

Nina Starr Braunwald: The Original Female Cardiothoracic Surgical Giant

By Melanie Edwards and Erin Gillaspie

A special Thank You to Eugene Braunwald for allowing us to share Nina Braunwald's story and for his unrelenting support of women in the field of cardiothoracic surgery.

“It Will Work.” On March 11, 1960, Dr. Nina Starr Braunwald made history when she replaced the mitral valve of a 44-year-old woman with the bioprosthesis she had labored over since her arrival at the National Institutes of Health (NIH) in 1958.^{1,2} This was not her first foray into uncharted territory, nor would it be her last. At the time she was already the first woman to train in cardiothoracic surgery, and she would become the first certified by the American Board of Thoracic Surgery later that year. Dr. Braunwald would continue to disrupt the field with her passion for scientific inquiry, and indisputable skill. Still, individual talent and drive alone did not guarantee a woman entry into cardiothoracic surgery. This was an era in which Dr. Helen Taussig, a pioneer in pediatric cardiology, had been barred from cardiac surgical training at Harvard and Hopkins.³ That Nina Braunwald overcame these barriers was a testament, not only to her individual assets, but also to the contribution of forward-thinking and dedicated mentors.

Dr. Braunwald showed early scientific promise when at age 14 she became a member of the American Society of Amateur Microscopers.³ She completed medical school at New York University and became one of the first female surgical trainees at Bellevue hospital in 1952.⁴ Her marriage to medical school classmate Eugene Braunwald, by then a rising cardiologist, led her from New York to Georgetown University in Washington DC where she completed general surgical training and earned her Masters of Science in Surgery for work in transplant tissue modeling. Her mentor at Georgetown, Dr. Charles Hufnagel was an early pioneer in prosthetic valve surgery and this experience, coupled with her biomaterials knowledge provided the foundation for her future prosthetic valve development. This would all coalesce at the NIH where in 1958 she obtained a staff position and her own lab.⁴ By all accounts, her mentor, Dr. Charles Morrow, was a steadfast supporter of her clinical and academic pursuits and was across the table from her during the historic valve replacement. Never one to rest on her laurels, Dr. Braunwald went on to develop the Braunwald-Cutter valve that became commercially available in 1971 and was implanted in thousands of patients before it was withdrawn in 1979.⁵ She continued to work on mechanisms to improve tissue resistance to thrombotic disease and contributed to advances in pulmonary to systemic shunt development and surgery for pulmonary thromboembolic disease.⁶⁻⁸



Dr. Braunwald matched her innovative brilliance with a humanism that touched both her patients and trainees. Eugene Braunwald shares “She felt that when she handled someone’s heart, it was a special connection; symbolic of so much importance and trust.” Her observations were accurate, often witty yet respectful and conveyed to her residents a kindness and collegiality that was not forgotten. Dr. Copeland, a surgical resident who worked with both Dr. Braunwalds’, recounts “She was thoughtful, well organized, quick, and always

concerned for the patient. She spoke softly. Everyone listened. The mood in the operating room was formal, but each person was given respect that made them feel comfortable.”⁹



Although steadfastly dedicated to her career, Dr. Braunwald also appreciated the importance of family. It is little known that she was pregnant during her first successful mitral valve replacement and operated well into the 7th month in each of her three pregnancies. After delivery, she allowed herself only 10 days to recover before returning to work. She was living in a time where there could be no excuses; she had to be strong, smart and better than her male counterparts. Eugene Braunwald fondly describes his wife as a terrific mother with incredible dedication to her family - “She always came home for dinner and never missed putting her children to bed even if that meant returning to the hospital later to finish her work.”



Despite an overtly hostile environment toward women, it is likely Dr. Braunwalds' quiet resilience that fueled her continued advancement of cardiothoracic surgery as she established a cardiac surgery and cardiothoracic surgery training program at the University of California San Diego. ^{3,4} The Braunwald family had moved west when Eugene was offered the chairmanship of the department of medicine, and she no longer had the type of mentorship and support that existed at the NIH with Dr. Morrow. After moving back to the east coast 4 years later, Dr. Braunwald joined the surgical faculty at Harvard University, once again the first woman to do so.⁴ A pioneer, not simply because of her presence as the first woman in cardiothoracic surgery, but because of her brilliant mind and outstanding surgical skill, Dr. Nina Braunwald did so with grace and compassion, and will remain an inspiration for many generations.

Dr. Eugene Braunwald shared these final thoughts:

“It was extraordinary to have been present at the very birth of something that has become so important and so powerful. It has been an enormous experience and privilege to have watched the first person enter a field. She was a pioneer who took an emerging field and demonstrated that women could play an important role. It is amazing to see that she has helped to open the field for so many women.”

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