

SERVING THE BIG SKY COUNTRY: MONTANA'S PUBLIC HEALTH LABORATORY

by Emily Mumford, writer

Once peopled by Native Americans, explorers, fur traders and gold prospectors, Montana lives large in the American imagination. It is also quite large in reality. As the fourth largest state, it has two national parks—Yellowstone and Glacier—as well as mountains, plains, badlands, caverns and major river systems. The Continental Divide, once known to Native Americans as the “backbone of the world,” runs across the crest of the Rocky Mountains, making Montana a headwaters state: much of the American water supply originates there, distributed by the Columbia and Missouri Rivers.

Montana's public health laboratory is located in Helena, “about a block from the Capitol building,” says Anne Weber, MS, laboratory services bureau chief. Despite Montana's vast geography, it ranks 44th in population with just under a million people. Because of that, said Weber, “We get to wear many hats in our laboratory.”

Founded in October 1917, the joint public health and environmental laboratory is on two floors of one wing of the Department of Public Health and Health Services' building. Although the laboratory has been in the 16,350 square-foot space for about 50 years, parts have been remodeled recently. With emergency preparedness money received since 2002, the clinical laboratory has built a BSL-3 lab and a molecular testing suite. On the environmental side, they have a new organics lab and have created proper security barriers by consolidating office space. They will soon replace ventilation hoods and make other improvements to increase the safety and capacity of its metals, nutrients and anions testing. “Preparedness money helped there too,” said Weber. “That's where we do the cyanide and metals contamination testing.”

Weber oversees both areas of the laboratory. Among the 38 staff members are 18 public health clinical laboratorians who operate the serology, newborn screening, microbiology, mycobacteriology, virology, food and molecular biology laboratories; six chemists running the environmental laboratory; four emergency preparedness staff including bio- and chemical terrorism coordinators, a lab trainer and part-time supervisor; and three off-site employees running an asbestos disease monitoring program.

Weber credits her dedicated staff for the laboratory's successes. She tries to foster a team atmosphere that is inclusive in its decision-making process. “We have these talented, educated people. We need to use

their abilities. I'm interested in their solutions.” She believes an inclusive approach works particularly well in a small laboratory. Another advantage of working in a small state, she says, is the flexibility to work closely with customers, to cater to individual needs if necessary. “We will run a test on a special basis for doctors; we're not only batch testing.”

SERVICE EXTENDS BEYOND THE LAB

This kind of personal attention and dedication has extended well beyond the doors of the laboratory. Weber recounts a time that a laboratorian received a call from an emergency room doctor on a Saturday. A patient was exhibiting signs of Hantavirus and the doctor was worried. The laboratorian explained that it was an overnight test and described options for submitting the test sample. “Finally,” Weber said, “the laboratorian got into his car, drove the three hours to and from Bozeman, returned and initiated the test on the same day. It doesn't get much faster than that.”

Because the quality of the laboratory's work hinges so heavily on its employees, Weber takes workforce issues seriously. Mirroring the rest of the country, the Montana facility is challenged by the prospect of an aging workforce. Weber also notes a new trend that presents an operational challenge: “We have several employees, both young and mid-career, requesting part-time roles. We need to work to provide imaginative solutions.” Because, Weber said, another constant concern is keeping such talented people happy with their jobs. “They're in demand,” she said. “Our challenge is to keep them from moving on to one of the other jobs they are well-qualified for.”

Reflecting on her own connection to the Montana laboratory, Weber said, “It's an interesting and challenging job located in a place I want to live.” A

homegrown Montanan, Weber graduated from Montana State University and left briefly to work at an animal vaccine company in Nebraska. She returned to Montana in 1980, accepting a position at the lab as a microbiologist. Working her way up, she became a microbiology supervisor, an operations manager and then in 2005, the bureau chief.

Looking back, Weber believes she was drawn to public health laboratory science through her interest in infectious disease work. “There are always emerging diseases and we’re on the cutting edge—applying new laboratory diagnostic methods that will eventually be picked up and used in clinical labs elsewhere.”

FROM STREAM CONTAMINATION TO ASBESTOS DISEASE AND FOOD SAFETY

Work stays interesting around the Montana laboratory, due in part to its service-oriented philosophy. “Right now, in the environmental lab, we’re looking at the heavy metal load in 70 fish tissues that arrived in jars from the Department of Fish Wildlife and Parks. They’re studying contamination trends in streams.” The lab is also in charge of a six-year asbestos disease monitoring project in Libby, Montana, in collaboration with other experts in the agency. Numerous townspeople are exhibiting asbestosis symptoms, due to exposure from a nearby mine. The public health agency has a grant from CDC’s Agency for Toxic Substances and Disease Registry to examine data on the occurrence of illnesses. This data compilation program fits well under the lab’s auspices due to a successful biomonitoring program already in progress.

“We’ve also recently started testing routinely for the Department of Livestock, which oversees meat processing plants,” said Weber. The lab received a Food Emergency Response Network microbiology grant two years ago, which has improved capacity and capability for food testing. Another new project—funded by a CDC National Laboratory System grant—aims to improve integration of public health testing in clinical laboratories. Montana is collaborating with the public health laboratories in Wyoming, North Dakota and South Dakota.

CLOSE RELATIONSHIP WITH EPI PROGRAM

Weber counts the lab’s close relationship with the epidemiology program as one of its biggest successes. “We’re co-located with the Communicable Disease Services and Prevention programs and we have conversations daily about what’s going on,” said Weber. Most recently the partners linked a patient to the nationwide outbreak caused by peanut butter contaminated with Salmonella. Another recent col-

laboration led to quick treatment and isolation of a case of multi-drug resistant tuberculosis. During a pertussis outbreak in 2005, the laboratory tested every symptomatic student in a county, performing more than 100 PCR tests each day for two weeks.

70% OF BUDGET FROM FEES

Maintaining this kind of flexibility is integral to Montana’s public health laboratory work, but difficult due to limited budgets and restrictive funding structures. The laboratory’s annual budget is approximately \$4 million. This funding presents a particular operational challenge: while 25 percent comes from federal grants and 5 percent from state general funds, 70 percent of the operating budget is supplied by fees charged to customers for tests.

“It’s very difficult to fund public health programs on user fees,” said Weber. “We’re always looking for grant sources and we also look for state funding.” Addressing the funding issue is one of Weber’s principal goals as the laboratory’s bureau chief. She has support on this issue from the health department’s management team.

“It’s a challenge to run a business in the middle of the health department,” Weber commented. As the only public health laboratory in the state, its services span the needs of a small population spread across a vast territory. “However, 80 percent of the population lives in our big cities,” said Weber. With a laugh, she clarified, “Big for Montana.” With grant funds, the lab is able to provide courier services to transport specimens from hospitals in larger population centers and any small place that might be on the way. Far-flung facilities are still reliant on standard mail systems. The courier services are also used by meat plant inspectors for food samples and by environmental laboratory customers.

The public health laboratory works closely with the many health jurisdictions to provide consultation and laboratory testing, including the 56 self-governing counties and seven Native American reservations.

As the laboratory continues to meet a complex assortment of needs from the public, Weber continues to seek a combination of solutions that will make the lab financially stable. Progress is ongoing with the facility’s re-model, and laboratory staff strive “to provide the highest quality laboratory testing possible,” said Weber. ■

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