

## SUPPLEMENTARY MATERIAL

### 1. R CODE

The `mice.impute.2l.lmer.sens` function is a modification of the `mice` package's `mice.impute.2l.lmer` function in R. The modification involves the addition of a delta term to the linear predictor. This modification aims to incorporate additional sensitivity analysis into the imputation process.

```
mice.impute.2l.lmer.sens <- function(y, ry, x, delta, type, wy = NULL, intercept = TRUE, ...) {
  install.on.demand("lme4", ...)
  if (is.null(wy)) wy <- !ry
  if (intercept) {
    x <- cbind(1, as.matrix(x))
    type <- c(2, type)
    names(type)[1] <- colnames(x)[1] <- "(Intercept)"
  }
  clust <- names(type[type == -2])
  rande <- names(type[type == 2])
  fixe <- names(type[type > 0])
  lev <- unique(x[, clust])
  X <- x[, fixe, drop = FALSE]
  Z <- x[, rande, drop = FALSE]
  xobs <- x[ry, , drop = FALSE]
  yobs <- y[ry]
  Xobs <- X[ry, , drop = FALSE]
  Zobs <- Z[ry, , drop = FALSE]
  # create formula
  fr <- ifelse(length(rande) > 1,
```

```

        paste("+ ( 1 +", paste(rande[-1L], collapse = "+")),
        "+ ( 1 "
    )
    randmodel <- paste(
        "yobs ~ ", paste(fixe[-1L], collapse = "+"),
        fr, "|", clust, ")"
    )
    suppressWarnings(fit <- try(
        lme4::lmer(formula(randmodel),
            data = data.frame(yobs, xobs),
            ...
        ),
        silent = TRUE
    ))
    if (inherits(fit, "try-error")) {
        warning("lmer does not run. Simplify imputation model")
        return(y[wy])
    }
    # taken from lme4
    sigma <- function(object, ...) {
        dc <- object@devcomp
        dd <- dc$dims
        if (dd[["useSc"]]) {
            dc$cmp[[if (dd[["REML"]]) {
                "sigmaREML"
            } else {
                "sigmaML"
            }]]
        }
    }

```

```

    }]]
  } else {
    1
  }
}

# draw sigma*
sigmahat <- sigma(fit)
df <- nrow(fit@frame) - length(fit@beta)
sigma2star <- df * sigmahat^2 / rchisq(1, df)

# draw beta*
beta <- lme4::fixef(fit)

# Add delta to the linear predictor values
beta[1] <- beta[1] + delta

RX <- lme4::getME(fit, "RX")

# cov-matrix, i.e., vcov(fit)
covmat <- sigma2star * chol2inv(RX)
rv <- t(chol(covmat))
beta.star <- beta + rv %*% rnorm(ncol(rv))

# draw psi*
# applying the standard Wishart prior
rancoef <- as.matrix(lme4::ranef(fit)[[1]])
lambda <- t(rancoef) %*% rancoef
df.psi <- nrow(rancoef)
temp.psi.star <- stats::rWishart(1, df.psi, diag(nrow(lambda)))[, , 1]
temp <- MASS::ginv(lambda)
ev <- eigen(temp)
if (sum(ev$values > 0) == length(ev$values)) {

```

```

deco <- ev$eigenvectors %*% diag(sqrt(ev$values), nrow = length(ev$values))

psi.star <- MASS::ginv(deco %*% temp.psi.star %*% t(deco))
} else {

  try(temp.svd <- svd(lambda))

  if (!inherits(temp.svd, "try-error")) {

    deco <- temp.svd$u %*% diag(sqrt(temp.svd$d), nrow = length(temp.svd$d))

    psi.star <- MASS::ginv(deco %*% temp.psi.star %*% t(deco))

  } else {

    psi.star <- temp

    warning("psi fixed to estimate")

  }

}

# Calculate myi, vyi and drawing bi per cluster
for (jj in lev) {

  if (jj %in% unique(xobs[, clust])) {

    Xi <- Xobs[xobs[, clust] == jj, ]

    Zi <- as.matrix(Zobs[xobs[, clust] == jj, ])

    yi <- yobs[xobs[, clust] == jj]

    sigma2 <- diag(sigma2star, nrow = nrow(Zi))

    Mi <- psi.star %*% t(Zi) %*% MASS::ginv(Zi %*% psi.star %*% t(Zi) + sigma2)

    myi <- Mi %*% (yi - Xi %*% beta.star)

    vyi <- psi.star - Mi %*% Zi %*% psi.star

  } else {

    myi <- matrix(0, nrow = nrow(psi.star), ncol = 1)

    vyi <- psi.star

  }

  vyi <- vyi - upper.tri(vyi) * vyi + t(lower.tri(vyi) * vyi)

```

```

# generating bi.star using eigenvalues
deco1 <- eigen(vyi)

if (sum(deco1$values > 0) == length(deco1$values)) {

  A <- deco1$vectors %*% sqrt(diag(deco1$values, nrow = length(deco1$values)))

  bi.star <- myi + A %*% rnorm(length(myi))

} else {

  # generating bi.star using svd
  try(deco1 <- svd(vyi))

  if (!inherits(deco1, "try-error")) {

    A <- deco1$u %*% sqrt(diag(deco1$d, nrow = length(deco1$d)))

    bi.star <- myi + A %*% rnorm(length(myi))

  } else {

    bi.star <- myi

    warning("b_", jj, " fixed to estimate")

  }

}

# imputation
y[wy & x[, clust] == jj] <- as.vector(

  as.matrix(X[wy & x[, clust] == jj, , drop = FALSE]) %*% beta.star +

  as.matrix(Z[wy & x[, clust] == jj, , drop = FALSE]) %*% as.matrix(bi.star) +

  rnorm(sum(wy & x[, clust] == jj)) * sqrt(sigma2star)

)

}

y[wy]
}

```

2.1 *Estimated Effect of Confidence Score on CO level at Prenatal without Log-Transformation*

| Method   | Time | Effect | 95% CI        | P value | P value (Adjusted) |
|----------|------|--------|---------------|---------|--------------------|
| CC       | 0    | -0.79  | (-1.34,-0.24) | <0.01   | 0.08               |
|          | 100  | -0.37  | (-1.06,0.32)  | 0.29    | 0.56               |
|          | 200  | 0.04   | (-1.13,1.21)  | 0.94    | 0.98               |
| MAR      | 0    | -0.90  | (-1.37,-0.43) | <0.01   | 0.02               |
|          | 100  | -0.73  | (-1.17,-0.29) | <0.01   | 0.03               |
|          | 200  | -0.56  | (-1.13,0.01)  | 0.05    | 0.24               |
| MNAR(2)  | 0    | -1.02  | (-1.54,-0.5)  | <0.01   | 0.02               |
|          | 100  | -0.91  | (-1.56,-0.27) | 0.02    | 0.15               |
|          | 200  | -0.81  | (-1.77,0.16)  | 0.14    | 0.38               |
| MNAR(4)  | 0    | -0.97  | (-1.64,-0.29) | 0.01    | 0.13               |
|          | 100  | -0.85  | (-1.5,-0.2)   | 0.02    | 0.15               |
|          | 200  | -0.74  | (-1.52,0.05)  | 0.08    | 0.32               |
| MNAR(6)  | 0    | -1.06  | (-1.66,-0.47) | <0.01   | 0.03               |
|          | 100  | -1.00  | (-1.58,-0.42) | <0.01   | 0.03               |
|          | 200  | -0.94  | (-1.72,-0.16) | 0.03    | 0.16               |
| MNAR(8)  | 0    | -1.05  | (-1.77,-0.33) | 0.01    | 0.12               |
|          | 100  | -0.91  | (-1.81,0)     | 0.08    | 0.32               |
|          | 200  | -0.76  | (-2.01,0.49)  | 0.27    | 0.55               |
| MNAR(10) | 0    | -0.98  | (-1.69,-0.27) | 0.01    | 0.13               |
|          | 100  | -0.84  | (-1.54,-0.14) | 0.03    | 0.16               |
|          | 200  | -0.70  | (-1.6,0.19)   | 0.14    | 0.38               |

2.2 *Estimated Effect of Confidence Score on CO Level at Postpartum Visit without Log Transformation*

| Method   | Time | Effect | 95% CI        | P value | P value (Adjusted) |
|----------|------|--------|---------------|---------|--------------------|
| CC       | 73   | -0.38  | (-1.23,0.47)  | 0.39    | 0.68               |
|          | 250  | -0.12  | (-0.59,0.35)  | 0.63    | 0.75               |
|          | 415  | 0.12   | (-0.51,0.75)  | 0.70    | 0.82               |
| MAR      | 73   | -0.10  | (-0.44,0.24)  | 0.58    | 0.74               |
|          | 250  | -0.10  | (-0.37,0.16)  | 0.48    | 0.71               |
|          | 415  | -0.11  | (-0.42,0.2)   | 0.53    | 0.71               |
| MNAR(2)  | 73   | -0.13  | (-0.59,0.33)  | 0.60    | 0.75               |
|          | 250  | -0.08  | (-0.51,0.36)  | 0.75    | 0.83               |
|          | 415  | -0.03  | (-0.49,0.44)  | 0.92    | 0.98               |
| MNAR(4)  | 73   | -0.24  | (-0.63,0.16)  | 0.29    | 0.56               |
|          | 250  | -0.13  | (-0.46,0.2)   | 0.48    | 0.71               |
|          | 415  | -0.03  | (-0.33,0.28)  | 0.87    | 0.93               |
| MNAR(6)  | 73   | -0.27  | (-0.5,-0.05)  | 0.02    | 0.15               |
|          | 250  | -0.15  | (-0.32,0.03)  | 0.11    | 0.35               |
|          | 415  | -0.03  | (-0.26,0.2)   | 0.80    | 0.87               |
| MNAR(8)  | 73   | -0.28  | (-0.73,0.18)  | 0.27    | 0.55               |
|          | 250  | -0.13  | (-0.5,0.25)   | 0.53    | 0.71               |
|          | 415  | 0.01   | (-0.38,0.4)   | 0.96    | 0.98               |
| MNAR(10) | 73   | -0.62  | (-1.11,-0.13) | 0.04    | 0.21               |
|          | 250  | -0.45  | (-0.96,0.07)  | 0.14    | 0.38               |
|          | 415  | -0.29  | (-0.87,0.3)   | 0.37    | 0.68               |

### 2.3 Prenatal Result from Baseline Visit Without Log Transformation

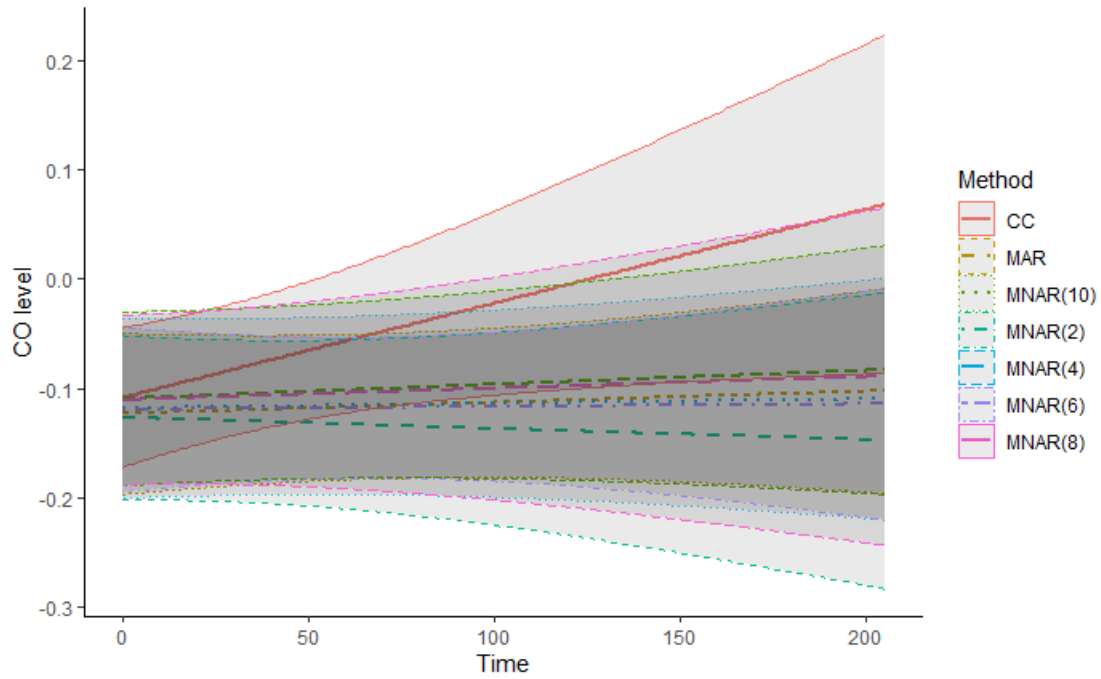
| term                   | Complete Case |                | MAR    |                | MNAR (2) |               | MNAR (4) |               | MNAR (6) |                | MNAR (8) |               | MNAR (10) |               |
|------------------------|---------------|----------------|--------|----------------|----------|---------------|----------|---------------|----------|----------------|----------|---------------|-----------|---------------|
|                        | Effect        | 95% CI         | Effect | 95% CI         | Effect   | 95% CI        | Effect   | 95% CI        | Effect   | 95% CI         | Effect   | 95% CI        | Effect    | 95% CI        |
| (Intercept)            | 7.52          | (-0.74,15.78)  | 12.322 | (6.47,18.18)   | 13.941   | (6.17,21.72)  | 14.853   | (7.23,22.48)  | 15.608   | (5.95,25.27)   | 16.379   | (8.53,24.22)  | 17.008    | (9.11,24.9)   |
| Time                   | -0.059        | (-0.11,-0.01)  | -0.035 | (-0.06,-0.01)  | -0.027   | (-0.07,0.01)  | -0.028   | (-0.06,0)     | -0.02    | (-0.06,0.02)   | -0.027   | (-0.07,0.02)  | -0.026    | (-0.06,0.01)  |
| Insurance Type         |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| Private                | 0.866         | (-1.29,3.02)   | 0.633  | (-1.5,2.77)    | 0.311    | (-1.88,2.51)  | 0.402    | (-1.84,2.65)  | 0.206    | (-2.13,2.54)   | 0.11     | (-2.7,2.92)   | 0.122     | (-2.63,2.87)  |
| Uninsured              | 3.408         | (-0.29,7.1)    | 2.286  | (-1.07,5.64)   | 1.644    | (-1.31,4.6)   | 1.844    | (-1.29,4.97)  | 1.051    | (-2.78,4.88)   | 2.005    | (-2.35,6.36)  | 1.106     | (-2.86,5.07)  |
| Education              |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| Don't Know/missing     | 5.718         | (-2.96,14.39)  | 2.661  | (-5.73,11.05)  | 3.286    | (-3.56,10.14) | 3.344    | (-4.76,11.45) | 3.828    | (-5.48,13.13)  | 1.873    | (-7.38,11.13) | 2.183     | (-7.59,11.96) |
| High School degree/GED | 1.071         | (-1.13,3.27)   | 0.611  | (-1.23,2.45)   | 0.736    | (-1.47,2.95)  | 0.881    | (-1.16,2.92)  | 1.343    | (-0.65,3.34)   | 1.348    | (-1.39,4.08)  | 1.155     | (-1.38,3.69)  |
| Less than High School  | 3.12          | (0.23,6.02)    | 1.564  | (-0.74,3.87)   | 1.505    | (-1.3,4.31)   | 1.999    | (-0.54,4.54)  | 1.777    | (-1.01,4.56)   | 1.839    | (-1.21,4.89)  | 1.89      | (-1.45,5.23)  |
| Race                   |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| Don't know/Ref         | -0.362        | (-13.03,12.31) | -1.751 | (-13.69,10.19) | -3.021   | (-14.27,8.23) | -3.072   | (-15.63,9.49) | -2.22    | (-15.78,11.34) | -4.521   | (-19.5,10.46) | -4.462    | (-20.52,11.6) |
| More than one race     | -1.294        | (-7.27,4.68)   | -1.225 | (-5.94,3.49)   | -2.298   | (-7.62,3.02)  | -1.432   | (-6.48,3.62)  | -2.72    | (-8.28,2.84)   | -2.923   | (-9.8,3.95)   | -3.855    | (-10.96,3.25) |
| Other                  | 0.004         | (-6.65,6.66)   | 0.154  | (-5.36,5.67)   | -1.317   | (-7.14,4.51)  | 0.843    | (-4.34,6.03)  | -1.56    | (-7.68,4.56)   | -0.859   | (-8.59,6.88)  | -1.651    | (-10.29,6.99) |
| White                  | 0.477         | (-3.76,4.72)   | -0.447 | (-3.51,2.61)   | -1.097   | (-3.86,1.67)  | -0.844   | (-3.88,2.19)  | -0.837   | (-4.37,2.69)   | -0.953   | (-5.63,3.73)  | -1.598    | (-6.04,2.85)  |
| Smoke In Home: Yes     | -3.158        | (-5.62,-0.69)  | -1.576 | (-3.33,0.18)   | -1.277   | (-3.14,0.59)  | -0.602   | (-2.75,1.55)  | 0.009    | (-2.05,2.07)   | 0.157    | (-2.27,2.58)  | 0.507     | (-1.86,2.87)  |
| Smoke 30 day: Yes      | 2.059         | (-1.13,5.25)   | 0.886  | (-1.69,3.46)   | 1.526    | (-1.28,4.33)  | 0.654    | (-2.16,3.47)  | 0.901    | (-2.57,4.37)   | 0.741    | (-2.26,3.74)  | 1.221     | (-2.35,4.79)  |
| TimesQuit              |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| 3 to 4                 | -1.05         | (-3.32,1.22)   | -0.611 | (-2.42,1.2)    | -0.837   | (-2.81,1.14)  | -1.026   | (-3.48,1.43)  | -1.638   | (-4.28,1)      | -1.318   | (-3.82,1.18)  | -1.108    | (-3.72,1.5)   |
| 5 or more              | 2.078         | (-0.66,4.82)   | 1.509  | (-0.66,3.68)   | 1.475    | (-0.96,3.91)  | 0.991    | (-1.58,3.56)  | 0.781    | (-1.98,3.54)   | 1.204    | (-1.75,4.16)  | 0.84      | (-2.87,4.55)  |
| Don't know             | -2.862        | (-9.85,4.12)   | -2.725 | (-8.28,2.83)   | -2.679   | (-8.61,3.25)  | -1.882   | (-8.21,4.45)  | -3.111   | (-10.15,3.92)  | -2.403   | (-9.88,5.07)  | -2.639    | (-10.28,5)    |
| None                   | 2.354         | (-0.8,5.51)    | 1.588  | (-0.69,3.86)   | 1.812    | (-0.57,4.19)  | 1.622    | (-1.11,4.36)  | 2.014    | (-1.19,5.22)   | 2.39     | (-0.47,5.25)  | 3.267     | (0.54,6)      |
| AfterWake              |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| Don't know/Ref/Missing | -3.268        | (-7.06,0.52)   | -2.543 | (-6.31,1.23)   | -1.229   | (-4.76,2.3)   | -1.324   | (-4.7,2.05)   | -0.887   | (-4.64,2.86)   | -0.496   | (-4.96,3.97)  | -0.4      | (-4.71,3.91)  |
| More than 30 minutes   | -0.495        | (-3.34,2.35)   | -0.859 | (-3.18,1.46)   | -1.131   | (-4.62,2.36)  | -1.031   | (-3.63,1.57)  | -0.543   | (-3.36,2.27)   | -0.555   | (-4.39,3.28)  | -0.919    | (-4.48,2.64)  |
| Within 5 minutes       | 3.302         | (0.28,6.32)    | 1.956  | (-0.93,4.84)   | 1.94     | (-1.23,5.11)  | 1.7      | (-0.93,4.33)  | 1.928    | (-1.14,4.99)   | 1.59     | (-2.37,5.55)  | 1.281     | (-2.6,5.16)   |
| Confident              | -0.787        | (-1.34,-0.24)  | -0.9   | (-1.37,-0.43)  | -1.019   | (-1.54,-0.5)  | -0.966   | (-1.64,-0.29) | -1.063   | (-1.66,-0.47)  | -1.051   | (-1.77,-0.33) | -0.977    | (-1.69,-0.27) |
| Agency                 |               |                |        |                |          |               |          |               |          |                |          |               |           |               |
| Other                  | 1.09          | (-2.49,4.67)   | -0.318 | (-3.25,2.61)   | -0.595   | (-3.78,2.59)  | -1.639   | (-4.98,1.71)  | -1.639   | (-4.94,1.66)   | -2.128   | (-5.86,1.6)   | -2.983    | (-6.62,0.65)  |
| Sanford                | 3.677         | (0.37,6.99)    | 2.237  | (-0.61,5.08)   | 2.04     | (-0.78,4.86)  | 1.745    | (-1.01,4.5)   | 1.92     | (-1.07,4.91)   | 1.6      | (-1.76,4.96)  | 1.266     | (-2.07,4.6)   |
| time:Confident         | 0.004         | (0.0,0.01)     | 0.002  | (0,0.01)       | 0.001    | (0,0.01)      | 0.001    | (0,0)         | 0.001    | (0,0.01)       | 0.001    | (0,0.01)      | 0.001     | (0,0.01)      |

## 2.4 Postpartum Result from Baseline Visit Without Log Transformation

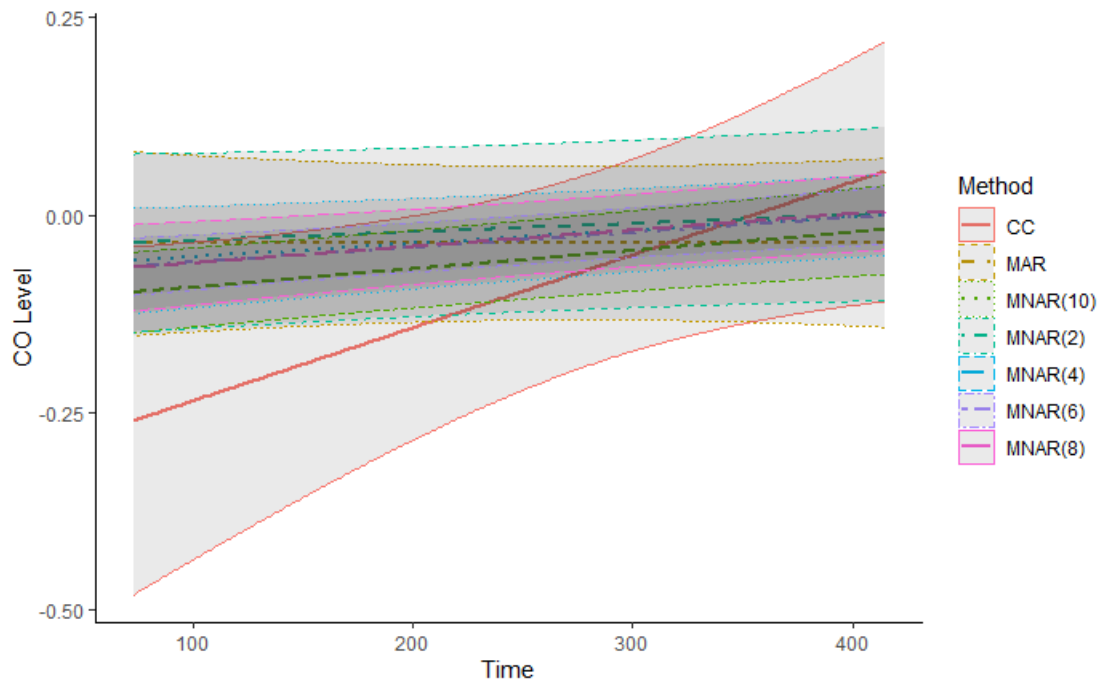
|                        | Complete Case |               | MAR    |              | MNAR (2) |              | MNAR (4) |               | MNAR (6) |               | MNAR (8) |               | MNAR (10) |               |
|------------------------|---------------|---------------|--------|--------------|----------|--------------|----------|---------------|----------|---------------|----------|---------------|-----------|---------------|
| term                   | Effect        | 95% CI        | Effect | 95% CI       | Effect   | 95% CI       | Effect   | 95% CI        | Effect   | 95% CI        | Effect   | 95% CI        | Effect    | 95% CI        |
| (Intercept)            | 3.224         | (-6.51,12.96) | 2.704  | (-0.73,6.13) | 4.888    | (0.69,9.09)  | 7.543    | (2.79,12.3)   | 9.839    | (7.02,12.65)  | 11.697   | (6.64,16.76)  | 16.697    | (11.17,22.22) |
| Time                   | -0.012        | (-0.04,0.02)  | 0      | (-0.01,0.01) | -0.002   | (-0.01,0.01) | -0.003   | (-0.01,0.01)  | -0.004   | (-0.01,0.01)  | -0.005   | (-0.02,0.01)  | -0.005    | (-0.01,0)     |
| Insurance Type         |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| Private                | -0.896        | (-2.0,2.1)    | -0.139 | (-0.58,0.3)  | -0.42    | (-0.99,0.15) | -0.527   | (-1.09,0.04)  | -0.785   | (-1.46,-0.11) | -0.892   | (-1.77,-0.01) | -1.095    | (-2.11,-0.08) |
| Uninsured              | 0.249         | (-4.81,5.31)  | -0.194 | (-1.22,0.83) | -0.353   | (-1.11,0.4)  | -0.03    | (-1.15,1.09)  | -0.165   | (-1.35,1.02)  | -0.311   | (-1.68,1.06)  | -0.433    | (-2.11,1.24)  |
| Education              |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| Don't Know/missing     | N/A           | N/A           | -0.122 | (-1.56,1.32) | 0.227    | (-1.86,2.31) | 0.845    | (-1.67,3.36)  | 0.415    | (-2.35,3.18)  | 1.093    | (-2.22,4.4)   | 1.482     | (-2.43,5.39)  |
| High School degree/GED | 0.469         | (-0.6,1.53)   | 0.177  | (-0.3,0.66)  | 0.095    | (-0.41,0.6)  | 0.069    | (-0.5,0.64)   | 0.209    | (-0.61,1.03)  | 0.249    | (-0.58,1.08)  | 0.436     | (-0.59,1.46)  |
| Less than High School  | -0.434        | (-1.73,0.87)  | -0.148 | (-0.89,0.59) | -0.289   | (-0.83,0.25) | -0.318   | (-1.02,0.39)  | -0.379   | (-1.33,0.57)  | -0.311   | (-1.44,0.82)  | -0.585    | (-1.91,0.74)  |
| Race                   |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| Don't know/Ref         | N/A           | N/A           | 0.674  | (-1.8,3.15)  | 0.328    | (-2.4,3.06)  | 0.424    | (-4.4,8.4)    | -0.376   | (-5.31,4.56)  | 1.063    | (-4.39,6.51)  | 0.959     | (-6.03,7.95)  |
| More than one race     | -0.726        | (-5.88,4.43)  | -0.636 | (-1.89,0.62) | -0.043   | (-1.36,1.28) | -0.15    | (-1.76,1.46)  | -0.452   | (-2.29,1.39)  | -0.296   | (-2.49,1.9)   | -0.805    | (-3.59,1.98)  |
| Other                  | 1.391         | (-2.37,5.15)  | -0.143 | (-1.07,0.78) | -0.152   | (-1.51,1.21) | -0.091   | (-1.81,1.63)  | 0.016    | (-1.92,1.96)  | 0.031    | (-2.32,2.38)  | -0.081    | (-2.93,2.77)  |
| White                  | 0.749         | (-1.5,3)      | -0.136 | (-1.14,0.87) | 0.045    | (-0.98,1.07) | -0.126   | (-1.04,0.78)  | -0.192   | (-1.3,0.92)   | -0.288   | (-1.66,1.08)  | -0.524    | (-2.15,1.1)   |
| Smoke In Home: Yes     | -0.11         | (-1.53,1.31)  | -0.062 | (-0.46,0.34) | 0.03     | (-0.55,0.61) | 0.026    | (-0.55,0.6)   | 0.102    | (-0.62,0.82)  | 0.086    | (-0.75,0.92)  | 0.049     | (-0.97,1.07)  |
| Smoke 30 day: Yes      | -0.25         | (-1.42,0.92)  | -0.071 | (-0.6,0.46)  | 0.093    | (-0.49,0.68) | 0.256    | (-0.49,1)     | 0.157    | (-0.85,1.17)  | 0.206    | (-0.95,1.36)  | 0.319     | (-1.09,1.73)  |
| TimesQuit              |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| 3 to 4                 | 0.543         | (-0.85,1.93)  | -0.039 | (-0.61,0.53) | -0.145   | (-0.71,0.42) | -0.372   | (-0.98,0.24)  | -0.268   | (-1.1,0.56)   | -0.486   | (-1.36,0.39)  | -0.623    | (-1.77,0.52)  |
| 5 or more              | 0.299         | (-0.91,1.5)   | 0.009  | (-0.51,0.53) | -0.17    | (-0.74,0.4)  | -0.418   | (-1.1,0.26)   | -0.466   | (-1.46,0.53)  | -0.584   | (-1.67,0.5)   | -0.766    | (-2.04,0.51)  |
| Don't know             | -0.409        | (-3.25,2.43)  | -0.23  | (-1.37,0.91) | -0.374   | (-1.72,0.97) | -0.702   | (-2.44,1.03)  | -0.528   | (-2.84,1.79)  | -0.245   | (-3.34,2.85)  | -1.254    | (-4.64,2.13)  |
| None                   | 0.153         | (-1.73,2.04)  | -0.067 | (-0.5,0.37)  | 0.13     | (-0.38,0.64) | -0.052   | (-0.73,0.63)  | 0.034    | (-0.79,0.86)  | 0.051    | (-0.93,1.03)  | 0.013     | (-1.36,1.39)  |
| AfterWake              |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| Don't know/Ref/Missing | N/A           | N/A           | 0.034  | (-0.61,0.68) | 0.036    | (-0.77,0.84) | -0.084   | (-1.08,0.91)  | -0.269   | (-1.37,0.83)  | -0.347   | (-1.7,1)      | -0.403    | (-2.02,1.22)  |
| More than 30 minutes   | 0.064         | (-1.29,1.41)  | -0.053 | (-0.58,0.48) | -0.446   | (-0.99,0.09) | -0.937   | (-1.81,-0.07) | -1.456   | (-2.44,-0.48) | -1.821   | (-2.93,-0.71) | -2.379    | (-3.79,-0.97) |
| Within 5 minutes       | -0.549        | (-2.26,1.16)  | 0.089  | (-0.45,0.62) | -0.2     | (-0.9,0.5)   | -0.357   | (-1.11,0.39)  | -0.752   | (-1.87,0.36)  | -0.805   | (-1.98,0.37)  | -0.937    | (-2.35,0.48)  |
| Confident              | -0.378        | (-1.23,0.47)  | -0.102 | (-0.44,0.24) | -0.129   | (-0.59,0.33) | -0.236   | (-0.63,0.16)  | -0.271   | (-0.5,-0.05)  | -0.276   | (-0.73,0.18)  | -0.618    | (-1.11,-0.13) |
| Agency                 |               |               |        |              |          |              |          |               |          |               |          |               |           |               |
| Other                  | 1.538         | (0.17,2.9)    | 0.446  | (-0.22,1.11) | 0.044    | (-0.7,0.79)  | -0.001   | (-0.84,0.84)  | 0.205    | (-0.93,1.34)  | -0.05    | (-1.5,1.4)    | 0.009     | (-1.74,1.75)  |
| Sanford                | 2.438         | (1.16,3.72)   | 0.448  | (-0.02,0.92) | 0.325    | (-0.34,0.99) | 0.473    | (-0.37,1.31)  | 0.744    | (-0.33,1.82)  | 0.817    | (-0.4,2.03)   | 0.933     | (-0.58,2.45)  |
| time:Confident         | 0.001         | (0,0)         | 0      | (0,0)        | 0        | (0,0)        | 0.001    | (0,0)         | 0.001    | (0,0)         | 0.001    | (0,0)         | 0.001     | (0,0)         |



## 2.5 Effect of Confident Score on CO Level throughout Prenatal Visits with Log Transformation



## 2.6 Effect of Confident Score on CO Level throughout Postpartum Visits with Log Transformation



### 2.7 Prenatal Result from Baseline Visit with Log Transformation

| term                   | Complete Case |               |  | MAR    |              |  | MNAR (2) |              |  | MNAR (4) |              |  | MNAR (6) |               |  | MNAR (8) |               |  | MNAR (10) |               |  |
|------------------------|---------------|---------------|--|--------|--------------|--|----------|--------------|--|----------|--------------|--|----------|---------------|--|----------|---------------|--|-----------|---------------|--|
|                        | Effect        | 95% CI        |  | Effect | 95% CI       |  | Effect   | 95% CI       |  | Effect   | 95% CI       |  | Effect   | 95% CI        |  | Effect   | 95% CI        |  | Effect    | 95% CI        |  |
| (Intercept)            | 1.25          | (0.3,2.2)     |  | 2.194  | (1.3,3.09)   |  | 2.235    | (1.15,3.32)  |  | 2.395    | (1.39,3.4)   |  | 2.404    | (1.29,3.52)   |  | 2.457    | (1.53,3.38)   |  | 2.572     | (1.63,3.51)   |  |
| Time                   | -0.012        | (-0.02,-0.01) |  | -0.005 | (-0.01,0)    |  | -0.002   | (-0.01,0)    |  | -0.003   | (-0.01,0)    |  | -0.002   | (-0.01,0)     |  | -0.003   | (-0.01,0)     |  | -0.003    | (-0.01,0)     |  |
| Insurance Type         |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| Private                | 0.102         | (-0.14,0.35)  |  | 0.101  | (-0.26,0.46) |  | 0.007    | (-0.31,0.33) |  | 0.045    | (-0.29,0.38) |  | 0.044    | (-0.26,0.35)  |  | -0.017   | (-0.31,0.27)  |  | 0.019     | (-0.29,0.32)  |  |
| Uninsured              | 0.386         | (-0.04,0.81)  |  | 0.275  | (-0.24,0.79) |  | 0.214    | (-0.19,0.62) |  | 0.202    | (-0.21,0.62) |  | 0.15     | (-0.3,0.6)    |  | 0.209    | (-0.25,0.67)  |  | 0.179     | (-0.27,0.63)  |  |
| Education              |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| Don't Know/missing     | 0.669         | (-0.34,1.68)  |  | 0.251  | (-1.02,1.52) |  | 0.412    | (-0.62,1.45) |  | 0.453    | (-0.68,1.59) |  | 0.432    | (-0.81,1.68)  |  | 0.246    | (-0.95,1.44)  |  | 0.276     | (-0.91,1.46)  |  |
| High School degree/GED | 0.213         | (-0.04,0.46)  |  | 0.149  | (-0.13,0.43) |  | 0.13     | (-0.18,0.44) |  | 0.139    | (-0.13,0.41) |  | 0.202    | (-0.04,0.45)  |  | 0.171    | (-0.14,0.48)  |  | 0.132     | (-0.16,0.42)  |  |
| Less than High School  | 0.19          | (-0.14,0.52)  |  | 0.109  | (-0.22,0.43) |  | 0.069    | (-0.35,0.49) |  | 0.132    | (-0.22,0.48) |  | 0.12     | (-0.25,0.49)  |  | 0.076    | (-0.3,0.45)   |  | 0.073     | (-0.32,0.46)  |  |
| Race                   |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| Don't know/Ref         | 0.04          | (-1.41,1.49)  |  | -0.202 | (-2.02,1.61) |  | -0.66    | (-2.37,1.05) |  | -0.496   | (-2.33,1.34) |  | -0.41    | (-2.33,1.51)  |  | -0.642   | (-2.54,1.26)  |  | -0.767    | (-2.85,1.32)  |  |
| More than one race     | 0.16          | (-0.53,0.85)  |  | 0.012  | (-0.68,0.7)  |  | -0.168   | (-0.92,0.58) |  | -0.042   | (-0.71,0.63) |  | -0.157   | (-0.9,0.58)   |  | -0.283   | (-1.06,0.49)  |  | -0.3      | (-1.1,0.5)    |  |
| Other                  | 0.275         | (-0.49,1.04)  |  | 0.206  | (-0.72,1.14) |  | -0.108   | (-0.9,0.68)  |  | 0.194    | (-0.45,0.84) |  | -0.067   | (-0.81,0.67)  |  | -0.12    | (-1.02,0.78)  |  | -0.112    | (-0.98,0.76)  |  |
| White                  | 0.246         | (-0.24,0.73)  |  | 0.008  | (-0.5,0.52)  |  | -0.103   | (-0.48,0.27) |  | -0.063   | (-0.48,0.35) |  | -0.076   | (-0.53,0.38)  |  | -0.087   | (-0.57,0.4)   |  | -0.157    | (-0.61,0.29)  |  |
| Smoke In Home: Yes     | -0.343        | (-0.63,-0.06) |  | -0.171 | (-0.44,0.1)  |  | -0.14    | (-0.42,0.14) |  | -0.024   | (-0.32,0.27) |  | 0.022    | (-0.25,0.29)  |  | 0.038    | (-0.24,0.31)  |  | 0.049     | (-0.22,0.32)  |  |
| Smoke 30 day: Yes      | 0.413         | (0.05,0.78)   |  | 0.163  | (-0.24,0.57) |  | 0.328    | (-0.08,0.73) |  | 0.188    | (-0.19,0.57) |  | 0.229    | (-0.22,0.68)  |  | 0.227    | (-0.13,0.58)  |  | 0.277     | (-0.15,0.7)   |  |
| TimesQuit              |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| 3 to 4                 | -0.068        | (-0.33,0.19)  |  | -0.036 | (-0.3,0.22)  |  | -0.037   | (-0.35,0.27) |  | -0.098   | (-0.44,0.25) |  | -0.141   | (-0.45,0.16)  |  | -0.091   | (-0.41,0.22)  |  | -0.069    | (-0.38,0.24)  |  |
| 5 or more              | 0.095         | (-0.22,0.41)  |  | 0.128  | (-0.18,0.44) |  | 0.125    | (-0.23,0.48) |  | 0.051    | (-0.27,0.37) |  | -0.006   | (-0.34,0.33)  |  | 0.03     | (-0.32,0.38)  |  | 0.023     | (-0.38,0.43)  |  |
| Don't know             | -0.473        | (-1.27,0.32)  |  | -0.428 | (-1.23,0.37) |  | -0.405   | (-1.27,0.46) |  | -0.34    | (-1.22,0.54) |  | -0.387   | (-1.25,0.48)  |  | -0.356   | (-1.25,0.54)  |  | -0.418    | (-1.27,0.43)  |  |
| None                   | 0.143         | (-0.22,0.5)   |  | 0.153  | (-0.23,0.54) |  | 0.232    | (-0.15,0.61) |  | 0.203    | (-0.18,0.58) |  | 0.243    | (-0.15,0.64)  |  | 0.324    | (-0.03,0.67)  |  | 0.397     | (0.08,0.71)   |  |
| AfterWake              |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| Don't know/Ref/Missing | -0.328        | (-0.76,0.11)  |  | -0.373 | (-1.01,0.27) |  | -0.045   | (-0.52,0.43) |  | -0.115   | (-0.54,0.31) |  | -0.07    | (-0.53,0.39)  |  | -0.01    | (-0.51,0.49)  |  | 0.031     | (-0.45,0.51)  |  |
| More than 30 minutes   | -0.035        | (-0.36,0.29)  |  | -0.115 | (-0.47,0.24) |  | -0.121   | (-0.6,0.36)  |  | -0.106   | (-0.44,0.23) |  | -0.08    | (-0.42,0.26)  |  | -0.096   | (-0.52,0.33)  |  | -0.109    | (-0.54,0.32)  |  |
| Within 5 minutes       | 0.292         | (-0.06,0.64)  |  | 0.183  | (-0.26,0.62) |  | 0.213    | (-0.17,0.6)  |  | 0.208    | (-0.15,0.57) |  | 0.215    | (-0.17,0.6)   |  | 0.159    | (-0.3,0.62)   |  | 0.138     | (-0.29,0.56)  |  |
| Confident              | -0.108        | (-0.17,-0.04) |  | -0.123 | (-0.2,-0.05) |  | -0.126   | (-0.2,-0.05) |  | -0.118   | (-0.2,-0.04) |  | -0.119   | (-0.19,-0.04) |  | -0.11    | (-0.19,-0.03) |  | -0.109    | (-0.19,-0.03) |  |
| Agency                 |               |               |  |        |              |  |          |              |  |          |              |  |          |               |  |          |               |  |           |               |  |
| Other                  | 0.432         | (0.02,0.84)   |  | 0.051  | (-0.36,0.47) |  | 0.061    | (-0.37,0.49) |  | -0.112   | (-0.59,0.37) |  | -0.116   | (-0.53,0.3)   |  | -0.139   | (-0.6,0.33)   |  | -0.296    | (-0.73,0.14)  |  |
| Sanford                | 0.797         | (0.42,1.18)   |  | 0.462  | (0.06,0.86)  |  | 0.443    | (0.03,0.86)  |  | 0.371    | (-0.03,0.77) |  | 0.375    | (0.01,0.74)   |  | 0.35     | (-0.04,0.74)  |  | 0.262     | (-0.14,0.66)  |  |
| Time:Confident         | 0.001         | (0,0)         |  | 0      | (0,0)        |  | 0        | (0,0)        |  | 0        | (0,0)        |  | 0        | (0,0)         |  | 0        | (0,0)         |  | 0         | (0,0)         |  |

