

## **Placental Elasticity Imaging Demonstrates Feasibility of an Ultrasound-Based Method for Generation of a Placental Biomarker**

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**Objective:** A prospective, descriptive cohort of 10 selected women presenting for obstetric care at a tertiary medical center were enrolled antenatally for post-delivery placental collection. Sheer wave speeds (SWS) of the *ex vivo* placenta were measured using ultrasound elasticity techniques based on Acoustic Radiation Force Impulse (ARFI) technology on a Siemens S3000 research platform. SWS data were acquired in triplicate with the placenta in a water bath at physiologic temperature over a variety of acquisition conditions (Figure 1). SWS were compiled to describe the range of measurements within and between placentae.

**Results:** 10 term were patients enrolled for *ex vivo* placental ultrasound with 1433 regions analyzed in triplicate across 4 arbitrarily assigned quadrants in 3 acquisition conditions representing a total of 4299 elastography measurements. Consistent precision and interplacental variability in SWS



Human Performance and Ideal Acquisition

sition

Acqui

2.5m

Proximal to 2.5m

Distal to 2.5m

Time

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