



## Reply: Experimental Acute Lung Injury in Animals: With Age Comes Knowledge

From the Authors:

We thank Schouten *et al.* for their letter concerning age as an important determinant in all four domains of experimental acute lung injury (ALI). We agree that age has a strong influence in humans on susceptibility to acute respiratory distress syndrome (1), and deserves more attention in the multidimensional approach to experimental ALI. There are also other important factors that affect susceptibility to acute respiratory distress syndrome including co-morbidities such as obesity (2), and risk modifiers such as cigarette smoking (3) and chronic alcohol consumption (4). The goal of our study was to revise and update the 2011 framework for measuring ALI (5), and therefore we did not include a discussion of the role of age, comorbidities, and other modifiers. However, we believe that the ALI framework proposed in our report allows modifiers such as age to be accurately investigated and reported in the context of different experimental ALI models (6). We fully agree with the authors that a close collaboration between pediatric and adult research programs will help better integrate mechanistic and clinical insights across the age spectrum, thereby enhancing bench-to-bedside translation. To that effect, we would encourage the investigation of modifiers of lung injury, specifically age, as a timely topic of a separate workshop. ■

**Author disclosures** are available with the text of this letter at [www.atsjournals.org](http://www.atsjournals.org).

Hrishikesh S. Kulkarni, M.D., M.S.C.I.\*  
Washington University School of Medicine  
St. Louis, Missouri

Janet S. Lee, M.D.  
University of Pittsburgh  
Pittsburgh, Pennsylvania

Gregory P. Downey, M.D.  
National Jewish Health  
Denver, Colorado

Gustavo Matute-Bello, M.D.  
University of Washington  
Seattle, Washington

and

VA Puget Sound Health Care System  
Seattle, Washington

ORCID IDs: 0000-0003-4830-5084 (H.S.K.); 0000-0002-6812-6043 (J.S.L.); 0000-0003-3253-5862 (G.P.D.); 0000-0001-6710-8495 (G.M.-B.).

\*Corresponding author (e-mail: [hkulkarn@wustl.edu](mailto:hkulkarn@wustl.edu)).

### References

1. Semler MW, Bernard GR, Aaron SD, Angus DC, Biros MH, Brower RG, *et al.* Identifying clinical research priorities in adult pulmonary and critical care: NHLBI working group report. *Am J Respir Crit Care Med* 2020; 202:511–523.
2. Gong MN, Bajwa EK, Thompson BT, Christiani DC. Body mass index is associated with the development of acute respiratory distress syndrome. *Thorax* 2010;65:44–50.
3. Calfee CS, Matthay MA, Kangelaris KN, Siew ED, Janz DR, Bernard GR, *et al.* Cigarette smoke exposure and the acute respiratory distress syndrome. *Crit Care Med* 2015;43:1790–1797.
4. Simou E, Leonardi-Bee J, Britton J. The effect of alcohol consumption on the risk of ARDS: A systematic review and meta-analysis. *Chest* 2018;154:58–68.
5. Matute-Bello G, Downey G, Moore BB, Groshong SD, Matthay MA, Slutsky AS, *et al.*; Acute Lung Injury in Animals Study Group. An official American Thoracic Society workshop report: features and measurements of experimental acute lung injury in animals. *Am J Respir Cell Mol Biol* 2011;44:725–738.
6. Kulkarni HS, Lee JS, Bastarache JA, Kuebler WM, Downey GP, Albaiceta GM, *et al.* Update on the features and measurements of experimental acute lung injury in animals: an official American Thoracic Society workshop report. *Am J Respir Cell Mol Biol* 2022;66:e1–e14.

Copyright © 2022 by the American Thoracic Society

■ This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License 4.0. For commercial usage and reprints, please e-mail Diane Gern.