Operatory Elimination of Mercury Vapor
And Other Airborne Contaminates

Explanation of IAOMT position: Minimizing mercury vapor and other airborne contaminates in the dental operatory is necessary to safeguard the health of the patient, doctor and staff.

Name of Scientific Review: Operatory Elimination of Mercury Vapor and Other Airborne Contaminates

What is this Scientific Review related to? Dentistry

Is this Scientific Review a .....? Equipment

Purpose of the Scientific Review: Mercury vapor in the operatory environment: evacuation of mercury vapor and other airborne contaminates at chairside with the use of an outside vented vacuum system, centrally installed high flow evacuation system. This will also reduce besides mercury vapor, other toxic fumes and particles (e.g. acrylic temporaries) in the immediate clinical area.

Do you have a vested financial interest in any part of this Scientific Review? no

Scientific Review History: There are few excellent high volume self contained evacuation systems on the market (e.g. Dent-Air-Vac) that filter air and return it to the operatory. This is a less expensive alternative for use in situations where installation is possible and multiple sites need to be protected.

Briefly describe the Scientific Review: Using a high powered central vacuum unit, vented to the outside, with outlets in each operatory and laboratory work station. Depending on the length of hose required, a regular central –vac hose should be coupled to a larger diameter flexible scoop such as the one supplied by Dent-Air-Vac Co. The larger hose diameter slows down the velocity and collects the air over a larger area promoting a more laminar flow around the patient’s head.

Specifically, by outline if appropriate, describe the Scientific Review:
1. After the patient is seated, comfortable and is ready to start the amalgam removal or other procedure, the large diameter suction hose is rested beside the patient and adjusted to be just far enough from the mouth to be out of the way.
2. The hose is inserted into the wall socket and a relay turns on the unit.
3. This is to be left on during all of the drilling and bonding procedures or while nitrous oxide is in use.
4. When finished the hose is unplugged from the wall, the motor shuts itself off, and the hose is rested on a hook taking up little or no floor space.

Advantages:
- Takes up little or no floor space in crowded operatories
- The hose is easily transferred from room to room
- Inexpensive to have a unit available in each room
- No dependence to have filters to remove contaminants (many units do not contain mercury or chemical filters. No units filter out nitrous oxide gas)
- No expensive filters to periodically replace
- Quieter than at an equal volume of airflow than room units. Motor is in a remote location reducing noise and EMFS compared to operatory-based units
- Greater volume of air flow is possible if needed. Much less expensive for multiple operatory installation
- Central vacuum systems are readily available and competitively priced
- No additional intimidating machines sitting in operatories
- May also help with nitrous oxide leakage if used
### Disadvantages:

- Requires professional installation
- Commercial use may reduce some warranties
- Entry level system around $600.00-$1,000.00 for multi operatory system
- Vents mercury and other contaminants into the environment. This is considered much less of a threat than having the contaminants in the operatory. An auxiliary filter capable of trapping mercury vapor could be used if desired.

### Manufacturer(s), distributor, or publisher:
Central vacuum systems are available from many manufacturers. Definitely get competitive bids and compare products, warranties and installation. Crews are trained and can easily install a system in a day, just the way and where you want.

- Must be vented outside
- Should be muffled and sound insulated. This makes a big difference in sound
- The larger capacity motors run on 220 volts which is probably available in the equipment area. Twin 120 V motors also work well, (e.i. NuTone). Fit the size to your office.
- Place a unit in your lab where acrylics are mixed and grinding takes place to control contaminants
- A shop vac dry suction pump may also be used. However this type of suction installation may require more of you time and be just as costly in the end and less convenient.

### Hose Connectors:

- Large scoop, large diameter semi-flexible hose source: Dent-Air Vac
- Flexible central vac hose and wall coupling from installer
- Coupling between hoses from installer or Dent-Air Vac (send a sample of hose and they can fit it to theirs)
- Plastic barrier over large hose from Dent-Air Vac
- White barrier over intake scoop. Check out sales in local stores on white knee stockings. These make better barriers than those sold from dental suppliers. Purchase the stockings with the closed toe which is useful should something be inadvertently be sucked into the hose. If something is trapped, it can easily be retrieved.

### Scientific Literature:
Common sense of getting the contaminant away from you.

### Legal Aspects of this Scientific Review:
Collecting and venting mercury and other toxic substances may constitute some environmental challenges. Unfortunately this is the method already being used with all central wet-vac systems. Even with mercury particulate scavengers, the vapor is vented outside.

### Applicant Information

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