

## Use of Ultrasound – Informed Choice Agreement

### Ultrasound: How it works

Ultrasound is a form of non-ionizing radiation. This is not the same type of radiation as X-rays, which are ionizing radiation. Ultrasound uses high frequency waves that sometimes are thought of as sound waves. However, these waves are extremely far out of the range we can hear. Ultrasound devices use a transducer that sends streams of this high-frequency, non-ionizing radiation into the body and detects their echoes as they bounce off internal structures. These waves are converted to electrical impulses that are processed to form either a visual image or a sound. The intensity of ultrasound depends on the type of ultrasound being used.

### What do we know about ultrasound?

To date, there have been no long-term studies on the safety of ultrasound use in pregnancy. The National Institute of Health states that “routine ultrasound screening cannot be recommended at this time.” This means ultrasound is not advised when there is not a concern about the baby’s health or growth. We know that when ultrasound waves are sent out from a machine, some come back to the machine to be read and the rest of the ultrasound waves are absorbed by the tissue and bones. When the waves are sent through the tissues, the movement of the waves creates tiny bubbles in the amniotic fluid. These tiny bubbles are hotter than the tissue and water they are in and when they burst, it is possible they heat the amniotic fluid and the baby’s tissue. Heat is known to cause malformations in the baby, however a clear link between ultrasound and malformations has not been identified. Some studies suggest exposure to ultrasound during pregnancy can have an effect on fetal development, reporting delayed speech and motor skills along with ear and hearing issues, prematurity and low birth weight, associated with repeated (five or more) imaging ultrasound exposure. Additionally, a significant finding on a study on mice reports that ultrasound exposure disrupts the migration of brain cells in the developing mouse fetus. Many of these effects have not been proven – that is – not enough studies have shown enough times the same results.

### Ultrasound Use in Midwifery

There are two ways ultrasound is used in midwifery care.

1. **Diagnostic imaging/visual ultrasound:** For a visual ultrasound a technician or physician uses a large ultrasound machine to get pictures of the baby. This type of ultrasound has less intense exposure to the waves, but is usually done for longer than doppler ultrasound. Visual ultrasound is done for a variety of reasons at different times in pregnancy, most often for dating, to look for anomalies in the baby, or to assess the overall well-being of the baby and the placenta. We cannot perform this type of ultrasound for you, but will refer you if /when you want/need a visual ultrasound.
2. **Doppler ultrasound:** This type of ultrasound is used in hand held listening devices called dopplers or electric fetoscopes. Dopplers have a higher intensity than visual ultrasound but are used for shorter periods of time. They are used to listen to the baby’s heartbeat and sometimes to listen to the placenta. The baby’s heartbeat can be heard sooner with a doppler than a fetoscope.

Monitoring the baby’s heartbeat is one of the primary ways we monitor his well being during pregnancy, labor and birth. We can hear the baby’s heartbeat with the Doppler beginning around weeks 10-12. Starting around week 20 we can begin listening to the baby’s heartbeat using a specialized stethoscope called a fetoscope. You always have the option to hear the heartbeat out loud with the Doppler. We prefer to use the Doppler to monitor the fetal heartbeat during labor as we can more easily listen with the woman in a variety of positions.

You can choose to have a visual ultrasound at anytime during your pregnancy. Occasionally we may request or require a visual ultrasound. We will discuss this with you on a case-by-case basis. Examples of situations where we may request you to get a visual ultrasound include concerns about baby’s health, growth or positioning.

**YOUR CHOICES.** It is your right, and responsibility as a pregnant woman to choose how your baby’s heartbeat is monitored during pregnancy and birth. Please select from the options listed below.

\_\_\_\_ I choose to allow the use of ultrasound monitoring with the hand held Doppler in pregnancy

\_\_\_\_ I choose to allow the use of ultrasound monitoring with the hand held Doppler in labor

\_\_\_\_ I decline the use of ultrasound monitoring with the hand held Doppler in my pregnancy and birth. I understand that this means that at times it may be impossible to monitor the well being of the fetus and fetal distress may not be detected.

\_\_\_\_ I wish to be referred for a visual ultrasound,

Client \_\_\_\_\_ date \_\_\_\_\_

Midwife \_\_\_\_\_ date \_\_\_\_\_