FIRST TRIMESTER ULTRASOUND ANALYSIS REPORT

Automated Fetal Structure Detection and Risk Assessment

Report Date:	2025-07-01 06:34:59
Analysis Method:	YOLOv8 Deep Learning Model
Gestational Age:	11-14 weeks (estimated)
Image Quality:	Adequate for automated analysis
Maternal Age:	30 years

PRIMARY FINDINGS

Parameter	Measurement	Reference Range	Assessment
Nuchal Translucency	Not detected	N/A	Unable to assess

FETAL STRUCTURE DETECTION SUMMARY

Structure	Medical Significance	Detection Status	Confidence	Clinical Interpretation
Thalamic Structures	Critical for normal neurological develop...	✗ NOT DETECTED	N/A	Suboptimal image quality or positioning
Mesencephalon	Essential for motor function and consci...	✗ NOT DETECTED	N/A	Suboptimal image quality or positioning
Fetal Palate	Important for feeding and speech develop...	✗ NOT DETECTED	N/A	Suboptimal image quality or positioning
Fourth Ventricle	Critical for CSF circulation and poster...	✗ NOT DETECTED	N/A	Suboptimal visualization - Repeat neurosonography re
Cisterna Magna	Marker of posterior fossa development a...	✗ NOT DETECTED	N/A	Suboptimal visualization - Repeat neurosonography re
Nuchal Translucency	Primary screening marker for aneuploidy...	✗ NOT DETECTED	N/A	Unable to assess - Consider repeat scan
Nasal Tip	Component of facial profile assessment...	✗ NOT DETECTED	N/A	Suboptimal image quality or positioning
Nasal Skin Line	Assessment of facial soft tissue develop...	✗ NOT DETECTED	N/A	Suboptimal image quality or positioning
Nasal Bone	Important marker for Down syndrome scree...	✗ NOT DETECTED	N/A	Additional risk marker - Enhanced screening recomme

CLINICAL INTERPRETATION

Risk Assessment:

• Nuchal Translucency Risk: Unable to assess

• Risk Ratio: N/A

• Combined First Trimester Screening Risks:

- Trisomy 21 (Down syndrome): 1:298

- Trisomy 18 (Edwards syndrome): 1:2500

- Trisomy 13 (Patau syndrome): 1:3666

Secondary Findings:

• ABSENT NASAL BONE - Additional marker for aneuploidy screening

• POSTERIOR FOSSA - Suboptimal visualization, consider repeat scan

• BRAIN STRUCTURES - Suboptimal visualization of thalami, midbrain

Recommendations:

• Repeat scan recommended

• Enhanced genetic screening recommended

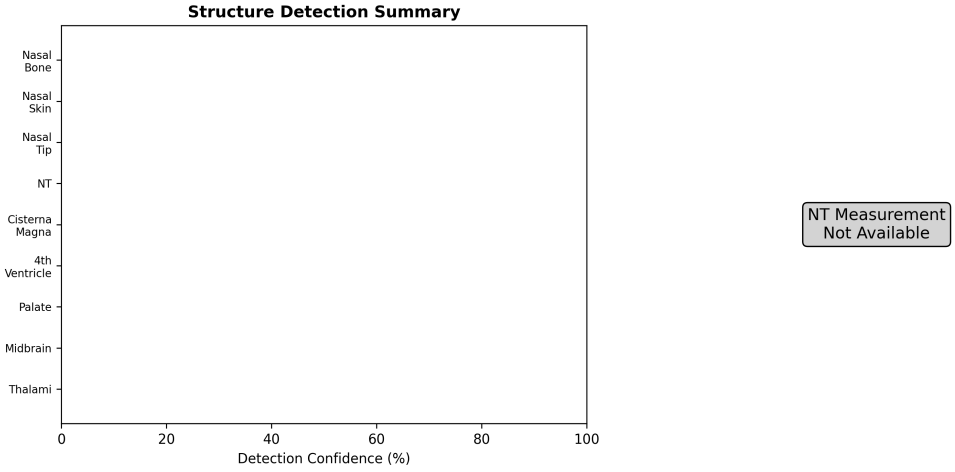
• Repeat detailed neurosonography at 18-22 weeks

• Continue routine antenatal care

• Second trimester detailed anatomy scan at 18-22 weeks

• Consider maternal serum screening if not already performed

VISUAL ANALYSIS SUMMARY



ANNOTATED ULTRASOUND IMAGE

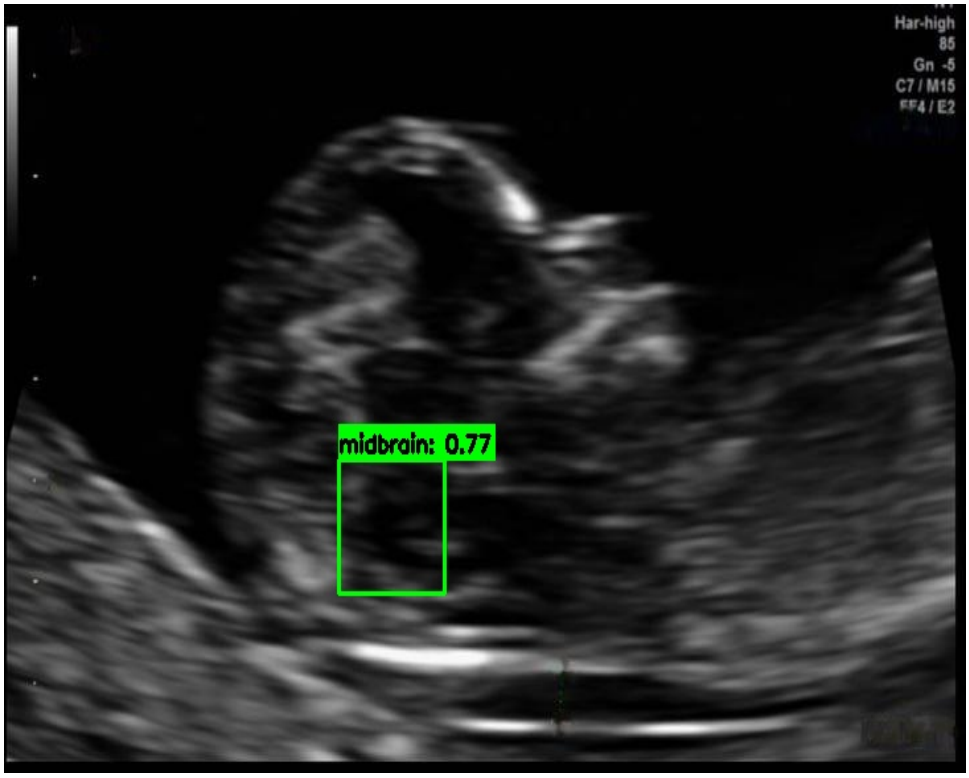


Image Legend:

• Green boxes: Detected structures with confidence scores

• Confidence scores indicate model certainty (>70% considered reliable)

IMPORTANT DISCLAIMER

This report is generated using automated artificial intelligence analysis and is intended for screening purposes only. It should not replace clinical judgment or definitive diagnostic procedures. All findings should be interpreted by qualified medical professionals in the context of clinical history and additional testing. This analysis is based on image quality and technical factors that may affect accuracy. Negative findings do not rule out the presence of abnormalities, and positive findings require clinical correlation and further evaluation.

TECHNICAL INFORMATION

Model Version:	YOLOv8 Custom Trained
Training Dataset:	Fetal ultrasound images (11-14 weeks)
Detection Classes:	9 anatomical structures
Confidence Threshold:	>50% for detection
Image Processing:	Automated preprocessing and enhancement