

# **E-waste and Child/Vulnerable Populations' Health WHO Initiative**

**Marie-Noel Bruné, PHE**

**May 2013**



**An estimated 50 million tons of e-waste (cellphones, computers, televisions, copy machines and other electronics) are produced each year (Sthiannopkao S, Wong MH. (2012).**

---

A large portion is shipped to China, India, Ghana and Nigeria where it is dismantled and relabeled for re-use.

Components are burned, melted, or given acid baths to extract valuable metals such as gold and copper.



# Children live, work and play near dumps or recycling centres containing e-waste.

- Children are exposed to high injury risk, high levels of a variety of chemicals including: lead, cadmium, chromium, brominated flame retardants (BFRs), and polychlorinated biphenyls (PCBs), which are known to pose health risks (Chen, 2011).
- Burning or disposal can produce toxic gases as well as hazardous combustion products, like dioxins, in the environment.
- Children have increased exposure
  - hand-to-mouth transfer
  - breastfeeding
  - take-home exposures
  - informal sector



# What are the known effects on child health?

- Pregnant women and young children living close to informal e-waste recycling sites are at risk of possible perturbations of fetus and child development (Chen et al, EHP, 2010)
- Study on 300 children: close relationships between BLL elevation, temperament alteration and the e-waste recycling activities in Guiyu (Liu et al, Neurotoxicology, 2011)
- Limitations on studies: industrial pollution, cultural factors (e.g incense burning)

# A call for Action

Busan Pledge for Action on Children's Environmental Health (Busan, 2009)

WHO urged to:

- promote the recognition, assessment and study of environmental factors that have an impact on the health and development of children with a specific mention on the emerging area of electronic waste.

ICCM3 (September 2012, Nairobi) of the Strategic Approach to Integrated Chemical Management endorsed:

- addition to the Global Plan of Action of new activities related to hazardous substances within the life cycle of electrical and electronic products.

Ministerial Conferences on Health and Environment

# In response to this need and concern - the WHO Children's Environmental Health team has recently started working on E-waste and the Effects on Child Health.

- Ongoing pilot initiative by WHO collaborating centres in Thailand (Chulabhorn Research Institute) and the Netherlands (Institute for Risk Assessment Sciences, Utrecht University) - assessing exposures to e-waste among children in selected areas of Thailand, through measurements of air pollution and heavy metal contamination
- Led to a WHO initiative on e-waste and child health (refined at planning meeting in October 2012, Geneva)

# Aim of the WHO initiative

---

To advance the work towards better defining the exposures and related factors that can lead to health risks in order to allow identification of potential measures to protect children and other vulnerable populations from environmental health risks in e-waste

# Key Partners

WHO collaborating centers, key experts, academia, health sector, other UN organizations (United Nations Environment Programme (UNEP), Partnership for Action on Computer Equipment (PACE), Stop the E-Waste Problem (StEP), International Labor Organization, International Telecommunications Union, among others), NIEHS, Government of Germany.





# Tasks to be Accomplished

- 1. International working meeting with experts and other key stakeholders.** Closed meeting, by invitation only. 11-12 June 2013, Geneva, WHO/HQ.
  - Objective: To review the current situation of e-waste exposure and child health, research gaps and successful interventions in order identify needs and define next steps.
  - Immediate meeting-related products include a systematic review on vulnerable populations' health and e-waste, among other background documents on exposure and interventions. Also report and article with meeting results and next steps.

# Tasks to be Accomplished *(continued)*

## 2. Reaching the health sector

- Development of an e-waste and child health “train the trainers” peer-reviewed module of the WHO Training Package on Children's Environmental Health for health professionals  
(<http://www.who.int/ceh/capacity/trainpackage/en/index.html>)
- Pilot-testing of the module during a special training event in the context of the Pacific Basin Consortium Meeting (Honolulu, September 2013)
- Future use of the module in different training initiatives (pediatricians, StEP) is being discussed.

# Tasks to be Accomplished *(continued)*

## 3. Network, Awareness-raising and Communications

- Joint WHO/StEP online questionnaire to identify main stakeholders working in the e-waste and (child) health area that could benefit from the findings of this initiative (subsequent creation of an informal network)
- E-waste section incorporated in the WHO/UNEP Children's Environmental Health Newsletter <http://www.who.int/heca/infomaterials/hecanet/en/index.html>
- E-waste and child health webpage on WHO website
- Collaboration “by contributing health” with other on-going United Nations initiatives on e-waste (e.g UNEP, PACE, International Telecommunication Union).
- Special sessions on project findings at key vulnerable populations / health events. For instance:
  - Special session on e-waste Pacific Basin Consortium meeting (Honolulu September 2013)
  - 4<sup>th</sup> WHO International Conference on Children's Environmental Health (2014, Bangkok)