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## Human Health Benefits of the Minamata Convention on Mercury

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The Minamata Convention is a legally-binding international treaty aimed at reducing the anthropogenic release of mercury, a potent neurotoxin. However, its human health benefit has not been quantified at a global scale. Here we evaluate the Convention's benefit by a coupled climate-atmosphere-land-ocean-ecosystem model and a human mercury exposure component that considers all food categories. We find the mercury health risk decreases nonlinearly with emission reduction, and the most optimistic scenario leads to mercury level in marine biota half of the present-day level. Our results show that the accumulated benefits of the Convention are 660 billion USD avoided earn loss (3% discount rate, realized in 2010) and 1.2 million avoided deaths from fatal heart attacks over the period 2010-2100, with substantial global human health cost if delaying emission reduction actions. Such a comprehensive modelling approach helps parties to evaluate the effectiveness of implementation as required by the Convention.