**Main outcome measures** (1) Selected to be offered an accelerometer versus not. (2) Characteristics of participants who: (a) provided accelerometer data (minimum 10 h/day) on 7 days; (b) provided sufficient data on 4–6 days; or (c) provided less data than that (less than 4 days, accelerometer provided no data, or declined).

**Results** Those selected to be offered an accelerometer were older, more likely to be retired and to have a limiting longstanding illness than participants not in the accelerometer subsample. Seven-day accelerometer wearers were older (OR 1.02, 95% CI 1.02 to 1.03) though less likely to be retired (0.77, 0.62 to 0.97) or otherwise economically inactive (0.62, 0.49 to 0.78) or live in a deprived area (0.78, 0.62 to 0.96), and more likely to be ex- (1.42, 1.14 to 1.78) or never-smokers (1.37, 1.13 to 1.67), and to have been moderately physically active in the past month (1.45, 1.20 to 1.75) or met the physical activity recommendations (1.45, 1.17 to 1.79). Four- to seven-day wearers were also older (1.01, 1.01 to 1.02), less likely to be retired (0.77, 0.62 to 0.95) or otherwise economically inactive (0.60, 0.50 to 0.73), but were more likely to have a limiting longstanding illness; differences in self-reported activity were less marked.

**Conclusion** We found response bias in wearing the accelerometers. Differences should be acknowledged by data users. Four- to seven-day wearers are more representative of the general population than seven-day wearers.