

Sample size estimation for a repeated measures mixed model with non-normal data

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# Program to calculate sample size with non-normal data and a repeated
measures mixed model
#
# Brown and Prescott. Applied Mixed Models in Medicine. Wiley, 1999. P258.
#
# Programmed by J. Ranstam on March 25, 2009

n = function(m,a,b,phi,rho,delta,alpha,power) {
  floor(1+2*(qnorm(1-alpha/2)+qnorm(power))**2*(phi*a/b)*(1+(m-1)*rho)/
(m*delta**2))
}

n          # number of patients required per group
m      <- c(4)      # number of repeated measures
a      <- 1         # denominator term for binomial data or offset term
for count data
b      <- 0.24      # expected variance (u(1-u) for binary data and u for
count data
phi    <- 1         # dispersion parameter
rho    <- c(0.5)    # intraclass correlation
delta  <- c(0.693)  # difference to be detected
alpha  <- c(0.05)   # significance level
power  <- c(0.80)   # power

n(m,a,b,phi,rho,delta,alpha,power)
```