# Health Mapping

Matt Bixley
August 13, 2019

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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
Hagardous dripkors (total population)	126
Hazardous drinkers (total population) 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 (past-year drinkers)	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	2770
Little or no physical activity Mean BMI (kg/m <u+00b2>)</u+00b2>	3772 3389
Mean diastolic blood pressure (mmHg)	1780
Mean height (cm)	3389
Mean number of after-hours visits	3496
Mean number of cigarettes Mean number of GP visits	1326 3493
PICON HAIRDOL OF GT. VISIOS	0400

Mean number of practice nurse visits         3494           Mean waist (cm)         3179           Mean waist (cm)         3179           Mean weight (kg)         3389           Mood and/or anxiety disorder         3776           Mostly smoke both manufactured and roll-your own cigarettes         2764           Mostly smoke both manufactured cigarettes         2764           Mostly smoke roll-your-own cigarettes         2764           Obese         6766           Obese class 1         6766           Obese class 2         3754           Obese class 2         3754           Obese class 3         3012           Obese class 3         3754           Only visit dental health care worker for problems         3756           Osteoarthritis         3775           Oreweight (but not obese)         6766           Overweight or obese         6766           Overweight or obese         6766           Parent-rated health - fair         3206           Parent-rated health - fair         3206           Parent-rated health - poor         3206           Parent-rated health - very good         3206           Parent-rated health - sevellent         3204           Physical punishment		
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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 - 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 lack of transport         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	Private health insurance	6850
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Screen watching         122           Self-rated health - excellent         3774           Self-rated health - fair         3774           Self-rated health - good         3774           Self-rated health - very good         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 lack of transport         6982           Unmet need for GP due to cost         6982           Unmet need for GP due to lack of transport         6982           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	Raised blood pressure (measured)	3550
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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 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		
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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 GP due to cost         6982           Unmet need for GP due to lack of transport         6982           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	Self-rated health - good	3774
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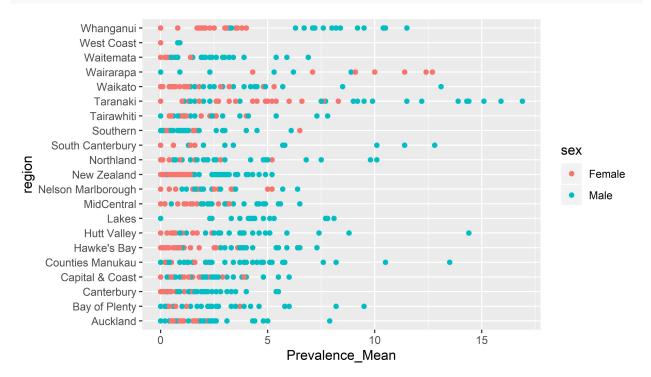
## 1.1 Plot

lets make a super simple plot with something in the data

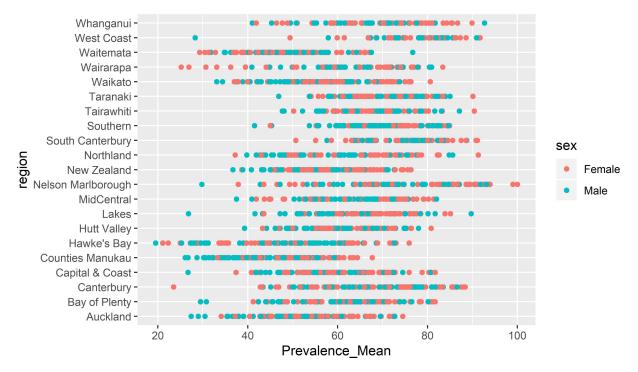
Table 1: Demographics

	0 1	
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

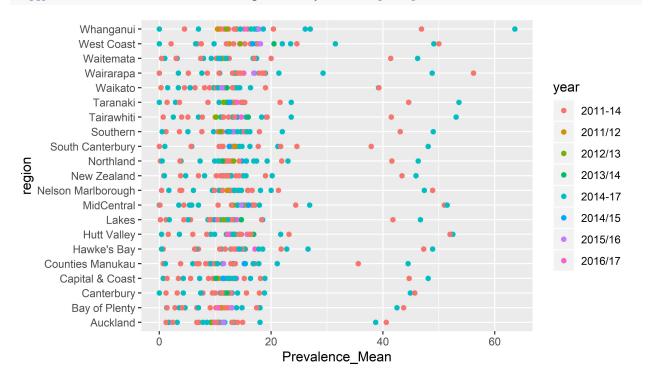
hdat %>% filter(.,short.description == "ADHD", type == "STD", sex != "All") %>%
 ggplot(., aes(Prevalence\_Mean,region,col=sex)) + geom\_point()



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