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DATE OF NINFEA DOWNLOAD	July 2010

## **TITLE: Validation of NINFEA birth data**

### **AIM**

Validation of birth weight and gestational age data recorded in NINFEA.

### **METHODS**

A probabilistic linkage of the NINFEA dataset, downloaded in July 2010, with the Piedmont Birth Registry (PBR) for the period 2005-2008 has been carried out. Multiple pregnancies, births occurred after 31 December 2008 and births that had occurred outside Piedmont have been excluded. We also excluded children with implausible birth weight or gestational age data in either dataset. The linkage was successful for 1,160 NINFEA children with information on birth weight and for 1,219 NINFEA children with information on gestational age.

Bland-Altman plot have been used to assess agreement between PBR and NINFEA data. In particular it was assessed whether there is a systematic bias in the NINFEA measurements and whether the size of the difference between the two measurements is approximately constant throughout the range of measurements.

### **RESULTS**

#### *Birth weight*

Bland-Altman plot was drawn (Figure 1) and correlation between the mean and the difference of the two measures calculated. The 95% limits of agreement, given by the mean difference plus or minus 1.96 times the standard deviation of the differences, goes from -189.8 gr to 192.8 gr, with the mean difference being 1.46 gr. The 95% confidence interval of this difference is (-4.2; 7.1): this suggests that there is no systematic bias in the measured self-reported by the mothers. Correlation between the difference and the mean of the two set of measurements resulted to be 0.05 (p-value=0.06).

#### *Gestational age*

Figure 2 display the Bland-Altman plot for the gestational age at birth in weeks, where each point has been weighted by the absolute frequency. Overall there is an indication of a light tendency for the women to over-report their gestational age when filling the NINFEA questionnaire, compared to registry data. The mean difference is equal to 0.56 (with a 95% confidence interval of (0.51; 0.62)), meaning that on average the gestational age reported in the NINFEA questionnaire is half a week greater than the one recorded in the PBR. The 95% limits of agreement of the Bland-Altman plot (Figure 2) range from -1.3 to 2.4 weeks. Correlation between the differences and the mean resulted to be 0.07 (p-value=0.01).

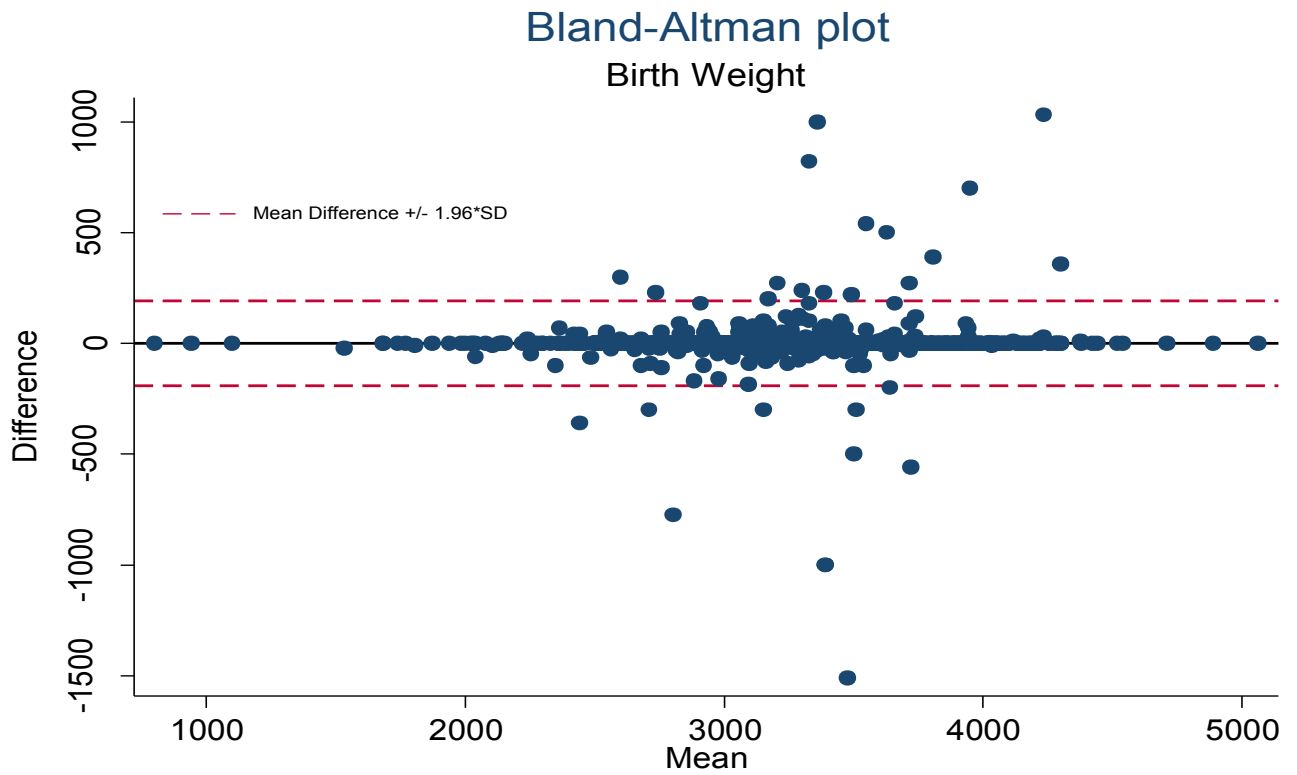


Figure 1. Bland-Altman plot of birth weight data collected in the NINFEA study and in the Birth Registry

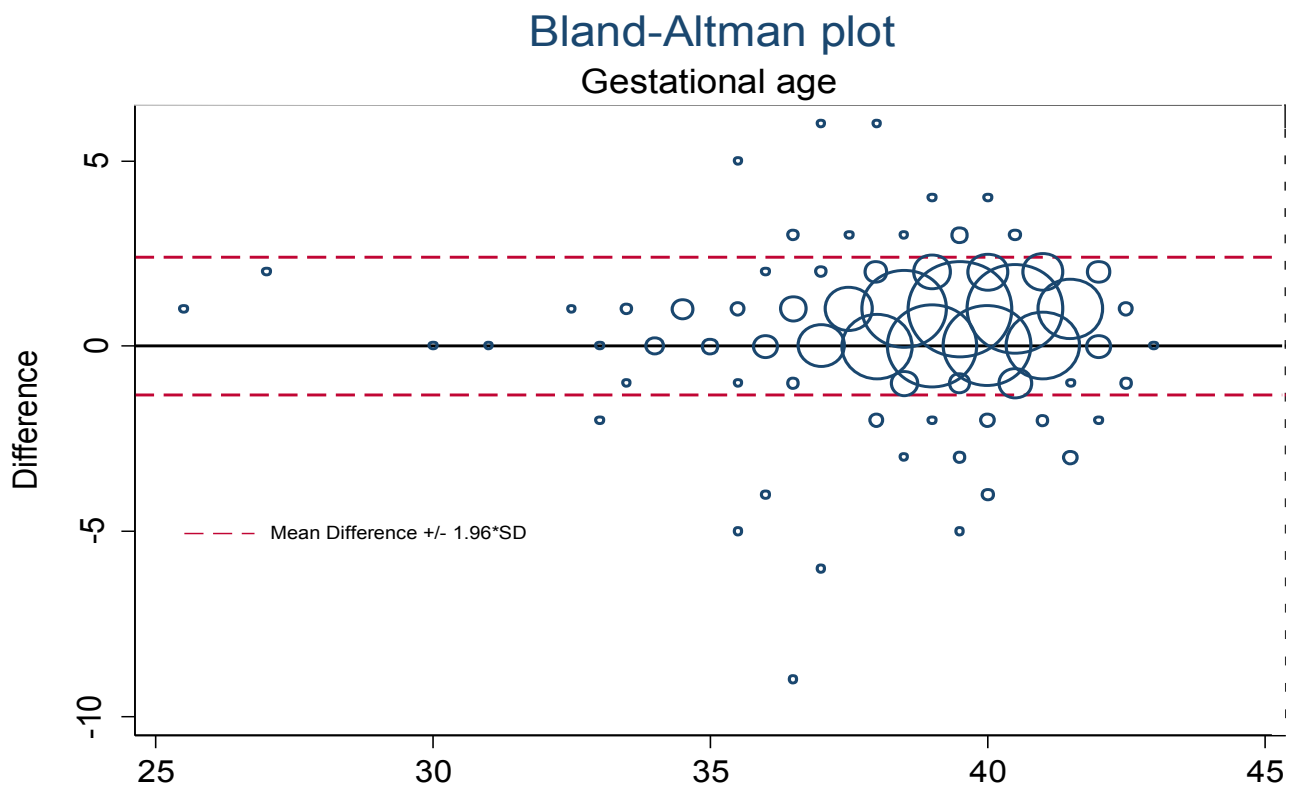


Figure 2. Bland-Altman plot of gestational age data collected in the NINFEA study and in the Birth Registry