Safe Medical Devices for the patient, the health worker and the environment

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Institutional Framework: Injection Safety

- Two WHA resolutions
  - WHA55.18 Quality of care: patient safety
  - WHA 63.18 Viral Hepatitis
- Joint WHO/UNICEF/UNFPA Policy document on exclusive use of auto disable syringes for immunization
- Safe Injection Global Network:
  - Launched in 1999
  - 250 members worldwide
  - WHO/EHT ensures the Secretariat of the Network
WHO is member of the International Programme on Chemical Safety (IPCS) established in 1980 (WHO/ILO/UNEP):

- **Objective of IPCS**: scientific assessment of risk to human health and environment from chemicals and technical support to strengthen national capacities for the sound management of chemicals

Member of the Inter-Organization Programme for the Sound Management of Chemicals (IOMC) established in 1995 (UNEP/ILO/FAO/WHO/UNIDO etc):

- **Purpose of IOMC**: promote coordination of the policies and activities of participating organizations to achieve sound management of chemicals to human health and environment
Institutional Framework: Mercury

- WHO a partner of the United Nations Environment Programme's (UNEP) Global Mercury Partnership

- The first session of the **Intergovernmental Negotiating Committee** (WHO is a member) to prepare a global legally binding instrument on Mercury (**INC1**) was held in Stockholm, Sweden, from 7 to 11 June 2010.
WHO Activities: Injection Safety
http://www.who.int/injection_safety/en/
WHO activities: Mercury


ELEMENTAL MERCURY AND INORGANIC MERCURY COMPOUNDS: HUMAN HEALTH ASPECTS

Please note that the pagination and layout of this web version are not identical to the printed OCAD

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POLICY PAPER

1. Background

Mercury is a naturally occurring heavy metal. At ambient temperature and pressure, mercury is a shiny-white liquid. It vaporizes rapidly and may stay in the atmosphere for up to 1 year. When released to the air, mercury is transported and deposited globally, where it is transformed into its more toxic organomercury forms, methyl mercury, which accumulates in fish tissue.

Mercury is highly toxic, especially when metabolized into methyl mercury. It may be fed if ingested and harmful if absorbed through the skin. Around 80% of the inhaled mercury vapor is absorbed in the blood through the lungs. It may cause harmful effects to the nervous, digestive, respiratory, immune system and to the kidneys, besides causing long-term damage. Adverse health effects from mercury exposure can be transient, repaired with appropriate treatment and can resolve. However, if exposure persists during critical development periods, severe and irreversible effects can occur. Early detection and intervention during childhood is critical. Recent studies suggest that mercury may have its threshold below which some adverse effects do not occur.

2. Contribution from the health care sector and regulation

Healthcare facilities are one of the main sources of mercury releases into the atmosphere because of emissions from the incineration of medical waste. The Environmental Defense of the Canadian province of Ontario estimated that 1,400 Canadian healthcare facilities released 750 kg of mercury in 2001. In the United States, according to the US Environmental Protection Agency (EPA), in 2001, medical waste incinerators may have been responsible for as much as 50% of all mercury air releases.

Healthcare facilities are also responsible for mercury pollution taking place in water bodies from the release of untreated wastewater. According to a 1990 report, healthcare facilities may also have been responsible for more than 7% of all mercury releases in wastewater. Environment Canada estimates that more than one-third of the mercury load in sewage systems is due to dental practice.

Dental amalgam is the most commonly used dental filling material. It is a mixture of mercury and a metal alloy. The mercury vapors liberated are 40.65% mercury, approximately 50% silver and other metals such as copper, tin and palladium. In 1986, the World Health Organization confirmed that mercury contained in dental amalgam is the greatest source of mercury exposure in non-industrialized settings. Exposure of the concerned population to mercury increases significantly as these waste starts to be collected and disposed.

According to a report submitted to the COP21 Commission, in the United Kingdom, annually 7,417 tonnes of mercury from dental amalgam are discharged into the lower atmosphere, with another 11,356 tonnes from industrial and medical facilities. For about 95% of total mercury emissions.

Waste incineration and cremation are also major sources of mercury emissions. Many countries, such as Arabian Peninsula, China, Hong Kong, Pakistan, and Peru, recognize the contributions from hospital waste to overall mercury releases. Other sources of mercury pollution include the disposal of medical waste, where 36% of medical waste is in the form of mercury compounds. Despite the lack of data, there is good reason to believe that mercury releases from the health sector in general are substantial.

Some countries have reduced the use of mercury thermometers or have banned them without prescription. Some countries have adopted legislations encouraging physicians and hospitals to reduce and eliminate their use of mercury-containing equipment.

3. Occupational health hazard

The most common potential route of occupational exposure to mercury is via inhalation of metal mercury liquid, vapor or inhaled dust or aerosol. The liquid or aerosol mercury contains a population of small particles of elemental mercury, which can enter the tissues of the thermometers, which can condense in an air above a mercury thermometer and lead to serious health consequences. Since mercury vapor is toxic and dangerous, people can breathe mercury vapor and not know it. For liquid metallic mercury, inhalation is the route of exposure that poses the greatest health risk.

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World Health Organization
Thank you!