

## Administration, Aspiration and Flushing of Blood and Blood Components Through the Neutron<sup>®</sup> Needlefree Catheter Patency Device

Various studies have been performed to validate the use of the Neutron device, including administration and aspiration studies to demonstrate that no significant hemolysis occurs, and a flush analysis to demonstrate that following the travel of blood through the device, the Neutron device can be flushed clean. Following are the specified reports that have evaluated these attributes:

1. PQ CALC RPT 00-05609. 2013 Hemolysis Study at NAMSA: Blood Infusion of the Neutron.
2. PQ CALC RPT 00-05610. 2013 Hemolysis Study at NAMSA: Blood Draw of the Neutron.
3. Breznock EM, DVM, PhD, Diplomate ACVS, Sylvia CJ, DVM, MS. Biosurg, Inc. The in vivo evaluation of the flushing efficiency of the Neutron needlefree catheter patency device compared to two other connectors commonly used on central and PICC lines; 2011.

These studies verify that blood and blood components may be safely infused and aspirated through the Neutron device without the risk of hemolysis. The flush study also demonstrates that the Neutron device can be effectively flushed and cleared of blood products after use due to the straight fluid path, which offers no deadspace for blood to remain. We recommend flushing the Neutron device after each use with normal saline or in accordance with facility protocols. Flush volumes for volume-restricted patients, such as in the NICU, should continue to follow current hospital protocols.

ICU Medical recommends that the Neutron device be changed in accordance with validated facility protocols. The intent of these studies completed by ICU Medical is to provide guidance for the healthcare provider in determining appropriate use protocols. ICU Medical is aware that the majority of facilities using the Neutron device regularly administer or aspirate blood through the device and do not change it after such use.

If there are further questions or concerns, please visit our website at [www.icumed.com](http://www.icumed.com) or contact the corporate offices at 949-366-2183 or 800-824-7890.

Technical Services  
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