



Can I Hang? Ideal Time to Replace Isotonic Crystalloid Intravenous Fluids and Sets to Prevent Fluid Contamination and Blood Stream Infection: a Knowledge Summary

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Greetings. My name is Erik Fausak. Ideal time to replace isotonic crystalloid intravenous fluids and Sets to prevent fluid contamination in bloodstream infection: a Knowledge Summary.' The authors of this paper and myself are from Bel-Rea Institute of Animal Technology, a program that trains veterinary technicians. We are located in Denver, Colorado in the United States.

To give a clinical scenario for a Knowledge Summary our students undergo a portion called pre-clinical, where students go through many aspects of the clinical environment prior to their externship. Since working in critical care in New York, I learned to replace IV fluids every 72 hours, our current pre-clinical environment only changes surgical fluids until they're empty. Our clinical question that we developed was the following 'in dogs and cats does the changing of Ivy fluids every 96 hours compared to changing fluids when they are empty, reduce the risk of contamination in the bag and nosocomial infection to the patient.'

We changed the initial belief of 72 hours to 96 hours based on our readings. Our journal club investigation searched Pub Med Vet Med resource and CAB abstracts using the search terms, 'intravenous' and 'set' and 'replacement' 'intravenous' and 'fluid' and 'bag' and 'contamination' and 'fluid therapy' and 'contamination'. Our agreement was only to include secondary human research unless unavailable and to saturate at 10 primary human studies. If we couldn't find any secondary studies, we found a human Cochrane systematic review, and two veterinary studies addressed our clinical question. One veterinary study in the systematic review were in agreement that fluids and sat should be changed 96 hours, which is in the current CDC guidelines. The Guillaumin veterinary study suggested 72 hours, but the evidence that they actually collected wasn't collected until 96 hours. The Mathews study was only one in disagreement with both the systematic review in the Guillaumin study.

They had no sign contamination of fluids until 60 days, a large difference between the Matthews study and the others was that the authors in the Matthews study wiped the ports with alcohol prior to culturing, which may have affected the culturing sensitivity. Additionally, both veterinary studies seem to suggest that environmental cleanliness may be a factor in contamination. The Matthews study was performed in the relatively pristine laboratory environment compared to a busy emergency room in a veterinary hospital.

Our journal club came to the conclusion that fluid should be changed every 96 hours, but some incidental findings was that the fluid contamination can occur, and be changed too frequently as well, which is why we went with 96 hours no more or no less frequently. Alcohol seems to be a large factor in reducing contamination while not directly related to fluids. A study we included, that was

discussed in DVM 360 article as well, found that vial contamination of drugs is significantly reduced when wiping the port with alcohol, which seems to support what was found in the Matthews study that didn't have any culture until 60 days. It seems there's fairly strong evidence to support wiping ports of alcohol when taking any sample. Unfortunately, all of these studies had limited quality in terms of bias in answering these questions. Ultimately, we found any fluids and fluids sets being used for surgery or patients should be changed every 96 hours. If puncturing any fluid bag or vile, it is indicated to wipe the surface with alcohol to prevent contamination.

We appreciate your interest in this Knowledge Summary and hope it was helpful. Thank you.

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