

## Digital pathology enhances hospital's tumor board meetings

By Raymond Tecotzky

**H**ospital tumor boards meet routinely for multidisciplinary case presentations and reviews of various types of cancer cases. Pathological findings are a significant component of tumor-board presentations, but assembling the pathological information for a given case is a lengthy and painstaking process, requiring hours of preparation. For many hospitals, a digital-pathology environment that enables pathologists to manage and interpret information originating from the digitization of a glass slide offers a practical alternative to traditional microscopy. As the Laboratory Diagnostics Medical Group successfully discovered, a digital-pathology platform vastly improved the tumor board experience — saving time, enabling greater flexibility, and improving the quality of slide-image data.

### Pathology challenges

Laboratory Diagnostics Medical Group consists of six pathologists providing anatomic-pathology services for two sites at a five-hospital system in San Diego, CA. A breast and general tumor board is held each week in the main facility. Preparation for tumor board meant both staff and pathologists needed to pull reports and slides for six to eight cases, for an average of two hours each week. Pathologist review, along with photographing areas of interest, averaged a little more than two additional hours per week.

Frequent inability to access material for cases from outside institutions or prepare photographs for last-minute, add-on cases extended the preparation time in many instances. Time was also wasted in photographing cases that were subsequently bumped from tumor-board presentations, as these cases were then deleted from the files and had to be re-photographed and presented the following week.

The actual presentations at tumor board also had several shortcomings. Foremost was the quality of low-power images, which received the lowest ranking by pathologists of any variable in the presentation. Another challenge was not having the correct photograph available to supplement the answers to questions raised by clinicians attending the tumor board.

### Digital-pathology solution

Pathologists expressed an interest in digital pathology — a computerized, image-based environment for managing and interpreting information enabled by a digital slide — and agreed to participate in a pilot study to test and measure the effectiveness of a digital pathology solution as applied to tumor boards in a community hospital.

Goals for the pilot included streamlining tumor-board preparation, enabling real-time flexibility through the ability to show any region of a slide, providing higher-quality images, and improving satisfaction of all parties including pathologists, clinicians, and staff.

During the pilot, the scanning of slides was performed by

an administrative staff member. Because the assistant had no specialized training, it was important that the scanner be easy to operate. In addition, it was important that the digital-pathology platform include information-management software for the easy archival and retrieval of digital slides for both current and past tumor boards. A digital-pathology vendor who met the desired criteria was chosen as the technology platform for the pilot.

A 17-week pilot was conducted in the summer and fall of 2007. Eight weeks were dedicated to collecting data on existing processes, the final nine weeks to collecting data using the digital-pathology technology. Surveys were performed with pathologists and administrative staff each week to measure pre- and post-technology intervention efficiencies and improvements related to preparation and presentation. In addition, pre- and post-pilot surveys were completed with clinicians attending tumor boards.

### Results and benefits

The digital-pathology system successfully fulfilled and exceeded the goals of the pilot. Satisfaction in the process improved across all parties, including non-pathologist clinicians who attended tumor boards. Consensus was reached that the digital-pathology system was preferred over the previous method.

The overall impact on the preparation process was very positive and far more efficient for pathologists and staff. Pathologists saved an average of one hour per week in preparation, thus cutting their time by 50%. Satisfaction ratings improved significantly for the staff, as the process was less stressful and less chaotic, and the hardware and software were easy to use. For the pathologists, less time was required for photography preparation.

The use of digital slides for the presentations at tumor boards was successful. During the pilot, scores on image quality and other key variables improved, with image quality improving the most. Because pathologists were better able to demonstrate their findings and respond to questions, the overall experience for attendees of the tumor boards improved.

Presenting digital images at tumor boards was enhanced by the use of the viewing software, which provided capabilities not possible with photographs, including access to whole slide images, side-by-side viewing of more than one image at a time, and the ability to annotate sections of the images with the click of a mouse.

A digital-pathology platform successfully helped Laboratory Diagnostics Medical Group provide its pathologists with a solution to better manage the tumor-board experience and provide more efficient pathology services. □

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