

Chronic Obstructive Pulmonary Diseases: Journal of the COPD Foundation



Editorial

Increasing Awareness of COPD: Two Steps Forward, One Step Back

Kenneth R. Chapman, MD, MSc¹

Abbreviations: chronic obstructive pulmonary disease, **COPD**; COPD Genetic Epidemiology, **COPDGene**

Citation: Chapman KR. Editorial. Increasing awareness of COPD: two steps forward, one step back. *Chronic Obstr Pulm Dis.* 2018;5(4):228-230. doi: <https://doi.org/10.15326/jcopdf.5.4.2018.0154>

¹ University of Toronto and Asthma & Airway Centre, University Health Network, Toronto, Ontario

Address correspondence to:

Kenneth R. Chapman,
Asthma & Airway Centre
University Health Network
University of Toronto
Room 7-451 East Wing, 399 Bathurst Street
Toronto, Ontario M5T 2S8
Phone: 416-603-5499
Email: ken.chapman.airways@gmail.com

Keywords:

chronic obstructive pulmonary disease, COPD; awareness; underdiagnosis; gender bias; racial bias

Introduction

The ritual is as familiar as the national anthem before sporting events or seatbelt demonstrations before airline flights. All chronic obstructive pulmonary disease (COPD) research, it seems, must be prefaced by the formulaic recitation of the disease's growing importance. It's common, we say. It's becoming more common, we state. It's soon to be the third most common cause of death on the planet, we estimate. It is only after we've chanted these frequently stated basics that we feel able to address the specifics of our latest research. I'm sure this isn't unique to pulmonary medicine and that all specialists assure their audiences that what follows is of considerable importance. But I suspect we pulmonary physicians, especially those of us with an interest in COPD, feel a special need to justify our disease-related efforts. After all, it was not

until recently that we began to distinguish COPD clearly from asthma, writing separate guidelines for each and undertaking studies using disease-specific endpoints. Yet decades after this distinction, our surveys tell us that COPD is typically overlooked in primary practice and spirometry is seldom done.

In the July issue of the *Journal of the COPD Foundation*, [Mamary and colleagues](#)¹ offer an update on these diagnostic trends using data from the large COPD Genetic Epidemiology (COPDGene®) cohort. Like most good research, the report raises at least as many questions as it answers. There were 2 major findings. First, in contrast to earlier reports, men with COPD were more likely to be underdiagnosed than women. Second, African-Americans were more likely to be underdiagnosed than whites.

Their observation of gender bias is intriguing; it appears to indicate a reversal of the gender bias we first described in 2001.² At that time, we found that women were less likely to be considered as possible COPD sufferers when compared to men. We documented this bias by asking physicians to consider their approach to a hypothetical smoker presenting with breathlessness. We used 2 versions of this scenario, 1 male and 1 female, and presented them in random fashion to the physicians. We learned 3 important lessons. First, physicians were unlikely to request spirometry in their workup of a smoker with breathlessness. Second, they were less likely to consider COPD as a possibility in women as compared to men. Third, this gender disparity disappeared when spirometry was provided to the physicians. Subsequent studies showed that this gender bias was not limited to North America.³ Soon

after our findings were reported, continuing medical education programs began to use female patients in COPD examples and pharmaceutical advertising began to use pictures of middle-aged and older women suffering from the disorder. It's tempting to view the current findings as a successful resolution of an earlier gender bias problem. This viewpoint would attribute the relative under diagnosis of COPD in men as the residual consequence of traditional discrepancies in health care utilization between the sexes - men don't use the health care system in the same way as women. However, Mamary and colleagues' analysis of the data does not allow them to consider an alternative explanation - that fewer missed diagnoses amongst women may not mean greater diagnostic accuracy but simply a non-specifically increased index of suspicion for COPD amongst physicians. Spirometry remains underused and many diagnoses of COPD in primary care are based solely upon symptoms and a smoking history or a chest x-ray report spuriously noting "hyperinflation". In short, has our recent increased attention to COPD diminished the underdiagnosis problem at the cost of more frequent overdiagnosis? Personal observations suggest that this is a growing cause for concern. Early in my career, I was astonished to see octogenarian pink puffers referred for assessment of their "asthma". Now I see millennials with little or no tobacco smoke exposure referred for assessment of their "COPD". But one need not rely on anecdote to be concerned. There is ample research evidence that overdiagnosis is a substantial problem in primary practice. Studies from the United Kingdom, the Netherlands, Australia, New Zealand and Canada place the prevalence of COPD overdiagnosis at between 30% and 60%.⁴⁻⁸ That is, up to 60% of patients receiving COPD treatment in primary care may not have obstructive spirometry that supports such a diagnosis. The fact that many patients receiving inhaled therapy for COPD don't have it is at best wasteful and at worst means that other important diagnoses are being missed. When teaching new house staff in my institution about an approach to COPD, I can assure them that the new patient presenting from primary practice and reporting a physician diagnosis of COPD is more likely to have normal spirometry than obstructive spirometry.

The underdiagnosis of COPD amongst African-Americans is an important observation. Clearly, we must remedy this oversight so that the neglected

population enjoys the benefit of emerging and effective COPD therapies. But an important underlying message is in the discussion of these findings offered by Mamary and colleagues. Quite sensibly, they identify this underdiagnosis most likely reflects a lack of access to health care. They argue gently but firmly that self-identification with the African American race remains associated with socioeconomic challenges. That this is the obvious explanation for their findings makes their statement no less profound. Not long ago, increased mortality in a subset population of the Salmeterol Multicenter Asthma Research Trial, or SMART study, apparently led the Food and Drug Administration to consider African-Americans pharmacogenetically vulnerable to adverse effects from what is considered a highly effective therapy in the general population.⁹ Mamary and colleagues have rightly focused on social determinants of health as the issue at hand. One wonders when, in this era of "personalized medicine", we will drop the outmoded categories of continental race for more discerning and predictive information.

There is little doubt that as we continue to harvest the consequences of 20th century tobacco smoking, the prevalence of COPD is increasing.¹⁰ But as we share this perspective with our non-specialist colleagues, we must be sure that we don't simply increase the number of diagnoses but improve their accuracy. If the means to accomplish this is more frequent use of objective measurements, we can expect less and less diagnostic bias and more even-handed access to effective care.

References

1. Marmy AJ, Stewart JI, Kinney GL, et al. Race and gender disparities are evident in COPD underdiagnoses across all severities of measured airflow obstruction. *Chronic Obstr Pulm Dis.* 2018;5(3):177-184.
doi: <http://dx.doi.org/10.15326/jcopdf.5.3.2017.0145>
2. Chapman KR, Tashkin DP, Pye DJ. Gender bias in the diagnosis of COPD. *Chest.* 2001; 119(6):1691-1695.
doi: <https://doi.org/10.1378/chest.119.6.1691>
3. Miravittles M, de la Roza C, Naberan K, et al. Problemas con el diagnóstico de la EPOC en atención primaria. [Attitudes toward the diagnosis of chronic obstructive pulmonary disease in primary care] *Arch Bronconeumol.* 2006;42(1):3-8. Spanish.
doi: <https://doi.org/10.1157/13083272>
4. Walters JA, Walters EH, Nelson M, et al. Factors associated with misdiagnosis of COPD in primary care. *Prim Care Respir J.* 2011; 20:396-402. doi: <https://doi.org/10.4104/pcrj.2011.00039>
5. Starren ES, Roberts NJ, Tahir M, et al. A centralised respiratory diagnostic service for primary care: a 4-year audit. *Prim Care Respir J.* 2012;21:180-186.
doi: <https://doi.org/10.4104/pcrj.2012.00013>
6. Bischoff EW, Akkermans R, Bourbeau J, van Weel C, Vercoulen JH, Schermer TR. Comprehensive self-management and routine monitoring in chronic obstructive pulmonary disease patients in general practice: randomised controlled trial. *BMJ.* 2012; 345:e7642. doi: <https://doi.org/10.1136/bmj.e7642>
7. Lucas AE, Smeenk FJ, Smeele IJ, van Schayck OP. Diagnostic accuracy of primary care asthma/COPD working hypotheses, a real-life study. *Respir Med.* 2012;106(8):1158-1163.
doi: <https://doi.org/10.1016/j.rmed.2012.03.002>
8. Gershon AS, Hwee J, Chapman KR, et al. Factors associated with undiagnosed and overdiagnosed COPD. *Eur Respir J.* 2016; 48(2):561-564.
doi: <https://doi.org/10.1183/13993003.00458-2016>
9. Nelson HS, Weiss ST, Bleecker ER, Yancey SW, Dorinsky PM. The Salmeterol Multicenter Asthma Research Trial: a comparison of usual pharmacotherapy for asthma or usual pharmacotherapy plus salmeterol. *Chest.* 2006;129(1):15-26.
doi: <https://doi.org/10.1378/chest.129.1.15>
10. Chapman KR, Mannino DM, Soriano JB, et al. Epidemiology and costs of chronic obstructive pulmonary disease. *Eur Respir J.* 2006;27(1):188-207.
doi: <https://doi.org/10.1183/09031936.06.00024505>