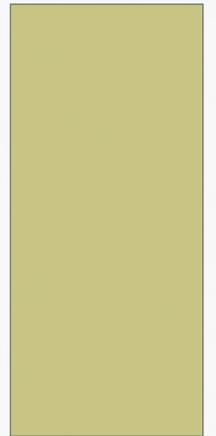


MERCURY IN HEALTHCARE

PRESENTER: MARSHA-ANNPALMER
MOH-JAMAICA



HEAVY METAL TOXICITY

- The Agency for Toxic Substances and Disease Registry (ASTDR)
- U.S. Environmental Protection Agency
- 2011 Priority List for the "Top 20 Hazardous Substances."
- The heavy metals arsenic (1), lead (2), mercury (3), and cadmium (7) appear on this list.

MERCURY

- Mercury (Number 3 on ASTDR's "Top 20 List")
- Mercury is a natural occurring heavy metal.
- Exists in three forms: elemental mercury and organic and inorganic mercury.
- It is used in many different forms in our society:
Industrial, Household, Cultural, Medical

EXPOSURE

- Breathing contaminated air (Ambient and Indoor)
- Ingesting contaminated water and food
- Having dental and medical treatments
- Rituals that involves mercury

MERCURY HEALTH EFFECTS

Effects

- Depend on form of Hg, dose, route of exposure, stage of development
 - tremors
 - impaired vision and hearing
 - Paralysis
 - Insomnia

Effects

- emotional instability
- developmental deficits during foetal development
- attention deficit and developmental delays during childhood.

MERCURY IN HEALTHCARE

Mercury containing healthcare products

- Thermometers
- Sphygmomanometers
- Gastro-intestinal devices (esophageal dilators, canter tubes, feeding tubes)
- Pharmaceutical products



MERCURY IN HEALTHCARE

Mercury Containing Healthcare Products

- Dental filling
- Laboratory chemicals (*fixatives, stains, reagents, preservatives*)
- Fluorescent light tubes
- Batteries
- Boiler switch (including thermostats)



ENVIRONMENTAL IMPACT

- Health-care facilities are one of the main sources of the release of mercury into the atmosphere.
- In 1991, the WHO confirmed that mercury contained in dental amalgam is the greatest source of mercury vapour in non-industrialized settings.
- According to a 1999 report, health-care facilities may also have been responsible for as much as 5% of all mercury releases in wastewater

MERCURY TRAVELS

- A single fever thermometer contains one gram of mercury
- 4 grams of mercury are sufficient to contaminate a small to medium sized lake rendering the fish in that lake unfit for consumption by women of child bearing age



OCCUPATIONAL IMPACT

- Healthcare workers work with mercury-based products on a routine basis and are in danger of inhaling toxic vapour when breakages or leakages happen.
- Spilled mercury can also be tracked on footwear exposing other healthcare staff
- Expose already compromised patients

PERMISSIBLE MERCURY VAPOR EXPOSURE LIMITS

- **OSHA**

- Mercury (PEL) of 0.1 mg/m³ (8-hr [TWA]).
- Some state OSHA mercury vapor limit of 0.05 mg/m³ (8-hr TWA)

- **ACGIH**

- recommends a guideline of 0.025 mg/m³

Recent studies suggest that mercury may have no threshold below which some adverse effects do not occur (WHO)

PERMISSIBLE MERCURY VAPOR EXPOSURE LIMITS

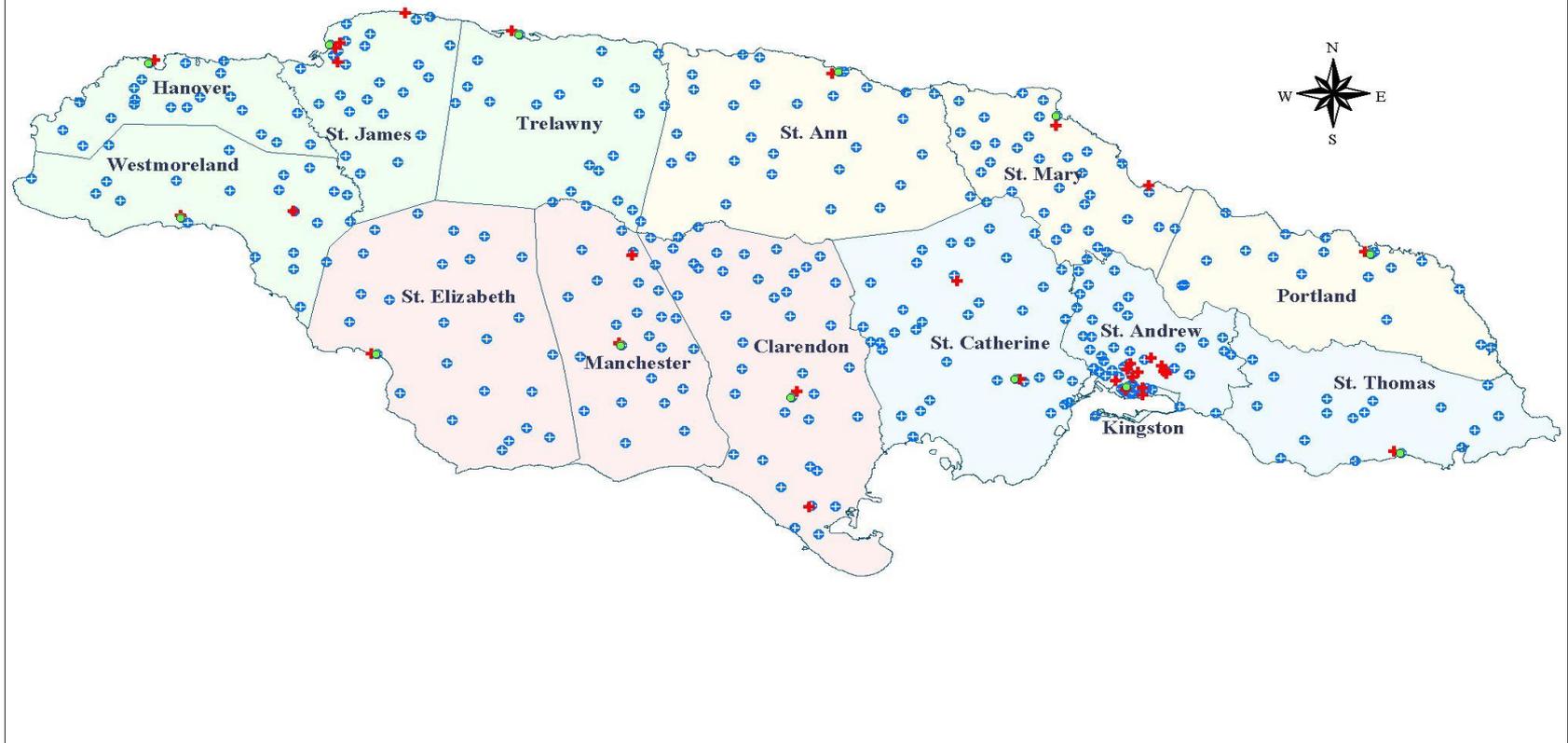
- One broken 48-inch fluorescent lamp in a small room or vehicle can release enough mercury vapor to exceed the Federal OSHA PEL.



LOCAL PERSPECTIVE

- Mercury containing equipment predominantly used in public healthcare facility (thermometer and sphygmomanometers)
- Absence of policy/procedure for the management of mercury containing equipment
- There is regular and ongoing breakage of thermometers and the lack of mercury waste management protocols.

Islandwide Hospitals & Health Centres



20 0 20 40 60 Kilometers

Legend

Health Regions

- North East
- Southern
- South East
- Western

- + Hospitals
- + Health Centres
- Health Departments



Health GIS,
Health Promotion & Protection Division
Ministry of Health, Jamaica

LOCAL PERSPECTIVE

- Small Island State with the absence of a hazardous waste site (restricted disposal options)
- Absence of IAQ assessment after spills
- Reluctance to promote alternatives to mercury containing equipment

ALTERNATIVES TO MERCURY CONTAINING EQUIPMENT

- There are safe and cost-effective non-mercury alternatives for all uses of mercury in health care
- China and India produce large quantities of inexpensive mercury thermometers and other devices
- Low cost poor quality

ALTERNATIVES TO MERCURY CONTAINING EQUIPMENT

MERCURY PRODUCTS	ALTERNATIVES
Thermometers	Electronic thermometers. Alcohol and other non-mercury base chemicals
Sphygmomanometers (blood pressure equipment)	Aneroid and electronic devices are just as accurate when regularly calibrated.
Fluorescent Lamps	Light-emitting diode (LED)
Elemental Mercury and Laboratory Solutions	Mercury-free laboratory reagent substitutes are also available for many products.
Thermostats	Mercury-free electronic thermostats are available at comparable prices for all uses.
Barometers	Digital and other mercury-free barometers are available.

KEY ACTIONS TO REDUCE MERCURY POLLUTION

- Proper Policy/Procedure for the management of mercury containing devices.
(spill clean up response, educational programs, protective gear, appropriate waste storage containment, staff training, and engineered storage facilities).
- Introduce mercury spill kits in healthcare facilities
- Train key staff members in how to use kits
- When mercury is cleaned up it should be treated as a HAZARDOUS waste, not bio-hazardous.

KEY ACTIONS TO REDUCE MERCURY POLLUTION

- Mercury
 - establish policies to eliminate purchase of mercury products in hospitals and clinics
 - Identify suitable cost effective alternatives to mercury products

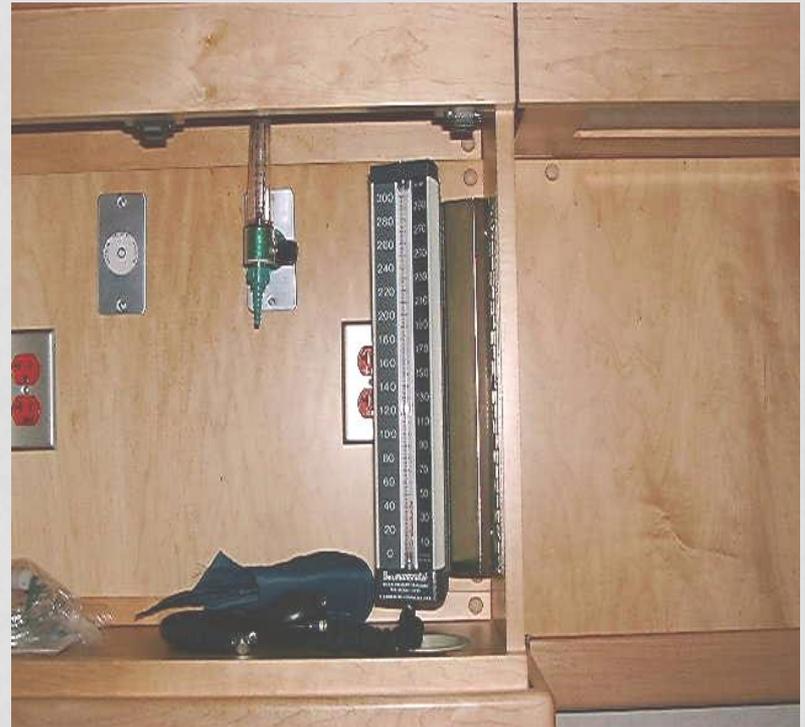


KEY ACTIONS TO REDUCE MERCURY POLLUTION

- Conduct a mercury inventory
- Government to promote mercury free alternatives and make them accessible

KEY ACTIONS TO REDUCE MERCURY POLLUTION

- Mercury
 - phase out use of mercury products



INTERNATIONAL AND REGIONAL SIGNIFICANCE

- The UNEP Governing Council decided that national, regional and global actions were required to protect populations at risk and to reduce human-generated releases of mercury.
- Jamaica submitted a position paper.

INTERNATIONAL AND REGIONAL SIGNIFICANCE

- January 19, 2013
- Geneva-- World's Governments Agree to Mercury-Free Healthcare in 2020

(Phase-Out Date and Mandate for Mercury Thermometers and Blood Pressure Devices)

- Among other measures, the treaty text mandates an end to the manufacture, import and export of mercury thermometers and blood pressure devices (sphygmomanometers) by 2020*.

INTERNATIONAL AND REGIONAL SIGNIFICANCE

- 26 February 2013
- **Mongolia | 14 Hospitals Go Mercury Free**
In January 2011, the Ministry of Health and the National Emergency Management Agency of Mongolia issued a **Joint Order** to ban further procurement of the mercury containing thermometers, sphygmomanometers and dental amalgam.

INTERNATIONAL AND REGIONAL SIGNIFICANCE

- 13 February 2013

Sri Lanka | Health Ministry to Remove Mercury-containing Medical Equipment From Hospitals

- Sri Lanka's Ministry of Health has issued a circular instructing all Provincial Health Directors, Regional Health Directors, Hospital Directors and Medical Health Officers to gradually remove mercury-containing equipment from use to minimize the environmental exposure to mercury in accordance with global guidelines.

INTERNATIONAL AND REGIONAL SIGNIFICANCE

- January 2013
- **China | Hospital Launches Pilot Project to Eliminate Mercury-Containing Medical Devices**

- 30 October 2012

Nicaragua: Public Hospitals Replace Mercury Thermometers

The 29 hospitals in the public health system have successfully started replacing their mercury thermometers with digital alternatives

20/20 VISION

I can see a mercury free healthcare system in the year 2020

Can you?

CREDITS

- Bradshaw Issacs, Occupational Safety and Health Specialist
- The four (4) Regional Health Authorities in Jamaica for contribution of data



THANK YOU