

Harnessing Real-Time, Real-World Data to Improve Care

MATTHEW R. ZIBELMAN, MD

As a genitourinary medical oncologist specializing in immunotherapy for kidney and bladder cancers, I am continually striving for more ways to connect with and learn from my patients. The emerging availability of immuno-oncology (IO) drugs for the conditions I treat, as well as many other cancer types, has

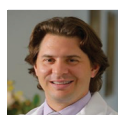
How do you see Big Data integrating PROs to improve the patient experience, cost, and efficiency?

generated tremendous excitement amongst patients and oncologists, but there still is so much we don't know. Clinical trials are essential to advancing the field and help us learn a lot about which patients are most likely to benefit from IO therapies, but trials and the population of patients eligible and selected for trial participation do not always reflect the "real-world" scenarios clinicians face every day. Thus, innovative ideas on how to learn from patients, including data on treatment response and toxicity, are welcome.

In the healthcare sector, modern technology and "big data" firms are increasingly enabling the collection and processing of large amounts of information in order to better identify trends and improve efficiency, satisfaction, and outcomes. Leveraging these expanding capabilities to help care for patients with cancer treated with immunotherapy is a great opportunity.

In their everyday lives, many patients are already using handheld devices such as smart phones and tablets, as well as popular "wearables," such as fitness wristbands and watches that can be utilized to collect and report information in a fast, easy, and non-intrusive way—offering many options for patients to partner with their physician in data reporting and collection.

Currently, the field of oncology is very invested in expanding knowledge from patient-reported outcomes (PROs), a way of gaining insight from patients in real time about their experience with a specific drug, therapy, intervention, etc. With the proliferation of smart devices available to patients, leveraging this technology would be an easy way to collect information most relevant to patients on IO therapy. Using one of the various big data platforms, that information could then be analyzed to extract potentially actionable trends. For example, such analysis might reveal that some side effects from IO therapies that are presumed to be rare may not have been well recorded on a clinical trial. But in actuality, PROs data may show these to be more common than previously thought. Collecting some of this information as a PRO from a smart-device could help raise awareness for clinicians to better assess or test for these side effects in order to treat them expeditiously. Or, as we learn more about how diet and the microbiome affect response to IO drugs, big data could be an effective tool to compare and contrast patients' dietary patterns and any relationship to response—something that is difficult to do from patient recall alone on a clinical trial. Ultimately, all of these resources have potential to connect real-time, PROs and big data to help improve the care of patients treated with immunotherapy for cancer.



Matthew R. Zibelman, MD, is a medical oncologist specializing in genitourinary cancers and an assistant professor in the Department of Hematology/Oncology at Fox Chase Cancer Center. He is a member of the Big Data Working Group.

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