

# Health Mapping

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```
hdat <- read_csv(file="data/nz-health-survey-2016-17-regional-update-dhb-prevalences.zip")
```

```
## Parsed with column specification:
## cols(
##   population = col_character(),
##   short.description = col_character(),
##   region = col_character(),
##   type = col_character(),
##   year = col_character(),
##   agegroup = col_character(),
##   sex = col_character(),
##   Ethnicity = col_character(),
##   nzdep_quin = col_character(),
##   Prevalence_Mean = col_double(),
##   Prevalence_Mean.SE = col_double(),
##   CI.Lower.Bound = col_double(),
##   CI.Upper.Bound = col_double(),
##   estimated.number = col_double(),
##   effective.sample.size = col_double()
## )
```

## 1 Mapping New Zealand Health Data

Lets take some health data from the Ministry of Health Shiny App. tidy it up and plot it onto a Regional Map of New Zealand. The health website is it's own shiny app and we could do a lot of things there, but comparisons aren't so easy.

This is a reasonable chunk of data, 466245 lines with 15 columns with these headers

*population, short.description, region, type, year, agegroup, sex, Ethnicity, nzdep\_quin, Prevalence\_Mean, Prevalence\_Mean.SE, CI.Lower.Bound, CI.Upper.Bound, estimated.number, effective.sample.size*

```
hdat %>% count(.,population,Ethnicity) %>%
  kable(caption="Demographics", booktabs = T) %>% kable_styling(latex_options = "striped")
```

```
hdat %>% count(.,short.description) %>%
  kable(caption="Categories and Counts", booktabs = T, longtable = T) %>%
  kable_styling(latex_options = "striped", font_size = 7)
```

Table 2: Categories and Counts

short.description	n
Active transport	2694
ADHD	3102
After-hours medical centre visit	6980
All teeth removed due to decay	3776
Amphetamine use (total population)	3776
Anxiety disorder	6880
Arthritis	3776
Asthma (medicated)	6880
Autism spectrum disorder	3104
Bipolar disorder	3776
Breakfast eaten at home <5 days a week	3104
Breakfast eaten at home every day	3104
Cannabis use	3776
Chronic pain	3776
Current smokers	3774
Daily smokers	3774
Definite confidence and trust in GP	5872
Dental health care worker visit	6912
Depression	6880
Diabetes	3776
Eczema (medicated)	3206
ED visit	6982
Emotional and/or behavioural problems	3102
Ex-smokers	3774
Excellent, very good or good parent-rated health	3206
Excellent, very good or good self-rated health	3774
Exclusively breastfed until 4+ months old	1910
Exclusively breastfed until 6+ months old	1870
Fair or poor parent-rated health	3206
Fair or poor self-rated health	3774
Fast food 1+ times in past week	3096
Fast food 3+ times in past week	3096
Fizzy drink 1+ times per week	3100
Fizzy drink 3+ times per week	3100
Fruit intake	6880
Gout	3772
GP good at explaining health conditions and treatments	5864
GP good at involving patient in decisions	3424
GP visit	6976
Hazardous drinkers (past-year drinkers)	126
Hazardous drinkers (total population)	126
Healthy weight	6766
Heart failure	3776
Heavy episodic drinking at least monthly (past-year drinkers)	126
Heavy episodic drinking at least monthly (total population)	126
Heavy episodic drinking at least weekly (past-year drinkers)	126
Heavy episodic drinking at least weekly (total population)	126
Heavy smokers	2640
High blood pressure (medicated)	3774
High cholesterol (medicated)	3772
Highly physically active	3772
Ischaemic heart disease	3776
Last after-hours visit free	1388
Last GP visit (any location) free	2950
Last practice nurse visit free	1708
Little or no physical activity	3772
Mean BMI (kg/m<U+00B2>)	3389
Mean diastolic blood pressure (mmHg)	1780
Mean height (cm)	3389
Mean number of after-hours visits	3496
Mean number of cigarettes	1326
Mean number of GP visits	3493

Mean number of practice nurse visits	3494
Mean systolic blood pressure (mmHg)	1780
Mean waist (cm)	3179
Mean weight (kg)	3389
Mood and/or anxiety disorder	3776
Mood disorder (depression and/or bipolar)	3776
Mostly smoke both manufactured and roll-your own cigarettes	2764
Mostly smoke manufactured cigarettes	2764
Mostly smoke roll-your-own cigarettes	2764
Obese	6766
Obese class 1	6766
Obese class 2	3754
Obese class 2 or 3	3012
Obese class 3	3754
Only visit dental health care worker for problems	3756
Osteoarthritis	3772
Overweight (but not obese)	6766
Overweight or obese	6766
Parent-rated health - excellent	3206
Parent-rated health - fair	3206
Parent-rated health - good	3206
Parent-rated health - poor	3206
Parent-rated health - very good	3206
Past-year drinkers	3776
Physical punishment	3204
Physically active	3772
Practice nurse visit	6978
Private health insurance	6850
Psychological distress	3774
Raised blood pressure (measured)	3550
Rheumatoid arthritis	3772
Screen watching	122
Self-rated health - excellent	3774
Self-rated health - fair	3774
Self-rated health - good	3774
Self-rated health - poor	3774
Self-rated health - very good	3774
Solid food before 4 months	1898
Solid food before 6 months	1868
Stroke	3776
Teeth removed due to decay in lifetime	6930
Teeth removed due to decay in past 12 months	6930
Television watching	3100
Thin	3012
Unable to get appointment within 24 hours	6950
Underweight	3754
Unfilled prescription due to cost	6982
Unmet need for after-hours due to cost	6982
Unmet need for after-hours due to lack of transport	6982
Unmet need for GP due to cost	6982
Unmet need for GP due to lack of childcare	3206
Unmet need for GP due to lack of transport	6982
Unmet need for primary health care	6982
Vegetable and fruit intake	6880
Vegetable intake	6880
Waist to height ratio = 0.5	6346

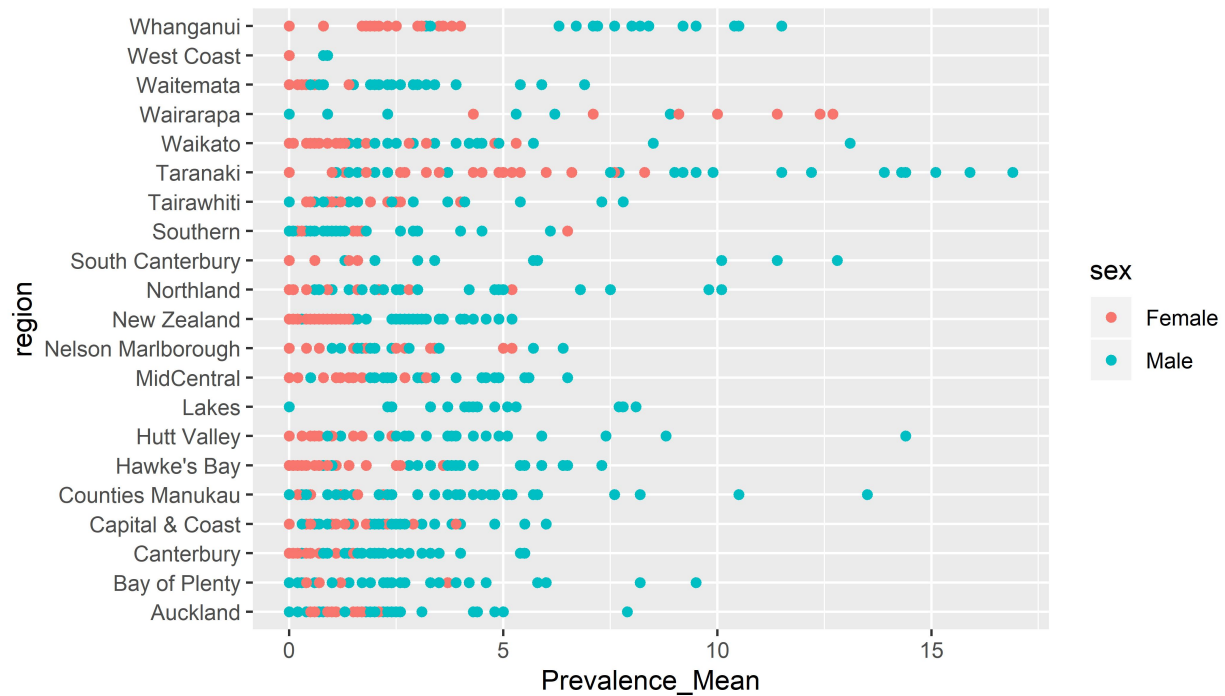
## 1.1 Plot

lets make a super simple plot with something in the data

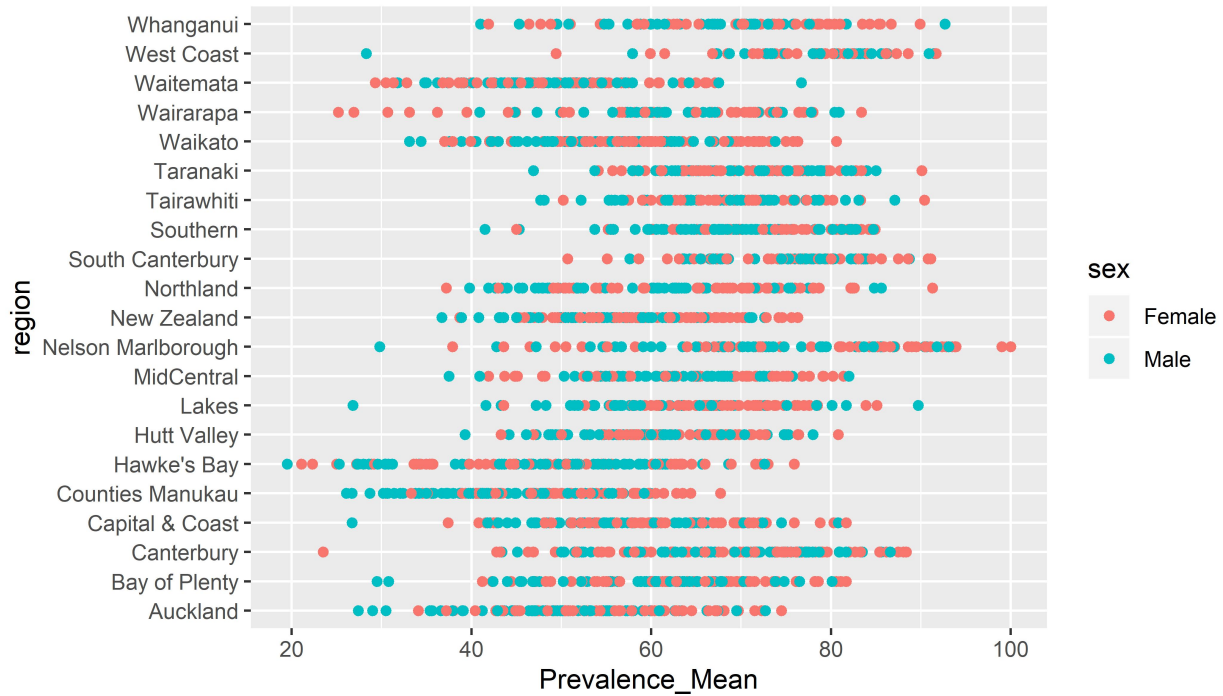
Table 1: Demographics

population	Ethnicity	n
adults	All	241026
adults	Asian	11702
adults	Maori	18443
adults	Pacific	10080
children	All	157749
children	Asian	6176
children	Maori	13903
children	Pacific	7166

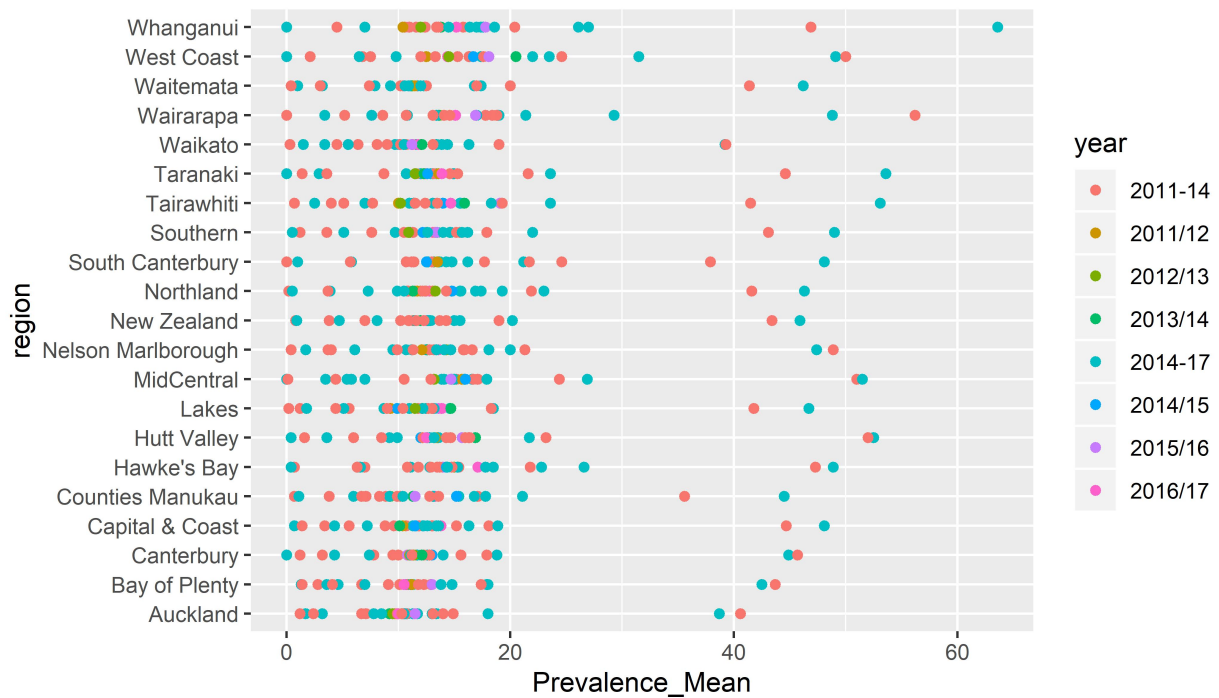
```
hdat %>% filter(.,short.description == "ADHD", type == "STD", sex != "All") %>%
  ggplot(., aes(Prevalence_Mean,region,col=sex)) + geom_point()
```



```
hdat %>% filter(.,short.description == "Vegetable intake", type == "STD", sex != "All") %>%
  ggplot(., aes(Prevalence_Mean,region,col=sex)) + geom_point()
```



```
hdat %>% filter(.,short.description == "Arthritis", type == "STD", sex == "All") %>%
  ggplot(., aes(Prevalence_Mean,region,col=year)) + geom_point()
```



## 2 References