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by allowing students to take courses that are part of the MS degree in Molecular Diagnostics. Clinical affiliates offer strong support by writing support letters, and agreeing to accept students for clinical training in the cytology, and molecular diagnostics, and cytogenetics laboratories. Efforts will be made to affiliate with translational research programs that develop tumor markers. The Cytotechnology Programs Review Committee (CPRC) has reviewed the summary proposal of the MS curriculum and issued a letter of support for the transition which was included as supporting documentation to the University.

A biotechnology grant has been submitted to assist with start-up funding for the purchase of seven microscopes, a teaching microscope, supplies and equipment for the molecular techniques courses.

Greatest Hurdles

The greatest hurdles encountered are funding, funding, funding, and faculty. There will be a need to hire an educational coordinator to assist with the program. The biotechnology grant (if funded) donations from alumni and vendors and development funds will be used to launch this new program. A growing need for cytotechnologists and the ability for greater multi-skilled employment opportunities help with justification of need. Graduates of the Program will have the advantage of seeking employment in translational research facilities that strive to develop in situ molecular markers for cancer diagnosis and or tumor progression, cytogenetics and molecular diagnostics laboratories.

These challenges are met by supportive departments, strong clinical affiliation relationships, grant submission, and development funding. Planning a degree program requires extensive documentation and justification, graduate school committee reviews, surveys of the communities of interest, and other details required by the University. Fortunately the Department has granted the Program Director time with no classes to complete this effort. At the time of this writing this Program awaits the final review and approval of the Academic Council scheduled in August 2010. Once approved, student recruitment and final preparations can begin. ■

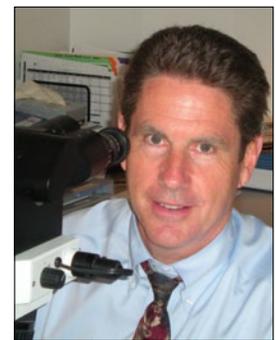
The greatest hurdles encountered are funding, funding, funding, and faculty.

Transformation in the Cytopathology Laboratory at the University of Rochester Medical Center

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Current Trend

The University of Rochester Medical Center in Rochester, New York is a 700 bed tertiary care teaching hospital. The cytopathology department is composed of 10.6 staff cytotechnologists (CT), five cytopathologists, three cytopreparatory technicians, and four additional support staff. Our laboratory is experiencing what seems to be the current trend in many cytology laboratories across the country - decreasing Pap test volumes and greater emphasis on concurrent human papillomavirus (HPV) testing. However, as a major university teaching hospital, our non-gynecologic volume has grown



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considerably over the last three years. The challenge our laboratory faces in the future is adapting to the shift in specimen volumes and maintaining staffing levels to manage this shift. We have taken measures already to adjust to the change in workflow, and I'll discuss those later. Let me first discuss how our specimen volumes have actually changed.

Volume Transition (Gynecologic)

I will begin by addressing our GYN testing volume. We use Thin Prep™ liquid based Pap testing and receive a few rare conventional Pap tests that are not worth including in this discussion. The Hologic Imaging System™ was implemented in 2005, and each cytotechnologist has an imaging review microscope and a light microscope on their desk. In 2006 our total GYN volume was 74,034 Pap tests. We performed HPV testing on 2,808 (4%) of those cases. Over three years these numbers have shifted dramatically. In 2009, our Pap test volume decreased to 61,727 while requests for HPV testing were up to 19,235 (31%). Our HPV testing is performed in-house by our microbiology laboratory. All cases pending HPV results are held prior to final sign-out. Cytotechnologists merge HPV results to the Pap result, sign-out their own negative for intraepithelial lesion or malignancy (NILM) cases with HPV, and pass along atypical squamous cells of undetermined significance (ASCUS)/HPV cases to pathologists for sign-out. In 2009 our positive HPV rate was 42.7%. The diagnosis of ASCUS and low grade intraepithelial lesion (LSIL) comprise approximately 95% of our GYN abnormalities with an ASCUS/SIL (3,059/3,014) ratio of 1.01%. It is worth noting that quality control (QC) re-screening has added some considerable volume to our workflow. Between 10% random re-screen, high risk cases, and QC review of NILM/HPV+ cases, our QC rate was 22.5 % (13,910 cases) in 2009.

The challenge our laboratory faces in the future is adapting to the shift in specimen volumes and maintaining staffing levels to manage this shift.

Volume Transition (Non-Gynecologic)

In contrast, our non-gyn case volume has risen steadily over the last three years and continues to grow. In 2006 our non-gyn volume was 7,602 cases; fine needle aspirations (FNAs) accounted for 1,310 (17%) of that total volume. In 2009, our non-gyn volume was 9,042 cases; fine needle aspirations accounted for 1,978 (22%) of the total volume. Requests for immediate assessment FNAs rose from a mere 165 in 2006, to 861 in 2009.

Immediate assessments (IAs) are extremely time-consuming. We monitored the time it takes from a phone request to completion of FNA procedure, and the average time spent was 50 minutes. This includes travel time to the location and may involve a CT, pathologist and a cytopathology fellow during the procedure. Most of our IAs occur in Interventional radiology, endocrinology and the gastrointestinal (GI) suite, in that order. Immediate assessments may be provided by pathologists, CTs or the cytopathology fellow. The requesting department will notify us if they want a pathologist to do the IA. If the pathologist is not requested, the cytotechnologist may be asked to do the IA in their place. Immediate assessments are done almost exclusively by the cytotechnologist during Monday morning thyroid clinic in the endocrinology unit.

Our pathologists may be requested to perform the FNA in other areas. We also have a small clinic in the cytopathology unit, and all FNAs referred to us are performed by our pathologists or fellows.

Workflow Revisions

So, what did we do to accommodate the shifting workflow in order to manage it in a timely and efficient manner? We literally took a 'team' approach to engage the GYN/non-gyn workflow separately to allow staff CTs the opportunity to focus on each without interruption. This system was implemented in October 2009. Cytotechnologists are now split into two teams and assigned to a GYN rotation or a non-gyn rotation each week. Team 'A' takes GYN one week, Team 'B' takes non-gyn and the next week they switch. Teams were selected to balance their strengths in screening productivity and team members don't change. Assignments are simple: the GYN team is responsible for all routine Pap testing that comes

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As our profession ponders, guesses and plans for an unpredictable future, we adjust as we go along.

in that day. The non-gyn team is responsible for routine non-gyn cases, special procedures, and all GYN QC re-screening. Routine non-gyn cases are prepped by our cytopreparatory technicians the day before they are evaluated. They consist primarily of urine and respiratory tract specimens and include other body fluids and anal Paps. Routine non-gyn cases are split between five CTs each day and can be completed by mid morning. This allows them time to do GYN QC re-screening while they wait for requests to participate in special procedures. As mentioned earlier, requests for FNAs come primarily from radiology and endocrinology, but the GI and pulmonary units keep us busy as well. Cytotechnologists take turns going on special procedures, and they stay in order to cover them fairly. I am proud of the way the CT staff covers for each other as needed and never sacrifice efficiency and emphasis on turn-around time. We also have a weekend on-call rotation, and the CT staff knows basic cytopreparatory and special staining responsibilities. Cytotechnologists are capable of performing the silver stain for Pneumocystis and fungal organisms and to prepare cell block specimens for sectioning in histology. All other histochemical and immunocytochemical special stains are performed in surgical pathology.

Predictions for the Future

The cytotechnologist staff has adapted well to the system implemented last fall. Our turnaround time for Pap tests without HPV testing is two to four days. Turnaround time for Pap tests with HPV testing is four to seven days. As our profession ponders, guesses and plans for an unpredictable future, we adjust as we go along. It is helpful to anticipate changing trends before they occur if possible and to have a mature, dependable staff, confident enough to be flexible and professional enough to maintain standards of the highest order. ■

Geraldine Colby Zeiler Awards for Students of Cytotechnology

M. Sue Zaleski, M.A., SCT(ASCP), Chair
ASC Awards Committee

The College of American Pathologists Foundation, in collaboration with the American Society of Cytopathology Awards Committee, is pleased to announce the recipients of the Geraldine Colby Zeiler Awards for Students of Cytotechnology for 2010.

Sam Ferrell
Interservice Cytotechnology Program
AMEDDC&S
Fort Sam Houston, Texas

Brian Jones
Marshfield Clinic/St. Joseph's Hospital
Cytotechnology Program
Marshfield, Wisconsin

Tracy Watkins
Indiana University School of Medicine
Cytotechnology Program
Indianapolis, Indiana

Antonio Hannah
University of Mississippi Medical Center
Cytotechnology Program
Jackson, Mississippi

Enola Okonkwo
Indiana University School of Medicine
Cytotechnology Program
Indianapolis, Indiana

These awards of \$1,000 each were established in memory of Geraldine Colby Zeiler, a cytotechnologist who trained at the Mayo Clinic, and are made possible through the generosity of Dr. William B. Zeiler and family and friends of the late Mrs. Zeiler.

Congratulations to these outstanding students who recently completed their training in cytotechnology! ■