

# Liquid Chemical Sterilization for Endoscopes

The most practical solution for



**Spores & multi-drug  
resistant organisms  
(MDRO)**



**Your reputation**



**Patient safety**

# Patient safety is never semi-critical

## It won't can happen here

Since 2015, patients have been infected by contaminated endoscopes at more than a dozen major hospitals; some of these infections resulted in patient deaths. Typically, these Hospital Associated Infections (HAIs) are the result of a GI procedure using complex flexible endoscopes such as duodenoscopes. Due to their complexity, a recent safety communication recommends facilities consider using sterilization for duodenoscopes.



Major medical facilities with endoscope related infection outbreaks since 2015, some resulting in fatalities

## The culprit

**CRE** — *Carbapenem-resistant Enterobacteriaceae* account for about 9,300 HAIs each year, and almost 50% of patients who develop bloodstream infections from *CRE* bacteria die from them.<sup>1</sup>

**509,300**

Infections per year<sup>2</sup>

**19,650** deaths<sup>2</sup>

**C. diff** — A study found that *Clostridium difficile* (also known as *Clostridioides difficile*) caused over 500,000 infections among patients in a single year and over 19,000 deaths.<sup>3</sup> It is the most common microbial cause of HAIs in the U.S. with 1 out of every 11 patients aged 65 or older dying within 30 days of diagnosis.

## The costs

**CRE** — The cost of a single *CRE* infection, depending upon type, ranges from \$22,484 to \$66,031 for a hospital. Average cost per hospital for *CRE* infections is \$3.15 million every year.<sup>4</sup>

**C. diff** — Each patient with an infection costs \$24,205 more than those without an infection, for a total of \$4.8 billion annually across all U.S. hospitals.<sup>5</sup>

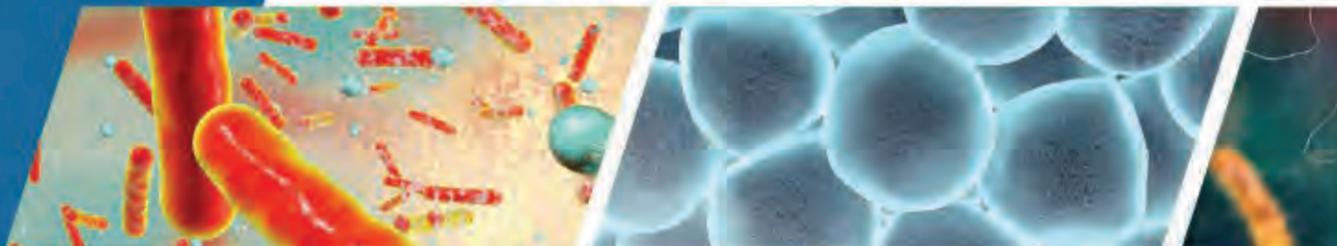
**\$3.15**  
million per hospital  
per year

**\$4.8**  
billion per year



**Your reputation**— For facilities and doctors the impact on reputation and public perception are significant. With patient “choice” paramount in the health care system, can your facility afford to be known as the “infection hospital?”

**Legal** — Beyond care costs and reputation, litigation from infection-related deaths can run into the millions, with one case awarding the patient’s family \$6.6 million.<sup>6</sup>



## The recent **safety** communication

Hospital and Endoscopy Facilities:  
Important Recommendations for duodenoscopes

**RECOMMENDED**



“ Consider reprocessing with supplemental measures such as sterilization or use of a liquid chemical sterilant processing system consistent with the device's labeling.”

## Sterilization: The only effective choice

Only sterilization eliminates all types of microbial life, including bacteria and spores (*CRE* and *C. diff*). By comparison, HLD does not eliminate spores, leaving you, your facility and patients open to the risk of infection.

Repeat or double HLD has been shown not to provide significant reduction in microorganisms vs. single HLD<sup>6</sup>

	MICROORGANISM TYPE	LIQUID CHEMICAL STERILIZATION	DISINFECTION		
			HIGH LEVEL	INTERMEDIATE LEVEL	LOW LEVEL
↑ MORE DIFFICULT TO KILL  ↓ LESS DIFFICULT TO KILL	Bacterial Spores	✓	✗	✗	✗
	Mycobacteria	✓	✗	✗	✗
	Non-enveloped viruses	✓	✗	✗	✗
	Fungi	✓	✗	✗	✗
	Gram Negative Bacteria	✓	✗	✗	✗
	Gram Positive Bacteria	✓	✗	✗	✗
	Enveloped Viruses	✓	✗	✗	✗

**Ethylene Oxide (EtO):**  
A sterilization choice, but not the solution

- Poor material compatibility with endoscopes
- 13-24 hours cycle time
- FDA challenges facilities to reduce EtO emissions to near zero



## Liquid Chemical Sterilant Processing:

The most practical choice

How do you follow the recent safety recommendations?  
How do you provide the highest standard of care?  
How do you reprocess endoscopes productively to keep up with procedures?

Liquid Chemical Sterilant Processing (LCS) makes it easy and practical.



- Provides liquid chemical sterilant processing for complex endoscopes
- No odor, ventilation required
- Biodegradable with no special disposal requirements
- **18-minute cycle time**



SYSTEM **1**endo®

**300,000,000+**

endoscopes reprocessed without an infection using a liquid chemical sterilant processing system.<sup>9</sup>

# SYSTEM 1 endo: Liquid Chemical Sterilant Processing System

The best solution for your facility to combat today's most virulent, infection-causing microbes. The best solution for your peace of mind and for providing your patients with a higher standard of care vs. HLD.



- 18-minute cycle
- Validated for material compatibility and efficacy on over 2000 endoscope models, including colonoscopes, duodenoscopes, gastroscopes and bronchoscopes
- Seamless tracking and electronic record-keeping
- No ventilation required and use-dilution can wash safely down the drain
- Safe and easy to use for staff



**SYSTEM 1**  
**endo**<sup>®</sup>

The **MOST** Practical Solution

<sup>1</sup> <https://www.livescience.com/50041-cre-symptoms-treatment.html>

<sup>2</sup> Aggregate of *C.diff* and CRE infections and deaths. Source: <https://www.cdc.gov/media/releases/2015/p0225-clostridium-difficile.html>, <https://www.livescience.com/50041-cre-symptoms-treatment.html>

<sup>3</sup> <https://www.cdc.gov/media/releases/2015/p0225-clostridium-difficile.html>

<sup>4</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5547745/>

<sup>5</sup> <https://www.cdc.gov/media/releases/2015/p0225-clostridium-difficile.html>

<sup>6</sup> <https://www.seattletimes.com/seattle-news/health/virginia-mason-awarded-66m-in-contaminated-scope-lawsuit/>

<sup>7</sup> [https://www.fda.gov/medical-devices/safety-communications/fda-recommending-transition-duodenoscopes-innovative-designs-enhance-safety-fda-safety-communication?utm\\_campaign=2019-08-29%20CDRH%20Safety%20Comm%20-%20%20Recommendations%20and%20Updates%20to%20Help%20Improve%20Duodenoscope%20Reprocessing&utm\\_medium=email&utm\\_source=Eloqua](https://www.fda.gov/medical-devices/safety-communications/fda-recommending-transition-duodenoscopes-innovative-designs-enhance-safety-fda-safety-communication?utm_campaign=2019-08-29%20CDRH%20Safety%20Comm%20-%20%20Recommendations%20and%20Updates%20to%20Help%20Improve%20Duodenoscope%20Reprocessing&utm_medium=email&utm_source=Eloqua)

<sup>8</sup> [https://scholarworks.iupui.edu/bitstream/handle/1805/17101/Rex\\_2018\\_double.pdf?sequence=1&isAllowed=1](https://scholarworks.iupui.edu/bitstream/handle/1805/17101/Rex_2018_double.pdf?sequence=1&isAllowed=1)

<sup>9</sup> Number of reprocessing events without reported infection traceable to the processing system when using endoscopes processed correctly according to IFU. Internal STERIS data based on sterilant concentrate sales

For more information about the SYSTEM 1 endo Liquid Chemical Sterilant Processing System visit [steris.com/system1endo](https://steris.com/system1endo)

 **STERIS**