

Old soft material earmold tricks

Back to Basics

The body was found in the parlor and clearly the man had been stabbed. And the only clue was a puddle of water next to his body. Who dunnit? And where is the murder weapon? Murder mysteries and audiology do not have much overlap, but there are some cases where this does happen. In this case the murder weapon was a sharp icicle that had since melted into the puddle of water. Here are two cases about things that can change from one state to another in order to make our clinical lives easier.

Modifying soft material earmolds in the clinic:

When I first started in this field there were two types of earmold materials that were in common usage- Lucite and PolyVinylChloride or PVC; lucite being “hard” and PVC being “soft”. Since the mid-1990s PVC earmolds such as “Formaseal” and “Protint” have given way to various forms of silicon-based materials. And while this change has become slightly more environmentally friendly a major issue still exists- it can be very difficult to modify soft earmolds (and soft earplugs) in the office without a very high RPM buffer system. In contrast, hard materials such as Lucite have never presented much of a problem and any hand held Dremel drill would be sufficient to buff or modify the shape of these earmolds.

Here is what we have learned from the murder mystery. In order to modify and buff soft material earmolds first freeze them and then they can be modified within about 30 seconds as if they were a hard material. Of course, clinically nobody has time to place an earmold in the freezer for 20 or so minutes and very few clinics have a tank of liquid nitrogen hanging around (unless you share an office with a dermatologist), but there are a range of commercially available

sprays which have their boiling temperatures around -40 degrees (and you can take your choice of either Celsius or Fahrenheit). These sprays are manufactured for the electronics industry and are used to spray onto circuit boards to find faults; another format is used to “dust off” computer keyboards. And yet another use can be to temporarily make soft earmold material hard so that they can be easily modified.

Freeze spray (or “circuit chiller”, or “canned air”) is a refrigerant in a can that comes as an aerosol-in-a-spray that is used to temporarily freeze electronic components and circuit boards to find the faulty element. Freeze spray is nonflammable, residue-free and provides fast cooling action that super-chills isolated areas. In the distant past freeze sprays did contain CFCs (chlorofluorocarbons) but have since been replaced with materials that do not impact the ozone layer. In North America, there are no commercially available aerosols that contain ozone-depleting propellants. More information can be found at <https://www.chemtronics.com/ultimate-guide-to-diagnostic-freeze-spray>.

Simply apply the freeze spray over the part of the earmold that will need modifying, and you will have around 30 seconds of an easy-to-modify hard material. It makes a soft silicon material temporarily as easy to modify as a hard material such as Lucite.

Drilling curved vents in soft material earmolds:

And while we are talking about tricks from the “olden days”, have you ever wondered how a vent can have a beautiful gradual curve as the earmold curves without having two straight intersecting drilled lines?

Here is the trick: remove the hearing aid tubing from the earmold. Then place a thick shank such as a 2-3 mm drill bit down the main sound bore. This will straighten any curves in the soft

material earmold. Then drill a straight vent parallel to the main bore. Remove the 2-3 mm drill bit from the main bore and the earmold will snap back to its normal curved shape, as will the vent. The vent will now look like it has been drilled gradually around a corner with a gentle curve.

And I am not sure but I don't think that they ever did find the culprit who murdered the man in the parlor with the icicle!