The Importance of the Clinician-Pathologist Relationship in Precision Oncology

Q&A With Ryan K. Olson, MD

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***AJMC®*: Can you first talk about your role at Florida Cancer Specialists (FCS) and how that has evolved over the years as the field itself has evolved?**

OLSON: I am in my ninth year here at [FCS]. Our pathology laboratory was established when the FCS executive board decided that having a flow cytometry lab would be beneficial for our physicians and our patients. During my interview, I said, "That sounds like a great idea, but if you're going to do flow cytometry, you might as well offer a full variety of pathology services within the physician-owned lab setting." So, in due course, we expanded into histology and immunohistochemistry and then to FISH [fluorescence in situ hybridization]. After that, we opened our standard cytogenetics lab, and we now offer Prosigna testing. We're currently evaluating the opportunity to add next-generation sequencing as well. Ours is a unique situation. [FCS] and American Oncology Network, LLC, together comprise close to 300 oncologists, which is a very large group, with a tremendous amount of material for the pathology lab. We're similar to a reference laboratory, except we're not [one]. As a physician-owned lab, we serve only our own oncologists. They get to know us, and the process is streamlined operationally, which provides pathology services differently [from what] one could expect to receive from a reference laboratory, for example, or even in a hospital setting.

***AJMC®*: What factors play into the decision to open a new lab based on a particular testing platform?**

OLSON: When we bring a new testing modality in-house, first we assess the need and frequency. We are not involved in any esoteric testing. Given the nature of our practice, we are doing testing that's done primarily on bone marrow biopsies and also peripheral blood. Our surgical pathology service is limited, as we only support the physicians within our own practice. Usually, we are already conducting the test in conjunction with NeoGenomics, who we've worked with from the beginning and use for validation purposes.

If we have a new testing modality, our revenue cycle department—specifically, billing and collections—reviews and develops a proforma, and then the operations team assesses the costs and expected return on investment. After that, we weigh personnel needs and assess from a scientific standpoint. Then the opportunity is presented to our executive board for final approval. It is critical that the test [be] a benefit to our patients, there is a demand from our doctors, and the pathologists are proficient in its use.

***AJMC®*: Can you talk more about what distinguishes the patient care model of FCS from other models and institutions?**

OLSON: From the pathology lab standpoint, our service is unique and superior. Foremost is the personal relationship I have with the numerous oncologists within our practice. If an oncologist is sending biopsy results to a reference laboratory, they don't know when or where the pathologist is sending out the sample. They may send the sample to a different company, and then when the

result comes back days later, that's usually the end of it. They can call and speak to the pathologists, usually, but it can be a difficult process. At FCS, we know all the oncologists personally. They have my cell phone number and my email address. They send me text messages before sending a sample if they want to prioritize it or are concerned about something or if there is a special clinical consideration for that patient that they want my team of pathologists to be aware of. We're in constant contact with the oncologists. When I hire a new pathologist, I tell them we work for 230 to 300 oncologists, because they own the lab and it's our purpose to serve them, and, in turn, we're serving our patients and the communities where we live. The communication is probably the most unique aspect of a physician-owned lab.

Precision medicine is focused on the testing itself and the way pathology testing is evolving with time. If you're trying to make a diagnosis based on all varying viewpoints of the disease and each of those types of testing looks at it from a different angle, we can compile everything into 1 diagnosis. Based on that, therapy can be determined on an individual and targeted basis.

***AJMC®*: What are the challenges of the ever-refining testing landscape in oncology?**

OLSON: One thing that's unique about our operation is that the pathologists wind up adding on a significant portion of genetic testing, which has several advantages: It improves turnaround times because it cuts out the additional step of waiting for results to get back to the offices. It better targets testing because tests are typically added after flow cytometry results are available, and for the same reason superfluous testing is minimized. In contrast, when orders come from the offices, they don't know the flow cytometry results when they're ordering it. They see lymphocytosis and make their orders based on that. Our pathologists add on our genetic testing usually after we have our flow results, and at that point, we have more information. So if there's lymphocytosis, I can confirm that there is, in fact, a B-cell lymphoma there, and beyond that, I can say whether it is a CLL [chronic lymphocytic leukemia]–type lymphoma or if it's a CD5-10 negative lymphoma, and I can order the appropriate FISH testing. That cuts down on unnecessary testing and makes the tests that we do more precise.

Next-generation sequencing and molecular testing are also worth discussion, as that is where a lot of the research is going into for particular drugs. For example, we just now started a project where we are looking at BTK [Bruton tyrosine kinase] mutations in CLL, and there's a new drug targeting mutations in this gene. When we sign out a flow cytometry case and it meets certain criteria, we can order this testing, and then those patients will be put into a trial comparing the new drug versus standard-of-care drugs, and that's based on precise tests that we're ordering.

In general, regarding next-generation sequencing, there's an argument about the size of the panels that should be done. Foundation Medicine, for example, was one of the first companies to develop a very broad panel where they test over 200 genes, the vast majority for which the implications are unknown. So you may be getting a lot of information that may prove valuable in terms of research but may not be helpful in the short term for the patient, in terms of therapy, and this of course costs money. The hope is that, in time, these mutations can be analyzed and we can determine the response to therapy. Eventually, if you develop a vast enough amount of data and compare them with [that of] clinical trials, these mutations can become useful and targeted therapies can be developed in response. However, central to this discussion is the cost of such testing.

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***AJMC®*: What are the implications for managed care as new technologies, such as next-generation sequencing, become integrated into the precision medicine spectrum?**

OLSON: The testing that we do in our laboratory is standard of care, extremely justified, and accepted. Next-generation sequencing is where the frontier lies. We're participating in a research study now where the pharmaceutical company is paying for the testing. So when I come across a CLL case that meets their criteria, I order the test that's performed over NeoGenomics. They bill the pharmaceutical company that's paying for the testing to justify their drug that will eventually come to market. That's one example in which the company is paying for its own testing in a clinical setting.

It will become more complicated at broad reference laboratories because they are going to be billing insurance

for this broad test, and most of the genes that they're testing don't have targeted therapies. With next-generation sequencing platforms, the beauty is that you can test a lot of genes at a relatively low cost. If you targeted each individual gene in those 250 gene panels, the cost would be astronomical, so even if it costs $4000 to test 250 genes, that's much less expensive than it would be to test each one individually.

***AJMC®*: Given the advances that have taken place in testing and drug development, how do you envision the field of precision medicine taking shape over the next several years?**

OLSON: The history of pathology is based primarily on histology and morphology. You look at a tumor under the microscope and put a name on it. Then, based upon that, therapies are given. Over time, new testing modalities are developed that provide greater understanding of disease processes, and new therapies can be developed that better target these abnormalities. Evolving technologies are giving more precise diagnoses so that we're not just calling it based on what it looks like. We're actually analyzing the mutations that took place to cause it to get there, and that opens up far broader possibilities for more precise therapy that individualizes the tumor. The ultimate goal would be that you analyze the genetics of a cancer and target therapies based upon that. Will we ever get there so that we don't ever look at the microscope anymore? Maybe, but not anytime soon, because histology is relatively cheap and provides a lot of information. I don't see the technologies we're using now being replaced in my lifetime. I think those are the 2 extremes—pure histology to pure genetics. For the time being, I expect new technologies to develop in conjunction with our current standards of diagnosis, in a symbiotic way.

***AJMC®*: Based on your experience in changes at your own institution and how you see the broader field of precision medicine in oncology evolving, what would you like to see emphasized moving forward?**

OLSON: There's a struggle within the field of pathology. Some pathologists oppose the model that our company follows, with the oncologists owning the laboratory, and would prefer a pathologist-owned or controlled laboratory. The lab that we've built and the relationship we have with the oncologists, I think, [are] absolutely ideal. They treat us well, and we work as hard as we can to give them the best possible service. Collectively, all our energies go into serving our patients.

In a pathologist-owned private practice setting, the pathologists have to expend significant resources to obtain and maintain contracts with clinical offices [to get business], with the ever-present risk of losing them. As a physician-owned lab, we don't have to worry about any of that. All our attention is focused solely on our clinical work and making the best diagnoses for our patients in the shortest time possible. Our turnaround times, our communication with our clinicians, and the quality of our reports are second to none. ◆