**Appendix**

for FAN dose-response assessment of NTP studies

Stata **admetan** commands in .do format

Stata .do commands for producing meta-analyses with forest plots.

The Stata data file will also be necessary to load before these .do commands can be used.

Copying and pasting the .do commands into a Stata .do editor or directly into the Stata command window will allow them to be used.

Each **admetan** command is followed by a **graph play** command that will apply a prerecorded series of commands that formats the forest plot. The prerecorded graph modification commands are in a file named “format x-axis forest plot.grec”. This is a text file and to make it automatically available it will need to be placed in the Stata personal folder. Otherwise, it will have to be manually located and then run using the “browse” function in graph edit recordings.

=========================================

\* FILE NAME: meta-analysis & graph formatting.do

\* Creates meta-analyses with formatted forest plots, for studies identified by NTP as high quality and with individual-level data

\* the graph play recording applies additional graph formatting: alters x-axis so ticks from -20 to +5 by interval 5; requires separate file titled "format x-axis forest plot.grec"

\* main observations

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols() spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* main observations, obser. type in left column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) lcols(MainObs) rcols() spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* critical observations

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols() spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* critical observations, obser. type in left column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) lcols(MainObs) rcols() spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* main observations with subpopulation column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(SubPop) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"

\* critical observations with subpopulation column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(SubPop) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"

\* main observations subgroup by Exposure level ≤1.5 or > 1.5 mg/L

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), by(Below1\_5) random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis by subgroup: Mean exposure above or below 1.5 mg/L", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(F\_mgL) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* critical observations subgroup, by Exposure level ≤1.5 or > 1.5 mg/L

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit"), by(Below1\_5) random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis by subgroup: Mean exposure above or below 1.5 mg/L", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(F\_mgL) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* main observations subgroup, by Exposure Period early life or childhood

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), by(ExpPeriodCategory) random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis by subgroup: Exposure period", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(ExpPeriod\_Detail) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* critical observations subgroup, by Exposure Period early life or childhood

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit"), by(ExpPeriodCategory) random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis by subgroup: Exposure period", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(ExpPeriod\_Detail) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* main observations restricted to Exposure level ≤1.5

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main" & F\_mgL<=1.5), by() random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis restricted to observations with exposures ≤ 1.5 mg/L", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(F\_mgL) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* critical observations restricted to Exposure level ≤1.5

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(Crit\_or\_NonCrit=="crit" & F\_mgL<=1.5), by() random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis restricted to observations with exposures ≤ 1.5 mg/L", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, critical observations when available", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(F\_mgL) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(60))

graph play "format x-axis forest plot"

\* ADDITIONAL META-ANALYSES, SENSITIVITY, SUBPOPULATION, DETAILS

\* main observations with exposure measure column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(Exp\_Measure) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"

\* main observations with exposure measure column, sort studies by exposure measure

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random sortby(Exp\_Measure) study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(Exp\_Measure) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"

\* main observations with mean age column

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(Mean\_Age\_y) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"

\* main observations with mean age column, sort studies by age

admetan BetaIQ\_per1mgL Beta95CLlower Beta95CLupper if(MainObs =="main"), random sortby(Mean\_Age\_y) study(StudyName) effect(Effect Size) forestplot(title("Meta-analysis", size(small) justification(left) placement(west)) subtitle("high quality studies with individual-level exposures, main observations", size(vsmall) justification(left) placement(west)) favours(Effect Size; IQ points per 1 mg/L increase fluoride) rcols(Mean\_Age\_y) spacing(1.8) diamopts(color(ebblue) fcolor(ebblue) lwidth(vthin)) xlabel(-20(5)2) astext(75))

graph play "format x-axis forest plot"