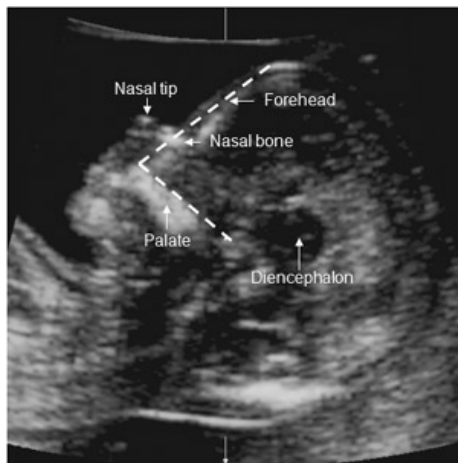


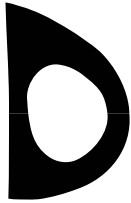
## **First Trimester Examination of Frontomaxillary Facial Angle**

The findings of recent studies suggest that fetuses with Trisomy 21 have a flat profile because the maxilla (upper jaw) is small and set back. This produces a wide angle in a line drawn over the palate and between the maxilla and the forehead (facial angle). Measurement of the facial angle at 11-13+6 weeks improves the performance of screening for Trisomy 21 by maternal age and fetal nuchal translucency (NT). However it is imperative that, as for the NT scan, sonographers undertaking risk assessment by measurement of the facial angle must receive appropriate training and certification of their competence in performing this measurement.

### **Protocol for the measurement of the facial angle**

1. The gestational period must be 11 to 13+6 weeks
2. The magnification of the image should be such that the fetal head and thorax occupy the whole image.
3. A mid-sagittal view of the face should be obtained. This is defined by the presence of the echogenic tip of the nose and rectangular shape of the palate anteriorly, the translucent diencephalon in the centre and the nuchal membrane posteriorly. Minor deviations from the exact midline plane would cause non-visualization of the tip of the nose and visibility of the zygomatic process of the maxilla.
4. The facial angle should be measured between a line along the upper surface of the palate and a line which traverses the upper corner of the anterior aspect of the maxilla extending to the external surface of the forehead, represented by the frontal bones or an echogenic line under the skin below the metopic suture that remains open.





## Fetal Medicine Foundation First Trimester Examination of Frontomaxillary Facial Angle

### Clinical application of fetal facial angle measurement

The fetal facial angle decreases with CRL and is wider in fetuses with trisomy 21 than in chromosomally normal fetuses. It is essential that those adjusting the risk for Trisomy 21 using the measurement of the facial angle do so with recognized risk calculation software that take into account all the appropriate parameters. The Fetal Medicine Foundation will release such risk calculation software, but will only make it available to sonographers who have been appropriately trained and accredited in the measurement of the fetal facial angle.

The software firstly calculates a risk based on maternal age, fetal nuchal translucency, and maternal serum free B-hCG and PAPP-A. If the risk is more than 1 in 50 and the facial angle is within the normal range the risk does not change. If the risk is 1 in 50 to 1 in 1,000 and the facial angle is within the normal range the risk is usually reduced. If the facial angle is above the normal range the risk is always increased.

### Certification in the first trimester assessment of the facial angle

The requirements for certification in first trimester assessment of the fetal facial angle:

- FMF Nuchal Translucency Certificate
- Participation in the FMF audit of the distribution of NT measurements and images and demonstration of satisfactory performance
- Attendance of a recent FMF 11-13+6 weeks scan course, including a lecture on the assessment of the fetal facial angle.
- Submission of 5 images demonstrating the exact mid-sagittal plane of the face (see above) and measurement of the facial angle. Many ultrasound machines have an angle measurement tool and this should be used. If the machine does not have an angle measurement tool then applicants should manually draw the lines as described in the protocol and use a protractor to measure the angle and write it on the image.

Please send your completed images to:

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