BIOGRAPHICAL SKETCH

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NAME: Bhora, Faiz Y.

eRA COMMONS USER NAME (credential, e.g., agency login): fybhora

POSITION TITLE: Professor and Regional Chair Surgery, Chief Thoracic Surgery

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Aga Khan University, Karachi, Pakistan	MD	12/1993	Medicine
Washington VA Medical Center, Washington D.C.	Research Fellowship	06/1994	Surgery
University of Maryland, Baltimore	Research Fellowship	06/1998	Thoracic Surgery
George Washington University, Washington D.C.	Residency	06/2000	General Surgery
UCLA Medical Center, Los Angeles	Residency	06/2002	Thoracic Surgery
UCLA Medical Center, Los Angeles	Fellowship	06/2004	Thoracic Transplant
University of Pennsylvania, Philadelphia	Fellowship	06/2006	Thoracic Oncology

A. Personal Statement

I am a Board-certified general surgeon and Board-certified thoracic surgeon with a career interest in thoracic oncology. My current practice is largely based on minimally-invasive, robotic surgery for various cancers of the lungs, esophagus, and other thoracic structures. I serve as Professor and Regional Chair Surgery, Chief Thoracic Surgery, Hackensack Meridian Health *Network* (Central Region), Hackensack Meridian School of Medicine. I have mentored 15 post-doctoral fellows, dozens of residents and fellows, and over 350 medical students and am regularly asked to organize, moderate and lecture at national and international scientific meetings. My current research is focused on clinical outcomes and regenerative medicine, including 3-D bioprinting of the trachea. My lab is considered one of the foremost research labs in the area of tracheal regeneration, and outcomes research in lung cancer, esophageal cancer, and cancer care disparities.

As an expert on the management of complex airway issues, a significant part of my practice has been dedicated to the treatment of tracheal stenosis. Through my patients I have seen first-hand a real clinical need for long- term, feasible solutions. This led me to begin my work in the development of bioengineered tracheal grafts. My group was among the first to successfully replace a long segment of the anterior trachea with a customized tracheal graft in a large animal model. The graft was customized to the animal dimensions using rapid 3-D prototyping (3-D printing) and we were able to successfully combine extracellular membrane matrix (ECM), polycaprolactone (PCL) and human mesenchymal stem cells to create a customized bioengineered graft. We have published our work in reputable thoracic surgery journals and presented at national and international thoracic surgical meetings. A key factor in the advancement of tracheal regeneration research will be to incorporate biomaterials into tracheal grafts to replicate the biological functions of healthy tracheal tissue. Our research team is well-suited to successfully complete this project as it combines clinical and 3-D printing expertise (Dr. Bhora) with biomedical engineering and biomaterial expertise (Dr. Luo) to develop the next generation of bioengineered tracheal grafts.

Ongoing and recently completed projects that I would like to highlight include:

Ahmad Adaya Cardiothoracic Fellowship
Bhora (PI)
1/1/2021-1/1/2025
Promote scientific and medical advances in the field of cardiothoracic surgery

New Jersey Health Foundation PC187-24
Lebovics (PI), Role: co-PI
2/15/2024-2/13/2026
All-*Trans* Retinoic Acid for the Treatment of Tracheal Stenosis

New Jersey Health Foundation PC191-24
Bhora (PI)
2/15/2024-2/13/2026
Fabrication of Tissue-Engineered, Personalized Tracheal Grafts

Citations:

1. Al-Ayoubi AM, Rehmani SS, Sinclair CF, Lebovics RS, **Bhora FY**. Reconstruction of anterior tracheal defects using a bioengineered graft in a porcine model. **The Annals of Thoracic Surgery**. 2017;103(2):381-9.
2. **Bhora FY**, Lewis EE, Rehmani SS, Ayub A, Raad W, Al-Ayoubi AM, Lebovics RS. Circumferential three-dimensional–printed tracheal grafts: research model feasibility and early results. **The Annals of Thoracic Surgery**. 2017;104(3):958-63.
3. Rehmani SS, Al-Ayoubi AM, Ayub A, Barsky M, Lewis E, Flores R, Lebovics R, **Bhora FY**. Three-dimensional-printed bioengineered tracheal grafts: preclinical results and potential for human use. **The Annals of Thoracic Surgery**. 2017;104(3):998-1004.
4. Weber JF, Rehmani SS, Baig MZ, Lebovics R, Raad W, Connery C, **Bhora FY**. Novel composite trachea grafts using 3-dimensional printing. **JTCVS open**. 2021;5:152-60.

B. Positions, Scientific Appointments, and Honors

Positions and Scientific Appointments

2022 – Present	Professor and Regional Chair Surgery, Chief Thoracic Surgery, Hackensack Meridian Health *Network* (Central Region), Hackensack Meridian School of Medicine
2021 – 2021	Clinical Associate Professor, The Robert Larner M.D. College of Medicine, University of Vermont
2019 – 2022	System Chief of Thoracic Surgery and Thoracic Oncology, Nuvance Health
2017 – 2018	Lung Cancer Screening Program Committee, Mount Sinai Health System, New York, NY
2015 – 2018	Hospital Executive Committee, Mount Sinai Health System, New York, NY
2015 – 2018	Medical Board Executive Committee, Mount Sinai Health System, New York, NY
2015 – 2018	Patient Safety/Risk Management Council, Mount Sinai Health System, New York, NY
2015 – Present	Editorial Board, 3D Printing in Medicine
2014 – 2019	Chief of Thoracic Surgery, Mount Sinai West and Mount Sinai St. Luke's Hospitals
2014 – 2018	Director, General Thoracic Surgery/Robotics Clerkship, Mount Sinai Health System, New York, NY
2014 – 2018	Attending Thoracic Surgeon, Mount Sinai Health System, New York, NY
2014 – 2018	Operating Room Safety Committee, Mount Sinai Health System, New York, NY
2014 – 2018	Cancer Center Quality Committee, Mount Sinai Health System, New York, NY
2014 – 2018	Thoracic Program Chair, Eastern Cardiothoracic Surgical Society
2014 – Present	Reviewer, European Journal Cardiothoracic Surgery
2013 – 2018	Lung Disease Group and Lung Cancer Screening, St. Luke's-Roosevelt Hospital Center and Beth Israel Medical Center, New York, NY
2013 – 2014	Invited Faculty, American College of Surgeons PG Course (Robotic Surgery)

2012 – 2018	Director, Thoracic Surgical Oncology, St. Luke's-Roosevelt Hospital Center and Beth Israel Medical Center, New York, NY
2012 – Present	Editorial Board, Chemotherapy Open Access
2012 – Present	Innovations Editorial Board, ISMICS
2011 – Present	Reviewer, Journal of Thoracic and Cardiovascular Surgery
2011	President, New York General Thoracic Surgical Club (NYGTSC)
2009 – Present	Reviewer, Journal of Surgical Research
2009 – Present	Reviewer, Annals of Surgical Oncology
2009	Member Nomination and Election Committee, APPNA
2008	Co-Chairman Membership Committee, Association of Physicians of Pakistani Descent of North America (APPNA)
2006 – 2014	Attending Thoracic Surgeon, St. Luke's-Roosevelt Hospital Center and Beth Israel Medical Center, New York, NY
2005 – 2006	Attending Surgeon and Co-Director, Surgical ICU, Philadelphia VAMC, University of Pennsylvania, Philadelphia, PA
2004 – 2005	Staff Cardiothoracic Surgeon, Aurora BayCare Medical Center, Green Bay, WI
2003 – 2004	Visiting Assistant Professor of Surgery, UCLA Medical Center, Los Angeles, CA
2002 – 2005	Fellowship, Thoracic Oncology Surgery, University of Pennsylvania, Philadelphia, PA
2002 – 2003	Attending Surgeon, Central Hospital, Karachi, Pakistan
2000 – 2002	Chief Resident, Cardiothoracic Surgery, UCLA Medical Center, Los Angeles, CA
1999 – 2000	Chief Resident in Surgery, George Washington University Medical Center, Washington, DC
1997 – 1998	Cardiothoracic Research Fellow, University of Maryland Medical Center, Baltimore, MD
1995 – 1999	General Surgery Resident, George Washington University Medical Center, Washington, DC
1994 – 1995	General Surgery Intern, St. Agnes Hospital, Baltimore, MD
1993 – 1994	Surgical Research Fellow, VA Medical Center, Washington, DC
1993	Surgical Research Investigator, University of Michigan Medical School, Ann Arbor, MI

Honors

2013 – 2024	America's Top Doctors
2013 – 2024	America's Top Doctors for Cancer
2012 – 2024	New York Magazine Top Doctors
2012 – 2024	New York Super Doctors
2012	Best Research Award (Clinical Research), Department of Surgery, St. Luke's – Roosevelt Hospital Center
2011 – 2013	America's Top Surgeons, Consumer Research Council of America
2010	Best Research-Hospital Wide Award, St. Luke's – Roosevelt Hospital Center, New York, NY
2009 – 2013	Patient's Choice Award, New York

C. Contributions to Science

1. **Bioengineered Tracheal Grafts:** Our group was the first to successfully replace a long segment of the anterior trachea with a customized tracheal graft in an animal model with success in 12 animals to date. The graft was customized to the animal dimensions using rapid 3-D prototyping (3-D printing). We were able to successfully combine extracellular membrane matrix (ECM), polycaprolactone (PCL), and human mesenchymal stem cells to create a customized bioengineered graft. We have presented this work in our most prestigious thoracic surgical meetings and manuscripts.
    a. Al-Ayoubi AM, Rehmani SS, Sinclair CF, Lebovics RS, **Bhora FY**. Reconstruction of anterior tracheal defects using a bioengineered graft in a porcine model. **The Annals of Thoracic Surgery**. 2017;103(2):381-9.
    b. **Bhora FY**, Lewis EE, Rehmani SS, Ayub A, Raad W, Al-Ayoubi AM, Lebovics RS. Circumferential three-dimensional–printed tracheal grafts: research model feasibility and early results. **The Annals of Thoracic Surgery**. 2017;104(3):958-63.

c. Rehmani SS, Al-Ayoubi AM, Ayub A, Barsky M, Lewis E, Flores R, Lebovics R, **Bhora FY**. Three-dimensional-printed bioengineered tracheal grafts: preclinical results and potential for human use. **The Annals of Thoracic Surgery**. 2017;104(3):998-1004.
d. Weber JF, Rehmani SS, Baig MZ, Lebovics R, Raad W, Connery C, **Bhora FY**. Novel composite trachea grafts using 3-dimensional printing. **JTCVS open**. 2021;5:152-60.

2. **Clinical Management and Genetic Profiling of Tracheal Stenosis:** To complement my extensive clinical experience in managing tracheal stenosis, some of my longstanding research interests are the development of novel tracheal stenosis treatments and determining the mechanism of stenosis growth in patients. My research group was one of the first to adapt spray cryotherapy as an adjunct to balloon dilation in the management of tracheal stenosis. The therapy produces minimal procedure-related morbidity or mortality, is minimally invasive, and allows the airway to remain patent (i.e., open) for longer periods of time before reintervention is needed. Currently, my research focuses on determining the genetic basis for why some patients show a recalcitrant, treatment-resistant disease course.
    a. **Bhora FY**, Ayub A, Forleiter CM, Huang CY, Alshehri K, Rehmani S, Al-Ayoubi AM, Raad W, Lebovics RS. Treatment of benign tracheal stenosis using endoluminal spray cryotherapy. **JAMA Otolaryngology–Head & Neck Surgery**. 2016;142(11):1082-7
    b. Baig MZ, Weber JF, Muslim Z, Al Shetawi AH, **Bhora FY**. State of the art and operative technique for spray cryotherapy for central airway obstruction (CAO)—a narrative review. **Current Challenges in Thoracic Surgery**. 2022; 5:32
    c. Weber J, Martins RS, Muslim Z, Baig MZ, Poulikidis K, Al Shetawi AH, **Bhora FY**. Anastomotic stenosis of bioengineered trachea grafts is driven by transforming growth factor β1-induced signaling, proinflammatory macrophages, and delayed epithelialization. **JTCVS Open.** 2023;15:489-496.
    d. Martins RS, Luo J, Poulikidis K, Razi SS, Latif MJ, Weber J, Lebovics RS, **Bhora FY**. Genetic Profiling of “Idiopathic” Tracheal Stenosis: Uncovering Underlying Mechanisms & Identifying Potential Therapeutic Options. **Annual Meeting of The Society of Thoracic Surgeons**, January 2024

3. **Outcomes after Minimally-Invasive Thoracic Surgery:** My outcomes-based research has leveraged large national databases, such as the NCDB and SEER databases, with the focus of my work being predictors of perioperative outcomes after minimally-invasive thoracic oncologic procedures.
    a. Baig MZ, Weber JF, Connery CP, **Bhora FY**. A SEER database cohort of 868 patients with primary tracheal cancers: characteristics and outcomes and the role of bronchoscopic interventions. **IJS Oncology**. 2020;5(4):e90.
    b. Muslim Z, Baig MZ, Weber JF, Connery CP, **Bhora FY**. Travelling to a high-volume center confers improved survival in stage I non-small cell lung cancer. **The Annals of Thoracic Surgery**. 2022;113(2):466-72.
    c. Muslim Z, Razi SS, Poulikidis K, Latif MJ, Weber JF, Connery CP, **Bhora FY**. Treatment quality and outcomes vary with hospital burden of uninsured and Medicaid patients with cancer in early non–small cell lung cancer. **JTCVS open**. 2022;11:272-85.
    d. Muslim Z, Stroever S, Razi SS, Poulikidis K, Baig MZ, Connery CP, **Bhora FY**. Increasing time-to-treatment for lung cancer: are we going backward? **The Annals of Thoracic Surgery**. 2023;115(1):192-9.

4. **Contribution in the area of Airway Stenting:** I am frequently referred patients with central airway obstruction and with critical airway stenosis who are considered inoperable. In our landmark paper published in the Annals of Thoracic Surgery in 2010, we were able to show for the first time that timely airway stenting improves survival in patients with malignant central airway obstruction. This paper has led to a significant change in how these patients are now managed. We also showed for the first time that the presence of a metal stent does not alter the dose of radiation given, thus allowing radiation oncologists to confidently give radiation in these patients.

    In addition, I have identified a gap in our current practice of being able to perform operations within the airway that would be both safe and continue to provide patients with oxygen but without need to intubate the patient. Working with one of my anesthesia colleagues, we invented a medical device that fits into the oropharynx of the patient, provides access to the airway, and can deliver oxygen directly into the trachea.

We partnered with Merit Medical Systems, Inc. (South Jordan, Utah) and had a device available on the market within a year of initial design development.

a. Anca D, **Bhora FY**, Gill D, Clegg T, Snow JW. MOUTHPIECE AND METHODS OF USE OF SAME. **U.S. Patent 8684919**, filed February 22, 2011, and issued April 1, 2014.
b. **Bhora FY**, Baig MZ. Is Long-Term Stenting for Benign Airway Obstruction Effective? **Difficult Decisions in Thoracic Surgery: An Evidence-Based Approach**: Springer; 2020. p. 505-12.
c. Ayub A, Al-Ayoubi AM, **Bhora FY**. Stents for airway strictures: selection and results. **Journal of Thoracic Disease**. 2017;9(Suppl 2):S116.
d. Evans AJ, Lee DY, Jain AK, Razi SS, Park K, Schwartz GS, Trichter F, Ostenson J, Sasson JR, **Bhora FY**. The effect of metallic tracheal stents on radiation dose in the airway and surrounding tissues. **Journal of surgical research**. 2014;189(1):1-6.

5. **Proposal of a lymph node map for thymic epithelial tumors:** I was asked by the International Thymic Malignancy Interest Group (ITMIG) to draft and propose a thymic lymph node map that would facilitate staging of thymic tumors. To date, no such map or guidelines exist. I was able to put together a large international group of thoracic surgeons, thoracic pathologists, and radiation oncologists and present a new lymph node map. This proposal will be presented as the 8th edition of the TNM classification for thymic tumors and has support of ITMIG as well as the International Association for the Study of Lung Cancer (IASLC), two of the most important advisory groups in thymic diseases. This will help refine our staging system for thymic malignancy.
    a. **Bhora FY**, Chen DJ, Detterbeck FC, Asamura H, Falkson C, Filosso PL, Giaccone G, Huang J, Kim J, Kondo K. The ITMIG/IASLC thymic epithelial tumors staging project: a proposed lymph node map for thymic epithelial tumors in the forthcoming 8th edition of the TNM classification of malignant tumors. **Journal of Thoracic Oncology**. 2014;9(9):S88-S96.
    b. Carter BW, Tomiyama N, **Bhora FY**, De Christenson MLR, Nakajima J, Boiselle PM, Detterbeck FC, Marom EM. A modern definition of mediastinal compartments. **Journal of Thoracic Oncology**. 2014;9(9):S97-S101.

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/myncbi/12Mry1wIaCzQ8/bibliography/public/