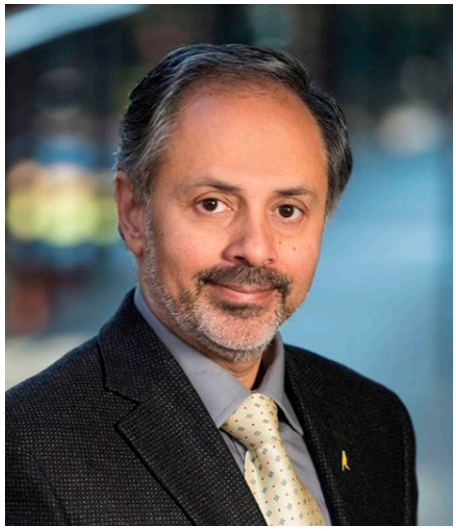
Sanjiv "Sam" Gambhir, MD, PhD 1962–2020



The nuclear medicine and greater radiology family at Stanford University (CA) were shocked and saddened to learn that Sanjiv "Sam" Gambhir, MD, PhD, our dear friend and colleague, passed away on July 18. He is survived by his wife Aruna, his sister, and his parents.

Sam moved from India to the United States with his family at a young age. He was an exceptionally brilliant student and matriculated at Arizona State University (Tempe) at the age of 15, where he was inducted into Phi Beta Kappa and graduated summa cum laude with a bachelor of science degree at 18. He was accepted into the MD/PhD Medical Scientist Training Program at the University of California Los Angeles (UCLA), graduating with a PhD in biomathematics in 1990 and, in 1993, with an MD and the gold medal as outstanding medical student. His combined education and training in physics, biomathematics, and medicine made his choice of nuclear medicine as a vocation most appropriate. He entered the academic ranks at UCLA as an assistant professor in Molecular & Medical Pharmacology in 1994 and embarked on his career as an investigator, clinician, and educator. He was promoted to professor in 2003 and, in the same year, was appointed chief of the Division of Nuclear Medicine and director of the Molecular Imaging Program at Stanford. He subsequently became the Virginia and D.K. Ludwig Professor for Clinical Investigation in Cancer Research.

At Stanford he mentored more than 150 graduate students and was a role model to all. His work ethic was Herculean, organized, and focused, with extraordinary attention to detail. His communication with trainees was supportive and nurturing as he defined research pathways that would help guide their future careers. He inspired generations of young physicians and laboratory scientists to be better clinical and basic researchers.

Dr. Gambhir's scientific achievements were remarkable and have led to advances in knowledge and practice. While at UCLA he published a series of clinical articles that demonstrated the cost effectiveness of ^{18}F-FDG PET in a variety of cancers. He consolidated these data and used them to educate and convince decision makers at the Centers for Medicare and Medicaid Services of the important independent diagnostic role of ^{18}F-FDG PET, leading to reimbursement for PET. His research focused on imaging to monitor fundamental cellular/molecular events in living subjects, with an emphasis on cancer. In recent years he focused on early cancer detection by combining in vivo and in vitro diagnostics. Most recently he defined the concept of precision health, about which he was passionate. One of his well-known sayings was "We shouldn't be celebrating how full our hospitals are. We should celebrate when our hospitals are empty!" He became director of the Canary Center at Stanford for Early Detection and the Precision Health and Integrated Diagnostic Center at Stanford.

In the course of basic science and clinical research Dr. Gambhir published almost 700 peer-reviewed articles in diverse and prestigious journals. Along with Peter Ell, MD, PhD, he edited the 2-volume *Nuclear Medicine in Clinical Diagnosis and Treatment* text. He was an author of *Molecular Imaging Principles and Practice* and was the sole author of *Molecular Imaging: A Primer.*

Dr. Gambhir was recognized with many honors and awards locally, regionally, nationally, and internationally. From SNMMI alone, he received the Taplin Award (2002), Paul C. Aebersold Award (2006), Georg Charles de Hevesy Nuclear Pioneer Award (2011), and Benedict Cassen Prize (2018). Among other honors he received the Hounsfield Medal from the Imperial College London (2006), the Tesla Medal from the Royal College of Radiologists (2008), the Society of Asian American Scientists in Cancer Research Award (2013), the Lifetime Achievement Award of the American Association of Indian Scientists in Cancer Research (2014), the Marie Sklodowska-Curie Award from the Institute of Electrical and Electronics Engineers (2019), and the European Society of Molecular Imaging 2020 Annual Award. He was elected to the National Academy of Medicine in 2008, the American Association for the Advancement of Science in 2014, and the National Academy of Inventors in 2016.

Dr. Gambhir was an outstanding physician in the nuclear medicine and molecular imaging clinic. His clinical acumen matched his basic science brilliance and was greatly appreciated by referring physicians. He was an inspiring educator. This is epitomized by his receipt of the Basic Science Teaching Award from Stanford radiology residents in 2018, a rare recognition for the head of a large clinical department. He lectured to large audiences throughout the world, and his ability to take very complex subjects

and make them interesting and understandable was widely acknowledged, including in a memorable TEDx lecture at Stanford.

Most scientists and physicians knew Dr. Gambhir through his scientific publications. We were fortunate to know him through direct interactions. He was always a gentleman, modest, thoughtful, sensitive, gracious, and generous. Sam Gambhir will be greatly missed, and we mourn with Aruna. We lost a beloved colleague, a mentor and friend, a wonderful human being, and an incredible scientist. Humanity lost a giant who had so much more to contribute toward a better world. For so many of us, Sam was the reason we chose this field and the motivation to be at Stanford. He will be remembered dearly by all who met him, through the immense body of his published work, the worldwide network of research and clinical scientists he trained and nurtured, and the just established Sanjiv "Sam" Gambhir Professorship of Translational Medicine at Stanford University.

Andrei Iagaru, MD
Professor
I. Ross McDougall, MD, PhD
Professor Emeritus
Stanford University

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Discussion

The goal in surveying the NMMI community was to identify variables impacting clinical practice, medical research, and members' workforce environments and to disseminate this knowledge and experience. The pandemic will have evolved at the time these results are published, but the survey findings emphasize the profound manner in which COVID-19 has affected the NMMI community. Respondents highlighted the workflow and operational changes that will remain necessary to protect the safety of staff and patients and to ensure quality care. Whether locations experience minor rates of disease or severe outbreaks, all will look to understand the variables that can be more efficiently managed to improve readiness for potential future outbreaks. A dynamic practice management plan specific to a region's current status and experience must address the morbidity and mortality associated with COVID-19, the disruption of lives, the financial instability of the health care system, as well as the effects of disease progression associated with delayed medical care. Such a management plan strengthens a practice's ability to operate with an expedient strategy to handle the unpredictable severity, mortality, and rates of infection and recovery with COVID-19 or other pandemics and to be better prepared to preserve and restore the financial aspect of the practice.