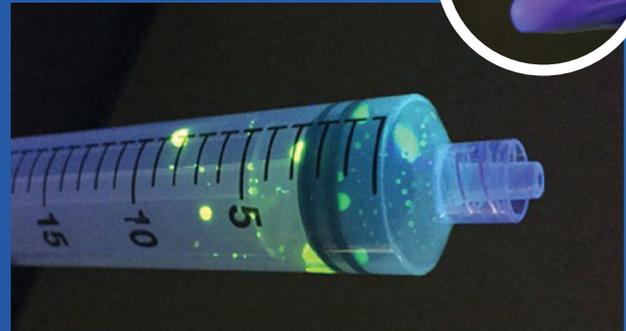


## Are you contaminating your patients?



Bacteria from the provider's hand may be carried into the syringe. This area of the plunger should remain sterile.



Syringe contamination can be demonstrated using fluorescein and a gloved hand. With repeated emptying and refilling of the syringe, fluorescein travels past the plunger.

### DID YOU KNOW...

Each manual syringe stroke can introduce bacteria into the syringe barrel.<sup>1, 2, 3</sup>

Syringes used multiple times on the same patient have been observed to have a 26.5% contamination rate.<sup>4</sup>

Catheter-associated bloodstream infections occur more than twice as frequently with manually-filled syringes compared to manufacturer pre-filled syringes.<sup>5</sup>

## "Improving Aseptic Technique During the Treatment of Pediatric Septic Shock"

*Journal of Infusion Nursing*: January/February 2019 - Volume 42 - Issue 1 - p 23–28

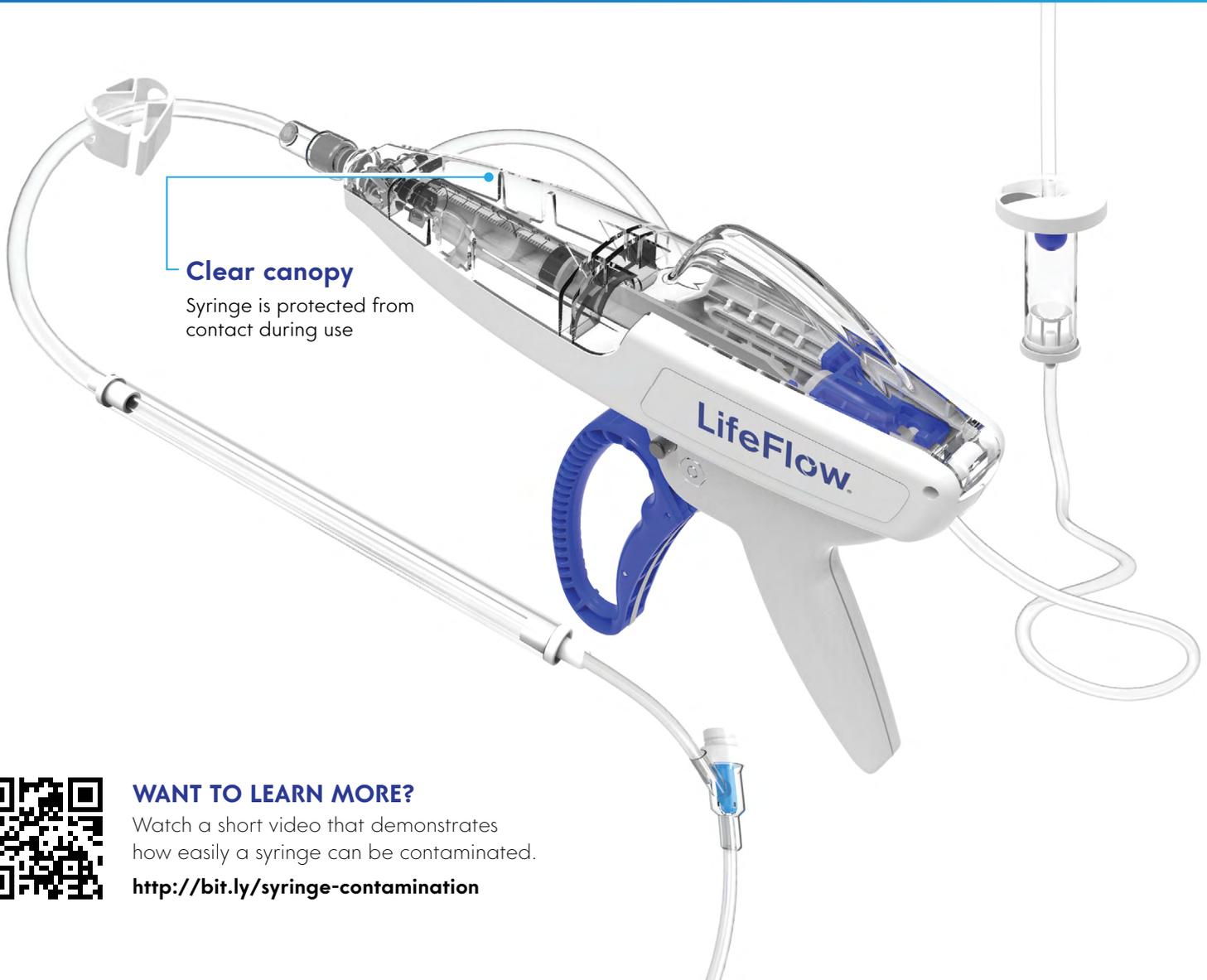
- All study participants using push-pull contacted the sterile portion of the syringe plunger
- Push-pull was associated with multiple aseptic technique violations related to contamination of the syringe barrel
- LifeFlow is more effective at maintaining aseptic technique during rapid resuscitation

Frequency of Contact with Sterile Syringe Plunger During 500ml Infusion



# Earlier. Faster. Controlled.

Deliver a 500ml bolus in less than 2 minutes.<sup>6</sup>



## Clear canopy

Syringe is protected from contact during use



## WANT TO LEARN MORE?

Watch a short video that demonstrates how easily a syringe can be contaminated.

<http://bit.ly/syringe-contamination>

1. Olivier LC, Kendoff D, Wolfhard, et al. Modified syringe design prevents plunger-related contamination: results of contamination and flow rate test. *J Hosp Infect.* 2003; 53: 140-143
2. Blogg CE, Ramsay MA, Jarvis JD. Infection hazard from syringes. *Br J Anaesth* 1974; 46: 260-262
3. Chatrath M, et al. Intraoperative Contamination of Fluids by Anesthesia Providers. Presented at the 2012 Society of Pediatric Anesthesia. <http://www2.pedsanesthesia.org/meetings/2012winter/posters/uploads/136--SO1-109.pdf>
4. Heid, Florian, et al. "Microbial contamination of anesthetic syringes in relation to different handling habits." *American journal of infection control* 44.3 (2016): e15-e17
5. Bertoglio, S., et al. "Pre-filled normal saline syringes to reduce totally implantable venous access device-associated bloodstream infection: a single institution pilot study." *Journal of Hospital Infection* 84.1 (2013): 85-88
6. Average speed using 20G catheter

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