



Kentucky's public health laboratory staff stand in front of the facility. Photo courtesy of Kentucky Division of Laboratory Service

## KENTUCKY'S PUBLIC HEALTH LABORATORY

by Emily Mumford, writer

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World-famous for its horse farms, bluegrass music and bourbon, Kentucky is also a beautiful place with rolling hills, caves, cliffs and extensive waterways. Kentucky's state public health laboratory is located in the capital city of Frankfort. The city straddles a double bend of the Kentucky River, on the fording site of a large buffalo trail that also served early settlers.

Kentucky's public health laboratory shares a 13-year-old facility with the Cabinet of Justice—the Medical Examiner and the State Police. At approximately 58,000 square feet, "It's a large facility and is excellent for productive work and employee morale. There are nice areas to lunch, host events, and there is a library. This is a place where we can maximize the potential of our employees," said Stephanie Mayfield Gibson, MD, FCAP, laboratory director. "We have great employees here in Kentucky," she added.

Mayfield Gibson is proud of the cutting-edge science and the positive impact of the lab's work. "We have 14 scientists on our 60-person staff that do molecular work. These laboratorians do our biochemical molecular genetics, our PCR, our PFGE, our nucleic acid amplification testing for TB, the amplified RNA testing for *Chlamydia*, among other tests," she said. "They provide quick, same-day service that can stop an outbreak in its tracks. They work closely with epidemiologists, and their expertise allows rapid treatment and assessment."

In addition to partnering with the Division of Epidemiology, the lab works with other state and local government departments, performing TB and STD testing to aid public health control efforts. The Kentucky lab also does a high volume of newborn screening: 55,000 babies are born in the state each year and the lab screens for nearly 40 disorders, churning through more than one million newborn screening tests annually.

The lab works with the National Guard's 41st Civil Support Unit to handle any bio- or chemical-terrorism

testing. They work closely with the Department of Public Safety and OSHA to perform testing for lead, organic solvents, pesticides and asbestos. The lab also tests well water for coliforms, food samples for contamination and milk for residual antibiotics. (Inspectors travel to sites where milk is co-mingled for distribution to ensure the cows were free of infections such as mastitis.)

### REGULATORY REVIEW

Working with these different partners involves pairing unique requirements and regulations. In an effort to ease the way, the lab recently completed an examination of the state regulations that could possibly pertain to its work, ensuring the facility was operating consistently within the law. There were also defunct policies and procedures that the lab was able to cleanse from its books of rules and procedures, thus maximizing efficiency. "This process allowed us to walk across division lines. If we are fully compliant with the state regulations, then we can easily and more effectively serve our other divisions of state government," said Mayfield Gibson.

The lab makes outreach efforts beyond the scope of its testing, trying to educate the public and promote laboratory science. The director recently traveled to the International Society of Neonatal Screening Conference in Japan to present the lab's findings that Kentucky babies have more incidences of a particular fatty acid oxidation disorder than any other place in the world. The lab also participates in a HRSA program to exchange samples to ensure that newborn screening diagnostics are on target.

The Kentucky lab is represented on two of APHL's committees. Mayfield Gibson also serves on the CAP/ACMG Biochemical and Genetics Resource Committee and on the board of directors of the Louisville Science Center. The science center has approximately half a million visitors per year. "It is important to grow more American scientists," she said.

Beginning her fourth year as director, Mayfield Gibson is relatively new to public health laboratory work, but that doesn't undermine her sense of advocacy for it. Mayfield Gibson completed her medical residency in Anatomical and Clinical Pathology at the University of Louisville. She then worked for the Louisville Veterans Hospital for 12 years, serving as an anatomical pathologist, director of the blood bank and as the assistant chief of staff for education—a role which put her in charge of all of the hospital's residents.

Her move to the public health laboratory was serendipitous. "I was recruited by Dr. William Hacker [Kentucky Department for Public Health Commissioner], and it was a bit of a surprise. I went to our scheduled meeting, prepared to tell him that I was flattered but that I was going to decline the position," said Mayfield Gibson. "But after our conversation, I told him, 'Let's talk some more.' And now here I am."

"The mission of public health really won me over. Public health is 24 hours per day, and it affects everyone. I felt like this was a position where a person could really move the needle and make a difference at the end of the day."

### LABORATORY STRUCTURE

A reorganization of the laboratory structure was one of the first major changes Mayfield Gibson instituted. "It's very rarely allowed in state government to change both the nomenclature and the overall structure," she reflected. "We've made the nomenclature more practical and have improved the overall structure to promote cross-training."

Today the laboratory is split into four branches: microbiology; global preparedness; molecular and clinical chemistry; and business operations.

The **microbiology** branch houses the traditional core of public health laboratory work; its virology, bacteriology.

The **global preparedness** branch addresses all emergency preparedness issues, including the bio- and chemical terrorism testing. But the moniker also indicates a more general concept of *preparedness*—this section prepares the appropriate media for STD testing done at local health departments. It also houses the environmental testing for safe living environments and other consumer products.

The **molecular and clinical chemistry** branch is the site of the lab's molecular and biomedical engineering and newborn screening/metabolic sections. The biomedical engineering section is designed for advanced testing for new products. The newborn screening and metabolic section houses adult chemistries and newborn screening.

The reorganization has also helped encourage an atmosphere of cross-training. From her years in a medical setting, Mayfield Gibson is a firm advocate for maintaining a specialty, but also building core knowledge in other areas. Having the flexibility to step away from one's usual station to pitch in where needed is a practical measure for a busy public health lab, and she noted, "Change can bring resistance but it's working well."

### BUSINESS OPERATIONS UNIT

The part of the reorganization that particularly pleases Mayfield Gibson is the new business operations unit. It "allows employees with non-science backgrounds to excel and advance in a laboratory setting," she said.

The **business operation** unit is split into two sections: procurement and customer service. The procurement section is fully compliant with state regulations, essentially rendering it an extension of the state government's procurement office. "By bringing this functionality in-house, we actually helped the government by being knowledgeable of the process, thus being more efficient on the front end with processing orders," said Mayfield Gibson. "We have seen enormous cooperation as a result." Having employees dedicated to procurement and tracking has also lifted a burden from the scientific staff, enabling them to spend more time on their specialties.

### CUSTOMER SERVICE

The customer service section serves as a gateway to the lab for its external customers: these personnel can easily link hospitals, epidemiologists or industry partners to the appropriate laboratorian. This section also supports its internal customers with clerical and other information support services.

This clarity of job function through the reorganization "enhances our ability to educate staff, but it also allows us to work more effectively with our customers," remarked Mayfield Gibson.

The lab's two assistant directors are set to retire this year, taking with them nearly 60 combined years of laboratory experience. "It will be a profound loss," said Mayfield Gibson. Two of the lab's big goals—attaining College of American Pathologists (CAP) accreditation and balancing fiscal responsibility with expertise—have been prioritized due to their support.

### SEEKING CAP ACCREDITATION

The CAP process is in the early stages, but underway. "We answer to 11 different accrediting bodies already, but CAP is known throughout the nation and the bulk of our work is clinical, so it makes sense," said Mayfield Gibson. It also seems natural to apply for CAP accreditation since the laboratory has onsite inspectors who assist with CAP accreditation for other Kentucky laboratories.

Public health laboratory funding is always in a state of flux, throughout the country. Kentucky is no different. "Although our federal funds are decreasing, we continue to try to be resourceful, creative and fiscally responsible to ensure that we maintain the highest level of operation," said Mayfield Gibson. The facility operates on a mix of federal, state and fee-for-service (mostly for newborn screening) funding.

Balancing the needs of the lab, its staff and the public's health has been "challenging and rewarding," said Mayfield Gibson. "What I strive to do is to encourage; to have the people around me reach their goals. I enjoy motivating people to advance." ■