The American Dental Association: BMPs and More

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OVERVIEW

- Developments in ADA Policy
- Research on Effect of BMPs on POTW Influent, Effluent and Biosolids
- Where to From Here?
ADA Policy: Old and New

- ADA BMPs Do Not Include Separators
- But: We Do not Favor or Oppose Separators
- Provide Guidance and Resources on Separators

- The ADA Has Added Separators to Its Recommended BMPs
- We Encourage Use
- Still Provide Guidance and Resources
Missouri Research project

MAXIMIZING VOLUNTARY REDUCTIONS IN DENTAL AMALGAM MERCURY Reduction in Mercury Discharges
EPA # E0000127
PI-98765101-0

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Funding and support was provided by:
- U.S. Environmental Protection Agency
- American Dental Association Foundation
- Springfield Public Works Department
- Greater Springfield Dental Society
- The University of Missouri Extension’s Office of Waste Management (now the Environmental Assistance Center)
Goals

- Determine whether significant reductions in mercury discharges from dental offices could be achieved through voluntary best management practices (BMPs) [Prior Version of ADA BMPs]

- Determine what effect BMPs have on mercury load to wastewater influent, effluent and biosolids

- To assess the level of knowledge and compliance before and after BMP training
Intervention

- ½-day course provided on BMPs for dentists and office staff

- Participants received a DVD, wall poster with best management practices, a brochure of other available resources, and articles including:
  - Dental mercury hygiene recommendations
  - ADA Guidelines on Amalgam Accumulations in Dental Office Plumbing
  - Summary of Recent Study of Dental Amalgam in Wastewater
  - Missouri Dept. of Natural Resources determination of status and options for various types of dental waste
  - List of amalgam recyclers
Design

- Influent and effluent samples collected at two treatment facilities using EPA method 1669
- Total mercury determined by EPA method 1631 at Frontier Geosciences lab
- Biosolid analysis done on monthly blended samples using EPA method 245.1
- Pre-BMP sampling on wastewater done for 4 months, biosolid for two years
No significant difference in biosolid levels after the April 2006 BMP training
Influent Results

NW Influent (mg/day)
Intervention took effect after May 2, 2006

Springfield, Missouri
Samples drawn every 2 weeks (2-7-06 to 3-27-07)

No significant change after BMP training for NW plant with 3 dental offices
A significant change after BMP training for SW plant with 90 dental offices.
Effluent Results

SW Effluent (mg/day)

Intervention took effect after May 2, 2006

Springfield, Missouri

Samples drawn every 2 weeks (2-7-06 to 3-27-07)

No significant change in effluent loading after BMP training for either treatment plant
Assumptions and Limitations

- Mass water loading determined from spot sample concentration and average daily flow rates
- No sampling done of grit solid levels
- Assumed a maximum two week dwell for office loading to reach the treatment plant
- Only had four months of pre-BMP water sampling
Conclusions

- The practice of BMPs in the area dental offices resulted in a measurable and significant reduction in mercury load to the influent wastewater of the treatment plants.

- The practice of BMPs in the dental offices did not result in a measurable change in biosolid mercury levels. Unexpected and may be due to study limitations.

- The practice of BMPs in dental offices did not result in a measurable change in mercury load to effluent treatment water, similar to preliminary NACWA data.
Conclusions

- The education and training provided to area dental offices resulted in an overall increase in the use and understanding of BMPs. More work needs to be done.

- There were significant increases in the recycling of used amalgam capsules and scrap amalgam, and corresponding decreases in the disposal of these wastes as regular trash.

- Amalgam recyclers are providing more services to area dentists, including the recycling of lead foil, filters, and amalgam-containing teeth.
Where To From Here?

- Organized Dentistry Is More Ready Than Ever To Work With You
- Partner With Us—Our Strength Is Reaching Out To and Communicating with Dentists
- Focus on the Problem Before Fixing on a Solution. For example, will the chosen solution help effluent?
Problem Areas and Solutions

- Mandatory programs and the limits of Our Policy
- Sampling Focus; BMP Approach is Better
- Clarity in What Will Be Acceptable: ANSI Compliant Separators
- Paperwork and Communications; Let us Help