



Toxics Link
for a toxics-free world

HCWH

Fostering a Mercury-free Medical Device Industry in India and Globally

Ravi Agarwal

Director

Toxics Link

www.toxicslink.org

Toxics Link



Toxics Link
for a toxics-free world

HCWH

- Not for profit, non governmental organisation
- Engaged on environmental issues relating to toxics, chemicals and waste for over 12 years
- Hazardous, bio medical and municipal waste, e-waste, asbestos, waste trade, food safety and chemicals management
- Work on reducing heavy metals toxicity from our lives
- Active member of civil society international networks IPEN, HCWH, etc
- Part of Zero Mercury WG (ZMWG) and HCWH

Toxics Link on Mercury



Toxics Link
for a toxics-free world

HCWH

- *Participated in the UNEP global mercury assessment –mercury in India*
- Intervention in hospitals for substitution
- *Survey on mercury use in health care, ambient air study*
- Mercury usage in *traditional and religious sector*
- *Report on perception and handling : mercury in schools*
- Mercury in fish select places of West Bengal with partner
- *Awareness amongst Communities, NGO and Schools*
- Two National Conferences on Mercury 2005, 2007
- *Contributed to WHO mercury policy development*
- Participating in UNEP GC and EC discussions with ZMWG



Toxics Link
for a toxics-free world

Why are alternatives important?

Mercury Devices: Life Cycle Issues not only end-of-life

HCWH



Drivers

- Safety and waste issues in production
- Breakage 2 therms. per bed per year
- Air emissions high
- High exposures to dental assistants
- Calibration issues and exposures
- Spill management/ breakage
- Post collection disposal
- Waste stream contamination
- *Nurses critical stakeholders.*

However in most cases mercury clean up and waste disposal cost is not accounting for



Toxics Link
for a toxics-free world

HCWH

Progress in Health Care Sector - replacement is possible, but needs to be scaled up.



HCWH

- Increased Level of awareness amongst health care professionals (10 workshop covered 26 states)
- 10 large hospitals in Delhi and other States, have replaced mercury thermometers in 2004-2005
- First workshop from government side in June 2007
- Nurses Associations have taken up issue.



Need for Addressing Supply Issues



Toxics Link
for a toxics-free world

HCWH

- Supply side issues critical for success for mercury elimination.
- Medical community increasingly aware of, and impacted by toxics impacts.
- Market gap needs to be plugged

Three Challenges for Acceptability of Mercury Substitution in Health Care



Toxics Link
for a toxics-free world

HCWH

Alternatives should be and seen to be:

- Accurate
- Affordable

The third challenge:

- Disposal

Viable alternatives exist. -
need for international standards/ certification etc.
Acceptance takes longer with sphygmomanometers.



Moving Markets



Toxics Link
for a toxics-free world

HCWH

Total Global Medical Device Industry Market more than \$100 billion.

Production is growing in Asia. China and India are key producers.

- Mercury Thermometers

China: **Annual Production 173 million mercury thermometers; million for export.**

India: **Exports 570,000**

- Mercury Sphygmomanometers

China: **Annual Production: More than 1 million**

India: **Exports 60,000.**



Alternative Devices

Anecdotal evidence shows that India and China are increasing production and export of mercury-free devices, but small.

Case of Argentina and Brazil



Toxics Link
for a toxics-free world

HCWH

TABLE 3

Costs of Mercury vs. Digital Thermometers.
The experience of Posadas Hospital,
Buenos Aires Argentina:

April - June 2006 / Before Mercury Replacement

	Total Thermometers	Cost per Unit in \$U.S. equivalent	Total Cost
Mercury Thermometers	3152	\$1.33	\$4,192
Digital Thermometers	0	\$4.00	0
Total	3152		\$4,192

April - June 2007 / As Digital Thermometers are Introduced

	Total Thermometers	Cost per Unit in \$U.S. equivalent	Total Cost
Mercury Thermometers	335	\$1.33	\$445
Digital Thermometers	188	\$4.00	\$752
Total	523		\$1,197

TOTAL SAVINGS FOR 3 MONTHS: U.S. \$2,995 ¹⁴

TABLE 4

Estimated Costs of Replacing Mercury Equipment
in Hospital São Luiz, São Paulo Brazil

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Digital Devices					
Initial Investment	(9,412)				
Annual Maintenance	(2,630)	(3,892)	(3,892)	(3,892)	(3,892)
Total costs adjusted by 12% annually for inflation	(12,040)	(17,381)	(23,360)	(30,054)	(37,560)
Mercury Devices					
Annual Maintenance	(5,923)	(5,923)	(5,923)	(5,923)	(5,923)
Total costs adjusted by 12% annually for inflation	(5,923)	(12,559)	(19,991)	(28,314)	(37,637)
Net Difference	(6,125)	(4,829)	(3,377)	(1,751)	69
Annual Savings after Year 5					\$2,031

Figures in U.S. \$ converted from Brazilian Reals.

Affordability Varies by Country



TABLE 5

A Comparison of Prices of Mercury and Digital Clinical Fever Thermometers in Selected Countries⁵²

	Argentina	Brazil	Mexico	India	China	Philippines	South Africa	USA	England	Czech Rep
Mercury Thermometer	\$1.33	\$1.52	\$1.24	\$0.62	\$0.41	\$0.55	\$0.60	Not available	\$1.50	\$1.00
Digital Thermometer	\$4.00	\$10.52	\$3.77	\$5.35	\$4.65	\$4.67	\$4.37	\$2.89	\$7.00	\$5.00
Price Ratio	3 : 1	6.9 : 1	3 : 1	8.6 : 1	11.3 : 1	8.5 : 1	5.5 : 1	0 : 1	4.6 : 1	5 : 1

China's Thermometer and Blood Pressure Device Production



HCWH

TABLE 2 (a)

Total Mercury Consumption in Thermometer and Sphygmomanometer Production in China 2003-2005

Year	2003	2004	2005
Sphygmomanometers (Kgs)	51,736	84,872.6	81,464.4
Thermometers (Kgs)	168,609	165,325	200,807.9

Source: CRC/NRDC, May 2007.

TABLE 2 (b)

Production and Export of Mercury-containing Thermometers from China 2003-2005

Year	2003	2004	2005
Total Production (ten thousands)	14309	15820.5	17363
Export (ten thousands)	5500	6325	7000
Domestic Sales (ten thousands)	8809	9495.5	10363
Percentage by Export (%)	38.4	39.8	40.3

Source: CRC/NRDC, May 2007.

Conclusion



Toxics Link
for a toxics-free world

HCWH

- Price can be substantially reduced with production in India/China
- International work on sharing experience within medical community to address acceptability.
- Need for bringing alternatives industry on board and with necessary start up incentives.
- Norms for disposal of products - in - use