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CHILDHOOD CANCER IN SCHOOLS WITH A RADIOACTIVE LIGHTNING ROD (rlr). Sergio Verd, Department of Public Health, Baleares, Spain. Rosemary Greenwood, Institute of Child Health, University of Bristol, UK.

Objective: To describe the distribution of childhood malignancies in government funded schools in relation to the presence of rlrs.

Method: Retrospective descriptive study among government funded schools, in towns with a resident population of over 6000. 62 schools, with 24,697 children, were surveyed for new childhood malignancies in 1990 and 1991.

Results: Among the 19,570 children in schools without rlr, 2 malignancies were reported (1 ALL and 1 brain tumor). In the 5,127 with rlr there were 6 malignancies (2 ALL, 2 lymphomas, 1 brain tumor, and 1 bone sarcoma).

In schools with rlr, children have a relative risk of cancer of 11.45 compared with children in non-rlr schools, 95% CI 2.31, 56.81. The rate in non-rlr schools is within the world range for the incidence of childhood cancer. Using a Fisher's exact test, this association was found to be statistically significant at the 1 % level.

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NEURODEVELOPMENTAL OUTCOME AT 8 YEARS OF AGE FOR CHILDREN WITH BIRTHWEIGHT LOWER THAN 1500 g.
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This population based study compares the performance of 8 year old children with birth weight under 1500 g (VLBW) without major handicap (n=29) and random control children (n=29). An extensive battery consisting of neuromotor evaluation, antropometry, WISC-R cognitive test, Halstead-Reitan neuropsychological test battery, Kløve-Matthews Motor Steadiness Battery, Sheridan Gardener visual testing, audiometry and PIC (Personality Inventory for Children) behaviour questionnaire was used. The main goal of the study was to assess the frequency and type of subtle cerebral dysfunction found in VLBW children without major handicap.

Full scale IQ (mean 93/104 p=0.008), number of neurological soft signs (mean 2,7/1,1 p= 0.018), foot-tapping (mean 21/24 p= 0.003) were significantly more pathological in the VLBW group. The VLBW children were significantly smaller on all antropometrical measurements. No pregnancy or perinatal factor predicted outcome.

A subgroup of 7 VLBW children were clearly deviant in most areas tested including, cognitive, visuo-motor, neuromotor, language and behaviour. The majority of the other VLBW children were indistinguishable from the controls on all aspects except that they were smaller.

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A COMPARISON OF THE OUTCOME OF SINGLETON AND MULTIPLE PREGNANCIES BORN BEFORE 29 WEEKS OF GESTATION.
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Babies of multiple pregnancies born <29 weeks have a higher neonatal mortality rate than singletons. This study investigated whether there is also a higher rate of disability in survivors of multiple pregnancies.

We compared the outcome of 65 multiple and 277 singleton babies born before 29 weeks gestation in 1984-1986 to mothers in a geographically defined region (33,500 births/year). At 28 weeks gestation there was no difference in the rate of survival to 28 days for multiples, 13/17 (77%) and singletons, 67/85 (79%). Under 28 weeks however, only 7 of 48 (15%) multiples survived compared to 81 of 192 (42%) singletons.

The result of a neuro-developmental assessment on 153 of the 164 children who survived to four years was summarized by a five point scale of functional ability: 1=normal to 5=severe disability. At 28 weeks gestation, the proportion of survivors graded 4 and 5 on the scale was similar, multiples 4/12 (33%) and singletons 16/60 (27%). However, under 28 weeks none of the 7 multiple survivors was normal (grade 1 or 2) compared to 22/74 (30%) of singletons.

As mortality at very low gestation decreases, the outcome of survivors, particularly from multiple pregnancies, needs to be carefully assessed.

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GAIT ANALYSIS IN CHILDHOOD HEMIPLEGIA. Donald F Macgregor, Robert A Minns. Dept. Child Life and Health, University of Edinburgh, Scotland.

We employed a new microcomputer based low cost method for the measurement of spatial/temporal parameters of gait in children and compared gait parameters of 50 hemiplegic children with 134 controls. This method provides an immediate profile of parameters of the gait cycle: step length, stride time, double support time, cadence, walking speed and maximum foot velocity during swing phase. The data were acquired using 2 test walks in order to gain 3 separate stride pairs for analysis. The subjects walked at a self-selected speed and were assessed using whatever orthotic assistance they normally used for the activities of daily living. In order to characterise and quantify deviations from normal controls we have used age and sex standardised scores for each gait parameter. Wilcoxon rank sum tests were used to compare measurements recorded in the hemiplegic group with control values.

All functional parameters of gait except stride time, were significantly different in the hemiplegic group compared to normal controls ($p<0.001$). There was no significant relationship between the type (congenital or acquired) of the hemiplegia, the aetiology, or the use of walking aids/orthoses. Instantaneous velocity profiles of the hemiplegic swing phase show characteristic patterns which are subjected to computerised pattern recognition and other analyses. These can then be correlated with clinical patterns (heel strike, plantar strike, toe-heel, fixed equinus). This temporal-spatial method (kinematic) is the only gait system which provides instant velocity analysis and provides a quantitative appraisal of disability in hemiplegic children.

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MOTOR PERFORMANCE IN PRETERM AND TERM INFANTS USING A PROTOCOL FOR STRUCTURED OBSERVATION. Kristina Persson and Bo Strömberg. Department of Pediatrics, Uppsala University, Uppsala, Sweden.

In order to assess both progress and quality of motor performance in preterm and term infants a new protocol was designed to be used in a follow up study of infants who needed neonatal intensive care. Four groups of infants were assessed, 1= <32 gestational weeks, n=68; 2= 32-36 w, n=81; 3= 37-42 w, n=77; and 4= a control group of healthy fullterm infants, n=72. The assessments were made at term, 2, 4, 6 and 10 months corrected age (± 1 week).

The movements of the infants were compared to ascending scales of motor performance for each part of the body (head, arms and hands, trunk, legs and feet) in supine and prone position and for the whole body in sitting, standing and during locomotion. The achieved level of motor performance and deviations (suspected or clear) from the described motor performance on this level were determined. The examinations of each infant were recorded on videotape, which made it possible to measure inter- and intra-observer agreement (73% - 88%).

A lower mean level of motor performance was found in group 1 than in group 4 at 2 and 4 months. With increasing age motor performance was distributed over more levels and the difference in mean level became smaller. In legs and feet deviations from the described levels of motor performance were more often seen in group 1 (75%) than in group 4 (30%). At 6 month the corresponding values were 50 and 42% respectively.

Thus, this structured observation of progress and quality of motor performance allows assessment of differences between term and preterm infants.

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BLOOD PRESSURE LEVELS AT FOLLOW-UP OF PRETERM INFANTS WITH AND WITHOUT CHRONIC LUNG DISEASE. Elisabeth F Emery, Anne Greenough. Dept of Child Health, King's College Hospital, London, UK

Preterm infants with chronic lung disease (CLD) may be hypertensive at follow-up. The aim of this study was to compare throughout the first year of life, blood pressure (BP) levels of infants with and without CLD to assess if there were differences between the two groups and, if such differences existed, their timing and duration. The study population consisted of 18 infants with CLD and 36 without CLD. Systolic BP was measured by a Doppler technique on 4 occasions in the first year of life. On each occasion 3 measurements were made and the results meaned:

(mean±SD mmHg)	CLD	no CLD	p
2-3 months	101± 8	86±17	<0.001
4-5 months	104± 8	91±15	<0.05
6-7 months	105± 7	105±11	ns
8-9 months	100±12	105±10	ns

We conclude that infants with CLD compared to those without CLD do have elevated BP levels, but our results suggest this difference decreases with increasing postnatal age.