Racial and Ethnic Disparities and Health Inequities in Lung Cancer

CMEO Podcast Transcript

Ana I. Velázquez Mañana, MD, MSc:

Hello, I am Dr. Ana Velazquez and on behalf of CME Outfitters, I would like to welcome you to today's educational activity titled "Racial and Ethnic Disparities and Health Inequity in Lung Cancer Care." Today's activity is brought to you by CME Outfitters an award-winning jointly accredited provider of continuing education for clinicians worldwide and is supported by an educational grant from the Johnson & Johnson Institute and the Johnson & Johnson Family of Companies.

Now, let me introduce your faculty for tonight. Again, I'm Dr. Ana Velazquez. I'm an assistant professor in the Division of Hematology/Oncology and the Assistant Director for DEIA at the UCSF Helen Diller Family Comprehensive Cancer Center in San Francisco, California. Joining me today is Dr. Gilberto de Lima Lopes and he is a Professor of Clinical Medicine, the Chief of the Division of Medical Oncology of the Miller School of Medicine, Medical Director for International Programs and Associate Director for Global Oncology of the Sylvester Comprehensive Cancer Center at the University of Miami. Welcome, Dr. Lopes.

Gilberto de Lima Lopes Junior, MD, MBA, FASCO:

Thank you. As you can see, every time I ask for a raise, I get another line in my title.

Ana Velázquez Mañana:

Those are a lot of titles.

Gilberto de Lima Lopes Junior:

No, it's for money, of course.

Ana Velázquez Mañana:

Thank you so much for joining us today. Now, let's start by reviewing our learning objective for today's session. After participating in today's activities, clinicians should be better able to understand and acknowledge the influence of bias, disparities and inequities in lung cancer care. Let's begin. As we know, lung cancer remains the most common cancer and cause of cancer death in the United States, accounting for over 200,000 new cases of cancer per year in this country and over 130,000 deaths. Today we'll be discussing with Dr. Lopes the contribution of social determinants of health to disparities in lung cancer, how precision medicine is contributing to some of those lung cancer disparities, and the need to take a multi-prone approach to addressing lung cancer disparities in particular. Dr. Lopes, I would love to get your thoughts in disparities that we observe not only in lung cancer care, but even in incidents and death and mortality.

Racial and Ethnic Disparities and Health Inequities in Lung Cancer

Gilberto de Lima Lopes Junior:

Thank you very much for the opportunity to be here discussing this with everybody, and thank you all for joining us in this online event and discussion, which is a part of a series. And if I'm not mistaken, there will be eight of these. But it's very readily in our minds that when we think about disparities, we think about disparities across and between racial and ethnic minority groups. But we should start by reminding ourselves that when we talk about disparities, there's a number of groups beyond those defined by race and ethnicity. We have individuals of different ancestries, individuals that can have lower socioeconomic status, disabilities is another reason for us to see disparities. Of course, if you don't have insurance or if you have limited and basic health insurance, that can be a huge cause of disparities, if you're a member of the LGBT communities or if you're immigrants, if you're refugees, which is something that we're seeing more often, since the invasion of the Ukraine. Of course, the elderly are also a group where we can see a number of disparities based on them being part of a different group.

That comes mainly from what we now call social determinants of health. Maybe we should call these social determinants of disease as well. Part of what we see in terms of health is not just the absence of disease, but it should be, as has been defined since the Alma-Ata, meaning as an overall sense of wellbeing and of being able to do all those things that we consider are the things that make us human. Health is determined, if we take that in consideration, by access to social and economic opportunities by the resources and support available to us at our homes and schools and neighborhoods and communities, as well as the conditions in those environments where we are born, where we live, where we work, we play, we live in essence. Of course, poverty, culture and social inequity affect medical conditions tremendously. This is what we talk about when we discuss social determinants of health.

Of course, these also are important when we talk about lung cancer disparities. When we look at lung cancer disparities, we can have societal disparities, we can have environmental, we can have biology differences, we can have disparities in early detection and we can have disparities in smoking risk factors. And we're going to be discussing some of these in a little bit more detail. When we look at societal factors, if you don't have access to adequate insurance coverage, you usually have higher stage at presentation, you have less access to care, you're not as health literate so that you can take and be empowered and take your healthcare on your own hands.

We also do see environmental differences and disparities in the way we are exposed to pollution, the neighborhoods we grow on, where we can have more smoking. Also, in things like body mass index, exposure to alcohol, geographic distribution. In biology, we see differences as well. And that's one of the parts that sometimes we forget to discuss, especially now in precision medicine and oncology, we have a number of different mutations that may be more or less prevalent depending on your ethnic and genetic background. Early detection is important. You need not just access to care and access to insurance, but also the characteristics of the disease in your specific group have to be taken in consideration as we're going to discuss a little bit of early detection and screening for lung cancer and women in African American patients. Finally, not just knowing that people smoke, but it's also important to know, for instance, that Black patients, even if they smoke less, they are at a higher risk of dying from smoking-related diseases, even if they smoke less and for a shorter period of time. These are all things that we need to discuss.

In terms of overall treatment of lung cancer, the main curative option, we have surgery and for more than two decades, the literature has been documenting surgical disparities. Usually non-Hispanic Whites do better in terms

of not just being able to have surgery, but also to have better results. And there's a number of different factors, as we have been discussing, related to the social determinants of health as well as others. Ana, it's been just a monologue by me and please don't call me Dr. Lopes. Call me Gilberto. And do you have anything to add so far?

Ana Velázquez Mañana:

Yes, you've done I think a great overview. I think one thing that is very important and interesting that we sometimes dismiss is that there is a lot of conversations surrounding racial and ethnic disparities in all sorts of outcomes from diseases and particularly in cancer. Knowing that race in particular we know is a construct made by society and by people and not necessarily something that predicts doing better or worse, but we see all of the downstream effects of this structural inequities that come from all the things that you mentioned. If you live in an area that has poor access to healthy foods, if you live in an area that is closer to coal factories and coal mines, you are more likely to be poor, to have less access to good hospitals that have high grade surgery centers, that you will have the best outcomes possible.

But at the same time, there are differences on, for example, the genetic ancestry that make up who we are and our DNA and where we come from. Even those are not necessarily directory related to race. They can have an indeed an impact in disparities and outcomes. I think there's other types of cancer, for example, like breast cancer, in which there's a lot more data exploring this. But I'm wondering your thoughts in lung cancer as we see, for example, differences in race of people who smoke and don't smoke of the incidence of the disease and the genetics behind it, and how we should also be thinking about these factors when we think about disparities and inequities within our lung cancer community.

Gilberto de Lima Lopes Junior:

Absolutely, because the prognosis and the overall outcomes for patients with lung cancer has usually lagged behind other diseases and the investment that we actually put in and to try to learn more about lung cancer actually lags behind, especially when we're take in consideration the number of deaths we see every year, not just in this country, but around the world. We really are much behind in terms of what we should know already, not just about the disease itself, but about disparities.

The gap is widening, with precision oncology, we are seeing bigger differences as well, because the new methods that we have to treat patients, especially in the advanced disease setting, becomes more and more specific, becomes more and more complex. We have a number of different targets today. When we actually look at the literature, we started by learning about EGFR mutations, epidermal growth factor receptor, ALK translocations, and number of different targets. Today we have somewhere between eight and 12 targets that we can use to select therapy in the first line. And that's changing all the time. So, by the end of this recording and when this becomes available, we're going to have probably more approvals as well.

For years, we hadn't been able to target KRAS, which is one of the most important mutations we see in solid tumors in general and in lung cancer in particular. We now have at least one approved specific inhibitor of the G12C mutation. But we would probably estimate that between 40% and 50% of patients with adenocarcinomas today have specific findings that we can use to tailor therapy. And that by doing so, we improve the survival in the metastatic setting from just about six months to more than two, three, and four out, for instance, and others four

years or more. So, this is not quite a cure yet, but it's the first steps into making metastatic lung cancer into a more chronic disease that we can manage, just as we have been able to manage breast cancer, for instance, for quite some time.

Unfortunately, the use of these drugs is dependent on equitable testing. And we're going to discuss this in a little bit more detail in a little while. But we don't see as much testing in African American populations and in other minority groups as we do for non-Hispanic Whites. And this is a shame, because these drugs have made a huge difference. There are, and I don't want to forget to mention that, there are biological differences as well. When we look at the prevalence of mutations such as EGFR, we see higher prevalence in patients who come from Asia, where the prevalence can be between 40% and 50%.

When we look at non-Hispanic Whites, that numbers around 10% to 15%. Hispanics do have kind of an intermediary prevalence of this mutation compared to Asians and Whites, around 30% to 35%. Unfortunately, Blacks, both African Americans and Black Caribbeans that we see in Miami, for instance, we have a much lower rate of mutation probably, around 5% to 8%. The study that we did quotes about 6%. When we look at other mutations, those tend to be less common in African American and Black patients as well. Some of the mutations for which we do not have targets yet tend to be a little bit more common in Black populations.

One important thing to underscore is that most of these studies have been done in White non-Hispanic patients. So, we need to widen the availability of testing as well. Indeed, there was a recent real-world practice cohort using data from Flatiron with about 15,000 patients with stage IV non-small cell lung cancer diagnosed up to 2020. That showed two things, it showed that Black patients were less likely to get next-generation sequencing and they were also less likely to participate in clinical trials. That's the beginning of the disparities in terms of creating new treatments, we do need to have all populations and all groups represented, so that we can find treatments that work for all individuals that develop lung cancer.

That study that I just mentioned showed that while about half of patients who were White and non-Hispanic, White overall, had next-generation sequencing for biomarker testing, when we look at Black African American patients, only about 40%. So, it's a 10% absolute difference. That's a 20% relative difference. And that is significant, because we are going to be denying the possibility of precision medicine for so many patients. That's for patients overall. When we look for patients with non-squamous non-small cell lung cancer, which is where we see most of the mutations, that difference even widens a little bit as the audience will be able to see in the slides.

When we talk about clinical trial participation, the same study show that Blacks were at least half as likely as Whites to participate in clinical trials. That also leads towards results, as we now have clinical trials that have improved so much in their design and there are so many new drugs being tested that even participating in clinical trials can actually help improve patient survival. Among all of the covariates that were evaluated in this particular study, of course, being Black versus White matter, but also age of diagnosis, histology and practice volume, just to show again all of those groups where we can see these differences in terms of outcomes and that lead to disparities.

Ana Velázquez Mañana:

Dr. Lopes, what are, in your clinical practice, some of the barriers and challenges that you think lead to real world disparities that we're seeing in access to testing?

Gilberto de Lima Lopes Junior:

Insurance coverage is, without a doubt, one of the most important things, but health literacy is important. We have a number of providers of next-generation sequencing that actually do help patients with assistance programs. But if you don't trust the system, if you haven't had a good experience within our healthcare institutions, it's much harder for you to be able to trust and be able to participate in these programs as well, or even accept clinical trials as well. So, these are all interesting aspects that we have to take in consideration when we treat patients of historically disadvantaged minorities.

Ana Velázquez Mañana:

I think in our practice similarly to, I would say, definitely insurance coverage is the number one cost, but another barrier which we often see is similarly the amount of tissue. When we talk about next-generation sequencing, we can do that based on the tissue biopsies, but if we don't have a core, if there was a not great biopsy with skin tissue, many times we get a QNS (quantity not sufficient) result. That adds challenges and, of course, it's harder to also be able to convince our patients that they require a repeat biopsy or multiples to be able to obtain this kind of testing. How have you started implementing or do you think there's a role of doing what we call now liquid biopsies, which are blood based tests, on trying to decrease some of these disparities and should they be adopted more broadly in certain populations? Wondering your thoughts and practice?

Gilberto de Lima Lopes Junior:

Without a doubt. With experience and noticing that it is important for us to have this information so that we can offer the best treatment for each patient receive. We have moved over time from having just small fine needle aspiration biopsies in which at best we could know if somebody had small cell versus non-small cell lung cancer, to now doing more sampling to doing bigger bore or larger needle biopsy, so that we can have enough tissue for a lot of the things that we do, not just in terms of trying to find those biomarkers, but ascertaining that the patient has lung cancer versus GI sources and looking at other markers, not just in NGS (next generation sequencing), but also in immunohistochemistry such as PD-L1 and so on.

So, I think it has come from educating ourselves and seeing in practice that it makes a difference to patients to be able to do these tests. As you mentioned, liquid biopsies have become extremely important. They are very specific. If we do find a positive result, that result is 99.99% of the time correct. And it is something that we can use to guide therapy. But the sensitivity is a little bit lower than if we're using tissue. So, we do prefer to use tissue so that we can be as sensitive and then as specific as possible. If anything, we're actually doing both more and more often in academic institutions across the country today. So this is without a doubt something extremely important. Precision diagnosis, molecular testing is the basis of treating non-small cell lung cancer in the metastatic setting today. We need to be cognizant of that and we need to make as much of an effort as possible to have enough tissue.

Ana Velázquez Mañana:

Definitely. We've talked about molecular characteristics of lung cancer as part of the diagnostic testing, but the other part of course is when we think about staging, which primarily drives how we are going to select treatments. We all know that screening tests and cancer screening in general leads to down staging and to earlier detection.

Now, let's turn to talking about additional factors that may lead to some of those differences and disparities that we see, particularly in lung cancer staging as a result of lung cancer screening and how that reflects into incidents. Compared to other types of cancer screening, we know that lung cancer screening and low-dose CT (computed tomography) have been around for a lower period of time and our guidelines also are more recent and have changed recently. Adoption is quite low still, despite this being around since 2013. Dr. Lopes, would love to hear your experience and your institution's experience with lung cancer screening and your thoughts around the new adoption of the guidelines from 2021. Is the hope that this would increase the amount of patients that we are screening? Do you think that this will narrow some of the disparities that we have seen?

Gilberto de Lima Lopes Junior:

So we now have clear confirmation from NELSON and from both North American and international trials showing that we can decrease lung cancer mortality specifically by about 20% and overall mortality by 8% to 10%. So, there's no doubt that screening of lung cancer with low dose of radiation computed tomographies is something that we should be doing routinely.

Unfortunately, when we look around in the country, we see that fewer than 5% to 10% of patients who are eligible to get this screening actually get the screening, as compared to more than 80% of women of an appropriate age getting their mammograms or Pap smears/HPV testing for cervical cancer or even colonoscopies, which the rates now get to about two-thirds in most healthcare systems and for the screening purposes for colon cancer. So, we do very poorly and we have been trying to educate our colleagues, not just in oncology, but especially in primary care, internal medicine and pulmonary settings, so that we can increase the rates of screening.

The classic guidelines would suggest that we should screen patients who are between 55 and 80 years of age and who have smoked at least 30 pack-year, who have smoked at least a pack a day for longer than 30 years. With that, we should probably be screening about 15% or so of the population in general. The new guidelines would suggest that we should actually decrease that age to 50 and the pack-year history of smoking to 20, that should increase the numbers of individuals who could be screened to maybe 20% to 24%.

There's no guarantee that this would decrease disparities. But the idea is as women and non-Hispanic Blacks get cancer at earlier ages and with less smoking, the idea is by doing this, we would be able to try to increase the number of individuals who are at these groups to be getting screening and hopefully that we're going to see more lung cancer stage one and two, where we can have higher cure rates than what we have today. So, it's not a guarantee, but that's the idea behind the change in the guidelines in 2021. So, we need to make those better known. We need to make sure that people understand that we're now hoping to screen individuals who are older than 50 and who have a 20 pack-year history.

One of the research areas that's extremely interesting, and we still don't have ideal criteria, but hopefully in the next five to 10 years we should, is how to screen for lung cancer in non-smokers. We have a very interesting study from Taiwan presented about a year or two ago, showing that the more family members you have that have been affected by lung cancer, the more likely you are if you have been exposed to secondhand smoking or to contamination as in pollution, we do get to be at higher risk. Those patients might have very similar screening rates in the sense of finding potentially malignant nodules as do patients who have smoked.

So, this is still a research area, but we hope that in the future we might have techniques to screen for non-smokers to try to detect lung cancer early. Of course, there's a lot of studies in blood biomarkers, in different multi-cancer early detection techniques and so on that we hope will come to clinic in the next few years. But we still definitely have a lot of work to do, even with the things that we already know work. So, we have no excuses not to be screening more individuals at risk for lung cancer.

Ana Velázquez Mañana:

Definitely. I think you bring also a great point on terms of environmental exposures more as we see global warming continue to get worse, we see areas of the country which there are yearly fires and exposure to a lot of pollution. In reality, we don't know long term what the effects of many of those are going to be in cancer and areas that we have to continue to explore. I think another interesting fact or something that people should definitely know is that it's not only doing screening once, but you actually need follow-up testing. One of the big criticisms from these trials was that there may be a higher rate of procedures that need to happen and biopsies after you find an incidental nodule in a lung, which may not be malignant. From the follow-up studies, one of the important parts was really trying to determine which nodules should be biopsied or not, which ones can we safely follow up?

Really, developing lung cancer screening requires a multidisciplinary discussion and engaging, like you said, our radiology partners, our pulmonary partners, and making sure that patients are getting those follow-up tests. Because otherwise, if we were to biopsy every single thing that comes up in that initial CT, it probably will make it even a bigger challenge for healthcare systems and our false positive rates would be pretty high. The other aspect is that we know particularly in that population in which we have screening guidelines right now, those are patients who have used or are former smokers. Wondering your thoughts surrounding tobacco use and the interventions that we should develop to try to decrease smoking in general or to aid our patients who are smokers to stop smoking.

Gilberto de Lima Lopes Junior:

Tobacco continues to be the leading cause of lung cancer, not just in the US, but around the world. But we are seeing more and more lung cancer in individuals who do not smoke. So, we used to see that 90% of people with lung cancer in this country used to be smokers. That's now down to 80%, in the UK, may be down to 70%. And in some countries, such as Ecuador, fewer than 30% to 40% of cases of lung cancer are actually in smokers. But for the time being, in this country and in most countries around the world, tobacco will continue to be the main cause, and we have made strides. Today, probably about 15% of non-Hispanic Whites and 15% of Blacks smoke, that's much lower than almost every man coming back from World War II smoking, which was the prevalence of 40, 50, 60 years ago.

One group that we worry about in the US is Alaskan and American Indians, Alaska natives, and American Indians, because for them we still see about 25% smoking prevalence and that is still too high. We definitely need to bring that down and that may bring higher risk and higher rates of lung cancer in those groups moving forward. As I mentioned before, we also know that even though Blacks usually smoke fewer cigarettes and start smoking at older ages as compared to Whites, they are more likely to die from smoking related disease than Whites.

Some of it may be the exposure and the amount of tobacco that you inhale, some of it may have to do with menthol cigarettes being heavily targeted towards African American populations. And recently, the FDA has banned menthol-flavored cigarettes, and that is a good thing. So, we do have a lot of things that we still need to learn about why is it that even though African Americans smoke less, they actually have greater risk of dying from smoking related disease. So, there's a lot of genetic factors and other social disparities that we need to work on as well.

Ana Velázquez Mañana:

And I think one also important aspect, particularly for learners, is to think through which are the populations that you're serving in your area. Because of course all the studies are based on big data. We are limited by the data that we capture. We're limited by what the census categories are. And I imagine if we were to compare, we think that Hispanics have lower rates of smoking than many of our other racial and ethnic groups, but if we were to compare your population, Miami, to my population in San Francisco what the rates of smoking are among Latinos, it's going to be dramatically different. For example, we know that Puerto Ricans and Cubans have higher rates of smoking than Mexicans or other parts of Latin and South America. So, definitely thinking through specifically within your clinic and institution, which are the patients and populations that you're seeing and looking deeper into the data, because many of these really aggregate groups and miss particular groups that would benefit from interventions to the increased tobacco use and other risk factors.

Gilberto de Lima Lopes Junior:

Without a doubt. One aspect that we do need to discuss as well, that we haven't talked too much about, is the financial toxicity and the economic aspects that we have from healthcare leading to disparities as well. It's no secret that healthcare costs have been increasing at a much higher rate than inflation and prices in general and, of course, than workers' earnings. The cumulative patient out-of-pocket expenses are going up quite a bit as well, especially for patients with lung cancers, as we have more target agents and these tend to be oral drugs for which co-payments and other out-of-pocket expenses may be higher as well. So, this is something that we do see and we have been worrying more and more in the lung cancer community as well.

One of the important things to show in terms of policy has been that Medicaid expansion, and this is a very interesting study that you will be able to see on your screen, that by looking at those states that have actually expended Medicaid, and we do see that this disproportionally helps individuals from historically underserved communities. We do see that you decrease mortality and you are able to detect cancer at earlier stages and patients do get better treatment at earlier stages leading to better chances of survival as well.

I think that we should not rest and think that because we have higher rates of coverage today, we have solved the problem. No, there's still too many millions of Americans without coverage and there's still too many populations

that are underinsured. We definitely have a lot of work to do in policy. If we, as medical oncologists, and as cancer specialists, as cancer control advocates, do not keep bringing those issues to the fore, we won't be able to solve this problem, which requires everybody's participation. This is not a political issue, this is an issue about trying to get everybody to be covered by health insurance and to be able to have access to adequate care.

Ana Velázquez Mañana:

Definitely. If we look at that map and really we put it side by side with a map of mortality in the United States and of mortality of cancer and of incidents of lung cancer, we would see basically the hotspots are similarly in a lot of those same areas towards the South, which there is higher rates of smoking, large African American proportion of patients, coal mining and other things that increase exposure and risk factors of developing any cancer and particularly lung cancer, too. Definitely, from a policy perspective, it is something that is extremely important for the lung cancer community, for us to advocate, for patients to advocate, and to think through, when they're voting, to ask their politicians to be able to support and pass laws that increase access to insurance and healthcare.

Before we end our discussion, we need to take a moment to talk about also what can we actually do to address some of these disparities and particularly what can our audience do on their day-to-day practice to think through how to address and decrease disparities in lung cancer care. So, Gilberto, I'm wondering what do you think are top five solutions in your mind that our audience should be taking and takeaways from today, that will help them really move the needle and work with the larger oncology community towards ending lung cancer disparities?

Gilberto de Lima Lopes Junior:

Absolutely. Number one is key and I think that that has become less of a problem as we discuss issues related to disparities and equity and that is awareness. So just for participating on this, you're already taking a step and helping us continue to address the issue. Of course, you have to help your patients, your coworkers, your family members realize that there are differences that are related to the way our systems are structured and that this is not about calling somebody racist or to trying to get into becoming anti-racist. I don't want to use that terminology. I want here for us to realize that differences exist and there's a number of different ways that we should be working to try to address it.

First or second step is awareness, the first step is to check our own biases. We are human, we are genetically programmed to behave in different ways within our groups and with those that we see or perceive as external to us. It's important that we know that. It's important that we know that every single one of us has grown in different settings and have our own bias. We do need to have that awareness of our own biases as well, not just of the disparities. And we have to be cognizant that that colors the way we behave, that colors the things we do, and we need to educate ourselves and our coworkers, the groups we work with, patients, so that we can continue to address racism in clinical care and in policies.

I think we have already done the beginning of the work in most medical schools in the country. I think that every large medical school today does have the issue of disparities, equity and racism at least discussed. We already have seen a number of curriculum in the country change to include social determinants of health. We've had something called the Genes to Society curriculum at Hopkins for longer than a decade. And most medical schools

now in Miami, our new curriculum, which is a few years old, also includes public health as part of the core of the things that we see in social determinants of health, we have to become as well-versed on those as we are knowing that tobacco causes lung cancer.

We do need to focus our research so that we can use our research to create action. It is all very well for us to generate knowledge, but the knowledge that we generate has to be able to be transformative. We have to move that into action. So we know that Black patients have fewer mutations, so we need to focus on treatments for those people, those patients, something that will work, that is not related to that specific precision medicine. We have to work also as advocates to continue making institutions accountable and we have to improve, without a doubt, and that's going to be my last point, workforce diversity. We need to be represented.

Hispanics, and we just had a couple days a Hispanic month, heritage month. And we also have been doing a campaign showing that while Hispanics are nearly 20% of people in the country, we are fewer than 5% to 10% of healthcare workers. So, we do need to change that. Of course, the same happens in African American communities and we do need to change that, because we need to be represented so that we can feel that we make part and we can truly participate in our own healthcare, in our own possibilities of research and so on. I think I'm going to stop here. We had a wonderful discussion and back to you, Ana.

Ana Velázquez Mañana:

Thank you so much, Gilberto, for that very interesting and in-depth discussion. Let us now summarize some of the important points that we have talked for audience. In terms of your take-home points, I think the number one thing we've really talked a lot about is understanding how the social context and environment impacts our health, impacts our risk for lung cancer, impacts our ability to have insurance coverage and access diagnostic testing. We have to think through how to prevent and diagnose earlier cancers in particular, and using screening as a tool to improve earlier detection and lead to more curative surgeries and procedures for our patients with lung cancer.

We need to take that social context also into account and identifying populations who may face increased financial toxicity and other barriers for which navigation and other efforts are necessary to allow patients to engage with care and to receive the care that they deserve. And we need to really use our knowledge and our advocacy efforts towards increasing insurance coverage and leading to more data and research, so that we're able to narrow disparities and not widen them. And the best example for that is precision medicine like we talked about. And yes, we have all of this great technology and newer drugs, but if we are not able to allow all patients who have access to them and to use testing in all of them, then in reality we're doing a disservice. So, we have to think through how we're actually going to educate ourselves, advocate for lower cost of testing, for increased insurance coverage, and for more Americans to have insurance in general, so we can narrow some of those.

Let me close out this program with some SMART goals, which are smart, measurable, attainable, relevant, and timely. The first one is that we need to recognize that while Black people in America usually may smoke fewer cigarettes and start smoking at older ages, they're more likely to die from smoking related cancers and diseases. Particularly important for us, again, when we talk about lung cancer and taking into consideration screening and newer adopted guidelines. We need to tailor screening and tailor what our treatments are for the needs of our patients and who our patient population is. And we need to really think about precision medicine and recommend NGS testing and analysis for all patients with lung cancer.

Okay, to finalize, we're going to go over some logistical things. To receive credit for CME for today's program, please complete the post-test and evaluation. You will be able to download and print your certificate immediately upon completion. Lastly, we invite you to please visit the CME Outfitters Oncology Hub to access additional activities on relevant oncology topics, and the Diversity and Inclusion Hub for discussion of disparities in healthcare and other resources and patient education materials. As Dr. Lopes have mentioned before, this is one of eight different programs that focus on disparities in oncology. So, we invite you to go and check all of those out. You can also follow us on Twitter @cmeoutfitters. Now, again, thank you all for joining us and thank you so much Dr. Lopes for our discussion and we hope you have a great day.

Gilberto de Lima Lopes Junior:

Thank you, everybody.