showed high sensitivity in all age-groups; this is of primary importance since early identification of children with latent tuberculosis infection and appropriate chemoprophylaxis represent the most important tool to reduce tuberculosis burden.

42 ANTIBIOTIC USE IN INFANTS IN THE FIRST YEAR OF LIFE IN FIVE EUROPEAN COUNTRIES

doi:10.1136/archdischild-2012-302724.0042

M van Stuijvenberg, J Stam, P Sauer, for the MIPS 1 Study Group. *Pediatrics, Beatrix Childrens Hospital UMCG, Groningen, The Netherlands*

Background and aims In view of antibiotic resistance problems and development of atopic diseases there is a need to improve the appropriateness of antibiotic use, especially in young children. Antibiotics are mostly prescribed for upper respiratory tract infections (URTI) and otitis media (OM), while these are mostly of viral origin. We report antibiotic use for these infections in otherwise healthy term infants up to one year of age.
Methods The study was part of a multicenter nutritional intervention study (DRKS00000201) in which the parents recorded illness symptoms and antibiotic use of their child in a diary. Logistic regression was used to analyse differences in antibiotic use between the participating countries (Italy, Netherlands, Austria, Switzerland, and Germany).
Results The study was completed by 839 children; 4798 illness episodes were reported, of which 501 (10.4%, range 3.9–18.4%) were treated with antibiotics.

URTI occurred in 2855 (59%) episodes (range 55–64%). Antibiotics were used more often in Italy compared to Switzerland: 18.8% versus 1.4%, OR=0.06(CI95%=0.02–0.1).

OM occurred in 184 (3.8%) episodes (range 2.0–6.8%). Antibiotics were used more often in Italy compared to the Netherlands: 82% versus 55%, OR=0.3(CI95%=0.1–0.6).
Conclusions Antibiotic use varies significantly between European countries while the occurrence of URTI and OM is rather similar. In the development of methods to increase appropriate use of antibiotics other factors, such as physicians attitude, parental influence, and other socio-economic determinants may better be taken into account.

43 EVALUATION OF THE EFFICACY OF L-ISOLEUCINE SUPPLEMENTED FOOD AND VITAMIN D IN THE TREATMENT OF ACUTE DIARRHEA IN CHILDREN

doi:10.1136/archdischild-2012-302724.0043

NH Alam, H Ashraf. *Centre for Nutrition and Food Security (CNFS), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B), Dhaka, Bangladesh*

Introduction Antimicrobial peptides represent an important component of the innate defense of organisms and have activities against all microbes. Recently, L-isoleucine and Vitamin D have been found to induce antimicrobial peptides. Therefore, L-isoleucine and vitamin D might have therapeutic potentials in the management of infectious diarrhea.
Objectives The objectives of this study were to examine if addition of L-isoleucine and/or vitamin D to a diet reduces the stool weight and/or duration of acute diarrhea in children.
Methods This was a double blind randomized clinical trial in 107 children aged 6 to 36 months attending the ICDDRB hospital with acute diarrhea: 28 children received:

a. L-isoleucine (2 g/d) added to milk suji;
b. 27 received Vitamin D 1000 IU/d added to Milk suji;
c. 26 L-isoleucine (2g/d) plus vitamin D 1000 IU/d;
4. 26 Milk suji without L-isoleucine and vitamin D.

Other managements were similar in all groups. Stool weight(g) and duration of diarrhea were the primary outcomes.
Results There was a trend in stool weight reduction in the groups receiving L-isoleucine and the reduction was significant on day 2 (mean ± SD, L-isoleucine vs. vit D vs. L -isoleucine + vit D vs. control, 276±228 vs. 386±302 vs. 301± 181 vs. 447± 325, p=0.039) and day3 (176±157 vs. 321±273 vs. 276±169 vs. 341±292, p=0.045). The duration of diarrhea was similar in all groups.
Conclusion L-isoleucine supplemented food reduces stool weight in children with acute diarrhea.

44 COMPARISON OF THE EFFICACY OF C-REACTIVE PROTEIN, PROCALCITONIN, INTERLEUKIN-6 LEVELS AND NEW LEUKOCYTE PARAMETERS IN THE DIAGNOSIS OF NEONATAL SEPSIS

doi:10.1136/archdischild-2012-302724.0044

[1]T Çelik, [2]O Portakal, [1]Ş Yiğit, [3]G Hasçelik, [1]A Korkmaz, [1]M Yurdakök. *[1]Department of Pediatrics, Division of Neonatology, Hacettepe University, Faculty of Medicine; [2]Department of Biochemistry; [3]Department of Microbiology, Hacetepe University, Faculty of Medicine, Ankara, Turkey*

Background and aims Sepsis is an important cause of morbidity and mortality among newborn infants. Blood culture is the gold standard. Early and definitive diagnosis of neonatal sepsis is difficult because its sings and symptoms are nonspecific. New leukocyte parameters such as neutrophil volume (MNV), conductivity (MNC), scattering (MNS) and volume distribution width (NDW) were introduced in the diagnosis of sepsis recently. We aimed to investigate these parameters in newborn sepsis and compare their efficacy with serum CRP, Procalcitonin (PCT), IL-6 levels.
Methods This study was conducted in Hacettepe University Neonatology Unit, between July 2010 and February 2012. Total 227 newborns, 116 sepsis (40 proven, 76 clinical sepsis) and 111 control included in the study.
Results Results are summarized in the Table 1.

Abstract 44 Table 1

	Cut-off levels	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	AUC (%)
CRP (mg/dl)	>0.16	75.0	76.3	50.8	91.9	77.7
PCT (ng/dl)	>0.44	75.0	86.0	60.4	89.3	86.9
IL-6 (pg/ml)	>15.40	70.8	74.2	45.5	91.0	72.5
I/T ratio	>0.19	62.5	92.5	79.4	88.9	81.5
MNV (au)	>159.50	37.5	94.6	71.4	80.8	63.4
MNC (au)	<144.50	78.4	46.8	35.2	86.7	62.6
MNS (au)	<141.50	86.5	37.6	32.7	87.2	64.5
NDW (au)	>29.25	66.7	75.3	43.9	84.0	68.2

Sensitivity, specificity, positive and ne

Conclusions In conclusion new CBC parameters can be helpful in differential diagnosis of newborn sepsis in addition to other screening parameters. MNV seems the most useful parameter with the highest spesifity.

45 EFFECT OF A MULTIMODAL INTERVENTION PROGRAM TO PREVENT OBESITY IN EARLY CHILDHOOD

doi:10.1136/archdischild-2012-302724.0045

[1]HM Donkor, [1]JH Grundt, [1]J Hurum, [1]ABK Sundby, [2]T Skundberg, [3,4]T Markestad. *[1]Department of Paediatrics, Innlandet Hospital Trust, Lillehammer Hospital, Lillehammer; [2]Department of Paediatrics, Innlandet Hospital Trust, Gjövik Hospital, Gjövik; [3]Research Division, Innlandet Hospital Trust, Brumunddal; [4]Department of Clinical Medicine, University of Bergen, Bergen, Norway*

Background and aim Established overweight is difficult to reverse. Our aim was to examine the effect of a family oriented intervention program on prevention of persistent overweight in young children at risk.
Methods Parents of overweight pre-school children from half of Oppland county, Norway, were invited to participate in an 3-year structured intervention program which included both group and individually based parental guidance by nurses, paediatricians, nutritionists, psychologists and physiotherapists. Similarly overweight children from the rest of the county, who received no guidance or information about the program, served as controls. Inclusion criterion was weight ≥ 1kg above the 97.5 percentile for height according to Norwegian growth charts.
Results Of 50 invited families, 44 were followed through 3 years; 31 of them adhered to the program as scheduled. The sex distribution was similar for the intervention (n=44) and the control (n=30) group (61% vs 63% girls). At entry, the mean (SD) age and mean (SD) body mass index (BMI) of the intervention group were somewhat higher (79±11, vs 70±6 months, p<0.0005, and 22.1 vs 20.3 kg/m^2, p=0.003). The subsequent mean 3-year increase in BMI was similar for both groups (intervention 2.6±2.2 vs controls 2.1±2.2 kg/m^2, p=0.35; for the 31 who adhered to the program 2.5±2.0, p=0.52 compared to the controls).
Conclusion This 3-year multidisciplinary and multimodal program did not show a benefit on weight development.

46 CHANGE IN REGIONAL ADIPOSE TISSUE AND INTRAHEPATOCELLULAR LIPID IN HEALTHY FULLY BREAST-FED BABIES, BETWEEN BIRTH AND THREE MONTHS

doi:10.1136/archdischild-2012-302724.0046

[1]C Gale, [1]S Jeffries, [1]KM Logan, [1]JR Parkinson, [1]S Uthaya, [2]EL Thomas, [2]G Durigel, [2]JD Bell, [1]N Modi. *[1]Academic Neonatal Medicine; [2]Imperial College, London, UK*

Background and aims Total adiposity doubles in early infancy[1], however there exists little data describing the change in adipose tissue (AT) distribution and intrahepatocellular lipid (IHCL) over this period. In adults AT distribution and IHCL have important health implications[2]. We aimed to measure the change in AT distribution and IHCL in healthy breastfed babies.
Design Healthy, term, appropriate weight for gestational age infants were recruited from the postnatal ward at Chelsea and Westminster Hospital. Magnetic resonance images and proton spectra were acquired after birth and at 2–3 months as previously described[3, 4]. IHCL results are presented as the ratio CH_2/water.
Results We studied 32 infants. Change in AT and IHCL are presented in table 1. While total AT volume doubled, there was variation in the magnitude of change in the different regional AT compartments.
Conclusions Growth of different regional AT depots occurs at different rates, and IHCL increases in early infancy. The physiological significance of these novel findings is uncertain.
References 1. Gale C *AJCN* 2012; 2. Fabbrini *PNAS* 2009; 3. Modi N *Pediatr Res* 2006; 4. Thomas EL ADCFN 2008.

47 BOTH SHORT AND LONG SLEEP DURATION MAYBE ASSOCIATED WITH CHILDHOOD OBESITY

doi:10.1136/archdischild-2012-302724.0047

S Li. *School of Public Health affiliated with Shanghai Jiaotong University School of Medicine, Shanghai, China*

Background There were increasing evidence supporting the presence of the relationship between sleep duration and obesity. However, whether a negative linear trend or a U-shaped pattern could explain the relationship has been a topic of debate.
Objectives To examine whether the possible association between sleep duration and obesity is U-shaped among school-aged children.
Participants and methods A random sample of 20,778 children aged 5.01 to 11.99 years participated in a cross-sectional survey conducted in eight cities of China. The Chinese version of the Children's Sleep Habits Questionnaire was used to collect information on children's sleep behaviors. Height and weight were measured and body mass index (BMI) was calculated. Overweight/obesity was defined by the standardized internationally referenced gender- and age-specific BMI cut-offs.
Results The prevalence of overweight and obesity in our sampled school-aged children was 11.7% and 7.1%, respectively. There was a significant U-shaped relationship between sleep duration and overweight/obesity after adjusting for age, gender, parents' educational levels, family income, media-use, homework schedule, and physical activity. The estimated nadir of the sleep duration curve was approximately 9.4 hours/d for boys and approximately 9.6 hours/d for girls. Interestingly, the U-shaped relationship showed different characteristics between boys and girls. Moreover, dose-effect trend was observed both in boys and girls.
Conclusions Both short and long sleep duration maybe independently associated with a higher risk of overweight/obesity in children, indicating sleep plays a precise and complicated, although unclear, role in the regulation of energy metabolism.

48 CLUSTER-RANDOMISED TRIAL OF A TARGETED INTERVENTION TO PROMOTE EXERCISE SELF-EFFICACY AND REDUCE BMI IN CHILDREN AT RISK OF OBESITY

doi:10.1136/archdischild-2012-302724.0048

[1]C Glazebrook, [1]M Batty, [1]N Mullan, [1]K Sayal, [2]D Nathan, [1]L McWilliams, [1]L Hogarth, [3]I MacDonald, [4]A Smyth, [1]M Yang, [1]B Guo, [1]C Hollis. *[1]Psychiatry, University of Nottingham; [2]Community Paediatrics, Nottinghamshire University NHS Hospitals Trust; [3]School of Biomedical Sciences; [4]School of Clinical Sciences, University of Nottingham, Nottingham, UK*

Background and aims Being physically active can help to reduce the risk of obesity in later life. This study aimed to evaluate the effectiveness of a targeted, school-based intervention (Steps to Active Kids - STAK) in improving exercise self-efficacy and reducing BMI in children.

Abstract 46 Table 1

	First scan	Second scan	% Change (range)	Significance (*paired samples t-test, † related samples Wilcoxon Signed Rank test)
Total adipose tissue, litres - mean (SD)	0.776 (0.187)	1.524 (0.388)	101 (18 to 222)	<0.001*
Abdominal superficial subcutaneous adipose tissue, litres - mean (SD)	0.107 (0.031)	0.253 (0.083)	144 (44 to 323)	<0.001*
Abdominal deep subcutaneous adipose tissue, litres - mean (SD)	0.017 (0.007)	0.039 (0.015)	151 (–46 to 380)	<0.001*
Abdominal internal adipose tissue, litres - mean (SD)	0.019 (0.008)	0.030 (0.014)	75 (–25 to 533)	<0.001*
Ratio of internal abdominal adipose tissue to abdominal subcutaneous adipose tissue - mean (SD)	0.157 (0.056)	0.104 (0.037)		<0.001*
IHCL - median (IQR)	0.65 (0.37–1.90)	1.84 (1.41–2.43)		0.001†

Longitudinal changes in AT compartments and IHCL