

Rana Bashir Hejal, M.D.

Work Address: Pulmonary and Critical Care Medicine
University Hospitals of Cleveland
11100 Euclid Ave.
Cleveland, OH 44106
Tel. (216) 844-3201
E-mail: rana.hejal@UHHospitals.org

Place of Birth: Beirut, Lebanon

Citizenship: USA as of 2004
Lebanon , at birth

Education

1981-1984 American University of Beirut, B.S., Physics
1984-1988 American University of Beirut, M.D.

Post-Graduate Training

1988-1989 Internship, Internal Medicine, Case Western Reserve University,
MetroHealth Medical Center, Cleveland, OH
1989-1991 Resident, Internal Medicine, Case Western Reserve University,
MetroHealth Medical Center, Cleveland, OH
1991-1994 Pulmonary and Critical Care Fellowship, Case Western Reserve
University, University Hospitals of Cleveland, MetroHealth Medical
Center, and The Cleveland VA Medical Center, Cleveland, OH
1994-1995 Research Fellow, Case Western Reserve University, University Hospitals
of Cleveland, now known as University Hospitals case Medical Center
(UHCMC). Mentor, E.R. McFadden M.D.

Licensure and Certification

1986 ECFMG
1990 State Medical Board of Ohio

1991	American Board of Internal Medicine.
1994	American Board of Internal Medicine - Pulmonary Diseases
1995	American Board of Internal Medicine - Critical Care Medicine
2004	American Board of Internal Medicine - Recertification
2004	American Board of Internal Medicine – Pulmonary Diseases. Recertification
2004	American Board of Internal Medicine – Critical Care Medicine. Recertification

Awards

1984	B.S. with Distinction - Physics
1991	Resident of the Year Award MetroHealth Medical Center
1995	Trainee Investigator Award for Excellence in Scientific Research American Federation for Clinical Research
1997	Clinical Teacher of the Year Award Case Western Reserve University, Department of Medicine University Hospitals of Cleveland. Cleveland VA Medical Center
2001	Clinical Teacher of the Year Award Case Western Reserve University, Department of Medicine University Hospitals of Cleveland. Cleveland VA Medical Center
2002	Clinical Teacher of the Year Award Case Western Reserve University, Department of Medicine University Hospitals of Cleveland. Cleveland VA Medical Center
2005	Clinical Teacher of the Year Award Case Western Reserve University, Department of Medicine University Hospitals of Cleveland. Cleveland VA Medical Center

Memberships

1992 -	American College of Chest Physicians
1994 -	American Thoracic Society
1994 -1999	European Respiratory Society
1995 -1997	American Federation of Respiratory Research
1996 -	Society of Critical Care Medicine
2004 -	American Association of Bronchology
2004 -	World Association of Bronchology

2006- European Respiratory Society
2007- European Society of Intensive care Medicine

Professional Appointments

2003- Associate Professor of Medicine (as of July)
Case Western Reserve University -School of Medicine
10900 Euclid Ave. Cleveland, OH 44106

1995-2003 Assistant Professor of Medicine (as of September)
Case Western Reserve University -School of Medicine
10900 Euclid Ave. Cleveland, OH 44106

1995 - Physician at University Hospitals Case Medical Center (UHCMC)
Department of Medicine - Pulmonary and Critical Care Division
11100 Euclid Ave. Cleveland, OH 44106

1995 - Physician at the Veteran Administration Medical Center (VAMC)
Department of Medicine - Pulmonary and Critical Care Division
10701 East Blvd. Cleveland, OH 44106

Administrative Experience

1996 - Program Director, Pulmonary Critical Care Fellowship,
University Hospitals Case Medical Center, affiliated with VAMC

2000-2002 Interim Medical Director – VAMC MICU

2002- Bronchoscopy Suite Medical Director – UHCMC

2002- Bronchoscopy Suite Medical Director – VAMC

2003-2005 Interim Medical Director – University Hospitals of Cleveland, MICU

2005- Medical Director - University Hospitals Case Medical Center, MICU

Hospital and Departmental Committees

1998 - Member - Intern Selection Committee – Department of Internal
Medicine.

1999 - 01 Member - CME Committee – Department of Internal Medicine.

- 2002 - 04 Clinical Practice Advisory Committee - Department of Internal Medicine.
- 2003- Member - QA/QI Committee - Department of Internal Medicine.
- 2003- Member - Sedation Committee – UHCMC
- 2004- Member - Critical Care Council – UHCMC
- 2005- Chairperson - Resuscitation Committee - UHCMC
- 2007- Chairperson - Medication Safety Committee – UHCMC
- 2007- Member - Pharmacy and Therapeutics Committee – UHCMC -
representing Medication Safety Committee

Graduate Student Dissertation Committees

- 2002 -2006 Salwa Hassanein, PhD candidate, School of Nursing.
Rehabilitation in COPD, graduated 2006
- 2003-2005 Kathy Chen, PhD candidate, School of Nursing
COPD in Thailand, graduated 2005
- 2004 -2005 Kim How PhD candidate, School of Nursing
Role of antioxidants in the critically ill, graduated 2005
- 2006-2007 Mohammed Yakoub, PhD candidate, School of Nursing.
The Relationship of Diabetes Melitus on Ventilator-Associated
Pneumonia, Blood Steam Infection, Quality of Life and Mortailty in the
Chronically Critically Ill
- 2007- 2008 Clareen Wienczek, PhD candidate, School of Nursing.
Symptom Burden and its Relationship to Functional Status in the
Chronically Critically Ill; graduated 2008

National Committees

- 2004 - Member, Midwest Critical Case Consortium, Steering Committee
- 2004 - 2008 Member, American College of Chest Physicians, Clinical Pulmonary
Medicine Steering Committee

Teaching Experience

School of Medicine

Feb - Mar 97, 98	Preceptor, Physical Diagnosis Course, CWRU
1995 – 2005	Small Group Leader, Phase I Pulmonary Medicine
1995 – 2005	Lecturer and Small Group Leader, Phase II Pulmonary Medicine
1996 -	Preceptor, Pulm 0101: Pulmonary Consult Service, UHC
2000 – 2005	Coordinator, Pulmonary 4001, CWRU
2001 -	Preceptor, Pulm 0104: Critical Care Medicine, UHC
2002 - 2005	Lecturer, Surg 0105: Advanced Surgical Anatomy of the Trunk

Post Graduate Training

1995 - 1996	Attending Physician, General Medicine, VAMC
1995 - 2000	Preceptor, Pulmonary Fellows Chest Clinic, VAMC. Four fellows per session, (1/2 day/wk)
1996 - (3 mo/yr)	Attending Physician, Pulmonary Consult service, UHC One fellow per rotation often with one resident
1996 - (2 mo/yr)	Attending Physician, Pulmonary Consult service, VAMC One fellow per rotation
1996 - (4 mo/yr)	Attending Physician, Medical ICU, UHCMC One fellow per rotation with four residents and four interns
1996 - (2 mo/yr)	Attending Physician, Medical ICU, VAMC One fellow per rotation with two residents and three interns

CME Courses

April 21, 2001	Course Director - Emerging Standards of Care Series: Update in Managing Airway and Lung Disease.
April 27, 2002	Course Director - Critical Care Medicine: Sepsis 2002.

Nov 1, 2003 Course Director - Critical Care Medicine: Pulmonary Embolism and Blood Vessel Disorders.

Research Activities

1997-1999 Co-Investigator, Pathobiology of exercise induced asthma; Project 2: Changes in intrathoracic airway surface osmolarity during hyperpnea. PI – E.R. McFadden Jr. M.D.

1998-2000 Co-Investigator, Efficacy and safety of mometasone furoate dry powder inhaler in the treatment of patients with COPD. Sponsor: Schering-Plough. PI – E.R. McFadden Jr. M.D.

1998-2000 Co-Investigator, Phase II trial studying the safety and efficacy of intravenously administered Inflarest™. Sponsor: Pharmadigm. PI – E.R. McFadden Jr. M.D.

1999-2002 Co-Investigator, Activation of HIV-1 by smoking and Tuberculosis. PI – Z. Toossi M.D.

1999-2002 Co-Investigator, The role of cytokines in the Immunopathogenesis of Tuberculosis. PI – Z. Toossi M.D.

2003-2005 Co-investigator, Value of Measurements of Salivary Cortisol and Adrenal Androgen Concentrations in The Assessment of Adrenal Function in Critically Ill Subjects. PI – Baha Arafa M.D.

2005- 2007 Site Principle Investigator, Strategies to Reduce Transmission of Antimicrobial Resistant Bacteria in Intensive Care Units (STAR*ICU) Trial

2006-2008 Co-investigator, Intensive Communication with the Chronically Critically Ill. PI – Barbara Daly PhD.
NIH Number: RO1 NR008941

2007- Site Principle Investigator. Prospective, Randomized, Multicenter Trial of Aerosolized Albuterol Versus Placebo for the Treatment of Acute Lung Injury.
Prime Sponsor: (SPN00586) NIH-National Heart, Lung, and Blood Institute.

2008- Site Principle Investigator . Prospective, Randomized, Multi-center Trial of Initial Trophic Enteral Feeding Followed by Advancement to Full-Calorie Enteral Feeding vs. Early

Advancement to Full-Calorie Enteral Feeding in Patients with Acute Lung Injury (ALI) or Acute Respiratory Distress Syndrome (ARDS); and Prospective, Randomized, Blinded, Placebo-controlled, Multi-center Trial of Omega-3 Fatty Acid, Gamma-Linolenic Acid, and Anti-Oxidant Supplementation in the Management of Acute Lung Injury (ALI) or Acute Respiratory Distress Syndrome (ARDS)

Prime Sponsor: (SPN00586) NIH-National Heart, Lung, and Blood Institute.

2008-

Co-investigator, Early Therapeutic Mobility: Patient Responses, Facilitators and Barriers. PI - Chris Winkelman, PhD, RN
Prime Sponsor: Hill-Rom

Publications

Hejal R, Strohl KP, Erokwu B, Cherniack NS, Haxhiu MA. Pathways and mechanisms involved in neural control of laryngeal submucosal gland secretion. *J Appl Physiol.* 75(6): 2347-2352, 1993.

Hejal R, Strohl KP, Erokwu B, Cherniack NS, Haxhiu MA. Effect of hypoxia on reflex responses of tracheal submucosal glands. *J Appl Physiol.* 78(5): 1651-1656, 1995.

McFadden, ER Jr., **Hejal, R.** Asthma. *Lancet* 345(5): 1215-1220, 1995.

McFadden ER, Elsanadi N, Dixon L, Takacs M, Deal EC, Boyd K, Idemoto B, Broseman LA, Panuska JR, Hammons T, Smith B, Caruso F, McFadden, CB, Shoemaker L, Warren EL, **Hejal R**, Strauss L, Gilbert IA. Managed care for acute asthma: Therapeutic benefits and cost effectiveness. *Am J Med* 1995; 99:651-661.

Strauss L, **Hejal R**, Galan G, Dixon L, McFadden ER Jr. Observations on the effects of aerosolized albuterol in acute asthma. *Am J Resp Crit Care Med.* 1997; 155:454-458.

McFadden, ER Jr., Strauss L, **Hejal R**, Gaylar G, Dikou L. Comparison of two dosage regimens of albuterol in acute asthma. *Am J Med* 1998; 105:12-17.

Sompradenkul S, **Hejal R**, McLane H, Lenner KA, Nelson JA, McFadden ER Jr. Lack of Interaction of hypergonia with methacholine and histamine in asthma. *Clinical Science* 1998; 95:611-619.

McLane ML, Nelson JA, Lenner KA, **Hejal R**, Kotaru C, Skowronski M, Coreno A, Lane E, McFadden ER Jr Integrated response of the upper and lower respiratory tract of asthmatic subjects to frigid air. *J Appl Physiol.* 2000 Mar;88(3):1043-50.

McFadden ER Jr., **Hejal R.B.** The Pathobiology of Acute Asthma. *Clinics in Chest Medicine.*

2000 ; 21(2): 213-224.

Gilkeson R.C., Ciancibello L.M., **Hejal R.**, Lange P, Montenegro H. Dynamic imaging tracheobronchomalacia: Evaluation with multidetector computed tomography. *Am J Roentgenol*, 2001. 176(1): p. 205-10.

Aung H., McKenna S.M., Ketoff N., Jones L., Wu M., **Hejal R.**, Rich E., Toossi Z. Dysregulation of β -chemokines in the lungs of HIV-1 infected patients. *J Acquir Immune Defic Syndr*, 2001. 26(4): p. 305-14.

Mochida-Nishimura K., Surewicz K., Cross J., **Hejal R.**, Templeton D., Rich E., Toossi Z. Differential activation of MAP kinase signaling pathways and nuclear factor- κ B in bronchoalveolar cells of smokers and non-smokers. *Mol Med* 2001 7(3): 177-85.

C. Kotaru, **R.B. Hejal**, J.H. Finigan, A.J. Coreno, M.E. Skowronski, E.R. McFadden, Jr. The Influence of Hyperpnea on Airway Surface Fluid Volume and Osmolarity in normal Man. *J Appl Physiol*, 2002. 93(1): p. 154-60. Kotaru, C., et al.,

Kotaru, C., **Hejal, R. B.**, Finigan, J. H., Coreno, A. J., Skowronski, M. E., Brianas, L., McFadden, E. R., Jr., Desiccation and hypertonicity of the airway surface fluid and thermally induced asthma. *J Appl Physiol*, 2003. 94(1): p. 227-33.

Toosi, Z., Wu, M., Islam, N., Teixeira-Johnson, L., **Hejal, R.**, Aung, H., Transactivation of human immunodeficiency virus-1 in T-cells by Mycobacterium tuberculosis-infected mononuclear phagocytes. *J Lab Clin Med*, 2004. 144(2): p. 108-15.

Surewicz, K., Aung, H., Kanost, R., Jones, L., **Hejal R.**, Toosis, Z., The differential interaction of p38 MAP kinase and tumor necrosis factor-alpha in human alveolar macrophages and monocytes induced by Mycobacterium tuberculosis. *Cell Immunol*, 2004. 228(1): 34-41.

Islam, N., Kanost, A. R., Teixeira, L., Johnson, J., **Hejal R.**, Aung, H., Wilkinson, R. J., Hirsch, C. S., Toossi, Z., Role of cellular activation and tumor necrosis factor-alpha in the early expression of Mycobacterium tuberculosis 85B mRNA in human alveolar macrophages. *J Infect Dis*, 2004. 190(2): 341-51.

Fares, J., **Hejal R**, Pulmonary Cryptococcosis due to C albibus in a patient on Infliximab. *Chest*, 2004. 124(4): 987S

Tleyjeh IM, Tlaygeh HM, **Hejal R**, Montori VM, Baddour LM. The impact of penicillin resistance on short-term mortality in hospitalized adults with pneumococcal pneumonia: a systematic review and meta-analysis. *Clin Infect Dis*. 2006 Mar 15;42(6):788-97.

Naeem N, Eyzaguirre A, Kern JA, Lazarus HM, **Hejal RB**, Laughlin MJ, Kern EF. Outcome of adult umbilical cord blood transplant patients admitted to a medical intensive care unit.

Bone Marrow Transplant. 2006 Dec;38(11):733-8.

Arafah BM, Nishiyama FJ, Tlaygeh H, **Hejal R**. Measurement of salivary cortisol concentration in the assessment of adrenal function in critically ill subjects: a surrogate marker of the circulating free cortisol. *J Clin Endocrinol Metab*. 2007 Aug;92(8):2965-71.

Katirji B, Kesner V, **Hejal RB**, Alsheklee A. Teaching NeuroImage: Axial muscle atrophy in adult-onset Pompe disease. *Neurology*. 2008 Mar 4;70(10):e36.

Ali NA, O'Brien JM Jr, Hoffmann SP, Phillips G, Garland A, Finley JC, Almoosa K, **Hejal R**, Wolf KM, Lemeshow S, Connors AF Jr, Marsh CB; Midwest Critical Care Consortium. Acquired weakness, handgrip strength, and mortality in critically ill patients. *Am J Respir Crit Care Med*. 2008 Aug 1;178(3):261-8.

Abstracts

Hejal R, Strohl KP, Erokwu B, Haxhiu MA, Cherniack NS. Hypoxia potentiates neither reflex nor substance-P induced tracheal submucosal gland secretion in anesthetized dogs. *Am Rev Resp Dis* 145(4 part 2): A617, 1992. (Presented at ATS meeting may, 1992)

Haxhiu MA, **Hejal R**, Erokwu B, Cherniack NS, Strohl KP. Reflex control of laryngeal submucosal glands in dogs. *Am Rev Resp Dis* 145(4 part 2): A409, 1992. (Presented at ATS meeting may, 1992).

Hejal R, Sompradeekul S, Fatolah M, Lenner K, Nelson J, McLane M, Scarpa A, Gilbert I. Flux in RBC intracellular sodium is related to hyperpnea induced airway obstruction in asthmatic men. *J Invest Med* 43:275A, 1995. (Presented at AFCR meeting May, 1995)

Hejal R, Walenga R, Lenner K, Nelson J, McLane M, Gilbert I. Urinary leukotriene E₄ levels following isocapnic hyperventilation in asthmatics. *Am J Resp Crit Care Med* 151(4): A678, 1995. (Presented at ATS meeting May, 1995)

Sompradeekul S, **Hejal R**, McLane M, Lenner K, Nelson J, McFadden ER Jr. Interaction of airway cooling with methacholine in asthmatics. *Am J Resp Crit Care Med* 151(4): A131, 1995. (Presented at ATS meeting May, 1995).

Hejal R, Fatolah M, Nelson J, Strauss L, Scarpa A, Gilbert I. Red blood cell Na⁺ K⁺ Atpase pumps in normal and asthmatics. *J Invest Med* 44(3): 257A, 1996. (Presented in AFCR May, 1996)

Hejal R, Sompradeekul S, Fatolah M, Lenner K, Nelson J, McLane M, Scarpa A, Gilbert I. Flux

in intracellular sodium following isocapnic hyperventilation differs between asthmatics and normal men. *Am J Resp Crit Care Med* 153(4): A877, 1996

Siddique M, **Hejal R**, Nelson J, Skowronski M, Gilbert I. Effects of inhaled ouabain on lung mechanics and hyperpnea induced obstruction. *Am J Resp Crit Care Med* 156(4): A204, 1997. (Presented at ATS meeting May, 1997)

C. Kotaru, **R.B. Hejal**, J.H. Finigan, A.J. Coreno, M.E. Skowronski, E.R. McFadden, Jr. Thermally Induced Airway Obstruction Is Not Caused By Airway Drying. *Am J Respir Crit Care Med* Vol 163, No. 5, p. A757. April 2001

LT Benjamin Knepper, MC, USN, Naval Medical Center Portsmouth, VA, Jon Laich and **Rana Hejal**, Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Case Western Reserve University, Cleveland, Ohio. Mental Illness in the Intensive Care Unit (ICU): Characteristics, comorbidities, sedative practices and outcomes of patients with pre-existing schizophrenia. ACP-US-NAVY Chapter 2007

Book Chapters

Hejal R, McFadden ER Jr. Asthma: diagnosis in Pulmonary and Critical Care Pharmacology and Therapeutics. p. 723-728. Ed. A. Leff, M.D., pub. McGraw Hill. 1995.

Hejal R, McFadden ER Jr. Late reactions and Exercise- Induced Asthma: Lung Biology in Health and Disease, vol. 130: Exercise induced Asthma; p 193-208, Ed. McFadden ER, pub. Dekker M. 1999

Zaidat O., Suarez J., **Hejal R**. Critical and Respiratory Care in Neuromuscular Diseases. Neuromuscular Disorders in Clinical Practice. P 384-399 Ed. Katirji B., Pub. Butterworth-Heinemann, 2002

Natesan N and **Hejal R**, Emerging viral respiratory illnesses. Emerging Infections. P 49-77, Ed Salata R and Bobak D., Pub Clinical Publishing 2008

Haider S., Bou Serhal C., **Hejal R.**, Acute Respiratory Distress Syndrome (ARDS). Critical Care Neurology and Neurosurgery (Second Edition). In preparation, Ed. Suarez J., Pub Humana Press

Bou Serhal C., Haider S., **Hejal R.**, Acute Renal failure. Critical Care Neurology and Neurosurgery (Second Edition). In preparation, Ed. Suarez J., Pub Humana Press

