Objective
To describe the sonographic appearance of fetal posterior fossa anatomy at 11-14 weeks of pregnancy and its measurements and to assess the outcome of foetuses when the intracranial translucency (IT) and/or the brain stem to occipital bone (BSOB) diameters are increased.

Methods
Reference ranges for brain stem (BS), IT and cisterna magna (CM) measurements, BSOB diameter and BS to BSOB diameters ratio were obtained from 233 fetuses with normal postnatal outcome undergoing first trimester scan. The intra and inter-observer variability were investigated from 73 images. In addition a study group of 17 fetuses with increased size of the IT and/or BSOB diameter was selected.

Results
No intra-observer nor inter-observer variability was found significant for all measurements in the control group. In the study group IT was increased in all cases and BSOB diameter was above the 95th centile of the calculated normal range in all but 2 cases (88%). In 13 /17 cases of the study group, only 2 of the 3 posterior brain spaces were recognized. These fetuses had larger BSOB measurements than the remaining 4 cases in which 3 spaces were seen, and always had severe associated anomalies including Dandy-Walker malformation and/or chromosomal anomalies.

Conclusion
Visualization of the fetal posterior fossa anatomy at 11-14 weeks in the same mid-sagittal plane employed for measurement of NT is feasible and highly reproducible. An increased amount of fluid in the posterior brain at 11-14 weeks, particularly in the absence of the septation dividing the future fourth ventricle from the cisterna magna is easy to detect and represents an important risk factor for cystic posterior fossa malformations, in particular DWM, and/or chromosomal aberrations, including genomic imbalances.