

## Dr. Peter Yu: Declaration of the war on cancer—The advances of ASCO in the past 50 years

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*Dr. Yu received his medical degree from Brown University in 1980. He completed his internship and residency at St. Luke's-Roosevelt Hospital, followed by a fellowship at Mount Sinai Medical Center. He was a Research Fellow and Research Associate at Memorial Sloan Kettering Cancer Center. In 1989, Dr. Yu joined Palo Alto Medical Foundation.*

*Dr. Yu is an ASCO member since 1986. He is now serving as the 2014-2015 President of the American Society of Clinical Oncology. In addition to this role, he also serves on the Scientific Program, Nominating, Government Relations, and Special Awards Selection Committees.*

*During the ASCO 2014 annual meeting in Chicago, Dr. Yu was interviewed by Annals of Translational Medicine (ATM). In the half hour interview, Dr. Yu talked about the changes happened in the past 50 years, as well as the changes that are going to happen during his tenure. He also shared his thoughts with us regarding electronic health records and precision medicine that have emerged in recent years.*

**ATM:** *Good morning, Dr. Yu. First of all, I would like to thank you for giving us the opportunity to interview you today. At the time of 50th anniversary of ASCO annual meeting, would you like to share with us your thoughts about the landmarks in field of clinical oncology in the past 50 years?*

**Dr. Yu:** Thank you very much for asking me to be here today to share my thoughts. In 1964, seven oncologists realized that the time had come when treating cancer patients was no longer an aspiration but a reality and that vision it would be necessary to form an organization to accelerate the development of clinical oncology. At that time in the United States, people didn't talk about cancer openly. It was embarrassing to have cancer. So I think one of the biggest changes in the last 50 years in the United States has been this declaration of the war on cancer. Cancer is a public health



**Figure 1** Dr. Peter Yu (left) was being interviewed by ATM editor during ASCO 2014.

problem. It is an issue that shouldn't be hidden away. In the United States patients have become more and more involved in advocating public policy and raising money in support of research into the diseases they have. With that, in the last few years, we physicians in US have become more and more interested in working with patients both to drive the research agenda, but also to seek the best treatment options for cancer patients. Since we have had major advances, there are now so many approaches for cancer. I think another major change is the multi-disciplinary approach to cancer. Early on, treatment was dominated by surgery. You started by cutting the cancer out and you hoped it doesn't come back. If you can't cut it out, you use radiation therapy. Back then, we had just very few chemotherapy drugs to use and those were associated with high toxicity. Now, surgery has become a little less important, and there are also less invasive forms of the surgeries. Improvements in radiation equipment and techniques continue to be developed. And, we now have chemotherapy with less toxicity, along with immune therapy and hormone therapy. With that comes the complexity of

trying to coordinate all those different treatment modalities. Should we use all these therapies at the same time or should we sequence them? What is the best sequence of therapies to use? As a result there is greater communication between cancer physicians as we coordinate treatment.

**ATM:** *Looking forward, what is your vision regarding the future direction of clinical oncology in the next decade?*

**Dr. Yu:** I think we all realized that our increasing knowledge of cancer biology helps our diagnosis as well as treatment to cancer. That will continue to go on. I think that we will move away from the anatomic definitions of cancer. Think about this meeting here. Our program tracks are lung cancer, GI cancer, breast cancer, etc. And now we have GI cancer divided into colon cancer and non-colon cancer, lung cancer divided into small cell lung cancer and non-small cell lung cancer. We are still driven by anatomic definitions. On the other hand, we are beginning to realize that molecular drivers of cancer could be shared across different types of cancer. So we have HER2 overexpression in breast cancer, but we also have its overexpression in gastric cancer. Consequently we will need to move away from the old anatomic-based classification of cancers. What we will do next year at this meeting is to add some tracks that will be focused on molecular pathways. For example, we may pick Ras pathway and all the signal transductions that go downstream of Ras mutation. We will have education sessions around that and pull together abstracts across tumor types. It is time that we begin to approach the ASCO Annual Meeting so that follows what we all think is the future direction of precision medicine.

**ATM:** *Could you please talk about the collaboration between ASCO and AACR?*

**Dr. Yu:** With the bench to bedside concept, translational research and clinical oncology will converge. Both ASCO and AACR desire to shorten the timeline and accelerate the development of therapies from concept in the laboratory into clinical practice. Our studies will become more and more successful and with the recognition of the importance of translational research, we should be able to shrink that timeline down.

**ATM:** *What will ASCO do to facilitate the translational research?*

**Dr. Yu:** One is promoting education and training of

clinicians and scientists, which we have done through our various programs. We know for professional development, fellowship training is the first step in an academic career and funding is an important part of it. So we have investigator awards, development awards such as the Young Investigator Award and Career Development Award to encourage young investigators to be engaged. We also have our international programs such as IDEA and LIFE. We will encourage young people around the world to participate in these trainings. In the ASCO, we also have the leadership development program where we select out the rising stars and give them training in leadership skills and networking to help developing these skills which are so important for young oncologists.

**ATM:** *As more and more international oncology professionals become ASCO members, what will you plan to do in your term to facilitate the communication between American professionals and international professionals? What experience will ASCO share with foreign oncology societies such as Chinese Society of Clinical Oncology?*

**Dr. Yu:** It's interesting. What do you mean by international? Many people think that domestic is here in the United States and the international means the rest of the world. I think the true meaning of international is that all nations belong to one world and exist with each other. So I think we have to understand that international no longer means just outside the borders, but really we are all in one world, interacting between nations. I found it very helpful that last year to go to the CSCO (Chinese Society of Clinical Oncology) meeting in Xiamen. It is important to me to be able to meet the leaders in China and understand how healthcare research and cancer care happen in China. So ASCO will be looking at everything we do, whether it is domestic or international. It will take a look at what is going on in the cancer world across the whole world, try to match up what we do and what is needed elsewhere outside the US, and try to identify organizations like CSCO in China and JSMO (Japanese Society of Medical Oncology) in Japan to work together. We always have had good relationships but we haven't formed alliances. We haven't performed a systemic overview of what ASCO is doing to understand how we can have a global perspective. So we will focus on every part of the world, and of course the Asia. One of the things I have done is made some key appointments that I think will be very helpful for the next few years. The chair of

our international affairs committee is Dr. Yun Yen, who is a professor at City of Hope in Los Angeles and President of the Taipei Medical University. Dr. Yilong Wu from China has been a recent member of that committee. I also appointed Dr. Wenlong Song to join our committee, so he will be another Chinese member on that. Dr. Song is from China and works here in the US now. As I said, I want to go beyond just international committee. So I appointed members of CAHON (Chinese American Hematologist Oncologist Network) in our grant selection committee. This is a committee that helps to award grants to young investigators. I also appointed the CAHON members to the scientific program track; these are the doctors who select abstracts to present at this meeting.

**ATM:** *One of the most influential technological trends in health care practice is the implementation of electronic health records, which provides the opportunity for health care professionals to embrace the big data era. What can we expect from this revolutionary change?*

**Dr. Yu:** There are so many ways that digital health records could contribute. In the last few years, we have seen a remarkable extension and definition of digital health needs. Now most of the hospitals in US have electronic record systems. So we have what we call “digital health”. But we need to learn how to utilize it. There are several ways we can utilize it. One is we can expand our knowledge base beyond the limited database that we have in clinical trials. Though clinical trials will remain the gold standard, they take a lot of time and money, and they are very restrictive in the patient population studied. That’s not the real world. So once we approve a new drug, we really don’t know how to use that drug in patients who do not fit the eligibility criteria of the trial. But if the real world is collecting this information in electronic records, we can evaluate performance and see what realistic outcomes are attainable. We can also use it to be hypothesis driver. We know that treatment is not uniform and full of variation. We also talk about unwarranted variation—that is doing something that we shouldn’t do because it really doesn’t help or maybe hurts, and warranted variation—which is when doing something different actually works out for the better. So the electronic health records will be a way for us to better capture what people are doing, why are they doing and what is happening, as well as a tool to extend this knowledge to other doctors and patients.

**ATM:** *Cancer treatment is one of the major fields for the practice of precision medicine. Could you please talk a little bit more about how oncology-specific electronic health records will help reach the goal of precision medicine in cancer treatment?*

**Dr. Yu:** Oncology is driven by pathology. Pathology data includes anatomic pathology, which is traditional evaluation, as well as laboratory pathology, which involves biomarker test, blood test, etc. These two are different in that reporting laboratory test, like glucose levels is digital whereas the anatomic pathology which contains description of cancers, mutations, alterations, etc. is not digital. So we need to formulate the electronic information of cancer pathology into clinical records first because if we don’t know that, we can’t do precision medicine. So ASCO is working closely with College of American Pathologists to work on developing standards for reporting of biomarker, etc. That’s the foundation. If we have that information, the next would be what test we do. Should we do single test for HER2 in breast cancer patients, or should we start doing a panel test? And we start to see the emergence of tests like gene expression or mutation analysis that produce hundreds of data points. That’s a big volume of data challenging the system that we need to do. But let’s assume we have done that. If we have that volume of data, the next question is with all these mutations and aberrations we see in unstable cancer genome, which are the ones that really matter. It is likely not to be a particular mutation or pathway; it is probably a network of pathways. And to do that analysis, it will again require computational medicine, using computers to analysis complex large volume of data, to tell us which are the pathways or substantial combinations that are most likely involved. So I think there is a path to realizing how electronic health records or digital health can improve cancer treatments. It is a multi-step process. We are on the way of identifying what we need to do.

**ATM:** *Finally, what advices would you like to give to our young oncology professionals? What should be kept in mind during their daily practice?*

**Dr. Yu:** There are a few things. One I think is to be flexible, and not rigid. Cancer especially is a field that changes so rapidly and so often. What make sense 10 years ago doesn’t make sense now. What we have done because we have always done in this way may no longer

be the best answer. We need to always take flexible in mind. Another thing I think is the cooperation. Team science and team medicine is much more powerful than trying to hold on something developed by oneself and get all the credit for. Also, always try to think where the field is going, where changes are happening which will lead you to the future.

*ATM: Thank you very much!*

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