Objective
To assess the relationship between indication for referral for fetal echocardiogram and outcome, to determine the association between specific groups of fetal cardiac anomalies and extra-cardiac and chromosomal abnormalities and to determine obstetric outcomes in pregnancies affected by complex congenital heart disease (CHD).

Methods
Prospective data collection between 2007-2011 of 1244 fetal echocardiograms in a tertiary referral fetal medicine centre. In the case of analysing obstetric outcomes a control group of 45,069 singleton pregnancies was used as a comparator and all aneuploidies were excluded. Statistical analysis was performed using Chi-squared and regression analysis.

Results
During the five year period 1244 echocardiographs were recorded, 242 (19.5%) of which had a structural cardiac defect. The most common defects were AVSD (n=36), VSD (n=26), transpositions (n=15), Hypoplastic Left Heart (n=27) and valvular defects (n=30). Abnormal anatomy scan was the best indicator for detecting the presence of cardiac defects, compared to all other indications (p<0.0001). Invasive testing was performed for 44% of those identified with a cardiac anomaly, of which 54 (51%) were abnormal karyotypes. Thirty-seven percent (n=89) of those with a cardiac anomaly also had an extra-cardiac defect. In addition these fetuses were significantly more likely to have a karyotypic abnormality when compared with those with an isolated cardiac anomaly (p<0.0001). In terms of obstetric outcomes pregnancies affected by a major cardiac anomaly had an incidence of 3.1 per 1000, had a significantly increased risk of pre-term delivery before 34 weeks (OR 3.2, p=0.003) and intrapartum emergency caesarean section for a non-reassuring fetal heart rate (OR 2.2, p=0.02). The live birth rate in these affected pregnancies was 98% with a 1% neonatal mortality rate. Apgar scores at one and five minutes were significantly better in those babies delivered vaginally compared to those delivered by caesarean section.

Conclusion
This study suggests most congenital cardiac defects occur in a low risk population, highlighting the importance of the 20-week anomaly scan for detection of cardiac and other defects prenatally. Significant numbers of chromosomal and extra-cardiac defects in this study emphasise the importance of thorough evaluation of any fetus identified with a cardiac defect. Although rates of caesarean section are higher in pregnancies where fetuses are affected by CHD vaginal delivery is a safe option for women with fetuses affected by CHD.