Load the survey package, and load the National Health Interview Survey data using

```
load("nhis_data.rda")
```

Session 1

1. Set up a survey design: the cluster id variable is `psu_p`, the stratum id variable is `strat_p`, and the weight variable is `wtfa_sa`. The clusters use the same numbers (1 and 2) within each stratum, so you need the option `nest=TRUE`.

2. Add new variable to the design object using the `update` function, as follows

```
nhis<-update(nhis, sickleave=factor(ifelse(pdsicka=="1 Yes","yes","no")))
nhis<-update(nhis, backpain=factor(ifelse(painlb=="1 Yes","yes","no")))
nhis<-update(nhis, neckpain=factor(ifelse(paineck=="1 Yes","yes","no")))
```

3. Compare the estimated prevalence of neck pain and back pain using the survey design and using the unweighted data

Session 2

In the NHIS data from session 1

1. Use graphics and linear regression to examine how hours of sleep (`sleep`) vary with age and sex

2. Use 'svyttest' and 'svyranktest' to compare hours of sleep between men and women, and between people with and without back pain

3. Use 'svyciprop' to get a confidence interval for the proportion with back pain and the proportion with neck pain using the default interval and using a logit transform

Session 3

1. The variables `neck_pain` and `back_pain` measure presence of pain in the neck and back. Use logistic regression to examine how these vary with on age (`age_p`), body mass index (`bmi`), sex (`sex`), and having a job with sick leave entitlement (`sick leave`).