

Telepathology consultations benefit patients in China

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International telepathology consultations can significantly improve patient care, according to a new study by UPMC and KingMed Diagnostics researchers. Their review of more than 1,500 pathology cases submitted electronically to UPMC over three years found that consultation with UPMC pathologists resulted in significantly altered treatment plans for more than half of the cases in which a patient's primary diagnosis had been provided from referring hospitals in China.

Published online in the *Journal of Pathology Informatics*, the study supports a growing view among health care experts that telemedicine is an effective way to expand access to specialists and other needed medical services. "The results of this study indicate, for the first time, that international telepathology can improve [patient care](#) in China by facilitating access to pathology expertise," said lead author Chengquan Zhao, M.D., professor of pathology, Magee-Womens Hospital of UPMC. Prior studies of telepathology, he noted, have focused more on the technology than on the clinical experience.

Telepathology refers to the remote practice of pathology through transmission of digital images. Since 2012, UPMC has provided telepathology consultation to KingMed Diagnostics, a network of 27 central laboratories serving more than 13,000 hospitals and clinics in China. Glass slides are scanned in China, and the high-resolution digital slides are then presented to subspecialty [pathologists](#) at UPMC in Pittsburgh through a customized, Web-based portal. "It is easier and faster to move an image than it is to move a patient or the glass slide

containing a patient's tissue specimen," said Dr. Zhao.

In this retrospective study, the researchers examined 1,561 cases submitted to UPMC for telepathology consultations from January 2012 to December 2014. Hematopathology received the most cases (23.7 percent), followed by bone/soft tissue (21 percent) and gynecologic/breast (20.2 percent) subspecialties. In 82.4 percent of the cases, UPMC pathologists provided a definite diagnosis—usually for malignancies that were rare or difficult to diagnose.

Among 855 cases in which a primary diagnosis was provided by the referring Chinese hospital—usually in smaller to mid-sized cities or rural areas—the final diagnoses from UPMC pathologists were identical in 25.6 percent of cases and different or considerably modified in 50.8 percent of cases. Initially, most of the requests for a second opinion came from pathologists in China, but, over time, those requests came from treating clinicians and even patients themselves, the researchers noted, indicating the value placed on obtaining an expert pathology opinion. Also of note, the average turnaround time per case fell from 6.8 days in 2012 to five days in 2014.

To explain the significant differences between the final and primary diagnoses, Dr. Zhao noted that "our study was not intended to compare diagnostic capabilities between pathologists in China and the U.S., but rather to demonstrate that telepathology is a convenient mechanism to assist those seeking consultation. Most of these cases referred for telepathology consultation were from small or mid-sized hospitals. Hence, the primary diagnostic accuracy in this study does not fully represent the diagnostic skill of all Chinese pathologists." In addition, he said, immunohistochemical studies requested to subsequently work up cases submitted for teleconsultation often were helpful in the final diagnosis.

"The success of this international digital consultation service was dependent on strong commitment and support from leadership, information technology expertise and dedicated pathologists who understood the language and culture on both sides," said Dr. Zhao. In addition, the Web portal was customized to meet the needs of both the referring site and consulting pathologists, including support for bi-directional discussions.

Although the researchers noted some obstacles—such as Internet speed, cultural and language differences, and lack of clinical information in some cases—the results of the UPMC-KingMed partnership should encourage more telepathology practice, they concluded.

Provided by University of Pittsburgh Schools of the Health Sciences

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