Appendix

Let T=truth
Let M=mother's report
Let D=daughter's report

$$P(T=1|D=1) = P(T=1|D=1, M=1)* P(M=1| D=1) + P(T=1|D=1, M=0)* P(M=0|D=1) \quad (1)$$

We assume that the probability of the mother actually smoking during pregnancy (i.e. the truth) conditional on both the mother and daughter reports, is captured by the probability of truth conditional on the mother's report alone. In other words we assume that the daughter's report does not add any additional information regarding the probability of truth once the mother's report is taken into account. Therefore equation 1 above reduces to equation 2.

$$P(T=1|D=1) = P(T=1|M=1) * P(M=1|D=1) + P(T=1|M=0) * P(M=0|D=1) \quad (2)$$

In the published literature $P(T=1|M=1)$ ranged from 84% to 97%. In our study population (Table 2), $P(M=1|D=1)$ is 86%. $P(T=1|M=0)$ ranged from 3% to 25%, and again from our data $P(M=0|D=1)$ is 14%. Therefore using the extremes of these ranges, $0.76 \leq P(T=1|D=1) \leq 0.84$.

Similarly we can estimate the probability that the mother did actually smoke cigarettes while pregnant with her daughter when the daughter reports that she didn't.

$$P(T=1|D=0) = P(T=1|M=1) * P(M=1|D=0) + P(T=1|M=0) * P(M=0|D=0) \quad (3)$$

Using data from the present study and the published literature values used above to estimate equation 2, we find $0.08 \leq P(T=1|D=0) \leq 0.28$.

It is important to consider the number of assumptions made both explicitly (as described above) and implicitly. The published data which were used to estimate the conditional probability of the truth given the mother's report are assumed to be representative of the experience in the mothers in our study population.