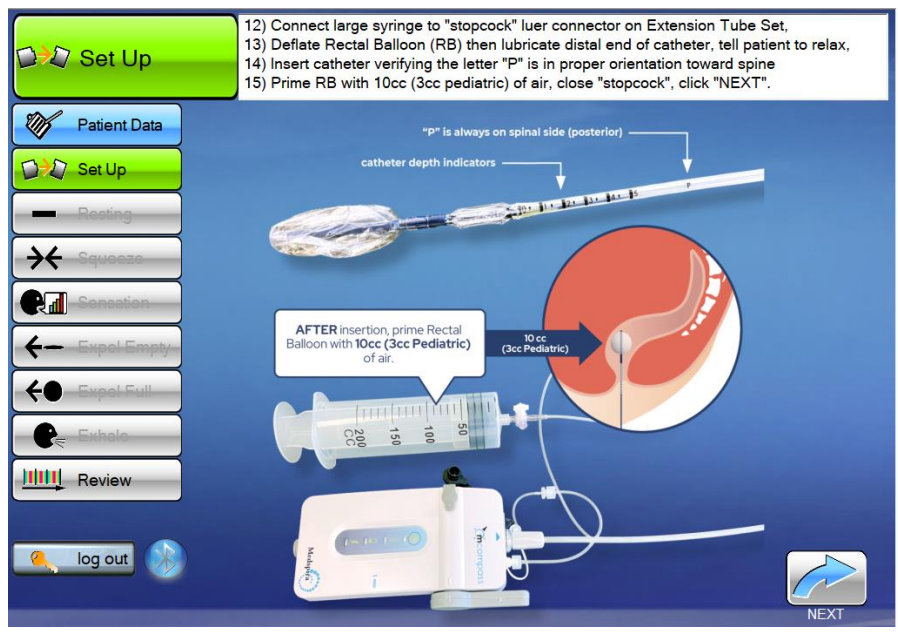
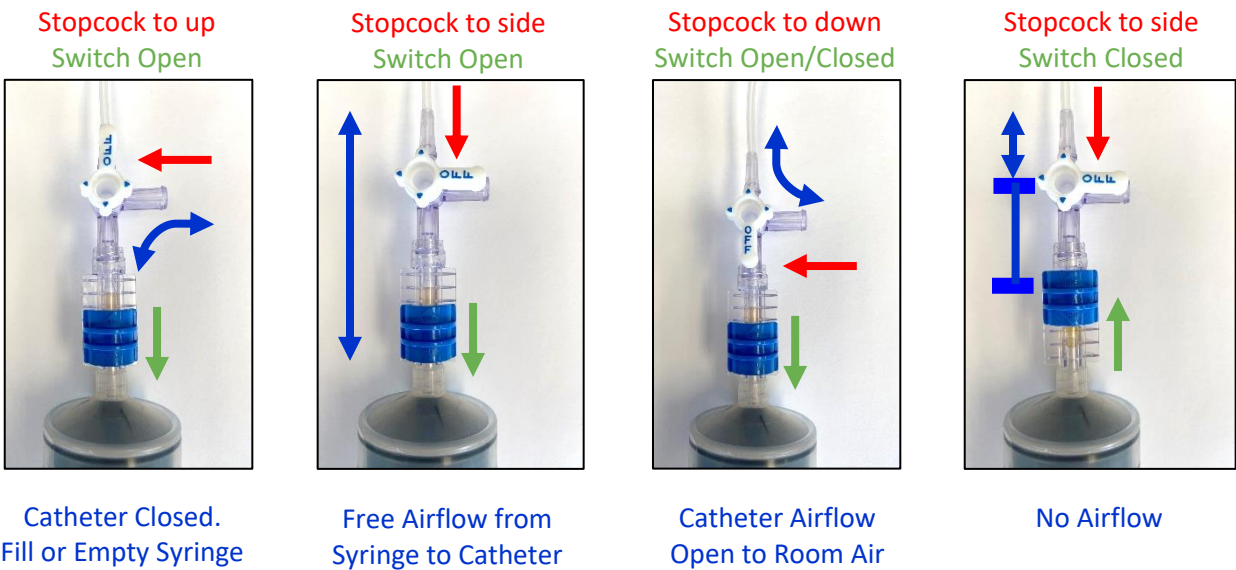
Prepare for Testing:

Have the patient lie on their left side, knees raised toward stomach.

With the patient in position for the procedure,




- 1) Lubricate distal end of catheter device; instruct the patient to relax
 - 2) Insert the catheter into the patient to position "0" on catheter verifying the letter "P" is in the proper orientation (toward the patient's back)
 - 3) Using a large syringe, prime rectal balloon with 10cc of air [3cc for Petite], press "Next"
- Note: this priming volume remains for every test and is not included in volumes entered**
- 4) Lock the stopcock UP to the "Catheter Closed" position

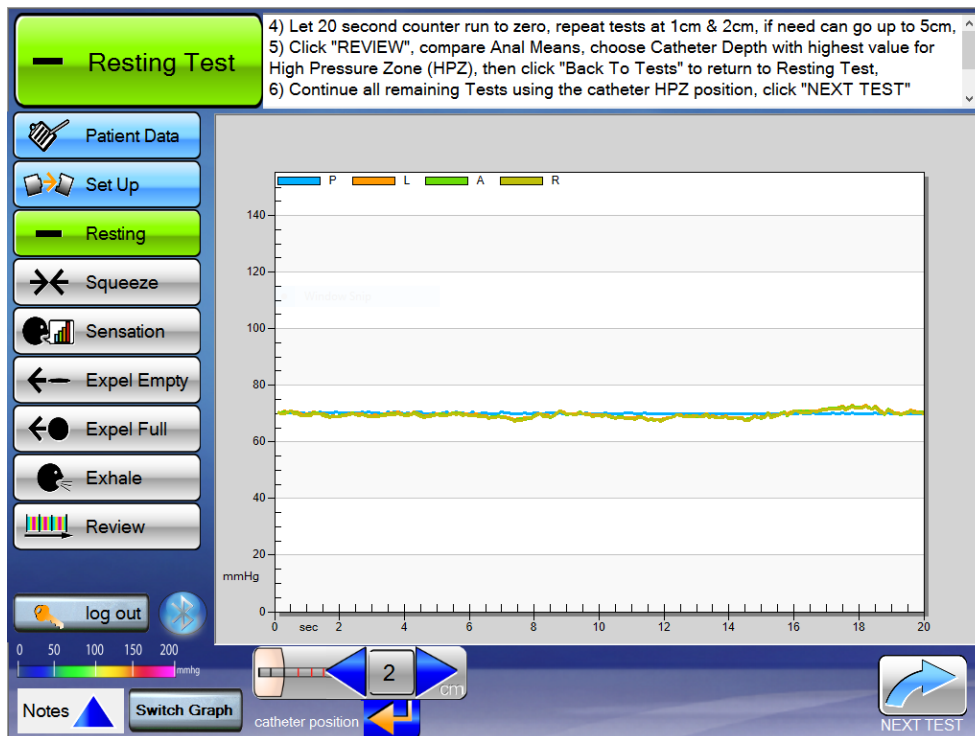
How to Use the Stopcock



At this point, the Set Up is complete.


Resting Test

- 1) Explain test to the patient. – They are just to relax while you determine in what catheter position their anal strength is the greatest.
- 2) Instruct the patient to relax
- 3) Position the catheter at “0”, enter position, tap enter , and tap “Run/Pause”
- 4) Let 20 second counter run to zero
- 5) Insert the catheter further into position “1”, enter position, tap enter , and tap “Run/Pause”
- 6) Insert the catheter further into position “2”, enter position, tap enter , and tap “Run/Pause”
- 7) Go to “Review”. Look for which ANAL MEAN is highest among the positions.
 - **This position is the High Pressure Zone (HPZ).**
 - **Continue all remaining tests from this HPZ position.**
- 8) *If the pressure increases through position “2”, repeat the test at position “3” (and “4”, “5” if necessary). Tap “Back to Tests” to repeat tests.*
- 9) Enter any Notes (if appropriate), then tap “Next Test”




Continue the rest of the tests from the HPZ position.


Squeeze Test

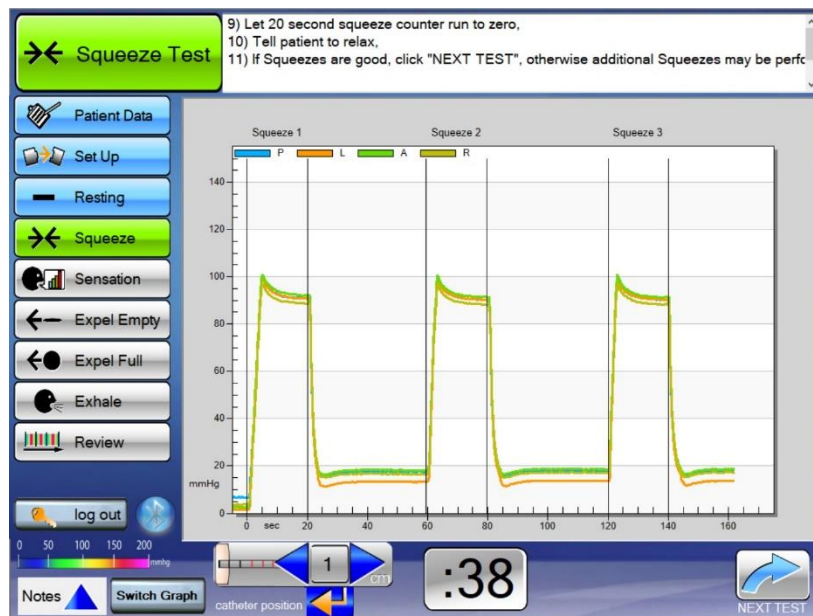
- 1) Explain the test to the patient. – They are to squeeze tight for as long and hard as they can, 3 times, simulating they are holding back a bowel movement.
- 2) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 3) Instruct the patient to squeeze
- 4) Let the counter run to zero. Instruct the patient to relax; wait at least 30 seconds for patient to recover

Repeat -

- 5) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 6) Instruct the patient to squeeze
- 7) Let the counter run to zero. Instruct the patient to relax; wait at least 30 seconds for patient to recover

Repeat -

- 8) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 9) Instruct the patient to squeeze
- 10) Let the counter run to zero. Instruct the patient to relax; wait at least 30 seconds for patient to recover



- 11) If more data required, check catheter position and tap “Run/Pause” again to repeat test (counter resets) or if test is good, enter Notes (if appropriate), then tap “Next Test”.

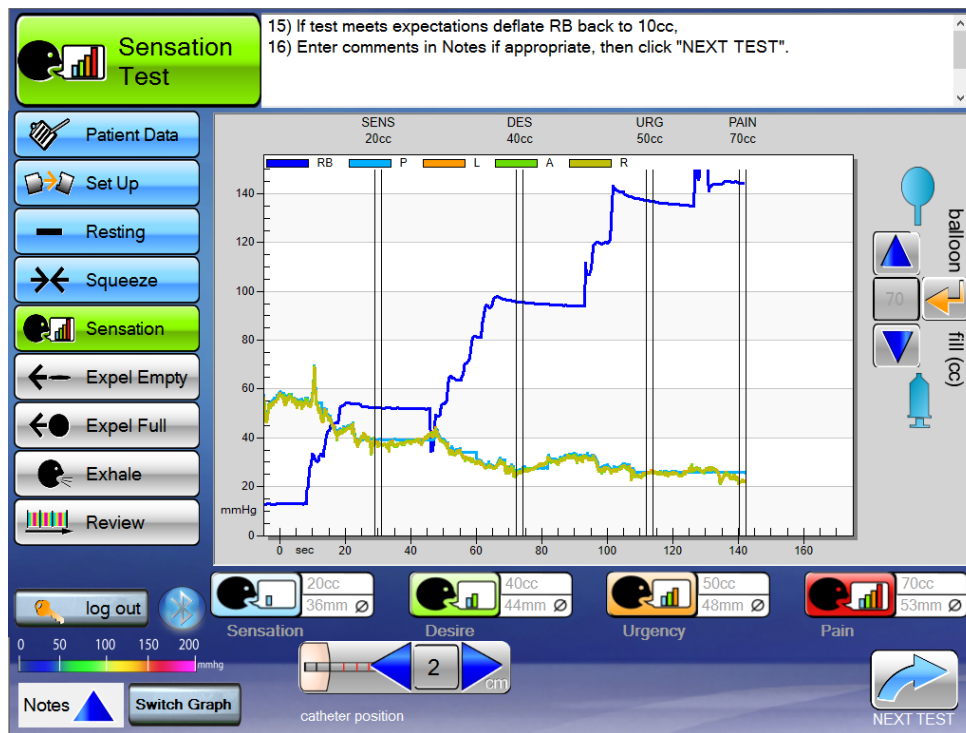
Perform 3 squeezes where the patient squeezes as hard as they can for 20 seconds. You will need to keep telling the patient to squeeze throughout the entire 20 seconds. We want them to not only squeeze hard but to hold it as long as possible. Tell the patient to squeeze like they're trying to hold in a bowel movement.

Sensation Test

Note: Closing the Airflow Switch to maintain rectal pressure at each sensation mark is necessary to provide a meaningful Rectal Compliance Curve!

- 1) Explain the test to the patient. – You will be performing a series of 3 tests that are a continuation of each other, looking for the patient’s 1) first sensation, 2) desire to defecate, and 3) urgency to defecate. You will be adding volume (making it bigger) to simulate a stool.
- 2) Ask the patient to relax for 7 seconds – this provides the resting pressure needed for the report
- 3) Draw the large syringe all the way back to completely fill it with air
- 4) Tap the Green Arrow (run) button
- 5) **Determine First Sensation Marker:**
 - Instruct the patient to state when they feel anything different (sensation), than they do with just the catheter in there right now.
 - Turn the stopcock to allow air to flow to the rectal balloon.
 - Start by pushing in 20ccs of air (10cc for Petite). If the patient says nothing - continue to add 10cc (5cc for Petite) at a time. Once the patient has stated they feel the sensation, close the Airflow Switch, and tap the sensation box on the bottom of the screen.
 - Change the volume amount on the right-hand side to match the new current air volume in the rectal balloon.
 - Tap the yellow arrow next to adjusted volume amount to auto-populate the information in the **sensation** box.
- 6) **Determine Desire Marker:**
 - Instruct the patient to state when they feel like they need to have a bowel movement soon, but it is not urgent. (*For example, could easily wait for the next commercial break.*)
 - Open the Airflow Switch and continue to push air into the rectal balloon again. Slowly increasing the air volume, in the rectal balloon, by increments of 10ccs (5cc for Petite) at a time. Once the patient has stated they feel the desire, close the Airflow Switch, and tap the desire box on the bottom of the screen.
 - Change the volume amount on the right-hand side to match the new current air volume in the rectal balloon.
 - Tap the yellow arrow next to adjusted volume amount to auto-populate the information in the **desire** box.
- 7) **Determine Urgency Marker:**
 - Instruct the patient to state when they feel as if they can no longer hold in their bowel movement. (*For example, you have been holding it but just cannot hold it any longer.*)
 - Open the Airflow Switch and continue to push air into the rectal balloon again. Slowly increasing the air volume, in the rectal balloon, by increments of 10ccs (5cc for Petite) at a time. Once the patient has stated they feel the urgency, close the Airflow Switch, and tap the urgency box on the bottom of the screen.
 - Change the volume amount on the right-hand side to match the new current air volume in the rectal balloon.
 - Tap the yellow arrow next to adjusted volume amount to auto-populate the information in the **urgency** box.
 - Continue adding air until an ‘Urgency to go’ is found, or you reach 180ccs of air, whichever comes first. **The balloon capacity is 180ccs of air, so be sure not to over-inflate.**

- 8) **Determine Pain Marker – OPTIONAL** Can jump to Step 8
 - Measuring to the 'Pain' level of this test is OPTIONAL. If the physician wants the additional data, this may be explained as testing for 'Total Capacity' rather than pain. For an example, express to the patient: 'Let me know when you have a feeling that you can't hold anymore.'
 - Otherwise, you are done with the test.
- 9) Remove all air from the rectal balloon and add back the baseline of 10ccs (3cc for Petite) of air. Lock stopcock.
- 10) Tap "Test Review" on bottom left-hand side of screen. Let the information load. Once information has loaded, tap Report. On the first page of the report, the bottom left of the page, look for RAIR.





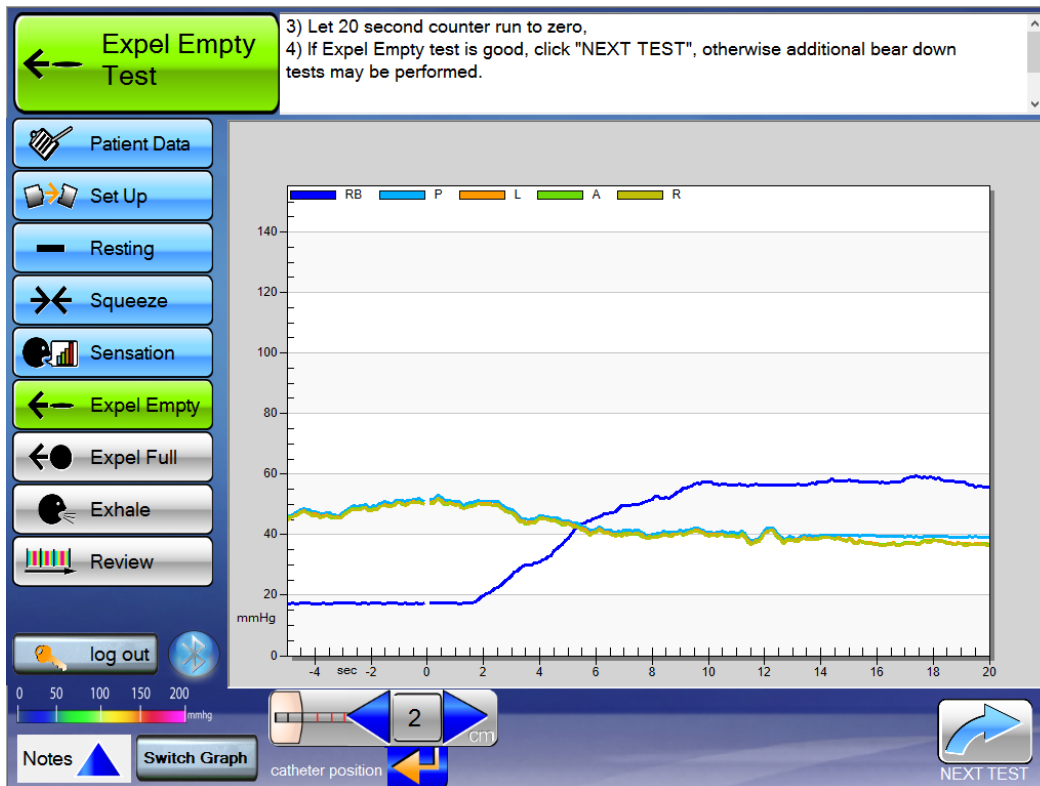
RAIR (Recto-Anal Inhibitory Reflex) Determination

Determining the % drop in internal sphincter pressure from a resting state during Sensation Testing and defining the presence or absence of RAIR for an individual patient, is best left to the judgment of a physician.



The graphs available in the Review pages of the mcompass® system provide clear representations to confidently determine the presence of and pressure change from RAIR.

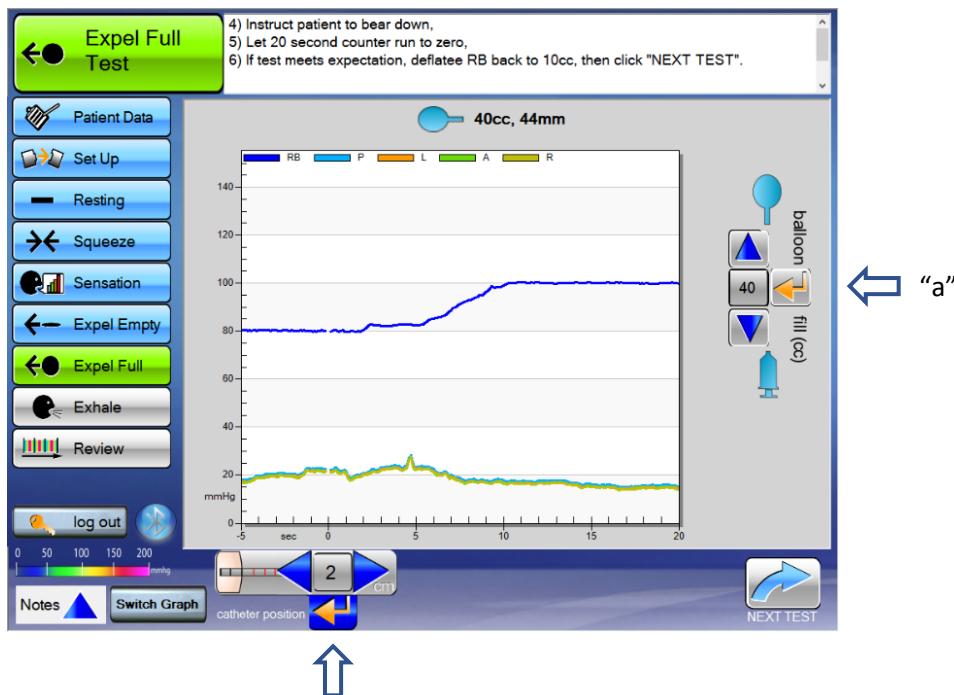
Expel Empty Test

- 1) Explain the test to the patient. – They are to “bear down” like they are trying to push out a stool.
- 2) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 3) Instruct the patient to bear down / push and keep pushing for 20 seconds.
- 4) Let 20 second counter run to zero. Tell the patient to relax.
- 5) Screen will move on to the “Expel Full Test”
- 6) If more data required, return to the Expel Empty Test  and repeat the test.
- 7) Enter Notes (if appropriate).




Expel Full Test

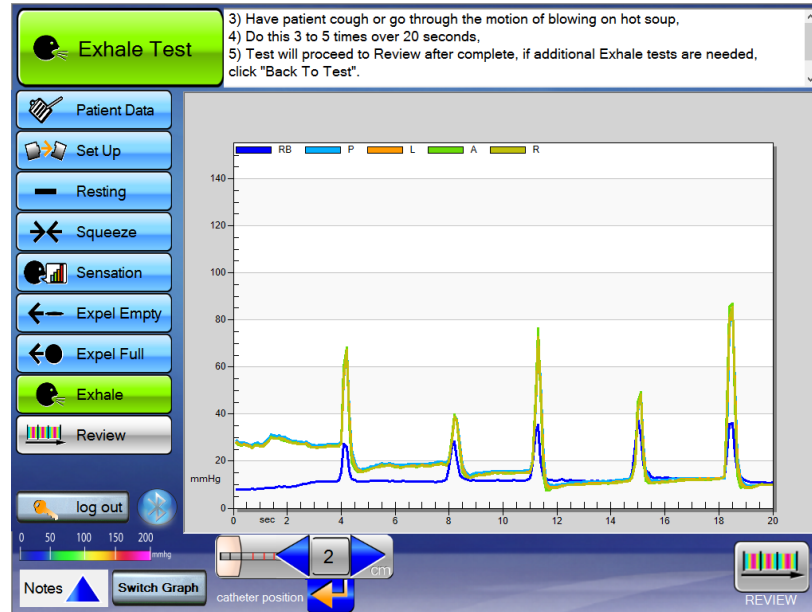
- 1) Explain the test to the patient. – Same exact test as the expel empty. This time a small amount of air will be added to simulate stool in the rectum.
- 2) Fill the distal balloon to the volume of air where the patient indicated they felt **Sensation** from the previous test. Add 10cc (5cc for Petite) to this volume for this test and lock the stopcock.
 - OPTION: **Standard Catheter - Ages ~ >6**: Inflate rectal balloon with 50-60cc. Lock the stopcock.
 - OPTION: **Petite Catheter - Ages ~ <6**: Inflate rectal balloon with 10-40cc (infant-child). Lock the stopcock.
- 3) Enter the volume (cc's) on the right (see “a” in diagram).
- 4) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 5) Instruct the patient to “bear down” as if defecating
NOTE: Many patients will be reluctant to actually relax their anal sphincter and push from their rectum as if defecating for fear of an embarrassing passing of gas or stool expulsion. You must encourage an honest effort from your patient to obtain useful results.
- 6) Let counter run to zero
- 7) Screen will move on to the “Sensation Test”
- 8) If more data required, return to the Expel Full Test  and repeat the test.
- 9) Open the stopcock, remove all but 10cc (3cc for Petite) of air, and lock the stopcock.
- 10) Enter notes if appropriate and tap “Next Test”.



Before the test will run, you must make sure to enter the Catheter Position and enter the Amount of Air you injected into the balloon. Then the Run button will appear.

Exhale Test

- 1) Explain the test to the patient. – They are to do a series (3 to 5) of good deep coughs or hard concentrated blows (like blowing up a balloon) over 20 seconds.
- 2) Check catheter position in the patient is in the High Pressure Zone (HPZ), verify position on screen, tap enter , and tap “Run/Pause”
- 3) Have the patient cough, or blow hard, or orally inflate a standard balloon
- 4) Let 20 second counter run to zero



It is important to coach the patient to cough one at a time. They could begin a coughing fit and that will not provide the results needed, so coach them to cough just once every several seconds.

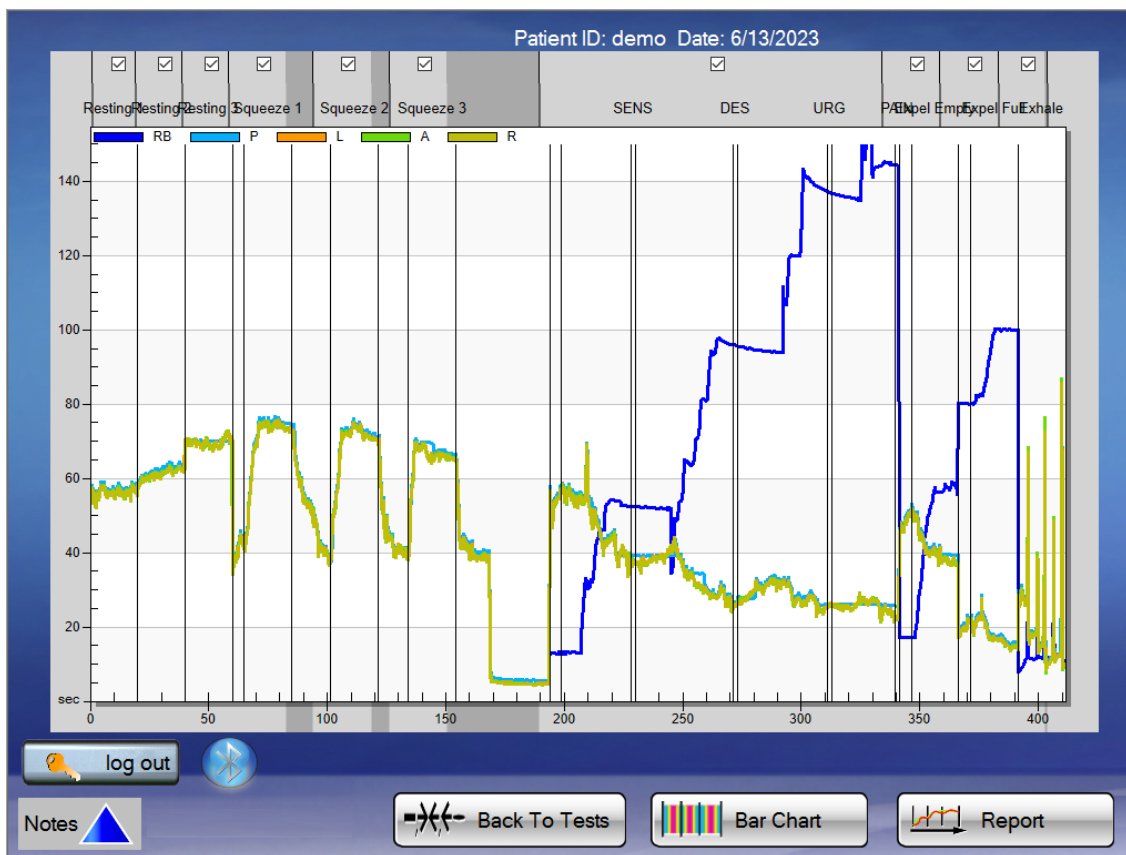
Once you have completed this test, the patient is all done.

Catheter Removal Process

- 1) Remove all air from the catheter
- 2) Disconnect reusable extension tube from the catheter - *or* - Disconnect catheter assembly from the Fob
- 3) Remove the catheter from the patient – You may place a glove over the top of the contaminated balloon to prevent further contamination
- 4) Safely dispose of the catheter

Clean Up Process

- 1) Clean all components of the system with alcohol or germicidal wipes
- 2) Return Fob handle to Position 1
- 3) Replace all three protective caps
- 4) Plug both Fob and Tablet into chargers for their next use.



Review Report

The graph screen (bar and line graph) are primarily for you to organize which tests you would like to view on the report. If you had a mishap or don't want to see certain information on the report, uncheck the box on top of the respective test.

After that is completed, run the report by tapping "Report".

- This will populate a 6-8 page report for interpretation.

Save & Export File

Once that is completed, save the report as an xml file .

Note: Unless changed, the file will save as the "Patient ID" entered at the beginning.

Note: The reports automatically save themselves within the software once you enter in the patient ID. You may also print the report from there.

Log out

ARM Provider Patient Coaching Tips

Notes and sample phrases for use during Anorectal Manometry Diagnostic procedures

[Before Procedure]

1. "Today, we will be conducting an anorectal manometry test to assess the strength and coordination of your rectum and sphincters."
2. "We will also check your ability to feel the urge to have a bowel movement."
3. "The entire process consists of six tests and takes about 15 minutes."
4. "You will need to perform these tests with your honest attempts to get the best results, at any time if you don't understand don't worry, just let me know."

[Resting – Catheter Depth 0]

1. "For this test you just need to relax and breathe normally. Please try not to talk, laugh, or cough."

[Resting – Catheter Depth 1 / 2] (and 3 / 4 / 5 if needed)

1. "I am going to adjust the catheter a little bit."

[Squeeze]

1. "I need you to imagine that you're holding poop/feces in, like you really need to go to the bathroom, but there's no restroom nearby. You'll squeeze as if you're preventing an accident for 20 seconds, squeeze for as long as you can, followed by a short rest before the next squeeze. Try not to squeeze with your glutes, just anal muscle. We'll repeat this process three times. When you are ready, I'll count you down 3...2...1... Squeeze! and then 3...2...1... Relax! at the end of the 20 seconds."

Encourage the patient with phrases like: "Keep squeezing.", "You're doing fantastic!", "Great job!"

[Sensation]

1. "During this part, it's important to try and stay relaxed. Take deep breaths to help keep your muscles relaxed."
2. "Do you feel the catheter now? Let me know when you feel a different sensation other than just the catheter, like you have stool in your rectum."

Notes: Add 10cc at a time until the Sensation is felt, immediately LOCK the Control Switch to prevent air from escaping and select the Sensation on the screen.

[Sensation - Desire]

3. "Let me know when you feel like you want to have a bowel movement but could hold it. Like if you are watching television and you feel it but could wait for the commercial."

[Sensation - Urgency]

4. "Let me know when it feels like you cannot hold it or are about to have an accident where you would run to the restroom."

[Sensation - Pain] (Provider Optional)

5. "Let me know as soon as you feel pain, it will be uncomfortable for just a moment then I'll let all the air out."

Notes: *Do not fill the Rectal Balloon past 180cc of air. End the Sensation test if 180cc of air is reached, even if the patient does not verbalize all Sensations.*

[Expel Empty]

1. "I need you to imagine that you're trying to have a bowel movement, as if you're pushing out poop/feces. Focus on using your abdominal muscles to push and avoid squeezing your sphincter. We want you to push with your abdominal muscles only. You'll push for 20 seconds. I'll count you down when you are ready. 3...2...1... Push!"

Encourage the patient with phrases like: "Keep pushing.", "Push, push, push.", "You're doing fantastic!", "Great job!"

[Expel Full]

1. "Now, I'm going to inflate the device to simulate stool in your rectum, and then we'll repeat the previous test. Please let me know when you start feeling the sensation of stool in your rectum, and then I'll count you down to begin pushing. You'll push for 20 seconds. 3...2...1... Push!"

Encourage the patient with phrases like: "Keep pushing.", "Push, push, push.", "You're doing fantastic!", "Great job!"

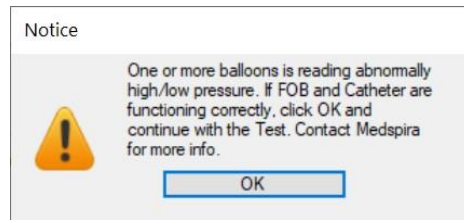
Notes: *Remember to set the Balloon Fill cc on the right side of the screen! Start with 20cc of air and continue to add 10cc at a time until the Sensation of stool is felt then ADD 10cc more.*

[Exhale - Cough]

1. "I'll queue you to give me 3-5 big deep single coughs over 20 seconds when you are ready, and we will be done."

Common Questions

What if I get this message?



This may result if the PRIMING STEP (page 4) left excess air in an anal measurement balloon. This may occur if they are not given the full 7 seconds to de-pressurize to ambient room pressure.

Possible Solution: Repeat the priming step, allowing the full 7 seconds before moving the lever from position 2 to position 3.

How much Battery Life is there?

The battery life of both the Tablet PC and the manometer FOB is roughly 1.5 hours of active use (performing the procedures) because they are communicating via Bluetooth and/or Wi-Fi which consumes a good amount of energy. The battery life when at standby and not Bluetooth-connected is easily 4+hours.

The FOB's rechargeable battery has enough capacity to provide continuous operation for a period of 4 hours (minimum) at full charge, which may take about 2 hours.

To preserve battery life, disconnect from Bluetooth / Wi-Fi between procedures.

The Yellow Battery Light indicates there is about 30 minutes of charge remaining.