Presenting the Perfect Remains With Waterless Preparation

by Bill Martin

When Don Sawyer started demonstrating and developing specific undiluted solutions for different types of human remains, the chemotherapeutic drug era had not yet started in full force. Bodies were showing signs of extensive chemical treatment and these signs were changing the entire complexion of how we would handle efficient embalming from then on. Don began using slightly diluted embalming solutions on bodies that were considered "normal" cases, such as bodies that were dead for one to two hours, were emaciated, had low fat content, and thin skin. We know now that the so called "normal" remains are unusual and rarely seen in many areas.

Moderately difficult to difficult remains seem to be the norm because of a longer disease treatment process, bodies deceased for longer periods of time, and of course, refrigerated, sometimes even frozen. The longer time the person has been dead creates beginning and advanced putrefaction and skin slip. High bodily fluid accumulation in the tissue is common because of the longer disease process before death.

In the mid 60's, Don Sawyer began experimenting with stronger solutions using less and less water to increase the solution formaldehyde index to overcome the issues created by the condition of these remains. I think it is safe to say that 1970 began the chemotherapeutic drug era. Since that time Dodge began changing chemical compounds to better counteract the effects of these chemotherapeutic drugs and increase efficient embalming results.

The development of the clathrate molecule was the first contribution to Dodge's now well-known Plasdoform-based arterial and co-injection chemicals. The clathrate molecule is a molecule within a molecule. The chemical, when injected, travels to the cell and releases its preservation and fixation on demand, so the tissue is not overwhelmed with preservative. The preservation process is slower but a more thorough tissue saturation takes place. This may not seem important information to know but if you understand the process of Plasdoform solutions, your results will surely be better because you will better understand mixing waterless, or as it's sometimes referred to, 'no water added' solutions, and what type of results you can reasonably expect to achieve.

I think it is important to understand the Plasdoform chemical compound because, just as learning how to improve results with elevated pressure, low rate of flow control and pulsation, learning how to improve results with low water and waterless embalming is equally important. When you learn more about sophisticated chemicals and how to use them in undiluted solutions, the results will speak for themselves. Your results are better without water.

Webster defines dilute as, "To thin down or weaken." If I may quote Dr. Jerome Frederick, our chemist who developed the Plasdoform line of chemicals, "In summary, then, the use of water to dilute the arterial for injection presents many hazards which may lead to embalming failures. If "waterless" embalming is tried, it is usually very successful. If proper chemicals are selected for embalming, there is actually no need to dilute these chemicals with external sources of water. Rather, the task of dilution will be accomplished by the water constituent of the body itself. Such cases, even though they have been heavily dosed with a plethora of chemotherapeutic agents, inevitably turn out better (and with fewer problems) than the same type of cases where water has been used for arterial dilution."

To this day the greatest number of embalming failures are caused by injecting large amounts of weak solutions. By now it should be obvious that water is not a preservative and is not even safe to consider it a vehicle to carry the chemical to the tissue. Preservative and co-injection chemicals are capable of driving themselves with a little help from your injector, using low flow, elevated pressure, and when possible, pulsation.

If some of you remember reading articles written by Don Sawyer you may remember the following quote, or one similar to it. "Somehow many embalmers seem to have come to the illogical conclusion that water has preservative properties." I have told many customers that when I enter a preparation room and check the water faucet, I have never seen any lettering printed on the faucet that says, "The liquid that comes from this faucet preserves tissue." I think that rather than believing that an embalmer would consider water to be a preservative, Don used his statement to invite us to think more about the dangers of a water-based embalming solution.

Considering that the so-called average,

The development of the clathrate molecule was the first contribution to Dodge's now well-known Plasdoform-based arterial and co-injection chemicals. The clathrate molecule is a molecule within a molecule.

normal, or ideal body is rare anymore, because of a number of conditions mentioned previously, we should consider that using water in any embalming solution should be strongly discouraged. Having said that, perhaps with careful pre-embalming consideration, and on rare occasions, with remains recently deceased, perhaps two quarts would be OK, after careful evaluation of the body condition and using warm water only.

Eliminating the use of water to produce a diluted primary solution will, of course, do just that, eliminate the diluted solution, along with most of the dangers of embalming failure.

It is important to never forget that your undiluted (waterless) solution will remain undiluted if there are enough co-injection chemicals injected with the original undiluted mixture, specifically Rectifiant. Rectifiant neutralizes the pH of the body fluids that have the capability of rendering the preservative ineffective. Bodily fluids carry the same danger as water; enough water mixed with body fluids produce the same results as water alone: zero preservation.

When determining what to use for the undiluted first injection solution, we should first consider the condition of the body in front of us, not the one you embalmed yesterday, last month, or the one you remember that "looked just like this one," because no two bodies will ever be exactly the same. Each case should be evaluated by the embalmer based only on the conditions he or she observes, or reads about in any paperwork which may indicate cause of death or medical treatment.

When determining what to use for the undiluted first injection solution, we should first consider the condition of the body in front of us, not the one you embalmed yesterday, last month, or the one you remember that "looked just like this one," because no two bodies will ever be exactly the same.

For example, you may raise an eyelid during your original evaluation and observe the whites of the eyes. If the sclera has the "road map" appearance (red lines all over the area), it would mean the presence of high blood pressure at the time of death. This would indicate the person probably was on blood pressure medication and perhaps, blood thinners. Therefore, it is safe to assume clotting would be at a minimum, drainage and chemical distribution to the tissue would likely be very good.

As you contemplate undiluted (waterless) solutions and then consider you cannot eliminate dilution by retained body fluids, the waterless logic begins to come into focus. You can control the injected solution but you cannot control bodily fluid retention. Therefore, your injected solution must handle the body fluid dilution to control the preservation and fixation levels.

When you look at this closer, you will better realize the value of co-injection chemicals, such as Metaflow, Rectifiant, and Restorative. These chemicals will not dilute the preservation chemicals but will help control the fixation of the tissue for a more recognizable body, as well as more normal feeling tissue, should the family decide to touch their loved one. Preservation can be increased by a higher index of embalming solution without over-fixing the tissue. Remember over-fixed bodies are not necessarily well embalmed.

If you choose to add more preservative you must increase the co-injection (Metaflow) as well. You may increase the index to satisfy your judgment for increasing preservation, but increased fixation may create too much firming. Use the same amount of Metaflow, or even twice the amount, and possibly add at least 16 ounces of Restorative to help hold back fixation. Adding to an undiluted solution is reasonable and will help any situation where you think you may have incorrectly estimated the results. Conversely, you may want to tone down an undiluted solution that could be considered too "hot" by adding just co-injection chemicals to slow the fixation, without compromising preservation.

I know that dehydration is always an issue when higher indexes are used in embalming solutions, so please, remember co-injection chemicals, specifically Metaflow and Restorative, control over-fixing and, therefore, control dehydration. Two things accelerate dehydration and one of them is NOT formaldehyde. What are they??? WATER and REFRIGERATION.

Metaflow is a vascular conditioner that provides both fixation control and assistance to the preservative chemical. Metaflow also disperses blood clots to aid in better drainage. Rectifiant is the cell scrubber that removes deposits from blocking the entrance of the preservative into the cell. Restorative aids in dehydration prevention by rehydrating the cell if it is over-injected with a solution that may be a little too strong and will set the tissue too firm. Restorative is useful on emaciated bodies when the skin is tight up against the bone because of low fat or muscle. The Restorative will provide a slight layer between the skin and bone which will allow easier introduction of a hypodermic application of Feature Builder in the face and temporal regions.

Please note that the suggested chemical dilutions on the attached chart allow, in some of the examples, ½ gallon of warm water. If you feel a waterless solution is something you are willing to try, the ½ gallon of water may feel more comfortable for you to start with. Working your way up to the waterless by using low water for the various types of bodies listed will help you remain in your comfort zone.

Also remember as I stated on my waterless embalming solution chart, "Not all bodies require waterless embalming; however, ALL bodies require LESS WATER."

I will leave you with one thought. There is only one reason families bring their dead to you. They need someone to handle the final disposition of that loved one. You cannot spend too much time on honoring that trust!!!

In addition to representing The Dodge Company in Washington, northern Idaho, western Montana, and Alaska, Bill has been a regular faculty member of the Dodge Institute's Sunshine Seminars and has conducted numerous continuing education programs for state associations across the country, in Mexico and Canada.