20 week ultrasound:

Purpose of the 20 week scan:

The purpose of the twenty week anomaly scan is to reassure parents that their baby appears to have no obvious structural abnormalities. This document will try to explain the benefits and limitations of the 20 week ultrasound.

The ultrasound can be performed anytime from 18 – 22 weeks. Before 18 weeks some structures are truly difficult to examine – such as the heart, and beyond 22 weeks space becomes limited – again making it difficult to examine some structures.

Recent data from one unit would suggest that about 50% of significant abnormalities will be identified by a screening scan. The value of identifying fetal abnormalities at this stage is that it offers parents options. Some, probably the majority of parents, will for serious lesions, elect to terminate the pregnancy. Those couples who choose to continue the pregnancy have the opportunity to prepare themselves through discussions with health care personnel and self-help groups, whilst attendants can ensure appropriate care during pregnancy and following delivery.

Do I have to have the 20 week ultrasound?

All parents have the option to “opt in” or “opt out”. This means couples who do not wish to know of any risk of abnormality may consider not having the ultrasound at all.

By declining the 20 week ultrasound parents have to understand that no proof can be given that their baby will be all fine, and that with certain conditions, although termination might not be indicated, it might be better to be prepared with the delivery (for example, a baby with a known heart condition will be better off delivering at a hospital where the Cardiac Specialists are practicing).

Parents who will consider termination of the pregnancy in the case of serious defects should therefore opt in for the 20 week ultrasound.

Basic standards of a routine 20 week ultrasound:

Currently there are no established guidelines for the 20 week ultrasound, and no requirements for registration with the Health Professions Council and any person can therefor offer ultrasounds. Having said that there is a certain level of care dictated by peer review – so “what does my neighbour do”.

In most countries (European and USA) a pregnant women will be offered 2 routine ultrasounds – at 12 – 14 weeks, and 18 – 22 weeks. South African obstetricians perform their own ultrasounds, and thus the norm and expectation has become an ultrasound at each visit (although the benefit of this has not been established).

Our Medical Malpractice Insurer (MPS), has made a recent ruling (October 2013), that anybody other than a qualified obstetrician performing an ultrasound beyond the first trimester will pay a premium 3 000% above the standard rate for that specialty – reiterating the importance of proper equipment and training.

Quality of the ultrasound can be influenced by factors outside of our abilities. Mothers who are overweight result in poor quality of ultrasound picture, and this will be specifically noted in the clinical notes. Some babies are not lying in an optimal position, and often the mother will be asked to go and have something to drink (perhaps with some caffeine and/or sugar) to get baby to move around, or alternatively to come back in 2 weeks or so to re-evaluate.

According to guideline I do not offer digital copies of ultrasounds, but will give a series of printouts of relevant “cute” structures of the baby.

The “minimum” standard suggested by the American College of Obstetricians and Gynaecologists suggest the following should be evaluated.

Measurements:

- Bi-parietal diameter (head from ear-to-ear)
- Head circumference
- Abdominal circumference
- Femur length.

Fetal Normality

- Head shape + internal structures (including midline of the brain and fluid collections < 10mm)
- Spine: longitudinal and transverse (profile view, and from behind)
- Abdominal shape and content at level of stomach
- Abdominal shape and content at level of kidneys and belly button
- Kidney outflow (<5 mm measurement)
- Profile view of chest and abdomen (diaphragm/bladder)
- Chest at level of 4 chamber cardiac view
- Arms - three bones and hand (not counting fingers)
- Legs - three bones and foot (not counting toes)
- Cardiac outflow tracts (large vessels entering and leaving the heart)
- Face and lips

Patient Name:____________________ Patient Signature:_________________ Date:_____________

Witness Name: __________________ Witness Signature: ________________ Date: _____________

Looking for "soft markers"

A soft marker refers to an ultrasound anomaly that on its own does not mean much, but when seen with at least 2 other soft markers might increase the risk for chromosomal abnormalities such as Down syndrome (Trisomy 21).

Safety of the ultrasound:

A full ultrasound examination can take between 25 – 40 minutes depending on how readily the structures are examined. Although the safety of ultrasounds in pregnancy has been well established we still follow the "ALARA" principle – As Low As Reasonably Attainable. The one major concern with ultrasound would be the effect of the sound waves on heating up the deeper lying tissue (including fetal tissue). With a new and properly calibrated ultrasound, increase in tissue temperature would not be more than 1° Celsius, and is thus safe.

Inherently the 20 week scan suggests the possibility of harm. If anything abnormal is detected parents might want to opt for invasive testing such as an amniocentesis, with possible risks, or even decide on terminating the pregnancy.

What cannot be seen?

First of all, data from units all over Europe and USA suggest **only 50% of all visible abnormalities will be detected** on routine ultrasound. Over and above this some things are impossible to diagnose on ultrasound.

These include (but is not limited to) the following – blindness, deafness, cerebral palsy, autism, metabolic disorders (when baby lacks certain enzymes to assist with metabolism) and many more.

What can be seen?

Here is a summary of what could be seen, with world standard next to it, then last column our incidence (actual number of cases diagnosed after birth, with diagnosis before birth in brackets)

Problem	What the problem is	Chance of being seen	Our numbers (diagnosed)
Spina bifida	Open spinal cord	90%	1 (1)
Anencephaly	Absence of the top of the head	99%	3 (3)
Hydrocephalus	*Excess fluid within the brain	60%	2 (2)
Major congenital heart problems		25%	3 (2)
Diaphragmatic hernia	A defect in the muscle which separates the chest and abdomen	60%	0
Exomphalos/gastroschisis	Defects of the abdominal wall	90%	1 (1)
Major kidney problems	Missing or abnormal kidneys	85%	1(1)
Major limb abnormalities	Missing bones or very short limbs	90%	0
Cerebral palsy	Spasticity	Never seen	N/A
Autism		Never seen	N/A
Down syndrome	May be associated with heart and bowel problems	About 40%	3 (3)
* Many cases present late in pregnancy or even after birth			

What will happen if an abnormality is noted?

This all depends on what the abnormality is, and at what stage of the pregnancy it has been detected.

Patient Name:____________________ Patient Signature:_________________ Date:_____________

Witness Name: __________________ Witness Signature: ________________ Date: _____________

Where a single "soft marker" has been noted this will be explained in detail to the parents, and other soft markers will be specifically sought out and discussed with clarity and transparency.

When obvious serious defects are noted (such as spina bifida, anencephaly or hydrocephalus) I will ask Dr Bhorat, the Feto-Maternal Specialist, to give an urgent, unbiased second opinion.

Some structural defects are rare, and in these situations I might only be able to see something is wrong, but due to a lack of experience (due to a lack of numbers) I might not be able to discuss the extent of the defect or future prognosis. These parents will be referred to a Feto-Maternal Unit, at Dr Ismail Bhorat in Umhlanga. Obviously this is a stressful time for parents - waiting for the consultation and not knowing what to expect. We do realize this is extremely worrying, but I would not want to live with the consequences of terminating a pregnancy without having full backup of a second opinion, and trust that parents will appreciate and agree with this.

Depending on the extent of the defect, parents will have a range of options. These decisions are never easy, and involve the whole family.

We will never push parents in any direction, judge them for their decision or abandon them once the decision has been made.

Thus I understand the following and have been allowed adequate discussion of the things I do not understand.

- I have the right to opt in or opt out of the 20 week ultrasound
- Detection rate of fetal abnormalities range between 20 – 100%, depending on the structure involved.
- Some abnormalities are not visible on ultrasound and thus not diagnosable.
- Dr Lindeque has adequate training to perform ultrasounds beyond the "basic" ultrasound, but is not on the level of a Feto-Maternal Specialist, and will thus refer those patients with a possible abnormality for second opinion.
- The practice as a whole will support all parents faced with stressful waiting periods, and making decisions regarding termination etc. without being directive, only being supportive and accommodating to our best ability.

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