

Molecular testing of lung cancer: Trends and implications in pathology residency with practice.

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Abstract

This study examines how pathology graduate medical education prepares its graduates for practice using data from a 4-year series of surveys of newly practicing pathologists and a survey of physicians who employ newly practicing pathologists. By comparing results across multiple practice environments, sizes, and periods of practice, we build evidence supporting the value of residency training for a variety of practice areas using the technique outlined in our prior work. Newly practicing pathologists and their employers report that residency generally prepared them well for practice, but certain areas—billing and coding, laboratory management, molecular pathology, and pathology informatics—repeatedly emerged as being crucial in practice but underprepared for in residency.

Keywords: Lung cancer, Molecular testing, Practice pathology.

Introduction

The Summit attendees came to agreement on the following key points: the demand for pathology services will change, new technology and new health care delivery systems will change pathology practice, and there was a potential quantitative mismatch between graduating trainees entering practice and pathologists leaving the work.

In the People's Republic of China, lung cancer is the primary reason for cancer-related morbidity and mortality. Targeted therapy for lung cancer patients have increased survival compared to earlier medicines because they depend on the precise identification of an actionable genetic mutation. However, there is a dearth of information on the many molecular testing methods frequently employed in the People's Republic of China and how they have evolved over time. We looked at the overall development of lung cancer molecular testing in the People's Republic of China's Mainland over the previous ten years [1].

We carried out a stratified random sampling survey for lung cancer molecular testing in hospitals in the People's Republic of China's mainland. East, north, south, centre, northeast, northwest, and southwest were the first seven geographic divisions made for the nation. We calculated the sample size of hospitals in each geographic region weighted by the number of lung cancer patients detected by the "China Cancer Registry Annual report" in order. An approach created by the Taskforce is transferable to medical education for different specialties. We have previously discussed this. The particular findings on pathology resident

training from four years of data collecting are presented in this publication. This report examines how well pathology residency programmers now prepare pathologists to enter the workforce with the necessary knowledge. Additionally, it offers comparisons between several groups of newly licensed pathologists based on their practice environment, years of licensure, and how subspecialized or generic their practice. The requirements for pathology training were established by two main organizations [2]. While the AB-Path sets the standards for individual pathology practitioners' certification, the Accreditation Council for Graduate Medical Education (ACGME) defines the requirements for accreditation of pathology training programs. Although both the organization and the substance of training are addressed by each entity, the ACGME is more trainee and programmer focused than the AB-Path is. The implicit content area benchmarks for pathology training are now provided by the ACGME program criteria and AB-Path examination blueprints; however there is some curricular heterogeneity. Here, we use our previously published technique to evaluate the preparation pathology Graduate Medical Education (GME) graduates receive for their future careers [3].

From 2010 to 2019, temporal trends in EGFR mutation testing were calculated. With a 42.3% average annual growth rate, the annual number of EGFR mutation testing rose over time. Among these, 188,249 formalin-fixed, paraffin-embedded tumor tissues and 23,761 specimens were examined using quantitative reverse transcriptase polymerase chain reaction (qRT-PCR) techniques. From 2012 to 2017, more EGFR mutation testing was performed using qRT-PCR than in

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other ways, with a smooth increasing trend beginning in 2017. From 2015 to 2019, there was a dramatic increase in the percentage of EGFR mutation tests performed using NGS, with an annual growth rate of 245%. Following the original CC survey in 2014–2015, a few small adjustments were made. The terms "Hematopathology" and "Hematology," which were used in 2014–2015, have since been defined as "Laboratory Hematology," respectively. The "Next Generation Sequencing" (NGS) practice area was added as well [4].

Employers can quickly assess whether their staff members need extra training (positive) or are appropriately trained (neutral), but they cannot tell whether their staff members may have received more training than necessary in any particular practice area. The scale used by employers, which only covers the range from additional (positive) training required to appropriate (neutral) training, is thus naturally reduced when compared to that of newly practicing pathologists. As a result, in every area, employers' responses are numerically better than those of newly practicing pathologists. Despite this inherent scale mismatch, the important conclusion is that the employers' responses closely resemble those of the new pathologists in practice [5].

Conclusion

We encourage examined the rate of enacting transformations utilizing qRT-PCR, counting EGFR exon 19 cancellation and exon 21 L858R transformations, and taken note a normal change rate of 42.4% from 2012 to 2019. In comparison, the positive rate of actuating changes utilizing NGS was 41.0% from 2015 to 2019. With respect to circulating tumor DNA

location, the positive rate of T790M transformation was 21.7% and 23.2% utilizing NGS and super amplification hard-headed transformation framework PCR strategies, individually. Quantitative real-time PCR and NGS board tests fetched within the extend of \$460 to \$1240, and the costs remained steady from 2012 to presently.

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