

Cytopathology and More | Inside the 2014 Bethesda System for Reporting Cervical Cytology

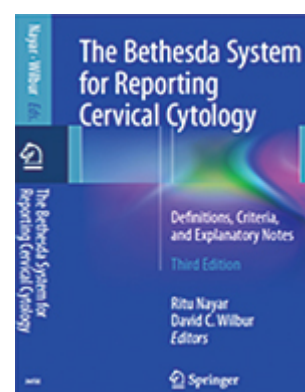


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May 2015—The value of standardized terminology for reporting cytology and histopathology has been essential in our work and important for patient care. The Bethesda System for Reporting Cervical Cytology, put forward in 1988 thanks to the pioneering work of Diane Solomon, MD, and Robert Kurman, MD,¹ saw unprecedented adoption around the world. The Bethesda System, or TBS, led to a number of significant downstream events: 1) initiation of research and clinical trials such as the ALTS trial for managing equivocal/low-grade squamous abnormalities, 2) alignment of management with terminology such as the ASCCP guidelines for managing abnormal cervical cancer screening tests and cancer precursors, 3) serving as a prototype for initiating development of standardized reporting terminology in other areas of pathology, such as thyroid cytology, pancreatobiliary cytology, urinary cytology, and HPV-related histopathologic lesions of the lower anogenital tract.²⁻⁷

TBS was last updated in 2001. Why update now? During the past decade there has been substantial change in the realm of cervical cancer screening, which, coupled with the experience gained with liquid-based technologies, automation, biomarkers, and other advances, led to consideration of another update. In addition, there will be greater demands on the Pap test because it will be used increasingly as a “reflex test” after a more sensitive molecular (HPV) test. This has come about because molecular testing options (primary HPV testing and cotesting) are now approved for cervical cancer screening. Also, the Pap test will have decreased positive predictive value in patients vaccinated against HPV infection, and with efforts to improve HPV vaccination rates in the U.S., there is a need to advance education and performance.



The 2014 Bethesda Cervical Cytology update, sponsored by the American Society of Cytopathology, had three aims: 1) update, where needed, the terminology, criteria, and explanatory notes from TBS 2001 and publish the TBS 2014 update in a third edition of the atlas,⁸ 2) establish a companion TBS 2014 website, to build on the popular features of the TBS 2001 website and add more educational components,⁹ and 3) conduct a second Bethesda Interobserver Reproducibility Study (BIRST-2) to build on the experience gained from the TBS 2001 BIRST study.¹⁰

Since minimal changes were expected to the terminology, two ASC Bethesda task forces (atlas and website) consisting of a group of pathologists, gynecologists, epidemiologists, and cytotechnologists were appointed to complete the project in 2014. Draft recommendations from the workgroups were posted online for an international open comment period before the content was finalized (2,500 comments received from people in 59 countries). All editors and authors agreed to forgo royalties to keep the price of the atlas low and contributed personal time and resources to keep the rest of the project as close to budget-neutral as possible.

The third edition of the atlas (Ritu Nayar, MD, and David Wilbur, MD, editors) is significantly larger, reflecting another decade's worth of experience and improved imaging capabilities. There are now 324 pages, up from 191,

and 370 images, up from 186. The two major issues addressed with respect to terminology were the age to report benign-appearing endometrial cells and the proposals in the literature suggesting that TBS create an indeterminate category for reporting squamous intraepithelial lesions (akin to LSIL-H). Based on literature review, the biology of HPV-related cervical cancer, and public comment support, benign-appearing endometrial cells will now be reported in women 45 years of age and older, and TBS 2014 will maintain the two-tier LSIL/HSIL reporting and not create a defacto three-tier terminology. Detailed rationale for these decisions can be found in the third edition of the atlas as well as a TBS 2014 commentary published in *Cancer Cytopathology* (doi:10.1002/cncy.21521) and other journals.¹¹

The expansion of the explanatory notes and text in all chapters was aimed at refining and reinforcing many of the concepts central to the system. Significant additions to the chapters on non-neoplastic findings and squamous and glandular epithelial lesions have been made to highlight the large spectrum of benign and reactive changes and unusual and difficult patterns and pitfalls that may be encountered in cervical cytology preparations. Updates to management and references are included.

Secondary to many comments and experience over the past 10 years, there was an attempt to improve the number and characteristics of the images included in the new atlas. The quality of digital microscopy has certainly improved over the last decade owing to changes in software and hardware. These advances are reflected in many of the new images. However, a number of the images from previous editions that were classic or exhibited unique findings were retained. There is a good balance of various types of preparations—conventional, liquid-based, cell blocks, and immunocytochemistry. Tables have been added to summarize differential diagnoses.

A website containing all atlas images and a self-test is being set up and should go live this summer. It is hosted by the American Society of Cytopathology and can be visited at www.cytopathology.org.

The second Bethesda Interobserver Reproducibility Study was performed early this year, using 85 images derived from the third edition of the atlas. More than 830 cytologists from around the world participated. BIRST-2 results are being analyzed and will be placed on the website and published separately in manuscript form in the *Journal of the American Society of Cytopathology*.

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Springer will release the atlas as a soft-cover print version and an online ebook. Cost in the U.S. is \$49.99 for the print version and \$39.99 for the electronic version (www.springer.com/us/book/9783319110738).