We construct a computational model of the electrophysiology of the developing heart. Anisotropic geometry at ~100 μm voxel resolution was obtained from Diffusion Tensor and Fast Low Angle Shot Magnetic Resonance Imaging and electrical activity from fetal electrocardiograms obtained longitudinally from one gestation and from multiple studies. Transmural myofibre organisation is established by 156 days gestational age (DGA) and during 2nd and 3rd trimester OR intervals decrease by 20 ms while heart dimensions increase by a 2-fold. This implies an increase in the ventricular conduction velocity. A computational model of the 140 DGA human ventricle is presented that combines cell electrophysiology with anisotropic geometry.

PF.63 A RARE CASE OF FETAL ANAEMIA DUE TO CONGENITAL PYROPOIKILOCYTOSIS TREATED BY INTRAUTERINE FETAL BLOOD TRANSFUSION
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We present the first case of a pre-natal diagnosis of fetal anaemia due to congenital pyropoikilocytosis treated with intrauterine fetal blood transfusion. A 31 year old woman of Caucasian origin was referred to the fetal medicine unit at 29 weeks gestation with suspected fetal anaemia. She had 3 previous miscarriages and delivered a term female infant who was severely jaundiced and anaemic at birth, requiring multiple exchange transfusions. That infant was diagnosed with congenital pyropoikilocytosis.

In this pregnancy, a middle cerebral artery Doppler peak systolic velocity (MCA PSV) performed at 26 and 28 weeks gestation suggested mild to moderate fetal anaemia. At 29 weeks, MCA PSV indicated severe fetal anaemia. There were no signs of hydrops fetalis. Fetal blood sampling confirmed fetal anaemia and fetal blood transfusion was performed. Fetal blood film confirmed congenital pyropoikilocytosis. At 31 weeks, a repeat fetal blood transfusion was indicated but was unsuccessful due to transient fetal bradycardia. Delivery was prompted and at 32 weeks, a female infant was delivered by elective caesarean section. The infant was anaemic requiring multiple exchange transfusions. Neonatal recovery was uneventful.

Congenital pyropoikilocytosis is an autosomal recessive rare hemolytic anaemia due to an erythrocyte membrane defect. It is more often seen in black populations and has rarely been seen in white European populations. Doppler prediction of fetal anaemia using MCA PSV should be advocated in women whose previous pregnancies show them to be at high risk of recurrent fetal or neonatal hemolytic anaemias due to rare erythrocyte defects.

PF.64 COMPLICATED SEQUELAE OF PARVOVIRUS AFFECTED PREGNANCIES
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During the recent epidemic of Parvovirus infection, three complicated pregnancies were managed in the Rotunda Hospital. The fetuses were significantly affected in all three cases, presenting with ultrasonographic findings consistent with severe anaemia; all required intra-uterine fetal transfusions.

Case 1: The first case involved a 30 year old multip who presented at 20 weeks with severe fetal hydrops and a history of Parvovirus