**Statistical concepts**

In the two (imaginary) experiments summarized below, identify the independent variable, dependent variable, experimental group and control group (if they exist).

1. A diabetes clinic is trying out a new diet on a group of patients, who have previously tried an established diet. 12 weeks after trying out the new diet, clinical measurements are taken and compared with previous measurements. In this experiment, what are the dependent and independent variables?

The independent variable in this study is the nature of the diet provided, new or established. The dependent or response variable is the clinical measurement.

If you are going to create a control and experimental group as part of the procedure in this experiment to better assess the effects of the stimulus, how would you implement it?

As well as the group of patients on the new diet, another group would start at the same time on the established diet. The patients on the new diet are the experimental group; those on the established diet are the control group. The clinical measurement should take place for each group at the same stage (12 weeks in). The clinical outcomes can be compared to see if they are significantly different.

1. A health promotion organization is trying to work out how to create an effective video to encourage users to accept a vaccination. Before watching the video, each participant is asked to complete a short scale, on the likelihood of their taking up the vaccine. The video is short, to try to ensure full attention. Three different versions are shown to different people: although all relevant facts are covered, one version emphasizes the threat of the virus; another discusses the side-effects in particular; the third has a focus on the take-up of the virus by others. A fourth group watches a video offering a carefully balanced coverage of threats, side-effects and the take-up of others. After the video, participants are asked to fill in the scale again. Which are the independent and dependent variables?

The independent variable is the focus of the video's content. The dependent variable is the level of interest in taking up the vaccine, based on the scales.

Which groups are the control and experimental group?

All three of groups observing the 'slanted' video recordings are experimental groups. Those watching the 'balanced' video comprise the control group.

**Data types**

For each variable, identify the data type: continuous, ordinal or categorical).

Sex / Marital status / Level of education / Age group / Level of addiction / Heartbeat / Blood pressure

* Sex - categorical
* Marital status – categorical
* Level of education - ordinal
* Age group - ordinal (for analytical purposes, you would normally convert to integers, e.g. 0 - 9 years becomes 1, 10 – 19 years becomes 2, and so on)
* Level of addiction - ordinal
* Heartbeat - continuous
* Blood pressure - continuous