



## MAPPING THE FUTURE OF CANCER CARE

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**By Kristen Cockrell**

PUBLISHED: November/December 2015

<http://www.healthcarejournalbr.com/the-journal/hjbr-contents-index/features/2269-mapping-the-future>

Precision medicine is expanding the medical field and creating endless opportunities to help cancer patients by expanding the resources available for oncologists.

In the past, doctors would treat cancer patients based only on their education and their previous treatment experiences; however, oncologists can now use TreatmentMAP, a new technology developed by Molecular Health, to create a more efficient plan of action for treating each patient based on extensive research and individual genetic data. Dr. Christopher McCanless, a local oncologist at Baton Rouge General Medical Center Hematology and Oncology Clinic is one of the first in the region to utilize this new technology.

“Whereas in the past the critical questions were ‘How can we get this information?’ ‘What does it mean?’ now the question is, ‘We have so much information, how do we make sense of it?’” said Gabriel Bien-Willner, medical director at Molecular Health. “And to that end, we had to create computation approaches to review the data and make clinical sense of it.” When an oncologist removes a cancerous tumor, he or she sends it off to the Molecular Health laboratory via mail. The Molecular Health medical team isolates the tumor cells and extracts the DNA of the tumor in order to have a better understanding of the patient’s condition. With this DNA, the doctors have access to a multitude of research about that particular type of mutation.

“Even the most diligent oncologist is literally incapable of keeping up to date with all of the studies and all of the new articles coming out,” said Mark Rodgers, director of corporate communications and public relations at Molecular Health. “What we’re able to do, in addition to having excellent medical professionals, is tap into all that information.” A group of specialists then analyzes the research and the patient’s medical history to determine the most effective treatment options for that particular patient.

The research and analysis is organized and sent to the patient’s physician in the form of a complex but easy-to-read document. Doctors can use this document, the patient’s TreatmentMAP, to help explain their patient’s condition in greater detail and discuss how the patient can go about treatment, rather than resorting to chemotherapy, which is the most common cancer treatment practice.

“They get the tissue from the biopsy from the lung, and they do molecular profiling on it,” said Dr. McCanless. “They do what’s called next generation sequencing, and they are able to pick up on all the relevant mutations and the biomarkers that provide us with information that we need to help make decisions on that individual patient.”

Dr. McCanless uses this new technology about four to five times a week with his own patients. He uses the service primarily for colon and lung cancer patients whose tumors have rare mutations. He stated, “About eight to ten percent of patients will have these mutations. The patients have a much stronger benefit from these targeted therapies than from chemotherapy.” According to Dr. McCanless, these targeted therapies are usually oral and have fewer side effects than chemotherapy. “Usually they have 60 to 70 percent response rates, compared to 30 to 40 with chemotherapy,” he explained. Chemotherapy kills all the patient’s cells, including those that are cancerous. Side effects of

chemotherapy include dry mouth, loss of appetite, weight loss, hair loss, and pain. By using Molecular Health's expertise, patients can be treated on a more individualized basis, which is more beneficial for them and can improve the quality and longevity of their lives. Bien-Willner explained, "With that information, we can identify which pathways are aberrant, and because we know that new targeted therapy can affect these pathways specifically, instead of just killing all cells that are reproducing, killing potentially or stopping cellular processes that should be off that are accidentally on, for example, we can likely have a much better outcome for patients."

Dr. McCanless currently has a patient with an extremely rare, abnormal type of cancer. This patient is only the sixth known patient in the world to test positive for both EGFR and ALK lung cancer mutations. "One is usually positive, and the other would be negative, so they are usually mutually exclusive," Dr. McCanless explained, "but for this patient, both of them were positive." Dr. McCanless quickly turned to the expertise of the medical team at Molecular Health to help him find the most effective solution for this patient's cancer treatment. "[Molecular Health] really gave us a lot of information about how to treat this patient differently than we would have normally done with traditional chemotherapy. I wouldn't have been able to know that we were going to treat him with these individual drugs if I hadn't ordered the panel, so it's really helped us."

Dr. McCanless enjoys the convenience of TreatmentMAP. "It gives people in Baton Rouge state-of-the-art therapy without having to go off to a university center. We really are not limited in having to send patients off to different centers." Molecular Health's services are offered to physicians nationwide. The team of experienced professionals at Molecular Health includes PhD-level scientists who specialize in different cancer types, pathologists who are experts in cancer and cancer diagnostics, and clinical research associates. Because this medical team specializes in many different areas, Molecular Health is able to provide services for every type of cancerous tumor. Bien-Willner explained, "We look at the cancer cells and find what's wrong with them and then make recommendations based on that information. The cancer type is important, and that shapes how we make our recommendations, but we do all cancer types."

Though Molecular Health offers services for all cancer patients, not all tumor samples are typically sent to the experienced team of physicians. "It's still the more rare case that's getting anywhere near the kind of attention that a company like Molecular Health is providing with TreatmentMAP. It's really the gold standard of treatment decisions for cancer," said Rodgers.

Molecular Health is only a few years old, but the team believes that they hold the key to the future of medical advancement in cancer research and targeted therapy for cancer patients. "Genomic medicine is very much a new idea. Like any new field, existing medical practices will try to look up as much as they can, and then they will realize that they don't have the required expertise to really do it on their own, and they're going to require experts to help them make it work," said Bien-Willner. "And I think that's where we're going with genomic medicine."