

A Tribute to Richard F. Edlich, MD, PhD

*William C. Lineaweaver, MD
Editor-in-Chief, Annals of Plastic Surgery*

Introduction

Richard F. Edlich was a Ford Foundation Scholar who gained early admission to Lafayette College at age 15. Three years later, he was accepted as an early admission student to New York University School of Medicine, where he received his medical degree. He completed a general surgery residency at the University of Minnesota Health Sciences Center under the guidance of his mentor, Dr. Owen H. Wangenstein, who is recognized as one of the twentieth century's greatest teachers of surgery.¹ During his eight-year surgical residency, Dr. Edlich also received his PhD. He completed his plastic surgery residency at the University of Virginia Health Science Center in 1973. He commenced his teaching career at the University of Virginia in 1973, beginning as Assistant Professor and eventually becoming Distinguished Professor of Plastic Surgery and Professor of Biomedical Engineering.

Multi-disciplinary Research Program

During his years at Virginia, Dr. Edlich founded, designed, and served as director of the 16-bed University of Virginia Burn and Wound Healing Center. Treatment of burn injuries and complex wounds at the center was a multidisciplinary research effort involving basic scientists as well as healthcare professionals. Dr. George T. Rodeheaver, the Edlich Research Professor of Plastic Surgery, is an organic chemist who played a leadership role in developing experimental models that effectively evaluated the merits of different wound healing products and techniques. Dr. John G. Thacker, Vice Chairman of the Department of Mechanical and Aerospace Engineering, developed reproducible performance tests that have been adopted by the medical industry as standards for surgical product testing.

Collaborative efforts resulted in numerous innovative products, surgical techniques, and tests used throughout the world. The Reinforced Steri-Strip™ (3M™, Minneapolis, MN) has been used in more than a billion patients for wound closure.² A surgical wound cleanser, poloxamer-188 (Shur-Clens™, ConvaTec, Skillman, NJ), was devised to remove bacterial contaminants from the wound without tissue toxicity.³ This wound cleanser has successfully decontaminated wounds in more than ten million patients without a single reported toxic reaction. A more concentrated solution of poloxamer-188 forms a gel that incorporates antibiotics for prevention of burn wound sepsis. The Argyle™ Edlich Gastric Lavage Kit has been used throughout the world to remove blood clots and poisons from patients' stomachs.⁴ Endoscopic

surgical gastrostomy was first devised by his team of physicians as a safe technique of tube feeding.⁵ A more reliable Gram stain procedure was developed to accurately identify bacterial pathogens in infections.⁶ Studies of the biomechanical performance of powder-free and latex-free examination and surgical gloves have identified superior glove products that have allowed more than 100 hospitals to abandon the use of dangerous glove powders.⁷

Dr. Edlich's book, *Medicine's Deadly Dust*,⁸ is a meticulously detailed report documenting the life-threatening dangers of powders from surgical and examination gloves. On September 24, 2008, Dr. Edlich teamed up with eleven other gifted health professionals to submit a Citizen's Petition to the US Food and Drug Administration to ban cornstarch powder on medical gloves.⁹ Because the Food and Drug Administration was slow to make a final decision banning the dangerous cornstarch powder on medical gloves, he submitted a review article to *Annals of Plastic Surgery* on the subject.¹⁰ As this team of surgeons and scientists made revolutionary advances in surgery, they helped transform the field of surgery into a discipline in which decisions are made on the basis of the results of reproducible, well-designed clinical and experimental studies. Dr. Edlich's research programs on the treatment of burn wounds have been complemented by the largest epidemiological study on burn prevention sponsored by the US Department of Health and Human Services. The study demonstrated the important role of liquid accelerants as a major causal factor of burn injuries.¹¹ On the basis of these studies, public education programs were initiated to end these preventable injuries.

A specialist in research on the biology of wound repair and infection, he is a coauthor of seven books and more than 800 scientific articles and chapters on these subjects. In 2000, Dr. Edlich received the Harvey Stuart Allen Medal from the American Burn Association in recognition of his significant contributions to burn care.

Emergency Medical Services

From 1971 until 1982, Dr. Edlich was Director of the Emergency Medical Service at the University of Virginia Hospital. He teamed up with his colleague and friend Dr. Ernst Attinger, Professor and Chairman of Biomedical Engineering, to develop a com-

prehensive emergency medical system in the Commonwealth of Virginia. With the aid of grants from the Robert Wood Johnson Foundation and the US Department of Health and Human Services, they championed the development of basic and advanced life-support training for physicians, emergency medical technicians and paramedics;¹² a telemetered medical system for emergency care; a rape crisis center;¹³ a crisis center for psychiatric emergencies; and the Pegasus Flight Operations, which is celebrating its 25th anniversary. Working with Governor John Dalton, Dr. Edlich was instrumental in the designation of Level I Trauma Centers in the Commonwealth of Virginia. He served voluntarily as the physician technical advisor for emergency care for Washington, DC, Maryland, West Virginia, Pennsylvania, and Virginia under the guidance of Dr. David Boyd, who served as Director of Emergency Care Operations for the Department of Health and Human Services. In recognition of Dr. Edlich's leadership in developing emergency medical systems, he received the Distinguished Service Award from the Department of Health and Human Services (DHHS). In 2008 Dr. Edlich was the recipient of the James D. Mills Award, the highest academic honor given by the American College of Emergency Physicians.¹⁴

Realizing the importance of partnerships between the University and industry, Dr. Edlich championed the development of the North Fork Research Park. This initiative transformed a 504-acre cow pasture into a modern industrial park. When he convinced MicroAire® Surgical Instruments to move its company from California to the North Fork Research Park, the University of Virginia built streets and a sewer and water system for the entire park. In recognition of Dr. Edlich's vision of a modern industrial park in Charlottesville, the University named the street entrance to this park *Edlich Drive*.¹⁵

Rehabilitation Medicine

After the development of the first poison control center at the University of Virginia, Dr. Edlich soon learned from a mother who was deaf about her unsuccessful attempts at contacting the poison control center regarding the ingestion of pills by her daughter. Because the poison control center and hospital did not have a teletypewriter (TTY) for the deaf, she was unable to enlist the help of the staff at the poison control center. Since the University of Virginia

hospital did not have adequate funds to buy a TTY, Dr. Edlich enlisted the help of Dr. Jerry Falwell, of the Thomas Road Baptist Church in Lynchburg, Virginia. Reverend Falwell and Dr. Edlich were committed to creating access for the deaf community to hospitals and community services. They teamed up to develop the National Crisis Center for the Deaf. This center provides access for the deaf community to emergency care and community services throughout our country.¹⁶

Dr. Edlich became a champion for the enforcement of the Americans with Disabilities Act (ADA) regulations. His complaints to the US Department of Justice have successfully removed architectural barriers to persons with disabilities in the Majestic Theatre in New York, Hotel Macklowe in New York, the Newark International Airport, and the Charlotte-Douglas International Airport. His strong advocacy for accessibility has made the University of Virginia a model of accessibility for people with disabilities. Recognizing that his own hospital as well as other hospitals had numerous architectural barriers to people with disabilities, he transformed the University of Virginia Medical Center into a barrier-free center that complies with ADA standards. In an effort to ensure that all hospitals comply with ADA, he is now working with the US DHHS Healthcare Financing Administration to incorporate ADA compliance review as part of its certification process. Realizing that all patient care involves a comprehensive rehabilitation program, he championed the establishment of a Department of Rehabilitation Medicine at the University of Virginia Health Science Center.

Discussion

As a teacher, Dr. Edlich is a popular speaker whose addresses are remembered by members of the University and professional societies. In 1985, he gave the Kennedy Lecture to the Society of Academic Emergency Medicine. In 1987 and 1992, the graduating class of medical students of the University of Virginia asked him to deliver their baccalaureate address. He delivered the commencement address to the graduating nursing students in 1993. In recognition of his commitment to teaching, the University of Virginia Alumni Association honored Dr. Edlich with its Distinguished Professor Award. Dr. Edlich was the recipient of the Commonwealth of Virginia's

Council of Higher Education's Outstanding Faculty Award in 1989. His work was honored by the Southeastern Society for Plastic Reconstructive Surgery's first prize for surgical research, the Virginia Surgical Society's Bigger-Lehman Award, and the University Association of Emergency Medicine's President's Award. A member of Alpha Omega Alpha and the Raven Society, he received the Hal Jayne Award from the Society for Academic Emergency Medicine for his academic excellence in 1989. In 1991, Dr. Edlich received the Thomas Jefferson Award, the highest academic honor presented by the University of Virginia. The Sigma Theta Tau International Beta Kappa Chapter presented him with its community service award in 1995. Also, Lafayette College presented the George Washington Kidd Class of 1876 Award to Dr. Edlich for achieving distinction in his career in medicine and teaching.

Through the generous support of friends and colleagues, endowments were established for the Richard F. Edlich Chair in Plastic Surgical Research, the annual Richard F. Edlich Medical Student Research Award in Emergency Medicine, and the Scientist of the Year Award from the University of Virginia Patent Foundation. During a meeting with President Clinton in the Oval Office on January 8, 2000, Dr. Edlich convinced President Clinton to increase funding for scientific research by the largest amount in this generation, to prevent and cure illnesses¹⁷. In November 2001, Dr. Edlich was invited to continue his medical career in the Pacific Northwest. His work with Dr. William B. Long, III, has been a unique experience in which Edlich has been inspired by Dr. Long's enormous contributions in developing the first Shock Trauma Center in the Pacific Northwest, modeled after the R Adams Cowley Shock Trauma Center in Maryland.¹⁸

Like his mentor Dr. Wangenstein, Dr. Edlich views his role as a teacher to be similar to that of a cheerleader for his many students and colleagues. Through his progeny, which includes more than 2000 students as well as myself, he will inherit eternity. I predict that Dr. Edlich's leadership will enhance the scope, breadth, and dimension of the *Journal of Environmental Pathology, Toxicology, and Oncology*.

Acknowledgment

I thank Dr. Edlich for giving me unrestricted access to material used in this essay.

References

1. Edlich RF. In memoriam: a tribute to Dr. Owen H. Wangensteen, the greatest teacher of surgery during the 20th century (1898-1981). *J Surg Res.* 2001 Apr;138(2):241-53. Epub 2007 Feb 2.
2. Rodeheaver GT, Spengler MD, Edlich RF. Performance of new wound closure tapes. *J Emerg Med.* 1987 Nov-Dec;5(6):451-62.
3. Bryant CA, Rodeheaver GT, Reem EM, Nichter LS, Kenney JG, Edlich RF. Search for a nontoxic surgical scrub solution for periorbital lacerations. *Ann Emerg Med.* 1984 May;13(5):317-21.
4. Edlich RF. A gastric lavage assembly for rapid evacuation of the stomach. *Am J Dig Dis.* 1971 Feb;16(2):160-2.
5. Edlich RF, Prevost MV, Tsung MS, Ritchie WP Jr., Wangensteen OH. Transilluminated distention gastrostomy: a preliminary report of a simplified method employing an illuminated gastric catheter. *Surgery.* 1967 Sep;62(3):488-51.
6. Magee CM, Rodeheaver G, Edgerton MT, Edlich RF. A more reliable gram staining technique for diagnosis of surgical infections. *Am J Surg.* 1975 Sep;130(3):341-6.
7. Jackson EM, Arnette JA, Martin ML, Tahir WM, Frost-Arner L, Edlich RF. A global inventory of hospitals using powder-free gloves: a search for principled medical leadership. *J Emerg Med.* 2000 Feb;18(2):241-6.
8. Edlich RF. *Medicine's Deadly Dust.* Arlington, VA: Vandamere Press, 1997.
9. Edlich RF, Long WB 3rd, Gubler KD, Rodeheaver GT, Thacker JG, Borel L, Chase ME, Cross CL, Fisher AL, Lin KY, Cox MJ, Zura RB. Citizen's Petition to Food and Drug Administration to ban cornstarch powder on medical gloves: Maltese cross birefringence. *Am J Emerg Med.* 2009 Feb;27(2):227-35.
10. Edlich RF, Long WB 3rd, Gubler KD, Rodeheaver GT, Thacker JG, Borel L, Chase ME, Fisher AL, Mason SS, Lin KY, Cox MJ, Zura RD. Dangers of cornstarch powder on medical gloves: seeking a solution. *Ann Plast Surg.* 2009 Jul;63(1):111-5.
11. Cox MJ, Hwang JC, Himel HN, Edlich RF. Severe burn injury from recreational gasoline use. *Am J Emerg Med.* 1996 Jan; 14(1):39-42.
12. Buck R, Attinger E, Stone D, Geolot D, Edlich RF. The training of the emergency medical technician. *Va Med Mon (1918).* 1976 Apr;109(4):271-3, 276.
13. Talbert S, White SD, Bowen JD, Stephens LM, Mapstone SJ, Spisso KR, Edlich RF. Improving emergency department care of the sexual assault victim. *Ann Emerg Med.* 1980 Jun;9(6):293-7.
14. Edlich RF. Dreams, teachers, and legislation. *J Emerg Med.* 2010 Nov;39(5):652-4.
15. Bill TJ, Woods JA. Edlich drive: a metaphor for the Edlich tradition. *J Emerg Med.* 1997 Jul-Aug; 15(4):525-30.
16. Compton MV, Lattin-Souder M, Walsh WM 3rd, Sanders E, Stier D, Eyre PJ, Spyker DA, Edlich RF. An improved emergency telecommunications system for the deaf. *Compr Ther.* 1982 Jun;8(6):3-5.
17. Edlich RF, Pine SA. The quest for the cure of all chronic illnesses: a wake-up call from the President of the United States. *J Emerg Med.* 2000;19: 281-285.
18. Edlich RF. A tribute to William B. Long Jr. and William B. Long III: a celebration of their revolutionary contributions to trauma care. *J Long Term Eff Med Implants.* 2005; 15(5):439-466.