

National Outstanding Clinician Scientist Award 2012: Pierce Chow

Professor Pierce Chow is awarded the 2012 National Outstanding Clinician Scientist Award for his outstanding contributions and achievements in clinical and translational research in hepatocellular carcinoma, the third most common (liver) cancer in Asia, and in improving the health and management of afflicted patients in Singapore and the Asia Pacific region. Prof Chow is a Senior Consultant in the Department of General Surgery at Singapore General Hospital, a visiting Senior Consultant at the National Cancer Centre, Singapore and a Professor and Course Director at the Duke-NUS Graduate Medical School. He is also an Associate Editor of the Annals Editorial Board.

Below is the interview that Prof Chow had with Annals.

1. Why do you choose to go into Medicine?

From the time I was a child, I have wanted to become a doctor. I looked up to the general practitioners in my hometown because they seemed so kind, so knowledgeable and were role models. I grew up in what used to be a small town and there were not many people who were role models. I thought that while it was a challenge to become a doctor (especially for a small boy in a small town), it was however a very noble profession. Studying medicine was my childhood ambition.



I believe many decisions in life are often a combination of interests and opportunities. When I was a registrar at the Department of Surgery helmed by Prof Soo Khee Chee, the subspecialty of hepato-pancreato-biliary (HPB) surgery was just being developed and I came into contact with patients with liver cancer. There seem to be a compelling need, meaning that there were so many things that had to be done urgently to improve outcomes in these patients. I found the liver a fascinating organ—it's the only organ in the human body that is able to regenerate.

2. Why do you choose to be a surgeon, specialising in liver cancer?

Being a surgeon came as a later decision. We worked very hard as house officers. I remembered being an Internal Medicine house officer standing at the end of ward 63 in SGH, looking at the 30 or so patients I looked after and then realized that they were not going to be cured. If they were diabetic, they remained diabetic. If they were hypertensive, they remained hypertensive. What I could do was perhaps to give them better quality of life and make them feel better. But surgery seemed different to my young professional mind then. The patients who came in with trauma recovered after surgery. Those who came in with appendicitis were cured after surgery. While that was of course the simplistic view of a very junior doctor, surgery seemed to be more positive. I think my temperament is more suitable for surgery.

3. Could you share with us your research journey, your struggles and obstacles? And what was done to overcome these obstacles?

The research journey has been particularly interesting but difficult. Government support for research in Singapore increased greatly from the year 2000 onwards: that was the start of the national biomedical initiative. I started on my research journey prior to that. My Head of Department then strongly encouraged research and research also naturally appealed to me. Early success when I won the Young Surgeon's Award of the Academy of Medicine in 1995 for my research in liver regeneration further encouraged me.

In those days, while there was not much institutional support for research, competition was also not stiff. The barriers to entry were lower and it was relatively easier to get grants. Of course, as biomedical research became more

developed in Singapore and the grants available become larger, there is more competition and the barriers to entry become higher. On the other hand, the infrastructure supporting research has also matured. There are two sides to the coin.

What is more recognised now is the important role research has in improving patient outcomes. When we first started, research was seen as a fringe activity; a hobby; something good to do if there were time; something not central to what the hospital was supposed to do. I think the current challenge for the country and its medical institutions is how to reverse this culture in order to incorporate research into mainstream medical activity, because that is the only place that medical research can thrive. The research enterprise cannot take off and succeed if it is done by “other people” at “another place”.

The way that most doctors have been trained in the immediate past in Singapore however does not always intuitively encourage them to think that research is necessary. Most of their teachers, role models and leaders did not do it.

But if we looked at countries where the research culture is more entrenched, we can see very clearly that clinical trials and translational research are the means to improve patient outcomes. The Scandinavian countries have small populations like Singapore but their medical institutions are leading centers of scientific knowledge and medical expertise. Their populations enjoy health indices and lifespans that are among the highest in the world. This

should be something that we should aspire to.

Medical research is frequently still seen as a fringe activity today among doctors and it is still not considered a necessary activity in our medical culture—even though we now have much more support from management and the government. The government is funding 2 academic medical centres where research will be a main driver of excellence but we are way short of clinicians with experience in research. On top of that, Singapore is a very small country and there is little economy of scale. It will require concerted effort to achieve a critical mass. Too few doctors do research now to be able to make a significant impact.

The biggest challenge is thus to create a critical mass of clinicians who do clinical and translational research because without this critical mass, we have no synergy. Our national target is only 160 clinician scientists but we are quite far from this target. Not all doctors will do research or be good at doing research but the challenge is how doctors as a group view and support research.

In developing countries the challenge is to meet basic health service needs and all the resources should be channelled there because this improves patient outcomes immediately. However, in a country where basic service needs are already met, the only way to improve patient outcomes further is through cutting-edge research.

For example, we cannot improve patients’ health by improving our waiting time or by installing air conditioner in our wards. To improve outcomes further we need to have



Prof Chow (standing in the middle) having dinner with visiting members of the Asia-Pacific HCC Trials Group.

better firsthand and in-depth knowledge of diseases relevant to our population and better ways to treat these diseases. We cannot always depend on doctors in other parts of the world to tell us the best way to treat our patients because their disease patterns and patients may be quite different from ours. Colorectal cancer occurs very frequently in the West so a lot of research done has been done there and they already have a headstart. But hepatocellular carcinoma is predominantly an Asian-Pacific cancer and very much less research has been done. If we really want our patients to have improved outcomes, we need to drive these research ourselves.

What could be done to overcome these obstacles?

The short answer would be to create a research culture and to nurture clinician scientists. I have often been asked what it takes to create a successful clinician researcher. Looking back at my own albeit personal experience, I think there are only 4 necessary requirements. Firstly, the person must have the required interest in research. In addition, he must have the natural aptitude and fortitude. There 2 qualities are innate to the person. The third is clear and consistent institutional leadership and support without which, a researcher cannot function. The fourth is a good mentor to start the person on the journey.

At the end of the day, leadership and structural changes are needed to establish a research culture. That means that clinician researchers are not fringe doctors and are able to have a say in the agenda. Clarity of vision and consistency of purpose in leadership are crucial to overcoming these obstacles.

4. Who has/have inspired you in this journey of research?

My mentors. I started my research journey as a surgical registrar in SGH and I carried a full clinical load. We were encouraged to do research by our head of department, Prof Soo Khee Chee (currently Director of the National Cancer Centre Singapore). We had very little infrastructure then and very few teachers. Doing research while carrying a full clinical load was very tough. Prof Soo was instrumental in encouraging me to go do my PhD at a time where there was no government scholarship to do this!

The biggest impact on my research has been the successful creation of the Asia-Pacific Hepatocellular Carcinoma Trials Group in 1997 through which I am currently conducting our 6th multi-center trial. At that time, very few people in our institution or even in Singapore knew how to create and run a multi-center clinical trial. I learnt a lot from the first director of CTERU (now the SCRI), Prof David Machin. He taught me the nuts and bolts of how to set up and conduct large clinical trials.

In the research journey, there are a lot of institutional hurdles to be cleared and that's where institutional leadership comes in. We are very fortunate that our GCEO Prof Ivy Ng and our CEO Prof Ang Chong Lai are supportive in this aspect. I am also fortunate to have a wonderful family who supported me fully on this austere journey.

5. What does the Award mean to you personally and how is this award different from the other awards that you have received?

There is a lot of satisfaction that my research has been benchmarked and ranked and not found wanting. It is also a testament to my collaborators, both in Singapore and Asia Pacific who have subscribed to my scientific ideas, often without counting their personal costs. I suppose winning this award encourages me to go further.

Some of the awards I received in the past were personal; they were awarded to me as an individual. Though this award is presented to me as an individual, this is based on my collaborative work with many people. Thus this is a validation of the clinical trial groups.

6. What lessons do you wish to share with the aspiring clinician scientists?

The path a clinician scientist takes is one that is long and arduous and has a high chance of failure. For example, if you put 10 doctors into a training programme in surgery, at the end of 5 or 6 years, you will get 10 qualified surgeons or consultants (or at worse 9). If you put 10 doctors on a PhD programme, at the end of 5 years, you do not get 10 successful principal investigators (PI). Statistically, only 20% of them will succeed as principal investigators. The natural attrition in clinical work is much lower than the natural attrition in research and the natural attrition for the clinician scientist is the highest. Thus, one must be prepared that this is a very tough and austere journey.

I would tell aspiring clinician scientists that their work must be aligned with the vision of their institutions. I was not able to say this when I first started. It was a fringe activity then. Now is probably a better time to embark on a clinician scientist career.

As the healthcare system in the country matures, it will soon be difficult to make a significant contribution just by doing clinical work. If you really want to make a significant contribution towards the outcomes of patients, you will have to engage in research.

7. How can we improve Academia in our hospitals and what potential role can the AM play?

The Academy as its name suggests is an academic

institution. I think one of the most important things that the Academy can do is to go back to its academic roots and focus on academic activities because that's really who we are. We are here to foster the academic part of our profession and we are not a group of tradespeople. The recent move by Tien Yin and Eng King to set up a Chapter of Clinician Scientists is really a correct step in this direction. The Academy returning to its academic roots really puts it on a moral high ground that carries much more weight. This role is not held by any other organisation.

8. We understand that you juggle numerous roles and wear many hats. What do you like to do during leisure?

When I have time, I like to read, my favourite genre is history. History helps me to have a perspective of the broad sweep of things.

9. After receiving this Award, what are your plans?

I would like to be able to train more clinician scientists and perhaps help create an academic surgical department.

But aspiring clinician-scientists must know that to take on research means there is opportunity cost and one has to be prepared that research can fail. Someone with the best intentions and good ability may find that after a few years he or she cannot make it as a Principal Investigator. The institutions must recognise that research is inherently much more Darwinian than mere clinical work and must support the return of such individuals into the regular clinical track.

10. As an Associate Editor for Annals, do you have any advice for the Journal?

While it is important for the Annals to be a high impact journal, the Annals also has a pivotal role in the local medical scientific scene. Occasionally, important local studies that may not potentially have high international impact depend on publications like the Annals to be given a chance to be published. Otherwise, these findings will never be documented. However, the current aspiration of the Annals to be a high-impact journal is absolutely relevant and correct.