**HIV Viral Load Monitoring**

**An Open Letter to the Clinical Lab**

William M. Valenti, MD

My involvement in the care of HIV-infected patients dates back to the days when the first cases were reported. In fact, I have a number of my “Class of 1989” patients who have benefited, and continue to benefit, from progress in the diagnosis, monitoring and treatment of HIV. New and more powerful therapeutic agents, enabled in part by the identification of HIV-1 plasma RNA viral load as the principal marker of antiretroviral treatment efficacy and a major endpoint in clinical trials, have transformed a once-deadly disease into a chronic condition. And as the care of HIV-infected patients evolves from episodic to lifelong, it is worth reflecting on a key thread in the continuity of care—the partnership between the lab, the clinician and, by extension, the patient, and the pivotal role of HIV-1 viral load monitoring as we pursue the common goal of improving health outcomes.

**The value of HIV-1 viral load monitoring**

Viral load monitoring is central to treatment and ongoing care—in evaluating treatment efficacy, assessing prognosis and optimizing treatment decisions. My 35 year clinical experience tells me that regular monitoring of HIV RNA levels provides the most meaningful measure of effective treatment. In day-to-day patient care, clinicians also find it useful for identifying adherence challenges and, equally important, in motivating patients by providing the needed feedback for them to remain engaged in their care—especially relevant in the ambulatory care setting. HIV-1 viral load monitoring also has public health benefits, since timely alerts of viral load increases can help avoid transmission. HIV-1 viral load monitoring is important in prevention; quarterly monitoring is a key element for patients on pre-exposure prophylaxis (commonly known as PrEP). Last but not least, in acute HIV infection, the most infectious stage of the disease, symptom onset is abrupt and often correlates with high viremia readily picked up by a monitoring program.

**A lifelong process**

HIV-1 viral load monitoring is serial monitoring. Patients are tested at regular intervals (generally four times a year) over a lifetime and plasma viral load is reported as copies per mL of HIV-1 RNA. The clinician reviews each result in the context of previous results to pick up changes and make patient management decisions, adjusting treatment strategy in the case of possible drug resistance, or increasing vigilance and patient education when viral load rises to a level that makes transmitting the virus to others more likely. Viral loads can be high (as high as 10 million copies/mL) or low (as few as 20 copies/mL). Small increases can be sustained over long periods of time or can be transient (viral load “blips”). A change in viral load from “undetectable” to 200 copies/mL can be clinically significant for some patients, and 400 copies/mL would be considered the threshold for likelihood of transmission. Importantly, the delicate nuances of viral load results are reviewed with the patient to inform, educate and motivate. The integral role that HIV viral load monitoring plays in the continuity of care places special demands on the lab—and offers a unique opportunity for building an effective lab-clinician-patient partnership.

**Partnership for continuity of care**

I have had the good fortune of collaborating with many talented lab professionals in my career. Through the years, I have learned to appreciate the importance of our common focus on patient need, and have come to recognize the hallmarks of a successful lab-clinician partnership. First and foremost is communication—open dialogue and a concerted effort to keep each other informed. This helps us build on our complementary expertise and stay informed about changing needs both in the clinic and the lab. This is made easier when the lab and clinic share a physical location, but in the age of digital communications and electronic medical records, it is certainly not a prerequisite.

Second is responsiveness. Our lab colleagues are keenly aware that clinicians are always looking for quick delivery of test results so we can in turn respond to our patients’ changing clinical status. But our need for responsiveness goes beyond turnaround time. We look to our lab partners as a resource, trusting them to provide the most clinically relevant viral load test available in order to help us get the most accurate and reliable test results to guide decisions for our patients. Nowhere is continuity of care more important than in the lifelong process of viral load monitoring, because every result has to be compared to previous ones and explained to the patient accordingly. And since the changes we look for can be minor but significant—a patient with low level viremia can abruptly reach the threshold for assessing resistance to treatment and the need to change antiretroviral drugs—it is especially important for labs to understand the impact of potential variables such as changes in test methodology on patient care. The latter would require re-establishing each and every patient’s baseline at the lab, and extensive time at the clinic to understand and interpret new patient results. Above all, clinicians will have to explain the changes to patients and help them feel comfortable about them. With 800 patients in our clinic, this demand on time and effort would be substantial.

**Making 90-90-90 our common goal**

As the clinical and public health communities target the UNAIDS goal of 90-90-90, a strong lab-clinician partnership is critical. As we work together, from diagnosis and treatment to retention and continuity of care, I believe this goal can become a reality.

William M. Valenti, MD

Clinical Associate Professor of Medicine, University of Rochester Medical Center
eor Vice-President/ Staff Physician, Trillium Health, Rochester, NY

3 HIV Specialist 2013;5(3):10-17.

© 2017 Roche. PP-US-00311-0117