

REPORT OF
THE ROUNDTABLE MEETING
ON
“Standards and calibration of mercury-free
measuring instruments in healthcare sector in India”

Organized by
TOXICS LINK
1st June 2011, IHC, New Delhi, India



TABLE OF CONTENTS

Sl No.	Aspects	Page No.
1.	Introduction	3
2.	Objectives and Issues for Discussion	5
3.	Welcome Address	6
4.	Issue Discussion	7
5.	Summary of the Roundtable Meeting	15
6.	Recommendations	17
7.	Meeting Agenda	18

Introduction

The issue of mercury (Hg) has gained prominence in the country with efforts of Toxics Link and its partners across the country during the last five years. Various studies have been taken up on usage, disposal and its impacts on environment and human health during the period. Toxics Link has a prominent role in sustained campaigning of reducing and finally eliminating mercury usage in health care sector in Delhi.

In India, phasing out of mercury was started in the year 2003 with Toxics Link making contributions to the UNEP report of 2003. In the year 2004, the first ever study on the healthcare sector usage of mercury was undertaken by the organisation. The report disillusioned the government as well as the people in the healthcare sector, who till then did not consider mercury releases from the hospitals significant enough to put any regulatory controls.

The report along with its findings was discussed in the Parliament, and the Delhi government put out a few public notices to warn people of the dangers of mercury. Subsequently, in June 2007, the government of Delhi took the major step towards reduction of mercury use in the health care sector. The Health Department of Delhi Government issued an order to stop any further purchase of mercury containing medical equipments by any Government hospitals in Delhi. Most tertiary care corporate hospitals in Delhi have shifted to mercury alternates while the government hospitals are gradually making the shifting. The dental care facilities of government hospitals are also gradually shifting away from mercury based amalgams.

In the year 2005, for the first time, initiative was taken to bring the issues to civil society level through a workshop on mercury.. This meeting addressed the issue of mercury amongst all stakeholders in the country. Further awareness through our regional node in Chennai led to issuing of notices by Tamil Nadu PCB to around 233 numbers of health care units for management of mercury. Toxics Link, through their initiation and intervention was being able to convert some government hospitals in the town of Hubli in Karnataka from mercury to mercury alternates.

Toxics Link had also organised an International conference on Mercury in October 2009, which can be considered as an outstanding achievement, as the Central Government immediately issued a guideline for phasing out and replacement of mercury equipments with safer and better alternates by the year 2011.

Once the guidelines for phasing out of mercury were placed at Central, State and Institutional level, other issues like standardization of mercury alternates and storage or disposal of surplus mercury devices emerged. In order to resolve these issues, Toxics Link had organized a round table meeting on 29th July of 2010.

The outcome of the round table meeting was as follows:

1. Though standards for aneroid medical equipments exist in India, they are voluntary so far;
2. Deptt. of weight and measurements, Government of Delhi was struggling to have calibration facility for mercury-based medical equipments in the era of phasing-out of the same;

The august gathering deliberated on the issues and suggested the following:

1. Certification of non-mercury measuring devices should be made mandatory by the BIS and the process be initiated urgently to improve the availability of quality products in the market;
2. The issues of calibration of non-mercury devices should be taken up by the Metrology department and the process be streamlined;
3. Hastened issuance of necessary directions for storage of discarded mercury devices;

After the roundtable Delhi Pollution Control Committee identified two companies for collection or buying of surplus elemental mercury from several Institution of Delhi. However, no significant advances were made in the country on certification and calibration of the alternate equipments.

Objectives and issues of the Second Roundtable

Phasing out age-old equipment comes with its own sets of problems. Each type of user (hospitals) has its own set of concerns about standards, calibration, longevity, market players' etc. of the alternative materials. Lack of mandatory standards for the alternate (digital and aneroid) in the country has become the biggest bottleneck in compliance of the phase-out policy in Delhi and other parts of the country.

A meeting with all the stakeholders would certainly help in speeding up the process of mercury phase out in the country by ensuring mandatory standards and calibration facility. Some key objectives of the meeting were:

- 1 To identify bottlenecks and to prepare a road map to hasten standardization of non-mercury devices mandatory in India;
2. Calibration facility of non-mercury devices to be taken up by the Metrology Departments



Welcome Address by Ravi Agarwal, *Director, Toxics Link*

The round table meeting was started with the introductory speech by Ravi Agarwal, Director of Toxics Link.. It was mainly focused on the issue of mercury substitution, which according to him is a global trend now. According to him, a global phase out of mercury will be seen in coming 5 to 7 years. An Intergovernmental treaty under the aegis of UNEP is already under negotiation for complete phase out of mercury globally. He also highlighted about the efforts of Toxics Link on this issue, which was started since 2001 and continues. According to him, we need a proper scientific way to phase out mercury. One of the key factors, preventing the switch over is reliability on its accuracy. Verification, calibration and maintenance of the new devices are few of the additional complexities in the process

and unfortunately these issues have remained on table without much progress being made on it. Every healthcare facility has a definite system and institutional bottlenecks are always there, hence, being a community of stakeholders, we have to find a way, which can be adopted by the medical community. Although the government organizations and agencies are working on the same issue, it is our responsibility to take an immediate action on this aspect in a practical way.

Opening Session:

Issues regarding standards of non mercury equipments used in health care sector

Anu Agarwal, *Toxics Link*

Ms. Anu Agarwal had given a brief overview on the current use of mercury in healthcare sector and the amount of mercury released from the same. Indian figures total at - the total amount of mercury usage in healthcare institute is 26 Tons per year and the estimated amount of mercury released from the healthcare sector is 8 Tons annually through spillage and breakage. The ratio of mercury released from thermometer and sphygmomanometer is 31 to 69 respectively. The mercury contributed by the govt. sectors is 10 times than that of private sector in rural sector, however, the trend shifts as we move from rural to urban areas. There are 1700 hospitals and 1, 74,000 sub centers etc in India which are run by 9 separate ministries. In Delhi, the estimation of mercury usage is 177 kg and the private healthcare facilities have 1.74 times more mercury as compared to the government sectors. Delhi is among the few places in the developing world, which have state directive on mercury use with the intervention of Directorate General of Health Services (DGHS), which had stopped further procurement of mercury in government hospitals. Anu, in her speech, has also appreciated the initiative of two manufacturers, who have started buying back mercury from hospitals. She had also conveyed about the initiatives by WHO and Healthcare Without Harm toward mercury phase out, as they aim at 70% reduction in uses of mercury equipments by 2017 and total shift to production of non-mercury equipments. WHO is planning to make a web based technical documentary to assist health ministries around the world to develop specifications for the alternatives.

At this statement, Dr. Gunasekar from WHO was of opinion that the organization has worked for safety, handling and awareness in mercury issues in health sectors; however, it hasn't done anything toward the issue at national or international level. WHO is looking forward for healthcare devices and bringing in some long-term projects for mercury phase out.



Anu had given number of incidents from various international agencies like European Union and British Hypertension Society etc to establish the fact that non mercury equipments are also accurate like mercury counterparts. She referred about European chemical laws, which prohibit the use of mercury. On the issue of calibration, her opinion was both mercury and non mercury equipments need calibration. According to her, inefficiency of most of the staff at some of the Public Health Centers to use the non mercury equipments is one of the major factors of those instruments being unused. At the end, she showed an urgency of preparing some national guidelines as that of British Hypertension Society in India too.

Discussion:

At the end of the opening session, a panel discussion was held among the various attendees. Dr. T.K. Joshi of Centre for Occupational & Environmental Health explained about the nature of existing rules of banning mercury instruments in healthcare centers, which are not mandatory but voluntary one. In case of public sectors, most of the hospitals have already phased out or in the process of phasing out, but on the contrary, it is a big challenge for private sectors unit. However, frequent meetings and follow ups with the stakeholders could be act as good reminder.

Dr. Y.P. Singh, a senior scientist from National Physical Laboratory (NPL) was quick to mention that sometimes the preferences of metric system between Celsius and Fahrenheit also create certain complications in calibrating thermometers; hence, acceptance of single regular metric system for thermometers is also to be worked out. He had asked the medical professionals present in the meeting to share their experience on the same.

At this juncture, Dr. Priyank from Ganga Ram Hospital quickly responded about the preferences of the doctors to use Celsius scale. Dr. Joshi also acknowledged Dr. Priyank by saying the fact that, Fahrenheit scale is a history now in medical practices, where as the Celsius scale is the widely accepted scale for temperature measurement. Dr. Joshi had also criticized the unwillingness of switching to aneroid thermometers. According to him, the fact that mercury instruments are the best, is related more to our mental blockage towards it rather than rational thinking.

According to Mr. Ravi, it is a completely different issue to decide whether it is good or bad, but being a part of the stakeholders, we must bring a common consensus on tools or benchmark to solve the calibration problem that manufacturers can follow and based on which doctors can verify the products.

Dr. Joshi was of opinion of recycling the mercury rather than considering it as a waste. He suggested DPCC to get an idea of the quantity storage lie with the people. On this DPCC reacted strongly, as the storage of mercury is illegal according to Hazardous Waste (Management and Handling) Rules, 2003. He also recommended the banning of mercury, as there is lack of secured landfill as well.

Mr. Satish Sinha, Associate Director, Toxics Link finally took the charge of the conversation and gave his fruitful suggestion on some of the issues. He talked about the major confusion among the healthcare staffs in selecting the best one from a wide range of non-mercury products due to lack of standardization, thereby making the entire system of formulating the standards, involvement of knowledgeable person in formulating the standard, identification of products a critical issues, yet to address. He also showed his concern about the issue of calibration. According to him, people across the country are ready and willing to shift toward non-mercury products but the question is how to make the process efficient and easy. In this context, they had already talked with BIS and found that, no standards are there till now, which is really a big constraints in accepting the alternates. According to him, lots of thermometers are available in the market at a price ranging from Rs. 39 to Rs. 150, and some even may start showing error in 2 days or in a month time, thereby making people confused of choosing a good quality thermometer from the market. He asked the concerned representative from metrology department to share his thoughts on how they could address this issue.

Session II: Role of Legal Metrology, Ministry of Consumer Affairs in bringing mandatory standards in India.

Dr. A.K. Sharma, Asst. Director, Legal Metrology, Ministry of Consumer Affairs, GoI

Dr. A.K. Sharma, at the very beginning of his lecture informed about the recent Legal Metrology Act, 2009, which was came into force from 1st April, 2011 and briefed the participants about the rules under the Act. All the measuring thermometers and sphygmomanometers fall under this Act. According to him, for measuring equipments, they deal with two types of equipments- one is for trade and commerce and the second one is for protection. According to Dr. Sharma, all the rules under this act are mandatory. He read out the definition of protection under this Act and according to the Act, protection means 'the utilization of reading obtained from any weight or measure, for the purpose of determining any step which is required to be taken to safeguard the well being of any human being or animal, or to protect any commodity, vegetation or thing, whether individually or collectively'. As conveyed by Dr. Sharma, standards are there for both the mercury and electrical clinical thermometers, which are followed according to OEML recommendations and sometimes from BIS also. The rules are mandatory to be followed before use; even before manufacturing it is required that particular measures must be verified. According to him, it is a combined duty of Central and the state Government, as the central government needs to make the standards and equipments, where as the state Government should be responsible for enforcement of the standards. Sometimes, it is felt that the state government does not have the required infrastructure and equipments to enforce the standards; hence Dr. Sharma had committed to provide enough equipments and infrastructure to the state Government in the eleventh plan, so as to enable the state Government in calibrating and verifying instruments. As a result of that, common people can trust on those electrical thermometers, which are verified by the legal metrology officer.

Discussion:

Once the session was completed by Dr. Sharma, a discussion was held among the professionals. Dr. B. K. Rana, Dy. Director of NABH was quite happy to know about this law and further clarified that, whether, being an user, one could be penalized for not using the certified instruments. Dr. Sharma reported being an user it's his/her duty to buy a certified instruments. He also added that, if in case a doctor is going to use it on a patient, then the question of protection comes and there one can be penalized for not using the certified instruments. Dr. Rana appreciated the thought and recommended to publicize it in order to reach to more consumers. Many other questions regarding costs and things related to verification of the instruments were raised, in which the cost was informed to be around 25 paisa each devices.

Dr. Joshi actively took part in this discussion, as he was mainly concerned with the efficient implementation of the laws, which were well addressed by Dr. Sharma. He also talked about the organizational implementation of the rules. He was of the opinion of notifying the government test centers and if in case they fail to comply with the expectations, the



whole thing could be switch over to private bodies.

Mr. Ravi Agarwal of Toxics Link advised to publicize this rules and also showed his apprehension about the non-mercury and non-electrical thermometers, which were not covered under this Act. Mr. Satish Sinha of Toxics Link raised his concern about the standards of the imported products. Dr. Sharma excellently clarified both the doubts raised by them. According to him, calibration of non-mercury equipments is the responsibility of BIS to develop such infrastructures and the standards are also applied to imported products as well.

Dr. Vijay Aggarwal, CEO, Pushpanjali Crosslay Hospital, on behalf of doctors' fraternity suggested that the law at end user level should be constricted to sellers and manufacturers only, as that would only prevent doctors from using thermometers. He also raised the issues of increasing corruption due to penalties.

Session III: Role of National Physical Laboratory in facilitating standards and calibration of healthcare instruments

Dr. Y.P. Singh, Scientist-G & Head- Temperature and Humidity Standards, National Physical Laboratory

Dr. Y.P. Singh of National Physical Laboratory (NPL) has briefed about the role of NPL in facilitating the standards and calibration of measuring instruments in healthcare sector. NPL is basically working for developing the equipments and providing infrastructures to the regulating bodies. It is basically the duty of state government to implement the rules and NPL is there only to provide technical facilities. NPL takes responsibility to provide devices to measure accurate quantities, provide available resources and risibility complying with international standards but the requirement should come from the agencies on when and how it is required. NPL is also working on global standardization with countries like Germany, USA, UK, SAARC etc.

In the meeting, he also added that laws are there to make us aware and being educated people, we must follow them on our own. He explained the importance of mercury in other laboratories as fixed point for high accurate temperature measurements in the order of 10,000 degrees, however, in cases where it directly comes into contact with human beings, it should be removed as it is highly toxic to us. Due to large expansion coefficient, mercury is more preferred as temperature measuring fluid in thermometers. Dr. Singh



informed about materials linkages with ferro fluids based equipments developed by NPL, which could give very precise measurements as mercury have. According to him, there is a strong need to develop materials with expansion coefficient as mercury, which could be best

replacement for non-mercury devices. At present days, most of the parameters are material dependent, which needs to be replaced by fundamental constants. He gave example of measuring temperature of triple point of water as the ideal measuring temperature constant. However, developments are there where dependency is not on the triple point of water but on the Boltzman's constant.

Discussion:

Various doubts related to the temperature measurements were asked to Dr. Singh. The participants were told about the IR based thermometers, which measures temperature without any physical contact with the persons using radiations. Its resolution is 0.01 degree Celsius and a works for a wide range (-50 degree to 3,500 degrees). For medical sectors there are designs being under R & D for range up to 100 degrees Celsius. Its cost depends on the requirements but a small sensor could cost around Rs. 2000, which is expected to decrease as the demand increases. It's free of any hazard and also safe while dealing with communicable diseases.

Session IV: Need for mandatory standard and role of DGHS in bringing it in India

Dr. Anil Kumar, Chief Medical Officer, Directorate General of Health Services, GoI



Dr. Anil Kumar shared the challenges faced by the Ministry of Health and Family Welfare in phasing out the mercury. He emphasized on the fact that the mercury regulation rules in present scenario is advisory and not mandatory and hence the Government is not in a position to ban mercury-based products from manufacturer or users. In future, if required a law could be deliberated. According to him, this phasing out initiative can be fruitful if it comes from the industries in the form of incentives/discounts on purchasing mercury free products. He raised his concern on major issues, like validation, calibration and loss of accuracy (when dropped) of aneroid instruments. He agreed with the requirement of calibration, may be at every 6 months, but at the same time he clarified that law cannot enforce calibration and if in case, it is

enforced by law, calibration at user level or even in hospitals is not practically possible. According to him, validation/calibration facilities should be included in accreditation programs of NABH/NABL. If guidelines are brought out, calibration of aneroid instruments can be done at hospital level by providing training to staffs.

He informed about the Clinical Establishment Act, notified on 19th August 2010, which defines certain standards for healthcare facilities. He informed about some standards of BIS like IS7652 for aneroid sphygmomanometers and said that, the standards have to be developed for aneroid equipments under this act for maintenance and calibration of medical instruments. He explained the efforts of the ministry towards the use of aneroid sphygmomanometers in Indian Public Health Standard (IPHS) and also asked to purchase the aneroid sphygmomanometers from public health centers. At the same time, he also said that IPHS is also not mandatory in the country. He advocated verification of the aneroid equipments by agencies like BIS which could help users. He suggested that if easy procedure/guidelines are brought out by agencies like BIS or NPL for aneroid instruments, it could be easily done in peripheral health centers. He had suggested to appoint educated clinicians and gave emphasize on the selection procedure. He also advised the hospital authority to include regular maintenance and calibration programs and to ensure a regular training for the people involved in measuring blood pressure. According to him, more study is needed on safety and reliability of equipments available in our country.

He acknowledged the success of gun type IR thermometers, which are being used at airports with very good accuracy and its life lasted approximately 3 months and it costs Rs. 3,000. He also talked about thermal scanners, which costs around Rs. 10, 00,000 and were used at airports during Swine Flu.

He held responsible the highly unregulated private healthcare sectors due to no availability of standards in establishment of laboratories. He informed about the Clinical Establishment Act of August 2010, which defines certain standards for healthcare facilities, however, only 4

states and 7 Union Territories have agreed to implement this act. Delhi was a place, where it was not accepted due to existence of previous acts for similar regulations.

Sometimes, internal policies are also a controlling factor behind the acceptance of certain material or standard. The officer made us aware of the fact that procurement of equipments in government hospitals are not done at Central level, rather it is on individual administrative choices of each hospital. In Delhi, a mercury phase out program has been launched in 2007, where it was mentioned clearly that no further mercury instruments will be bought and no repair be done for accidental damage of mercury instruments.

Session V: Open Discussion

At the end of speech by Dr. Anil, Mr. Ravi Aggarwal of Toxics Link summarized the major issues that came into light from the entire meeting. According to him, the two major issues are making standards mandatory and putting mechanisms in place for regular and appropriate calibration.. The third important issue, is to get the manufacturers involved in the process. Fourth issue, according to him, is the availability of training resources and guidelines in this regard and the roles and responsibilities of medical institutions. In this context, he requested the representatives from the hospitals to share the challenges faced by them and key requirement in the issues. They were also asked to share the procedures of selecting any instruments and difficulties faced.

Dr. Sudhakar Vira and Dr. Priyank from Sir Ganga Ram Hospital, an actively engaged hospital in phasing out mercury, told that, doctors are very satisfied with the performance of the non-mercury instruments, however they are also facing some problems in procurement of equipments due to lack of guidelines and validation. Currently, the performance was measured by earmarking OPD chambers as comparison between mercury and aneroid based instruments. The instruments are selected after taking feedback from end user and at present they rely on imported non-mercury equipments, which are quite expensive.

Father Pinto, from Holy Family hospital said that, at the very beginning, some hesitation was there with the non-mercury instruments but due to compulsions, they had to go for phasing out the mercury. He told that constant calibration is a problem with non-mercury equipments; hence they always look for proper certified equipments in the market. They even frequently shift vendors due to lack of standards in the market. Most of the times, selection of brands is done by general feedback from users at different levels like doctors, nursing staff etc. At this juncture, he also raised his concern that, all these procedures ultimately leads to increased cost of patient care, which is also a serious issue for this kind of trust hospitals.

Mr. Satish Sinha had asked about the kind of infrastructure and the facilities required or already implemented by the hospitals in phasing out mercury instruments. It was advised by the members that the agencies/laboratories, involved in calibration process, should be certified and role of accreditation bodies like NABH should be given more importance. It was also suggested that Ministry of Health could collaborate with NPL to initiate a common guidelines for calibration of medical equipments. Dr. Joshi suggested about the presence of a deadline notification to make the phase out program more efficient. Mr. Satish Sinha put up a question to Dr. A.K. Sharma about the steps taken by the Ministry of Consumers Affairs to ensure the users that validation is taking place at manufacturer or dealer's end(apart from this act) and how a consumer could get benefit from this act. In this context, Dr. Sharma clarified that consumer awareness is the most important thing and before buying they should check the certifications marks. All the manufacturers or dealers of these equipments must have valid license from state government, but even after that, if anybody is found not abiding by this, complaint can be lodged to The Controller of Legal Metrology.

At the end of discussion vote of thanks was given by Mr. Ravi Agarwal with a brief of the discussion.

SUMMARY of the Roundtable meeting:

Key issues addressed:

- Setbacks in mandatory ban of mercury based instruments in healthcare sector;
- Standards or specifications of mercury based devices chiefly thermometers and sphygmomanometers;
- Awareness of mercury toxicity;
- Choosing of non-mercury diagnostic instruments;
- Training of calibration techniques at user levels;
- Costs and other issues in shifting from mercury to non mercury based devices in hospitals;
- Issues related to calibration of temperature measuring equipments;
- Limitations of different governmental bodies and agencies in the process of phasing out mercury based devices;
- Limitations in performance of non-mercury instruments in health sectors;

1. Toxics Link

Representatives from Toxics Link presented the recent data about the mercury usage, amount released in the environment from the different health care sectors and their proportions etc. Mercury standards followed in other parts of the world were reviewed, some of which includes Guidelines of British Hypertension Society (BHS), Association for the Advancement of Medical Instrumentation (AAMI) and European Society of Hypertension Working Group (ESHWG). The accuracy issues of the non-mercury devices due to lack of mandatory standards and low level of awareness in calibration of such devices were raised. The chief issues with the non-mercury instruments were trustworthiness of the instruments, its maintenance and calibration.

2. Legal Metrology-Ministry of Consumer affairs

The representative informed about the recently notified rules under an act called 'Legal Metrology Act, 2009' (notified on 1st April 2011), where in, rules are mentioned for standards of weight and measures. It deals with two types of equipments, named trade & commerce and protection. Clinical thermometers are covered under the protection equipments where it should comply with the specifications of BIS. It is mandatory for the manufacturers as well as the user to follow the rule and failing to do so can attract penalties under this Act.

According to the Act, it is the duty of the concerned state government to enforce it, for which he had committed to provide required testing kits to the state government in the next plan. The problems of enforcing this law come in two forms-firstly, certain state governments do not have any infrastructure available to implement the enforcement and secondly, some of the state governments are there, where the existence of previous acts resists them from adopting the new Act.

3. Directorate General of Health Services (DGHS), India

The representative from the DGHS informed us about the challenges faced by the Ministry of Health and Family Welfare in phasing out the mercury. He emphasized on the fact of nature of the mercury regulation rules, which in present scenario is advisory and not mandatory and

which restricts government from imposing complete ban on mercury based products manufacturer or users. He said that in future if required a law could be deliberated. He advised that the phasing out initiative should come from the industries in the form of incentives/discounts on purchasing mercury free products. He briefed out the major issues with aneroid instruments, which are as follows:

- Validation of the instruments and calibration is yet to achieve;
- When dropped, it may lose accuracy;
- Needs calibration at every 6 months;
- Calibration can not be enforced by law and also calibration at user level or even in hospitals is not practically possible;
- Majority of the users are unaware or not known about existing regulations and guidelines;

He also highlighted some of the steps, which could be used to address the problems, which are as follows:

- Validation/calibration facilities should be included in accreditation programs of NABH/NABL;
- If guidelines are brought out, calibration of aneroid instruments can be done at hospitals by providing training to the staffs;
- Clinicians should be educated;
- Regular training of people involved in measuring blood pressure;

He praised successful use of gun type IR thermometers, which are being used at airports with very good accuracy and which last for approximately 3 months, however it costs Rs. 3,000. He also spoke about thermal scanners, which costs around Rs. 10,00,000 which were used at airports during Swine Flu.

4. Representatives of Hospitals

Representatives from both government and non government hospitals were present, who shared their experiences of using non mercury instruments and challenges faced in its implementation. They were also asked to share their procedures in selection of instruments and difficulties faced.

A representative of government hospital, which is active in phasing out the mercury, told that doctors are very satisfied with the performance of the non-mercury instruments, however they are also facing some problems in procurement of equipments due to lack of guidelines and validation. Currently, the performance is measured by earmarking OPD chambers as comparison between mercury and aneroid based instruments has been done. The instruments are selected after taking feedback from end user and at present they are relied on imported non-mercury equipments, which are quite expensive as well.

A representative of non-government hospital, which has completely phased out mercury, told that constant calibration is a problem with non-mercury equipments. They frequently shift vendors due to lack of standards in the market. Most of the times, selection of brands is done by general feedback from users at different levels like doctors, nursing staff etc. At this juncture, he also raised his concern that, all these procedures ultimately leads to increased cost of patient care, which is also a serious issue for this kind of trust hospitals.

RECOMMENDATIONS:

- A common consensus among stakeholders at the National level is needed to phase out mercury equipments. Ministry of Environment and Forest needs to take up a more proactive role and pitch in with a National Policy.
- The Standardization of non-mercury products should be made mandatory
- Ministry of Health and Family Welfare and NPL could collaborate and work out the best strategy and solution to the calibration issue
- A central board consisting of members from each sector should be formed to deal with standardization and calibration of healthcare equipments
- Training and education of the healthcare staff should be increased by means of various IEC material;
- The Legal Metrology Act 2010 should be advertised and consumers should be made aware of it ;
- Government approved bodies responsible for calibration and validation should be notified by the central government;
- State government should take initiatives in providing infrastructures for calibration and standardization of the non-mercury instruments;

AGENDA of the MEETING

Round Table meeting on Standards and calibration of mercury-free measuring instruments in healthcare sector in India, 1st June 2011, Willow Hall, IHC, New Delhi

1000 – 1010 hrs	Registration	
1010 – 1020 hrs	Welcome Address	Ravi Agarwal, Director, Toxics Link
1020 – 1040 hrs	Issues regarding standards of non-mercury equipments used in the health care sector	Anu Agarwal, Toxics Link
1040 – 1050hrs	Need for the mandatory standards and role of DGHS in bringing it in India	Dr. Anil Kumar, DGHS, Government of India
1050 – 1100 hrs	Role of Legal metrology, Ministry of consumer affairs in bringing mandatory standards in India	Dr A K Sharma, Astd Director, Legal metrology, Ministry of consumer affairs, Government of India
1100 – 1110 hrs	Role of National physical laboratory in facilitating standards and calibration of health care instruments	Dr. Y.P. Singh, Scientist-G & Head- Temperature & Humidity Standards, National Physical Laboratory, India
1110 – 1130 hrs	Tea/Coffee Break	
1130 – 1300hrs	Discussion: mandatory standards for Non- Mercury Equipment used in health care sector	
1130 – 1210hrs	Open Discussion	
1210 – 1230hrs	Prepare road map to bring mandatory standards	
1230 – 1300 hrs	Recommendations from the meeting	
1300-1330 hrs	Lunch	