# Measurement of blood pressure across life

- We want to be able to measure change in function with age and so it is important that where possible we use exactly the same methods and machines at each time point
- However, in long-running studies the way things are measured will inevitably change over time; technology develops and better and more convenient machines become available and old ones become obsolete

- For example, in NSHD we have now measured blood pressure 5 times using 3 different machines
  - In 1982 and 1989 we used a manual random zero sphygmomanometer
  - From 1999 we used (the much easier to use) automated device, although the exact model was updated for the 2015 data collection

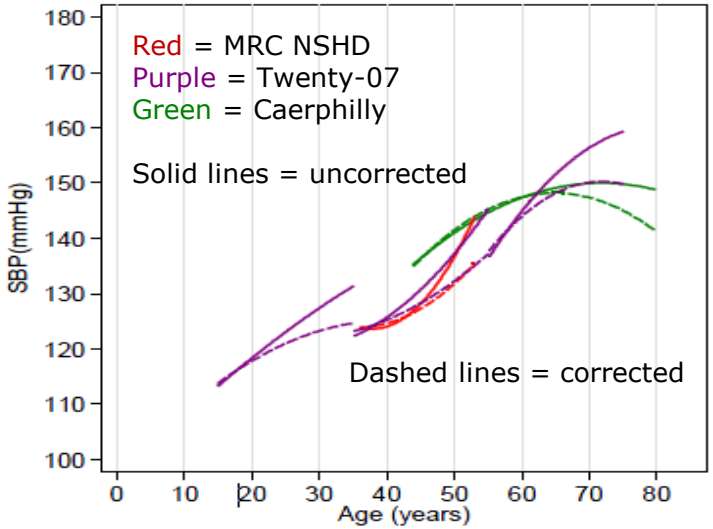
1982 & 1989

1999, 2006-10 & 2015


Future?

- Studies show that the manual devices measures higher than automated devices. As we have used both types of machine in NSHD, we correct for this in analyses. Without the correction we would overestimate the rise in blood pressure (see figure)

Mean systolic blood pressure (SBP) by age in 3 studies




- We have just completed the data collection for a "calibration study", funded by CLOSER. 120 non-NSHD participants have had their BP measured using the 2 types of automated machine so that we can see whether they measure similarly (or not). The data are currently being analysed.
- Because we changed to new machines for measurement of both lung function and grip strength in NSHD 2015, the calibration study also compares spirometers (lung function) and dynamometers (grip strength)
- As well as helping NSHD make measurements more comparable, the study will allow us to make more accurate comparisons across studies which have used different machines

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