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Biostatistics in practice: discovering links between eating behaviours and overweight children.
Consortium 110, 20 p., pull-out section (2016).

From the text: In this Pull Out students use statistics to analyze a subset of data from the Infant Growth Study with the goal of discovering factors related to childhood obesity. In Activity 1, the main task is to look at factors useful in identifying whether four- and six-year-olds are overweight or in danger of becoming overweight. Using boxplots and the $1.5 \times$ IQR rule for identifying outliers, students analyze data on weight, change in weight over a two-year period, and body mass index. In Activity 2, students investigate relationships between two quantitative variables. Students represent the relationships with scatterplots and again look for outliers. In scatterplots that exhibit a linear pattern, students use linear regression to fit a line to the data and compute the coefficient of determination to measure the strength of the linear relationship. The activity concludes with an examination of the relationship between certain eating behaviors and body mass index. In Activity 3, students investigate relationships between two categorical variables using two-way tables. Percentages help them determine whether boys or girls were more likely to exceed the recommended dinner Calories during a test meal and whether exceeding the recommended Calories was linked to being overweight. The activities in this Pull Out address standard S-ID (1–3, 5–8) from the Common Core State Standards for High School Mathematics – Interpreting Categorical and Quantitative Data.

Classification: K40 K80 D80 M60
Keywords: stochastics; teaching units; statistics; student activities; mathematical applications; real-life mathematics; overweight; biostatistics; exploratory data analysis; calculators; boxplots; scatterplots; line of best fit; equations of straight lines; two-way tables; interquartile range; IQR rule for identification of outliers; explanatory variables; response variables; least-squares regression; coefficient of determination