Assignment II for
EP16: Missing Values in Clinical Research
Multiple Imputation

13 – 17 May, 2019

Data

The **MIdat13** data comprise data of 625 children and their mothers on vitamin D exposure of the mother during pregnancy and child bone health, measured by DXA scan, at 6 years of age. Maternal serum samples were taken in the third trimester of pregnancy.

The dataset contains the following variables:

variable	explanation
`ID`	subject identifier
`gender`	gender of the child
`birthwgt`	birthweight in kg
`leanfrac`	proportion of child's lean mass (lean mass/total mass; lean mass = total mass - fat mass)
`parity`	number of pregnancies of more than 20 weeks the mother had (nulliparity: this was the first pregnancy, multiparity: mother had previous pregnancies)
`sun`	average sun light duration in hours/day in the month before blood sampling
`birth`	date of birth
`BMC`	bone mineral content of the child in grams, determined by DXA scan
`vitD`	mother's serum vitamin D concentrations in 10 nmol/L
`length`	child's length at time of DXA scan in centimeters
`ethn`	child's ethnicity
`season`	season of blood sampling
`lean`	lean mass in kg
`weight`	child's total weight in kg at DXA scan
`sun_birth`	average sun light duration in the month before birth in hours/day
`sports`	does the child do sports regularily?

Analysis model of interest

The analysis model of interest is a linear regression with outcome BMC, and covariates `vitD`, `ethn`, `gender`, `leanfrac`, `sports`, `sun`, `season`, `length` and `weight`.

We assume that `vitD` has a non-linear (quadratic) effect.