

## Fine-Needle Aspiration for Breast Cancer Diagnosis: One Size Does Not Fit All

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The role of fine-needle aspiration biopsy (FNAB) for the diagnosis of palpable breast masses has been a hotly debated topic since the 1980s. Despite well-executed studies from highly qualified centers demonstrating the diagnostic efficacy of FNAB,<sup>1,2</sup> in the United States this technique has largely been replaced by core biopsy (CB) as the primary method for percutaneous sampling of both palpable and screen-detected breast abnormalities. The rationale for this transition is that CB provides histologic (rather than cytologic) samples that can distinguish invasive from noninvasive cancers and are more easily amendable to immunohistochemical staining (estrogen receptor, progesterone receptor, HER2/neu) to facilitate surgical and systemic treatment planning. Hematoxylin-eosin–stained CB slides can be interpreted by the same histopathologist who provides diagnoses of surgical specimens, but FNAB requires cytopathologic expertise to provide accurate breast interpretation. Although these points are commonly used to justify dependence on CB by centers that have not incorporated FNAB into their organization, biases against FNAB may have caused some to overlook the significant strengths and benefits that FNAB can provide as a valuable component of a well-organized breast health diagnosis and treatment system.

In this issue of *JNCCN*, the article by Ly et al (page 527) shows that FNAB can be effectively used for the evaluation of palpable breast masses. The diagnostic schemes for the work up of palpable and nonpalpable breast lesions were compared between 2 hospitals, one of which integrates FNAB and CB together with surgical excision for definitive diagnosis and management, whereas the other uses the now more-traditional approach of nearly exclusive image-guided CB sampling followed by surgical excision in indicated cases. This retrospective analysis shows that when FNAB is performed by an interventional cytopathologist, wait time for diagnosis is significantly shortened by more than 1 week and, in a large fraction of cases, same-day diagnosis is possible. In the dual-sampling integrated facility, FNAB was particularly useful for the diagnosis of low-suspicion lesions, while CB was more often reserved for lesions more likely to be cancer (BI-RADS  $\geq$  4). FNAB and CB had similar diagnostic accuracy and rates of diagnostic discordance that warranted additional sampling. No false-positive or false-negative diagnoses occurred with either biopsy method. The investigators point out that waiting time for definitive diagnosis has been shown in other studies to augment patient anxiety and stress that can be relieved through the availability of immediate FNAB diagnosis. Further, the investigators demonstrate significant cost-effectiveness and cost savings through the use of FNAB, even when repeat CB is required in a subset of patients.

Today, it is less valuable to consider FNAB and CB as competitive needle sampling techniques than it is to evaluate how integrated diagnostic approaches can best be systematically applied in given clinical settings. Although FNAB is recognized as the most cost-effective procedure with short turnaround times,<sup>3</sup> the choice of sampling procedures must be based on the availability and access to cytopathologists and histopathologists in each medical community, and the training and experience of the available pathology specialists in relation to breast diagnosis.<sup>4</sup> At the same time, it is useful to consider how effective systems can be designed and implemented when these resources are available.

Palpable breast masses are common, and most do not represent cancer. Thus, the ability to distinguish benign findings that can be followed clinically from malignancies that require prompt diagnosis and treatment is quite important. A recent study from



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Dr. Anderson is an internationally recognized leader in global cancer control. With joint appointments at the Fred Hutchinson Cancer Research Center Division of Public Health Sciences and the UW Department of Global Health, Dr. Anderson created in 2002 and continues to chair the Breast Health Global Initiative, a unique program to develop "resource-stratified" guidelines for breast cancer early detection, diagnosis, treatment, and palliative care in low- and middle-income countries. Since 2012, Dr. Anderson has served on the Board of Directors of the UICC. Dr. Anderson now co-chairs the Breast Cancer Initiative 2.5 (BCI2.5), a global campaign to reduce disparities in breast cancer outcomes for 2.5 million women between now and 2025.

The ideas and viewpoints expressed in this commentary are those of the author and do not necessarily represent any policy, position, or program of NCCN.

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Jakarta, Indonesia showed that of 1,179 previously unscreened women, 289 (24.5%) required diagnostic work up to identify 14 breast cancers.<sup>5</sup> Unfortunately, 8 of these 14 women failed to receive breast cancer treatment, and 6 were lost to follow-up. The availability of same-day diagnosis through FNAB might have improved the outcome in this setting, because immediate triage to the cancer center would have been a possibility.

Breast cancer is the most common cancer among women around the world and is the most likely reason a woman will die of cancer. Today, most breast cancer deaths are occurring in developing rather than developed countries, increasing the global imperative that systematic approaches adapted to existing resources be developed and evaluated.<sup>6</sup> The Breast Health Global Initiative (BHGI) was organized in 2002 to improve the outcomes of women with breast cancer in countries with limited resources, and pioneered the development of clinical practice guidelines based on “resource-stratification that acknowledges and respects different levels of resources that are available regionally.”<sup>7,8</sup>

NCCN is taking this approach to the next level through the creation of the NCCN Framework, which can be viewed within the context of the parent NCCN Guidelines for cancer treatment. The resource-stratification methodology used by NCCN is modeled after the approach created and validated by the BHGI, but will permit a broader application to the management of other cancers (Carlson et al, unpublished data). It is in this context that the more broad-based evaluation of diagnostic and treatment approaches, such as the current study demonstrating the efficacy of FNAB in breast diagnosis, becomes the most relevant, by showing that equivalent or superior outcomes can be achieved in capable hands. At the same time that standardization of care is a core tenet of cancer diagnosis and treatment, we can also recognize and embrace the idea that “one size does not fit all.”

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