

Ian's Drug Trial - Analysis

Ian Handel

2017

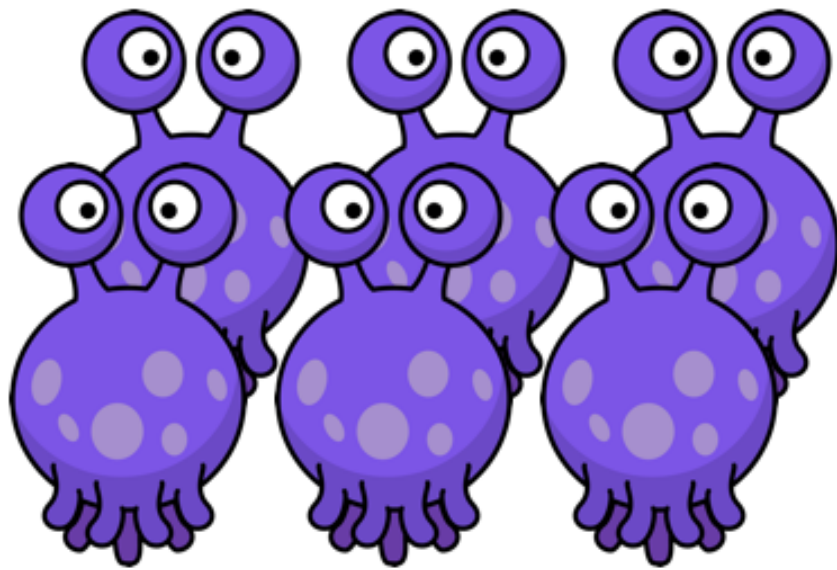
Introduction

Here we can write some words about the background...

Methods

```
include_graphics("../images/why-R_presentation_20171130_design/why-R_presentation_20171130_design.001.p
```

Example - exp



Treatment A



Treatment B

Glucose measured weekly (3 times)

Here I can talk about this figure in an aimless fashion...

Results

```
dat <- read_csv("../data/ih-trial_results_20171020_tidy.csv")
```

Characteristics of treatment groups

```
dat %>%
  group_by(treatment) %>%
  summarise(n = sum(!is.na(age)),
            mean = mean(age),
            median = median(age),
            sd = sd(age),
            min = min(age),
            max = max(age)) %>%
  ungroup() %>%
  map_if(is_bare_double, ~round(.x, 2)) %>%
  as_tibble() %>%
  kable(caption = "Age by treatment group",
        table.attr = "style='width:30%;'" ) %>%
  kable_styling(bootstrap_options = "bordered", full_width = FALSE)
```

Table 1: Age by treatment group

treatment	n	mean	median	sd	min	max
A	72	5.08	4.5	3.42	0.5	11
B	72	8.00	8.0	2.60	5.0	12

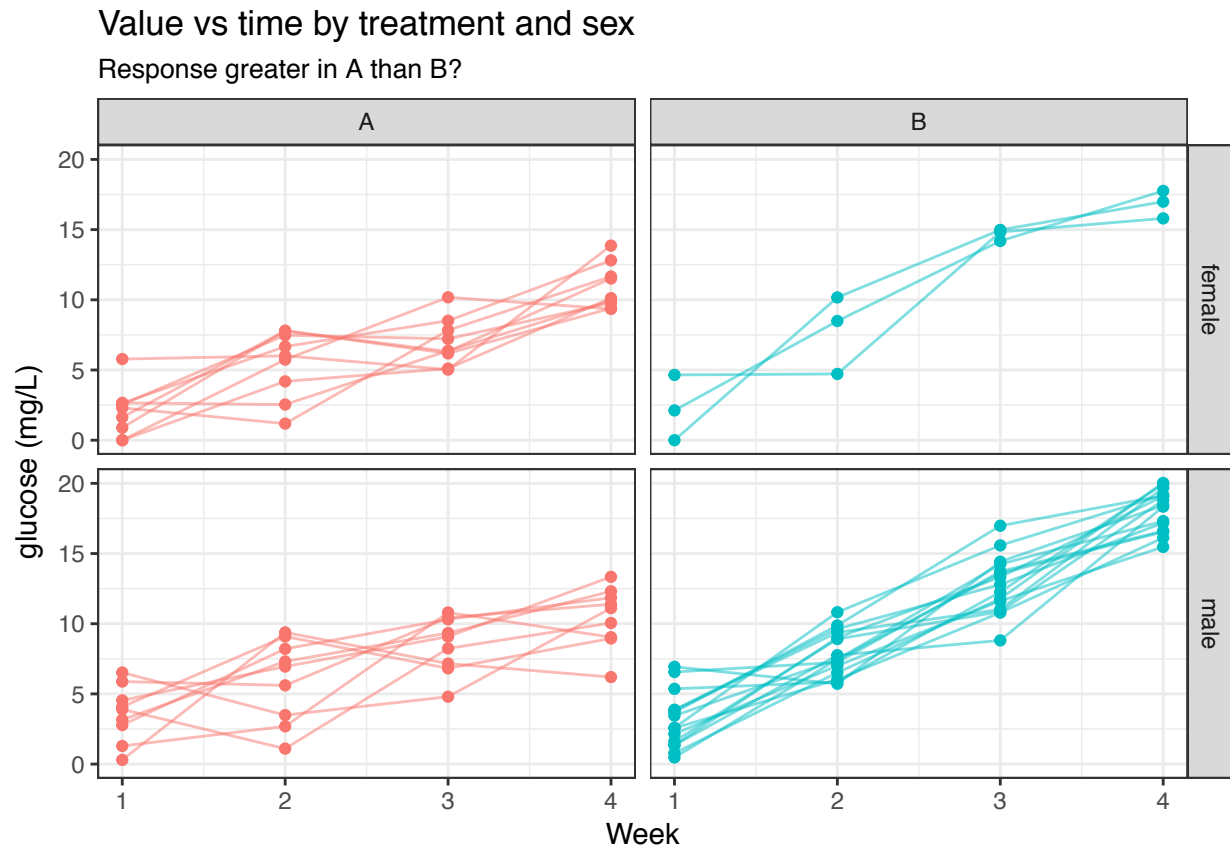
```
dat %>%
  group_by(treatment) %>%
  summarise(male = 100 * mean(sex == "male"),
            n = sum(sex == "male")) %>%
  ungroup() %>%
  map_if(is_bare_double, ~round(.x)) %>%
  as_tibble() %>%
  mutate(male = paste0(n, " (", male, " %)") ) %>%
  dplyr::select(-n) %>%
  kable(caption = "Sex by treatment group",
        table.attr = "style='width:30%;'" ) %>%
  kable_styling(bootstrap_options = "bordered", full_width = FALSE)
```

Table 2: Sex by treatment group

treatment	male
A	36 (50 %)
B	60 (83 %)

Plot individual animal results

```
ggplot(dat) +
  aes(week, glucose, group = paste(subject, rep), colour = treatment) +
  geom_point() +
  geom_line(alpha = 0.5) +
  facet_grid(sex ~ treatment) +
  labs(title = "Value vs time by treatment and sex",
        subtitle = "Response greater in A than B?",
        x = "Week",
        y = "glucose (mg/L)") +
  guides(colour = FALSE) +
  theme_bw()
```



Statistical model

```
mod <- lmer(glucose ~ treatment * week + age + sex + (1 | subject), data = dat)
sjPlot::sjt.lmer(mod, digits.std = 3)$data %>%
  as_tibble() %>%
  select(coef.name:std.se1) %>%
  kable(type = "text")
```

coef.name	estimate1	se1	p-value1	ci.lo1	ci.hi1	std.beta1	std.se1
(Intercept)	-0.01	0.69	.984	-1.37	1.35	-0.00	0.00
treatmentB	-2.62	0.85	.003	-4.27	-0.96	-0.25	0.08

coef.name	estimate1	se1	p-value1	ci.lo1	ci.hi1	std.beta1	std.se1
week	2.57	0.20	<.001	2.16	2.97	0.55	0.04
age	0.02	0.06	.795	-0.10	0.14	0.01	0.04
sexmale	0.55	0.42	.193	-0.27	1.37	0.05	0.04
treatmentB:week	2.44	0.29	<.001	1.87	3.01	0.69	0.08