PHILIPS

Ultrasound

Quick Guide

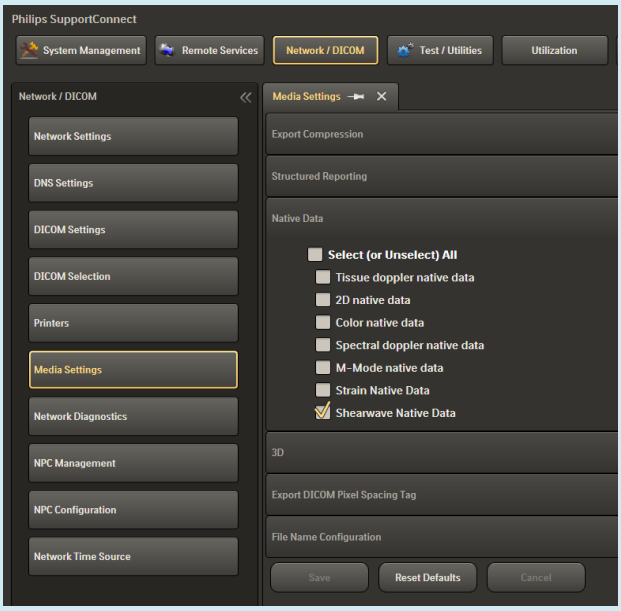
EPIQ Elite Release 4.0

ElastQ Imaging | Liver Analysis and Reporting

Enabling Elastography Native Data (One-time per Installation/Upgrade)

Native Data capture is required in order to be able to measure on a xstored cineloop.

1. Press the **Support** key on the control panel to open Philips Support Connect.
2. Click the **Network/DICOM** button along the top row.
3. Click the **Media Settings** button along the left side.
4. Select **Native Data** menu on the Media Settings tab.
5. Click the **Shearwave native data** checkbox, and exit Philips Support Connect.



Accessing the Measurements

1. Press **Utilities** on the touchscreen and then press **Setups**.
2. Click **Analysis** on the left menu.
3. Ensure that **Abdominal** is selected on the top menu.
4. Click on the **Tools and Results** page.
5. In the **ElastQ and ElastPQ Measurements** section, select the measurements to be displayed on the image area and in the report.

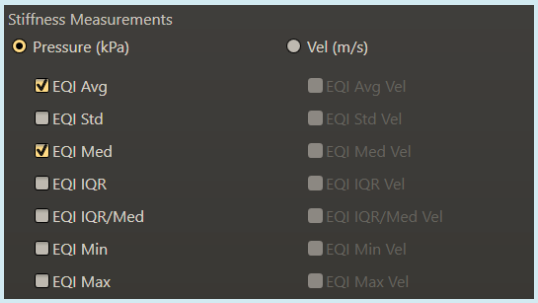
Tips:

- The ElastQ and ElastPQ measurements options cannot be changed and do not appear in Setups during an active exam. End exam to make changes in Setups
- We recommend to display only EQI Avg and EQI Mean to facilitate reading of the exam

Analysis and Reporting

Understanding the Measurements

Stiffness Measurements



1. **Elastography Units:** Shear wave elastography values are presented in either velocity (m/s) or stiffness (kPa) units. Stiffer tissues will show higher m/s and kPa values. Since stiffness in kPa is calculated by taking the square of the m/s value, doubling stiffness in m/s quadruples the corresponding value in kPa. In other words, m/s to kPa conversion is not linear

2. **EQI Avg:**
   The average is the sum of a list of sample data points divided by the number of sample data points in the list. The resulting average is also known as a measure of central tendency.

3. **EQI Std:**
   The **standard deviation** is used to quantify the amount of variation among sample data points. A standard deviation close to 0 suggests that the sample data points tend to be very close to the average of those data points. A higher standard deviation suggests that the sample data points are spread out over a wider range of values.

4. **EQI Median:**
   The median is the number that divides the set of data points in half: 50% are higher than the median and 50% are lower. The median can be found by choosing the middle value in a set of data points. The liver EQI Med allows to eliminate outliers.

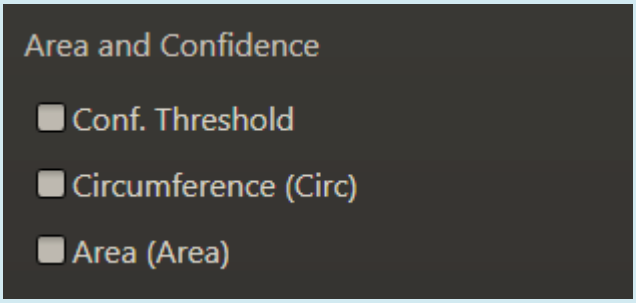
5. **EQI IQR:**
   The **Interquartile Range** is a measure of variability, based on dividing a data set into quartiles. The top and bottom quartiles are removed from the data set, thus leaving the "middle fifty" around the median of the data set.

6. **EQI IQR/Med**:
   The interquartile range divided by the median value provides an indicator of data quality. IQR/Med can be presented as a ratio (e.g., 0.23) or percentage (23%). Philips uses percentage.

   IQR/Med from kPa of less than 0.3 (or 30%) suggests that a dataset is good. We recommend to refer to the IQR/Med upon acquisition of at least 5 measurements.

   Since m/s to kPa conversion is non-linear (refer to "Elastography Units" section), IQR/Med calculated from m/s will be smaller than corresponding value from kPa.

Area and Confidence



1. **Conf. Treshold**:
   The **Confidence Threshold** is the threshold value for the *ElastQ Imaging color ROI box*. Regions of the color box with the confidence value lower than the threshold will not be displayed (e.g. vessel or rib shadow).

   We recommend setting the confidence threshold to 60% as it will set areas of a stiffness/velocity image with a confidence value of less than 60% (or areas with low reliability) as transparent. The transparent areas will not be measured.

2. **Circumference** and **Area**:
   The **Circumference** and **Area** of the ROI or measurement tool can be displayed by selecting these options. Maybe of some interest to some researchers.

Analysis and Reporting

Understanding the Report

EQI Liver Stiffness Calculations: This section of the report shows the stiffness calculations for each organ.

The calculations are displayed in both kPA and m/s regardless of what is selected in Setups.

Note:

- An IQR/Med value of less than 30% is recommended. A lower percentage suggests higher quality results.
- IQR/Med for m/s has no clinical guidance.

Patient Demographics

Temp ID-20180918154741					**Study Date: 09/18/2018**
Patient ID: 41471520180918		Accession #:			Alt ID:
DOB:	Age:	Gender:	Ht:	Wt:	BSA:
Institution: Test Hospital					
Referring Physician:					
Physician of Record:				Performed By:	
Comments:					

Abdominal: Measurements and Calculations

EQI Liver Stiffness Calculations

Liver EQI Avg	6.19 kPa
Liver EQI Med	6.31 kPa
Liver EQI IQR/Med	8 %
Liver EQI IQR	0.50 kPa
Liver EQI Std	0.40 kPa
Liver EQI Avg Vel	1.43 m/s
Liver EQI Med Vel	1.44 m/s
Liver EQI IQR/Med Vel	4 %
Liver EQI IQR Vel	0.06 m/s
Liver EQI Std Vel	0.04 m/s

EQI Liver Stiffness Measurements: This section shows a comprehensive view of each individual measurements. Some researchers may utilize this data.

EQI Liver Stiffness Measurements

	EQI Avg	EQI Std	EQI Med	EQI IQR	EQI IQR/Med	EQI Max	Conf. Threshold
Liver EQI 1	6.34 kPa	1.34 kPa	6.00 kPa	1.76 kPa	29 %	10.2 kPa	60 %
Liver EQI 2	6.57 kPa	1.51 kPa	6.35 kPa	2.12 kPa	33 %	11.6 kPa	60 %
Liver EQI 3	6.21 kPa	1.000 kPa	6.00 kPa	1.06 kPa	18 %	8.82 kPa	60 %
Liver EQI 4	6.27 kPa	1.03 kPa	6.00 kPa	1.06 kPa	18 %	8.82 kPa	60 %
Liver EQI 5	6.36 kPa	1.44 kPa	6.00 kPa	2.47 kPa	41 %	8.82 kPa	60 %
Liver EQI 6	5.41 kPa	1.17 kPa	5.29 kPa	1.41 kPa	27 %	8.82 kPa	60 %
Liver EQI 7	5.72 kPa	0.700 kPa	6.00 kPa	1.41 kPa	23 %	7.06 kPa	60 %
Liver EQI 8	6.66 kPa	1.88 kPa	6.35 kPa	2.82 kPa	44 %	10.9 kPa	60 %

EQI Liver Stiffness Measurements Velocity

	EQI Avg Vel	EQI Std Vel	EQI Med Vel	EQI IQR Vel	EQI IQR/Med Vel	EQI Max Vel	Conf. Threshold
Liver EQI 1	1.45 m/s	0.149 m/s	1.41 m/s	0.206 m/s	15 %	1.85 m/s	60 %
Liver EQI 2	1.47 m/s	0.166 m/s	1.46 m/s	0.243 m/s	17 %	1.97 m/s	60 %
Liver EQI 3	1.43 m/s	0.115 m/s	1.41 m/s	0.123 m/s	9 %	1.71 m/s	60 %
Liver EQI 4	1.44 m/s	0.118 m/s	1.41 m/s	0.123 m/s	9 %	1.71 m/s	60 %
Liver EQI 5	1.45 m/s	0.165 m/s	1.41 m/s	0.288 m/s	20 %	1.71 m/s	60 %
Liver EQI 6	1.34 m/s	0.140 m/s	1.33 m/s	0.178 m/s	13 %	1.71 m/s	60 %
Liver EQI 7	1.38 m/s	0.086 m/s	1.41 m/s	0.172 m/s	12 %	1.53 m/s	60 %
Liver EQI 8	1.48 m/s	0.204 m/s	1.46 m/s	0.317 m/s	22 %	1.91 m/s	60 %

Please consult the user manual for further information.

philips.com

Printed in The Netherlands.
4522 991 44641 * JAN 2019