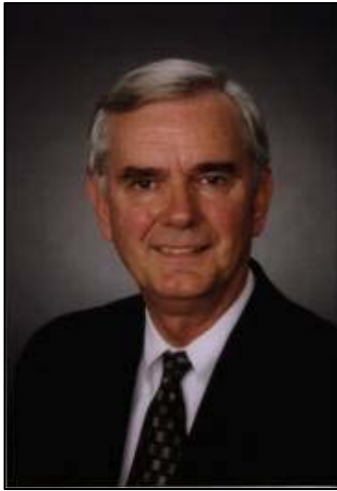


J. Michael Miller is Associate Director of the National Center for Zoonotic, Vector-borne and Enteric Diseases at the Centers for Disease Control and Prevention.



What does the National Center for Zoonotic, Vector-borne and Enteric Diseases do and what is your role as Associate Director?

Our center is unique in that it looks at infectious disease and surveillance and response through the eyes of the ecosystem, not just as an exercise in pure culture manipulation and characterization. We study disease control at the interface of people, animals, and the environment where each impacts and influences the other. The concept is not new, but for CDC it provides a fresh approach to public health, providing interventions much further upstream than before. As Associate Director for Science, I am responsible for leading the effort and providing support for the exercise of the best science to be applied to zoonotic, vector-borne, water-borne, foodborne,

enteric, and Mycotic diseases.

In the U.S., are there weaknesses in the health care system that might make an emerging disease a very serious problem?

The fact that huge numbers of our U.S. population alone are not covered by health care plans forces sick people to forego early intervention, risking massive disease transmission to others who don't have coverage. Also, lack of appropriate reimbursement for medical procedures and laboratory testing that could provide early diagnosis and therapeutic regimens. From a microbiology laboratory standpoint, I don't understand why hospitals require their physicians and surgeons to be board certified to validate quality but are not interested in having Board Certified Microbiologists and other specialists as laboratory leaders who provide critical diagnostic services to the entire healthcare team. Pathologists and administrators should insist on having ABMM or ABMLI Board Certified Microbiologists in critical positions.

You've worked in bioterrorism preparedness in the past. Some microbiologists argue that bioterror is a red herring and that we, as a country, devote too many resources to thwarting a distant threat. What's your take on the threat of bioterror?

Bioterror is a weapon of war, in my mind, and people do not see us in a bioterrorism war because there are no noisy battles engaged at the moment. Seeing what we see from extremists who have no value for human life, not even their own, and knowing how microbes can be used as silent, cheap, deadly weapons...how can we not work to be prepared to protect our family and friends? Clearly, we have spent a ton of money in the preparedness efforts, but this investment has strengthened virtually every aspect of medicine and public health for both non-bioterrorism and bioterrorism response. We had two choices: get prepared or ignore the threat. I'm glad we choose the former.

What do you think is the most understudied microbial system?

Although there are several, I'm sure, to me it would probably be the role and impact of microbial communities in the body. While we tend to work with pure cultures in the diagnostic laboratory, the potential pathogen certainly did not come from a pure culture

environment. The more we learn about interdependence of microbes and communities in the body, the more we see similar interdependence of microbes and vectors at the interface of animals, people, and the environment.

What is your favorite microbe? Why?

Actually, I never thought about having a microbe buddy. I am intrigued by those organisms that seem to have an intelligence about them; HIV that can incorporate its genome into its host genome for survival; Herpes simplex that runs up and down nerves to initiate lesions then disappears again; *Treponema pallidum* that remains uncultivable and also seems to run away and hide somewhere until it is ready to initiate the next stage of its destructive disease.

What advice would you give students about life as a microbiologist?

First, have fun doing what you do and find a job where you enjoy going to work every day. There is a business side to every job and having some degree of business acumen would be an asset. Learn to work within an environment of change and to multitask in a hyperturbulent environment. Always be willing to share your knowledge and experience with colleagues and remember that “Art is ‘I’; science is ‘we’” (*French physiologist Claude Bernard, 1813-1878*).

What is something about you that most people don't know?

I ran an adventure/tripping private boys camp in the Smoky Mountains for 11 summers and became a hobbyist in Native American lore and a competitive Indian dancer; followed by 25 years as a Scoutmaster for the Boy Scouts.