# Comments on the Proposed New International Lymph Node International Association for the Study of Lung Cancer Map

***To the Editor:***

We are all grateful to Rusch et al.[1] for their effort to develop a new nodal map for staging lung cancer, dividing the levels according to landmarks that would be easier to be identified by surgeons and by radiologists. As described in their article, the necessity of a new unified nodal map becomes obvious with the historical review and the difficulties they found when trying to compare data from lung cancer patients staged using the previously available Naruke's and Mountain-Dressler ATS maps.

The illustrations of Dr. Annie Frazier for the new International Association for the Study of Lung Cancer map are very beautiful. We like to congratulate her for her efforts in translating this complex anatomy into drawings. However, considering that the map is to be accepted and used worldwide, it should be anatomically precise, and the corresponding article and the drawings should be universally accessible, without copyright limitations. Additionally, without diminishing the excellence of their work, we like to make few observations on the anatomic details that should be reviewed:

1. In the text, the authors refer to the pulmonary trunk as "main pulmonary artery," and in the drawings, it is abbreviated as "mPA." According to the Federative Committee on Anatomic Terminology,[2] the correct denomination is pulmonary trunk.
2. Some characteristics of the airways have not been preserved. In particular, the proportion among the length of the main bronchi, the length of the upper lobe bronchi, the ramification of the left upper lobe bronchus, and the length, orientation, and order of appearance of the segmental bronchi. Some nodal stations are demarcated by division of the airways, so the map needs to be accurate. Also, we will be using the map on a daily basis, for the next 7 years, to teach our trainees and medical students. We would not like to be pointing out the imperfections or would we like them to have a distorted impression of the anatomy.
3. The article proposes that the subcarinal nodal station (level 7) is delimited by the tracheal carina and the lower border of the bronchus intermedius on the right and by the upper border of the left lower lobe bronchus on the opposite side. Reviewing the drawings, there are subcarinal nodes below the level of the upper aspect of the left lower lobe bronchus (refer to the Fig. 3 in the original article[1]).
4. The definition of new boundaries to the level 10 nodes (hilar nodes) is of a major concern. Pulmonary hilum is defined as the depression in the medial surface of a lung (not of the mediastinum), through which pass the bronchus, vessels, and nerves. Radiologists have been using the term pulmonary hilum as a portion of the lungs. The radiologic hilum is defined as the composite shadow of the main pulmonary arteries, veins, and lymph nodes in the lung root, adjacent to the anatomic hilum, which is the actual opening of the mediastinal pleura for the passage of these structures. According to the proposed new boundaries, the concept of hilum has been misrepresented, and some hilar nodes are now within the mediastinum, within the boundaries of the mediastinal pleura, and not in the hilum of the lungs. With all respect to the group who put this huge effort into defining the new nodal map, this concept of "pulmonary hilum within the mediastinum" needs to be reviewed.

We hope you find our suggestions pertinent.

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2. Federative Committee on Anatomical Terminology. Terminologia Anatomica: International Anatomical Terminology. Stuttgard, Germany: Thieme, 1998. Pp. 78.

***In Response:***

Irion et al. raise several issues regarding nomenclature in our recently published article describing the proposed new international IASLC lymph node map. Our responses to their points are as follows:

1. We understand that the recommended nomenclature for the main pulmonary artery in the source cited by Irion et al. is "pulmonary trunk." However, this is not a term commonly used by clinicians or radiologists. We have chosen to use terminology widely accepted in clinical practice.
2. and 3. The figures provided for the lymph node map are intended to serve as an illustrative guide for clinicians and radiologists. Dr. Frazier was especially well positioned to do these illustrations because she is a practicing radiologist as well as a medical illustrator. Her final illustrations were based on a more schematic version of the lymph

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node map developed by the Department of Medical Graphics at Memorial Sloan-Kettering Cancer Center in collaboration with Drs. Rusch and Asamura and members of the IASLC Staging Committee. Poster size versions of both Dr. Frazier's illustrations and the earlier Memorial Sloan-Kettering Cancer Center version of the lymph node map along with other educational materials relevant to the new lung cancer staging system are now easily available through the web site of the IASLC (www.iaslc.org). Irion et al. will be able to appreciate on these magnified versions of the map that the boundaries of the subcarinal lymph nodes correspond to those described in the table accompanying the map. However, no illustration can fully portray the complicated three-dimensional anatomy of the lung, pulmonary vessels, and mediastinum. Therefore, we encourage physicians to refer to the table of anatomic definitions for the lymph node stations included in our article.

4. The boundaries between lymph node stations 7 and 10 have long been a source of controversy, especially among thoracic surgeons. Indeed, it was this very issue that led to the major discrepancy in nodal staging between the cases submitted to the IASLC database from Japan as opposed to those from other countries. We would again refer Irion et al. to the table of anatomic definitions in our article to clarify the issue of the boundaries between lymph node stations 7 and 10. Station 10 lymph nodes are not in the mediastinum. Again, the two-dimensional anatomy of medical illustrations or even of computed tomography scans often does not allow a full understanding of the three-dimensional anatomy of the patient. A trip to the operating room to see the actual anatomy of these areas and the boundaries of various lymph node stations as demonstrated by a thoracic surgeon who performs systematic lymph node dissection can be very instructive. Accessing the station 7 lymph nodes requires incising the mediastinal pleura, whereas accessing the station 10 lymph nodes does not.

We appreciate the interest of Irion et al. in our work and their thoughtful review of our article.

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