



Health sector in the implementation of the the Minamata Convention on mercury Kingston, Jamaica, 18-19 October 2016

WHO guidelines and documents

Ana Boischio, PhD, MSc
Advisor, Toxicology
Sustainable Development and
Health Equity

Elida Vaught, MSc
Interin consultant, Toxicology
Sustainable Development and
Health Equity



Overview

- Products with added mercury used in health services
- WHO guides and documents
- Dental amalgam
- Thiomersal in vaccines
- Resources



Products with added mercury used in health services

Globally legally binding

Art 4 and Annex A

- Phase-out manufacture, import and export by 2020: thermometers, blood-pressure monitors, antiseptics and skin-lightening cosmetics
- Phase-down use of dental amalgam
- Thiomersal exemption



WHO guides and documents



- Step-by step guide to replacement
- Comparative clinical utility of replacements
- Links to resources

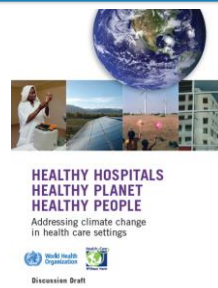


WHO guides and documents

STEP/PHASE	DESIRED OUTCOMES
I. Development of a stakeholder engagement strategy	<ul style="list-style-type: none"> • Definition of management and oversight arrangements for the development and implementation of the strategy and interventions
II. Situation assessment and inventory	<ul style="list-style-type: none"> • Identification of those stakeholder groups needed to support the roll-out of the initiative • Assessment of availability of alternative mercury-free devices and related supporting services, e.g. maintenance, validation, calibration • Definition of volume of waste material to be collected, stored and disposed of • Assessment of available/wastewater capacity to support phase-out activities and identification of gaps, including for safe collection, storage, and environmentally sound disposal • Identification of priority areas (e.g. facilities, facilities to be targeted for initial interventions and activities) • Estimation of costs associated with potential phase-out scenarios
III. Strategy development and implementation	<ul style="list-style-type: none"> • Formulation of recommendations on suitable options for implementation of phase-out activities • Definition of specific intervention packages and supporting activities, agreed by all partner/stakeholders • Agreement reached on roles and responsibilities for delivery of the above in relation to time-bound targets and measurable indicators • Establishment of monitoring framework to facilitate reporting on delivery of interventions and any unforeseen or unexpected outcomes/impacts
IV. Monitoring and reporting	<ul style="list-style-type: none"> • Monitoring of results of interventions and supporting activities with subsequent reporting to designated officer/entity responsible for execution of the strategy • Adjustment of strategy approach as needed and in agreement with partner/stakeholders, taking into consideration reports learned • Detection and reporting, as relevant, of unforeseen issues/impacts related to the implementation of measures under the strategy



WHO guides and documents



- Joint publication with HCWH
- Examples of countries reducing the health sector's climate footprint
- Specific actions and examples in health-care settings
- Opportunities or action (for ministries of health, hospitals and health systems, health professionals)



HEALTH CARE WITHOUT HARM



www.greeninghospitals.org
www.greeninghospitals.net

THE TEN GOALS

1. **LEADERSHIP**
Prioritize Environmental Health
2. **CHEMICALS**
Substitute Harmful Chemicals with Safer Alternatives
3. **WASTE**
Reduce, Reuse and Safely Dispose of Healthcare Waste
4. **ENERGY**
Implement Energy Efficiency and Clean, Renewable Energy Generation
5. **WATER**
Reduce Hospital Water Consumption and Supply Potable Water
6. **TRANSPORTATION**
Improve Transportation Strategies for Patients and Staff
7. **FOOD**
Purchase and Serve Sustainably Grown, Healthy Food
8. **PHARMACEUTICALS**
Safely Manage and Dispose of Pharmaceuticals
9. **BUILDINGS**
Support Green and Healthy Hospital Design and Construction
10. **PURCHASING**
Buy Safer and More Sustainable Products and Materials

A FUTURE VISION: Toward Regenerative Health Care

7 |



**MERCURY-FREE
HEALTH CARE**

An Initiative to Substitute
Mercury-based Medical Devices
Around the World.



www.mercuryfreehealthcare.org

Launched in 2008

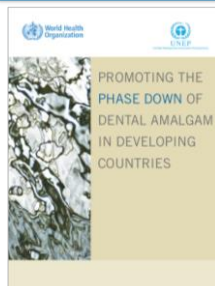
- Technical and policy support for hospitals, health systems and ministries of health and environment
- Multiple countries' health systems –mercury-free goals



8 |



Dental amalgam



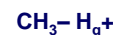
- Joint publication with UNEP
- Toolkit for planning national initiatives for phasing down the use of dental amalgam and phasing-up the use of quality alternative restorative material will be developed

9 |



Thiomersal in vaccines

- Thiomersal contains ethyl mercury - used as preservative for vaccines (multi dose).
- Ethyl mercury - organic mercury – chemical formula similar to methyl mercury.
- Ethyl mercury blood half-life (3-7 days) and methyl mercury (45-60 days).
- Mostly quickly excreted and does not accumulate in the central nervous system.



10 |



Thiomersal in vaccines

- Thiomersal containing vaccines:
 - used in over 120 countries to immunize at least 64% of global birth cohort each year
 - used by developed and developing countries to protect their populations against pandemic and epidemic threats (diphtheria, tetanus, pertussis, and *Haemophilus influenzae* type b disease)

11 |



Thiomersal exemption from the Convention

- During the INC3 in 2011¹
- The WHO Global Advisory committee on Vaccine Safety has indicated that pharmacokinetic (short half life of ethyl mercury) and epidemiological studies do not support concerns over the safety of thiomersal in vaccines.

Annex A

Mercury-added products

The following products are excluded from this Annex:

- (a) Products essential for endogenous and exogenous use;
- (b) Products for research, calibration of instrumentation, for use in medicine (dentistry);
- (c) Where no feasible mercury-free alternative for replacement is available, vaccines and other injectable pharmaceuticals and central venous catheters containing trace amounts of mercury (e.g., 0.01 mg/kg) for all other uses; and
- (d) Products containing thiomersal in parenteral vaccines.

Part 6 Products subject to Article 4, paragraph 1

Mercury-added products	Phase-down schedule (years after the date of the decision)
Mercury-added products for use in vaccines, except for parenteral vaccines, which are excluded from this Annex	2020
Mercury-added products for use in vaccines, except for parenteral vaccines, which are excluded from this Annex	2020
Mercury-added products for use in vaccines, except for parenteral vaccines, which are excluded from this Annex	2020

¹http://www.unep.org/hazardoussubstances/Portals/9/Mercury/Documents/INC3/3_6_health.pdf
mmm

¹ Convention text reflecting WHO recommendations

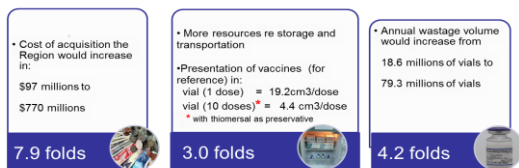
12 |



Unaffordable costs thiomersal-free vaccines

• Shift to single dose preservative-free vaccines:

- Potential disruptions to supply of vaccines
- Multi-fold increase in costs, storage and waste



WHO 2008 – study on thiomersal use

The Global Advisory Committee on Vaccine Safety considered the presentation of a recently published pharmacokinetic study of mercury in premature and low-birth-weight infants who received a birth dose of hepatitis B vaccine containing thiomersal.

The results suggest that exposure to thiomersal-containing vaccines does not result in accumulation of mercury in blood and that the blood half-life (2.9–4.1 days) of intramuscular ethyl mercury from thiomersal in vaccines in infants is substantially shorter than that of oral methyl mercury in adults.

Conclusion:

- exposure guidelines based on oral methyl mercury may not be appropriate for use in assessing the risk of thiomersal in vaccines at dosages consistent with standard vaccination regimen.
- amount of ethyl mercury in the blood and brain from cumulative doses of vaccines does not reach toxic levels.

Thiomersal in vaccines: epidemiological studies

- Epidemiological studies investigating associations of neurobehavioral disorders and use of thiomersal vaccines from the UK and Denmark did not challenge the safety of vaccines in infants
- Previous studies in US with contradictory results were found with methodological problems and uncertainties regarding significant associations between neurodevelopment disorders (suggesting different degrees of autism) and thiomersal vaccines
- It is biologically implausible any association between thiomersal in vaccines use and neurotoxicity effects (tested as developmental delay, adverse neurological developmental outcomes or behavioral problems)

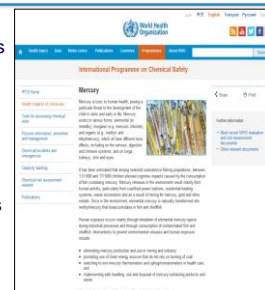
WHO response on the use of thiomersal in human vaccines

- The amount of mercury involved with thiomersal use in vaccines is very small compared to other sources of mercury
- There is no evidence that suggests a possible health hazard with the amounts of thiomersal currently used in human vaccines
- WHO recommends multi-dose vaccine vials for routine immunization programmes in many countries because they are safe and effective, they limit the required storage capacity and help reduce vaccine costs
- Alternative presentations would limit the ability to offer affordable vaccines

Resources on WHO website

http://www.who.int/ipcs/assessment/public_health/mercury/en/

- Short information documents
- Tools for action
- Norms & guidance
- Educational & Training
- Burden of disease estimates
- Fact sheets & QA



Recommendations:

- Continue using thiomersal-containing vaccines
- Share this information with health care workers, ministers of health, legislators, decision-makers on the safety of thiomersal-containing vaccines



Thank you!

Elida Vaught
vaughteli@paho.org
emottasousa@hotmail.com

