Standard HRaM Editing Techniques

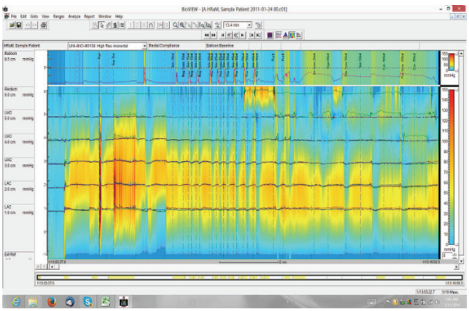
SANDHILL scientific

Opening the Study:

Double click on the Sandhill Applications icon on the desktop. Click 'Analysis'.

Click 'Select Patient': The path to find the patient file is: C:\Sandhill\Patients\ARM

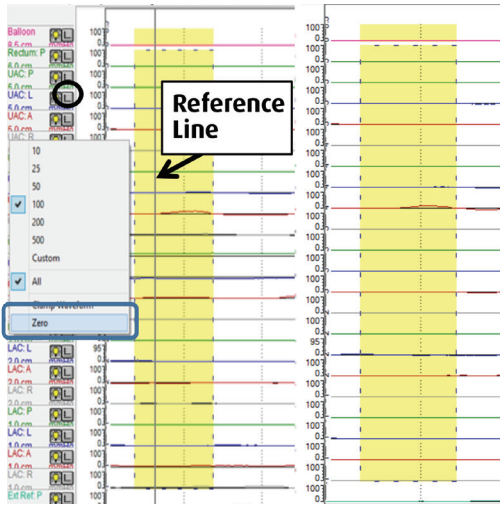
The complete study will open with the waveforms overlaid on top of the ClouseVIEW. Note that for each probe depth from 1 cm to 5 cm there will be four waveforms. Each waveform represents the quadrant where the data is being measured and are color coded for each quadrant: Posterior, Left, Anterior and Right. The Balloon channel is displayed separately above the sphincter channels.



Correct the Anorectal and Balloon Baseline Measurements

Turn off the ClouseVIEW and change time to 1 minute.

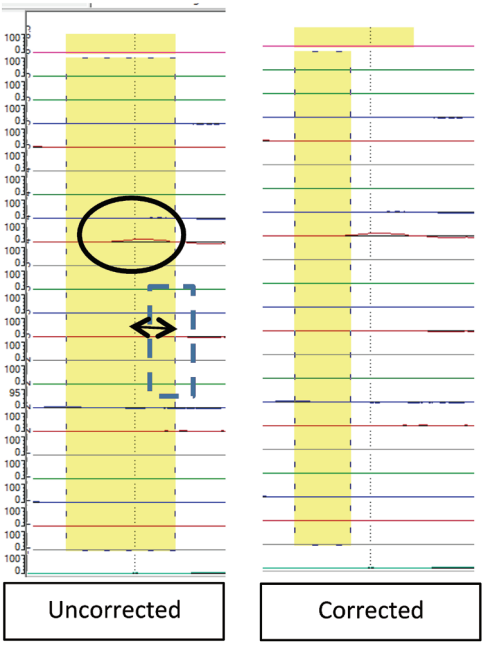
The first two measurements taken are the Balloon and Anorectal baselines. These measurments are taken simultaneously with the balloon baseline measurement located in the most proximal channel and the anorectal baseline measurement is located immediately below in the remainder of the channels used to calculate sphincter data.



*Zero all channels so that each waveform is positioned on the zero axis, avoiding any areas of contraction or increased pressure:

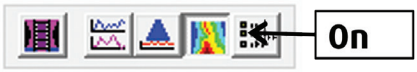
1. Click once on the tracing in a quiet area. This creates a reference line.
2. Click on any graph button on the left of the tracing.
3. Click 'Zero'. This will adjust all channels onto the zero axis at the reference point.

If areas of pressure are observed, adjust the baseline measurment box by clicking and dragging the edges of the measurement box.

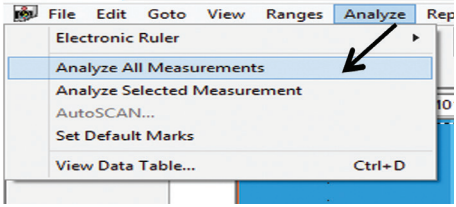


Edit Pressure Measurements

Turn on ClouseVIEW

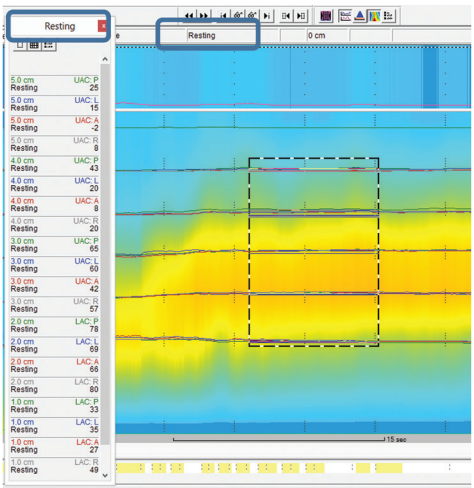


***IMPORTANT:** Once the Baselines have been edited, the software must re-analyze all measurements based on these corrections. Click 'Analyze' in the Toolbar and select 'Analyze All measurements'. Do Not Re-Analyze again.



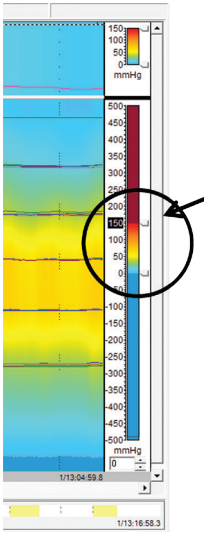
Resting Pressure

Turn on the Analysis Tool. Click the Tab key on the keyboard to advance to the Resting measurement. The Resting measurement will calculate the pressure within the measurement area for each channel. Assure that the measurement is taken in a quiet area. Click and drag the sides of the box if needed. The values for each channel will be displayed in the analysis box. Note that each quadrant data is color coded both on the wave and in the analysis box.



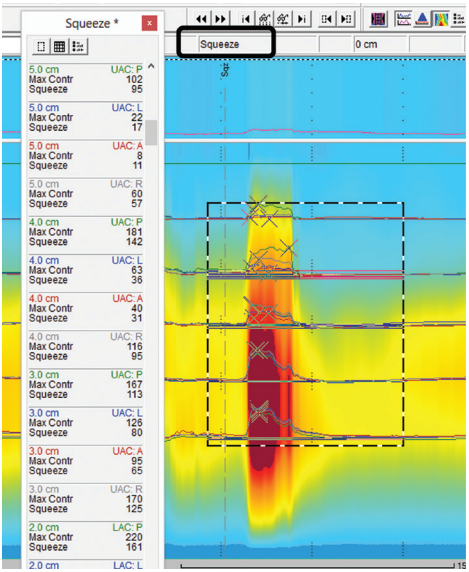
Resting pressure data is measured at each probe depth throughout the sphincter from 1 cm through 5 cm.

If the pressure in the sphincter is weak, the color of the ClouseVIEW can be adjusted. Click the top thumb and drag the color down as needed. Note that there is a color scale for both the balloon channel and the sphincter channels.

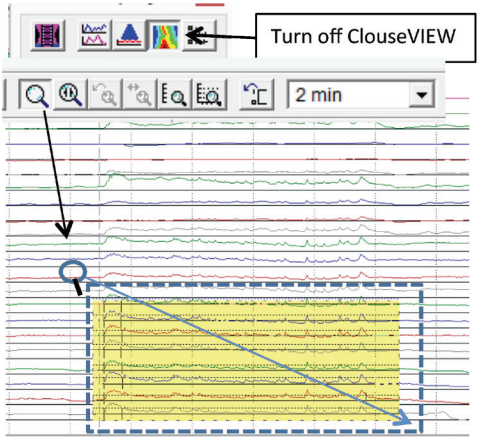


Squeeze Measurement

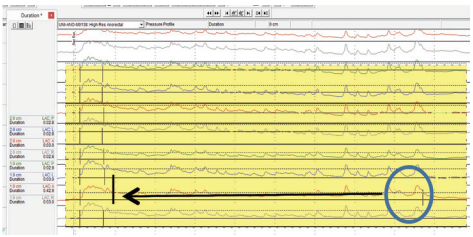
Press 'Tab' to advance to the Squeeze measurement.
The Squeeze measurement is calculated at each probe depth from 5 cm to 1 cm from the anal verge. Verify that the measurement box includes the complete squeeze effort with at least 1 second of resting pressure before the squeeze is initiated. The analysis marks (X) indicates the highest pressure exerted.



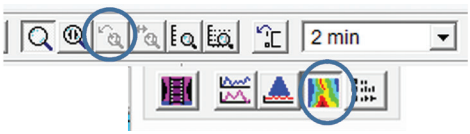
Press 'Tab' to advance to the Squeeze Duration measurement. Squeeze Duration is calculated in the channels positioned at 1 and 2 cm from the anal verge. Turn Off ClouseVIEW. Click and release the Magnify tool. Click and drag across the Duration measurement box.



Correct analysis marks as follows: The first vertical line for each channel should be positioned on the initial upstroke of the pressure wave. The second vertical line for each channel is positioned at the first point where the pressure wave falls below the dotted 50% threshold.

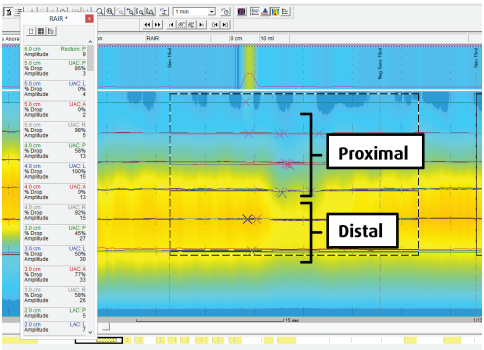


Click 'Last View' to return to original view. Turn 'ClouseVIEW' on.



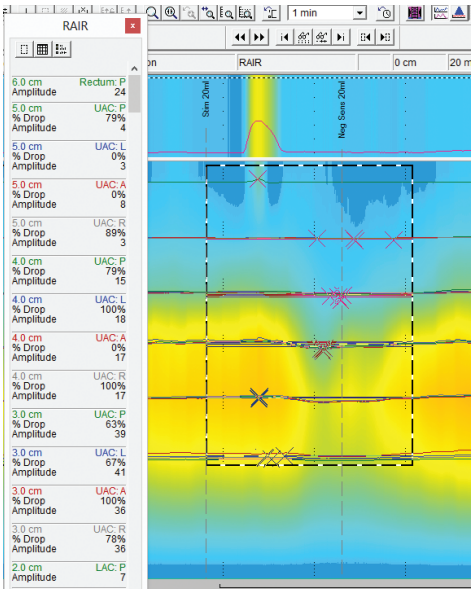
RAIR: Recto-Anal Inhibitory Reflex

Press 'Tab' to advance to the first RAIR measurement. The 3 proximal channel positions calculate the smooth muscle response (relaxation). The distal 2 channel positions calculate the striated muscle response (contraction). The 'X' in the proximal 3 channels should be positioned at the point of lowest pressure after the balloon inflation as indicated by a cooler color. The 'X' in the distal 2 channel positions should be positioned at the point of highest pressure at the onset of the balloon inflation.

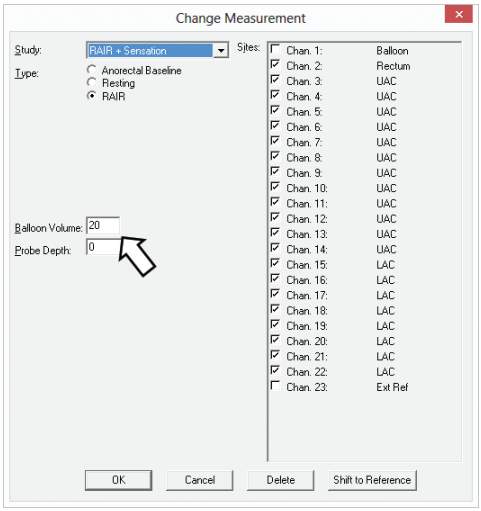


Tab through each RAIR measurement, observing for accuracy:

1. The analysis marks (X) are positioned correctly
2. The Stim event marker displays the correct balloon volume
3. The Sensation event marker is correctly annotated



The Stim event marker annotates the measurement type. To correct the actual measurement, double click inside the measurement box to activate the 'Change Measurement' dialog box. Correct the balloon volume. Click OK. This will change the actual measurement.



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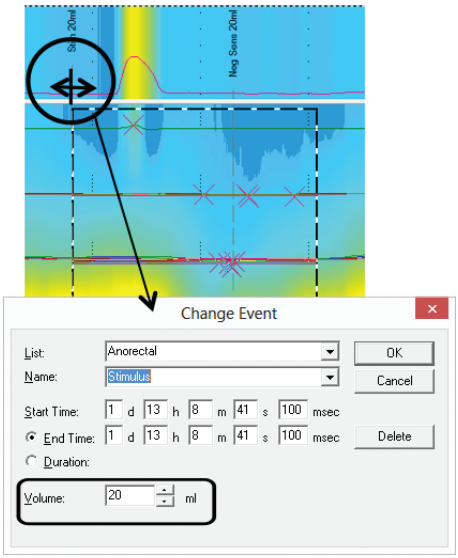
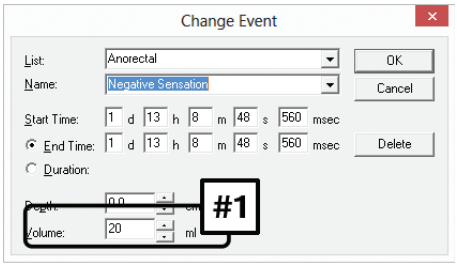
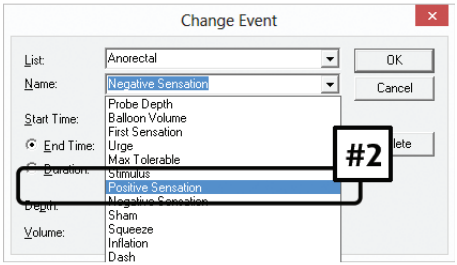


To correct the Sensation event marker, double click on the event marker to activate the Change Event dialog box.

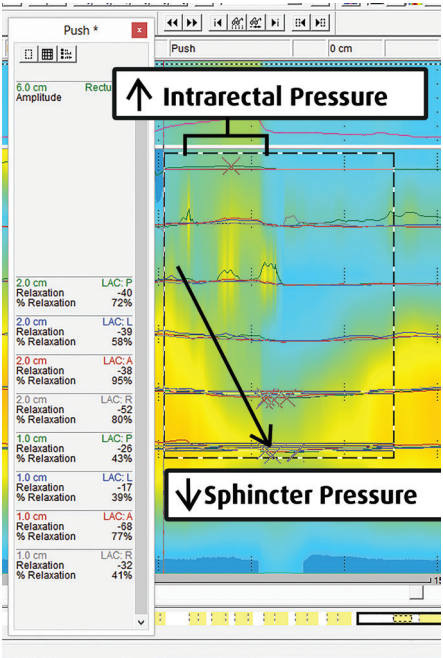
1. Correct the Volume.
2. Click on the 'Name' drop box and select the correct Sensation.
3. Click OK.



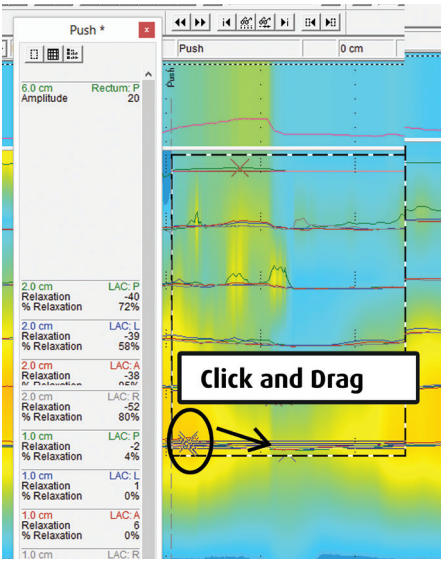


Push Measurement

Press 'Tab' to advance to the next measurement. The Push measurement evaluates the striated muscle response as the patient is asked to 'bear down' or push. The Push measurement calculates the data at the distal 2 positions as well as the intrarectal channel. The desired response during a Push maneuver is an increase in pressure in the intrarectal channel and a decrease in pressure in the sphincter channels. The values in the sphincter channels will reflect a negative value if the Push is being done correctly. Edit each Push measurement.

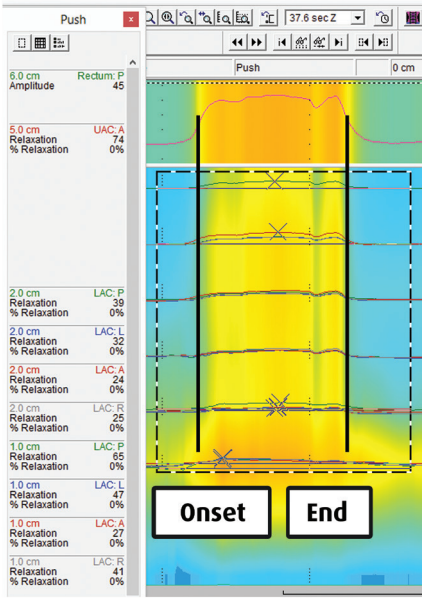


In this example the most distal position is reflecting a positive value and the 'X's are positioned in an area of pressure. The software is programmed to mark the pressure which shows the greatest change from baseline, either positive or negative. Many times a patient will squeeze before the push. In this instance, the 'X's are incorrectly positioned. Click and drag each 'X to the correct position.



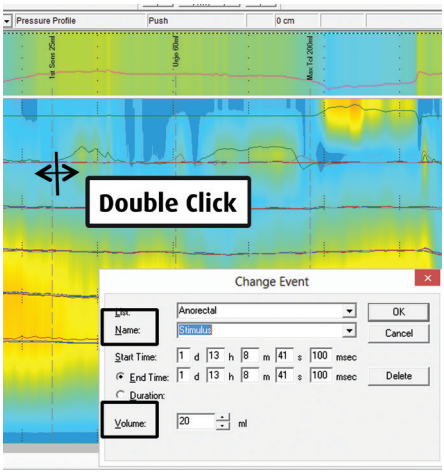
Push Measurement

If no decrease in pressure is observed from the onset of increased intrarectal pressure to the end of maneuver, no correction is required.



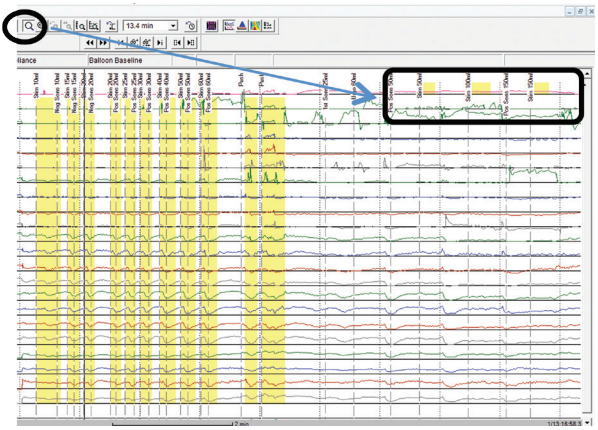
Slow Sensation

Scroll forward in the study using the gray scroll bar just below the study to the Slow Sensation annotations. Correct Slow Sensation event marks as needed to reflect Correct annotations and volumes for First Sensation, Urge and Max Tolerable. Double click on the event mark. The 'Change Event Dialog box will open. Make necessary corrections under Name and Volume. Click OK.

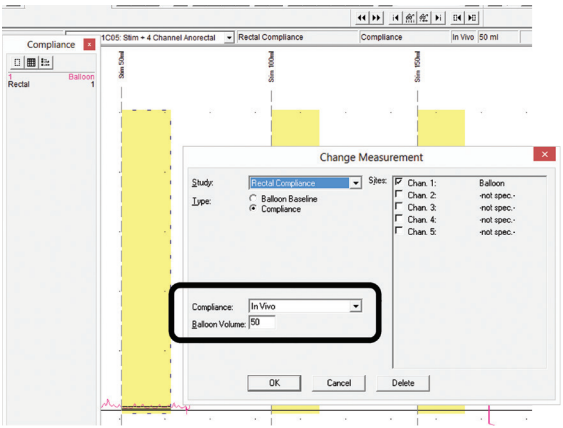


Rectal Compliance

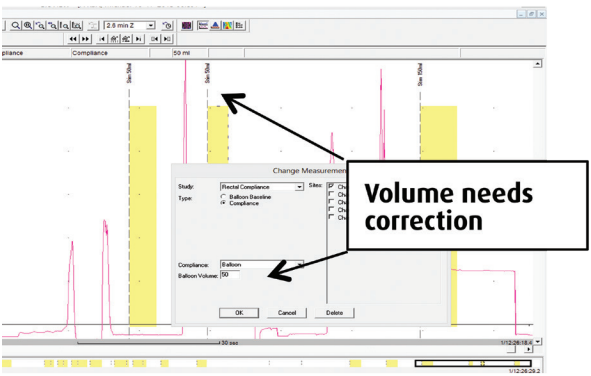
Magnify the area of the compliance measurements using the Magnify Tool. Click and release the magnify tool to activate. Click and drag a box around the compliance boxes to magnify both x and y axes.



Double click on each measurement taken in the rectum and verify Balloon Volume. Click on the drop menu for Compliance and label measurements taken in the patient as 'In Vivo'.

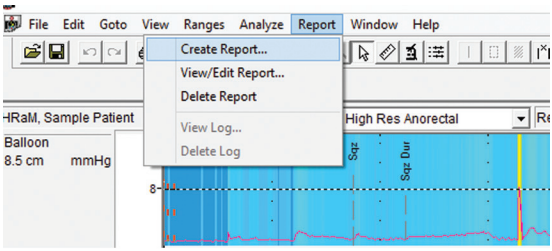


Double click on each measurement taken at atmosphere after the probe has been removed from the rectum. Verify Balloon Volume. Click on the drop menu for Compliance and label measurements taken in atmosphere as 'Balloon'.

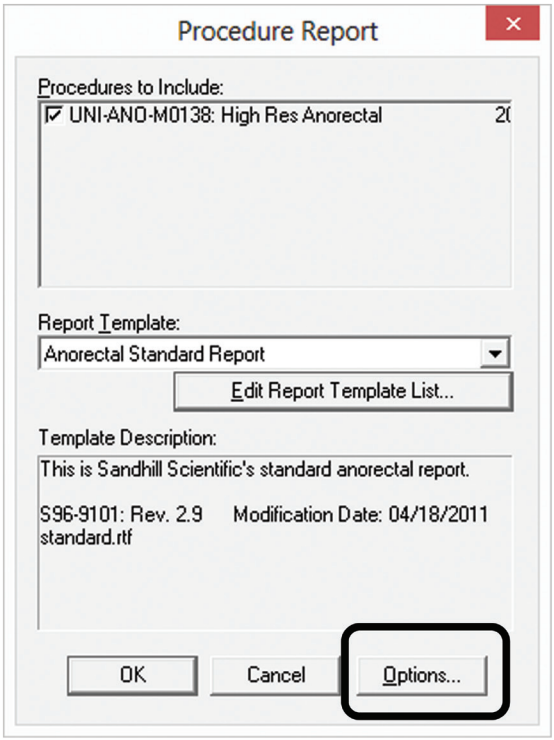


Procedure Report

Once ALL measurements are edited, Create the Report: Click 'Report' in the Toolbar. Click 'Create Report'.

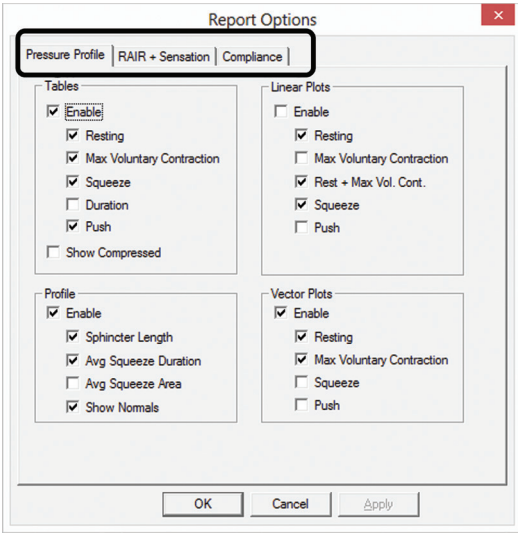


Click 'Options to customize data to be included on the report.

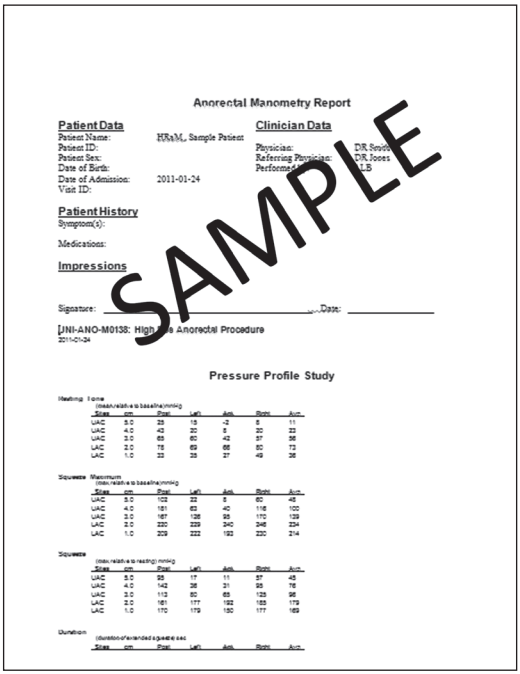


Procedure Report

Select your desired selections for each section. Click OK. Note: These selections will be saved from study to study until you change your options. It is not necessary to choose your options with each patient study.



Review the Report data. Print.



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