Background and Aims The traditional mercury thermometer has been replaced by the more “user friendly” digital thermometer. As accuracy is comparable with both instruments and mercury remains an environmental hazard they are no longer recommended. New non invasive method of measuring temperature may reduce infection rate as well as intangible pain and suffering of neonate.

Methods The body temperature of patients admitted in Neonatal Intensive Care Unit was measured using axillary digital thermometer as well as a handheld infrared non touch thermometer. Patients placed under radiant warmers were included. Temperature recordings were taken as required routinely for clinical care. Axillary temperature was recorded within 30 seconds and the forehead temperature within 5 seconds.

Results The body temperature measured by Axillary digital thermometer and forehead method do not agree well (95% limits of agreement: –4.2, 2.2). A trend was observed suggesting that agreement depends on the magnitude of the temperature. The agreement slightly improved when patients in warmer were excluded (95% limits of agreement: –4.1, 2.1) with similar trend. The best possible agreement was observed between warmer and axillary temperature but was not clinically acceptable (95% limits of agreement: –0.99, 2.36).

Conclusion Forehead temperature due to non touch may appear less disturbing to the neonate and also time saving for the nurse but they are misleading. The infrared technology needs further improvement before it can be used in our setting. Although advent of technology is tempting, a scientific validation of new technology under different settings is caveat before adapting it.

Transcutaneous bilirubinometers used within a structured pathway predicts high serum bilirubin levels in healthy term jaundiced neonates monitored at home

Background UK (NICE) guidelines recommend that bilirubin is monitored in all jaundiced babies. We implemented a home based integrated care pathway to monitor healthy term jaundiced neonates with transcutaneous bilirubinometers (TcB). Babies were readmitted to hospital for phototherapy at total serum bilirubin (TsB) ≥340µmol/l. TcB ≤250µmol/l correlates highly with TsB.

Aim To determine the TcB values in term babies monitored at home that could predict TsB values ≥340µmol/l.

Methods Healthy jaundiced neonates were monitored at home using Bilichek® (Ver 6.12) bilirubinometer. Babies with TcB >250µmol/l had TsB measured using the Beckman Coulter timed endpoint diazo method within 4 hours to confirm result. We carried out statistical analysis of the paired samples to determine the TcB value with the best predictive value for TsB ≥340µmol/l.

Results Eighty-three paired samples were analysed from 69 babies. 6 (7%) had TsB values of ≥340µmol/l. The Receiver Operating Characteristics (ROC) curve analysis suggested an area under the curve (AUC) of 0.9307. TcB values ≥315µmol/l predicted TsB≥340 µmol/l with sensitivity of 0.83 (0.36, 1.00); specificity of 0.82 (0.71, 0.90); positive predictive value of 0.26 (0.09, 0.51) and overall accuracy of 0.82 (0.72, 0.90). TcB values ≥303µmol/l predictive ability had a sensitivity of 1.00 (0.54, 1.00); specificity of 0.71 (0.60, 0.81), positive predictive value of 0.21 (0.08, 0.41) and overall accuracy 0.73 (0.63, 0.83).

Conclusion Bilichek® TcB of 303µmol/l had higher sensitivity but lower specificity than TcB of 315µmol/l for predicting TsB values ≥340µmol/l in healthy term jaundiced neonates monitored at home.

Relation between maternal blood level of some metals and birth weight using LIBS

Background and Aims To improve our understanding of new-born feeding pathophysiology at the molecular level, our laboratory studies transcripts in neonatal saliva. Previously, we used whole transcriptome microarrays. Here, we tested the hypothesis that sequencing of RNA would provide additional and more specific information.

Methods RNA was extracted and prepared for sequencing from salivary samples (10 µL) collected from two term infants matched for post-conceptual age, gender and ethnicity who could and could not orally feed, respectively. Paired-end 100 x 100 base pair sequencing was performed on the Illumina HiSeq 2000. Sequence data were aligned against human reference genome GRCh37/chr19. Cuffdiff analysis identified differentially expressed genes, promoters, and splicing variants between subjects. Ingenuity Pathway Analysis was performed on statistically significantly differentially expressed genes.
Results There were 405 genes, 3 splicing variants, and 2 promoters that were statistically significantly different between case and control. We detected abnormal thyroid function, impaired myelination, and delayed ossification of the mandible in the poor oral feeder (10^{-3} < p < 10^{-2}). Genes involved in neurodevelopment, hyperphagia, and adipocyte development were differentially expressed between subjects (10^{-3} < p < 10^{-6}).

Conclusions Targeted comparative RNA sequencing analyses identify global, and patient specific, aberrations in developmental pathways directly related to oral feeding pathology. Our study demonstrates the feasibility of neonatal salivary sequencing for identifying key regulatory genes and pathways that are differentially expressed and regulated between successful and unsuccessful oral feeders, and suggests that this approach will lead to new insights into neonatal pathophysiology.

1415 THE DIURETIC EFFECT OF UREA ANALOG DIMETHYLTHIOUREA IN RATS
doi:10.1136/archdischild-2012-302724.1415

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Background and Aims Urea plays important roles in urinary concentrating mechanisms in the kidney by contributing greatly in generation of hyperosmolar medulla, due to presence of urea transporters which mediate facilitated transport of urea. Urea transporters are essential diuretic effect with increased urea excretion, which may be explained by the inhibitory effect of the drug on urea transporters.

Methods Female Wistar rats were divided into two groups, group 1 (Control, n=7) rats were injected with saline (ip), whereas group 2 (DMTU, n=7) rats were injected with 500 mg/kg DMTU (ip) and an additional dose of 125 mg/kg DMTU 8 h after.

Results DMTU administration induced a ~3 times increase in daily urine volume (p<0.001) and decreased urine osmolality to ~35% of controls (p<0.0001). DMTU also increased free water clearance (p<0.0001) without a significant change in osmolar clearance. DMTU treatment caused an increase in urea clearance (p<0.05) and fractional excretion of urea (p<0.05) with a decrease in serum urea concentration (p<0.001). DMTU had no effect on creatinine clearance or serum electrolytes, creatinine levels and osmolality.

Conclusions We report for the first time that DMTU has a prominent diuretic effect with increased urea excretion, which may be explained by the inhibitory effect of the drug on urea transporters. Our findings suggest that DMTU may be used as a diuretic agent and also could be used as a lead compound for development of a novel group of diuretics.

1416 INSULIN RESISTANCE CORRELATES IN OBESE ADOLESCENTS
doi:10.1136/archdischild-2012-302724.1416

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Background and Aims Obesity is an epidemic that affects adolescents and affects changes in their metabolic profile. The purpose of our study was to compare glucose metabolism, insulin resistance, dyslipidemia and blood pressure between obese and healthy adolescents.

Methods We included in our study 126 adolescents followed at the outpatient clinic of our hospital, aged 14.9±2.01 (Mean±SD) in the course of 2011. The Body Mass Index (BMI) was calculated from weight and height measurements and was used to divide the adolescents into two groups, (obese, those above the 95th percentile, which corresponds to a BMI of 30 (considered obese in adults) and non obese). Blood pressure, fasting insulin, glucose and lipid blood levels were measured. Estimates of insulin resistance (homeostatic model assessment (HOMA-IR) and the quantitative insulin sensitivity check index (QUICKI)), were derived from fasting measurements. For the statistical analysis we used SPSS 20.0 (IBM Corp.). Mann-Whitney and Spearman tests were applied.

Results Among the adolescents in our study 47 were obese. Obese adolescents had a higher systolic and diastolic blood pressure (p<0.001 and p: 0.04 respectively), higher blood levels of fasting insulin (p<0.001) and lower High Density Lipoprotein (HDL) (p:0.01) compared to non-obese. Insulin resistance and insulin sensitivity indexes were associated with obesity (HOMA-IR, p<0.001, QUICKI p<0.001).

Conclusions Increased insulin resistance, higher blood pressure and low levels of HDL were associated with increased adiposity among adolescents. It is therefore necessary to screen for elevated blood pressure and hyperlipidaemia amongst obese adolescents.

1417 METABOLIC SYNDROME AND INSULIN RESISTANCE IN CHILDREN AND ADOLESCENTS
doi:10.1136/archdischild-2012-302724.1417

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Overweight and obesity in children and adolescents have become a major public health problem in recent years. The prevalence of metabolic syndrome in childhood increases in parallel with the high prevalence of obesity in children. The metabolic syndrome was defined as having at least three of the following: abdominal obesity, low-high density lipoprotein (HDL) cholesterol, hypertriglyceridemia, hypertension, and/or impaired glucose tolerance. Insulin resistance is the principal metabolic abnormality that is common to the development of the metabolic syndrome in children and adults.

Metabolic syndrome was found in 17.2% (12 cases). In our study, we aimed to investigate the potential risk factors in development of obesity evaluate metabolic syndrome and insulin resistance frequency in children and adolescent population. Seventy obese children with a mean age of 10.8±4.7 years and body mass index > 95th percentile were enrolled the study. Patients were assessed birth weight, duration of breast-feeding, prevalence of obesity and type 2 diabetes in parents, age at onset of obesity and components of metabolic syndrome. The diagnosis of metabolic syndrome were defined according to modified WHO criteria adapted for children. Each subject was submitted to an oral glucose tolerance test. Obesity and type 2 diabetes rates in parents of cases, were %42.8(30 cases) and %12.8 (9 cases) respectively. According to homeostasis model assessment insulin resistance (HOMA-IR) index, insulin resistance was determined %38.5 (66 cases). In our study birth weight, duration of breast-feeding weren’t association with metabolic syndrome and insulin resistance.

1418 NUTRITIONAL SURVEILLANCE IN OVERWEIGHT/OBESE COELIAC CHILDREN (OCC)
doi:10.1136/archdischild-2012-302724.1418


Background and Aims Gluten-free diet (GFD) in Coeliac Disease is often complicated by excessive body weight. This study aims to evaluate the efficacy of a balanced GFD.

Methods Retrospective study. We included OCC followed-up from 2006–2010, with a 1 year follow-up after the diagnosis. For all