

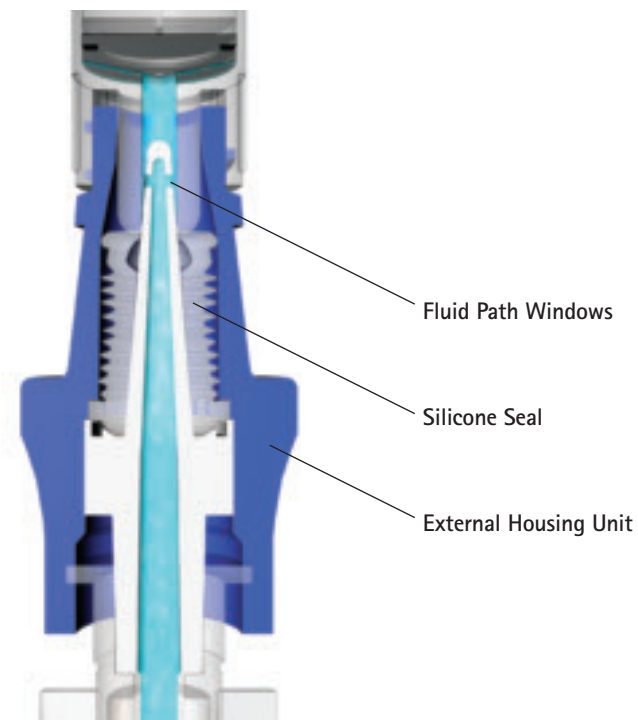
# LifeShield® CLAVE® Needle-Free Connector



Engineered to deliver  
unsurpassed performance

## LifeShield® CLAVE®: IV Access that's Fast, Convenient, and Safe

- CLAVE® is the most widely used one-piece needle-free connector worldwide<sup>1</sup>
  - Over 2,000 satisfied customers
  - 99% overall satisfaction rate versus competitors<sup>2</sup>



*"...we have seen no device that can match the quality or cost-effectiveness of the CLAVE®."*<sup>3</sup>

**Peggy Thompson, RN, BSN, CIC**  
Director of Epidemiology and Vascular Access Team  
Tampa General Hospital, Tampa, FL

## LifeShield® CLAVE®: Proven to Maintain a Sterile Barrier

- Patented split-septum reseal design that utilizes inverse technology to create a mechanism of action that maintains a sterile fluid pathway
  - Dedicated internal fluid path prohibits contact of the IV solution with any outside component
- Smooth, accessible injection site helps promote good disinfection practice
- Disinfection using a standard swabbing technique has been shown to eliminate microorganisms from the access site of the silicone seal

### Clinical Study: Microbial Barrier Challenge<sup>4</sup>

Time	Test units (20): Number of samples testing positive	Positive control unit: Number of samples testing positive	Negative control unit: Number of samples testing positive
24 hrs	0/20	1/1	0/1
48 hrs	0/20	1/1	0/1
72 hrs	0/20	1/1	0/1
96 hrs	0/20	1/1	0/1
120 hrs	0/20	1/1	0/1
144 hrs	0/20	1/1	0/1

- Maintains integrity even under severe microbial barrier challenge<sup>4</sup>
  - Following deliberate contamination with *Pseudomonas aeruginosa*, the LifeShield® CLAVE® connector maintained a physical barrier for 144 hours (6 days) despite 24 repeat activations per day (total of 144 activations)



# LifeShield® CLAVE®: The Most Widely Used One-Piece Needle-Free Connector Worldwide<sup>1</sup>

## Needle-free access that's fast, convenient, and safe

- Needle-free IV systems decrease needlestick injuries related to IV connectors by 62% to 88%<sup>7</sup>
  - Preliminary cost for treating a single needlestick injury is estimated between \$200 and \$1,200<sup>8</sup>
- Low residual volume (0.05 mL) for more accurate delivery of medication<sup>5</sup>
- Excellent flow rates (185 mL/min unimpeded flow)<sup>5</sup>
- Low negative displacement (0.004 mL negative displacement) helps reduce the risk of catheter clotting
  - Virtually no blood retrograde
- Patented split-septum reseal design utilizes inverse technology to maintain a sterile fluid pathway

*"One of the best features of the LifeShield® CLAVE® is that it needs only to be swabbed with a disinfectant to use it. We love that about LifeShield® CLAVE®—no pieces required for it to work."<sup>9</sup>*

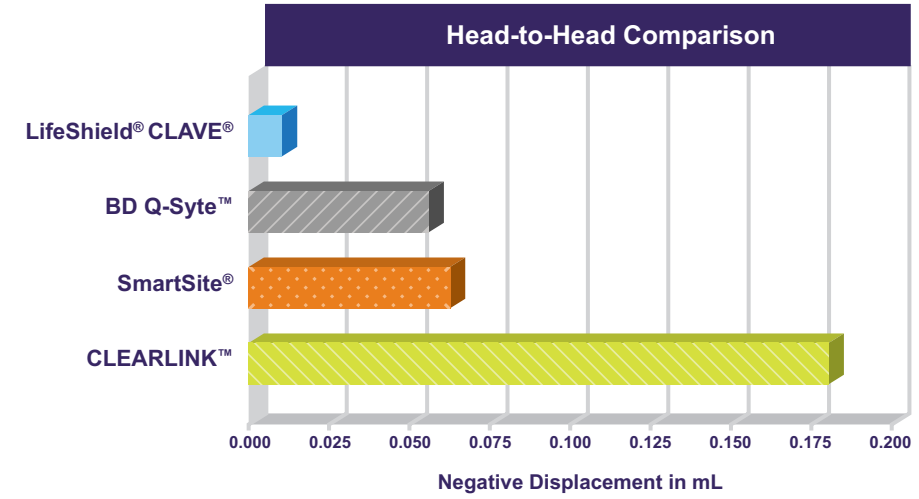
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Boston, MA

CLAVE®, BD Q-Syte™, SmartSite®, CLEARLINK™, and ULTRASITE® are not trademarks or registered trademarks of Hospira, Inc.

**References:** 1. www.icumed.com. 2. Murray G. Evaluating needle-free systems. *Ir Pharm J.* 1997. 3. Thompson P. CLAVE® implementation cuts sharps-related injuries in half. The Tampa Experience. Case study. 2001. 4. Extended use microbial challenge and disinfection study of the CLAVE® Connector. Independent study [99-7048]. 5. Data on file, Hospira, Inc. 6. Maragakis LL, Bradley KL, Song X, et al. Increased catheter-related bloodstream infection rates after the introduction of a new mechanical valve intravenous access port. *Infect Control Hosp Epidemiol.* 2006;27:67-70. 7. *Preventing Needlestick Injuries in Health Care Settings.* US Dept of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institute for Occupational Safety and Health. November 1999. 8. Gartner K. Impact of a needleless intravenous system in a university hospital. *Am J Infect Control.* 1992;20(2):75-79. 9. Garvin M, Director, National Sharps Injury Prevention Seminar Tour. The LifeShield® CLAVE® Connector: blending safety, simplicity and performance. 2004.



# Minimal Negative Displacement Compared to Other Needle-Free Connectors<sup>5</sup>

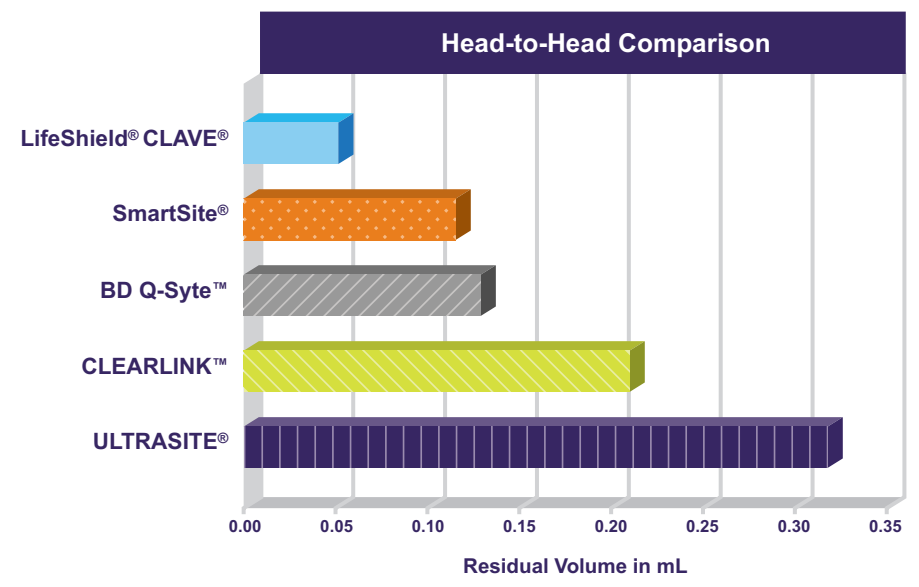


- CLAVE® is a neutral displacement connector (0.004 mL negative displacement)
- Virtually no blood retrograde; reduces the risk of catheter clotting
  - Blood carries a greater potential for microbial growth than saline
- Replacing the central line due to blood retrograde can result in:
  - Delayed therapy/treatment
  - Expensive de-clotting agents
  - Costly replacement of lines

*"Because of dramatically increased CR-BSI [catheter-related bloodstream infection] rates, use of the PPMV [positive-pressure mechanical valve] device was discontinued at the Johns Hopkins Children's Center... and the previous MV [mechanical valve] port [CLAVE®] was reintroduced."<sup>6</sup>*

# Low Residual Volume to Ensure More Accurate, More Complete Dosing and Administration

- For accuracy: The lower the residual volume, the more accurate the dose
- For effectiveness: Delivering the exact dose intended for the patient is imperative, particularly when small doses of medication are being administered



## Case in point: The benefit of less residual volume in the ICU

Consider a patient in the ICU receiving a hydromorphone IV push for pain relief:

- Maximizing the dose delivered is paramount to effective pain management
- 0.2 mg IV push = 0.2 mL (or a relatively small injection)
- When small amounts of medication like this are administered, the lower the residual volume, the more accurate the dose