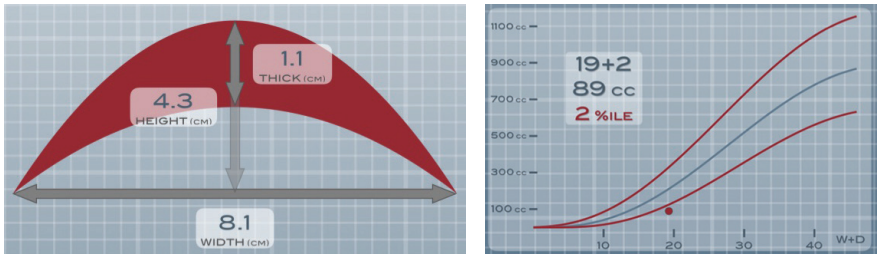
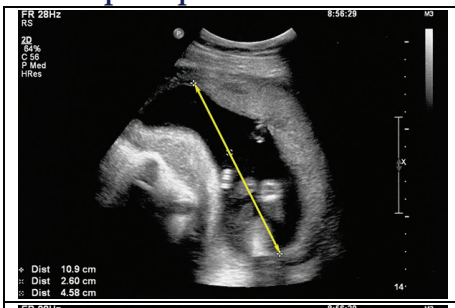
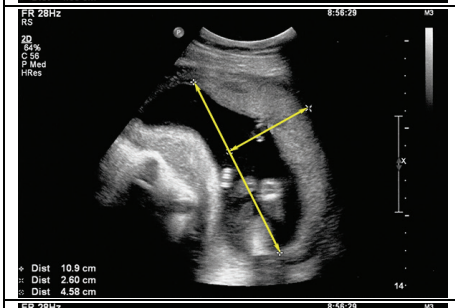
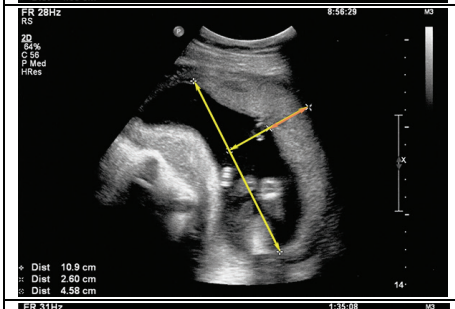
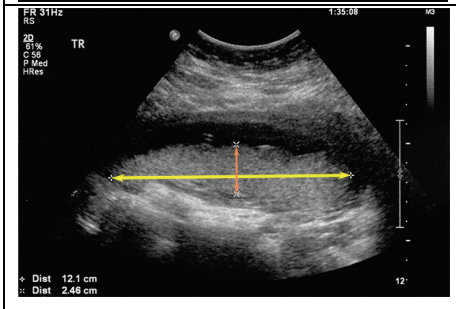
**EPV** can be measured from 7 to 40 weeks. Use the widest angle probe for large placentas. Beyond 36 weeks the placenta may be too large to visualize the entire width, in which case it is not small.
**Ideal measurements:** Freeze a perpendicular cross section at the **maximal width** of placenta. Take **W**idth measurements from tip to tip (see figures below). Start at apex and measure **H**eight and **T**hickness down to baseline along same line (at right angles to **W**idth line). **H**eight is always greater or equal to **T**hickness.



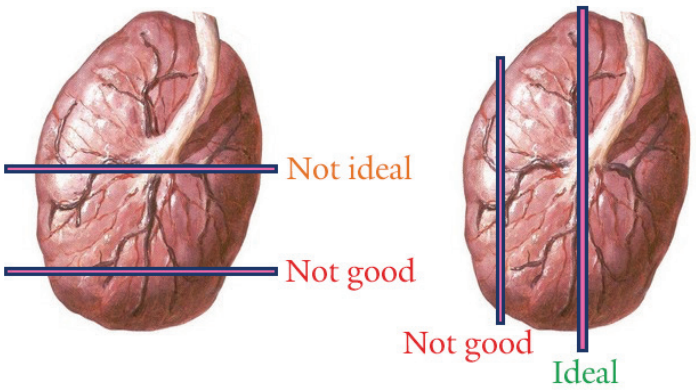

From Merwin's EPV Calculator, available in the Apple and Android App Stores

- **Steps to perform an EPV**

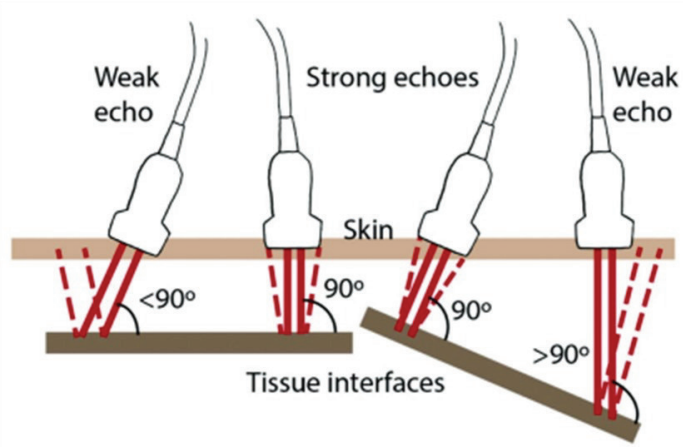
| | |
|---|---|
|  | If the placenta is an obvious crescent, find the **maximum width** while holding the probe **perpendicular to the placenta surface**. Start with the baseline **W**idth measurement by creating a line from one tip of the placenta to the other, as shown by the (+) yellow line. |
|  | Find the maximal apex point of the crescent, place a point for a second line at this apex. The **H**eight is measured by dragging the line from the apex to baseline (⁘), yellow line, making sure the **H**eight line is perpendicular when it touches the **W**idth line. |
|  | The **T**hickness is measured by starting from same apex point as **H**eight and then measuring along the same line down to edge of placenta (⨯), orange line. |
|  | If the placenta is flat, without any evidence of curvature (this often happens with early first trimester placentas), do the following:<br>• determine the maximal **W**idth by measuring from tip to tip (yellow),<br>• the **H**eight and Thickness lines (orange) are the same and are measured once to obtain both values,<br>• plug the **W**, **H** and **T** values into the calculator and the correct EPV will be outputted. |

See Azpurua et al. (2010) Am J Perinatology, 27:151-155; Arleo et al. (2013) Am J Perinatology, 31:683-688; Isakov KMM et al. (2018) Am J Perinatology, 35:748-57 and **klimanlabs.yale.edu/placenta/epv** for details.

- **Do's and Don'ts**



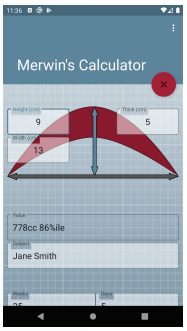

Sweep through the placenta until you find the maximum cross section. If the umbilical cord is centrally inserted, this can serve as a guide to both find the maximum cross section and help to maintain the probe perpendicular to the placental surface. The widest probe angle is desirable, with adjustments to depth of penetration to visualize the entire placental cross section as necessary.




Keep the probe perpendicular to the surface of the **placenta**, without regard to the angle of the probe to the patient's skin. Do not take an image that is oblique through the placenta as this will lead to an erroneously large thickness reading. Do not press too firmly on the patient's abdomen as that might distort the placental shape. The final image you freeze should be crisp along the entire length of the placenta. Placentas overlying the cervical os or that are totally fundal may be difficult to image.

- **EPV Calculator**






An iPhone EPV Calculator is available in the Apple App Store, as is an Android version in the Google Play Store.