



DXA Measurement Error Threshold

Introduction

Upon visiting the assessment centre, a participants height and weight are recorded, and stored in data fields 50 and 21002, respectively. These fields represent preferential fields for height and weight measures in showcase. These height and weight measures are entered into the DXA scanner, and used to specify the optimum setting for the scan. The values entered into the DXA scanner are recorded in data fields 12144 (height) and 12143 (weight) As these values are entered into the scanner manually, errors in the entry of these values may affect the measurements derived from the DXA scan. We looked to identify at what percentage threshold, differences in height and weight measurements, between the preferential showcase fields (50 and 21002) and the values entered into the DXA scanner (12144 and 12143) correlated with outliers within the DXA data.

Methodology

We used Hampels filter to identify outliers in all fields within categories 124 and 125, separating each field based on sex (data field 31). Comparisons of height were made between fields 50 and 12144, and weight were made between fields 21002 and 12143, to find participants with differences between their measurements, and the measurements entered into the DXA scanner.

Results

Testing at 0.5% increments, we found participants with a greater than 5% difference in their height (50 vs 12144) or weight (21002 vs 12143) measurements displayed a noticeable increase in the number of outliers (see figure below). These participants with greater than 5% difference in height or weight were therefore highlighted in field 21139 - "DXA measurement QC Flag".

The rate of outliers in the DXA dataset for participants with errors in height

