# Wonderful Wednesdays

# Background: Haemoglobin in Anaemia

The kidney has a role in regulating erythropoiesis (the production of red blood cells), and patients with Chronic Kidney Disease (CKD) often exhibit symptoms of anaemia. Treatments for anaemia in CKD therefore aim to stimulate erythropoiesis and elevate haemoglobin (Hgb) concentration in blood plasma. Anaemia patients typically have an Hgb concentration of 8 - 10 g/dL, and the aim for any therapeutic intervention is to restore Hgb to within a target range.

The data provided are from a simulated trial of 300 CKD patients comparing a new experimental treatment (E) to a control group receiving current standard of care (C). The primary objective of the trial is to demonstrate efficacy, in terms of achieving a mean Hgb within the target range of 10 – 11.5 g/dL at week 24. However a successful treatment should also show benefit in terms of reducing Hgb variability, and an ideal treatment would produce a smooth increase in Hgb to the target range, and subsequent stability of Hgb levels. In particular, within-subject changes in Hgb should not be excessive as rapid changes in Hgb can lead to cardiovascular risk. In general, an increase of Hgb of less than 1 g/dL during each 4-week period is considered optimal, with a change of more than 2 g/dL being a potential safety concern.

Use of appropriate data visualisations can demonstrate any potential benefit of the experimental treatment compared to the control group, in terms of Hgb variability, stability and control.

# Data Description

The data provided contains the following variables:

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| USUBJID | Subject unique identifier |
| TRT01PN | Treatment group (numeric) |
| TRT01P | Treatment group |
| AVISITN | Visit identifier (numeric) |
| AVISIT | Visit identifier |
| AVAL | Hgb concentration (g/dL) |