

Technical Bulletin

Washer/disinfector function

Page1

What is a washer/disinfector and what does it do?

A washer/disinfector cleans and decontaminates dirty surgical instruments so they can be handled safely, repackaged, and sterilized for a future surgery. The danger of handling instruments contaminated with blood is obvious in this age of hepatitis, CJD and HIV. The procedures for sterilizing instruments are based on years of scientific testing of clean instruments. If surgical instruments are not clean, the procedures are ineffective. Dried blood on instruments is hazardous to the employees of the hospital and to the next surgical patient upon which the instruments are used.

The cleaning of dried blood is much more difficult than cleaning dirt. Blood coagulates, which means it goes from a free flowing liquid to a solid that contains tough, microscopic fibers called fibrin. These fibers are formed as the blood coagulates and jam themselves into microscopic irregularities in the surface of the stainless steel instrument. This is a physical attachment to the surface through mechanical means, not just chemical means as with traditional adhesives. The action is similar to the roots of plants growing into cracks in rocks, anchoring themselves to the surface.

The blood cells colored with hemoglobin are fairly easy to wash off instruments but the clear fibrin

colored hemoglobin can be trapped and held in place.

Another thing that makes blood difficult to clean is its ability to become insoluble when heated. Heating causes blood to “denature.” Denaturing is similar to eggs cooking in a frying pan. Transparent uncooked egg whites are fairly easy to wash away, but opaque, cooked egg whites are much more difficult. Dried, uncooked egg is even more difficult to wash away, just like blood. The proteins in blood are similar to albumin proteins in eggs.

What helps the cleaning of blood from instruments?

Water: Water will moisten dried blood and make it possible to wash away. Avoid dried blood by cleaning as soon as possible or keep instruments moist while waiting.

Time: With enough time, simple water will remove all types of blood.

Detergent: The wetting ability of detergent will help water flow to all places in and around the blood, even if water-repellent fats and oils are used.

Enzyme: Enzyme cleaners break down long fibrin fibers, allowing water to wash away the pieces... but time is needed for this action to take place—approximately 10 minutes.

Temperature: Low temperature to start (to prevent denaturizing) and

**material is much more difficult.
Thick droplets of dried blood have
so much fibrin, even the**

higher temperature later to
maximize detergent cleaning
efficiency.

[Page 2](#)