



# ULTRASOUND SCANS DURING PREGNANCY



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# WHAT IS AN ULTRASOUND?

Ultrasound is a medical imaging tool that uses high frequency sound waves to capture live images from inside the body. The high frequency sound waves are directed toward the body part that's being viewed via a hand held wand, also known as a transducer. The sound waves "bounce" off the area they are being directed at to create an image. Unlike other medical imaging techniques, ultrasound does not use radiation: therefore it is the preferred imaging tool in pregnancy.

## Reasons for ultrasound scans

Routine scanning: Evidence shows that ultrasound scans routinely offered help parents make informed decisions about their pregnancy, choices, and fetal outcomes and help care providers make decisions about safe clinical care (8,5).

However, ultrasound scans are an observational and screening tool, not a treatment tool. Ultrasound scanning does not reduce your risk of having a pregnancy or a fetus with complexities, it does however allow you to gather more information so that you can make decisions that work best for your whānau if your pregnancy or fetus has complexities.

Ultrasound scans are best used in conjunction with other clinical tests and observations by your care provider to gather information such as:

- Confirm the number of fetuses
- Observe the position of the placenta if a "low lying" placenta is suspected, and consider if this positioning poses any risk to vaginal birth
- Assess the blood flow through the umbilical cord to determine placental function
- Confirm the fetal position if the fetus is believed to not be in an optimal position for vaginal birth
- Check the fluid levels around the fetus
- Check for an obvious cause if there is vaginal bleeding in pregnancy
- Observe fetal wellbeing such as movements, muscle tone, heart rate, and "practice" breathing movements if there is a concern about the baby's health or growth

This information can help care providers like midwives and obstetricians develop a care plan with you that allows for optimal safety of both the fetus and yourself.

## Who performs an ultrasound scan?

SONOGRAPHERS	RADIOLOGISTS	OBSTETRICIANS
Sonographers are experts in medical imaging who must complete either a diploma or undergraduate degree in medical imaging. Their job is to perform the actual scan.	Radiologists are experts in interpreting medical imaging. They have a 5 year degree making them specialists in medical imaging interpretation. They usually do not perform the scan, but interpret the results of the scan and send a report to your care provider.	Obstetricians may also perform ultrasound scans but do not have formal radiology training. They can observe things like positioning of the fetus/s, number of fetuses, position of the placenta, and uterine abnormalities, but are not experts in interpreting complex imaging the same way radiologists are.

There are two types of ultrasound used in pregnancy:



### Real-time imaging:

Ultrasound that uses the high frequency sound waves to produce a picture of the uterus, fetus, and surrounding tissues that is viewable in real time, on a screen. This can be done with a transducer moved externally over the abdomen, or internally inside the vagina.



### Doppler ultrasound:

Used to measure the amount of blood flow through the placenta and umbilical cord. It can be used to listen to the fetal heartbeat, and to examine the umbilical cord and fetal heart for abnormalities.



*From around 16 weeks of pregnancy your care provider will use a hand held ultrasound transducer to listen to your baby's heartbeat. You can choose to have them listen in with a non-ultrasound acoustic tool called a pinnard – this is a stethoscope made of wood, metal, or plastic that does not use electricity or ultrasound technology.*



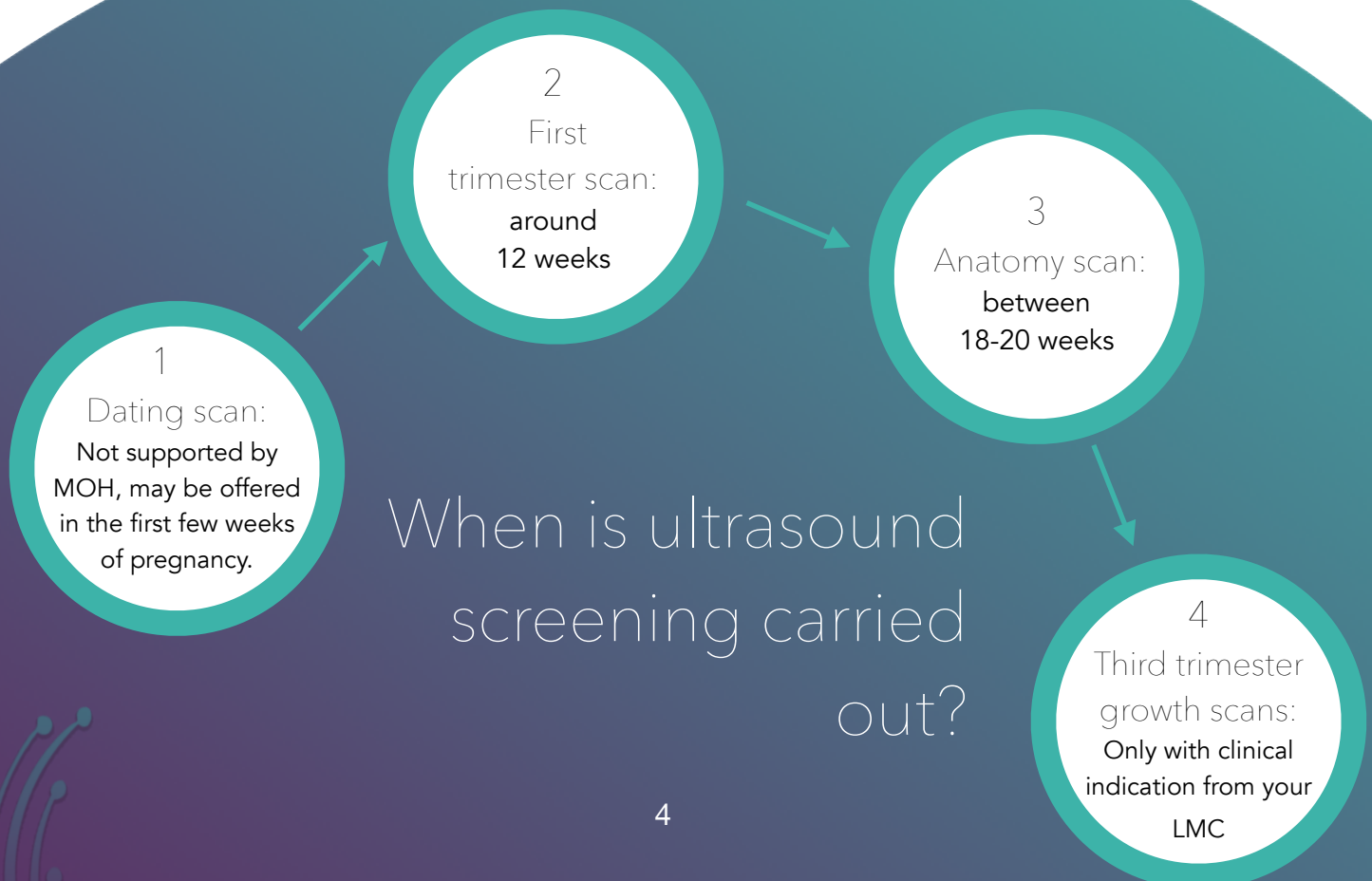
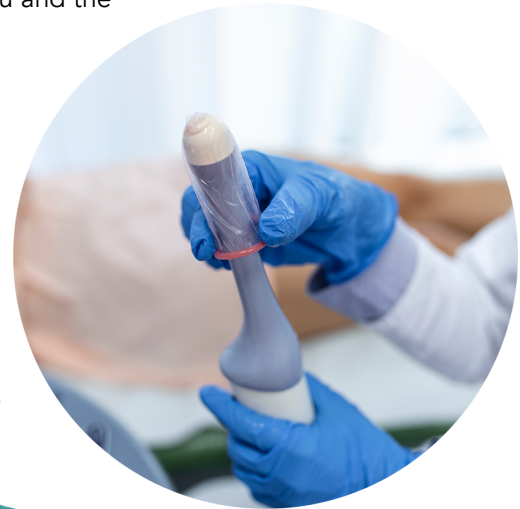
## Transvaginal (internal) ultrasound imaging

In the early stages of pregnancy (before 12 weeks) it can be difficult to get a clear view of the developing embryo using a transabdominal (external) ultrasound transducer. A special transducer can be placed inside the vagina to get clearer and more accurate imaging.

This process requires you to take off your underwear, and you will be offered a sheet or towel to lay over you for privacy. The transducer wand is larger than a tampon. It will be thoroughly coated in a lubricant to make insertion easy.

It's normal to feel nervous about internal examinations. There are things you and the sonographer can do to make sure you feel as comfortable as possible:

- You can choose to insert the wand yourself, or have the sonographer insert it for you.
- You can have a support person in the room with you.
- You can ask them to stop at any time if you have any discomfort.
- You can go to the bathroom before hand to empty your bladder to make it more comfortable.



1. **Dating scans:** Early in pregnancy a scan may be offered to check your estimated due date if you are unsure of your conception dates. Routine dating scans are not supported by the Ministry of Health, and do not improve outcomes (5,8).
2. **First trimester scan** - +/- Nuchal screening: Between 12-14 weeks you will be offered a scan to confirm your estimated due date, the number of fetuses you are carrying, and the fetal development.

This scan can also involve a measurement of the fold of skin at the back of the fetuses neck called the nuchal fold, plus a blood test. The combination of the measurement of the nuchal fold and the blood test results, along with information about your age, family history, and ethnicity, are put together to calculate your risk for having a fetus with particular congenital abnormalities, like trisomy 21 (Down's Syndrome), or trisomy 18 (Edward's Syndrome), plus other conditions. This is a screening tool, not a diagnostic tool. It cannot confirm the presence or absence of an abnormality, only give you a risk factor (7).

3. **Anatomy scan:** At 20 weeks you will be offered a detailed scan to observe your baby's anatomy – it will check for major anatomical abnormalities and take measurements of your baby – this scan may not pick up more subtle abnormalities. This scan will also observe your baby's growth, the position of the placenta, and measure the fluid around your baby. Things like the pregnant person's BMI, the position of the fetus, and the position of the placenta can all impact how much information is gathered from this scan.



4. **Scans in the third trimester:** If your care provider is concerned about normal antenatal clinic assessments they may refer you in for a scan in the third trimester to check your baby's growth or position. Generally growth scans have a significant margin of error and may not be accurate, so they are only one tool in helping your care provider measure your baby's wellbeing. Due to the large margin of error (+/- 15-20% of estimated weight on scan) ultrasound scans should not be used to routinely measure growth without other clinical indications, and there is limited evidence about whether regular growth scans improve outcomes for babies that are measuring larger than expected (2).

## Social uses of ultrasound scans

Ultrasound scans have increasingly been used for non-medical reasons such as determining the genitalia of the fetus, or receiving souvenir images as keepsakes. These types of scan are not funded or recommended by the Ministry of Health and offer no health benefits. Current evidence shows no benefit to parent-child attachment or parental mental health from increased scanning, nor any increased benefit to fetal or parental outcomes. Further research is needed to determine if there are any negative consequences to increased scanning for social reasons (8,5,6).

## Concerns about ultrasound

Longitudinal research that has observed human development over four decades following routine exposure to ultrasound in pregnancy has found no adverse outcomes in people who are exposed to routine ultrasounds in utero. Further research is ongoing in this area (1)

The International Society of Ultrasound in Obstetrics and Gynaecology recommends against the non-medical use of ultrasound in pregnancy due to the further need for research about potential impacts of increased ultrasound exposure to the fetus, beyond the currently established schedule of scans (4)

## Ethical considerations with ultrasound

When an ultrasound scan reveals abnormalities in a pregnancy this may lead to difficult decisions for the whānau about how to proceed with the pregnancy. These decisions might include whether to undergo diagnostic testing, whether to terminate the pregnancy, or how to care for a potentially medically compromised baby at birth, as well as the safest mode of birth if the scan reveals concerns about fetal or placental position, or uterine abnormality.

Counselling services are available to whānau making these decisions, and referrals can be made to experts in high risk pregnancy to help make a decision that is best for your whānau.

Before consenting to diagnostic or screening testing it is worth discussing with your care provider and whānau what you would like to do if an abnormality is detected. If the detection of an abnormality would not change your decision making about how to proceed with the pregnancy, you are also able to opt out of testing as you wish.

No test or screening can be forced on you – everything is your choice and you are allowed to decline any aspect of care at any time.

Ultrasound scanning is not a guarantee of a pregnancy or a fetus without complexities.



## Parent's reactions to ultrasound

Everybody's reaction to ultrasound is different. Many parents find the opportunity to observe a visual image of their developing fetus reassuring, while others find the increased surveillance during pregnancy a source of anxiety. It's important to consider is helpful or unhelpful to your wellbeing and decision making in pregnancy.

## Code of consumer rights

Ultrasound scans are a health service and so the code of consumer rights (3) applies to all providers performing ultrasound scans – including obstetricians. You can find a copy of the code of consumer rights at [www.hdc.org.nz](http://www.hdc.org.nz)



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