

- 10 Elo IT, Martikainen P, Myrskylä M. Socioeconomic status across the life course and all-cause and cause-specific mortality in Finland. *Soc Sci Med* 2014;119:198–206.
- 11 Nandi A, Glymour MM, Subramanian SV. Association among socioeconomic status, health behaviors, and all-cause mortality in the United States. *Epidemiology* 2014;25:170–177.
- 12 Smith GD, Hart C, Blane D, Gillis C, Hawthorne V. Lifetime socioeconomic position and mortality: prospective observational study. *BMJ* 1997;314:547–552.
- 13 Lange P, Marott JL, Vestbo J, Ingebrigtsen TS, Nordestgaard BG. Socioeconomic status and prognosis of COPD in Denmark. *COPD* 2014;11:431–437.
- 14 Gershon AS, Hwee J, Victor JC, Wilton AS, To T. Trends in socioeconomic status-related differences in mortality among people with chronic obstructive pulmonary disease. *Ann Am Thorac Soc* 2014;11:1195–1202.
- 15 Gershon AS, Dolmage TE, Stephenson A, Jackson B. Chronic obstructive pulmonary disease and socioeconomic status: a systematic review. *COPD* 2012;9:216–226.
- 16 Eisner MD, Blanc PD, Omachi TA, Yelin EH, Sidney S, Katz PP, et al. Socioeconomic status, race and COPD health outcomes. *J Epidemiol Community Health* 2011;65:26–34.
- 17 Prescott E, Lange P, Vestbo J. Socioeconomic status, lung function and admission to hospital for COPD: results from the Copenhagen City Heart Study. *Eur Respir J* 1999;13:1109–1114.
- 18 Elmaleh-Sachs A, Balte P, Oelsner EC, Allen NB, Baugh A, Bertoni AG, et al. Race/ethnicity, spirometry reference equations, and prediction of incident clinical events: the Multi-Ethnic Study of Atherosclerosis (MESA) Lung Study. *Am J Respir Crit Care Med* 2022;205:700–710.
- 19 Donohue KM, Hoffman EA, Baumhauer H, Guo J, Budoff M, Austin JH, et al. Cigarette smoking and airway wall thickness on CT scan in a multi-ethnic cohort: the MESA Lung Study. *Respir Med* 2012;106:1655–1664.
- 20 Hoffman EA, Simon BA, McLennan G. State of the Art. A structural and functional assessment of the lung via multidetector-row computed tomography: phenotyping chronic obstructive pulmonary disease. *Proc Am Thorac Soc* 2006;3:519–532.
- 21 D'Souza ND, Reinhardt JM, Hoffman EA. ASAP: interactive quantification of 2D airway geometry. *Proc SPIE* 1996;2709:180–196.
- 22 Reinhardt JM, D'Souza ND, Hoffman EA. Accurate measurement of intrathoracic airways. *IEEE Trans Med Imaging* 1997;16:820–827.
- 23 Hankinson JL, Kawut SM, Shahar E, Smith LJ, Stukovsky KH, Barr RG. Performance of American Thoracic Society-recommended spirometry reference values in a multiethnic sample of adults: the Multi-Ethnic Study of Atherosclerosis (MESA) lung study. *Chest* 2010;137:138–145.
- 24 Hankinson JL, Odencrantz JR, Fedan KB. Spirometric reference values from a sample of the general U.S. population. *Am J Respir Crit Care Med* 1999;159:179–187.
- 25 McGinn EA, Mandell EW, Smith BJ, Duke JW, Bush A, Abman SH. Dysanapsis as a determinant of lung function in development and disease. *Am J Respir Crit Care Med* 2023;208:956–963.
- 26 Powell R, Davidson D, Divers J, Manichaikul A, Carr JJ, Detrano R, et al. Genetic ancestry and the relationship of cigarette smoking to lung function and per cent emphysema in four race/ethnic groups: a cross-sectional study. *Thorax* 2013;68:634–642.
- 27 Oelsner EC, Ortega VE, Smith BM, Nguyen JN, Manichaikul AW, Hoffman EA, et al. A genetic risk score associated with chronic obstructive pulmonary disease susceptibility and lung structure on computed tomography. *Am J Respir Crit Care Med* 2019;200:721–731.
- 28 Keller JP, Olives C, Kim SY, Sheppard L, Sampson PD, Szpiro AA, et al. A unified spatiotemporal modeling approach for predicting concentrations of multiple air pollutants in the multi-ethnic study of atherosclerosis and air pollution. *Environ Health Perspect* 2015;123:301–309.
- 29 Oelsner EC, Hoffman EA, Folsom AR, Carr JJ, Enright PL, Kawut SM, et al. Association between emphysema-like lung on cardiac computed tomography and mortality in persons without airflow obstruction: a cohort study. *Ann Intern Med* 2014;161:863–873.
- 30 Broer M, Bai Y, Fonseca F. A review of the literature on socioeconomic status and educational achievement. In: Broer M, Bai Y, Fonseca F, editors. Socioeconomic inequality and educational outcomes: evidence from twenty years of TIMSS. Cham: Springer International Publishing; 2019. pp. 7–17.
- 31 Rocha V, Soares S, Stringhini S, Fraga S. Socioeconomic circumstances and respiratory function from childhood to early adulthood: a systematic review and meta-analysis. *BMJ Open* 2019;9:e027528.
- 32 Cook Q, Argenio K, Lovinsky-Desir S. The impact of environmental injustice and social determinants of health on the role of air pollution in asthma and allergic disease in the United States. *J Allergy Clin Immunol* 2021;148:1089–1101.e5.
- 33 Kravitz-Wirtz N, Teixeira S, Hajat A, Woo B, Crowder K, Takeuchi D. Early-life air pollution exposure, neighborhood poverty, and childhood asthma in the United States, 1990–2014. *Int J Environ Res Public Health* 2018;15:1114.
- 34 Turner S. Birth cohort studies: their next coming of age. *Am J Respir Crit Care Med* 2020;202:1612–1614.

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Specialists in Chronic Respiratory Failure Should Serve More than Just Ventilator-Dependent Patients

To the Editor:

Cao and colleagues have suggested a subspecialty that addresses the needs of people with chronic ventilatory failure (1). This is an important and neglected population that deserves focus on research and translation of salient findings into clinical practice and policies.

Most people with chronic respiratory insufficiency do not need mechanical ventilation. The population covered by this proposed

subspecialty needs to be broader to realize its full benefits. All people with chronic respiratory insufficiency have long-term physical symptoms (especially pathological breathlessness and fatigue) (2, 3); psychological (depression, anxiety) and social consequences (isolation, fear of being a burden); and existential suffering, which they experience daily and live with most often for years, or even decades (4). The population served by respiratory clinicians today comprise large numbers of such patients whose chronic problems are mostly underrecognized and, even when recognized, are frequently not addressed (5). In the vast field of pulmonology, physicians alone are unable to address all the needs of these patients and their families.

The proposal does not encompass the breadth of this population or the burden of illness experienced. Cao and colleagues speak of “ventilatory failure” rather than “respiratory insufficiency,” or just oxygenation failure, whether continuous or just ambulatory (1). The authors understandably advocate for “continuity (of) care,” but their proposal neglects the fact that chronic respiratory diseases

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lead to chronic respiratory insufficiency through a long continuum during which people experience increasing symptom burden and appreciable disability long before they may become dependent on a machine. Such disability starts as early as populations reporting Level 1 of the modified Medical Research Council breathlessness scale (6), even when all underlying causes are optimally treated. This definition moves beyond someone having “chronic ventilatory insufficiency” because of their imminent or current reliance on a machine.

Even when people are mechanically ventilated, most would be able to describe breathlessness as “the symptom that conveys an upsetting or distressing awareness of breathing” [page 3; (7)]. Sadly, mechanical ventilation is no protection against breathlessness when approximately half of those who receive ventilatory support experience breathlessness (7). Also consider people with ventilatory failure who have periods when they are not mechanically ventilated who often describe periods of catastrophic breathlessness (8). This “pathologic breathlessness” (associated with a fear of dying) cannot be compared in any way with the breathlessness that one experiences when voluntarily exercising beyond one’s capacity.

A person who can barely leave his or her armchair (with or without the use of long-term oxygen therapy) would be excluded from the subspecialty advocated by Cao and colleagues because of their restrictive definition. Many people will never qualify for long-term domiciliary oxygen therapy or home mechanical ventilation, yet their chronic respiratory insufficiency profoundly limits them.

As such, the proposal by Cao and colleagues may be strengthened substantially if the definition were broadened to encompass people with chronic respiratory disease. The skill set of the teams providing care would be dictated by the needs of patients *and their families* and, therefore, move beyond only a technical response (important as that is) to a multidimensional model of care that incorporates the myriad of currently unmet needs experienced by a huge number of people globally in low-, middle-, and high-income countries. So, interprofessional teams are needed, including allied healthcare professionals, social workers, nurses, and palliative care specialists, along with the proposed respiratory subspecialist. Moreover, close collaboration with the person’s family physician and community nurse is needed, as well as with healthcare professionals addressing the frequently present comorbidities.

Ultimately, there is an urgent need to create a “chronic respiratory insufficiency” subspecialty to care for people—patients and their families. A sub-subspecialty should include the training and technical skills for managing people’s mechanical or noninvasive ventilation as part of providing care to people with “chronic respiratory insufficiency.” ■

Author disclosures are available with the text of this letter at www.atsjournals.org.

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References

- 1 Cao M, Katz SL, Hansen-Flaschen J. Roadmap for advancing a new subspecialty in pulmonary medicine devoted to chronic respiratory failure. *Ann Am Thorac Soc* 2024;21:692–695.
- 2 Serresse L, Guerder A, Dedonder J, Nion N, Lavault S, Morélot-Panzini C, et al. ‘You can’t feel what we feel’: multifaceted dyspnoea invisibility in advanced chronic obstructive pulmonary disease examined through interpretative phenomenological analysis. *Palliat Med* 2022;36:1364–1373.
- 3 Dedonder J, Gelgon C, Guerder A, Nion N, Lavault S, Morélot-Panzini C, et al. “In their own words”: delineating the contours of dyspnea invisibility in patients with advanced chronic obstructive pulmonary disease from quantitative discourse analysis. *Respir Res* 2024;25:21.
- 4 Johnson M, Bowden J, Abernethy AP, Currow DC. To what causes do people attribute their chronic breathlessness? A population survey. *J Palliat Med* 2012;15:744–750.
- 5 Ahmadi Z, Sandberg J, Shannon-Hanson A, Vandersman Z, Currow DC, Ekström M. Is chronic breathlessness less recognized and treated compared with chronic pain? A case-based randomised controlled trial. *Eur Respir J* 2018;52:1800887.
- 6 Kochovska S, Ferreira D, Chang S, Brunelli V, Morgan D, Similowski T, et al. Disability and long-term breathlessness: a cross-sectional, population study. *BMJ Open Respir Res* 2024;11:e002029.
- 7 Demoule A, Decavele M, Antonelli M, Camporota L, Abroug F, Adler D, et al. Dyspnoea in acutely ill mechanically ventilated adult patients: an ERS/ESICM statement. *Eur Respir J* 2024;63:2300347.
- 8 Morélot-Panzini C, Perez T, Sedkaoui K, de Bock E, Aguilaniu B, Devillier P, et al. The multidimensional nature of dyspnoea in amyotrophic lateral sclerosis patients with chronic respiratory failure: air hunger, anxiety and fear. *Respir Med* 2018;145:1–7.

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