Workshop Report

Mercury-Free Dentistry – Bengaluru, Karnataka

Date: 9th November 2025
Venue: Zion Hotel, Bengaluru
Organized by: Toxics Link in collaboration with Indian Dental Association (IDA) Karnataka and IDA Bengaluru Branch

1. Introduction

A workshop on *Mercury-Free Dentistry* was organized jointly by **Toxics Link**, **IDA Karnataka**, and **IDA Bengaluru Branch** on 9th November 2025 at Zion Hotel, Bengaluru. The event aimed to raise awareness among dental professionals about the environmental and occupational hazards posed by mercury in dental amalgam, and to promote a shift towards safer and sustainable alternatives.

The meeting was attended by practicing dentists, academicians, post-graduate students, and representatives from local dental institutions. It served as a forum to exchange knowledge on mercury hazards, discuss global policy trends such as the **Minamata Convention on Mercury**, and explore practical pathways for transitioning to mercury-free restorative materials within India's dental practice landscape.

The workshop was part of a broader initiative by Toxics Link to engage with the dental fraternity across India on the phase-out of mercury use in dentistry and to align national practices with global commitments under the Minamata Convention.

2. Inaugural Session

The session opened with a welcome address by **Ms. Priti Mahesh**, Senior Environment and Public Health Consultant at Toxics Link, who introduced the organization's long-standing work on mercury management and chemical safety.

She highlighted mercury's widespread use across multiple sectors—including healthcare, lighting, and other industries—and drew attention to its highly toxic nature, particularly its effects on the nervous and renal systems. Ms. Mahesh emphasized that despite increasing global restrictions on mercury, its use in dental amalgam remains one of the last strongholds, especially in developing countries

3. Technical Session I: Mercury Hazards, Occupational safety and the Minamata Convention

Speaker: Ms. Priti Mahesh, Senior Environment & Public Health Consultant, Toxics Link

Ms. Priti Mahesh opened the technical sessions with a focused presentation on mercury's toxicology and the global policy framework addressing its use. She described the major health impacts associated with mercury exposure, in particular neurological and renal effects, and highlighted the special vulnerability of pregnant women and children due to mercury's ability to cross the placental and blood–brain barriers.

Ms. Mahesh traced the historical and contemporary incidents that have shaped global concern — from Minamata in Japan to documented industrial contamination episodes — to illustrate how mercury persists in the environment, bioaccumulates up the food chain, and causes long-term harm.

The presentation also covered **occupational exposure risks** for dentists, assistants, and technicians, with emphasis on the need for safe handling, ventilation, and waste management practices within dental clinics.Ms. Mahesh outlined clinic-level precautions that reduce occupational exposure: use of pre-encapsulated alloys, rubber dam and high-volume suction during removal, avoidance of dry polishing, adequate ventilation, PPE for staff during mercury-related procedures, and using mercury vapor analyzers for monitoring where feasible. She cautioned that mercury can be hard to eliminate from contaminated surfaces (e.g., carpets), requiring specific cleanup measures. Her presentation emphasized that the transition away from amalgam will need parallel efforts on awareness, training, and institutional policy rather than relying solely on market changes.

She explained the core objectives of the **Minamata Convention on Mercury** and India's commitments under the treaty, including the obligation to undertake a phase-down approach for dental amalgam. Explaining the global framework, Ms. Mahesh detailed the provisions of the **Minamata Convention on Mercury**, a legally binding treaty signed by over 148 countries to reduce and eliminate mercury use across sectors. She noted that India, as a signatory, is required to take steps toward phasing down amalgam use through awareness generation, promotion of mercury-free materials, and improved waste handling infrastructure. Importantly, Ms. Mahesh noted that several countries, including Norway, Sweden, and the Philippines, have already phased out amalgam, while others are implementing a phased transition supported by policy and curriculum reforms.

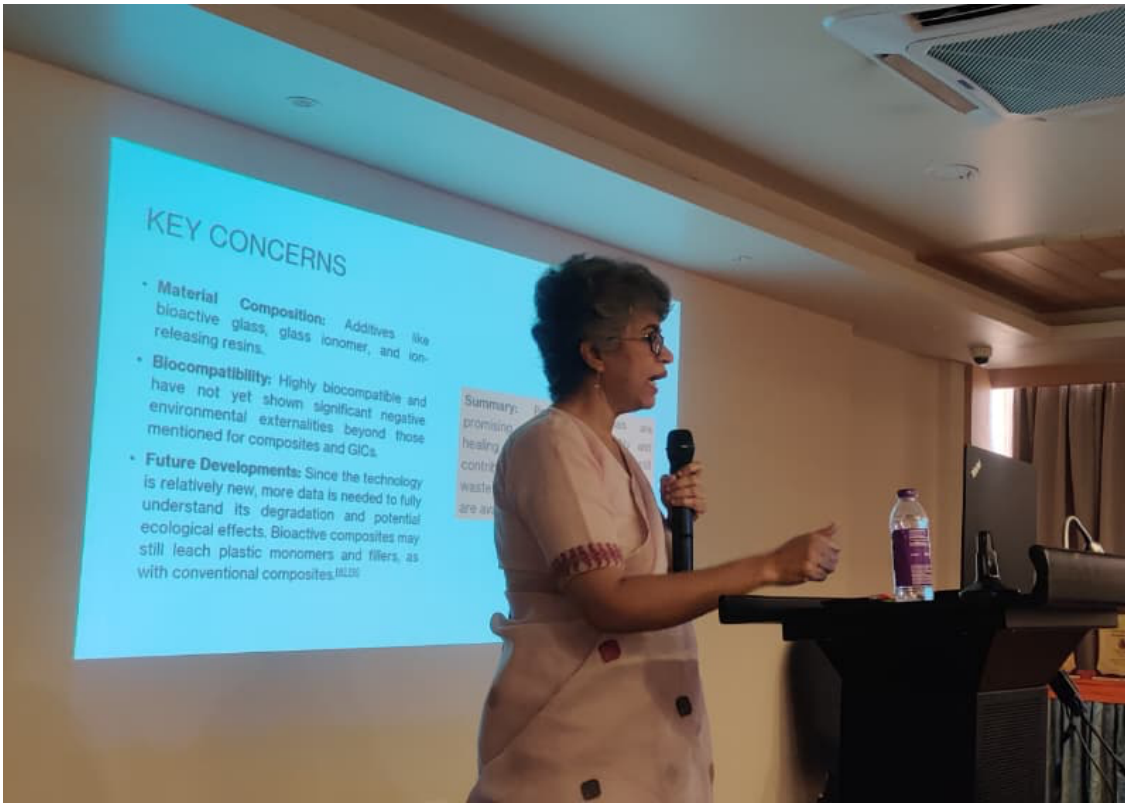
She further stressed that phasing down mercury use is not only an environmental imperative but also a professional responsibility for dental practitioners, who are often at the front line of exposure and have the opportunity to educate patients and peers alike.

4. Technical Session II: Sustainable Alternatives to Mercury Amalgam

Speaker: Dr. Sushi Kadanakuppe, Professor, Krishnadevaraya College of Dental Sciences

Dr. Kadanakuppe began by acknowledging that dental amalgam had long been regarded as the "gold standard" for restorations due to its strength, durability, and low cost. However, she pointed out that scientific understanding has evolved significantly, and newer materials such as **composite resins**, **glass ionomer cements (GICs)**, and **ceramic restorations** now offer viable, safer options with comparable clinical outcomes.

For each material she discussed clinical properties, indications, and limitations. Composites offer superior aesthetics and conservative cavity preparation but are technique-sensitive and require strict moisture control and adequate light curing; glass ionomers deliver fluoride release and chemical bonding to tooth structure but have lower compressive strength for large posterior restorations; ceramics and gold/alloys remain durable but are costly and often require lab support. Dr. Kadanakuppe highlighted **zirconomer (zirconia-reinforced GIC)** as a promising option that combines improved strength with fluoride release — suitable in particular settings as an amalgam substitute.



She also walked the audience through clinical protocols that support successful outcomes with mercury-free materials: incremental layering for composites to reduce polymerization shrinkage, appropriate light output for curing (minimum power recommendations), rubber dam use for isolation, and tailored material choice by cavity class and patient risk profile.

She also addressed practical challenges in transitioning to mercury-free dentistry, including cost implications, patient perception, and the need for continuous professional training to handle new materials effectively. She highlighted the efforts made in Norway to phase out mercury fillings and reiterated that there could be learnings for India as well.

Dr. Kadanakuppe concluded by encouraging dental practitioners in India to adopt a similar approach—strengthening skills, updating institutional protocols, and building patient confidence in mercury-free alternatives.

5. Discussion and Q&A

The presentations led into a sustained and practical discussion. Participants — a mix of practising dentists and IDA office-bearers— raised questions that reflected real-world clinical dilemmas and policy concerns:

- **Material choice and cost considerations:** Questions around affordability and longevity of composites and other alternatives were prominent. A few attendees shared that patients often still request amalgam fillings due to their long-established reputation for durability. Dr. Kadanakuppe and Ms. Mahesh responded that while composites may incur higher initial costs and require technique training, growing patient demand for aesthetic restorations is already driving market change. They recommended a complete phase out for atleast the vulnerable population (children, pregnant women).
- **Education and curriculum reform:** Some younger practitioners and students expressed frustration about mandatory amalgam training in colleges and the need to "unlearn" and relearn modern techniques once in practice. There was broad support for engaging the **Dental Council of India (DCI)** and university curricula committees to make mercury-free techniques part of standard training and to make amalgam exercises optional rather than mandatory.
- **Should intact amalgam restorations be removed?** Several practitioners asked whether patients with well-functioning amalgam fillings should have them replaced proactively. The speakers agreed that routine removal is not recommended because drilling and removal can generate significant mercury vapor; replacement should be limited to clinical indications (secondary caries, fracture, pain) and, when done, should follow strict protective procedures (rubber dam, high-volume suction, PPE, and avoidance of dry polishing).
- **Waste handling, storage and disposal:** Participants asked about interim storage and handing over of mercury-containing waste. Ms Mahesh explained the correct procedure for **storing amalgam waste**—in tightly sealed glass containers filled with water—and ensuring its handover to authorized biomedical waste handlers.
- **Policy and institutional nudges:** The conversation concluded with calls for clearer policy direction — a combination of regulatory guidance, incentives for clinics to adopt separators and safer practices, and public awareness campaigns so patients increasingly demand mercury-free options.

Overall the tone of the discussion was solution-oriented: attendees acknowledged the challenges but were keen to pilot changes, receive training, and communicate with patients to enable a gradual, safe phase-down. Both speakers reiterated the need for better integration of mercury-free dentistry concepts within **dental education curricula**, so that new practitioners enter the profession with familiarity and confidence in using alternative materials.

6. Vote of Thanks and Way Forward

The session concluded with a vote of thanks by **Dr. Sindhe**, Joint Secretary of IDA Karnataka, who expressed gratitude to Toxics Link for bringing this important conversation to Bengaluru. He appreciated the informative sessions and reaffirmed IDA's commitment to continue awareness efforts within the state.

The workshop ended on an optimistic note, with participants expressing interest in conducting similar awareness sessions, especially in educational institutions and exploring opportunities for continued collaboration with Toxics Link and IDA.