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Rapid infuser purge valve

A one-way purge valve that allows for quick removal of air from IV fluid bags with a single spike.



IP Status: Provisional Patent Application Filed; **Application #:** 63/208,260

Applications

- Rapid IV infuser system -- extraction of air
- Pressurized IV infusion systems -- to increase safety

Key Benefits & Differentiators

- One-time puncture to purge air and begin infusion prevents contamination and accidental puncturing
- Valve is suitable for pressurized rapid infusion systems

Overview - burping air out of IV fluid bags

Fluid bags used for intravenous (IV) infusion are prepared with some air in the bag. When priming IV tubing for infusion with a rapid infuser device, the air in the fluid bag needs to be removed first. The current method to remove air involves spiking the fluid bag (at the outlet valve) with the IV tubing spike provided. The user then disconnects the spike from the bag, turns the bag over so that the air is near the bag valve, burp the bag until all the air has been extracted, and then re-spike the bag with the IV tubing. This method involves multiple spikes of the fluid bag with the same device, which increases the risk of contamination of the spike tip, decreases the tightness of the connection, and adds time.

Researchers at the University of Minnesota have developed **a novel one-way purge valve that allows for quick removal of air from IV fluid bags with a single spike.** This medical device accessory is designed to purge air from the bag prior to the start of infusion. A healthcare professional will first spike the fluid bag with this purge valve. The one-way valve used in this purge valve device facilitates removal of air from the bag while still attached. Once the air is purged, the conventional IV tubing spike is inserted into the purge valve to begin infusion. This purge valve device allows the user to burp the bag without having to remove the spike. As the tubing can subsequently be attached to the device to complete the setup for rapid infusion, this device could help prevent contamination, accidental double puncture of the fluid bag, and reduce setup time. Additionally, possible downstream connections include adaptation to a subsequent IV bag spike, or a Luer style IV connection.

Technology ID
2021-174

Category
Engineering & Physical Sciences/Design Specifications
Life Sciences/Medical Devices

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Phase of Development

TRL: 5-6

A prototype has been developed and tested with 1 liter IV fluid bags.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- **Jonathan Strutt, MD,** Assistant Professor, Pediatrics
- Vidhu Pandey, Medical Resident, Pediatrics