Contribution of European Associations about IPEN Views on a Global Mercury Treaty

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International POPs Elimination Network (IPEN) proposes that an international treaty should define a list of measures to be implemented **to protect human health and ecosystems from mercury exposure**.

It is surprising that this paper does not mention the **primary source of human exposure to mercury** in developed countries, namely **dental amalgams** (1).

There is now enough evidence that **amalgams continuously release elemental mercury.**

- **Oral Bacteria partially transform elemental mercury into methylmercury** (2) which will then be ingested and almost entirely absorbed within the intestine.

- **Mercury in vapor form is inhaled**, 80% passing into blood and crossing the blood-brain-barrier. This neurotoxin thus cumulates gradually in **the brain.** For people with many amalgams, brain mercury impregnation is more than 10 times higher than among those having few fillings (3), as the half-life of mercury in the brain can attain tens of years. Many scientific publications highlight exposure to dental mercury as being a crucial factor in the development of **neurodegenerative illnesses**, including Alzheimer's and multiple sclerosis (4, 5).

- **Elemental mercury makes its way through the placenta** easily, and concentrates in fetal areas such as the placenta, meconium, and organs such as the liver, kidney, retina, cerebellum, pituitary gland ... (6, 7, 8, 9, 10). It may lead to fetal hypothyroidism which can have **serious consequences for brain development** (11, 12).

- **Amalgams are the primary source of mercury in breast milk**, leading to levels in excess of WHO reference levels in many breastfed infants (13, 14, 15, 16).

- Mercury permeates the extremely vulnerable brain of infants, where its concentration correlated to the number of fillings the mother has (8).

This early exposure to dental mercury is strongly suspected of increasing the risk of **hyperactivity, autistic syndrome and neurocognitive deficits** (17,18).

Continuing to say that methylmercury (MeHg) is the <u>only</u> dangerous form of mercury ignores generally accepted scientific data:

- Just as for MeHg, **elemental mercury is a dangerous neurotoxic, immunetoxic, reprotoxic, endocrine disruptor.**

- Just as for MeHg, **elemental mercury accumulates in the human body**.

- Just as for MeHg, **mercury vapor exposure in even low doses leads to neurocognitive deficits** (19).

However, fish provides firstly selenium, an element protecting against the harmful effects of mercury, and secondly omega-3 fatty acids, essential for proper brain development. This is why the number of fish meals consumed by a mother correlates with better performances of her child. On the other hand, the impregnation of mercury during pregnancy or existing in

umbilical cord blood (of which maternal amalgams are the main source) is inversely correlated to the cognitive performances of the child (20, 21).

We know, moreover, that **a concomitant prenatal exposure to mercury vapor and to methylmercury compounds the risks to a fetus** (22).

Scientific knowledge now permits us to assert that early exposure to low doses of elemental mercury is as least as dangerous as exposure to small amounts of MeHg.

It is indisputable that we must urgently reduce human exposure to all forms of mercury, whatever their origin: food (fish MeHg), medicinal products (thiomersal in vaccines), environmental (chlorine industry, gold mining, power plants...). But **it would be incomprehensible and completely aberrant to ignore the primary source of mercury exposure**, the one that overwhelmingly contributes to the impregnation of human bodies in many areas of the world (23), including children: dental amalgams.

An immediate ban on amalgam usage would drastically reduce human exposure, especially early exposure, to mercury, thus preventing loss of intelligence in children and preventing numerous neurodegenerative diseases such as Alzheimer's.

This ban must be implemented **globally** if we want to prevent dental care from becoming an important source of mercury exposure in developing countries in the next few years, due to the increase of tooth decays among children in these countries: **if we don't pay attention to this, the market for mercury amalgams will migrate to the South**, since the banning of dental amalgams in the North looks inevitable (it is already in place in Scandinavian countries).

The International POPs Elimination Network (IPEN) justly fights for a free-toxic future. As European Associations we support their aims and ask that IPEN call for an immediate world-wide ban on mercury amalgams, in conjunction with the development of non-toxic alternatives.

French Associations:

Association Toxicologie Chimie[1] http://atctoxicologie.free.fr/

Coordination Nationale Médicale Santé et Environnement http://cnmse.ouvaton.org/

Non au mercure dentaire http://www.non-au-mercure-dentaire.org/

***Association of Luxembourg*: AKUT asbl** http://www.akut.lu/

Italian association: AMICA www.infoamica.it

***Spanish association*:** MERCURIADOS asociation www.mercuriados.org

German Associations:

Verein Zu Hilfe UmweltbedingtErkrankter http://www.umweltbedingt-erkrankte.de/

Praxis für Umwelt und Integrative Medizin http://www.zahnklinik.de/umwelt_integrativ

Federal Association of information centres for environmental toxins
http://amalgam.de.ki und http://www.bbfu.de

[1] André Picot, president of ATC Toxicology, head of research CNRS, former French Expert of the EU on standards of the chemicals in the workplace, (DG V Luxembourg) and former Expert on endocrine disruptors (AFSSET).

Some citations:

"…it is quite unacceptable, in my view, to continue inserting such a potentially toxic substance in people's mouths when safer alternatives exist". Marios Matsakis, a forensic pathologist, Dr. in microbiology and biochemistry, protractor of the European Commission on the Environment, the Public Health and Food Safety of the European Parliament (March 14, 2006), as part of the "Community Strategy Concerning Mercury". http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20060313+ITEM-021+DOC+XML+V0//EN

"The unrestricted application of amalgam for dental restorations in women before and during the child-bearing age should be reconsidered". Drasch et al, 1994 (8)

"Dental amalgam fillings in girls and women of reproductive age should be used with caution, to avoid increased prenatal Hg exposure". Palkovicova et al, 2007 (24).

"With reference to the fact that mercury is a multipotent toxin with effects on several levels of the biochemical dynamics of the cell, amalgam must be considered to be an unsuitable material for dental restoration. This is especially true since fully adequate and less toxic alternatives are available.

With reference to the risk of inhibiting influence on the growing brain, it is not compatible with science and well-tried experience to use amalgam fillings in children and fertile women". Official report from Maths Berlin, 2003 (25).

References

1. WHO/IPCS. Inorganic mercury, environmental Health Criteria 118. Geneva: WHO; 1991
2. Leistevuo J, Leistevuo T, Helenius H, Pyy L, Osterblad M, Huovinen P, Tenovuo J. Dental amalgam fillings and the amount of organic mercury in human saliva. Caries Res. 2001 May-Jun;35(3):163-6.
3. Guzzi G, Grandi M, Cattaneo C, Calza S, Minoia C, Ronchi A, Gatti A, Severi G. Dental amalgam and mercury levels in autopsy tissues: food for thought. Am J Forensic Med Pathol. 2006 Mar;27(1):42-5.
4. Mutter J, Naumann J, Schneider R, Walach H. Mercury and Alzheimer's disease. Fortschr Neurol Psychiatr. 2007 Sep;75(9):528-38. Epub 2007 Jul 12.
5. Grosman M, Picot A. Environmental factors and Alzheimer's disease: Mercury strongly under suspicion. j.mlong. 2009 1, 12—21
6. Unuvar E, Ahmadov H, Kiziler AR, Aydemir B, Toprak S, Ulker V, Ark C. Mercury levels in cord blood and meconium of healthy newborns and venous blood of their mothers: clinical, prospective cohort study. Sci Total Environ. 2007 Mar 1;374(1):60-70
7. Ostrea EM, Morales V, Ngoumgna E et al. Prevalence of fetal exposure to environmental toxins as determined by meconium analysis. Neurotoxicology. 2002 Sep;23(3):329-39
8. Drasch G, Schupp I, Höfl H, Reinke R, Roider G. Mercury burden of human fetal and infant tissues. Eur J Pediatr. 1994 Aug;153(8):607-10.
9. Lutz E, Lind B, Herin P, Krakau I, Bui TH, Vahter M. Concentrations of mercury, cadmium and lead in brain and kidney of second trimester fetuses and infants. J Trace Elem Med Biol., 1996 Jun;10(2):61-7.;
10. Warfvinge K. Mercury distribution in the neonatal and adult cerebellum after mercury vapor exposure of pregnant squirrel monkeys. Environ Res. 2000 ;83(2):93-101
11. Takser L, Mergler D, Baldwin M, de Grosbois S, Smargiassi A, Lafond J. Thyroid hormones in pregnancy in relation to environmental exposure to organochlorine compounds and mercury. Environ Health Perspect. 2005 Aug;113(8):1039-45.
12. Román GC. Autism: transient in utero hypothyroxinemia related to maternal flavonoid ingestion during pregnancy and to other environmental antithyroid agents. J Neurol Sci. 2007 Nov 15;262(1-2):15-26

13. Oskarsson A, Schültz A, Skerfving S, Hallén IP, Ohlin B, Lagerkvist BJ. Total and inorganic mercury in breast milk in relation to fish consumption and amalgam in lactating women. Arch Environ Health. 1996 May-Jun;51(3):234-41
14. Björnberg KA, Vahter M, Berglund B, Niklasson B, Blennow M, Sandborgh-Englund G. Transport of methylmercury and inorganic mercury to the fetus and breast-fed infant. Environ Health Perspect. 2005 Oct;113(10):1381-5
15. Drasch G, Aigner S, Roider G, Staiger F, Lipowsky G. Mercury in human colostrum and early breast milk. Its dependence on dental amalgam and other factors. J Trace Elem Med Biol. 1998 Mar;12(1):23-7
16. Da Costa SL, Malm O, Dórea JG. Breast-milk mercury concentrations and amalgam surface in mothers from Brasília, Brazil. Biol Trace Elem Res. 2005 Aug;106(2):145-51
17. Mutter J, Naumann J, Schneider R, Walach H, Haley B. Mercury and autism: accelerating evidence? Neuro Endocrinol Lett. 2005 Oct;26(5):439-46.
18. Haley BE. Mercury toxicity : Genetic susceptibility and synergistic effects. Medical Veritas2. 2005
19. Counter SA, Buchanan LH, Ortega F. Neurocognitive screening of mercury-exposed children of Andean gold miners. Int J Occup Environ Health. 2006 Jul-Sep;12(3):209-14.
20. Oken E, Radesky JS, Wright RO, Bellinger DC, Amarasiriwardena CJ, Kleinman KP, Hu H, Gillman MW. Maternal fish intake during pregnancy, blood mercury levels, and child cognition at age 3 years in a US cohort. Am J Epidemiol. 2008 May 15;167(10):1171-81.
21. Lederman SA, Jones RL, Caldwell KL, Rauh V, Sheets SE, Tang D, Viswanathan S, Becker M, Stein JL, Wang RY, Perera FP. Relation between cord blood mercury levels and early child development in a World Trade Center cohort. Environ Health Perspect. 2008 Aug;116(8):1085-91
22. Fredriksson A, Dencker L, Archer T, Danielsson BR. Prenatal coexposure to metallic mercury vapour and methylmercury produce interactive behavioural changes in adult rats. Neurotoxicol Teratol. 1996 Mar-Apr;18(2):129-34
23. Lorscheider FL, Vimy MJ, Summers AO. Mercury exposure from ‘‘silver’’ tooth fillings: emerging evidence questions a traditional dental paradigm. FASEB J 1995;9(7):504-8
24. Berlin M. Mercury in dental-filling materials - an updated risk analysis in environmental medical terms : an overview of scientific literature published in 1997-2002 and current knowledge. The Dental Material Commission Care and Consideration 2003;33p
25. Palkovicova L, Ursinyova M, Masanova V, Yu Z, Hertz-Picciotto IJ. Maternal amalgam dental fillings as the source of mercury exposure in developing fetus and newborn. Expo Sci Environ Epidemiol. 2008 May;18(3):326-31