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Title	Impact of maternal body mass index and gestational weight gain on pregnancy complications: an individual participant data meta-analysis of European, North American, and Australian cohorts
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Appendix S1. Calculation of pre-pregnancy body mass index specific gestational weight gain z-scores

We constructed gestational weight gain reference charts for underweight, normal weight, overweight, and grade 1, 2 and 3 obese women using individual participant data from 218,216 pregnant women participating in 33 pregnancy cohort studies from Europe, North America and Oceania. Of these women, 9,065 (4.2%), 148,697 (68.1%), 42,678 (19.6%), 13,084 (6.0%), 3,597 (1.6%), and 1,095 (0.5%) were underweight, normal weight, overweight, and grade 1, 2 and 3 obese women, respectively. We fitted the models, separately for each maternal pre-pregnancy BMI group, by the Box-Cox *t* (BCT) method using the generalized additive model for location, scale and shape package in R version 3.3.1.[1,2] The parameters of this BCT model at a certain gestational age were used to allow the calculation of maternal pre-pregnancy body mass index specific weight gain for gestational age z-scores.

References

1. Rigby RA, Stasinopoulos DM. Generalized additive models for location, scale and shape. *Appl Statist* 2005;54:507–54.
2. Rigby RA, Stasinopoulos DM. Using the Box-Cox t distribution in GAMLSS to model skewness and kurtosis. *Stat Modelling* 2006;6:209–29.