



Article:

Gerardo Lazaro.

When Positive is Negative: Health Literacy Barriers to Patient Access to Clinical Laboratory Test Results.

J Appl Lab Med 2023; 8(6): 1133–47. <https://doi.org/10.1093/jalm/jfad045>

Guest: Dr. Gerardo Lazaro from the Division of Laboratory Systems at the U.S. Centers for Disease Control and Prevention.

Randye Kaye:

Hello, and welcome to this edition of *JALM* Talk, from *The Journal of Applied Laboratory Medicine*, a publication of the Association for Diagnostics & Laboratory Medicine. I’m your host, Randye Kaye.

Health literacy can be defined as a multi-dimensional set of skills that patients need in order to access and understand their health information, including laboratory results. While laboratory results are now commonly made available in electronic patient portals, many patients experience disparities in accessing and understanding the information presented to them. Populations with specific social determinants of health, such as limited English proficiency, are at particular risk. Contextualization and provider directed interpretation of test results are necessary to support shared decision making and to improve health outcomes.

The November 2023 issue of *JALM* features a review article that examines the impact of health literacy factors on patient access and understanding of laboratory results. The article provides a table of health literacy resources that laboratorians and healthcare providers can use to address literacy related challenges.

Today, we’re joined by the article’s author, Dr. Gerardo Lazaro. Dr. Lazaro holds a Ph.D. in public health and bachelor’s degrees in biology and education. Originally from Lima, Peru, he worked in human-assisted reproductive technologies both in Peru and the United States. He is a nationally certified healthcare interpreter and has worked in language access for almost 15 years. He is now working as a health scientist with the Division of Laboratory Systems at the US Centers for Disease Control and Prevention. His current work is focused on the intersection of laboratory medicine, language and literacy barriers, and health equity.

Welcome, Dr. Lazaro. Let’s start with this. Aside from known barriers in healthcare, such as socioeconomic status, what other important barriers do you describe in the context of laboratory medicine in your article?

Gerardo Lazaro: Thank you for this question. Although there are major structural barriers that are known in the US healthcare system, in the paper, we describe two barriers that make accessing and understanding laboratory test results more difficult for patients. Those barriers are health literacy and language of preference for a language other than English. Both barriers are influenced by multiple factors, and when they act in combination, these two barriers tend to increase the difficulty of accessing and understanding laboratory test results.

Randye Kaye: Yeah, that makes absolute sense. Can you tell us in a little more detail why health literacy factors are important when patients want to view their laboratory test results?

Gerardo Lazaro: Of course. Health literacy is critical and is made up of multiple factors. In the paper, for example, we describe three of those factors. The first one is narrative, or the communication of concepts in written format. Numeracy, or the ability to read and understand numerical information. And digital literacy, which is the group of skills needed to manage devices, for example, access and navigate information online.

Now, when laboratory test results are delivered, they usually happen verbally. These deliveries are usually verbal and usually in front of a healthcare provider, or they are also available in a written format through printed results, or electronically through a website, usually referred to as patient portals or mobile applications. Now, over the last decade, we have seen a major increase in the use of electronic patient portals. For example, 78% of physicians' offices and 96% of nonfederal acute care hospitals, which is where patients get short term care, have these electronic patient portals implemented.

Although this availability offers great communication potential, there are multiple instances in which language preference and health literacy skills play critical roles in accessing, navigating, and level of understanding. For example, using patient portals involves going through several action levels. For the first level, receiving a portal registration offer, there is evidence that indicates that African American and Hispanic patients receive fewer registration offers compared to other population groups. This registration stage can be improved, for example, by ensuring a more equitable distribution of portal registration offers.

The next level involves navigating the patient portal to reach the laboratory test results, a set of actions that involve or require digital literacy skills. And the last level is actually understanding the results.

Randye Kaye: All right, thank you. So let's follow up on that last question a little bit. How do these barriers actually interfere with understanding the laboratory test results?

Gerardo Lazaro: Right. Language preference and health literacy skills are critical for all levels as patients, caregivers, or relatives of people in need of medical care. We may be familiar with seeing laboratory test results presented in different formats, but usually including ranges of numbers, percentages, and names of chemical or biological substances that we may not all understand. These representations involve understanding mathematical concepts and the connection of those concepts with biochemical functions and other findings, pathologic findings, seeing tissues under the microscope, or radiologic findings through x-rays or CT scans. The complexity of these representations may cause anxiety and confusion in many patients when they are seeing the results.

Randye Kaye: Yes, I understand, and English is my native language, but statistics is not, and I sometimes have a problem myself in patient portals. So I think this work is so important. More broadly, how do these barriers impact laboratory medicine at a population level?

Gerardo Lazaro: Indeed, this is an important question, and let me answer using the two barriers mentioned before. For example, according to 2021 data from the United States Census Bureau, more than 25 million people, which represents more than 8.2% of the population, have limited English proficiency, or LEP, which is when the person speaks English less than very well. Additionally, multiple publications indicate that low or inadequate health literacy to navigate the healthcare system ranges between 36% to 88% of the US population.

Randye Kaye: Wow, I'm just wow. And that's 36% to 88%. That's very high.

Gerardo Lazaro: It is indeed. And so, it is this wide health literacy range. This data relies on all national measurements of health literacy skills and also other more recent scientific publications. Now, one important aspect to consider is that most, if not all, of the information that is included in patient portals, and therefore including laboratory test results, is provided in English, which is by itself a limiting factor for patients and caregivers with limited English proficiency. The combination of low literacy skills and limited English proficiency enhances the barriers that patients face when accessing laboratory test results and other forms of health communication.

So, to sum up, as we just described, the effect then, the combined effect of low literacy and limited English proficiency or limited English skills magnify the difficulties that some patients face when trying to interact with laboratory test

results or other forms of health communication. And these difficulties represent the inequities or systematic differences that patients of different racial, ethnic, and cultural origins face when interacting with laboratory medicine or other branches of medicine. And it is addressing these inequities and fostering sustainable and systematic population level health equity initiatives is that it is of great importance in addressing not only healthcare, but also cultural and economic issues. For example, the burden of inequities and disparities in healthcare in our country, which is counted by the hundreds of billions of dollars.

Randye Kaye: Wow, you've done a wonderful job of explaining the issues. So my last question, I guess, is how can access and understanding of laboratory test results improve?

Gerardo Lazaro: Thank you for this question. And improving the access and understanding of laboratory test results by patients and providers involves the implementation of guidelines and resources that fortunately, are readily available. That means that they can use language access, digital literacy, and plain writing guidelines to enhance access and understanding of laboratory test results.

I want to mention, though, an important concept, and that is the concept of contextualization, which is facilitating the understanding of the information presented in the laboratory test results by providing specific information or context to understand not only the meaning but also the significance of the results. Now, this effort entails including references to vetted health information to understand why the test was indicated and general information on results.

Fortunately, these resources exist on sites provided by the government, for example, MedlinePlus, and it is available in multiple languages, MedlinePlus in multiple languages. Additionally, we provide a list of resources and sites available to the public in the last two manuscripts that we published with *The Journal of Applied Laboratory Medicine*, those being "[Effective Access to Laboratory Test Results](#)" and "[When Positive is Negative](#)." Now, providing resources in English and other languages is a great step toward better understanding. For example, how information is presented matters too, for example, the visual format that may appeal to readers.

Therefore, it is necessary that laboratory test results are presented in appealing formats to allow patients to learn from their results and be able to make a decision, an informed decision, whether that is to schedule a follow up appointment, continuing treatment, or similar actions. Although we are discussing resources for patient portals, these resources may well be used also for printed materials. And so, we hope that this publication builds on published resources, guidelines, and

other manuscripts to advance health communication in accessing and understanding laboratory results and other forms of health communication and fostering health equity.

Randy Kaye: That's wonderful information. Thank you so much for joining us, Dr. Lazaro.

Gerardo Lazaro: Thank you for the invitation.

Randy Kaye: That was Dr. Gerardo Lazaro discussing his *JALM* review article, "When Positive is Negative: Health Literacy Barriers to Patient Access to Clinical Laboratory Test Results."

Thanks for tuning into this episode of *JALM* Talk. See you next time and don't forget to submit something for us to talk about.