

SUPPLEMENTARY MATERIAL

Rock LD, Madathil S, Khanna M, Macdonald LK, Quiñonez C, Glogauer M, Allison P. COVID-19 incidence and vaccination rates among Canadian dental hygienists. *Can J Dent Hyg.* 2022;56(3):123–30.

S2: Bayesian Poisson model to estimate incidence rate

The actual date of COVID-19 infection is assumed to fall between the date of the positive test and 14 days prior to it.

```
#-----  
# JAGS model for the code  
# Inputs: nevents = number of events, stop = (test positive date -14) – baseline date, start = baseline  
# date, py_deno = sum of person-days for non-events, adj = 100000 (units for incidence rate: per 100,000  
# person-days)  
#-----  
  
model{  
  for(i in 1:nevents){  
    py[i] ~ dunif(start[i],stop[i])  
  }  
  py_case <- sum(py[1:nevents])  
  py_total <- py_case+py_deno  
  
  nevents ~ dpois(py_total*lambda)  
  lambda ~ dgamma(0.0001,0.0001)  
  lambda2 <- lambda*adj  
}  
  
# Data to replicate the analysis  
list(nevents=20, py_deno=224841,  
      start = c(338,126,357,291,46,97,248,15,233,361,357,85,369,44,86,152,18,270,0,116),  
      stop = c(352,140,371,305,60,111,262,29,247,375,371,99,383,58,100,166,32,284,12,130),  
      adj = 100000)
```

Conjugate prior models for cumulative incidence and prevalence in R

```
# Bayesian Binomial models  
  
# Canadian general population data  
casetot <- 1881395  
popavg <- 36717297  
  
alp1 <- casetot+1  
bet1 <- (popavg-casetot)+1  
  
qbeta(p=c(0.025, 0.50, 0.975), shape1 = alp1, shape2 = bet1)  
  
mean_pop_i = alp1/(alp1+bet1); mean_pop_i
```