Abstract G244 Table 1

ST1-3	ST4-6	ST6+	Consultant	Total
41	47	23	18	129
(31.78%)	(36.4%)	(17.82%)	(13.95%)	

None of the responders answered all the questions correctly. There were wide discrepancies between objective and subjective knowledge of several aspects of ECGs.

Subjective interpretation of ECG axis scored the lowest with none of the level 1 doctors stating that they were confident; objective scores were better for this group at 21.8%. The highest scores in the objective section were for calculating rates (100% in the level 2 group).

Only 69% of the level 1 doctors said they were confident in lead placement against 87% of the consultants. Level 1 doctors scored only 51% in objective questions dealing with lead placement.

Confidence in interpretation of common ECG abnormalities was low with level 1 doctors at 5% and consultants at 36%. Objective scores scored better. ECGs on myocarditis, SVT and heart block scored better over pre-excitation, axis deviation and hypertrophy.

ECG showing Q waves were correctly identified by only 3 responders. Only 34% of the responders identified QTC interval as abnormal.

Responses were not always consistent with level of training and had wide variations.

93% of doctors responded favourably to an e-module for paediatric ECGs. Frequent requests for topics included age related changes, neonatal ECGs, tachyarrhythmias, axis and QT interval interpretation.

Conclusions This survey revealed gaps and variations in ECG interpretation skills among paediatric doctors. Majority felt that an online problem based e-module on paediatric ECG interpretation would help in improving knowledge and confidence. This will be developed and uploaded to the e-learning for health care (www.e-lfh.org.uk) website.

G245 RISK FACTORS FOR ABNORMAL DEVELOPMENT AND COGNITIVE FUNCTION IN CHILDREN WITH CONGENITAL HEART DISEASE AND IMPLICATIONS FOR SERVICE PROVISION IN THE UK

¹V Banks, ¹A Hoskote, ¹S Kakat, ²D Rideout, ²M Lakhanpaul, ²C Pagel, ³R Franklin, ⁴T Witter. ¹Cardiorespiratory Unit, Great Ormond Street Hospital, London, UK; ²University College London, London, UK; ³Royal Brompton Hospital, London, UK; ⁴Evelina Childrens Hospital, London, UK

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Background Within the NHS context there is currently no specific additional neurodevelopmental follow up for children with congenital heart disease (CHD). Cardiologists are not trained in neurodevelopment and face many competing pressures, which may result in delayed detection of problems. We aimed to assess whether there is appropriate service provision for children with CHD and abnormal developmental outcome in the UK, and identify risk factors that could trigger early referral and more timely intervention.

Methods Using validated scales of developmental/cognitive function with children less than 17 years of age with CHD treated

at one of 3 centres in London, we assessed whether those with abnormal scores (defined as >2 standard deviations below the mean) were under follow up by appropriate developmental services. Logistic regression was used to identify potential socio-economic and clinical risk factors for adverse developmental and cognitive outcomes.

Results Being under follow up by developmental services was strongly associated ($p < 0.001$) with abnormal developmental/cognitive score but over 50% of patients with abnormal scores were not under any appropriate services. Risk factors associated with abnormal development/cognitive scores differed across age groups. Greater severity of CHD was associated with adverse gross motor development. Socio-economic factors were linked to adverse neurodevelopmental outcomes in older children.

Conclusion We identified a large number of patients with abnormal development not currently under appropriate care services, highlighting a potential failure in the care pathway for these children. A number of risk factors for adverse neurodevelopment were identified which could provide useful insight for clinicians to ensure high risk patients are appropriately referred, ensuring more timely assessment and intervention to enhance future development and quality of life for these children.

G246(P) CLOSING THE DUCTUS ARTERIOSUS IN PRETERM INFANTS. A REVIEW OF PRESENT TREATMENT STRATEGIES AND DEVELOPING A DISEASE STAGING PROTOCOL

H Raychaudhuri, A Bahadur, M Alam, S Nayak, I Ali. Neonatology, Newham Hospital, Barts and London NHS Trust, London, UK

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Background The ductus arteriosus (DA) is an important structure in foetal life. Closure of the DA is an essential part of postnatal adaptation. Closure of the DA is initiated by an increase in oxygen and changes in pulmonary and systemic blood pressure. In preterm infants, failure of DA closure after birth can be associated with an increased incidence of chronic lung disease (CLD), intraventricular haemorrhage (IVH) and necrotizing enterocolitis (NEC). Prostaglandin inhibition using indomethacin or ibuprofen is the standard strategy to close the DA. Surgical closure and interventional device closure of the DA are an alternative option. Appropriate timing for closing the duct still remains a debatable topic. Various staging methods have been proposed based on Echocardiographic and clinical parameters to help clinicians make a decision. This study aims at assessing the effect of closing a DA on the overall morbidity and mortality in preterm infants and further interrogating available evidence on the best practice and optimum time for closing the DA. We designed a PDA staging protocol based on available evidence which will help clinicians decide on closing the DA.

Methods We conducted a review of literature and results from 10 different papers were assessed and analysed for this study.

Conclusion Closure of the DA in the first few weeks of life may provide short-term benefits. The long-term effects of untreated PDA in extremely premature infants remain unclear. Significant changes in management have evolved in the recent years including early surgical ligation and transcatheter device closure but the evidence to support these changes are

minimal. Carefully constructed clinical trials are required to compare the effects of present treatment strategies with more conservative approaches. Clinical and echocardiographic PDA scoring systems should be incorporated into the routine care of preterm infants and used to justify any treatment undertaken.

G247(P) ANTENATAL DETECTION AND 30-DAY MORTALITY IN CRITICAL CONGENITAL HEART DISEASE WITH TWO VENTRICLE OUTCOME A POPULATION-BASED STUDY

¹K Khor, ¹AK Finucane, ²L Sadler, ^{2,3}E Parry, ¹J Wright, ⁴J Beca, ⁵E Cloete, ¹TL Gentles.
¹Paediatric Cardiac and Congenital Service, Starship Hospital, Auckland, New Zealand;
²National Women's Hospital, Auckland City Hospital, Auckland, New Zealand; ³Greenlane
 Paediatric and Congenital Cardiac Service, Starship Hospital, Auckland, New Zealand;
⁴Paediatric Intensive Care, Starship Hospital, Auckland, New Zealand; ⁵Liggins Institute,
 University of Auckland, Auckland, New Zealand

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Introduction Isolated reports from selected populations suggest early diagnosis in readily treatable critical congenital heart disease (cCHD) result in improved outcome, especially where the surgical outcome is excellent.

However, population-based data are sparse and its interpretation complicated by inclusion of complex heart disease and noncardiac comorbidity that may independently influence outcome.

Aim Compare the outcome of infants born with critical CHD (CHD resulting in operation or death by 30 days) and likely resultant two-ventricle circulation from those born 2006–2010 with 2011–2014, in relation to antenatal diagnosis and 30 day mortality.

Methods A population-based retrospective review of critical CHD, with case ascertainment via the National Fetal Cardiology, the Cardiac Surgical and Governmental mortality review databases.

Results Of the 436 infants born with critical CHD and a potential 2 ventricle circulation, 371 did not have a major non-cardiac abnormality or syndrome.

The proportion of critical CHD's diagnosed antenatally increased during the study period ($p=0.006$).

The 30 day mortality declined from 7.0% to 0.9% ($p=0.049$). Mortality was largely confined to those who died prior to surgery.

Conclusions There has been a significant increase in the rate of antenatal diagnosis in infants with readily treatable critical CHD.

This has been an associated a decrease in the 30 day mortality.

Earlier recognition of cCHD resulting in appropriate delivery location and a reduced risk of circulatory collapse has very likely contributed to the improved survival.

G248(P) SIGNIFICANT FINDINGS? DIFFICULTIES TRIAGING REFERRALS OF CHILDREN WITH HEART MURMURS

J Round, E Cartwright. Department of Paediatrics, St George's Hospital NHS Trust, London, UK

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Aims Typical primary care practice is to refer all children with persistent heart murmurs for further assessment. Although most of these murmurs are benign, those with serious underlying pathology are at risk of having their care delayed because of the number of patients referred. This practise may also lead to unnecessary anxiety for parents and patients.

We sought to analyse GP referral letters to establish if patients at risk of structural disease could be identified to enable them to be seen sooner.

Method GP referral letters to a tertiary hospital paediatric cardiology clinic requesting evaluation of a murmur of a tertiary hospital in the period from January 2016 to May 2017 ($n=90$) were identified. They were analysed for features suggestive of significance of the murmur. These were then compared to the echocardiography findings in the subsequent clinic letter.

Results Of the letters analysed, 10% of patients had underlying structural abnormalities. 5/90 referrals (5.5%) specified a grade of murmur, and 31/90 (34%) specified a location of the murmur. 23/90 (25.5%) referrals mentioned the presence or absence of associated features.

No characteristics of the murmur were associated with the presence of a structural cause.

Conclusion This study demonstrates that it is currently impossible to prioritise patients based on information provided in GP referral letters. This suggests either provision of cardiology screening outpatient clinics should be increased, or more attention paid to learning about children's heart disease in undergraduate and GP curricula. Referral using a specific form may also prompt referrers to seek specific findings and improve triage.

G249(P) ATRIAL ARRHYTHMIAS FOLLOWING UMBILICAL CATHETERISATION

B Saha, A Mishra, S Konnuru. Neonatology, Royal Bolton Hospital, Manchester, UK

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Case description An infant born at 35 weeks gestation to an insulin dependent diabetic and hypertensive mother was admitted to neonatal unit due to respiratory distress and hypoglycaemia. UVC was inserted as blood sugars were persistently below 2 mmol/L. Soon after the UVC placement baby became increasingly tachycardic with a heart rate greater than 200 per minute with narrow complex tachycardia on the ECG. The UVC was pulled back from its initial high position within the cardiac silhouette and subsequently removed but the tachycardia persisted. There was no response to IV Adenosine and Amiodarone, and a second ECG revealed Atrial Flutter. Serum biochemistry was normal and an Echocardiogram did not reveal anatomical abnormalities. Synchronised shock of 0.5 Joules/kg restored sinus rhythm and the baby remained in sinus rhythm till discharge without requiring any further treatment.

Conclusion There are only few reports in literature of atrial flutter following UVC insertion. Mother was diabetic which was an additional risk factor for neonatal arrhythmias. Electrical cardioversion has good effect in restoring sinus rhythm and maintenance antiarrhythmics are usually not needed as risk of recurrence is low.