Arnall Patz, MD: Physician, Scientist, and Humanitarian

Director Emeritus, The Wilmer Eye Institute; Recipient of the 2004 Presidential Medal of Freedom

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In June 2004, Arnall Patz, MD, received the Presidential Medal of Freedom award from President George W. Bush. It is, therefore, a pleasure to reflect on the remarkable career of Dr Patz. Through word and deed, he has distinguished himself as a world-renowned scientist, clinician, teacher, leader, administrator, and humanitarian. He has immeasurably improved the lives of those with whom he has come in contact.

A product of rural Georgia and a graduate of Emory University School of Medicine, Atlanta, Dr Patz entered the military service at Camp Lee, Va, at the end of World War II. His first assignment was to inspect servicemen for evidence of sexually transmitted diseases. He then volunteered to serve in the ambulance corps, which transported seriously ill patients to Walter Reed General Hospital, Washington, DC, 140 miles distant. During the stopover hours at Walter Reed General Hospital, he learned of an assistant position in the eye clinic. He requested and was approved for transfer to Walter Reed General Hospital, where he spent the remaining 9 months of his military service. After serving at Walter Reed General Hospital, he started his eye residency at the District of Columbia General Hospital.

While in residency, Dr Patz observed 21 infants with severe retinopathy of prematurity (ROP), then called “retrolental fibroplasia.” At one point, he noted that 18 of 21 of these infants had received high levels of oxygen. In many of them, he saw severe constriction of the developing retinal vessels before the proliferative stage developed. Leroy Hoeck, MD, who was the pediatric chief of the nursery, also had serious concerns about the effects of high oxygen levels. Oxygen was then delivered through a special cone, made from folded x-ray film, to increase its concentration.

Dr Patz then proposed a clinical trial with Dr Hoeck to determine whether high levels of oxygen produced toxic adverse effects. His application was originally declined by the National Institute of Neurological Diseases and Blindness as being unscientific. On resubmission a few months later, the request for $4000 was approved. This occurred 20 years before the founding of the National Eye Institute.

Dr Patz’s proposal to perform the study was greeted by some with hostility, and during the feasibility phase, 2 well-intentioned nurses surreptitiously increased the amounts of oxygen that the infants were given, in a misguided attempt to protect the lives of these young patients. After more careful explanation, the nurses proved to be the strongest members of the team, recording precise levels of the incubator oxygen.

The first report by Dr Patz and his colleagues, in 1952, strongly suggested a causal relationship between hyperoxia (high levels of oxygen) and ROP. In this publication, the authors stated that “additional rigidly controlled observations are necessary to establish this concept.”

Everett Kinsey, MD, a noted biochemist, then organized an 18-hospital study, and Dr Patz agreed to serve as a key member of the coordination committee that planned and supervised the study. With Dr Patz’s guidance, the number of patients in the study receiving high levels of oxygen was restricted to only 1 of 10 infants. This clinical trial, probably the first...
in ophthalmology, rapidly confirmed the concept of a causal relationship between hyperoxia and blinding ROP.

For his original study and his lead role in the subsequent collaborative study, Helen Keller presented the Lasker Award to Drs Patz and Kinsey in 1956, at the same time that Jonas Salk, MD, received the award for his development of the polio vaccine. The widespread adoption of Dr Patz’s earlier recommendation to limit oxygen use as much as possible had resulted in an almost immediate 60% reduction in the number of blind children in the United States.

Dr Patz proceeded to conduct a successful private practice in Baltimore, Md. During this time, he served on the volunteer faculty of The Wilmer Eye Institute and initiated a series of laboratory investigations of vascular retinopathies, concentrating on abnormal blood vessel growth. He made important observations related to diabetic retinopathy, ROP, and related conditions. In 1968, a few years after the invention of masers and lasers, Dr Patz and colleagues from The Johns Hopkins Applied Physics Laboratory developed one of the early argon laser photoagulators to treat a variety of eye diseases. He performed some of the initial evaluations of laser photoagulation of diabetic retinopathy, macular degeneration, retinal branch vein occlusion, and other blinding disorders.

In 1970, Dr Patz became a full-time faculty member and the inaugural Seeing Eye Research Professor at The Wilmer Eye Institute. He founded the Retinal Vascular Center at The Wilmer Eye Institute, where he oversaw a high volume of clinical and laboratory studies of ROP, diabetic retinopathy, retinal branch vein occlusion, macular degeneration, and other diseases characterized by abnormal vasoproliferation. Concurrently, he trained many physicians who are now giants in the field of retinal vascular disease and macular degeneration. Many of his studies formed the basis for subsequent national collaborative clinical trials, demonstrating the value of laser photoagulation for several previously untreatable diseases.

In 1979, Dr Patz succeeded A. Edward Maumenee to become the fourth director and William Holm Wilmer Professor of The Wilmer Eye Institute at The Johns Hopkins University. For 10 years, he oversaw expansion of the institute and growth of its personnel, facilities, and staff. Leading by example, he fostered the careers of young clinician-scientists and basic scientists, many of whom today enjoy well-deserved national and international recognition. He also served in 1987 as president of the American Academy of Ophthalmology. In 1991, he organized and chaired the academy’s National Diabetic Retinopathy project, Diabetes 2000, which served as the academy’s effort to dramatically reduce preventable blindness from diabetes mellitus. In addition, he participated on innumerable boards of directors and advisory groups. In every way, his tenure as Wilmer’s director set an extremely high standard for his successors to seek to emulate.

Dr Patz is an inspirational teacher. Those who have benefited from his teaching can attest to his patience with, and kindness to those learning the complexities of ophthalmology. His strategy included never ridiculing a medical student or resident who gave the wrong answer, effectively praising students who gave the correct answer, and convincing every student with whom he worked that he or she was “the favorite.”

It is difficult, and some would say impossible, to be an effective leader and administrator without offending some individuals who might resent certain difficult decisions or initiatives made by the leader. Possibly related to this observation, academic department chairs hold, on average, shorter tenures than in the past. Dr Patz proved to be the exception to this rule. All who have worked with him in his numerous leadership roles within the American Academy of Ophthalmology, The Wilmer Eye Institute, numerous clinical trials, and other organizations are acutely aware of his humility and respect for everyone around him. To visit Dr Patz in his office has always been to spend time with a friend.

Some have said that this man’s contributions are undervalued by the public. While information about Dr Salk and his polio vaccine have been well reported in the lay press, Dr Patz’s monumental contributions to the eradication of the ROP epidemic have gone mostly unreported. For this reason, we are particularly delighted that President Bush chose Dr Patz to receive the Presidential Medal of Freedom in 2004; it is our nation’s highest civilian award. Dr Patz has also received the E. Mead Johnson Award.
from the American Academy of Pediatrics in 1956, the first prize from the American Academy of Ophthalmology for his scientific exhibit on argon laser photocoagulation in 1970, the Lucien Howe Medal of the American Ophthalmological Society in 1991, the Friedenwald Research Award from the Association for Research in Vision and Ophthalmology in 1980, the Inaugural Jules Stein Trustees’ Award from Research to Prevent Blindness in 1981, the Inaugural Distinguished Scientist Award from the National Society for the Prevention of Blindness in 1982, the Mildred Weisenfeld Award from the Association for Research in Vision and Ophthalmology in 1993, the Pisart International Vision Award from the Lighthouse in 2001, and election to the Ophthalmology Hall of Fame of the American Society of Cataract and Refractive Surgery in 2001.

The University of Pennsylvania, Thomas Jefferson University, Emory University, and The Johns Hopkins University have all conferred honorary doctorates on Dr Patz, and the Macula Society awards the Patz Medal to individuals who have made outstanding contributions in retinal vascular diseases. Grateful students, friends, colleagues, and patients created an endowed professorship in his name at The Johns Hopkins University in 1993, and the Patz Lecture Hall in The Wilmer Eye Institute includes a portrait of him at his microscope, engaged in laboratory work. In honor of his long-standing friendship with Lions Clubs, leaders of the Lions Vision Research Foundation in the mid-Atlantic region are known as Dr Arnall Patz Fellows.

All who work with this gentle and humble man see in Dr Patz the model for a successful clinician-scientist, administrator, teacher, and leader. We are extremely proud that the President of the United States has recognized Dr Patz with the prestigious Presidential Medal of Freedom. Through his remarkable record of service and his humanitarian spirit, we have all been enriched.

Submitted for Publication: October 19, 2004; final revision received December 14, 2004; accepted December 20, 2004.

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I should say that definite cure may be obtained in about 60% of recent cases, this percentage diminishing with the age of the detachment. Not only is this proportion of cures an improvement in comparison with the former rarity, but the length of the treatment is far shorter than the many weeks or months of absolute rest in bed with both eyes bandaged, which was up to this time the most usual torment for the patients.