

Dia:gram

The Oncology Issue

Dr Joseph Ng

A helping
hand for
patients



DR JUNGHAN SONG
Labs at the front lines

DR OMAR CHUGHTAI
Going digital for patient care

KAORI OSAWA
Finding strength

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Note from the Editor

As I write this, I can't help but look back at how fast the year has gone by. I am sure many of you feel this too.

The pace of change has, in many ways, come to define our lives and the world we live in. This change is also visible within the healthcare environment which has transformed rapidly in recent years, to meet the evolving needs of stakeholders.

Therefore, it should come as no surprise that change emerged as a recurrent topic during our planning meetings for this volume.

In the latest edition, you will see the big and small changes we've made to **Dia:gram** starting with a new dedicated website, www.RocheDiagram.com, to continue shedding light on powerful stories from the world of diagnostics.

Our bi-annual print magazine will remain an important element of our storytelling efforts but we now have the opportunity to bring more stories to the forefront regularly, in keeping with the preferences of our readers.

We know diagnostics play a critical role throughout the healthcare continuum, and nowhere is this seen more clearly than in oncology. Diagnostic tools support healthcare professionals from screening

to treatment and beyond. That is why this volume is dedicated to oncology and the unsung heroes – the clinicians, laboratory professionals and change makers – who are making a difference to the lives of countless patients, every day.

There are many stories to tell and as always, it is hard to choose one for the cover, which is why I am delighted to share that for the very first time, we have multiple covers for this issue — Dr Joseph Ng talks about what led him to become a passionate advocate of women's health, Dr Junghan Song shares his views on the role of laboratories in cancer care and Dr Omar Chughtai highlights how digital tools aid in clinical decision-making. Each of them has a different focus but a common goal: to improve the lives of patients through diagnostic solutions.

Back in the day, they said, change is the only constant. If this phrase was coined today, it is more likely to say — constant change is the only constant. But, I am excited by what the future will bring.

With that, step into this new and changed world of **Dia:gram**.

Michelle Medeiros

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The Rising Power of Diagnostics

Why diagnostics may be the most important weapon in the fight against cancer.

We have reached a pivotal — and problematic — point in the global cancer war. According to the International Agency for Research on Cancer (IARC), there were 17 million new cancer cases and 9.5 million cancer deaths in 2018¹.

Nearly half of the new cases and more than half of cancer deaths worldwide are estimated to occur in Asia, in part because the region has nearly 60% of the global population¹.

Despite the myriad advances in medicine and technology, cancer continues to defy our efforts to contain it. This is partly due to a world population that is simultaneously growing and ageing, giving cancer a greater opportunity to strike. The best, if imprecise, estimates are that its direct and indirect economic costs have already exceeded USD 1 trillion per year. This is roughly 2% of the world's annual GDP².

As we consider this grim picture, it behoves us to ponder the question: How will we meet the challenge that cancer poses to future generations?

We believe the answer, in large part, lies in the fast-evolving field of diagnostics.



Landscape in Asia^{1,2}

In 2017, only 26% of low-income countries reported having pathology services in the public sector. This leaves large populations vulnerable to many types of cancer that could be successfully treated if detected early enough.

In contrast to other world regions, the proportion of cancer deaths in Asia (57.3%) is higher than its incidence (48.4%). Greater wealth, changing diets and lifestyle patterns may contribute to (or appear to cause) a rapid increase in cancers that were once typically associated with richer countries. This is evident from the ongoing rise in breast cancer incidence, witnessed in much of the region.

Lifestyle choices continue to be a critical factor. For instance, heavy tobacco smoking among men in parts of Asia, and tobacco chewing in South Asia can explain the increasing incidence of lung cancer. While dietary facts, such as preference for foods preserved by salting, may (or have been shown to) contribute to stomach cancer incidence rates in East Asian countries such as Mongolia, Japan and South Korea.

However, the overall effect of carcinogens on specific populations and individuals based on where and how people live, cannot be ignored. The importance of location comes through especially in the extent to which carcinogenic infectious diseases or parasites may be common. Hepatitis B and C are possibly responsible for around 75% of liver cancer globally, with significantly higher rates in Southeast Asia and China.

Worse still, Asia has a higher frequency of certain cancer types associated with poorer prognosis and higher mortality rates, in addition to limited access to timely diagnosis and treatment in many countries.

As Princess Dina Mired, President of the Union for International Cancer Control, puts it: "Each country has its own cancer profile so the best solutions in each case are a combination of global and national practice. Success is really all about which countries are better prepared to defeat cancer along the continuum of care."

Expanding the Role of Diagnostics

Increasing the use of diagnostic testing provides one of the greatest healthcare cost-savings and is integral to evidence-based improvements in the quality of healthcare.

Diagnostic tools have the potential to reduce costs by enabling earlier, individualised interventions that can diminish subsequent health problems, decrease time spent in the hospital and ultimately improve patient outcomes.

While the disease historically had a higher incidence in the developed world, that is no longer the case. The rising incidence of cancer in low- and middle-income countries is fast closing the gap.

According to the World Health Organization (WHO), most cancer deaths occur in low- and middle-income countries with limited access to testing and screening³.

In 2017, only 26% of low-income countries reported having pathology services in the public sector³. This leaves large populations vulnerable to many types of cancer that could be successfully treated if detected

early enough. The first step in curbing these unnecessary cancer deaths is expanding access to existing diagnostic capabilities.

Factors that restrict access to diagnostics include not just price, but also a lack of qualified specialists, pathology laboratories, and healthcare facilities in low-income regions. To tackle this complex problem, Roche has launched several initiatives to help bring diagnostics to where they are most needed.

In Asia Pacific, for instance, we introduced our digital pathology solution to address the critical need for quicker and more accurate diagnosis. By giving pathologists the confidence they need to make decisions and removing geographic barriers, we are helping patients get one step closer to receiving the right treatment at the right time.

Recognising that chronic diseases such as cancer requires multi-stakeholder action, we work closely with medical associations and industry bodies to develop education programs supporting prevention and early diagnosis. As part of this, we have trained healthcare professionals on best practices for diagnosing cancer.

Studies have shown that treatment for cancer patients who have been diagnosed early is two to four times less expensive compared to treating people diagnosed with cancer in more advanced stages⁴.

Yet, regardless of the type of healthcare systems — whether advanced or developing — cancer continues to present itself as a major public health challenge. This is why Roche has partnered with the City Cancer Challenge (C/Can) on a multi-sector initiative in Yangon, Myanmar. This is the first time an Asian city has been chosen.

The initiative aims to increase access to quality cancer treatment in cities around the world. Key to this is improving the quality of diagnostics and pathology services while enabling earlier diagnosis.

Since the project's launch, Roche has been working closely with local health authorities and participating hospitals in Yangon to strengthen laboratory services by providing education and technical support, implementing a Laboratory Information Management System (LIMS) and helping to upgrade existing pathology,

clinical laboratory and transfusion services in the public sector.

Rethinking Past Strategies

Perhaps no type of cancer better illustrates the urgent need for diagnostics than cervical cancer, one of the most preventable forms of the disease.

It kills more than 300,000 women every year, with one woman diagnosed every minute⁵. Cervical cancer was, at one time, similarly deadly in Australia. However, the country was among the first in the world to introduce a national human papillomavirus (HPV) vaccination program in 2007. A decade later, Australia transitioned from Pap smears every two years for women aged 18–69 years, to primary HPV testing every five years for women aged 25–69 years and exit testing for women aged 70–74 years.

As a result of this robust program and strong political will, cervical cancer may have a very low prevalence in Australia by 2050.

Diagnostics in the Cancer Patient Journey

Right Patient, Right Test, Right Time

IS IT CANCER?

1. SYMPTOMATIC

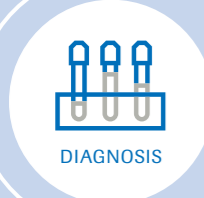
Imaging: Tumour visualisation
Blood: Serum protein or Polymerase chain reaction (PCR) / Next-generation sequencing (NGS) for mutations



WHAT TYPE?

2. STAGING & DIFFERENTIATION

Tissue: Hematoxylin and Eosin stain (H&E), Immunohistochemistry
Blood: Serum protein
Tissue or Blood: PCR/NGS for mutations
Imaging: Tumour visualisation



WHAT THERAPY?

3. COMPLETE DX REVIEW

Digital pathology: Algorithms
Companion diagnostics: Therapy decision based on biomarkers
Multi-disciplinary team: Tumour boards, molecular data review



IS IT EFFECTIVE?

4. TREATMENT BEGINS

Imaging: Tumour visualisation
Blood: Serum protein
Tissue or Blood: PCR/NGS for mutations



TREATMENT UPDATE?

5. REMISSION OR RELAPSE

Imaging: Tumour visualisation
Blood: Serum protein
Tissue or Blood: PCR/NGS for resistance mutations
Multi-disciplinary team: Tumour boards, molecular data review



Gone are the days when the diagnostic phase was concluded once the disease was identified. Now, diagnostics play a critical role in patient prognosis, treatment, monitoring and more.

As the Lancet study reported, "If high-coverage vaccination and screening are maintained at an elimination threshold of four new cases per 100,000 women annually, cervical cancer could be considered to be eliminated as a public health problem in Australia within the next 20 years⁶."

This new standard of care follows the landmark ATHENA study, which found that Pap smear-HPV co-testing consistently returns a lower false-negative rate than Pap testing alone⁷. The test has since been adopted in a number of countries as a first-line standard of care for cervical cancer screening.

Two decades ago, the Pap smear was universally regarded as the best way to detect cervical cancer. The emergence of HPV screening underscores the critical importance of continuing to improve diagnostic technology, even when the current standard has a reputation of being "good enough".

When dealing with a disease that grows deadlier with every passing day, every diagnostic advantage can be significant.

Making it Personal

While the successes above provide some measure of hope, they are small victories in the expansive cancer war. Nevertheless, they serve to remind us that cancer must be attacked in multiple ways. And the most promising cancer-fighting weapon to emerge in recent years has come in the form of molecular and genomic science.

From next-generation sequencing to the use of liquid biopsy, we have entered an era where diagnostics is far more than simply confirming the presence of cancer. It is an increasingly dynamic discipline that plays a key role in the patient's cancer journey.

At Roche, we are leveraging personalised diagnostics to tailor cancer treatments to each patient's molecular profile. This allows us to not only identify strong candidates for clinical trials but also to predict and monitor patients' responses to treatment.

Furthermore, targeted drug therapies based on biomarkers are being used with companion diagnostics that help physicians ensure the safe and effective use of the therapy.

These targeted therapies are emblematic of the expanding role of diagnostics in the continuum of personalised care. Now, diagnostics play a critical role in patient prognosis, treatment, monitoring and more.

Ushering in a New Era

As we delve deeper into this promising world of personalised medicine, the gap between diagnostics and treatment will continue to close. As it does, it will be incumbent upon us all to ensure that the tools and technologies of our field are leveraged to their full potential.

Because in the world of cancer care, the more questions we answer, the more lives we save.

¹Bray, F. et al. 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: a cancer journal for clinicians, 68(6), 394-424.

²The Economist Intelligence Unit. 2019. Cancer preparedness around the world.

³World Health Organization. 2018. Cancer Key Facts.

⁴United Nations News. 2017. Early cancer diagnosis, better trained medics can save lives and money - UN.

⁵World Health Organization. Cervical Cancer.

⁶Hall, M. et al. 2019. The projected timeframe until cervical cancer elimination in Australia: a modelling study. The Lancet Public Health, 4(1), e19-e27.

⁷Wright Jr T. et al. 2012. The ATHENA human papillomavirus study: design, methods, and baseline results. American journal of obstetrics and gynecology, 206(1), 46-e1.

Making the Diagnosis for Cancer Care

Precision diagnostics and the growing role of the clinical laboratory.

Dr Junghan Song is the Vice President and Chief Medical Officer at Seoul National University Bundang Hospital. He previously led the Korean Society for Laboratory Medicine.

*As advances in precision medicine bring life-saving therapies to cancer patients across Asia Pacific, pathologists and other laboratory professionals have new opportunities to shape treatment decisions. In an interview with **Dia:gram**, laboratory leaders discuss the growing role of pathology and clinical laboratory in the era of precision oncology.*

Amid the explosion of new treatment options for cancer patients, the choice of when and how to choose a specific therapy is becoming increasingly complicated. Particularly for the most advanced and unusual cases, an effective care plan requires input from multi-disciplinary teams.

Pathologists and laboratory professionals have long played an integral role in these teams. Beyond routine responsibilities, such as managing diagnostic processes and ensuring the timely return of reliable results, they also consult on new testing opportunities, interpretation of results and other matters that are critical to treatment decisions.

Their expertise has relevance at all points in the cancer care continuum, from screening and initial diagnosis to classification, surveillance, prognosis, treatment selection and disease progression monitoring.

Now, as personalised healthcare increasingly moves to the forefront of oncology, the complexity of treatment decisions — and the role of the laboratory in driving them — is likely to grow.

The Rise of Precision Diagnostics

Precision oncology is an emerging paradigm of care that targets treatments to the unique attributes of narrow patient subpopulations or even at the individual level. It requires careful review of detailed genotypic and phenotypic data, as well as knowledge of the latest research outcomes or clinical trials, to match patients to existing or potential therapeutic options.

As the burden of cancer grows, demand for diagnostics is growing across Asia. Some countries are also making efforts to develop the regulatory frameworks to ensure these tests are accessible to patients. Both South Korea and Japan, for example, already have guidelines specifically for companion diagnostics, and other countries may soon follow.

“Many tests — including those for PDL1, EGFR and ALK — are being used as companion diagnostic tests for non-small cell lung cancer in Korea,” notes Dr Junghan Song, Vice President and Chief Medical Officer at Seoul National University Bundang Hospital (SNUBH).

“Professionals today need to move with the times, and be deeply involved from the time tests are ordered to the stage where test results influence treatment, thus promoting a patient-centred approach.”

In this scenario, laboratory diagnostics are even more critical to generating the data necessary for selecting those therapies. From companion diagnostics that determine a patient’s eligibility for targeted therapy, to new diagnostic methods like liquid biopsy that provide non-invasive approaches to treatment selection and disease progression monitoring, diagnostics are fast becoming the backbone of any precision oncology plan.

He says the hospital recently established a Clinical Precision Medicine Centre that pulls together multi-disciplinary teams to ensure those tests are applied effectively.

As part of a broader national-level precision medicine initiative, South Korea is also working to increase reimbursement for precision diagnostics. Yet, more work needs to be done to ensure proper pricing. “The industry

“Innovations in diagnostics are helping us better understand disease and patient biology.”



Dr Agus Susanto Kosasih heads the Clinical Pathology medical staff at Dharmais Cancer Hospital and is an expert in haematological malignancies.

together with relevant expert groups should actively collaborate on the process for cost calculation and establish standards for insurance coverage,” adds Dr Song, who previously led the Department of Laboratory Medicine at SNUBH and the Korean Society for Laboratory Medicine.

Even in emerging countries, which face a shortage of oncology professionals, access to precision diagnostics is increasing. For example, Indonesia has seen an upward trend after rolling out its ambitious Universal Healthcare Program.

“Test volumes are growing due to improving insurance coverage, better awareness among clinicians and an expanding evidence base that such tests are locally suitable and meaningfully impact survival,” explains Dr Agus Susanto Kosasih, an expert in haematological malignancies who heads the Clinical Pathology department at Dharmais Cancer Hospital, a national centre based in Jakarta. “We still face challenges, but the general direction is positive.”

The Tipping Point for Clinical Laboratories

With diagnostic technology getting more complex every year, it will become increasingly challenging for clinicians and other healthcare providers to keep abreast of the new tests that are coming into

clinical practice. In such an environment, laboratories have an important responsibility to stay on top of the latest technologies and guidelines, and also to contribute proactively to discussions around test selection and the interpretation of results.

At Dharmais Cancer Hospital, laboratory professionals are embracing this expanded role. “We have good communication between the laboratories and clinicians,” says Dr Kosasih. “We frequently send our staff to workshops overseas to learn about recent advances in the field and gain different perspectives. This helps us add our expertise to diagnostic and treatment decisions at Dharmais. We also run training sessions with 14 national referral hospitals in Indonesia to help them take advantage of our knowledge.”

Such changes require a shift in mindset. “Laboratory professionals in the past were concerned about how accurately, quickly and cost effectively they could report test results

after samples arrive,” observes Dr Song. “Professionals today need to move with the times, and be deeply involved from the time tests are ordered to the stage where test results influence treatment, thus promoting a patient-centred approach.”

“The ultimate goal, of course, is ensuring that the use of novel diagnostics has a measurable impact on clinical effectiveness. Innovations in diagnostics are helping us better understand disease and patient biology. Using this knowledge to help make better decisions is where laboratories can add the most value,” adds Dr Kosasih.

With the rise of precision medicine, the most forward-thinking laboratories are going beyond participating in the multi-disciplinary teams that make key treatment decisions. They are also looking beyond traditional parameters — which revolve around quality, speed and cost — and gathering data to determine how diagnostics actually impact patient outcomes.

As a Consultant at National University Cancer Institute, Singapore’s Division of Gynaecologic Oncology, Dr Ida Ismail-Pratt is an expert with a deep focus on cancer screening and prevention.

Making Every Woman Count

Cervical cancer is one of the most preventable cancers today, thanks to screening, vaccination, and early treatment. Nonetheless, it remains one of the most common and deadliest cancers in women worldwide. Approximately 570,000 women are diagnosed with cervical cancer each year¹. In Asia, health leaders are leveraging the power of screening, education, and collaboration in an effort to defeat cervical cancer, once and for all.

“Our goal is to have one less cancer to worry about.”

Dr Ida Ismail-Pratt, Consultant, Division of Gynaecologic Oncology, National University Cancer Institute, Singapore, is not alone in this mission. Halfway around the world, Dr Mahboobeh Safaeian, Director for Clinical Sciences for human papillomavirus (HPV) at Roche Diagnostics and Lead Researcher for the Improving Primary Screening and Colposcopy Triage (IMPACT) Study, agrees. Both have dedicated their careers

to a similar goal – large-scale disease prevention for cervical cancer.

As noted by Dr Tedros Adhanom Ghebreyesus, the World Health Organization’s (WHO) Director-General, nine out of ten women who die from cervical cancer live in low- and middle-income countries². Most of them lack access to services that could have detected and treated their cancers. With more than a quarter million women dying each year from cervical cancer², the amount of unnecessary suffering it causes is staggering.

This is particularly troubling considering patients whose cancer is detected in the early stages have a 90% survival rate³.

In 2018, Dr Ghebreyesus, called for a global commitment towards eradicating what is currently the fourth most prevalent gynaecological cancer². Specifically, he called for all girls to be vaccinated against HPV and all women over the age of 30 to be screened — which Dr Ismail-Pratt says are tools that must work in tandem.

“You can’t eradicate cervical cancer if you just concentrate on screening or the vaccine alone,” she says. “The vaccine protects women from some oncogenic HPV infections but does not protect from all oncogenic HPV strains. With regular screening, we can literally save patients from cervical cancer and take necessary action before the cancer develops. Both have to work together to create an effective system for cervical cancer eradication.”

Dr Safaeian’s earlier research on HPV vaccines has led to a new standard requiring only two doses instead of three — expanding the preventative power of vaccination to low-income areas. This makes administration less time- and cost-prohibitive — important factors in low-income, low-resource regions.

However, even that may not be enough, according to Dr Safaeian. Now, she is working to improve cervical cancer management in HPV-positive individuals through early pre-cancer and cancer identification, and increased monitoring of individuals with HPV infections.

These measures seek to address the breadth of HPV infections, approximately 80% of sexually active women would have



Prof Gengli Zhao has been involved in collaborative research projects on women’s reproductive health in partnership with the WHO, UNICEF and UNFPA. She received the Science and Technology Progress Award from the Chinese Preventive Medicine Association and Ministry of Education for her research on cervical cancer and reproductive tract infections.

been infected with HPV at one point in their lives⁴, and the treatability of cervical cancers — especially when HPV detection alerts physicians to high-risk patients. Dr Safaeian hopes to fine-tune the understanding of which women with high-risk HPV strains are more likely to develop cervical cancer — and better allocate resources to manage those cases.

“With regular screening, we can save patients from cervical cancer and take necessary action before the cancer develops. Both have to work together to create an effective system for cervical cancer eradication.”

Biomarker tests can be used to accurately identify at-risk patients and differentiate those who need intervention or treatment from those who do not. Doing so spares women from developing a preventable cancer and limits the risks of overtreatment.

Collaboration is Critical

In Singapore, the Ministry of Health in 2018 launched a free HPV vaccination program for girls and a new national cervical screening protocol for women aged 30 and up.

Dr Ismail-Pratt credits the success of these programs to collaboration among stakeholders. “With any kind of medical implementation, the involvement and alignment of multiple stakeholders is very important,” Dr Ismail-Pratt said.

In China, since 2009, the government has been providing free cervical cancer screening for rural women aged 35-64 years.

“Overall however, due to the lack of pathology and cytology doctors in China, the positive detection rate is generally low. In addition, national program funding currently does not include management fees for relevant professional and technical personnel training, health education and quality control,” says Prof Zhao Gengli, Researcher and Postgraduate Tutor, Peking University First Hospital.

The Value of Education

Prof Zhao says education is probably the most potent weapon of all. “In 2018, only 26% of women the right age across China went for cervical cancer screening. In poverty-stricken areas, only 38% of the women went for cervical cancer screening⁵.” Mistaken notions about the causes of cervical cancer and HPV itself are rampant, she says, leading to barriers to screening such as fear and embarrassment.

According to Dr Ismail-Pratt, physicians must address misinformation by starting in their own offices. “If you want to educate your patients, you need to first educate healthcare providers.” In her practice, she has held workshops for doctors and nurses outlining how to talk to patients about HPV and cervical cancer screening.

A screening tool is an improvement only if it is safe physically and psychologically for women. This requires education on all fronts to ensure all stakeholders understand the value and importance of screening.

“As my mentor once told me, ‘You want a screening program to be simple, scientific and safe’. We’re talking about women’s lives here.”

“You can’t eradicate cervical cancer if you just concentrate on screening or the vaccine alone.”

¹Bray, F. et al. 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians* 68.6.

²World Health Organization. 2018. Cervical Cancer: An NCD We Can Overcome. Retrieved from https://www.who.int/reproductivehealth/DG_Call-to-Action.pdf?ua=1

³Jayant et al. 2016. Improved Survival of Cervical Cancer Patients in a Screened Population in Rural India. *Asian Pacific journal of cancer prevention : APJCP*, 17(11), 4837–4844. doi:10.22034/APJCP.2016.17.11.4837

⁴Centers for Disease Control and Prevention (CDC). 2019. Basic information about HPV and cancer. Available at: https://www.cdc.gov/cancer/hpv/basic_info/

⁵2019. Advanced Seminar on Prevention and Control of Cervical Cancer, Suzhou.



Fighting Cancer, **Hand in Hand**

By Dr Joseph Ng, Senior Consultant, Division of Gynaecologic Oncology, National University Cancer Institute, Singapore.

When mortality stares you in the face, a whirlwind of emotions washes over. Fear and anxiety are intense feelings, especially when patients face a devastating medical diagnosis like cancer. Working in this field, I see it every day. I have been practising oncology for over three decades and, for me, the ability to connect with my patients is key to being a good physician.

Do I know what they are thinking and not saying? Can I intuitively sense their fear? With each passing year and each new patient, I pause to reflect on how I communicate, and if I am heard and understood correctly. Because what matters is how my patients feel.

Medicine as a career choice was not a clear reckoning for me. After high school, I thought about a myriad fields I could specialise in, from sales to public relations. What I knew was this: I wanted to be in a field that would allow me to use my ability to communicate well, to make a difference in someone's life. Medicine, in that sense, ticked all the right boxes, though oncology was never my first choice.

My charismatic mentors were gynaecologic oncologists and they had a significant impact on my professional decision to specialise in oncology. They helped mould me into an empathic physician and sensitive diagnostician.

When someone is diagnosed with cancer, they look for answers. That is why getting access to a doctor quickly is so important. Many patients have reduced anxiety if a treatment plan is discussed, defined and agreed upon. Each day towards that plan is a step forward. It dampens anxiety and makes their cancer journey seem more doable. National cancer centres are well suited to the task of equipping patients to complete this journey with teams of specialists, including psychologists, to help patients navigate not just the difficult moments, but every step of the way. While watching them succumb to the disease is not uncommon, it is having the conviction to better manage their condition that keeps me motivated.

Growing up, I travelled across Southeast Asia and saw first-hand how underprivileged communities lack basic healthcare needs. At present, women in these countries continue to suffer due to the lack of access to basic treatments and diagnoses. For example, cervical cancer is one of the most common cancers in the developing world but is almost entirely preventable with early detection and vaccination. This is why we launched a pilot outreach program, Helping our Helpers, to reach women in underserved communities who are in Singapore as domestic helpers. Biomarker tests like HPV DNA help identify women at risk and such simple early interventions can prevent cancer. There is data that suggests a single HPV test in a population of unscreened mid-adult women can half the incidence of cervical cancer¹. These are simple ways that we as Singaporeans can pay it forward by improving the health of the women of Southeast Asia.

We often tell patients that we are not fortune tellers or God to guarantee outcomes. Starting out as an obstetrician, the biggest lesson I learned was that life can be unpredictable even when a patient is in good health. I remember an incident when an overjoyed couple was expecting their first child; during labour, both the mother and baby died, leaving the young father all

alone. To many, my job appears sad and on many days it absolutely can be. But it is also intimate. As a healthcare provider, my duty is to be there from the very beginning until the end, journeying through every painful moment along with my patients. I consider myself fairly sanguine and optimistic. Perhaps, that is why patients call me the “friendly neighbourhood doctor”. No matter how glum the situation appears to be, it is important that we focus on the positives and do what we can. It can only help.

Forming a connection with your patient is an art that I have fine-tuned over the years. As times are changing, the world is

witnessing an explosion of information and diagnostic advancements. On a daily basis, doctors deal with plenty of data in patient management, and the temptation is always there to let all this data overwhelm the focus of this entire enterprise — the patient.

As a healthcare provider, my duty is to be there from the very beginning until the end, journeying through every painful moment along with my patients.



Dr Ng is a Senior Consultant, Division of Gynaecologic Oncology at the National University Hospital's Department of Obstetrics & Gynaecology. He is interested in global health and is the Vice Chairman of the Training and Mentorship Committee of the International Gynaecological Cancer Society.

Increasingly, there is an erosion of the sacrosanct patient-doctor relationship resulting in something that is transactional and impersonal. Little wonder then that when a patient has a less than satisfactory experience or has doubts or fears, they turn to the law to compel their doctors to talk to them. As innovative technologies continue to enter the healthcare space, redefining the role of a doctor is paramount; the doctor must also evolve or face the fate

of the dinosaurs. While targeted therapy, personalised medicine, and gene therapy progressively become part of my reality, what remains is the journey of the patient and the doctor, a human condition that requires a human touch.

Cancer does not have to be a scary word because a worry shared is a worry halved, and I have made it my life's work to share that load.

¹Wright T.C., et al. 2015. Primary cervical cancer screening with human papillomavirus: end of study results from the ATHENA study using HPV as the first-line screening test. *Gynecologic oncology* 136(2), 189-197.



The Face of Hope

*For over 25 years, Kaori Osawa has been a medical social worker for breast cancer patients and their families. Being a cancer survivor herself, Ms Osawa shares her experience with **Dia:gram** on how she encourages patients through their journey.*

At first, it felt like a dream, a really bad one. Stunned by the shocking report, I couldn't believe my reality." Kaori Osawa, then 36, poignantly recalls the moment she was diagnosed with breast cancer. A cancer diagnosis affects people differently, but every cancer patient has one thing in common: at some point during their journey, they undoubtedly experience stress.

As a social care worker, Ms Osawa lends an ear to help alleviate some of that stress by enabling patients to focus on their treatment. While she has seen many patients and families go through the ordeal, Ms Osawa says she truly grasped its magnitude when she became ill herself.

Sharing the news with her husband was especially difficult. She clearly remembers his reaction. "My husband didn't believe the biopsy reports and repeatedly kept saying, "This can't be true." Losing his mother to cancer at a young age had a profound impact on her husband's life and Ms Osawa's diagnosis meant he would experience the same fear of loss, all over again.

Once considered incurable, survival rates of cancer today have improved as a result of early detection and advanced diagnostic tools. Breast cancer represents the most common cancer in women worldwide. Nevertheless in Japan, the five-year relative survival rates are above 90%, according to the National Cancer Centre¹.

Although Ms Osawa's treatment was successful, she suffered a bigger tragedy by losing her husband to depression. "His void was more distressing than the physical pain of cancer." But, she says, witnessing death from such close quarters has tremendously changed her attitude towards patients.

Coping with cancer is exhausting and those diagnosed undergo a great deal of tension — from worrying about paying medical bills and not being able to work, to experiencing the unpleasant side effects of treatments.

An essential element of high-quality comprehensive cancer treatment involves attending to the psychosocial needs of cancer patients and their families.

When patients receive their diagnosis, most feel overwhelmed and confused.

“Cancer patients expect to see medical providers at their appointments, but many are unaware of the additional support available to them,” Ms Osawa notes. As a social care worker, she says her role is to help cancer patients find resources that can provide them with relief and reassurance.

According to the World Health Organization, 30-50% of cancers can be prevented through early detection and implementation of prevention-based diagnostic strategies^{2,3}. Having a multi-stakeholder and collaborative approach to cancer care helps develop new pathways to treatment.

“Bottling up feelings can burden a cancer patient, reducing their survival chances even more. I run a breast cancer support group twice a month where patients share their concerns, how they deal with side effects, and also talk about fun things like the recent trips they made.”

“This support group has helped many patients understand that they are not alone in their cancer journey.” Although her job

can be overwhelming at times, Ms Osawa calls it gratifying. “I feel blessed to be a part of so many patients' journeys and help ease some of the burdens they carry.”

According to the World Health Organization (WHO), 30-50% of cancers can be prevented through early detection and implementation of prevention-based diagnostic strategies^{2,3}. Having a multi-stakeholder and collaborative approach to cancer care helps develop new pathways to treatment.

When the government, private institutions, healthcare professionals and civil society all work together, swift diagnostic decisions and treatments for patients can be provided. Being in the field for 28 years, Ms Osawa points to positive advancements in cancer care.

With better diagnostic capabilities and referral mechanisms, she feels timely diagnosis and detection will also improve. The counselor, now 52, says, “In the early 1990s, patients were not informed about their diagnosis or treatment plan; many suffered extreme side effects and lacked access to good medical care.”

In the Japanese society, mental health taboos were one of the biggest hurdles in the past. However, now, with greater access to information, palliative and supportive care, Japan has seen considerable improvements.

Additionally, innovative approaches to personalised treatments and psychological support are allowing more people to survive and thrive post cancer.

For Ms Osawa, the relationship between a social worker and patient does not end



As a medical social worker and a breast cancer survivor, Ms Kaori Osawa has supported breast cancer patients and their families for over 25 years.

when treatment ends. She recalls the story of a single mother who was diagnosed with breast cancer soon after her divorce. “Although she was uncomfortable to tell her two kids about the diagnosis, she said cancer had brought them closer,” says Ms Osawa.

After struggling for over a decade, the woman passed away last year. Today, her children are part of an initiative, Hope Tree, which Ms Osawa established in 2007. The program supports kids who have lost their parents or are undergoing treatment.

They meet regularly, hold arts and craft activities and share information that could help children cope better. “Children are more sensitive and emotional than adults but they

are also much more resilient,” she adds.

Cancer takes away a lot from people. While patients find it empowering to describe their approach to illness as a battle, few have shown her that “beating” a disease can also be defeating. “It divides the ailing into winners and losers — those who beat cancer and those whom cancer beats,” says Ms Osawa.

As a cancer survivor and social care worker, she thinks such words can often stand in the way of vulnerable emotions like fear and anxiety. “More than fighting the illness, acceptance and support ease the journey. Every day is a reminder of how precious life is and that is what keeps me going.”

¹ Foundation for Promotion of Cancer Research. 2018. Cancer Statistics in Japan. Retrieved from https://ganjoho.jp/data/reg_stat/statistics/brochure/2018/cancer_statistics_2018.pdf

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Reshaping Oncology with Digital Solutions

Diagnosing and treating cancer is a complex affair, often involving many specialists along a patient's journey. Access to relevant data, while instrumental, takes time and can be cumbersome. While cancer rates continue to rise, a recent Lancet study predicts a shortage of oncologists¹. In the face of such challenges, how can healthcare providers improve cancer care? The answer lies in innovative digital solutions.

In a disease like cancer, every decision is life-changing. Yet, sifting through a staggering amount of data — from patients' history, to biomarkers and pathology reports — can be challenging. Doctors need all kinds of clinical data to make treatment decisions with confidence. Patients, on the other hand, want reassurance that the decisions made give them a fighting chance against cancer.

Tumour board discussions represent some of the most important minutes in a cancer patient's life. However, since tumour board participants have demanding caseloads, investigating all aspects related to each individual patient's treatment within a limited time is not without challenges. Running a tumour board is both time- and

labour-intensive — coordinating meetings and collating patients' medical information from various departments and sources take considerable effort. Although multi-disciplinary team meetings are commonly acknowledged as the gold standard, digital tools have emerged as a critical factor in the cancer care equation in recent years.

The emergence of clinical decision support tools is a game-changer in patient care. They enable easier access to patient information and aggregate relevant patient data from disparate sources in one place. These new solutions allow experts from various disciplines — oncologists, radiologists, surgeons, pathologists, nurse navigators and social care workers —



Prof Soo Khee Chee started his own surgical practice in Farrer Park Hospital and Farrer Park Medical Centre. A specialist in Head and Neck Oncology, he has over 30 years of experience in his field.

A cornerstone of cancer care, digital tools are helping to augment the healthcare ecosystem. This is a critical factor to ensure specialists can quickly align on best treatment outcomes for patients.

to make more confident and timely decisions on the best possible treatment plan for their patients.

The use of diagnostic and digital tools enables earlier and individualised interventions that can significantly reduce healthcare costs and effectively use available resources. At present, many countries in Asia Pacific are still below the World Health Organization's (WHO) recommendation of one doctor for every 1,000 patients. While advanced countries have adopted digital solutions to deliver personalised care, capacity and capability building efforts that can improve healthcare delivery are currently underway in emerging markets across the region. In this interview, **Professor Soo Khee Chee** and **Dr Omar Chughtai** highlight how digital tools are enhancing health systems in their countries.

With over 30 years of experience, Prof Soo Khee Chee is a Surgical Oncologist specialising in Head and Neck Oncology at Farrer Park Medical Centre, Singapore. He served as the Founding Director of the National Cancer Centre Singapore until 2017, during which he helped set

up the Duke-NUS Medical School. He has many accolades to his credit, including the Benjamin Sheares Professorship in Academic Medicine.

How have digital solutions shaped the healthcare landscape in Singapore?

The use of diagnostic and digital tools has transformed the way health services are delivered in Singapore, giving rise to patient-centric experiences which are personalised, convenient and on-demand. By 2030, a quarter of our population is expected to be over 65 years of age and providing care that meets their needs is an immediate priority. Singapore has piloted several digital health initiatives to help shape its healthcare delivery model and optimise resources. Capabilities like image sharing, care and case management are bringing us closer towards delivering better care for Singaporeans.

How have digital tools been useful in your field of work?

We are in the midst of a data revolution, and the emergence of new technologies we are seeing today is both supporting the transformation within healthcare systems and enabling the delivery of personalised

healthcare. Digital tools are a cornerstone of cancer care and they are helping to augment the healthcare ecosystem. In the case of tumour boards, digital tools are helping us to facilitate such meetings and act as a communication link among specialists. This is a critical factor to ensure specialists can quickly align on the best treatment outcomes for patients.

In Singapore, we have been organising tumour boards for the last 30 years. In fact, Singapore was among the pioneers in Southeast Asia in this regard. Back in those days, surgery was the mainstay for cancer care. Today, we have an extensive range of treatment plans to tackle cancer — from chemotherapy to genomic medicine and immunotherapy. These methods are considered and assessed at length for every patient, on a case-by-case basis. In such instances, tumour boards are a powerful exercise as the best experts come together to ensure the best treatment plan for a patient.

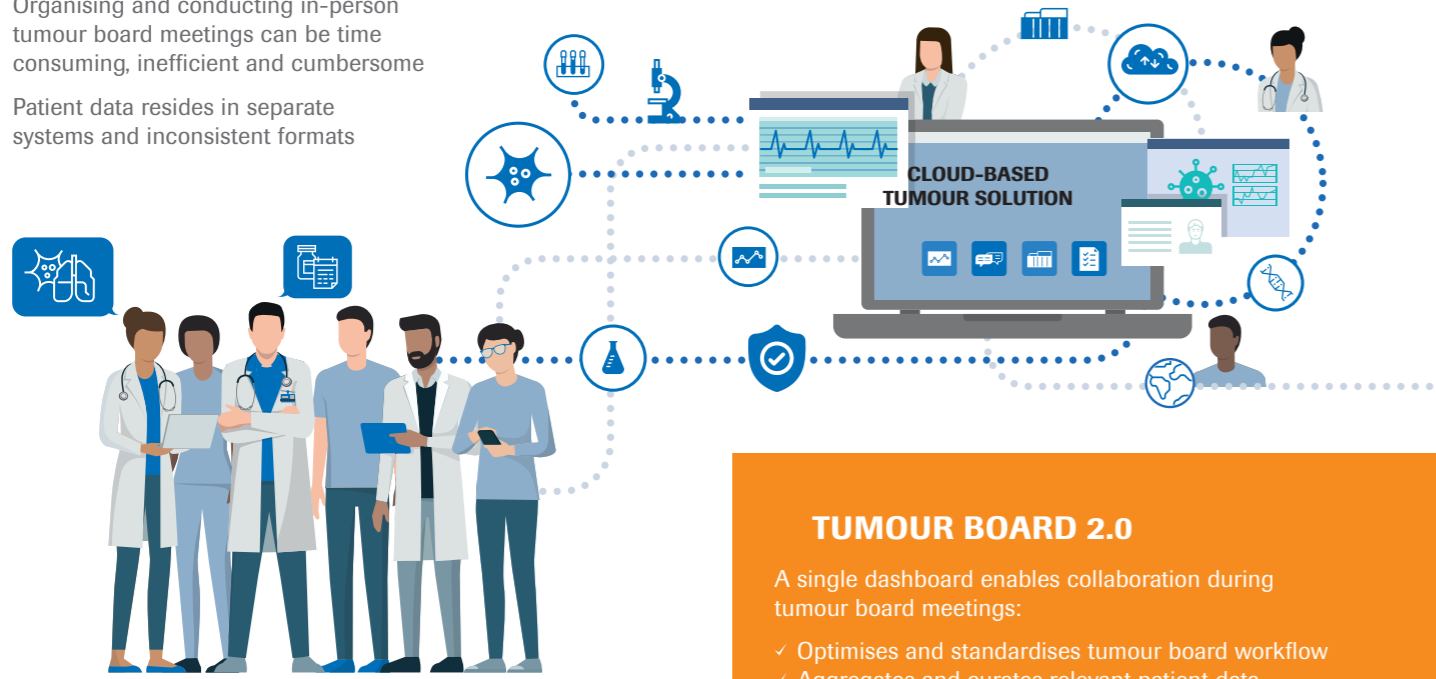
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Transforming Tumour Boards

Digitalisation that Enables Better Cancer Care

TUMOUR BOARDS NOW

- Organising and conducting in-person tumour board meetings can be time consuming, inefficient and cumbersome
- Patient data resides in separate systems and inconsistent formats



Surgeons — Oncologists
Nurse Navigators — Pathologists — Radiologists

TUMOUR BOARD 2.0

A single dashboard enables collaboration during tumour board meetings:

- Optimises and standardises tumour board workflow
- Aggregates and curates relevant patient data
- Helps document and track treatment decisions

Compared to when you started out, how have digital tools advanced the diagnosis and treatment process?

When I started working in this field, there were no CT scans/MRI but they currently form the basis of medicine, particularly for a disease like cancer. With advancements today, clinicians detect tumours and assess tumour margins by using both medical imaging and tumour markers. The advent of digital tools has improved cancer management in numerous ways, such as helping doctors plan surgery better, predict outcomes and provide patient education and support.

How is digital innovation playing a role in personalised healthcare and decision-making?

Decision-making is taking on an entirely new meaning as digital tools are enabling

more collaboration for better patient outcomes. Discussions among oncologists and healthcare leaders using digital platforms to monitor, aggregate, and evaluate real-time, large-scale data are removing walls which have isolated patient information. What is emerging in their place is a learning system with a greater capacity to address issues unique to cancer treatments.

One of the most exciting technologies for oncology diagnosis and management, is without a doubt, Artificial Intelligence (AI). With the explosion of medical sciences, in the next two to three decades, I foresee that AI will become an essential tool for medical decision-making. For example, medical imaging in the practice of oncology has the ability to capture not only the anatomical configuration of

tumours but also the physiological changes that are taking place during treatment. This helps us provide personalised care, assess every case differently and thereby treat it more effectively.

Do you think intelligent diagnostic tools are replacing doctors?

Unlike humans who are prone to make mistakes, computers do not get exhausted. The danger, however, is to completely rely on the machine rather than using it as a complementary aid. Digital tools prove to be functional only if we learn to use them in a meaningful way. A lot depends on a physician's commitment to providing better care. If done well, the collaboration between man and machine offers huge cost savings and can improve the quality of service to patients.



As the Laboratory Director, Dr Omar Chughtai has been managing the day-to-day operations at Chughtai Labs for over 12 years. He also teaches pathology to second-year medical students at the University of Texas Medical School in Texas, USA.

Dr Omar Chughtai is a specialist in Anatomic and Clinical Pathology and the Laboratory Director of one of the leading pathology laboratories in Pakistan, Chughtai Labs. He is a Diplomate of the American Board of Anatomic and Clinical Pathology, and Fellow of the College of American Pathologists.

How are digital tools evolving the healthcare ecosystem, particularly in Pakistan?

Digital technology is quickly revolutionising how we do our jobs and that is as true in Pakistan as it is anywhere else in the world. From image capture analysis to data analytics, the digital revolution is hugely beneficial in evolving personalised healthcare.

We are now on the cusp of an evolution in healthcare which will fundamentally change how care is delivered and received. This also means the role laboratories play in this evolving landscape will change tremendously.

So while the use of digital tools is not new in the laboratory world, the nature of how we use such tools has changed. A recent example is the deployment of the Laboratory Information System (LIS) to monitor our instruments and the efficiency

of their quality in real-time. With the placement of such systems, we are able to serve our patients better, allowing more personalised treatment based on truly integrated diagnostics — powered by digital technologies.

In many developing countries, access to medical care is challenging. How is digital innovation changing that?

The introduction of technology can vastly improve the patient care experience. Currently, patients carry copies of lab reports to every clinical appointment, which is impractical. We are trying to take that away and work towards a cloud-based, secure system that allows patients to have access to their diagnosis and treatment plan via their smartphones.

An estimated 60% of our population resides in the rural outskirts, and disparities in infrastructure both discourage and hinder most people from seeking medical attention. Having a pathologist in every province across the country is neither cost-effective nor feasible. In such cases, maintaining a centralised system meets major needs. In our lab, we use telepathology to look at smears and guide local pathologists from our central lab in Lahore, Pakistan.

Do you think digital tools are making tumour boards more effective? If so, how?

A lot of groundwork and preparation is required to make tumour boards effective. Pathologists need to collect, review, and share relevant data in a timely fashion. Switching between backend medical systems can be very tedious and requires hours of preparation. Digital tools, however, simplify our jobs as pathologists. It allows us to spend more time on a patient's case, provide inputs as part of the multi-disciplinary care team and aid in the development of the treatment plan as opposed to the logistics of preparing medical data.

Finally, do you think doctors are being replaced by intelligent diagnostic tools?

As medical professionals, our role is to focus on things that matter most — ensuring that patients receive the benefits of our clinical decision-making. If digital tools can enhance this process by automating manual procedures to save time or allow remote viewing of slides, then that would be fantastic! The debate about whether tools are replacing doctors has been going on for a long time. But the reality is that such tools make us better.

Winning Against Cancer

How are countries dealing with the cancer load?

Dia:gram uncovers the impact on Asia's healthcare systems and the strategies that countries are adopting in the face of this challenge.

Professor Anne Lee is the Vice Chairman of the Hong Kong Anti-Cancer Society. She also heads the Department of Clinical Oncology at the University of Hong Kong.



Healthcare systems around the world, including Asia Pacific, are dealing with a public health crisis — the rising burden of cancer.

While historically, the disease had a higher incidence in the developed world, that is no longer the case. The rising incidence in low- and middle-income countries, many of which are in Asia, is fast closing the gap.

High-income and advanced countries currently have more cancers per person than low- and middle-income ones¹. Developing countries, on the other hand, have higher mortality rates which show that early diagnosis and therefore treatment remain a critical issue.

But even in high-income countries, generally with better survival rates, the increasing burden of cancer and costs of treatment lead to one clear conclusion: no country, however wealthy, can make its way out of the cancer problem unscathed.

In 2001, due to rising cancer cases, Hong Kong recognised the need for a comprehensive plan to tackle the disease and established a cancer coordinating committee. “Cancer control requires a multi-stakeholder and coordinated effort,” says Professor Anne Lee, Vice Chairman of the Hong Kong Anti-Cancer Society. “Existing health systems should be strengthened by robust policies and appropriate funding, not only to cope with the overall needs of treatment, but also to achieve primary prevention and early detection of the most frequent treatable cancers.”

Studies have shown that the early detection of tumours can significantly improve survival. One study showed that with increasing proportions of cancer detected

with smaller tumour size, the relative survival rates, when normalised for different tumour sizes, accounted for 61% and 28% of the relative survival increase in localised and regional stage breast cancer, respectively².

Prof Lee notes, “An estimated 74% of breast cancer patients in Hong Kong get diagnosed at stage 1 or 2 of the disease. Early detection not only results in higher survival rates, but it also means more healthcare institutions are better equipped to treat cancer.” However, early detection alone cannot completely eliminate the problem. The key is finding the appropriate levels of intervention throughout a person's healthcare journey.

For instance, tumour markers help to detect tumour cells long before the first symptoms become apparent. This information allows physicians to initiate targeted and effective treatment without delay, thereby enhancing patient well-being and decreasing the cost to healthcare systems.

Many developed economies in Asia Pacific have national guidelines in place to manage cancer demands — from diagnosis to treatment and monitoring.

Hong Kong runs an efficient system with 6% of its Gross Domestic Product (GDP) expenditure on health, evenly split between the public and private sectors. Its public healthcare institutions are well equipped to treat cancer, with patients having access to all forms of treatment. Beyond this, Prof Lee suggests that countries in Asia Pacific should monitor key indicators like incidence and mortality to assess the effectiveness of interventions at a population level. “To collect such data, governments need to invest in cancer registries as part of a broader health data system.”

“Cancer is considered financially catastrophic not only to the families of cancer patients, but also to the economic growth of the country.”

— Dr Clarito Cairo

While easily accessible care exists in many Asian countries, in developing countries it can be a big challenge. Across Asia, the financial burden of cancer is heavy, especially in countries with little coverage.

A cancer diagnosis can have a profound economic effect on individuals and their households, especially among the poor and under-insured. Data shows that the Philippines is among the countries with the highest out-of-pocket cancer treatment costs³. To address the growing number of cancer patients and the need to provide for them, Philippines President Rodrigo Duterte signed the Republic Act 11215 or the National Integrated Cancer Control Act (NICCA) earlier this year, increasing government investment in cancer control.

Under the new law, cancer patients, persons living with cancer and cancer survivors will be classified as Persons with Disabilities (PWD) and will be entitled to the same benefits. Dr Clarito Cairo, Program Manager from the Department of Health’s Disease Prevention and Control Bureau says, “Cancer is considered financially catastrophic, not only to the families of cancer patients but also to the economic growth of the country.”

The Cancer Law aims to address the entire cancer journey — from awareness to survivorship, prioritising the middle and lower class patients during the first phase of implementation. “Legislation is a vital tool in achieving long-term cancer control. Irrespective of who heads the state, government or the Department of Health, the cancer control program will continue as long as the budget is assured and provided for in the law,” says Dr Cairo.

Cancer preparedness requires an understanding of the challenges, as well as an indication of how well interventions are working. The World Health Organization (WHO) has been instrumental in giving guidance on cancer control to countries in Asia, which have implemented national cancer control policies and programs integrated with strategies in their existing and expanding healthcare infrastructure.

Dr Poonam Khetrpal Singh, WHO’s Regional Director for Southeast Asia, says inadequate access to cancer screening, diagnosis and treatment is the primary cause of death and ought to be addressed at a country level.

“Effective cancer screening services must be available at both secondary and primary facilities, while health workers must be trained to identify the signs and symptoms that could lead to a positive diagnosis⁴,” she adds.

Over the past decade, there have been tremendous advances in cancer therapies and diagnostic technologies. For instance, patients with advanced non-small cell lung cancer (NSCLC) may often not be healthy enough for a tissue biopsy, or may only be able to undergo limited tissue procedures, such as fine needle aspiration (FNA) or core needle biopsy (CNB), which can limit the possibility of being selected for targeted therapies. With the introduction of non-invasive procedures such as liquid biopsy, patients who previously could not be tested now have a chance for personalised therapies.

When it comes to what is best for patients, success against cancer hinges on the level of collaboration among different stakeholders – from healthcare providers and researchers to policy makers and civil society – and in the case of cancer, Asia is taking steps in the right direction.

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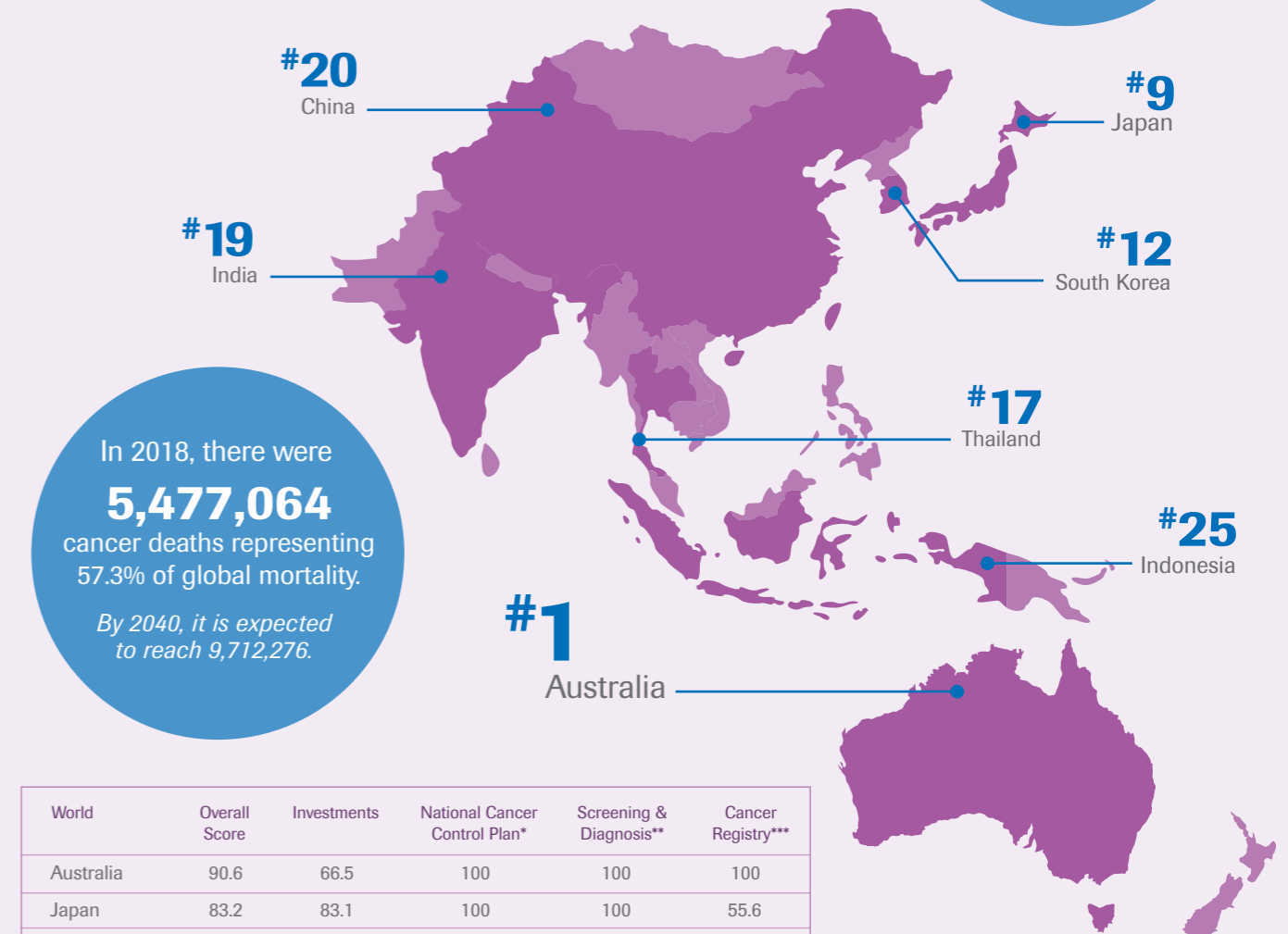
⁴Khetrpal Singh, P. n.d. Health systems must provide cancer screening, detection and diagnosis at all levels of care. Retrieved from <http://www.searo.who.int/mediacentre/features/2019/world-cancer-day-2019/en/>

Are Countries in Asia Pacific Ready to Fight Cancer?

There were **8,750,932** cases in the region. *Cancer incidence is expected to increase to 14,463,671 by 2040.*

THE LEVEL OF CANCER PREPAREDNESS

The Economist Intelligence Unit’s ‘The Index of Cancer Preparedness’ report examined 28 countries around the world on different parameters, including seven in Asia Pacific.



World	Overall Score	Investments	National Cancer Control Plan*	Screening & Diagnosis**	Cancer Registry***
Australia	90.6	66.5	100	100	100
Japan	83.2	83.1	100	100	55.6
South Korea	80.4	66.5	83.3	100	100
Thailand	69.4	55.2	83.3	50	88.9
India	64.9	36.0	58.3	60.0	55.6
China	64.5	39.9	50.0	100	55.6
Indonesia	55.1	20.1	62.5	40	44.4

OVERALL SCORE

70.1-100: Moderate to high score 50.1-70: Low score 0-50: Very low score

Sources:

*Roadmap on an actionable and realistic National Cancer Control Plan (NCCP).

**Foundation in screening programs and early detection tests across the diagnosis care continuum leads to better cancer outcomes.

***Intelligence as a good population-based cancer registry informs the cancer challenge and measures the effectiveness of various interventions.

Bray, F. et al. 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, 68(6), 394-424.

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Improving the Healthcare Ecosystem: Myanmar's Journey



*Countries like Myanmar have been actively working to curb cancer, but timely detection and early diagnosis continue to be a challenge. The Asia Regional Director for City Cancer Challenge Foundation in Myanmar, Dr Aung Naing Soe, tells **Dia:gram** how this unique initiative increases access to sustainable cancer care and treatment.*

Non-communicable diseases (NCDs) account for 60% of all deaths in Myanmar, with cancer being the third major cause for mortality¹. Last year, almost 70,000 new cancer cases were estimated in a population of 53.8 million². Appropriate diagnostic solutions and quality treatment are paramount to curb deaths and increase survival rates. In a bid to support resource-limited countries and speed up equitable access to quality cancer care, the Union for International Cancer Control (UICC) established a global initiative. Today, the City Cancer Challenge (C/Can) operates as an independent foundation to deliver cancer care solutions through city level collaborations. Myanmar's Yangon was selected as one of the five 'key learning cities' for C/Can.

Yangon is Myanmar's largest city and main commercial hub. It faces significant challenges in its healthcare system, particularly in the availability of physical infrastructure, essential diagnostic tools and information systems. Urban migration, overcrowding and poverty have increased exposure to the risk of cancer, lack of access to affordable healthcare and economic hardship. Public hospitals are overwhelmed with the number of cases and there are not

enough qualified health professionals³. According to C/Can, the greatest financial and human impact of cancer is felt within low- and middle-income countries, like Myanmar, which are the least equipped to respond to this growing burden, and where rapid urbanisation is bringing significant public health and sustainable development challenges⁴. Though Myanmar is slowly gaining macroeconomic stability, affordable healthcare continues to be a challenge. Asia Foundation's 2018 City Life Survey estimated that 44% of the low-income groups were reluctant to bear healthcare costs when diagnosed with an illness⁵. Most people cannot afford treatment and visit doctors at a late stage with dire consequences.

C/Can's Asia Regional Director in Myanmar, Dr Aung Naing Soe, says a collaborative response is critical in providing preventive, curative and rehabilitative services to curb cancer. "C/Can is a first-of-its-kind multi-sectoral initiative as it recognises that addressing NCDs, particularly cancer, requires coordinated energies to work together. C/Can incorporates public, private and civil societies who work hand in hand and share technical expertise."

Roche's Partnerships

Our aim is for every person who needs diagnostics and medicines to be able to access and benefit from them. In 2018, Roche launched an integrated global access department. Since then we have partnered with UICC and C/Can to increase access to sustainable cancer care by developing a model that targets cities with a strong need and readiness for improved cancer care that can be scaled up globally.

"Defeating cancer requires global collaboration. As the world leader in oncology, we are proud to join forces with UICC, C/Can and other key partners to tackle this challenge and ensure access to our innovative medicines and diagnostics," says Severin Schwan, CEO of Roche.



By opening up health networks and sharing knowledge expertise from differing health systems, they are providing new means to equitable cancer care.

As the Asia Regional Director at C/CAN, Dr Aung Naing Soe works with representatives from the public, private and civil society organisations to improve cancer treatment and care.

The Foundation provides health system knowledge, global stakeholder network and financial planning expertise specifically tailored to the needs of Yangon. By identifying gaps and priorities in areas of cancer diagnosis, treatment and care, each city has established an executive committee and a series of technical groups. In Yangon, the executive committee includes representatives from the Ministry of Health and Sports (MoHS) with participation from the Yangon Regional Government, Myanmar Medical Association and Oncology Society, as well as involvement from various civil society cancer foundations, public and private hospitals. The multi-sectoral committee reported four principal areas for improvement — lack of basic cancer care, management services, quality diagnostic solutions and treatment.

Dr Soe emphasises that C/Can is now implementing its priority objectives by “drawing protocols to generate standardised procedures for cancer treatment and care.”

Additionally, it is also offering opportunities to develop human resource capacities in the field of cancer and set up a population-based cancer registry for the Yangon region. Four types of cancer have been prioritised — breast, cervical, colorectal and lymphoma.

Cancer knowledge and health literacy in Yangon is poor and recognising this need, the C/Can Executive Committee in Yangon has proposed workshops in the city to educate health professionals and the general population regarding early signs of the disease. By initiating such workshops at a local level, Dr Soe says early detection through regular screening is possible and can lead to better cancer treatment solutions. The program is also creating multi-disciplinary teams in pathology, radiotherapy, medical oncology, cancer surgery and palliative care as well as human resource training. The committee’s findings in the first phase showed that Myanmar is extensively lagging behind in expert pathologists. Forming the basis

of any cancer diagnosis, experienced and trained pathologists are instrumental. Therefore, the American Society of Clinical Pathology (ASCP), a multi-sectoral partner at C/Can, is delivering technical assistance for more than 60 senior pathologists. Apart from histopathology training on the four prioritised cancers, Dr Soe also says that a telepathology platform is in the final phase of contract signing.

The locally-driven approach, combined with a unique model that harnesses public-private partnerships, by C/Can is championing new ways to minimise and tackle NCDs like cancer.

No single organisation or institution can cover the needs of cancer patients. By opening up health networks and sharing expertise, innovative solutions are mobilising countries like Myanmar to build a more sustainable healthcare ecosystem.

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Personalised

healthcare is possible.

Today's medical knowledge, technology and data science offer an enormous promise: the right treatment for the right patient at the right time. If we work together, we can make this a reality for patients worldwide.

Roche