

CURRICULUM VITAE

Name: Ashish S. Shah, M.D.

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Date of Birth: 5/30/1969

Place of Birth: London, United Kingdom

Education:

1991 BSE, Biomedical Engineering, Duke University, Durham, NC
1995 MD, University of Pittsburgh School of Medicine, Pittsburgh, PA

Postdoctoral Training:

1995-1996 Intern, Surgery, Duke University Medical Center Durham, NC
1996-2002 Resident, General Surgery, Duke University Medical Center Durham, NC
1997-1999 Research Fellow, Duke University Medical Center Durham, NC
2002-2005 Resident, Thoracic Surgery, Duke University Medical Center Durham, NC

Licensure: MD Maryland # D0063434
MD Tennessee #53242

Board Certification:

American Board of Surgery (2003)
American Board of Thoracic Surgery (2007) Recertification (2016)

Academic Appointments:

2005-2011 Assistant Professor, Department of Surgery, Johns Hopkins University
2008-present Surgical Director, Lung Transplant Program, Johns Hopkins University
2011-present Associate Professor, Department of Surgery, Johns Hopkins University
2013-present Surgical Director of Heart Transplant and Mechanical Support Program, Johns Hopkins University
2013-present Associate Director Division of Cardiac Surgery, The Johns Hopkins Hospital
2015-present Professor of Cardiac Surgery, Vanderbilt University Medical Center

2015-present Surgical Director of Heart Transplant and Mechanical Support, Vanderbilt University Medical Center

Hospital Appointments:

2005-2015 Johns Hopkins Hospital, Baltimore, Maryland

2015-present Vanderbilt University Medical Center

Professional Organizations:

American Medical Association, North Carolina Medical Society

American Heart Association Scientific Council, Cardiovascular Surgery

David C. Sabiston, Jr Surgical Society

International Society of Heart and Lung Transplantation

Association for Academic Surgery

American Society of Transplant Surgeons

Fellow American College of Surgeons

Southern Thoracic Surgical Association

Society of Thoracic Surgeons

American Association for Thoracic Surgery

Fellow American College of Cardiology

21st Century Cardiothoracic Surgery Society

Halsted Surgical Society

Professional Activities:

Intramural

2013-2014 Search Committee, Chief Division of Pulmonology, The Johns Hopkins Hospital

2013-present Executive Committee, Johns Hopkins Artificial Heart Project

2016-present Health Record Executive Committee Vanderbilt University Medical Center

2015-present Professor Promotions Committee Vanderbilt University Medical Center
Section of Surgical Sciences

Extramural

2009-2011 United Network for Organ Sharing Lung Transplant Review Board

2009-present Society of Thoracic Surgeons National Perfusion Guidelines Taskforce

2010-present Society of Thoracic Surgeons National Access and Publications Committee

2010-2012 Association of Specialty Professors Workshop Planning Committee

2012-2013 International Society of Heart and Lung Transplant Annual Meeting Program
Committee

2013-2014 International Society of Heart and Lung Transplant Annual Meeting Program
Committee

2014-2015 Living Legacy Foundation Clinical Advisory Board

2016 American Association for Thoracic Surgery Annual Meeting Post Graduate Course “Optimal Therapies in End Stage Heart and Lung Disease” Organizing Co-Chair

Editorial Activities

Invited reviewer for American Journal of Transplantation
Invited reviewer for Journal of Heart and Lung Transplantation
Invited reviewer for Clinical Transplantation
Invited reviewer for Annals of Thoracic Surgery
Invited reviewer for Circulation
Invited reviewer for Lancet
Invited reviewer for the Journal of the American College of Surgeons
Invited reviewer for Chest
Invited reviewer for Journal of Thoracic and Cardiovascular Surgery

Associate Editor Frontiers in Heart Surgery

Honors & Awards

1994 Connecticut Association of Physicians from India Student Achievement Award
1994 University of Pittsburgh School of Medicine Summer Research Scholar
1994 Alpha Omega Alpha Medical Honor Society
1995 Pittsburgh Surgical Society Award
1997 NIH Academic Surgical Scholar Research Training Fellowship
1998 National Research Service Award Fellowship F32HL09907
1998 American Heart Association Research Fellowship
1999 Weck Award in Basic Science Research
1999 New Investigator Award: American Heart Association Heart Failure Symposium

Teaching Activities:

Continuing Medical Education

2007 International Society of Heart Lung Transplantation Meeting Madrid, Spain
Co-chaired a plenary session on innovation in heart and lung transplantation

2008 International Society of Heart Lung Transplantation Meeting Boston, MA
Co-chaired a plenary session on new surgical approaches in lung transplant

2012 Association of Specialty Professors Workshop on Transplantation in the Elderly
Moderated session on Future Research in Heart Transplant Washington, DC

2012 Southern Thoracic Society Annual Meeting
Moderated session on Transplantation

- 2013 International Society of Hear Lung Transplantation Meeting Montreal, Canada
Co-chaired session on heart transplant donors
- 2014 International Society of Heart Lung Transplant Meeting San Diego, CA.
Co-chaired session on heart transplant
- 2015 Society of Thoracic Surgeons University: Assistant Program Chair session on
Mechanical Circulatory Support
- 2015 American Society of Artificial Internal Organs Annual Meeting Session Chair on
ECMO
- 2016 American Association for Thoracic Surgery Annual Meeting Moderator Post
Graduate Course “Optimal Therapies in End Stage Heart and Lung Failure”
- 2016 American Society of Artifical Internal Organs Annual Meeting Moderator

Clinical Teaching

- Introduction to Cardiac Surgery Lecture
- Annual Cardiology Lecture on Aortic Dissection and Coronary Artery Disease
- Weekly Morbidity and Mortality Conference, Moderator
- Responsible for training of 6 cardiac surgery residents per year, for the last 10 years, in the technical aspects of adult cardiac surgery and transplantation.

Research Supervision

- 2008-2010 Eric Weiss, M.D.
- 2010-2012 George Arnaoutakis, M.D.
- 2011-2013 Timothy George, M.D.
- 2012 Jennifer Alejo, Medical Student
- 2013-2015 Joshua Grimm, M.D.
- 2014-2015 Trent Magruder, MD

Research Program:

Current Grants

- 7/2008-7/2009 *“Novel therapies for reperfusion injury in experimental lung transplantation”*
Joyce Koonz Fund
\$20,000
PI: Shah

6/2009-7/2011	<p>“Novel therapies for reperfusion injury in experimental lung transplantation” Zegar Family Foundation \$60,000 PI: Shah</p>
7/2009-6/2011	<p><i>“Effect of phosphodiesterase type 5 inhibition in experimental lung transplantation”</i> Thoracic Surgery Foundation for Research and Education Research Grant \$60,000 PI: Shah</p>
7/2009-6/2010	<p><i>“Simulation Training for Post Operative Cardiac Instability and Collapse”</i> Thoracic Surgery Foundation for Research and Education Simulation Grant \$3700 PI: Shah</p>
2012-2016	<p>Anonymous Donor “Ex Vivo Reconditioning of Human Lungs For Transplant” \$1,000,000 PI: Shah</p>

1998 “Effect of Pressure and Volume Overload on Right Ventricular Function”
F32HL09907
National Research Service Award Fellowship
PI: Shah

Publications and Presentations:

Peer-Reviewed Publications

1. Hattler BG, Reeder GD, Sawzik PJ, Lund LW, Walters FR, **Shah AS**, Rawleigh JR, Goode JS, Klain M, Borovetz HS. “Development of an intravenous membrane oxygenator: enhanced intravenous gas exchange through convective mixing of blood around hollow fiber membranes” *Artif Organs*. 1994.18(11):806-12.
2. **Shah AS**, Lund LW, Walters FR, Sawzik PJ, Reeder GD, Borovetz HS, Hattler BG. “Vibration analysis of vessel wall motion with intra vena caval balloon pumping” *ASAIO J* 1994; 40: M740-42
3. **Shah AS**, Hata JA, Kypson AP, Koch WJ, Glower DD. “Adenoviral mediated overexpression of the beta adrenergic receptor kinase Inhibitor (β ARKct) in a cardiac transplant model” *Surgical Forum* 1998; XLIX: 278-9
4. Gammie JS, **Shah AS**, Pietzman AB, Kormos RL, Hattler BG, Pham S, Griffith BP. “Traumatic aortic transection: diagnosis and management” *Ann Thorac Surg* 1998;66(4):1295-300
5. Maurice JP, **Shah AS**, Kypson AP, Hata JA, Glower DD, Koch WJ. “Molecular β -adrenergic signaling abnormalities in failing rabbit hearts after infarction” *Am J Physiol* 1999;276(6):H1853-60
6. **Shah AS**, Lilly RE, Kypson AP, Tai O, Hata JA, Baklanov D, Glower DD, Koch WJ. “In vivo intracoronary delivery to and overexpression of the human β_2 -adrenergic receptor to the right Ventricle: prospects for molecular ventricular assistance” *Surgical Forum* 1999; L:119-20
7. Maurice J, Hata JA, **Shah AS**, Wilson KH, McDonald PH, Dolber PC, Lefkowitz RJ, Glower DD, Koch WJ. “Enhancement of cardiac function following adenoviral-mediated in vivo intracoronary β_2 -adrenergic receptor gene delivery” *J Clin Invest* 1999;104(1):21-9
8. Hughes GC, **Shah AS**, Yin B, Shu M, Donovan CL, Glower DD, Lowe JE, Landolfo KP. “Early postoperative changes in regional systolic and diastolic left ventricular function following transmyocardial laser revascularization: a

comparison of Holmium:YAG and CO2 lasers” *J Am Coll Cardiol* 2000;35(4):1022-30

9. **Shah AS**, Lilly RE, Kypson AP, Tai O, Hata JA, Phippen A, Glower DD, Lefkowitz RJ, Koch WJ. “Intracoronary adenoviral-mediated delivery and overexpression of the β_2 -Adrenergic receptor in the heart: prospects for molecular VAD” *Circulation* 2000;101(4):408-14
10. White DC, Hata JA, **Shah AS**, Glower DD, Lefkowitz RJ, Koch WJ. “Preservation of myocardial β -adrenergic receptor signaling following myocardial infarction prevents the development of heart failure” *Proc Natl Acad Sci USA* 2000; 97(10):5428-33
11. Glasgow S, **Shah AS**, Noone R, Talarico T, Eachempati S, Reed LR, Vaslef S. “Pyridoxylated hemoglobin polyoxyethylene conjugate (PHP) without maltose restores splanchnic perfusion following resuscitation in a swine model of hemorrhagic shock” *J Trauma* 2000; 48(5):884-92
12. Atkins BZ, Silvestry SC, Samy RN, **Shah AS**, Sabiston DC, Glower DD. “Calcitonin gene-related peptide enhances recovery of contractile function in stunned myocardium” *J Thorac Cardiovasc Surg* 2000;119(6):1246-54
13. Jagers JJ, Forbess JM, **Shah AS**, Meliones JN, Kirshbom PM, Miller CE, Ungerliedder RM. “Extracorporeal membrane oxygenation for infant postcardiotomy support: significance of shunt management” *Ann Thorac Surg* 2000;69(5):1476-8
14. **Shah AS**, Atkins BZ, Hata JA, Tai O, Kypson AP, Lilly RE, Koch WJ, Glower DD. “Early effects of right ventricular volume overload on ventricular performance and β -adrenergic signaling” *J Thorac Cardiovasc Surg* 2000;120(2):342-9
15. **Shah AS**, White DC, Tai O, Hata JA, Phippen A, Wilson K, Kypson AP, Glower DD, Lefkowitz RJ, Koch WJ. “Adenoviral-mediated genetic manipulation of the myocardial β -adrenergic signaling system in transplanted hearts” *J Thorac Cardiovasc Surg* 2000;120(3):581-8
16. Davidson MJ, **Shah AS**, Jagers J, Koch WJ, Milano CA. “Intracoronary transgene delivery during cardiopulmonary bypass results in transmural cardiac-specific gene expression in neonatal pigs” *Surgical Forum* 2000;LI:90-94
17. Milano CA, **Shah AS**, Van Trigt P, Jagers J, Davis RD, Landolfo KP. “Evaluation of early post-operative results following bicaval vs. standard cardiac transplantation and review of the literature” *Am Heart J* 2000;140(5):717-21

18. Forbess JM, **Shah AS**, St. Louis J, Jagers JJ, Ungerleider RM. "Cryopreserved homografts in the pulmonary position: determinants of durability" *Ann Thorac Surg* 2001;71(1):54-9.
19. **Shah AS**, White DC, Emani S, Kypson AP, Lilly RE, Wilson K, Glower DD, Lefkowitz RJ, Koch WJ. "In vivo ventricular gene delivery of a β -adrenergic receptor kinase inhibitor to the failing heart reverses cardiac dysfunction" *Circulation* 2001;103(9):1311-6
20. Emani S, **Shah AS**, White DC, Glower DD, Koch WJ. "Right ventricular gene therapy with a β ARK1 inhibitor improves survival after pulmonary artery banding" *Ann Thorac Surg* 2001;72(5):1657-61
21. Pasipoularides AD, Shu M, **Shah AS**, Glower DD. "Right ventricular diastolic relaxation in conscious dog models of pressure overload, volume overload, and ischemia" *J Thorac Cardiovasc Surg* 2002;124(5):964-72
22. Pasipoularides AD, Shu M, **Shah AS**, Silvestry S, Glower DD. "Right ventricular diastolic function in canine models of pressure overload, volume overload and ischemia" *Am J of Physiol* 2002;283(5):H2140-50
23. Pasipoularides AD, Shu M, Womack MS, **Shah AS**, Von Ramm O, Glower DD. "RV functional imaging: 3-D echo-derived dynamic geometry and flow field simulations." *Am J Physiol* 2003;284(1):H56-65
24. Emani SM, **Shah AS**, Bowman MK, Emani S, Wilson K, Glower DD, Koch WJ. "Catheter-based intracoronary myocardial adenoviral gene delivery: importance of intraluminal seal and infusion flow Rate" *Mol Ther* 2003;8(2):306-13
25. Atkins BZ, Kuo J, **Shah AS**, Hutcheson KA, Glower DD, von Ramm OT. "Real-time three-dimensional echocardiography to construct clinically ready, load-independent indices of myocardial contractile performance" *J Am Soc Echocardiogr.* 2003;16(9):922-30
26. Emani S, **Shah AS**, White DC, Bowman M, Emani S, Glower DD, Koch WJ. "Right ventricular targeted gene transfer of a beta-adrenergic receptor kinase inhibitor improves ventricular performance after pulmonary artery banding" *J Thorac and Cardiovasc Surg* 2004;127(3):787-93
27. Atkins BZ, **Shah AS**, Hutcheson KA, Mangum JH, Pappas TN, Harpole DH, Damico TA. "Reducing hospital morbidity and mortality following esophagectomy" *Ann Thorac Surg* 2004;78(4):1170-6
28. **Shah AS**, Hannish SA, Milano CA, Glower DD. "Isolated mitral valve repair in patients with depressed left ventricular function" *Ann Thorac Surg* 2005;80(4):1309-14

29. Lima B, Rajagopal K, Petersen RP, **Shah AS**, Soule B, Felker GM, Rogers JG, Lodge AJ, Milano CA. "Marginal cardiac allografts do not display increased incidence of primary graft dysfunction in alternate list heart transplant recipients" *Circulation* 2006;114(1 suppl): I27-32
30. Nwakanma LU, Simpkins CE, Williams JA, Chang DC, Borja MC, Conte JV, **Shah AS**. "Impact of bilateral versus single lung transplantation on survival in recipients 60 years of age and older: Analysis of the UNOS database." *J Thorac Cardiovasc Surg* 2007; 133(2): 541-547
31. Benjo A, Thompson RE, Fine D, Hogue CW, Alejo D, Kaw A, Gerstenblith G, **Shah AS**, Berkowitz D, Nyhan D. "Pulse pressure is an age-independent predictor of stroke development after cardiac surgery." *Hypertension* 2007; 50(4):630-635
32. Weiss E, Nwakanma LU, Russell SB, Conte JV, **Shah AS**. "Outcomes in biatrial versus bicaval techniques in heart transplantation: analysis of the UNOS database" *J Heart Lung Transplant* 2008; 27(2): 178-183
33. **Shah AS**, Nwakanma LU, Simpkins CS, Williams J, Chang DC, Conte JV. "Pretransplant panel reactive antibodies in human lung transplant: an analysis of over 10,000 patients. *Ann Thorac Surg* 2008;85(6):1919-24.
34. Patel, ND, Weiss, ES, Fitton, TP, Ullrich, SL, Rivard, DC, Yuh, DD, **Shah, AS**, Russell, SD, and Conte, JV "Right heart dysfunction after left ventricular assist device implantation: a comparison of the pulsatile HeartMate I and axial-flow HeartMate II device". *Ann Thorac Surg* 2008;86(3):832-40
35. Weiss, ES, Meguid, RA, Patel, ND, Russell, SD, **Shah, AS**, Baumgartner, WA, and Conte, JV. " Increased mortality rates at low volume orthotopic heart transplantation centers. Should current standards change?" *Ann Thorac Surg*, 2008;86(4):1250-9
36. Prucz RB, Weiss ES, Patel ND, Nwakanma LU, **Shah AS**, Conte JV. "The impact of surgical ventricular restoration on mitral valve regurgitation" *Ann Thorac Surg*. 2008;86(3):726-34
37. Patel ND, Weiss ES, Nwakanma LU, Russell SD, Baumgartner WA, **Shah AS**, Conte JV. "Impact of donor-to-recipient weight ratio on survival after heart transplantation: analysis of the United Network for Organ Sharing Database" *Circulation*. 2008;118(14 Suppl):S83-8.
38. Lonze B, Lonze BE, Warren DS, Stewart ZA, Dagher NN, Singer AL, **Shah AS**, Montgomery RA, Segev DL. "Kidney transplantation after previous heart or lung transplant" *Am J Transplant*. 2009 Mar;9(3):578-85

39. Weiss ES, Merlo CM, **Shah AS**. "The impact of advanced age in lung transplantation: an analysis of UNOS data." *J Am Coll Surg* 2009; 208(3):400-9
40. Weiss, ES., Allen JG, Modi MN, Merlo CA., Conte JV., **Shah AS**. "Lung transplantation in older patients with cystic fibrosis: an analysis of UNOS data" *J Heart Lung Transplant* 2009; 28(2):135-40
41. **Shah AS**, Lucas D, Lefell MS, Zachary AA. "Elevated pretransplantation sCD30 is associated with decreased early allograft function after human lung transplantation" *Hum Immunol* 2009; 70(2):101-3
42. Weiss ES, Champion HC, Williams, JA, Baumgartner WA, **Shah AS**. "Long acting oral phosphodiesterase inhibition preconditions against reperfusion injury in an experimental lung transplantation model. *J Thorac Cardiovasc Surg.* 2009;137(5):1249-57
43. Tedford RJ, Hemnes AR, Russell SD, Wittstein IL, Mauhmud M, Zaiman A, Mathai SC, Thiemann DR, Hassoun P, Girgis R, Orens JB, **Shah AS**, Yuh DD, Conte JV, Champion HC. "PDE5 inhibitor treatment of persistent pulmonary hypertension after mechanical circulatory support" *Circ Heart Fail.* 2008;1(4):213-19
44. Merlo CM, Weiss ES, Orens JB, Borja MC, Diener-West M, Conte JV, **Shah AS**. "The impact of the US lung allocation score on survival after lung transplantation" *J Heart Lung Transplant.* 2009;28(8):769-75
45. Patel ND, Weiss ES, Allen JG, Russell SD, **Shah AS**, Vricella LA, Conte JV. "Heart transplantation for adults with congenital heart disease: analysis of the United network for organ sharing database" *Ann Thorac Surg.* 2009;88(3):814-21;
46. Weiss ES, Allen JG, Patel ND, Russell SD, Baumgartner WA, **Shah AS**, Conte, JV. "The Impact of Donor-Recipient Sex Matching On Survival Following Orthotopic Heart Transplantation: Analysis Of 18,000 Transplants in the Modern Era". *Circ Heart Fail.* 2009;2(5):401-8
47. Weiss ES, Allen JG, Meguid RA, Patel ND, Merlo CA, Orens JB, Baumgartner WA, Conte JV, **Shah AS**. "Impact of center volume on survival in lung transplantation: an analysis of more than 10,000 cases" *Ann Thorac Surg.* 2009;88(4):1062-70.
48. Allen JG, Weiss ES, Merlo CA, Baumgartner WA, Conte JV, **Shah AS**. "Impact of donor-recipient race matching on survival after lung transplantation: analysis of over 11,000 patients" *J Heart Lung Transplant.* 2009;28(10):1063-71

49. Weiss ES, Allen JG, Russell SD, **Shah AS**, Conte JV. "The impact of recipient body mass index on organ allocation and mortality in orthotopic heart transplantation." *J Heart Lung Transplant.* 2009;28(11):1150-7
50. Weiss ES, Allen JG, Merlo CA, Conte JV, **Shah AS** "Survival after single versus bilateral lung transplantation for high-risk patients with pulmonary fibrosis" *Ann Thorac Surg.* 2009;88(5):1616-25
51. Schaffer JM, Allen JG, Weiss ES, Patel ND, Russell SD, **Shah AS**, Conte JV. "Evaluation of risk indices in continuous-flow left ventricular assist device patients" *Ann Thorac Surg* 2009;88(6):1889-96
52. Weiss ES, Allen JG, Merlo CA, Conte JV, **Shah AS**. "Lung allocation score predicts survival in lung transplantation patients with pulmonary fibrosis" *Ann Thorac Surg.* 2009; 88(6):1757-64
53. Christie JD, Shah CV, Kawut SM, Mangalmurti N, Lederer DJ, Sonett JR, Ahya VN, Palmer SM, Wille K, Lama V, Shah PD, **Shah A**, Weinacker A, Deutschman CS, Kohl BA, Demissie E, Bellamy S, Ware LB, for the Lung Transplant Outcomes Group "Plasma Levels of Receptor for Advanced Glycation End-Products (sRAGE), Blood Transfusion, and Risk Of Primary Graft Dysfunction." *American Journal of Resp and Crit Care,* 2009; 180(10): 1010-5
54. Weiss ES, Allen JG, Merlo CA, Conte JV, **Shah AS**. "Factors Indicative of Long Term Survival After Lung Transplantation: A Review of 836 10-Year Survivors." *J Heart Lung Transplant.* 2010; 29(3):24-6
55. Schaffer JM, Allen JG, Weiss ES, Patel ND, Russell SD, **Shah AS**, Conte JV. Evaluation of risk indices in continuous-flow left ventricular assist device patients. *Ann Thorac Surg.* 2009 Dec;88(6):1889-96.
56. Allen JG, Weiss ES, Arnaoutakis GJ, Russell SD, Baumgartner WA, Conte JV, **Shah AS**. The impact of race on survival after heart transplantation: an analysis of more than 20,000 patients. *Ann Thorac Surg.* 2010 Jun;89(6):1956-63
57. Allen JG, Arnaoutakis GJ, Weiss ES, Merlo CA, Conte JV, **Shah AS**. "The impact of recipient body mass index on survival after lung transplantation" *J Heart Lung Transplant.* 2010 Sep;29(9):1026-33.
58. Arnaoutakis GJ, Allen JG, Merlo CA, Baumgartner WA, Conte JV, **Shah AS**. "Low potassium dextran is superior to University Wisconsin solution in high risk lung transplant patients" *J Heart Lung Transplant.* 2010 Dec;29(12):1380-7
59. Allen JG, Arnaoutakis GJ, Orens JB, McDyer J, Conte JV, **Shah AS**, Merlo CA. "Insurance status is a predictor of long term survival after lung transplantation in the United States" *J Heart Lung Transplant.* 2011 Jan;30(1):45-53

60. Arnaoutakis GJ, Allen JG, Sullivan BE, Merlo CA, Baumgartner WA, Conte JV, **Shah AS**. "Impact of lung allocation score on resource utilization after lung transplantation in the United States" *J Heart Lung Transplant*. 2011 Jan;30(1):14-21.
61. Arnaoutakis GJ, George TJ, Alejo DE, Merlo CA, Baumgartner WA, Cameron DE, **Shah AS**. "Society of Thoracic Surgeons Risk Score predicts hospital charges and resource use after aortic valve replacement" *J Thorac Cardiovasc Surg*. 2011 Sep;142(3):650-5
62. George TJ, Arnaoutakis GJ, Merlo CA, Kemp CD, Baumgartner WA, Conte JV, **Shah AS**. "Association of operative time of day with outcome after thoracic organ transplant" *JAMA* 2011 Jun 1;305(21):2193-9
63. Arnaoutakis GJ, George TJ, Robinson CW, Gibbs KW, Orens JB, Merlo CA, **Shah AS**. "Severe acute kidney injury according to the RIFLE (risk, injury, failure, loss, end stage) criteria affects mortality in lung transplantation." *J Heart Lung Transplant*. 2011 Oct;30(10):1161-8
64. Weiss ES, Allen JG, Arnaoutakis GJ, George TJ, Russell SD, **Shah AS**, Conte JV. "Creation of a Quantitative Recipient Risk Index for Mortality Prediction After Cardiac Transplantation (IMPACT)". *Ann Thorac Surg*. 2011 Sep;92(3):914-22
65. Tam V, Arnaoutakis GJ, George TJ, Russell SD, Merlo CA, Conte JV, Baumgartner WA, **Shah AS**. Marital status improves survival after orthotopic heart transplantation. *J Heart Lung Transplant*. 2011 Dec;30(12):1389-96
66. Kilic A, Weiss ES, Yuh DD, **Shah AS**, Conte JV. "Factors associated with 5-year survival in older heart transplant recipients". *J Thorac Cardiovasc Surg*. 2012 Feb;143(2):468-74
67. Weiss ES, Allen JG, Kilic A, Russell SD, Baumgartner WA, Conte JV, **Shah AS**. "Development of a quantitative donor risk index to predict short-term mortality in orthotopic heart transplantation." *J Heart Lung Transplant*. 2012 Mar;31(3):266-73
68. Kilic A, Weiss ES, George TJ, Arnaoutakis GJ, Yuh DD, **Shah AS**, Conte JV. "What predicts long-term survival after heart transplantation? An analysis of 9,400 ten-year survivors." *Ann Thorac Surg*. 2012 Mar;93(3):699-704
69. Kilic A, Weiss ES, Arnaoutakis GJ, George TJ, Conte JV, **Shah AS**, Yuh DD. "Identifying recipients at high risk for graft failure after heart retransplantation." *Ann Thorac Surg*. 2012 Mar;93(3):712-6

70. George TJ, Arnaoutakis GJ, Beaty CA, **Shah AS**, Conte JV, Halushka MK. "A novel method of measuring cardiac preservation injury demonstrates University of Wisconsin solution is associated with less ischemic necrosis than Celsior in early cardiac allograft biopsy specimens". *J Heart Lung Transplant*. 2012 Apr;31(4):410-8.
71. Arnaoutakis GJ, George TJ, Kilic A, Beaty CA, Weiss ES, Conte JV, **Shah AS**. "Risk factors for early death in patients bridged to transplant with continuous-flow left ventricular assist devices." *Ann Thorac Surg*. 2012 May;93(5):1549-55
72. Alejo JL, George TJ, Beaty CA, Allaf ME, Black JH 3rd, **Shah AS**. "Novel approach to recurrent cavoatrial renal cell carcinoma." *Ann Thorac Surg*. 2012 May;93(5):e119-21.
73. Kilic A, Weiss ES, Yuh DD, **Shah AS**, Cameron DE, Baumgartner WA, Conte JV. "Institutional Factors Beyond Procedural Volume Significantly Impact Center Variability in Outcomes After Orthotopic Heart Transplantation." *Ann Surg*. 2012 Oct;256(4):616-23
74. Kilic A, Weiss ES, Allen JG, George TJ, Yuh DD, **Shah AS**, Conte JV. "Should Orthotopic Heart Transplantation Using Marginal Donors Be Limited to Higher Volume Centers?" *Ann Thorac Surg*. 2012 Sep;94(3):695-702.
75. Allen JG, Lee MT, Weiss ES, Arnaoutakis GJ, **Shah AS**, Detrick B. "Preoperative Recipient Cytokine Levels Are Associated With Early Lung Allograft Dysfunction." *Ann Thorac Surg*. 2012 Jun;93(6):1843-9.
76. George TJ, Arnaoutakis GJ, Beaty CA, Jandu SK, Santhanam L, Berkowitz DE, **Shah AS**. "Inhaled hydrogen sulfide improves graft function in an experimental model of lung transplantation." *J Surg Res*. 2012;178(2):593-60
77. George TJ, Beaty CA, Kilic A, Shah PD, Merlo CA, **Shah AS** "Outcomes and temporal trends among high-risk patients after lung transplantation in the United States." *J Heart Lung Transplant*. 2012 Nov;31(11):1182-91
78. Kilic A, Merlo CA, Conte JV, **Shah AS**. "Lung transplantation in patients 70 years old or older: Have outcomes changed after implementation of the lung allocation score?" *J Thorac Cardiovasc Surg*. 2012 Nov;144(5):1133-8.
79. Kilic A, Weiss ES, Allen JG, Conte JV, **Shah AS**, Baumgartner WA, Yuh DD. "A Simple Score to Assess the Risk of Rejection Following Orthotopic Heart Transplantation." *Circulation* 2012 Dec; 125(24):3013-21.
80. Kilic A, George TJ, Beaty CA, Merlo CA, Conte JV, **Shah AS** "The effect of center volume on the incidence of postoperative complications and their impact on survival after lung transplantation." *J Thorac Cardiovasc Surg*. 2012 Dec;144(6):1502-9

81. Allen JG, Kilic A, Weiss ES, Arnaoutakis GJ, George TJ, **Shah AS**, Conte JV. "Should Patients 60 Years and Older Undergo Bridge to Transplantation With Continuous-Flow Left Ventricular Assist Devices?" *Ann Thorac Surg*.
82. Ono M, Joshi B, Brady K, Easley RB, Kibler K, Conte J, **Shah A**, Russell SD, Hogue CW. "Cerebral blood flow autoregulation is preserved after continuous-flow left ventricular assist device implantation." *J Cardiothorac Vasc Anesth*. 2012 Dec;26(6):1022-8. 2012 Dec;94(6):2017-24
83. George TJ, Beaty CA, Ewald GA, Russell SD, **Shah AS**, Conte JV, Whitman GJ, Silvestry SC "Reoperative Sternotomy Is Associated With Increased Mortality After Heart Transplantation." *Ann Thorac Surg*. 2012 Dec;94(6):2025-32
84. Faraday N, Rock P, Lin EE, Perl TM, Carroll K, Stierer T, Robarts P, McFillin A, Ross T, **Shah AS**, Riley LH, Tamargo RJ, Black JH, Blasco-Colmenares E, Guallar E. "Past History of Skin Infection and Risk of Surgical Site Infection after Elective Surgery." *Ann Surg*. 2013 Jan;257(1):150-155
85. Kemp CD, Arnaoutakis GJ, George TJ, Smith MA, Patel ND, Cameron DE, **Shah AS** "Valve surgery for infective endocarditis is associated with high hospital charges." *J Heart Valve Dis*. 2013 Jan;22(1):110-7
86. Kilic A, Sultan I, Yuh DD, **Shah AS**, Baumgartner WA, Cameron DE, Conte JV. "Ventricular assist device implantation in the elderly: nationwide outcomes in the United States." *J Card Surg*. 2013 Mar;28(2):183-9.
87. George TJ, Kilic A, Beaty CA, Conte JV, Mandal K, **Shah AS**. "Septuagenarians bridged to heart transplantation with a ventricular assist device have outcomes similar to younger patients." *Ann Thorac Surg*. 2013 Apr;95(4):1251-61
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Book Chapters

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3. **Shah AS**, Glower DD. “Port Access Mitral Valve Surgery” in Minimally Invasive Cardiac Surgery. 2003. Oz MC and Goldstein DJ eds.
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6. **Shah AS**, Baumgartner WA. “Surgery for Atrial Fibrillation” in the Johns Hopkins Manual of Cardiac Surgery. Conte JV ed. 2008
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8. Balsara K, **Shah AS**. “Blunt Cardiac Injury” in Current Surgical Therapy. Cameron J ed. 2014
9. **Shah AS**. “Lung and Heart-Lung Transplant” in the Johns Hopkins Textbook of Cardiothoracic Surgery. Yuh DD ed 2014
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11. Shah AS, Baumgartner WA “Heart-Lung Transplantation” in Master Techniques in Cardiac Surgery. Grover F and Mack M ed 2016

Editorials

1. **Shah AS**. “Smoking is bad for lungs, right?” *J Heart Lung Transplant*. 2013 Oct;32(10):998-9

2. Sweet SC, **Shah AS**. "Lung transplantation-looking beyond 1-year survival." *Am J Transplant*. 2014 Oct;14(10):2199-200

Reviews

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2. **Shah AS**, Wolfe WG. "Surgical perspectives on aortic valve endocarditis" *Ann Surgery* 2003;238(6):S112-8
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4. George TJ, Arnaoutakis GJ, **Shah AS**. "Surgical treatment of advanced heart failure: alternatives to heart transplantation and mechanical circulatory assist devices." *Prog Cardiovasc Dis*. 2011 Sep-Oct;54(2):115-31
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Web

1. **Shah AS**, Wolfe WG "Aortic Valve Disease" in www.unboundssurgery.com Pappas ed.
2. **Shah AS**, McCann RL. "Abdominal Aortic Aneurysm" in www.unboundssurgery.com Pappas ed.
3. **Shah AS**, Conte JV. "Selection criteria for pulmonary hypertension patients for lung transplantation", in Kasper DL et al (eds): *Harrison's Online*, 16th ed. New York: McGraw Hill, 2006. <http://www.accessmedicine.com>

Film

1. **Shah AS**, Milano CA, Lowe JE. “Resection of Giant Right Atrial Tumor” Presented at the American College of Surgeons Meeting 2001.
2. **Shah AS**, Daniels LJ, Lowe JE. “Resection of Primary Cardiac Glomus Tumor” Presented at the American College of Surgeons Meeting 2002

Case Reports

1. **Shah AS**, Milano CA, Lucke JP. “Anomalous origin of the right coronary artery from the left coronary sinus: case report and review of surgical treatments” *Cardiovascular Surgery* 2000;8(4):284-6
2. **Shah AS**, Forbess JM, Skaryak LA, Lilly RE, Vaslef SN, D’Amico TA. “Emergent thoracotomy for airway control following intrathoracic tracheal injury” *J Trauma* 2000;48(6):1163-4
3. Chen H, **Shah AS**, Girgis RE, Grossman SA. “Transmission of glioblastoma multiforme after bilateral lung transplantation”. *J Clin Oncol* 2008;26(19):3284-5.
4. Vogel-Claussen J, Skrok J, Fishman EK, Lima JA, **Shah AS**, Bluemke DA. “Cardiac CT and MRI guide surgery in impending left ventricular rupture after acute myocardial infarction” *J Cardiothorac Surg.* 2009 12;4:42.
5. Campbell CY, **Shah AS**, Chacko M. “Inducible left ventricular obstruction after apical-conduit aortic valve bypass surgery” *J Thorac Cardiovasc Surg.* 2010 Sep;140(3):e62-3.
6. Fraser CD, Arnaoutakis GA, George TJ, Owen JB, Conte JV, **Shah AS**. “Acute cholecystitis preceding mycotic aortic pseudoaneurysm in a heart transplant patient” *J Card Surg* 2010 Nov 25: 749-51
7. Alejo JL, George TJ, Beaty CA, Allaf ME, Black JH 3rd, **Shah AS**. “Novel approach to recurrent cavoatrial renal cell carcinoma.” *Ann Thorac Surg.* 2012 May;93(5):e119-21
8. George TJ, Knudson KP, Sodha NR, Beaty CA, Feller-Kopman D, Shah AS, Yarmus L. “Respiratory support with extracorporeal membrane oxygenation during stenting for tracheomalacia” *Ann Thorac Surg.* 2012 Nov;94(5):1736-7
9. Beaty CA, Yang A, George TJ, Illei PB, **Shah AS**. “Unilateral humoral rejection after reoperative single-lung transplant.” *Ann Thorac Surg.* 2013 Apr;95(4):e79-81

10. Katritsis G, **Shah AS**, James CA, Murray B, Tichnell C, Judge DP, Calkins H, Tedford RJ. "Surgical Correction of Tricuspid Regurgitation in Patients with ARVD/C" HeartRhythm Case Rep. 2015 Sep 1;1(5):326-330.
11. Crawford TC, Grimm JC, Magruder JT, Stephens RS, Sciortino CM, Vaught AJ, Althaus J, **Shah AS**, Kim BS, "A curious case of acute respiratory distress syndrome" J Surg Case Rep. 2015 Nov 9;2015(11)

Presentations

1. 2006 Grand Rounds Union Memorial Hospital, "Progress in Lung Transplantation" Baltimore, MD. *Invited.*
2. 2006 Anadolu Hospital, Minimally Invasive Approaches to the Mitral Valve" Istanbul, Turkey. *Invited.*
3. 2006 Respiratory Care Week, The Johns Hopkins Hospital, "Use of Nitric Oxide in Human Lung Transplantation" Baltimore, MD. *Invited.*
4. 2006 Johns Hopkins Comprehensive Transplant Center Grand Rounds, The Johns Hopkins Hospital, "Lung Transplantation in the Elderly" Baltimore, MD. *Invited.*
5. 2007 Cardiac Anesthesia Division Rounds, The Johns Hopkins Hospital, "Progress in Lung Transplantation" Baltimore, MD. *Invited.*
6. 2007 Cardiology Grand Rounds, The Johns Hopkins Hospital, "Update on Left Ventricular Assist Devices" Baltimore, MD. *Invited.*
7. 2008 General Thoracic Surgery Biology Club "Protecting the Donor from the Recipient in Lung Transplantation" San Diego, CA. *Invited.*
8. 2008 Southern Thoracic Surgical Association. Meeting "Aprotinin is Bad." Austin, TX. *Invited.*
9. 2009 Cardiac Anesthesia Division Rounds. The Johns Hopkins Hospital, "Update on Mechanical Circulatory Support" Baltimore, MD. *Invited.*
10. 2010 Maryland Committee on Trauma Conference. "ECMO and Trauma" Baltimore, MD. *Invited.*
11. 2010 9th International Congress on Lung Transplantation. "Management of the Sensitized Patient in Lung Transplantation" Paris, France. *Invited.*
12. 2010 9th International Congress on Lung Transplantation. "Does Reflux Lead to Chronic Allograft Dysfunction" Paris, France. *Invited.*

13. 2010 North American Cystic Fibrosis Conference “Matching the Operation to the Patient in Lung Transplant” Baltimore, MD. *Invited.*
14. 2011 Grand Rounds Suburban Hospital. “Update on Lung Transplantation” Bethesda, MD. *Invited.*
15. 2011 CVT Critical Care Conference. “Update of Perioperative Management in Lung Transplantation” Washington, DC. *Invited.*
16. 2012 Grand Rounds Prince Georges County Hospital. “Update on Lung Transplantation” Cheverly, MD. *Invited.*
17. 2012 Topics In Cardiology Johns Hopkins Hospital. “High Risk Cardiac Surgery: Heroic Measures in Tight Spots”. Baltimore, MD. *Invited.*
18. 2012 Cardiology Grand Rounds Johns Hopkins Hospital “High Risk Cardiac Surgery: Tricks of the Trade, Rules of the Road” Baltimore, MD. *Invited.*
19. 2013 International Society of Heart Lung Transplantation Annual Meeting “Maximizing Heart Donors in the US. Pushing the Limits” Montreal, Canada. *Invited.*
20. 2013 Halsted Surgical Society “High Risk Lung Transplant Using Advanced Respiratory Support in the US”. Minneapolis, MN. *Invited.*
21. 2014 Hopkins Heart Symposium “History of Surgical Approaches to Heart Failure” Baltimore, MD. *Invited.*
22. 2014 American Association of Thoracic Surgery “Preventing Primary Graft Dysfunction- Lessons for LTOG” Toronto, CA. *Invited.*
23. 2014 Society of Thoracic Surgeons ECMO Symposium “ECMO as a bridge to LVAD” Chicago, IL. *Invited.*
24. 2014 University of Cincinnati School of Medicine “Frailty in Cardiac Surgery: From Risk Assessment to Risk Aversion” Cincinnati, OH. *Invited.*
25. 2015 Suburban Hospital Grand Rounds “ECMO: The prodigal son returns”, Bethesda, MD. *Invited.*
26. 2015 University of Texas Medical Branch Surgery Grand Rounds “Ex Vivo Lung Perfusion: An experimental model in clinical use” Galveston, TX. *Invited.*
27. 2015 Cardiology Topics Johns Hopkins Hospital “ECMO: Update and Progress” Baltimore, MD. *Invited.*

28. 2015 ASAIO Annual Meeting “ Exit strategies for ECMO” Chicago, IL. *Invited.*
29. 2016 Vanderbilt Department of Neurosurgery Grand Rounds “Human Refrigeration in Modern Cardiac Surgery” Nashville, TN. *Invited*
30. 2016 Society of Thoracic Surgeons Annual Meeting “Use of Mechanical Support in Shock: Optimal Device Selection” Phoenix,AZ. *Invited*
31. 2016 Society of Thoracic Surgeons ECMO Symposium “VA ECMO as Bridge to Transplant” Tampa, FL *Invited*
32. 2016 American Association for Thoracic Surgery Annual Meeting “ECMO as Bridge to Lung Transplant in ARDS” Baltimore, MD *Invited*
33. 2016 Memphis EMS Symposium “LVAD and Heart Transplant Physiology for First Responders” Memphis, TN *Invited*

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