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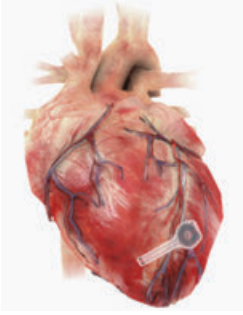

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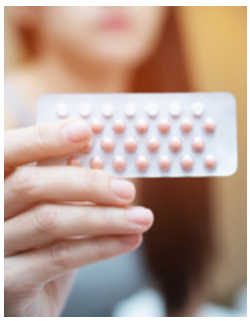

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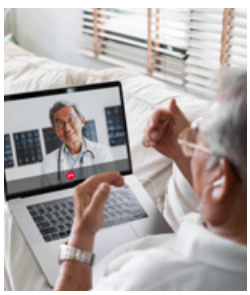

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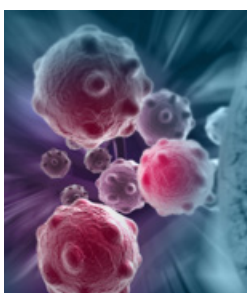

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PANTAI HOSPITAL Kuala Lumpur

Colon cancer warning

Screening tests for those aged 40 years and above can help avoid suffering from bowel cancer

Rosli Ahmad, 39, (not his real name) usually defecates at least three times a day, but over the past few months has changed his routine and thinks he has constipation.

When seeing a doctor, he was advised to take care of his diet and take more fiber, but still had problems defecating and most annoyingly, his stools had traces of blood.

Then Rosli met a specialist at a private hospital and after several tests he was diagnosed with colon cancer or stage three colon cancer.

Similarly, a patient known as Lim, 40, was diagnosed with early stage colon cancer after doubting his health after his father died of prostate cancer.

Lim immediately underwent screening at the hospital and doctors found that a polyp in his intestines had grown and become cancerous. Fortunately, it was a second stage tumour that could be treated.

The case of Rosli and Lim is among the thousands of colon cancer patients in the country.

Based on 2016 reports, colon cancer is the second leading cause of death and the most common malignancy in men in Malaysia.

Data shows colon cancer affects 21.2 percent of 100,000 men and 18 percent of 100,000 women in the country.

Initial filtering

Pantai Hospital Kuala Lumpur, Consultant Colorectal Surgeon, Datuk Dr Meheshinder Singh, said most patients with colorectal cancer present in the later stages of 3 and above.

Hence, the importance of early detection which can be done through screening tests. Since we have a tendency of seeing cancers at earlier age as compared to Western countries, screening for colorectal cancer is necessary for those aged 45 and above.

Symptoms of colon cancer

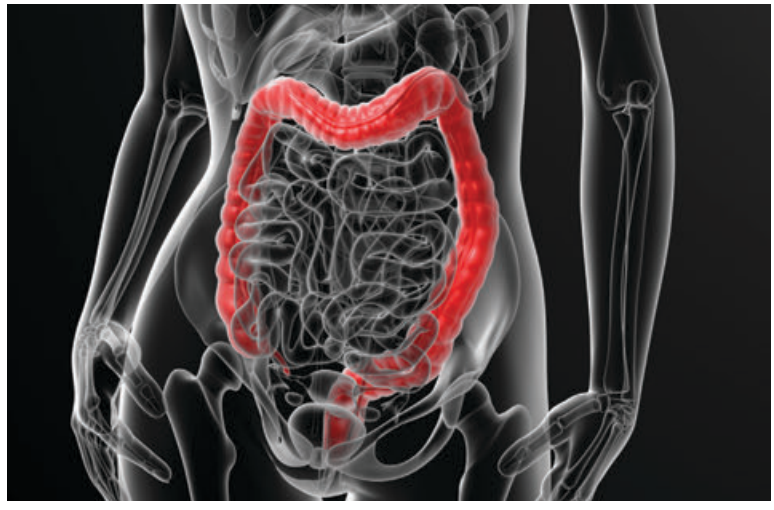
Dr Meheshinder said that patients who present with symptoms often have an advanced cancer.

Colorectal cancer symptoms may vary depending upon the location of the tumor. Tumors on the left side of the colon or the rectum may present with bleeding per rectum, or blood mixed with stools, altered bowel habits, passage of mucus, pain in the anus, weight loss. Whereas, right sided tumors, would usually have symptoms related to lack of blood or Fe deficiency anaemia such as lethargy, malaise, shortness of breath, reduced effort tolerance, loss of appetite, weight loss, abdominal mass.

Once patients present with any of these red flag symptoms, they should have a colonoscopy to confirm the diagnosis.

Unhealthy lifestyle

Dr Meheshinder said there are several environmental



or lifestyle factors that can increase one's risk for colorectal cancer

"Too much consumption of red meat, processed meat, overcooking or barbequing meet and a diet lacking in fiber are contributory factors.

"Obesity and lack of exercise increase the risk of getting the disease," he said.

Methods of treatment

Main mode of treatment is surgical resection which entails removal of the segment of bowel with a good margin beyond the cancer and its draining lymph nodes.

Other modalities include adjunct therapies using chemo, radio and even immunotherapy in selective cases.

Bowel cancer screening

In addition, Dr Meheshinder said, the hospital is currently conducting a pilot study on assessing the detection of colorectal cancers or adenomatous polyps using Fecal Immunochemical Testing (FIT) for individuals aged 45 and above. The FIT test is to look for occult blood (not visible to naked eye) in the stool.

"This test is free of charge and we are targeting about 1,500 people for this study."

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"Early-stage colorectal cancers are generally symptomless, hence, it's important to screen those aged 45 years and above."

Datuk Dr Meheshinder Singh, Consultant Colorectal Surgeon

LETTER FROM THE EDITOR

The remarkable advancements in oncology over the past several decades have improved life expectancy for many patients, especially those with breast and colon cancers. One area, however, the treatment of pancreatic cancer, has yet to reap the full benefits.

Our cover story delves into the diagnostic and therapeutic intricacies that make pancreatic cancer one of the most challenging malignancies to treat, with dismal survival rates that have only marginally improved over the years. Though promising research is under way, there's still a long way to go for the condition to become as curable as other treatable cancers.

We also report on the global efforts to eradicate hepatitis by 2030, a goal set by the World Health Organization. With about 300 million people living with hepatitis worldwide, the infectious disease kills 1.4 million patients every year. An area with high hepatitis incidence, Southeast Asia has made "significant advances" in prevention, with all its countries achieving at least 90 percent coverage for the hepatitis B vaccination. But there's still a long way to go, with efforts now focused on scaling up testing to identify more patients and interrupt the chain of infection.

Another feature looks at how the rare risk of blood clots associated with the COVID-19 vaccine developed by Astrazeneca has shed light on a similar risk linked to the contraceptive pill, raising questions about the need for both safer alternatives and contraceptives for men.

In a Q&A with a clinical psychologist, we offer some clues about why people fear needles or injections, a problem that may force them to skip vaccinations or faint at the sight of a syringe. Fortunately, there are coping strategies to help overcome this phobia.

Gabriele Bettinazzi
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You Ask, They Answer

Q: What is meralgia paresthetica?

A: The nerves in the body send information to the brain about the environment in the form of sensory nerves, while motor nerves convey messages from the brain to activate muscles. To do this, nerves must pass over, under, around and through your joints, bones and muscles. Usually, there is enough room to permit easy passage.

Swelling, trauma, or pressure, however, can narrow these openings and squeeze the nerve. When that happens, pain, paralysis, or other dysfunction may result.

A painful, burning sensation on the outer side of the thigh may mean that one of the large sensory nerves in the legs, the lateral femoral cutaneous nerve, is being compressed. This condition is known as meralgia paresthetica.

Specifically, symptoms include pain on the outer side of the thigh, occasionally extending to the outer side of the knee, and a burning sensation, tingling, or numbness in the same area. Occasionally, there may be aching in the groin area or pain spreading across the buttocks. This usually happens on only one side of the body. The affected area is often more sensitive to light touch than to firm pressure.

Q: How is it diagnosed?

A: During a physical examination, I would ask about recent surgeries, injury to the hip, or repetitive activities that could irritate the nerve. I would also check for any sensory differences between the affected leg and the other leg. To verify the site of the burning pain, I would put some pressure on the nerve to reproduce the sensation. The patient might need both an abdominal and a pelvic examination to exclude any problems in those areas.

X-rays will help identify any bone abnormalities that might be putting pressure on the nerve. If I suspect that a growth, such as a tumour, is the source of the pressure, I might ask for an MRI or CT scan. In rare cases, a nerve conduction study may be advised.

Q: How can it be treated?

A: Restrictive clothing and weight gain are two common reasons for pressure on a nerve, so I might ask the patient if they wear a heavy tool belt at work or if they consistently wear a tight corset or girdle. Another cause might be a seatbelt injury from a motor vehicle accident. I might also recommend a weight loss programme.

Treatments will vary, depending on the source of the pressure. It may take time for the burning pain to stop and, in some cases, numbness will persist despite treatment. The goal is to remove the cause of the compression. This may mean resting from an aggravating activity, losing weight, wearing loose clothing, or using a toolbox instead of wearing a tool belt.

In more severe cases, I may give the patient an injection of a corticosteroid preparation to reduce inflammation. This generally relieves the symptoms for some time. In some cases, surgery is needed to release the nerve.

Dr Prem Pillay

Dr Prem Pillay is the director of the Singapore Brain Spine Nerves Center and a specialist in neurosurgery and spine surgery.

Cancer Quick Facts | Do I Have Cancer?

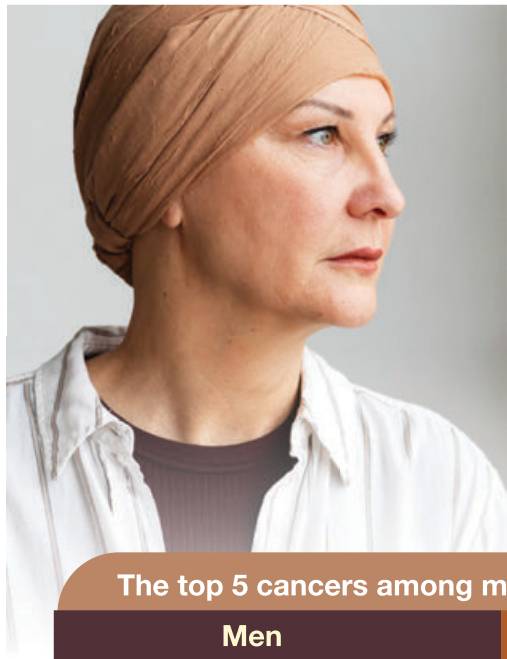
This community message on Cancer Awareness is brought to you by KPJ Damansara Specialist Hospital. Prepared by Dr. Sangeetha Poovaneswaran, Consultant Clinical Oncologist and Radiotherapist.

Malaysian stats

Currently, 1 in 6 Malaysians will get cancer during their lifetime and this figure is rising at an exponential rate. Scary, isn't it? Nowadays, we hear more and more people being diagnosed with cancers which were unheard of in the past. How can we spot cancers early while it is still curable? What treatment options are there?

How to spot cancer early?

Knowing how your body normally looks and feels can help you spot early any changes that cancer could cause. Having any of the following symptoms doesn't necessarily mean you have cancer, but it's sensible to get them checked out by your doctor.



General symptoms of cancer

- A lump anywhere on your body.
- Changes on your skin or an existing mole (such as itching, bleeding, or a change in shape or colour).
- A cough or hoarseness that lasts for more than three weeks.
- A change in bowel habits that lasts for more than six weeks.
- Any abnormal bleeding from your vagina or back passage, in your urine, or when being sick (vomiting).
- Unexplained, significant weight loss (5kg/10lbs over a couple of months).
- Coughing up blood.

The top 5 cancers among men and women in Malaysia

Men	Women
Bowel	Breast
Lung	Cervix
Nasopharynx	Bowel
Prostate	Ovary
Leukaemia	Leukaemia

Radiotherapy to head (patient wears a special mask to immobilize the head and neck)

Chemotherapy Unit

What are the treatment options?

Surgery

Surgery can be used to diagnose, treat, or even help prevent cancer in some cases. Most people with cancer will have to undergo surgery. It often offers the greatest chance for cure, especially if the cancer has not spread to other parts of the body.

Radiation Therapy

Radiation therapy uses high-energy particles or waves to destroy or damage cancer cells. It is one of the most common treatments for cancer, either by itself or along with other forms of treatment.

Chemotherapy

Chemotherapy (chemo) is the use of medicines or drugs to treat cancer. The thought of having chemotherapy frightens many people. But knowing what chemotherapy is, how it works, and what to expect can often help calm your fears. It can also give you a better sense of control over your cancer treatment.

Targeted Therapy

Targeted therapy is a newer type of cancer treatment that uses drugs or other substances to more precisely identify and attack cancer cells, usually while doing little damage to normal cells. Targeted therapy is a growing part of many cancer treatment regimens.

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You Ask, They Answer

Q: What is prediabetes?

A: Prediabetes happens when a patient's blood sugar level is higher than it should be but still not high enough for type 2 diabetes to be diagnosed. When patients have prediabetes, they will have impaired fasting glucose or impaired glucose tolerance.

Before somebody goes to type 2 diabetes and starts to show symptoms of diabetes, they will go through this prediabetic stage.

We don't have any definitive data on trends or prevalence in Malaysia because it's not currently collected, but the World Health Organization says that 5-10 percent of individuals with prediabetes will go on to have full diabetes within a year. This is why we're very concerned about being able to identify patients with prediabetes before their disease progresses.

Q: Why is it so important to know that you have prediabetes?

A: Once you know you have prediabetes, at least you can control or modify your risk factors to prevent the condition developing to full diabetes. Even the prediabetes stage is still associated with higher risk factors for cardiovascular disease, diabetic retinopathy (damage to the retina), or other diabetic complications. We want to reduce the risk of these complications. Many patients are not aware that they have prediabetes until they develop type 2 diabetes, and then they're surprised with the diagnosis. That's why it's so important to have diabetes screening, particularly when you have risk factors such as obesity or high blood sugar.

Q: Is diabetes more of a concern for older patients?

A: As our body ages, the risk of getting type 2 diabetes increases. Indeed, about 25 percent of adults over 65 with prediabetes will go on to have type 2 diabetes. At a younger age, patients with prediabetes are able to prevent complications, such as cardiovascular disease, because they're more able to make lifestyle modifications; however, they may be less motivated to make the necessary changes immediately. Some younger patients think they can wait until later to modify their lifestyle. Older patients are more likely to have better awareness of their health as they age, so they're often more motivated to make such changes. Regardless of age, our goal is to delay the patient getting type 2 diabetes through our care.

Q: Do older patients with prediabetes have to take extra measures?

A: No matter if you're a younger patient or an older one, your approach to controlling diabetes will be the same. Diabetes screening and lifestyle modification will always be the first-line treatment for prediabetes patients. Lifestyle modification is the most important thing. Some doctors will start with medication to help control the prediabetes stage, and then some follow-up will be needed with our doctors, dietitian, and diabetes nurse in order to support them. The medication they're given depends on the patient's individual condition.

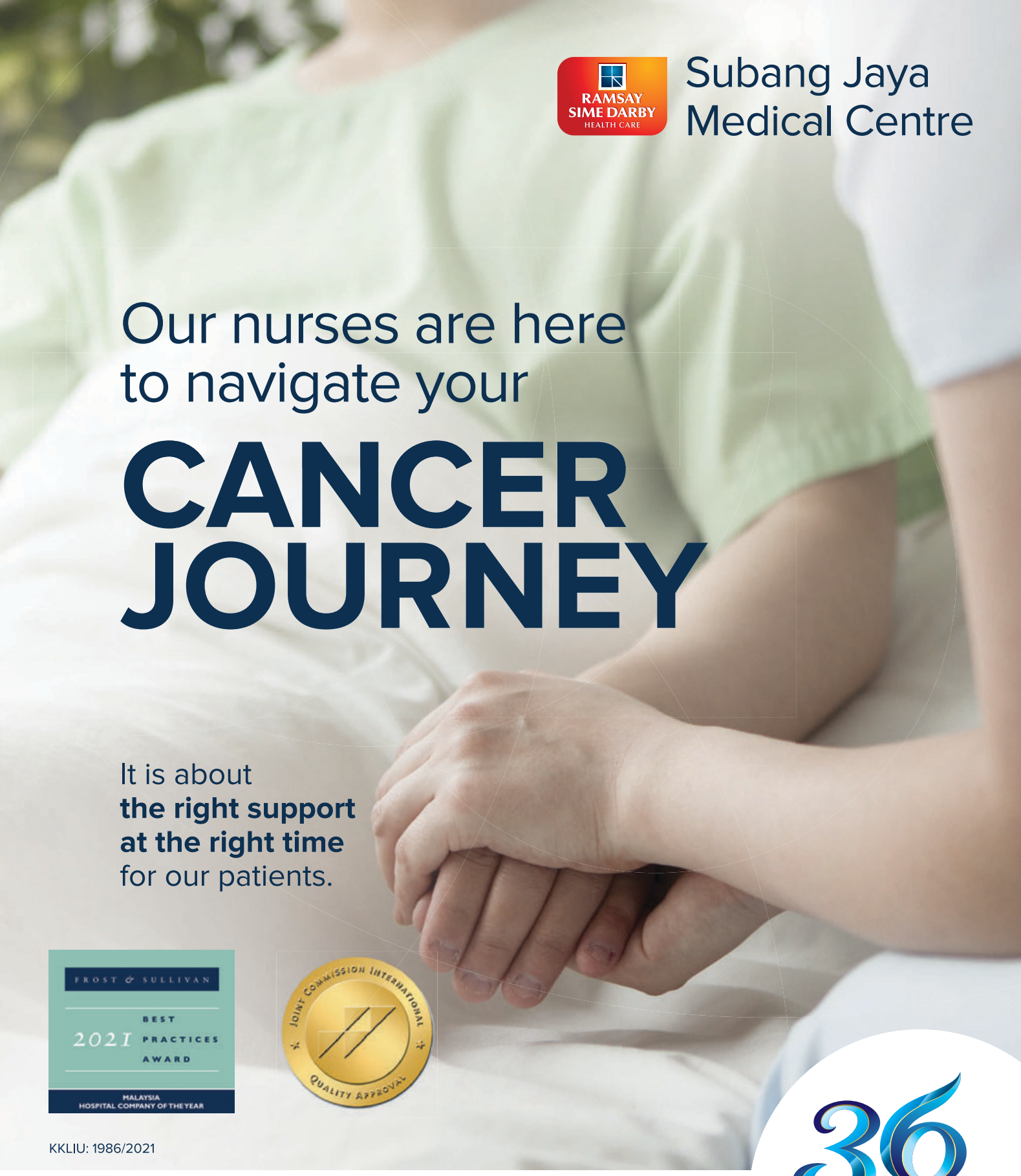
Because lifestyle modification is so important, we will help patients manage their prediabetes through food choices because we understand that it's difficult to change eating habits and make wiser choices. And then we'll encourage them to choose low-fat, low-calorie, and high-fibre foods and advise them on how to take more exercise.

Q: What can older patients do if they're unable to exercise?

A: We will assess the patient to see if they're able to do physical activity. If they can't, we can suggest non-weight-bearing exercises like stationary cycling at home or swimming, which is particularly good because it doesn't put stress on the joints. On top of that, we can refer patients to physiotherapists and sport specialists to develop exercise programmes suitable for them.

Dr Choong Shiau Yin

Choong Shiau Yin is a diabetes educator at IJN Diabetes Lifestyle Clinic in Kuala Lumpur.



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You Ask, They Answer

Q: What is tooth whitening?

A: Whitening is a conservative, non-invasive approach to making teeth appear whiter, with a 90 percent success rate when performed by dentists.

Not all smiles respond equally well to whitening treatments, however. As the American Dental Association explains, yellow-hued teeth typically bleach well, but whitening products may not improve the appearance of teeth tinged with brown or grey tones. In addition, whitening chemicals cannot alter the colour of prosthetic crowns or composite fillings; if these materials are visible, tooth-whitening procedures may cause them to stand out prominently from the natural teeth, creating an unpleasant appearance. Tooth stains resulting from drugs such tetracycline are also unresponsive to bleaching treatments.

Tooth-whitening procedures are reversible and not permanent, and multiple treatments may be required over the years to maintain a bright smile. Whitening treatments typically last between one and three years before teeth regain a darker, stained appearance. Smoking, drinking coffee and wine, and regular use of mouth rinse may start the decline as little as one month after treatment.

Although tooth-whitening treatments are generally safe, the procedure can result in several side effects, such as increased sensitivity for several days. You may also be at risk for sensitivity if you have gum recession, faulty dental restorations, or cracked teeth. In some cases, patients feel sharp, spontaneous pain in their front teeth shortly after a tooth-whitening session. Although uncomfortable symptoms typically subside within two days, issues like sensitivity can linger for a week. Dentists will apply paste over the teeth to reduce sensitivity.

Q: Do toothpaste and over-the-counter whiteners work?

A: Whitening toothpaste works by removing surface stains during brushing and typically contains higher amounts of abrasives and detergents than standard toothpastes to remove tougher stains. Although they don't contain bleach, some types contain low concentrations of carbamide peroxide or hydrogen peroxide that help lighten tooth colour.

The British Dental Association says products that can be bought online or from shops often fail to declare the precise chemicals used, so it's very difficult to assess their safety. Dentist can legally use six percent hydrogen peroxide in home kits that they provide. Cheap teeth-whitening kits from online retailers often claim not to contain hydrogen peroxide, but they may contain sodium perborate. This is banned for use in cosmetic products and is said to cause infertility and foetal abnormalities.

Q: Why should I opt for professional whitening treatment when beauticians can offer a similar service?

A: Staff running tooth-whitening kiosks in shopping malls or beauty salons often have no healthcare training and no licence, yet they still dispense chemicals that could permanently affect the teeth and gums. They get around the law by asking the customer to place the whitening tray into their mouths, and so do not perform a dental procedure themselves. These technicians do not have the appropriate training nor can they follow up if there are problems after the procedure, such as sensitivity or damage to the gums.

Dr Caryn Fung

Dr Caryn Fung is an advanced aesthetic and cosmetic dentist at KL International Dental Centre.

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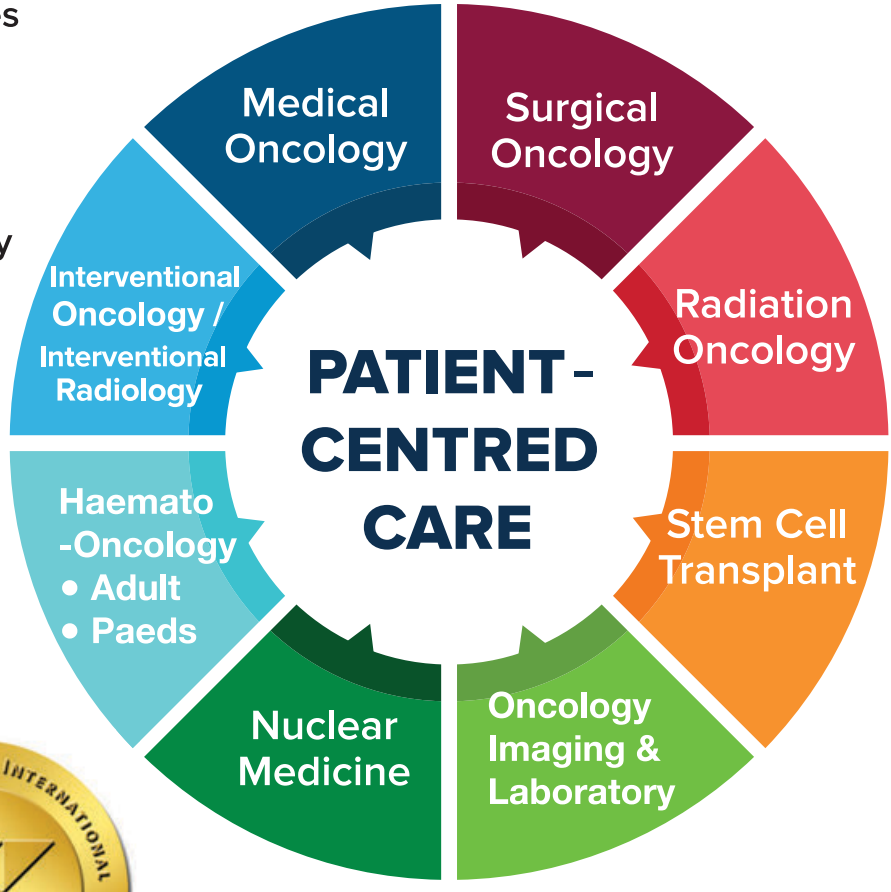

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You Ask, They Answer

Q: What is trypanophobia?

A: Trypanophobia is needle phobia, which is very common and associated with the fear of needles, of injections themselves, the thought of skin being pierced, or the fear of seeing your own blood.

What differentiates a fear from a phobia is the degree of impairment. I might fear needles, but if I need to get a vaccination, for example, I could book in and get it done despite my fear. Someone with a phobia might delay that appointment or not even have a vaccination because they're afraid of the needle. We often also see fainting, which is quite common, and people might struggle to stay conscious at the sight of a needle.

Q: What is known about the causes?

A: Needle phobia is not just a fear response; the idea of receiving a needle often elicits a repulsive disgust response in a person. The underlying causes of fear and disgust response are thought to be similar, and the way they're treated is similar.

We know that humans are born with certain stimuli that can elicit fear. We don't know why; we think it may have some evolutionary significance.

There's also an element of genetics, but we don't know a lot about specific genes leading to specific phobias, and there's a degree of heritability. If your parents have anxiety, you are more likely to develop a phobia.

Many people have a fear of certain things, but it's often what we learn to do about it that determines whether we develop a phobia or not. Often the reaction of our parents, our peers, and the people around us will guide whether we choose to face our fears or whether we choose to escape and not face them. In children, studies show that even little things parents do which result in avoidance or exaggerating a threat might result in an increase in the anxiety of the child.

Finally, we develop our own skills to regulate emotion, and we can learn for ourselves that we have control and influence when we fear, or we can lose control and be passive in our response to fear.

Q: How is it treated?

A: It's principally treated through behaviour and cognitive therapy. Behaviour therapy programmes will gradually help people get more confident with their fear by having them look at pictures of needles, see blood, and then gradually step up to a place where they might be close to real needles and perhaps be given an injection. It's that sort of graded exposure that's incredibly effective in producing positive outcomes.

There's also cognitive training. Fears are often driven by exaggeration of threat and a belief that something bad is going to happen. So cognitive therapy is about trying to help people make realistic predictions. By using a combination of behaviour and cognitive therapy, phobias can be treated very successfully, often in a very short space of time.

Q: How should needle phobes prepare for injection?

A: It's important for patients to be open about their fears and have support in place so they can get needed healthcare.

One of the things patients could do before an injection is look at images of needles and blood at home. They could hold the needle once they meet the doctor to get some exposure. Often the fear of fainting while receiving the needle is an issue; if that's the case, they could do breathing strategies and tense and relax their muscles to reduce the risk of passing out. Finally, there are strategies for the administration of the injection. Skin numbing cream can be used to reduce the feeling of the injection, which could be done in a graduated and slow way so the patient feels like they're in control.

Professor Adam Guastella

Professor Adam Guastella is a clinical psychologist and Michael Crouch Chair in Child and Youth Mental Health at Westmead Clinical School at the University of Sydney.

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Electrolytes are the key to preventing cramps during exercise

Pure water might even cause the cramps athletes think it is preventing

If you reach for water when a muscle cramp strikes during exercise, you might want to think again, as drinking plain water alone could make you more prone to muscle cramps.

Instead, consuming electrolytes, instead of water, can help prevent muscle cramping, which is a common painful condition affecting many people who exercise regularly.

Many athletes think that dehydration causes muscle cramps, prompting them to drink pure water while exercising. However, researchers have identified that pure water dilutes the electrolyte concentration in the body and doesn't replace what's lost through sweat.

Electrolytes are minerals such as sodium, potassium, magnesium, and chloride. They're essential for muscle health and help the body absorb water. Oral rehydration solutions contain electrolytes in specific proportions and can be made with water, salt, and sugar.

These are commonly found in supermarkets and pharmacies and have many benefits for both athletes and the general population, according to Dr Ken Nosaka, an exercise specialist at Edith Cowan University in Australia.

"Electrolytes are essential for everyone. They're used to help the body absorb water more effectively and replace essential minerals that are lost through sweat or illness," he told *Global Health Asia-Pacific.*

People should consider drinking oral rehydration fluids instead of plain water during moderate to intense exercise, when it's very hot, or when you're sick from diarrhoea or vomiting.

"The electrical frequency required to induce cramp increases when people drink water with electrolytes, but decreases when they consume plain water," Dr Nosaka explained. "This indicates that muscles become more prone to cramp by drinking plain water, but more immune to muscle cramp by drinking the electrolyte water."

Health-seekers, however, should be wary about buying commercial sports drinks branded with electrolytes that contain high amounts of sugar. These can also be expensive and only mildly more beneficial than tap water, which itself contains small amounts of electrolytes.

It's becoming increasingly popular for people to mix their own electrolyte drinks. One simple and effective recipe for this contains mineral water, lemon juice, and coconut water, which contains natural electrolytes such as potassium, sodium, and manganese.

It's becoming increasingly popular for people to mix their own electrolyte drinks.

A pint of cow's milk after a workout will also provide a rich supply of electrolytes. In addition to its rich supply of calcium, sodium, and potassium, milk provides a healthy combination of carbohydrates and protein, which can help with post-workout refuelling and promote muscle tissue repair.

Some research suggests that these characteristics could make milk a better post-workout beverage than many commercial sports drinks and at a fraction of the price. Watermelon water is also an emerging favourite of athletes as it contains electrolytes and L-citrulline, an amino acid that may enhance oxygen transport and athletic performance.

Lockdown late risers shouldn't fear return to normal sleep patterns

The pandemic has had an impact on sleep, but the body will adjust as workers go back to the office

The pandemic has not just changed many people's waking lives, it's also having a big impact on how we sleep.

Faced with weeks and months of working from home, large sections of the population have found that their sleep patterns have changed significantly.

Whereas most office workers try to manage their sleep balance much like their bank accounts, making small deposits then big withdrawals, people have over the last 18 months been getting much more sleep than they're accustomed to, especially in countries that have undergone a series of lockdowns.

But as normal life re-emerges through mass vaccination, will sleep patterns also return to normal?

A study by German sleep expert Thomas Kantermann shed some interesting light on the matter this year. He observed in the journal *Current Biology* that before the pandemic many people were wishing for greater flexibility to work from home, more time with loved ones, and perhaps more sleep too.

Since the start of the pandemic, lockdowns have become a part of our normal life, forcing us to work from home while also giving us more time to spend with family. In terms of sleep, Swiss researchers say that lockdowns have resulted in us getting more sleep on average. This is because, for many people, there's a mismatch between internal body time and the social world we live in.

Greater flexibility in work arrangements and not needing to commute to work mean that people have greater ability to sleep in line with their circadian rhythm, or body clock, rather than a 9-5 work schedule. However, the Swiss study also found that during lockdowns, people on average reported worse sleep quality.

Growing evidence is telling us that COVID-19 restrictions and lockdowns can have a negative impact on mental health, including more cases of anxiety and depression, presumably due to increased stress and social isolation.

Though poor sleep can raise the risk of mental illness, poor mental health can also adversely affect sleep patterns, and this is why lockdowns may have a negative impact on sleep quality.

"This unprecedented situation also led to a significant increase in self-perceived burden, which was attendant to the decrease in sleep quality," wrote another group of researchers, also in Current Biology.

The good news is that, for anyone worrying about resuming their commutes and re-entering the office rat race, the body will right itself quickly.

"Our body clocks do have a fantastic ability to adjust over days and weeks, just like when we adjust to new time zones when we travel," said Dr Cele Richardson, a researcher at the University of Western Australia's Centre for Sleep Science, to *Global Health Asia-Pacific.*

She also thinks it helps that almost everyone has been in the same boat, with lockdowns sparking a global debate about workplace efficiency.

"One of the few positives of this pandemic is that many employers now understand the benefits of a more flexible workplace, and this may have long lasting benefits for our sleep," she said.

But even when the lockdowns are over, people are likely continue to engage in unhealthy behaviours or ways of thinking, such as worrying excessively about their livelihoods, which can mean sleep problems stick around for the longer term.

In such cases, Dr Richardson advocates professional help from a psychologist trained in cognitive behavioural therapy for insomnia.

In terms of sleep, Swiss researchers say that lockdowns have resulted in us getting more sleep on average.

Few know about the dangers of intensive meditation

In rare cases, mindfulness can turn into psychosis, particularly after meditation retreats

In 1976, Dr Arnold Lazarus, one of the forefathers of cognitive behavioural therapy, first raised concerns about transcendental meditation, a mantra-based practice that was popular at the time.

"When used indiscriminately," he warned, "the procedure can precipitate serious psychiatric problems such as depression, agitation, and even schizophrenic decompensation."

Dr Lazarus had by then treated a number of "agitated, restive" patients whose symptoms seemed to worsen after meditating.

This may be surprising given the wide-ranging health benefits of meditation, which has been practiced for thousands of years and was originally meant to help deepen understanding of the true meaning of life. These days, it's commonly used for relaxation and stress reduction.

The practice can give a sense of calm, peace, and balance that can benefit both emotional well-being and overall health.

These benefits don't end when a meditation session ends, as studies show it can help carry practitioners more calmly through their days and may help manage certain medical conditions including asthma, cancer, heart disease, and even irritable bowel syndrome.

Nevertheless, 45 years after Dr Lazarus first made his warnings, much has been written about meditation-induced mental health problems, including more than 50 studies that have documented cases of mania, dissociation, and psychosis.

"Meditation is associated with health benefits; however, there are reports that it may trigger or exacerbate psychotic states," wrote the authors of a 2019 review of psychotic disorders occurring in association with meditative practice published in the *Irish Journal of Psychological Medicine*.

The types of meditation described were transcendent, mindfulness, Buddhist meditation like qigong, Zen and Theraveda, and others like Bikram yoga, Pranic healing, and Hindustan-type meditation.

Although they found instances of adverse effects after meditative practice, the researchers struggled to attribute a causal relationship between the two. Often, adverse reactions took place during meditation retreats or sustained and intensive session.

Perhaps the best publicised instance of this is the case of Megan Vogt, a 25-year-old American woman who took her own life weeks after attending a 10-day meditation retreat. Rather than emerging from the course enlightened, she was said to have left it incoherent, suicidal, and in psychosis.

As she jumped from a 35-metre bridge, she falsely believed that she had to die to save the lives of her family and others, according to reports at the time. Occasionally, others who have completed such courses also leave them in various states of psychosis.

"[This] highlights the possibility that intense meditation could precipitate psychosis in vulnerable individuals," wrote Dr Pratap Sharma, a professor in the Department of Psychiatry at the All India Institute of Medical Sciences, in a case report, although he stressed that "there are several beneficial effects of meditation in patients with psychosis if practiced with caution".

Speaking to *Global Health Asia-Pacific*, Dr Vince Polito, a research fellow at the ARC Centre of Excellence in Cognition and its Disorders in Sydney, concurred, saying:

"All these things have been reported following meditation experiences. Adverse events most commonly occur in the context of multi-day retreats, rather than workshops, classes, or short individual practice.

"I think there's very little awareness that these are possible risks. These negative events do not seem to be common, but they can be very distressing when they occur."

"These negative events do not seem to be common, but they can be very distressing when they occur."

Master moist cooking for healthier meals

Steaming and stewing can help lower fat intake and are ideal for diabetics

Cooking with water is the key to a healthy diet, especially when cooking dishes to suit the Asian palate.

Steaming, braising, poaching, and stewing are moist cooking methods to master for those looking to shed pounds while maintaining a good nutritional balance.

They can be used across all food groups, from grains to protein, and have the benefit of not adding calories or fat while retaining many of the nutrients that would be lost using other cooking methods.

Research has shown that cooking with moist heat at low temperatures can minimise the formation of advanced glycation end-products, which are harmful compounds that are formed when protein or fat combine with sugar in the bloodstream.

Poaching and steaming are often cited as being the healthiest ways to cook food as they can lower cholesterol in meat, preserve the fibre in vegetables, and retain the vitamins and minerals of most ingredients.

When cooking meats, such as lamb or pork, steaming removes the fat from the meat so it can be discarded, whereas grilling, baking, or frying cook the fat into the protein. Steaming also lowers the calories and cholesterol in meat and removes the need for cooking oil or fat, which results in lighter and healthier meals.

By steam cooking, vegetables are kept as close to their natural raw state as possible, whilst still heating them thoroughly. This not only prevents the vegetables from turning into a mash or purée but also allows them to retain their original colour, taste, juices, and freshness. To add aromatic flavour, herbs and spices can be added to the water.

Moreover, many of the vitamins and minerals found in vegetables are lost with some conventional methods of cooking. Steaming ensures that vitamins such as vitamin B, riboflavin, thiamine, niacin, biotin, B12, pantothenic acid, and vitamin C, as well as minerals such as calcium, phosphorous, potassium, and zinc, are retained.

Braising, on the other hand, is a high-flavour way to make a simple, healthy meal with meat that prevents the build-up of unhealthy compounds that can result from traditional cooking techniques.

By steam cooking, vegetables are kept as close to their natural raw state as possible, whilst still heating them thoroughly.

According to Joice Tan, a Malaysian consultant nutritionist, potentially cancer-causing chemical compounds, such as heterocyclic amines and polycyclic aromatic hydrocarbons, are formed when meat, including beef, pork, fish, or poultry, is cooked using high-temperature methods, such as pan frying or grilling directly over an open flame.

"With moist cooking, because it's done slowly and not at temperatures that cause potentially harmful chemical reactions inside the meat, food can be cooked thoroughly while preserving the important nutrients it contains," she told *Global Health Asia-Pacific.*

"Steaming and braising are particularly good for diabetics and people with prediabetes when they're used in a healthy diet because they allow you to minimise your fat intake. Best of all, there's no end to the type of food you can use moist methods to cook. A lot of Chinese dishes like hot pots, steamed fish, and pao are all steamed and taste delicious."

Subang Jaya Medical Centre

Dr Noor Azmi Mat Adenan
Consultant Gynaecologist & Gynae-Oncologist

Prevention of cervical cancer: the facts.

Madam X, a 45-year old married executive with 3 school-going children. She was a healthy and busy lady, presented with several months of prevaginal discharge. She came forward only after the discharges started to be mixed with blood and more offensive in nature. Examination revealed a large fungating cervical lesion, filling up the upper vaginal which histological biopsy confirmed to be grade 3 squamous cervical cancer of advanced stage. She also had hydronephrosis on one of her kidneys due to ureteric obstruction. Her ureter was stented, and she was treated with chemoradiation. Her symptoms subsided but several months after completion of her treatments, she developed offensive foul smelling fecal material per vaginal, due to fistula development. Surgery to divert the bowel content was performed needing her to use colostomy bag. She had recurrence of her cancer a few months later, was treated with chemotherapy but succumbed to her disease whilst on treatment, barely 12 months from initial presentation. She never had any Pap smear in her life.

The above scenario was a real case of mine with typical presentation and progression of cervical cancer cases. It is quite a common disease amongst Malaysian women, ranked as third highest after breasts and colon cancers. The incidence is more in women aged 35 to 50, at the peak of their career. Like any malignancy, the journey of patients with advanced cases is very protracted, with huge loss of time, financial, physical / emotional trauma and chaotic family life.

High risks Human Papilloma Virus (hrHPV), especially subtypes 16 and 18, have been implicated in 80-90% of cervical cancers and are usually contracted through sexual activities. It is a common infection, afflicting nearly 80% of sexually active women, more so in those with risky sexual attitudes. Fortunately, 90% are transient, eliminated by our natural immune system. The remaining 10%, are called persistent infection. The virus induces a series of cellular changes named as pre-cancerous lesion (CIN). Individuals with reduced immunity; presence of sexually transmitted diseases and smoking are known to favour persistent infection. The CIN states may then progress to either the squamous or adenocarcinoma types of cervical cancers. It also causes other cancers such as vaginal, anal, oral and penile cancers at a much lower frequency.

Prevention of cervical cancer.

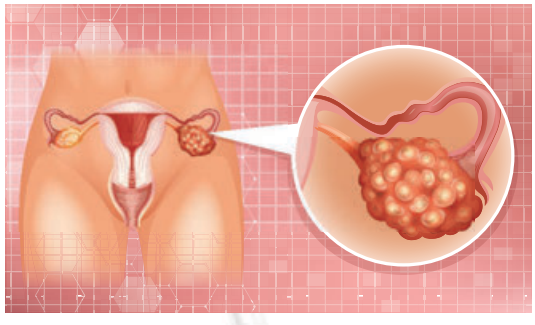
Total avoidance of sexual activities means zero risks of exposure but interestingly, penile vaginal penetration is not mandatory in its transmission. It is transmissible via fingers or device, contaminated with genital fluid of infected individual. Although it is almost impossible to avoid exposure, prevention of persistence infective state is achievable.

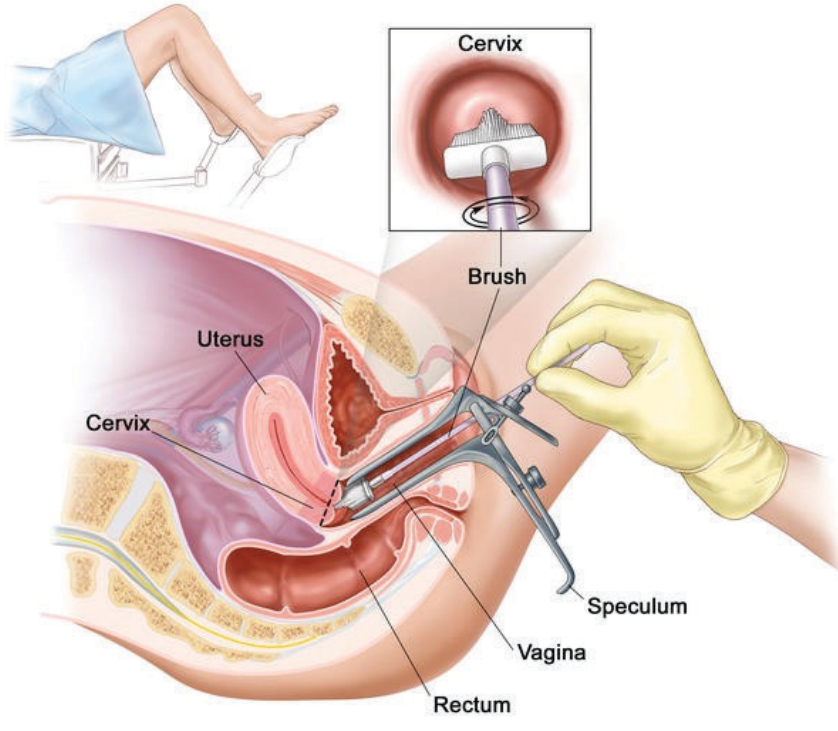
Practising a healthy lifestyle and quitting smoking are a good start. Sticking to known sexual partner is highly recommended but condom helps to reduce risks of infection when casual sexual activity is unavoidable. Vaccination against HPV is now available to help fight against the infection, best given to sexually naïve girls but still beneficial to sexually active or even affected older women. Screening with smear cytology or HPV DNA, is effective in detecting precancerous changes or presence of infection.

Implication of positive screening.

Screening implies testing asymptomatic non-infected or infected individuals to look for obscure or early disease when medical intervention can be instituted to prevent more sinister outcome. Misunderstanding with lack of correct information on screening and diagnostic procedures; with unfounded worry on side effects leads one to take the attitude of avoiding screening. This is an ill-informed attitude as when you become symptomatic, it means you already have advanced cancer. Now, you must forgo your embarrassment and be examined by multiple doctors and forced to undergo painful and difficult treatments, like major surgery or chemoradiation, with loss of fertility or even sexual capacity. By then, there is no point in feeling sorry for oneself. In fact, a positive test must not be seen as a death sentence but more like being given a second chance, because simple treatments are available, curative and allows preservation of reproductive function.

Once screened positive, you will be given an appointment for outpatient colposcopy where your cervix is visualised through a microscope. Abnormal area is highlighted with the help of some diagnostic solution. The whole process is not painful, just some discomfort which is usually resolved with simple oral analgesics. Small biopsy may be taken and most of the time, will be reported as pre-cancerous diseases and these are easily treated even as an outpatient. Cancer usually occurs in women who had neglected their health by not coming forward to be screened for many years and the diagnosis cannot be blamed on the screening test itself. Your medical practitioner or gynaecologist may help you with more information when necessary.





mRNA vaccines found to elevate risk of myocarditis in young men

CDC warns of treatable heart risks, but says they are outweighed by vaccines' benefits

America's leading public health agency, pointing to strong evidence, has warned that some COVID-19 vaccines could be associated with heart risks in younger people.

At the same time, the US Centres for Disease Control and Prevention (CDC) reiterated the high effectiveness of the Pfizer-BioNTech and Moderna mRNA vaccines in preventing coronavirus infections in frontline workers, after presenting a study that showed an over 90 percent reduced risk of infection two or more weeks after vaccination.

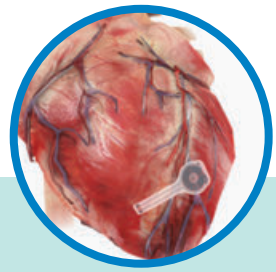
Nevertheless, the CDC has acknowledged observing an elevated risk for myocarditis among mRNA COVID-19 vaccines, particularly in males aged 12–29 years. However, most of those who suffered from the condition responded well to treatment and quickly felt better.

Myocarditis typically occurs more commonly in men than women, while incidence is highest among infants, adolescents, and young adults. Symptoms typically include chest pain, shortness of breath, or heart palpitations. Current guidelines from the American Heart Association and American College of Cardiology recommend restricting exercise until the heart recovers.

Since last June, the CDC's Advisory Committee on Immunisation Practices has convened 15 public meetings to review data on the epidemiology of the disease and use of vaccines against it. After reports of myocarditis, the work group reviewed clinical trial and safety data for patients who received mRNA vaccines.

Over the last year, the committee found myocarditis reporting rates at 40.6 cases per million second doses of mRNA COVID-19 vaccines administered to males aged under 29 years and 2.4 cases per million second doses administered to males aged 30 or above. In women, the rates were 4.2 and 1.0, respectively.

The committee has since concluded that the benefits of COVID-19 vaccination to individual persons and at the population level clearly outweighed the risks of myocarditis after vaccination.



New pacemaker literally melts in your heart

New bioresorbable device can last for weeks, is safe, and reduces risk of infection

Scientists in America have developed the first-ever transient pacemaker that dissolves when no longer needed.

The thin, flexible, lightweight device could be used in patients whose hearts need temporary pacing after cardiac surgery or while waiting for a permanent pacemaker.

All components of the pacemaker are biocompatible and naturally absorb into the body's biofluids over the course of five to seven weeks without needing surgical extraction.

The device wirelessly harvests energy from a remote external antenna using the same near-field communication technology used in smartphones. This eliminates the need for bulky batteries and rigid hardware, including wires.

"Sometimes patients only need pacemakers temporarily, perhaps after an open heart surgery, heart attack, or drug overdose," said Dr John Rogers of Northwestern University, on announcing the device's development. "Hardware placed in or near the heart creates risks for infection and other complications."

The fully implantable device measures 250 microns in thickness and weighs less than half a gram. Soft and flexible, it encapsulates electrodes that softly laminate onto the heart's surface to deliver an electrical pulse.

"The circuitry is implanted directly on the surface of the heart, and we can activate it remotely. Over a period of weeks, this new type of pacemaker 'dissolves' or degrades on its own, thereby avoiding the need for physical removal of the pacemaker electrodes. This is potentially a major victory for post-operative patients," Dr Rogers added.

This is the second example of electronic medicine from his lab, the first being his 2018 demonstration of the world's first biodegradable implant that speeds nerve regeneration. The team's bioresorbable devices are completely harmless and similar to absorbable stitches. After fully degrading, the devices completely disappear through the body's natural biological processes.

SOURCE: NORTHWESTERN UNIVERSITY/GEORGE WASHINGTON UNIVERSITY

Genetic research should start including racial, ethnic, and Indigenous groups

Minorities suffer from European bias and historical transgressions

Historically, disenfranchised racial and ethnic groups and indigenous populations have been largely excluded from genomic research and may not benefit as much as those with European ancestry.

That's according to a scientific statement from the American Heart Association that suggests ways to eliminate the barriers.

Genetic research looks at how individual genes affect health and disease and has led to the identification of important single-gene disorders such as hypertrophic cardiomyopathy, a hereditary condition where heart muscle becomes abnormally thick.

Researchers have long used the genomes of large numbers of people to detect patterns associated with health or disease, which then allows them to assess the risk for certain heart diseases. However, while 80 percent of participants in genome-wide association studies have European ancestry, they represent just 16 percent of the world's population.

"This limits the ability to identify genomic markers for disease risk," the statement's authors wrote. "For example, genomic scores to determine risk for certain heart diseases are less accurate when used with ethnically and racially diverse populations or indigenous peoples than when used with persons of European ancestry."

New genomes that represent more diverse groups of people are therefore needed, which will require greater numbers of people from diverse ethnicities and ancestry in medical research, they said.

But the authors cautioned that might be difficult because of "a deep and understandable mistrust of scientific research caused by numerous historical transgressions against marginalised racial and ethnic groups and indigenous populations.''

For example, the Tuskegee Study of Untreated Syphilis recruited Black men in the US in the 1930s and 1940s with the promise of free healthcare but gave them only placebos, even after penicillin was shown to be an effective treatment.

"Comparable atrocities" similar to this have occurred in other disenfranchised racial and ethnic groups, the statement said, "including some that are not publicly acknowledged or disclosed".

To rebuild trust and recruit more diverse participants in genetic and genomic studies, the authors advised researchers to devise plans to reduce inequities that emphasise respect, honesty, justice, and fairness.

Diet during pregnancy may influence baby's heart health

Scientists gain better understanding of how early exposures predict cardiovascular disease

Diet and other lifestyle factors during pregnancy may change how a baby's genes work in a way that can affect the child's cardiovascular health by age eight or nine, new research has found.

With rates of cardiovascular disease rising globally, early intervention can reduce the risk of coronary heart disease, heart failure, stroke, and high blood pressure later in life. But identifying potential problems early in children who might develop cardiovascular disease later in life remains a challenge.

One area that scientists are now looking at is epigenetics — the study of how the environment and other exposures alter the way a person's genes work — to better predict future heart disease risk.

One of the body's epigenetic mechanisms for changing gene function, without changing the gene itself, is called DNA methylation.

During this process, bundles of carbon and hydrogen atoms known as methyl groups attach to a part of a DNA strand and act like a power switch to turn the gene's expression on or off. Maternal diet, smoking, stress, and other environmental factors can influence a child's DNA methylation even before birth.

In the new study, British researchers analysed samples of babies' umbilical cord blood to compare the DNA methylation patterns with measurements of their cardiovascular health at age eight or nine. They identified 16 sites where methylation altered the expression of genes associated with aorta pulse wave velocity, a measure of blood vessel stiffness that can increase cardiovascular disease risk.

They also looked at the possible links between maternal factors and the methylation patterns at the sites. Smoking, diet, and weight around pregnancy modified those patterns.

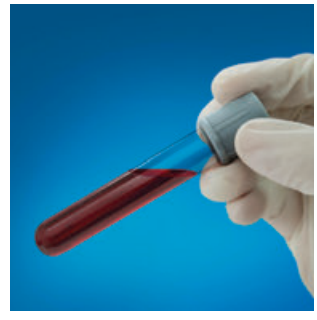
The findings suggested that the trajectory of cardiovascular disease risk starts very early, even before birth, said Dr Mark Hanson of Southampton University on the release of the study.

So given that the epigenetic process appears to play a role, "there's an opportunity to change this in various ways," he said. "And if we want our kids to have the longest, healthiest lives possible, then we need to help them to develop in a healthy way literally from the moment of conception."

Guiding treatment decisions for patients with advanced stage cancer with a simple blood draw

Guardant Health's non-invasive liquid biopsy test helps identify appropriate therapy options in approximately seven days upon sample receipt in the laboratory.

The Guardant360® test is Guardant Health's breakthrough liquid biopsy for patients with advanced stage cancer. This test is done using circulating tumor DNA (ctDNA), which is produced when tumors shed small pieces of their genetic material into the bloodstream. Traces of this ctDNA can be detected in the blood using digital sequencing technology. Over 70 clinically relevant genes are examined in the test to identify genomic alterations within a patient's cancer DNA. This helps oncologists understand which alterations exist in a patient's cancer without the complications and delays of a tissue biopsy. With just a simple and non-invasive blood draw from the patient, oncologists will be able to see test results in approximately one week from sample receipt in the laboratory. With this fast and reliable comprehensive genomic profiling information about the patient's tumor, oncologists can recommend appropriate treatment for their patients sooner.



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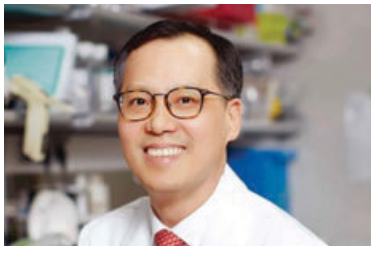
A few words from our CEO, Guardant Health AMEA

Simranjit Singh
Chief Executive Officer
Guardant Health Asia, Middle East & Africa

"Time to treatment is crucial for patients with advanced stage cancer. With just a simple blood draw, the Guardant360 liquid biopsy test allows oncologists to see the current genomic profile of their patient's tumor in approximately seven days and recommend appropriate treatment sooner. This FDA-approved liquid biopsy is highly validated by over 200 peer-reviewed publications and has shown high agreement with tissue biopsies in detecting actionable mutations. You can now choose to avoid the delays and complications of tissue biopsies. Test your patients with Guardant360 today, get comprehensive genomic profiling information about their tumor and take action by matching your patients to suitable therapies quickly."

Hear what leading medical oncologists have to say about the efficacy of the Guardant360® liquid biopsy test



Prof Byoung Chul Cho
Professor, Division of Medical Oncology
Yonsei Cancer Centre
Seoul, South Korea

"Advanced stage cancer patients who require urgent treatment and may have high risk for tissue biopsy would benefit from Guardant360. I strongly believe in fast action against growing tumour and Guardant360 has made this possible in my clinic."

Dr Shaheenah Dawood
Consultant Medical Oncologist
Mediclinic City Hospital
Dubai, U.A.E.

"In several cases of breast cancer where the disease progresses to the bone, liquid biopsies like Guardant360 become very useful in clinical practice as it's very difficult to biopsy bone. In such cases, this test gives us the comprehensive genomic information required to treat patients appropriately. It also gives us the ability to track mutations that are acquired over time that may help modify therapeutic strategies."

Dr Tan Yew Oo
Specialist in Medical Oncology
Icon Cancer Centre
Singapore

"Blood-based liquid biopsies like Guardant360 is a non-invasive test that can complement the traditional techniques should a patient be too unwell to undergo traditional surgical biopsy or should a tumor be inaccessible. This test can also give confirmation to tissue based next generation sequencing analysis at an earlier turnaround time."

Dr Amit Rauthan
Medical Oncologist
Department of Medical Oncology
Manipal Hospital
Bangalore, India

"The Guardant360 liquid biopsy test was effective in detecting actionable mutations in the solid tumors of my patients with advanced stage cancer and this helped me to make quick, reliable and effective treatment decisions."

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Postop chemo could prevent recurrence of most common kidney cancer

Pembrolizumab could become goldstandard treatment after surgery

An immunotherapy after surgery can significantly improve survival for patients with the most common type of kidney cancer.

A thirdphase study found that the drug pembrolizumab could offer an effective treatment for patients suffering from clear cell renal carcinoma who have few alternative options. This type of cancer can be clearly seen in a microscope and occurs when cells in the kidney quickly increase in number, creating a lump or mass.

Pembrolizumab, an immunotherapy agent that belongs to a class of therapies known as checkpoint inhibitors, improves the immune system's response to tumour cells by blocking the PD1 protein on their surface.

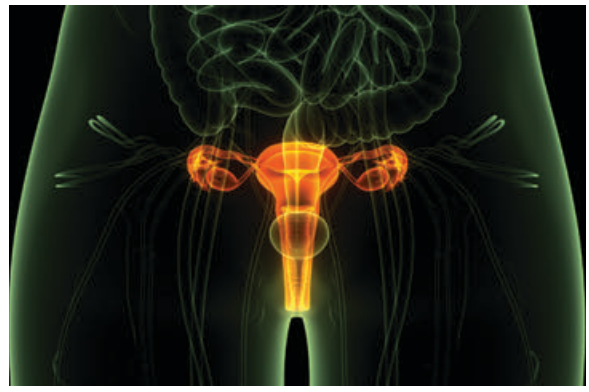
Because targeting PD1 has proven to be effective and safe for treatment, the researchers investigated it as a new target to prevent the disease from recurring following surgery.

Kidney cancer is common in both men and women. Most patients are first diagnosed with local disease, but up to 40 percent develop metastatic disease following surgery, meaning the disease has spread.

Surgical removal of the tumour or the entire kidney by radical nephrectomy is commonly used to treat the cancer. However, patients with intermediate to high-risk advanced disease have a chance of relapse. Currently, there are no standard treatment options postsurgery.

After 24 months followup, the study found that the estimated survival rate was 77.3 percent with pembrolizumab, compared to 68.1 percent with a placebo.

"Pembrolizumab may provide a promising treatment for patients for whom there are few therapy options," said lead author Dr Tony Choueiri, of the Dana Farber Cancer Institute, on the release of the findings. He added that pembrolizumab could be the new standard of care for delaying disease recurrence in patients with fully resected clear cell renal carcinoma.



WHO updates cervical cancer guidelines

More deaths are preventable with new approach to screening

After half a million women contracted cervical cancer last year, the World Health Organization issued new guidelines for faster progress in screening and treatment for the disease.

Cervical cancer led to almost 350,000 deaths in 2020, with the poorest women in the world facing the brunt of the disease.

The WHO's global strategy for cervical cancer elimination calls for 70 percent of women globally to be screened regularly with highperformance tests, and for 90 percent of those needing it to receive the appropriate treatment.

Alongside vaccination of girls against the world's most common sexually transmitted disease, human papillomavirus or HPV, implementing the WHO's global strategy could prevent more than 62 million deaths from cervical cancer in the next 100 years.

The new guidelines include some important shifts in WHO's recommended approaches to cervical screening.

In particular, it recommends a DNA-based HPV test as the preferred method, rather than visual inspection and the Pap smear, which are currently the most commonly used methods globally to detect pre-cancer lesions.

HPV-DNA testing detects high-risk strains of HPV that cause almost all cervical cancers. Unlike tests that rely on visual inspection, this form of testing is an objective diagnostic, leaving no space for interpretation of results.

Although the process for a doctor to obtain a cervical sample is similar for both cytology, or cell examination for cancer, and HPV-DNA testing, the latter is simpler, prevents more pre-cancers, and saves more lives than the other methods, while also being more cost-effective.

"Effective and accessible cervical screening and treatment programmes in every country are non-negotiable if we are going to end the unimaginable suffering caused by cervical cancer," said Dr Princess Nono Simelela, assistant director-general for strategic programmatic priorities at the WHO, on the launch of the new strategy.

"This new guideline will guide public health investment in better diagnostic tools, stronger implementation processes, and more acceptable options for screening to reach more women – and save more lives."

Non-invasive test for colon cancer and polyps exhibits good results

New approach shown to be much more accurate than current faecal screening

A Hong Kong university has developed the world's first faecal "bacterial gene markers" test for colorectal, or colon, cancer. The colon is the longest part of the large intestine.

Whereas faecal immunochemical testing (FIT) commonly used for screening has low sensitivity, which means it has an early-cancer detection rate of only around 50 percent, and fails to detect polyps, the Chinese University of Hong Kong's new non-invasive approach is 94 percent successful and can also accurately detect polyp recurrence.

The novel test can spare patients from an unnecessary colonoscopy, thus reducing the risk of invasive testing and avoiding an additional burden on medical services.

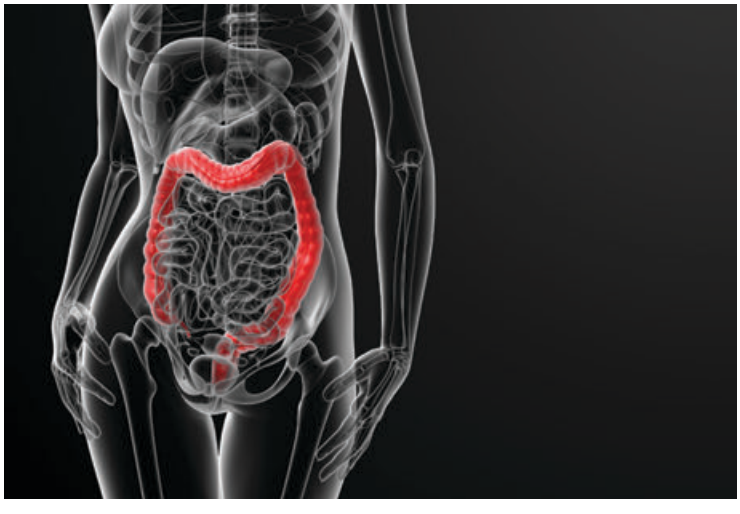
According to the Hong Kong Cancer Registry, the five-year survival rate of patients with stage 1 colorectal cancer is 96 percent but drops dramatically to less than 10 percent when patients are diagnosed at stage 4.

Early diagnosis and treatment of cancers are associated with a favourable prognosis. As most colorectal cancers originate from polyps, early detection and polyp removal can prevent their development.

Current colorectal cancer screening tools have two major shortcomings. First, FIT is not sensitive enough and has a high false-negative rate. Second, there are no non-invasive tools for the detection of recurrent polyps.

This means patients need to undergo surveillance colonoscopy on a regular basis to detect polyp recurrence. The inconvenience and discomfort of repeated colonoscopies deter many people from having the exam.

Through analysis of stool samples from over 1,100 participants, researchers found the sensitivity of M3, a group of four unique bacterial DNA markers, is comparable to that of a colonoscopy for cancer detection and supersedes that of FIT for early cancer and polyp detection.



Completing treatment for breast cancer should be done faster than advised

Study finds that prognosis is better within a shorter window

Breast cancer patients have higher survival rates when their treatment is completed within 38 weeks from first being diagnosed.

Research from the Cleveland Clinic on more than 28,000 breast cancer patients found that treatment through surgery, chemotherapy, or radiation within that timeframe was associated with a slightly higher five-year survival rate than those whose treatment took longer.

This builds on previous research that noted poorer outcomes when there was a delay in completing treatment.

"The biggest difference in our study from others was that we looked at the time from diagnosis to the completion of the multimodality treatment to identify the 38-week window to improve survival rate for patients with breast cancer," Dr Debra Pratt, director of the Breast Centre at Cleveland Clinic Fairview Hospital and the lead author of the study, said on its release.

"In breast and other cancers, patients don't only get surgery, but may also require chemotherapy and radiation therapy. This becomes a complicated system to navigate, and there are multiple reasons why delays arise in treatment being completed. This analysis helps us identify opportunities for improving care within the delivery systems," she said.

Other studies have concluded that the optimal time from diagnosis to first surgical treatment was less than 90 days and less than 120 days from diagnosis to supplementary chemotherapy. When chemotherapy is administered, the radiation should start less than 365 days from the date of diagnosis.

The new study found that the optimal time for treatment completion should be 99 days shorter than commonly recommended targets.

WHO takes action to stem rise in suicide

New guidelines released as pandemic drives up rates in some countries

Rising suicide rates in some parts of the world have prompted the World Health Organization (WHO) to produce new guidance to help countries improve suicide prevention and care.

According to the organisation's latest estimates, more people die each year from suicide than from HIV, malaria, or breast cancer — or even war and homicide. In 2019, more than 700,000 people died by suicide, equivalent to one in every 100 deaths.

"We cannot — and must not — ignore suicide," Dr Tedros Adhanom Ghebreyesus, the WHO's director-general, told the press. "Each one is a tragedy. Our attention to suicide prevention is even more important now, after many months living with the COVID-19 pandemic, with many of the risk factors for suicide — job loss, financial stress, and social isolation — still very much present."

Among young people aged 15-29, suicide was the fourth leading cause of death after road injury, tuberculosis, and interpersonal violence.

But rates vary across countries and regions and between men and women. Compared to the global average of nine deaths by suicide per 100,000 people, the rate in Southeast Asia is slightly higher, at 10 fatalities per 100,000 people, and has been rising in some countries in the region.

Singapore reported a 13 percent increase in suicides last year, with 452 cases, the highest since 2012. While an increase in suicide deaths was observed across all age groups, the number of elderly aged 60 and above who took their own lives reached a high of 154, a 26 percent increase over 2019.

"COVID-19 has severely affected the nation's economy, lifestyle, and mental health," said Gasper Tan, Chief Executive of Samaritans of Singapore (SOS), in a statement. "We are extremely worried about how our elderly are coping during this public health crisis. During the pandemic period, the elderly were more likely to face social isolation and financial worries. Difficulty in constantly adapting to changes as well as prolonged feelings of loneliness may be devastating."

Men accounted for more than 70 percent of all suicides in 2020 in Singapore, and for every successful attempt, at least six are un successful.

Malaysia has also been showing a spike in suicides, with police there recently reporting 468 suicides in the first five months of 2021, an average of three a day and nearly double the rate in 2020. With lockdowns continuing for most of the year, experts expect the rate to spike further.

And in Thailand, 2,551 people killed themselves in the first half of last year, up 22 percent from the same period in 2019. Health officials have attributed the increase to pandemic-related stress.

Even before coronavirus exacerbated economic hardship, Thailand had the highest suicide rate in Southeast Asia, prompting mental health experts and advocates to push for more resources to tackle the problem.

The WHO's new guidance advises countries to adopt four strategies to help prevent suicide: limiting access to the means of suicide, such as hazardous pesticides and firearms, encouraging the media to report on suicide responsibly, teaching adolescents socio-emotional life skills, and identifying early on people thought to be at risk of suicide.

"While a comprehensive national suicide prevention strategy should be the ultimate goal for all governments, starting suicide prevention with [these] interventions can save lives and prevent the heartbreak that follows for those left behind," said Dr Alexandra Fleischmann, suicide prevention expert at the WHO.

Scientists make strides in tissue regeneration

Teams use molecular and biomedical methods to rebuild muscle and bones

"We can rebuild him; we have the technology." Almost half a century after fictional scientists gave us a glimpse into the future of bionics in the popular television series *The Six Million Dollar Man*, researchers have now found new ways to repair the human body in a flurry of breakthroughs in tissue regeneration.

Among the most headline-worthy were two developments announced in May on different sides of the world. At the Salk Institute in California, researchers said they had identified a way to regenerate muscle cells in a way that would help athletes and ageing adults regenerate tissue more effectively.

In Melbourne, Royal Melbourne Institute of Technology (RMIT) engineers reported using 3D printing to create intricate biomedical structures for regrowing bones and tissue.

One of the effects of ageing is loss of muscle mass, which contributes to disability in older people. To counter this loss, the Salk scientists have been studying ways to accelerate the regeneration of muscle tissue using a combination of molecular compounds that are commonly used in stemcell research.

They've shown that using so-called "Yamanaka factors", or proteins, increases the regeneration of muscle cells in mice by activating the precursors of muscle cells, called myogenic progenitors. Although more work is needed before this approach can be applied in humans, the research provides insight into the underlying mechanisms related to muscle regeneration and growth and could one day help athletes and ageing adults regenerate tissue more effectively.

"Loss of these progenitors has been connected to age-related muscle degeneration," said senior author Dr Juan Carlos Izpisua Belmonte on the release of the research. "Our study uncovers specific factors that are able to accelerate muscle regeneration, as well as revealing the mechanism by which this occurred."

Yamanaka factors are a combination of proteins that control how DNA is copied for translation into other proteins. In lab research, they're used to convert specialised cells, such as skin cells, into more stemcell-like cells that are pluripotent, which means they have the ability to become many different types of cells.

The investigators are also studying other ways to rejuvenate cells, including using mRNA and genetic engineering. These techniques could eventually lead to new approaches to boost tissue and organ regeneration.

Meanwhile, the Australian team have turned to the emerging field of tissue engineering to harness the human body's natural ability to heal itself by rebuilding bone and muscle lost to tumours or injury.

Currently there are few treatment options for people who lose a significant amount of bone or tissue due to illness or injury, making amputation or metal implants common outcomes.

While a few clinical trials of tissue engineering have been conducted around the world, key bioengineering challenges still need to be addressed for 3D bioprinting technology to become a standard part of a surgeon's toolkit.

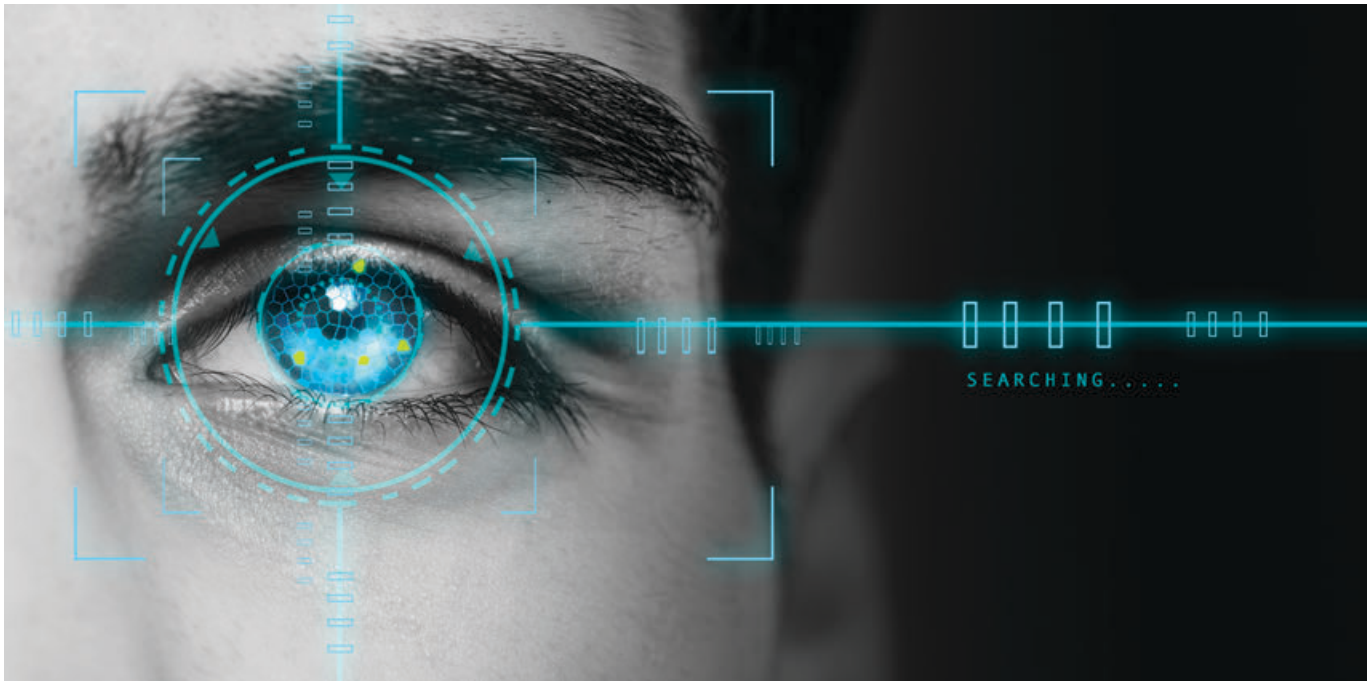
The RMIT team's approach takes tiny scaffolds that can be implanted in the body to support cell regrowth but which were thought to be too small and intricate for standard 3D printing. Making these structures complex enough for cells to thrive has been a significant challenge.

Instead of fabricating these bioscaffolds directly, the team 3D-printed moulds with intricately patterned cavities then filled them with biocompatible materials, after which the moulds would dissolve away.

In this way, the team could create fingernail-sized bioscaffolds full of elaborate structures that, until now, were considered impossible.

"The size of the nozzle on a standard 3D printer is too big to make these shapes because it has to be big enough to let the material through it," lead researcher Dr Cathal O'Connell told *Global Health Asia-Pacific.*

"What we did was flip this approach so that we printed a mould so that the empty spaces within it would form the complex microstructures where cells will flourish. This technique will work with medical-grade materials and can even be done with a basic 3D printer."



Sight breakthrough in blind man shines light on study of optogenetics

Combination of light beams and genetic engineering also holds promise for other sensory restoration and pain relief

Recent news that a blind patient with a degenerative eye disease has had his vision partially restored in a trial is just the tip of the iceberg in the emerging field of optogenetic therapy.

It was the first reported case of such recovery using this approach in which researchers use gene therapy on one eye combined with goggles engineered to stimulate the modified genes using light.

The 58-year-old patient, first diagnosed with a degenerative eye disease 40 years ago, was able to recognise, count, locate, and touch different objects while wearing the goggles.

The technique is part of a science that has evolved over the last fifteen years that uses a combination of genetic modification and light waves to trigger nerve reactions.

Optogenetics involves the use of light to control neurons that have been genetically modified to express light-sensitive ion channels to control the cells of the brain.

Not only can the study be applied to treatments for eye conditions, but researchers are also looking at its use for other senses, such as hearing restoration and even pain relief.

One of these is Dr Rachael Richardson, an optogenetic engineer with the Bionics Institute in Melbourne, who is looking at ways to use light to improve the way humans interact with stimulus from nerves in the ear. A breakthrough in this area would represent a major upgrade on the popular cochlear implants that rely on electrical stimulation.

While electrical stimulus of the nerves in the ear works broadly, the sounds it delivers are not precise. Light stimulus, however, is very accurate as beams can be focused more easily than sound rays, but the problem is that nerves cannot respond to them fast enough. Therefore, Dr Richardson believes that a combination of both sound and light techniques will make the next generation of cochlear implants much more effective.

"Using electricity to activate nerves is highly efficient, but the activation spreads out, so you can't be very precise. You can make light focus very precisely, but with the optogenetics and ion channels that you have to place into the nerves with your genetic modification, they're quite slow to respond.

"The nerves simply cannot follow the stimulation range, and with cochlear implants, you need it to be quite fast, so we're hoping to combine electrical and optical stimulation and get the best of both worlds so we can use that highly efficient electrical stimulus and use the light to get it more precise," she told *Global Health Asia-Pacific*

Among the many other promising uses for optogenetics under development is the ability to inhibit neuroactivity to stop pain.

"With pain, you have an abnormal firing of the nerve, so if you can silence that, you can stop the pain," said Dr Richardson.

"That's really difficult to do with an electrical device, but with optogenetics, it's a lot simpler. There are modifications you can do to the neurons where you can apply the light and it silences them, so there are applications like pain relief."

New ‘miracle pill’ could be game-changer for obesity

Wegovy given approval after showing up to 18 percent weight loss in trials

Few medications have been greeted with the hype that Wegovy has since its approval by American drug regulators in June, with the obesity medication being called a “breakthrough” or “game-changer” by experts.

The first chronic weight management drug to be approved in the United States in seven years, Wegovy is injected weekly and was found to contribute to an average weight loss of 17-18 percent, sustained over 68 weeks during trials.

Marketed by Novo Nordisk, its active ingredient is semaglutide, a form of which is used around the world for the treatment of type 2 diabetes.

Wegovy is now being billed as a revolutionary therapy for patients struggling with obesity and who fulfil its criteria for use — namely, adults with a body mass of at least 30 kg per square metre, or those who are overweight above 27 kg per square metre with at least one weight-related chronic medical condition such as high blood pressure, high cholesterol, or type 2 diabetes.

The drug’s development can be traced back to a scientist in Canada who found that the venom of a Gila monster lizard contained hormones that can regulate blood sugar.

After about a decade of research, a synthetic version of a hormone from the venom was developed that became the first medicine of its kind approved to treat type 2 diabetes. Semaglutide also takes its structure from the lizard’s venom.

In the United States, where obesity is a major health issue, with over 42 percent of the population categorised as obese in 2017, the newly approved drug is expected to make a splash, but there are varying degrees of excitement in other countries where weight management is viewed differently.

In Singapore, for example, the massive appetite among consumers for weight loss pills is matched only by the desire by authorities to stamp out illegal imports of such drugs. Instead of relying on medication, the government has placed lifestyle change front and centre in its efforts to curb the growth of obesity and the diseases that often accompany it.

Likewise in Australia, Jane Martin of Obesity Prevention Coalition is of the opinion that the most effective national weight loss strategy is to persuade people to eat well and only resort to miracle pills on the advice of doctors.

Since weight loss drugs are not allowed to be marketed directly to the public in the country, she speculates that awareness about them will be much lower than in America.

“Of course, if we had a society that was more supportive for people to have access to healthy, delicious food that was cheap and heavily marketed — something that is much more likely to occur in relation to unhealthy processed foods — that would be ideal in helping to shift the whole of society to healthier diets, regardless of their weight,” she told *Global Health Asia-Pacific.*

American Hospital Dubai partners with air ambulance provider

Initiative aims to boost emirate's reputation as a healthcare hub

Private aviation provider Jetex has joined forces with American Hospital Dubai to transport patients from any part of the world to the hospital using its fleet of ambulance aircraft equipped with intensive care units.

Jetex will transport patients and their family members to a VIP terminal at Dubai International Airport, where they will be met by American Hospital's medical team.

The partnership will enable more international patients to look to Dubai's healthcare facilities as the city positions itself as a healthcare hub.

"Over recent years, Dubai has established a strong reputation as a medical tourism destination, delivering expertise, innovation, and high standards, and we continue to work with stakeholders to identify opportunities to further elevate the city's positioning as a global leader in this field," said Issam Kazim, chief executive of Dubai Corporation for Tourism and Commerce Marketing, in a press release.

The 252-bed American Hospital can deliver care in more than 40 medical and surgical specialities and focuses on highly personalised treatment programmes.

"American Hospital Dubai has always taken the lead in providing the most advanced services in healthcare. This partnership underlines our commitment to offer the highest level of facilitation to international patients and ensure that we are with them every step of their journey with us," said Sherif Beshara, chief executive of American Hospital Dubai's parent company.

"In addition, I believe this initiative will play a significant role in strengthening Dubai's status as a hub for medical tourism."

First dialysis travel guide launched

Diaverum launches guidebook for patients who need dialysis on their holidays

A global renal healthcare provider has launched a dialysis holiday travel guide to empower kidney patients to continue travelling by helping them secure access to the treatments they need.

Diaverum's 72-page travel guide is claimed to be the first of its kind. It combines crucial information on access to its own dialysis clinics around the world, along with travel insights from renal care experts, patient's associations, and experienced travellers who need dialysis.

It covers a wide range of destinations, from Iguazu Falls in Argentina to Almaty in Kazakhstan, as well as holiday favourites like the Balearic Islands and Barcelona in Spain. It also provides advice on how to navigate typical travel concerns for dialysis patients, such as nutrition.

"The ability to travel is an enriching experience, increasing the wellbeing of our patients and their families alike […]. This guide is designed to whet their appetites for some of the most popular holiday destinations, where we can offer world-class care," said Michaela Blomstrand, director of global patient experience at Diaverum and head of its holiday dialysis programme, in a press release.

The Sweden-based company has a network of 450 clinics across 24 countries on four continents. While its core service is haemodialysis, it also offers support and treatments ranging from preventive care, peritoneal dialysis, and home care.

Its staff are available to help patients with all the steps in their holiday planning, from designing an itinerary to ensuring continuity of care at their destination.

India to re-energise health tourism promotion

Country charts post-pandemic course to raise the attention of its domestic healthcare providers

In a bid to refocus its efforts on promoting India as a medical tourism destination, the country's Ministry of Tourism has set up a board to oversee a new strategy to develop the segment.

The government has also introduced medical visas along with an e-medical visa for 166 countries as part of its new policy. Yoga and ayurveda tourism will also be promoted, along with other alternative forms of medicine officially recognised by the country.

Chaired by the tourism minister, the board will act as an umbrella body for promoting Indian healthcare to overseas patients "in an organised manner".

The draft National Strategy and Roadmap for Medical and Wellness Tourism was devised by the tourism ministry following feedback from other ministries, state governments, and healthcare industry stakeholders.

The ministry is also distributing brochures and other material to increase publicity about medical tourism to its intended markets. In addition, platforms such as World Travel Mart in London, the Arabian Travel Mart, and ITB Berlin will be used to specifically promote this agenda.

The initiative comes after India's second wave of pandemic overburdened the healthcare system and put on ice the country's plans to promote its expertise in healthcare.

Tourism authorities believe India's strength in age-old alternative medicine practices will attract a large number of arrivals to the point that other countries cannot compete with it. Ayurveda, in particular, they say, has been gaining in worldwide popularity and recognition for its origins on the subcontinent.

Thai hospital opens dedicated clinic for LGBTQ medical patients

Bumrungrad taps into minority group for specialised services

Bumrungrad International Hospital in Bangkok has launched a clinic for gay, lesbian, and transgender patients, bringing together its specialised services catering to this minority demographic.

The high-end private hospital's new Pride Clinic will offer gender confirmation surgery, hormone treatments, cosmetic surgery, and health checkups. These services had previously been spread across a number of facilities.

The clinic aims to tap into demand from the LGBTQ market, which is largely made up of double-income households with no children and has a relatively high spending power. Thailand moved last year to legalise same-sex unions and markets itself as welcoming to LGBTQ visitors.

While the country is known as a medical tourism destination, health centres specifically for LGBTQ people remain rare. Bumrungrad anticipates the arrival of patients from China, Southeast Asia, and the Middle East for its LGBTQ services.

By providing services from medical professionals, the hospital hopes to help people avoid potentially harmful alternatives, such as self-administering hormones.

Thailand has at least four million LGBTQ people, according to Bumrungrad. The global LGBTQ population has been estimated at more than 400 million.

Bumrungrad International Hospital is a JCI-accredited, multi-specialty hospital located in the heart of Bangkok and is one of the largest private hospitals in Southeast Asia, with 580 beds and over 30 specialty centres. Prior to the pandemic, more than 620,000 international patients from over 190 nations had visited the hospital annually.

The stealthy nature of pancreatic cancer makes it a serial killer

Lagging behind other cancer therapies, treatments for pancreatic cancer need much improvement although some promising trials are in the pipeline

Thanks to advancements in diagnosis and treatment, many cancer patients are now living longer and healthier lives, but not all cancers have benefited equally.

Breast cancer mortality, for instance, dropped by 40 percent between the 1980s and 2020 in high-income countries where roughly 90 percent of female patients now survive for at least five years after diagnosis, mostly due to early detection and treatment, according to the World Health Organization.

In many instances, the use of mammograms, or X-rays of the breast, has helped prevent the spread of malignancies to other tissues due to early detection. Specific treatments targeting the biological features of some breast cancer subtypes have also contributed to high survival rates. One example is hormone therapy, which can slow or block the growth of tumours that rely on these chemicals that are naturally present in humans to proliferate.

During that time, the same metric for pancreatic cancer jumped from three to 10 percent and was the lowest survival rate among the 25 cancer types on their list.

However, a major challenge in treating cancer is that it's actually a constellation of different diseases that can affect multiple tissues and organs, so the advancements against one malignancy can't be easily replicated in others. These difficulties are particularly evident in pancreatic cancer care, where improvements are coming but at a much slower pace. The pancreas is an essential organ that helps convert food into fuel for the body's cells and regulate blood sugars.

"Though we're making small advancements and learning more about pancreatic cancer, the frustrating thing is that survival rates have not really improved over the last 20 to 30 years," Datin Dr Sharmila Sachithanandan, a consultant gastroenterologist at Subang Jaya Medical Centre in Kuala Lumpur, told *Global Health Asia-Pacific*. "We're seeing survival rates being very static compared to other cancers, like lung and colon malignancies, that are doing better."

In the US, for instance, the five-year survival rate for colon cancer increased from 51 percent in the mid 1970s to 63 percent in 2016, according to the American Cancer Society. During that time, the same metric for pancreatic cancer jumped from three to 10 percent and was the lowest survival rate among the 25 cancer types on their list.

In 2020, almost half a million patients with pancreatic malignancies succumbed to the disease, accounting for 4.7 percent of all cancer deaths worldwide, according to Globocan. This is a significant number if we consider that pancreatic cancer isn't that common and made up just 2.6 percent of new cancer cases that year.

There are a multitude of reasons that make pancreatic cancer such a deadly condition, from diagnostic and therapeutic limitations to biological and anatomical difficulties. But these challenges aren't necessarily insurmountable.

Roberta Luna has been dealing with the grim reality of suffering from pancreatic cancer for a big chunk of her life, while also losing her grandmother, father, uncle, and mother (who was diagnosed in 2005 and died in 2013) to the disease.

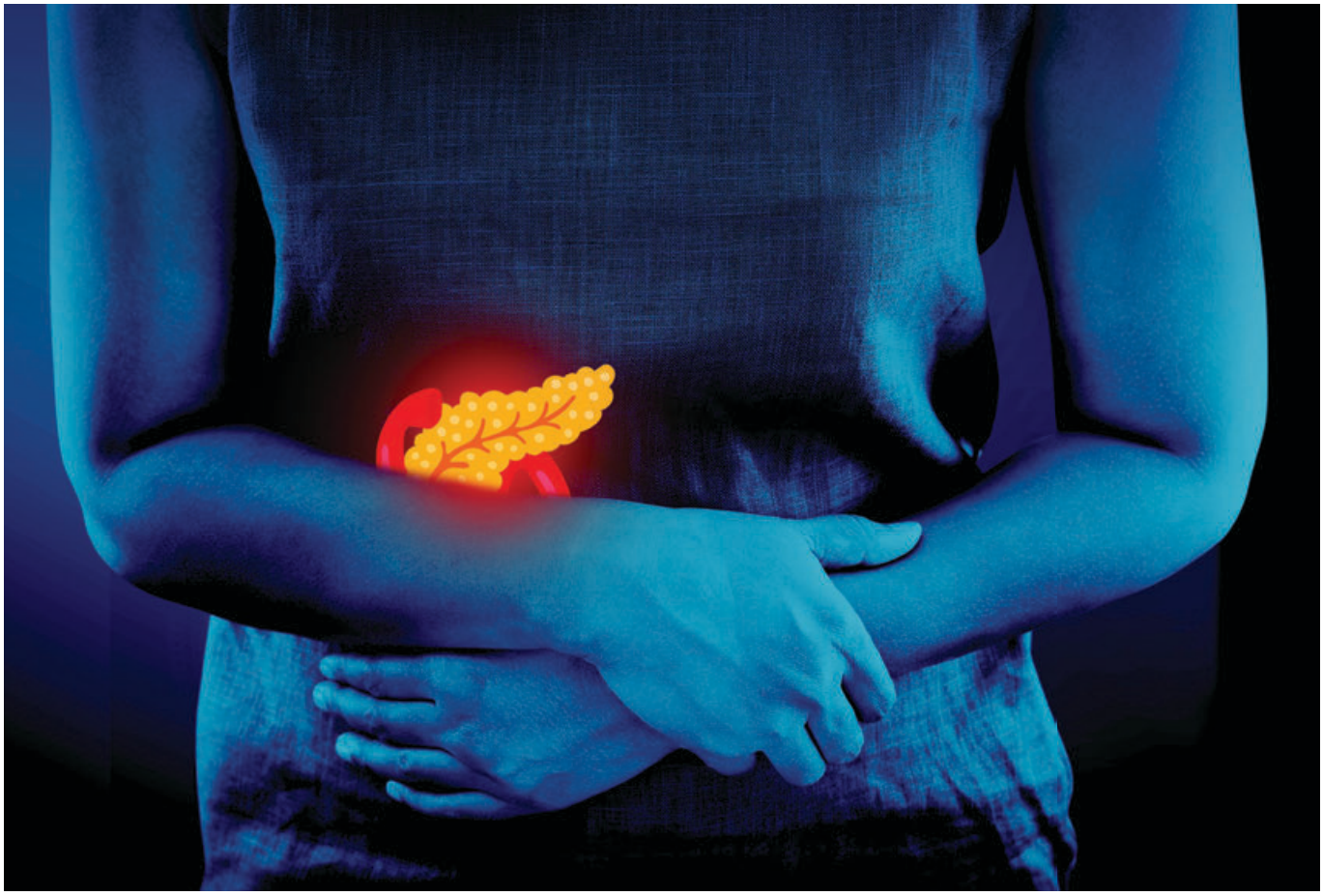
"When I was diagnosed with pancreatic cancer in 2002, my doctor told me to go home and put my house in order," she said in an interview with *Global Health Asia-Pacific*. "But I wasn't ready to go down that road."

While she thinks it's understandable some physicians want to be as honest as possible about what patients should expect from pancreatic cancer, they shouldn't make assumptions on how patients should react.

"I'm for knowing all the statistics and everything I am going to be facing, but at the same time, doctors shouldn't take my hope away because they don't know when my time is going to be up. Sometimes hope is all we have," she said.

Although Luna's last 19 years on treatments have affected her routine, her "life was fairly normal." The same goes for the many people living with pancreatic cancer she's met while volunteering for the Pancreatic Cancer Action Network (PanCAN), a US-based advocacy organisation.

"A lot of them are still able to do the things they



like, though some cases are extremely ill. I think doctors should listen to patients who decide they are done fighting, but they should not determine that for themselves," she said.

Diagnostic hurdles

The pancreas is located behind the stomach, in a position where cancers have space to grow to a large size before signs and symptoms become noticeable. Combined with the lack of widespread screening for pancreatic cancer, this results in most patients being diagnosed at a late stage when a cure is not an option.

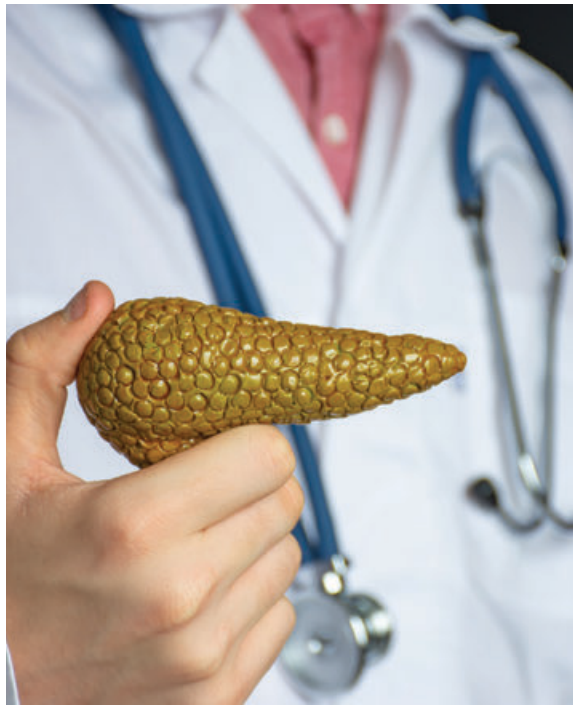
"We have screening programmes for breast and colon cancers, but there isn't any proven screening programme to detect pancreatic cancer early," Dr Zee Ying Kiat, a medical oncologist and pancreatic cancer specialist at Parkway Cancer Centre in Singapore, told *Global Health Asia-Pacific.*

Endoscopic ultrasound (EUS) is one approach that plays a pivotal role in the diagnosis and treatment of pancreatic cancer because it offers a complete visualisation of the pancreas. Indeed, EUS-guided biopsies can help doctors determine the tumour stage and type.

Another common diagnostic tool for pancreas cancer is computed tomography (CT), which uses X-rays and computer processing to provide images of internal tissues. But doctors have a hard time interpreting them as some pictures can be unclear and mistaken for cancer, leading to false positive results, said Dr Gulam Manji, Assistant Professor of Medicine at Columbia University Medical Center and a pancreatic cancer specialist. To make a definitive diagnosis, a sample of pancreas cells has to be removed with a small tube inserted through the mouth and analysed in the lab, an invasive procedure called biopsy that can also inflame the pancreas.

Though biopsies are easily obtained under direct vision and can be carried out as daycare procedure, one challenge is that pancreas cancers may be surrounded by lots of desmoplastic (non-cancerous inflammatory and fibrous) tissue that makes it tough for doctors to harvest the right cells to test, meaning that even biopsies could turn out false negative results, explained Dr Sharmila.

And with pancreatic cancer being a relatively rare malignancy, it wouldn't be feasible to start a routine screening programme for the entire population above a certain age, like we do for breast and colon cancers. Dr Manji explains that this is because, in a



The pancreas is an essential organ for digestion and blood sugar regulation

majority of cases, healthy people would be exposed to unnecessary and potentially risky tests.

Such diagnostic challenges are also compounded by the lack of specific symptoms that could raise the alarm about pancreatic cancer at an early stage.

Typical patients are usually in their 60s and will first experience vague problems like back and stomach pains, which are pretty common for that age group and only in a minority of instances associated with pancreas cancer, stressed Dr Manji. Doctors usually treat them with simple pain medications, and only when symptoms persist and are accompanied by weight loss or jaundice (abnormal yellowing of the skin) can the malignancy be finally detected. But by that time, it's likely to be in an advanced stage.

Three to 10 percent of patients with pancreatic cancer have relatives with the same condition.

Despite that, some people considered at risk of developing pancreas cancer may be recommended for testing.

"Currently, although there is no role for screening, there are subgroups of people we would focus on," said Dr Sharmila. "First, those with a very strong family history of the disease, where more than one first-degree relative has pancreatic cancer. Second, people with chronic pancreatitis – they have a slightly higher risk than the normal population. Third, patients with mucinous pancreatic cysts – fluid-filled sacs containing a jelly-like substance (mucin), and an emerging group would be those who develop unexplained diabetes after the age of 50."

These criteria are based on data showing that three to 10 percent of patients with pancreatic cancer have relatives with the same condition. The most common hereditary mutations associated with pancreatic cancer are found in the BRCA1 and BRCA2 genes of two to three percent of patients. "BRCA mutations are also linked to ovarian and breast cancers," said Dr Zee. "Healthy people with these mutations and a history of pancreatic cancer will have to consider some form of early screening."

There also seems to be a similar link between pancreatic cancer and diabetes, which is a risk factor for a variety of other cancers. "Studies are showing the incidence of pancreatic cancer is higher in patients who get diabetes after the age of 50," said Dr Sharmila, noting this is a worrying sign especially for countries where diabetes is prevalent like Malaysia.

In addition, some pancreatic cysts, but not all of them, can develop into cancer. If there are signs of potential malignancy, patients will be advised to have them surgically removed. Otherwise, they will be monitored closely.

Other risk factors for pancreatic cancer include smoking, alcohol drinking, physical inactivity as well as obesity, hypertension, and high cholesterol levels in the blood.

Surgery: an invasive cure but for just a handful of patients

The only proven way to cure pancreatic cancer is to cut it out during surgery when it's still located within the pancreas, a stage called 'localised disease.' The anatomy of the organ, however, presents other roadblocks to achieving that.

"Pancreas cancer is difficult to treat because it's often awkwardly positioned. For instance, if the cancer is in the head of the pancreas, it's surrounded by part of the stomach, small bowels, bile duct and major blood vessels supplying the gut and the liver," said Dr Siong-Seng Liau, a Consultant Hepatopancreatobiliary surgeon at the Addenbrooke's Hospital in Cambridge, UK. "When a tumour involves those vessels, surgery is high risk or, if the disease is more advanced locally, this may make surgery not possible."

This means that even some patients with localised disease, a stage during which any cancer is normally easier to deal with, can't go under the knife and be cured.

As a result, only 15 to 20 percent of patients are suitable for surgery when diagnosed. And even then, they have to embark on a "marathon journey," in Dr Liau's words.

The journey begins with understanding where the tumour has taken root within the pancreas, which is divided into four areas – head, neck, body, and tail. Most cancers affect the head of the organ, where the most common surgery, called the Whipple procedure,

is used. This involves a highly complex surgery to cut out the head of the pancreas together with part of the stomach as well as the small bowel and the bile duct. Since these organs are all connected, surgeons then have to rejoin all their loose ends back together.

"Whipple resection is a major undertaking that can last up to ten hours, probably one of the biggest operations humans can take," stressed Dr Liau.

Given its invasive nature, the risk of complications from a Whipple procedure is high. In about 15 percent of cases, for instance, the pancreas tends to leak enzymes, or chemicals, needed for digestion, which can damage surrounding tissues causing them to bleed. Drains then have to be inserted to draw off the enzymes.

Post-surgery problems can include difficulty emptying the stomach or digesting some foods, but these usually settle with time.

A much simpler surgery, known as distal or subtotal pancreatectomy, is required for cancers in the neck, body, or tail of the pancreas. In this case, the pancreatic body with the tumour is removed, but not the head, together with the spleen, an organ to which the cancer is likely to spread through lymph nodes. "That's a far less complex operation where there's no reconstruction involved," said Dr Liau. As a key function of the spleen is to prevent infections, patients who undergo a splenectomy (removal of the spleen) will have to get several vaccines and be on antibiotics for life.

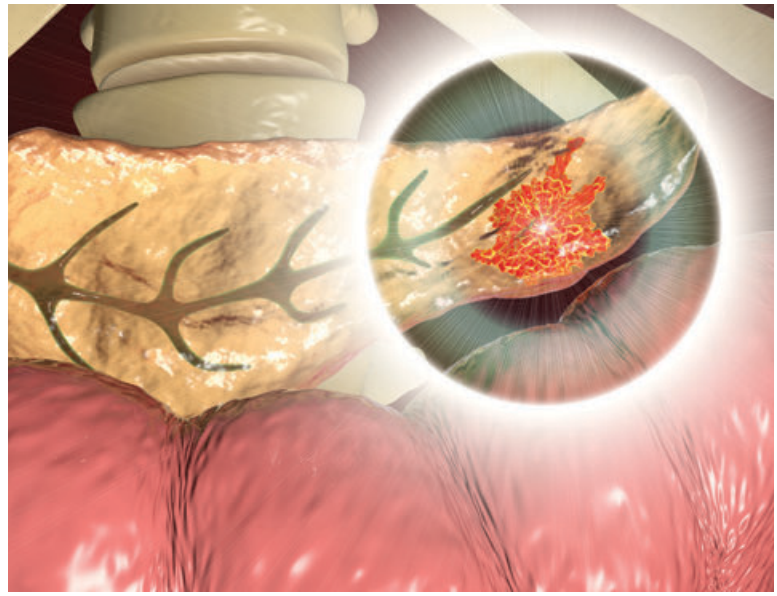
Despite going through these massive operations, most patients aren't cured, with 50 to 80 percent suffering a recurrence of cancer, usually in tissues far away from the pancreas.

"The relapse rate is high, probably higher than any other type of cancer," acknowledged Dr Liau.

It's unknown why so many surgeries end up being unsuccessful, but one hypothesis is that pancreatic cancer sheds tiny malignant growths (called micro-metastases) away from the primary cancer site that our diagnostic tools can't pick up but that develop and gain strength over time. In order to kill off any remaining cancer cells, most patients need to undergo additional (or adjuvant) chemotherapy after they have recovered from surgery. If chemotherapy is given immediately post-operation, outcomes are much improved.

"With surgery alone, the survival at five years is about 10 to 25 percent depending on whether any disease has been left behind (the surgical margin status), but you can get up to 40 percent survival with chemotherapy," said Dr Liau.

Though it's an arbitrary mark, the five-year survival is considered a strong sign the malignancy has been kept at bay. "There's a small number of patients for whom cancer may recur after five years, but if it doesn't, the chances of a patient being cured would be deemed to be good," explained Dr Zee.



Pancreatic cancers can grow to a large size without causing noticeable signs and symptoms

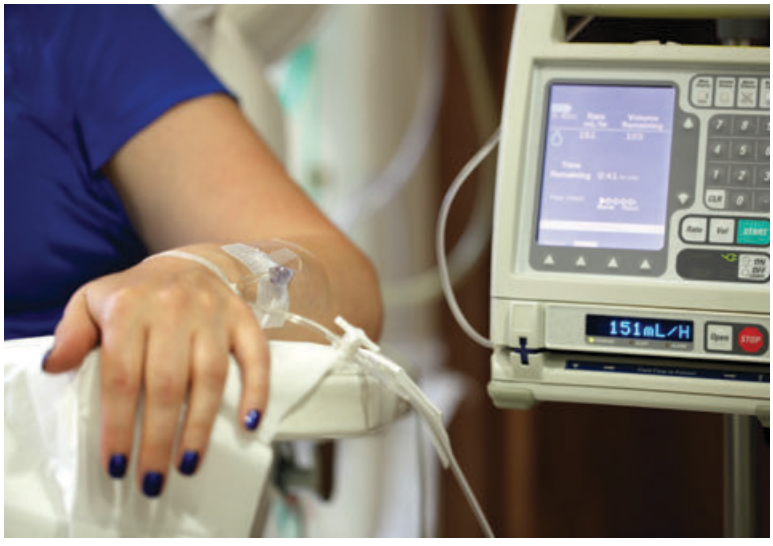
Medications are still not up to the task

When surgery is too risky or not an option, chemotherapeutic drugs are the standard treatment for patients with inoperable pancreatic cancers and are sometimes combined with radiotherapy to increase their potency. But they are palliative rather than curative.

"If patients cannot have surgery, the next step is chemotherapy and maybe radiation. But you have to tell them it is not a cure, it is not going to make the cancer totally disappear. It may alleviate some symptoms such as back pain, and in some it may shrink the tumour making surgery an option," said Dr Sharmila.

When cancers have spread outside the pancreas, there are combinations of drugs that can offer a median survival of 12 to 19 months after diagnosis, but they carry some side effects, including increased risk of infections, nausea, vomiting, mouth ulcers, and rashes. Some patients can also experience mild to moderate diarrhoea, constipation, and bloating, as well as subtle changes to their memory. A small number might suffer from long-term memory problems.

Given these side effects, patients are first thoroughly evaluated to ensure they can withstand them before starting the treatment. "Older patients who are less fit may not receive treatment at all, or others who receive treatment end up with a less rigorous regimen, for example a single-drug chemotherapy, so they're treated but perhaps less optimally so," said Dr Zee.



Chemotherapy is the standard treatment for inoperable pancreatic cancers

On the bright side, her treatment was discontinued because the tumour had become dormant, although her doctor had no clue why.

Chemotherapy is also used against locally advanced cancers to shrink them to a point where they can be safely taken out with surgery. In such cases, doctors aim to "move the tumour away from the blood vessels so that they can go ahead and do a successful surgery," explained Dr Manji.

But this approach doesn't always work, as Luna's experience demonstrates. She received chemotherapy from 2002, when she was first diagnosed with a locally advanced cancer, until 2018 to keep the tumour at bay and make it amenable to surgery but to no avail. "It seems that when it does shrink, it shrinks more back into the area of the blood vessels than away from them, so it's been a difficult situation," she said.

On the bright side, her treatment was discontinued because the tumour had become dormant, although her doctor had no clue why. "It's been a nice break not to have chemo, though the side effects still last, like a tingling sensation in the hands and memory issues." To cope with that, she has had to readjust her habits.

"It's hard to deal with simple things sometimes, you can put something down and not remember where you put it," she explained. "I misplace things a lot, so I have just a general place to put everything so I know I have to go there when I'm looking for something."

Overall, chemotherapy can achieve modest treatment outcomes against pancreatic cancers when compared to other malignancies. For instance, "breast and colon cancers are more likely to respond to chemotherapy than pancreatic cancers," said Dr Zee.

One hypothesis to make sense of this difference holds that there are few blood vessels running through pancreatic tumours, providing limited avenues for drugs to reach and kill off cancer cells. Chemo medications are delivered through the bloodstream and "if they don't get where we want them to get, then they're less likely to be impactful," he argued.

Despite their limited efficacy, chemotherapeutic drugs are still the only medications available for the vast majority of patients with pancreatic cancer, further evidence of the limited progress in the field.

This is in contrast to the effective but easier-to-tolerate alternatives to chemotherapy for patients with some subtypes of breast cancer, added Dr Zee, with hormonal therapy being a good case in point. "However, there's no less rigorous regimen for patients with pancreatic cancer as the mainstay of treatment remains chemotherapy."

Two emerging alternatives to chemotherapy are immunotherapy and targeted therapy. And while they represent key advancements in medical oncology that have significantly improved the treatment of several cancers, they haven't played a comparable role in the field of pancreas cancer.

Immunotherapeutic drugs that teach the immune system how to pinpoint and obliterate cancerous tissues can extend the life expectancy of, or even cure, many patients with melanoma (a common skin malignancy) and lung cancer but are not yet commonly used against pancreatic cancer as researchers are still trying to demonstrate their usefulness.

"The microenvironment of pancreas cancers is very immunosuppressant," said Dr Manji, meaning that malignant cells in the pancreas are able to both fend off detection and attack by the immune system and keep proliferating.

Similarly, the targeted drug imatinib can cure the vast majority of patients with chronic myelogenous leukaemia, a type of blood cancer, by blocking the protein responsible for tumour growth. However, there are no similar targeted therapies that have had a meaningful impact on the treatment of pancreas cancer, acknowledged Dr Zee.

"There are very few targeted treatments that are FDA-approved in the field of pancreatic cancer," he said. One is Tarceva, which blocks the activity of the cancer-related protein called EGFR and can be prescribed for metastatic malignancies, but it's not commonly used in the clinic because it offers marginal benefits and leads to side effects that can impair quality of life.

Similar to the limits of chemotherapy, the dearth of blood vessels in pancreas tumours affects the efficacy of both immunotherapies and targeted treatments, he believes. "Immunotherapy and targeted therapy require the drugs to reach the cancer to have any form of effect," Dr Zee said.

What's next for pancreatic cancer treatment?

Research priorities revolve around both the diagnostic and the therapeutic options.

"An overall goal is to increase resectability (removal) by earlier diagnosis and thus improve prognosis and

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Liquid biopsy could revolutionise pancreatic cancer diagnostics

survival," said Dr Sharmila.

Liquid biopsy, or the procedure of detecting cancer through a blood test, is a promising technique that could revolutionise overall cancer diagnostics, with currently hard-to-detect malignancies like pancreatic cancer expected to benefit the most.

Though some liquid biopsy technologies have shown the potential to make pancreatic cancer diagnosis faster and less invasive, they have yet to replace current detection methods like imaging and standard endoscopic biopsy.

"I think liquid biopsy is the way of the future," said Dr Manji. "But right now it's still investigational and not practical yet" because we need to identify a better cancer marker to look for in the blood.

Developing effective drugs for pancreas cancer is another much-needed improvement, one that seems within reach in the near future.

Dr Zee agrees liquid biopsy could become the standard way of diagnosing pancreatic cancer in the future but stresses that we should also improve imaging for standard biopsies in a way that helps doctors direct the needle towards tumour cells instead of the inflamed and scarred tissues surrounding them. In turn, this would reduce false negative results.

Developing effective drugs for pancreas cancer is another much-needed improvement, one that seems within reach in the near future, according to Dr Sharmila. "In lung and breast cancers, you have specific genetic alterations that respond to targeted therapies. Similarly, we're moving towards that in pancreatic cancer, picking up those alterations that are amenable to targeted therapies," she said, noting that next generation sequencing (NGS) is what can help achieve this goal.

One promising target for these refined therapies is the Kras gene, which can harbour mutations leading to cancer proliferation in the pancreas and other tissues. An experimental drug has recently demonstrated the ability to shrink lung tumours with a Kras mutation also found in some pancreatic cancers, and the hope is the new medication could do the same with this subtype of pancreatic cancers. "I think this will probably prove to be a new treatment patients with pancreatic cancer can look forward to," said Dr Zee.

Refined immunotherapies might also contribute to extending the life of patients with pancreatic cancer in the future, says Dr Manji who's researching the immunosuppressant pathways cancerous cells employ to make immunotherapies ineffective.

Some of those pathways have been identified already and are being targeted by both immunotherapy and chemotherapy in ongoing clinical trials, "but it's still early days to understand whether they will enter the clinic in a meaningful way," he acknowledged.

Together with medications that can efficiently kill cancer, we might need substances that make pancreatic tumour environments easier to reach. "Researchers are trying to use stroma-modifying drugs to reduce scarring and increase blood flow into pancreatic cancers to allow for better delivery of chemotherapy, immunotherapy, and targeted therapy," said Dr Zee.

One crucial aspect that could make all these research goals more achievable is stronger collaboration across countries and organisations.

"Since pancreatic cancer is rare, we only have a few patients enrolled in clinical trials, and that's another barrier we need to overcome," Dr Manji said. "I wish there were more pancreatic cancer international consortiums to enrol a greater number of patients in clinical trials, so that we could try as many treatment combinations as possible. The faster we can test a promising agent, the closer we're going to get to a potential cure."

How support groups can help

Like with any type of cancer, joining a support group where patients talk about their experiences might help some people cope with the challenges of living with the disease.

Based on her own positive experience, Luna recommends joining a pancreatic cancer group as one way to relieve loneliness. "Sometimes it helps to hear that somebody else is going through the same problems because, when you get the diagnosis of pancreatic cancer, you may think you're the only person with it, but if you listen to others, then you realise that you're not alone," she said.

She says she's also benefited a lot from her stint as a PanCAN volunteer as she found meaning in raising awareness about the hard-to-treat cancer.

"It helped me take my anger and grief and do something positive about them rather than let them fester. Grief and anger can really affect you mentally. If you're a patient, this is an extra thing you don't need to deal with." ■

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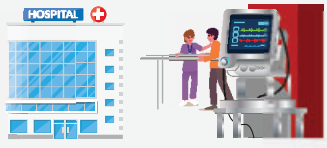

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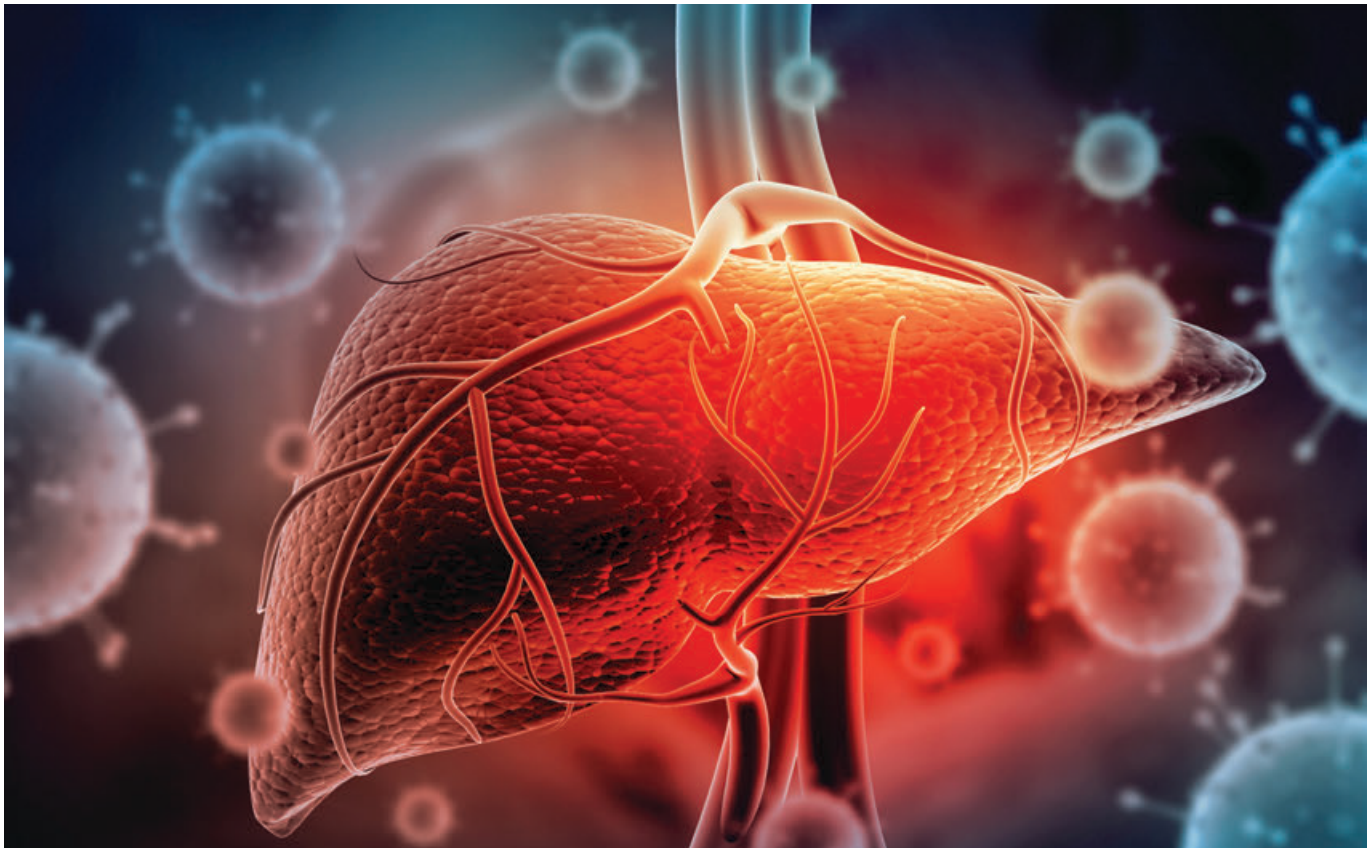
Malaysia gets serious about global effort to eradicate hepatitis

Authorities committed to lengthy and expensive battle to find patients and cure infections



Five years after the World Health Organization (WHO) announced its goal to eliminate hepatitis worldwide by 2030, many countries are on the road to making this a reality.

Hepatitis is an inflammation of the liver tissue most commonly caused by a viral infection. It presents a significant global public health challenge, with over 354 million people living with chronic hepatitis and more than one million deaths annually, according to the WHO.

The virus has five main strains, with types B and C, in particular, leading to chronic disease in hundreds of millions of people. Together, they are the most common cause of liver cirrhosis, liver cancer, and viral hepatitis-related deaths.

Viral hepatitis is the seventh leading cause of mortality worldwide and is the only communicable disease where mortality is increasing. For most patients, testing and treatment remain beyond reach.

According to Lindsey Hiebert, associate director of the Coalition for Global Hepatitis Elimination, a programme of the Task Force for Global Health, an American NGO that focuses on eliminating disease and protecting populations, now is a "very exciting time to be working in hepatitis elimination," with barriers continuing to fall, especially around access to treatment and its cost.

"In the past five years, the world has made a lot of progress. For example, since the WHO announced its target, about 10 percent of people living with hepatitis C virus have been treated to date, but there's still a long way to go," she told *Global Health Asia-Pacific.*

This is echoed by the WHO, who said in a statement: "While progress has been made in the hepatitis response, there is still a long way to go.

"In far too many countries, priority interventions remain inaccessible to the populations most severely affected or at higher risk. The COVID-19 pandemic

has impeded the development and delivery of core services that tackle viral hepatitis and other infectious and non-communicable diseases."

In 2016, the WHO launched a roadmap for the elimination of viral hepatitis as a public health problem. By its own definition, that meant a 90 percent reduction in incidence and a 65 percent reduction in mortality compared to a 2015 baseline.

This represented a reduction of new cases from 6-10 million worldwide to fewer than one million by the target date of 2030 and of deaths from 1.4 million to fewer than 500,000 a year.

The WHO's fivefold strategy, with the near universal backing of national public health departments worldwide, involved gathering strategic information to understand the viral hepatitis epidemic, identifying infection hotspots, and understanding modes of transmission, especially among risk populations. Its approach also required national plans with appropriate management to ensure they were embedded in health systems.

It recommended community health services be strengthened to deliver high-quality and inclusive services, ensuring that those living with hepatitis and at-risk populations had access to medical care. This element needed to be particularly sensitive in countries where drug use, a primary cause of hepatitis, was seen as a problem to be punished rather than treated.

Because of the cost of screening and treatment, the strategy needed to be underpinned by sustainable financial planning by improving domestic tax collection and pooling funds across healthcare systems.

Finally, the WHO called for the incentivisation of innovations that could drive progress, including new antiviral medicines and improved diagnostic techniques.

Partly as a result of this roadmap, in the WHO's Southeast Asia region, which also includes India, Nepal, and Bangladesh, the UN agency has been able to make meaningful progress despite the high prevalence of viral hepatitis in an area with 39 million people living with hepatitis B and a further 10 million with hepatitis C, according to the World Hepatitis Alliance. Moreover, half of intravenous drug users in the region have hepatitis C.

Despite these challenges, Southeast Asia has achieved "significant advances" in hepatitis prevention, said Dr Poonam Khetrapal Singh, the WHO's regional director, in a communiqué to mark World Hepatitis Day on July 28.

She said that all 11 of the region's countries had already achieved coverage of more than 90 percent of the third dose of hepatitis B vaccine. The WHO recommends that all infants receive the hepatitis B vaccine as soon as possible after birth, preferably within 24 hours, followed by two or three doses of hepatitis B vaccine at least four weeks apart. Protection lasts at least 20 years and is probably lifelong.

"Today's commemoration highlights the urgent need to scale up the response and to embed hepatitis prevention, testing, and treatment into the overall quest to achieve universal healthcare," said Dr Singh.

The WHO called for the incentivisation of innovations that could drive progress, including new antiviral medicines and improved diagnostic techniques.

Malaysia is on the path to hepatitis elimination

World Health Organization

Malaysia is now one of the model nations in its approach to hepatitis eradication, after seeing cases rise from 2.56 in 2010 to 11 per 100,000 population in 2016 when the WHO initiated its global eradication target.

When Hiebert travelled to Kuala Lumpur in 2017 to develop a strategy for hepatitis C screening, she was impressed by the way the Malaysian Ministry of Health had recognised the problem and was willing to address it.

"From what I've observed, Malaysia has a plan, they've done the modelling and investment case analysis, they've done pilot projects for scaling up, they've solved the treatment access issue and made treatment more affordable, and so they're very much on the path to elimination. There's still a long way to go in terms of scaling up, but certainly the key elements are in place," she said.

While a hepatitis B vaccine is available, none has been developed for the C strain. The disease occurs within the first six months of exposure to blood with the virus, often through intravenous drug sharing, sex, or unsuitable healthcare settings.

Some people may develop symptoms within two weeks of infection, while others might experience a longer delay before noticing them, anywhere from six months to 10 years or more. This lack of awareness leads to one of the main barriers to eradicating the disease and puts a focus on the need for widespread screening of those most at risk.

"Although hepatitis can be cured, there's a vicious circle that stands in the way of providing treatment to all in need: the disease is mostly a silent killer, the diagnostic process is complex, so people go unfound, and drugs are often too expensive."

The United States recently introduced one-time screening of all adults due to the wide prevalence of intravenous drug use there, and other countries with similar problems are likely to move in the same direction.

In Malaysia, where there's less of an intravenous drug problem, a risk-based strategy to identify potential patients and treat them is central to the government's approach to eradicating hepatitis C. This is being done by integrating testing and treatment into harm reduction centres and needle and syringe programmes.

The country has also released a drug that is far cheaper than other direct-acting antivirals that are successful for treating hepatitis but can cost over US$82,000 in Malaysia for a 12-week course.

The new drug, ravidasvir, in combination with sofosbuvir, costs US$300-500 for a course, is available for free at public clinics and hospitals, and has shown the same high cure rates as the more expensive antivirals. It gained local regulatory approval in June.

"Although hepatitis can be cured, there's a vicious circle that stands in the way of providing treatment to all in need: the disease is mostly a silent killer, the diagnostic process is complex, so people go unfound, and drugs are often too expensive," said Dr Noor Hisham Abdullah, director-general of health, on announcing the new drug.

"Malaysia decided to act to break this vicious circle. We're actively screening to find 'missing' patients, rolling out simpler diagnostic tests, and ensuring we have access to the best prices for treatments, including by conducting clinical research to identify additional affordable treatment options. This announcement is a milestone on Malaysia's long journey to achieve the World Health Organization goal of eliminating hepatitis C by 2030," he added.

Despite the notable successes of Malaysia and other early movers, such as Egypt and Georgia, in meeting the WHO's elimination target, there's still much more to be done. Even with cheaper and more effective drugs available, it remains increasingly difficult to identify hepatitis cases, especially among people whose lifestyles are seen as taboo in many countries.

"The key issue is around finding and testing people, and a lot of countries that have started programmes have found that the first few years are easy going because they have this pool of already identified patients, but that last mile of really finding those patients who don't know they're infected is the big test, and doing that in a cost-efficient way," said Hiebert.

"There will definitely be regions or countries in the next five years that will have eliminated hepatitis. Countries like Malaysia, Egypt, and Georgia have been setting good examples and are showing the tools that are needed to succeed." ■

ROBOTIC SURGERY
FOR EARLY PROSTATE CANCER

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WHAT YOU NEED TO KNOW

IN A NUTSHELL:

- Prostate cancer is one of the most common cancers affecting men today.
- Surgery to remove cancerous prostates is widely performed using robotic surgical instruments through the minimally invasive approach.
- Robotic surgery performed in experienced hands delivers less pain, less blood loss, shorter hospital stays, and earlier return of daily function, compared to open surgery.

Most prostate cancer patients undergoing robotic surgery will experience significantly less bleeding and pain compared to conventional open surgery. In straightforward cases, patients are typically discharged from the hospital two or three days post-surgery.

THE PROSTATE is a walnut-sized gland existing in the male reproductive system, found below the bladder in the male pelvis. Prostate cancer remains the most common cancer among men in the United States, Europe, and Australia. In Singapore, it is the third most common cancer among men and is typically diagnosed in men above the age of 50, or with a family history of prostate cancer, putting them at increased risk.

Prostates cancer typically does not cause any symptoms in its early stages. It is therefore detected by finding an abnormally raised serum prostate-specific antigen (PSA) level, followed by an ultrasound-guided needle biopsy, to confirm or exclude the presence of cancerous cells in the prostate. With PSA blood tests becoming increasingly accessible over the last 20 years, the majority of men with prostate cancer are now diagnosed at an early, curable stage.

WHAT IS ROBOTIC SURGERY?

Robotic surgery refers to the usage of a robotic surgical platform, known as the da Vinci® Surgical System (Intuitive Surgical, Sunnyvale, USA), to perform laparoscopic, minimally invasive surgery through nanoscopic incisions. Since its inception in 2002, robotic prostatectomy has become increasingly popular around the world. In Singapore and the United States, 90% of all surgeries to remove cancerous prostates are now performed using the da Vinci® Surgical System (Intuitive Surgical, Sunnyvale, USA).

This innovative technology comprises of a surgical cart that is docked next to the operating table, connected to small ports placed through incisions of <1cm in the patient's abdomen. Robotic wristed instruments are then put through these small ports into the abdomen, which are controlled by the surgeon sitting at the operating console, a safe distance away from the operation table (Figure 1). A binocular camera is then used, giving the surgeon a three-dimensional view of the operating field, which can then be magnified up to 12 times. The surgeon then adjusts the camera lens and the various robotic instruments at the console through the use of hand controls and pedals. These strategically designed instruments give the surgeon excellent precision and dexterity of surgical movement, through the patented robotic wrist technology.

WHAT HAPPENS DURING ROBOTIC PROSTATECTOMY?

During a robotic-assisted radical prostatectomy, the patient is put under general anesthesia, and surgical ports are placed through six keyhole incisions of <1cm in the abdominal wall. Through the <1cm ports, robotic instruments are placed (Figure 2). The bladder, prostate, and seminal vesicles, are dissected free from surrounding structures. The vas deferentia (tubes carrying sperm from the testicles are disconnected on both sides, and the prostate and seminal vesicles are removed after securing the blood vessels supplying these structures.

The bladder is then sewn to the urethra using sutures, and a urinary catheter is left in the bladder for five to seven days to allow adequate healing.

In cases of low-risk prostate cancer, surgeons typically attempt to spare the nerves controlling erectile function and urinary control during surgery, to facilitate earlier recovery of these vital functions.

Patients aged less than 65 years with no other significant health issue derive the easiest surgical and recovery routes.

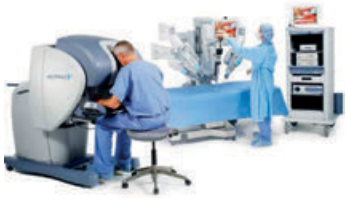


Figure 1. The da Vinci Surgical System comprises a patient cart docked next to the patient ont he operating table, while the surgeon operates from a console some distance away.

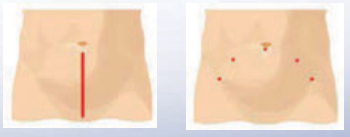


Figure 2. Illustration of conventional scar versus robotic keyhole scars for prostate cancer surgery.

Dr.Gerald Tan Yau Min is an urologist specialist at Advanced Urology with over 23 years of clinical experience with a record of 1,500 robotic radical prostatectomies performed. He is internationally renowned for his expertise in minimally invasive and robotic surgery for prostate, kidney and bladder diseases. He may be contacted via email at enquiry@urology.com.sg.

While the pill can raise the risk of blood clots, its risks should be put in context

Generations of women have successfully taken oral contraception and managed the risks

Worries that the AstraZeneca COVID-19 vaccine could slightly elevate the risk of blood clots have ignited fears that it could also impact other medications that themselves increase the chance of clotting in patients who use them.

In April, reports surfaced about rare blood clots occurring in people after they'd had the vaccine. In the UK, where the AstraZeneca vaccine was developed, blood clots occurred in people taking the vaccine at a rate of roughly one in every 250,000. By the end of March, 79 cases of rare blood clots had been reported in those who had received the vaccine there, with cases occurring more frequently in younger women.

Before long, comparisons were being drawn between the clot risk associated with the vaccine and that of the contraceptive pill in a bid by public health officials to allay concerns about being vaccinated.

"You have to compare it in terms of lifestyle instances of blood clots in both males and females. When one is on the pill, it does increase that risk by about three to four times."

By highlighting the much higher risk of getting blood clots for the millions of women who take the contraceptive pill relative to the tiny number of those developing post-vaccination clots, public health officials had hoped to put the matter into perspective.

Any negative press surrounding the vaccines had the potential to derail progress of the British vaccine roll-out programme, which would have put the public at greater risk of contracting and falling seriously ill with COVID-19. Therefore, it was important to give context to adverse events that were making the headlines.

According to the United Nations, over 150 million women used the oral contraceptive pill worldwide in 2019. In the UK, it is taken regularly by over three million women, making it one of the most commonly used drugs, even though blood clots caused by the pill are estimated to affect one in every 1,000 users each year, a number 250 times higher than the AstraZeneca vaccine.

"You have to compare it in terms of lifestyle instances of blood clots in both males and females. When one is on the pill, it does increase that risk by about three to four times," Dr Haris Hamza, a consultant obstetrician and gynaecologist at Alpha IVF & Women's Specialists in Kuala Lumpur, told *Global Health Asia-Pacific.*

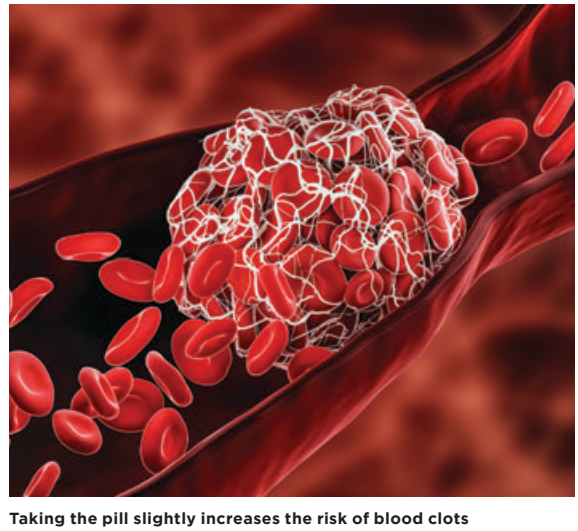
"Although that does seem like a lot, in terms of overall numbers, you're really only looking at a very low risk setting," he said. "It also varies depending on which kind of pill one is on."

The pill has also been shown to increase the risk of breast cancer, although again by a very low percentage. For instance, if a patient has a very strong family history of breast cancer, she would probably be more prone to it even if she were not on the pill.

The combined oral contraceptive pill contains artificial versions of the female hormones oestrogen and progesterone, which are produced naturally in the ovaries. It works by preventing ovulation and stopping the sperm from reaching the egg by keeping them apart.

It does this by thickening the mucus at the neck of the womb, making it harder for sperm to penetrate and reach an egg. It also thins the lining of the womb, so there's less chance of a fertilised egg implanting and being able to grow. When taken correctly, the pill is over 99 percent effective at preventing pregnancy.

Nowadays, the combined pill is very low in oestrogen, the main clotting component, at less than 35 micrograms per dose, while the level of progesterone can vary, but this hormone has no evidence of causing blood clots.



Taking the pill slightly increases the risk of blood clots

Oral contraceptives are used by many women, especially in high-income countries

Whichever brand is taken, the oral contraceptive pill is acknowledged as having an increased risk of blood clots. It's also not suitable for everyone, especially those who are 35 years or older and smoke, who are very overweight, or who take certain other medications.

There are progesterone-only contraceptives that are also safe to use while breast feeding. However, the problem with these is more in their application since they can lead to problems such as very irregular bleeds, sometimes resulting in prolonged periods without bleeding or very frequent bleeds.

"It may not be convenient to use that type of contraception, though it's still used for patients who are contraindicated for oestrogen, which means that progesterone is an alternative available," said Dr Haris.

Another form of oral contraception, the so-called morning-after pill, is a form of progesterone-only medication. Given as a single dose, it changes the mucous in the cervix, making it more impenetrable.

It also changes the environment in the endometrial lining, making it impossible for an embryo to implant. It has to be given within a certain timeframe after sex — three or five days, depending on the brand — to be effective and should be used only once in a cycle.

It's important to note that the morning-after pill does not continue to protect against pregnancy; if there's unprotected sex at any time after taking it, there's a chance of conception.

Neither is it intended to be used as a regular form of contraception, although Dr Haris says this can happen but could lead to side effects.

"Some patients get carried away with it and use it often, so they might take it once every week because they're more sexually active, for example, but then they may find they have no periods for quite a while because it suppresses you after frequent use of it. Either you get very suppressed, or you start to get

Condoms are another form of contraception

very infrequent periods," he said.

Oral contraceptive pills can also be used for other conditions such as endometriosis, when tissue similar to that which lines the inside of the uterus grows elsewhere and is often quite painful. The goal here is to have a continuous regime that stops menstruation for a set amount of time. In addition, some women may choose to delay their periods for two or three months as a lifestyle choice.

"There's nothing wrong with having these three-monthly periods, if that's what they want, as long as the prolonged suppression doesn't put them at risk of something else, and that would depend on what their risk profile is," Dr Haris added.

While contraceptive medication is taken exclusively by women, there have been stuttering advances in the development of male contraception

While contraceptive medication is taken exclusively by women, there have been stuttering advances in the development of male contraception, although there have yet to be any true oral contraceptives for men.

One interesting line of research that has been taking place over the last two decades is the advancement of reversible inhibition of sperm under guidance (RISUG).

RISUG is a co-polymer of styrene maleic anhydride dissolved in dimethyl sulfoxide to form a gel that is then introduced into the vas deferens, the duct that conveys sperm from the testicle to the urethra, to form a partial blockage. It also causes disruption to the membrane of sperm and releases enzymes that make the sperm infertile.

"This mixture of chemical agents dissolves and expands and acts both as an obstructive and an anti-spermatic active agent. It could last in situ for about a year plus.

"It was very successful in early stages of research, and they've gone to stage 3 trials in India, where it was shown to be working quite well. The only issue they had was from pharmaceutical support. As you can imagine, pharmaceutical companies are not going to be very keen on a very cheap method of contraception, as that would knock out profits from the women's side of the deal," said Dr Haris.

A recent development has emerged as a potential new form of male birth control that takes its inspiration from cocktails that bartenders make by adding layers of colourful liquids on top of each other. If the beverage is stirred or heated, the layers combine into a uniform liquid.

Dr Wang Xiaolei and colleagues at Nanchang University in China wondered if they could use a similar approach to inject layers of materials to block the vas deferens. Applying heat would cause the layers to mix, breaking them down and "unplugging the pipeline".

They sequentially injected four layers of materials into the vas deferens of male rats: a hydrogel to form a physical barrier to sperm; gold nanoparticles that heat up when irradiated with near-infrared light; ethylenediaminetetraacetic acid, a chemical that breaks down the hydrogel and also kills sperm; and finally, another layer of gold nanoparticles.

The injected materials kept the rats from impregnating females for more than two months. However, when the researchers shone a near-infrared lamp on the rats for a few minutes, the layers mixed and dissolved, allowing the animals to resume producing offspring.

This form of contraception could bridge the gap between short-term condoms and long-term vasectomy options. While this pilot experiment, conducted in 2019, was promising, more research is needed to verify the safety of the materials.

What all this means is that contraceptives will remain the domain of woman for the foreseeable future, despite the elevated risk of blood clots that came under the spotlight this year. Generations of women have been taking it with minimal fears over its safety and are likely to continue to do so.

And while blood clots in the legs, the most common complication of the combined pill, can be serious, they're easily treatable when identified early enough, and the risks are still very low.

"It all boils down to context," said Dr Haris. "Though there's risk, it's minimal for most of the population. It's all relative in terms of how you value the medication, and what you want to use it for. And of course, it's all guided by doctors on a patient to patient basis." ■

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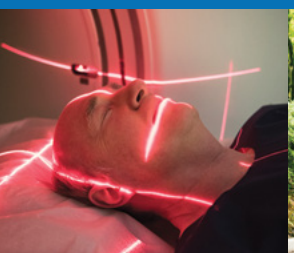


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Smart hospitals aim to help patients live to 100

New trends in healthcare are targeting greater longevity through technology and better patient management

The dream of living to 100 years of age — and live well while doing so — is becoming a reality for many, thanks to new approaches to healthcare embraced by a growing number of providers.

One of these is MWH Medical, an integrated clinical network in Singapore, which believes this represents "the future of healthcare," according to its chief operating officer, Michelle Lim.

"With new technology, medical research, and smart hospitals, living to 100 is a real possibility. For the wealthy, it's not only the outcome they hope to achieve, it's what they expect and actively work to achieve," she said at Medical Festival Asia, an online event co-conceptualised by *Global Health Asia-Pacific* and Messe Düsseldorf Asia that took place last December.

"Healthy people are now spending more on health screening, seeking out preventative care to ensure that they don't end up with conditions that would potentially affect their quality of life."

According to a 2018 study by Singaporean bank UBS, more than half of respondents from wealthy Western countries expected to live to 100. This showed a shift in thinking over the last decade, it said, driven by advancements in technology.

A similar view was shared by people in Hong Kong and Singapore where 92 percent of respondents said that being wealthier would allow them to have a healthier life, while 90 percent believed that health was more important than wealth.

What is making greater longevity more realistic for many is the emergence of smart hospitals. Whereas in the past, patients would go through the healthcare system from primary healthcare to specialist hospitals and then possibly tertiary clinics at the top of the medical pyramid, this model has changed dramatically over the last 10 years.

"For medical groups like us that offer a range of services, there's been a shift in how we view how the ideal healthcare setup should be," said Lim. "The reason for this shift in focus has come from advanced technology enabled by digitisation and the ability to have and use big data that has allowed us to change how we view healthcare. In our group, the patient is at the centre of all our care."

The big trends in healthcare are now moving towards comprehensive healthcare management, top-quality healthcare outcomes, retail healthcare services, active patient participation, and the effective management of expenditure, she added.

The new model is designed not only to help patients live longer lives, but also to ensure a better quality of life in their later years.

Trends in comprehensive healthcare management now include a distinct shift from direct healthcare spending to paying for preventative health. Health providers report that a growing proportion of healthcare expenditures are coming from healthy individuals, meaning that the sick will no longer be the only or main spenders on healthcare.

"Healthy people are now spending more on health screening, seeking out preventative care to ensure that they don't end up with conditions that would potentially affect their quality of life," said Lim.

As health awareness grows in developed countries, more is being spent on health management services, including nutrition, lifestyle changes, disease prevention, and rehab care.

The dream of living to 100 years of age

Bedside manner is a crucial component of medical care

Healthcare providers are also capitalising on a trend towards delivering high-quality clinical outcomes, another feature driven particularly by technology.

Central to this is ensuring the best treatment for patients while also reducing the overuse of treatments that waste resources through advanced screening and interdepartmental platforms that promote better organisation and eliminate medical errors.

In the United States, for example, cases of misdiagnosis can run as high as five percent and cause up to 10 percent of patient deaths. The World Health Organization estimates that seven percent of patients hospitalised in developed countries contract medical infections each year.

"The ability to offer high-quality outcomes comes from technology. Because technology has developed rapidly over the last 10-20 years, if you use the right diagnostic tools, it allows medical professionals to provide much better clinical outcomes.

"Also, we're seeing a lot of patients who would like to have their care outside a hospital setting. That leaves sick patients inside hospitals, reducing the risk of infections and improving the patient experience significantly," said Lim.

As a result, one of the trends in retail healthcare has seen many providers moving certain services out of hospitals so institutions can place more focus on

The magnetic resonance imaging (MRI) room at MWH Medical's new 20,000 sq ft centre in Royal Square at Novena

the care of sick patients.

The traditional clinical model, in contrast, typically sees a hospital as a giant entity almost entirely comprised of inpatient services, such as emergency departments, diagnostics, surgery, wards, and other medical services.

This transition is already happening widely in the US and is starting to be seen in Asia. In Singapore, for example, it's now quite common for the delivery of many medical services to be outside hospitals, in specialist clinics, diagnostic outfits, and outpatient centres.

"Each of these is run separately to improve efficiency and service a wider pool of patients," said Lim.

At the same time, there's a growing movement towards active patient participation, whereas in the past, patients were more likely to have played a more reactive role in their healthcare.

In the old model, doctors would make their diagnoses, and the patients would follow their advice. Whereas the focus was on treatment, it's now on prevention by assessing individual patient profiles and high-risk illnesses.

From the typically dreary institutions of the past, healthcare facilities are also becoming more welcoming places that encourage patients to take advantage of their services as they seek longer and healthier lives.

"At our clinics, we want to change the way patients perceive healthcare; it shouldn't be a scary experience, so the way we design our centres is very patient-friendly and patient-centric," said Lim.

In addition, patients are now benefiting from the collective effort of teams that take an integrative approach to managing diagnosis and treatment. This may involve multiple specialists within one facility or consultations across continents, all with the patient at the centre.

All of this, of course, does not come without a cost. While rising health expenditures are a common feature of health systems around the world, especially as more people reach old age and require more years of screening and treatment, there has also been a trend towards value-based methods in managing healthcare expenditure.

By staying ahead of these trends, MWH Medical feels more confident that its clinics can help patients realise the dream of living to three figures. And while all the new trends have their roots in advanced technologies, the group has set out to take the benefits of innovation even further.

For example, it's made it a point to continuously invest in the latest technologies for each specialist field, encouraging its medical professionals to look for the latest equipment and research to equip it with the best tools for diagnostics and treatment.

Through its partnership with Siemens Healthineers, MWH Medical has become its reference centre for Asia, giving it access to the latest hardware and software Siemens releases. It also allows the group to draw in the best medical talent, said Lim.

"Because we have the best toys available to our doctors, that allows us to attract the best doctors in their fields to work in our team. And so, combining this best technology and best team allows us to deliver the best service for our patients and give them the best treatment plans and options to choose from," she said.

This new approach does not limit patients to one-size-fits-all solutions. Rather, individualised care becomes a key pillar for smart hospitals in their quest to deliver greater longevity. Screening packages are often tailored to patients based on their age, gender, family history, and medical records, rather than offering them a limited menu of diagnostics based on broad categories.

As Lim puts it: "This is our approach. We believe we should look at the patient as a whole to get a much clearer picture of the patient and deliver much better outcomes. There's a lot more patient empowerment now, so the patient takes charge of their entire care process. Our goal is to help our patients to live to over 100. By embracing this new model of healthcare, we can achieve this and also make sure they live happily and well into ripe old age." ■

By staying ahead of these trends, MWH Medical feels more confident that its clinics can help patients realise the dream of living to three figures.

Getting flex-ready after the pandemic

Creating a more secure, sustainable, and safer built environment for the healthcare industry

As hospital providers think about better ways to manage healthcare, a number of innovations should be considered in the way they operate their built environment.

That's according to Raymond Kang, key accounts and digital solutions leader for Johnson Controls, an Irish conglomerate that supplies and implements fire, HVAC, and security equipment for buildings.

"As we think about the transformation that happens in the built environment for healthcare facilities, we think about better patient experiences, smarter operation of facilities, and increased safety and security. That's the lens Johnson Controls uses to impact and innovate in the built environment," Kang told Medical Festival Asia, an online event co-conceptualised by *Global Health Asia-Pacific* and Messe Düsseldorf Asia that took place last December.

In Kang's view, healthcare providers need to stay at the forefront of innovation to deliver better patient experiences, holistic safety, and improved efficiency while optimally managing their buildings.

In this way, when clinics and hospitals are comfortably integrated and connected, the clinical outcomes are likely to improve, and healthcare providers will be better able to achieve their mission.

In times of crisis, like with the pandemic, they've been forced to substantially increase patient capacity, enhance communication, and maximise services.

In Wuhan, where COVID-19 emerged for the first time in 2019, Johnson Controls was enlisted to respond to the crisis at the city's Taikang Tongji Hospital.

It took just 45 minutes for the team to make the key arrangements and plan for this mission, which was to provide full support for building the infrastructure of a makeshift hospital, including a communications system, safety system, and elevator alarm system.

"The challenge was an urgent one," said Kang. "It was to build the necessary infrastructure to support 300 beds to treat patients infected with a disease about which very little was known."

Within 12 hours, the Johnson Controls team was mobilised, and safety plans and guidelines were put in place to protect the workforce. The company's first batch of medical protective supplies, such as protective clothing, goggles, and masks, had arrived. Twenty hours into the operation, an advanced group comprising a project leader arrived in Wuhan. They discussed and confirmed the construction plan and then raced against time to complete the building of the makeshift hospital.

It took just 45 minutes for the team to make the key arrangements and plan for this mission, which was to provide full support for building the infrastructure of a makeshift hospital, including a communications system, safety system, and elevator alarm system.

"Although we cannot directly resist the epidemic, like the healthcare workers, we could still contribute indirectly with our engineering skills," said Kang.

In over just 72 hours, the makeshift section of the hospital was completed, and safety assurance and network communication systems for the whole hospital were deployed and made functional. But with the situation escalating still further after the work was completed, the hospital required an additional 600 beds to accommodate severely ill patients.

In the following three days, 860 critical beds were equipped with essential medical intercom and nurse call systems. Systems for video visitation, surveillance, access control, and public announcements were installed alongside energy management and building automation systems.

"We enabled the hospital team to maintain continuity of care to more patients and mitigate the risk for patients and caregivers during the COVID-19 outbreak," said Kang.

The hospital had survived the onset of the crisis, stating afterwards that it had "responded to an urgent situation and delivered something that was basically impossible to accomplish at the outset".

To address the initial challenge, Kang's team had to first assess the situation by looking at what was available and how it could be integrated into a building-wide response.

For example, to increase patient capacity, they turned standard patient rooms into negative-pressure isolation rooms and brought in quick-ship-and-build HVAC equipment and sourced rental equipment.

To enhance communications, they employed wireless networks and deployed a real-time locating system to track staff and patients. Safety features included access controls, video surveillance for remote monitoring in the cloud, thermal video cameras, panic buttons, and monitoring of fire alarm systems.

Given that infectious disease facilities need to filter air for negative pressure so the virus is contained, Johnson Controls employed mobile modular HEPA fans that filter air for negative pressure rooms or clean air in general wards. This equipment is able to remove up to 99.95 percent of particles that contain bacteria or viruses across a range of speeds, and, importantly in a critical care setting, operate quietly with high static pressure.

The equipment is also available with ionisers and ultraviolet disinfection systems to destroy bio-organisms and protect the environment from airborne germs while reducing odours and chemical contaminants.

In addition to its work in Wuhan, Kang's team has been able to convert existing unused large spaces, such as exhibition centres into purposed facilities, as it has done in Singapore at its OpenBlue innovation centre that shows off the company's built environment capabilities in partnership with the National University Singapore (NUS).

"Artificial Intelligence and machine learning will play a pre-eminent role in reshaping how we create comfort for people and energy efficiency in a building," said Kang. "Our unprecedented focus on co-innovating cutting-edge technologies through collaborations, such as with NUS, will spark greater innovation and true differentiation for our customers."

Kang believes the pandemic will have a lasting impact on healthcare facilities and prompt a new way of thinking among facilities managers.

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Cloud-based technology will optimise healthcare systems

One of the biggest changes Johnson Controls anticipates for facilities of the future will be in hospital workflow, particularly in implementing new operating procedures to maximise experience and minimise inconvenience for patients and care givers.

"One thing is clear, it's inevitable that it will not go back to normal, and we have to accept this," said Kang.

One of the lasting effects of the pandemic will be the need for "flexibility", the key word for facilities as they return to normal. For instance, they will need flexible retrofits that make standardised facility improvements for safety, efficiency, and resilience using streamlined procurement and contracting processes.

This will require the introduction of flexible controls through cloud-based technology that provide integrated user interfaces and standard control sequences to optimise facility operations under different operational and emergency conditions.

And comprehensive remote services platforms will provide flexible services in terms of safety, security, maintenance, reliability, and compliance, as well as expert advisory services under normal and emergency situations.

In this way, facilities will be able to quickly change to support different emergency and non-emergency uses. They will be able to support a range of emergency situations, including public health crises and natural disasters, and recover quickly after severe incidents.

They will also be protected from unauthorised access and be secure against cyber-attacks and data safety breaches, while also leveraging digital technology to automate systems and enable remote services.

"For flexible facilities and infrastructure, let's ask ourselves if our facilities are flex-ready for different emergency advantages in a post-COVID-19 world. Are our facilities safe against security risks and ready for emergency situations?" said Kang.

With the virus set to stay in the community for the foreseeable future, even after governments vaccinate most of their citizens, hospitals are likely to maintain the same strict precautions they implemented at the height of the pandemic, such as temperature screening on entry.

But the need for flexibility will also be greater than ever, for example relying on initiatives such as preparing under-utilised spaces, like car parks and storerooms, that can quickly be converted into patient treatment areas.

"We have learnt how to harness flexibility because we've been responding to a situation that we had never encountered before. In times of crisis like this, the challenges we face and the solutions we develop can be translated into healthcare for the future," said Kang.

"This all helps us to create a more secure, sustainable, and safer built environment for the healthcare industry." ■

Medical technology for women and expecting mothers still lagging behind

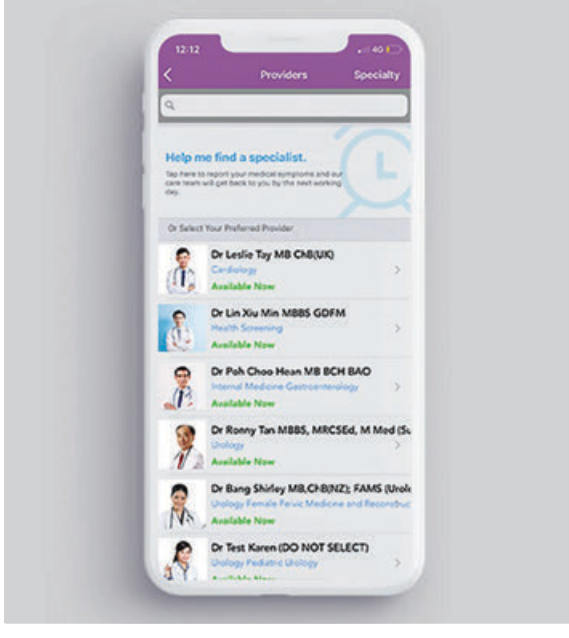
Called femtech, such technology can allow pregnant women to avoid hospital visits

Quoting the adage, "there's 150 ways to die and there's only one way to be born"

An area of medical technology that's long lagged behind is the so-called "femtech", or devices, platforms, and apps aimed at solving healthcare problems for women, including expecting mothers.

That's according to experts in the field, who believe that femtech is poorly funded compared to other areas of new development and tends not to put women at the centre of its innovations.

According to Amrish Nair, founder of Biorithm, a medical technology start-up spun off from Nanyang Technological University in Singapore that has developed an obstetric remote monitoring solution, one of the main barriers to more comprehensive femtech solutions is a lack of interest among investors who see the field as being too niche.



HiDoc telemedicine app

Quoting the adage, "there's 150 ways to die and there's only one way to be born", the electronic engineering graduate said it's only right for apps like his to be properly funded, but this requires investors to better understand their purpose.

Speaking at Medical Festival Asia, an online event co-conceptualised by *Global Health Asia-Pacific* and Messe Düsseldorf Asia that took place last December, he said: "Whenever we go out and hear we are a niche company, I think: if pregnancy is not niche, as leads to something that everyone on earth has gone through — being born — I don't know what else is niche."

"When the people funding technology understand that femtech is not a niche, we will get the proper funding allocated that is commensurate with the issues we're trying to solve. But this needs to happen faster," he added.

Dr Christina Low, founder of the HiDoc telemedicine app and online community for women who want to manage their health, said that despite funding difficulties, the development of technology for women was gathering interest.

"Femtech will continue to grow, and certainly this area has been fuelled by some very steady founders, even after we hear 100 times that the problems we're trying to solve are way too niche," she told the online event.

"If you look at it, it's expanded beyond healthcare and entered into other domains that have benefited the lives of many women in their communities. We're not just dealing with pregnancy, but there are multiple layers that we're addressing," she said.

Dr Low, who is also managing director of the Singapore Medical Group, a network of private specialist providers and diagnostic imaging and health screening services, founded HiDoc after recognising that women's priorities tended to be for everyone else but themselves.

"In particular, our wellbeing was being sidelined. We don't want just to manage our health when we're sick, but to really understand wellbeing," she said. "Integrating many dimensions, including the physical,

Technology is lagging behind in some areas of female healthcare

cognitive, and psychological needs of an individual, we set out to build this company to address the need that we see to support working families and women when they need it."

Dr Deborah Fox, a senior lecturer in midwifery at the University of Technology Sydney, said she is pleased to have seen femtech making progress over the last several years, although she acknowledges a "lag in femtech compared to other areas of technology".

"Why does it not have the same performance, and how can this be improved?" she asked at Medical Festival Asia.

Dr Fox has worked clinically and performed research in Australia, Singapore, and Britain and is currently investigating foetal monitoring technology and how it optimises the physiological processes of women.

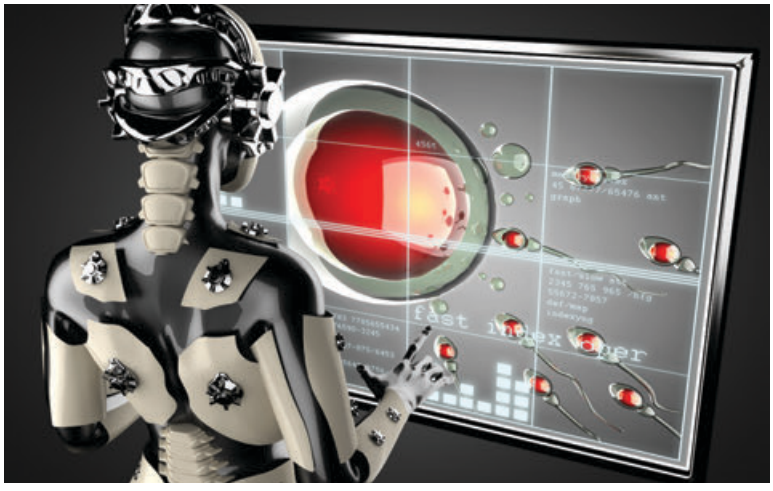
"I'm pleased to see that, in the last five years, there's been a lot of startups looking more closely at how we're using technology in maternity care, and healthcare professionals are also starting to think about how they interact with technology when they're caring for women," she said.

Midwifery is one area in desperate need of both new clinical technology during childbirth and consumer femtech platforms.

In 1968, for example, the cardiotocograph (CTG) came onto the market and its use spread around the world in monitoring continuously the foetal heart, maternal heart, and maternal contractions during labour.

Even today, the machine still dominates maternity care. Unfortunately, it was designed so that women need to be tethered by belly straps and metre-long wires to the machine, effectively tying them down to the bed.

"Anyone who knows anything at all about the physiology of childbirth would know that one of the worst things you can do is put a woman in a bed and not enable her to have freedom of movement and positioning.



Technology is the future of obstetrics

"This is an extremely problematic technology that we're trying to get rid of, and it's great that there are technologies coming on to the market that can hopefully be game changing in that women's bodily autonomy is respected in labour," said Dr Fox.

The treatment of women during childbirth is often overlooked in this way, experts believe, and it's a matter that receives less attention than it's due. It's also believed that the way we're born and the way women give birth have distinct implications for society.

For instance, research has shown that women who receive interventions, such as a caesarean section, when giving birth have a higher likelihood of suffering from certain morbidities, and their children are more likely to have health issues after birth and during the course of their lives. There's now mounting recognition of the importance for society that these interventions be limited around the world and particularly in high-income countries where C-sections are most common.

Fortunately, improvements in technology are increasingly being used to the assist in conventional birth, for example when there's stress during pregnancy.

"We know there's a direct association between maternal stress responses and the blockage of hormones that women need to grow their babies during pregnancy, for labour and birth, and to breastfeed their babies," said Dr Fox, referring to oxytocin, a hormone that's absolutely crucial for these processes, and others such as endorphins and prostaglandins that are also very important.

"When women become stressed, they produce stress hormones that block those, so it has a direct physiological impact on the growth of that baby, the birth of that baby, and the feeding of that baby. It's very much relevant to how we design technologies, and it's why I'm excited as a midwife to be involved with those technologies," she added.

Indeed, femtech developers, like Nair of Biorithm, are increasingly embracing the idea that female patients should be treated as stakeholders in the process of pregnancy and developing technology in this vain.

A particularly exciting development for obstetricians and midwives has been the release of a replacement for the generations old CTG machine.

The new, non-invasive foetal electrocardiogram (ECG) could soon overtake the CTG in widespread use. These are lighter and wireless to the point that mothers in labour often forget that they're wearing the sensors on the belly.

Midwives have reported that the new ECG has been changing the way they work, especially since much of their role during childbirth involves moving around the bulky straps of the CTG every time the foetus or mother moves.

When one compares the technical advances made in cardiology to those of midwifery, the differences are stark. For instance, heart patients can monitor their health from home with a wide range of devices and smartphone apps, but pregnant women are still forced to visit clinics for most services, even after childbirth.

"In terms of the antenatal space, we really have to address the issue that women are working, they are parenting, they are pregnant, and we need to completely change the way we care for them during pregnancy and bring it back into the community by taking women out of hospitals," said Dr Fox.

"Hospitals are not the place for pregnant women who are well, so the development of technologies that can increase flexibility in women's lives is crucial," she added.

Indeed, femtech developers, like Nair of Biorithm, are increasingly embracing the idea that female patients should be treated as stakeholders in the process of pregnancy and developing technology in this vain.

Pregnancies, he says, are not "problems", and it would be wrong to "pathologise pregnancy". Instead it's important to recognise the need to take care of expecting mothers who have problems and take care of them in as sensitive a way as possible while including them as "stakeholders."

"When you look at the level of pregnancy care, it still hasn't changed fundamentally. Mothers go into a hospital for all their needs, so that's really one of the driving factors behind why we're developing femtech," he said. "It may not be perfect now, but we're taking it one step beyond what it's always been, and we're giving women options in care."

Dr Low concurs, stressing the need for women's physical, mental, and emotional needs to be taken into account collectively when designing femtech.

"Unless women feel safe when using a platform, they will not use it. So delivering a safe and effective space for women who are already feeling vulnerable is key," she said. "That's one of the reasons why keeping women out of hospitals, unless they need to be there, is something that's critically important." ■

Say goodbye to the pain ...

... and say hello to life again

The years of agony at period time every month, the embarrassment of stained clothes, the exhaustion from heavy bleeds, the strained and broken relationships from painful intimacy, the lost time at work from the constant pelvic discomfort and back pain! Sounds familiar?

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The much-touted future of healthcare has finally arrived, thanks to the pandemic

Covid-care has necessitated more reliance on telemedicine, which has been taking its time to enter the mainstream

Despite the manifold difficulties caused by the pandemic over the last year, an optimistic Dr Shafi Ahmed, the much-lauded British colorectal surgeon, futurist, entrepreneur, and holder of multiple professorships, sees a positive side to the crisis.

"It was Abraham Lincoln who said that the best way to predict the future is to create it. What the global healthcare system had been seeing over the last year of the pandemic is an acceleration in the development and implementation of clinical technologies," he told Medical Festival Asia, an online event co-conceptualised by *Global Health Asia-Pacific* and Messe Düsseldorf Asia that took place last December.

"One needs to remember that we've been really fortunate to live in 2020 because we have the availability of many technologies that have come together, which we would never have had at any time previously," he said.

Dr Ahmed's job is to gaze into the future, not dwell on the past. His preoccupation is with how technology has been developing and then to paint a picture of how it can be applied better across each future iteration.

"The pandemic for us has been really useful. We've really translated these kinds of ideas into action much faster than we've ever done before."

It's this fascination with what lies ahead that earned him the Future NHS Award given by members of the British parliament in 2018 and had him shortlisted for a British Academy of Film and Television Arts (BAFTA) award the following year for a series of live-streamed operations using Google Glass, virtual reality, and social media on national television. This also gave him the world record for being the world's most viewed surgeon on the internet.

His mantra is quite simple: it is to translate technology into clinical practice and make it accessible and affordable.

He argues that the pandemic has succeeded in bringing a new level of tolerance of innovation to hospitals and other healthcare providers, which are traditionally allergic to leaving things to chance.

"Hospitals work in an industry that is risk-averse and not prone to change. But this has all changed; there's been a mind shift there with people who are coming to understand the need to use new technologies," he said.

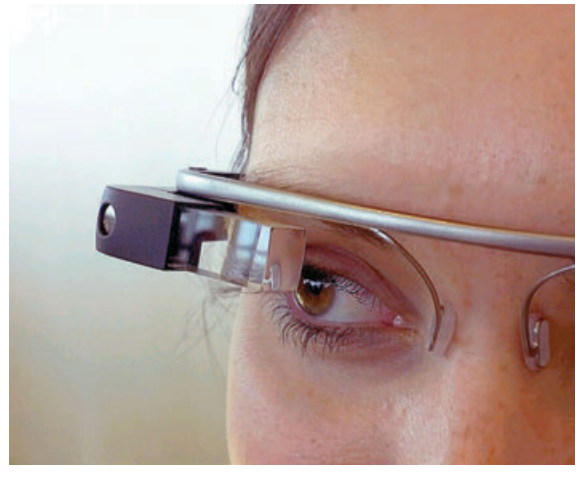
Faced with widespread panic and fear that infections could spread from COVID-19 patients to other parts of their hospitals, surgeons have been forced to cancel operations, sick people have been told to stay away, and many doctors have endured long months with just a trickle of patients.

Since the sick still need attention, the situation has prompted traditionally risk-averse institutions to look at new ways to treat them, such as telemedicine and remote-healthcare that have for many years been talked about as the future of healthcare but rarely progressed beyond TED talks and talking heads.

"The pandemic for us has been really useful. We've really translated these kinds of ideas into action much faster than we've ever done before," Dr Ahmed said. "Regulations have quickly changed to make it easier to implement these technologies, and we've been seeing more collaborations between healthcare institutions and digital service providers — all due to the pandemic."

It's not only health providers, but patients themselves, who have changed their mindset. For example, it's now commonplace for many patients to book a virtual appointment with their doctor and take advantage of digital devices to diagnose illness, rather than seeing their doctor in person.

Diabetics, for example, can now call on remote sensors to monitor their condition. Though such technology is not new or groundbreaking, it has now



Google Glass

The use of telemedicine has increased during the pandemic

gained both the acceptance of the medical profession and the buy-in of patients themselves.

Nanobots for stomach conditions, smartwatches to measure oxygen saturation, and kits with medical-grade handheld spirometer and medication-tracking sensors for the continuous observation of chronic obstructive pulmonary disease patients are all common devices now in wide use, together with Web apps to record all these data.

Figures show that in the first two months of the pandemic alone, insurance claims for medical services provided remotely via telemedicine rose by 8,000 percent over the previous year in the United States.

In the United Kingdom, technology is now routinely used in triage, with 24-hour telemedicine being increasingly available for emergency patients.

"So it's all changed. Many of our hospitals that have embraced tele-healthcare are now empty; we don't need that space anymore, and it's not going to go back to how it was before the pandemic now that we've seen how people are actually using tele-medicine appropriately," said Dr Ahmed. "Who would have thought that this would be happening a year ago? Just look at what happens if you can challenge the dogma within the practice."

He now predicts that community providers will follow larger institutions in embracing digital healthcare. He foresees a time, not far off, when patients can "pop into a booth for a telemedicine consult", where they can have basic measurements such as blood pressure and pulse, along with more complex diagnostics, done on the spot.

If a prescription is needed, the patient can use a smart card at an automated dispensary. "Actually, do we really need big hospitals? We could just do it all remotely and have mobile centres for point-of-access improvement," Dr Ahmed added.

Despite all the widespread changes that healthcare has ushered in over the last year, it's only on the cusp of what future progress will bring now that health providers are armed with the confidence to pursue this new approach to diagnostics and treatment.

Some challenges, however, will have to be faced down amid the rush to embrace this new digital era. For example, it's important for healthcare institutions and service providers to be careful not to create a digital divide, since many patients will be vulnerable to changes in their therapeutic routines, such as those who may not have access to the necessary technology or are unable to use it even when available.

"What we need to do as a society, as a healthcare system, is take all patients on this journey with us, so that we don't create any divides that cannot be overcome," he said.

Another challenge is the age-old "paternalistic" approach to healthcare that tells patients what is best

Smartwatch is a common health device

for them and expects them to comply. End-users should instead be given reasons to buy in to the latest treatment advances, rather than have them foisted onto them, especially when they're uncertain about change.

It's encouraging, therefore, that over the last year, patients have shown that they're becoming increasingly comfortable with telemedicine and are starting to appreciate the added convenience of having healthcare available on their doorstep. This coincides with a time when patients are also becoming more demanding about the availability of healthcare.

In some ways, the current changes resemble a virtuous circle where healthcare providers, by providing innovations in digital healthcare, are letting society allow the system to evolve. Expectations have changed already, and with the door open to introducing new services, this can be done very quickly as patients are now much more receptive to new ideas.

All this also has an impact on the cost of healthcare, which is accustomed to growing year after year. It will also help mitigate the anticipated global shortage of health staff, which the WHO predicts will reach about 14.5 million medical workers by 2030.

"This whole transformation has been about reducing costs and making the system smarter with fewer people involved. In the future, our triage system will change with the introduction of chatbots, whereby the first point of contact will be with these — there's no question about it. These app scripts will take your details and work out the best way to progress," said Dr Ahmed.

In the future, our triage system will change with the introduction of chatbots, whereby the first point of contact will be with these — there's no question about it.

The next step of future triage, he predicts, will involve another chatbot to check symptoms and narrow down the diagnosis.

"So that's taking away the volume of work from the healthcare system while still allowing patients to be seen and managed appropriately. These are some of the smart solutions to overcome some of the problems of expenditure and a lack of healthcare workers," he added.

Dr Ahmed believes that some things, however, still cannot be done remotely, often due to cautious regulators dragging their heels when called on to rule on healthcare innovations. Technology tends to drive change, and so it can take some time for regulatory bodies to adapt accordingly.

More than a year of the pandemic, though, has changed some of the rules of oversight and enabled regulators to relax their regulations slightly. This has been helped by a clear change in public perceptions towards digital healthcare.

"Some of the rules and regulations lag way behind; they are prehistoric, almost. And to get official approval for taking a new course of action, it's all about showing how money would either be saved or how you could bring better-quality healthcare to patients.

"Now both of these are taking place: healthcare is becoming better-quality, cheaper, more accessible, and with better outcomes. What we are seeing is all stakeholders coming together to influence change for the future," he said. ■

Screening and surveillance for stomach cancer in non-East Asian countries: Is it needed?

Authorities committed to lengthy and expensive battle to find patients and cure infections

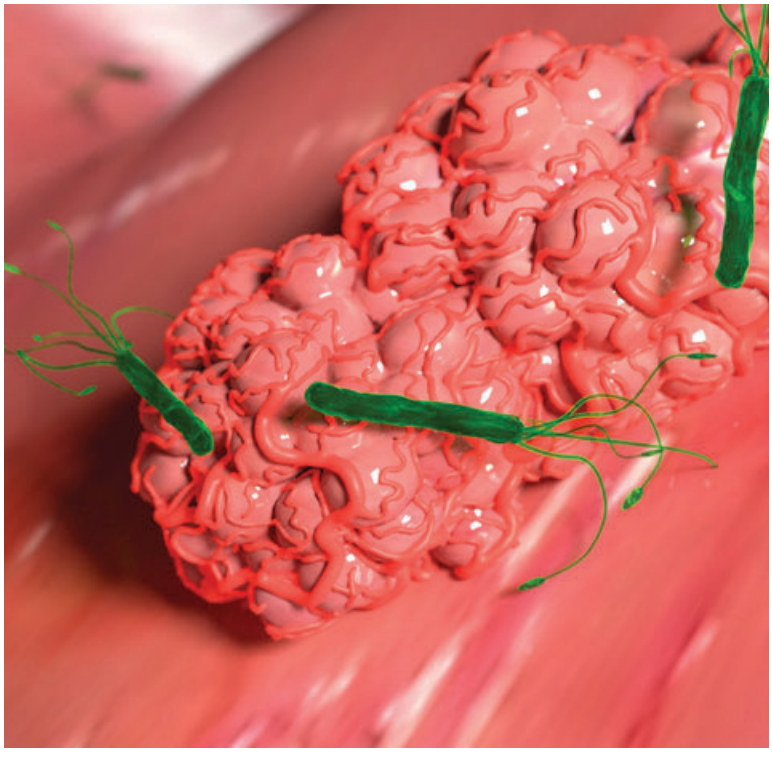
Gastric cancer, which occurs when malignant cells form in the lining of the stomach, is one of the world's leading causes of morbidity and mortality from malignant disease. An estimated one million cases of gastric cancer occurred globally in 2012, making it the fifth most common malignancy in the world, after lung, breast, colorectal, and prostate cancers. More than 70 percent of gastric cancer cases occur in the developing world, with approximately 50 percent found in East Asia. Gastric cancer is less common in the United States, with the incidence among males and females there at 12.3 and 6.0 per 100,000/year, respectively; however, there is a disproportionally higher incidence in Asians.

While we have guidelines for oesophageal cancer screening and surveillance of Barrett's oesophagus, those for gastric cancer screening and surveillance of gastric intestinal metaplasia (IM), or pre-cancerous gastric lesions, are lacking. Since the 1970s, there have been notable improvements in the five-year relative survival rates for gastric cancer in the United States, from 15 percent in 1975 to 29 percent in 2009.

However, these are low survival rates and suggest that most cases (over 65 percent) are still diagnosed at an advanced stage. The overall five-year relative survival rate is about 20 percent in most parts of the world, but in Japan and Korea we have seen five-year survival rates above 70 percent for stage I and II gastric cancer.

A study of 2,191 patients with gastric cancer undergoing surgical resection (removal) showed that early gastric cancer (EGC) comprised approximately 20 percent of all surgically resected cancers in North America compared with 50 percent of resected cancers in Japan. Although these differences can be explained by multiple factors, one of most plausible reasons is the implementation of a screening programme for detection of EGC in Japan and Korea. Identification of risk factors involved in carcinogenesis and interventions to address these risk factors may reduce the incidence of gastric cancer. Reducing gastric cancer mortality also requires early identification of patients who are at high risk as well as management strategies to slow or prevent its progression. It's likely to be more cost-effective to detect and treat early-stage gastric cancer with endoscopic resection rather than surgical resection. Detection of early cancer also means that one does not need chemotherapy and radiotherapy as adjunct treatments, thereby reducing significant morbidity and cost.

Gastric cancer is a multifactorial disease involving



Helicobacter pylori bacterial infection triggers inflammatory reactions

Helicobacter pylori bacterial infection triggers a series of inflammatory reactions that are considered an important cause of chronic gastritis.

both genetic and environmental risk factors. Its risk factors differ depending on whether cancers arise in the proximal (central) or in the distal (away from the centre) region. Advanced age, male sex, smoking, and family history are common risk factors for both proximal and distal cancers. In terms of race and ethnicity, whites tend to develop cardia cancer in the area between the oesophagus and stomach, whereas Hispanics and Asians tend to develop distal cancer. Helicobacter pylori infection, from a bacteria found in the stomach, and dietary factors, such as high intake of salt, increase the risk of distal cancer. On the other hand, obesity and GERD, or gastroesophageal reflux disease from stomach acid, are mainly associated with cancers arising from the proximal region.

The incidence of gastric cancer increases with age. Approximately 70 percent of cases were diagnosed in individuals aged 55 to 84. Compared with women, men have a higher risk of both proximal and distal gastric cancer. The reason is unclear, but environmental or occupational exposures may play a role. Men have historically tended to smoke more than women, whereas oestrogens may protect against the development of gastric cancer. Delayed menopause and increased fertility may lower the risk of gastric cancer.

There is significant variability in the gastric cancer incidence among races. The incidence of gastric cancer among whites is approximately half that of Asians and Pacific Islanders, African Americans, and Hispanics for both men and women. Among Asian American subgroups, Korean and Japanese Americans have an especially high incidence rate. In a study evaluating the effect of immigration on the incidence of gastric cancer among Japanese in Hawaii, first-generation participants had high rates of gastric cancer; however, after two generations, gastric cancer rates among Japanese Americans had decreased to a level that was similar to those of Americans of European ancestry.

Helicobacter pylori bacterial infection triggers a series of inflammatory reactions that are considered an important cause of chronic gastritis. Progression from chronic gastritis to gastric atrophy and IM is an early step of mucosal changes in the stomach, leading to dysplasia and ultimately cancer. H pylori has been classified as a World Health Organization Class I carcinogen since 1994 because several studies have demonstrated an association between H pylori infection and development of gastric cancer, which develops in approximately one percent of H pylori–infected subjects; conversely, more than 90 percent of patients with gastric cancer have had current or past H pylori infection.

Hereditary diffuse gastric cancer is a rare genetic syndrome characterised by the early onset (i.e., before age 40) of diffuse gastric adenocarcinoma from glandular cells, an increased risk of lobular breast cancer that begins in the milk producing glands, signet-ring cell colorectal cancer, and a poor prognosis. Gastric cancer risk is also increased in patients with Lynch syndrome, with affected individuals carrying a 10 percent lifetime risk. Other hereditary syndromes, such as hereditary breast and ovarian cancer, are also associated with an increased risk for gastric cancer. Atrophic gastritis and intestinal metaplasia AG and IM are considered precursor conditions of gastric cancer, and both are strongly associated with H pylori infection.

Other factors such as cigarette smoking, alcohol, obesity, low fruit and vegetable consumption, and high salt intake appear to be modest compared with the other risk factors discussed.

Screening can be performed in the general population (mass screening) or only for individuals with an increased risk for developing gastric cancer. Although the effectiveness of mass screening still remains controversial, it's been undertaken in Korea and Japan where there's a high incidence of the disease. But in countries with a low incidence of gastric cancer, such as the United States, mass screening would not be cost effective, and only individuals at high risk should be considered for screening.

Abundant evidence shows that H pylori infection, family history of gastric cancer, and atrophic gastritis/intestinal metaplasia are associated with an increased risk of gastric cancer, and therefore individuals with these risk factors could be considered high risk.

Because of the low incidence of gastric cancer in the United States, endoscopic screening is not currently recommended. Because endoscopic resection techniques, such as endoscopic submucosal dissection, are becoming increasingly available in the United States, many EGCs can be endoscopically resected without the need for surgery. Given these developments, a change in our approach to managing individuals at high risk for developing gastric cancer is needed along with the establishment of a screening and surveillance protocol for high-risk individuals.

The new national guidelines in Japan now recommend that screening start at age 50. A study evaluating the cost-effectiveness of screening the general population for upper GI (UGI) cancers, including EGC in the United States, by performing an upper endoscopy at the time of a screening colonoscopy showed that the incremental cost-effectiveness ratio for this intervention was $95,559 per quality-adjusted life year saved; this is comparable with published incremental cost effectiveness ratios for other cancer screening interventions that are commonly performed in the United States. Therefore, a screening programme targeting a smaller high-risk population should be substantially more cost-effective.

Screening for gastric cancer generally involves 4 methods: upper gastrointestinal series, serum pepsinogen (PG) testing, H pylori serology, and endoscopy. Endoscopy is the only method available for direct visual examination of the gastric mucosa, and it allows for biopsy sampling so that microscopic evaluation can be performed. Endoscopy is the criterion standard test for diagnosing gastric cancer because of its high detection rate. In Japan and Korea, endoscopy has become the primary method for gastric cancer screening given its superior test characteristics, availability, and affordability. However, the use of endoscopy for gastric cancer screening in the United States does have several potential limitations, such as the need for additional trained endoscopists to meet the increased demand, potential adverse events of endoscopy, patient acceptance, and cost.

Data from Japan and Korea support the effectiveness of screening for gastric cancer in high-risk populations. Screening every two years decreased the incidence of gastric cancer and showed that endoscopic resection could be applied to more patients who underwent EGD screening within two years. A European review article proposed that annual endoscopic surveillance would appear justified in all patients with intestinal metaplasia of incomplete type. The 2015 American Society for Gastrointestinal Endoscopy guidelines suggest that surveillance endoscopy be performed in patients with gastric intestinal metaplasia who are at an increased risk of gastric cancer because of their ethnic background or family history and that surveillance intervals should be individualised.

Japan and Korea have high incidence of the disease

In Singapore, a new blood test is now being performed to screen individuals for gastric cancer. This is a miRNA-based biomarker (Gastroclear) which groups individuals into low, medium, and high risk of having or subsequently developing gastric cancer. This test can be used to determine initial screening and subsequent surveillance endoscopies and intervals. It has been shown to have higher sensitivity compared to other tests for screening gastric cancer and seems to have great potential after further validation.

What all this means is that comprehensive guidelines for gastric cancer screening and surveillance of high-risk individuals continue to be warranted. The optimal gastric cancer prevention programme should combine risk stratification for screening and surveillance for high-risk groups. Because race, H pylori infection, family history of gastric cancer, and atrophic gastritis/intestinal metaplasia are significant risk factors for gastric cancer, the initial approach should be to identify individuals with these risk factors. It would also be reasonable to begin screening individuals who are at high risk for developing gastric cancer and then perform surveillance endoscopy at one- or two-year intervals if IM is identified on screening endoscopy or if the patient has a family history of gastric cancer. Gastric cancer screening in the appropriate population will likely lead to an increase in the detection of EGCs, which may improve the likelihood of being able to intervene with endoscopic therapy, such as endoscopic submucosal dissection, and reduce mortality from gastric cancer. ■

Dr Jaideep Raj Rao is the senior consultant surgeon at JR surgery at Mount Elizabeth Novena Hospital, Singapore. He's a specialist in minimally invasive and robotic surgery, oncology surgery, bariatric and metabolic surgery, gastrointestinal surgery, and hernia and complex abdominal wall reconstruction.

The plague of stomach cancer

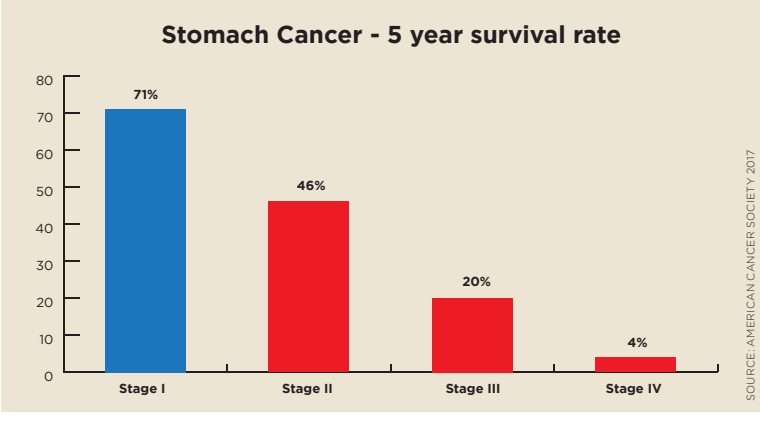
Dr Kan Yuk Man explains how to deal with it

Stomach, or gastric, cancer is the fifth most common cancer in the world, with a higher incidence found in developed countries and in males

In most societies, food is culturally regarded as an important aspect of social interaction. It comes in the form of entertainment, the gift of sharing, and, even for some, a comfort tool. What we eat is what we are. The old adage, "the way to a man's heart is through his stomach", is still so true today whether you're young or old, child or adult, woman or man. The stomach, which is the organ between the oesophagus and the small intestines, is where the process of digestion first begins. Eating for most people is a joyful activity, but when the process goes wrong and cancer develops in the stomach, the outcome can be very poor.

Stomach, or gastric, cancer is the fifth most common cancer in the world, with a higher incidence found in developed countries and in males. When first diagnosed, in most cases, the cancer has already spread to different parts of the body. The prognosis is very poor, and a cure is impossible. It's generally a death sentence, with over 800,000 deaths reported annually worldwide. While it can be cured if it's diagnosed at an early stage, 79 percent of people who are first diagnosed already have Stage 4 cancer, i.e., the cancer has spread to other parts of the body. Within five years, less than four percent of people with stage 4 stomach cancer are alive, with 96 percent having died from it regardless of age or health.

Symptoms of stomach cancer can be very subtle. Early cancer can be completely asymptomatic, but the patient can also experience a wide range of symptoms, from simple mild gastritis or heartburn to more sinister signs, such as persistent nausea and vomiting, unexplained weight loss, loss of appetite, dysphagia (difficulty swallowing), bleeding that leads to black smelly stools (melaena), stomach pains, poor digestion, and vomiting blood (heamatemesis).



5-yr survival of stomach cancer after treatment (surgery/chemotherapy) according to stage of diseas at time of presentation

What are the risk factors?

The recognised risk factors for developing stomach cancer are the presence of long-term gastritis (atrophic gastritis, intestinal metaplasia, dysplasia), smoking, excess alcohol, personal or family history of cancer, obesity, a sedentary life style, high dietary salt such as salting or pickling of food, a diet with high meat content, and the lack of fresh fruits and vegetables. In 1994, the WHO announced that the presence of the bacteria *helicobactor pylori* in the stomach can induce the development of cancer.

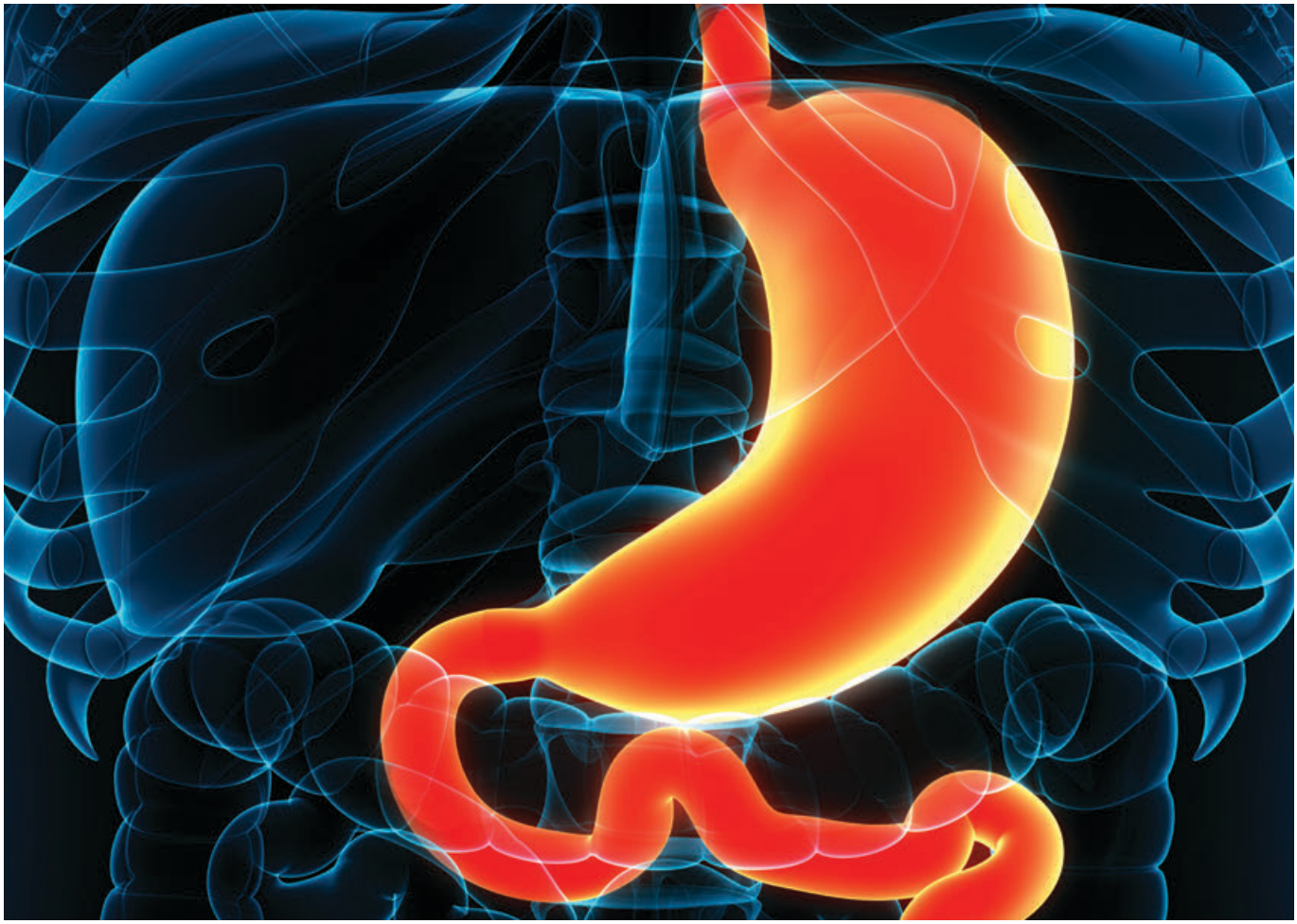
Prevention is always better than cure

In modern medical practice, prevention remains the main goal for any disease, and for stomach cancer this falls into two fronts:

The first is to tackle the risk factors mentioned earlier by adopting good habits, a good diet, and good health, meaning eating healthily with less salt, more fresh fruits, more vegetables, and less meat. STOP SMOKING is a must, as is reducing alcohol intake. Regular exercise and maintaining a healthy weight are also important for cutting the chances of developing stomach and other types of cancers. Eradication of any *helicobactor pylori* infection when it's been detected (blood or stool sampling, breath testing, or directly sampling during gastroscopy) is another key factor in prevention. This is done by using a course of antibiotic therapy.

The second is to identify early changes before transformation of the stomach lining to cancerous cells can occur. Another aim of detection is to discover the cancer at an early stage. Detection is performed by "gastroscopy" which uses a flexible camera placed through the mouth into the stomach. This allows imaging of the lining of the stomach and for biopsies to be taken to examine for cellular changes or *helicobacter pylori* infection.

Those complaining of any of these symptoms or at high risk for stomach cancer should seek a medical assessment and undergo an endoscopy, if deemed necessary. There have been some new developments in the field of early detection with tests to identify the biomarker mRNA (GASTROclear™) in the blood stream for gastric cancer. This is being used as a screening tool and can lead to early detection and survival.



Once detected and the cancer is found to be early, there are two modalities of treatment. The first techniques, EMR (Endoscopic Mucosal Resection) or ESD (Endoscopic Submucosal Dissection), are used when the cancer cells have been found only in the first layer of the stomach lining. They involve a gastroscopy to dissect off the superficial stomach lining where the cancer cells were identified. However, if the cancer has penetrated beyond the first layer, then surgery needs to be performed to remove part or all of the stomach with radical clearance of all the surrounding tissue (lymphatics). This surgery is called D2 Gastrectomy.

Medical treatment with new surgical techniques has come hand in hand with advancements in technology. For instance, keyhole, or laparoscopic, surgery can now be used to remove the stomach. Traditional surgery relied on a large incision, but the minimally invasive keyhole surgery uses a few small holes. By using such small incisions, there's far less trauma and much shorter hospital stays, as well as smaller wounds, faster recovery, less pain, less blood loss, and fewer complications.

After surgery, further treatment may be required in the form of chemotherapy, which will increase the chance of cure and survival. The new field of immunotherapy, where we boost the body's own immune system, is currently used for stage 4 disease, with other promising developments looming on the horizon.

Survival is very much dependent on the stage of the cancer (see graph), and with prevention and early diagnosis, the outcome is far better and ensures the greatest chance of survival with a fruitful and healthy life. This again reiterates the need for awareness, with everyone being vigilant and mindful of any symptoms. Stay healthy and safe.

Dr Kan Yuk Man is a senior consultant surgeon specialised in surgical oncology at Farrer Park Hospital and Mount Elizabeth Hospital in Singapore.

Stages of cancer diagnosis - What they tell you beyond survival rates

Dr Khoo Kei Siong explains how cancer is classified and why it matters

In TNM staging, T describes the size and extent of the main or the primary tumour; N indicates whether the cancer has spread to the nearby lymph nodes; while M tells us whether the cancer has spread to other parts of the body (i.e., metastasis)

The stage of a cancer refers to the anatomical extent of the cancer.

A staging system typically incorporates some or all of the following aspects of a cancer: the size of the tumour, the extent of invasion of the adjacent tissue or organ, whether the cancer has spread to nearby lymph nodes or different parts of the body, and tumour grade, which refers to how abnormal the cancer cells look.

Around the world, TNM staging is the most commonly used cancer staging system.

How cancer stages are determined - the five stages of cancer

TNM staging can be applied to most cancers, with the exception of cancer of the central nervous system (i.e., brain and spinal cord tumours) and blood cancers (i.e., lymphoma and leukaemia).

In TNM staging, T describes the size and extent of the main or the primary tumour; N indicates whether the cancer has spread to the nearby lymph nodes; while M tells us whether the cancer has spread to other parts of the body (i.e., metastasis).

TNM staging describes the stage of a cancer in detail. Different TNM stages of similar prognosis are grouped together into five stages of cancer for ease of communication between doctors:

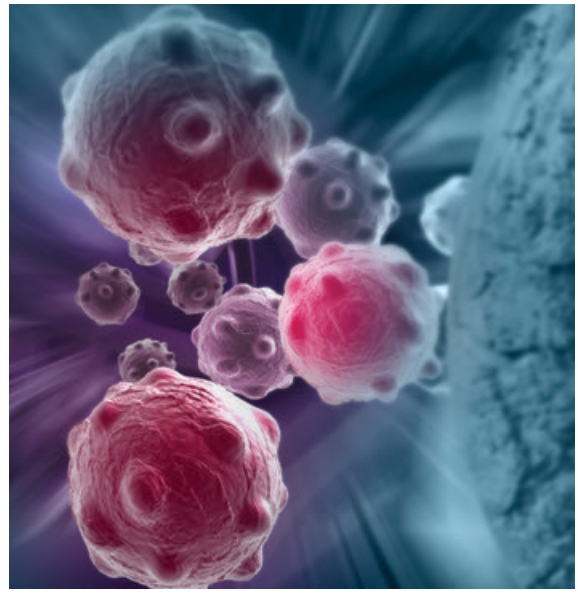
Stage 0 - Cancer that has not yet become invasive (i.e., carcinoma-in-situ). Patients at Stage 0 have excellent prognosis and can often be cured with just surgery alone.

Stage 1 - Almost always a small tumour that is confined to the organ.

Stage 2 - Usually a bigger localised tumour, sometimes with limited involvement of nearby lymph nodes.

Stage 3 - A much larger tumour with more extensive involvement of either the adjacent tissue or lymph nodes, but with no evidence of spread to other parts of the body.

Stage 4 - Cancer that has spread to distant parts of the body.



Clinical staging vs pathological staging

The difference between clinical staging and pathological staging lies mainly in the kind of information taken into account during examinations and pathology.

Clinical staging is based on findings of physical examinations, blood tests, radiological imaging (X-rays, CT scans, MRIs, PET scans, etc.), endoscopy, and any biopsies that are done when the cancer is first diagnosed before any treatment is given. This is a major factor that determines the appropriate treatment option for the patient.

Pathological staging takes into account the findings during surgery and the examination of the tumour specimen by the pathologist in addition to the information gathered from clinical staging. Pathological staging gives additional information for further treatment, such as chemotherapy, hormonal therapy, and radiotherapy.

Beyond survival rates

The stage of the cancer allows doctors to estimate the long-term outcome of the cancer, such as its survival. However, staging also helps doctors and patients

understand how early or advanced the cancer is.

This information is crucial for planning the best and most appropriate treatment. For instance, certain early-stage cancers may require surgery or radiation, while more advanced stages may need different combinations of treatment, such as chemotherapy, targeted therapy, or immunotherapy.

Why do doctors 'restage' cancer?

Typically, a cancer is staged when it's first diagnosed. However, restaging of cancer is also done when there's evidence that the cancer has recurred or relapsed.

Restaging aims to re-evaluate the extent of the recurrence in order to plan for further treatment.

The process and type of tests done for restaging are similar to those performed at the initial staging. However, instead of using stages 1–4, recurrent cancers are usually staged as 'localised' when they're still confined to the original site of tumour, or 'metastatic' when they've spread to distant organs.

Doctors are always learning more about cancer and how best to treat it. As such, staging systems are continually being updated to make them more accurate.

However, this can also be more complex for patients to understand. Different stages may mean different things for patients with different cancers. If you're unsure about the stage of your cancer and what it might mean for you, talk to your doctor and ask them to explain it in a way you can understand.

Dr Khoo Kei Siong is Deputy Medical Director and Senior Consultant in medical oncology at Parkway Cancer Centre in Singapore.

Cancer treatment another casualty of COVID-19

Dr Namita Pandey offers her perspective on cancer care during the pandemic

The global outbreak of COVID-19 has brought about an unprecedented level of disruption to healthcare delivery models. In the context of oncologic or cancer care, clinicians and patients face both the risk of exposure and the potential of transmitting the virus to others, including family members.

Inherent to the diagnosis itself, cancer comes with a burden of uncertainty: prognosis, treatment options and their outcomes, toxicities, and personal and family coping with anxiety. Adding a global pandemic to this milieu of human agony brings inflated levels of uncertainty, resulting in additional distress felt by the patient and caregivers equally. During a pandemic, these unpredictable factors can include how patients respond to treatment, the chance of infections due to treatment-related immune suppression, or risks of long-term recurrence, among others.

Data show that patients admitted with COVID-19–related illnesses have a mortality rate of 14.6 percent among the cohort of patients who had cancer compared to those who did not

Data show that patients admitted with COVID-19–related illnesses have a mortality rate of 14.6 percent among the cohort of patients who had cancer compared to those who did not. Given these outcomes, clinical stakeholders are rapidly developing strategies to safely deliver oncologic treatment with minimal exposure of the patients and the healthcare providers. However, these approaches are in their nascency, while the traditional face-to-face model of care remains significantly altered. As a result, considerable uncertainty still pervades the delivery of cancer treatment to every patient.

Patient-centred innovations, such as telehealth video consultations which have been under discussion for decades, have suddenly gained momentum. Concurrently, clinical investigators continue to explore real-world evidence to understand the implications of this disruptive event in oncology.

The global explosion of COVID-19 patients packing hospital ICUs has impacted the management of cancer patients who sometimes require equally urgent care. It's well recognised that the virus is more severe in elderly patients or patients with co-morbidities. Numerous recommendations have been made for cancer management in the COVID-19 pandemic context, and they vary depending on the number of cases in different countries and available resources. For example, the healthcare system has been modified worldwide to limit human contact, which has affected the delivery of routine cancer care and supportive services. The American College of Surgeons recommends postponing elective surgeries if there are too many COVID-19 cases in the concerned institution. The risk of contracting COVID-19 infection in an otherwise healthy patient with curable cancer outweighs the benefit of cancer treatment. Transition to telemedicine and video consultations has somewhat bridged the gap for outpatient visits, but the challenge of delays in cancer screening due to the pandemic continues.

Another impact of the virus is that the sudden lack of resources and the need to divert workforce resources towards the pandemic has caused hospitals to postpone elective surgeries or limit inpatient admissions.

At the same time, enhanced infection control measures, including viral testing and universal use of personal protective equipment, have placed an increased burden on available medical resources. Reallocation of medical personnel to COVID-19 wards has reduced the number of available oncologic specialists. Additionally, the availability of operating rooms and hospital beds has also decreased. To cope with these changes in resource availability, hospitals have issued a number of mandates that have resulted in cancer detection delays. These include rescheduling of non-emergency appointments, procedure postponements, and imaging (i.e., mammograms) schedule alterations.

The present situation primarily affects the ongoing treatment of cancer, including surgery, chemotherapy, and radiation therapy. Nationwide lockdowns have also limited patients' ability to commute to their healthcare facilities. The concern for otherwise healthy patients with curable cancers who require timely therapy is that the risk of contracting COVID-19 may outweigh the benefits of cancer treatment. A number of patients have expressed apprehension about exposure from healthcare facilities and public transportation. These risks are evident to both patients and medical personnel. Both, therefore, need to consider the risk-to-reward ratio in treatment initiation and management.

Another potential concern is that delays in cancer diagnosis and initiation of care will result in thousands of excess cancer deaths over the next several years. As a result, several international and national organisations have published consensus guidelines for the management of breast cancer during the pandemic outbreak. These guidelines aim to develop

recommendations to mitigate the adverse effects of the pandemic on the early diagnosis and subsequent treatment of breast cancer patients. They also aim to preserve hospital and human resources for COVID-19 positive patients by deferring breast cancer treatments without significantly compromising the outcomes and quality of care for breast cancer patients.

In addition, the guidelines help physicians prioritise patients with higher-risk disease to avoid treatment delays and suggest optimal alternatives, such as delaying cancer-related procedures and surgeries which are deemed elective or restricting non-emergency follow-up visits. It's well known that delays between breast cancer diagnosis and treatment initiation have been related to worse outcomes. However, it's not yet evident how changes in therapy from the standard of care due to the pandemic will affect long-term breast cancer outcomes.

The current understanding of the impact of the COVID-19 pandemic on patients with breast cancer is limited. Data regarding the impact of the pandemic on breast cancer patients, time to treatment initiation, stage at presentation, and treatment sequence are urgently needed to understand these effects. However, these are not readily available from national and international databases. And while such data are important, a recent systematic review and meta-analysis have already proven that delays between breast cancer diagnosis and treatment initiation have been linked to poorer outcomes and increased mortality risks.

The flip side of cancer treatment is that it weakens the body's immune system, making it more susceptible to infections. Cancer patients commonly have multiple risk factors. In immunocompromised patients, COVID-19 can be more severe, which adds to the challenge. Patients with pre-existing cancer are more susceptible and more likely to incur severe complications and death than patients without a cancer diagnosis. Data show that cancer patients appear to have an estimated twofold increased risk of contracting COVID-19 than others. There is therefore a compelling need to address the impact of the pandemic on cancer patients.

There are also growing concerns about potential interactions between breast cancer and COVID-19. Recent studies on the long-term clinical effect of COVID-19 showed a high incidence of persistent symptoms even after recovering from the acute disease, such as ongoing inflammation and weakened autoimmune responses. These lingering post-infection effects further raise concerns about the risks of local or systemic cancer. Ongoing clinical studies that include assessing the long-term effects of COVID-19 on cancer patients will also further clarify the impact of COVID-19 on the risk of pulmonary metastatic recurrence.

Recognising the challenges and complications that the world is facing due to the impact of COVID-19, clinicians are trying to employ practical strategies to help patients, caregivers, and families mitigate the uncertain distress governing their cancer care. They're also stretching beyond their limits and working tirelessly to keep themselves safe while taking care of their patients.

The future effects of COVID-19 on breast cancer patients are still undetermined, but the virus has definitely altered and accelerated changes in healthcare delivery in oncology, including the work of the medical fraternity who continue to struggle to deliver optimal treatment for cancer patients and those infected with the deadly virus.

Dr Namita Pandey is a visiting consultant and breastonco surgeon at Dr L H Hirandani Hospital in India.

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Warm Greetings from Malaysia Healthcare!

It has been over three months since I was entrusted as Chief Executive Officer of Malaysia Healthcare Travel Council, and what a journey it has been thus far. Together with my team, I look forward to playing a bigger and more instrumental role in propelling Malaysia's profile further as the leading global destination for healthcare travel. I am delighted to embrace this new challenge with much honor and optimism, as our team continues to cement itself as the World's Healthcare Marvel, despite the adversities.

A year into the pandemic, our priority remains in forging resilience for the industry – through recovery and rebuild efforts which will steer our path towards providing the best healthcare travel experience by 2025. One of the ways in which we aim to achieve this is by building on our existing offerings and enhancing the Malaysia Healthcare experience through niche branding. A key initiative which we are embarking on is advocating Malaysia as a Cancer Centre of Excellence, which sits well with this edition's theme on oncology.

Strengthening Malaysia's Identity as a Cancer Centre of Excellence

According to the World Health Organization (WHO), cancer is the second leading cause of death globally[1]. Like many other chronic illnesses, cancer requires immediate medical attention and is best to diagnose in the early stages. Treatments for cancer usually cover the span of medical, including surgery and chemotherapy, and post-operative care and therapy.

Over the many years of serving healthcare travellers, Malaysia has built its reputation as a safe and trusted destination for healthcare travel for a variety of treatments, including cancer. Cancer treatments in Malaysia have seen tremendous improvements in terms of upgraded infrastructures, world-class facilities, and more advanced technologies throughout the years. A key milestone for the country was when we welcomed the opening of the country's National Cancer Institute in September 2013, showing the government's commitment in improving the health and wellbeing of cancer patients.

Malaysia's private healthcare sector has also seen positive developments in oncology. Currently, 31 out of 74 of our MHTC member hospitals focus on multiple types of cancer treatments, including breast, lung, nasopharyngeal, colorectal and lymphoma.

In a recent study conducted by The Economist Intelligence Unit (The EIU)[2] Malaysia emerged as the third most prepared country in the Asia Pacific to battle cancer. This further reinforces Malaysia's reputation in oncology, as we work towards establishing ourselves as a Cancer Centre of Excellence. For patients seeking treatment in Malaysia, rest assured that our medical marvels are committed to ensuring you receive the best medical service available and quality care for your peace of mind.

Safety Remains Our Priority

Prior to the pandemic, Malaysia had already established itself as a leading destination for healthcare travellers. Medical facilities and healthcare destinations alike will have to arm themselves with SOPs and the necessary infrastructure to support and deliver a much safer healthcare journey experience to communicate the assurance of patient safety from arrival, throughout treatment, and upon returning home.

Ultimately, the safety of our patients and community remains our priority. Whilst some countries are going back to normalcy as COVID-19 cases have subdued, others like Malaysia, are slowly but surely fighting this battle. No matter where each of us stand, I urge all of you to remain vigilant. Together, let us do our part in flattening the curve.

Thank you.

Mohd Daud Mohd Arif
Chief Executive Officer
Malaysia Healthcare Travel Council

1 https://www.who.int/health-topics/cancer#tab=tab_1
2 https://says.com/my/news/report-malaysia-is-the-3rd-most-prepared-country-in-asia-pacific-to-battle-cancer

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