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Professional Profile

Dr. Jason Ryans has extensive expertise in regulatory affairs related to medical devices subject to regulation by the US FDA. His experience includes regulatory pathways, regulatory submissions, interpretation of FDA policies and guidance, and deep understanding of FDA's premarket processes. His experience has enabled him to provide meaningful insights across the medical device total product life cycle for a range of device types and disease conditions.

Dr. Ryans spent 7 years with the US FDA Center for Devices and Radiological Health focused on regulatory policy advising to medical device review staff regarding the interpretation of existing FDA guidance, regulations, and statutes. His experience also included regulatory policy development, industry education, and training of review staff on various topics. For example, he provided regulatory insights regarding digital health products, predetermined change control plans (PCCPs), and premarket submission pathways.

Dr. Ryans received a PhD in Biomedical Engineering from Tulane University where his research focused on computational modeling of micro and macro-scale mechanics of the respiratory system to investigate the pathophysiology of ventilator-induced lung injury. His research background provides strong understanding of biofluid mechanics, respiratory anatomy and physiology, and computational modeling.

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering, Tulane University, 2018

B.S.E., Biomedical Engineering, Mercer University, 2012

M.S.E., Biomedical Engineering, Mercer University, 2012

Prior Experience

Regulatory Policy Analyst, US FDA, CDRH, 2018-2025

Professional Affiliations

Food and Drug Law Institute (FDLI)

Publications

Ryans J, Fujioka H, Gaver D. Micro-scale to Meso-scale Analysis of Parenchymal Tethering: The Effect of Heterogeneous Alveolar Pressures on the Pulmonary Mechanics of Compliant Airways. Journal of Applied Physiology 2019.

Ryans J, Fujioka H, Halpern D, Gaver D. Reduced-dimension modeling approach for simulating recruitment/de-recruitment dynamics in the lung. Annals of Biomedical Engineering 2016; 44(12):3619-3631.

Fujioka H, Halpern D, Ryans J, Gaver D. Reduced-dimension mode of liquid plug propagation in tubes. Physical Review Fluids 2016; 1(5):053201.

Presentations

Ryans J, Fujioka H, Halpern D, Gaver D. A computationally tractable model of alveolar/airway interactions in the entire lung. 2017 BMES Annual Meeting, October 2017.

Ryans J, Fujioka H, Halpern D, Gaver D. Multi-scale modeling of parenchymal/airway interactions. 2016 BMES Annual Meeting, October 2016.

Ryans J, Fujioka H, Halpern D, Gaver D. Multi-scale modeling of liquid obstruction formation and clearance in the lung. 2015 BMES Annual Meeting, October 2015.

Ryans J, Fujioka H, Halpern D, Gaver D. Multi-scale modeling of liquid plug formation and clearance in the lung. Computational Fluid Dynamics (CFD) in Medicine and Biology II an ECI Conference Series, August 2015.

Ryans J, Fujioka H, Halpern D, Gaver D. Dynamic multi-scale model of the lung. 2014 BMES Annual Meeting, October 2014.

Ryans J, Fujioka H, Halpern D, Gaver D. Dynamic multi-scale model of the lung. 2014 World Congress of Biomechanics, July 2014.

Glindmeyer IV H, Ryans J, Pillert J, Smith B, Gaver D. Quantifying stress-induced pulmonary epithelial damage during airway reopening. 2013 BMES Annual Meeting, September 2013.

Ryans J, Welch B, Hyun S, Zhang Z, Kleinstreuer C. Variations in tracheobronchial airway morphology for different age groups. ASME 2010 Summer Bioengineering Conference, June 2010.