Box 1: Trial designs and identification of variability in drug response.

- Parallel group designs (where each patient is randomised to receive a single treatment) may identify differences between treatments, but are less likely to identify variability in drug response arising from differences between patients (e.g. severity of disease), from interaction between individual patients and their disease, or variability within a patient on different occasions.

- Crossover designs (where each patient receives each treatment in one period only) may identify variability in drug response arising from differences between treatments as well as from differences between patients.

- Repeated crossover designs (where each patient receives each treatment on at least two periods), go further and importantly may identify variability arising between treatments and from interaction between individual patients and their treatment; however, identification of variability within a patient on different occasions requires repeated measurements of that patient.