

Conclusions - Statement on the effects of lead on maternal health

In this guide

[In this guide](#)

1. [Introduction and Background - Statement on the effects of lead on maternal health](#)
2. [Previous evaluations and Toxicity - Statement on the effects of lead on maternal health](#)
3. [Exposure Assessment - Statement on the effects of lead on maternal health](#)
4. [Risk characterisation - Statement on the effects of lead on maternal health](#)
5. [Conclusions - Statement on the effects of lead on maternal health](#)
6. [Abbreviations, Search terms and References](#)
7. [Appendix 1 - Statement on the effects of lead on maternal health](#)

57. Lead is a heavy metal pollutant that is ubiquitous in the environment and is thus present in the diet of the general population, including women of childbearing age. Levels have, nonetheless, fallen since the phasing out of lead in petrol, plumbing and paints.

58. Lead in pregnant women can cause increased blood pressure and may be associated with preeclampsia and premature birth.

59. Lead accumulates in the body, therefore, adverse effects can occur from long term dietary exposures at levels below those which cause acute toxicity. Neurotoxicity has been identified at lower levels of exposure than for other effects, and the developing brain appears to be more vulnerable than the mature brain. It has not been possible to demonstrate a threshold level of exposure below which the neurodevelopmental effects of lead do not occur.

60. EFSA (2010, updated 2013) derived BMDLs for effects on neurodevelopment, renal function and systolic blood pressure and provided values as both $\mu\text{g/L}$ in blood and the corresponding calculated dietary intake

values in $\mu\text{g}/\text{kg}$ bw/day. The COT determined that the most relevant reference point was the BMDL01 for neurodevelopmental toxicity as this value is for the most sensitive effect and hence will be protective for the other endpoints in the mother.

61. Exposure of women of childbearing age to lead, in food at the mean and 97.5th percentile of consumption of commodities with the highest concentrations and from soil and dust give MOEs exceeding 1, for effects on developmental neurotoxicity relative to the dietary intake value of 0.5 $\mu\text{g}/\text{kg}$ bw/day corresponding to the BMDL01. These MOEs indicate that any risk of toxicity from lead in food is likely to be small.

62. There is no appreciable risk of a significant effect on IQ in children following maternal exposure to lead in air in the UK.

63. The calculated MOEs for soil exposure indicate that in semi-urban and urban areas in the 75th percentile of measured lead levels, the risk to human health is low, however, this is based upon ingestion rates of high uncertainty.

64. Toxicity will depend on total exposure to lead from all sources, and it is therefore important to consider this to determine an overall likely level of risk. A scenario in which there are high levels of exposure to lead from food, drinking water and soil/ dust would result in an MOE of 0.9, however, this assumes a worst-case for exposure from all sources for a prolonged period of time. A scenario in which there are average levels of exposure to lead from food, drinking water and soil/ dust would result in an MOE of 2. These MOE values indicate that any aggregate risk of toxicity from lead in relation to the maternal diet together and other potential sources of maternal exposure is likely to be small.

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