Título: Glucose metabolism in normal weight and overweight/obese children aged 1-5 years.
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Background and objectives The metabolic complications of overweight and obesity are widely studied in children above 6 years and adolescents. However, little is known about such complications in children less than six years. Aim To compare glucose metabolism in children aged 1-5 years with normal weight and overweight/obesity.

Methods
A prospective, analytical, cross-sectional study was conducted in 2011 on children aged 1-5 years attending primary health care units from the cities of Berisso and Arturo Segui, province of Buenos Aires, Argentina. Anthropometric assessments included weight, height and waist circumference (WC). Fasting blood tests were taken in all children to determine blood glucose and insulin, insulin resistance by the homeostasis assessment model for insulin resistance (HOMA-IR) and the blood glucose/insulin (G/I) ratio. Comparisons between groups were analyzed with Mann-Whitney test.

Results
We evaluated 795 children aged 1-5 years. Sixty-six percent of children were normal weight, whereas 34% were overweight (24%) and obese (10%). Mean age was 3.35 ± 1.56 years (49.6% male, 50.4% female). Mean blood glucose levels were similar in normal weight as compared with overweight/obese children. Blood insulin results were higher in overweight/obese (2.21 µU/ml; 1.39-3.95) compared with normal weight children (1.96 µU/ml; 1.32-3.18) (p=0.016). HOMA-IR was higher in overweight/obese (0.43; 0.25-0.80) than in normal weight children (0.37; 0.23-0.60) (p=0.011). The G/I ratio was lower in overweight/obese 35.9 (20.6; 54.0) compared with normal weight children 38.7 (24.9; 58.0) (p=0.039). The analysis of differences according to sex showed that they remained the same in normal weight and overweight/obese girls, but disappeared in boys. We found correlation between WC and blood insulin, WC and HOMA-IR and WC and G/I ratio in the whole study sample. Again, when analyzing by sex, such correlations remained only in girls (WC- blood insulin rho0.32 p<0.0001; WC-HOMA-IR rho0.34 p<0.0001 ; WC-G/I ratio rho-0.16 p=0.046).

Conclusions
We found differences in glucose metabolism parameters in overweight/obese children aged 1-5 years as compared with those of normal weight children. Analysis according to sex showed that such differences remained in girls, but were not significant among boys.