

## Consensus Statement

This text is identical to that in the statements published by WFUMB, AFSUMB, AIUM, BMUS, JSUMB, and ISUOG. For explanation & clarification ECMUS added notes below the items (update 2019).

### STATEMENT ON THE SAFE USE OF DOPPLER ULTRASOUND DURING SCANS AT 11–14 WEEKS (OR EARLIER IN PREGNANCY)

**1. Pulsed Doppler (spectral, power and color flow imaging) ultrasound should not be used routinely.**

Note 1: This is a general statement and applies for the first trimester and up to week 14. It means that Doppler ultrasound should be only used to obtain relevant clinical information.

**2. Pulsed Doppler ultrasound may be used for clinical indications such as to refine risks for trisomies.**

Note 2: This point applies to the week 11+0 – 13+6 first trimester screening, and means that Doppler may be used in this setting if other ultrasound or biochemical markers indicate increased risk for trisomy, cardiac anomalies or other abnormal findings where Doppler may give relevant additional information.

**3. When performing Doppler ultrasound, the displayed Thermal Index should be less than or equal to 1.0, and exposure time should be kept as short as possible (usually no longer than 5–10 minutes) and should not exceed 60 minutes.**

Note 3: If an investigation is required (see above), then the stated limits (Thermal Index (TI) and exposure time) should not be exceeded.

**4. When using Doppler ultrasound for research, teaching and training purposes, the displayed Thermal Index should be less than or equal to 1.0, and exposure time should be kept as short as possible (usually no longer than 5–10 minutes) and should not exceed 60 minutes. Informed consent should be obtained.**

Note 4: This applies for weeks 11 – 14. We do not recommend using Doppler ultrasound for teaching or training purposes before 11+0. In a research context such use would be regulated by the relevant ethics committee.

**5. In educational settings, discussion of first-trimester pulsed or color Doppler should be accompanied by information on safety and bioeffects (e.g., Thermal Index, exposure times and how to reduce the output power).**

Note 5: The purpose of this statement is to inform students and course participants about the safe use of Doppler ultrasound and potential bio-effects in general and especially in the first trimester. It does not mean that Doppler ultrasound examinations are recommended in educational settings.

**6. When scanning maternal uterine arteries in the first trimester, there are unlikely to be any fetal safety implications as long as the embryo/fetus lies outside the Doppler ultrasound beam.**

Note 6: This applies for the first trimester. If the fetus remains outside the Doppler beam (indicated by pw-Doppler line or color Doppler window as well as in front and behind this window), harmful bioeffects are unlikely.

General note: The term “fetus” is used for all stages of development.