

Scientists lead consensus guidelines for thyroid cancer molecular tests

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University of Pittsburgh Cancer Institute (UPCI) scientists recently led a panel of experts in revising national guidelines for thyroid cancer testing to reflect newly available tests that better incorporate personalized medicine into diagnosing the condition.

Their clinical explanation for when to use and how to interpret [thyroid cancer](#) tests is published in the July issue of the scientific journal *Thyroid*. The American Thyroid Association is revising its 2015 Guidelines for Thyroid Nodule and Thyroid Cancer Management to direct doctors to the scientific publication.

"Minimally invasive molecular testing for thyroid cancer has improved by leaps and bounds in the last several years," said co-author Robert L. Ferris, M.D., Ph.D., professor and chief of the Division of Head and Neck Surgery in Pitt's School of Medicine. "But different tests perform differently and, therefore, need to be interpreted carefully to make the best decisions regarding extent of surgery for patients with [thyroid nodules](#). Our goal with this analysis is to give clinicians a clear understanding of what each type of test can tell them and when to use them to determine the best course of treatment."

Cancer in the thyroid, which is located just below the "Adam's apple" area of the neck, is the fifth most common cancer diagnosed in women. Thyroid cancer is one of the few cancers that continues to increase in incidence, although the five-year survival rate is 97 percent.

UPCI, partner with UPMC CancerCenter, has been a national leader in developing personalized genetic tests for thyroid cancer that have spared patients repeat or unnecessary surgeries. A low-cost test called ThyroSeq, developed by a team led by Yuri Nikiforov, M.D., Ph.D., director of Pitt's Division of Molecular and Genomic Pathology, allows pathologists to simultaneously test for multiple genetic markers of thyroid cancer using just a few cells collected from the nodule.

This allows doctors to "rule-in" a specific cancer diagnosis with a high degree of certainty, without a biopsy to remove a large portion of the thyroid, which would then have to be followed with a second surgery if cancer is detected to remove the entire gland. As Dr. Nikiforov's group added more genetic sequences to the ThyroSeq test to create a larger and more sensitive version of the test, it is now also performing as a "rule-out" test that can tell doctors with a high degree of certainty that a patient does not have cancer.

Other available tests use different technology to serve as accurate "rule-out" tools, but do not have the high sensitivity needed to also reliably "rule-in" cancer. And, in some cases, the accuracy of the "rule out" tests depends on the prevalence of cancer in the patients seen by each individual cancer institute. This is critical because clinicians must know this rate at their institution to correctly calculate the accuracy of "rule-out" test results for each patient.

In addition to Dr. Ferris and co-author Sally E. Carty, M.D., who is professor and chief of the Division of Endocrine Surgery in Pitt's School of Medicine and co-director of the UPMC/UPCI Multidisciplinary Thyroid Center, the panel reviewing the tests was a multidisciplinary group from a dozen institutions in the U.S. and Canada.

"This was a very innovative and collegial initiative," said Dr. Carty. "Through an objective review of the existing tests and the scientific

literature characterizing their performance, we are seeking to help clinicians make the best decisions for their patients."

Dr. Ferris agrees, noting that "this is an exciting time in personalized medicine, and these tests give us the ability to not only better diagnose and treat thyroid cancer, but also significantly reduce surgeries for people who don't have cancer."

Provided by University of Pittsburgh Schools of the Health Sciences

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