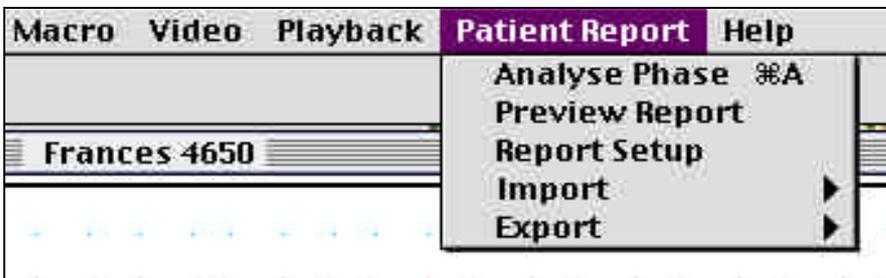


Unlike analysis of the fill and void cystometrograms, UroReport requires the operator to determine and transfer each of the required parameter measurements. Neomedix has evaluated the effectiveness (or lack of it) with most automated report software in detecting the various isometric pressure baselines, points of inflection and maximum values from the majority of urodynamics testing raw data. Very few labs record good quality easily analysed waveforms. This results in the user being dissatisfied with the automated measurement and analysis and wanting to re-assign measured points to an alternate waveform location. Neomedix has therefore placed the task of determining the best measurement points with the operator by double clicking on the waveform at the desired measurement locations. The Uroreport includes a small 'prompting' window which pops up when manual analysis is selected. This window indicates what the next measurement point is and whether there has already been a value manually entered. This window also allows manual deletion or skipping past measurement values.

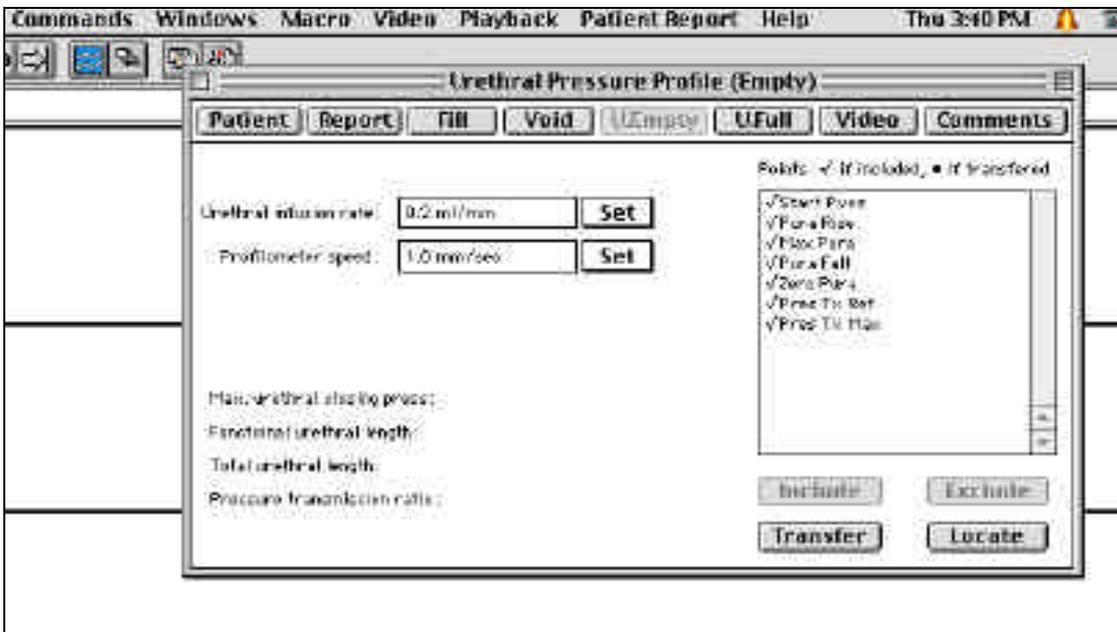
At the completion of recording the urethral testing data (see the operator manual or CD) the transfer (and inclusion into the UroReport) of urethral measurements is as follows.

PROCEDURE:

From the Uromac menu bar at the top of the screen click the *Patient Report* menu button and select the *Report Setup* option from the list.



This will open the Report Set Up window. From the eight buttons select the phase of the desired



Patient Report Set Up. In this example the *U. Empty* - Urethral Profile test phase has been selected. Either or both (Full or Empty bladder) urethral testing can be carried out.

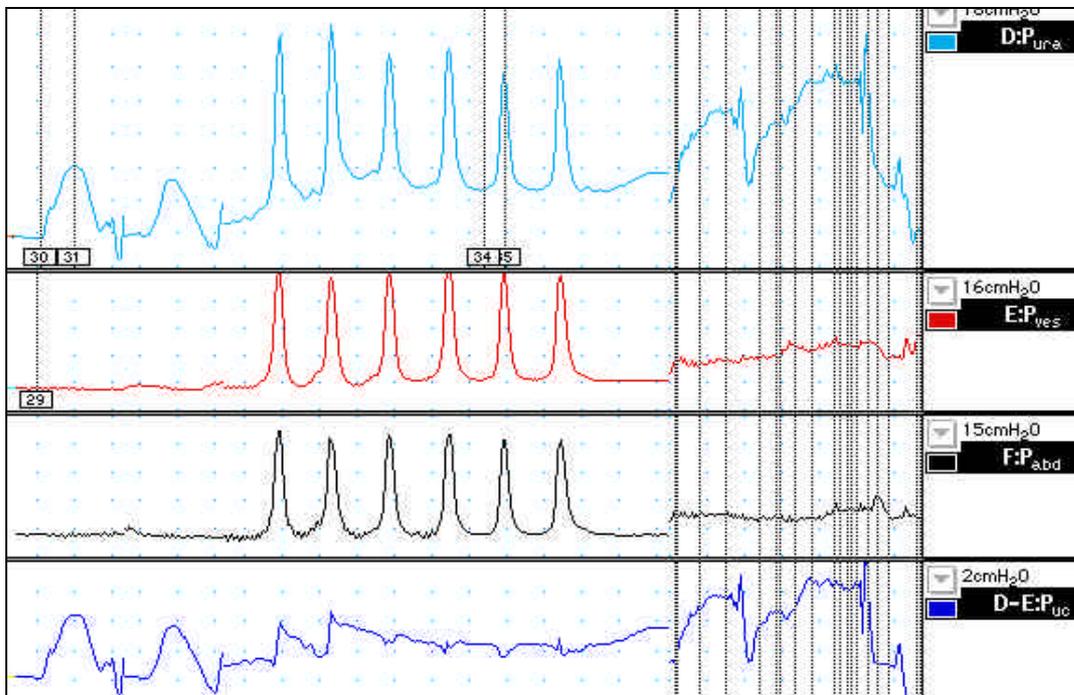
You will see that in this window there is a listing on the right side of the window the default ICS measurement points with Start Pves at the beginning. You can see from "ICS Parameter Measurement - Urethral Phases" listing at the **end** of this document how to define where these measurement points are located on the patient waveforms and transferred to the report by a 'double click'. Note also that these measurement point labels in the window above are preceded by a mark, indicating that no 'double click' measurement transfer has yet been made by the operator.

Note also that in this window the Urethral Perfusion rate (if using perfused catheters) used can be saved as can be the catheter withdrawal speed. These are usually constant for any urodynamics lab. and so can be saved as part of the Uromac settings/calibration file

To now select the appropriate measurement points on the waveforms click the *Transfer* button at the lower right side of this window. A small 'pop up' window will appear to prompt the operator as to what has to be 'double clicked' next to allow the parameter value to be transferred to the UroReport.

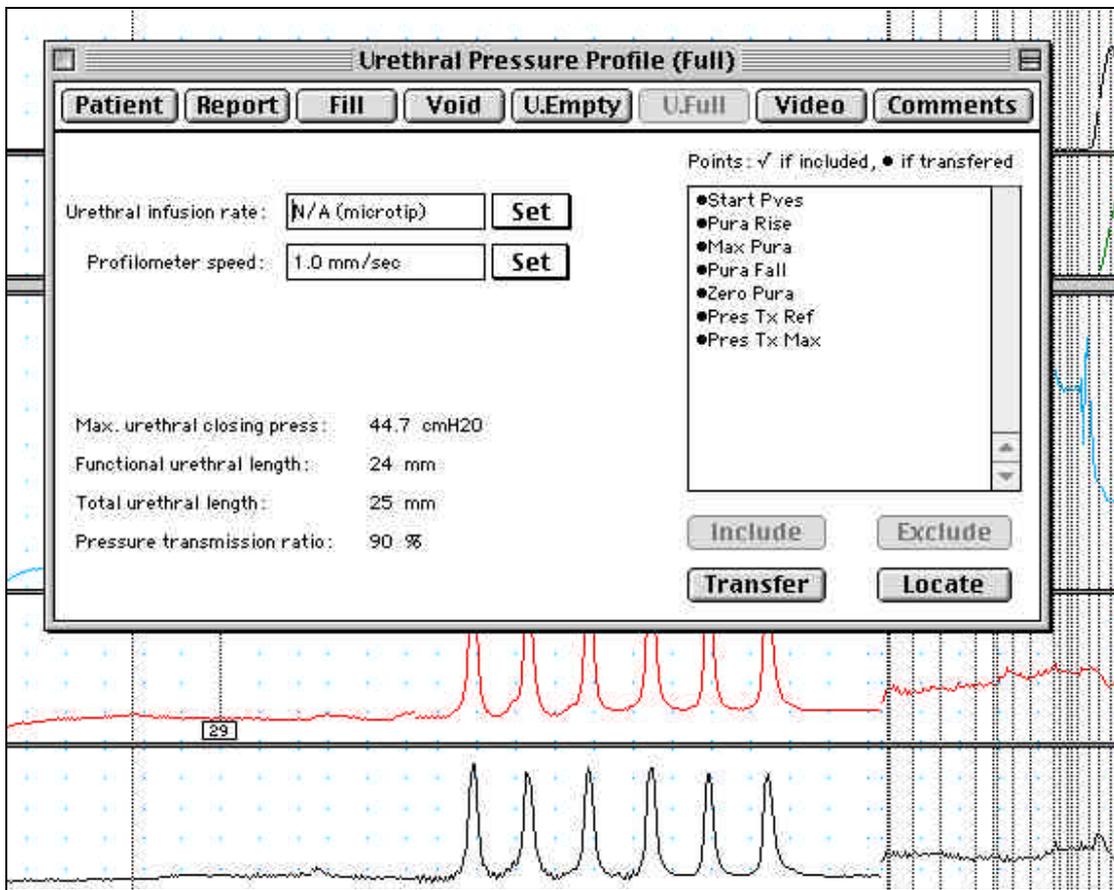


In this case the first point to double click is the Start_Pves which from the listing at the end of the document is described as the "Resting Vesicular pressure prior to start of profile measurement". Carrying out this action will save the point double clicked and increment the prompt window to the next point required which is Pura Rise. The following image shows a typical patient recording section with the measurement points made marked upon the screen.



In this example the Pura rise point was transferred to the Patient Report by double clicking on the Pura waveform at the point shown as measurement number 30. The next required point of MaxPura has been made at measurement point number 31. The next point required is Pura fall which has not yet been double clicked at the appropriate location which would be at a point to the right of the point 31 where the Pura waveform falls to the lowest point before the Pura recording sensor on the catheter leaves the distal sphincter.

This particular screen image also shows where following the first two catheter withdrawals of the catheter down the urethra, to obtain the urethral length. The catheter has been reinserted and withdrawn down into the proximal urethra, held there and the patient asked to cough. This allows the recording of the urethral closing pressure and the Cough Pressure transmission ratio. As you can see six such coughs have been recorded at points progressively down the urethral sphincter. The ICS recommendations suggest one cough be analysed and saved in the final report. This can be for any of the coughs but is usually chosen as the one closest to the mid urethral point. This is usually also at the point where the highest urethral resting pressure occurs. In the above example the cough with event labels 34 and 35 has been chosen. The following image shown the state of the U.Full phase set up window after all points have been transferred by 'double click' to the patient report. See the heavy dot next to each item indicating there is now saved data for the measurement parameters.



The measurement information, which will be in the final report, is also shown in the lower left side of the above window. To view results of the transfer of measurement points select *Preview Report* from the main Uromac *Patient Report* menu.

This less automated method of determining the urethral parameters may at first seem a little long, but in reality provides a fast and more accurate result for very little effort once the fundamentals of determining where the ICS measurement points reside on the waveforms. These are described in the following listing and are shown on the above image.

ICS PARAMETER MEASUREMENT - URETHRAL PHASES

Point Definitions:

Start_Pves	"Resting Vesicular pressure prior to start of profile measurement"
Pura_Rise	"First indication of a rise in urethral pressure"
Max_Pura	"The maximum urethral pressure obtained"
Pura_Fall	"Urethral pressure falls to starting (resting) value"
Zero_Pura	"Lowest urethral pressure value after fall"
Pres_Tx_Ref	"Reference value of Pura. just prior to a stress (cough) change"
Pres_Tx_Max	"Maximum Pura. during stress (cough)"

Time Derived Variables:

Functional Urethral Length (Withdrawal Catheter) = (Pura fall to rest.Time - Pura rise above PvesTime)/withdrawal speed ,mm/sec (mm)

Total Urethral Length = Pura fall to Pamb.Time - Pura rise.Time / withdrawal speed mm/sec (mm)

Pressure Derived Variables:

Max Urethral Closing Pressure = Pura(during UPP)max - Pves(during UPP)max (cmH₂O)

Pressure Transmission Ratio = (Pura (cough) max - Pura transmission ref / Pves (cough) max) x 100 (%)

Algorithms for determining data points:

The following data points and the methods for their determination are discussed: For correct location of these points, ten samples of steady state data must be acquired either side of a candidate measurement point.

Maximum Pura:

Defined as the first maxima within the selected time where the pressure range must be 10 cmH₂O or greater. The maximum pressure determined must exceed 10 cmH₂O.

Start Pves:

Defined as the earliest pressure, greater than or equal to 0 cmH₂O, in the selected area.

END - TONY WYNTER

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