

## MERCURY EXPOSURE AND HEALTH DAMAGE

The largest source of Europeans' exposure to mercury (vapour from dental amalgams) is NOT the largest source of documented and generally accepted health risk. Rather, the largest public health risk actually comes from eating certain fish that contain unsafe levels of methylmercury.

- Mercury comes in different forms which have different toxicity profiles and different absorption rates. Therefore the type, amount, and timing of exposure, particularly in vulnerable groups, determines the severity of health damage.
- Methylmercury contamination from fish is considered the most toxic form of mercury for people. This is because it has an extremely high absorption rate; its primary toxicity is to the central nervous system; and it crosses both the placenta and blood/brain barrier.
- Methylmercury is stored in women's bodies and 1) is bioconcentrated across the placenta, 2) affects the foetus during very vulnerable development stages in pregnancy and 3) is transported in breastmilk, so it harms nursing infants<sup>1</sup>. This form of mercury is also very toxic for young children, whose brains are in a sensitive period of development, and whose greater susceptibility also comes from their greater exposure (higher dietary intake per pound of body weight).

## FISH AND HEALTH DAMAGE

There is extensive evidence of health damage from methylmercury through certain kinds of fish consumption<sup>2</sup>.

- We know that anywhere from 3 to 15 million Europeans have levels around the US recommended limit, and that some have ten times that level. The US recommended limit is more protective, because it is twice as low as the one in Europe. A probabilistic study done by the European Food Safety Agency concluded that in France 44% of children aged 3-6 years could be over the US limit. (Commission's Extended Impact Assessment.)
- In the USA, the Mount Sinai study estimated that \$8.7 billion dollars is lost annually because of the damage that mercury does to children's brains<sup>3</sup>. The loss of IQ affects 10-15% of children born in that country.
- What we do NOT yet know is the extent of the health harm among vulnerable groups (women before child-bearing, pregnant & nursing women, nursing infants, young children) in Europe, and the associated economic costs from our exposure to methylmercury.

## ENVIRONMENTAL MERCURY ENDS UP IN FISH

The health hazard comes from the entire lifecycle of all mercury uses. Any mercury in any product poses the danger of release (accidental or otherwise) to the environment, where some of it becomes methylmercury in fish.

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<sup>1</sup> It is important to note that despite the mercury in breastmilk, it still surpasses formula in conferring benefits to infants. See for instance the Grandjean et al. study – in which breast fed infants scored better on neurological testing than formula fed babies.

<sup>2</sup> A number of well designed studies document persistent damage in the developing brain of human fetuses when maternal exposures to methylmercury from fish consumption exceed a certain threshold.

<sup>3</sup> See <http://ehp.niehs.nih.gov/members/2005/7743/7743.pdf>

- For instance, even if scientific consensus on the health hazards of amalgam vapour is not yet available, amalgams nevertheless pose significant problems at the end of their 'lifecycle'. Crematoria emissions of mercury come from the burning of deceased people with dental amalgams. The released mercury moves from the atmosphere to the earth in snow or rain, and some ultimately returns as methylmercury in fish. Additional releases of amalgam mercury come from dental practices whose collectors fail to capture all the mercury waste.

## **PROPER RISK COMMUNICATION ABOUT FISH**

Certain fish pose the largest risks to health, particularly to vulnerable groups, but fish also provide indisputable health benefits, so it is important to get the risk communication right.

- The message for vulnerable groups should be HOW MUCH of WHICH fish to eat. Moreover, methylmercury also poses risks to cardiovascular health even for all others, so that the message must also address them. To have this message crafted correctly and distributed effectively, 1) we need the European Community to ensure the necessary data on dietary intake and the mercury levels in fish are obtained and 2) that uniform precautionary standards are chosen that protect the most vulnerable.

## **DENTAL AMALGAMS**

In recent scientific studies, there are increasing indications of health risks from dental amalgams for some sections of the population<sup>4</sup>. Because the problems associated with dental amalgams vary depending on the individual's capacity to detoxify, it is difficult to establish scientific consensus about the risks. At the same time, amalgams constantly release significant amounts of mercury to the environment through 1) amalgam carriers' bodily discharges (saliva, exhalation, feces, urine) 2) dental clinics' waste, and 3) burial and crematoria emissions. Given these growing indications, widespread releases, and the ready availability of sound alternatives, we advocate the phase out of the use of dental amalgams where and whenever safe and suitable alternatives exist.

## **VACCINES**

In the absence of scientific consensus about the health hazards from vaccines, there is enough valid widespread concern, based on credible scientific analysis, to justify a preventive approach, especially as alternatives are already available.

- The European Agency for the Evaluation of Medicinal Products concluded already in 1999 that "... it would be prudent to promote the general use of vaccines without thiomersal... within the shortest possible time-frame."<sup>5</sup>

## **ELIMINATING MERCURY**

Already in 1991, the World Health Organization (WHO) concluded that a safe level of mercury exposure, below which no adverse effects occur, has never been established.<sup>6</sup> It is therefore important that we address all sources of mercury releases to the environment in order to minimize and ultimately eliminate people's exposure to mercury and its health risks.

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<sup>4</sup> Mutter, J. et al, "Amalgam: A risk assessment with coverage of references up to 2005", Gesundheitswesen 2005, vol 67, pp. 204-216.

<sup>5</sup> European Agency for the Evaluation of Medicinal Products, "EMEA Public Statement on Thiomersal Containing Medicinal Products", London, 8 July 1999, Doc. Ref: EMEA/20962/99  
<http://www.emea.eu.int/pdfs/human/press/pus/2096299EN.pdf> accessed 17 June 2005

<sup>6</sup> INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY ENVIRONMENTAL HEALTH CRITERIA 118 INORGANIC MERCURY World Health Organization Geneva, 1991  
<http://www.inchem.org/documents/ehc/ehc/ehc118.htm> accessed 11 August 2005