Dean Li helps TMU lead in infotech apps for health

Dean Li has been awarded as Academician by American College of Medical Informatics since 2010. He practices dermatology as well as leading TMU’s internationally noted Biomedical Informatics graduate studies program. Here are his reflections on where informatics research will lead in TMU’s future.

In the beginning of 1995, it became time to invest in a fiber optic network system to connect the campus and the hospital. We went with an IBM system and we established the first website for a medical university in Taiwan on August 1995. I assumed the position of IT director of both the university and the hospitals for the next 12 years.

(Continued on page 4)
Message from President Yen

Greetings to all of the readers of TMU's English magazine. This special issue on research helps to tell TMU's most important story: its mission to focus on translating research to useful clinical practice.

For example, we have established a biobank to help our scientists and collaborators prove their concepts. We are also completing work on a "value added" database using National Health Insurance information. This vast repository of information can be a source of answers about treatments, risk factors, and medication use. "Big data" is also the resource behind our brand-new biostatistics center, which makes biomedical information translatable from bench to bedside.

We are also working hard to optimize a joint Institutional Review Board and clinical trial procedures to make it easier for clinicians to perform research. They can conduct trials to test hypotheses as well as to develop new treatments and medical devices.

We are expanding our research and clinical faculty to find useful and applicable knowledge. Serendipitously, we are moving on to help our community and our country in partnership with businesses.

TMU alumni magazine debuts

The Office of Public Affairs published the initial issue of TMU Alumni in January, with the next issue due in July. This publication allows alumni to keep in touch with TMU and to stay informed about what their old friends are doing.

This issue features a special interview with Taitung's Daren Township health center director, Dr. Chao-Bing Hsu. But the biggest news is the start of a new alumni association and each department's outreach to our alumni. This issue discusses the mission of this alumni association, as well as our alumni's reflections upon their schools. The editors invite all alumni to submit writing for publication. In this way everyone can help the garden of TMU's influence bear new blossoms.

TMU student research takes on life-saving topics

Electronic records and hospital information systems in China

My master's thesis research will focus on China's implementation of electronic hospital information systems (HIS) and electronic medical records (EMRs). This research will document the progress China has made in incorporating effective HIS, including EPRs, within its national hospitals. I would like to determine at what standardized levels China has these health IT platforms in current operation. If necessary, this research may involve a standardization assessment system to uniformly sort and analyze this data. I will review distinctive regional and national milestones in relation to current trends in biomedical informatics, as these important factors are relevant to this topic. Individual patient records have been handled in various ways by the administrators tasked with keeping these records accessible and up-to-date. I will explore these records-handling procedures in detail because it is not logically appropriate to keep such lab records and body scans in printed-out media. I will use a theoretical model to plot and rate hospital units accordingly.

Which hormones influence polycystic ovarian syndrome?

Hyperandrogenism is a predominant criterion in polycystic ovary syndrome (PCOS) according to Androgen Excess and PCOS (AE-PCOS) Society diagnostic criteria. While differences between PCOS phenotypes have been reported, no research until this study has examined independent abnormally elevated androgen measures to observe differences in metabolic endocrine features and insulin resistance.

Thus, I conducted a retrospective study in 121 Taiwanese women with hyperandrogenism and 142 women without hyperandrogenism, with medical records reviewed from June 1, 2009, through July 21, 2012. The classification of women into the four groups determined by this study was based on the AE-PCOS Society diagnostic criteria. The excess TT group presents with an unfavorable metabolic and hormonal profile that is more insulin-resistant and poses additional cardiovascular risk. The excess FAI group presents with higher gonadotropin dysfunction and a higher metabolic syndrome risk. My results show that subjects with excess FAI are obese and face the highest metabolic syndrome risk, adipsocytokine alterations, insulin resistance, and cardiovascular risk.

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Special issue: Connecting with research

(Continued from page 1)

In 1997, with the opening of the new Wan Fang Hospital, we adopted a new health information system that covered both our TMU hospital and Wan Fang. However, what happened over time was that the hospitals evolved into separate systems. In a way they were competing with each other, which is not all bad.

Twelve years later, I decided to make a job change from managing the hospitals’ IT operations, which had grown essentially from a staff of two people to almost one hundred between the campus and the hospitals. It had been a position of incredible pressure – even banks’ IT isn’t as critical as hospitals’ data operations. After all, banks close every night but we operate 24 hours, constantly collecting and managing patient data. And with banks it’s only money – with hospitals, lives are at stake!

So in 2006, I accepted an offer from National Yang Ming University to chair their newly reformed Department of Biomedical Informatics. Here I saw the academic side of biomedical informatics in a department with sixty graduate students. Yang Ming is a national university, so it has both space and funding things that TMU has to work very hard for on its own. So I had three years to focus on pure research.

But in 2009, Wen-Ta Chiu, then TMU’s president, again asked me to return to TMU. He knew how to convince me; he said “We need you more than they do.” He called every now and then and asked me to return to TMU. I took the job because he has been a friend, a mentor and a father-like influence for me. I gave up the teaching hospitals work on a military-style model, with a strict hierarchy – the Superintendent has final say over everything. The university is more democratic, so it needed you more than they do. The problem addressed by the project was that lab results for HIV tests in Swaziland, Sharoon Hlatshwayo, performed music and dozens of other M-health projects use SMS for health applications at remote African clinics, no studies have been published that measure their effectiveness.

Although other projects use SMS for health applications at remote African clinics, no studies have been published that measure their effectiveness. The respected biomedical journal PLOS One has published TMU’s LabPush study about the effectiveness of providing remote clinics in Swaziland with laboratory results via SMS (short message service). To mark this occasion, TMU held an inspiring multimedia press conference to discuss the background of this historic study. A TMU student from Swaziland, Sharoon Hlatshwayo, performed music and dozens of reporters gathered to hear Minister of Health Wen-Ta Chiu speak in praise of the project.

The problem addressed by the project was that lab results for HIV tests often take a month to be returned to Swazi patients because delivery motorbikes travel infrequently between clinics and central labs. Bad roads and limited public transport meant that Swazis who travelled hours to be tested often returned via the same difficult routes – only to find that their test results have not arrived. Delays in test results can also lead to suboptimal medication dosing, since by the time a test result returns, the patient’s T-cell count is already a month out of date and requires a new test. This makes the overall clinical situation for processing blood tests difficult for patients. The study addressed the process of getting host-government approval was expected to be short, but it took 18 months due to inter-agency delays. Paying staff to log each test time was expected to increase reliability, but in fact this was a recurring issue because of noncompliance and inaccurate recording by lab and clinic staff.

The study and the lessons learned can help future efforts to use this powerful and widespread technology. The Swazi study also provides evidence that Taiwan is spreading its technologies internationally to enhance health services in developing countries. The full paper can be read at: http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0044462

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Minister of Health Wen-Ta Chiu (fifth from left) joined a press conference to note an M-Health research milestone at TMU.

At Harvard University, I was inspired by biocomputing and disease modeling but I was just a student, I had no mentor, but I was mentored by music and dozens of other M-health projects use SMS for health applications at remote African clinics, no studies have been published that measure their effectiveness. The respected biomedical journal PLOS One has published TMU’s LabPush study about the effectiveness of providing remote clinics in Swaziland with laboratory results via SMS (short message service). To mark this occasion, TMU held an inspiring multimedia press conference to discuss the background of this historic study. A TMU student from Swaziland, Sharoon Hlatshwayo, performed music and dozens of reporters gathered to hear Minister of Health Wen-Ta Chiu speak in praise of the project.

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Minister of Health Wen-Ta Chiu (fifth from left) joined a press conference to note an M-Health research milestone at TMU.
Many great advances in medicine over the past 50 years have translated to a 10-year plus increase in average life expectancy in Taiwan. However, scholars point out the continued existence of a persistent gap in life expectancy – Aborigines live on average 10 years less than the general population. A great part of indigenous deaths can be attributed to preventable causes related to ‘lifestyle choices’ such as traffic accidents, cirrhosis, or cancers related to betel chewing, smoking and alcohol.

Yet some Aboriginal populations experience less incidence of certain diseases than the general population. Such is the case of the Atayal in Hsinchu County, where I’m conducting nutrition fieldwork. I’m investigating the dietary habits of the Atayal because they retain many aspects of an age-old traditional diet. Compared to the modern diet that is high in sugar, salt, fried foods and chemicals, this diet eaten in the mountains can be considered a fruit basket of Taiwan.

Residents here usually grow their own fruits and vegetables, and this industry has in recent years become a bigger piece of the local economy so that some earn a good living selling their small-scale farming produce.

My fieldwork feels exciting for its relevance because I study what the Atayal grow for themselves to eat – quite literally measuring what’s in their gardens. They also are teaching me how they work with the land, their views toward nature and the environment, and about Atayal culture and language.

And if you think Taiwanese people are friendly, you should come and meet these people – they’re ten times friendlier! This is one big reason why I’ve moved into the mountains. I’m going to love this hands-on field experience, so thank you TMU for choosing me. This has given me a chance to study a bigger piece of the local economy.

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(Continued on page 9)

Photo by Trista Di Genova

Aboriginal children eating junk food. Farmers in Chingchuan, a mostly aboriginal mountain village.

Applying new concepts of resilience to patient safety

Eliona Rubashkyn, Health Care Administration, Colombia

A decade ago, medical errors and adverse events produced in hospitals were among the top 10 leading causes of death in the U.S., even above breast cancer and AIDS. Recently TMU researchers Prof. Sheuwen Chuang and Eliona Rubashkyn have been working to apply the concepts of resilience engineering and “safety II” in a model intensive care unit in Taiwan.

Resilience engineering, according to Cook and Woods, is a way that people at all levels of an organization can try to anticipate paths that might lead to failure, as well as to create and sustain strategies resistant to failure, and adjust tasks and activities to maintain safety margins despite workplace pressures to do more and to do it faster (“Nine steps of resilience engineering”)

(Continued on page 15)
Malawi must protect people from catastrophic medical spending

Dominic Moyo, Malawi

(This article appeared in Malawi’s major newspaper, the Nyasa Times)

Recent news reports of drug shortages in public hospitals are unfortunately not news. Far from being an isolated lapse, such deadly shortfalls are a perennial problem. Insufficient services, facilities, medical supplies and human resources also have led to a loss of trust in Malawi’s health system.

When I worked in the public hospitals, many patients came to these facilities as their last resort, in desperation because they could not afford care elsewhere and had to settle for what little care they could get from public hospitals. Yet the technically free care these facilities offer poses different economic challenges for the poor that make it many unable to complete treatment or procure necessary medications. In reality, this free care is difficult to access and low in quality.

Less than 10% of the national budget goes to health, in contrast to the WHO-sponsored Abuja Declaration signed in 2001 by many nations committing to spend at least 15% on health. Malawi’s health budget allows only about US$25 per person per year for health services – just over half of the US$44 specified as the lowest possible level to provide essential services by the Taskforce on Innovative International Financing. Thus current financing can only provide half of what might be in the best case (with no waste and good planning) be sufficient care.

Drug shortages at hospitals

Filling this financial gap to purchase health care becomes a major challenge when people have to spend money from their pockets. This is especially worse for people in rural areas, where medical services are almost nonexistent. Very poor people must first pay for transport to a health facility that has erratic supplies of medications and other medical necessities. So then they must find drugs in pharmacies, and pay more.

Starting in 2001, global health initiatives poured money into Malawi for more than half a decade, with the Global Fund, World Bank and PEPFAR among others initiating vertical programs to reach vulnerable people and reduce out-of-pocket health costs. Then the economic crisis saw budget cuts and withdrawal by major bilateral donors. Now a single illness or accident can shift poor families into crisis as health costs continue to increase.

In 2000 WHO said health systems should protect people from catastrophic health expenditures, defined as when households spend more than 40% of disposable income on health after subtracting subsistence costs. Given the current economic turmoil, Malawi is failing utterly on this count: subsistence costs are increasing while incomes are not.

Budget allocations to public hospitals have not increased, leaving most to operate in debt and lacking basic necessities. Many people thus spend their disposable income on medications and other medical expenses. This out-of-pocket expenditure on health is regressive (affecting the poor more than the rich) and prevents people from accessing desperately needed medical services, since only those who can pay receive treatment.

Prepayment insurance

Prepayment of health services is the best form of health financing; many countries have implemented this form of revenue collection and have excellent health systems. Yet only private institutions like the Medical Aid Society of Malawi provide this, and their premium costs are prohibitive to an average rural resident.

(Continued from page 14)
Mastering the menu: Eating well in 50 Chinese words or less

By Dana Jensen, Health Care Administration, United States

Ordering from a Chinese menu can be a huge challenge -- even for people who are proficient in Chinese. Menu items may have confusing names that don't tell you much about the ingredients or preparation, and many dishes might have very similar names. Luckily, by knowing just a handful of words, you can get a reasonable (if not exact) idea of what you're ordering. By leaving some details of the order to chance, you get a great chance to find new foods you might never try otherwise, while still staying within your comfort zone.

The basics

When we're trying to pick a restaurant for dinner, my Taiwanese roommates will often ask me what kind of food I want: street food, noodles, rice, or soup? While it may seem strange at first, the majority of Taiwanese/Chinese foods fall into one of those categories. If you select a restaurant at random and look at their menu, you'll see several words repeated over and over. Just pick your favorite and you'll at least have a general idea of what you're getting.

Vegetables

The all-purpose word for vegetables is actually the same word that's used for "dishes" or "food," so this can be a little tricky. However, when you see this character as part of a longer item, it pretty much guarantees there will be a leafy green vegetable inside. Other important additions are listed.

Sauces

Especially when you're ordering pasta, it helps to know what sauce you're going to get. There are far too many sauces to list, but I've given several common ones.

Drinks

Often the menus are even larger at drink shops than at restaurants! Luckily, they're usually fairly simple to understand if you know what to look for. Combining the words below yields dozens of possible drinks. Remember that black tea translates as "red tea" in Chinese. Also, if you want your milk tea made with real milk instead of powdered milk or non-dairy creamer, make sure it says "fresh milk." Often drink shops are able to substitute fresh milk at a small additional cost.

Fried rice is the way to go when you want a classic, tasty, simple lunch. There are several restaurants on "food street" alone that serve it, with dozens of flavors between them. The food translation list should cover all the basics, so be sure to try something you haven't had before!

Daily is a great Japanese-influenced restaurant just south of school, with wonderful chicken and pork cutlets, omelette rice and other favorites! The menu is partly in English.

Sweet Lemon, a Southeast Asian-influenced restaurant in the main "food street" by the hospital has dozens of popular rice and noodle dishes, as well as huge drinks. Their menu is bilingual, so you can use it to practice using the food translation list.

Just across from the TMU Hospital emergency room, you'll find the local "food street." Pretty much every shop in this alley sells either food or drinks, all at very reasonable prices. You can get a meal for as little as 30NT, and prices don't get much higher than 150NT in these restaurants.

Noodles

Rice

Soup

Bread

Pancakes

Dishes

Meat

Cow

Pig

Sheep

Chicken

Duck

Fish

Crab

Shrimp

Oyster

Clam

Soy

Egg

Soup

Rice

Bread

Wonton

Vegetables

Leafy greens

Gourd / pumpkin

Onion

Corn

Tomato

Broccoli

Bamboo

Eggplant

Cucumber

Sauces

Cream

Curry

Ketchup (tomato)

Garlic

Wine

Coffee

Drinks

Fresh

Tea

Red

Green

Oolong

Milk

Tapioca pearls

Winter melon

Juice

Apple

Orange

Guava

Lemon

Watermelon

Mango

Strawberry

Grape

Please note: Many words I've listed appear in their "short form" as they would be used on menus, not as they would appear alone.

Wonton. Lots of places around campus serve wontons at random, so try a bunch and find your favorite! I like these "giant" pork wontons from a shop at the north end of Wuxing Market. One of the stalls in TMU's own cafeteria serves a fantastic bowl of won ton noodle soup.

Chuang's is a relaxing shop close to school where you can get delicious drinks, very nice pastas, and several tasty teas. There is no English menu, so be sure to bring your translation list. It's well worth the extra work!

<table>
<thead>
<tr>
<th>Dishes</th>
<th>protein</th>
</tr>
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<tbody>
<tr>
<td>Fried rice</td>
<td>Clam</td>
</tr>
<tr>
<td>Wonton</td>
<td>Oyster</td>
</tr>
<tr>
<td>Tomato</td>
<td>Chicken</td>
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<tr>
<td>Eggplant</td>
<td>Vegetable</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Sauces</th>
<th>Drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leafy greens</td>
<td>Cream</td>
<td>Fresh</td>
</tr>
<tr>
<td>Gourd / pumpkin</td>
<td>Curry</td>
<td>Tea</td>
</tr>
<tr>
<td>Onion</td>
<td>Ketchup (tomato)</td>
<td>Red</td>
</tr>
<tr>
<td>Corn</td>
<td>Garlic</td>
<td>Green</td>
</tr>
<tr>
<td>Tomato</td>
<td>Lemon</td>
<td>Oolong</td>
</tr>
<tr>
<td>Broccoli</td>
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<td>Bamboo</td>
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<td>Milk</td>
</tr>
<tr>
<td>Eggplant</td>
<td>Watermelon</td>
<td>Tapioca pearls</td>
</tr>
<tr>
<td>Cucumber</td>
<td>Mango</td>
<td>Winter melon</td>
</tr>
</tbody>
</table>

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Wonton, a shop at the north end of Wuxing Market. One of the stalls in TMU's own cafeteria serves a fantastic bowl of wonton noodle soup.
M-health apps provide decision support for patients, clinicians

(Continued from page 4)

**Academic leadership**

Since 2011, I have been the dean of this college, a position which allows me more time for research and clinical duties. And in fact from the first day I came back to TMU in the 1990s, I thought it was an underrepresented area of the university. I launched this young department with a public relations event – the first direct real-time broadcast of surgery from the operating theater to a conference room where reporters could ask questions of the surgeon.

I felt that we should let people know what we’re doing; we do want to share these ideas with the public. So you need simple words to explain complex situations.

**Student research ideas**

We do not force students to research a particular topic suggested by faculty. Instead, we give them six months to come up with their own ideas. For example, SANA project that we are partnering with MIT (Massachusetts Institute of Technology) is working in Pakistan to lower the very high infant mortality rate by tracking all married women so they can be informed about and urged to access health services.

**Phones for health**

Now our research has grown from that early gee-whiz PR event to help give feedback to clinicians. This is one way that marrying IT with medicine can have a big impact on medical practice, and it is the roots of M-health, or technologies that use mobile phones to assist health professionals and patients.

For one thing, M-health is a very practical way of providing IT systems to under-resourced areas. For example, the SANA project that we are partnering with MIT (Massachusetts Institute of Technology) is working in Pakistan to lower the very high infant mortality rate by tracking all married women so they can be informed about and urged to access health services.

**‘We care without distance’**

By Prof. Val Crawford, TMU Outwards editor

As this issue’s theme is “Connecting with research,” the other pages of this magazine are full of TMU’s research and the many ways our bench-to-bedside efforts translate ideas into better practice.

So here I’d like to talk about connecting. Our title, TMU Outwards, refers to the global reach of this institution: the international students, visiting scholars, partner universities, outbound exchange students, service groups going abroad, and our medical missions that teach our students and staff while helping others.

Still, when I looked up and saw “We Care Without Distance” bannnered across TMU Hospital in huge letters, I was confused. What does this mean?

Is it the quality of empathy that erases a clinical professional’s cool remove from pain, distress and death? Is it the home care, the mammogram-mobile and other programs that take our services to the community? Is it the satellite links that enable real-time medical exams for burn victims on the far side of Africa?

I think the meaning is connection – because connection is our primary business. Education is connection, a message that bridges a gap and changes a learner. These days that gap can be easily hurdled from any distance, and at any time, by our Open Course Ware (lab videos get heavy play at midnight during midterm weeks).

Sometimes the greatest distance is invisible, only an arm’s reach away behind a wall of indifference. That’s what it feels like when students are playing on Facebook instead of engaging in the classroom discussion – a common enough problem that “We Distantly Care” might be their slogan.

But when we connect, we educate and help each other. With dozens of nations represented at TMU, cultural differences are reliably unpredictable. Some students dislike criticism and speaking up; others learn best with competition and even conflict, if resolved with the rhetorical tools of civilized debate.

Connecting is not about the easiest habits of conviviality, about reiterating what we know. It’s tempting to shut down when we leave our comfort zone. But becoming a scholar is like going to a very long academic conference: there are people to meet and ideas to encounter; and a limited amount of time to prove one’s worth, to justify the resources spent in sending us across the planet.

(Continued from page 12)

is impaired or unknown. We were able to prevent 200 cases of contrast media-induced kidney damage a year in one hospital.

**Helping patients take meds**

We can also provide decision support for patients. We have completed a three-year study of medication reminders for patients.

Helping patients take medicines

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Compliance is a huge problem. Half of all prescribed medication is not taken properly. Sometimes even when I prescribe for myself, I still miss times that I should take it. And the effect of this is bad for disease control, waste of resources and pollution to the environment, because we throw away these drugs and our rivers have been contaminated with sedatives and other chemicals.

We know that compliance goes down with increased prescriptions. It’s estimated at 80% with one drug, but it drops to 20% with four meds. Taiwan’s average patient takes 4.4 medications, so 80% of these meds are taken incorrectly or incompletely.

Yet in our trial of 1000 patients, reminders delivered through mobile phone messages cut the number of missed meds from 50% to 10%, and late or delayed dosages from 74% to 20%. This would be one of the examples that how appropriate use of simple IT intervention can have dramatic effect on the impact of healthcare.

(Continued next page)
A few years ago, Prof. Jung-shan “Jack” Chang created TMU’s Faculty and Staff Table Tennis Club. The Graduate Institute of Medical Sciences faculty member was recreating the golden years of his youth as a graduate student in the United States, but he had higher motives as well.

“I just want people to be healthy,” he said during a recent Wednesday night in the United Medical Building basement. This informal workout was attended by TMU’s vice president and other academic notables.

As my own unfinished thesis writing has me nearly “bouncing off the walls” as well, I often join this two hours of gleeful madness every week.

In my case, at first being really rusty at table tennis, the priority was getting some hard action from the “ping-pong robot” or ball-serving machine. This robot is a glorious invention, since both the frequency and position of these robo-serves can be programmed for perfection – even if you are a total beginner. Thus, TMU's players recently took a national award at the College Games in Ilan last month.

When Prof. Chang was studying plant pathology in the States, he found the graduate student lifestyle afforded him plenty of time to return to a childhood interest in the art and sport of table tennis. The apex of his career was to be twice crowned champion of a New York-area competition for Taiwanese scholars. Now he just coaches for fun, but watch out if you prefer the ball to always return. And the robot doesn’t mind if you prefer the ball to always land in one spot, or if you want the challenge of alternating right and left serves on this miniature tennis court.

It’s a great workout. It makes you sweat and uses all your upper body muscles.

“It also builds hand-eye coordination,” Prof. Chang explained as he helped coach a new member on a forehand return.

Under his guidance, the faculty table tennis club now numbers thirty-plus members. Students can play in the same space (next to the food court) at any time during the rest of the week, or even take a class in table tennis to learn the finer points of this sport. This has paid off, because TMU’s players recently took a national award at the College Games in Ilan last month.

In fact, to look at a current gender divide, look at nursing. We have very few male students. The male nurses all end up going into the ER, ICU, and neonatal. If you want to discriminate, look at the nurses. A lot of male nurses are in ICU because of the time they get to spend in the department. However, overall, I think the medical field does not discriminate between genders.

Everywhere has unfairness. Even in a group of females, there is still competition and inequality. There is always a problem. I never thought because I was a woman, I did not get what I was supposed to get. A lot of times, it is not because you are a woman. It is because you do not speak up. If you go there and display your passion, you will get what you want.

Do you see any new developments in terms of cancer treatment besides chemotherapy?

There is so much that has improved. Before, we had treatment that killed not only tumor cells but also healthy cells. Now we target the drug so it only kills the tumor cells. But it is an expensive drug. We also have immunotherapy. Immunotherapy is a preventive vaccine, such as the one for HPV (human papillomavirus). It is not only preventive but it can also kill tumor cells because it uses antibodies. Your tumor has a specific antigen that it presents so making an antibody model makes immunotherapy more effective. We hope that we can find a unique antigen on every tumor so can use the antibody to create vaccines so people will not get cancer.

Malawi must protect people from catastrophic medical spending

The recent enactment of a national registration system provides a window of opportunity to set up a national health insurance system. This will ensure that the people getting medical care are those who most need it, unlike the current system where anyone can receive treatment at no cost. The insurance system will also establish a sense of shared responsibility to ensure hospitals respond to patients’ needs.

This initiative requires a coordinated effort between public and private sectors to provide checks and balances, but it has worked in countries similar to Malawi – why can’t it work for us?
53rd anniversary sports day on June 1