Appendix III

Worldwide Progress in Phasing Out and Restricting Dental Amalgam

Progress in Phasing Out Dental Amalgam

- **Sweden:** According to WHO, "In Sweden, the use of dental amalgam declined dramatically over the past decade because of a 'phasing-out policy.'"[1]

- **Denmark:** According to WHO, "Denmark has introduced a partial "phasing-down" practice in the use of amalgam as this material is generally not recommended for children."[2]

- **Finland:** According to WHO, "In Finland 5% of restorations are in amalgam."[3]

- **Netherlands:** According to WHO, "In the Netherlands less than 10% restorations are amalgam and over 81% are composites."[4]

- **Norway:** According to WHO, "There has been a complete ban on amalgam in Norway since January 2008."[5]

- **Mongolia:** According to WHO, "[I]n Mongolia 10% of restorations are in amalgam, 60% composite and 30% glass ionomers."[6] The Ministry of Health and the National Emergency Management Agency of Mongolia have issued a Joint Order to "ban further procurement of the mercury containing thermometer, sphygmomanometer and dental amalgam, beginning January 15, 2011 and to authorize directors of the corresponding organizations and city and provincial health care departments and managers of all level health care organizations to take measures to reduce the use of mercury containing medical equipment and replace them with mercury-free alternatives."[7]

- **Malaysia:** According to WHO, "[I]n Malaysia 50% of restorations are amalgams, 30% composites and 20% ionomers."[8]

- **Singapore:** According to WHO, in Singapore, "amalgams only amount to 20% but composites reach 60% and ionomers 20%."[9]

- **Vietnam:** According to WHO, in Vietnam, "amalgams only amount to 20% but composites reach 60% and ionomers 20%."[10]

- **Indonesia:** According to WHO, "In Indonesia, where local production has reduced costs and improved access, composites and glass ionomers are being used."[11]

- **Myanmar:** According to WHO, in Myanmar 50% of restorations are made in amalgam."[12]

- **China:** "The use of dental amalgam varies between regions and provinces in China; it is more commonly used in Hong Kong and less so in Xian and Shanxi Province… [In Xian and Shanxi Province,] Composite resins are commonly used in large hospitals (70%), middle level hospitals (60%) and small hospitals and private dental clinics (50%). The decreasing trend of amalgam use continues…[In Guangxi Province,] Dental amalgam is still used in every public hospital, but only for 8-10% of dental restorations. The majority of private dental clinics (80%) still use dental amalgam based on patients' needs…[In Bejing,] Composite resins are used in large hospitals instead of amalgam. Dental amalgam is still in use in other hospitals and private dental clinics, although the trend is decreasing…[In Shanghai,] Dental amalgam is used in hospitals and private dental clinics in about 45% of dental restorations…[In Dalian,] Dental amalgam restorations are not used in children. Few are used in other hospitals and dental clinics."[13]

- **Japan:** According to a European Commission study, Japan has emphasized alternatives while "(unofficially) discourag[ing] mercury use in dental applications in order to reduce the mercury content of wastewater sludge." 93% of Japanese dental schools were reported to teach the use of alternative materials in preference to amalgam. Japan now uses mercury amalgam for less than 4% of fillings nationwide."[14]

- **Kuwait:** According to WHO, "in Kuwait 50% of restorations are made in amalgam in government dental clinics, 20% in private practices and 25% in dental schools."[15]

- **Mexico:** The Mexico City Health Secretariat is promoting the use of mercury-free alternatives by deauthorizing the purchase of amalgam for its 31 public hospitals and 230 clinics.[16]

- **Switzerland**: According to a letter from the Swiss government, "amalgam fillings account for less than 10% of all dental fillings in Switzerland." [17]

- **United States:** "Reported use of mercury in dental amalgam sold in the U.S. in 2001 was approximately 30.8 tons, decreasing to 26.6 tons in 2004, or by about 14 percent. The decrease in the use of mercury in dental amalgam from 2004 to 2007 was 10.2 tons, or approximately 38 percent. Increased consumer awareness of mercury use in fillings may drive future declines in mercury amalgam use; however, non-mercury fillings are more expensive, which can affect the preferences of patients for dental restorative materials."[18]

- **Canada:** According to WHO, in Canada, "the use of amalgam is declining. According to the Dental Industry Association of Canada, the sale of amalgam dropped from 3000 kg in 1999 to 2500 kg in 2006."[19]

- **Australia:** According to Australia's National Health & Medical Research Council (NHMRC), "Amalgam is now generally avoided for filling children's teeth…The use of amalgam for dental work is declining as dental health improves and reasonably priced alternative materials become more widely available.[20]

Progress in Restricting Dental Amalgam

- **Spain:** In Catalonia, Spain (which includes its provinces: Barcelona, Tarragona, Girona, Lleida), since the end of 2007, there is a recommendation (by the Environmental and Health Catalan Departments) of not placing dental amalgam in pregnant women and children under 14 years old. Since 2010, there is also a prohibition to buy Hg products (including dental amalgams) in children.[21]

- **Italy:** In Italy, a regulation entitled Decreto Ministeriale sull'Amalgama issued by the Ministry of Health in 2001 limits the use of amalgam in children under the age of 6, in pregnant and feeding women, in people with kidney injury and in people with allergy/sensitivity to one element of amalgam.[22]

- **Germany:** The German Ministry of Health, German Institute for Drugs and Medical Devices, Federal Dental Chamber, German Scientific Dental Association, German Association for Operative Dentistry and German Association of Dentists Practicing Neuropathy, issued a consensus statement on "Restorative Materials in Dentistry" on 1 July 1997. The statement recommended that amalgam not be used in pregnant women and indicated that use of dental amalgam in people with severe renal dysfunctions is contraindicated.[23]

- **Austria:** An expert group on dental materials established by Austria's Federal Ministry of Health and Consumer Protection has recommended against the use of amalgam to treat deciduous teeth in children and use of amalgam restorations in pregnant and lactating women.[24]

- **Australia:** Australia's National Health & Medical Research Council (NHMRC) says amalgam should be avoided in pregnant women, nursing mothers, children, and people with kidney disease.[25] As the government of the state of Queensland explains, "Amalgam is now generally avoided for filling children's teeth. Growing children tend to be more sensitive to the effects of exposure to any chemical substance in their environment…High level exposure to mercury (which is present in silver fillings) may affect the kidneys. Therefore, the NHMRC, suggest people with kidney disease may be more concerned than others to minimise exposure to mercury."[26]

- **Canada:** Health Canada directed its dentists to stop using amalgam in children, pregnant women, and people with impaired kidney function.[27]

- **United States:** The U.S. Food and Drug Administration explains that "The developing neurological systems in fetuses and young children may be more sensitive to the neurotoxic effects of mercury vapor."[28] The FDA's advisory panel on dental amalgam in December 2010 warned against the use of amalgam in vulnerable populations. The panel insisted that FDA has a duty to protect these vulnerable populations and to disclose amalgam's risks to parents and consumers. For instance, Dr. Thompson says "definitely not in pregnant women and definitely not in those below 6 years of age," Dr. Fleming says we need contraindications for pregnant women, and Dr. Burbacher says, "why put amalgams in children if we know they're going to live with that for the rest of their lives? And we don't know what that's going to do." As panelist Dr. Suresh Kotagal – a pediatric neurologist at the Mayo Clinic – summed it up, there is "no place for mercury in children."[29]

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[1] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.21

[2] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.21

[3] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.21

[4] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.21

[5] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.21

[6] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.23

[7] *Joint Order of The Minister of Health and General Director of The National Emergency Management Agency of Mongolia* (11 January 2011), http://www.mercuryfreehealthcare.org/Hg_Spill_Guideline_Mongolia.pdf

[8] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.23

[9] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.23

[10] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.23

[11] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.20

[12] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.20

[13] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.22

[14] *See* Bio Intelligence Service/European Commission, *Review of the Community Strategy Concerning Mercury* (p.213-14), 4 October 2010, http://ec.europa.eu/environment/chemicals/mercury/pdf/review_mercury_strategy2010.pdf

[15] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.22

[16] *Activities Update for INC2* (2011), http://www.mercuryfreehealthcare.org/INC2_Brochure_FINAL_WEB.pdf

[17] Letter, Federal Office for the Environment to Francesca Romana Orlando (8 August 2011), http://www.toxicteeth.org/SVIZZERA.pdf. See also Switzerland's submission to UNEP, http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/INC3/Switzerland.pdf

[18] Interstate Mercury Education and Reduction Clearinghouse, IMERC Fact Sheet: Mercury Use in Dental Amalgam (June 2010), http://www.newmoa.org/prevention/mercury/imerc/factsheets/dental_amalgam.cfm

[19] World Health Organization, FUTURE USE OF MATERIALS FOR DENTAL RESTORATION (2011), http://www.who.int/oral_health/publications/dental_material_2011.pdf, p.19

[20] National Health & Medical Research Council, *Dental Amalgam – Filling You In* (2002), http://www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/d18.pdf

[21] www.dentalintegral.es/documentos/amalgamas.pdf; www.elpuntavui.cat/noticia/article/2-societat/14-salut/128031-lens-hem-de-fixar-en-sueciar.html

[22] Ministry of Health, http://www.bioral.it/html/html/decreto.html

[23] United States Public Health Service, *Dental Amalgam and Alternate Restorative Materials: National and International Activities*, http://www.health.gov/environment/amalgam2/National.html

[24] United States Public Health Service, *Dental Amalgam and Alternate Restorative Materials: National and International Activities*, http://www.health.gov/environment/amalgam2/National.html

[25] National Health & Medical Research Council, *Dental Amalgam – Filling You In* (2002), http://www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/d18.pdf

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[28] *FDA Special Controls Guidance Document on Dental Amalgam*, http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm073311.htm

[29] FDA transcripts (15 December 2010), http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/MedicalDevices/MedicalDevicesAdvisoryCommittee/DentalProductsPanel/UCM242363.pdf.