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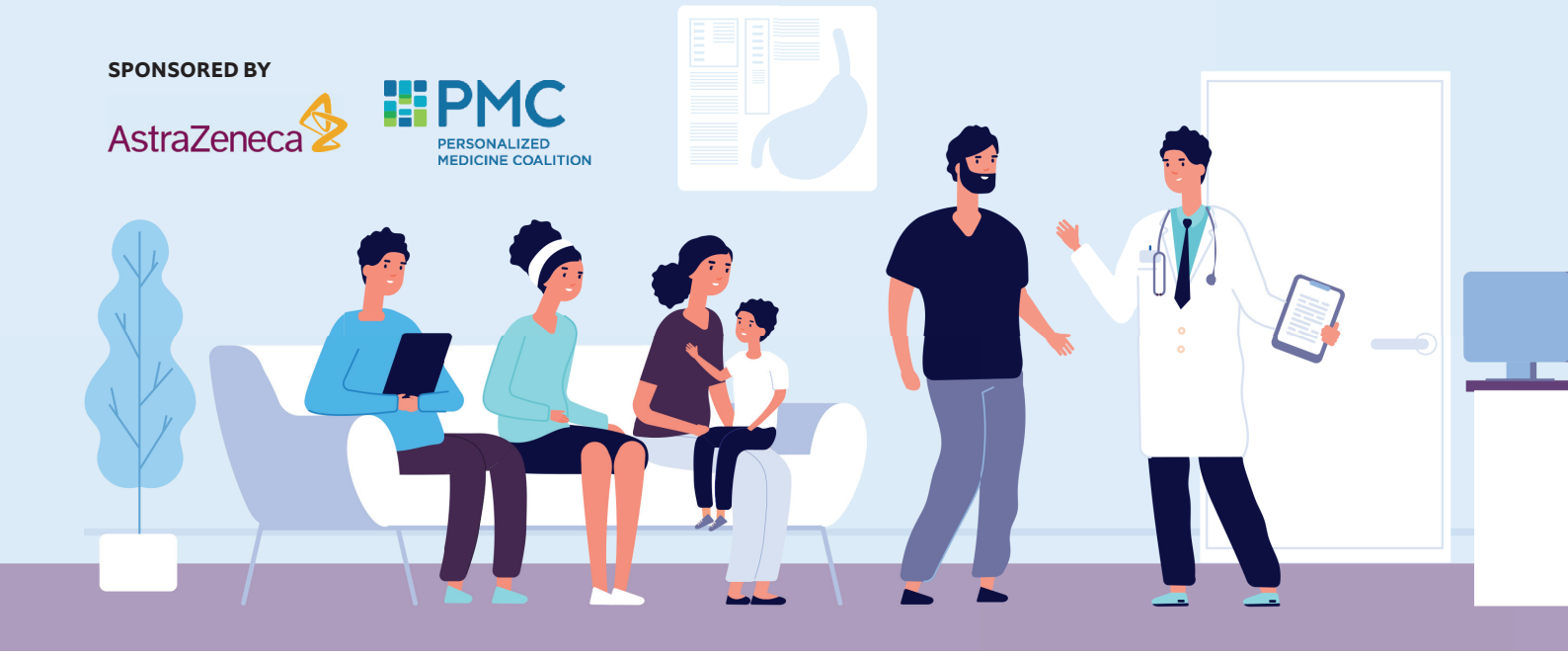

The Future of Precision Medicine Oncology: Toward a New Post-Pandemic Normal

The covid-19 pandemic has served as a wake-up call to not only fill critical gaps in global health system resilience, but also gaps in precision medicine oncology diagnosis and treatments – especially when so many resources have been diverted to fighting the virus. Spotlighting interdisciplinary collaboration as a transformation catalyst for precision medicine oncology, the roundtable underscored the importance of learning from covid-19 to drive improvements in cancer care and develop innovative cancer treatments.

More than a dozen roundtable participants from different sides of the healthcare landscape came together to discuss what is needed to drive precision medicine oncology progress. In doing so, they explored fundamental obstacles that lie ahead for precision medicine innovation such as expanding genomic testing access, improving clinical trials and data collection, helping patients navigate complex testing and treatment journeys, and breaking down silos among stakeholders.

The Economist INTELLIGENCE UNIT

> **We know that we are in the midst of a momentous moment in the history of medicine that, in ways that we can and cannot imagine, are going to reshape healthcare across the globe.**
>
> Edward Abrahams, PhD
> President, Personalized Medicine Coalition

Putting Test Within Reach

Caucasians comprise just 20% of the global population, but accounted for 81% of all data in genomic databases as of 2016. And just 20 percent of patients in community practices have access to such genomic tests, noted Dr. Kashyap Patel, vice president of the Community Oncology Alliance. "Unless we know the genetic makeup of ethnic minorities, we cannot develop drugs that help them," he said, calling on roundtable attendees to grapple with the prevalence of implicit racial bias in the healthcare sector.

Part of the problem is that the cost of genomic tests is covered at different levels by payors. "The pandemic has really increased inequalities in terms of access," said Dr. Olivier Elemento, director of the Englander Institute of Precision Medicine at Weill Cornell Medicine. "It's almost shut down some populations from real access to the healthcare system." But one good thing to come out of the pandemic will be a stronger emphasis on population health, he said. And that may involve precision health tools including genomic testing.

A chicken-and-egg problem surrounds testing. Payors concerned about out-of-control costs, and perhaps puzzled by a lack of standardization among providers, are wary about some reimbursements. But without wide use of tests, assembling real-world data to prove their value is out of reach. Dr. Michael Sherman, chief medical officer and senior vice president at Harvard Pilgrim Health noted that risk-based agreements among providers and payors is a key solution to this. "We're trying to work with several companies to determine how to put genomic cancer screenings in place to generate real-world data and create a win-win-win for the industry, the payor and, most importantly, patients," he said.

Moving the conversation around tests from costs to value and health outcomes is key, attendees agreed. Ideally a paradigm shift to a total cost of care model will occur, making genomic testing a no-brainer for providers and payors alike.

Better Trials, Better Data

The future of precision medicine adoption and reimbursements relates directly to clinical trials. The current pursuit of an effective vaccine for covid-19 is a reminder of the crucial data and evidence produced by well-designed clinical trials, Elemento said. "We need to have large-scale trials to be able to fully understand the impact of precision medicine, its impact on survival and outcomes, and to gather some information

on cost as we do so," he said. The National Institute of Health's NCI-MATCH trial is a great example of a government-backed large-scale effort now underway, Elemento said. But "we need more of these kinds of efforts, co-sponsored by pharmaceutical companies," to move the field forward.

Clinical trials also offer important opportunities to address disparities in access to precision medicine. Dr. Donna Hansel, chair of the pathology department at the Oregon Health & Science University, said the pandemic has made all too clear that "many institutions really expect patients to come to them, whether for cancer or covid-19 testing. This sort of implicit bias by institutions has really been a challenge." As academic medical centers and the pharmaceutical companies they partner with roll out new trials, they need to take a proactive stance toward finding patients. Doing this can support the broader need for more diverse genomic databases.

The more comprehensive genomic databases become, the greater the likelihood drug developers and providers will be able to realize the precision medicine dream: targeting the right treatment and dosage to the right patient at the right time. Barriers to reaching that goal include a lack of companion diagnostics, noted Peter Pitts, president of the Center for Medicine in the Public Interest, because medicine developers' often lack expertise in this area and public and private payors have an "uneven history of reimbursing for them." What is needed, he said, is "a mindset change from both the regulatory, developer and practitioner perspective."

Also needed, said Michelle Zimmerman, senior vice president and general manager of oncology solutions at Sema4, is more sophisticated use of data to track outcomes and prove the value of therapies. Her organization works with providers to not only support genetic testing, but also structure clinical medical records that enable easier outcome tracking – ideally of highly-specific patient cohorts. "You need both the genetics and the clinical and financial information, to tell the whole story and know where to spend your time," she said.

Dr. Sherman envisions an artificial intelligence-driven tool that could compare a patient's data profile to similar individuals and then recommend the best precision medicine treatment option—thereby easing payor concerns about out-of-control costs. "We know there is a lot of variability in physician practice patterns," he said. "If we had an expert AI system that said to the physician, "Here is an optimal pathway. Forget all the noise, get these precision medicine tests," I would expect that payors would then say, "Great."

Providers and Patients Need Help

Both oncologists and the patients they treat can benefit from tailored treatments and communication that could improve the utilization and effectiveness of precision medicine testing and treatments, attendees said. Clinicians are "overwhelmed with the amount of information that is coming out," said Yuri A. Fesko, chief clinical officer oncology

and strategic alliances at QuestDiagnostics. The company is considering having molecular oncology experts offer guidance to oncologists via a digital platform so that clinicians can get "real-time answers," he noted.

While reimbursement issues are a barrier to precision medicine test utilization, they are not the only one. Many clinicians just aren't aware of what's now possible. Information overload, especially at the community practice level, is common, said Joe Ferrara, president and CEO of Boston Healthcare. "It's a fact that innovation has outpaced our ability to deal with this, from a communication of value perspective. Communicating value at the clinical setting, not just on the therapeutic side, but on the diagnostic side, is very important."

But a greater communication challenge likely lies on the patient front. If patients don't understand precision medicine tests and therapies, and don't trust the institutions they encounter them in, they're less likely to utilize them, said Ellen Miller-Sonet, chief strategy and policy officer at CancerCare. "The reality is that we have to work at a very granular level through communities. We need to embed ourselves where there are trusted institutions and where we appreciate what's important to patients," she said. Plain language and practicing medicine with—not at—patients—can only help.

Patients, and the family members with whom they make crucial medical decisions, are stressed and exhausted by cancer. To the extent that more complex precision medicine treatment strategies require extra work, overwhelmed patients won't pursue them, Miller-Sonet said. The danger here is clear: the proliferation of precision medicine could exacerbate disparities in care. One way of avoiding this risk? Patient navigators, who can help needy patients avail themselves of complex treatment strategies. "Navigators are incredibly effective in accompanying patients on the continuum of care as a trusted go-between," Miller-Sonet said.

> **Ensuring safe and timely continuity of care for people living with cancer continues to be one of the most critical public health challenges stemming from the covid-19 pandemic. Meaningfully addressing them will require greater collaboration among interdisciplinary organizations spanning public health and oncology, all to benefit patients in need.**
>
> Seth Feldman,
> Head of US Oncology Precision Medicine & Nurse Education, AstraZeneca

Leave Silos, Spark Progress

What five-year goals should be set for precision medicine? Roundtable participants had plenty of answers, such as addressing disparities in testing access and care, and democratizing access to databases to spur innovation. Achieving another stated goal could buttress many others: breaking down silos across the stakeholder landscape.

This includes academic centers and community oncology practices, pharmaceutical and diagnostic companies—"everybody works in their silos and sees it from their perspective," Dr. Fesko said. "We need to have an open dialogue among the different stakeholders to get us where we want to go. If we don't have a unified voice, I see so many barriers going up that it's going to really hinder our progress."

Yet by focusing all of humanity on a new common threat, the covid-19 pandemic could help key stakeholders come together to move healthcare into a new precision medicine paradigm. "If we can bring different people from different places to find solutions for patients, everybody's going to be better off," Dr. Abrahams said. "I can't think of many positive things that come out of the pandemic, but that may be one of them."

To learn more, register today for our virtual roundtable on October 13th, co-hosted by The Economist Group and AstraZeneca. In the panel, a number of leading industry experts will discuss interdisciplinary approaches and innovative strategies to effectively deliver valuable precision medicine oncology outcomes: https://events.economist.com/events-conferences/americas/targeting-cancer/