Elizabeth Anne Regan, MD, PhD

- *Associate Director, COPDGene*
- *Associate Professor*
- *Division of Rheumatology*
- *Department of Medicine*

Conditions Treated:

Research Areas:

- *Osteoarthritis*
- *Osteoporosis*
- *Smoking Related Lung Diseases*
- *Musculoskeletal Diseases especially those associated with Lung Disease*
- *Adrenal Insufficiency Cohort*
- *Epidemiology of Chronic & Autoimmune Diseases*
- *Oxidative Stress in the pathogenesis of arthritis, musculoskeletal infections & adrenal insufficienc*
- *Lung Cancer Screening Cohort*
- *COPDGene*
- *Smokers with Preserved Spirometry*
- *Inflammatory or Degenerative Spine Disease*
- *Biofilm Disruption Using SOD Mimetic*
- *Developing a Mouse Model of Adrenal Insufficiency*
- *Drug Testing of SOD Mimetics in Prevention of Adrenal Insufficiency*
- *Diagnostic Error in Medicine*

Programs & Services:

- *Department of Medicine*
- *Division of Rheumatology*

Research Interests

Following a rewarding career as an orthopedic surgeon, Dr. Regan completed a PhD in Clinical Sciences in order to train in epidemiology and clinical research studies. Her early interests were in the areas of oxidative stress and musculoskeletal diseases. Her initial interest in lung disease was through studies of oxidative stress markers in COPD patients.

She has been involved with the COPDGene study since 2007 when the project was funded by the National Heart, Lung and Blood Institute (NHLBI) with principal investigators, Drs. James Crapo and Edwin Silverman. As Associate Director for the study she participated in the initiation of the project and continues to be actively involved in study management and data analysis. This project provided an opportunity to oversee a 10,000 subject longitudinal cohort along with colleagues at National Jewish Health and Brigham and Women's Hospital as well as other institutions across

the US.

Major research interests within the cohort have been: assessing occult disease in heavy smokers, osteoporosis and fractures, other comorbid disease in the cohort and longitudinal assessment of incident disease and mortality.

She has continued to develop cohorts in chronic diseases especially seeking out opportunities to decrease diagnostic error and increase early identification of diseases like lung cancer and adrenal insufficiency.

Dr. Regan also enjoys teaching and mentoring with college interns, medical students, residents, fellows and post-docs frequently engaged in summer rotations through the Crapo Lab studying oxidative stress markers in joints and adrenal tissue. She also teaches Problem-Based Learning, diagnostic skills and patient-physician communication at the University of Colorado School of Medicine to first- and second-year medical students.

Discussion

A major focus of my research group is the engagement with the COPDGene Study. This is an exciting cohort of smokers that was enrolled 2007-2012 to study the genetics and subtypes of COPD. We initially enrolled more than 10,000 smokers across the United States at 21 Clinical Centers. The project was funded by the NHLBI and has been re-funded twice permitting us to re-evaluate our subjects in Phase 2 (2012- 2017) and now in Phase 3 (2017 – 2022). The subjects have been extensively evaluated with spirometry, chest CT scans, blood collection and questionnaires about their symptoms and function.

Board Certification

American Board of Orthopaedic Surgery

Education

2001 - 2006 University of Colorado Health Sciences Center (Denver, CO), Clinical Sciences PhD
1971 - 1975 Boston College (Chestnut Hill, MA), BS, Chemistry, Magna Cum Laude
1975 - 1979 University of Massachusetts Medical School (Worchester, MA), MD

Residency

1981 - 1985 University of Colorado Health Sciences Center (Denver, CO), Orthopedic Surgery

Professional Memberships

1988 to present: Fellow - American Academy of Orthopaedic Surgeons
1990 to present: Ruth Jackson Orthopedic Society
2008 to present: Orthopedic Research Society
2014 to present: American Thoracic Society
Society to Improve Diagnosis in Medicine
2016 to present: Endocrine Society
2019: American Association of Clinical Endocrinologists
1988 to present: Orthopedics Overseas

Awards & Recognition

2005: U.S. Bone and Joint Decade Young Investigators Initiative
2005: 2006-2007 AAOS Clinician Scientist Traveling Fellow
1996–2006: American Board of Orthopaedic Surgeons – Oral Board Examiner

Publications

Regan EA, Flannelly JK, Bowler RP, Tran K, Duda B, Nicks M, Glueck D, Mason RM, Crapo Extracellular superoxide dismutase and oxidant damage in osteoarthritis. Arthritis Rheum. 2005;52(11)3479-3491.

Regan EA, Radcliff R, Henderson W, Cowper Ripley D, Maciejewski M, Vogel WB, Hutt E. Improving hip fracture outcomes for COPD patients. COPD. 2013;10(1):11-19.

Jaramillo J, Wilson C, Stinson DJ, Lynch DA, Bowler RP, Lutz S, Bon JM, Arnold B, MacDonald ML, Washko GR, Wan ES, DeMeo DL, Foreman MG, Soler X, Lindsey SE, Lane NE, Genant HK, Silverman EK, Hokanson JE, Make BJ, Crapo JD, **Regan EA.** Reduced Bone Density and Vertebral Fractures in Smokers: Men and COPD Patients at Increased Risk. Ann Am Thorac Soc. 2015;12 (5):648-56. PMID: 25719895.

Regan EA, Lynch DA, Curran-Everett D, Curtis JL, Austin JHM, Grenier PA, Kauczor H-U, Bailey WC, DeMeo DL, Casaburi RH, Friedman P, Van Beek EJR, Hokanson JE, Bowler RP, Beaty TH, Washko GR, Han MK, Kim V, Kim SS, Yagihashi K, Washington L, McEvoy CE, Tanner C, Mannino DM, Make BJ, Silverman EK, Crapo JD; for the COPDGene Investigators. Clinical and Radiologic Disease in Smokers with Normal Spirometry. JAMA Intern Med. 2015;175(9):1539-49. PMID: 26098755. PMCID: PMC4564354.

Suh YJ, McDonald ML, Washko GR, Carolan BJ, Bowler RP, Lynch DA, Kinney GL, Bon JM, Cho MH, Crapo JD, **Regan EA,** for the COPDGene Investigators. Lung, Fat and Bone: Increased Adiponectin Associates with the Combination of Smoking-Related Lung Disease and Osteoporosis. Chronic Obstr Pulm Dis. 2018;5(2):134-143.

Regan EA, Hersh CP, Castaldi PJ, DeMeo DL, Silverman EK, Crapo JD, Bowler RP. Omics and the search for blood biomarkers in COPD: Insights from COPDGene. Accepted AJRCMB.

View All Publications

Doctor's Contact Information

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