

# Lawrence F. Muscarella, Ph.D.

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## EMPLOYMENT

- **2013 - Present:** *LFM Healthcare Solutions, LLC* (Montgomeryville, PA), president and founder. A company whose mission is to improve the quality and safety of health care. *Visit:* LFM-HCS.com



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## EDUCATION

- **Ph.D.** (1990): *University of Pennsylvania, School of Engineering and Applied Sciences* (Department of Bioengineering, Philadelphia, PA)
- **M.S.E.** (1985): *University of Pennsylvania, School of Engineering and Applied Sciences* (Department of Bioengineering, Philadelphia, PA)
- **B.S.** (1983): *Ursinus College* (Collegeville, PA). Major: Physics; Minors: Biology, Philosophy

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## EXPERIENCE, QUALIFICATIONS

- Consultant, advisor for medical device manufacturers, healthcare facilities and the public
- Expert in identifying the causes and prevention of healthcare-associated infections linked to an infection-control lapse or medical device
- Experienced in providing litigation support
- Expert in assessing the risk of infection associated with a specific infection control lapse
- Experienced in design control, root cause analyses (RCAs) and hazard analyses
- Experienced in quality control, regulatory affairs and quality assurance
- Auditor and peer reviewer of a facility's infection-control and instrument-reprocessing policies, procedures, and practices
- Author of more than 150 papers, many of which are published in peer-reviewed journals.
- Frequent lecturer in Canada, the U.S., and in the U.K.

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## PATENTS

- Lawrence F Muscarella, PhD, Frank Weber. *Method for determining the efficacy of a decontamination process*. US 6,428,746 B1 (Issued: August 6, 2002). [Lawrence F Muscarella: Sole owner of patent.] Learn more: <http://www.google.com/patents/US6428746>

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## RECENT PUBLICATION SAMPLES

1. "Infections of Multidrug-Resistant Bacteria Associated with Bronchoscopes: Updated Recommendations to Improve Safety." [Submitted for publication.]
2. "Reemergence of Ethylene Oxide Gas Sterilization for the Prevention of Multidrug-Resistant Bacterial Infections Linked to Flexible Endoscopes: A Scientific Review." In press.
3. "Resistant *Klebsiella pneumoniae* infections Linked to Flexible Intubation Endoscopes: Recommendations to Prevent Infections." <https://tinyurl.com/yd87azkl>
4. "Risk of Flexible Endoscopes, Including Gastrosopes and Echoendoscopes, Transmitting "Superbugs" Infections: An Important Update." April 2018 <https://tinyurl.com/y9k595ls>
5. "Enzymatic Detergents: Are They the Primary Cause of TASS?" January 2018 <https://tinyurl.com/ycnccdfs>
6. "Updated Guidance for the Prevention of Transmission of 'CRE' and Other Related Multidrug-Resistant Superbugs During Gastrointestinal Endoscopy." Fall, 2016 <https://tinyurl.com/y8x3gtj8>
7. "Whose Instructions Should You Follow? A guide for resolving inconsistencies in the reprocessing instructions of bronchoscopes and automated endoscope reprocessors." <http://tinyurl.com/hguy9zc>
8. "Risk of transmission of carbapenem-resistant Enterobacteriaceae (CRE) and related 'superbugs' during gastrointestinal endoscopy." *World J Gastrointest Endosc* 2014 Oct 16;6(10):457-74. <http://bit.do/X7Ff>
9. "Other Possible Causes of a Well-Publicized Outbreak of *Pseudomonas aeruginosa* Following Arthroscopy in Texas." *Advances Infect Dis* 2013 Jun;3(2). <http://bit.do/X7FF>
10. "Infection-Control Breaches and the Use of Adulterated and Misbranded Medical Devices": *World J Clin Infect Dis* 2012 Apr 25;2(2):13-27. <http://bit.do/X7FV>
11. "Assessment of the Reported Effectiveness of Five Different Quality-Improvement Initiatives for the Prevention of Central Line-Associated Bloodstream Infections in Intensive Care Units." *Open Epidemiol J* 2012;5:5-12. <http://goo.gl/LLH3oB>

(List is incomplete)

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## HONORABLE RECOGNITIONS

- **U.S. Congressional letter:** A letter by Rep. Ted Lieu (U.S. House of Representatives; D-CA) to the Olympus Corporation of the Americas. March 23, 2015: <https://tinyurl.com/y7lca28v>
- **Pittsburgh Tribune Review Editorial Board:** "Those Olympus Scopes." July 26, 2016: <http://tinyurl.com/j6xh4uv>
- **Medical Device & Diagnostic Industry (MDDI):** "100 Notable people. Who matters, and why, in and around the medical device industry." June 1, 2008: <http://tinyurl.com/3kur2xh>
- **Television:** Dr. Muscarella's independent research about hospital infections and medical devices has been discussed or aired by *CNN*, *Consumer Reports*, *NBC's The Today Show*, *Wall Street Journal*, *ABC World News Tonight*, *CBS Evening News*, *The Los Angeles Times*, *The*

*Philadelphia Inquirer, The New York Times, The Washington Post, Newsweek, USA Today, Bloomberg Business, and NPR Radio, among several other sources.*

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## WEBINAR, e-BOOK SAMPLES

- “*Infection Prevention During Bronchoscopy*” — A webinar (video recording) by Dr. Muscarella and A. Mehta, MD [November 2016]: <http://tinyurl.com/hxpwamt>
  - “*Superbugs: Updated Guidance for Infection Prevention During GI Endoscopy*” – An e-Book by Dr. Muscarella [2017]: <https://tinyurl.com/y9uk3d3p>
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## SOME RECENT TV, RADIO INTERVIEWS ABOUT HOSPITAL INFECTIONS (2015)

- CNN
- *The Today Show (NBC)*
- *ABC World News Tonight*
- *CBS Evening News with Scott Pelley*
- *NBC Nightly News with Lester Holt*
- *CNN’s Out Front with Erin Burnett*
- *CBS-2/KCAL9-TV (Los Angeles, CA)*
- *NPR Radio*
- *WFMZ 69-News (Allentown, PA)*
- *Al Jazeera America*
- *Huffington Post Live*
- *Wall Street Journal Live*

*(List is incomplete.)*

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## PUBLICATIONS IN PEER-REVIEWED MEDICAL JOURNALS

1. Muscarella LF. Risk of transmission of carbapenem-resistant *Enterobacteriaceae* and related ‘superbugs’ during gastrointestinal endoscopy. *World J Gastrointest Endosc* 2014 Oct 16;6(10):457-74.
2. Muscarella LF. Other possible causes of a well-publicized outbreak of *Pseudomonas aeruginosa* following arthroscopy in Texas. *Advances in Infectious Diseases* 2013 June;3(2).
3. Muscarella LF. Assessment of the reported effectiveness of five different quality-improvement initiatives for the prevention of central line-associated bloodstream infections in intensive care units. *Open Epidemiology Journal* 2012;5:5-12.
4. Muscarella LF. Medical errors, infection-control breaches and the use of adulterated and misbranded medical devices. *World J Clin Infect Dis* 2012 April 25;2(2):13-27.
5. Agrawal D, Muscarella LF. Delayed reprocessing of endoscopes. *Gastrointest Endosc* 2011 Apr;73(4):853-4.
6. Muscarella LF. The investigation and prevention of infectious outbreaks during endoscopic retrograde cholangio-pancreatography. *Endoscopy* 2010 Nov;42(11):957-9. [Featured

editorial]

7. Muscarella LF. The study of a contaminated colonoscope. *Clin Gastroenterol Hepatol* 2010 Jul;8(7):577-580.
8. Muscarella LF. Evaluation of the risk of transmission of bacterial biofilms and *Clostridium difficile* during gastrointestinal endoscopy. *Gastroenterol Nurs*. 2010 Jan-Feb;33(1):28-35.
9. Muscarella LF. Reassessment of the risk of healthcare-acquired infection during rigid laryngoscopy. *J Hosp Infect* 2008;68(2):101-107.
10. Muscarella LF. The prevention of disease transmission during flexible laryngoscopy. *Am J Infect Control* 2007;35:536-44.
11. Muscarella LF. Recommendations to resolve inconsistent guidelines for reprocessing sheathed and un-sheathed rigid laryngoscopes. *Infect Control Hosp Epidemiol* 2007 Apr;28(4):504-7.
12. Muscarella LF. Endoscopic shuffling, infection control, and the clinical practice of push enteroscopy. *Gastroenterol Nurs* 2007 Mar-Apr;30(2):109-15.
13. Muscarella LF. Inconsistencies in endoscope-reprocessing and infection-control guidelines. The importance of endoscope drying. *Am J Gastroenterol* 2006 Sep; 101(9):2147-54.
14. Muscarella LF. The risk of disease transmission associated with inadequate disinfection of gastrointestinal flexible endoscopes. *J Hosp Infect* 2006 Jul;63(3):345-347.
15. Nelson DB, Muscarella LF. Current issues in endoscope reprocessing and infection control during gastrointestinal endoscopy. *World J Gastroenterol* 2006 July 7;12(25):3953-3964.
16. Muscarella LF. Critique of a FDA-CDC public health advisory that discusses inadequate automated bronchoscope reprocessing. *J Hosp Infect* 2006 Oct;64(2):191-3.
17. Hamasuna R, Nose K, Osada Y, Muscarella LF. Correction: high-level disinfection of cystoscopic equipment with ortho-phthalaldehyde solution. *J Hosp Infect* 2005 Dec;61(4):363-4.
18. Muscarella LF, DiMarino AJ. "Endoscope disinfection." In: *Advanced Therapy in Gastroenterology and Liver Diseases*, 5th Edition. Chapter 4, pp. 23-28 (2004).
19. Muscarella LF. Dear Los Angeles Times: The risk of disease transmission during gastrointestinal endoscopy. *Gastroenterology Nurs* 2004 Nov-Dec;27(6):271-8.
20. Muscarella LF, Haponik EF, Perl TM. The importance of bronchoscope reprocessing guidelines. Raising the standard of care. *Chest* 2004;126:1001-3.
21. Muscarella LF. Recommendations for the prevention of transmission of SARS during gastrointestinal endoscopy. *Gastrointestinal Endoscopy* 2004;60(5):792-5.
22. Muscarella LF. Infection control and its application to the administration of intravenous medications during gastrointestinal endoscopy. *Am J Infect Control* 2004 Aug;32(5):282-6.
23. Muscarella LF. Is gastrointestinal endoscopy a risk factor for Whipple's disease? *Infect Control Hosp Epidemiol* 2004 Jun;25(6):453-4; author reply 455.
24. Muscarella LF. Contribution of tap water and environmental surfaces to nosocomial transmission of antibiotic-resistant *Pseudomonas aeruginosa*. *Infect Control Hosp Epidemiol* 2004 Apr;25(4):342-5.
25. Muscarella LF. Bronchoscope reprocessing: Are changes needed? *Chest* 14 January 2004.

26. Muscarella LF. Application of environmental sampling to flexible endoscope reprocessing: The importance of monitoring the rinse water. *Infect Control Hosp Epidemiol* 2002 May;23:285-9.
27. Muscarella LF. Leading a horse to water. Are crucial lessons in endoscopy and outbreak investigations being learned? *Infect Control Hosp Epidemiol* 2002 Jul;23(7):358-60.
28. Muscarella LF. Limited surveillance in the endoscopic setting: Has its time arrived? *AJIC Am J Infect Control* 2002 Feb;30(1):66-7.
29. Muscarella LF. Anthrax: Is there a risk of cross-infection during endoscopy? *Gastroenterology Nurs* 2002 Mar-Apr;25(2):46-8.
30. Muscarella LF. Recommendations for preventing hepatitis C virus infection: Analysis of a Brooklyn endoscopy clinic's outbreak. *Infect Control Hospital Epidemiol* 2001 Nov;22(11):669.
31. Muscarella LF. Disinfecting endoscopes immediately before the first patient of the day. *AORN J* 2001 June 2001;73(6):1159-1163.
32. Muscarella LF. Current instrument reprocessing practices. Results of a national survey. *Gastroenterol Nurs* 2001;24(5):253-60.
33. Muscarella LF. Biopsy forceps: Disposable or reusable? *Gastroenterol Nurs* 2001; 24(2):64-8.
34. Muscarella LF. Déjà vu ... all over again. The importance of instrument drying. *Infect Control Hosp Epidemiol* 2000 Oct;21(10):628-9.
35. Muscarella LF. Automatic flexible endoscope reprocessors. *Gastrointest Endosc Clin N Am* 2000 Apr;10(2):245-257.
36. Muscarella LF. What is disinfection, sterilization? *Gastrointest Endosc* 1999;50(2): 301-3.
37. Muscarella LF. Commentary. *Gastroenterol Nurs* 1999 Jul-Aug;22(4):179-80.
38. Muscarella LF. Are all sterilization processes alike? *AORN J* 1998 May;67:966-76.
39. Muscarella LF. Soaking endoscopes in 2% glutaraldehyde for 20 minutes: a risk management perspective. *Am J Infect Control* 1998 Apr;26(2):153-5.
40. Muscarella LF. Anticipated reliability of liquid chemical sterilants. *Am J Infect Control* 1998 Apr;26(2):155-6.
41. Muscarella LF. Instrument design and cross-infection. *AORN J* 1998 Mar;67(3):552-6.
42. Muscarella LF. Advantages and limitations of automatic flexible endoscope reprocessors. *AJIC Am J Infect Control* 1996;24:304-9.
43. Muscarella LF. High-level disinfection or 'sterilization' of endoscopes? *Infect Control Hosp Epidemiol* 1996;17:183-7.
44. Muscarella LF. Sterilizing dental equipment. *Nature Medicine* 1995 Dec;1(12):1223-5.
45. Muscarella LF. Abdominal fluid contamination of laparoscopic insufflators. *J Gynecologic Surg* 1994;10(1):51-3.
46. Muscarella LF. The difficulty of reprocessing reusable rigid endoscopic instruments: Are disposables the solution? *J Gynecologic Surg* 1994;10(2):121-3.
47. Muscarella LF, Pathak AS, Takashirna, et al. Quantitative analysis of the Landis method. *Microvasc Res* 1993;45(1):46-64.

48. Muscarella LF, Vasthare U, Tuma RF, et al. The effect of ultrasound on regional cerebral blood flow in neonatal rats. *Ultrasound Med Biol* 1991;17(9):893-899.
  49. Salotto AG, Muscarella LF, Melbin J, et al. Pressure pulse transmission into vascular beds. *Microvasc Res* 1986; 32:152-163.
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## DISCLAIMER

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