Policies, Standards, and Guidelines

Guidelines for the Performance of Third Trimester Ultrasound

G01

Adopted by Council December 2017

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**G01 Guidelines for the Performance of Third Trimester Ultrasound**

**Purpose**

This document provides a guide to assessment and reporting of fetal growth and wellbeing in the third trimester and to provide clinically relevant information to aid antenatal management.

**Scope/Applicability**

This guideline is applicable to all ultrasound practitioners.


**Guideline 1 – Pre-Performance of Ultrasound**

**Requirement**

It is essential to establish the gestational age of the fetus in order to track growth and wellbeing, as acceptable values will vary with gestation.

**Procedure #1**

The last menstrual period (LMP) or previously calculated estimated date of delivery (EDD) and previous obstetric history should be noted. If an EDD has been established, prior to this scan, it should be noted and used as a reference point for any measurements collected.

**Procedure #2**

It is recommended that previous ultrasound reports and imaging be reviewed where possible.

**Procedure #3**

The indication for the examination should be carefully considered and the examination targeted to answer the clinical problem.

**Procedure #4**

If performing transvaginal scan, local recommendations/policy on the consent process of the transvaginal scan should be adhered to.

Note (for Australian practitioners):

In WA, transvaginal scan is an invasive imaging procedure which requires written consent.

For Australian practitioners who have to comply with DIAS, please note DIAS Standard 2.2, *Consumer Consent and Information Standard.*
Guideline 2 – Equipment

Requirement

Studies should be performed using high quality real time equipment with colour and spectral Doppler capability.

Guideline 3 – The Examination

Requirement

Full evaluation should include assessment of the following points. As stated previously, each examination should be targeted to the requirements and needs of the patient and referring doctor. It may include:

1. Fetal number, presentation and lie;
2. Fetal cardiac activity;
3. Measurements of fetal size;
4. Fetal anatomy;
5. Fetal wellbeing;
6. Placental localisation;
7. Amniotic fluid volume; and

Role/Context

Procedure #1 - Fetal number, presentation and lie

Procedure #2 - Fetal cardiac activity

The presence or absence of fetal heart motion should be assessed. Care should be taken to assess the rhythm.

Procedure #3 - Measurements of fetal size

Calculation of Fetal Weight

The bi-parietal diameter, head circumference, femur length and abdominal circumference should be measured. When the dates are known, the centile should be recorded. This will allow meaningful assessment of growth over time, aiding the diagnosis of macrosomia, large or small for gestational age and growth restriction. It is not appropriate to report the equivalent gestation age in weeks and days, unless the dates are not known. Weight estimation should be given and the centile recorded. When the dates are not known the wide variation of ultrasound estimation of gestational age in the third trimester should be indicated in the report.

No single formula for estimating fetal weight (EFW) has achieved accuracy across all gestational ages and populations to enable a recommendation to be made. Hadlock B and C multi-parameter formulas are the most commonly used in clinical practice. Hadlock B (HC, AC, FL) is encouraged as head circumference measurements are less prone to error due to fetal moulding compared to those that use bi-parietal diameter. Hadlock B and C have been shown to be most accurate for fetal weights between 2500-4000g. The range of error increases outside these margins. Separate formulas for very low birth weight infants may be considered depending on the clinical situation. For
internal consistency, the Hadlock B formula should be used if the Hadlock EFW chart is used for plotting fetal weight.

Plotting Fetal Growth

Charts for assessing fetal growth can be derived from sonographic measurements or from birthweight data. No EFW chart based on Australian sonographic measurements exists.

There are several charts available for measurements and estimated fetal weight, including INTERGROWTH-21st, Chitty and ASUM. Consistency of chosen weight formulas and growth charts within and between practices is recommended.

Procedure #4 - Fetal anatomy

The extent of evaluation of the fetal anatomy will depend on the clinical indication for the scan, the result of any previous high quality fetal anatomy scan and the time elapsed since the last scan. Many parts of the fetal anatomy are not visible in the 3rd trimester but it is particularly important to examine organ systems where evolving lesions are known to develop; these include the brain, heart, stomach, diaphragm and kidneys. When these structures cannot be visualised however, it is usually not necessary to recall the patient, unless it is clinically relevant to the referral.

Procedure #5 - Fetal wellbeing

Interpretation should be based on an integrated assessment and not on one factor alone.

In addition to fetal size, the following parameters should be assessed when clinically appropriate:

- Fetal cardiac rate and rhythm.
- Some or all of fetal movement, respiratory movement, tone and amniotic fluid index. The biophysical profile is a formal assessment of these parameters. The biophysical profile, requires a strict protocol and up to 30 minutes observation time. Caution should be exercised in reporting abnormalities in shorter observation times.
- Umbilical artery waveform, including the PI or RI and presence or absence of diastolic flow.
- Doppler assessment of the middle cerebral artery and ductus venosus has a specific role in evaluation of monochorionic twin pregnancies, fetal anaemia, reduced fetal movement, IUGR and estimated fetal weight less than the 10th centile, but is not routinely indicated (see NZMFMN Guideline).

Procedure #6 - Placental localisation

The location of the placenta should be recorded. If it is low, great care must be taken to determine its relationship to the internal os.

Where a low lying placenta has been noted at the mid trimester examination, consideration should be given to the routine use of colour Doppler assessment of the lower uterus to exclude vasa praevia.

A transvaginal scan is the most accurate method for assessing placental location. In cases where a vaginal scan is declined, a transperineal scan may be helpful. Particular care is needed if transvaginal examination is performed on a patient who may have placenta praevia.
Procedure #7 - Amniotic fluid volume

Evaluation of the amniotic fluid using either the 4 quadrant method (amniotic fluid index) or deepest vertical pool is preferred. The deepest vertical pocket, is faster to perform and has been shown to be equally predictive of adverse perinatal outcome in a population of low-risk women (see Kehl et al). The AFI measurement should be correlated with the gestational age. When using a deepest vertical pocket, a pocket width of 1 cm or greater is required. Oligohydramnios can be recorded if no pockets of fluid are visible greater than 2 cm vertical depth and polyhydramnios if pockets are greater than 10 cm vertical depth.

Procedure #8 - Cervical length

The length of the cervix and evidence of funneling should be recorded up to 34 weeks gestation. Transvaginal examination should be considered when accurate assessment of the cervix is required.

Guideline 4 – Reports

Requirement 1

As a minimum, the following details should be included in the report:
1. Patient identifiers;
2. The date of the examination;
3. Indication for examination;
4. The gestational age in weeks and days on the date of the scan and the method of calculation (EDC, LMP, date of conception);
5. The number of fetuses;
6. Fetal biometry (when performed) with centiles;
7. Estimated fetal weight with centile (if performed);
8. Fetal presentation;
9. Placental position and relationship to cervix;
10. Assessment of amniotic fluid;
11. Assessment of fetal wellbeing, if clinically indicated; and
12. Umbilical cord flow dopplers.

Requirement 2

In a multiple pregnancy, the additional following details should be included in the report:
1. Chorionicity and amnionicity; and
2. Labelling of fetuses (eg superior/inferior, right/left).

Related/Supporting documents

The following documents are required to give effect to this guideline:

1. ASUM STD01 Statement on Normal Ultrasonic Fetal Measurements.
2. ASUM G06 Statement on the Performance of a Gynaecological Scan.
3. ASUM G04 Guidelines for Reprocessing Ultrasound Transducers.

Supporting information/References

The following documents inform this guideline:

1. ASUM Policy on Diagnostic Ultrasound Services.
2. ASUM Safety Statement on Continuous Wave Doppler Fetal Monitoring.
3. ASUM G02 Guidelines for the Performance of First Trimester Ultrasound.
4. ASUM G07 Guidelines for the Performance of Second (Mid) Trimester Ultrasound.
5. ASUM G05 Guidelines for Abdominal Scanning.

**Contact**

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**Review**

This guideline will be reviewed and evaluated as required to ensure relevance and currency.

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The review table indicates previous versions of the guideline and any significant changes.

**Approval**

This guideline has been approved and issued by the ASUM Council.

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