

```
library(haven)
library(metafor)
library(ConfoundedMeta)
library(foreign)
Rdb1 <- read_dta("Rdb1.dta")
View(Rdb1)
```

##CARDIOVASCULAR EVENTS

```
vi = Rdb1$seln * Rdb1$seln
m1 = rma.uni(yi=Rdb1$lntest, vi=vi, method="REML", measure="RR", test="knha", subset = Rdb1$endpoint=="CV")
m1
confint(m1)
y1 = as.numeric(m1$b)
vy1 = as.numeric(m1$vb)
ta1 = m1$tau2
vta1 = m1$se.tau2^2

muB<-c(log(1.05), log(1.10), log(1.15), log(1.20), log(1.25), log(1.30), log(1.35), log(1.40), log(1.45), log(1.50), log(1.60), log(1.65),
log(1.70), log(1.75), log(1.80), log(1.85), log(1.90), log(1.95), log(2.00))
q1<-log(1.05)
q2<-log(1.10)
q3<-log(1.15)
q4<-log(1.20)
q5<-log(1.25)
q6<-log(1.50)
q7<-log(1.75)
q8<-log(2.00)

resCV1 = sens_plot( .type="line", .q=q1, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV2 = sens_plot( .type="line", .q=q2, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV3 = sens_plot( .type="line", .q=q3, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV4 = sens_plot( .type="line", .q=q4, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV5 = sens_plot( .type="line", .q=q5, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV6 = sens_plot( .type="line", .q=q6, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV7 = sens_plot( .type="line", .q=q7, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV8 = sens_plot( .type="line", .q=q8, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)

B <-resCV1$data$B[1:161]

y1<-resCV1$data$phat[1:161]
y2<-resCV2$data$phat[1:161]
y3<-resCV3$data$phat[1:161]
y4<-resCV4$data$phat[1:161]
y5<-resCV5$data$phat[1:161]
y6<-resCV6$data$phat[1:161]
y7<-resCV7$data$phat[1:161]
y8<-resCV8$data$phat[1:161]

l1<-resCV1$data$lo[1:161]
l2<-resCV2$data$lo[1:161]
l3<-resCV3$data$lo[1:161]
l4<-resCV4$data$lo[1:161]
l5<-resCV5$data$lo[1:161]
l6<-resCV6$data$lo[1:161]
l7<-resCV7$data$lo[1:161]
l8<-resCV8$data$lo[1:161]

h1<-resCV1$data$hi[1:161]
h2<-resCV2$data$hi[1:161]
h3<-resCV3$data$hi[1:161]
h4<-resCV4$data$hi[1:161]
h5<-resCV5$data$hi[1:161]
h6<-resCV6$data$hi[1:161]
h7<-resCV7$data$hi[1:161]
h8<-resCV8$data$hi[1:161]
```

```
resCV <- data.frame(exp(B))
resCV <- cbind(resCV, y1, y2, y3, y4, y5, y6, y7, y8, l1, l2, l3, l4, l5, l6, l7, l8, h1, h2, h3, h4, h5, h6, h7, h8 )
write.dta(resCV, "resCV.dta")
```

##TYPE 2 DIABETES MELLITUS

```
m2 = rma.uni(yi=Rdb1$lnest, vi=vi, method="REML", measure="RR", test="knha", subset = Rdb1$endpoint=="DM")
m2
confint(m2)
y2 = as.numeric(m2$b)
vy2 = as.numeric(m2$vb)
ta2 = m2$tau2
vta2 = m2$se.tau2^2

muB<-c(log(1.05), log(1.10), log(1.15), log(1.20), log(1.25), log(1.30), log(1.35), log(1.40), log(1.45), log(1.50), log(1.60), log(1.65),
log(1.70), log(1.75), log(1.80), log(1.85), log(1.90), log(1.95), log(2.00))
q1<-log(1.05)
q2<-log(1.10)
q3<-log(1.15)
q4<-log(1.20)
q5<-log(1.25)
q6<-log(1.50)
q7<-log(1.75)
q8<-log(2.00)

resDM1 = sens_plot( .type="line", .q=q1, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM2 = sens_plot( .type="line", .q=q2, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM3 = sens_plot( .type="line", .q=q3, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM4 = sens_plot( .type="line", .q=q4, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM5 = sens_plot( .type="line", .q=q5, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM6 = sens_plot( .type="line", .q=q6, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM7 = sens_plot( .type="line", .q=q7, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM8 = sens_plot( .type="line", .q=q8, .sigB=c(0), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)

B <-resDM1$data$B[1:161]

y1<-resDM1$data$phat[1:161]
y2<-resDM2$data$phat[1:161]
y3<-resDM3$data$phat[1:161]
y4<-resDM4$data$phat[1:161]
y5<-resDM5$data$phat[1:161]
y6<-resDM6$data$phat[1:161]
y7<-resDM7$data$phat[1:161]
y8<-resDM8$data$phat[1:161]

l1<-resDM1$data$lo[1:161]
l2<-resDM2$data$lo[1:161]
l3<-resDM3$data$lo[1:161]
l4<-resDM4$data$lo[1:161]
l5<-resDM5$data$lo[1:161]
l6<-resDM6$data$lo[1:161]
l7<-resDM7$data$lo[1:161]
l8<-resDM8$data$lo[1:161]

h1<-resDM1$data$hi[1:161]
h2<-resDM2$data$hi[1:161]
h3<-resDM3$data$hi[1:161]
h4<-resDM4$data$hi[1:161]
h5<-resDM5$data$hi[1:161]
h6<-resDM6$data$hi[1:161]
h7<-resDM7$data$hi[1:161]
h8<-resDM8$data$hi[1:161]

resDM <- data.frame(exp(B))
resDM <- cbind(resDM, y1, y2, y3, y4, y5, y6, y7, y8, l1, l2, l3, l4, l5, l6, l7, l8, h1, h2, h3, h4, h5, h6, h7, h8 )
```

##SENSITIVITY FOR PUB BIAS CV

```
#use shiny app
#https://vevealab.shinyapps.io/WeightFunctionModel/
```

##CHANGE SIGMA

##CARDIOVASCULAR EVENTS

```
vi = Rdb1$seln * Rdb1$seln
m1 = rma.uni(yi=Rdb1$lnest, vi=vi, method="REML", measure="RR", test="knha", subset = Rdb1$endpoint=="CV")
m1
confint(m1)
y1 = as.numeric(m1$b)
vy1 = as.numeric(m1$vb)
ta1 = m1$tau2
vta1 = m1$se.tau2^2
```

```
muB<-c(log(1.10), log(1.20), log(1.50), log(1.75))
q1<-log(1.10)
q2<-log(1.20)
q3<-log(1.50)
q4<-log(1.75)
```

```
resCV10 = sens_plot( .type="line", .q=q1, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV20 = sens_plot( .type="line", .q=q2, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV30 = sens_plot( .type="line", .q=q3, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV40 = sens_plot( .type="line", .q=q4, .sigB=c(0), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
```

```
resCV11 = sens_plot( .type="line", .q=q1, .sigB=c(0.1), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV21 = sens_plot( .type="line", .q=q2, .sigB=c(0.1), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV31 = sens_plot( .type="line", .q=q3, .sigB=c(0.1), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV41 = sens_plot( .type="line", .q=q4, .sigB=c(0.1), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
```

```
resCV12 = sens_plot( .type="line", .q=q1, .sigB=c(0.2), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV22 = sens_plot( .type="line", .q=q2, .sigB=c(0.2), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV32 = sens_plot( .type="line", .q=q3, .sigB=c(0.2), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV42 = sens_plot( .type="line", .q=q4, .sigB=c(0.2), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
```

```
resCV13 = sens_plot( .type="line", .q=q1, .sigB=c(0.3), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV23 = sens_plot( .type="line", .q=q2, .sigB=c(0.3), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV33 = sens_plot( .type="line", .q=q3, .sigB=c(0.3), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
resCV43 = sens_plot( .type="line", .q=q4, .sigB=c(0.3), .yr=y1, .t2=ta1, .vyr= vy1, .vt2= vta1)
```

```
B <-resCV10$data$B[1:161]
```

```
y10<-resCV10$data$phat[1:161]
y20<-resCV20$data$phat[1:161]
y30<-resCV30$data$phat[1:161]
y40<-resCV40$data$phat[1:161]
y11<-resCV11$data$phat[1:161]
y21<-resCV21$data$phat[1:161]
y31<-resCV31$data$phat[1:161]
y41<-resCV41$data$phat[1:161]
y12<-resCV12$data$phat[1:161]
y22<-resCV22$data$phat[1:161]
y32<-resCV32$data$phat[1:161]
y42<-resCV42$data$phat[1:161]
y13<-resCV13$data$phat[1:161]
y23<-resCV23$data$phat[1:161]
y33<-resCV33$data$phat[1:161]
y43<-resCV43$data$phat[1:161]
```

```
l10<-resCV10$data$lo[1:161]
```

```

l20<-resCV20$data$lo[1:161]
l30<-resCV30$data$lo[1:161]
l40<-resCV40$data$lo[1:161]
l11<-resCV11$data$lo[1:161]
l21<-resCV21$data$lo[1:161]
l31<-resCV31$data$lo[1:161]
l41<-resCV41$data$lo[1:161]
l12<-resCV12$data$lo[1:161]
l22<-resCV22$data$lo[1:161]
l32<-resCV32$data$lo[1:161]
l42<-resCV42$data$lo[1:161]
l13<-resCV13$data$lo[1:161]
l23<-resCV23$data$lo[1:161]
l33<-resCV33$data$lo[1:161]
l43<-resCV43$data$lo[1:161]

```

```

h10<-resCV10$data$hi[1:161]
h20<-resCV20$data$hi[1:161]
h30<-resCV30$data$hi[1:161]
h40<-resCV40$data$hi[1:161]
h11<-resCV11$data$hi[1:161]
h21<-resCV21$data$hi[1:161]
h31<-resCV31$data$hi[1:161]
h41<-resCV41$data$hi[1:161]
h12<-resCV12$data$hi[1:161]
h22<-resCV22$data$hi[1:161]
h32<-resCV32$data$hi[1:161]
h42<-resCV42$data$hi[1:161]
h13<-resCV13$data$hi[1:161]
h23<-resCV23$data$hi[1:161]
h33<-resCV33$data$hi[1:161]
h43<-resCV43$data$hi[1:161]

```

```

resCV <- data.frame(exp(B))
resCV <- cbind(resCV, y10, y20, y30, y40, y11, y21, y31, y41, y12, y22, y32, y42, y13, y23, y33, y43,
               l10, l20, l30, l40, l11, l21, l31, l41, l12, l22, l32, l42, l13, l23, l33, l43,
               h10, h20, h30, h40, h11, h21, h31, h41, h12, h22, h32, h42, h13, h23, h33, h43)

```

##TYPE 2 DIABETES MELLITUS

```

m2 = rma.uni(yi=Rdb1$lnest, vi=vi, method="REML", measure="RR", test="knha", subset = Rdb1$endpoint=="DM")
m2
confint(m2)
y2 = as.numeric(m2$b)
vy2 = as.numeric(m2$vb)
ta2 = m2$tau2
vta2 = m2$se.tau2^2

```

```

muB<-c(log(1.10), log(1.20), log(1.50), log(1.75))
q1<-log(1.10)
q2<-log(1.20)
q3<-log(1.50)
q4<-log(1.75)

```

```

resDM10 = sens_plot(.type="line", .q=q1, .sigB=c(0), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM20 = sens_plot(.type="line", .q=q2, .sigB=c(0), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM30 = sens_plot(.type="line", .q=q3, .sigB=c(0), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM40 = sens_plot(.type="line", .q=q4, .sigB=c(0), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)

```

```

resDM11 = sens_plot(.type="line", .q=q1, .sigB=c(0.1), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM21 = sens_plot(.type="line", .q=q2, .sigB=c(0.1), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM31 = sens_plot(.type="line", .q=q3, .sigB=c(0.1), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM41 = sens_plot(.type="line", .q=q4, .sigB=c(0.1), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)

```

```

resDM12 = sens_plot(.type="line", .q=q1, .sigB=c(0.2), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)
resDM22 = sens_plot(.type="line", .q=q2, .sigB=c(0.2), .yr=y2, .t2=ta2, .vyr=vy2, .vt2=vta2)

```

```

resDM32 = sens_plot( .type="line", .q=q3, .sigB=c(0.2), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM42 = sens_plot( .type="line", .q=q4, .sigB=c(0.2), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)

resDM13 = sens_plot( .type="line", .q=q1, .sigB=c(0.3), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM23 = sens_plot( .type="line", .q=q2, .sigB=c(0.3), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM33 = sens_plot( .type="line", .q=q3, .sigB=c(0.3), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)
resDM43 = sens_plot( .type="line", .q=q4, .sigB=c(0.3), .yr=y2, .t2=ta2, .vyr= vy2, .vt2= vta2)

```

```
B <-resDM10$data$B[1:161]
```

```

y10<-resDM10$data$phat[1:161]
y20<-resDM20$data$phat[1:161]
y30<-resDM30$data$phat[1:161]
y40<-resDM40$data$phat[1:161]
y11<-resDM11$data$phat[1:161]
y21<-resDM21$data$phat[1:161]
y31<-resDM31$data$phat[1:161]
y41<-resDM41$data$phat[1:161]
y12<-resDM12$data$phat[1:161]
y22<-resDM22$data$phat[1:161]
y32<-resDM32$data$phat[1:161]
y42<-resDM42$data$phat[1:161]
y13<-resDM13$data$phat[1:161]
y23<-resDM23$data$phat[1:161]
y33<-resDM33$data$phat[1:161]
y43<-resDM43$data$phat[1:161]

```

```

l10<-resDM10$data$lo[1:161]
l20<-resDM20$data$lo[1:161]
l30<-resDM30$data$lo[1:161]
l40<-resDM40$data$lo[1:161]
l11<-resDM11$data$lo[1:161]
l21<-resDM21$data$lo[1:161]
l31<-resDM31$data$lo[1:161]
l41<-resDM41$data$lo[1:161]
l12<-resDM12$data$lo[1:161]
l22<-resDM22$data$lo[1:161]
l32<-resDM32$data$lo[1:161]
l42<-resDM42$data$lo[1:161]
l13<-resDM13$data$lo[1:161]
l23<-resDM23$data$lo[1:161]
l33<-resDM33$data$lo[1:161]
l43<-resDM43$data$lo[1:161]

```

```

h10<-resDM10$data$hi[1:161]
h20<-resDM20$data$hi[1:161]
h30<-resDM30$data$hi[1:161]
h40<-resDM40$data$hi[1:161]
h11<-resDM11$data$hi[1:161]
h21<-resDM21$data$hi[1:161]
h31<-resDM31$data$hi[1:161]
h41<-resDM41$data$hi[1:161]
h12<-resDM12$data$hi[1:161]
h22<-resDM22$data$hi[1:161]
h32<-resDM32$data$hi[1:161]
h42<-resDM42$data$hi[1:161]
h13<-resDM13$data$hi[1:161]
h23<-resDM23$data$hi[1:161]
h33<-resDM33$data$hi[1:161]
h43<-resDM43$data$hi[1:161]

```

```

resDM <- data.frame(exp(B))
resDM <- cbind(resDM, y10, y20, y30, y40, y11, y21, y31, y41, y12, y22, y32, y42, y13, y23, y33, y43,
  l10, l20, l30, l40, l11, l21, l31, l41, l12, l22, l32, l42, l13, l23, l33, l43,
  h10, h20, h30, h40, h11, h21, h31, h41, h12, h22, h32, h42, h13, h23, h33, h43)

```