

The clinical literature supporting the benefit of lung cancer screening is robustly growing, most recently resulting in a European statement supporting efforts towards implementation of lung cancer screening (1). Therefore it is timely to package a comprehensive survey of recent international publications addressing issues across the complex spectrum of activities related to the optimal delivery of lung cancer screening services (2). This complements another dedicated focused issue on lung cancer screening, that I had the pleasure of editing with my colleague, Prof W. Rzyman that also contains important relevant screening information (3). For clinicians, the prospect of markedly increasing the cure rate of early detected lung cancer is highly motivating; however, the responsibility of properly attending to the complexity inherent in consistently delivering an optimal screening process is a critical. Fortunately, we have many independent examples of superb screening results (4-6).

As China begins to implement lung cancer screening, at least in centers of excellence, screening professionals have a profoundly important opportunity, to help the vast numbers of Chinese who have accrued significant tobacco-exposure. At the same time, the existing international experience has exposed the degree of difficulty in transitioning from a symptom-detected lung cancer care community to a more public health-oriented CT screening approach. However, even though the approaches are very different, this is an essential transition as the use of low-dose CT screening in asymptomatic high risk populations can more routinely identify early, curable lung cancer. Fortunately, existing best-practice screening approaches are efficient and economically if done correctly (7). In addition, emerging opportunities exist to further optimize the imaging processes to sustain the continuous improvement of the screening process (8,9). Yet, the greatest improvement with improving screening efficiencies will be obtained, as we learn how to better integrate smoking cessation approaches as the smoking rates in China while sharply declining, remain relatively high (10).

Given the vast tobacco consumption in China, the burden of potential premature lung cancer deaths is matched by corresponding potential for premature deaths from tobacco-related coronary artery disease and chronic obstructive lung cancer (8). Both of these major chronic diseases are routinely found in the lung cancer screening CT scans of asymptomatic heavy smokers. Accordingly, large numbers of tobacco-exposed disease will be detected through screening, but the cost implications can be economically managed since the most efficacious interventions, smoking cessation, improving diet, increasing physical activity and statin therapy can be economically implemented across large populations. Therefore the cost and debility of advanced tobacco-related disease can be adaptively preempted in an efficient and socially beneficial fashion. Success in such a remarkable approach will require unprecedented levels of interdisciplinary collaboration. In reading these new publications, it is important to consider such a favorable future state in considering current efforts with lung cancer screening implementation so we can rapidly evolve such that the vast potential health benefits of the early tobacco-related disease management can actually be realized.

References

1. Oudkerk M, Devaraj A, Vliegenthart R, et al. European position statement on lung cancer screening. *Lancet Oncol* 2017;18:e754-e766.
2. Song Y, Folch E, Rocco G, Popper HH. editors. *Pulmonary Nodules and Lung Cancer*. 1st edition. Hong Kong: AME Publishing Company, 2017.
3. Rzyman W, Mulshine JL. Lung cancer screening moving forward. *Ann Transl Med* 2016;4:149.
4. Henschke CI, Li K, Yip R, et al. The importance of the regimen of screening in maximizing the benefit and minimizing the harms. *Ann Transl Med* 2016;4:153.
5. Horeweg N, Scholten ET, de Jong PA, et al. Detection of lung cancer through low-dose CT screening (NELSON): a prespecified analysis of screening test performance and interval cancers. *Lancet Oncol* 2014;15:1342-1350.
6. Field JK, Duffy SW, Baldwin DR, et al. UK Lung Cancer RCT Pilot Screening Trial: baseline findings from the screening arm provide evidence for the potential implementation of lung cancer screening. *Thorax* 2016;71:161-170.
7. Villanti AC, Jiang Y, Abrams DB, et al. A cost-utility analysis of lung cancer screening and the additional benefits of incorporating smoking cessation interventions. *PLoS One* 2013;8:e71379.
8. Mulshine JL, D'Amico TA. Issues with implementing a high-quality lung cancer screening program. *CA Cancer J Clin* 2014;64:352-363.
9. Mulshine JL, Gierada DS, Amato SG, et al. Role of the Quantitative Imaging Biomarker Alliance in optimizing CT for the

XIV

evaluation of lung cancer screen-detected nodules. *J Am Coll Radiol* 2015;12:390-395.

10. Mulshine JL, Heaton C. Tobacco control since the 1964 surgeon general's report: Reflecting back and looking forward. *Oncology (Williston Park)* 2014;28:180, 182-3, 210.

James L. Mulshine, MD

Rush University, 600 S. Pauline St, Suite 438, Chicago, IL 60612, USA.

(Email: jmulshin@rush.edu)