

IV Fluid Bag Contamination

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In the Literature

Guillaumin J, Olp NM, Magnusson KD, Butler AL, Daniels JB. Influence of hang time and location on bacterial contamination of intravenous bags in a veterinary emergency and critical care setting. *J Vet Emerg Crit Care*. 2017;27(5):548-554.

FROM THE PAGE ...

To avoid fluid contamination and subsequent bloodstream infection in humans, the Centers for Disease Control and Prevention recommends discarding IV fluids within 24 hours of initial use.¹ However, these guidelines were developed when glass IV fluid bottles were more likely to become contaminated during manufacturing due to poor quality control. No updated guidelines for hospitalized humans have been published, nor have veterinary guidelines been published.

The purpose of this study was to determine the bacterial contamination rate of IV fluid bags and their fluid while hanging in the veterinary emergency room or intensive care unit. This experimental study mimicked a clinical environment in which IV fluid bags were punctured multiple times during reutilization. IV fluid bags were hung near sinks and open supply bins in the emergency room and intensive care unit for 11 days (ie, days 0-10). Each day, the bags were punctured 3 times with sterile needles; of note, the study design purposefully called for not disinfecting the injection port. The investigators then cultured the bags' access ports and fluid on days 0, 2, 4, 7, and 10. By day 7, 31.1% of access ports and 4.4% of fluids were contaminated. Port contamination was more likely if bags were located near a sink. No fluids were contaminated on days 0 or 2, which indicated that fluid contamination occurred between days 2 and 4.

IV fluids will support bacterial growth if contaminant bacteria are introduced to the bag, which puts patients at risk for bloodstream infections.²

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Swabbing access ports with a saline-soaked cotton swab mechanically removes greater than 99% of microorganisms; using 70% ethanol increases microbe eradication.³
- 2** IV fluid bags should not be used as a source of saline flush solutions because of the risk for contamination. Commercially available prefilled saline syringes can decrease the risk for bacterial contamination and subsequent catheter-related bloodstream infection.⁴
- 3** Fluid administration sets should be replaced every 4 to 7 days.⁵ Administration sets used to deliver blood products or parenteral nutrition should be replaced every 24 hours.⁶ There are no recommendations for the frequency of fluid bag replacement, but bags should at least be replaced with each administration set change. The same fluid bag should not be used in more than one patient.⁶

References

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