Data were analysed using descriptive statistics and thematic analysis.

**Results** In total 355 respondents completed the survey (overall response rate 25.1%). Statistical analysis of survey data revealed that n=100 respondents (28.2%) had been involved in a research study but only n=24 (6.8%) had been a lead investigator. Twenty-one (5.9%) respondents had a publication within the last five years and n=85 (23.9%) had presented a poster at a local (n=61, 17.2%), national (n=34, 9.6%) or international (n=22, 6.2%) conference. Just over a fifth (n=74; 20.8%) had given an oral presentation at a local (n=59, 16.6%), national (n=26, 7.3%) or international (n=15, 4.2%) conference. On a whole, respondents self-rated their research skills as weak or average across all stages of research (with overall research competence rated as weak/average n=236, 66.5%). Thematic analysis of qualitative data revealed six themes including; time for research; incentives to engage in research; awareness and promotion of research; research training needs; supports required to enable research; and perceived challenges impacting on nurses’ ability to undertake research.

**Conclusions** There is the need for a clearer strategic vision and political commitment to establish a research supportive environment for nurses working in children’s hospitals to conduct research. Particular recommendations focus on additional time, mentorship, communication, information and education. This survey is one aspect of a number of activities informing the development of a research capacity building strategy for children’s nursing at a time of reconfiguring of paediatric health services in Ireland.

**Mobile phones for follow up in paediatric clinical studies in Africa**

Amy Hannigan, Master Chisale, Richard Drew, Chris Watson, Joe Gallagher.

**Background** Pneumonia remains a major cause of childhood morbidity and mortality in Africa. Accessing healthcare is also a major issue with only half of the children with cough and fever taken to a trained healthcare provider in Malawi. Mobile phone use is rising rapidly in Africa with over 46% of the population on the continent estimated to have a mobile phone. This study sought to determine the feasibility of using mobile phones for follow up of children presenting with pneumonia in primary care in Malawi.

**Methods** This study was undertaken as part of the BIOTOPE project which evaluated children aged 2–59 months presenting with pneumonia to primary care in Mzuzu, Northern Malawi. Parents’ or caregivers’ mobile phone numbers were obtained by a study nurse during study enrolment. Those who provided a telephone number were contacted by the study team to establish symptom status, re-consultations or hospitalisations of the child at 7 days and 30 days following enrolment.

**Results** 494 children were recruited to the study. Median age was 18 months (Interquartile range (IQR) 9–30 months) and 53% were male. 76% of the homes owned at least one mobile phone (270 of the mothers/primary care givers and 349 of the fathers). Mothers had completed an average of 8.5 years formal education and 8% of them we fluent in English. On day 7 of the study, 225 of parents/primary care-givers were contactable and a follow up consultation was completed. All children were alive within first 7 days of diagnosis. 83% of those admitted had been discharged from hospital within first 7 days. 6.3% of children had presented to another health provider in the 7 days. On day 30 of the study 195 guardians were contactable. Two children had died during this follow-up period and 14% had presented to another healthcare worker since initial enrollment. The time to travel to the nearest health facility from home was a median of 50 min [IQR 30,90 minutes]

**Conclusion** With continued expansion of cellular network coverage and mobile ownership in Malawi, mobile phones may facilitate collection of patient outcomes and health data and aid in the follow up and treatment of conditions such as childhood pneumonia. They may also serve as tools for education of health-workers and reporting of clinical trial results in remote areas.

**Confirmation of pathogenetic heterogeneity of diabetes mellitus in children using whole-exome sequencing**

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**Background** In the conditions of dynamic development diagnostic capabilities and understanding of the pathogenetic mechanisms of diabetes, the main task of clinicians is the earliest possible verification of the type of diabetes. New diagnostic methods such as whole-exome sequencing allow to finally verify the type of diabetes mellitus and are of special interest.

**Aim** Determine the frequency of occurrence and molecular-genetic characteristics of monogenic diabetes in children - residents of St.Petersburg.

**Methods** We examined 99 patients with suspected hereditary variants of diabetes: MODY, diabetes as a part of genetic syndromes and diabetes occurrence before 6 month. All patients have chronic hyperglycemia, detectable of C-peptide level, negative autoimmune markers for diabetes type 1 (except IPEX-syndrom) and absence of signs of metabolic syndrome for older children.

In our study of DNA of patients with suspicion of monogenic diabetes was performed by whole-exome sequencing. Genetic variants were screened in a total of 35 genes: 13 genes causative of MODY (HNF4A(MODY1), GCK(MODY2), HNF1A(MODY3), PDX1(MODY4), HNF1B(MODY5), NEUROD1(MODY6), KLF11(MODY7), CEL(MODY8), PAX4(MODY9), INS(MODY10), BLK(MODY11), ABC2(MODY12), KCNJ11(MODY13), and 22 genes causative of transient or permanent neonatal diabetes, including the ones related to specific syndromes (EIF2AK3, RFX6, WFS1, ZFPS1, FOXP3, AKT2, PPARG, APPL1, PTF1A, GATA4, GATA6, GLIS3, A84

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IER3IP1, LMNA, NEUROG3, PAX6, PLAGL1, SLC19A2, SLC2A2, SH2B1, SERPINB4, MADD).

**Results** Overall, 53 out of 99 patients (53.5%) had genetic variants in the target genes. The most common mutations in the group of patients with MODY were mutations in the GCK gene – 80% (n=36), HNF1A 13.3% (n=6), WFS1 4.4% (n=2), PAX4 = 2.2% (n=1).

In cases of neonatal diabetes, including genetic syndromes with diabetes, significant mutations were detected in 8 of 18 patients. Thanks to the possibility to performed whole-exome sequencing, we managed to identify and genetically confirm rare syndromic forms of diabetes, such as: diabetes in the structure of Wolcott–Rallison syndrome (mutation in the EIF2AK3 gene) (n=1), diabetes in the structure of IPEX syndrome (n=1), as well as diabetes due to a mutation in the GATA6 gene (n=1) and a biallelic mutation in the SLC19A2 gene (n=1).

**Conclusions** Using basic differential diagnostic criteria to establish monogenic diabetes, the molecular genetic confirmation of the diagnosis among suspected patients amounts to 53%. Higher mutation detection rate may be achieved by increasing the number of genes tested. One more advantage of whole-exome sequencing should be mentioned: DNA sequencing data may be easily stored for further analysis of newly discovered candidate genes.

**GP135 PREVALENCE OF OVERWEIGHT AND OBESITY IN CHILDREN WITH TYPE 1 DIABETES ATTENDING A TERTIARY CLINIC IN IRELAND AND THE RELATIONSHIP WITH GLYCAEMIC CONTROL**

**Aims** We aim to find the prevalence of overweight and obesity in children aged over the age 5 with type 1 diabetes who attend the tertiary referral clinic in our Lady’s Children’s Hospital Crumlin, Dublin.

**Methods** We measured heights and weights of the children with type 1 diabetes attending the clinic. We entered the data into our electronic database (Diamond version 1, Hicom). The electronic database calculates the child’s body mass index (kg/m²). We exported the data to SPSS Version 24 IBM. We calculated the children’s BMI Z-score using the WHO Reference 2007 SPSS macros package. We used the WHO 2007 Reference normative data and the definition of overweight as BMI z-score for age more than 1 standard deviation away from the mean (represents 85th centile). We used the WHO definition of obesity as BMI z-score for age more than 2 standard deviations away from the mean (represents 97th centile). We ran descriptive statistics. We analysed the relationship between BMI Z-score and HbA1c using linear regression model.

**Results** 541 children attended the diabetes clinic. 511 of these children were over the age of 5. Of these children 38.7% had a BMI z-score +1 SD away from the mean in the WHO reference data reflecting overweight. Of the 511 children 47 or 9.2% of them had a BMI z-score +2SD from the mean normative data reflecting obesity and 1.2% had a BMI z-score of +3SD away from the mean reflecting severe obesity. There was no statistically significant relationship between BMI z-score and HbA1c using linear regression.

**Conclusion** Our results highlight the high prevalence of overweight and obesity in children with type 1 diabetes. The prevalence of overweight and obesity is nearly double that of the general population. This is a relatively new phenomena. Various causes have been postulated including intensive insulin therapy since the early 90s as well as the secular trend in overweight and obesity.

**GP136 PSYCHOSOCIAL RISK ASSESSMENT IN CHILDREN WITH TYPE 1 DIABETES IN IRELAND**

**Objectives** To evaluate and compare the risk for poor glycaemic control at two time points in an Irish cohort of children with T1D.

**Methods** The Risk Index for Poor Glycaemic Control (RIPGC) is the screening tool to assess psychosocial risk where each score increases the risk of poor control and DKA on 10% (low risk score 0–1, moderate =2, high risk ≥3). The baseline data was collected for 2 years while follow up data collection (T1) began at least 6 months after the start of the study and continued for 2 years. No intervention was involved.

**Results** As a part of 2-year longitudinal study 245 children with T1D (129 males) aged 3–18 years (mean 11.7±3.5) were analysed at baseline. Total of 90 patients out of 245 were assessed for psychosocial risk at baseline and at T1 (Table 1).

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Baseline</th>
<th>T1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>68.8%</td>
<td>73.8%</td>
</tr>
<tr>
<td>Moderate</td>
<td>16.3%</td>
<td>11.2%</td>
</tr>
<tr>
<td>High</td>
<td>15.5%</td>
<td>15%</td>
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</table>

At baseline: 31.3% of patients had a moderate score and high scores on RIPGC. At T1: 26.2% of patients had a moderate score and high psychosocial risk scores. Paired analysis showed that the difference in RIPGC score between baseline and T1 was not significant (p>0.05). Three patients (3.3%) increased the risk from low to moderate, another 3 patients (3.3%) from low to high risk and 2 patients (2.2%) from moderate to high risk. However, 12 patients (13.3%) reduced the risk with a time: 7 patients (7.7%) moved from category of moderate risk to low risk, 3 (3.3%) – from high to low and 2 (2.2%) - from high to moderate risk category. The distribution of low, moderate and high risk patients did not differ significantly in baseline group and T1 (p>0.05).

**Conclusions** Almost one third of children with T1D in Irish population are at moderate and high psychosocial risk. The routine care provided by health professionals doesn’t reduce this risk significantly with time. Our data indicates the need of intervention by trained clinical psychologist for children with T1D and psychosocial risk.