**SUPPLEMENT D: Pattern mixture models**

Pattern mixture models model the data of interest jointly with the assumed missing data mechanism (White et al 2018). We defined sensitivity parameters for the degree of departure from the missing at random assumption (under which the conditional expectation of the outcomes for which data is missing is the same as those for which we observe data) and analysed the primary outcome under the following variations from the base case: non-responders not all missing are smokers, non-responders in one group are not all smokers, non-responders in the other group are not all smokers).

The graphs below illustrate the results of missing data sensitivity analysis using the pattern mixture model approach, for each of the three group comparisons. The graphs demonstrates how the adjusted odds ratio of being a biochemically-verified non-smoker varies for varying values of the informative missingness odds ratio in each of the study groups and for the groups combined (i.e. varying amounts of deviation from the missing at random assumption). Sensitivity is on the base case of all missing are smokers (OR for missingness on outcome=0), shown on far left of graphs.

White IR, Carpenter J, Horton NJ. A mean score method for sensitivity analysis to departures from the missing at random assumption in randomised trials. Stat Sin. 2018 Oct;28(4):1985-2003.

No incentives (control) versus 12-month incentives



Under the missing =smoking case, which is shown on the far left of graph there is a difference between groups in the odds of smoking at 12m. If the missing=smoking assumption is relaxed for the 12-month incentives group only (blue line) then the difference between groups increases. If the missing=smoking assumption is relaxed for both groups (purple line) or for the no incentives group only (red line) then the difference between groups on the primary outcome decreases.

No incentives (control) versus 3-month incentives



In the comparison of 3-month incentives vs control group the direction of effect under the base case of missing=smoking is that 3-month incentives is associated with a lower odds of abstinence than no incentives, although this difference is not statistically significant. Only if the missing=smoking assumption is relaxed for the no incentive group only is the difference between groups significant.

12-month incentives versus 3-month incentives



In the comparison of 12-month and 3-month incentives there is a much clearer effect in favour of the 12-month incentives relative to 3-month incentives and this effect is robust to deviations from the assumption of missing=smoking in both groups.