Chronic obstructive pulmonary disease (COPD) is a major cause of morbidity and mortality across the globe. According to World Health Organization estimates, 65 million people have moderate to severe COPD. More than 3 million people died of COPD in 2005 corresponding to 5% of all deaths globally and it is estimated to be the third leading cause of death by 2030.\[1,2,3\] Most of the information available on COPD prevalence, morbidity and mortality comes from high-income countries. Even in those countries, accurate epidemiologic data on COPD are difficult and expensive to collect. However, it is known that low- and middle-income countries already shoulder much of the burden of COPD with almost 90% of COPD deaths taking place in these countries.\[2,3\] In this issue of Lung India, the joint ICS/NCCP (I) consensus guidelines for the diagnosis and management of COPD have been published\[4\] to facilitate the Indian practitioner in burden reduction, diagnosis and management of COPD.

Developing countries are changing fast. Socio-economic development, industrialization, urbanization, changing age structure, and changing lifestyles have the countries at a position where they are facing an ever increasing burden of non-communicable diseases (NCD).\[5\] In India NCDs were estimated to have accounted for 53% of all deaths and 44% of disability-adjusted life-years (DALYs) lost in 2005. Of these chronic respiratory disease accounted for 7% deaths and 3% DALYs lost\[6\] India also has had the ignominy of experiencing the “highest loss in potentially productive years of life” worldwide in 2005.\[5\] Crude estimates suggest there are 30 million COPD patients in India,\[8\] India contributes a significant and growing percentage of COPD mortality which is estimated to be amongst the highest in the world; i.e. more than 64.7 estimated age standardized death rate per 100,000 amongst both sexes. This would translate to about 556,000 in case of India (>20%) out of a world total of 2,748,000 annually.\[3\] Such mammoth volumes of disease have the potential to overwhelm health systems and state economies.

One has, however, to recognize that prevalence estimates in COPD are not totally accurate. Several epidemiological studies have addressed the prevalence of COPD in India, the limiting issue in these being the methodology adopted and the definitions employed for diagnosis. Most of the studies have been unvalidated questionnaire based, supplemented on occasion by measurement of peak flows. The reported prevalence estimates have ranged from 2 to 22% in men and from 1.2 to 19% in women.\[9\] The recent ‘Indian Study of Asthma, Respiratory Symptoms and Chronic Bronchitis’ (INSEARCH) study of 85,105 men and 84,470 women from 12 urban and 11 rural sites reported the prevalence of chronic bronchitis to be 3.49% (4.29% in males and 2.7% in females) in adults > 35 years.\[10\] The national burden was thus estimated to be 14.84 million. However, since the study was questionnaire based and spirometry poorly correlates with symptoms, this study might have missed asymptomatic individuals with significant spiromteric abnormalities. Recently investigators from Pune conducted a COPD prevalence study using post-bronchodilator spirometry in addition to the questionnaire and reported a nearly 2-fold higher prevalence.\[11\] In another collaborative study with Burden of Lung Disease (BOLD) investigators using BOLD protocol, the prevalence of Stage1 or higher COPD in participants > 40 years of age based in rural Kashmir was found to be 19.3%. (Koul PA. personal communication). Thus preliminary data emerging from the country is suggestive of higher true burden of COPD than is currently believed.

Smoking is by far recognized to be the most important risk factor for development of COPD. Smoking behaviors in India are also peculiar with a large number of people using non conventional form of tobacco in hookah, bidi, or chillum. Traditionally these forms of tobacco have been believed to be innocuous because of a variety of reasons like passage of smoke through water in case of hookah. Recent studies have, however, dispelled these misperceptions.\[12,13\] Lung cancer has been found to be nearly 6-times common in hookah smokers compared to non-smokers,\[12\] and Chillum smoking has been demonstrated to result in much higher increase in end tidal carbon monoxide levels than cigarette smoking,\[13\] testifying to its injurious potential.

Exposure to biomass fuels like crop residues or woods or animal dung is also widely prevalent in India. More than one-half of the world’s households uses biomass fuels
and a significant proportion of this activity takes place in conditions where much of the effluent is released into the indoor living area. This is more common in cold climates and hilly terrains where cold temperatures force a heavier exposure in poorly ventilated dwellings. Women, who do most of the cooking for households in rural villages, are the most affected. Biomass fuels are now considered a major cause of the causation of COPD and could be the single most common cause of COPD in the world. In India, 70% of the homes use biomass fuel for cooking and heating purposes in poorly ventilated kitchens, and the amount of particulate matter pollution generated by the burning of biomass fuel is extremely high. Ninety percent of rural households and 32% of urban households cook their meals on a biomass stove, with only 25% of the cooking being done with cleaner gases. Exposure to biomass smoke thus becomes a major risk factor for COPD in India. Mosquito coils used in homes to get rid of mosquitoes are another source of exposure in Indian homes; burning of one mosquito coil in the night capable of emitting particulate matter equivalent to those with around 100 cigarettes.

Apart from the issues in reliable epidemiology, peculiar problems remain in the diagnosis, management and follow-up of Indian COPD patients. Lack of awareness of the disease, its symptoms or implications contribute significantly in preventing people at risk from seeking help from their primary care physicians or eliminating risk factors. Even when a person with symptoms does present to general practitioners, levels of under-diagnosis are high. Spirometries are not routine and diagnosis is largely symptom based. Prescription of inhalational devices is attributed to the ‘terminal stage’ of the disease and such devices carry a virtual stigma in rural settings. Additionally, a good majority gets treated by local ‘hakims’, practitioners of alternative medicine and faith-healers; who not infrequently dispense harmful and toxic agents that have at times included steroids.

Against this backdrop of a myriad of peculiarities of COPD in Indian setting, the guidelines are indeed welcome as an important step towards the goal of providing an equitable management strategy for patients with COPD and to reducing the burden of disease by changing people’s behaviour, by stopping people getting COPD, for those at risk to mitigate their risky behaviours and by ensuring that those who may have COPD understand the symptoms to present themselves to a healthcare professional for assessment.

All guidelines aim to improve health care processes and outcomes through minimization of practice variation, and optimization of resources. They are aimed to be utilized in busy practices to ensure scientifically valid outcomes. However, guidelines alone cannot improve patient care. Physicians must be committed to guideline dissemination and implementation for patient outcomes to improve. The three-part mission of COPD guidelines includes systematic development, dissemination, and implementation. The developers have done their job commendably and ‘Lung India’ has provided the ideal forum for wide dissemination. Nevertheless, an even greater dispersion to primary care physicians and general practitioners remains a challenge. Although most guideline developers have not created effective implementation strategies, a guideline based approach will ensure minimization of the variability of care and perhaps a better outcome for our patients. Even though the guidelines approach has not clearly been found to translate into improved respiratory health, in places of diverse clinical practice like India, guidelines have an immense potential for minimizing errors and optimizing evidence based management. With the surge in current overall awareness of COPD in the country, the guidelines highlighting the Indian perspective could perhaps not have come at a more opportune time. How well our patients do in future depends on how effectively physicians can incorporate these guidelines into their everyday clinical practices.

Pat the development and the dissemination; the ball for implementation is in our court.

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