Professor Raymond U. Osarogiagbon: another major challenge over next decades—how to incorporate the cutting-edge diagnostics and biologic prognosticating ability into a traditionally anatomy-centered TNM staging system

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Experts' introduction

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Dr. Osarogiagbon is a Research Professor at the University of Memphis School of Public Health, a Research Member of the Vanderbilt Ingram Cancer Center, and a member of the Lung Cancer Disparities Center of the Harvard School of Public Health. He is board certified in the Internal Medicine subspecialties of Hematology and Medical Oncology, a Fellow of the American College of Physicians and belongs to several professional societies including the Alpha Omega Alpha Honor Medical Society, American Society of Clinical Oncology, American Society of Hematology, the Cardiothoracic Surgery Network, and the International Association for the Study of Lung Cancer.

Dr. Osarogiagbon currently serves as Director of the Multidisciplinary Thoracic Oncology Program at the Baptist Cancer Center, in Memphis, Tennessee, the dominant clinical oncology service provider in the demographically heterogeneous tristate region of East Arkansas, North Mississippi and West Tennessee, which has some of the highest lung cancer incidence rates in the US. He also serves as Director of the Thoracic Oncology Research (ThOR) Group of the Baptist Cancer Center and is the Principal Investigator of two major ongoing regional projects: a US National Institutes of Health R01-funded regional quality improvement project titled "Dissemination and implementation of a corrective intervention to improve mediastinal lymph node examination in resected lung cancer" (R01 CA172253-01); and the Patient Centered Outcomes Research Institute-funded comparative effectiveness study of multidisciplinary v serial care for lung cancer titled "Building a Multidisciplinary Bridge Across the Quality Chasm in Thoracic Oncology" (IH-1304-6147).

Dr. Osarogiagbon's research interests center around improving population-based systems of care, improving accuracy of cancer staging and evaluating the biologic drivers of outcome differences in potentially curable lung cancer. He is a member of the Health Services Organization and Delivery study section of the US National Institutes of Health and the Chairman of the International Association for the Study of Lung Cancer Membership Committee.

Editor's note

The 18th World Conference on Lung Cancer (WCLC) organized by the International Association for the Study of Lung Cancer (IASLC) was held in Yokohama, Japan from 14–18 October 2017. As the world's largest multidisciplinary oncology conference on lung cancer, it gathered more than 7,000 key opinion leaders, professionals and researchers from over 100 countries, who came together to unfold a series of in-depth academic exchanges and collaborations.

During the conference, we seized the opportunity to conduct a special interview with Professor Raymond U. Osarogiagbon, who shared lots of impressive and thought-provoking views in the interview, such as, "The more complex the staging system is, the harder it'll be to correctly apply it. The big challenge we have is to balance between those two needs to have a high degree of specificity of risk characterisation or prognostication, but also to counter balance with simplicity and user friendliness." "How are we going to incorporate some of these really cutting-edge diagnostics and biologic prognosticating ability into what is a traditionally anatomy-centered TNM staging system is another major challenge that we are going to be facing over the next couple of decades." "It's the patients' needs that should drive the care-provider selection, rather than the provider's capability driving what the patient gets". Full details please enjoy the interview below.

Figure 1 Professor Raymond U. Osarogiagbon: another major challenge over next decades—how to incorporate the cutting-edge diagnostics and biologic prognosticating ability into a traditionally anatomy-centered TNM staging system (1).
Available online: http://asvidett.amegroups.com/article/view/22854

Interview (*Figure 1*)

TLCR: You are a leading scholar in organizing and practicing the MDT program in USA. As MDT is a very complex procedure and involving many branches of oncology, how do you evaluate the quality of MDT program?

Prof. Osarogiagbon: Lung cancer care is complex. There are many different steps involved from the initial point of identification of nodules or lesions in the lung that could be lung cancer. The steps in between involve a tissue diagnosis and then staging procedures which involve certain radiology testing, and can also involve staging biopsy, and then of course we have treatment options that depend on the stage, the earlier the stage for NSCLC the more likely to involve surgery, the later the stage the more likely to involve radiotherapy, chemotherapy and palliative treatments, and at the end you get outcomes. The interesting thing is that each of these steps has a widening array of options and each of these options is driven by physicians in a different specialty. The complexity of lung cancer involves the fact that these specialists—if we are not careful—act as if the challenge is uniquely theirs, whereas the challenge is really much broader than any one specialty can control. What we have to do, therefore, is better engage the full range of specialists early on, so that the care the individual patient gets is based on the care they need, rather than the care that the provider knows how to give. So we get the answer to your question "How do you measure the effectiveness of this interdisciplinary interaction". The answer is you need objective measures that have bearing on the perspective that is important, the perspectives are those of the patients and their carer giver, but also those of the people who have to pay for the care delivered, and the perspectives of those who have to create the environment of care and the perspectives of the various experts involved. For example, the ultimate benchmark of course is survival, for cancer that is lethal, the likelihood of survival is something that we need to be able to compare: is it higher when you deliver the care within an interdisciplinary environment or outside of it? The other benchmarks involve patients' perspectives—are they satisfied or happy with the care they got? But also, things like the processes of the care, how thoroughly are you staging your patients within your program is a key measure of the success of your program. How much time does it take you from the initial onset to the actual completion of care is another benchmark? We have also looked at things like, when you have a multi-disciplinary environment for each individual patient, there are decisions that the group has to make. One critical benchmark is, when you make those decisions, how frequently do you actually carry them out assuming those decisions are the best recommendation for an individual patient, how frequently do you actually carry out that decision. That measure, which we have termed the concordance rate, is another way of measuring the effectiveness of interdisciplinary interaction.

TLCR: In China, we also have a lot of MDT meetings and discussions. I think your experience will be very valuable for us to improve the service.

Prof. Osarogiagbon: Yes, I think the need for more knowledge about multi-disciplinary care is not exactly unique to China. It is a universal need. If you look at multi-disciplinary care, it's something that makes a lot of sense. It seems logical for all the reasons I have just talked about many different actors, complex disease, patients have high needs and so on. However, the reality is, there are lot of things in medicine that sound sensible, but when you measure and test them you find out they don't actually turn out the way you thought. So one of the things that we do need to do is to rigorously measure. When we say we are doing multi-disciplinary care, we need to measure what exactly are we doing, what are we getting out of it, and who is benefiting or not benefiting from that. So what you just said about the Chinese need is actually not unique to China. In the U.S., we can't assume that just because we are getting together, we are benefitting patients or making

things better. We have to prove it. There is still tremendous opportunity for us to design rational studies that can help us better understand what we are doing when it works, and what we are doing when it does not work.

TLCR: You have been in the study of intrapulmonary lymph node for quite a long time, and recently you have published many papers involving in staging and quality evaluation. Since the new edition of classification has been released, do you have something to say to Chinese audience about this new edition?

Prof. Osarogiagbon: Staging is a vital component of any oncologic care, especially lung cancer. The staging system does many things for us at the same time. It serves us as a common language. When I say a patient is T2N1M0 in English, my colleague in China, in Japan, in North Korea, or in any part of Africa has immediately the same mental picture of who this patient is and what's going on with him as I have when I use that term. So the staging system is a common language for us. It's a universal language. We have to speak it fluently. We have to understand it, including its grammar, alphabet, and the components of it. When I say somebody is T1 or T2, or somebody is T1a, T1b, T1c, I have to be clear in my mind of what I mean, and the person listening to me also needs to have exactly the same clarity of what I mean, so the language is one. The TNM system also serves us as a prognostic measure. It gives us a working idea of how much risk the patient we are talking about is faced with. And it also gives us a good idea of what the range of management options for this individual patient will be and what the likely outcomes for that patient will be. These are two or three very important things that the TNM staging system does for us.

It is also our pathway to progress because when we do clinical trials of novel diagnostic, staging, or treatment modalities, those modalities have to be tested in clinical trials. For those clinical trials to be successful, they have to enroll comparable groups of patients, and that's why the staging system becomes critical for us. Not only the staging system, the part that we have spent a lot of time and effort trying to highlight is the thoroughness of staging. The thoroughness with which we investigate stage has a major influence on outcomes. When we don't apply the TNM staging modalities thoroughly enough, we call the patient a stage which in reality is the wrong stage, the danger we have is the patient will be exposed to the wrong type of treatment that maybe too much for him or her, or too little for what he or she needs to survive or to do better with their cancer. So mis-staging is a major problem when we don't investigate carefully enough. There is a danger when we don't apply the staging system correctly, and we are enrolling patients into clinical trials, then the big risk is that you begin to put different groups of patients with different risk into groups that you want to compare, and therefore you may have asymmetric groups of patients' risks on your clinical trials that can lead to results that are different from what they actually should be. For all these reasons, my research team has been very interested in trying to raise the universal quality of staging across the board, recognizing that there are multi-disciplinary groups of people, the pathologists for example as one discipline, the surgeons, the pulmonologist, the people who get the material that we stage patients with have a major role. We need to make sure that the quality of the efforts that they give to get us the correct stage for each individual patient is high, uniformly high.

TLCR: Could you please forecast the biggest challenge in the 9th edition?

Prof. Osarogiagbon: The great thing about the last few editions of TNM is that they are more and more evidence-based, and the key evidence is survival, so we have got this huge database that IASLC has now put together that is increasingly more international, that has patients' details, and outcomes information from many different countries, and that is now what is being used to figure out the prognostic implications of the varying types of tumor sizes, lymph node involvement, metastatic sites, and increasingly molecular things we will use in the future.

The problem is as we have identified the differences of different types of tumor sizes, different types of tumor histologies on survival, the staging system is becoming more and more complex. The good news is that we are able to fine-tune patients' risks based on subtle differences in characteristics. For example, there is a difference between a patient who has a tumor of 2 cm and one whose tumor is 4 cm, and it is a laudable goal to try to account for that difference. The problem is the more finely you split the staging parameters, the harder it is for people to remember how to do it correctly. The more complex the staging system is, the harder it'll be to correctly apply it. The big challenge we have is to balance between those two needs- to have a high degree of specificity of risk characterisation or prognostication, but also to counter balance with simplicity and user friendliness. That is one huge barrier.

The other barrier we have is the explosion in our

understanding of lung cancer biology and understanding the molecular predictors of patients' outcomes. Now the TNM system is currently a purely anatomic system. It is based on tumor size and location, lymph node number and location, and sites of metastasis. But now with our expanding understanding of cancer biology, our expanding array of measures of microscopic presence of cancer, such as circulating tumor cells and even beyond that, cell free-tumor DNA or circulating tumor DNA and as the technology to detect these becomes more widely available, how are we going to incorporate some of these really cutting-edge diagnostics and biologic prognosticating ability into what is a traditionally anatomy-centered staging system, the tumor node metastasis (or TNM) staging system, is another major challenge that we are going to be facing over the next couple of decades.

TLCR: How to overcome these barriers and move forward?

Prof. Osarogiagbon: The first challenge is to find a way to communicate better. Lung cancer is a complex disease. Our ability to successfully intervene to salvage life and quality of life is rapidly expanding and the rapid improvement requires a lot of knowledge which is increasingly specialised, so what we have to do is to bring that knowledge readily available at the point of care which requires information, information technology and understanding of how to bring that information right to the point where it is needed for the patients' benefit. This is where media become extremely important for us. Our communication systems, whether print media or electronic media, what we have to do is to bring knowledge right to the point of the provider where he can reach for it. Part of what that requires us to do is actually to accept the need to externalise that knowledge. We can't expect every provider to know everything that's out there for every patient. You can't memorise because if you try you are destined to fail, as the field is expanding exponentially, our human memory capacity is not nearly ever going to be enough to meet this challenge, so what we have to do is to encapsulate that knowledge into a format that people can reach into as they need it. I think that's why information technology is becoming extremely important.

TLCR: The trend of VATS has been quite popular around the world. How do you comment on different new types of VATS surgery, such as uniportal or robotic?

Prof. Osarogiagbon: One of the key movements in all of medical care, all of oncology, and increasingly more and more of lung cancer care, is the patients' perspective, patient-centeredness. Things that benefit our patients need to be regarded with a higher level of importance. One of the things that we are learning from patients is, not only is there a need for better survival as the primary outcome for a lethal disease, but the toxicity of our treatments also is very important. That toxicity runs through the full spectrum of care from conventional chemotherapy, the toxicity of conventional cytotoxic chemotherapy, to at the other extreme, oral targeted therapies, but also the toxicity of our surgery, the toxicity of our radiation modalities at the end of the spectrum. The difference between an open thoracotomy and a minimally invasive surgical resection procedure, may not be in different survival, but it is clearly a difference of patient comfort, pain, length of staying in the hospital, and the duration of recovery required. So, not only minimally invasive resection procedures but also minimally invasive staging procedures are significantly more patient-friendly than some of the more traditional resection and staging procedures. Therefore, given a choice between a large postero-lateral thoracotomy with a rib-spreading approach to deliver a tumor that requires several days in the hospital for postoperative recovery versus a VATS or robotically assisted procedure with multiple ports and small incisions and no rib-spreading, and consequently less postoperative pain, shorter recovery, where the facility exists (both human capability and technological capability) to do single port approaches, … absolutely. To the degree that such approaches are less toxic to the patients, that is the degree to which they will be more valuable to our patients.

TLCR: Since mini-invasiveness is the major player of the stage, how shall we train our fellows? The training process may need to modify to fit the change. Shall we start from open surgery or from VATS directly?

Prof. Osarogiagbon: For trainees, it is important, as much as possible, to be exposed to the range of the expertise. There are patients who have to have open thoracotomy because of unique characteristics about their tumor, so I think it is important for young emerging trainees to be exposed to the full range of techniques and capabilities that exist, and the ideal would be once again to have the full range of knowledge available so that what then drives what gets done for an individual patient is not the limitation of the doctors' or surgeons' knowledge or expertise, but rather the unique characteristics of the patients' cancer and patients' needs. So have the patients, about whom all of this needs to be anyway

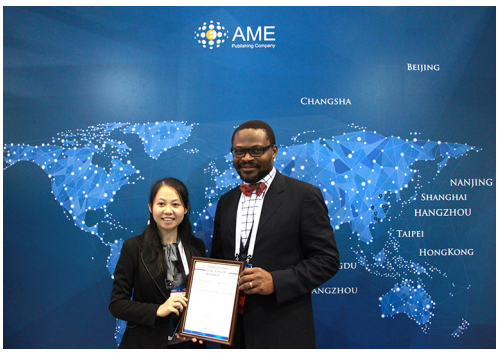

Figure 2 The photo of Professor Raymond U. Osarogiagbon and AME science editor Melanie after the interview on WCLC 2017 in Yokohama, Japan.

in the first place, be the key driver of what we do. For that to truly happen, what we as clinicians need to have are some access to the full range of capability, and this looks back to multi-disciplinary or inter-disciplinary decision making as well. The ideal would be: there is a patient with lung cancer and we look at the full range of who the patient is, what's the patient's past health been like, what the cancer is, what the cancer needs, and then once we have decided objectively what is best for this individual patient, we now figure out who has the requisite range of skill sets that can deliver that care, and we match that provider up directly with that unique patient. So that it's the patients' needs that now drive the provider selection rather than the provider's capability driving what the patient gets.

TLCR: As knowledge is more and more professionalized, and communication is important. How do you look at the development of media? (Figure 2)

Prof. Osarogiagbon: I have said several things already, a lot about complexity and the emerging expansion of that complexity over time, the diversity of knowledge, of capacity and capability that we have to have for our patients, and I have said how impossible it would be for any one individual, clinician or group of clinicians to have access in person to that full range of knowledge. That brings you to the point about communication, and encapsulating information right at the point of the service. Who is going to provide that? It is companies like AME, that provide access to knowledge, information, wisdom, that the care providers have to have readily available at their fingertips. The old style of memorising knowledge will not work anymore. What we have to do is rely on external capsules of knowledge that we can plug in when we need them, and that's where AME comes in. It is helping us encapsulate that knowledge into formats that will be readily accessible to us, providing a link between the creators of that knowledge and the consumers of that knowledge, and also providing platforms within which these groups of providers, creators of the knowledge, consumers of the knowledge can come together to meet in order to do the better outcome of care for our patients. AME is extremely vital to this process, and it has been my pleasure to work with you guys.

TLCR: Thank you very much for sharing your valuable views with us!

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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